Summary for Subcatchment 2S: DA-2

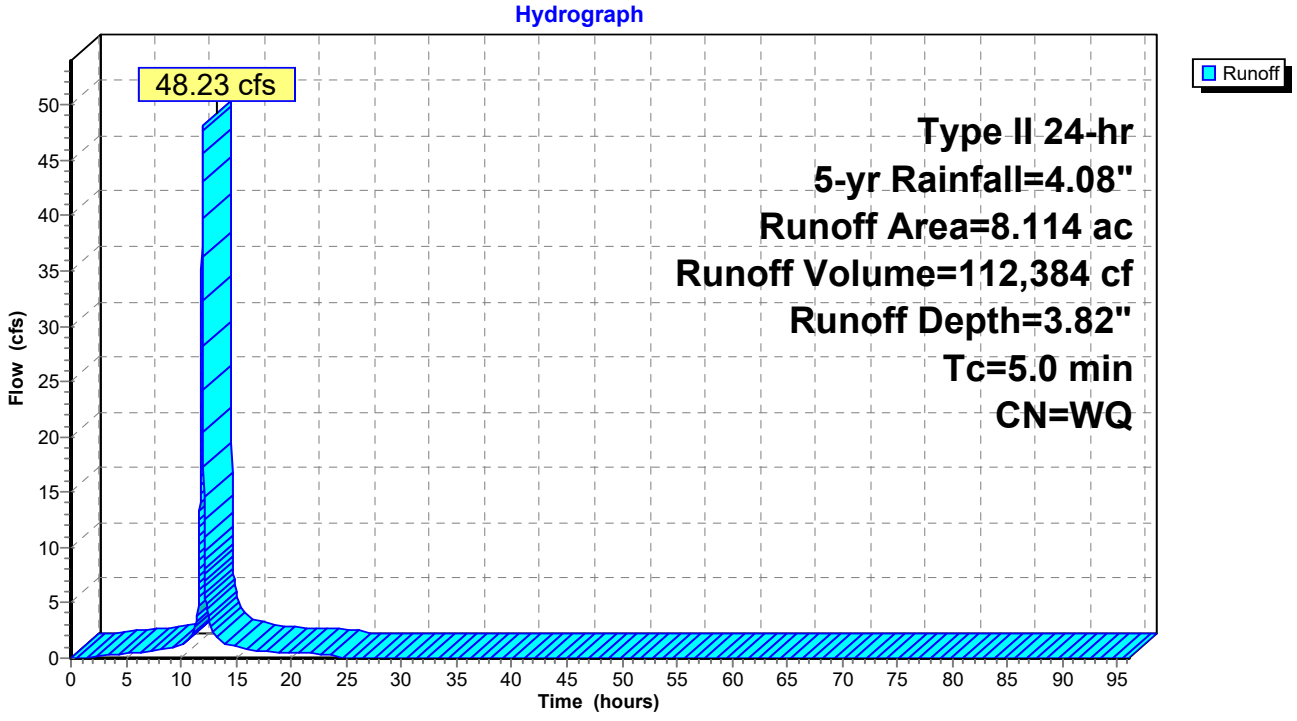
Runoff = 48.23 cfs @ 11.96 hrs, Volume= 112,384 cf, Depth= 3.82"
Routed to Pond 2P : SCM 2: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

Area (ac)	CN	Description
0.137	80	>75% Grass cover, Good, HSG D
7.977	98	Paved parking, HSG D
8.114		Weighted Average
0.137		1.69% Pervious Area
7.977		98.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: DA-2



Summary for Subcatchment 3B: Bypass to POA #3

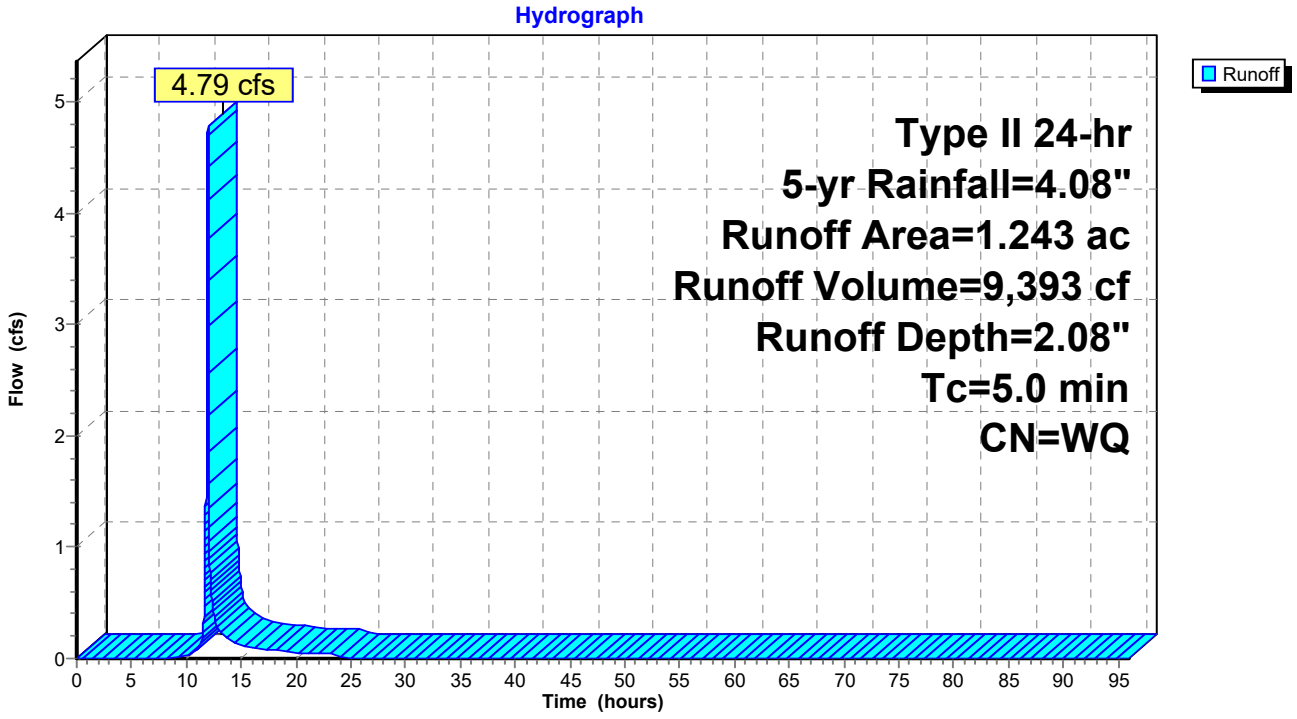
Runoff = 4.79 cfs @ 11.96 hrs, Volume= 9,393 cf, Depth= 2.08"
Routed to Link POA3 : POA #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

Area (ac)	CN	Description
0.072	74	>75% Grass cover, Good, HSG C
1.171	80	>75% Grass cover, Good, HSG D
1.243		Weighted Average
1.243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3B: Bypass to POA #3



Summary for Subcatchment 3S: DA-3

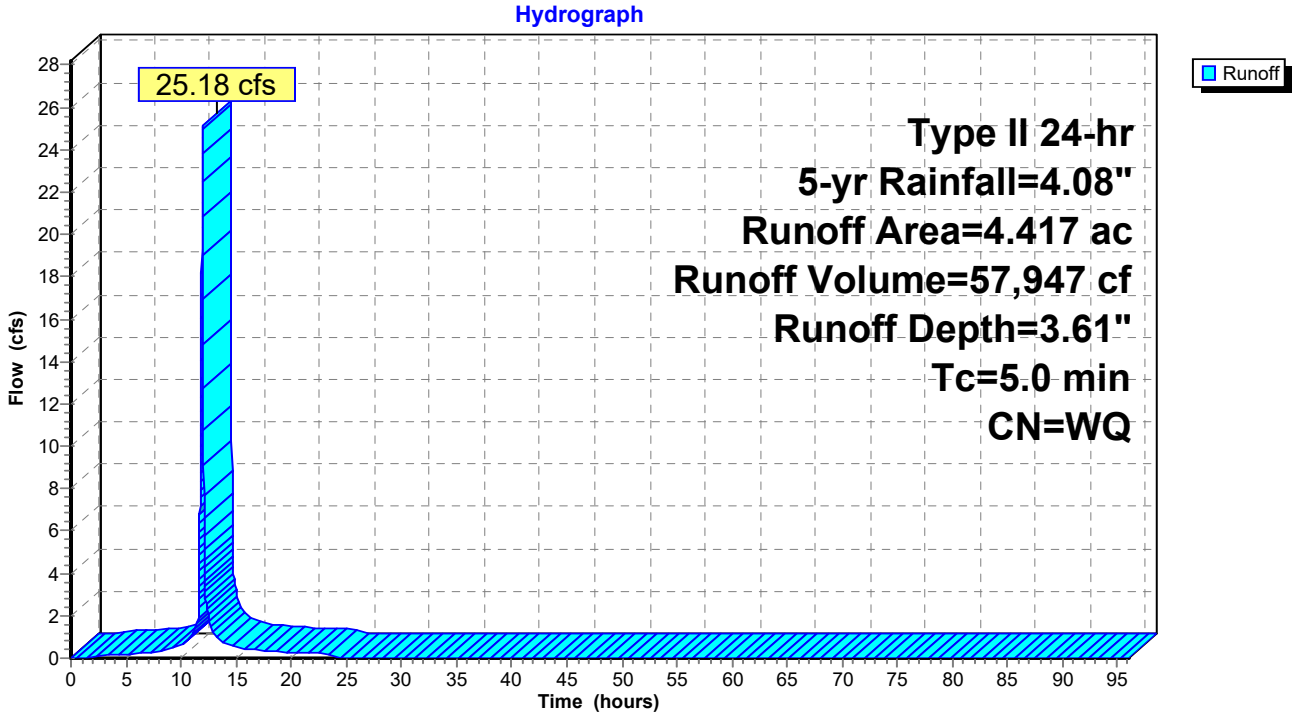
Runoff = 25.18 cfs @ 11.96 hrs, Volume= 57,947 cf, Depth= 3.61"
Routed to Pond 3P : SCM 3: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

Area (ac)	CN	Description
0.587	80	>75% Grass cover, Good, HSG D
3.830	98	Paved parking, HSG D
4.417		Weighted Average
0.587		13.29% Pervious Area
3.830		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: DA-3



Summary for Subcatchment 4S: DA-4

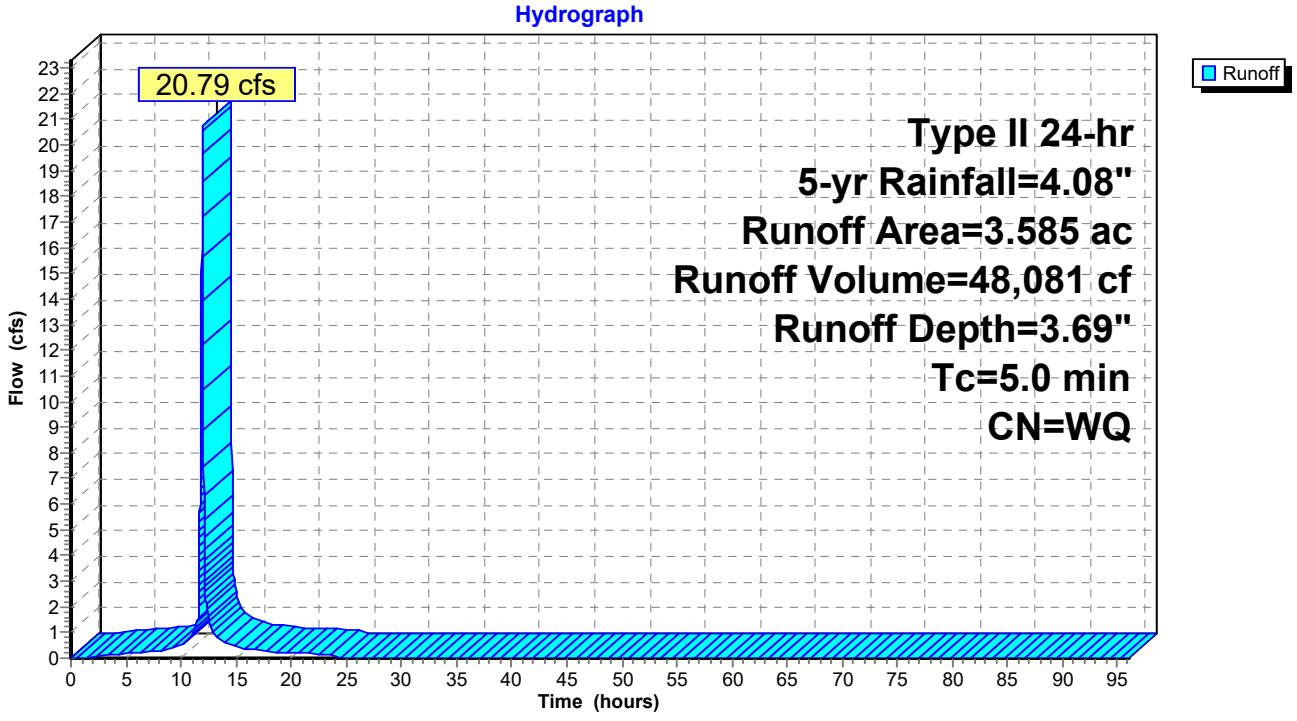
Runoff = 20.79 cfs @ 11.96 hrs, Volume= 48,081 cf, Depth= 3.69"
Routed to Pond 4P : SCM 4: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

Area (ac)	CN	Description
0.310	80	>75% Grass cover, Good, HSG D
3.275	98	Paved parking, HSG D
3.585		Weighted Average
0.310		8.65% Pervious Area
3.275		91.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: DA-4



Summary for Subcatchment 5S: DA-5

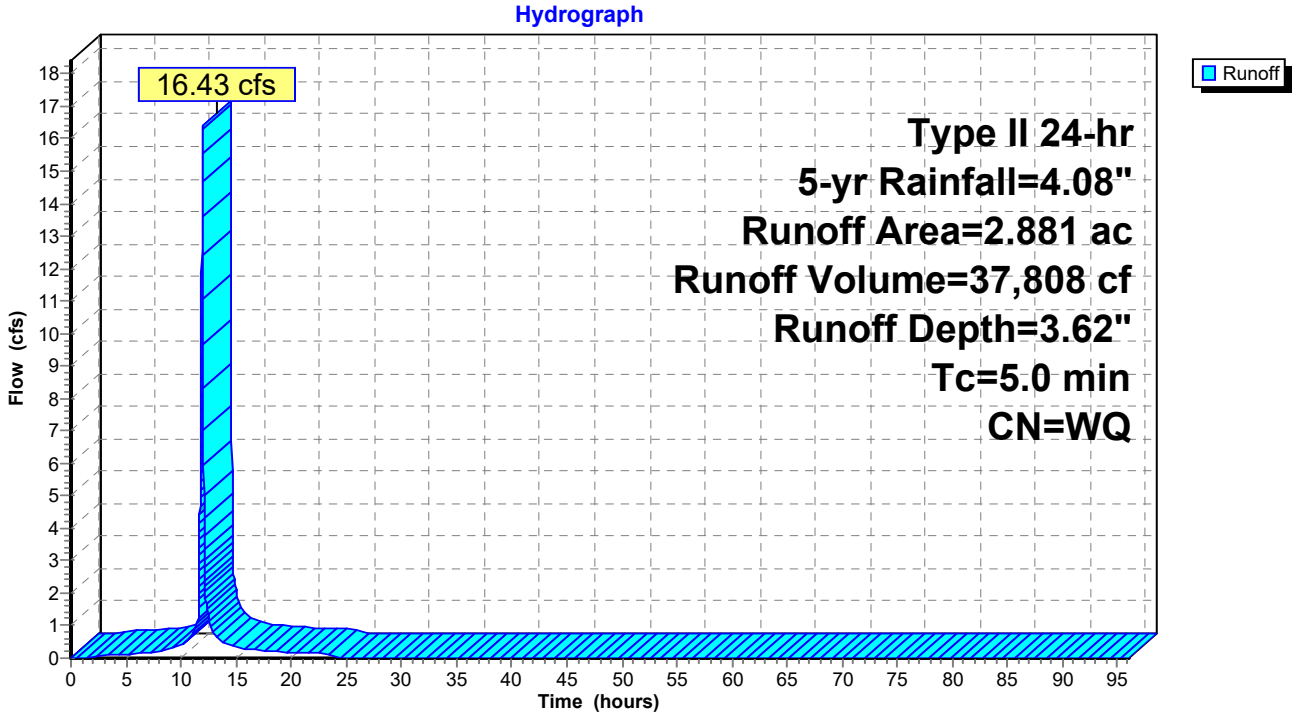
Runoff = 16.43 cfs @ 11.96 hrs, Volume= 37,808 cf, Depth= 3.62"
Routed to Pond 5P : SCM 5: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

Area (ac)	CN	Description
0.381	80	>75% Grass cover, Good, HSG D
2.500	98	Paved parking, HSG D
2.881		Weighted Average
0.381		13.22% Pervious Area
2.500		86.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: DA-5



Summary for Subcatchment 6S: DA-6

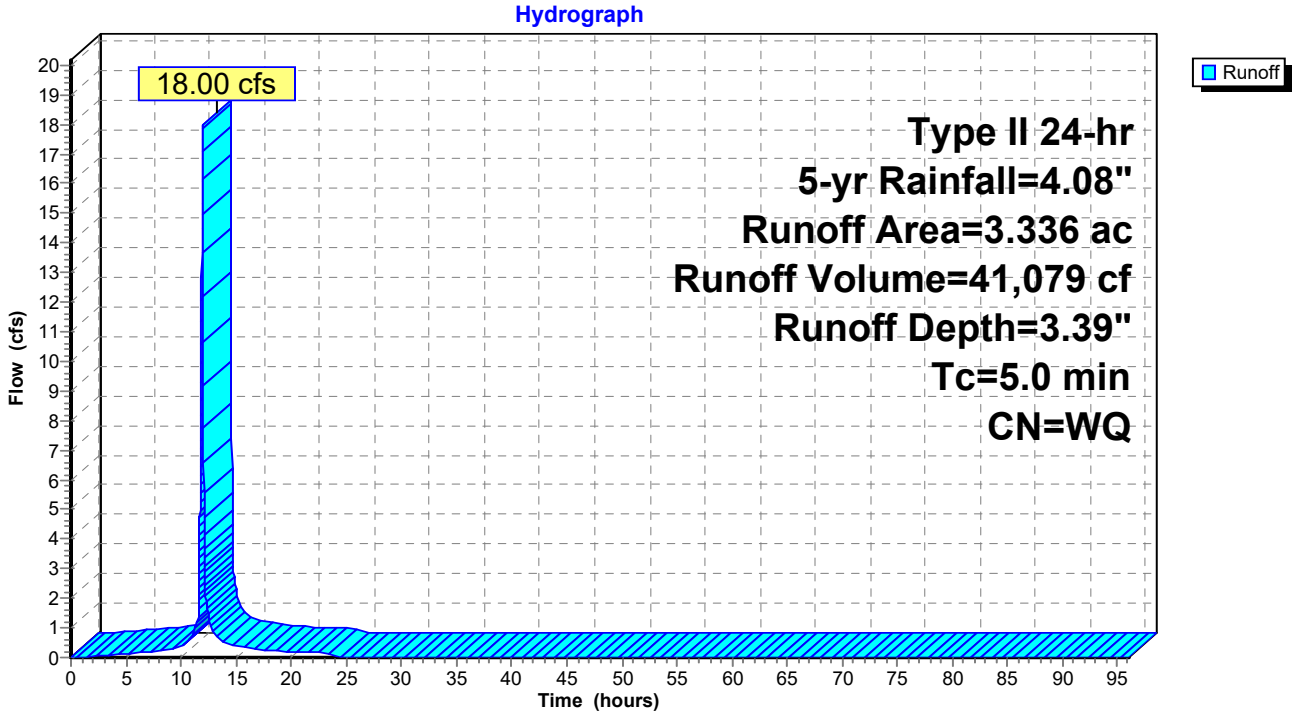
Runoff = 18.00 cfs @ 11.96 hrs, Volume= 41,079 cf, Depth= 3.39"
Routed to Pond 6P : SCM 6: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

Area (ac)	CN	Description
0.255	74	>75% Grass cover, Good, HSG C
0.084	70	Woods, Good, HSG C
0.328	80	>75% Grass cover, Good, HSG D
2.580	98	Paved parking, HSG D
0.089	77	Woods, Good, HSG D
3.336		Weighted Average
0.756		22.66% Pervious Area
2.580		77.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: DA-6



Summary for Subcatchment 7S: DA-7

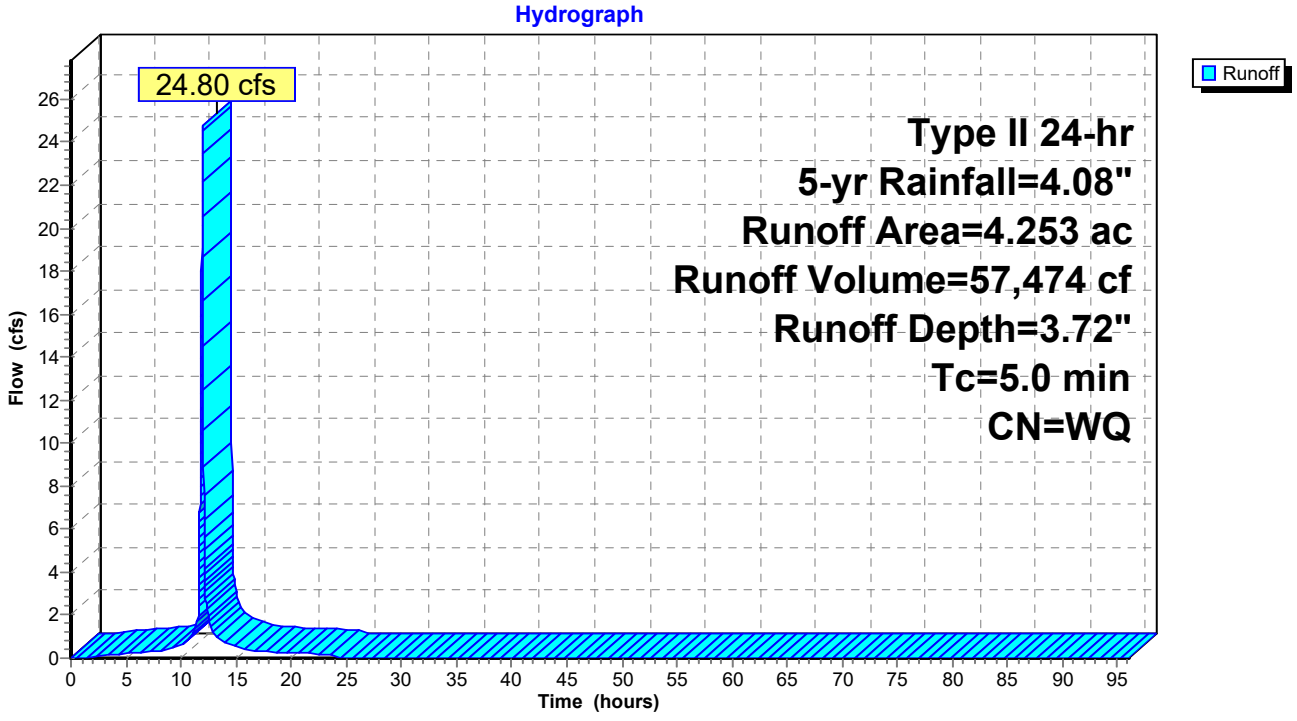
Runoff = 24.80 cfs @ 11.96 hrs, Volume= 57,474 cf, Depth= 3.72"
Routed to Pond 7P : SCM 7: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

Area (ac)	CN	Description
0.299	80	>75% Grass cover, Good, HSG D
3.954	98	Paved parking, HSG D
4.253		Weighted Average
0.299		7.03% Pervious Area
3.954		92.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: DA-7



Summary for Subcatchment 8S: DA-8

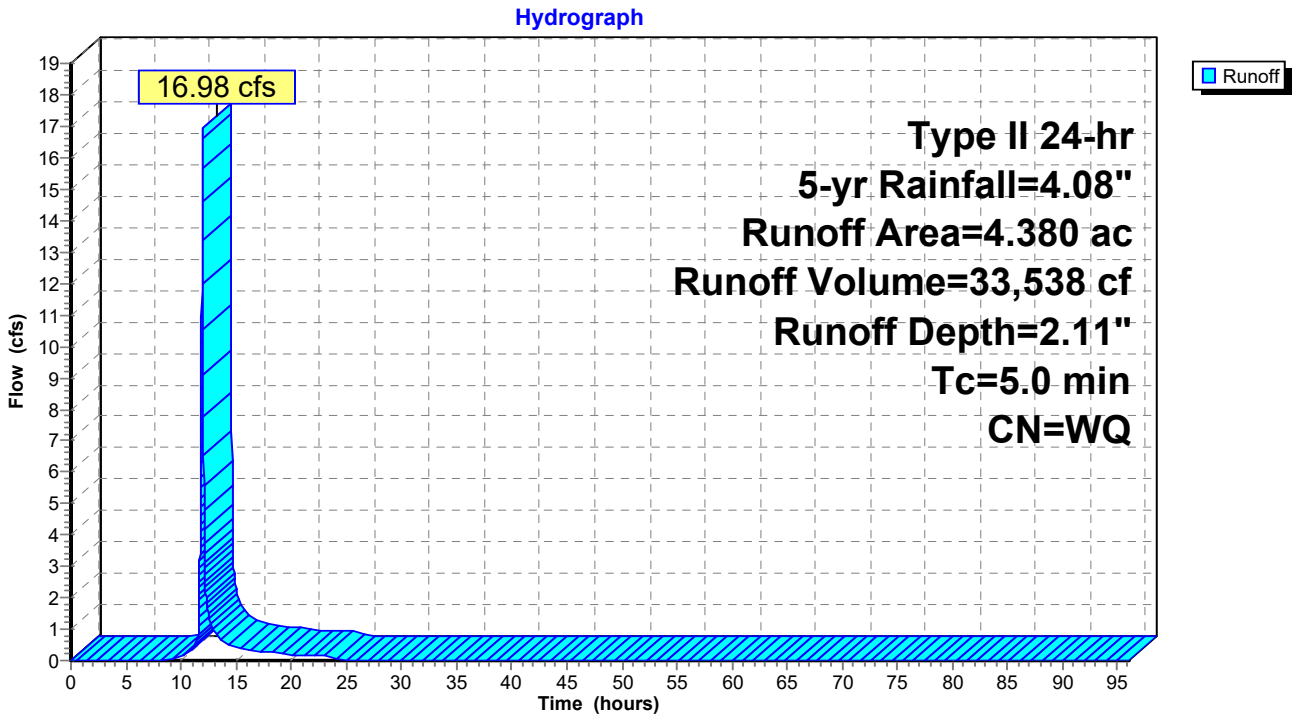
Runoff = 16.98 cfs @ 11.96 hrs, Volume= 33,538 cf, Depth= 2.11"
Routed to Link POA1 : POA #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

Area (ac)	CN	Description
3.905	80	>75% Grass cover, Good, HSG D
0.374	74	>75% Grass cover, Good, HSG C
0.101	98	Paved parking, HSG D
4.380		Weighted Average
4.279		97.69% Pervious Area
0.101		2.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DA-8



Summary for Pond 1P: SCM 1: Infiltration AGB

Inflow Area = 293,551 sf, 72.10% Impervious, Inflow Depth = 3.35" for 5-yr event
Inflow = 36.18 cfs @ 11.96 hrs, Volume= 81,838 cf
Outflow = 0.72 cfs @ 15.42 hrs, Volume= 81,841 cf, Atten= 98%, Lag= 207.7 min
Discarded = 0.24 cfs @ 15.42 hrs, Volume= 67,014 cf
Primary = 0.48 cfs @ 15.42 hrs, Volume= 14,827 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 276.04' @ 15.42 hrs Surf.Area= 28,961 sf Storage= 55,029 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,611.3 min (2,372.0 - 760.7)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	186,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

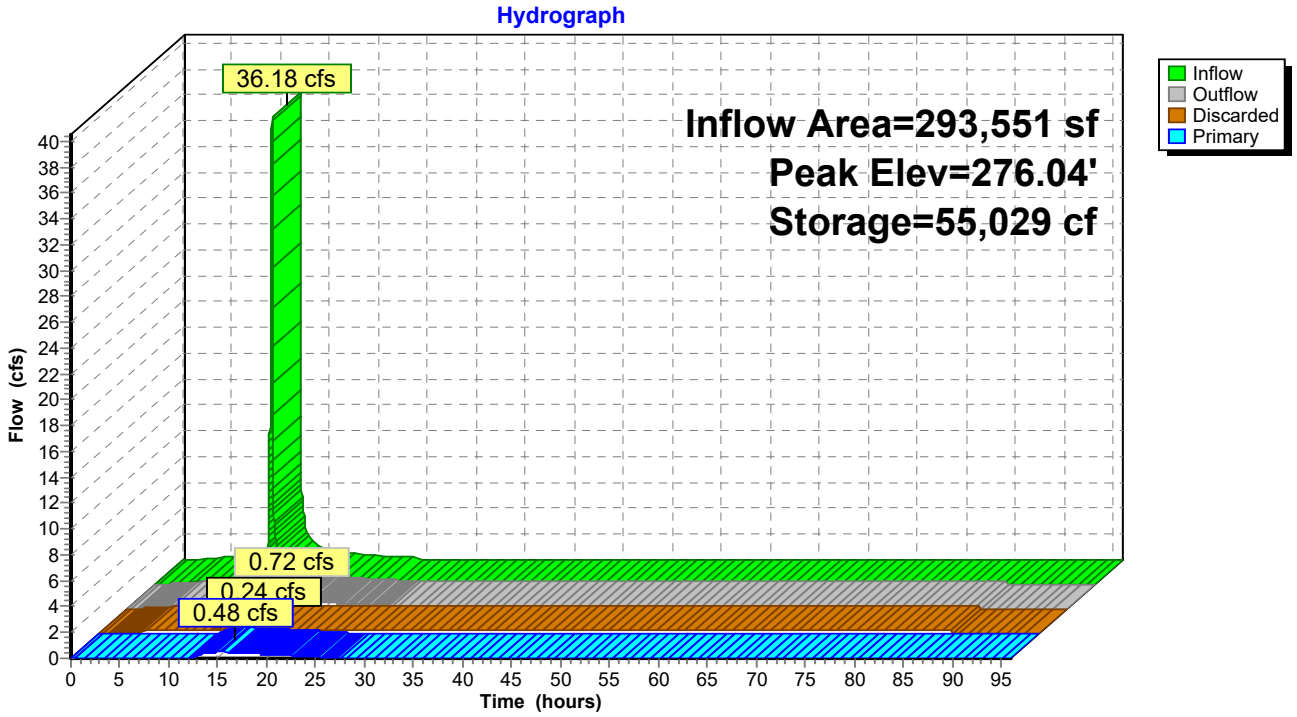
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	24,939	0	0
275.00	26,877	25,908	25,908
276.00	28,873	27,875	53,783
277.00	30,924	29,899	83,682
278.00	33,033	31,979	115,660
279.00	35,197	34,115	149,775
280.00	37,419	36,308	186,083

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.00'	**0.353 in/hr Exfiltration over Surface area**
#2	Primary	274.00'	**30.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 274.00' / 272.00' S= 0.0385 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#3	Device 2	275.75'	**12.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	276.25'	**24.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	277.00'	**24.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	277.50'	**24.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.24 cfs @ 15.42 hrs HW=276.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=0.48 cfs @ 15.42 hrs HW=276.04' TW=0.00' (Dynamic Tailwater)
├**2=Culvert** (Passes 0.48 cfs of 20.90 cfs potential flow)
│ ├**3=Orifice/Grate** (Orifice Controls 0.48 cfs @ 1.92 fps)
│ ├**4=Orifice/Grate** (Controls 0.00 cfs)
│ └**5=Orifice/Grate** (Controls 0.00 cfs)
└**6=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: SCM 1: Infiltration AGB



Summary for Pond 2P: SCM 2: Detention UGB

Inflow Area = 353,446 sf, 98.31% Impervious, Inflow Depth = 3.82" for 5-yr event
Inflow = 48.23 cfs @ 11.96 hrs, Volume= 112,384 cf
Outflow = 9.33 cfs @ 12.10 hrs, Volume= 112,244 cf, Atten= 81%, Lag= 8.9 min
Primary = 9.33 cfs @ 12.10 hrs, Volume= 112,244 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 270.96' @ 12.10 hrs Surf.Area= 30,988 sf Storage= 48,342 cf

Plug-Flow detention time= 130.9 min calculated for 112,232 cf (100% of inflow)
Center-of-Mass det. time= 130.5 min (877.9 - 747.4)

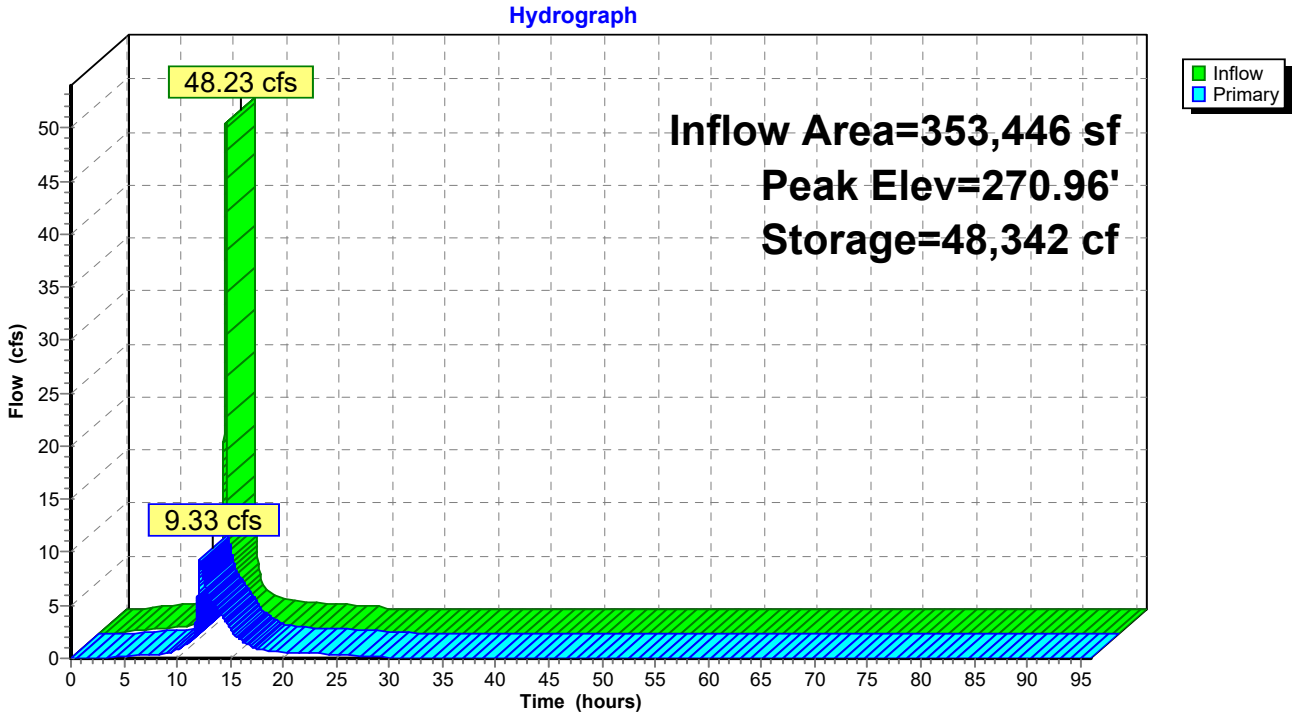
Volume	Invert	Avail.Storage	Storage Description
#1A	268.75'	41,546 cf	**63.75'W x 486.09'L x 5.50'H Field A** 170,435 cf Overall - 66,569 cf Embedded = 103,866 cf x 40.0% Voids
#2A	269.50'	66,569 cf	**ADS_StormTech MC-3500 d +Cap**x 603 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 603 Chambers in 9 Rows Cap Storage= 14.9 cf x 2 x 9 rows = 268.2 cf
		108,116 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	268.75'	**36.0" Round Outlet Pipe** L= 112.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 268.75' / 268.25' S= 0.0045 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	268.75'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	269.25'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	270.50'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	271.75'	**42.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	272.50'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=9.33 cfs @ 12.10 hrs HW=270.96' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 9.33 cfs of 20.68 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.02 cfs @ 6.95 fps)
  ├─**3=Orifice** (Orifice Controls 5.81 cfs @ 5.81 fps)
  ├─**4=Orifice** (Orifice Controls 2.50 cfs @ 2.17 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: SCM 2: Detention UGB



Summary for Pond 3P: SCM 3: Detention UGB

Inflow Area = 192,405 sf, 86.71% Impervious, Inflow Depth = 3.61" for 5-yr event
Inflow = 25.18 cfs @ 11.96 hrs, Volume= 57,947 cf
Outflow = 9.14 cfs @ 12.06 hrs, Volume= 57,908 cf, Atten= 64%, Lag= 6.2 min
Primary = 9.14 cfs @ 12.06 hrs, Volume= 57,908 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 273.80' @ 12.06 hrs Surf.Area= 16,811 sf Storage= 21,656 cf

Plug-Flow detention time= 87.4 min calculated for 57,902 cf (100% of inflow)
Center-of-Mass det. time= 87.3 min (840.2 - 752.9)

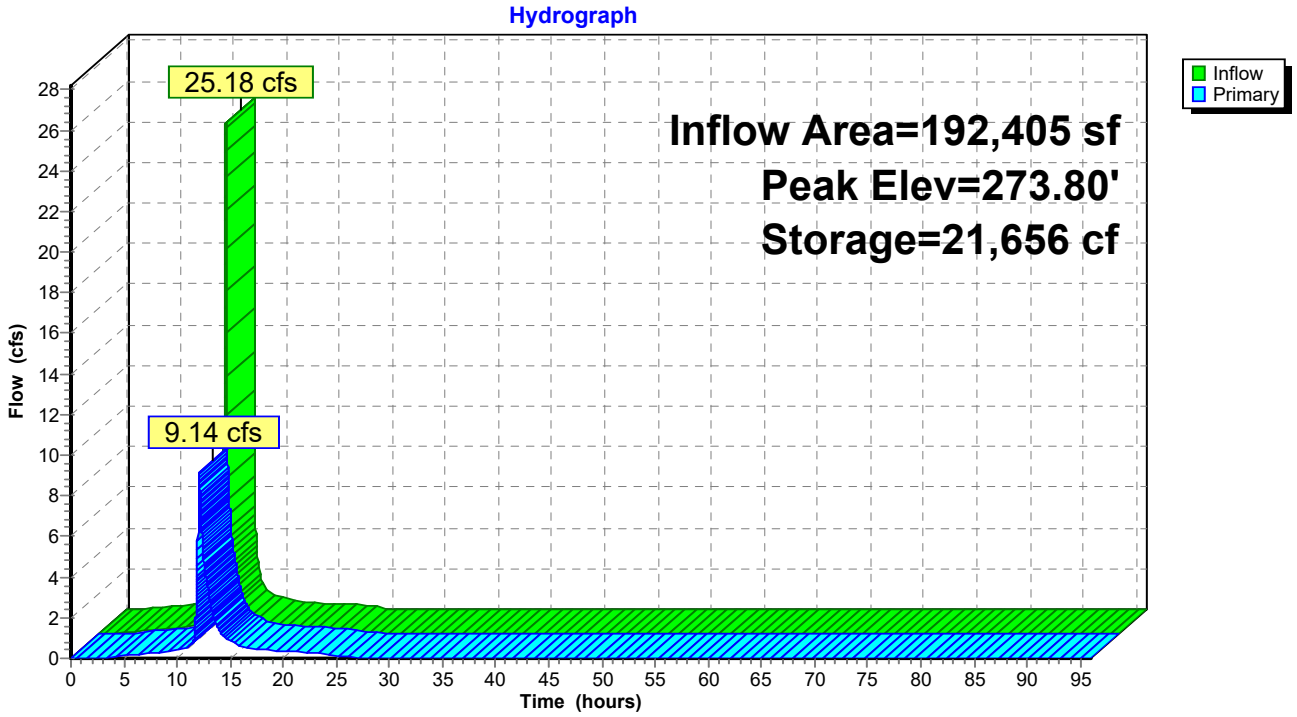
Volume	Invert	Avail.Storage	Storage Description
#1A	272.00'	15,071 cf	**46.75'W x 359.60'L x 3.75'H Field A** 63,042 cf Overall - 25,365 cf Embedded = 37,678 cf x 40.0% Voids
#2A	272.50'	25,365 cf	**ADS_StormTech SC-800 +Cap** x 500 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 500 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		40,436 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	272.00'	**36.0" Round Outlet Pipe** L= 628.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 272.00' / 268.25' S= 0.0060 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	272.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	272.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	273.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	274.50'	**42.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	275.25'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=9.14 cfs @ 12.06 hrs HW=273.80' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 9.14 cfs of 16.00 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.92 cfs @ 6.24 fps)
  ├─**3=Orifice** (Orifice Controls 4.93 cfs @ 4.93 fps)
  ├─**4=Orifice** (Orifice Controls 3.29 cfs @ 2.38 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: SCM 3: Detention UGB



Summary for Pond 4P: SCM 4: Detention UGB

Inflow Area = 156,163 sf, 91.35% Impervious, Inflow Depth = 3.69" for 5-yr event
Inflow = 20.79 cfs @ 11.96 hrs, Volume= 48,081 cf
Outflow = 6.60 cfs @ 12.07 hrs, Volume= 48,040 cf, Atten= 68%, Lag= 6.7 min
Primary = 6.60 cfs @ 12.07 hrs, Volume= 48,040 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 274.32' @ 12.07 hrs Surf.Area= 20,685 sf Storage= 16,626 cf

Plug-Flow detention time= 81.1 min calculated for 48,035 cf (100% of inflow)
Center-of-Mass det. time= 80.9 min (831.5 - 750.6)

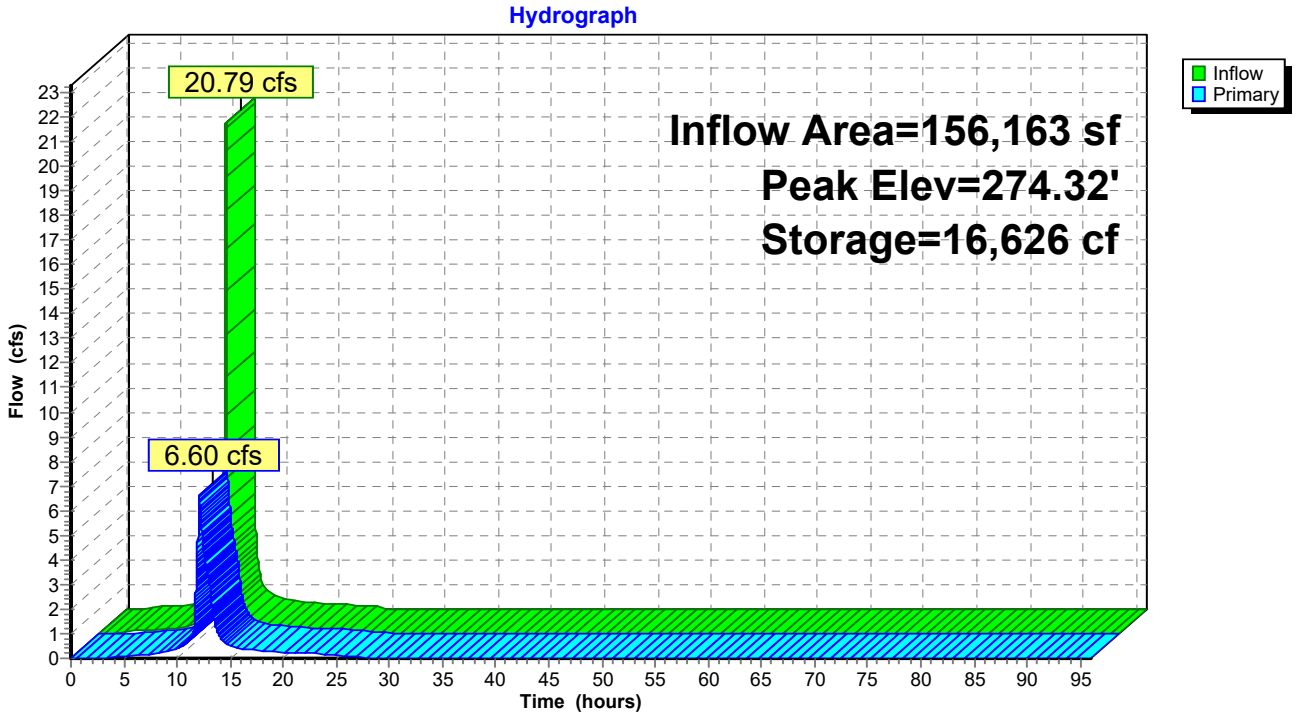
Volume	Invert	Avail.Storage	Storage Description
#1A	273.00'	27,875 cf	**49.92'W x 414.39'L x 5.50'H Field A** 113,767 cf Overall - 44,079 cf Embedded = 69,688 cf x 40.0% Voids
#2A	273.75'	44,079 cf	**ADS_StormTech MC-3500 d +Cap** x 399 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 399 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		71,955 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	**36.0" Round Outlet Pipe** L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 273.00' / 269.00' S= 0.0381 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	273.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	273.25'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	274.00'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	274.75'	**42.0" W x 4.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	275.09'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=6.60 cfs @ 12.07 hrs HW=274.32' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 6.60 cfs of 9.28 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.78 cfs @ 5.27 fps)
  ├─**3=Orifice** (Orifice Controls 4.35 cfs @ 4.35 fps)
  ├─**4=Orifice** (Orifice Controls 1.47 cfs @ 1.82 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: SCM 4: Detention UGB



Summary for Pond 5P: SCM 5: Detention UGB

Inflow Area = 125,496 sf, 86.78% Impervious, Inflow Depth = 3.62" for 5-yr event
Inflow = 16.43 cfs @ 11.96 hrs, Volume= 37,808 cf
Outflow = 8.99 cfs @ 12.03 hrs, Volume= 37,798 cf, Atten= 45%, Lag= 4.7 min
Primary = 8.99 cfs @ 12.03 hrs, Volume= 37,798 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 278.29' @ 12.03 hrs Surf.Area= 8,494 sf Storage= 10,821 cf

Plug-Flow detention time= 47.0 min calculated for 37,798 cf (100% of inflow)
Center-of-Mass det. time= 46.8 min (799.6 - 752.8)

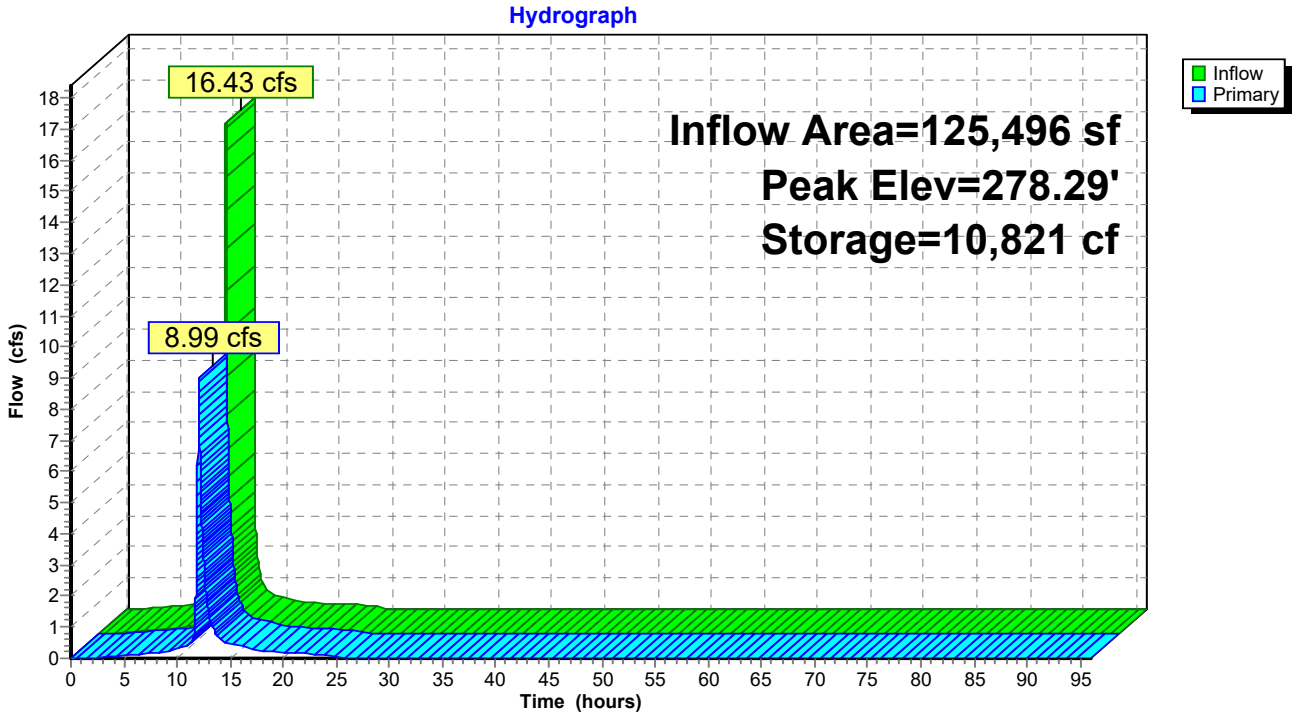
Volume	Invert	Avail.Storage	Storage Description
#1A	276.50'	7,654 cf	**46.75'W x 181.68'L x 3.75'H Field A** 31,851 cf Overall - 12,716 cf Embedded = 19,135 cf x 40.0% Voids
#2A	277.00'	12,716 cf	**ADS_StormTech SC-800 +Cap** x 250 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 250 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		20,370 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	276.50'	**36.0" Round Outlet Pipe** L= 900.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 276.50' / 269.00' S= 0.0083 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	276.50'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	277.00'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	277.75'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.00'	**36.0" W x 4.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	279.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=8.98 cfs @ 12.03 hrs HW=278.29' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 8.98 cfs of 15.79 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.91 cfs @ 6.21 fps)
  ├─**3=Orifice** (Orifice Controls 4.89 cfs @ 4.89 fps)
  ├─**4=Orifice** (Orifice Controls 3.17 cfs @ 2.36 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5P: SCM 5: Detention UGB



Summary for Pond 6P: SCM 6: Detention UGB

Inflow Area = 145,316 sf, 77.34% Impervious, Inflow Depth = 3.39" for 5-yr event
Inflow = 18.00 cfs @ 11.96 hrs, Volume= 41,079 cf
Outflow = 7.51 cfs @ 12.05 hrs, Volume= 41,063 cf, Atten= 58%, Lag= 5.7 min
Primary = 7.51 cfs @ 12.05 hrs, Volume= 41,063 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 281.66' @ 12.05 hrs Surf.Area= 11,821 sf Storage= 13,842 cf

Plug-Flow detention time= 65.8 min calculated for 41,063 cf (100% of inflow)
Center-of-Mass det. time= 65.5 min (823.1 - 757.6)

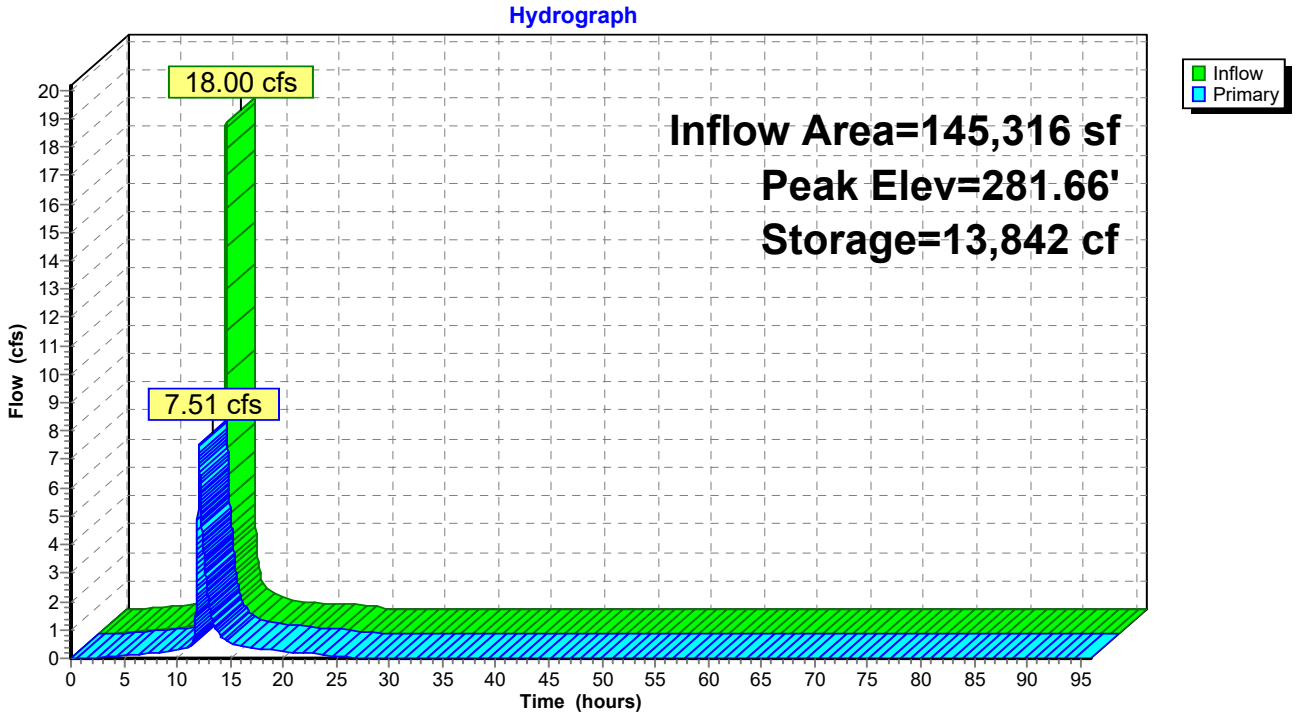
Volume	Invert	Avail.Storage	Storage Description
#1A	280.00'	10,621 cf	**46.75'W x 252.85'L x 3.75'H Field A** 44,328 cf Overall - 17,776 cf Embedded = 26,552 cf x 40.0% Voids
#2A	280.50'	17,776 cf	**ADS_StormTech SC-800 +Cap** x 350 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 350 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		28,397 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	280.00'	**36.0" Round Outlet Pipe** L= 800.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 280.00' / 271.00' S= 0.0112 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	280.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	281.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	282.50'	**42.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	283.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=7.51 cfs @ 12.05 hrs HW=281.65' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 7.51 cfs of 13.82 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.88 cfs @ 5.96 fps)
  ├─**3=Orifice** (Orifice Controls 4.57 cfs @ 4.57 fps)
  ├─**4=Orifice** (Orifice Controls 2.07 cfs @ 2.04 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6P: SCM 6: Detention UGB



Summary for Pond 7P: SCM 7: Detention UGB

Inflow Area = 185,261 sf, 92.97% Impervious, Inflow Depth = 3.72" for 5-yr event
Inflow = 24.80 cfs @ 11.96 hrs, Volume= 57,474 cf
Outflow = 8.37 cfs @ 12.06 hrs, Volume= 57,442 cf, Atten= 66%, Lag= 6.5 min
Primary = 8.37 cfs @ 12.06 hrs, Volume= 57,442 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 274.73' @ 12.06 hrs Surf.Area= 18,180 sf Storage= 21,043 cf

Plug-Flow detention time= 85.8 min calculated for 57,442 cf (100% of inflow)
Center-of-Mass det. time= 85.4 min (835.2 - 749.8)

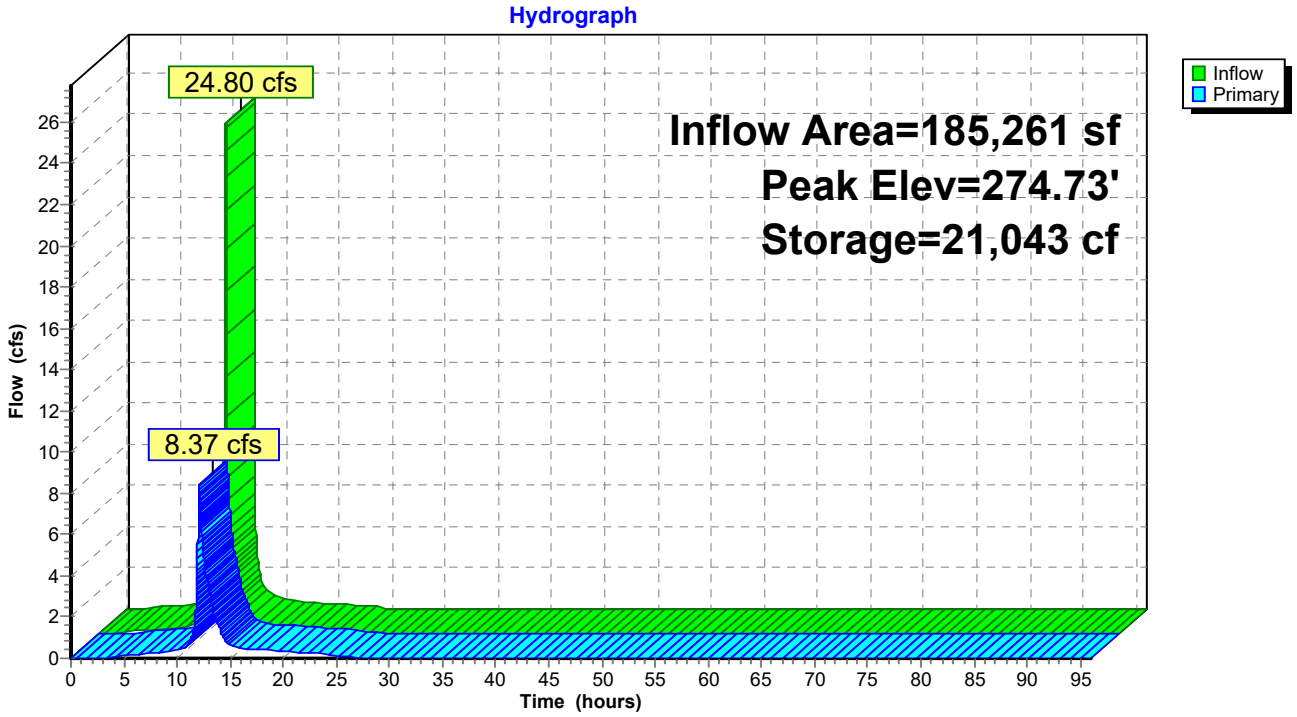
Volume	Invert	Avail.Storage	Storage Description
#1A	273.00'	24,519 cf	**49.92'W x 364.20'L x 5.50'H Field A** 99,988 cf Overall - 38,692 cf Embedded = 61,296 cf x 40.0% Voids
#2A	273.75'	38,692 cf	**ADS_StormTech MC-3500 d +Cap** x 350 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 350 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		63,210 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	**36.0" Round Outlet Pipe** L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 273.00' / 271.00' S= 0.0190 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	273.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	273.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	274.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	275.50'	**42.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	276.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=8.37 cfs @ 12.06 hrs HW=274.73' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 8.37 cfs of 14.99 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.90 cfs @ 6.11 fps)
  ├─**3=Orifice** (Orifice Controls 4.76 cfs @ 4.76 fps)
  ├─**4=Orifice** (Orifice Controls 2.71 cfs @ 2.23 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7P: SCM 7: Detention UGB

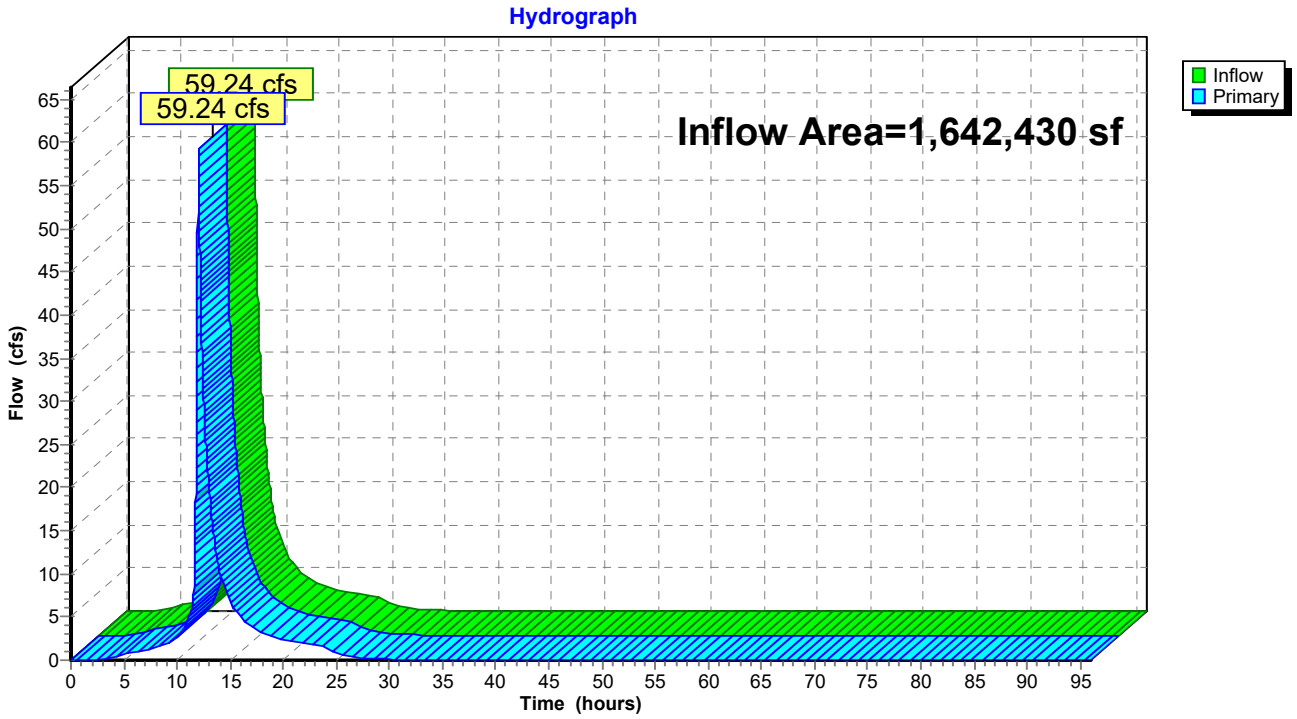


Summary for Link POA1: POA #1

Inflow Area = 1,642,430 sf, 77.11% Impervious, Inflow Depth = 2.94" for 5-yr event
Inflow = 59.24 cfs @ 12.02 hrs, Volume= 402,860 cf
Primary = 59.24 cfs @ 12.02 hrs, Volume= 402,860 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA1: POA #1

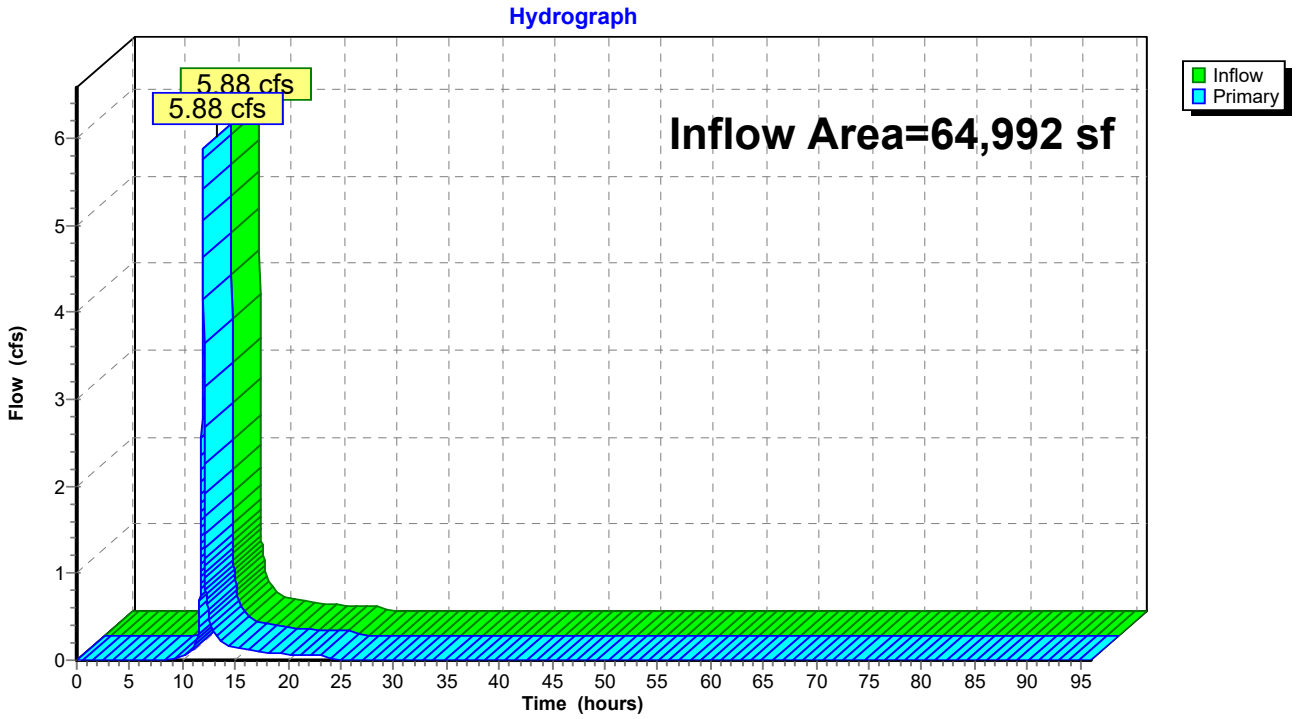


Summary for Link POA2: POA #2

Inflow Area = 64,992 sf, 2.01% Impervious, Inflow Depth = 2.14" for 5-yr event
Inflow = 5.88 cfs @ 11.96 hrs, Volume= 11,606 cf
Primary = 5.88 cfs @ 11.96 hrs, Volume= 11,606 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA2: POA #2

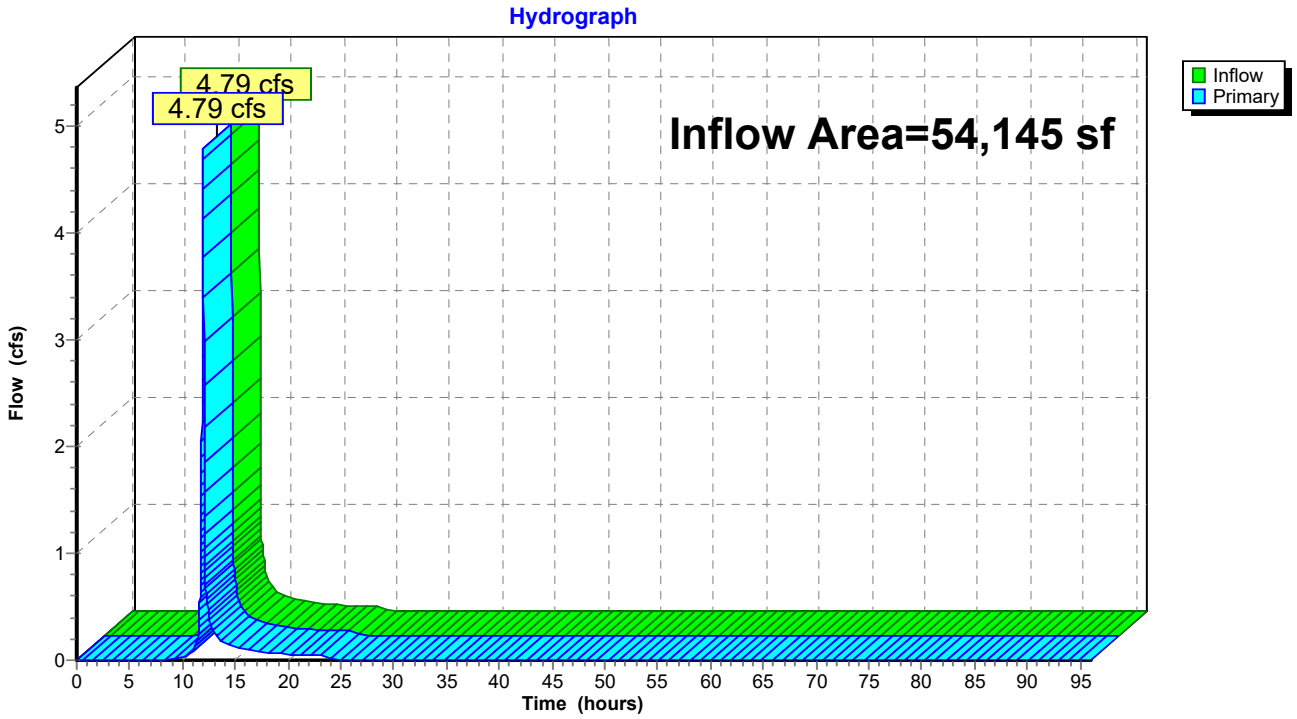


Summary for Link POA3: POA #3

Inflow Area = 54,145 sf, 0.00% Impervious, Inflow Depth = 2.08" for 5-yr event
Inflow = 4.79 cfs @ 11.96 hrs, Volume= 9,393 cf
Primary = 4.79 cfs @ 11.96 hrs, Volume= 9,393 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA3: POA #3



Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: DA-1 Runoff Area=6.739 ac 72.10% Impervious Runoff Depth=4.00"
Tc=5.0 min CN=WQ Runoff=43.11 cfs 97,931 cf

Subcatchment2B: Bypass to POA #2 Runoff Area=1.492 ac 2.01% Impervious Runoff Depth=2.73"
Tc=5.0 min CN=WQ Runoff=7.44 cfs 14,787 cf

Subcatchment2S: DA-2 Runoff Area=8.114 ac 98.31% Impervious Runoff Depth=4.50"
Tc=5.0 min CN=WQ Runoff=56.55 cfs 132,615 cf

Subcatchment3B: Bypass to POA #3 Runoff Area=1.243 ac 0.00% Impervious Runoff Depth=2.66"
Tc=5.0 min CN=WQ Runoff=6.08 cfs 12,018 cf

Subcatchment3S: DA-3 Runoff Area=4.417 ac 86.71% Impervious Runoff Depth=4.29"
Tc=5.0 min CN=WQ Runoff=29.72 cfs 68,768 cf

Subcatchment4S: DA-4 Runoff Area=3.585 ac 91.35% Impervious Runoff Depth=4.37"
Tc=5.0 min CN=WQ Runoff=24.47 cfs 56,927 cf

Subcatchment5S: DA-5 Runoff Area=2.881 ac 86.78% Impervious Runoff Depth=4.29"
Tc=5.0 min CN=WQ Runoff=19.39 cfs 44,867 cf

Subcatchment6S: DA-6 Runoff Area=3.336 ac 77.34% Impervious Runoff Depth=4.05"
Tc=5.0 min CN=WQ Runoff=21.41 cfs 49,040 cf

Subcatchment7S: DA-7 Runoff Area=4.253 ac 92.97% Impervious Runoff Depth=4.40"
Tc=5.0 min CN=WQ Runoff=29.17 cfs 67,993 cf

Subcatchment8S: DA-8 Runoff Area=4.380 ac 2.31% Impervious Runoff Depth=2.69"
Tc=5.0 min CN=WQ Runoff=21.53 cfs 42,801 cf

Pond 1P: SCM 1: Infiltration AGB Peak Elev=276.32' Storage=63,152 cf Inflow=43.11 cfs 97,931 cf
Discarded=0.24 cfs 68,568 cf Primary=0.92 cfs 29,366 cf Outflow=1.16 cfs 97,934 cf

Pond 2P: SCM 2: Detention UGB Peak Elev=271.24' Storage=55,514 cf Inflow=56.55 cfs 132,615 cf
Outflow=12.59 cfs 132,475 cf

Pond 3P: SCM 3: Detention UGB Peak Elev=274.04' Storage=24,706 cf Inflow=29.72 cfs 68,768 cf
Outflow=12.07 cfs 68,729 cf

Pond 4P: SCM 4: Detention UGB Peak Elev=274.47' Storage=19,255 cf Inflow=24.47 cfs 56,927 cf
Outflow=8.13 cfs 56,885 cf

Pond 5P: SCM 5: Detention UGB Peak Elev=278.50' Storage=12,177 cf Inflow=19.39 cfs 44,867 cf
Outflow=11.53 cfs 44,857 cf

Pond 6P: SCM 6: Detention UGB Peak Elev=281.87' Storage=15,859 cf Inflow=21.41 cfs 49,040 cf
Outflow=9.98 cfs 49,024 cf

Pond 7P: SCM 7: Detention UGB Peak Elev=274.93' Storage=24,036 cf Inflow=29.17 cfs 67,993 cf
Outflow=10.67 cfs 67,961 cf

Link POA1: POA #1 Inflow=77.12 cfs 492,098 cf
Primary=77.12 cfs 492,098 cf

Link POA2: POA #2 Inflow=7.44 cfs 14,787 cf
Primary=7.44 cfs 14,787 cf

Link POA3: POA #3 Inflow=6.08 cfs 12,018 cf
Primary=6.08 cfs 12,018 cf

Total Runoff Area = 1,761,566 sf Runoff Volume = 587,747 cf Average Runoff Depth = 4.00"
28.03% Pervious = 493,709 sf 71.97% Impervious = 1,267,857 sf

Summary for Subcatchment 1S: DA-1

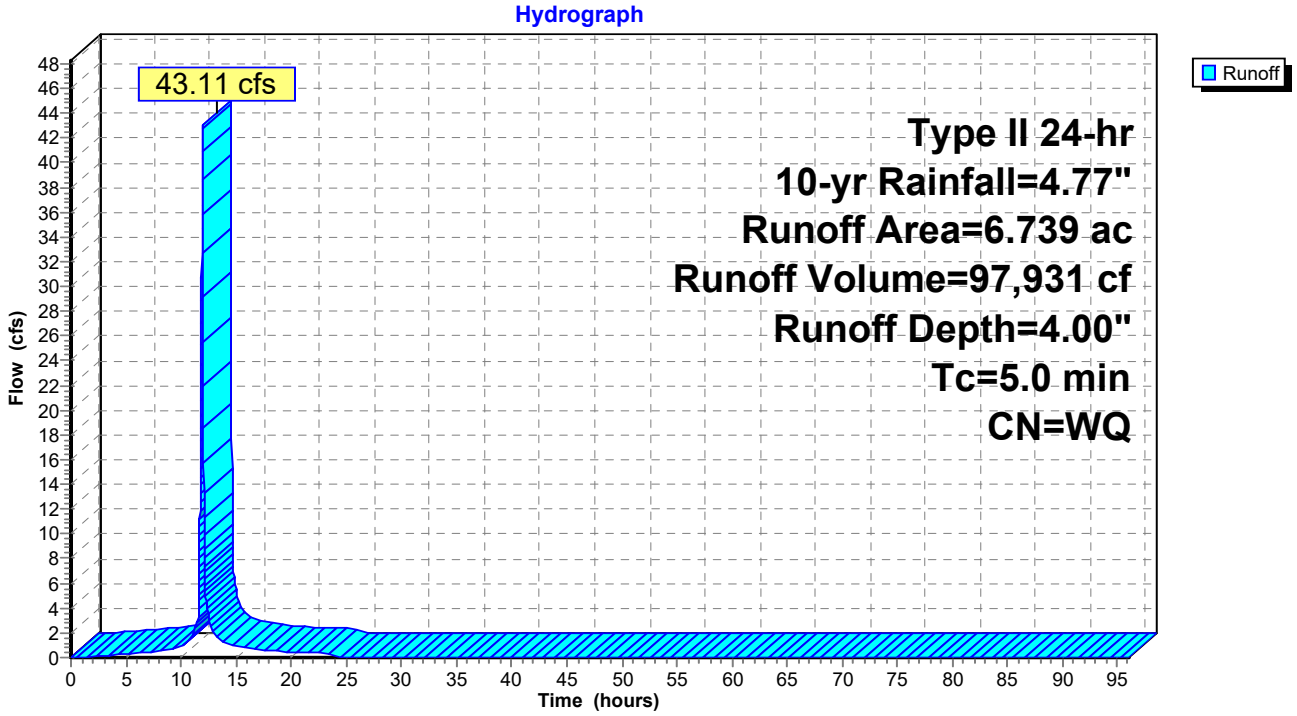
Runoff = 43.11 cfs @ 11.96 hrs, Volume= 97,931 cf, Depth= 4.00"
Routed to Pond 1P : SCM 1: Infiltration AGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

Area (ac)	CN	Description
0.222	74	>75% Grass cover, Good, HSG C
1.658	80	>75% Grass cover, Good, HSG D
4.859	98	Paved parking, HSG D
6.739		Weighted Average
1.880		27.90% Pervious Area
4.859		72.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DA-1



Summary for Subcatchment 2B: Bypass to POA #2

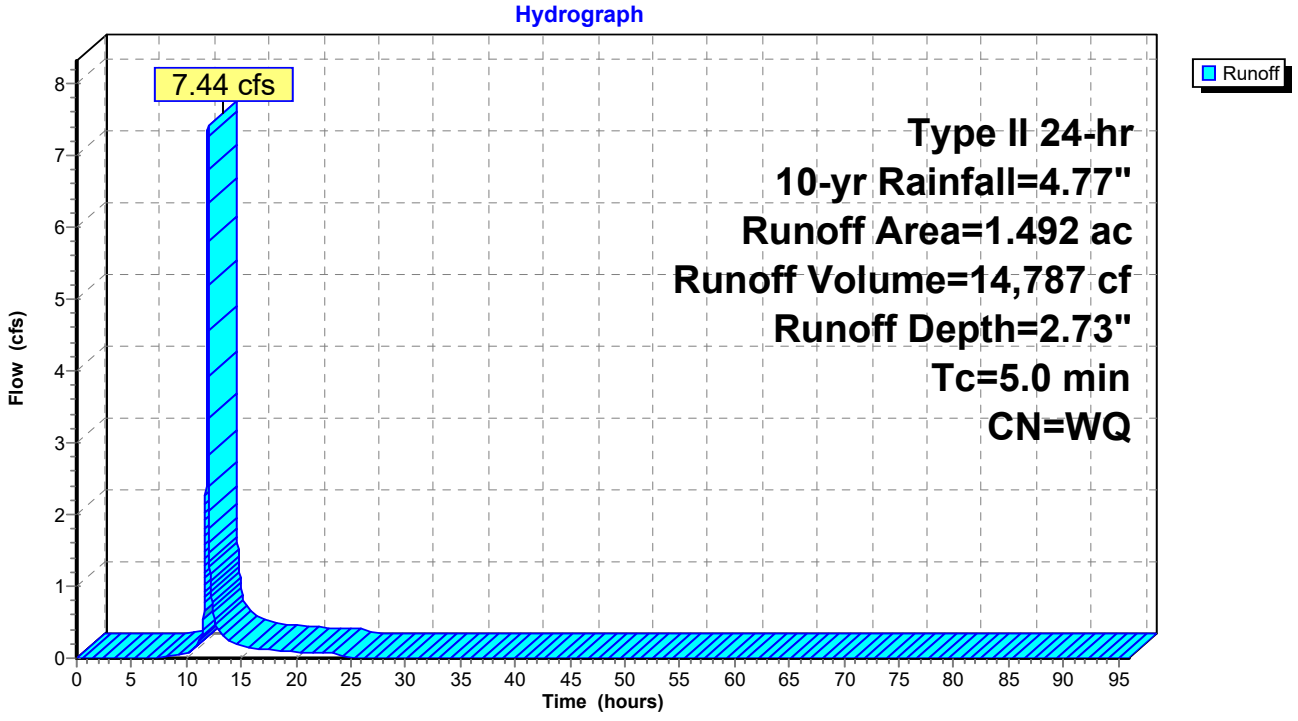
Runoff = 7.44 cfs @ 11.96 hrs, Volume= 14,787 cf, Depth= 2.73"
Routed to Link POA2 : POA #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

Area (ac)	CN	Description
1.462	80	>75% Grass cover, Good, HSG D
0.030	98	Paved parking, HSG D
1.492		Weighted Average
1.462		97.99% Pervious Area
0.030		2.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2B: Bypass to POA #2



Summary for Subcatchment 2S: DA-2

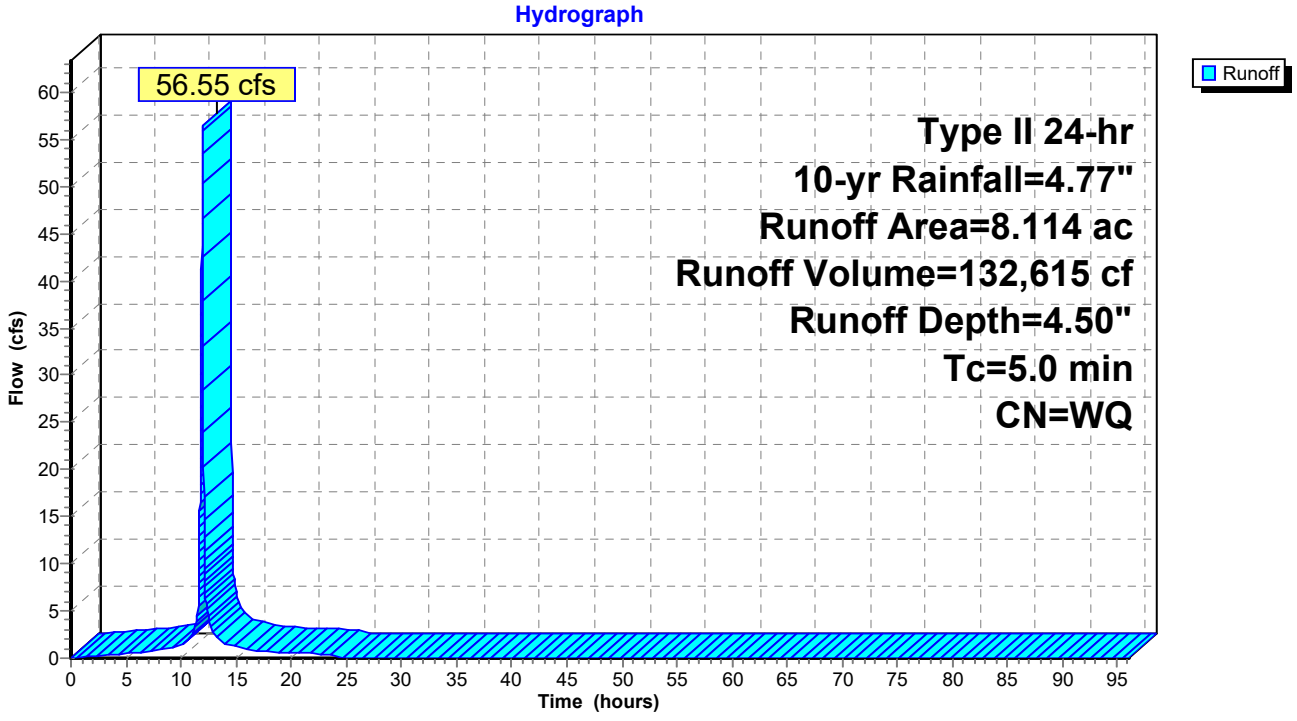
Runoff = 56.55 cfs @ 11.96 hrs, Volume= 132,615 cf, Depth= 4.50"
Routed to Pond 2P : SCM 2: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

Area (ac)	CN	Description
0.137	80	>75% Grass cover, Good, HSG D
7.977	98	Paved parking, HSG D
8.114		Weighted Average
0.137		1.69% Pervious Area
7.977		98.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: DA-2



Summary for Subcatchment 3B: Bypass to POA #3

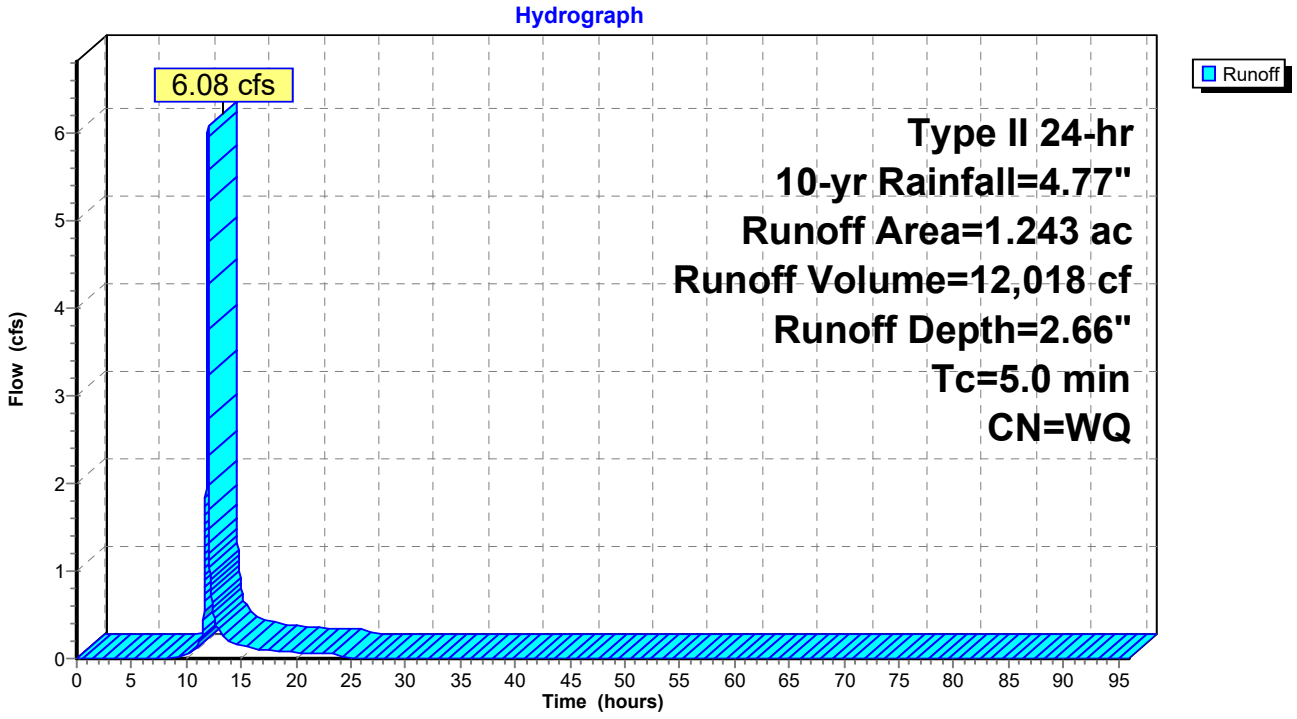
Runoff = 6.08 cfs @ 11.96 hrs, Volume= 12,018 cf, Depth= 2.66"
Routed to Link POA3 : POA #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

Area (ac)	CN	Description
0.072	74	>75% Grass cover, Good, HSG C
1.171	80	>75% Grass cover, Good, HSG D
1.243		Weighted Average
1.243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3B: Bypass to POA #3



Summary for Subcatchment 3S: DA-3

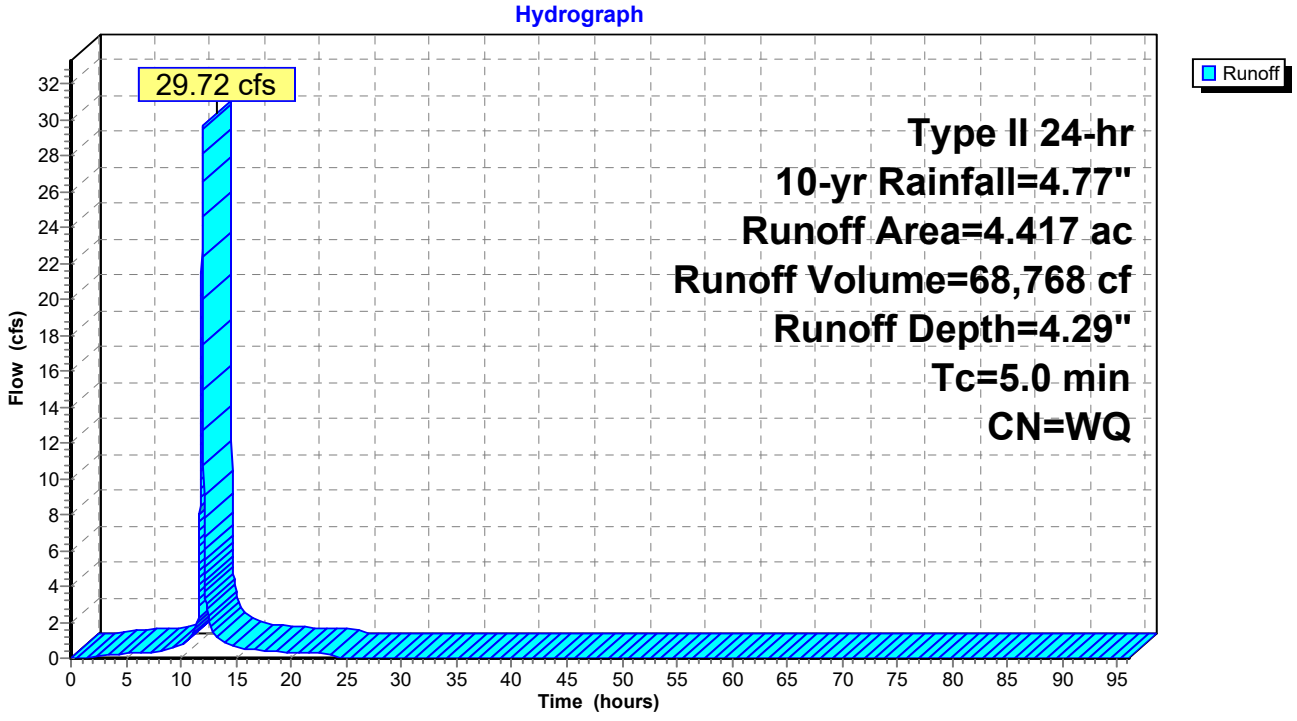
Runoff = 29.72 cfs @ 11.96 hrs, Volume= 68,768 cf, Depth= 4.29"
Routed to Pond 3P : SCM 3: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

Area (ac)	CN	Description
0.587	80	>75% Grass cover, Good, HSG D
3.830	98	Paved parking, HSG D
4.417		Weighted Average
0.587		13.29% Pervious Area
3.830		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: DA-3



Summary for Subcatchment 4S: DA-4

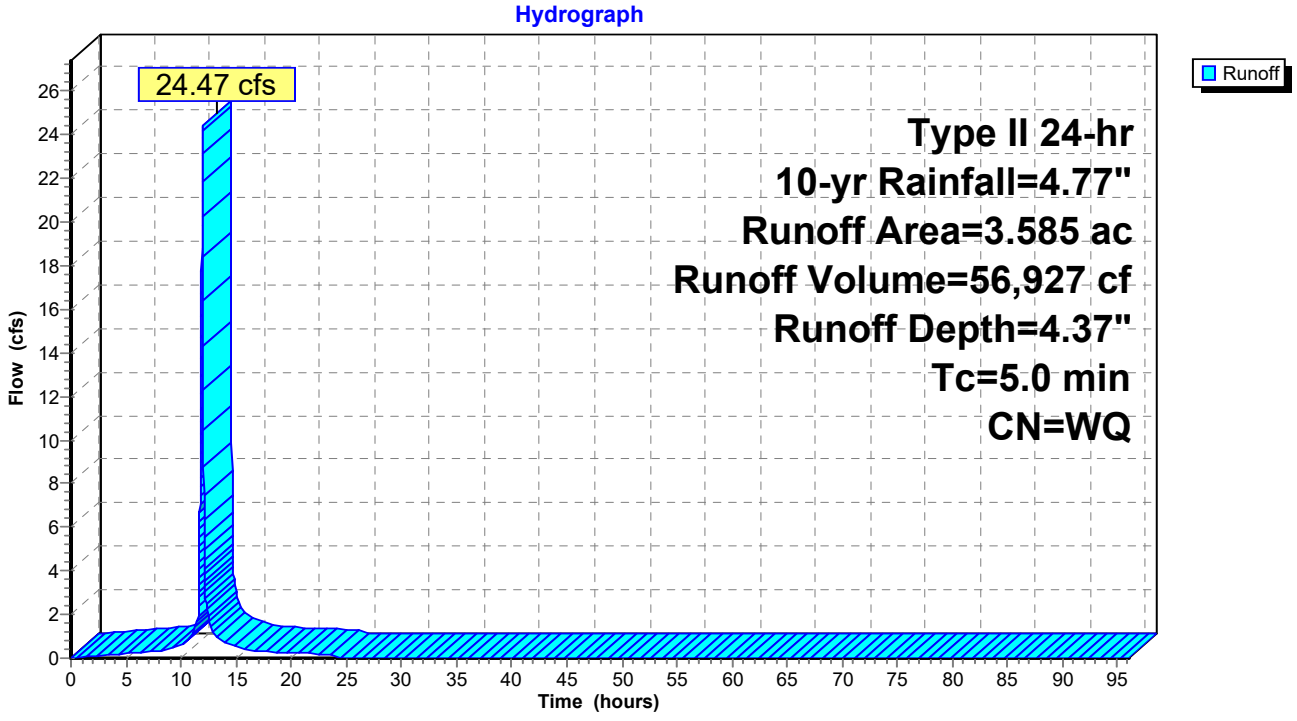
Runoff = 24.47 cfs @ 11.96 hrs, Volume= 56,927 cf, Depth= 4.37"
Routed to Pond 4P : SCM 4: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

Area (ac)	CN	Description
0.310	80	>75% Grass cover, Good, HSG D
3.275	98	Paved parking, HSG D
3.585		Weighted Average
0.310		8.65% Pervious Area
3.275		91.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: DA-4



Summary for Subcatchment 5S: DA-5

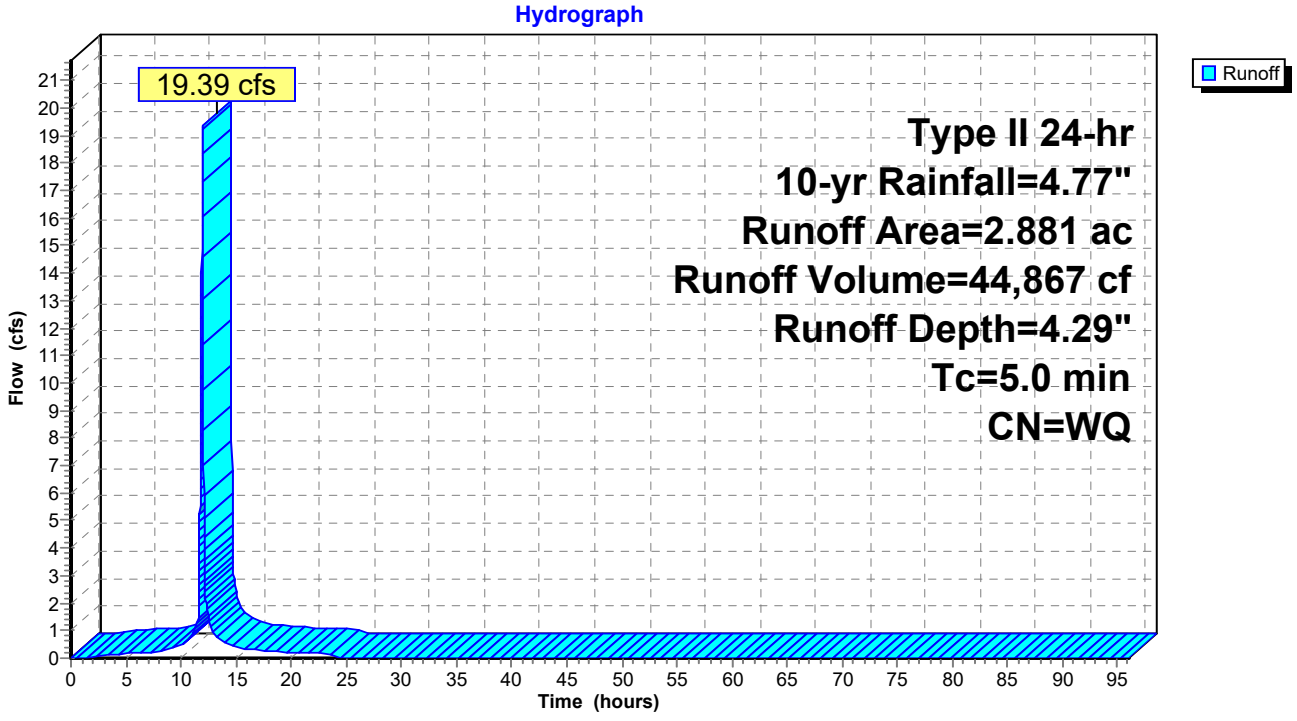
Runoff = 19.39 cfs @ 11.96 hrs, Volume= 44,867 cf, Depth= 4.29"
Routed to Pond 5P : SCM 5: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

Area (ac)	CN	Description
0.381	80	>75% Grass cover, Good, HSG D
2.500	98	Paved parking, HSG D
2.881		Weighted Average
0.381		13.22% Pervious Area
2.500		86.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: DA-5



Summary for Subcatchment 6S: DA-6

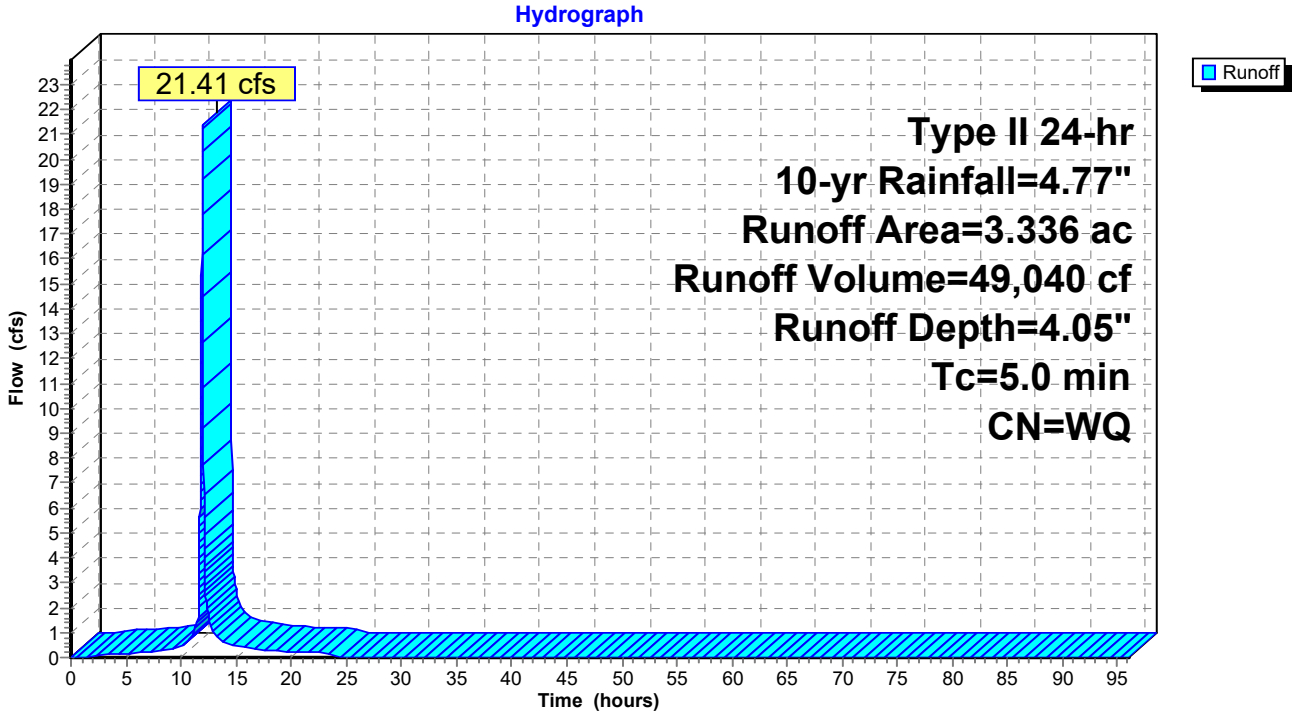
Runoff = 21.41 cfs @ 11.96 hrs, Volume= 49,040 cf, Depth= 4.05"
Routed to Pond 6P : SCM 6: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

Area (ac)	CN	Description
0.255	74	>75% Grass cover, Good, HSG C
0.084	70	Woods, Good, HSG C
0.328	80	>75% Grass cover, Good, HSG D
2.580	98	Paved parking, HSG D
0.089	77	Woods, Good, HSG D
3.336		Weighted Average
0.756		22.66% Pervious Area
2.580		77.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: DA-6



Summary for Subcatchment 7S: DA-7

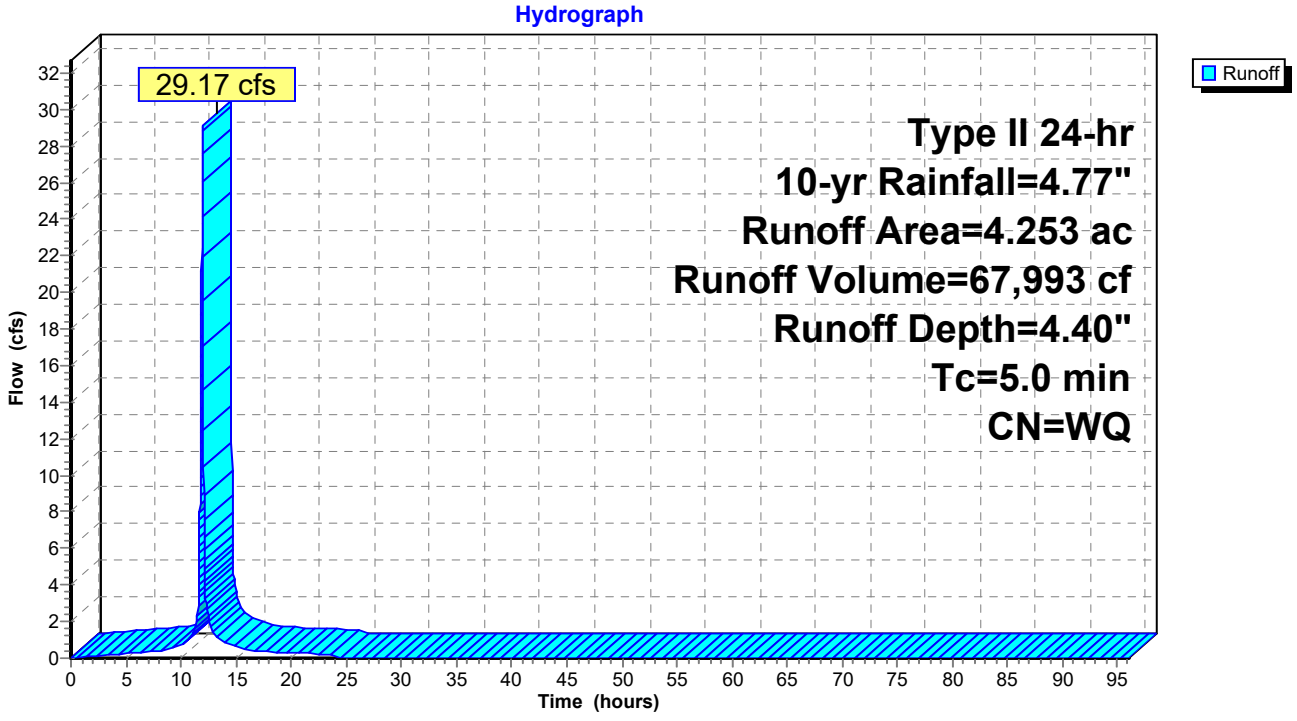
Runoff = 29.17 cfs @ 11.96 hrs, Volume= 67,993 cf, Depth= 4.40"
Routed to Pond 7P : SCM 7: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

Area (ac)	CN	Description
0.299	80	>75% Grass cover, Good, HSG D
3.954	98	Paved parking, HSG D
4.253		Weighted Average
0.299		7.03% Pervious Area
3.954		92.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: DA-7



Summary for Subcatchment 8S: DA-8

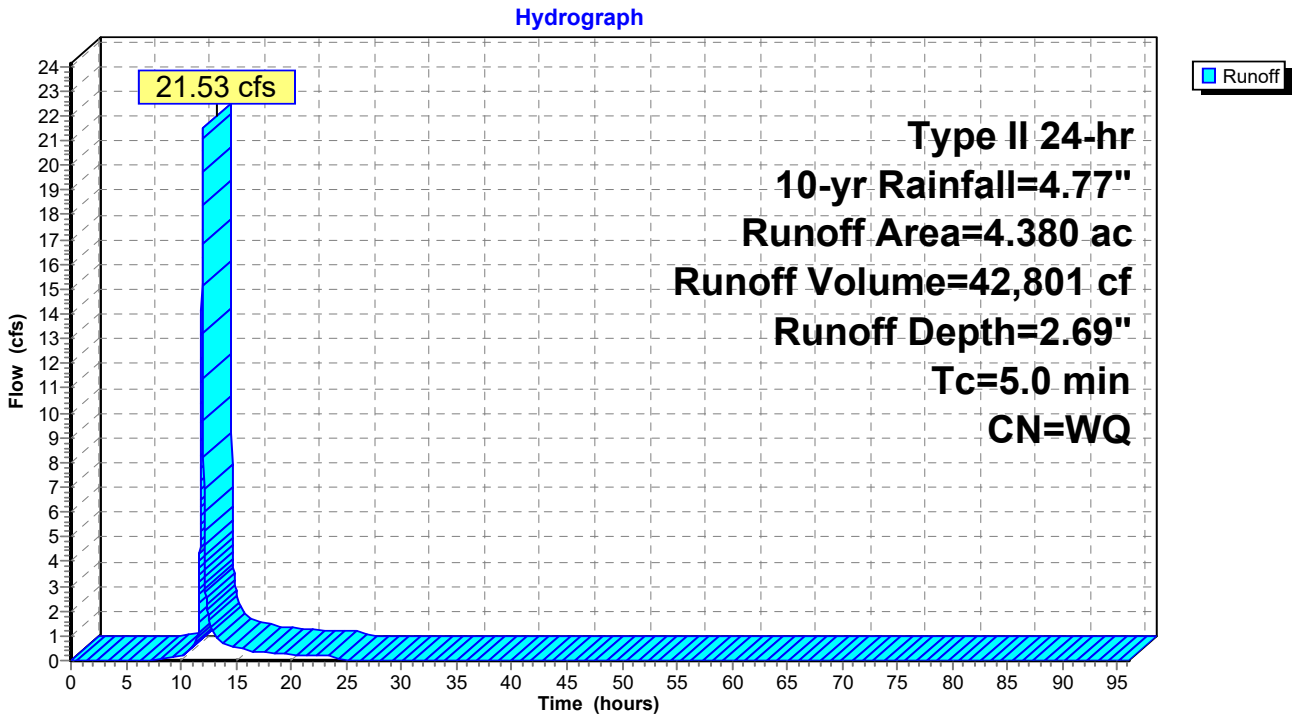
Runoff = 21.53 cfs @ 11.96 hrs, Volume= 42,801 cf, Depth= 2.69"
Routed to Link POA1 : POA #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

Area (ac)	CN	Description
3.905	80	>75% Grass cover, Good, HSG D
0.374	74	>75% Grass cover, Good, HSG C
0.101	98	Paved parking, HSG D
4.380		Weighted Average
4.279		97.69% Pervious Area
0.101		2.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DA-8



Summary for Pond 1P: SCM 1: Infiltration AGB

Inflow Area = 293,551 sf, 72.10% Impervious, Inflow Depth = 4.00" for 10-yr event
Inflow = 43.11 cfs @ 11.96 hrs, Volume= 97,931 cf
Outflow = 1.16 cfs @ 14.03 hrs, Volume= 97,934 cf, Atten= 97%, Lag= 124.3 min
Discarded = 0.24 cfs @ 14.03 hrs, Volume= 68,568 cf
Primary = 0.92 cfs @ 14.03 hrs, Volume= 29,366 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 276.32' @ 14.03 hrs Surf.Area= 29,531 sf Storage= 63,152 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,433.5 min (2,191.5 - 758.0)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	186,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

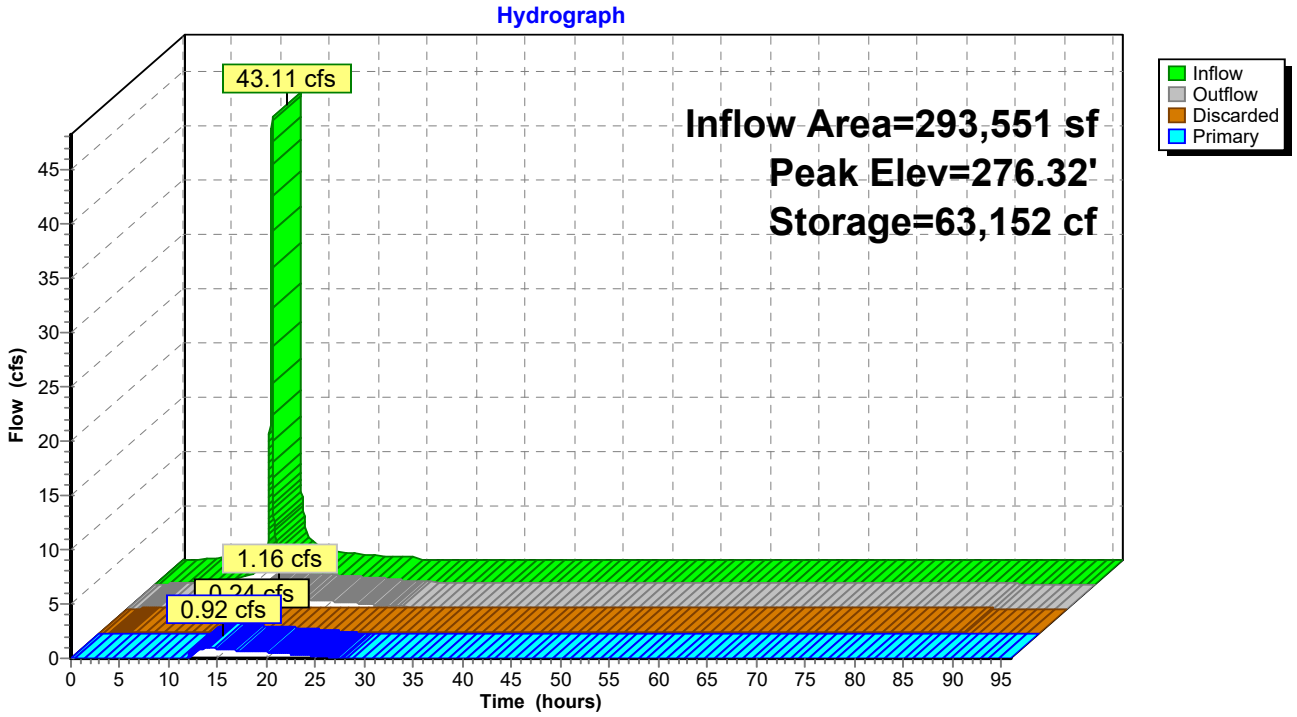
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	24,939	0	0
275.00	26,877	25,908	25,908
276.00	28,873	27,875	53,783
277.00	30,924	29,899	83,682
278.00	33,033	31,979	115,660
279.00	35,197	34,115	149,775
280.00	37,419	36,308	186,083

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.00'	**0.353 in/hr Exfiltration over Surface area**
#2	Primary	274.00'	**30.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 274.00' / 272.00' S= 0.0385 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#3	Device 2	275.75'	**12.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	276.25'	**24.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	277.00'	**24.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	277.50'	**24.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.24 cfs @ 14.03 hrs HW=276.32' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=0.92 cfs @ 14.03 hrs HW=276.32' TW=0.00' (Dynamic Tailwater)
├**2=Culvert** (Passes 0.92 cfs of 24.65 cfs potential flow)
│ ├**3=Orifice/Grate** (Orifice Controls 0.80 cfs @ 3.20 fps)
│ ├**4=Orifice/Grate** (Orifice Controls 0.12 cfs @ 0.85 fps)
│ └**5=Orifice/Grate** (Controls 0.00 cfs)
└**6=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: SCM 1: Infiltration AGB



Summary for Pond 2P: SCM 2: Detention UGB

Inflow Area = 353,446 sf, 98.31% Impervious, Inflow Depth = 4.50" for 10-yr event
Inflow = 56.55 cfs @ 11.96 hrs, Volume= 132,615 cf
Outflow = 12.59 cfs @ 12.09 hrs, Volume= 132,475 cf, Atten= 78%, Lag= 8.2 min
Primary = 12.59 cfs @ 12.09 hrs, Volume= 132,475 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 271.24' @ 12.09 hrs Surf.Area= 30,988 sf Storage= 55,514 cf

Plug-Flow detention time= 123.2 min calculated for 132,461 cf (100% of inflow)
Center-of-Mass det. time= 122.9 min (867.5 - 744.6)

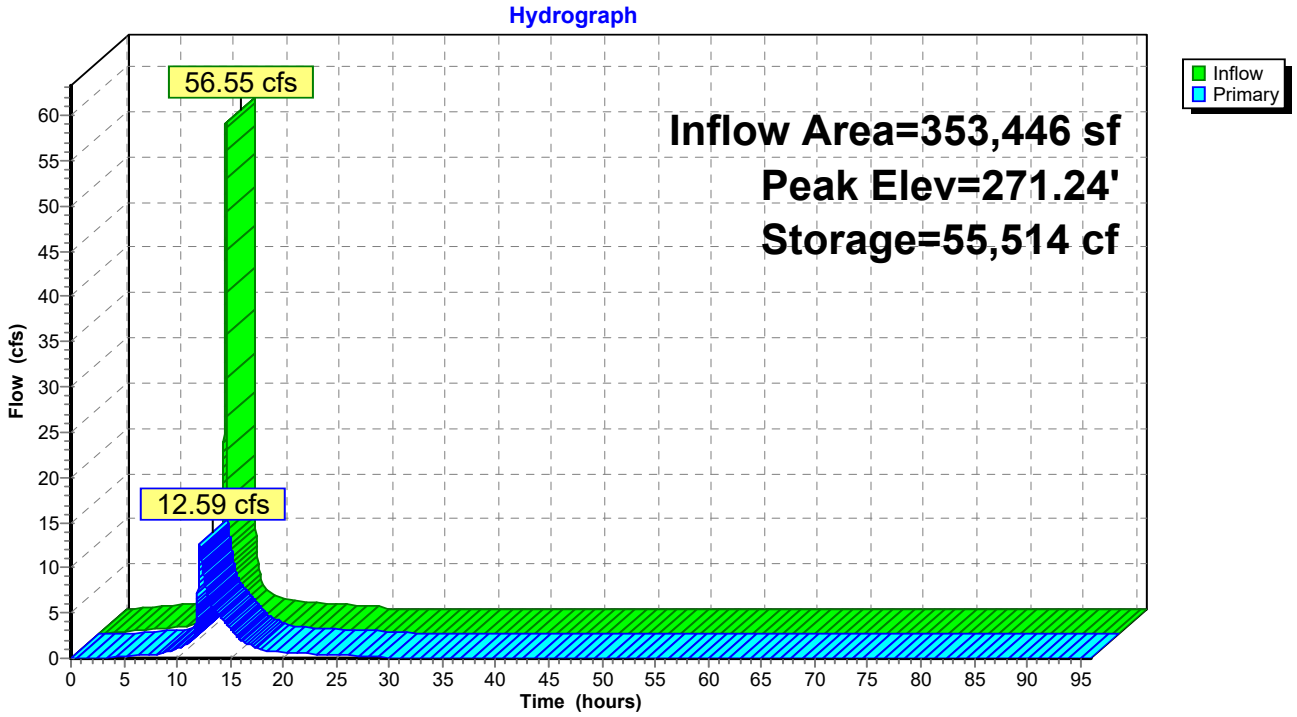
Volume	Invert	Avail.Storage	Storage Description
#1A	268.75'	41,546 cf	**63.75'W x 486.09'L x 5.50'H Field A** 170,435 cf Overall - 66,569 cf Embedded = 103,866 cf x 40.0% Voids
#2A	269.50'	66,569 cf	**ADS_StormTech MC-3500 d +Cap**x 603 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 603 Chambers in 9 Rows Cap Storage= 14.9 cf x 2 x 9 rows = 268.2 cf
		108,116 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	268.75'	**36.0" Round Outlet Pipe** L= 112.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 268.75' / 268.25' S= 0.0045 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	268.75'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	269.25'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	270.50'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	271.75'	**42.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	272.50'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=12.59 cfs @ 12.09 hrs HW=271.24' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 12.59 cfs of 24.99 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.09 cfs @ 7.41 fps)
  ├─**3=Orifice** (Orifice Controls 6.35 cfs @ 6.35 fps)
  ├─**4=Orifice** (Orifice Controls 5.15 cfs @ 2.77 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: SCM 2: Detention UGB



Summary for Pond 3P: SCM 3: Detention UGB

Inflow Area = 192,405 sf, 86.71% Impervious, Inflow Depth = 4.29" for 10-yr event
Inflow = 29.72 cfs @ 11.96 hrs, Volume= 68,768 cf
Outflow = 12.07 cfs @ 12.05 hrs, Volume= 68,729 cf, Atten= 59%, Lag= 5.8 min
Primary = 12.07 cfs @ 12.05 hrs, Volume= 68,729 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 274.04' @ 12.05 hrs Surf.Area= 16,811 sf Storage= 24,706 cf

Plug-Flow detention time= 83.3 min calculated for 68,729 cf (100% of inflow)
Center-of-Mass det. time= 82.9 min (833.1 - 750.1)

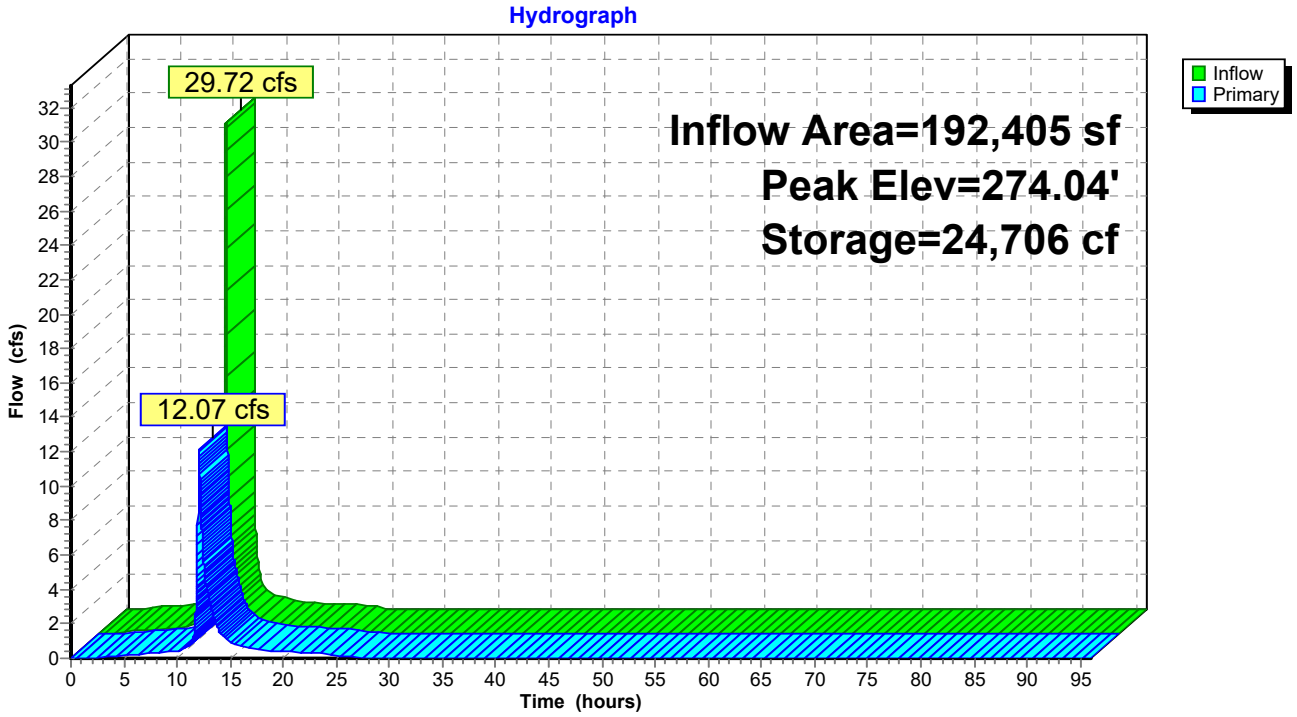
Volume	Invert	Avail.Storage	Storage Description
#1A	272.00'	15,071 cf	**46.75'W x 359.60'L x 3.75'H Field A** 63,042 cf Overall - 25,365 cf Embedded = 37,678 cf x 40.0% Voids
#2A	272.50'	25,365 cf	**ADS_StormTech SC-800 +Cap** x 500 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 500 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		40,436 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	272.00'	**36.0" Round Outlet Pipe** L= 628.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 272.00' / 268.25' S= 0.0060 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	272.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	272.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	273.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	274.50'	**42.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	275.25'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=12.06 cfs @ 12.05 hrs HW=274.04' TW=0.00' (Dynamic Tailwater)
- **1=Outlet Pipe** (Passes 12.06 cfs of 19.63 cfs potential flow)
  - **2=Orifice** (Orifice Controls 0.98 cfs @ 6.66 fps)
  - **3=Orifice** (Orifice Controls 5.46 cfs @ 5.46 fps)
  - **4=Orifice** (Orifice Controls 5.62 cfs @ 2.85 fps)
  - **5=Orifice** (Controls 0.00 cfs)
  - **6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: SCM 3: Detention UGB



Summary for Pond 4P: SCM 4: Detention UGB

Inflow Area = 156,163 sf, 91.35% Impervious, Inflow Depth = 4.37" for 10-yr event
Inflow = 24.47 cfs @ 11.96 hrs, Volume= 56,927 cf
Outflow = 8.13 cfs @ 12.06 hrs, Volume= 56,885 cf, Atten= 67%, Lag= 6.5 min
Primary = 8.13 cfs @ 12.06 hrs, Volume= 56,885 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 274.47' @ 12.06 hrs Surf.Area= 20,685 sf Storage= 19,255 cf

Plug-Flow detention time= 76.6 min calculated for 56,885 cf (100% of inflow)
Center-of-Mass det. time= 76.1 min (824.0 - 747.9)

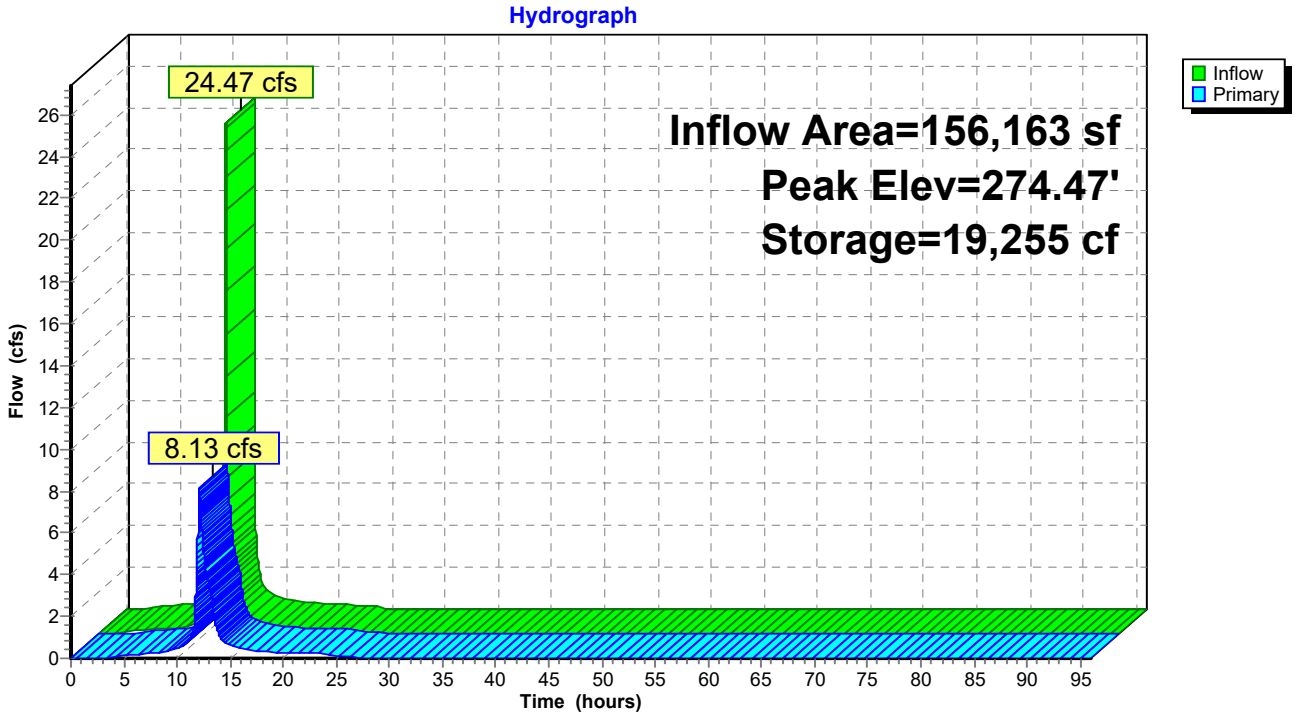
Volume	Invert	Avail.Storage	Storage Description
#1A	273.00'	27,875 cf	**49.92'W x 414.39'L x 5.50'H Field A** 113,767 cf Overall - 44,079 cf Embedded = 69,688 cf x 40.0% Voids
#2A	273.75'	44,079 cf	**ADS_StormTech MC-3500 d +Cap** x 399 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 399 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		71,955 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	**36.0" Round Outlet Pipe** L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 273.00' / 269.00' S= 0.0381 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	273.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	273.25'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	274.00'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	274.75'	**42.0" W x 4.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	275.09'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=8.13 cfs @ 12.06 hrs HW=274.47' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 8.13 cfs of 11.21 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.82 cfs @ 5.58 fps)
  ├─**3=Orifice** (Orifice Controls 4.73 cfs @ 4.73 fps)
  ├─**4=Orifice** (Orifice Controls 2.58 cfs @ 2.20 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: SCM 4: Detention UGB



Summary for Pond 5P: SCM 5: Detention UGB

Inflow Area = 125,496 sf, 86.78% Impervious, Inflow Depth = 4.29" for 10-yr event
Inflow = 19.39 cfs @ 11.96 hrs, Volume= 44,867 cf
Outflow = 11.53 cfs @ 12.03 hrs, Volume= 44,857 cf, Atten= 41%, Lag= 4.4 min
Primary = 11.53 cfs @ 12.03 hrs, Volume= 44,857 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 278.50' @ 12.03 hrs Surf.Area= 8,494 sf Storage= 12,177 cf

Plug-Flow detention time= 44.3 min calculated for 44,852 cf (100% of inflow)
Center-of-Mass det. time= 44.5 min (794.6 - 750.1)

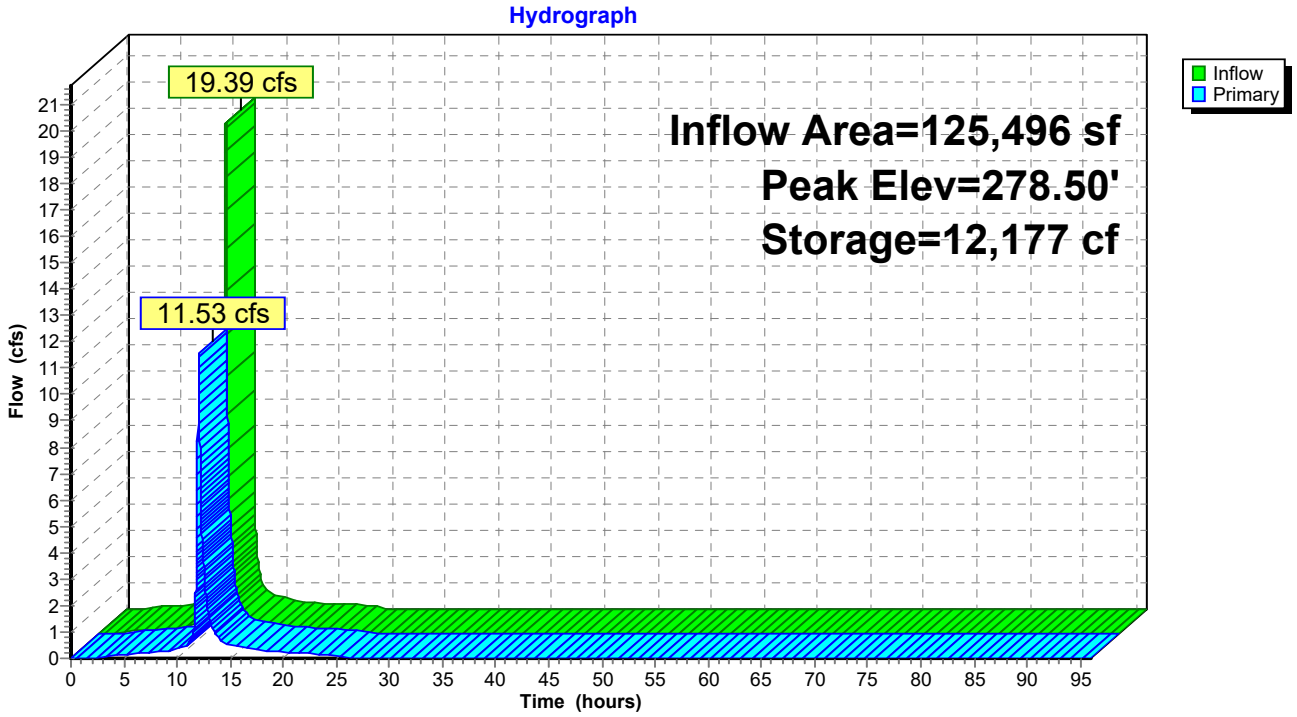
Volume	Invert	Avail.Storage	Storage Description
#1A	276.50'	7,654 cf	**46.75'W x 181.68'L x 3.75'H Field A** 31,851 cf Overall - 12,716 cf Embedded = 19,135 cf x 40.0% Voids
#2A	277.00'	12,716 cf	**ADS_StormTech SC-800 +Cap** x 250 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 250 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		20,370 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	276.50'	**36.0" Round Outlet Pipe** L= 900.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 276.50' / 269.00' S= 0.0083 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	276.50'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	277.00'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	277.75'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.00'	**36.0" W x 4.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	279.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=11.53 cfs @ 12.03 hrs HW=278.50' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 11.53 cfs of 19.00 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.97 cfs @ 6.59 fps)
  ├─**3=Orifice** (Orifice Controls 5.37 cfs @ 5.37 fps)
  ├─**4=Orifice** (Orifice Controls 5.19 cfs @ 2.78 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5P: SCM 5: Detention UGB



Summary for Pond 6P: SCM 6: Detention UGB

Inflow Area = 145,316 sf, 77.34% Impervious, Inflow Depth = 4.05" for 10-yr event
Inflow = 21.41 cfs @ 11.96 hrs, Volume= 49,040 cf
Outflow = 9.98 cfs @ 12.05 hrs, Volume= 49,024 cf, Atten= 53%, Lag= 5.3 min
Primary = 9.98 cfs @ 12.05 hrs, Volume= 49,024 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 281.87' @ 12.05 hrs Surf.Area= 11,821 sf Storage= 15,859 cf

Plug-Flow detention time= 61.9 min calculated for 49,019 cf (100% of inflow)
Center-of-Mass det. time= 62.1 min (817.1 - 755.1)

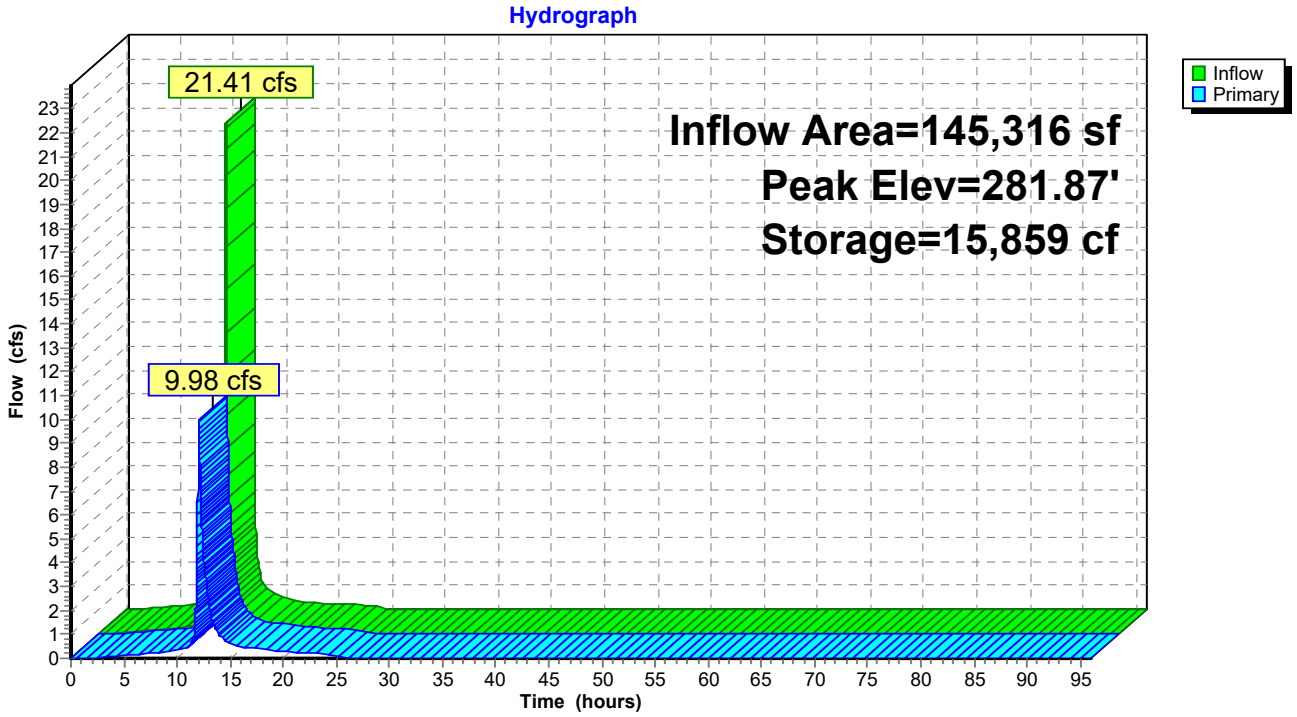
Volume	Invert	Avail.Storage	Storage Description
#1A	280.00'	10,621 cf	**46.75'W x 252.85'L x 3.75'H Field A** 44,328 cf Overall - 17,776 cf Embedded = 26,552 cf x 40.0% Voids
#2A	280.50'	17,776 cf	**ADS_StormTech SC-800 +Cap** x 350 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 350 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		28,397 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	280.00'	**36.0" Round Outlet Pipe** L= 800.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 280.00' / 271.00' S= 0.0112 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	280.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	281.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	282.50'	**42.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	283.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=9.97 cfs @ 12.05 hrs HW=281.87' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 9.97 cfs of 17.07 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.94 cfs @ 6.37 fps)
  ├─**3=Orifice** (Orifice Controls 5.09 cfs @ 5.09 fps)
  ├─**4=Orifice** (Orifice Controls 3.94 cfs @ 2.53 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6P: SCM 6: Detention UGB



Summary for Pond 7P: SCM 7: Detention UGB

Inflow Area = 185,261 sf, 92.97% Impervious, Inflow Depth = 4.40" for 10-yr event
Inflow = 29.17 cfs @ 11.96 hrs, Volume= 67,993 cf
Outflow = 10.67 cfs @ 12.06 hrs, Volume= 67,961 cf, Atten= 63%, Lag= 6.2 min
Primary = 10.67 cfs @ 12.06 hrs, Volume= 67,961 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 274.93' @ 12.06 hrs Surf.Area= 18,180 sf Storage= 24,036 cf

Plug-Flow detention time= 81.6 min calculated for 67,961 cf (100% of inflow)
Center-of-Mass det. time= 81.2 min (828.3 - 747.1)

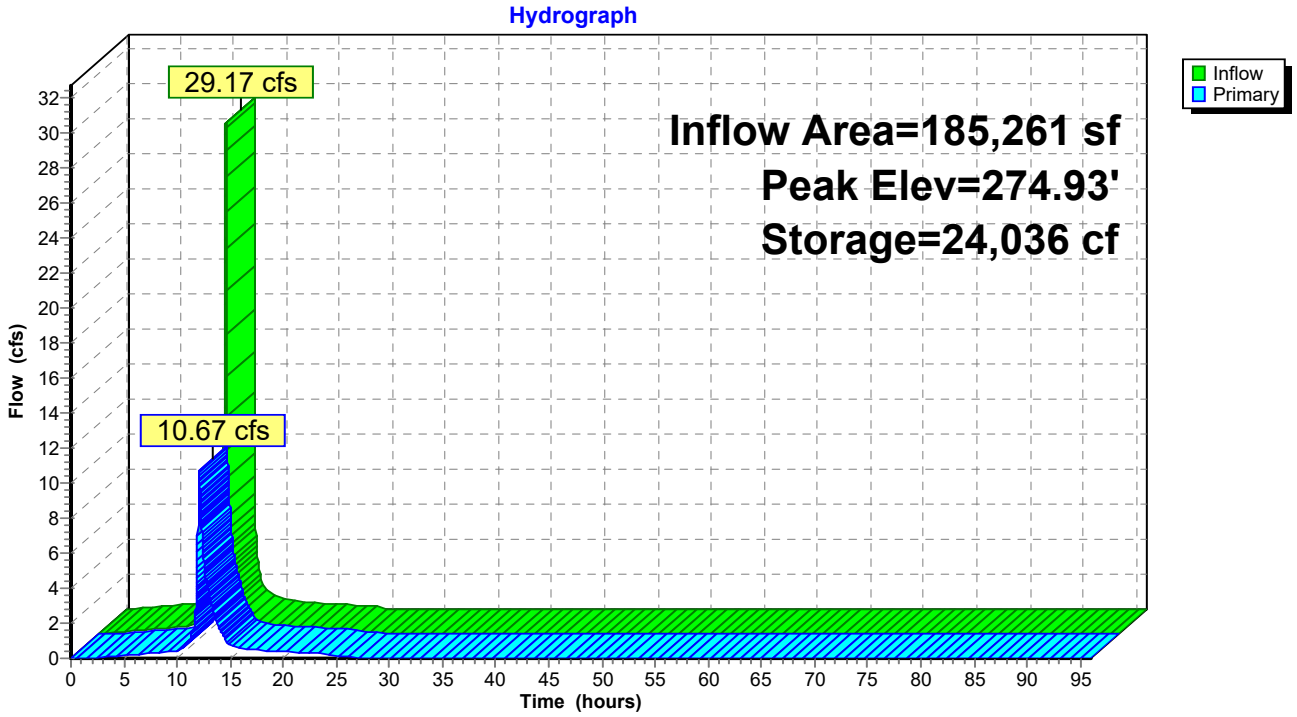
Volume	Invert	Avail.Storage	Storage Description
#1A	273.00'	24,519 cf	**49.92'W x 364.20'L x 5.50'H Field A** 99,988 cf Overall - 38,692 cf Embedded = 61,296 cf x 40.0% Voids
#2A	273.75'	38,692 cf	**ADS_StormTech MC-3500 d +Cap** x 350 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 350 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		63,210 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	**36.0" Round Outlet Pipe** L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 273.00' / 271.00' S= 0.0190 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	273.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	273.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	274.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	275.50'	**42.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	276.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=10.67 cfs @ 12.06 hrs HW=274.93' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 10.67 cfs of 17.95 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.95 cfs @ 6.47 fps)
  ├─**3=Orifice** (Orifice Controls 5.22 cfs @ 5.22 fps)
  ├─**4=Orifice** (Orifice Controls 4.50 cfs @ 2.65 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7P: SCM 7: Detention UGB

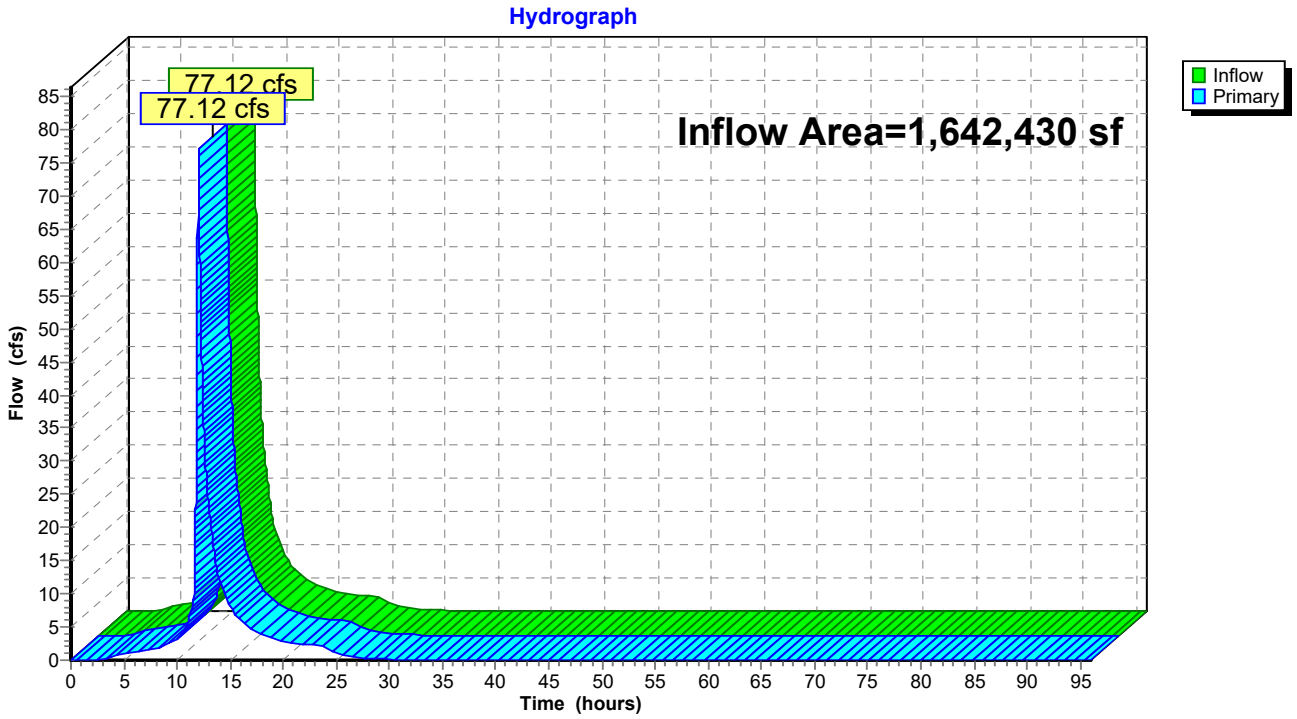


Summary for Link POA1: POA #1

Inflow Area = 1,642,430 sf, 77.11% Impervious, Inflow Depth = 3.60" for 10-yr event
Inflow = 77.12 cfs @ 12.02 hrs, Volume= 492,098 cf
Primary = 77.12 cfs @ 12.02 hrs, Volume= 492,098 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA1: POA #1

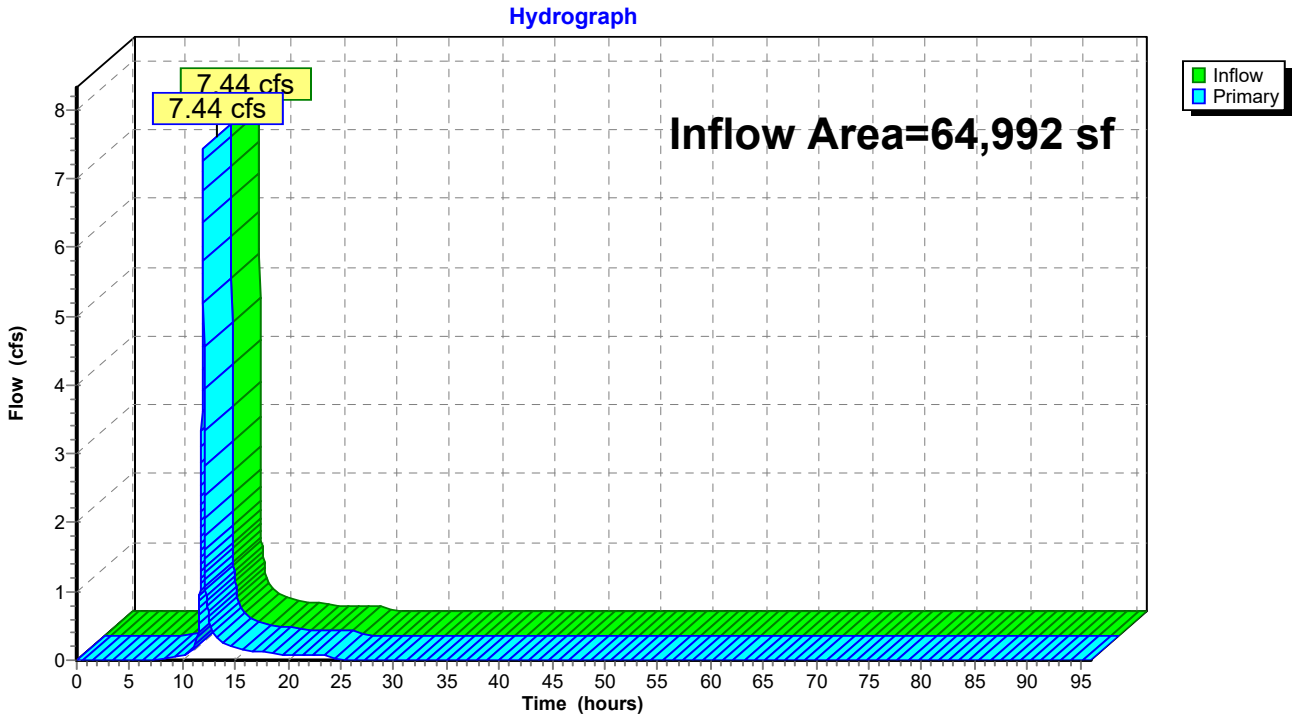


Summary for Link POA2: POA #2

Inflow Area = 64,992 sf, 2.01% Impervious, Inflow Depth = 2.73" for 10-yr event
Inflow = 7.44 cfs @ 11.96 hrs, Volume= 14,787 cf
Primary = 7.44 cfs @ 11.96 hrs, Volume= 14,787 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA2: POA #2

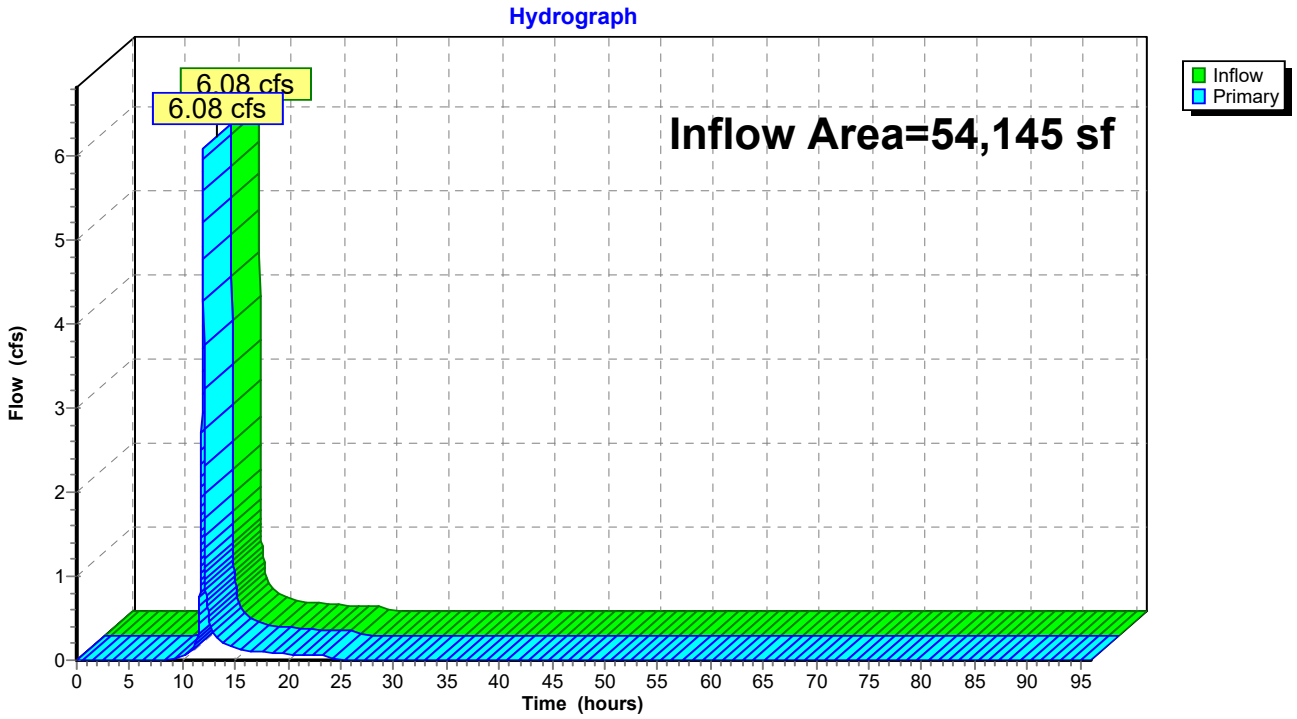


Summary for Link POA3: POA #3

Inflow Area = 54,145 sf, 0.00% Impervious, Inflow Depth = 2.66" for 10-yr event
Inflow = 6.08 cfs @ 11.96 hrs, Volume= 12,018 cf
Primary = 6.08 cfs @ 11.96 hrs, Volume= 12,018 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA3: POA #3



Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: DA-1 Runoff Area=6.739 ac 72.10% Impervious Runoff Depth=4.98"
Tc=5.0 min CN=WQ Runoff=53.30 cfs 121,737 cf

Subcatchment2B: Bypass to POA #2 Runoff Area=1.492 ac 2.01% Impervious Runoff Depth=3.62"
Tc=5.0 min CN=WQ Runoff=9.76 cfs 19,621 cf

Subcatchment2S: DA-2 Runoff Area=8.114 ac 98.31% Impervious Runoff Depth=5.51"
Tc=5.0 min CN=WQ Runoff=68.71 cfs 162,262 cf

Subcatchment3B: Bypass to POA #3 Runoff Area=1.243 ac 0.00% Impervious Runoff Depth=3.55"
Tc=5.0 min CN=WQ Runoff=8.01 cfs 16,016 cf

Subcatchment3S: DA-3 Runoff Area=4.417 ac 86.71% Impervious Runoff Depth=5.28"
Tc=5.0 min CN=WQ Runoff=36.37 cfs 84,687 cf

Subcatchment4S: DA-4 Runoff Area=3.585 ac 91.35% Impervious Runoff Depth=5.37"
Tc=5.0 min CN=WQ Runoff=29.85 cfs 69,918 cf

Subcatchment5S: DA-5 Runoff Area=2.881 ac 86.78% Impervious Runoff Depth=5.28"
Tc=5.0 min CN=WQ Runoff=23.73 cfs 55,251 cf

Subcatchment6S: DA-6 Runoff Area=3.336 ac 77.34% Impervious Runoff Depth=5.02"
Tc=5.0 min CN=WQ Runoff=26.42 cfs 60,813 cf

Subcatchment7S: DA-7 Runoff Area=4.253 ac 92.97% Impervious Runoff Depth=5.40"
Tc=5.0 min CN=WQ Runoff=35.56 cfs 83,435 cf

Subcatchment8S: DA-8 Runoff Area=4.380 ac 2.31% Impervious Runoff Depth=3.58"
Tc=5.0 min CN=WQ Runoff=28.31 cfs 56,900 cf

Pond 1P: SCM 1: Infiltration AGB Peak Elev=276.65' Storage=73,008 cf Inflow=53.30 cfs 121,737 cf
Discarded=0.25 cfs 69,816 cf Primary=2.69 cfs 51,923 cf Outflow=2.93 cfs 121,739 cf

Pond 2P: SCM 2: Detention UGB Peak Elev=271.66' Storage=65,556 cf Inflow=68.71 cfs 162,262 cf
Outflow=17.75 cfs 162,122 cf

Pond 3P: SCM 3: Detention UGB Peak Elev=274.38' Storage=28,808 cf Inflow=36.37 cfs 84,687 cf
Outflow=16.44 cfs 84,648 cf

Pond 4P: SCM 4: Detention UGB Peak Elev=274.68' Storage=22,972 cf Inflow=29.85 cfs 69,918 cf
Outflow=10.59 cfs 69,876 cf

Pond 5P: SCM 5: Detention UGB Peak Elev=278.78' Storage=13,948 cf Inflow=23.73 cfs 55,251 cf
Outflow=15.38 cfs 55,241 cf

Pond 6P: SCM 6: Detention UGB Peak Elev=282.18' Storage=18,531 cf Inflow=26.42 cfs 60,813 cf
Outflow=13.90 cfs 60,797 cf

Pond 7P: SCM 7: Detention UGB Peak Elev=275.21' Storage=28,205 cf Inflow=35.56 cfs 83,435 cf
Outflow=14.33 cfs 83,402 cf

Link POA1: POA #1 Inflow=106.28 cfs 624,910 cf
Primary=106.28 cfs 624,910 cf

Link POA2: POA #2 Inflow=9.76 cfs 19,621 cf
Primary=9.76 cfs 19,621 cf

Link POA3: POA #3 Inflow=8.01 cfs 16,016 cf
Primary=8.01 cfs 16,016 cf

Total Runoff Area = 1,761,566 sf Runoff Volume = 730,640 cf Average Runoff Depth = 4.98"
28.03% Pervious = 493,709 sf 71.97% Impervious = 1,267,857 sf

Summary for Subcatchment 1S: DA-1

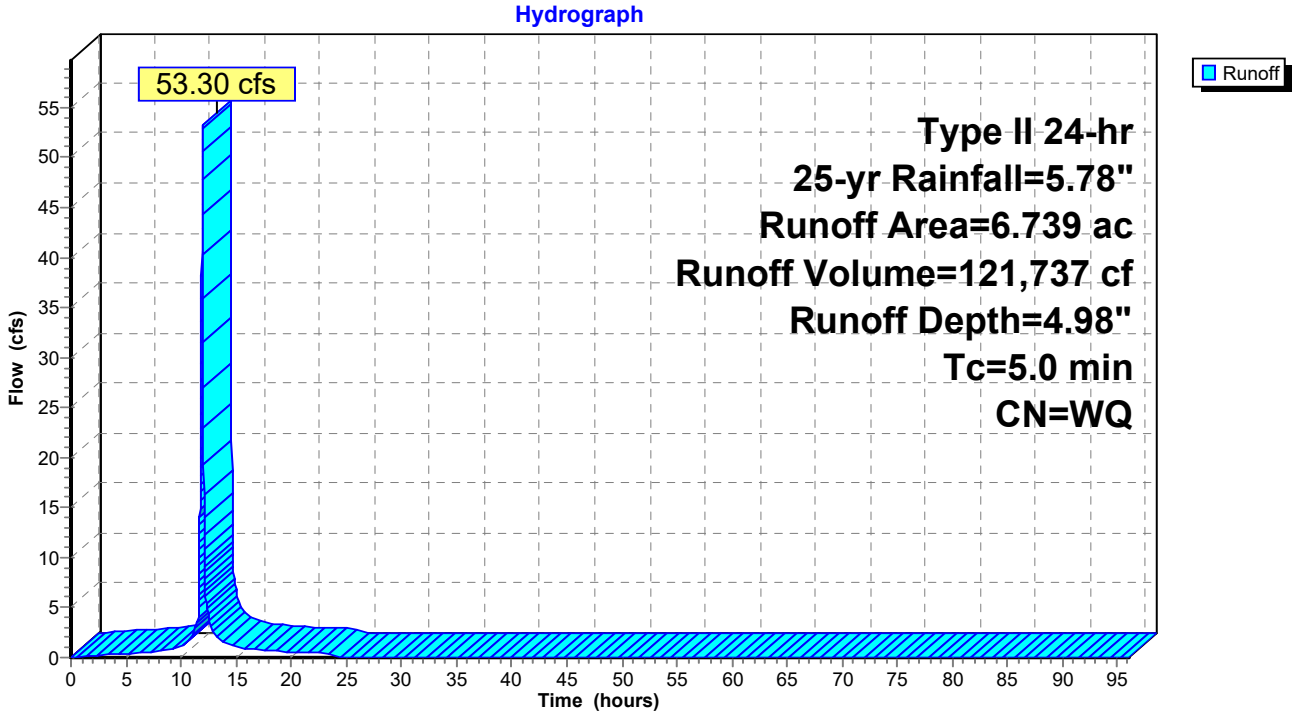
Runoff = 53.30 cfs @ 11.96 hrs, Volume= 121,737 cf, Depth= 4.98"
Routed to Pond 1P : SCM 1: Infiltration AGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

Area (ac)	CN	Description
0.222	74	>75% Grass cover, Good, HSG C
1.658	80	>75% Grass cover, Good, HSG D
4.859	98	Paved parking, HSG D
6.739		Weighted Average
1.880		27.90% Pervious Area
4.859		72.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DA-1



Summary for Subcatchment 2B: Bypass to POA #2

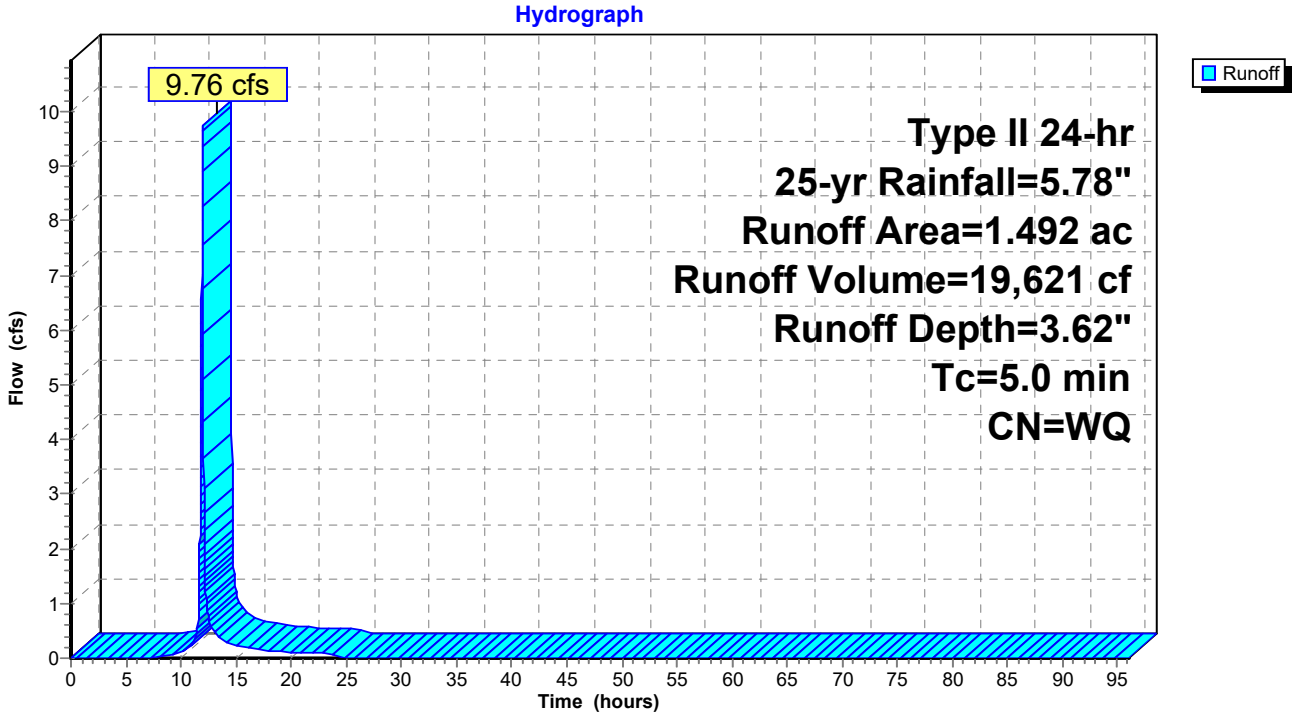
Runoff = 9.76 cfs @ 11.96 hrs, Volume= 19,621 cf, Depth= 3.62"
Routed to Link POA2 : POA #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

Area (ac)	CN	Description
1.462	80	>75% Grass cover, Good, HSG D
0.030	98	Paved parking, HSG D
1.492		Weighted Average
1.462		97.99% Pervious Area
0.030		2.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2B: Bypass to POA #2



Summary for Subcatchment 2S: DA-2

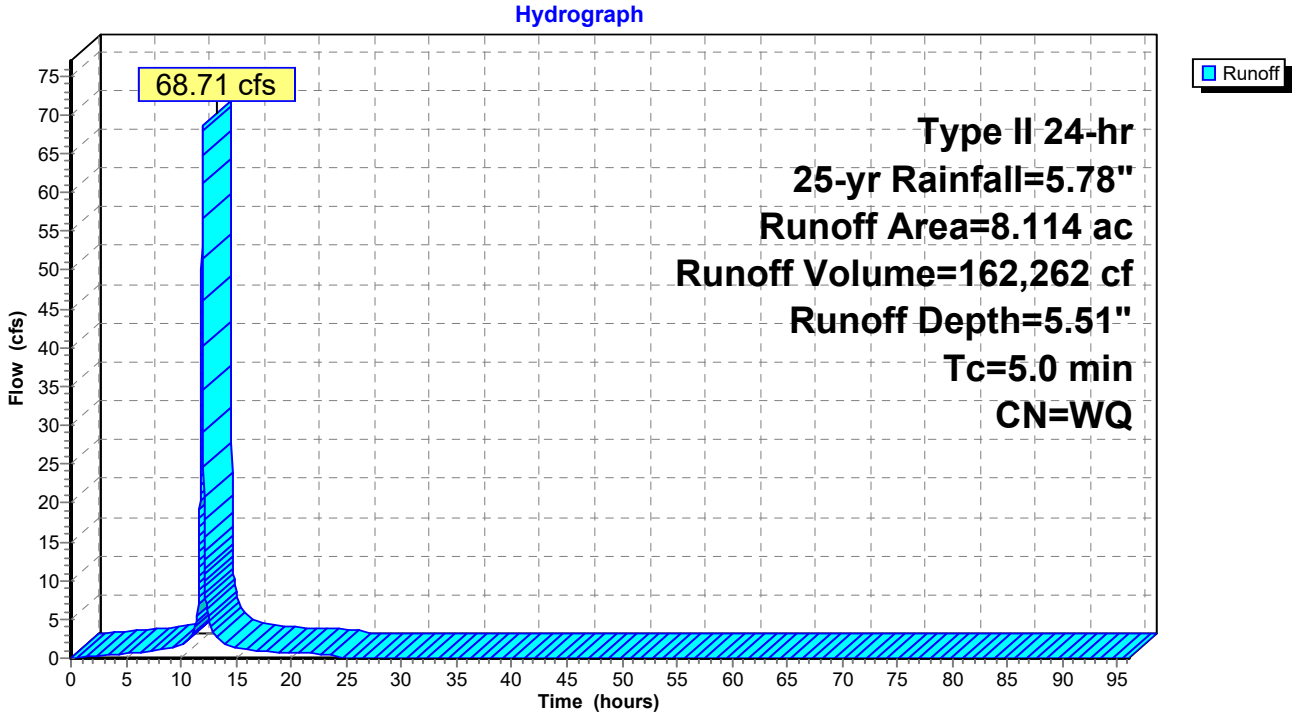
Runoff = 68.71 cfs @ 11.96 hrs, Volume= 162,262 cf, Depth= 5.51"
Routed to Pond 2P : SCM 2: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

Area (ac)	CN	Description
0.137	80	>75% Grass cover, Good, HSG D
7.977	98	Paved parking, HSG D
8.114		Weighted Average
0.137		1.69% Pervious Area
7.977		98.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: DA-2



Summary for Subcatchment 3B: Bypass to POA #3

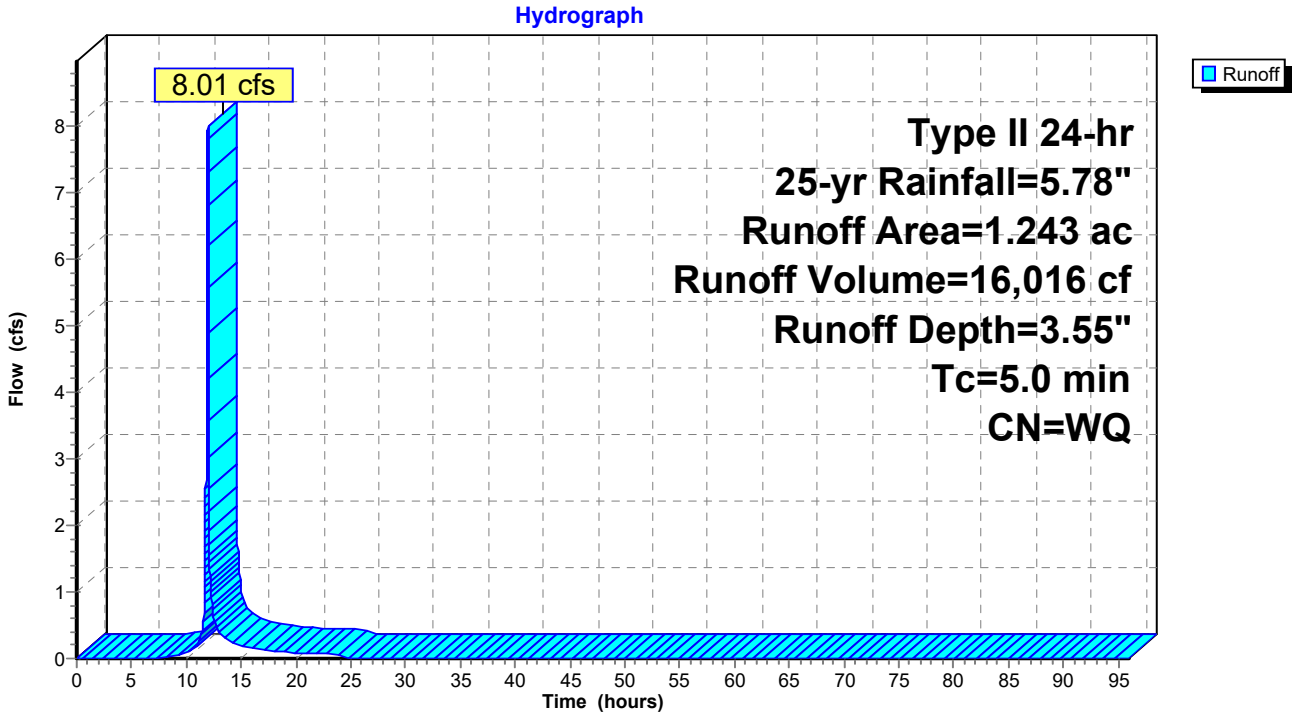
Runoff = 8.01 cfs @ 11.96 hrs, Volume= 16,016 cf, Depth= 3.55"
Routed to Link POA3 : POA #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

Area (ac)	CN	Description
0.072	74	>75% Grass cover, Good, HSG C
1.171	80	>75% Grass cover, Good, HSG D
1.243		Weighted Average
1.243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3B: Bypass to POA #3



Summary for Subcatchment 3S: DA-3

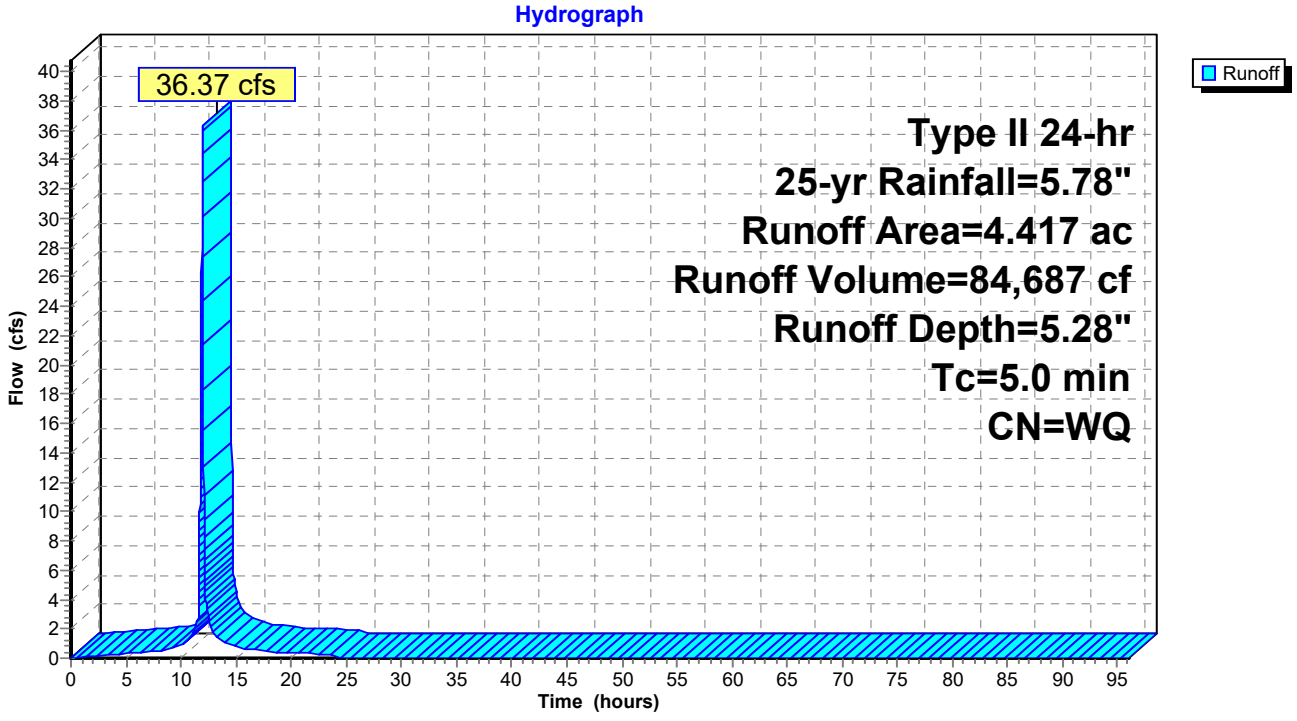
Runoff = 36.37 cfs @ 11.96 hrs, Volume= 84,687 cf, Depth= 5.28"
Routed to Pond 3P : SCM 3: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

Area (ac)	CN	Description
0.587	80	>75% Grass cover, Good, HSG D
3.830	98	Paved parking, HSG D
4.417		Weighted Average
0.587		13.29% Pervious Area
3.830		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: DA-3



Summary for Subcatchment 4S: DA-4

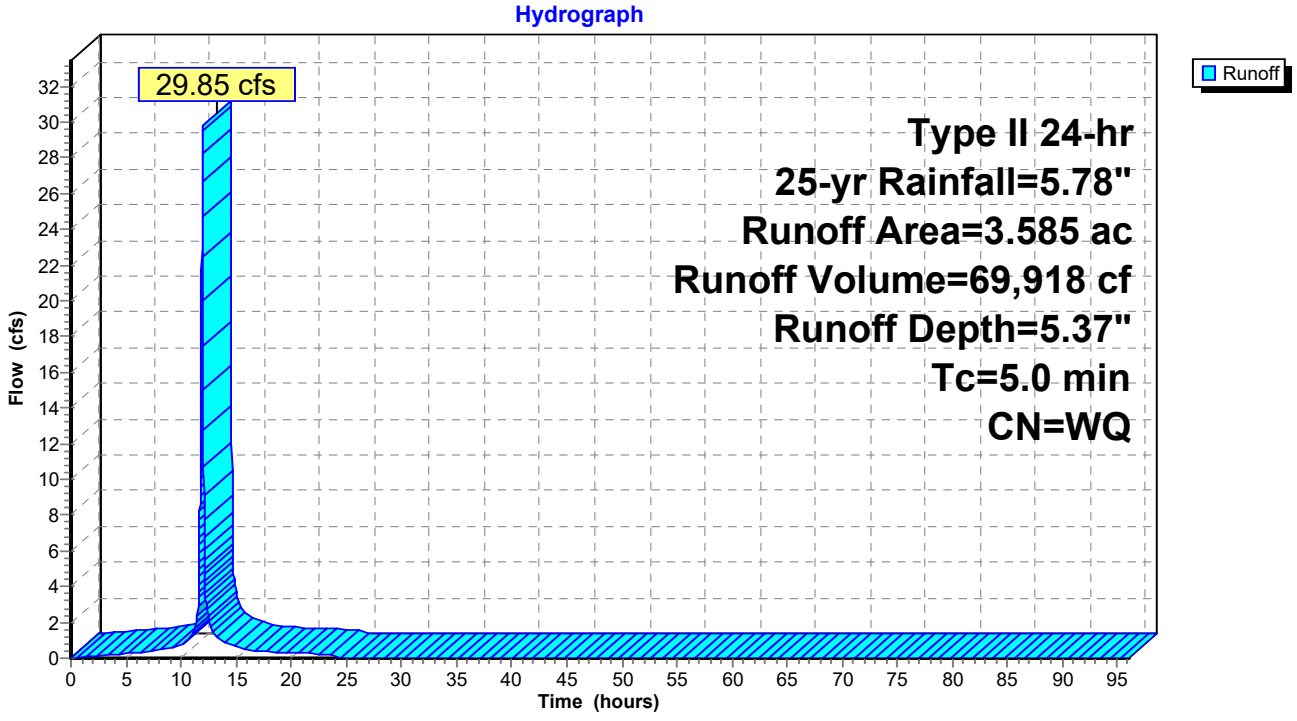
Runoff = 29.85 cfs @ 11.96 hrs, Volume= 69,918 cf, Depth= 5.37"
Routed to Pond 4P : SCM 4: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

Area (ac)	CN	Description
0.310	80	>75% Grass cover, Good, HSG D
3.275	98	Paved parking, HSG D
3.585		Weighted Average
0.310		8.65% Pervious Area
3.275		91.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: DA-4



Summary for Subcatchment 5S: DA-5

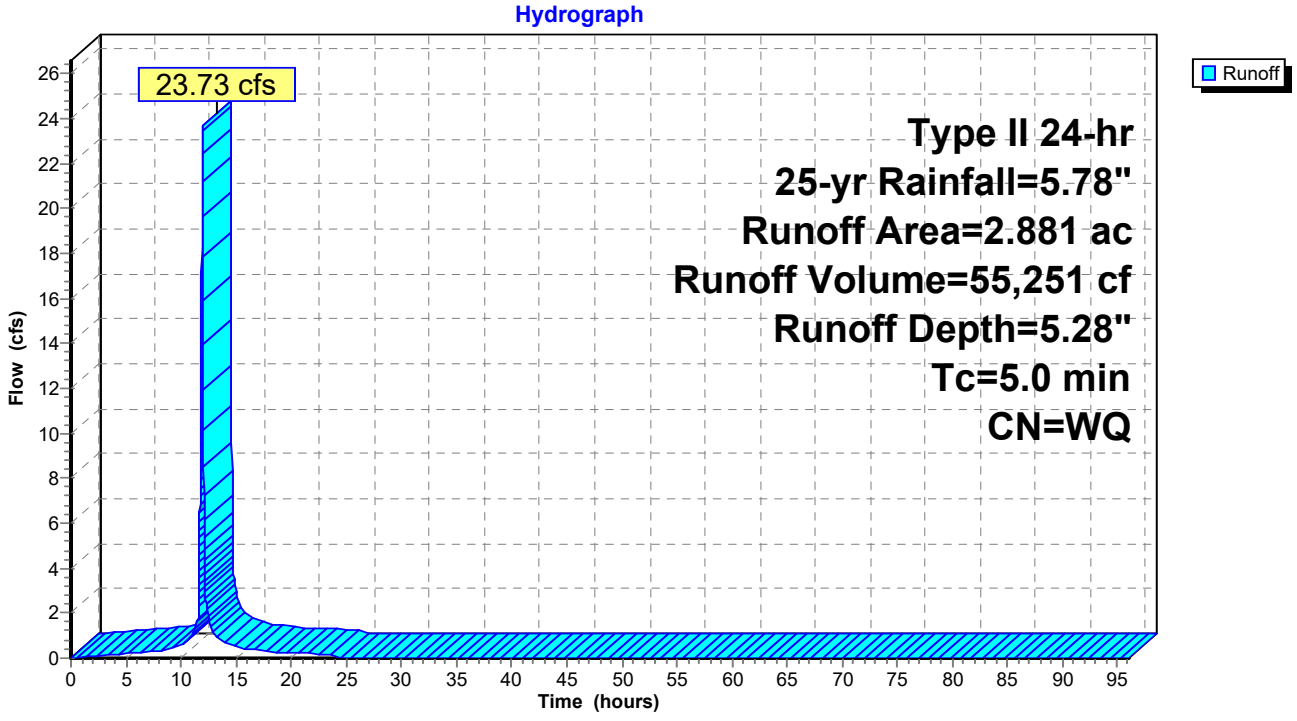
Runoff = 23.73 cfs @ 11.96 hrs, Volume= 55,251 cf, Depth= 5.28"
Routed to Pond 5P : SCM 5: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

Area (ac)	CN	Description
0.381	80	>75% Grass cover, Good, HSG D
2.500	98	Paved parking, HSG D
2.881		Weighted Average
0.381		13.22% Pervious Area
2.500		86.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: DA-5



Summary for Subcatchment 6S: DA-6

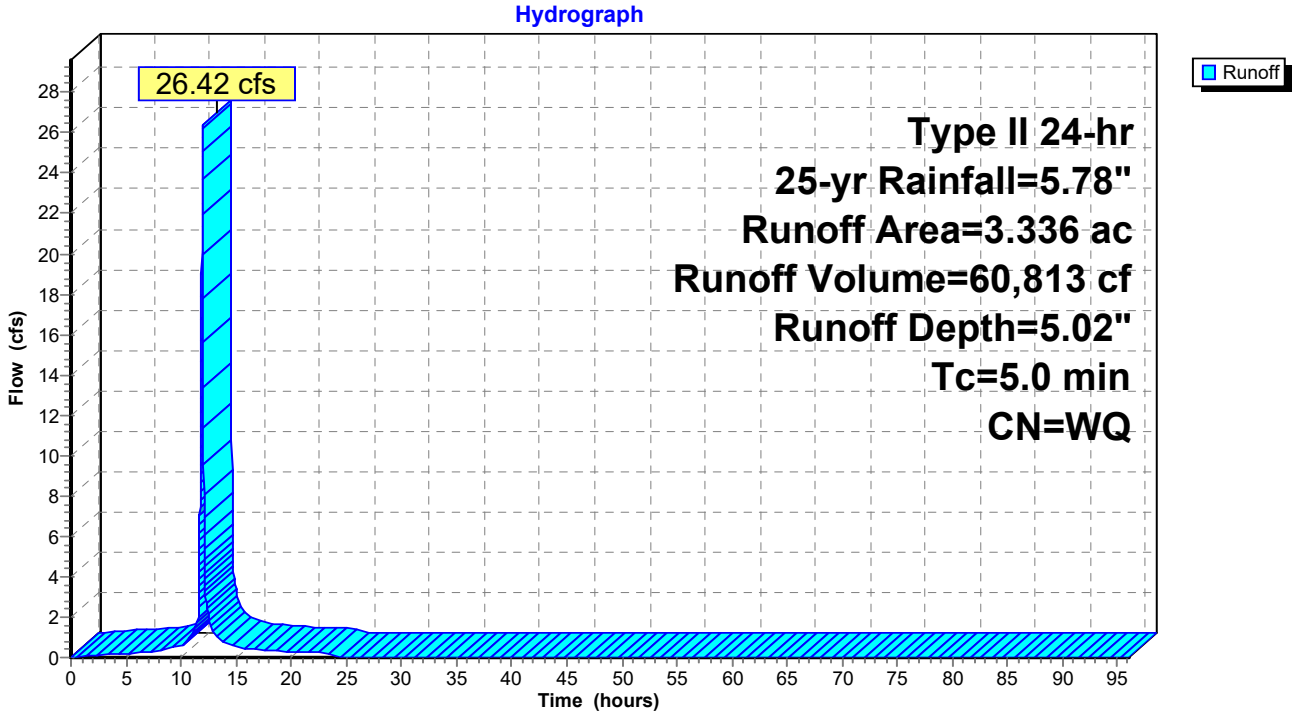
Runoff = 26.42 cfs @ 11.96 hrs, Volume= 60,813 cf, Depth= 5.02"
Routed to Pond 6P : SCM 6: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

Area (ac)	CN	Description
0.255	74	>75% Grass cover, Good, HSG C
0.084	70	Woods, Good, HSG C
0.328	80	>75% Grass cover, Good, HSG D
2.580	98	Paved parking, HSG D
0.089	77	Woods, Good, HSG D
3.336		Weighted Average
0.756		22.66% Pervious Area
2.580		77.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: DA-6



Summary for Subcatchment 7S: DA-7

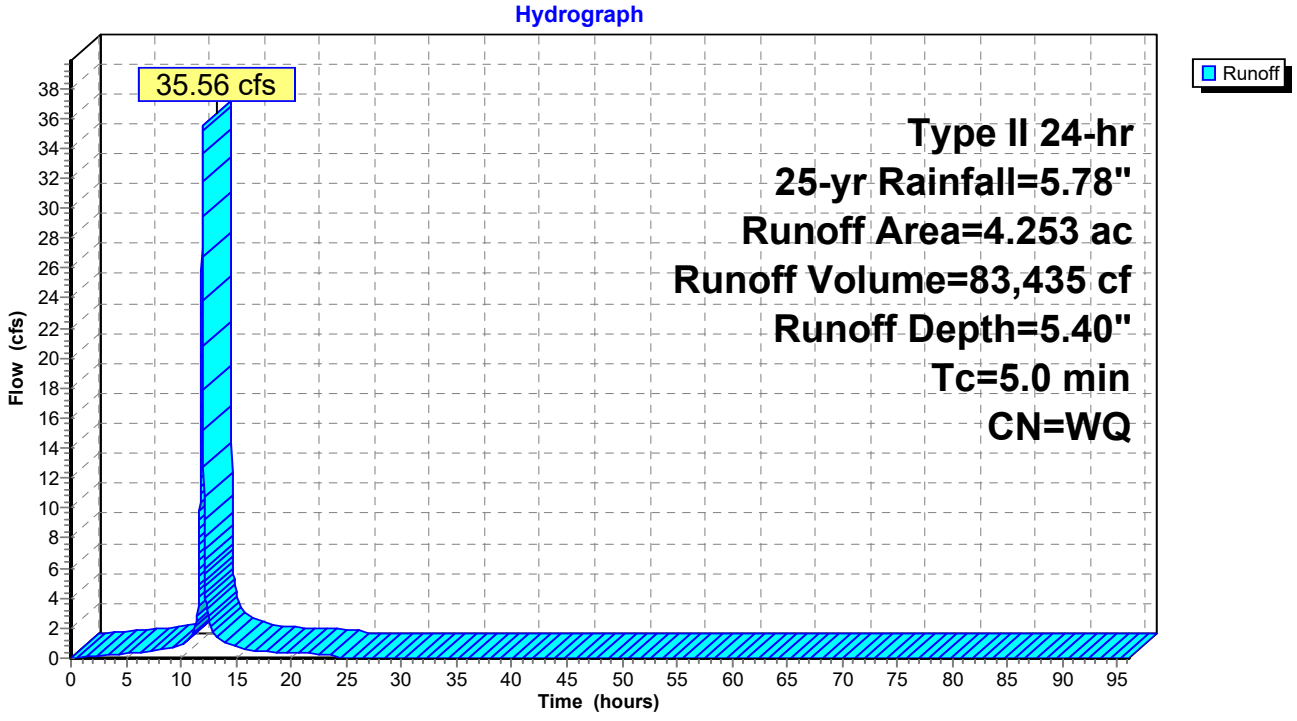
Runoff = 35.56 cfs @ 11.96 hrs, Volume= 83,435 cf, Depth= 5.40"
Routed to Pond 7P : SCM 7: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

Area (ac)	CN	Description
0.299	80	>75% Grass cover, Good, HSG D
3.954	98	Paved parking, HSG D
4.253		Weighted Average
0.299		7.03% Pervious Area
3.954		92.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: DA-7



Summary for Subcatchment 8S: DA-8

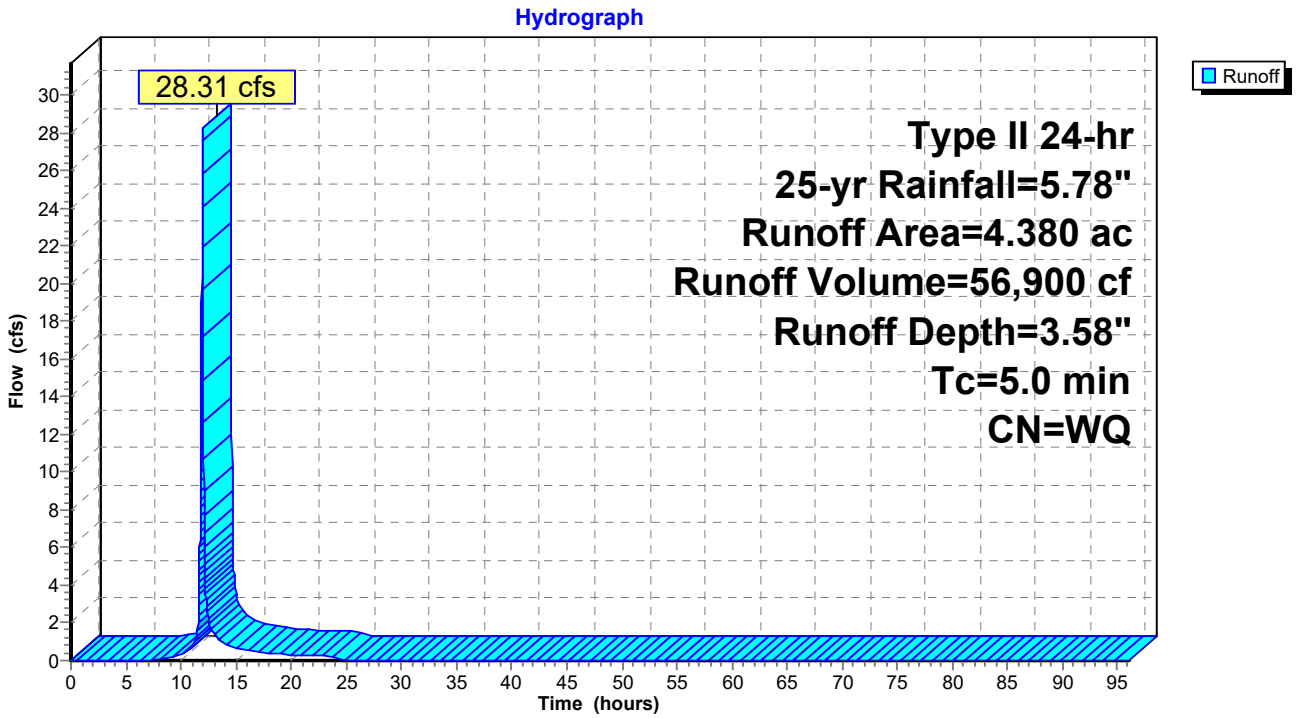
Runoff = 28.31 cfs @ 11.96 hrs, Volume= 56,900 cf, Depth= 3.58"
Routed to Link POA1 : POA #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

Area (ac)	CN	Description
3.905	80	>75% Grass cover, Good, HSG D
0.374	74	>75% Grass cover, Good, HSG C
0.101	98	Paved parking, HSG D
4.380		Weighted Average
4.279		97.69% Pervious Area
0.101		2.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DA-8



Summary for Pond 1P: SCM 1: Infiltration AGB

Inflow Area = 293,551 sf, 72.10% Impervious, Inflow Depth = 4.98" for 25-yr event
Inflow = 53.30 cfs @ 11.96 hrs, Volume= 121,737 cf
Outflow = 2.93 cfs @ 12.74 hrs, Volume= 121,739 cf, Atten= 94%, Lag= 47.1 min
Discarded = 0.25 cfs @ 12.74 hrs, Volume= 69,816 cf
Primary = 2.69 cfs @ 12.74 hrs, Volume= 51,923 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 276.65' @ 12.74 hrs Surf.Area= 30,208 sf Storage= 73,008 cf

Plug-Flow detention time= 1,210.7 min calculated for 121,726 cf (100% of inflow)
Center-of-Mass det. time= 1,211.0 min (1,965.9 - 754.9)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	186,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

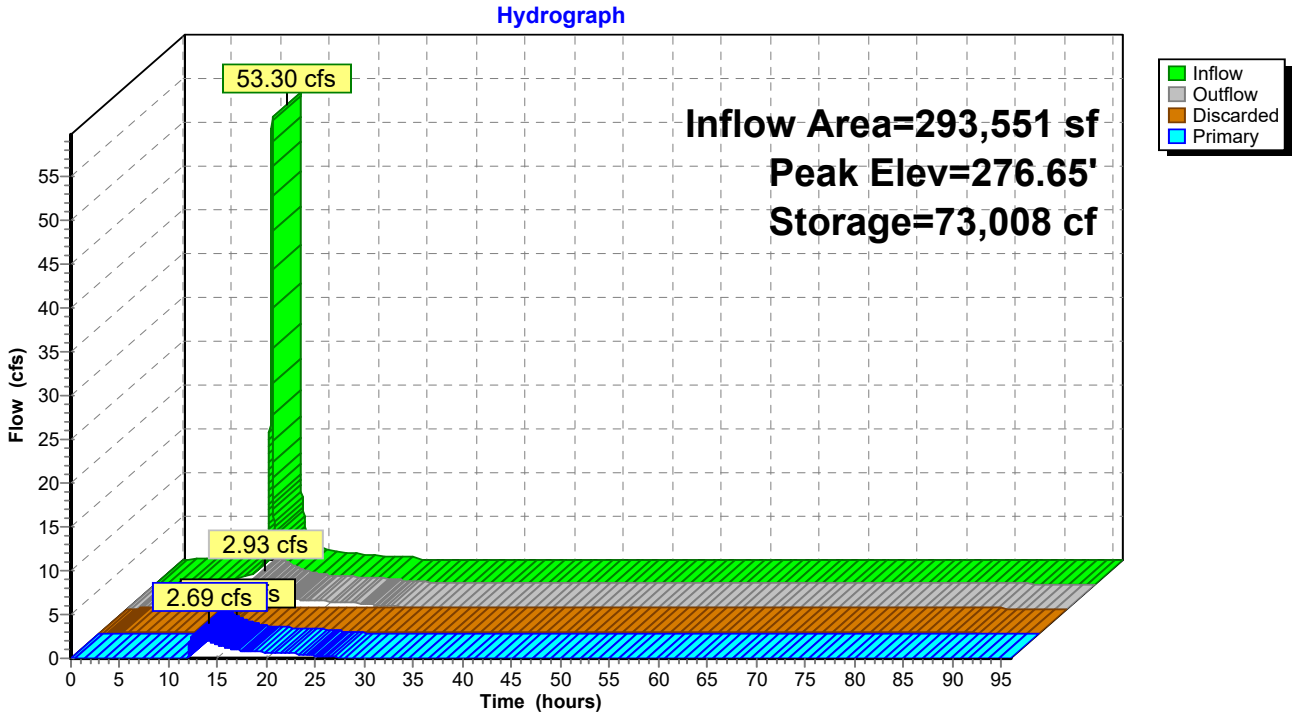
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	24,939	0	0
275.00	26,877	25,908	25,908
276.00	28,873	27,875	53,783
277.00	30,924	29,899	83,682
278.00	33,033	31,979	115,660
279.00	35,197	34,115	149,775
280.00	37,419	36,308	186,083

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.00'	**0.353 in/hr Exfiltration over Surface area**
#2	Primary	274.00'	**30.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 274.00' / 272.00' S= 0.0385 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#3	Device 2	275.75'	**12.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	276.25'	**24.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	277.00'	**24.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	277.50'	**24.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.25 cfs @ 12.74 hrs HW=276.65' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.25 cfs)

Primary OutFlow Max=2.69 cfs @ 12.74 hrs HW=276.65' TW=0.00' (Dynamic Tailwater)
├**2=Culvert** (Passes 2.69 cfs of 27.97 cfs potential flow)
│ ├**3=Orifice/Grate** (Orifice Controls 1.06 cfs @ 4.24 fps)
│ ├**4=Orifice/Grate** (Orifice Controls 1.63 cfs @ 2.03 fps)
│ └**5=Orifice/Grate** (Controls 0.00 cfs)
└**6=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: SCM 1: Infiltration AGB



Summary for Pond 2P: SCM 2: Detention UGB

Inflow Area = 353,446 sf, 98.31% Impervious, Inflow Depth = 5.51" for 25-yr event
Inflow = 68.71 cfs @ 11.96 hrs, Volume= 162,262 cf
Outflow = 17.75 cfs @ 12.08 hrs, Volume= 162,122 cf, Atten= 74%, Lag= 7.5 min
Primary = 17.75 cfs @ 12.08 hrs, Volume= 162,122 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 271.66' @ 12.08 hrs Surf.Area= 30,988 sf Storage= 65,556 cf

Plug-Flow detention time= 113.8 min calculated for 162,122 cf (100% of inflow)
Center-of-Mass det. time= 113.2 min (854.6 - 741.4)

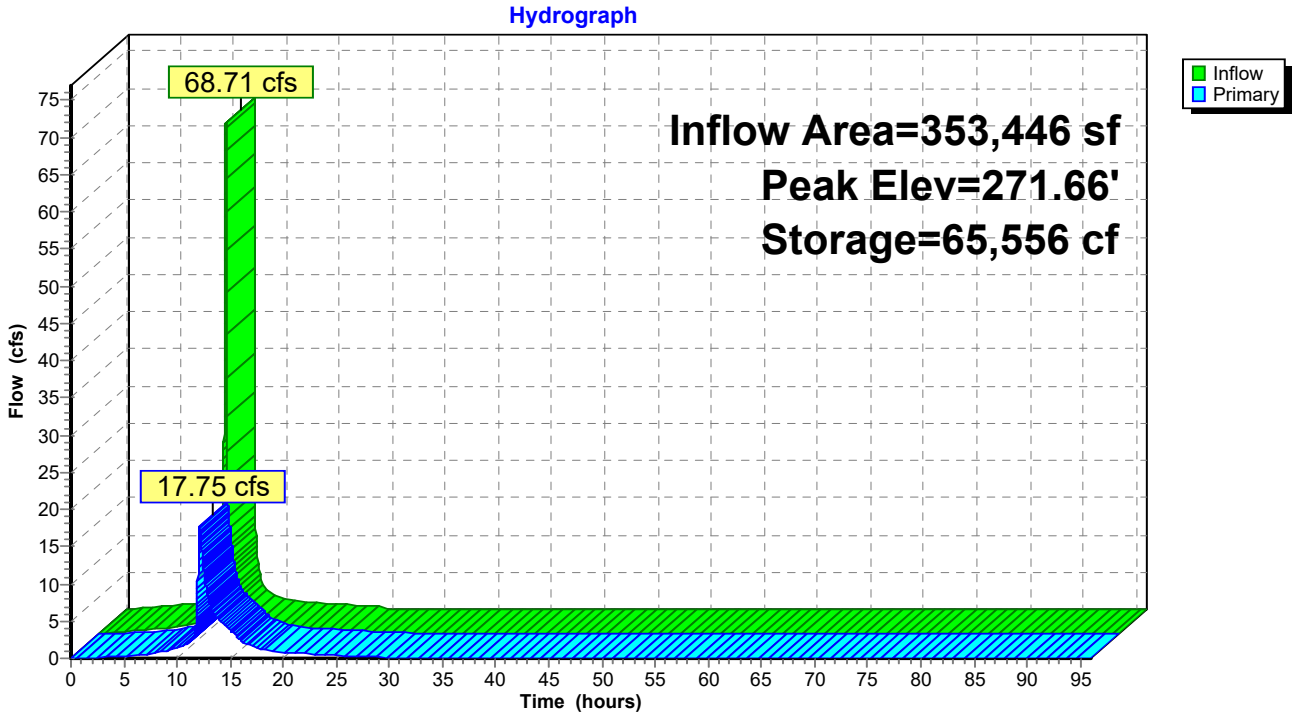
Volume	Invert	Avail.Storage	Storage Description
#1A	268.75'	41,546 cf	**63.75'W x 486.09'L x 5.50'H Field A** 170,435 cf Overall - 66,569 cf Embedded = 103,866 cf x 40.0% Voids
#2A	269.50'	66,569 cf	**ADS_StormTech MC-3500 d +Cap**x 603 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 603 Chambers in 9 Rows Cap Storage= 14.9 cf x 2 x 9 rows = 268.2 cf
		108,116 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	268.75'	**36.0" Round Outlet Pipe** L= 112.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 268.75' / 268.25' S= 0.0045 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	268.75'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	269.25'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	270.50'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	271.75'	**42.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	272.50'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=17.75 cfs @ 12.08 hrs HW=271.66' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 17.75 cfs of 31.30 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.18 cfs @ 8.03 fps)
  ├─**3=Orifice** (Orifice Controls 7.07 cfs @ 7.07 fps)
  ├─**4=Orifice** (Orifice Controls 9.50 cfs @ 3.80 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: SCM 2: Detention UGB



Summary for Pond 3P: SCM 3: Detention UGB

Inflow Area = 192,405 sf, 86.71% Impervious, Inflow Depth = 5.28" for 25-yr event
Inflow = 36.37 cfs @ 11.96 hrs, Volume= 84,687 cf
Outflow = 16.44 cfs @ 12.05 hrs, Volume= 84,648 cf, Atten= 55%, Lag= 5.4 min
Primary = 16.44 cfs @ 12.05 hrs, Volume= 84,648 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 274.38' @ 12.05 hrs Surf.Area= 16,811 sf Storage= 28,808 cf

Plug-Flow detention time= 78.1 min calculated for 84,648 cf (100% of inflow)
Center-of-Mass det. time= 77.8 min (824.8 - 747.0)

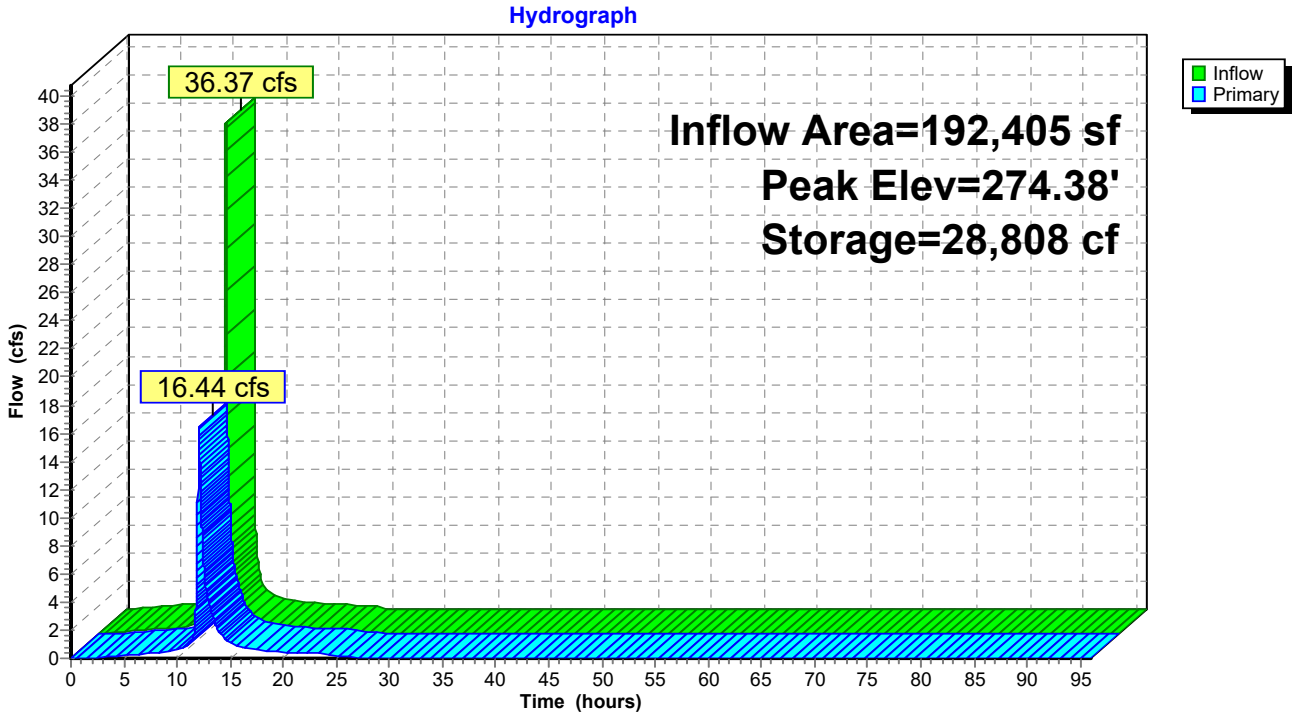
Volume	Invert	Avail.Storage	Storage Description
#1A	272.00'	15,071 cf	**46.75'W x 359.60'L x 3.75'H Field A** 63,042 cf Overall - 25,365 cf Embedded = 37,678 cf x 40.0% Voids
#2A	272.50'	25,365 cf	**ADS_StormTech SC-800 +Cap** x 500 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 500 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		40,436 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	272.00'	**36.0" Round Outlet Pipe** L= 628.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 272.00' / 268.25' S= 0.0060 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	272.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	272.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	273.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	274.50'	**42.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	275.25'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=16.43 cfs @ 12.05 hrs HW=274.38' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 16.43 cfs of 24.88 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.06 cfs @ 7.22 fps)
  ├─**3=Orifice** (Orifice Controls 6.13 cfs @ 6.13 fps)
  ├─**4=Orifice** (Orifice Controls 9.23 cfs @ 3.69 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: SCM 3: Detention UGB



Summary for Pond 4P: SCM 4: Detention UGB

Inflow Area = 156,163 sf, 91.35% Impervious, Inflow Depth = 5.37" for 25-yr event
Inflow = 29.85 cfs @ 11.96 hrs, Volume= 69,918 cf
Outflow = 10.59 cfs @ 12.06 hrs, Volume= 69,876 cf, Atten= 65%, Lag= 6.3 min
Primary = 10.59 cfs @ 12.06 hrs, Volume= 69,876 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 274.68' @ 12.06 hrs Surf.Area= 20,685 sf Storage= 22,972 cf

Plug-Flow detention time= 70.8 min calculated for 69,876 cf (100% of inflow)
Center-of-Mass det. time= 70.4 min (815.2 - 744.7)

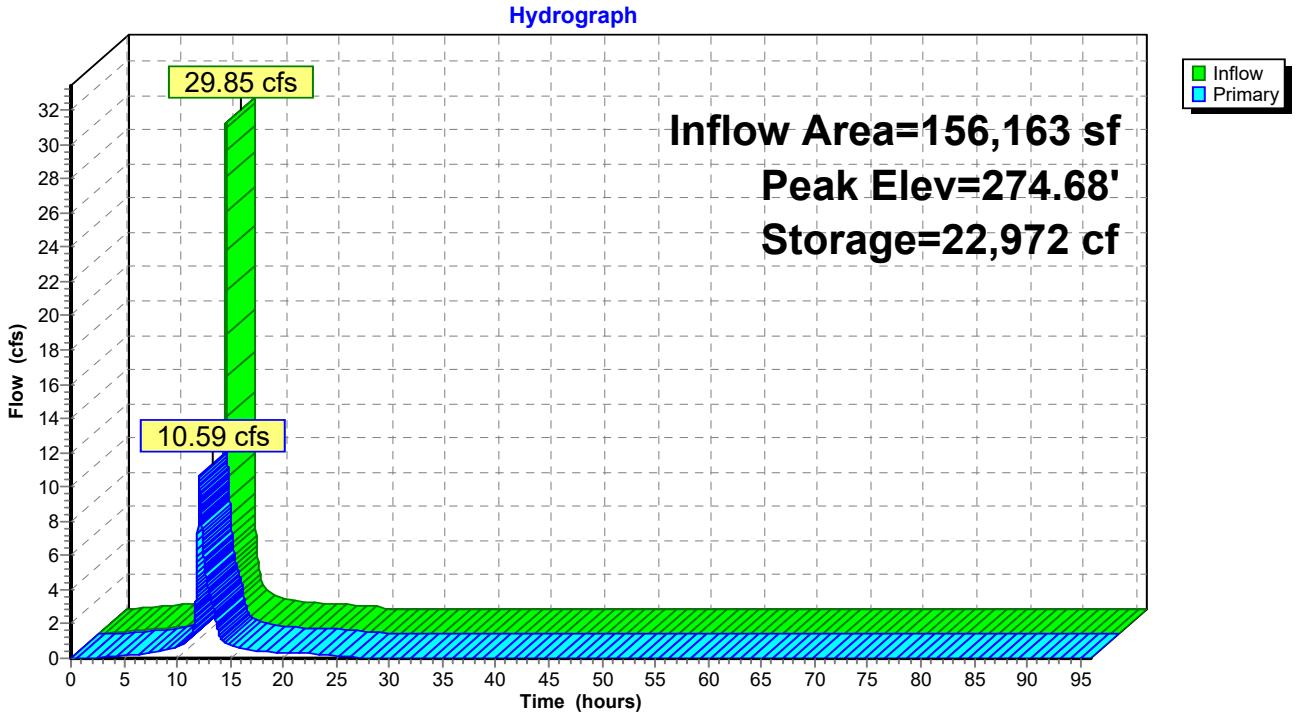
Volume	Invert	Avail.Storage	Storage Description
#1A	273.00'	27,875 cf	**49.92'W x 414.39'L x 5.50'H Field A** 113,767 cf Overall - 44,079 cf Embedded = 69,688 cf x 40.0% Voids
#2A	273.75'	44,079 cf	**ADS_StormTech MC-3500 d +Cap**x 399 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 399 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		71,955 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	**36.0" Round Outlet Pipe** L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 273.00' / 269.00' S= 0.0381 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	273.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	273.25'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	274.00'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	274.75'	**42.0" W x 4.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	275.09'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=10.59 cfs @ 12.06 hrs HW=274.68' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 10.59 cfs of 14.17 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.88 cfs @ 6.00 fps)
  ├─**3=Orifice** (Orifice Controls 5.22 cfs @ 5.22 fps)
  ├─**4=Orifice** (Orifice Controls 4.49 cfs @ 2.64 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: SCM 4: Detention UGB



Summary for Pond 5P: SCM 5: Detention UGB

Inflow Area = 125,496 sf, 86.78% Impervious, Inflow Depth = 5.28" for 25-yr event
Inflow = 23.73 cfs @ 11.96 hrs, Volume= 55,251 cf
Outflow = 15.38 cfs @ 12.02 hrs, Volume= 55,241 cf, Atten= 35%, Lag= 4.0 min
Primary = 15.38 cfs @ 12.02 hrs, Volume= 55,241 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 278.78' @ 12.02 hrs Surf.Area= 8,494 sf Storage= 13,948 cf

Plug-Flow detention time= 41.8 min calculated for 55,235 cf (100% of inflow)
Center-of-Mass det. time= 42.0 min (789.0 - 747.0)

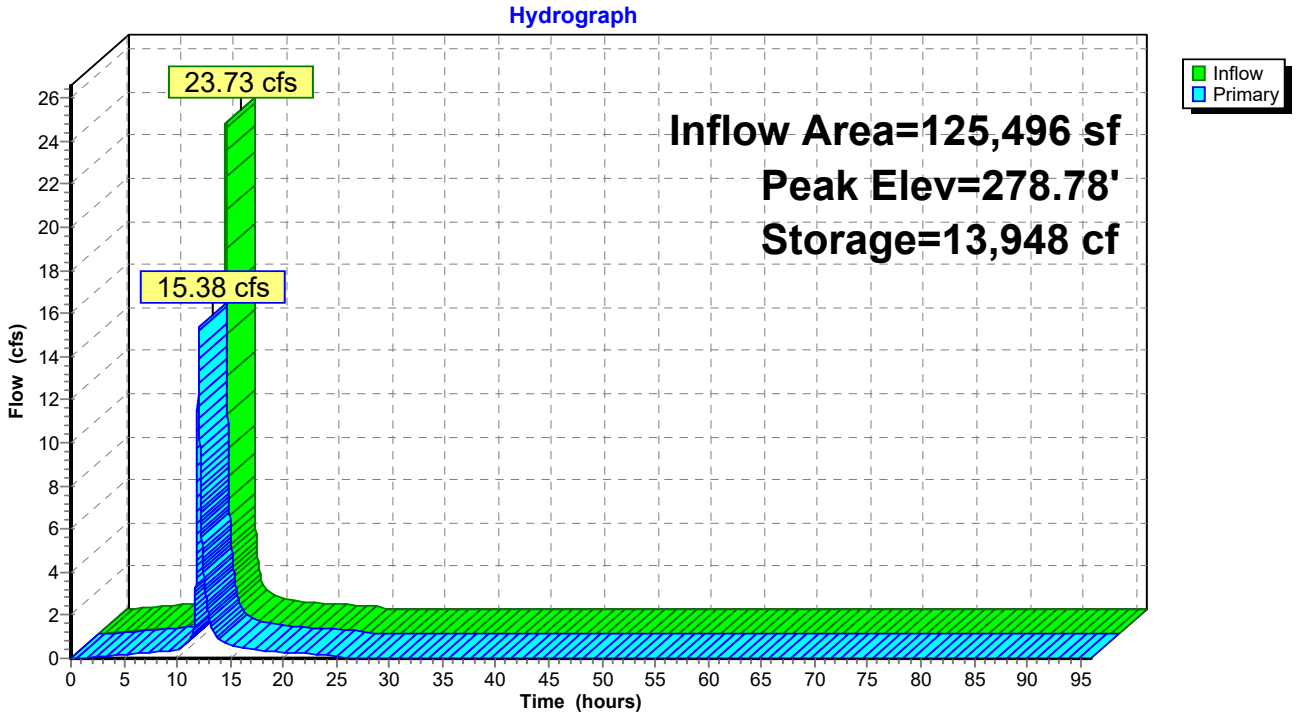
Volume	Invert	Avail.Storage	Storage Description
#1A	276.50'	7,654 cf	**46.75'W x 181.68'L x 3.75'H Field A** 31,851 cf Overall - 12,716 cf Embedded = 19,135 cf x 40.0% Voids
#2A	277.00'	12,716 cf	**ADS_StormTech SC-800 +Cap** x 250 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 250 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		20,370 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	276.50'	**36.0" Round Outlet Pipe** L= 900.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 276.50' / 269.00' S= 0.0083 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	276.50'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	277.00'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	277.75'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.00'	**36.0" W x 4.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	279.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=15.37 cfs @ 12.02 hrs HW=278.78' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 15.37 cfs of 23.43 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.04 cfs @ 7.07 fps)
  ├─**3=Orifice** (Orifice Controls 5.95 cfs @ 5.95 fps)
  ├─**4=Orifice** (Orifice Controls 8.37 cfs @ 3.35 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5P: SCM 5: Detention UGB



Summary for Pond 6P: SCM 6: Detention UGB

Inflow Area = 145,316 sf, 77.34% Impervious, Inflow Depth = 5.02" for 25-yr event
Inflow = 26.42 cfs @ 11.96 hrs, Volume= 60,813 cf
Outflow = 13.90 cfs @ 12.04 hrs, Volume= 60,797 cf, Atten= 47%, Lag= 4.9 min
Primary = 13.90 cfs @ 12.04 hrs, Volume= 60,797 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 282.18' @ 12.04 hrs Surf.Area= 11,821 sf Storage= 18,531 cf

Plug-Flow detention time= 58.5 min calculated for 60,797 cf (100% of inflow)
Center-of-Mass det. time= 58.3 min (810.4 - 752.2)

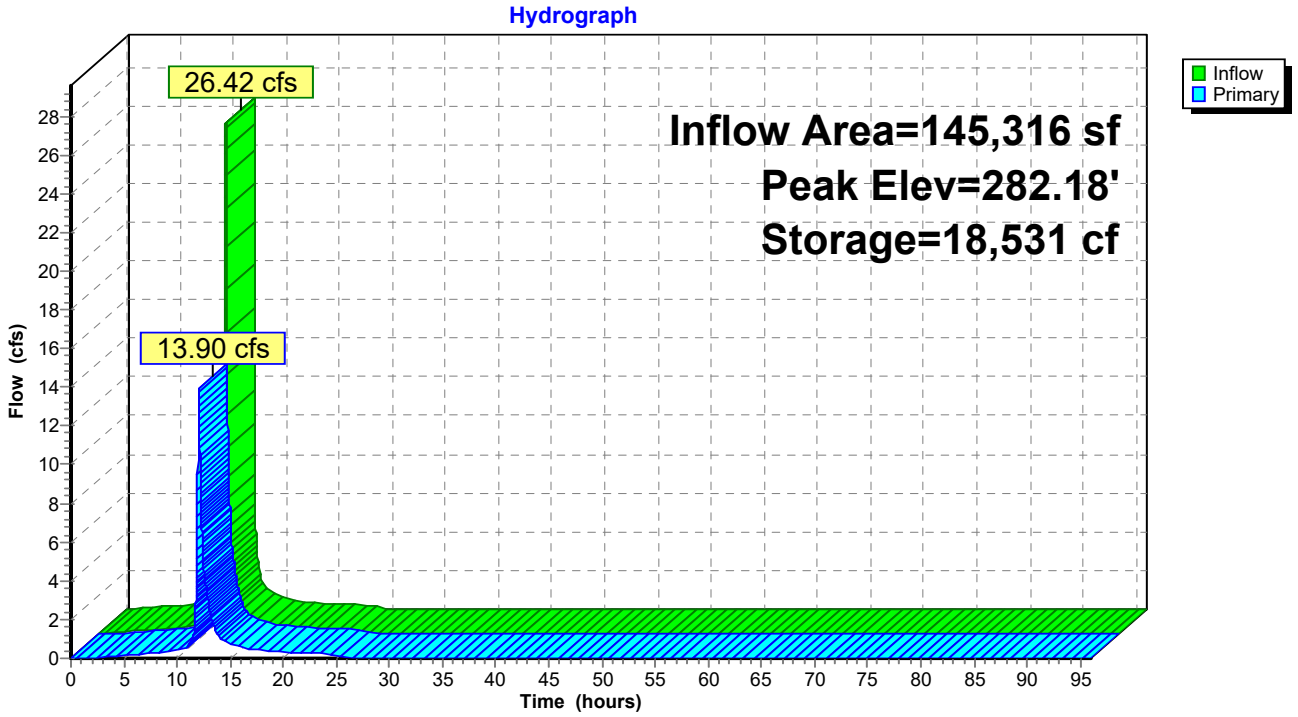
Volume	Invert	Avail.Storage	Storage Description
#1A	280.00'	10,621 cf	**46.75'W x 252.85'L x 3.75'H Field A** 44,328 cf Overall - 17,776 cf Embedded = 26,552 cf x 40.0% Voids
#2A	280.50'	17,776 cf	**ADS_StormTech SC-800 +Cap** x 350 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 350 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		28,397 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	280.00'	**36.0" Round Outlet Pipe** L= 800.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 280.00' / 271.00' S= 0.0112 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	280.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	281.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	282.50'	**42.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	283.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=13.89 cfs @ 12.04 hrs HW=282.17' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 13.89 cfs of 21.75 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.02 cfs @ 6.89 fps)
  ├─**3=Orifice** (Orifice Controls 5.74 cfs @ 5.74 fps)
  ├─**4=Orifice** (Orifice Controls 7.14 cfs @ 3.09 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6P: SCM 6: Detention UGB



Summary for Pond 7P: SCM 7: Detention UGB

Inflow Area = 185,261 sf, 92.97% Impervious, Inflow Depth = 5.40" for 25-yr event
Inflow = 35.56 cfs @ 11.96 hrs, Volume= 83,435 cf
Outflow = 14.33 cfs @ 12.05 hrs, Volume= 83,402 cf, Atten= 60%, Lag= 5.8 min
Primary = 14.33 cfs @ 12.05 hrs, Volume= 83,402 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 275.21' @ 12.05 hrs Surf.Area= 18,180 sf Storage= 28,205 cf

Plug-Flow detention time= 75.9 min calculated for 83,394 cf (100% of inflow)
Center-of-Mass det. time= 76.0 min (820.0 - 743.9)

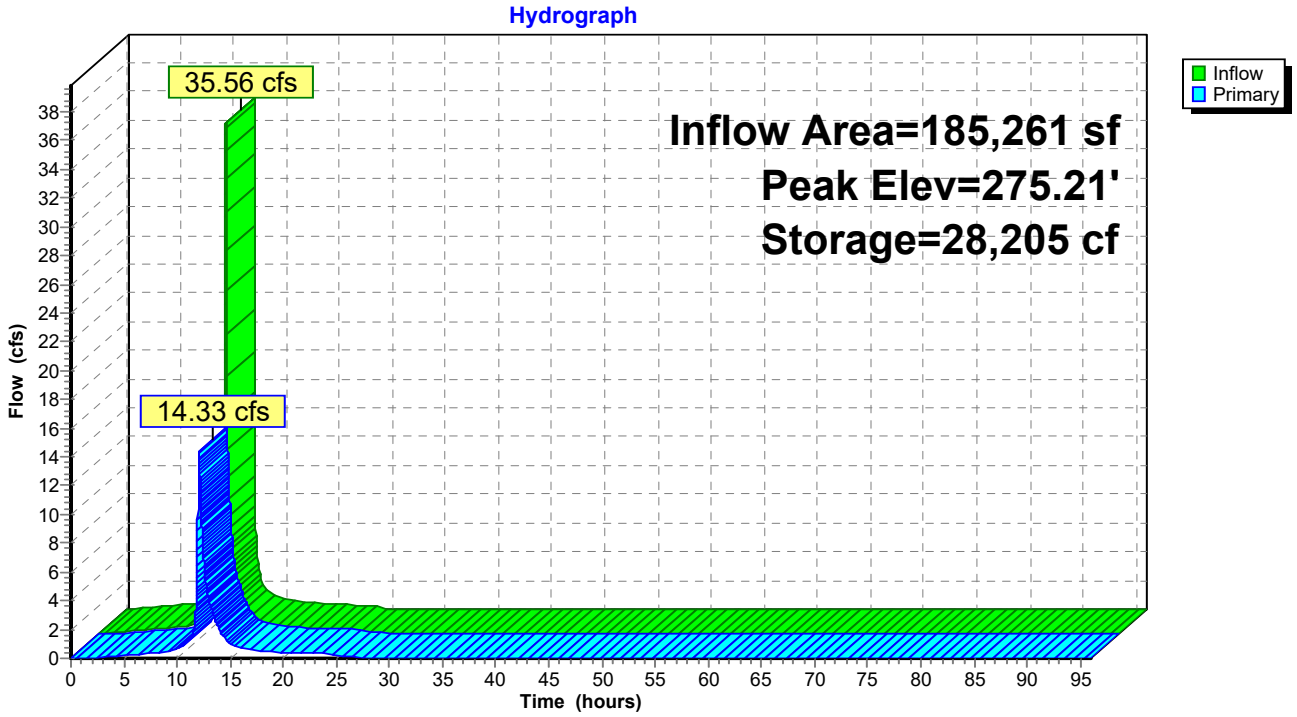
Volume	Invert	Avail.Storage	Storage Description
#1A	273.00'	24,519 cf	**49.92'W x 364.20'L x 5.50'H Field A** 99,988 cf Overall - 38,692 cf Embedded = 61,296 cf x 40.0% Voids
#2A	273.75'	38,692 cf	**ADS_StormTech MC-3500 d +Cap**x 350 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 350 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		63,210 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	**36.0" Round Outlet Pipe** L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 273.00' / 271.00' S= 0.0190 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	273.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	273.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	274.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	275.50'	**42.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	276.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=14.32 cfs @ 12.05 hrs HW=275.21' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 14.32 cfs of 22.24 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.02 cfs @ 6.95 fps)
  ├─**3=Orifice** (Orifice Controls 5.80 cfs @ 5.80 fps)
  ├─**4=Orifice** (Orifice Controls 7.50 cfs @ 3.14 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7P: SCM 7: Detention UGB

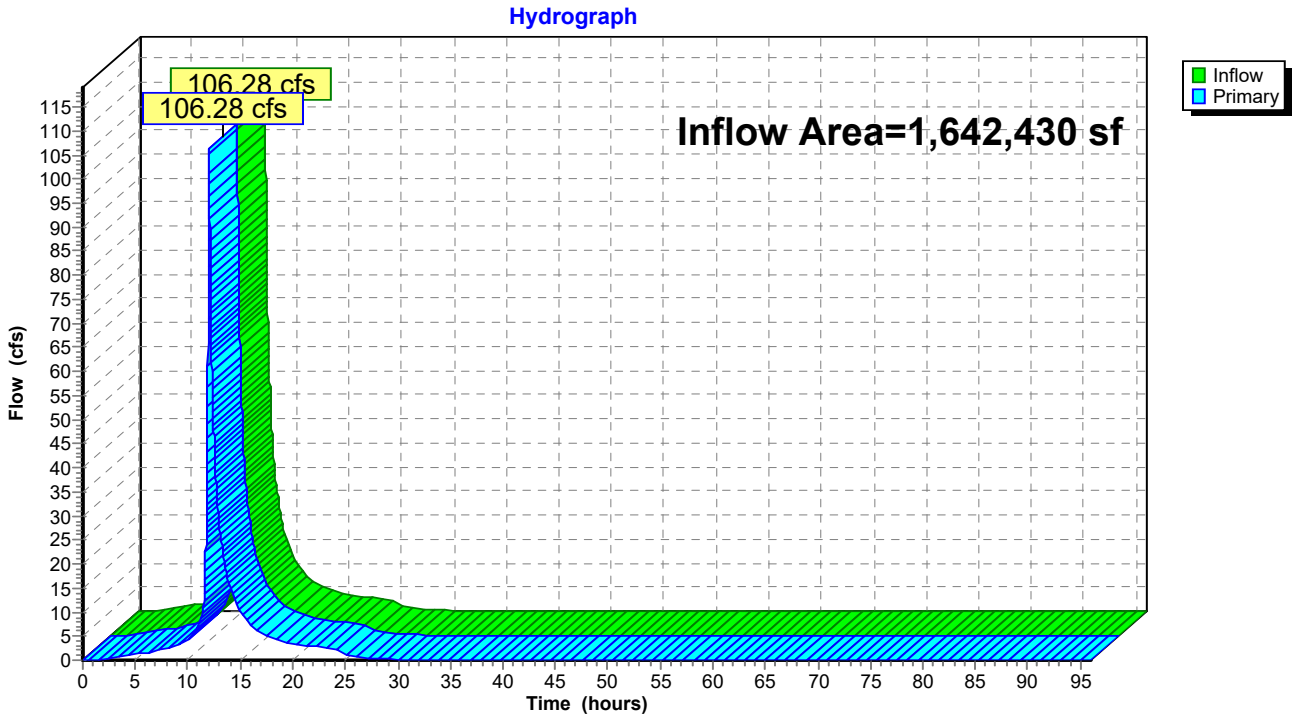


Summary for Link POA1: POA #1

Inflow Area = 1,642,430 sf, 77.11% Impervious, Inflow Depth = 4.57" for 25-yr event
Inflow = 106.28 cfs @ 12.01 hrs, Volume= 624,910 cf
Primary = 106.28 cfs @ 12.01 hrs, Volume= 624,910 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA1: POA #1

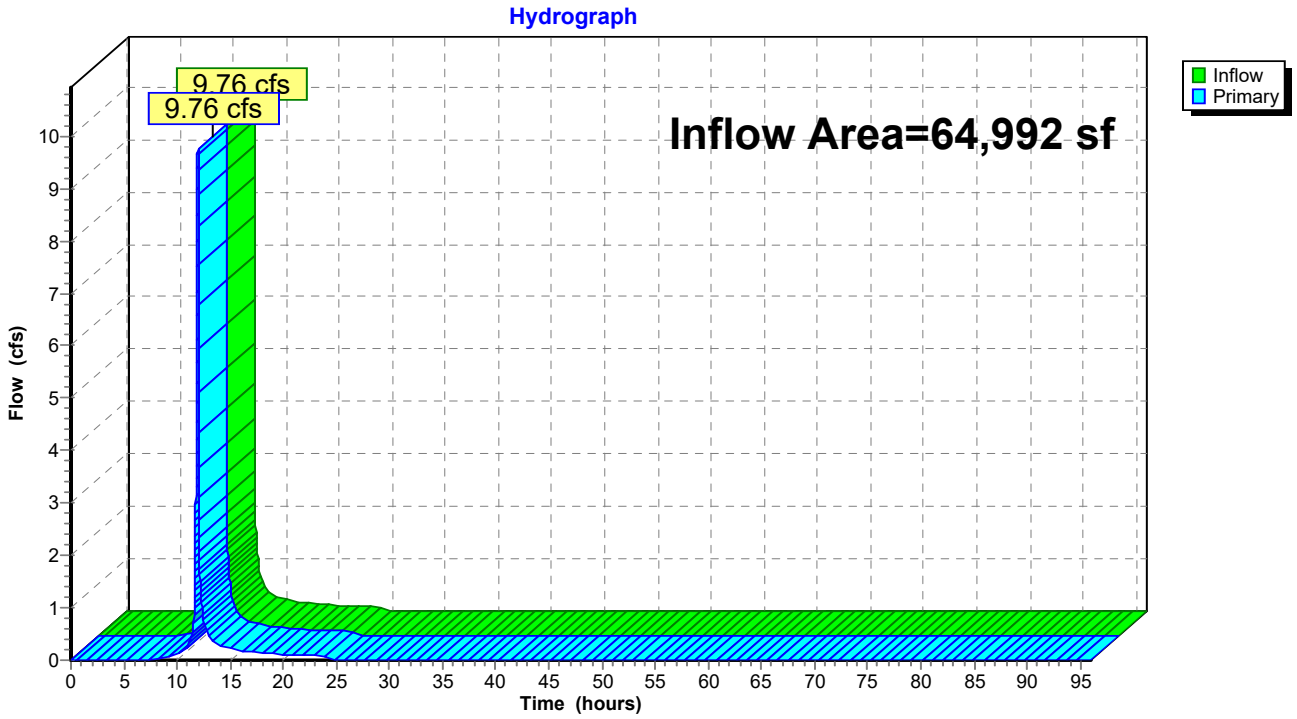


Summary for Link POA2: POA #2

Inflow Area = 64,992 sf, 2.01% Impervious, Inflow Depth = 3.62" for 25-yr event
Inflow = 9.76 cfs @ 11.96 hrs, Volume= 19,621 cf
Primary = 9.76 cfs @ 11.96 hrs, Volume= 19,621 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA2: POA #2

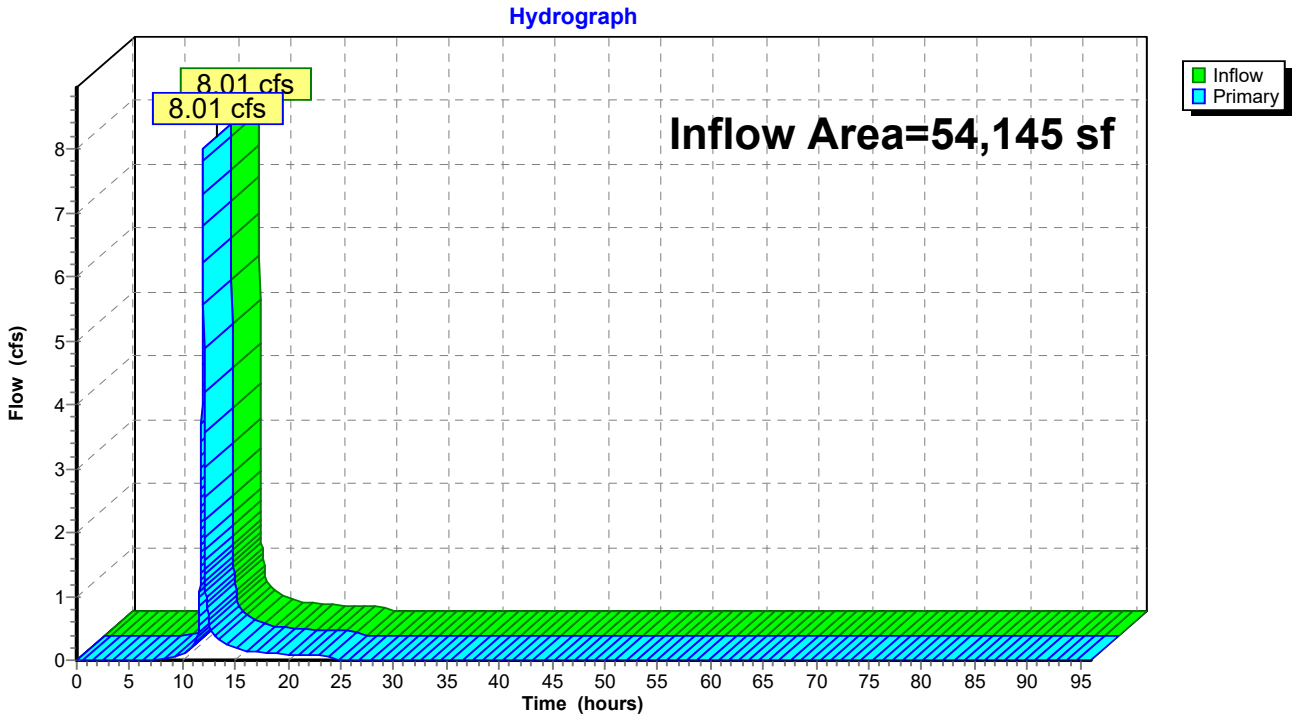


Summary for Link POA3: POA #3

Inflow Area = 54,145 sf, 0.00% Impervious, Inflow Depth = 3.55" for 25-yr event
Inflow = 8.01 cfs @ 11.96 hrs, Volume= 16,016 cf
Primary = 8.01 cfs @ 11.96 hrs, Volume= 16,016 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA3: POA #3



Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: DA-1 Runoff Area=6.739 ac 72.10% Impervious Runoff Depth=5.79"
Tc=5.0 min CN=WQ Runoff=61.79 cfs 141,696 cf

Subcatchment2B: Bypass to POA #2 Runoff Area=1.492 ac 2.01% Impervious Runoff Depth=4.39"
Tc=5.0 min CN=WQ Runoff=11.70 cfs 23,754 cf

Subcatchment2S: DA-2 Runoff Area=8.114 ac 98.31% Impervious Runoff Depth=6.35"
Tc=5.0 min CN=WQ Runoff=78.81 cfs 186,939 cf

Subcatchment3B: Bypass to POA #3 Runoff Area=1.243 ac 0.00% Impervious Runoff Depth=4.31"
Tc=5.0 min CN=WQ Runoff=9.63 cfs 19,440 cf

Subcatchment3S: DA-3 Runoff Area=4.417 ac 86.71% Impervious Runoff Depth=6.11"
Tc=5.0 min CN=WQ Runoff=41.90 cfs 97,976 cf

Subcatchment4S: DA-4 Runoff Area=3.585 ac 91.35% Impervious Runoff Depth=6.21"
Tc=5.0 min CN=WQ Runoff=34.34 cfs 80,751 cf

Subcatchment5S: DA-5 Runoff Area=2.881 ac 86.78% Impervious Runoff Depth=6.11"
Tc=5.0 min CN=WQ Runoff=27.34 cfs 63,919 cf

Subcatchment6S: DA-6 Runoff Area=3.336 ac 77.34% Impervious Runoff Depth=5.84"
Tc=5.0 min CN=WQ Runoff=30.60 cfs 70,681 cf

Subcatchment7S: DA-7 Runoff Area=4.253 ac 92.97% Impervious Runoff Depth=6.24"
Tc=5.0 min CN=WQ Runoff=40.87 cfs 96,306 cf

Subcatchment8S: DA-8 Runoff Area=4.380 ac 2.31% Impervious Runoff Depth=4.34"
Tc=5.0 min CN=WQ Runoff=34.01 cfs 68,972 cf

Pond 1P: SCM 1: Infiltration AGB Peak Elev=276.97' Storage=82,640 cf Inflow=61.79 cfs 141,696 cf
Discarded=0.25 cfs 70,568 cf Primary=4.50 cfs 71,130 cf Outflow=4.76 cfs 141,698 cf

Pond 2P: SCM 2: Detention UGB Peak Elev=272.01' Storage=73,736 cf Inflow=78.81 cfs 186,939 cf
Outflow=22.42 cfs 186,798 cf

Pond 3P: SCM 3: Detention UGB Peak Elev=274.67' Storage=32,096 cf Inflow=41.90 cfs 97,976 cf
Outflow=20.02 cfs 97,937 cf

Pond 4P: SCM 4: Detention UGB Peak Elev=274.85' Storage=25,918 cf Inflow=34.34 cfs 80,751 cf
Outflow=13.10 cfs 80,709 cf

Pond 5P: SCM 5: Detention UGB Peak Elev=279.03' Storage=15,381 cf Inflow=27.34 cfs 63,919 cf
Outflow=18.00 cfs 63,910 cf

Pond 6P: SCM 6: Detention UGB Peak Elev=282.42' Storage=20,601 cf Inflow=30.60 cfs 70,681 cf
Outflow=16.92 cfs 70,666 cf

Pond 7P: SCM 7: Detention UGB Peak Elev=275.44' Storage=31,588 cf Inflow=40.87 cfs 96,306 cf
Outflow=17.04 cfs 96,273 cf

Link POA1: POA #1 Inflow=130.30 cfs 736,395 cf
Primary=130.30 cfs 736,395 cf

Link POA2: POA #2 Inflow=11.70 cfs 23,754 cf
Primary=11.70 cfs 23,754 cf

Link POA3: POA #3 Inflow=9.63 cfs 19,440 cf
Primary=9.63 cfs 19,440 cf

Total Runoff Area = 1,761,566 sf Runoff Volume = 850,436 cf Average Runoff Depth = 5.79"
28.03% Pervious = 493,709 sf 71.97% Impervious = 1,267,857 sf

Summary for Subcatchment 1S: DA-1

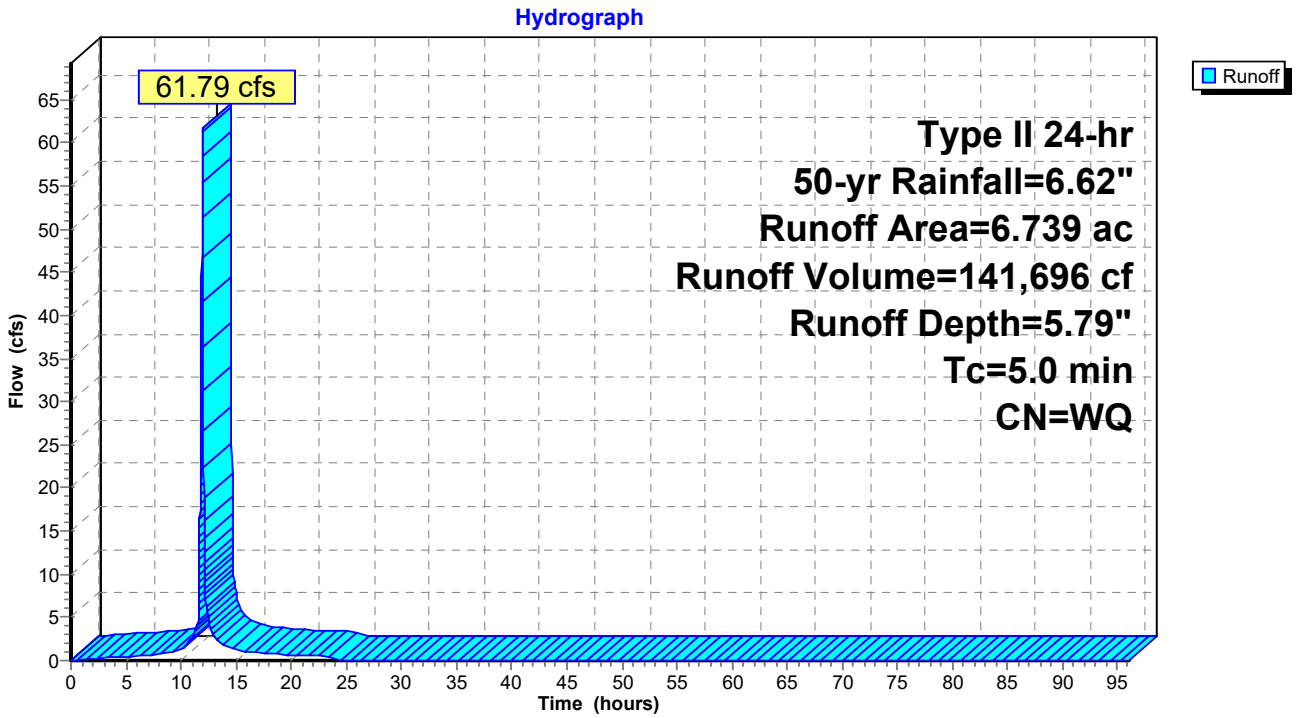
Runoff = 61.79 cfs @ 11.96 hrs, Volume= 141,696 cf, Depth= 5.79"
Routed to Pond 1P : SCM 1: Infiltration AGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

Area (ac)	CN	Description
0.222	74	>75% Grass cover, Good, HSG C
1.658	80	>75% Grass cover, Good, HSG D
4.859	98	Paved parking, HSG D
6.739		Weighted Average
1.880		27.90% Pervious Area
4.859		72.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DA-1



Summary for Subcatchment 2B: Bypass to POA #2

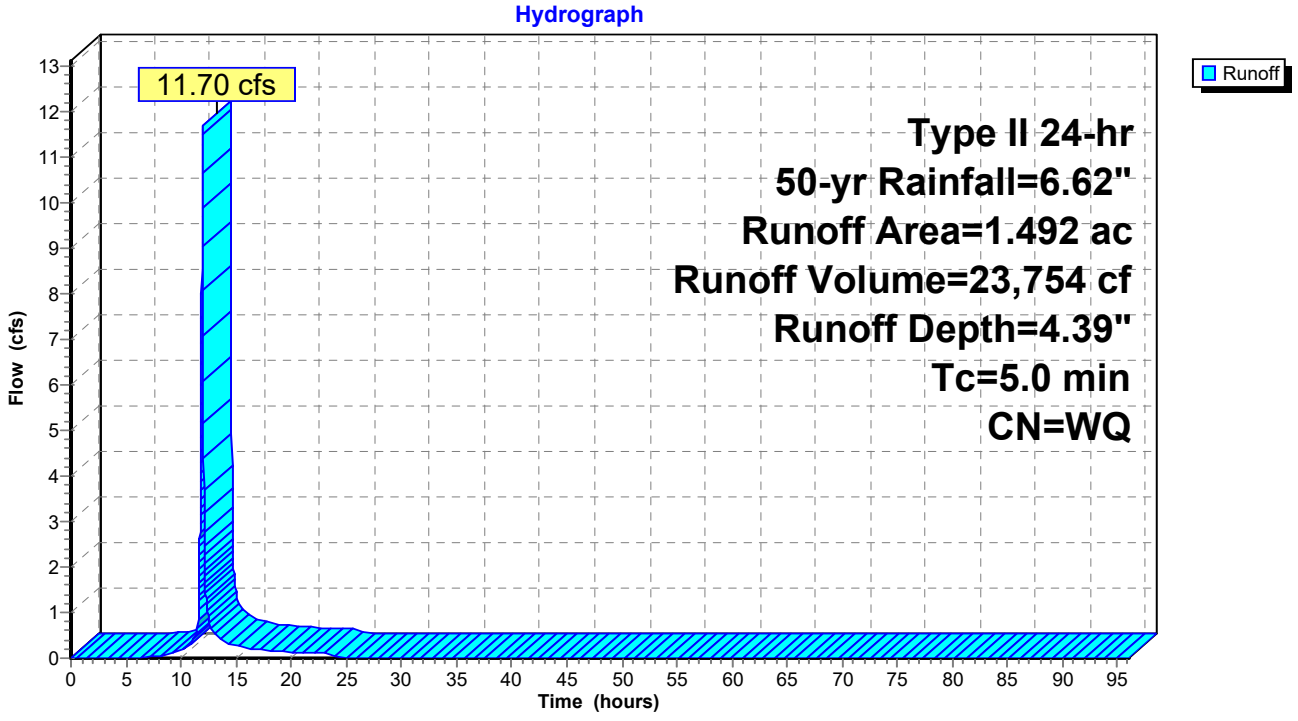
Runoff = 11.70 cfs @ 11.96 hrs, Volume= 23,754 cf, Depth= 4.39"
Routed to Link POA2 : POA #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

Area (ac)	CN	Description
1.462	80	>75% Grass cover, Good, HSG D
0.030	98	Paved parking, HSG D
1.492		Weighted Average
1.462		97.99% Pervious Area
0.030		2.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2B: Bypass to POA #2



Summary for Subcatchment 2S: DA-2

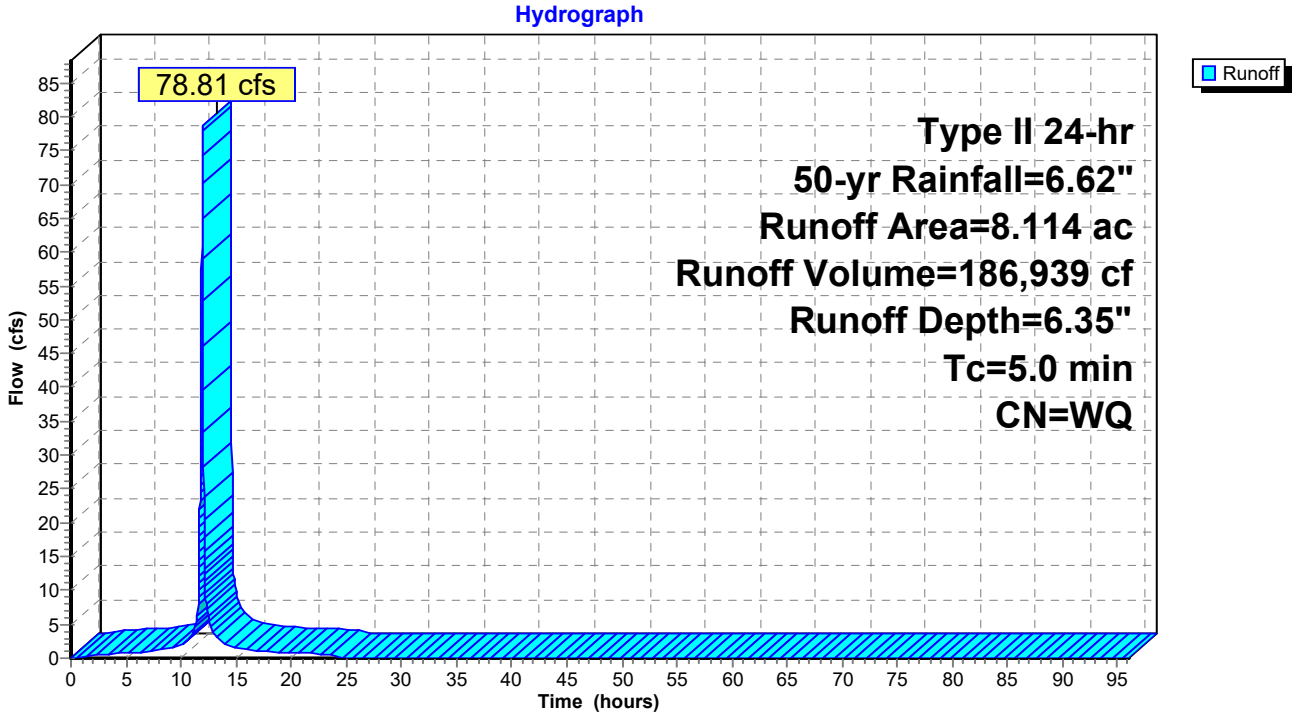
Runoff = 78.81 cfs @ 11.96 hrs, Volume= 186,939 cf, Depth= 6.35"
Routed to Pond 2P : SCM 2: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

Area (ac)	CN	Description
0.137	80	>75% Grass cover, Good, HSG D
7.977	98	Paved parking, HSG D
8.114		Weighted Average
0.137		1.69% Pervious Area
7.977		98.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: DA-2



Summary for Subcatchment 3B: Bypass to POA #3

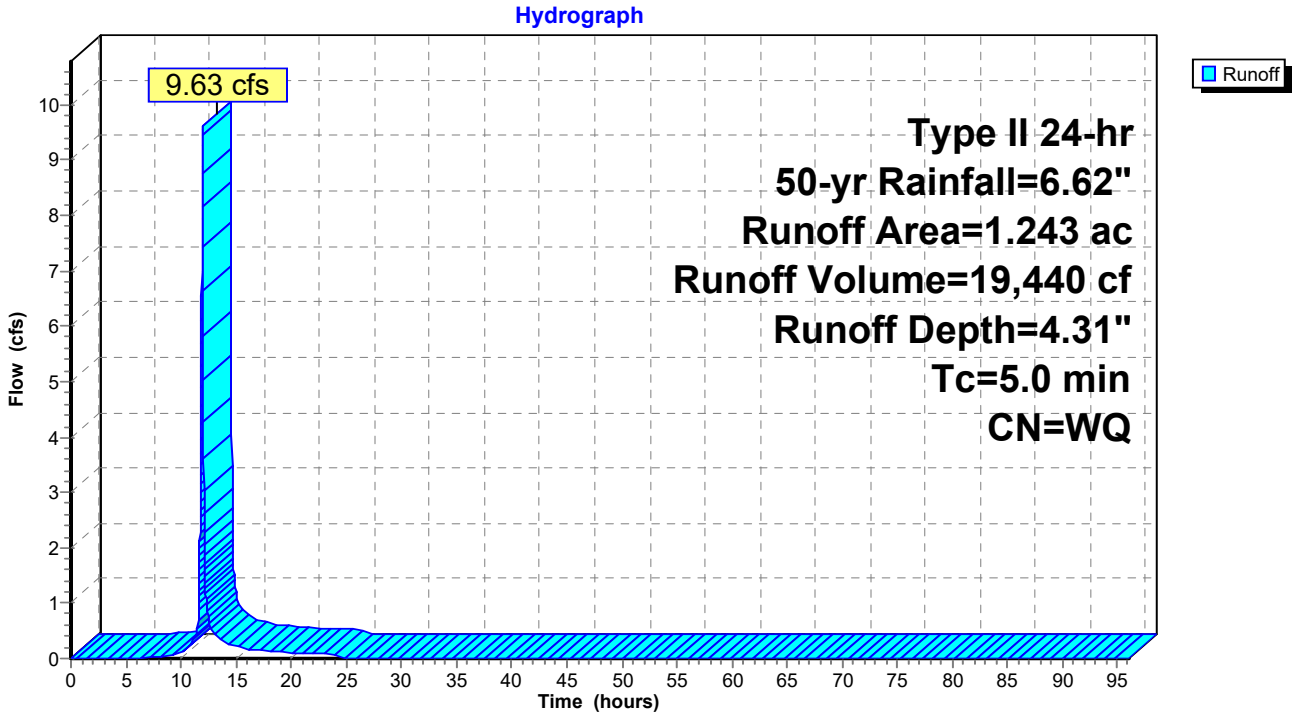
Runoff = 9.63 cfs @ 11.96 hrs, Volume= 19,440 cf, Depth= 4.31"
Routed to Link POA3 : POA #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

Area (ac)	CN	Description
0.072	74	>75% Grass cover, Good, HSG C
1.171	80	>75% Grass cover, Good, HSG D
1.243		Weighted Average
1.243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3B: Bypass to POA #3



Summary for Subcatchment 3S: DA-3

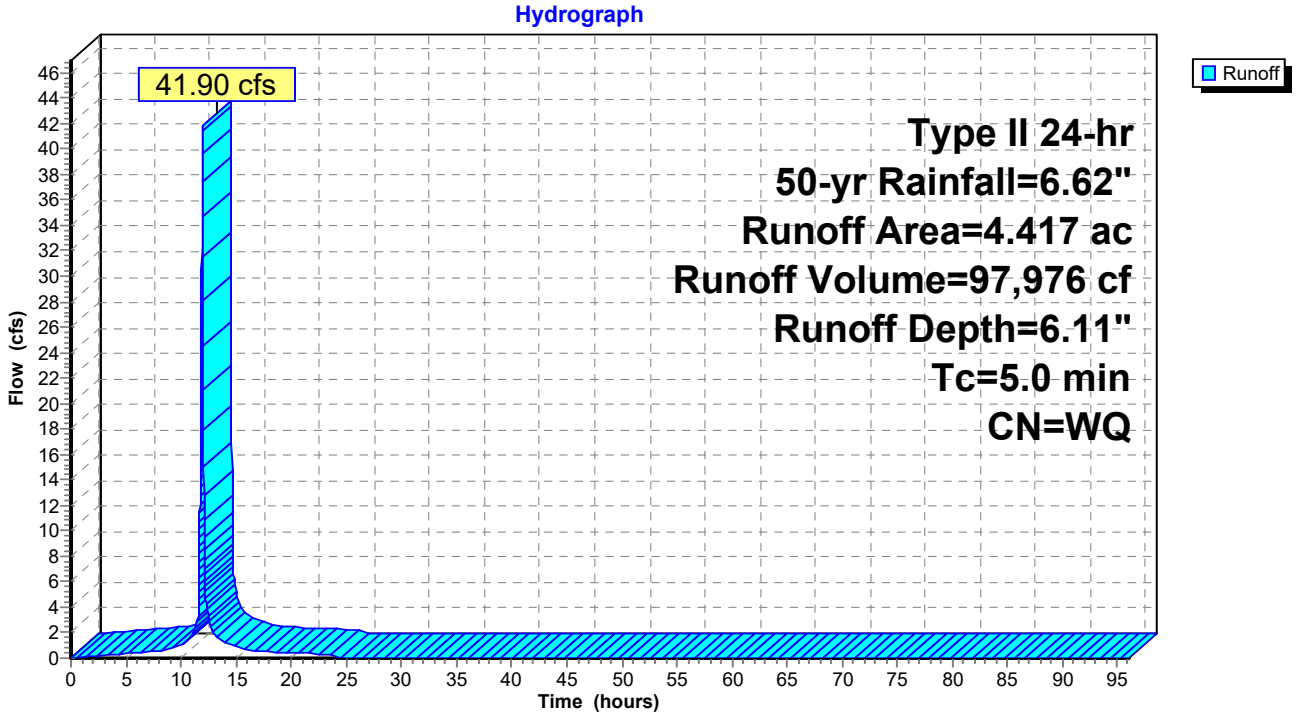
Runoff = 41.90 cfs @ 11.96 hrs, Volume= 97,976 cf, Depth= 6.11"
Routed to Pond 3P : SCM 3: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

Area (ac)	CN	Description
0.587	80	>75% Grass cover, Good, HSG D
3.830	98	Paved parking, HSG D
4.417		Weighted Average
0.587		13.29% Pervious Area
3.830		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: DA-3



Summary for Subcatchment 4S: DA-4

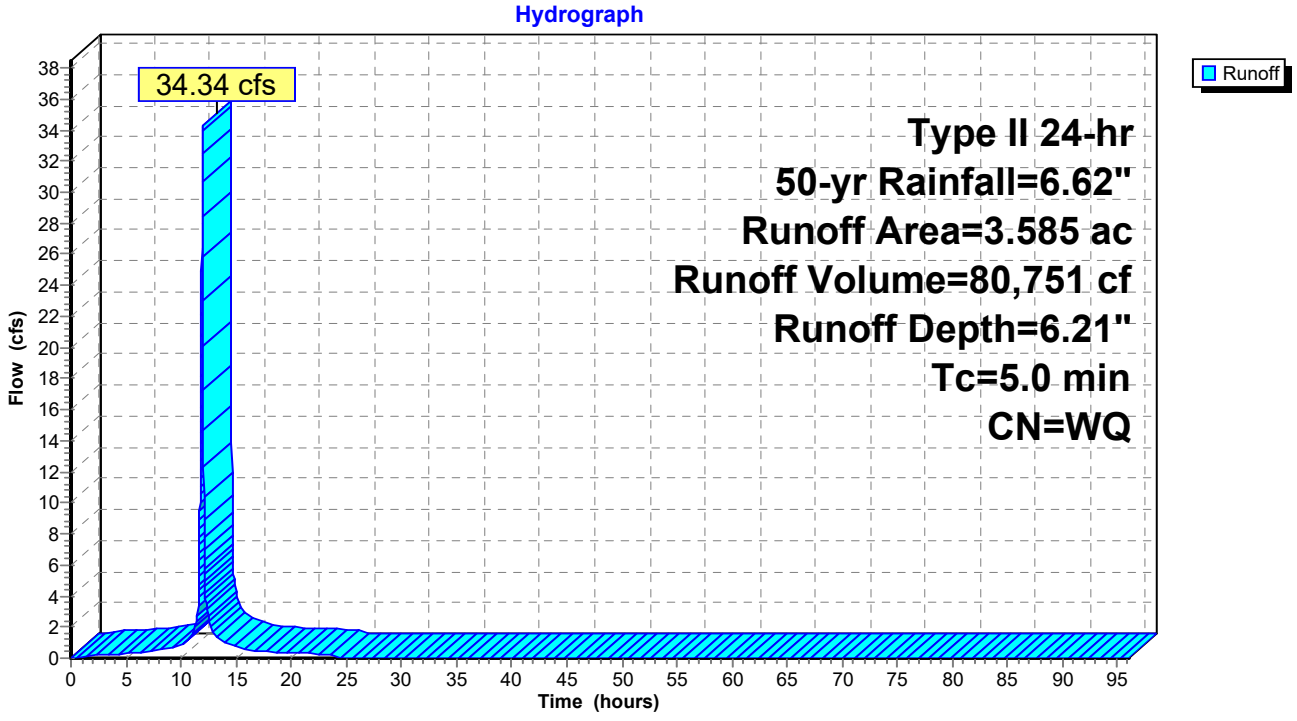
Runoff = 34.34 cfs @ 11.96 hrs, Volume= 80,751 cf, Depth= 6.21"
Routed to Pond 4P : SCM 4: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

Area (ac)	CN	Description
0.310	80	>75% Grass cover, Good, HSG D
3.275	98	Paved parking, HSG D
3.585		Weighted Average
0.310		8.65% Pervious Area
3.275		91.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: DA-4



Summary for Subcatchment 5S: DA-5

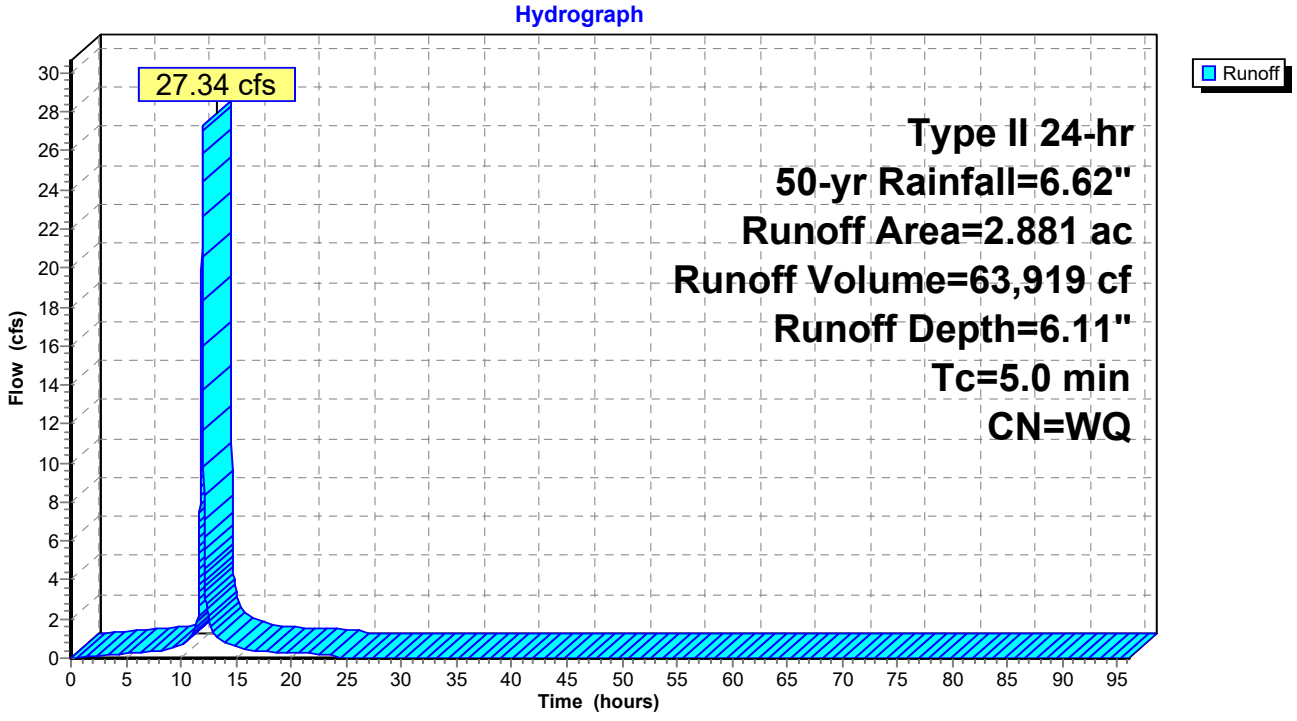
Runoff = 27.34 cfs @ 11.96 hrs, Volume= 63,919 cf, Depth= 6.11"
Routed to Pond 5P : SCM 5: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

Area (ac)	CN	Description
0.381	80	>75% Grass cover, Good, HSG D
2.500	98	Paved parking, HSG D
2.881		Weighted Average
0.381		13.22% Pervious Area
2.500		86.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: DA-5



Summary for Subcatchment 6S: DA-6

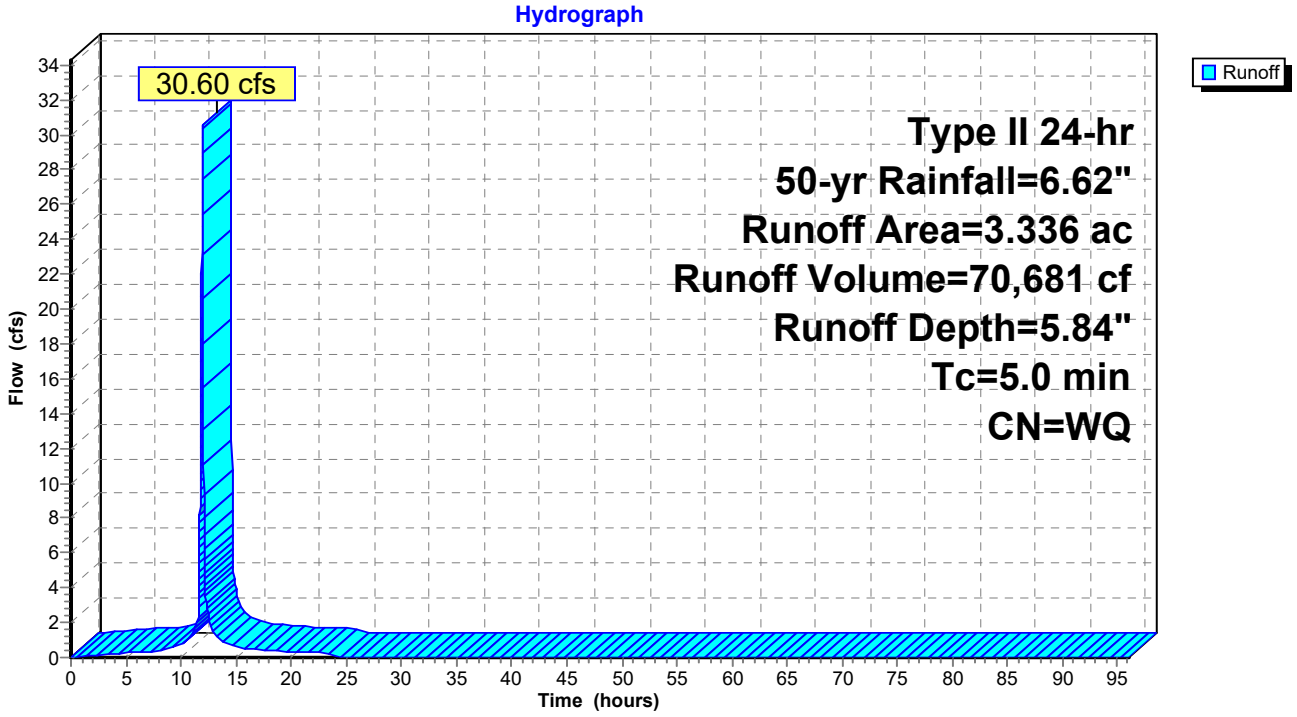
Runoff = 30.60 cfs @ 11.96 hrs, Volume= 70,681 cf, Depth= 5.84"
Routed to Pond 6P : SCM 6: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

Area (ac)	CN	Description
0.255	74	>75% Grass cover, Good, HSG C
0.084	70	Woods, Good, HSG C
0.328	80	>75% Grass cover, Good, HSG D
2.580	98	Paved parking, HSG D
0.089	77	Woods, Good, HSG D
3.336		Weighted Average
0.756		22.66% Pervious Area
2.580		77.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: DA-6



Summary for Subcatchment 7S: DA-7

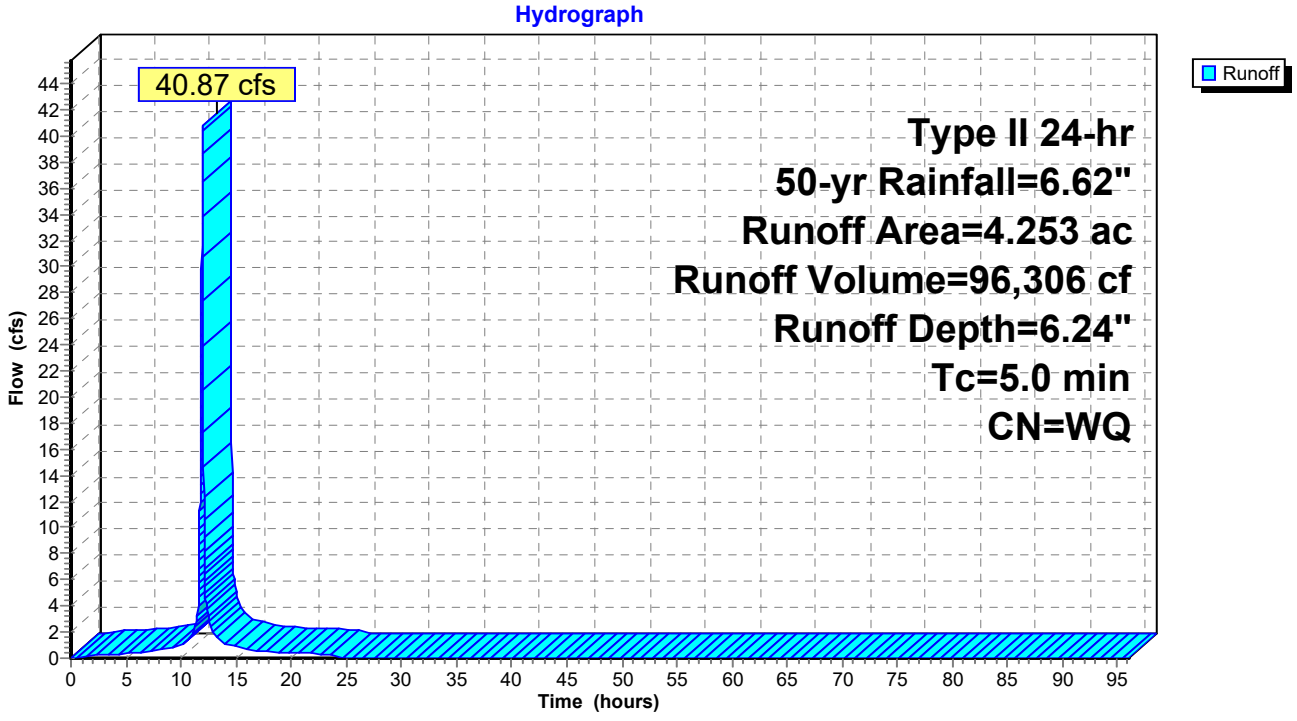
Runoff = 40.87 cfs @ 11.96 hrs, Volume= 96,306 cf, Depth= 6.24"
Routed to Pond 7P : SCM 7: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

Area (ac)	CN	Description
0.299	80	>75% Grass cover, Good, HSG D
3.954	98	Paved parking, HSG D
4.253		Weighted Average
0.299		7.03% Pervious Area
3.954		92.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: DA-7



Summary for Subcatchment 8S: DA-8

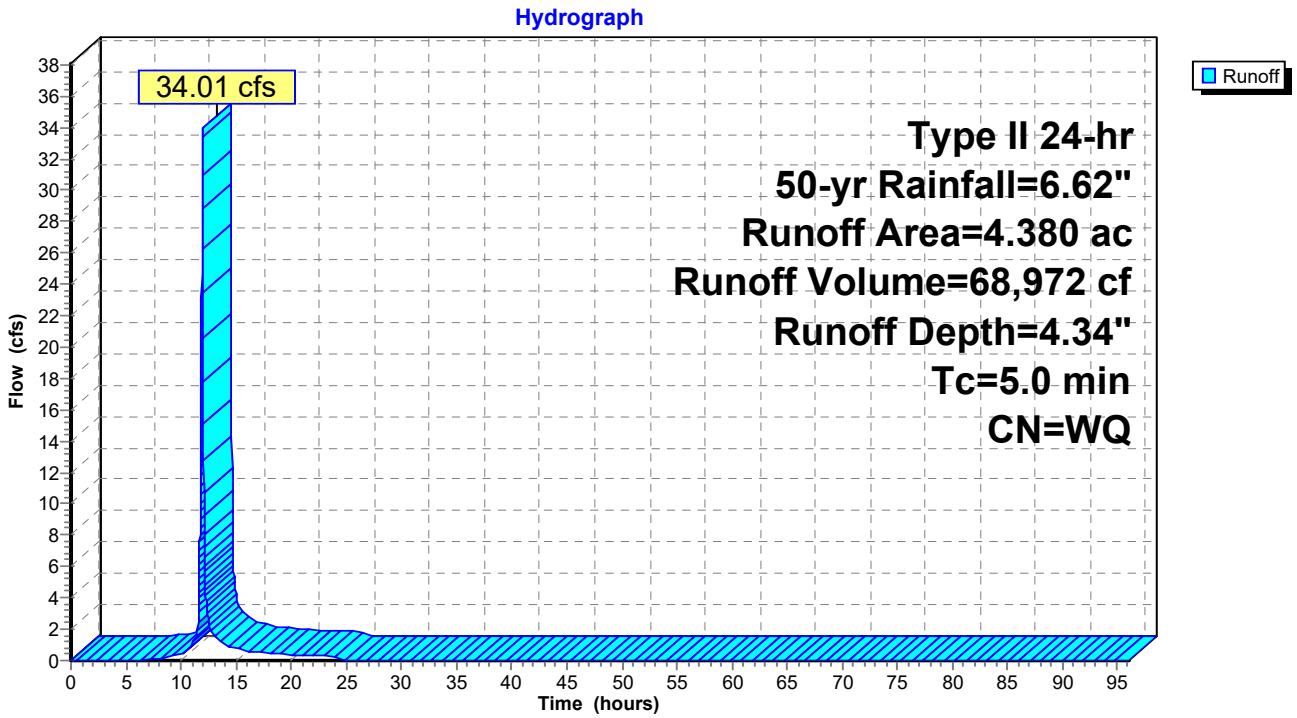
Runoff = 34.01 cfs @ 11.96 hrs, Volume= 68,972 cf, Depth= 4.34"
Routed to Link POA1 : POA #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

Area (ac)	CN	Description
3.905	80	>75% Grass cover, Good, HSG D
0.374	74	>75% Grass cover, Good, HSG C
0.101	98	Paved parking, HSG D
4.380		Weighted Average
4.279		97.69% Pervious Area
0.101		2.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DA-8



Summary for Pond 1P: SCM 1: Infiltration AGB

Inflow Area = 293,551 sf, 72.10% Impervious, Inflow Depth = 5.79" for 50-yr event
Inflow = 61.79 cfs @ 11.96 hrs, Volume= 141,696 cf
Outflow = 4.76 cfs @ 12.48 hrs, Volume= 141,698 cf, Atten= 92%, Lag= 31.1 min
Discarded = 0.25 cfs @ 12.48 hrs, Volume= 70,568 cf
Primary = 4.50 cfs @ 12.48 hrs, Volume= 71,130 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 276.97' @ 12.48 hrs Surf.Area= 30,855 sf Storage= 82,640 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,073.6 min (1,826.4 - 752.8)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	186,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

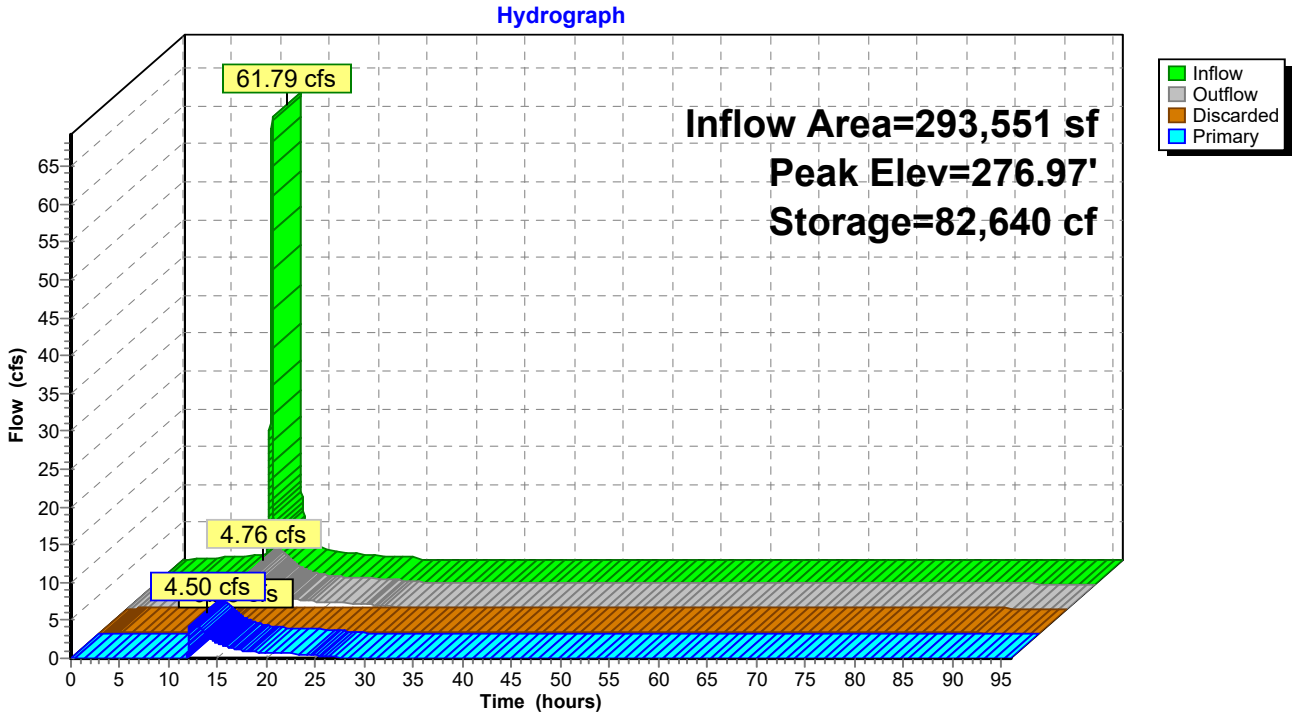
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	24,939	0	0
275.00	26,877	25,908	25,908
276.00	28,873	27,875	53,783
277.00	30,924	29,899	83,682
278.00	33,033	31,979	115,660
279.00	35,197	34,115	149,775
280.00	37,419	36,308	186,083

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.00'	**0.353 in/hr Exfiltration over Surface area**
#2	Primary	274.00'	**30.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 274.00' / 272.00' S= 0.0385 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#3	Device 2	275.75'	**12.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	276.25'	**24.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	277.00'	**24.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	277.50'	**24.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.25 cfs @ 12.48 hrs HW=276.97' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.25 cfs)

Primary OutFlow Max=4.50 cfs @ 12.48 hrs HW=276.97' TW=0.00' (Dynamic Tailwater)
├**2=Culvert** (Passes 4.50 cfs of 30.96 cfs potential flow)
│ ├**3=Orifice/Grate** (Orifice Controls 1.26 cfs @ 5.03 fps)
│ ├**4=Orifice/Grate** (Orifice Controls 3.25 cfs @ 3.25 fps)
│ └**5=Orifice/Grate** (Controls 0.00 cfs)
└**6=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: SCM 1: Infiltration AGB



Summary for Pond 2P: SCM 2: Detention UGB

Inflow Area = 353,446 sf, 98.31% Impervious, Inflow Depth = 6.35" for 50-yr event
Inflow = 78.81 cfs @ 11.96 hrs, Volume= 186,939 cf
Outflow = 22.42 cfs @ 12.07 hrs, Volume= 186,798 cf, Atten= 72%, Lag= 7.1 min
Primary = 22.42 cfs @ 12.07 hrs, Volume= 186,798 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 272.01' @ 12.07 hrs Surf.Area= 30,988 sf Storage= 73,736 cf

Plug-Flow detention time= 107.2 min calculated for 186,798 cf (100% of inflow)
Center-of-Mass det. time= 106.7 min (846.1 - 739.4)

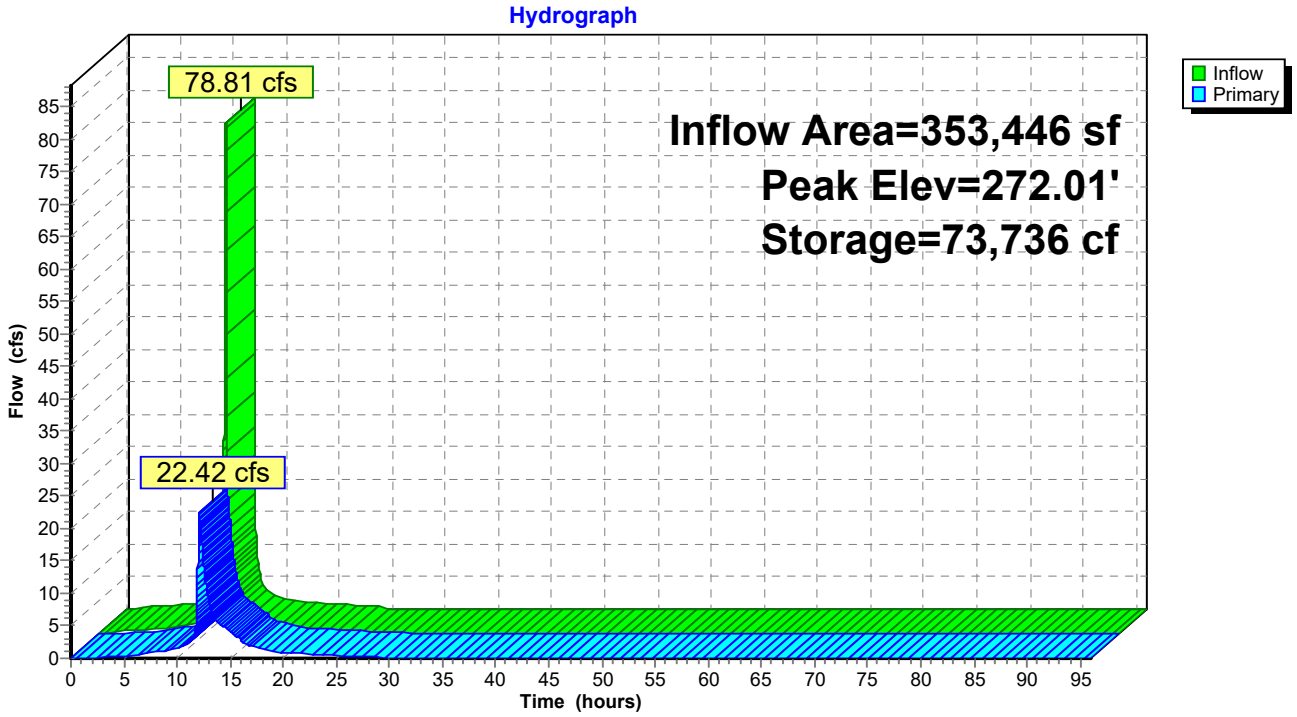
Volume	Invert	Avail.Storage	Storage Description
#1A	268.75'	41,546 cf	**63.75'W x 486.09'L x 5.50'H Field A** 170,435 cf Overall - 66,569 cf Embedded = 103,866 cf x 40.0% Voids
#2A	269.50'	66,569 cf	**ADS_StormTech MC-3500 d +Cap**x 603 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 603 Chambers in 9 Rows Cap Storage= 14.9 cf x 2 x 9 rows = 268.2 cf
		108,116 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	268.75'	**36.0" Round Outlet Pipe** L= 112.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 268.75' / 268.25' S= 0.0045 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	268.75'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	269.25'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	270.50'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	271.75'	**42.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	272.50'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=22.40 cfs @ 12.07 hrs HW=272.01' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 22.40 cfs of 35.69 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.26 cfs @ 8.53 fps)
  ├─**3=Orifice** (Orifice Controls 7.63 cfs @ 7.63 fps)
  ├─**4=Orifice** (Orifice Controls 11.99 cfs @ 4.80 fps)
  ├─**5=Orifice** (Orifice Controls 1.52 cfs @ 1.65 fps)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: SCM 2: Detention UGB



Summary for Pond 3P: SCM 3: Detention UGB

Inflow Area = 192,405 sf, 86.71% Impervious, Inflow Depth = 6.11" for 50-yr event
Inflow = 41.90 cfs @ 11.96 hrs, Volume= 97,976 cf
Outflow = 20.02 cfs @ 12.04 hrs, Volume= 97,937 cf, Atten= 52%, Lag= 5.2 min
Primary = 20.02 cfs @ 12.04 hrs, Volume= 97,937 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 274.67' @ 12.04 hrs Surf.Area= 16,811 sf Storage= 32,096 cf

Plug-Flow detention time= 74.6 min calculated for 97,937 cf (100% of inflow)
Center-of-Mass det. time= 74.3 min (819.3 - 745.0)

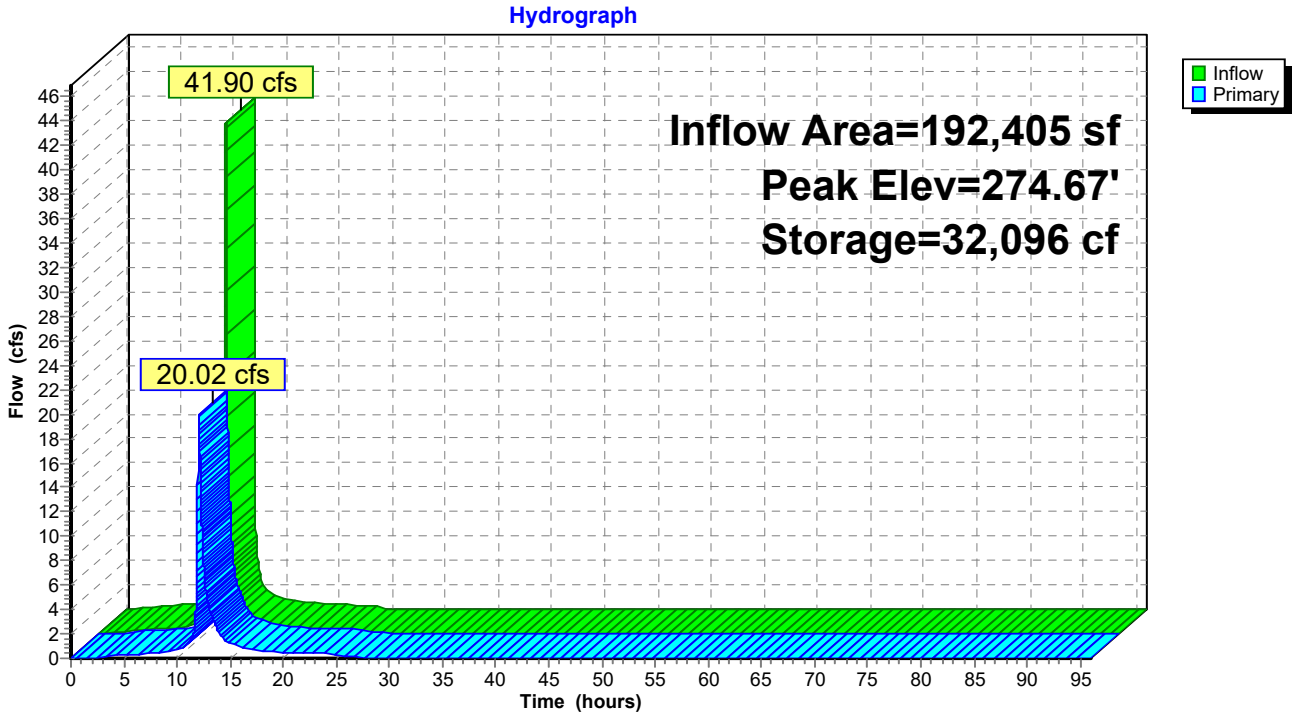
Volume	Invert	Avail.Storage	Storage Description
#1A	272.00'	15,071 cf	**46.75'W x 359.60'L x 3.75'H Field A** 63,042 cf Overall - 25,365 cf Embedded = 37,678 cf x 40.0% Voids
#2A	272.50'	25,365 cf	**ADS_StormTech SC-800 +Cap** x 500 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 500 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		40,436 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	272.00'	**36.0" Round Outlet Pipe** L= 628.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 272.00' / 268.25' S= 0.0060 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	272.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	272.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	273.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	274.50'	**42.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	275.25'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=20.00 cfs @ 12.04 hrs HW=274.67' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 20.00 cfs of 29.20 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.13 cfs @ 7.68 fps)
  ├─**3=Orifice** (Orifice Controls 6.67 cfs @ 6.67 fps)
  ├─**4=Orifice** (Orifice Controls 11.40 cfs @ 4.56 fps)
  ├─**5=Orifice** (Orifice Controls 0.79 cfs @ 1.33 fps)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: SCM 3: Detention UGB



Summary for Pond 4P: SCM 4: Detention UGB

Inflow Area = 156,163 sf, 91.35% Impervious, Inflow Depth = 6.21" for 50-yr event
Inflow = 34.34 cfs @ 11.96 hrs, Volume= 80,751 cf
Outflow = 13.10 cfs @ 12.06 hrs, Volume= 80,709 cf, Atten= 62%, Lag= 6.0 min
Primary = 13.10 cfs @ 12.06 hrs, Volume= 80,709 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 274.85' @ 12.06 hrs Surf.Area= 20,685 sf Storage= 25,918 cf

Plug-Flow detention time= 66.7 min calculated for 80,709 cf (100% of inflow)
Center-of-Mass det. time= 66.3 min (809.0 - 742.7)

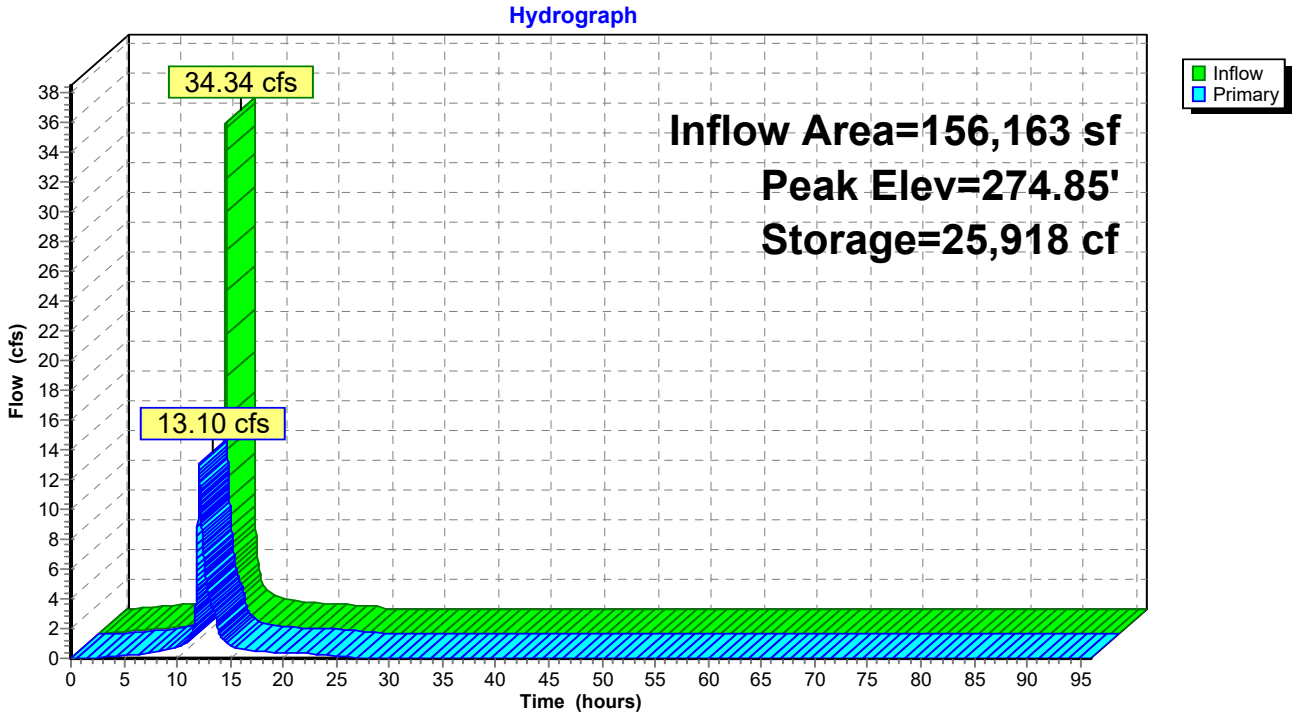
Volume	Invert	Avail.Storage	Storage Description
#1A	273.00'	27,875 cf	**49.92'W x 414.39'L x 5.50'H Field A** 113,767 cf Overall - 44,079 cf Embedded = 69,688 cf x 40.0% Voids
#2A	273.75'	44,079 cf	**ADS_StormTech MC-3500 d +Cap** x 399 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 399 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		71,955 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	**36.0" Round Outlet Pipe** L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 273.00' / 269.00' S= 0.0381 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	273.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	273.25'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	274.00'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	274.75'	**42.0" W x 4.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	275.09'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=13.10 cfs @ 12.06 hrs HW=274.85' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 13.10 cfs of 16.67 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 0.93 cfs @ 6.32 fps)
  ├─**3=Orifice** (Orifice Controls 5.58 cfs @ 5.58 fps)
  ├─**4=Orifice** (Orifice Controls 6.25 cfs @ 2.95 fps)
  ├─**5=Orifice** (Orifice Controls 0.34 cfs @ 1.00 fps)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: SCM 4: Detention UGB



Summary for Pond 5P: SCM 5: Detention UGB

Inflow Area = 125,496 sf, 86.78% Impervious, Inflow Depth = 6.11" for 50-yr event
Inflow = 27.34 cfs @ 11.96 hrs, Volume= 63,919 cf
Outflow = 18.00 cfs @ 12.02 hrs, Volume= 63,910 cf, Atten= 34%, Lag= 3.9 min
Primary = 18.00 cfs @ 12.02 hrs, Volume= 63,910 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 279.03' @ 12.02 hrs Surf.Area= 8,494 sf Storage= 15,381 cf

Plug-Flow detention time= 40.2 min calculated for 63,903 cf (100% of inflow)
Center-of-Mass det. time= 40.4 min (785.4 - 745.0)

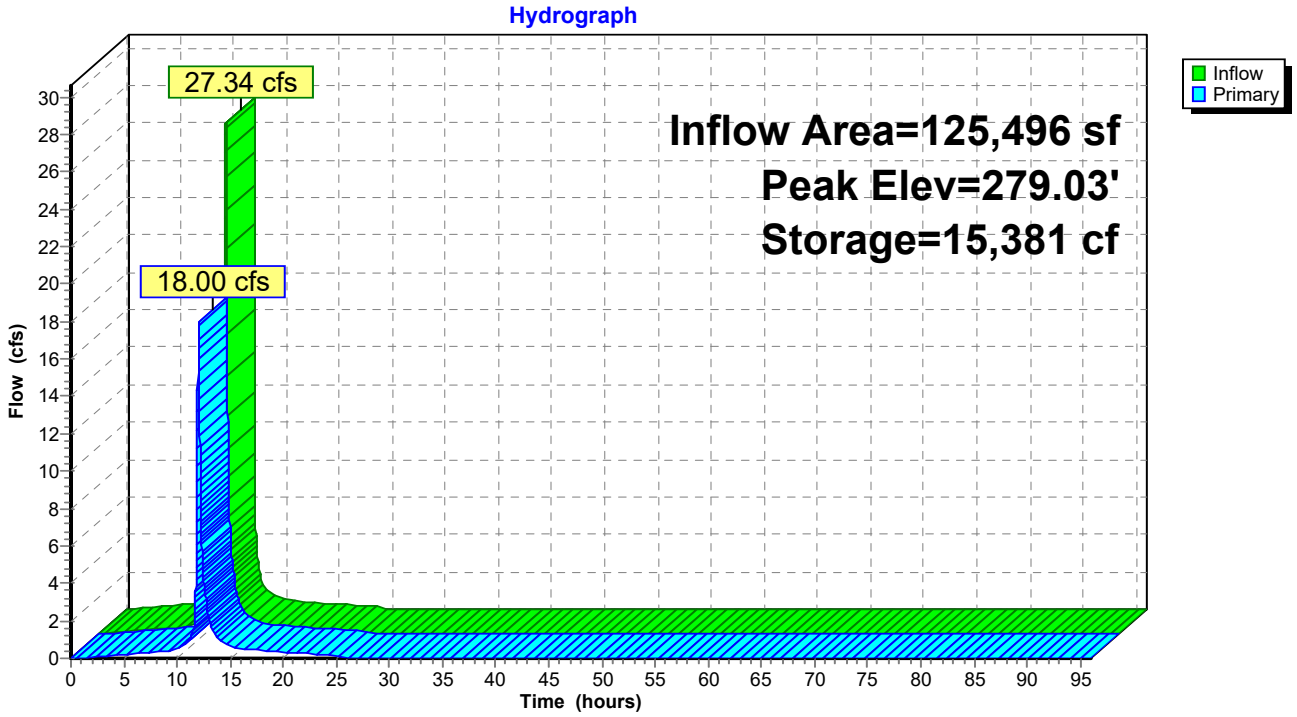
Volume	Invert	Avail.Storage	Storage Description
#1A	276.50'	7,654 cf	**46.75'W x 181.68'L x 3.75'H Field A** 31,851 cf Overall - 12,716 cf Embedded = 19,135 cf x 40.0% Voids
#2A	277.00'	12,716 cf	**ADS_StormTech SC-800 +Cap** x 250 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 250 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		20,370 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	276.50'	**36.0" Round Outlet Pipe** L= 900.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 276.50' / 269.00' S= 0.0083 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	276.50'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	277.00'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	277.75'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.00'	**36.0" W x 4.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	279.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=17.99 cfs @ 12.02 hrs HW=279.03' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 17.99 cfs of 27.17 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.10 cfs @ 7.47 fps)
  ├─**3=Orifice** (Orifice Controls 6.42 cfs @ 6.42 fps)
  ├─**4=Orifice** (Orifice Controls 10.42 cfs @ 4.17 fps)
  ├─**5=Orifice** (Orifice Controls 0.05 cfs @ 0.54 fps)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5P: SCM 5: Detention UGB



Summary for Pond 6P: SCM 6: Detention UGB

Inflow Area = 145,316 sf, 77.34% Impervious, Inflow Depth = 5.84" for 50-yr event
Inflow = 30.60 cfs @ 11.96 hrs, Volume= 70,681 cf
Outflow = 16.92 cfs @ 12.03 hrs, Volume= 70,666 cf, Atten= 45%, Lag= 4.7 min
Primary = 16.92 cfs @ 12.03 hrs, Volume= 70,666 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 282.42' @ 12.03 hrs Surf.Area= 11,821 sf Storage= 20,601 cf

Plug-Flow detention time= 56.0 min calculated for 70,666 cf (100% of inflow)
Center-of-Mass det. time= 55.8 min (806.0 - 750.2)

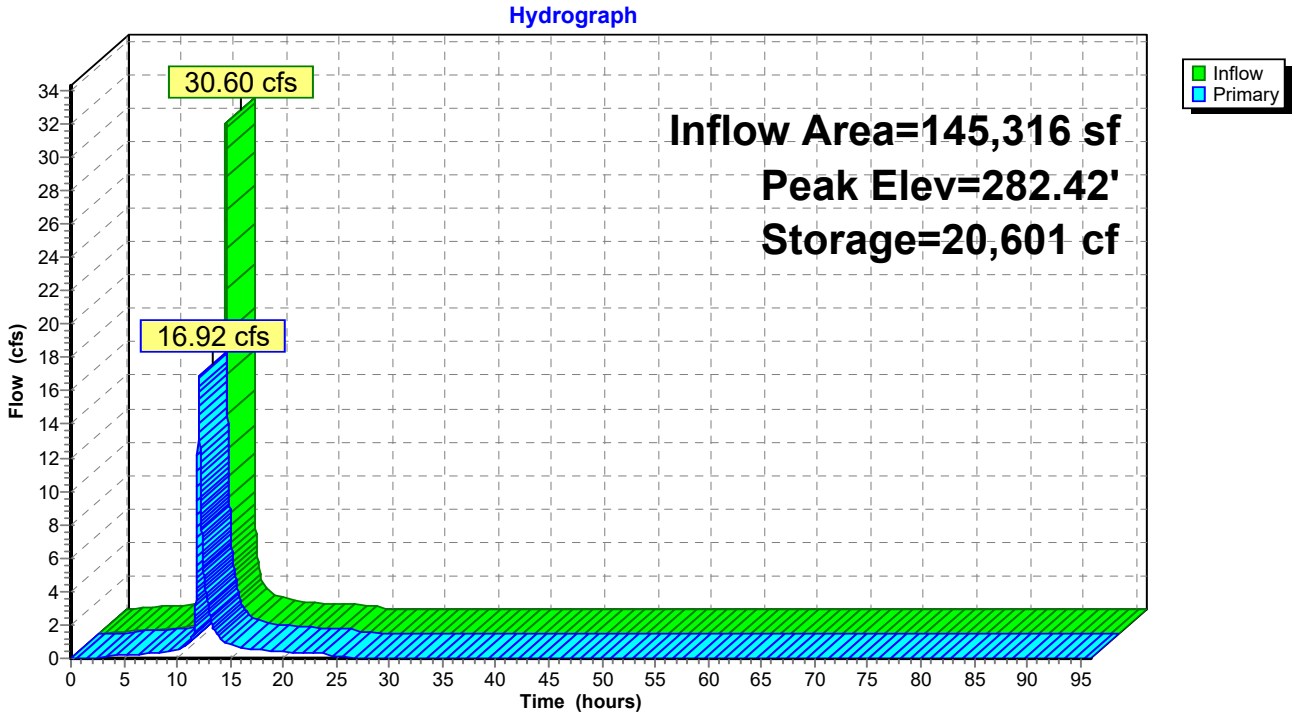
Volume	Invert	Avail.Storage	Storage Description
#1A	280.00'	10,621 cf	**46.75'W x 252.85'L x 3.75'H Field A** 44,328 cf Overall - 17,776 cf Embedded = 26,552 cf x 40.0% Voids
#2A	280.50'	17,776 cf	**ADS_StormTech SC-800 +Cap** x 350 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 350 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		28,397 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	280.00'	**36.0" Round Outlet Pipe** L= 800.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 280.00' / 271.00' S= 0.0112 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	280.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	281.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	282.50'	**42.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	283.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=16.90 cfs @ 12.03 hrs HW=282.42' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 16.90 cfs of 25.58 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.07 cfs @ 7.30 fps)
  ├─**3=Orifice** (Orifice Controls 6.22 cfs @ 6.22 fps)
  ├─**4=Orifice** (Orifice Controls 9.61 cfs @ 3.84 fps)
  ├─**5=Orifice** (Controls 0.00 cfs)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6P: SCM 6: Detention UGB



Summary for Pond 7P: SCM 7: Detention UGB

Inflow Area = 185,261 sf, 92.97% Impervious, Inflow Depth = 6.24" for 50-yr event
Inflow = 40.87 cfs @ 11.96 hrs, Volume= 96,306 cf
Outflow = 17.04 cfs @ 12.05 hrs, Volume= 96,273 cf, Atten= 58%, Lag= 5.7 min
Primary = 17.04 cfs @ 12.05 hrs, Volume= 96,273 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 275.44' @ 12.05 hrs Surf.Area= 18,180 sf Storage= 31,588 cf

Plug-Flow detention time= 72.6 min calculated for 96,273 cf (100% of inflow)
Center-of-Mass det. time= 72.4 min (814.3 - 741.9)

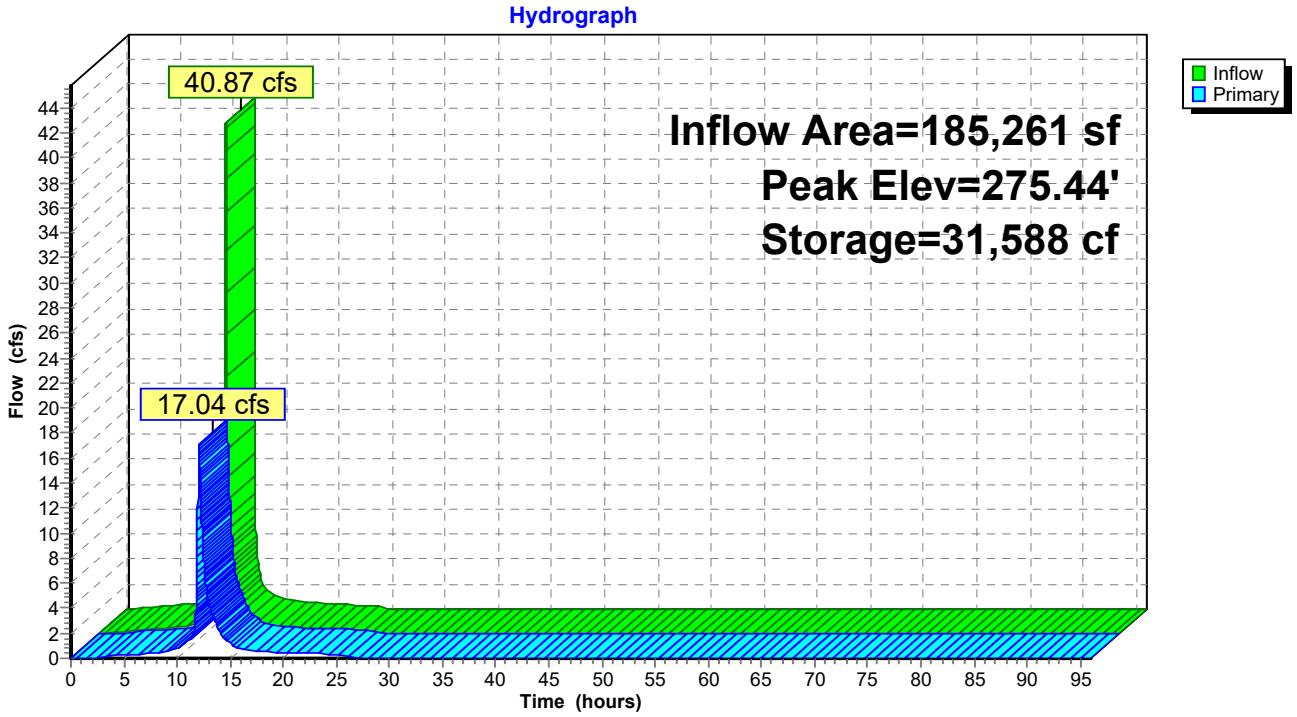
Volume	Invert	Avail.Storage	Storage Description
#1A	273.00'	24,519 cf	**49.92'W x 364.20'L x 5.50'H Field A** 99,988 cf Overall - 38,692 cf Embedded = 61,296 cf x 40.0% Voids
#2A	273.75'	38,692 cf	**ADS_StormTech MC-3500 d +Cap**x 350 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 350 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		63,210 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	**36.0" Round Outlet Pipe** L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 273.00' / 271.00' S= 0.0190 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	273.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	273.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	274.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	275.50'	**42.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	276.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=17.04 cfs @ 12.05 hrs HW=275.44' TW=0.00' (Dynamic Tailwater)
- **1=Outlet Pipe** (Passes 17.04 cfs of 25.78 cfs potential flow)
  - **2=Orifice** (Orifice Controls 1.08 cfs @ 7.32 fps)
  - **3=Orifice** (Orifice Controls 6.25 cfs @ 6.25 fps)
  - **4=Orifice** (Orifice Controls 9.72 cfs @ 3.89 fps)
  - **5=Orifice** (Controls 0.00 cfs)
  - **6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7P: SCM 7: Detention UGB

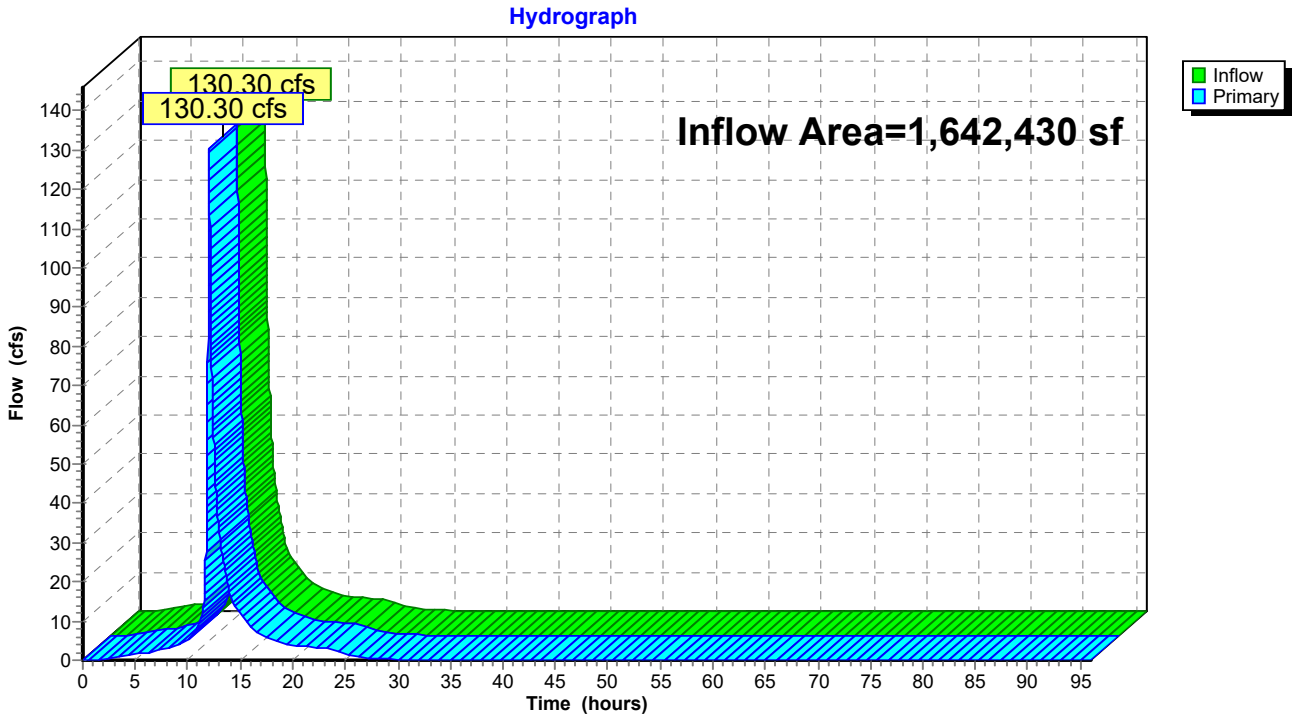


Summary for Link POA1: POA #1

Inflow Area = 1,642,430 sf, 77.11% Impervious, Inflow Depth = 5.38" for 50-yr event
Inflow = 130.30 cfs @ 12.01 hrs, Volume= 736,395 cf
Primary = 130.30 cfs @ 12.01 hrs, Volume= 736,395 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA1: POA #1

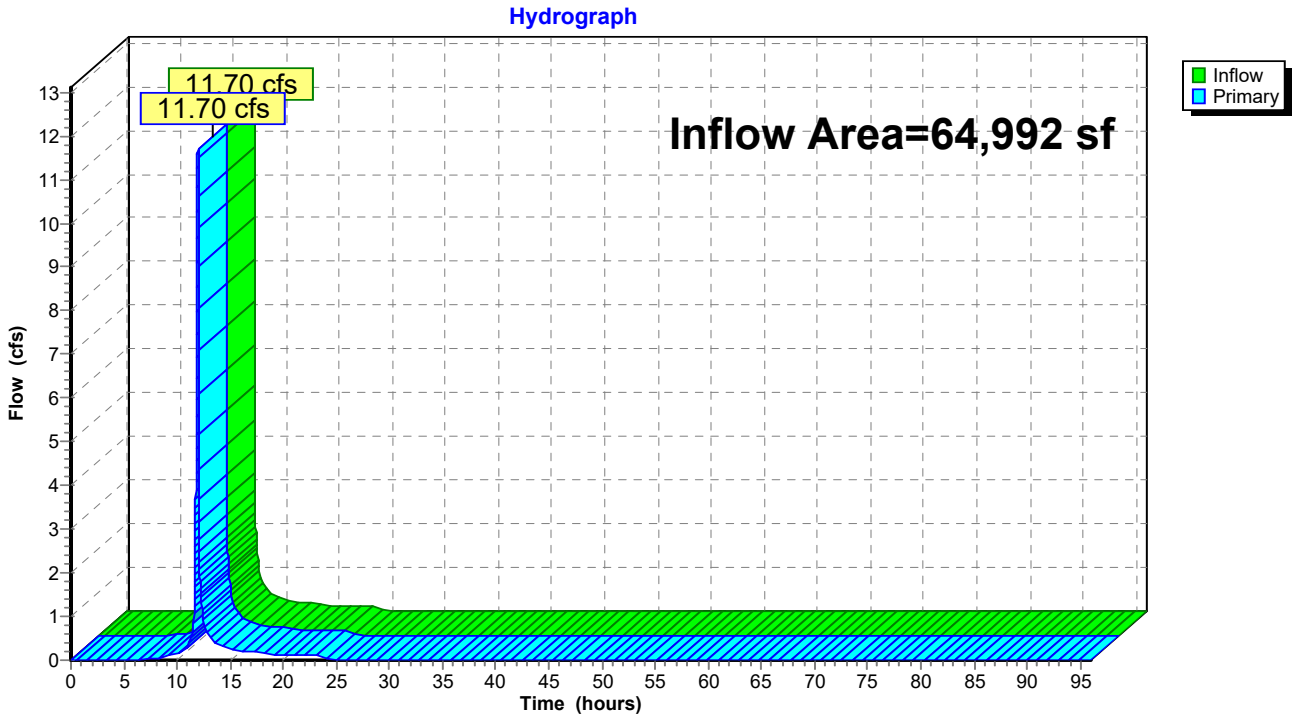


Summary for Link POA2: POA #2

Inflow Area = 64,992 sf, 2.01% Impervious, Inflow Depth = 4.39" for 50-yr event
Inflow = 11.70 cfs @ 11.96 hrs, Volume= 23,754 cf
Primary = 11.70 cfs @ 11.96 hrs, Volume= 23,754 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA2: POA #2

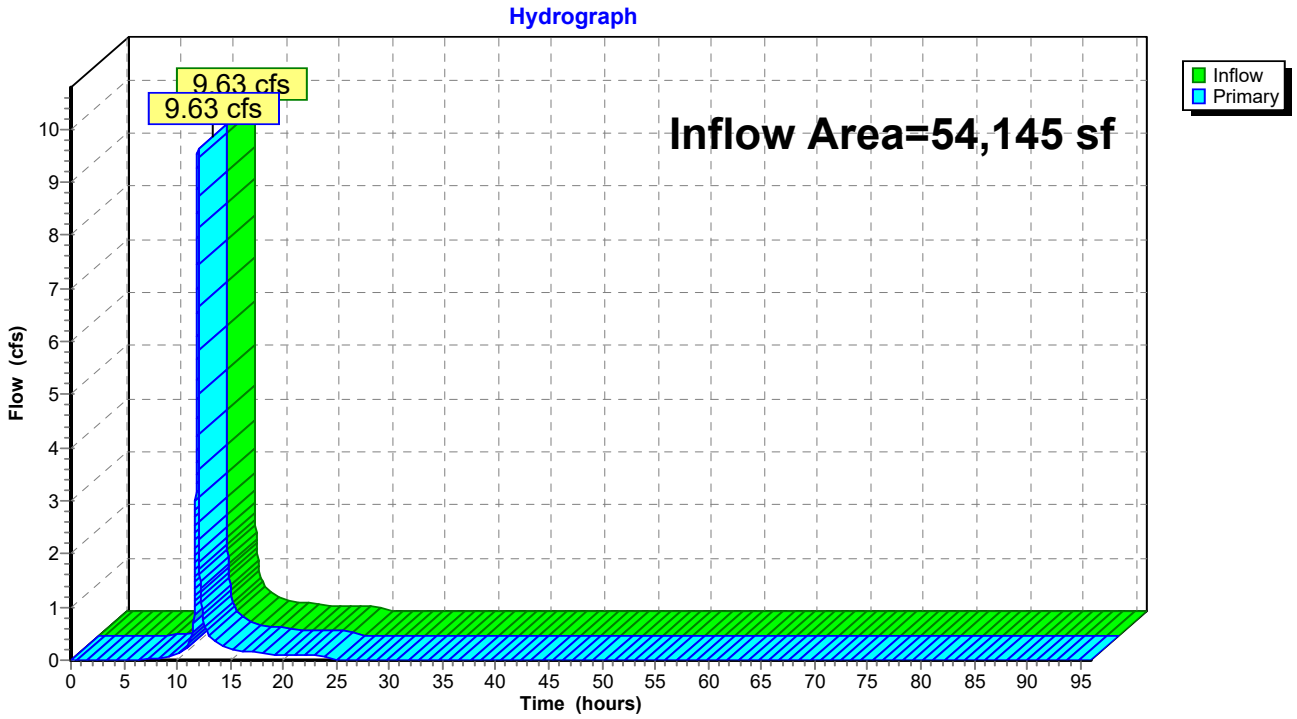


Summary for Link POA3: POA #3

Inflow Area = 54,145 sf, 0.00% Impervious, Inflow Depth = 4.31" for 50-yr event
Inflow = 9.63 cfs @ 11.96 hrs, Volume= 19,440 cf
Primary = 9.63 cfs @ 11.96 hrs, Volume= 19,440 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA3: POA #3



Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: DA-1 Runoff Area=6.739 ac 72.10% Impervious Runoff Depth=6.69"
Tc=5.0 min CN=WQ Runoff=71.11 cfs 163,674 cf

Subcatchment2B: Bypass to POA #2 Runoff Area=1.492 ac 2.01% Impervious Runoff Depth=5.24"
Tc=5.0 min CN=WQ Runoff=13.84 cfs 28,366 cf

Subcatchment2S: DA-2 Runoff Area=8.114 ac 98.31% Impervious Runoff Depth=7.26"
Tc=5.0 min CN=WQ Runoff=89.87 cfs 213,981 cf

Subcatchment3B: Bypass to POA #3 Runoff Area=1.243 ac 0.00% Impervious Runoff Depth=5.16"
Tc=5.0 min CN=WQ Runoff=11.41 cfs 23,264 cf

Subcatchment3S: DA-3 Runoff Area=4.417 ac 86.71% Impervious Runoff Depth=7.02"
Tc=5.0 min CN=WQ Runoff=47.96 cfs 112,568 cf

Subcatchment4S: DA-4 Runoff Area=3.585 ac 91.35% Impervious Runoff Depth=7.12"
Tc=5.0 min CN=WQ Runoff=39.24 cfs 92,636 cf

Subcatchment5S: DA-5 Runoff Area=2.881 ac 86.78% Impervious Runoff Depth=7.02"
Tc=5.0 min CN=WQ Runoff=31.29 cfs 73,437 cf

Subcatchment6S: DA-6 Runoff Area=3.336 ac 77.34% Impervious Runoff Depth=6.73"
Tc=5.0 min CN=WQ Runoff=35.19 cfs 81,548 cf

Subcatchment7S: DA-7 Runoff Area=4.253 ac 92.97% Impervious Runoff Depth=7.15"
Tc=5.0 min CN=WQ Runoff=46.68 cfs 110,423 cf

Subcatchment8S: DA-8 Runoff Area=4.380 ac 2.31% Impervious Runoff Depth=5.19"
Tc=5.0 min CN=WQ Runoff=40.28 cfs 82,450 cf

Pond 1P: SCM 1: Infiltration AGB Peak Elev=277.32' Storage=93,754 cf Inflow=71.11 cfs 163,674 cf
Discarded=0.26 cfs 71,252 cf Primary=6.97 cfs 92,426 cf Outflow=7.23 cfs 163,678 cf

Pond 2P: SCM 2: Detention UGB Peak Elev=272.41' Storage=82,049 cf Inflow=89.87 cfs 213,981 cf
Outflow=29.01 cfs 213,840 cf

Pond 3P: SCM 3: Detention UGB Peak Elev=275.00' Storage=35,212 cf Inflow=47.96 cfs 112,568 cf
Outflow=25.75 cfs 112,529 cf

Pond 4P: SCM 4: Detention UGB Peak Elev=275.02' Storage=28,862 cf Inflow=39.24 cfs 92,636 cf
Outflow=16.65 cfs 92,594 cf

Pond 5P: SCM 5: Detention UGB Peak Elev=279.30' Storage=16,807 cf Inflow=31.29 cfs 73,437 cf
Outflow=21.81 cfs 73,428 cf

Pond 6P: SCM 6: Detention UGB Peak Elev=282.71' Storage=22,786 cf Inflow=35.19 cfs 81,548 cf
Outflow=20.55 cfs 81,532 cf

Pond 7P: SCM 7: Detention UGB Peak Elev=275.69' Storage=35,262 cf Inflow=46.68 cfs 110,423 cf
Outflow=20.31 cfs 110,390 cf

Link POA1: POA #1 Inflow=163.19 cfs 859,188 cf
Primary=163.19 cfs 859,188 cf

Link POA2: POA #2 Inflow=13.84 cfs 28,366 cf
Primary=13.84 cfs 28,366 cf

Link POA3: POA #3 Inflow=11.41 cfs 23,264 cf
Primary=11.41 cfs 23,264 cf

Total Runoff Area = 1,761,566 sf Runoff Volume = 982,347 cf Average Runoff Depth = 6.69"
28.03% Pervious = 493,709 sf 71.97% Impervious = 1,267,857 sf

Summary for Subcatchment 1S: DA-1

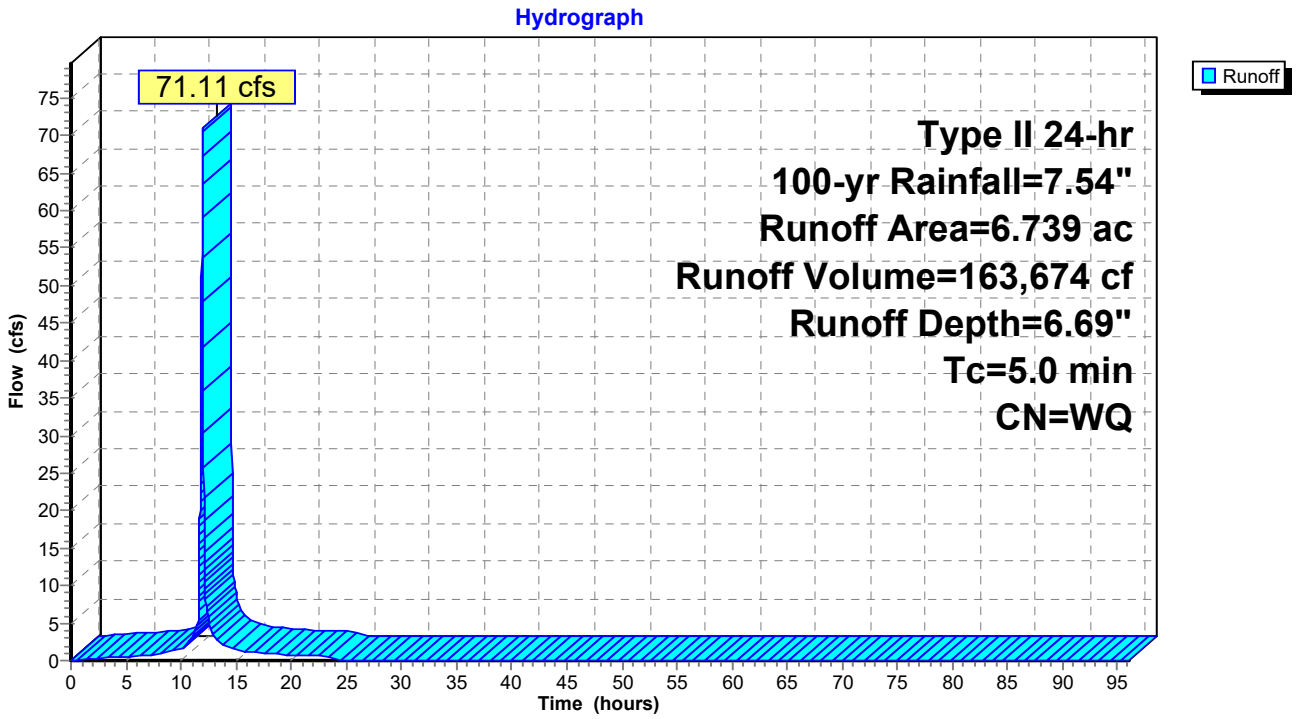
Runoff = 71.11 cfs @ 11.96 hrs, Volume= 163,674 cf, Depth= 6.69"
Routed to Pond 1P : SCM 1: Infiltration AGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

Area (ac)	CN	Description
0.222	74	>75% Grass cover, Good, HSG C
1.658	80	>75% Grass cover, Good, HSG D
4.859	98	Paved parking, HSG D
6.739		Weighted Average
1.880		27.90% Pervious Area
4.859		72.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DA-1



Summary for Subcatchment 2B: Bypass to POA #2

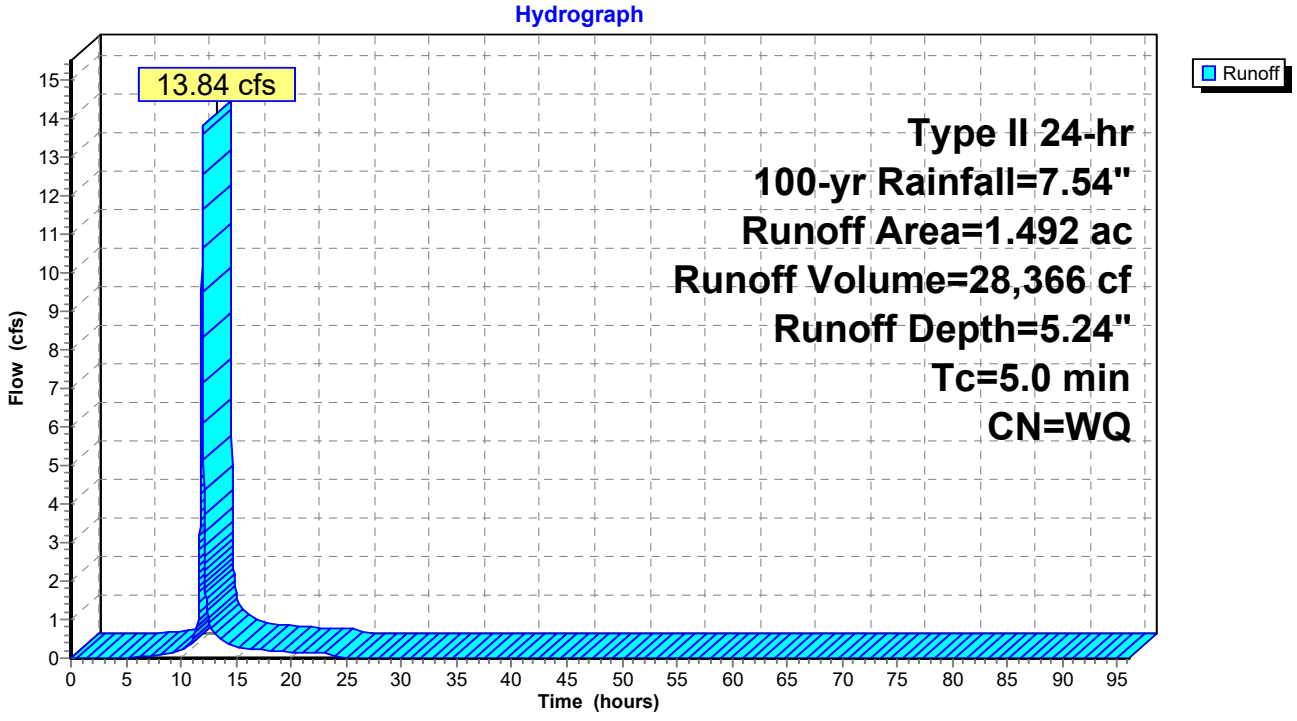
Runoff = 13.84 cfs @ 11.96 hrs, Volume= 28,366 cf, Depth= 5.24"
Routed to Link POA2 : POA #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

Area (ac)	CN	Description
1.462	80	>75% Grass cover, Good, HSG D
0.030	98	Paved parking, HSG D
1.492		Weighted Average
1.462		97.99% Pervious Area
0.030		2.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2B: Bypass to POA #2



Summary for Subcatchment 2S: DA-2

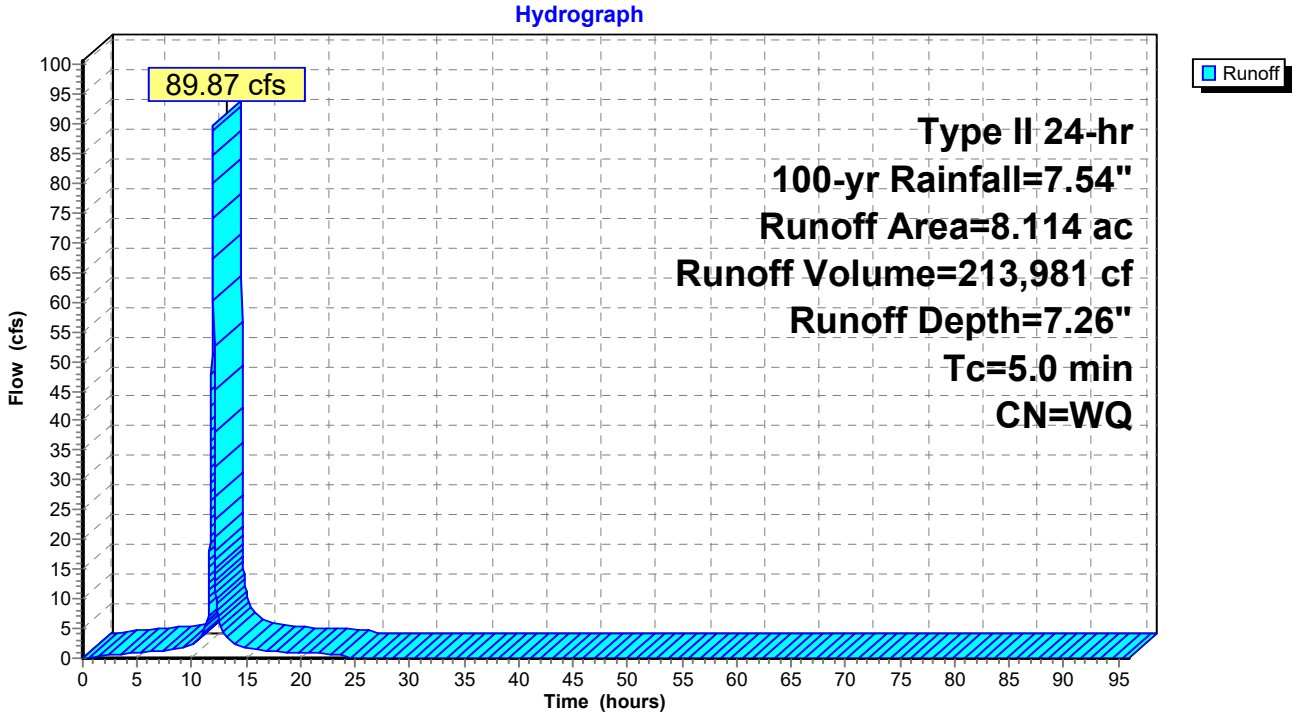
Runoff = 89.87 cfs @ 11.96 hrs, Volume= 213,981 cf, Depth= 7.26"
Routed to Pond 2P : SCM 2: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

Area (ac)	CN	Description
0.137	80	>75% Grass cover, Good, HSG D
7.977	98	Paved parking, HSG D
8.114		Weighted Average
0.137		1.69% Pervious Area
7.977		98.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: DA-2



Summary for Subcatchment 3B: Bypass to POA #3

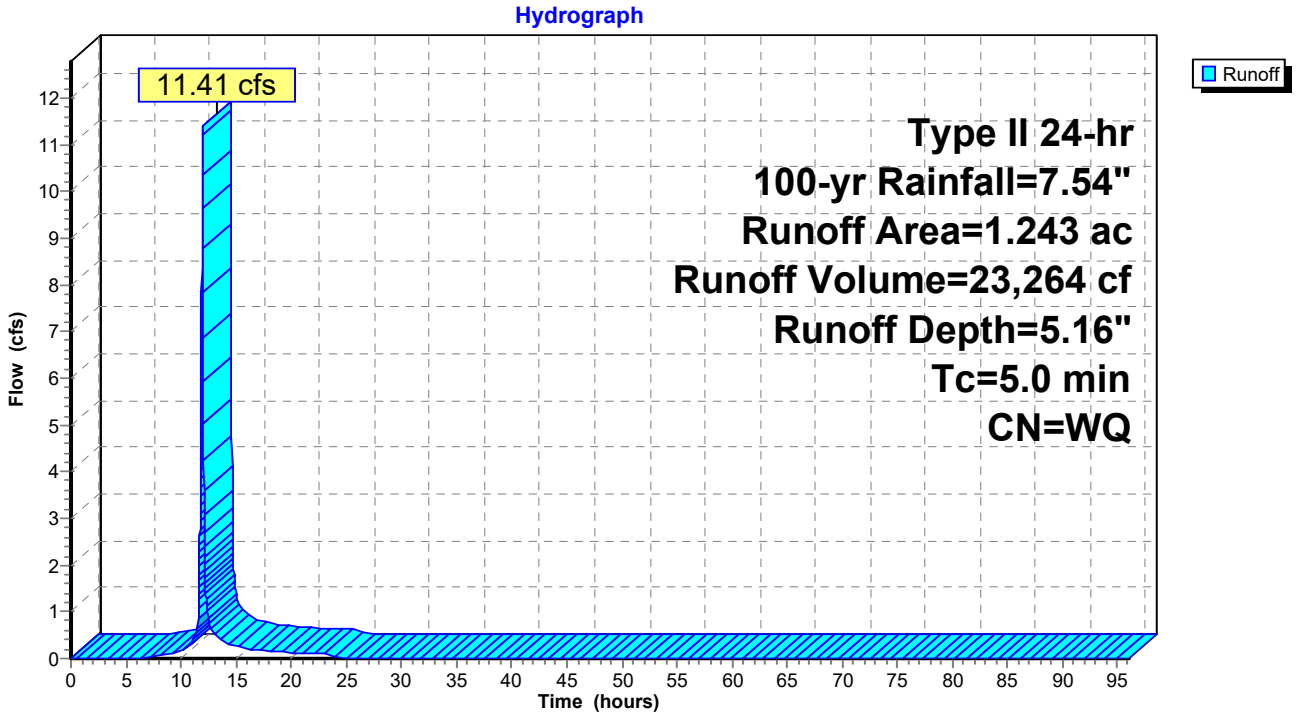
Runoff = 11.41 cfs @ 11.96 hrs, Volume= 23,264 cf, Depth= 5.16"
Routed to Link POA3 : POA #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

Area (ac)	CN	Description
0.072	74	>75% Grass cover, Good, HSG C
1.171	80	>75% Grass cover, Good, HSG D
1.243		Weighted Average
1.243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3B: Bypass to POA #3



Summary for Subcatchment 3S: DA-3

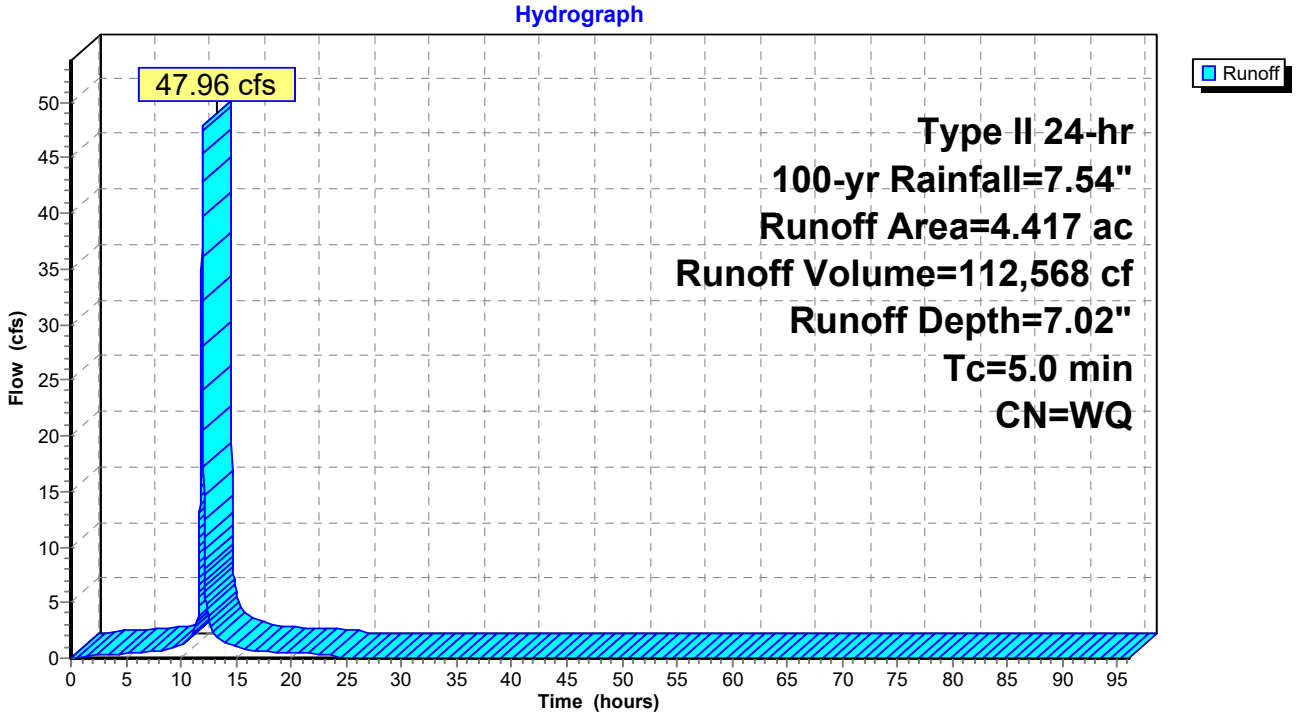
Runoff = 47.96 cfs @ 11.96 hrs, Volume= 112,568 cf, Depth= 7.02"
Routed to Pond 3P : SCM 3: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

Area (ac)	CN	Description
0.587	80	>75% Grass cover, Good, HSG D
3.830	98	Paved parking, HSG D
4.417		Weighted Average
0.587		13.29% Pervious Area
3.830		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: DA-3



Summary for Subcatchment 4S: DA-4

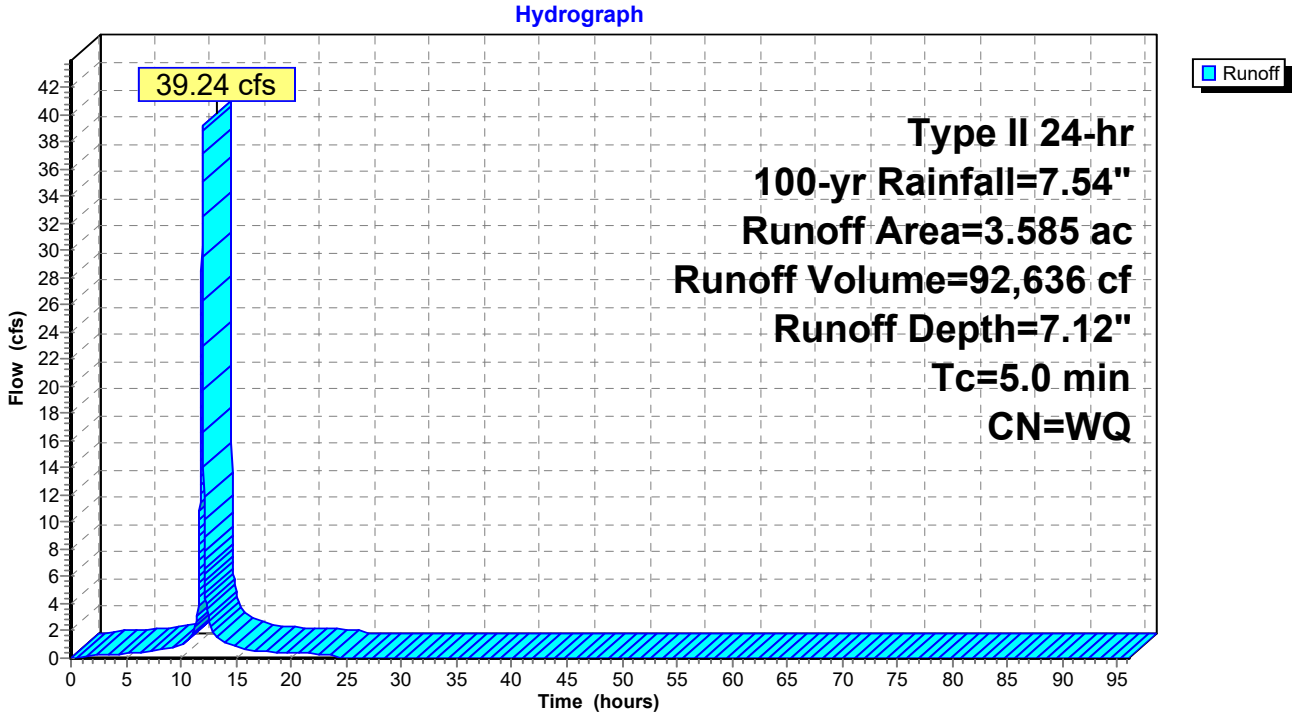
Runoff = 39.24 cfs @ 11.96 hrs, Volume= 92,636 cf, Depth= 7.12"
Routed to Pond 4P : SCM 4: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

Area (ac)	CN	Description
0.310	80	>75% Grass cover, Good, HSG D
3.275	98	Paved parking, HSG D
3.585		Weighted Average
0.310		8.65% Pervious Area
3.275		91.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: DA-4



Summary for Subcatchment 5S: DA-5

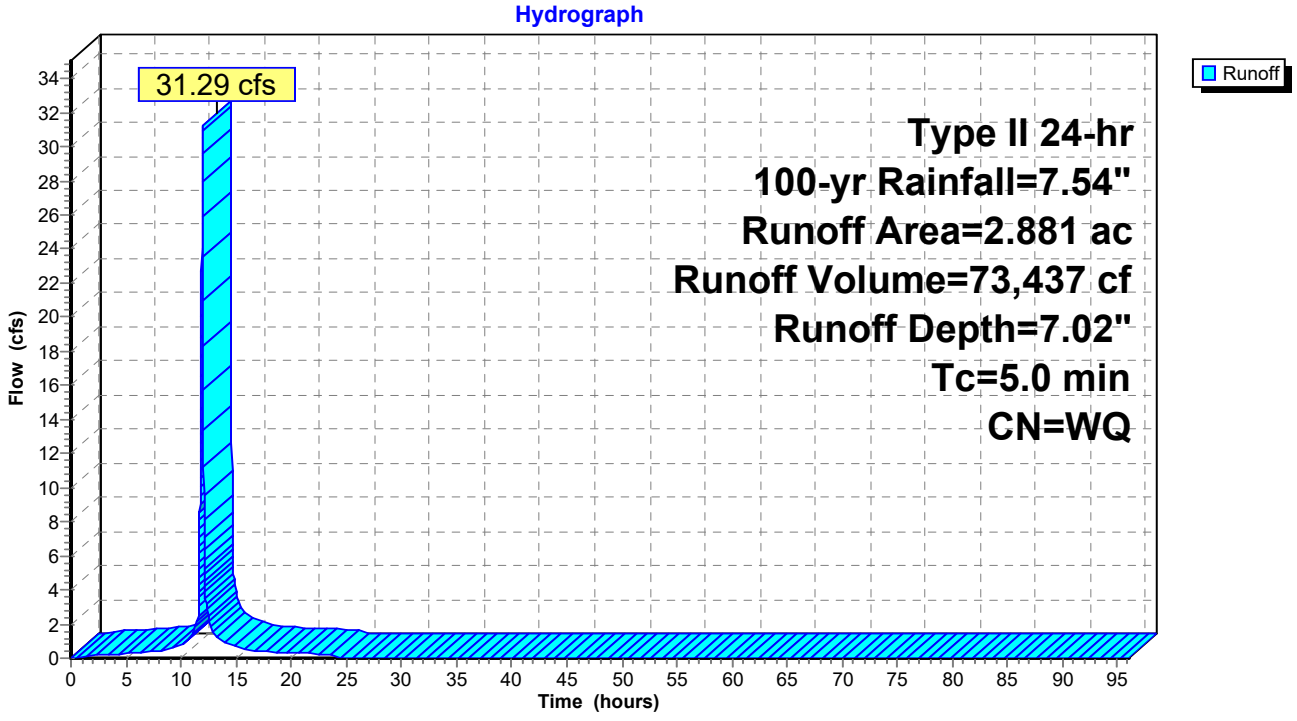
Runoff = 31.29 cfs @ 11.96 hrs, Volume= 73,437 cf, Depth= 7.02"
Routed to Pond 5P : SCM 5: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

Area (ac)	CN	Description
0.381	80	>75% Grass cover, Good, HSG D
2.500	98	Paved parking, HSG D
2.881		Weighted Average
0.381		13.22% Pervious Area
2.500		86.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: DA-5



Summary for Subcatchment 6S: DA-6

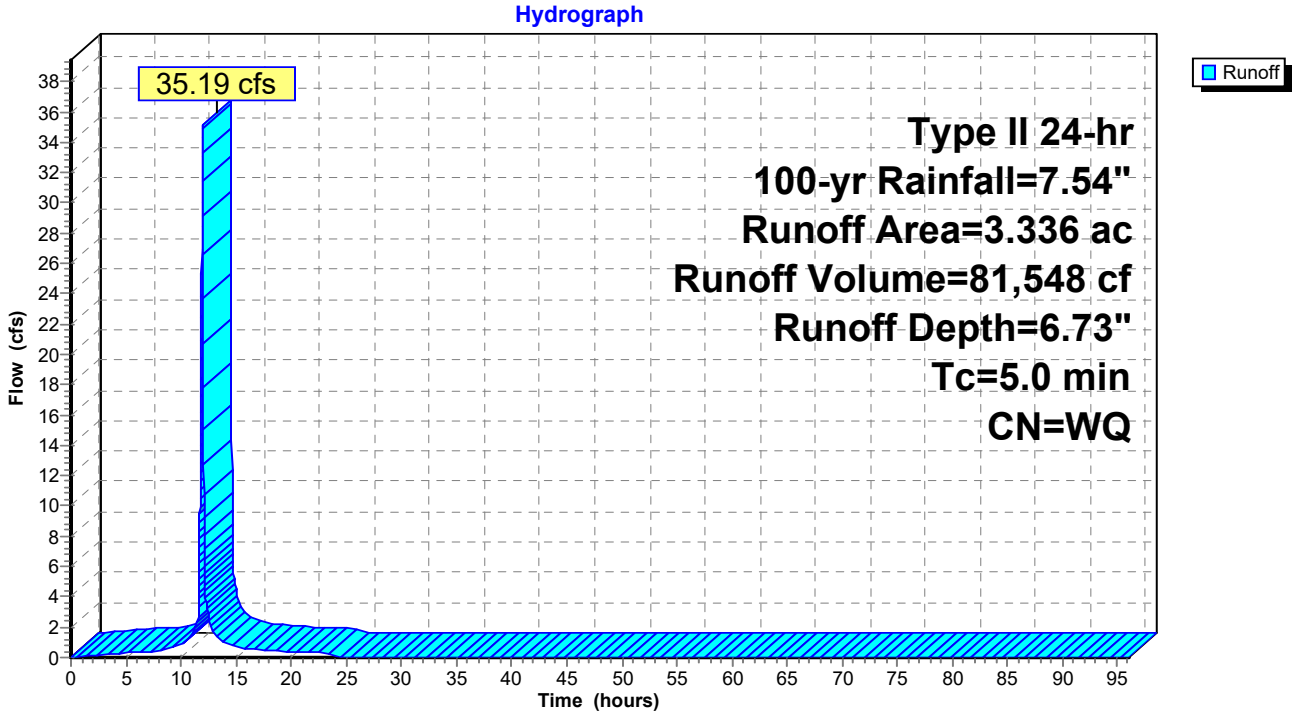
Runoff = 35.19 cfs @ 11.96 hrs, Volume= 81,548 cf, Depth= 6.73"
Routed to Pond 6P : SCM 6: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

Area (ac)	CN	Description
0.255	74	>75% Grass cover, Good, HSG C
0.084	70	Woods, Good, HSG C
0.328	80	>75% Grass cover, Good, HSG D
2.580	98	Paved parking, HSG D
0.089	77	Woods, Good, HSG D
3.336		Weighted Average
0.756		22.66% Pervious Area
2.580		77.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 6S: DA-6



Summary for Subcatchment 7S: DA-7

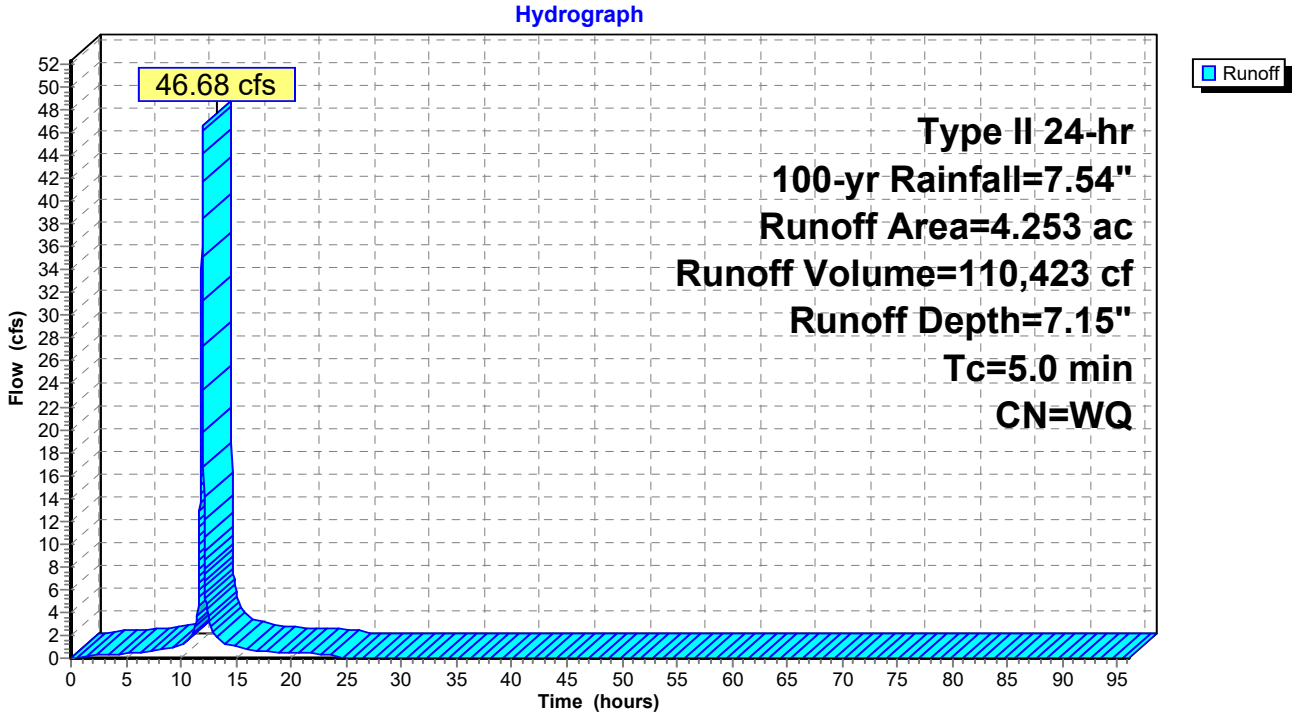
Runoff = 46.68 cfs @ 11.96 hrs, Volume= 110,423 cf, Depth= 7.15"
Routed to Pond 7P : SCM 7: Detention UGB

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

Area (ac)	CN	Description
0.299	80	>75% Grass cover, Good, HSG D
3.954	98	Paved parking, HSG D
4.253		Weighted Average
0.299		7.03% Pervious Area
3.954		92.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 7S: DA-7



Summary for Subcatchment 8S: DA-8

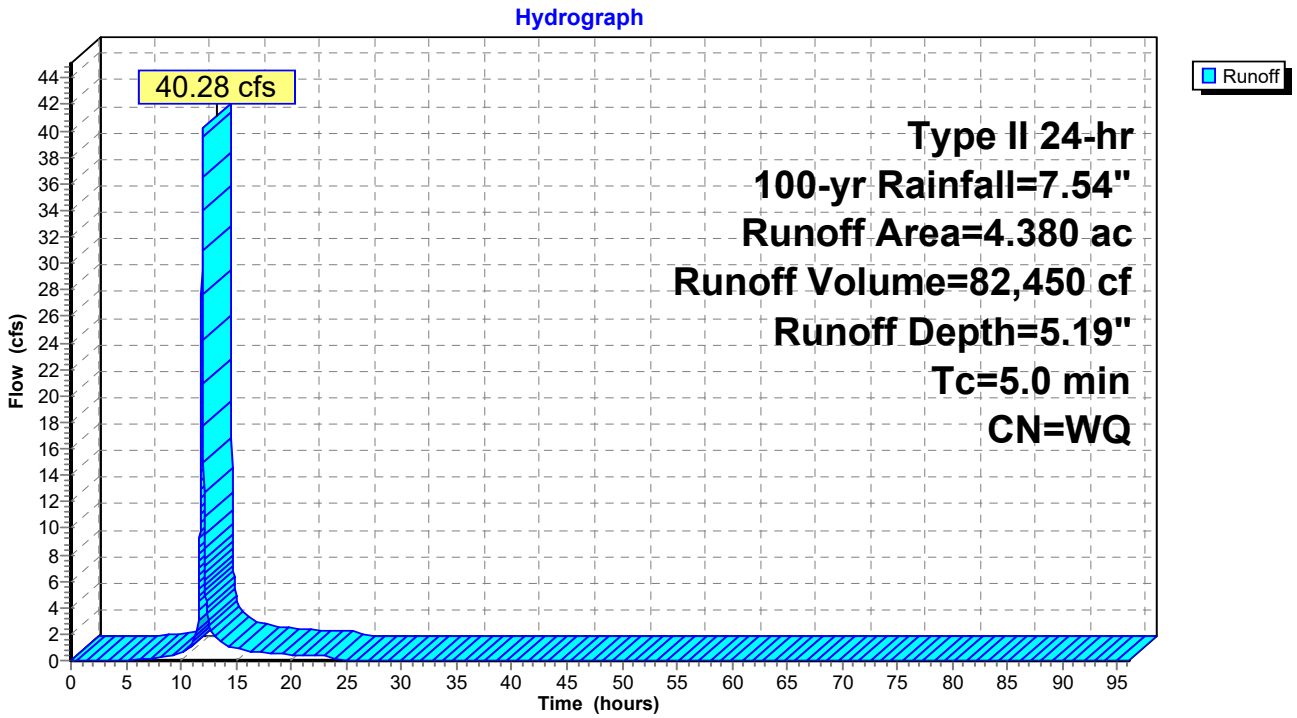
Runoff = 40.28 cfs @ 11.96 hrs, Volume= 82,450 cf, Depth= 5.19"
Routed to Link POA1 : POA #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

Area (ac)	CN	Description
3.905	80	>75% Grass cover, Good, HSG D
0.374	74	>75% Grass cover, Good, HSG C
0.101	98	Paved parking, HSG D
4.380		Weighted Average
4.279		97.69% Pervious Area
0.101		2.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DA-8



Summary for Pond 1P: SCM 1: Infiltration AGB

Inflow Area = 293,551 sf, 72.10% Impervious, Inflow Depth = 6.69" for 100-yr event
Inflow = 71.11 cfs @ 11.96 hrs, Volume= 163,674 cf
Outflow = 7.23 cfs @ 12.32 hrs, Volume= 163,678 cf, Atten= 90%, Lag= 21.6 min
Discarded = 0.26 cfs @ 12.32 hrs, Volume= 71,252 cf
Primary = 6.97 cfs @ 12.32 hrs, Volume= 92,426 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 277.32' @ 12.32 hrs Surf.Area= 31,603 sf Storage= 93,754 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 959.2 min (1,710.0 - 750.8)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	186,083 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

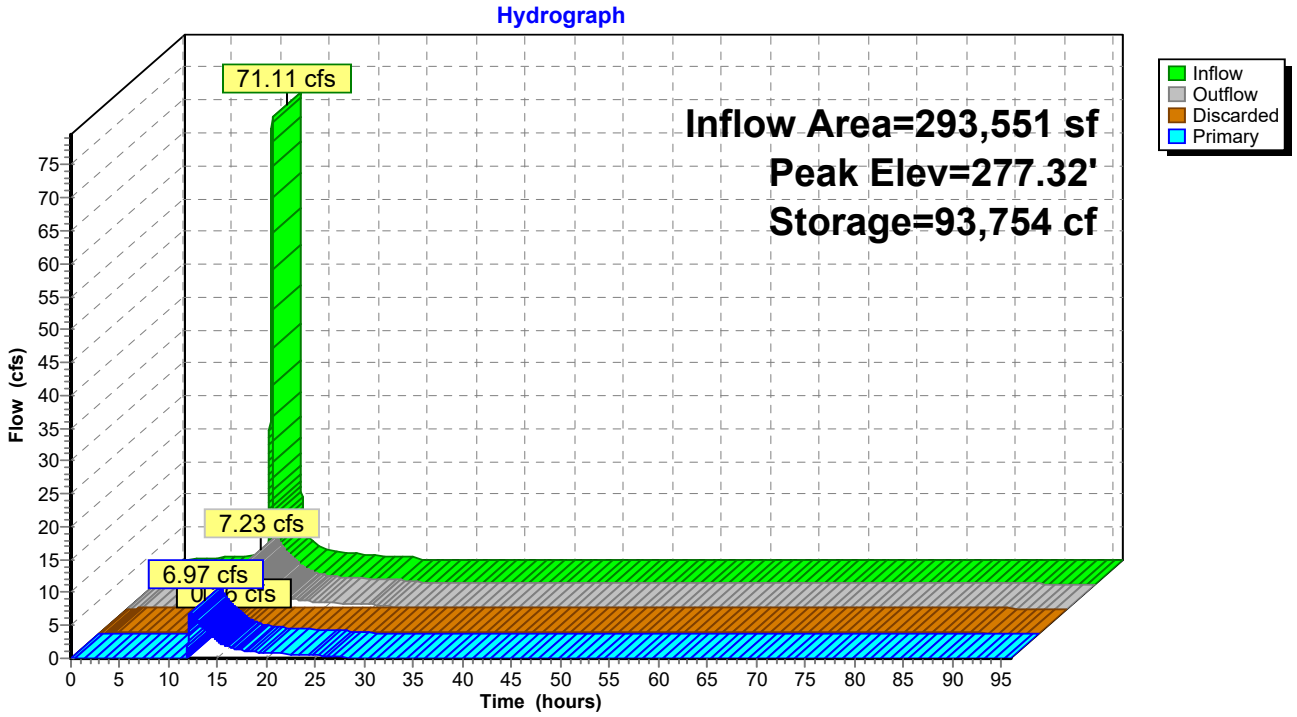
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	24,939	0	0
275.00	26,877	25,908	25,908
276.00	28,873	27,875	53,783
277.00	30,924	29,899	83,682
278.00	33,033	31,979	115,660
279.00	35,197	34,115	149,775
280.00	37,419	36,308	186,083

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.00'	**0.353 in/hr Exfiltration over Surface area**
#2	Primary	274.00'	**30.0" Round Culvert** L= 52.0' Ke= 0.500 Inlet / Outlet Invert= 274.00' / 272.00' S= 0.0385 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#3	Device 2	275.75'	**12.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	276.25'	**24.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	277.00'	**24.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Primary	277.50'	**24.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.26 cfs @ 12.32 hrs HW=277.32' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=6.97 cfs @ 12.32 hrs HW=277.32' TW=0.00' (Dynamic Tailwater)
├**2=Culvert** (Passes 6.97 cfs of 34.02 cfs potential flow)
│ ├**3=Orifice/Grate** (Orifice Controls 1.45 cfs @ 5.79 fps)
│ ├**4=Orifice/Grate** (Orifice Controls 4.35 cfs @ 4.35 fps)
│ └**5=Orifice/Grate** (Orifice Controls 1.17 cfs @ 1.82 fps)
└**6=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: SCM 1: Infiltration AGB



Summary for Pond 2P: SCM 2: Detention UGB

Inflow Area = 353,446 sf, 98.31% Impervious, Inflow Depth = 7.26" for 100-yr event
Inflow = 89.87 cfs @ 11.96 hrs, Volume= 213,981 cf
Outflow = 29.01 cfs @ 12.07 hrs, Volume= 213,840 cf, Atten= 68%, Lag= 6.6 min
Primary = 29.01 cfs @ 12.07 hrs, Volume= 213,840 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 272.41' @ 12.07 hrs Surf.Area= 30,988 sf Storage= 82,049 cf

Plug-Flow detention time= 101.0 min calculated for 213,840 cf (100% of inflow)
Center-of-Mass det. time= 100.6 min (838.2 - 737.6)

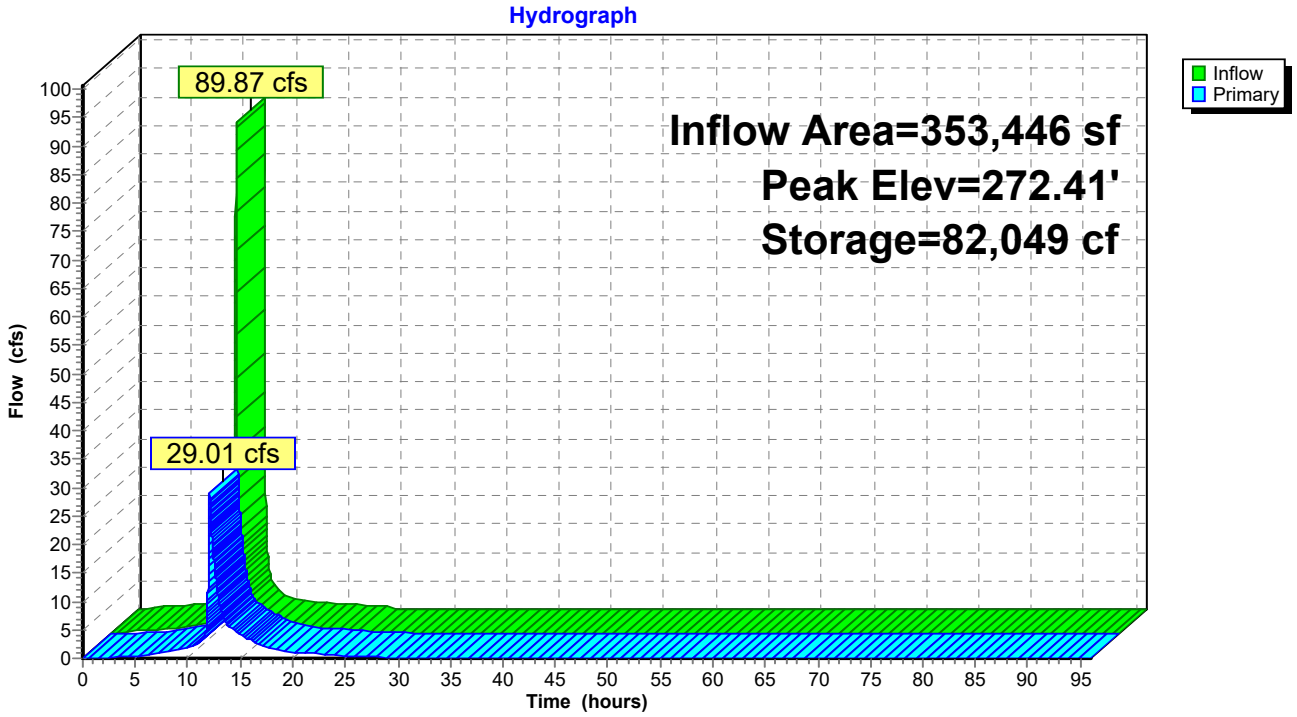
Volume	Invert	Avail.Storage	Storage Description
#1A	268.75'	41,546 cf	**63.75'W x 486.09'L x 5.50'H Field A** 170,435 cf Overall - 66,569 cf Embedded = 103,866 cf x 40.0% Voids
#2A	269.50'	66,569 cf	**ADS_StormTech MC-3500 d +Cap**x 603 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 603 Chambers in 9 Rows Cap Storage= 14.9 cf x 2 x 9 rows = 268.2 cf
		108,116 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	268.75'	**36.0" Round Outlet Pipe** L= 112.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 268.75' / 268.25' S= 0.0045 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	268.75'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	269.25'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	270.50'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	271.75'	**42.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	272.50'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=29.00 cfs @ 12.07 hrs HW=272.41' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 29.00 cfs of 39.45 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.33 cfs @ 9.05 fps)
  ├─**3=Orifice** (Orifice Controls 8.20 cfs @ 8.20 fps)
  ├─**4=Orifice** (Orifice Controls 14.19 cfs @ 5.68 fps)
  ├─**5=Orifice** (Orifice Controls 5.27 cfs @ 3.01 fps)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: SCM 2: Detention UGB



Summary for Pond 3P: SCM 3: Detention UGB

Inflow Area = 192,405 sf, 86.71% Impervious, Inflow Depth = 7.02" for 100-yr event
Inflow = 47.96 cfs @ 11.96 hrs, Volume= 112,568 cf
Outflow = 25.75 cfs @ 12.04 hrs, Volume= 112,529 cf, Atten= 46%, Lag= 4.8 min
Primary = 25.75 cfs @ 12.04 hrs, Volume= 112,529 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 275.00' @ 12.04 hrs Surf.Area= 16,811 sf Storage= 35,212 cf

Plug-Flow detention time= 71.2 min calculated for 112,529 cf (100% of inflow)
Center-of-Mass det. time= 70.9 min (814.1 - 743.1)

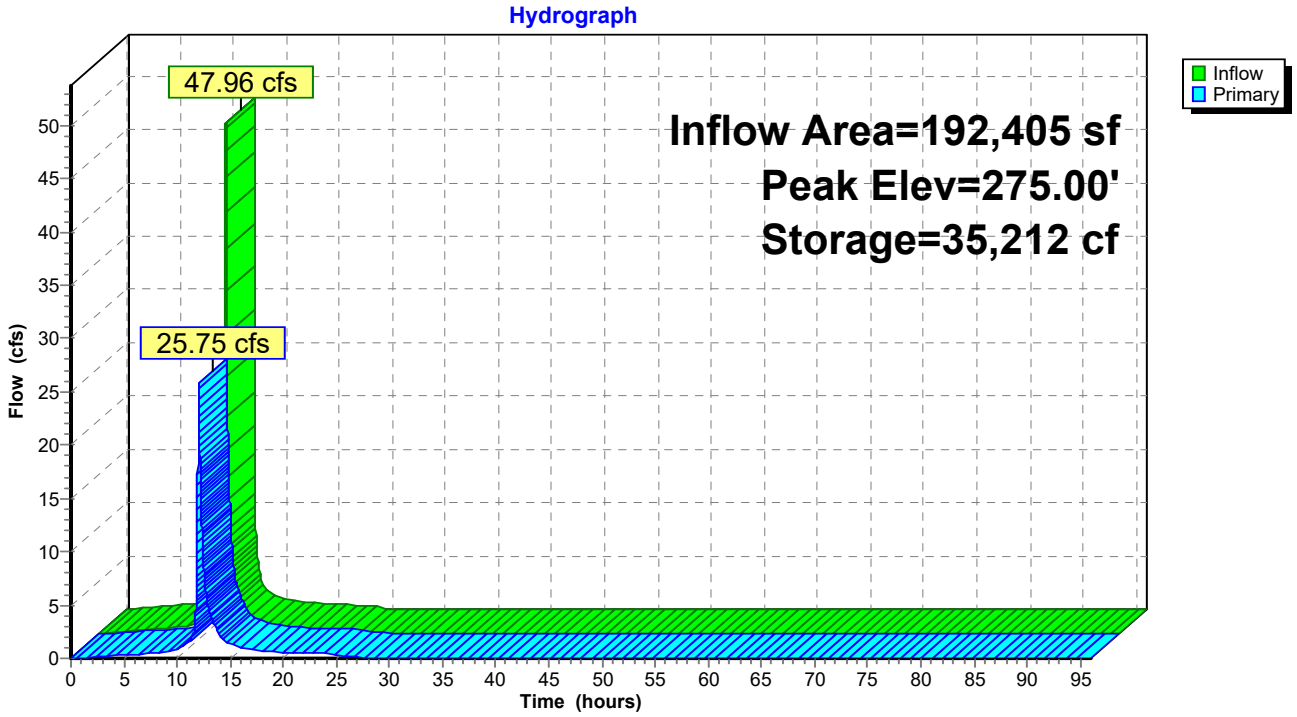
Volume	Invert	Avail.Storage	Storage Description
#1A	272.00'	15,071 cf	**46.75'W x 359.60'L x 3.75'H Field A** 63,042 cf Overall - 25,365 cf Embedded = 37,678 cf x 40.0% Voids
#2A	272.50'	25,365 cf	**ADS_StormTech SC-800 +Cap** x 500 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 500 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		40,436 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	272.00'	**36.0" Round Outlet Pipe** L= 628.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 272.00' / 268.25' S= 0.0060 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	272.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	272.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	273.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	274.50'	**42.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	275.25'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=25.71 cfs @ 12.04 hrs HW=275.00' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 25.71 cfs of 32.89 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.20 cfs @ 8.16 fps)
  ├─**3=Orifice** (Orifice Controls 7.21 cfs @ 7.21 fps)
  ├─**4=Orifice** (Orifice Controls 13.35 cfs @ 5.34 fps)
  ├─**5=Orifice** (Orifice Controls 3.94 cfs @ 2.26 fps)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: SCM 3: Detention UGB



Summary for Pond 4P: SCM 4: Detention UGB

Inflow Area = 156,163 sf, 91.35% Impervious, Inflow Depth = 7.12" for 100-yr event
Inflow = 39.24 cfs @ 11.96 hrs, Volume= 92,636 cf
Outflow = 16.65 cfs @ 12.05 hrs, Volume= 92,594 cf, Atten= 58%, Lag= 5.7 min
Primary = 16.65 cfs @ 12.05 hrs, Volume= 92,594 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 275.02' @ 12.05 hrs Surf.Area= 20,685 sf Storage= 28,862 cf

Plug-Flow detention time= 62.6 min calculated for 92,594 cf (100% of inflow)
Center-of-Mass det. time= 62.3 min (803.2 - 740.9)

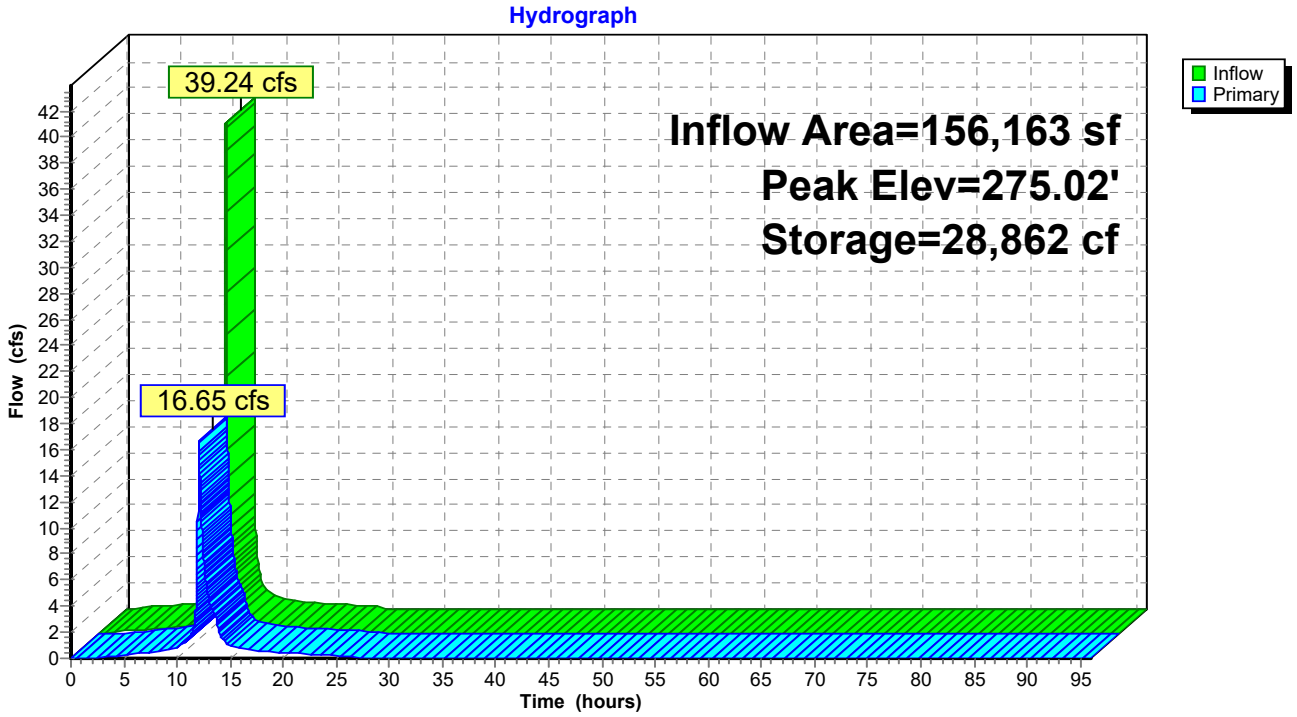
Volume	Invert	Avail.Storage	Storage Description
#1A	273.00'	27,875 cf	**49.92'W x 414.39'L x 5.50'H Field A** 113,767 cf Overall - 44,079 cf Embedded = 69,688 cf x 40.0% Voids
#2A	273.75'	44,079 cf	**ADS_StormTech MC-3500 d +Cap** x 399 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 399 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		71,955 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	**36.0" Round Outlet Pipe** L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 273.00' / 269.00' S= 0.0381 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	273.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	273.25'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	274.00'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	274.75'	**42.0" W x 4.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	275.09'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=16.65 cfs @ 12.05 hrs HW=275.02' TW=0.00' (Dynamic Tailwater)
- **1=Outlet Pipe** (Passes 16.65 cfs of 19.28 cfs potential flow)
  - **2=Orifice** (Orifice Controls 0.98 cfs @ 6.62 fps)
  - **3=Orifice** (Orifice Controls 5.92 cfs @ 5.92 fps)
  - **4=Orifice** (Orifice Controls 8.21 cfs @ 3.28 fps)
  - **5=Orifice** (Orifice Controls 1.55 cfs @ 1.66 fps)
  - **6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: SCM 4: Detention UGB



Summary for Pond 5P: SCM 5: Detention UGB

Inflow Area = 125,496 sf, 86.78% Impervious, Inflow Depth = 7.02" for 100-yr event
Inflow = 31.29 cfs @ 11.96 hrs, Volume= 73,437 cf
Outflow = 21.81 cfs @ 12.02 hrs, Volume= 73,428 cf, Atten= 30%, Lag= 3.6 min
Primary = 21.81 cfs @ 12.02 hrs, Volume= 73,428 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 279.30' @ 12.02 hrs Surf.Area= 8,494 sf Storage= 16,807 cf

Plug-Flow detention time= 38.8 min calculated for 73,420 cf (100% of inflow)
Center-of-Mass det. time= 39.0 min (782.1 - 743.1)

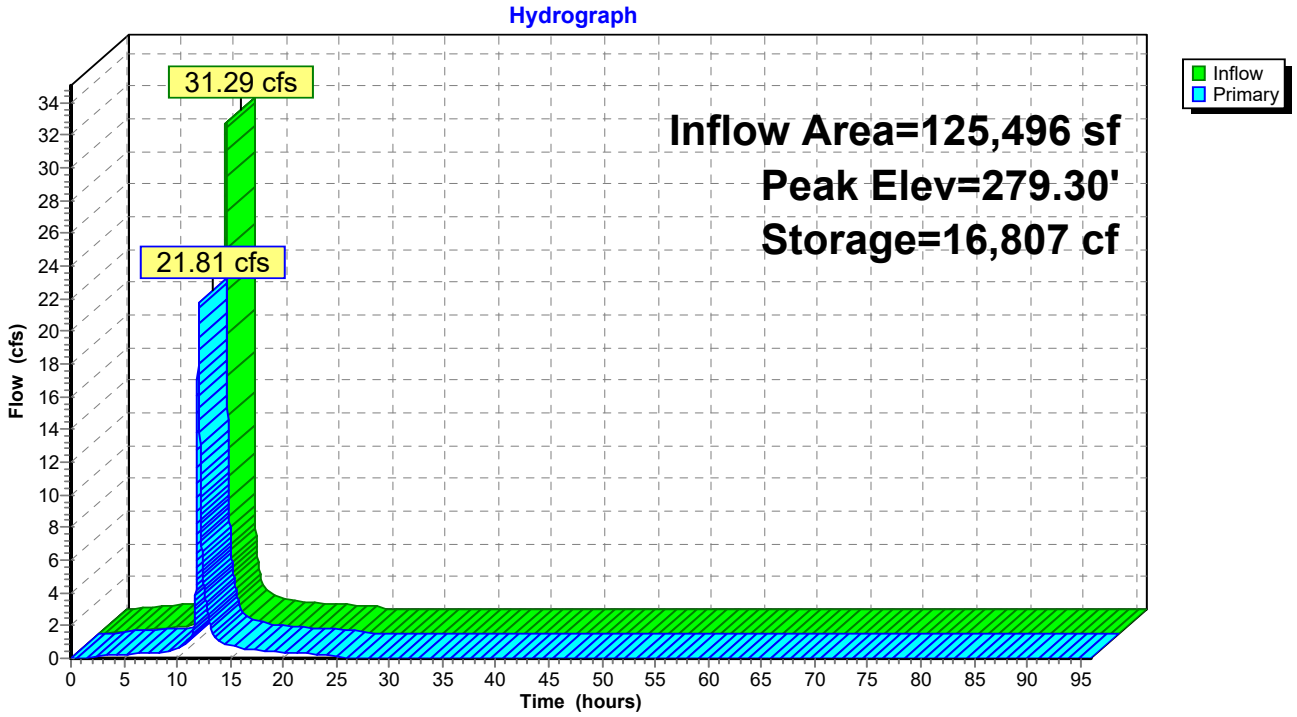
Volume	Invert	Avail.Storage	Storage Description
#1A	276.50'	7,654 cf	**46.75'W x 181.68'L x 3.75'H Field A** 31,851 cf Overall - 12,716 cf Embedded = 19,135 cf x 40.0% Voids
#2A	277.00'	12,716 cf	**ADS_StormTech SC-800 +Cap** x 250 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 250 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		20,370 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	276.50'	**36.0" Round Outlet Pipe** L= 900.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 276.50' / 269.00' S= 0.0083 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	276.50'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	277.00'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	277.75'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.00'	**36.0" W x 4.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	279.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=21.78 cfs @ 12.02 hrs HW=279.30' TW=0.00' (Dynamic Tailwater)
- **1=Outlet Pipe** (Passes 21.78 cfs of 30.83 cfs potential flow)
  - **2=Orifice** (Orifice Controls 1.16 cfs @ 7.87 fps)
  - **3=Orifice** (Orifice Controls 6.88 cfs @ 6.88 fps)
  - **4=Orifice** (Orifice Controls 12.19 cfs @ 4.87 fps)
  - **5=Orifice** (Orifice Controls 1.55 cfs @ 1.75 fps)
  - **6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5P: SCM 5: Detention UGB



Summary for Pond 6P: SCM 6: Detention UGB

Inflow Area = 145,316 sf, 77.34% Impervious, Inflow Depth = 6.73" for 100-yr event
Inflow = 35.19 cfs @ 11.96 hrs, Volume= 81,548 cf
Outflow = 20.55 cfs @ 12.03 hrs, Volume= 81,532 cf, Atten= 42%, Lag= 4.4 min
Primary = 20.55 cfs @ 12.03 hrs, Volume= 81,532 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 282.71' @ 12.03 hrs Surf.Area= 11,821 sf Storage= 22,786 cf

Plug-Flow detention time= 53.4 min calculated for 81,524 cf (100% of inflow)
Center-of-Mass det. time= 53.6 min (802.0 - 748.4)

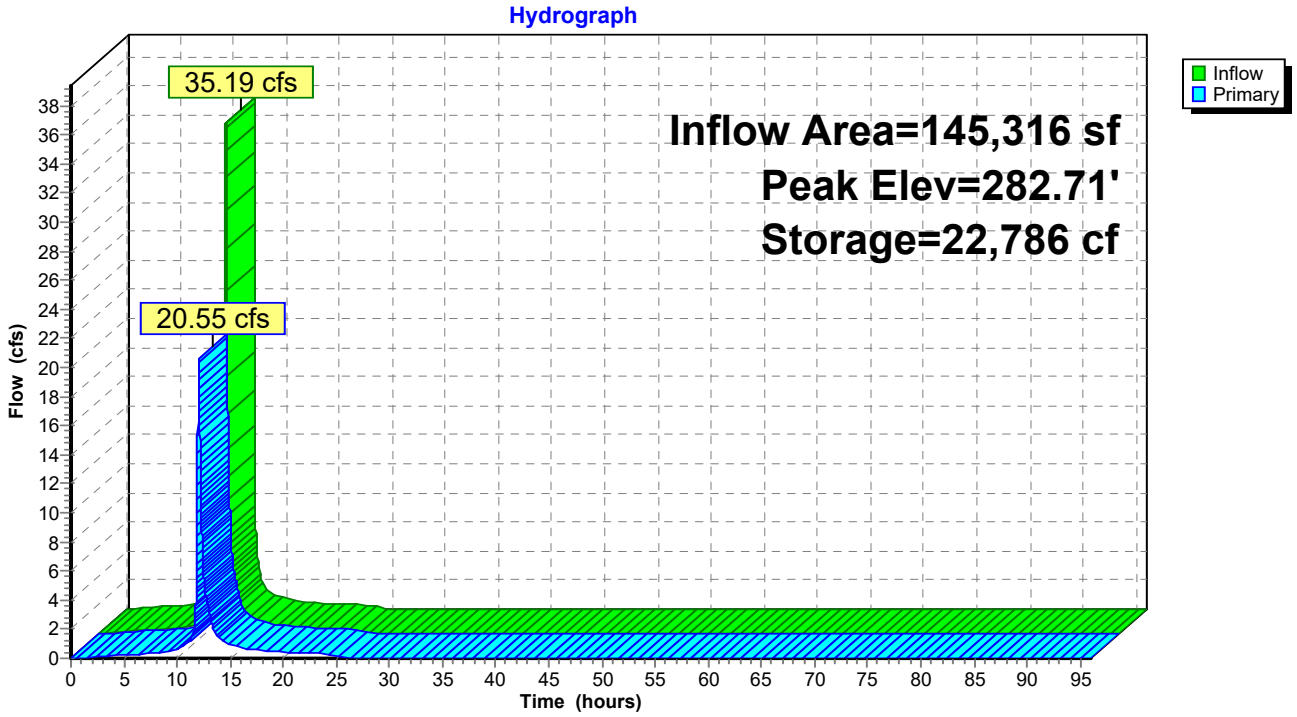
Volume	Invert	Avail.Storage	Storage Description
#1A	280.00'	10,621 cf	**46.75'W x 252.85'L x 3.75'H Field A** 44,328 cf Overall - 17,776 cf Embedded = 26,552 cf x 40.0% Voids
#2A	280.50'	17,776 cf	**ADS_StormTech SC-800 +Cap** x 350 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 350 Chambers in 10 Rows Cap Storage= 3.4 cf x 2 x 10 rows = 68.4 cf
		28,397 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	280.00'	**36.0" Round Outlet Pipe** L= 800.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 280.00' / 271.00' S= 0.0112 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	280.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	281.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	282.50'	**42.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	283.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=20.55 cfs @ 12.03 hrs HW=282.71' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 20.55 cfs of 29.68 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.14 cfs @ 7.74 fps)
  ├─**3=Orifice** (Orifice Controls 6.73 cfs @ 6.73 fps)
  ├─**4=Orifice** (Orifice Controls 11.63 cfs @ 4.65 fps)
  ├─**5=Orifice** (Orifice Controls 1.05 cfs @ 1.46 fps)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6P: SCM 6: Detention UGB



Summary for Pond 7P: SCM 7: Detention UGB

Inflow Area = 185,261 sf, 92.97% Impervious, Inflow Depth = 7.15" for 100-yr event
Inflow = 46.68 cfs @ 11.96 hrs, Volume= 110,423 cf
Outflow = 20.31 cfs @ 12.05 hrs, Volume= 110,390 cf, Atten= 56%, Lag= 5.6 min
Primary = 20.31 cfs @ 12.05 hrs, Volume= 110,390 cf
Routed to Link POA1 : POA #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Peak Elev= 275.69' @ 12.05 hrs Surf.Area= 18,180 sf Storage= 35,262 cf

Plug-Flow detention time= 68.8 min calculated for 110,378 cf (100% of inflow)
Center-of-Mass det. time= 69.0 min (809.1 - 740.1)

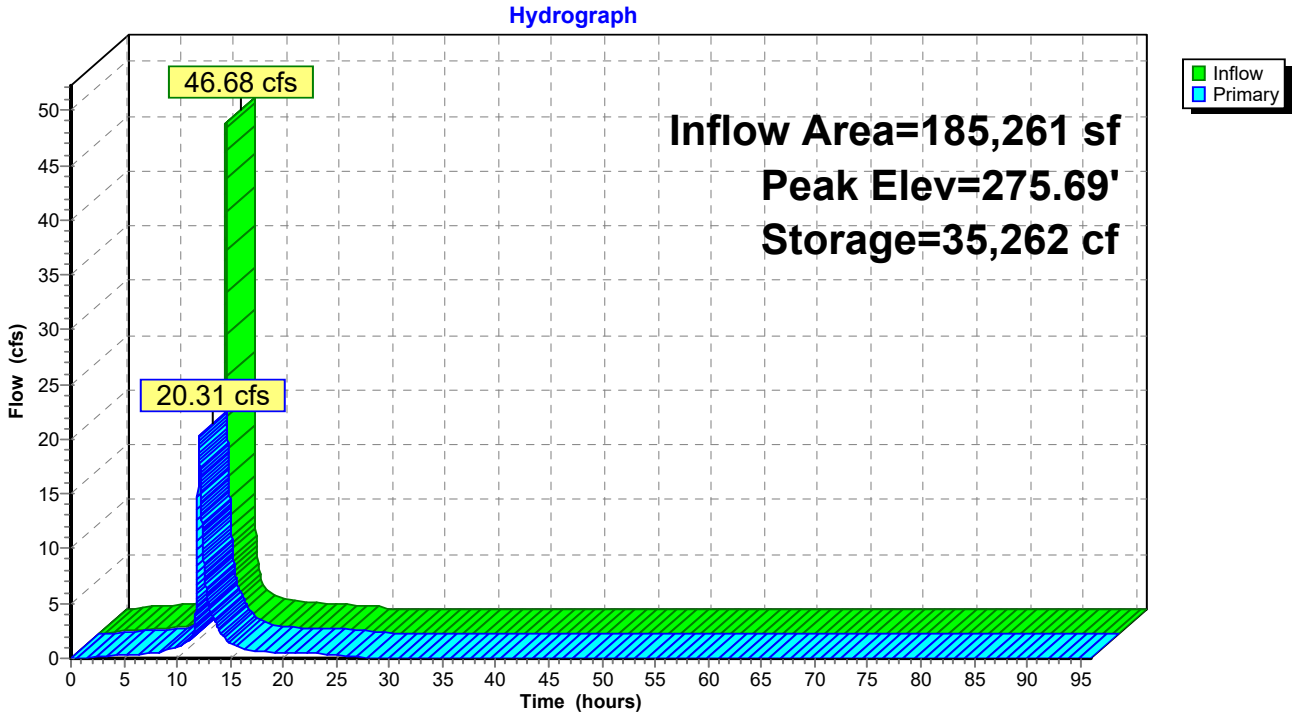
Volume	Invert	Avail.Storage	Storage Description
#1A	273.00'	24,519 cf	**49.92'W x 364.20'L x 5.50'H Field A** 99,988 cf Overall - 38,692 cf Embedded = 61,296 cf x 40.0% Voids
#2A	273.75'	38,692 cf	**ADS_StormTech MC-3500 d +Cap**x 350 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 350 Chambers in 7 Rows Cap Storage= 14.9 cf x 2 x 7 rows = 208.6 cf
		63,210 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	**36.0" Round Outlet Pipe** L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 273.00' / 271.00' S= 0.0190 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf
#2	Device 1	273.00'	**3.0" Vert. Orifice X 3.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	273.50'	**24.0" W x 6.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	274.25'	**30.0" W x 12.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	275.50'	**42.0" W x 3.0" H Vert. Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	276.00'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=20.30 cfs @ 12.05 hrs HW=275.69' TW=0.00' (Dynamic Tailwater)
└─**1=Outlet Pipe** (Passes 20.30 cfs of 29.47 cfs potential flow)
  ├─**2=Orifice** (Orifice Controls 1.14 cfs @ 7.71 fps)
  ├─**3=Orifice** (Orifice Controls 6.70 cfs @ 6.70 fps)
  ├─**4=Orifice** (Orifice Controls 11.53 cfs @ 4.61 fps)
  ├─**5=Orifice** (Orifice Controls 0.94 cfs @ 1.40 fps)
  └─**6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 7P: SCM 7: Detention UGB

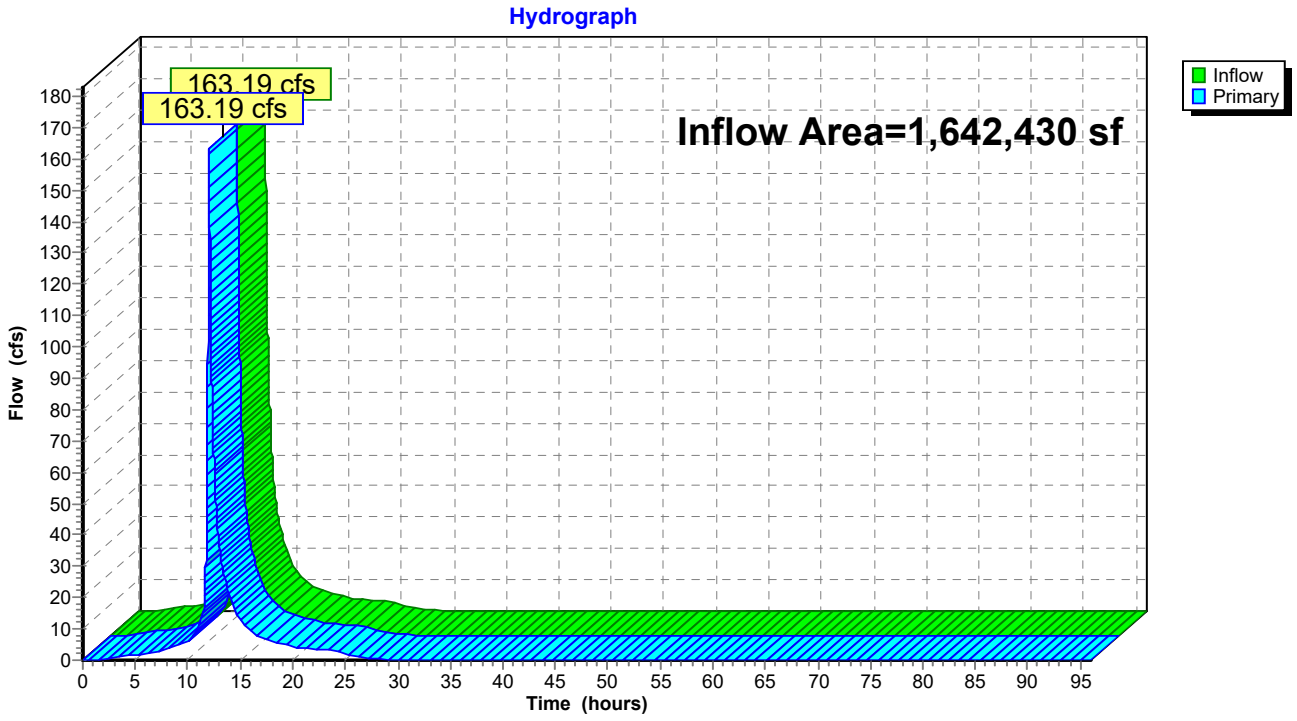


Summary for Link POA1: POA #1

Inflow Area = 1,642,430 sf, 77.11% Impervious, Inflow Depth = 6.28" for 100-yr event
Inflow = 163.19 cfs @ 12.02 hrs, Volume= 859,188 cf
Primary = 163.19 cfs @ 12.02 hrs, Volume= 859,188 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA1: POA #1

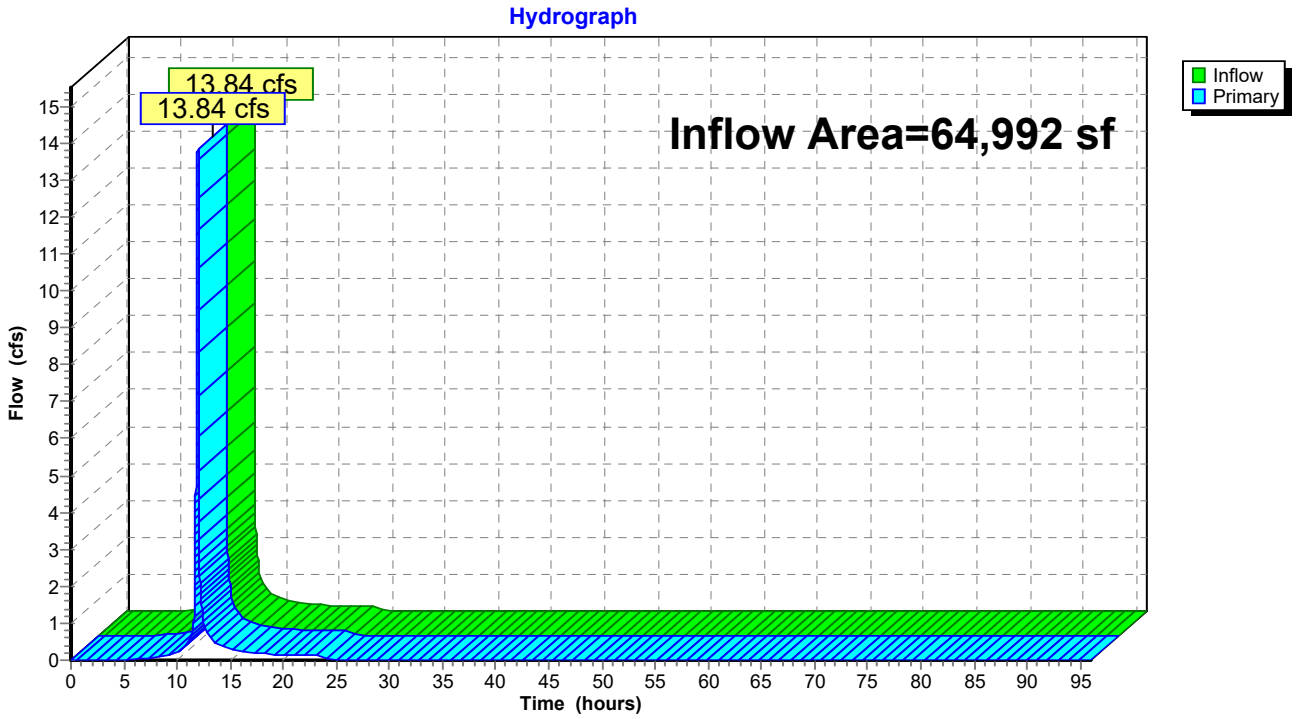


Summary for Link POA2: POA #2

Inflow Area = 64,992 sf, 2.01% Impervious, Inflow Depth = 5.24" for 100-yr event
Inflow = 13.84 cfs @ 11.96 hrs, Volume= 28,366 cf
Primary = 13.84 cfs @ 11.96 hrs, Volume= 28,366 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA2: POA #2

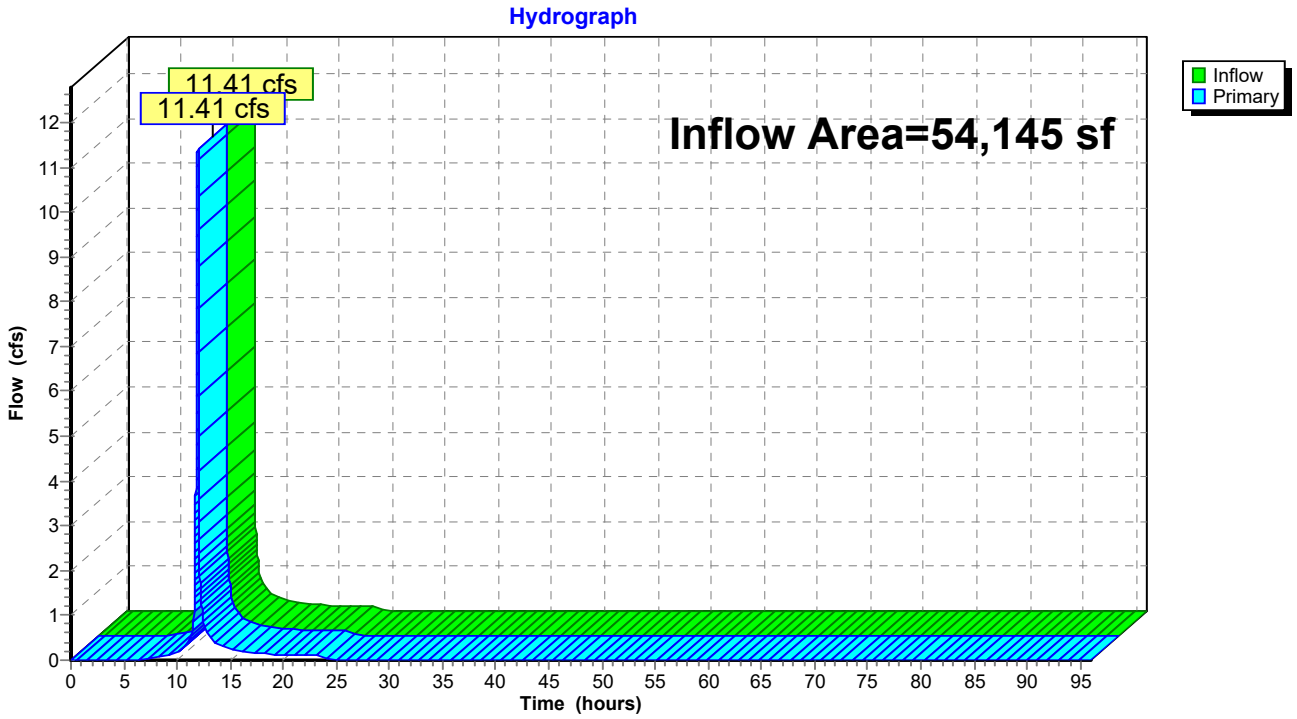


Summary for Link POA3: POA #3

Inflow Area = 54,145 sf, 0.00% Impervious, Inflow Depth = 5.16" for 100-yr event
Inflow = 11.41 cfs @ 11.96 hrs, Volume= 23,264 cf
Primary = 11.41 cfs @ 11.96 hrs, Volume= 23,264 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs

Link POA3: POA #3



Level Spreader Design (BMP Manual)

Project: **PAC250095.00: Hanover Industrial - Chalfont**

Description: **Level Spreaders**

Level Spreader Length Design

Level Spreader	10-Yr Peak Flow (CFS)	10 -Yr (13 LF/1 CFS) Length (Ft)	Provided Length (Ft)	Height of Water over Weir (Ft)	100-Yr Velocity (fps)	Less than Max. Allowable Velocity for RFB (2.0 fps)?
LS-1	0.92	12	20	0.06	0.53	Yes
LS-2	12.59	164	164	0.09	0.63	Yes
LS-3	12.07	157	157	0.09	0.63	Yes
LS-4	8.13	106	106	0.09	0.62	Yes
LS-5	11.53	150	150	0.09	0.63	Yes
LS-6	9.98	130	130	0.09	0.63	Yes
LS-7	10.67	139	139	0.09	0.63	Yes

Calculation of Head over spreader based on allowable velocity

$V = 1.5 \times Cw \times H^{1/2}$

Max =	Max. velocity of downslope cover	4.00	fps (grass)
V =	33% of Max	1.33	fps
Cw =	weir coefficient	3.00	
H =	height of water over weir	**0.09**	ft

2-Yr Storm Even Velocity Check

Level Spreader	2-Yr Peak Flow (CFS)	Provided Length (Ft)	Height of Water over Weir (Ft)	2-Yr Velocity (fps)	Less than Max. Allowable Velocity for RFB (1.5 fps)?
LS-1	0.00	20	0.00	0.00	Yes
LS-2	6.23	164	0.05	0.49	Yes
LS-3	5.95	157	0.05	0.49	Yes
LS-4	4.96	106	0.06	0.53	Yes
LS-5	6.09	150	0.06	0.51	Yes
LS-6	4.89	130	0.05	0.49	Yes
LS-7	5.84	139	0.06	0.51	Yes

Calculation of Head over spreader based on 2-Yr Peak Flow

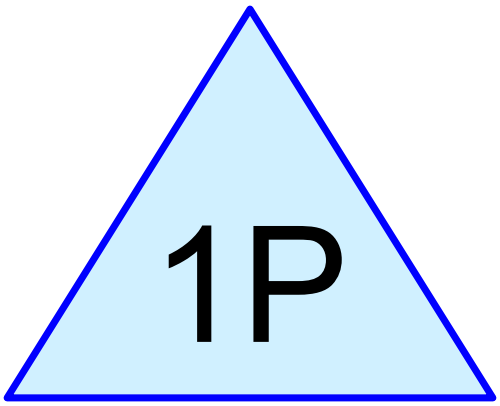
$Q = Cw \times L \times H^{1/2}$

Q = 2-yr peak flow (fps)
Cw = weir coefficient (3.0)
L = 10-yr provided length of level spreader (ft)
H = height of water over weir (ft)

Calculation of Velocity based on height of water over weir at the 2-year event

$V = 1.5 \times Cw \times H^{1/2}$

V = velocity at 2-yr storm event (fps)
Cw = weir coefficient
H = height of water over weir (ft)



SCM 1: Infiltration AGB

Subcat Reach Pond Link

Routing Diagram for PAC250095.00_Hanover Warehouses POST
Prepared by Bohler Engineering, PC, Printed 7/27/2026
HydroCAD® 10.20-8a s/n 03478 © 2025 HydroCAD Software Solutions LLC

Hydrograph for Pond 1P: SCM 1: Infiltration AGB

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	274.00	0.00	0.00	0.00
0.20	0.00	0	274.00	0.00	0.00	0.00
0.40	0.00	0	274.00	0.00	0.00	0.00
0.60	0.00	0	274.00	0.00	0.00	0.00
0.80	0.05	0	274.00	0.05	0.05	0.00
1.00	0.10	0	274.00	0.10	0.10	0.00
1.20	0.14	0	274.00	0.14	0.14	0.00
1.40	0.18	0	274.00	0.18	0.18	0.00
1.60	0.21	1	274.00	0.20	0.20	0.00
1.80	0.24	16	274.00	0.20	0.20	0.00
2.00	0.26	50	274.00	0.20	0.20	0.00
2.20	0.29	101	274.00	0.20	0.20	0.00
2.40	0.31	169	274.01	0.20	0.20	0.00
2.60	0.33	251	274.01	0.20	0.20	0.00
2.80	0.35	346	274.01	0.20	0.20	0.00
3.00	0.36	454	274.02	0.20	0.20	0.00
3.20	0.38	574	274.02	0.20	0.20	0.00
3.40	0.39	705	274.03	0.20	0.20	0.00
3.60	0.41	846	274.03	0.20	0.20	0.00
3.80	0.42	997	274.04	0.20	0.20	0.00
4.00	0.43	1,158	274.05	0.20	0.20	0.00
4.20	0.45	1,329	274.05	0.20	0.20	0.00
4.40	0.47	1,513	274.06	0.20	0.20	0.00
4.60	0.49	1,710	274.07	0.20	0.20	0.00
4.80	0.51	1,920	274.08	0.20	0.20	0.00
5.00	0.52	2,143	274.09	0.21	0.21	0.00
5.20	0.54	2,378	274.10	0.21	0.21	0.00
5.40	0.56	2,627	274.10	0.21	0.21	0.00
5.60	0.58	2,892	274.12	0.21	0.21	0.00
5.80	0.61	3,171	274.13	0.21	0.21	0.00
6.00	0.63	3,467	274.14	0.21	0.21	0.00
6.20	0.65	3,778	274.15	0.21	0.21	0.00
6.40	0.67	4,104	274.16	0.21	0.21	0.00
6.60	0.69	4,446	274.18	0.21	0.21	0.00
6.80	0.71	4,804	274.19	0.21	0.21	0.00
7.00	0.74	5,178	274.21	0.21	0.21	0.00
7.20	0.76	5,567	274.22	0.21	0.21	0.00
7.40	0.78	5,973	274.24	0.21	0.21	0.00
7.60	0.80	6,395	274.25	0.21	0.21	0.00
7.80	0.83	6,832	274.27	0.21	0.21	0.00
8.00	0.85	7,286	274.29	0.21	0.21	0.00
8.20	0.91	7,766	274.31	0.21	0.21	0.00
8.40	1.00	8,303	274.33	0.21	0.21	0.00
8.60	1.09	8,903	274.35	0.21	0.21	0.00
8.80	1.18	9,567	274.38	0.21	0.21	0.00
9.00	1.27	10,297	274.41	0.21	0.21	0.00
9.20	1.31	11,080	274.44	0.21	0.21	0.00
9.40	1.32	11,877	274.47	0.21	0.21	0.00
9.60	1.35	12,682	274.50	0.21	0.21	0.00
9.80	1.49	13,552	274.53	0.21	0.21	0.00
10.00	1.64	14,526	274.57	0.21	0.21	0.00
10.20	1.83	15,617	274.61	0.21	0.21	0.00

Hydrograph for Pond 1P: SCM 1: Infiltration AGB (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
10.40	2.05	16,861	274.66	0.21	0.21	0.00
10.60	2.30	18,267	274.71	0.22	0.22	0.00
10.80	2.66	19,897	274.77	0.22	0.22	0.00
11.00	3.04	21,794	274.85	0.22	0.22	0.00
11.20	3.73	24,039	274.93	0.22	0.22	0.00
11.40	4.64	26,894	275.04	0.22	0.22	0.00
11.60	8.66	30,680	275.18	0.22	0.22	0.00
11.80	**30.98**	44,327	275.67	0.23	0.23	0.00
12.00	**58.99**	82,480	276.96	4.73	0.25	4.48
12.20	8.72	**93,454**	**277.31**	**7.15**	**0.26**	**6.89**
12.40	6.30	**93,619**	**277.32**	**7.19**	**0.26**	**6.93**
12.60	4.31	92,299	277.28	6.84	0.26	6.58
12.80	3.74	90,434	277.22	6.35	0.26	6.10
13.00	3.23	88,535	277.16	5.89	0.26	5.63
13.20	2.86	86,626	277.09	5.46	0.25	5.20
13.40	2.58	84,793	277.04	5.08	0.25	4.83
13.60	2.32	83,000	276.98	4.80	0.25	4.55
13.80	2.12	81,226	276.92	4.55	0.25	4.30
14.00	1.92	79,494	276.86	4.29	0.25	4.04
14.20	1.80	77,835	276.81	4.01	0.25	3.76
14.40	1.73	76,325	276.76	3.71	0.25	3.46
14.60	1.66	74,988	276.72	3.39	0.25	3.15
14.80	1.59	73,817	276.68	3.12	0.25	2.87
15.00	1.52	72,779	276.64	2.88	0.25	2.64
15.20	1.45	71,849	276.61	2.68	0.25	2.43
15.40	1.38	71,007	276.58	2.50	0.25	2.25
15.60	1.31	70,237	276.56	2.34	0.25	2.10
15.80	1.24	69,524	276.54	2.20	0.24	1.95
16.00	1.17	68,860	276.51	2.07	0.24	1.82
16.20	1.13	68,240	276.49	1.95	0.24	1.71
16.40	1.11	67,678	276.47	1.85	0.24	1.61
16.60	1.08	67,168	276.46	1.76	0.24	1.52
16.80	1.06	66,701	276.44	1.68	0.24	1.44
17.00	1.03	66,270	276.43	1.61	0.24	1.37
17.20	1.01	65,871	276.41	1.54	0.24	1.30
17.40	0.98	65,498	276.40	1.49	0.24	1.24
17.60	0.96	65,147	276.39	1.43	0.24	1.19
17.80	0.93	64,815	276.38	1.38	0.24	1.14
18.00	0.91	64,499	276.37	1.34	0.24	1.10
18.20	0.88	64,197	276.36	1.30	0.24	1.05
18.40	0.86	63,906	276.35	1.26	0.24	1.02
18.60	0.83	63,623	276.34	1.22	0.24	0.98
18.80	0.81	63,349	276.33	1.19	0.24	0.95
19.00	0.79	63,080	276.32	1.15	0.24	0.91
19.20	0.76	62,816	276.31	1.12	0.24	0.88
19.40	0.74	62,555	276.30	1.10	0.24	0.86
19.60	0.71	62,295	276.29	1.07	0.24	0.83
19.80	0.69	62,037	276.28	1.05	0.24	0.80
20.00	0.66	61,777	276.27	1.02	0.24	0.78
20.20	0.65	61,518	276.27	1.00	0.24	0.76
20.40	0.64	61,268	276.26	0.98	0.24	0.74
20.60	0.64	61,025	276.25	0.97	0.24	0.73

Hydrograph for Pond 1P: SCM 1: Infiltration AGB (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
20.80	0.63	60,786	276.24	0.96	0.24	0.72
21.00	0.63	60,548	276.23	0.96	0.24	0.72
21.20	0.62	60,314	276.22	0.95	0.24	0.71
21.40	0.62	60,082	276.22	0.94	0.24	0.70
21.60	0.61	59,852	276.21	0.93	0.24	0.69
21.80	0.61	59,624	276.20	0.92	0.24	0.68
22.00	0.60	59,400	276.19	0.91	0.24	0.67
22.20	0.60	59,177	276.19	0.91	0.24	0.67
22.40	0.59	58,958	276.18	0.90	0.24	0.66
22.60	0.59	58,740	276.17	0.89	0.24	0.65
22.80	0.58	58,526	276.16	0.88	0.24	0.64
23.00	0.58	58,314	276.16	0.87	0.24	0.63
23.20	0.57	58,104	276.15	0.86	0.24	0.62
23.40	0.57	57,897	276.14	0.85	0.24	0.62
23.60	0.56	57,693	276.13	0.85	0.24	0.61
23.80	0.56	57,491	276.13	0.84	0.24	0.60
24.00	0.55	57,292	276.12	0.83	0.24	0.59
24.20	0.01	56,855	276.11	0.81	0.24	0.57
24.40	0.00	56,282	276.09	0.78	0.24	0.54
24.60	0.00	55,729	276.07	0.75	0.24	0.52
24.80	0.00	55,196	276.05	0.73	0.24	0.49
25.00	0.00	54,683	276.03	0.70	0.24	0.46
25.20	0.00	54,192	276.01	0.67	0.24	0.43
25.40	0.00	53,724	276.00	0.63	0.24	0.40
25.60	0.00	53,282	275.98	0.60	0.24	0.36
25.80	0.00	52,865	275.97	0.56	0.24	0.33
26.00	0.00	52,471	275.95	0.53	0.24	0.30
26.20	0.00	52,099	275.94	0.50	0.23	0.27
26.40	0.00	51,745	275.93	0.48	0.23	0.24
26.60	0.00	51,409	275.92	0.45	0.23	0.22
26.80	0.00	51,090	275.91	0.43	0.23	0.20
27.00	0.00	50,785	275.90	0.41	0.23	0.18
27.20	0.00	50,495	275.89	0.39	0.23	0.16
27.40	0.00	50,217	275.88	0.38	0.23	0.14
27.60	0.00	49,951	275.87	0.36	0.23	0.13
27.80	0.00	49,696	275.86	0.35	0.23	0.11
28.00	0.00	49,451	275.85	0.33	0.23	0.10
28.20	0.00	49,215	275.84	0.32	0.23	0.09
28.40	0.00	48,988	275.83	0.31	0.23	0.08
28.60	0.00	48,769	275.83	0.30	0.23	0.07
28.80	0.00	48,557	275.82	0.29	0.23	0.06
29.00	0.00	48,351	275.81	0.28	0.23	0.05
29.20	0.00	48,152	275.80	0.27	0.23	0.04
29.40	0.00	47,959	275.80	0.27	0.23	0.03
29.60	0.00	47,770	275.79	0.26	0.23	0.03
29.80	0.00	47,586	275.78	0.25	0.23	0.02
30.00	0.00	47,407	275.78	0.25	0.23	0.01
30.20	0.00	47,231	275.77	0.24	0.23	0.01
30.40	0.00	47,058	275.77	0.24	0.23	0.01
30.60	0.00	46,888	275.76	0.23	0.23	0.00
30.80	0.00	46,719	275.75	0.23	0.23	0.00
31.00	0.00	46,552	275.75	0.23	0.23	0.00

Hydrograph for Pond 1P: SCM 1: Infiltration AGB (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
31.20	0.00	46,385	275.74	0.23	0.23	0.00
31.40	0.00	46,219	275.74	0.23	0.23	0.00
31.60	0.00	46,052	275.73	0.23	0.23	0.00
31.80	0.00	45,885	275.72	0.23	0.23	0.00
32.00	0.00	45,719	275.72	0.23	0.23	0.00
32.20	0.00	45,552	275.71	0.23	0.23	0.00
32.40	0.00	45,386	275.71	0.23	0.23	0.00
32.60	0.00	45,219	275.70	0.23	0.23	0.00
32.80	0.00	45,053	275.69	0.23	0.23	0.00
33.00	0.00	44,887	275.69	0.23	0.23	0.00
33.20	0.00	44,721	275.68	0.23	0.23	0.00
33.40	0.00	44,554	275.68	0.23	0.23	0.00
33.60	0.00	44,388	275.67	0.23	0.23	0.00
33.80	0.00	44,222	275.66	0.23	0.23	0.00
34.00	0.00	44,057	275.66	0.23	0.23	0.00
34.20	0.00	43,891	275.65	0.23	0.23	0.00
34.40	0.00	43,725	275.65	0.23	0.23	0.00
34.60	0.00	43,559	275.64	0.23	0.23	0.00
34.80	0.00	43,394	275.64	0.23	0.23	0.00
35.00	0.00	43,228	275.63	0.23	0.23	0.00
35.20	0.00	43,063	275.62	0.23	0.23	0.00
35.40	0.00	42,897	275.62	0.23	0.23	0.00
35.60	0.00	42,732	275.61	0.23	0.23	0.00
35.80	0.00	42,567	275.61	0.23	0.23	0.00
36.00	0.00	42,401	275.60	0.23	0.23	0.00
36.20	0.00	42,236	275.59	0.23	0.23	0.00
36.40	0.00	42,071	275.59	0.23	0.23	0.00
36.60	0.00	41,906	275.58	0.23	0.23	0.00
36.80	0.00	41,741	275.58	0.23	0.23	0.00
37.00	0.00	41,576	275.57	0.23	0.23	0.00
37.20	0.00	41,412	275.56	0.23	0.23	0.00
37.40	0.00	41,247	275.56	0.23	0.23	0.00
37.60	0.00	41,082	275.55	0.23	0.23	0.00
37.80	0.00	40,918	275.55	0.23	0.23	0.00
38.00	0.00	40,753	275.54	0.23	0.23	0.00
38.20	0.00	40,589	275.54	0.23	0.23	0.00
38.40	0.00	40,424	275.53	0.23	0.23	0.00
38.60	0.00	40,260	275.52	0.23	0.23	0.00
38.80	0.00	40,096	275.52	0.23	0.23	0.00
39.00	0.00	39,931	275.51	0.23	0.23	0.00
39.20	0.00	39,767	275.51	0.23	0.23	0.00
39.40	0.00	39,603	275.50	0.23	0.23	0.00
39.60	0.00	39,439	275.49	0.23	0.23	0.00
39.80	0.00	39,275	275.49	0.23	0.23	0.00
40.00	0.00	39,112	275.48	0.23	0.23	0.00
40.20	0.00	38,948	275.48	0.23	0.23	0.00
40.40	0.00	38,784	275.47	0.23	0.23	0.00
40.60	0.00	38,621	275.46	0.23	0.23	0.00
40.80	0.00	38,457	275.46	0.23	0.23	0.00
41.00	0.00	38,294	275.45	0.23	0.23	0.00
41.20	0.00	38,130	275.45	0.23	0.23	0.00
41.40	0.00	37,967	275.44	0.23	0.23	0.00

Hydrograph for Pond 1P: SCM 1: Infiltration AGB (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
41.60	0.00	37,804	275.44	0.23	0.23	0.00
41.80	0.00	37,640	275.43	0.23	0.23	0.00
42.00	0.00	37,477	275.42	0.23	0.23	0.00
42.20	0.00	37,314	275.42	0.23	0.23	0.00
42.40	0.00	37,151	275.41	0.23	0.23	0.00
42.60	0.00	36,988	275.41	0.23	0.23	0.00
42.80	0.00	36,825	275.40	0.23	0.23	0.00
43.00	0.00	36,663	275.39	0.23	0.23	0.00
43.20	0.00	36,500	275.39	0.23	0.23	0.00
43.40	0.00	36,337	275.38	0.23	0.23	0.00
43.60	0.00	36,175	275.38	0.23	0.23	0.00
43.80	0.00	36,012	275.37	0.23	0.23	0.00
44.00	0.00	35,850	275.36	0.23	0.23	0.00
44.20	0.00	35,687	275.36	0.23	0.23	0.00
44.40	0.00	35,525	275.35	0.23	0.23	0.00
44.60	0.00	35,363	275.35	0.23	0.23	0.00
44.80	0.00	35,200	275.34	0.23	0.23	0.00
45.00	0.00	35,038	275.34	0.23	0.23	0.00
45.20	0.00	34,876	275.33	0.22	0.22	0.00
45.40	0.00	34,714	275.32	0.22	0.22	0.00
45.60	0.00	34,553	275.32	0.22	0.22	0.00
45.80	0.00	34,391	275.31	0.22	0.22	0.00
46.00	0.00	34,229	275.31	0.22	0.22	0.00
46.20	0.00	34,067	275.30	0.22	0.22	0.00
46.40	0.00	33,906	275.29	0.22	0.22	0.00
46.60	0.00	33,744	275.29	0.22	0.22	0.00
46.80	0.00	33,583	275.28	0.22	0.22	0.00
47.00	0.00	33,421	275.28	0.22	0.22	0.00
47.20	0.00	33,260	275.27	0.22	0.22	0.00
47.40	0.00	33,099	275.26	0.22	0.22	0.00
47.60	0.00	32,937	275.26	0.22	0.22	0.00
47.80	0.00	32,776	275.25	0.22	0.22	0.00
48.00	0.00	32,615	275.25	0.22	0.22	0.00
48.20	0.00	32,454	275.24	0.22	0.22	0.00
48.40	0.00	32,293	275.24	0.22	0.22	0.00
48.60	0.00	32,132	275.23	0.22	0.22	0.00
48.80	0.00	31,972	275.22	0.22	0.22	0.00
49.00	0.00	31,811	275.22	0.22	0.22	0.00
49.20	0.00	31,650	275.21	0.22	0.22	0.00
49.40	0.00	31,490	275.21	0.22	0.22	0.00
49.60	0.00	31,329	275.20	0.22	0.22	0.00
49.80	0.00	31,169	275.19	0.22	0.22	0.00
50.00	0.00	31,008	275.19	0.22	0.22	0.00
50.20	0.00	30,848	275.18	0.22	0.22	0.00
50.40	0.00	30,688	275.18	0.22	0.22	0.00
50.60	0.00	30,528	275.17	0.22	0.22	0.00
50.80	0.00	30,368	275.16	0.22	0.22	0.00
51.00	0.00	30,207	275.16	0.22	0.22	0.00
51.20	0.00	30,048	275.15	0.22	0.22	0.00
51.40	0.00	29,888	275.15	0.22	0.22	0.00
51.60	0.00	29,728	275.14	0.22	0.22	0.00
51.80	0.00	29,568	275.14	0.22	0.22	0.00

Hydrograph for Pond 1P: SCM 1: Infiltration AGB (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
52.00	0.00	29,408	275.13	0.22	0.22	0.00
52.20	0.00	29,249	275.12	0.22	0.22	0.00
52.40	0.00	29,089	275.12	0.22	0.22	0.00
52.60	0.00	28,930	275.11	0.22	0.22	0.00
52.80	0.00	28,770	275.11	0.22	0.22	0.00
53.00	0.00	28,611	275.10	0.22	0.22	0.00
53.20	0.00	28,452	275.09	0.22	0.22	0.00
53.40	0.00	28,293	275.09	0.22	0.22	0.00
53.60	0.00	28,133	275.08	0.22	0.22	0.00
53.80	0.00	27,974	275.08	0.22	0.22	0.00
54.00	0.00	27,815	275.07	0.22	0.22	0.00
54.20	0.00	27,656	275.06	0.22	0.22	0.00
54.40	0.00	27,498	275.06	0.22	0.22	0.00
54.60	0.00	27,339	275.05	0.22	0.22	0.00
54.80	0.00	27,180	275.05	0.22	0.22	0.00
55.00	0.00	27,021	275.04	0.22	0.22	0.00
55.20	0.00	26,863	275.04	0.22	0.22	0.00
55.40	0.00	26,704	275.03	0.22	0.22	0.00
55.60	0.00	26,546	275.02	0.22	0.22	0.00
55.80	0.00	26,388	275.02	0.22	0.22	0.00
56.00	0.00	26,229	275.01	0.22	0.22	0.00
56.20	0.00	26,071	275.01	0.22	0.22	0.00
56.40	0.00	25,913	275.00	0.22	0.22	0.00
56.60	0.00	25,755	274.99	0.22	0.22	0.00
56.80	0.00	25,597	274.99	0.22	0.22	0.00
57.00	0.00	25,439	274.98	0.22	0.22	0.00
57.20	0.00	25,281	274.98	0.22	0.22	0.00
57.40	0.00	25,123	274.97	0.22	0.22	0.00
57.60	0.00	24,965	274.96	0.22	0.22	0.00
57.80	0.00	24,808	274.96	0.22	0.22	0.00
58.00	0.00	24,650	274.95	0.22	0.22	0.00
58.20	0.00	24,492	274.95	0.22	0.22	0.00
58.40	0.00	24,335	274.94	0.22	0.22	0.00
58.60	0.00	24,177	274.94	0.22	0.22	0.00
58.80	0.00	24,020	274.93	0.22	0.22	0.00
59.00	0.00	23,863	274.92	0.22	0.22	0.00
59.20	0.00	23,706	274.92	0.22	0.22	0.00
59.40	0.00	23,548	274.91	0.22	0.22	0.00
59.60	0.00	23,391	274.91	0.22	0.22	0.00
59.80	0.00	23,234	274.90	0.22	0.22	0.00
60.00	0.00	23,077	274.89	0.22	0.22	0.00
60.20	0.00	22,921	274.89	0.22	0.22	0.00
60.40	0.00	22,764	274.88	0.22	0.22	0.00
60.60	0.00	22,607	274.88	0.22	0.22	0.00
60.80	0.00	22,450	274.87	0.22	0.22	0.00
61.00	0.00	22,294	274.86	0.22	0.22	0.00
61.20	0.00	22,137	274.86	0.22	0.22	0.00
61.40	0.00	21,981	274.85	0.22	0.22	0.00
61.60	0.00	21,824	274.85	0.22	0.22	0.00
61.80	0.00	21,668	274.84	0.22	0.22	0.00
62.00	0.00	21,512	274.84	0.22	0.22	0.00
62.20	0.00	21,355	274.83	0.22	0.22	0.00

Hydrograph for Pond 1P: SCM 1: Infiltration AGB (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
62.40	0.00	21,199	274.82	0.22	0.22	0.00
62.60	0.00	21,043	274.82	0.22	0.22	0.00
62.80	0.00	20,887	274.81	0.22	0.22	0.00
63.00	0.00	20,731	274.81	0.22	0.22	0.00
63.20	0.00	20,575	274.80	0.22	0.22	0.00
63.40	0.00	20,419	274.79	0.22	0.22	0.00
63.60	0.00	20,264	274.79	0.22	0.22	0.00
63.80	0.00	20,108	274.78	0.22	0.22	0.00
64.00	0.00	19,952	274.78	0.22	0.22	0.00
64.20	0.00	19,797	274.77	0.22	0.22	0.00
64.40	0.00	19,641	274.76	0.22	0.22	0.00
64.60	0.00	19,486	274.76	0.22	0.22	0.00
64.80	0.00	19,331	274.75	0.22	0.22	0.00
65.00	0.00	19,175	274.75	0.22	0.22	0.00
65.20	0.00	19,020	274.74	0.22	0.22	0.00
65.40	0.00	18,865	274.74	0.22	0.22	0.00
65.60	0.00	18,710	274.73	0.22	0.22	0.00
65.80	0.00	18,555	274.72	0.22	0.22	0.00
66.00	0.00	18,400	274.72	0.22	0.22	0.00
66.20	0.00	18,245	274.71	0.22	0.22	0.00
66.40	0.00	18,090	274.71	0.21	0.21	0.00
66.60	0.00	17,936	274.70	0.21	0.21	0.00
66.80	0.00	17,781	274.69	0.21	0.21	0.00
67.00	0.00	17,626	274.69	0.21	0.21	0.00
67.20	0.00	17,472	274.68	0.21	0.21	0.00
67.40	0.00	17,317	274.68	0.21	0.21	0.00
67.60	0.00	17,163	274.67	0.21	0.21	0.00
67.80	0.00	17,008	274.66	0.21	0.21	0.00
68.00	0.00	16,854	274.66	0.21	0.21	0.00
68.20	0.00	16,700	274.65	0.21	0.21	0.00
68.40	0.00	16,546	274.65	0.21	0.21	0.00
68.60	0.00	16,392	274.64	0.21	0.21	0.00
68.80	0.00	16,238	274.64	0.21	0.21	0.00
69.00	0.00	16,084	274.63	0.21	0.21	0.00
69.20	0.00	15,930	274.62	0.21	0.21	0.00
69.40	0.00	15,776	274.62	0.21	0.21	0.00
69.60	0.00	15,622	274.61	0.21	0.21	0.00
69.80	0.00	15,469	274.61	0.21	0.21	0.00
70.00	0.00	15,315	274.60	0.21	0.21	0.00
70.20	0.00	15,162	274.59	0.21	0.21	0.00
70.40	0.00	15,008	274.59	0.21	0.21	0.00
70.60	0.00	14,855	274.58	0.21	0.21	0.00
70.80	0.00	14,701	274.58	0.21	0.21	0.00
71.00	0.00	14,548	274.57	0.21	0.21	0.00
71.20	0.00	14,395	274.56	0.21	0.21	0.00
71.40	0.00	14,242	274.56	0.21	0.21	0.00
71.60	0.00	14,089	274.55	0.21	0.21	0.00
71.80	0.00	13,936	274.55	0.21	0.21	0.00
72.00	0.00	13,783	274.54	0.21	0.21	0.00
72.20	0.00	13,630	274.54	0.21	0.21	0.00
72.40	0.00	13,477	274.53	0.21	0.21	0.00
72.60	0.00	13,324	274.52	0.21	0.21	0.00

Hydrograph for Pond 1P: SCM 1: Infiltration AGB (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
72.80	0.00	13,172	274.52	0.21	0.21	0.00
73.00	0.00	13,019	274.51	0.21	0.21	0.00
73.20	0.00	12,867	274.51	0.21	0.21	0.00
73.40	0.00	12,714	274.50	0.21	0.21	0.00
73.60	0.00	12,562	274.49	0.21	0.21	0.00
73.80	0.00	12,410	274.49	0.21	0.21	0.00
74.00	0.00	12,257	274.48	0.21	0.21	0.00
74.20	0.00	12,105	274.48	0.21	0.21	0.00
74.40	0.00	11,953	274.47	0.21	0.21	0.00
74.60	0.00	11,801	274.46	0.21	0.21	0.00
74.80	0.00	11,649	274.46	0.21	0.21	0.00
75.00	0.00	11,497	274.45	0.21	0.21	0.00
75.20	0.00	11,345	274.45	0.21	0.21	0.00
75.40	0.00	11,193	274.44	0.21	0.21	0.00
75.60	0.00	11,042	274.44	0.21	0.21	0.00
75.80	0.00	10,890	274.43	0.21	0.21	0.00
76.00	0.00	10,738	274.42	0.21	0.21	0.00
76.20	0.00	10,587	274.42	0.21	0.21	0.00
76.40	0.00	10,435	274.41	0.21	0.21	0.00
76.60	0.00	10,284	274.41	0.21	0.21	0.00
76.80	0.00	10,133	274.40	0.21	0.21	0.00
77.00	0.00	9,981	274.39	0.21	0.21	0.00
77.20	0.00	9,830	274.39	0.21	0.21	0.00
77.40	0.00	9,679	274.38	0.21	0.21	0.00
77.60	0.00	9,528	274.38	0.21	0.21	0.00
77.80	0.00	9,377	274.37	0.21	0.21	0.00
78.00	0.00	9,226	274.36	0.21	0.21	0.00
78.20	0.00	9,075	274.36	0.21	0.21	0.00
78.40	0.00	8,925	274.35	0.21	0.21	0.00
78.60	0.00	8,774	274.35	0.21	0.21	0.00
78.80	0.00	8,623	274.34	0.21	0.21	0.00
79.00	0.00	8,473	274.34	0.21	0.21	0.00
79.20	0.00	8,322	274.33	0.21	0.21	0.00
79.40	0.00	8,172	274.32	0.21	0.21	0.00
79.60	0.00	8,021	274.32	0.21	0.21	0.00
79.80	0.00	7,871	274.31	0.21	0.21	0.00
80.00	0.00	7,721	274.31	0.21	0.21	0.00
80.20	0.00	7,571	274.30	0.21	0.21	0.00
80.40	0.00	7,420	274.29	0.21	0.21	0.00
80.60	0.00	7,270	274.29	0.21	0.21	0.00
80.80	0.00	7,120	274.28	0.21	0.21	0.00
81.00	0.00	6,970	274.28	0.21	0.21	0.00
81.20	0.00	6,821	274.27	0.21	0.21	0.00
81.40	0.00	6,671	274.26	0.21	0.21	0.00
81.60	0.00	6,521	274.26	0.21	0.21	0.00
81.80	0.00	6,372	274.25	0.21	0.21	0.00
82.00	0.00	6,222	274.25	0.21	0.21	0.00
82.20	0.00	6,072	274.24	0.21	0.21	0.00
82.40	0.00	5,923	274.24	0.21	0.21	0.00
82.60	0.00	5,774	274.23	0.21	0.21	0.00
82.80	0.00	5,624	274.22	0.21	0.21	0.00
83.00	0.00	5,475	274.22	0.21	0.21	0.00

Hydrograph for Pond 1P: SCM 1: Infiltration AGB (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
83.20	0.00	5,326	274.21	0.21	0.21	0.00
83.40	0.00	5,177	274.21	0.21	0.21	0.00
83.60	0.00	5,028	274.20	0.21	0.21	0.00
83.80	0.00	4,879	274.19	0.21	0.21	0.00
84.00	0.00	4,730	274.19	0.21	0.21	0.00
84.20	0.00	4,581	274.18	0.21	0.21	0.00
84.40	0.00	4,432	274.18	0.21	0.21	0.00
84.60	0.00	4,284	274.17	0.21	0.21	0.00
84.80	0.00	4,135	274.16	0.21	0.21	0.00
85.00	0.00	3,986	274.16	0.21	0.21	0.00
85.20	0.00	3,838	274.15	0.21	0.21	0.00
85.40	0.00	3,689	274.15	0.21	0.21	0.00
85.60	0.00	3,541	274.14	0.21	0.21	0.00
85.80	0.00	3,393	274.14	0.21	0.21	0.00
86.00	0.00	3,245	274.13	0.21	0.21	0.00
86.20	0.00	3,096	274.12	0.21	0.21	0.00
86.40	0.00	2,948	274.12	0.21	0.21	0.00
86.60	0.00	2,800	274.11	0.21	0.21	0.00
86.80	0.00	2,652	274.11	0.21	0.21	0.00
87.00	0.00	2,504	274.10	0.21	0.21	0.00
87.20	0.00	2,357	274.09	0.21	0.21	0.00
87.40	0.00	2,209	274.09	0.21	0.21	0.00
87.60	0.00	2,061	274.08	0.21	0.21	0.00
87.80	0.00	1,913	274.08	0.20	0.20	0.00
88.00	0.00	1,766	274.07	0.20	0.20	0.00
88.20	0.00	1,618	274.06	0.20	0.20	0.00
88.40	0.00	1,471	274.06	0.20	0.20	0.00
88.60	0.00	1,324	274.05	0.20	0.20	0.00
88.80	0.00	1,176	274.05	0.20	0.20	0.00
89.00	0.00	1,029	274.04	0.20	0.20	0.00
89.20	0.00	882	274.04	0.20	0.20	0.00
89.40	0.00	735	274.03	0.20	0.20	0.00
89.60	0.00	588	274.02	0.20	0.20	0.00
89.80	0.00	441	274.02	0.20	0.20	0.00
90.00	0.00	294	274.01	0.20	0.20	0.00
90.20	0.00	147	274.01	0.20	0.20	0.00
90.40	0.00	0	274.00	0.20	0.20	0.00
90.60	0.00	0	274.00	0.00	0.00	0.00
90.80	0.00	0	274.00	0.00	0.00	0.00
91.00	0.00	0	274.00	0.00	0.00	0.00
91.20	0.00	0	274.00	0.00	0.00	0.00
91.40	0.00	0	274.00	0.00	0.00	0.00
91.60	0.00	0	274.00	0.00	0.00	0.00
91.80	0.00	0	274.00	0.00	0.00	0.00
92.00	0.00	0	274.00	0.00	0.00	0.00
92.20	0.00	0	274.00	0.00	0.00	0.00
92.40	0.00	0	274.00	0.00	0.00	0.00
92.60	0.00	0	274.00	0.00	0.00	0.00
92.80	0.00	0	274.00	0.00	0.00	0.00
93.00	0.00	0	274.00	0.00	0.00	0.00
93.20	0.00	0	274.00	0.00	0.00	0.00
93.40	0.00	0	274.00	0.00	0.00	0.00

SCM 1 Dewatering Time: 90.40 Hours (< 72 Hours After End of 100-yr/24-hour Storm)

Hydrograph for Pond 1P: SCM 1: Infiltration AGB (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
93.60	0.00	0	274.00	0.00	0.00	0.00
93.80	0.00	0	274.00	0.00	0.00	0.00
94.00	0.00	0	274.00	0.00	0.00	0.00
94.20	0.00	0	274.00	0.00	0.00	0.00
94.40	0.00	0	274.00	0.00	0.00	0.00
94.60	0.00	0	274.00	0.00	0.00	0.00
94.80	0.00	0	274.00	0.00	0.00	0.00
95.00	0.00	0	274.00	0.00	0.00	0.00
95.20	0.00	0	274.00	0.00	0.00	0.00
95.40	0.00	0	274.00	0.00	0.00	0.00
95.60	0.00	0	274.00	0.00	0.00	0.00
95.80	0.00	0	274.00	0.00	0.00	0.00
96.00	0.00	0	274.00	0.00	0.00	0.00

Spillway Calculations

Project Name: **Hanover Industrial - Chalfont**

Description: **SCM 1**

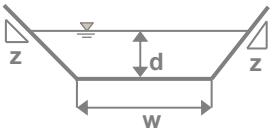
Determine Values for Equation $Q = CLH^{1.5}$

Q =	71.11	Post-development 100-year flow (cfs)
L =	75	Length (LF)
C =	2.80	Weir Coefficient
H =	0.49	Flow Depth Over Weir (ft)

Determine Required Top of Berm Elevation

	278.50	Spillway Elevation
+	1.00	Required Freeboard
+	0.49	Depth of Flow (from above)
=	279.99	Required Top of Berm Elevation
	280.00	Provided Top of Berm Elevation

Determine Spillway Lining



Z1 & Z2 =	3.00	ft : ft
Slope =	0.33	ft/ft (downslope of spillway)

Shear Stress	Design Method
10.00	Calculated Shear Stress
NAG SC250	Spillway Lining
10.00	Allowable Shear Stress

Storm Drainage Calculations

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
A-20	A-10	57.1		0.17			0.16		6.8	7.40	1.15		12	2.97	39%	3.79	3.54	0.3	274.34	274.00	N/A	0.59%
A-30	A-20	66.5	0.02	0.12	0.90	0.02	0.11	5.0	6.2	7.58	0.82		12	1.57	52%	2.00	2.02	0.5	279.21	279.10	N/A	0.17%
A-40	A-30	144.2	0.10	0.10	0.90	0.09	0.09	5.0	5.0	7.97	0.70		12	1.57	44%	2.00	1.94	1.2	282.96	282.73	N/A	0.17%
A-21	A-20	96.8	0.05	0.05	0.90	0.05	0.05	5.0	5.0	7.97	0.38		12	3.01	13%	3.83	2.62	0.6	278.76	278.17	N/A	0.61%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
A-10	#VALUE!							274.43	274.43							275.00	275.67	
A-20	12	1.15	57.12	3.54	0.43	0.45	0.20	274.63	274.43			274.97	274.77	0.72	275.06	280.10	282.98	No
A-30	12	0.82	66.47	2.02	0.51	0.38	0.06	279.68	279.61	0.002	0.11	279.79	279.72	0.64	279.85	283.73	286.23	No
A-40	12	0.70	144.18	1.94	0.47	0.35	0.06	283.25	283.19	0.002	0.239	283.49	283.43	0.59	283.55	---	288.08	No
A-21	12	0.38	96.76	2.62	0.24	0.26	0.11	278.52	278.41			279.11	279.00	0.35	279.11	---	281.30	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
A-40	---	On Grade	0.10	0.90	5.0	8.0	0.70	0.02	0.05		0.70	0.14	2	4.06	0.49	Curb inlet	0.33	0.37
A-21	---	On Grade	0.05	0.90	5.0	8.0	0.38	0.02	0.05		0.38	0.12	2	2.74	0.73	Curb inlet	0.23	0.16
A-30	---	On Grade	0.02	0.90	5.0	8.0	0.17	0.02	0.05		0.17	0.08	2	1.68	1.19	Curb inlet	0.13	0.04

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
B-20	B-10	285.3	0.15	3.17	0.75	0.11	2.66	5.0	6.9	7.35	19.75		36	43.00	46%	6.08	5.95	0.8	275.01	274.00	N/A	0.35%
B-30	B-20	94.0	0.19	2.87	0.75	0.14	2.42	5.0	6.7	7.43	18.11		36	51.22	35%	7.25	6.62	0.2	275.65	275.18	N/A	0.50%
B-40	B-30	72.5	0.17	1.25	0.75	0.13	0.99	5.0	6.2	7.58	7.60		24	17.68	43%	5.63	5.41	0.2	277.03	276.65	N/A	0.52%
B-50	B-40	86.3	0.19	1.08	0.75	0.14	0.86	5.0	5.9	7.67	6.68		21	12.45	54%	5.18	5.26	0.3	277.90	277.45	N/A	0.53%
B-60	B-50	75.1	0.18	0.89	0.75	0.13	0.72	5.0	5.7	7.75	5.65		18	8.16	69%	4.62	4.98	0.3	278.53	278.15	N/A	0.51%
B-70	B-60	84.3	0.18	0.72	0.75	0.14	0.59	5.0	5.4	7.85	4.67		18	8.15	57%	4.61	4.76	0.3	279.14	278.70	N/A	0.51%
B-80	B-70	72.7	0.18	0.53	0.75	0.13	0.45	5.0	5.1	7.94	3.63		18	8.23	44%	4.66	4.51	0.3	279.69	279.31	N/A	0.52%
CO-B-80	B-80	20.5		0.36			0.32		5.0	7.97	2.57		12	2.58	100%	3.28	3.73	0.1	280.28	280.19	N/A	0.44%
RD-B-80	CO-B-80	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		8.004	2.58	100%	7.38	8.41	0.0	280.97	280.78	N/A	3.87%
CO-B-30	B-30	12.3		1.42			1.28		6.6	7.45	9.62		24	9.63	100%	3.07	3.49	0.1	277.81	277.79	N/A	0.15%
CO-B-31	CO-B-30	100.0		1.07			0.96		6.0	7.65	7.41		24	7.42	100%	2.36	2.69	0.6	278.07	277.98	N/A	0.09%
RD-B-31	CO-B-31	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	2.57	100%	3.27	3.73	0.0	280.30	280.27	N/A	0.44%
CO-B-32	CO-B-31	100.0		0.71			0.64		5.5	7.82	5.05		18	5.06	100%	2.86	3.26	0.5	278.94	278.74	N/A	0.20%
CO-B-33	CO-B-32	100.0		0.36			0.32		5.0	7.97	2.57		12	2.57	100%	3.28	3.73	0.4	280.06	279.61	N/A	0.44%
RD-B-33	CO-B-33	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		9.996	2.58	100%	4.72	5.38	0.0	280.45	280.39	N/A	1.18%
RD-B-32	CO-B-32	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	2.58	100%	3.28	3.74	0.0	280.28	280.26	N/A	0.45%
RD-B-30	CO-B-30	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		9.996	2.58	100%	4.72	5.38	0.0	280.46	280.40	N/A	1.18%
CO-B-21	B-20	15.9		0.15			0.14		5.0	7.96	1.09		8.004	1.09	100%	3.13	3.57	0.1	280.04	279.93	N/A	0.70%
RD-B-22	CO-B-21	5.0	0.15	0.15	0.90	0.14	0.14	5.0	5.0	7.97	1.09		8.004	1.10	100%	3.14	3.57	0.0	280.58	280.55	N/A	0.70%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
B-10	#VALUE!							275.43	275.43							277.00	277.71	
B-20	36	19.75	285.27	5.95	1.43	1.43	0.55	275.98	275.43	0.004	1.008	276.99	276.44	2.10	277.11	278.18	283.10	No
B-30	36	18.11	94.00	6.62	1.23	1.36	0.68	277.20	276.98			277.56	276.88	1.96	277.61	278.65	283.13	No
B-40	24	7.60	72.54	5.41	0.92	0.98	0.46	278.02	277.57			278.40	277.94	1.45	278.48	279.20	283.14	No
B-50	21	6.68	86.35	5.26	0.91	0.95	0.43	278.61	278.29			279.24	278.81	1.47	279.37	279.65	283.13	No
B-60	18	5.65	75.15	4.98	0.92	0.92	0.39	279.46	279.25	0.005	0.385	279.84	279.46	1.47	280.01	280.20	283.13	No
B-70	18	4.67	84.33	4.76	0.82	0.83	0.35	280.06	279.93			280.30	279.95	1.29	280.43	280.81	283.13	No
B-80	18	3.63	72.66	4.51	0.70	0.73	0.32	280.47	280.37			280.70	280.38	1.11	280.79	281.19	283.14	No
CO-B-80	12	2.57	20.54	3.73	0.82	0.69	0.22	281.22	281.01	0.004	0.091	281.31	281.10	1.30	281.57	281.45	283.25	No
RD-B-80	8.004	2.57	5.00	8.41	0.55	0.65	1.10	281.91	281.07	0.039		282.62	281.52	1.69	282.66	---	283.80	No
CO-B-30	24	9.62	12.28	3.49	1.64	1.11	0.19	279.62	279.43	0.002	0.019	279.64	279.45	1.90	279.72	279.98	283.73	No
CO-B-31	24	7.41	100.00	2.69	1.64	0.97	0.11	279.76	279.66	0.001	0.091	279.85	279.74	1.80	279.87	280.24	283.77	No
RD-B-31	12	2.57	5.00	3.73	0.82	0.69	0.22	281.31	281.09	0.004	0.022	281.33	281.12	1.11	281.40	---	283.80	No
CO-B-32	18	5.05	100.00	3.26	1.23	0.87	0.17	280.14	279.97	0.002	0.197	280.34	280.17	1.49	280.43	280.61	283.76	No
CO-B-33	12	2.57	100.00	3.73	0.82	0.69	0.22	280.65	280.43	0.004	0.444	281.09	280.87	1.33	281.39	281.23	283.73	No
RD-B-33	9.996	2.57	5.00	4.72	0.68	0.71	0.35	281.53	281.18	0.012	0.059	281.59	281.24	1.25	281.70	---	283.80	No
RD-B-32	12	2.57	5.00	3.74	0.82	0.69	0.22	281.29	281.08	0.004	0.022	281.31	281.10	1.11	281.39	---	283.80	No
RD-B-30	9.996	2.57	5.00	5.38	0.68	0.71	0.45	281.53	281.08			281.59	281.14	1.25	281.71	---	283.80	No
CO-B-21	8.004	1.09	15.86	3.57	0.55	0.50	0.20	280.67	280.48	0.007	0.11	280.79	280.59	1.01	281.05	281.21	283.71	No
RD-B-22	8.004	1.09	5.00	3.57	0.55	0.50	0.20	281.29	281.09	0.007	0.035	281.33	281.13	0.82	281.40	---	283.80	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
B-80	---	On Grade	0.18	0.75	5.0	8.0	1.07	0.02	0.05		1.07	0.16	2	5.12	0.39	Curb inlet	0.42	0.65
B-70	---	On Grade	0.18	0.75	5.0	8.0	1.10	0.02	0.05		1.10	0.16	2	5.20	0.38	Curb inlet	0.42	0.68
B-60	---	On Grade	0.18	0.75	5.0	8.0	1.06	0.02	0.05		1.06	0.16	2	5.11	0.39	Curb inlet	0.42	0.65
B-50	---	On Grade	0.19	0.75	5.0	8.0	1.13	0.02	0.05		1.13	0.17	2	5.27	0.38	Curb inlet	0.43	0.70
B-40	---	On Grade	0.17	0.75	5.0	8.0	1.05	0.02	0.05		1.05	0.16	2	5.07	0.39	Curb inlet	0.41	0.64
B-30	---	On Grade	0.19	0.75	5.0	8.0	1.14	0.02	0.05		1.14	0.17	2	5.30	0.38	Curb inlet	0.43	0.71
B-20	---	On Grade	0.15	0.75	5.0	8.0	0.90	0.02	0.05		0.90	0.15	2	4.67	0.43	Curb inlet	0.38	0.52

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
C-20	C-10	41.7	0.11	0.23	0.90	0.10	0.21	5.0	8.6	6.81	1.41		18	20.86	7%	11.81	6.73	0.1	274.14	272.50	N/A	3.94%
C-30	C-20	299.8	0.05	0.12	0.90	0.04	0.10	5.0	7.1	7.28	0.76		18	10.50	7%	5.94	3.45	1.4	284.28	281.29	N/A	1.00%
C-40	C-30	300.2	0.07	0.07	0.90	0.06	0.06	5.0	5.0	7.97	0.48		18	7.44	6%	4.21	2.37	2.1	285.95	284.45	N/A	0.50%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
C-10	#VALUE!							272.76	272.76							274.00	283.84	
C-20	18	1.41	41.71	6.73	0.26	0.45	0.70	273.47	272.76			275.11	274.41	0.97	275.11	282.79	285.50	No
C-30	18	0.76	299.84	3.45	0.27	0.32	0.19	281.75	281.56			284.74	284.55	0.46	284.74	285.95	289.43	No
C-40	18	0.48	300.16	2.37	0.26	0.26	0.09	284.76	284.70	0.005		286.30	286.21	0.35	286.30	---	290.16	No

BOHLER

Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
C-40	---	On Grade	0.07	0.90	5.0	8.0	0.48	0.02	0.05		0.48	0.13	2	3.24	0.62	Curb inlet	0.26	0.22
C-30	---	On Grade	0.05	0.90	5.0	8.0	0.35	0.02	0.05		0.35	0.11	2	2.55	0.79	Curb inlet	0.21	0.13
C-20	---	On Grade	0.11	0.90	5.0	8.0	0.82	0.02	0.05		0.82	0.15	2	4.46	0.45	Curb inlet	0.36	0.46

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total	Coeff "C"	Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
C-60	C-50	10.5	0.18	1.76	0.75	0.13	1.48	5.0	5.7	7.73	11.57		27	42.82	27%	10.77	9.14	0.0	272.67	272.50	N/A	1.63%
C-70	C-60	84.2	0.18	0.36	0.75	0.13	0.27	5.0	5.4	7.85	2.16		12	2.81	77%	3.57	3.94	0.4	279.23	278.78	N/A	0.53%
C-80	C-70	74.8	0.19	0.19	0.75	0.14	0.14	5.0	5.0	7.97	1.11		9.996	1.74	64%	3.19	3.38	0.4	279.80	279.39	N/A	0.54%
C-61	C-60	72.6	0.16	0.51	0.75	0.12	0.44	5.0	5.0	7.96	3.52		15	4.95	71%	4.04	4.38	0.3	279.08	278.71	N/A	0.50%
CO-C-61	C-61	6.4		0.36			0.32		5.0	7.97	2.57		15	4.95	52%	4.04	4.07	0.0	279.28	279.25	N/A	0.50%
RD-C-61	CO-C-61	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		8.004	4.70	55%	13.47	13.76	0.0	280.39	279.74	N/A	12.87%
CO-C-60	C-60	6.1		0.71			0.64		5.5	7.80	5.04		18	4.97	101%	2.81	3.20	0.0	279.08	279.07	N/A	0.19%
CO-C-60A	CO-C-60	25.8		0.71			0.64		5.4	7.83	5.06		18	8.05	63%	4.56	4.81	0.1	279.41	279.28	N/A	0.50%
CO-C-60B	CO-C-60A	100.0		0.36			0.32		5.0	7.96	2.57		15	4.95	52%	4.04	4.07	0.4	279.91	279.41	N/A	0.50%
RD-C-60B	CO-C-60B	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	2.73	94%	3.48	3.95	0.0	280.18	280.15	N/A	0.50%
RD-C-60A	CO-C-60A	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	2.85	90%	3.62	4.10	0.0	280.18	280.15	N/A	0.54%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
C-50	#VALUE!							273.30	273.30							274.75	283.25	
C-60	27	11.57	10.48	9.14	0.80	1.18	1.30	274.60	273.30			274.77	273.47	2.10	274.77	279.78	283.13	No
C-70	12	2.16	84.21	3.94	0.66	0.63	0.24	279.68	279.44	0.005	0.444	280.13	279.89	1.11	280.34	280.23	283.13	No
C-80	9.996	1.11	74.84	2.04	0.49	0.47	0.07	280.36	280.30	0.002	0.165	280.53	280.46	0.78	280.58	---	283.13	No
C-61	15	3.52	72.55	4.38	0.78	0.76	0.30	279.79	279.49	0.005	0.363	280.15	279.85	1.43	280.51	280.50	283.14	No
CO-C-61	15	2.57	6.41	2.10	0.64	0.64	0.07	280.54	280.47	0.001	0.009	280.55	280.48	1.29	280.57	280.41	280.73	No
RD-C-61	8.004	2.57	5.04	13.76	0.35	0.65	2.94	280.91	280.06	0.039		283.68	280.74	3.30	283.68	---	283.80	No
CO-C-60	18	5.04	6.12	3.20	1.25	0.86	0.16	280.48	280.32	0.002	0.012	280.49	280.33	1.54	280.63	280.78	283.70	No
CO-C-60A	18	5.06	25.81	4.81	0.86	0.87	0.36	280.68	280.54			280.68	280.32	1.41	280.81	281.15	283.77	No
CO-C-60B	15	2.57	100.00	2.10	0.64	0.64	0.07	280.84	280.77	0.001	0.135	280.98	280.91	1.13	281.03	281.15	283.78	No
RD-C-60B	12	2.57	5.00	3.95	0.77	0.69	0.24	281.11	280.92	0.005	0.025	281.19	280.95	1.11	281.28	---	283.80	No
RD-C-60A	12	2.57	5.00	4.10	0.75	0.69	0.26	281.15	280.89	0.005	0.027	281.18	280.92	1.11	281.28	---	283.80	No

BOHLER

Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
C-61	---	On Grade	0.16	0.75	5.0	8.0	0.95	0.02	0.05		0.95	0.16	2	4.81	0.42	Curb inlet	0.39	0.56
C-60	---	On Grade	0.18	0.75	5.0	8.0	1.06	0.02	0.05		1.06	0.16	2	5.10	0.39	Curb inlet	0.42	0.65
C-70	---	On Grade	0.18	0.75	5.0	8.0	1.08	0.02	0.05		1.08	0.16	2	5.14	0.39	Curb inlet	0.42	0.66
C-80	---	On Grade	0.18	0.75	5.0	8.0	1.11	0.02	0.05		1.11	0.17	2	5.23	0.38	Curb inlet	0.43	0.69

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
D-70	D-60	10.2	0.13	1.31	0.90	0.11	1.15	5.0	5.7	3.92	4.54		24	42.57	11%	13.55	8.82	0.0	272.81	272.50	N/A	3.01%
D-71	D-70	75.0	0.14	0.14	0.75	0.10	0.10	5.0	5.0	4.04	0.42		8.004	0.93	45%	2.65	2.59	0.5	279.92	279.55	N/A	0.50%
D-80	D-70	49.6	0.08	0.34	0.75	0.06	0.29	5.0	5.5	3.96	1.17		12	2.73	43%	3.48	3.34	0.2	278.81	278.56	N/A	0.50%
D-90	D-80	75.8	0.07	0.26	0.90	0.07	0.23	5.0	5.1	4.03	0.95		12	2.73	35%	3.48	3.16	0.4	279.35	278.98	N/A	0.50%
CO-D-90	D-90	20.6		0.19			0.17		5.0	4.04	0.69		8.004	1.93	35%	5.54	5.06	0.1	280.31	279.86	N/A	2.18%
RD-D-90	CO-D-90	5.0	0.19	0.19	0.90	0.17	0.17	5.0	5.0	4.04	0.69		8.004	2.82	24%	8.08	6.66	0.0	280.59	280.36	N/A	4.63%
CO-D-70	D-70	6.2		0.71			0.64		5.3	3.99	2.58		15	15.94	16%	12.99	9.54	0.0	279.50	279.18	N/A	5.18%
CO-D-70A	CO-D-70	40.2		0.36			0.32		5.0	4.04	1.30		15	4.95	26%	4.04	3.40	0.2	279.93	279.72	N/A	0.50%
RD-D-70A	CO-D-70A	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	4.04	1.31		12	2.73	48%	3.48	3.44	0.0	280.18	280.15	N/A	0.50%
CO-D-70B	CO-D-70	59.8		0.36			0.32		5.0	4.04	1.30		15	4.95	26%	4.04	3.40	0.3	279.87	279.58	N/A	0.50%
RD-D-70B	CO-D-70B	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	4.04	1.31		12	3.92	33%	4.99	4.48	0.0	280.18	280.12	N/A	1.03%

BOHLER

Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
D-60	#VALUE!							272.94	272.94							274.50	283.25	
D-70	24	4.54	10.18	8.82	0.44	0.75	1.21	274.15	272.94			274.46	273.25	1.65	274.46	280.21	283.13	No
D-71	8.004	0.42	75.01	2.59	0.32	0.30	0.10	279.96	279.86	0.005	0.375	280.34	280.23	0.53	280.45	---	283.13	No
D-80	12	1.17	49.60	3.34	0.46	0.46	0.17	279.19	279.01	0.005	0.248	279.44	279.26	0.69	279.50	279.98	283.12	No
D-90	12	0.95	75.82	3.16	0.41	0.41	0.16	279.53	279.45			279.92	279.76	0.58	279.93	280.52	283.12	No
CO-D-90	8.004	0.69	20.56	5.06	0.27	0.39	0.40	280.53	280.13			280.98	280.58	0.67	280.98	281.03	283.57	No
RD-D-90	8.004	0.69	5.01	6.66	0.22	0.39	0.69	281.00	280.94			281.51	280.82	0.91	281.51	---	283.80	No
CO-D-70	15	2.58	6.21	9.54	0.34	0.64	1.41	280.93	279.52			281.26	279.84	1.75	281.26	280.97	283.70	No
CO-D-70A	15	1.30	40.19	1.06	1.25	n/a	0.02	281.26	281.25		0.014	281.28	281.26	1.37	281.29	281.15	283.80	No
RD-D-70A	12	1.31	5.00	1.66	1.00	n/a	0.04	281.31	281.27	0.001	0.006	281.31	281.27	1.15	281.32	---	283.80	No
CO-D-70B	15	1.30	59.82	1.06	1.25	n/a	0.02	281.26	281.25		0.021	281.28	281.27	1.42	281.30	281.12	283.75	No
RD-D-70B	12	1.31	5.00	1.66	1.00	n/a	0.04	281.32	281.27	0.001	0.006	281.32	281.28	1.15	281.33	---	283.80	No

BOHLER

Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
D-71	---	On Grade	0.14	0.75	5.0	4.0	0.42	0.02	0.05		0.42	0.12	2	2.94	0.68	Curb inlet	0.24	0.18
D-80	---	On Grade	0.08	0.75	5.0	4.0	0.24	0.02	0.05		0.24	0.10	2	1.93	1.04	Curb inlet	0.17	0.07
D-90	---	On Grade	0.07	0.90	5.0	4.0	0.27	0.02	0.05		0.27	0.10	2	2.03	0.99	Curb inlet	0.18	0.09
D-70	---	On Grade	0.13	0.90	5.0	4.0	0.46	0.02	0.05		0.46	0.12	2	3.13	0.64	Curb inlet	0.26	0.20

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
D-110	D-100	40.9	0.22	0.55	0.60	0.13	0.40	5.0	6.0	7.65	3.05		15	12.03	25%	9.80	8.18	0.1	273.71	272.50	N/A	2.95%
A-70	D-110	81.3	0.10	0.33	0.60	0.06	0.27	5.0	5.6	7.77	2.08		12	2.73	76%	3.48	3.83	0.4	274.53	274.13	N/A	0.50%
D-120	A-70	137.0	0.23	0.23	0.90	0.20	0.20	5.0	5.0	7.97	1.63		12	2.73	60%	3.48	3.63	0.6	275.22	274.53	N/A	0.50%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
D-100	#VALUE!							272.93	272.93							273.75	283.70	
D-110	15	3.05	40.93	8.18	0.43	0.70	1.04	273.97	272.93			275.18	274.14	1.47	275.18	275.13	279.55	No
A-70	12	2.08	81.28	2.65	0.65	0.62	0.11	275.22	275.11	0.003	0.236	275.46	275.35	0.99	275.52	275.53	278.41	No
D-120	12	1.63	137.02	3.63	0.56	0.54	0.21	275.55	275.48	0.005	0.685	276.23	276.03	1.12	276.34	---	277.91	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
D-110	---	On Grade	0.22	0.60	5.0	8.0	1.05	0.02	0.05		1.05	0.16	2	5.06	0.40	Curb inlet	0.41	0.63
D-120	---	On Grade	0.23	0.90	5.0	8.0	1.63	0.02	0.05		1.63	0.19	2	6.29	0.32	Curb inlet	0.52	1.11
A-70	---	On Grade	0.10	0.60	5.0	8.0	0.50	0.02	0.05		0.50	0.13	2	3.33	0.60	Curb inlet	0.27	0.23

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
E-20	E-10	160.8		0.60			0.54		5.3	7.86	4.31		18	8.07	53%	4.57	4.64	0.6	273.50	272.69	N/A	0.50%
E-30	E-20	116.2	0.25	0.25	0.90	0.23	0.23	5.0	5.0	7.97	1.82		12	4.70	39%	5.98	5.59	0.3	275.72	274.00	N/A	1.48%
E-21	E-20	58.8	0.35	0.35	0.90	0.32	0.32	5.0	5.0	7.97	2.55		12	4.65	55%	5.92	6.05	0.2	274.85	274.00	N/A	1.45%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
E-10	#VALUE!							273.47	273.47							274.19	279.15	
E-20	18	4.31	160.79	4.64	0.78	0.80	0.34	273.81	273.47			274.62	274.28	1.43	274.93	275.00	277.83	No
E-30	12	1.82	116.23	5.59	0.43	0.57	0.49	274.97	274.88			276.64	276.15	0.92	276.64	---	278.35	No
E-21	12	2.55	58.77	6.05	0.53	0.69	0.57	275.00	274.83			275.95	275.38	1.11	275.96	---	277.47	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
E-30	---	On Grade	0.25	0.90	5.0	8.0	1.82	0.02	0.05		1.82	0.19	2	6.61	0.30	Curb inlet	0.55	1.26
E-21	---	On Grade	0.35	0.90	5.0	8.0	2.55	0.02	0.05		2.55	0.21	2	7.70	0.26	Curb inlet	0.66	1.89

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
CO-E-11	CO-E-10	56.8		1.78			1.60		6.5	7.50	12.10		27	12.11	100%	3.05	3.47	0.3	269.57	269.50	0.17	0.13%
CO-E-15	CO-E-11	100.0		1.07			0.96		6.0	7.65	7.41		21	7.42	100%	3.08	3.51	0.5	274.35	274.16	0.17	0.19%
CO-E-16	CO-E-15	100.0		0.71			0.64		5.5	7.82	5.05		18	5.05	100%	2.86	3.26	0.5	274.97	274.77	0.17	0.20%
CO-E-17	CO-E-16	100.0		0.36			0.32		5.0	7.96	2.57		12	2.57	100%	3.28	3.73	0.4	276.08	275.64	0.17	0.44%
RD-E-17	CO-E-17	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	2.58	100%	3.28	3.74	0.0	276.27	276.25	---	0.45%
RD-E-16	CO-E-16	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	2.58	100%	3.28	3.74	0.0	276.27	276.25	---	0.45%
RD-E-15	CO-E-15	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	2.58	100%	3.28	3.74	0.0	276.27	276.25	---	0.45%
CO-E-12	CO-E-11	100.0		0.71			0.64		5.5	7.82	5.05		18	5.05	100%	2.86	3.26	0.5	274.80	274.60	0.17	0.20%
CO-E-13	CO-E-12	100.0		0.36			0.32		5.0	7.96	2.57		12	2.57	100%	3.28	3.73	0.4	275.91	275.47	0.17	0.44%
CO-E-14	CO-E-13	105.0											3	0.11		2.27			278.25	276.83	0.17	1.35%
RD-E-14	CO-E-14	5.0											3	0.34		6.95			279.05	278.42	---	12.66%
RD-E-13	CO-E-13	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	2.58	100%	3.28	3.74	0.0	276.27	276.25	---	0.45%
RD-E-12	CO-E-12	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	2.58	100%	3.28	3.74	0.0	276.27	276.25	---	0.45%
RD-E-11	CO-E-11	5.0											3	0.10		2.00			277.05	277.00	---	1.05%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
CO-E-10	#VALUE!							271.34	271.34							271.75	279.22	
CO-E-11	27	12.10	56.83	3.47	1.84	1.21	0.19	271.53	271.34	0.001	0.074	271.61	271.42	2.12	271.69	275.91	279.75	No
CO-E-15	21	7.41	100.00	3.51	1.43	1.01	0.19	275.79	275.60	0.002	0.186	275.98	275.78	1.67	276.02	276.27	279.75	No
CO-E-16	18	5.05	100.00	3.26	1.23	0.87	0.17	276.08	275.92	0.002	0.197	276.36	276.20	1.49	276.45	276.64	279.75	No
CO-E-17	12	2.57	100.00	3.73	0.82	0.69	0.22	276.67	276.46	0.004	0.444	277.12	276.90	1.33	277.41	277.25	279.75	No
RD-E-17	12	2.57	5.00	3.28	1.00	n/a	0.17	277.48	277.31	0.004	0.022	277.50	277.34	1.26	277.54	---	279.80	No
RD-E-16	12	2.57	5.00	3.74	0.82	0.69	0.22	277.29	277.07	0.004	0.022	277.31	277.09	1.11	277.38	---	279.80	No
RD-E-15	12	2.57	5.00	3.74	0.82	0.69	0.22	277.29	277.07	0.004	0.022	277.31	277.09	1.11	277.38	---	279.80	No
CO-E-12	18	5.05	100.00	3.26	1.23	0.87	0.17	275.99	275.83	0.002	0.197	276.19	276.03	1.43	276.22	277.25	279.75	No
CO-E-13	12	2.57	100.00	3.73	0.82	0.69	0.22	276.50	276.29	0.004	0.444	276.95	276.73	1.33	277.24	277.25	279.75	No
RD-E-13	12	2.57	5.00	3.74	0.82	0.69	0.22	277.31	277.14	0.004	0.022	277.33	277.12	1.11	277.38	---	279.80	No
RD-E-12	12	2.57	5.00	3.74	0.82	0.69	0.22	277.29	277.07	0.004	0.022	277.31	277.09	1.11	277.38	---	279.80	No

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
F-20	F-10	86.6	1.25	1.25	0.90	1.12	1.12	5.0	5.0	7.97	9.03		24	9.03	100%	2.88	3.28	0.4	272.71	272.59	N/A	0.14%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
F-10	#VALUE!							274.23	274.23							274.59	278.22	
F-20	24	9.03	86.60	3.28	1.64	1.07	0.17	274.40	274.23	0.001	0.117	274.52	274.35	1.87	274.58	---	276.12	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
F-20	---	On Grade	1.25	0.90	5.0	8.0	9.03	0.02	0.05		9.03	0.32	2	12.98	0.15	Curb inlet	1.27	7.76

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
G-20	G-10	45.8	0.21	1.29	0.90	0.18	1.00	5.0	5.6	7.78	7.82		21	34.33	23%	14.27	11.55	0.1	275.83	274.00	N/A	3.99%
G-30	G-20	98.7	0.29	1.08	0.75	0.22	0.81	5.0	5.3	7.88	6.46		21	12.15	53%	5.05	5.13	0.3	276.32	275.83	N/A	0.50%
G-40	G-30	70.1	0.39	0.79	0.75	0.30	0.59	5.0	5.0	7.96	4.76		18	8.05	59%	4.56	4.74	0.2	277.09	276.74	N/A	0.50%
G-50	G-40	12.3	0.40	0.40	0.75	0.30	0.30	5.0	5.0	7.97	2.39		8.004	2.45	98%	7.01	7.98	0.0	278.52	278.10	N/A	3.49%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
G-10	#VALUE!							274.57	274.57							275.75	276.42	
G-20	21	7.82	45.81	11.55	0.57	1.04	2.08	276.64	274.57			278.47	276.40	2.64	278.47	277.58	282.49	No
G-30	21	6.46	98.68	2.69	1.75	n/a	0.11	278.52	278.40	0.001	0.14	278.66	278.54	2.37	278.69	278.24	281.57	No
G-40	18	4.76	70.07	2.69	1.50	n/a	0.11	278.74	278.63	0.002	0.123	278.86	278.75	1.81	278.90	278.76	281.36	No
G-50	8.004	2.39	12.32	7.98	0.53	0.65	0.99	279.19	278.46	0.033		280.05	279.06	1.53	280.05	---	281.79	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
G-30	---	On Grade	0.29	0.75	5.0	8.0	1.77	0.02	0.05		1.77	0.19	2	6.53	0.31	Curb inlet	0.55	1.22
G-40	---	On Grade	0.39	0.75	5.0	8.0	2.37	0.02	0.05		2.37	0.21	2	7.45	0.27	Curb inlet	0.64	1.73
G-50	---	On Grade	0.40	0.75	5.0	8.0	2.39	0.02	0.05		2.39	0.21	2	7.48	0.27	Curb inlet	0.64	1.75
G-20	---	On Grade	0.20	0.90	5.0	8.0	1.48	0.02	0.05		1.48	0.18	2	6.01	0.33	Curb inlet	0.50	0.98

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total	Coeff "C"	Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
H-40	H-30	169.3	0.14	0.47	0.60	0.09	0.37	5.0	5.5	7.80	2.93		15	6.73	44%	5.48	5.29	0.5	275.56	274.00	N/A	0.92%
H-41	H-40	78.2	0.09	0.15	0.90	0.08	0.12	5.0	5.1	7.94	0.99		8.004	0.93	107%	2.65	2.98	0.4	277.12	276.73	N/A	0.50%
H-42	H-41	23.5	0.06	0.06	0.75	0.05	0.05	5.0	5.0	7.97	0.38		3.996	0.28	138%	3.15	4.35	0.1	278.04	277.63	N/A	1.77%
H-50	H-40	48.8	0.04	0.18	0.90	0.04	0.16	5.0	5.3	7.88	1.30		9.996	1.68	78%	3.08	3.40	0.2	276.39	276.15	N/A	0.50%
H-60	H-50	35.2	0.02	0.14	0.90	0.02	0.13	5.0	5.1	7.93	1.01		8.004	1.19	84%	3.41	3.82	0.2	277.03	276.74	N/A	0.83%
H-70	H-60	21.9	0.12	0.12	0.90	0.11	0.11	5.0	5.0	7.97	0.85		8.004	0.99	86%	2.82	3.17	0.1	277.32	277.20	N/A	0.57%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
H-30	#VALUE!							274.58	274.58							275.25	275.88	
H-40	15	2.93	169.33	5.29	0.58	0.69	0.44	275.01	274.58			276.57	276.14	1.06	276.62	276.98	280.36	No
H-41	8.004	0.99	78.22	2.98	0.60	0.47	0.14	277.47	277.34	0.005	0.391	277.87	277.73	0.87	277.99	277.96	280.58	No
H-42	3.996	0.38	23.48	4.35	0.33	n/a	0.30	278.11	277.82	0.034	0.797	278.91	278.61	1.28	279.33	---	280.99	No
H-50	9.996	1.30	48.79	3.40	0.55	0.51	0.18	276.88	276.70	0.005	0.244	277.12	276.95	0.84	277.24	277.40	279.95	No
H-60	8.004	1.01	35.20	3.82	0.47	0.48	0.23	277.32	277.12			277.73	277.50	0.88	277.91	277.87	280.41	No
H-70	8.004	0.85	21.85	2.42	0.48	0.44	0.09	277.94	277.85	0.004	0.091	278.03	277.94	0.80	278.12	---	280.54	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
H-42	---	On Grade	0.06	0.75	5.0	8.0	0.38	0.02	0.05		0.38	0.12	2	2.73	0.73	Curb inlet	0.23	0.15
H-41	---	On Grade	0.08	0.90	5.0	8.0	0.61	0.02	0.05		0.61	0.14	2	3.77	0.53	Curb inlet	0.30	0.31
H-40	---	On Grade	0.14	0.60	5.0	8.0	0.68	0.02	0.05		0.68	0.14	2	4.01	0.50	Curb inlet	0.32	0.36
H-70	---	On Grade	0.12	0.90	5.0	8.0	0.85	0.02	0.05		0.85	0.15	2	4.53	0.44	Curb inlet	0.37	0.48
H-60	---	On Grade	0.02	0.90	5.0	8.0	0.17	0.02	0.05		0.17	0.08	2	1.68	1.19	Curb inlet	0.13	0.04
H-50	---	On Grade	0.04	0.90	5.0	8.0	0.31	0.02	0.05		0.31	0.11	2	2.31	0.87	Curb inlet	0.20	0.11

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
J-20	J-10	42.1		4.02			3.49		6.8	7.38	25.98		42	168.14	15%	17.48	12.67	0.1	270.44	269.44	N/A	2.38%
J-21	J-20	45.3	1.60	1.60	0.90	1.44	1.44	5.0	5.0	7.97	11.59		27	23.75	49%	5.97	5.93	0.1	272.30	272.07	N/A	0.50%
J-30	J-20	34.9		2.42			2.05		6.7	7.41	15.30		30	34.70	44%	7.07	6.84	0.1	271.53	271.32	N/A	0.61%
J-40	J-30	65.0		1.70			1.41		6.5	7.47	10.60		27	23.75	45%	5.97	5.80	0.2	272.11	271.78	N/A	0.50%
J-50	J-40	147.1	0.84	1.70	0.75	0.63	1.41	5.0	6.1	7.61	10.79		27	23.75	45%	5.97	5.83	0.4	273.01	272.28	N/A	0.50%
CO-J-50	J-50	123.1		0.86			0.78		5.7	7.75	6.07		15	4.95	122%	4.04	4.94	0.4	274.80	274.18	N/A	0.50%
CO-J-50A	CO-J-50	100.1		0.51			0.46		5.5	7.81	3.59		9.996	4.13	87%	7.57	8.52	0.2	277.82	274.80	N/A	3.02%
RD-J-50A	CO-J-50A	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		9.996	3.13	82%	5.73	6.40	0.0	281.50	281.41	N/A	1.73%
CO-J-50B	CO-J-50A	90.0		0.15			0.14		5.0	7.97	1.09		8.004	0.93	118%	2.65	3.13	0.5	280.80	280.35	N/A	0.50%
RD-J-50B	CO-J-50B	5.0	0.15	0.15	0.90	0.14	0.14	5.0	5.0	7.97	1.09		8.004	2.12	52%	6.07	6.11	0.0	281.10	280.97	N/A	2.61%
RD-J-50	CO-J-50	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	3.86	67%	4.92	5.26	0.0	277.18	277.13	N/A	1.00%
CO-J-30	J-30	127.0		0.71			0.64		5.4	7.83	5.06		15	6.78	75%	5.52	6.05	0.4	276.63	275.44	N/A	0.94%
CO-J-30A	CO-J-30	100.0		0.36			0.32		5.0	7.97	2.57		12	2.73	94%	3.48	3.95	0.4	277.13	276.63	N/A	0.50%
RD-J-30A	CO-J-30A	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	3.86	67%	4.92	5.26	0.0	277.18	277.13	N/A	1.00%
RD-J-30	CO-J-30	5.0	0.36	0.36	0.90	0.32	0.32	5.0	5.0	7.97	2.57		12	3.86	67%	4.92	5.26	0.0	277.18	277.13	N/A	1.00%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
J-10	#VALUE!							270.37	270.37							272.94	277.97	
J-20	42	25.98	42.12	12.67	0.93	1.57	2.50	272.86	270.37			273.86	271.37	3.43	273.86	274.32	277.53	No
J-21	27	11.59	45.28	5.93	1.11	1.18	0.55	273.94	273.76			273.96	273.41	1.85	274.15	---	276.12	No
J-30	30	15.30	34.90	3.12	1.16	1.32	0.15	273.93	273.77	0.001	0.041	273.97	273.82	2.48	274.02	274.03	278.31	No
J-40	27	10.60	65.00	5.80	1.05	1.13	0.52	274.06	273.95			274.06	273.54	1.95	274.06	274.53	278.95	No
J-50	27	10.79	147.08	5.83	1.07	1.14	0.53	274.12	273.96			274.61	274.08	1.86	274.87	275.43	277.52	No
CO-J-50	15	6.07	123.06	4.94	1.25	n/a	0.38	275.81	275.43	0.005	0.615	276.43	276.05	1.86	276.65	275.63	279.75	No
CO-J-50A	9.996	3.59	100.08	8.52	0.60	0.79	1.13	276.92	276.25	0.023		279.55	278.42	1.73	279.55	282.25	283.62	No
RD-J-50A	9.996	2.57	5.00	6.40	0.58	0.71	0.64	282.63	281.99			282.71	282.08	1.25	282.75	---	284.29	No
CO-J-50B	8.004	1.09	89.99	3.13	0.67	n/a	0.15	281.17	281.02	0.005	0.45	281.62	281.47	0.95	281.75	281.64	283.01	No
RD-J-50B	8.004	1.09	5.00	3.13	0.34	0.50	0.15	281.81	281.66	0.007	0.035	281.84	281.69	0.82	281.92	---	283.80	No
RD-J-50	12	2.57	5.00	5.26	0.60	0.69	0.43	278.15	277.72			278.20	277.77	1.11	278.28	---	279.80	No
CO-J-30	15	5.06	126.97	6.05	0.81	0.91	0.57	276.81	276.24			278.00	277.43	1.72	278.34	277.63	279.75	No
CO-J-30A	12	2.57	100.00	3.28	1.00	n/a	0.17	278.41	278.24	0.004	0.444	278.85	278.69	1.87	278.99	278.13	279.75	No
RD-J-30A	12	2.57	5.00	3.28	1.00	n/a	0.17	279.06	278.89	0.004	0.022	279.08	278.91	1.94	279.11	---	279.80	No
RD-J-30	12	2.57	5.00	3.28	1.00	n/a	0.17	278.41	278.24	0.004	0.022	278.43	278.26	1.29	278.46	---	279.80	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
J-50	---	On Grade	0.84	0.75	5.0	8.0	5.06	0.02	0.05		5.06	0.27	2	10.28	0.20	Curb inlet	0.94	4.12
J-21	---	On Grade	1.60	0.90	5.0	8.0	11.59	0.02	0.05		11.59	0.35	2	14.33	0.14	Curb inlet	1.44	10.15

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
K-70	K-60	54.6	0.20	0.39	0.75	0.15	0.32	5.0	5.8	7.72	2.48		18	15.76	16%	8.92	6.50	0.1	278.04	277.00	N/A	1.91%
K-80	K-70	55.5	0.13	0.19	0.90	0.12	0.17	5.0	5.5	7.81	1.33		18	8.05	17%	4.56	3.37	0.3	278.49	278.21	N/A	0.50%
K-130	K-80	67.5	0.06	0.06	0.90	0.05	0.05	5.0	5.0	7.97	0.44		18	7.44	6%	4.21	2.30	0.5	279.00	278.66	N/A	0.50%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
K-60	#VALUE!							277.40	277.40							278.50	284.82	
K-70	18	2.48	54.56	6.50	0.40	0.60	0.66	278.06	277.40			279.10	278.45	1.06	279.10	279.71	284.09	No
K-80	18	1.33	55.55	3.37	0.41	0.43	0.18	279.11	279.09			279.11	278.94	0.62	279.11	280.16	284.14	No
K-130	18	0.44	67.54	2.30	0.25	0.24	0.08	279.12	279.10	0.005	0.338	279.46	279.37	0.51	279.51	---	283.21	No

BOHLER

Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
K-130	---	On Grade	0.06	0.90	5.0	8.0	0.44	0.02	0.05		0.44	0.12	2	3.01	0.66	Curb inlet	0.25	0.19
K-80	---	On Grade	0.13	0.90	5.0	8.0	0.93	0.02	0.05		0.93	0.16	2	4.75	0.42	Curb inlet	0.39	0.54
K-70	---	On Grade	0.20	0.75	5.0	8.0	1.20	0.02	0.05		1.20	0.17	2	5.42	0.37	Curb inlet	0.44	0.75

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
K-110	K-90	23.9	0.18	0.37	0.75	0.13	0.28	5.0	5.1	7.95	2.20		18	11.24	20%	6.36	4.93	0.1	277.23	277.00	N/A	0.97%
K-111	K-110	14.8	0.19	0.19	0.75	0.14	0.14	5.0	5.0	7.97	1.15		18	8.05	14%	4.56	3.23	0.1	279.88	279.80	N/A	0.50%

BOHLER

Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
K-90	#VALUE!							277.45	277.45							278.50	284.84	
K-110	18	2.20	23.87	4.93	0.45	0.56	0.38	277.83	277.45			278.06	277.68	0.83	278.06	281.30	284.10	No
K-111	18	1.15	14.76	3.23	0.38	0.40	0.16	280.35	280.19			280.42	280.26	0.55	280.42	---	284.10	No

BOHLER

Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
K-111	---	On Grade	0.19	0.75	5.0	8.0	1.15	0.02	0.05		1.15	0.17	2	5.31	0.38	Curb inlet	0.43	0.72
K-110	---	On Grade	0.18	0.75	5.0	8.0	1.06	0.02	0.05		1.06	0.16	2	5.09	0.39	Curb inlet	0.41	0.64

BOHLER

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
M-20	M-10	63.7	0.18	1.35	0.75	0.13	1.19	5.0	6.4	7.52	9.02		24	23.35	39%	7.43	6.95	0.2	277.58	277.00	N/A	0.91%
M-30	M-20	14.9	0.15	0.99	0.90	0.13	0.89	5.0	6.3	7.53	6.78		24	17.35	39%	5.52	5.18	0.0	277.82	277.75	N/A	0.50%
M-40	M-30	145.2	0.13	0.27	0.90	0.12	0.25	5.0	5.7	7.74	1.92		12	2.73	70%	3.48	3.76	0.6	279.72	278.99	N/A	0.50%
M-50	M-40	125.6	0.14	0.14	0.90	0.13	0.13	5.0	5.0	7.97	1.04		8.004	0.93	112%	2.65	2.98	0.7	280.85	280.22	N/A	0.50%
CO-M-30	M-30	63.7		0.57			0.52		6.0	7.64	3.98		12	6.42	62%	8.17	8.60	0.1	283.13	281.38	N/A	2.76%
CO-M-31	CO-M-30	100.0		0.34			0.31		5.6	7.78	2.43		12	2.73	89%	3.48	3.93	0.4	283.73	283.23	N/A	0.50%
CO-M-32	CO-M-31	100.1		0.12			0.10		5.0	7.96	0.83		8.004	0.93	90%	2.65	3.00	0.6	284.23	283.73	N/A	0.50%
RD-M-32	CO-M-32	5.0	0.12	0.12	0.90	0.10	0.10	5.0	5.0	7.97	0.83		6	0.78	107%	3.95	4.40	0.0	284.48	284.40	N/A	1.62%
RD-M-31	CO-M-31	5.1	0.23	0.23	0.90	0.21	0.21	5.0	5.0	7.97	1.66		8.004	3.03	55%	8.69	8.88	0.0	284.79	284.52	N/A	5.36%
RD-M-30	CO-M-30	5.2	0.23	0.23	0.90	0.21	0.21	5.0	5.0	7.97	1.66		8.004	3.03	55%	8.69	8.88	0.0	284.79	284.51	N/A	5.36%
M-21	M-20	32.0	0.06	0.18	0.90	0.06	0.16	5.0	5.8	7.72	1.28		9.996	1.72	75%	3.15	3.45	0.2	280.20	280.03	N/A	0.52%
M-22	M-21	137.0	0.12	0.12	0.90	0.11	0.11	5.0	5.0	7.97	0.86		8.004	0.93	93%	2.65	3.01	0.8	281.05	280.36	N/A	0.50%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
M-10	#VALUE!							277.86	277.86							279.00	284.92	
M-20	24	9.02	63.74	6.95	0.86	1.07	0.75	278.61	277.86			279.19	278.44	1.61	279.19	279.75	284.10	No
M-30	24	6.78	14.86	5.18	0.87	0.92	0.42	279.24	279.12			279.24	278.82	1.42	279.24	279.99	284.10	No
M-40	12	1.92	145.21	3.76	0.62	0.59	0.22	279.83	279.61	0.005	0.726	280.56	280.34	1.08	280.80	280.89	284.12	No
M-50	8.004	1.04	125.64	2.98	0.67	n/a	0.14	281.03	280.89	0.005	0.628	281.65	281.52	0.89	281.74	---	283.06	No
CO-M-30	12	3.98	63.66	8.60	0.57	0.85	1.15	283.10	281.95			284.85	283.70	1.72	284.85	285.18	286.72	No
CO-M-31	12	2.43	100.00	3.10	1.00	n/a	0.15	284.91	284.76	0.004	0.397	285.31	285.16	1.68	285.41	284.40	286.73	No
CO-M-32	8.004	0.83	100.10	2.38	0.67	n/a	0.09	285.44	285.36	0.004	0.402	285.85	285.76	1.69	285.92	284.90	286.44	No
RD-M-32	6	0.83	5.00	4.23	0.50	n/a	0.28	286.03	285.75	0.019	0.093	286.12	285.85	1.70	286.18	---	287.00	No
RD-M-31	8.004	1.66	5.11	8.88	0.35	0.60	1.23	285.55	285.20	0.016		286.37	285.14	1.58	286.37	---	287.00	No
RD-M-30	8.004	1.66	5.22	8.88	0.35	0.60	1.23	286.09	284.86			286.37	285.14	1.58	286.37	---	287.00	No
M-21	9.996	1.28	32.03	3.45	0.54	0.51	0.19	280.75	280.57	0.005	0.167	280.92	280.73	1.02	281.21	281.03	284.77	No
M-22	8.004	0.86	137.05	2.47	0.67	n/a	0.10	281.25	281.16	0.004	0.596	281.85	281.75	0.86	281.91	---	283.26	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
M-50	---	On Grade	0.14	0.90	5.0	8.0	1.04	0.02	0.05		1.04	0.16	2	5.05	0.40	Curb inlet	0.41	0.63
M-40	---	On Grade	0.13	0.90	5.0	8.0	0.93	0.02	0.05		0.93	0.16	2	4.77	0.42	Curb inlet	0.39	0.55
M-30	---	On Grade	0.15	0.90	5.0	8.0	1.05	0.02	0.05		1.05	0.16	2	5.08	0.39	Curb inlet	0.41	0.64
M-20	---	On Grade	0.18	0.75	5.0	8.0	1.07	0.02	0.05		1.07	0.16	2	5.12	0.39	Curb inlet	0.42	0.65
M-22	---	On Grade	0.12	0.90	5.0	8.0	0.86	0.02	0.05		0.86	0.15	2	4.58	0.44	Curb inlet	0.37	0.49
M-21	---	On Grade	0.06	0.90	5.0	8.0	0.46	0.02	0.05		0.46	0.12	2	3.13	0.64	Curb inlet	0.26	0.20

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
CO-M-33	M-33	12.5		0.57			0.52		6.0	7.65	3.98		15	10.34	39%	8.43	7.87	0.0	277.27	277.00	N/A	2.18%
CO-M-34	CO-M-33	100.0		0.34			0.31		5.6	7.78	2.43		12	2.73	89%	3.48	3.93	0.4	283.99	283.49	N/A	0.50%
CO-M-35	CO-M-34	100.0		0.11			0.10		5.0	7.96	0.83		8.004	0.93	89%	2.65	3.00	0.6	284.49	283.99	N/A	0.50%
RD-M-35	CO-M-35	5.6	0.11	0.11	0.90	0.10	0.10	5.0	5.0	7.97	0.83		6	0.92	90%	4.67	5.28	0.0	284.79	284.66	N/A	2.27%
RD-M-34	CO-M-34	5.4	0.23	0.23	0.90	0.21	0.21	5.0	5.0	7.97	1.66		8.004	3.03	55%	8.69	8.88	0.0	284.79	284.50	N/A	5.36%
RD-M-33	CO-M-33	5.4	0.23	0.23	0.90	0.21	0.21	5.0	5.0	7.97	1.66		8.004	1.83	91%	5.23	5.92	0.0	284.61	284.50	N/A	1.94%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
M-33	#VALUE!							277.54	277.54							278.25	285.81	
CO-M-33	15	3.98	12.54	7.87	0.54	0.81	0.96	278.50	277.54			278.78	277.81	1.50	278.78	285.17	286.71	No
CO-M-34	12	2.43	100.00	3.93	0.74	0.67	0.24	284.47	284.23	0.005	0.5	284.97	284.73	1.28	285.27	285.16	286.71	No
CO-M-35	8.004	0.83	100.00	2.37	0.67	n/a	0.09	285.30	285.22	0.004	0.398	285.70	285.61	1.28	285.77	285.16	286.70	No
RD-M-35	6	0.83	5.62	4.21	0.50	n/a	0.28	285.88	285.61	0.018	0.104	285.99	285.71	1.26	286.04	---	287.00	No
RD-M-34	8.004	1.66	5.44	8.88	0.35	0.60	1.23	285.41	285.06	0.016		286.37	285.14	1.58	286.37	---	287.00	No
RD-M-33	8.004	1.66	5.37	5.92	0.50	0.60	0.55	285.55	285.00			285.65	285.11	1.09	285.69	---	287.00	No

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
O-20	O-10	23.2		0.82			0.74		5.2	7.89	5.90		21	13.81	43%	5.74	5.51	0.1	273.90	273.75	N/A	0.65%
O-40	O-20	55.0	0.26	0.26	0.90	0.24	0.24	5.0	5.0	7.97	1.91		12	2.73	70%	3.48	3.76	0.2	277.28	277.01	N/A	0.50%
O-21	O-20	15.5	0.56	0.56	0.90	0.50	0.50	5.0	5.0	7.97	4.05		18	8.05	50%	4.56	4.56	0.1	277.39	277.32	N/A	0.50%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
O-10	#VALUE!							274.55	274.55							275.50	281.11	
O-20	21	5.90	23.15	5.51	0.80	0.90	0.47	275.02	274.55			275.17	274.70	1.38	275.28	278.01	281.65	No
O-40	12	1.91	54.99	3.76	0.62	0.59	0.22	277.84	277.62	0.005	0.275	278.12	277.90	1.03	278.31	---	279.91	No
O-21	18	4.05	15.52	4.56	0.75	0.77	0.32	278.39	278.07			278.47	278.15	1.23	278.62	---	280.53	No

BOHLER

Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
O-40	---	On Grade	0.26	0.90	5.0	8.0	1.91	0.02	0.05		1.91	0.20	2	6.76	0.30	Curb inlet	0.57	1.34
O-21	---	On Grade	0.56	0.90	5.0	8.0	4.05	0.02	0.05		4.05	0.25	2	9.37	0.21	Curb inlet	0.84	3.21

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
P-20	P-10	32.7	0.28	0.74	0.90	0.25	0.67	5.0	5.7	7.75	5.23		18	25.44	21%	14.40	11.32	0.0	275.38	273.75	N/A	4.99%
O-30	P-20	202.1	0.17	0.17	0.90	0.16	0.16	5.0	5.0	7.97	1.25		8.004	1.53	82%	4.39	4.89	0.7	281.77	279.00	N/A	1.37%
P-30	P-20	69.2	0.29	0.29	0.90	0.26	0.26	5.0	5.0	7.97	2.10		12	2.73	77%	3.48	3.83	0.3	277.29	276.95	N/A	0.50%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
P-10	#VALUE!							274.21	274.21							275.25	281.55	
P-20	18	5.23	32.72	11.32	0.46	0.88	1.99	276.20	274.21			277.83	275.84	2.45	277.83	279.67	281.21	No
O-30	8.004	1.25	202.10	4.89	0.46	0.53	0.37	279.83	279.46			282.60	282.23	1.04	282.80	---	283.98	No
P-30	12	2.10	69.18	3.83	0.66	0.62	0.23	277.88	277.76	0.005	0.346	278.23	278.00	1.06	278.35	---	279.92	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
O-30	---	On Grade	0.17	0.90	5.0	8.0	1.25	0.02	0.05		1.25	0.17	2	5.55	0.36	Curb inlet	0.46	0.80
P-20	---	On Grade	0.28	0.90	5.0	8.0	2.02	0.02	0.05		2.02	0.20	2	6.94	0.29	Curb inlet	0.59	1.44
P-30	---		0.29	0.90	5.0	8.0	2.10	0.02	0.05		2.10	0.20	2	7.06	0.28	Curb inlet	0.60	1.50

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
Q-20	Q-10	30.2	0.60	0.71	0.90	0.54	0.62	5.0	6.3	7.53	4.71		18	13.74	34%	7.78	7.04	0.1	274.19	273.75	N/A	1.46%
Q-30	Q-20	112.4		0.10			0.08		6.0	7.66	0.59		6	0.92	64%	4.70	4.98	0.4	280.88	278.30	N/A	2.30%
Q-40	Q-30	162.1		0.10			0.08		5.1	7.94	0.61		6	0.47	131%	2.38	3.11	0.9	281.90	280.94	N/A	0.59%
Q-50	Q-40	17.9	0.10	0.10	0.75	0.08	0.08	5.0	5.0	7.97	0.61		6	0.43	143%	2.19	3.13	0.1	281.99	281.90	N/A	0.50%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
Q-10	#VALUE!							274.36	274.36							275.25	281.01	
Q-20	18	4.71	30.15	7.04	0.61	0.83	0.77	275.13	274.36			275.57	274.79	1.38	275.57	278.80	280.40	No
Q-30	6	0.59	112.36	4.98	0.29	0.39	0.39	278.97	278.59			281.56	281.17	0.68	281.56	281.44	282.99	No
Q-40	6	0.61	162.06	3.11	0.50	n/a	0.15	281.62	281.47	0.01	1.639	283.26	283.11	1.49	283.39	282.40	284.44	No
Q-50	6	0.61	17.87	3.13	0.50	n/a	0.15	283.45	283.29	0.01	0.182	283.63	283.48	1.70	283.68	---	284.03	No

BOHLER

Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
Q-50	---	On Grade	0.10	0.75	5.0	8.0	0.61	0.02	0.05		0.61	0.14	2	3.77	0.53	Curb inlet	0.30	0.31
Q-20	---	On Grade	0.60	0.90	5.0	8.0	4.36	0.02	0.05		4.36	0.25	2	9.67	0.21	Curb inlet	0.87	3.49

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
CO-R-10	R-10	56.5		1.15			1.03		6.4	7.51	7.82		21	13.46	58%	5.60	5.80	0.2	277.16	276.81	N/A	0.61%
CO-R-11	CO-R-10	100.1		0.12			0.10		5.0	7.96	0.83		8.004	0.93	90%	2.65	3.00	0.6	280.77	280.27	N/A	0.50%
RD-R-11	CO-R-11	5.0	0.12	0.12	0.90	0.10	0.10	5.0	5.0	7.97	0.83		8.004	0.93	90%	2.65	3.00	0.0	280.79	280.77	N/A	0.50%
CO-R-12	CO-R-10	100.0		0.80			0.72		6.1	7.62	5.55		21	12.15	46%	5.05	4.93	0.3	278.59	278.09	N/A	0.50%
CO-R-13	CO-R-12	100.0		0.57			0.52		5.7	7.74	4.03		15	4.95	81%	4.04	4.49	0.4	279.09	278.59	N/A	0.50%
CO-R-14	CO-R-13	100.0		0.34			0.31		5.3	7.88	2.46		12	2.73	90%	3.48	3.93	0.4	279.59	279.09	N/A	0.50%
CO-R-15	CO-R-14	100.0		0.12			0.10		5.0	7.97	0.83		6	1.05	79%	5.36	5.93	0.3	282.58	279.59	N/A	2.99%
RD-R-15	CO-R-15	5.0	0.12	0.12	0.90	0.10	0.10	5.0	5.0	7.97	0.83		3.996	0.23	360%	2.63	9.50	0.0	284.15	284.09	N/A	1.24%
RD-R-14	CO-R-14	5.2	0.23	0.23	0.90	0.21	0.21	5.0	5.0	7.97	1.66		6	2.72	61%	13.86	14.53	0.0	280.97	279.96	N/A	20.00%
RD-R-13	CO-R-13	5.1	0.23	0.23	0.90	0.21	0.21	5.0	5.0	7.97	1.66		6	2.72	61%	13.86	14.53	0.0	280.97	279.96	N/A	20.00%
RD-R-12	CO-R-12	5.0	0.23	0.23	0.90	0.21	0.21	5.0	5.0	7.97	1.66		6	1.33	125%	6.79	8.46	0.0	280.20	279.96	N/A	4.80%
RD-R-10	CO-R-10	5.0	0.23	0.23	0.90	0.21	0.21	5.0	5.0	7.97	1.66		6	0.50	334%	2.53	8.46	0.0	280.27	280.24	N/A	0.67%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
R-10	#VALUE!							277.77	277.77							278.56	282.09	
CO-R-10	21	7.82	56.50	5.80	0.96	1.04	0.52	278.29	277.77			278.64	278.12	1.90	279.06	280.93	282.93	No
CO-R-11	8.004	0.83	100.07	3.00	0.49	0.43	0.14	280.90	280.76	0.005	0.5	281.40	281.26	0.84	281.61	281.43	282.99	No
RD-R-11	8.004	0.83	5.00	2.38	0.67	n/a	0.09	281.64	281.56	0.004	0.02	281.66	281.58	0.89	281.68	---	283.00	No
CO-R-12	21	5.55	100.00	4.93	0.83	0.87	0.38	279.16	278.90			279.80	279.43	1.27	279.87	280.46	282.94	No
CO-R-13	15	4.03	100.00	3.28	0.86	0.81	0.17	279.93	279.77	0.003	0.332	280.27	280.10	1.45	280.55	280.46	282.91	No
CO-R-14	12	2.46	100.00	3.13	1.00	n/a	0.15	280.61	280.46	0.004	0.406	281.01	280.86	1.52	281.12	280.46	282.95	No
CO-R-15	6	0.83	100.01	5.93	0.34	0.45	0.55	281.23	280.95	0.019		283.46	282.92	0.88	283.46	284.43	285.94	No
RD-R-15	3.996	0.83	5.00	9.50	0.33	n/a	1.40	285.83	284.43	0.012	0.062	285.89	284.49	2.80	286.96	---	287.00	No
RD-R-14	6	1.66	5.17	14.53	0.28	0.50	3.28	281.56	280.45	0.075		284.54	281.25	3.57	284.54	---	285.60	No
RD-R-13	6	1.66	5.15	14.53	0.28	0.50	3.28	280.99	279.88	0.075		284.53	281.25	3.57	284.53	---	284.95	No
RD-R-12	6	1.66	5.04	8.46	0.50	n/a	1.11	281.57	280.46	0.048	0.242	281.81	280.70	2.22	282.42	---	284.30	No
RD-R-10	6	1.66	5.02	8.46	0.50	n/a	1.11	281.85	280.74	0.007	0.033	281.88	280.77	2.22	282.49	---	283.65	No

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
S-20	S-10	85.9	0.74	1.46	0.90	0.67	1.32	5.0	5.7	7.73	10.25		24	25.00	41%	7.96	7.56	0.2	274.64	273.75	N/A	1.04%
S-30	S-20	89.4		0.72			0.65		5.4	7.83	5.11		15	4.95	103%	4.04	4.59	0.3	279.31	278.87	N/A	0.50%
S-40	S-30	110.1	0.33	0.33	0.90	0.29	0.29	5.0	5.0	7.97	2.36		12	3.14	75%	4.00	4.39	0.4	281.54	280.82	N/A	0.66%
S-31	S-30	84.1	0.39	0.39	0.90	0.35	0.35	5.0	5.0	7.97	2.83		15	4.95	57%	4.04	4.17	0.3	279.91	279.48	N/A	0.50%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
S-10	#VALUE!							274.64	274.64							275.75	282.74	
S-20	24	10.25	85.92	7.56	0.89	1.15	0.89	275.53	274.64			276.42	275.54	1.78	276.42	280.12	281.79	No
S-30	15	5.11	89.37	4.59	1.07	0.92	0.33	280.26	279.93	0.005	0.447	280.71	280.38	1.70	281.01	281.82	283.57	No
S-40	12	2.36	110.07	4.39	0.65	0.66	0.30	281.76	281.46			282.49	282.19	1.22	282.76	---	284.29	No
S-31	15	2.83	84.14	2.31	0.68	0.68	0.08	281.04	280.96	0.002	0.138	281.18	281.10	1.32	281.22	---	282.78	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
S-40	---	On Grade	0.33	0.90	5.0	8.0	2.36	0.02	0.05		2.36	0.21	2	7.44	0.27	Curb inlet	0.64	1.73
S-31	---	On Grade	0.39	0.90	5.0	8.0	2.83	0.02	0.05		2.83	0.22	2	8.05	0.25	Curb inlet	0.70	2.14
S-20	---	On Grade	0.74	0.90	5.0	8.0	5.37	0.02	0.05		5.37	0.27	2	10.53	0.19	Curb inlet	0.97	4.40

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
CO-T-30	T-30	55.5		1.33			1.19		6.4	7.53	9.06		24	32.77	28%	10.43	8.91	0.1	274.74	273.75	N/A	1.78%
CO-T-34	CO-T-30	100.0		0.60			0.54		6.0	7.65	4.18		18	8.05	52%	4.56	4.60	0.4	281.51	281.01	N/A	0.50%
CO-T-35	CO-T-34	100.0		0.36			0.33		5.6	7.78	2.55		15	4.95	52%	4.04	4.06	0.4	282.01	281.51	N/A	0.50%
CO-T-36	CO-T-35	99.9		0.12			0.11		5.0	7.96	0.87		8.004	0.93	94%	2.65	3.02	0.6	282.57	282.07	N/A	0.50%
RD-T-36	CO-T-36	5.0	0.12	0.12	0.90	0.11	0.11	5.0	5.0	7.97	0.87		8.004	0.93	94%	2.65	3.02	0.0	282.59	282.57	N/A	0.50%
RD-T-35	CO-T-35	6.0	0.24	0.24	0.90	0.22	0.22	5.0	5.0	7.97	1.74		8.004	1.86	94%	5.34	6.06	0.0	282.79	282.67	N/A	2.02%
RD-T-34	CO-T-34	7.0	0.24	0.24	0.90	0.22	0.22	5.0	5.0	7.97	1.74		8.004	1.88	93%	5.38	6.11	0.0	282.80	282.65	N/A	2.06%
CO-T-31	CO-T-30	100.0		0.48			0.43		5.9	7.68	3.36		15	4.95	68%	4.04	4.34	0.4	281.89	281.39	N/A	0.50%
CO-T-32	CO-T-31	100.0		0.24			0.22		5.4	7.84	1.71		9.996	1.68	102%	3.08	3.50	0.5	282.39	281.89	N/A	0.50%
CO-T-33	CO-T-32	50.0		0.06			0.05		5.1	7.95	0.43		6	0.43	101%	2.19	2.49	0.3	282.71	282.46	N/A	0.50%
RD-T-33	CO-T-33	10.4	0.06	0.06	0.90	0.05	0.05	5.0	5.0	7.97	0.44		6	0.43	101%	2.19	2.49	0.1	282.76	282.71	N/A	0.50%
RD-T-32	CO-T-32	9.9	0.18	0.18	0.90	0.16	0.16	5.0	5.0	7.97	1.31		8.004	1.90	69%	5.46	5.87	0.0	282.79	282.58	N/A	2.11%
RD-T-31	CO-T-31	8.9	0.24	0.24	0.90	0.22	0.22	5.0	5.0	7.97	1.74		8.004	1.90	92%	5.44	6.17	0.0	282.79	282.60	N/A	2.10%
RD-T-30	CO-T-30	7.9	0.24	0.24	0.90	0.22	0.22	5.0	5.0	7.97	1.74		8.004	1.66	105%	4.74	5.36	0.0	282.75	282.63	N/A	1.60%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
T-30	#VALUE!							274.47	274.47							275.75	283.76	
CO-T-30	24	9.06	55.50	8.91	0.72	1.08	1.23	275.70	274.47			276.69	275.46	1.95	276.69	283.29	284.84	No
CO-T-34	18	4.18	100.00	4.60	0.77	0.78	0.33	282.10	281.77			282.60	282.27	1.27	282.77	283.32	284.86	No
CO-T-35	15	2.55	100.00	2.08	0.64	0.64	0.07	282.80	282.73	0.001	0.133	282.93	282.87	0.99	283.00	282.73	284.88	No
CO-T-36	8.004	0.87	99.94	2.49	0.67	n/a	0.10	283.04	282.94	0.004	0.442	283.48	283.38	0.99	283.56	283.23	284.92	No
RD-T-36	8.004	0.87	5.00	2.50	0.67	n/a	0.10	283.60	283.50	0.004	0.022	283.62	283.52	1.05	283.64	---	284.80	No
RD-T-35	8.004	1.74	5.98	6.06	0.51	0.60	0.57	283.76	283.18			283.88	283.31	1.12	283.92	---	285.00	No
RD-T-34	8.004	1.74	6.96	6.11	0.51	0.60	0.58	283.74	283.16			283.88	283.30	1.12	283.92	---	285.00	No
CO-T-31	15	3.36	100.00	4.34	0.76	0.74	0.29	282.43	282.14	0.005	0.5	282.93	282.64	1.30	283.19	283.27	284.82	No
CO-T-32	9.996	1.71	100.00	3.14	0.83	n/a	0.15	283.25	283.10	0.005	0.521	283.77	283.62	1.50	283.88	283.25	284.80	No
CO-T-33	6	0.43	50.00	2.21	0.50	n/a	0.08	283.91	283.84	0.005	0.255	284.17	284.09	1.52	284.23	283.21	285.15	No
RD-T-33	6	0.44	10.40	2.22	0.50	n/a	0.08	284.26	284.19	0.005	0.053	284.31	284.24	1.57	284.33	---	284.80	No
RD-T-32	8.004	1.31	9.91	3.75	0.67	n/a	0.22	283.97	283.75	0.01	0.099	284.07	283.85	1.32	284.11	---	285.01	No
RD-T-31	8.004	1.74	8.93	6.17	0.50	0.60	0.59	283.70	283.11			283.89	283.30	1.12	283.91	---	285.01	No
RD-T-30	8.004	1.74	7.95	5.36	0.59	0.60	0.45	283.66	283.21			283.79	283.34	1.12	283.88	---	285.01	No

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
V-20	V-10	20.7	0.76	1.45	0.90	0.68	1.30	5.0	5.1	7.94	10.44		27	22.86	46%	5.75	5.62	0.1	273.85	273.75	N/A	0.46%
V-30	V-20	33.3	0.69	0.69	0.90	0.62	0.62	5.0	5.0	7.97	4.98		15	7.55	66%	6.15	6.57	0.1	278.65	278.26	N/A	1.16%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
V-10	#VALUE!							274.82	274.82							276.00	282.00	
V-20	27	10.44	20.70	5.62	1.07	1.12	0.49	275.31	274.82			275.40	274.91	1.79	275.64	279.51	281.18	No
V-30	15	4.98	33.29	6.57	0.74	0.91	0.67	279.67	279.00			280.06	279.39	1.56	280.21	---	281.57	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
V-30	---	On Grade	0.69	0.90	5.0	8.0	4.98	0.02	0.05		4.98	0.26	2	10.21	0.20	Curb inlet	0.93	4.04
V-20	---	On Grade	0.76	0.90	5.0	8.0	5.50	0.02	0.05		5.50	0.27	2	10.64	0.19	Curb inlet	0.98	4.52

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
X-20	X-10	53.3	0.19	1.03	0.60	0.11	0.76	5.0	6.0	7.63	5.88		18	8.30	71%	4.69	5.09	0.2	280.78	280.50	N/A	0.53%
X-30	X-20	43.6	0.09	0.84	0.60	0.05	0.65	5.0	5.9	7.68	5.03		18	8.05	62%	4.56	4.81	0.2	284.05	283.83	N/A	0.50%
X-40	X-30	65.1	0.14	0.27	0.60	0.09	0.17	5.0	5.4	7.84	1.30		9.996	1.68	77%	3.08	3.40	0.3	285.21	284.88	N/A	0.50%
X-50	X-40	80.0	0.13	0.13	0.60	0.08	0.08	5.0	5.0	7.97	0.64		6	0.43	149%	2.19	3.26	0.4	286.11	285.71	N/A	0.50%
CO-X-30	X-30	5.8		0.48			0.43		5.9	7.68	3.36		15	8.63	39%	7.03	6.59	0.0	285.13	285.04	N/A	1.52%
CO-X-31	CO-X-30	19.8		0.48			0.43		5.8	7.71	3.37		15	4.95	68%	4.04	4.34	0.1	285.74	285.64	N/A	0.50%
CO-X-32	CO-X-31	100.0		0.24			0.22		5.4	7.86	1.72		12	2.73	63%	3.48	3.67	0.5	286.24	285.74	N/A	0.50%
CO-X-33	CO-X-32	50.0		0.06			0.05		5.0	7.96	0.44		6	0.43	101%	2.19	2.49	0.3	286.82	286.57	N/A	0.50%
RD-X-33	CO-X-33	5.0	0.06	0.06	0.90	0.05	0.05	5.0	5.0	7.97	0.44		6	0.87	50%	4.41	4.42	0.0	286.92	286.82	N/A	2.03%
RD-X-32	CO-X-32	5.0	0.18	0.18	0.90	0.16	0.16	5.0	5.0	7.97	1.31		8.004	2.17	60%	6.22	6.50	0.0	286.79	286.65	N/A	2.75%
RD-X-31	CO-X-31	5.2	0.24	0.24	0.90	0.22	0.22	5.0	5.0	7.97	1.74		8.004	2.77	63%	7.94	8.39	0.0	286.79	286.55	N/A	4.48%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
X-10	#VALUE!							281.43	281.43							282.00	287.97	
X-20	18	5.88	53.28	5.09	0.93	0.94	0.40	281.84	281.43			282.12	281.72	1.65	282.44	285.33	287.65	No
X-30	18	5.03	43.63	4.81	0.86	0.86	0.36	285.05	284.69			285.27	284.91	1.57	285.62	285.72	288.05	No
X-40	9.996	1.30	65.11	3.40	0.55	0.51	0.18	285.66	285.55	0.005	0.326	285.98	285.80	0.86	286.06	286.21	288.13	No
X-50	6	0.64	80.02	3.26	0.50	n/a	0.17	286.38	286.21	0.005	0.4	286.78	286.61	0.79	286.90	---	288.15	No
CO-X-30	15	3.36	5.83	6.59	0.54	0.74	0.68	286.26	285.58			286.34	285.67	1.22	286.34	286.89	288.72	No
CO-X-31	15	3.37	19.77	4.34	0.76	0.74	0.29	286.69	286.40	0.005	0.099	286.79	286.50	1.31	287.04	286.74	288.77	No
CO-X-32	12	1.72	99.99	2.19	0.58	0.56	0.07	287.07	287.00	0.002	0.198	287.27	287.20	1.09	287.33	287.07	288.86	No
CO-X-33	6	0.44	50.00	2.22	0.50	n/a	0.08	287.36	287.28	0.005	0.257	287.61	287.54	0.86	287.68	287.32	288.86	No
RD-X-33	6	0.44	5.00	2.22	0.50	n/a	0.08	287.71	287.63	0.005	0.026	287.73	287.66	0.83	287.75	---	289.00	No
RD-X-32	8.004	1.31	5.00	6.50	0.37	0.54	0.66	287.41	287.19	0.01		287.82	287.17	1.03	287.82	---	289.00	No
RD-X-31	8.004	1.74	5.25	8.39	0.38	0.60	1.09	288.03	286.94			288.27	287.17	1.48	288.27	---	289.00	No

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Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
X-50	---	On Grade	0.13	0.60	5.0	8.0	0.64	0.02	0.05		0.64	0.14	2	3.86	0.52	Curb inlet	0.31	0.33
X-40	---	On Grade	0.14	0.60	5.0	8.0	0.68	0.02	0.05		0.68	0.14	2	4.02	0.50	Curb inlet	0.32	0.36
X-30	---	On Grade	0.09	0.60	5.0	8.0	0.42	0.02	0.05		0.42	0.12	2	2.92	0.69	Curb inlet	0.24	0.18
X-20	---	On Grade	0.19	0.60	5.0	8.0	0.92	0.02	0.05		0.92	0.16	2	4.73	0.42	Curb inlet	0.38	0.53

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
Y-20	Y-10	24.5	0.07	0.29	0.90	0.06	0.23	5.0	5.4	7.84	1.80		12	4.32	42%	5.49	5.24	0.1	280.81	280.50	N/A	1.25%
Y-30	Y-20	80.4	0.22	0.22	0.75	0.17	0.17	5.0	5.0	7.97	1.35		9.996	1.68	80%	3.08	3.42	0.4	285.74	285.34	N/A	0.50%

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Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
Y-10	#VALUE!							280.95	280.95							281.50	288.59	
Y-20	12	1.80	24.52	5.24	0.45	0.57	0.43	281.38	280.95			281.68	281.26	0.88	281.68	286.17	288.13	No
Y-30	9.996	1.35	80.37	3.42	0.57	0.52	0.18	286.08	285.90	0.005	0.402	286.48	286.30	0.94	286.67	---	288.15	No

BOHLER

Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
Y-30	---	On Grade	0.22	0.75	5.0	8.0	1.35	0.02	0.05		1.35	0.18	2	5.74	0.35	Curb inlet	0.47	0.87
Y-20	---	On Grade	0.07	0.90	5.0	8.0	0.48	0.02	0.05		0.48	0.13	2	3.23	0.62	Curb inlet	0.26	0.22

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Storm Drain Design Sheet

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

From	To	Length	Drainage Area		Runoff Coeff "C"	Area X "C"		Time of Concentration		Rain "I"	Runoff "Q"	Known "Q"	Pipe Dia.	Pipe Flow		Velocity		Sec Time	Invert Elev.		Crown Drop	Slope
			Inc.	Total		Inc.	Total	Inlet	System					Q_{FULL}	Design/Capacity	Full	Design		U/S	D/S		
		(ft)	(ac)	(ac)		(ac)	(ac)	(min)	(min)	(inch/hr)	(cu. ft/sec)	(cu. ft/sec)	(in)	(cu. ft/sec)	%	(ft/s)	(ft/s)	(min)	(ft)	(ft)	(ft)	
Z-20	Z-10	22.2	0.08	1.69	0.90	0.07	1.52	5.0	8.4	6.87	10.53		24	17.35	61%	5.52	5.78	0.1	280.61	280.50	N/A	0.50%
Z-30	Z-20	75.3	0.07	1.61	0.90	0.07	1.45	5.0	8.2	6.94	10.14		24	17.35	58%	5.52	5.73	0.2	283.44	283.06	N/A	0.50%
Z-40	Z-30	68.9	0.18	0.69	0.90	0.16	0.63	5.0	7.9	7.02	4.43		18	8.05	55%	4.56	4.66	0.2	284.68	284.34	N/A	0.50%
Z-50	Z-40	185.3		0.52			0.46		7.2	7.26	3.39		15	4.95	69%	4.04	4.34	0.7	285.61	284.68	N/A	0.50%
Z-60	Z-50	309.0		0.13			0.11		5.6	7.76	0.88		8.004	1.02	86%	2.94	3.30	1.6	289.07	287.18	N/A	0.61%
Z-70	Z-60	114.7	0.13	0.13	0.90	0.11	0.11	5.0	5.0	7.97	0.91		8.004	0.93	98%	2.65	3.02	0.6	289.67	289.09	N/A	0.50%
Z-51	Z-50	29.2	0.39	0.39	0.90	0.35	0.35	5.0	5.0	7.97	2.82		15	4.95	57%	4.04	4.17	0.1	285.75	285.61	N/A	0.50%
CO-Z-30	Z-30	6.2		0.84			0.76		6.2	7.58	5.80		21	12.15	48%	5.05	4.99	0.0	283.89	283.86	N/A	0.50%
CO-Z-32	CO-Z-30	92.7		0.72			0.65		5.9	7.69	5.04		21	12.15	42%	5.05	4.81	0.3	284.35	283.89	N/A	0.50%
CO-Z-33	CO-Z-32	100.0		0.48			0.43		5.5	7.81	3.42		15	4.95	69%	4.04	4.35	0.4	284.85	284.35	N/A	0.50%
CO-Z-34	CO-Z-33	100.0		0.24			0.22		5.0	7.97	1.74		9.996	1.68	104%	3.08	3.50	0.5	285.35	284.85	N/A	0.50%
RD-Z-34	CO-Z-34	5.0	0.24	0.24	0.90	0.22	0.22	5.0	5.0	7.97	1.74		6	1.02	171%	5.21	8.88	0.0	285.54	285.40	N/A	2.82%
RD-Z-33	CO-Z-33	5.0	0.24	0.24	0.90	0.22	0.22	5.0	5.0	7.97	1.74		8.004	2.50	70%	7.17	7.75	0.0	286.79	286.61	N/A	3.65%
RD-Z-32	CO-Z-32	5.0	0.24	0.24	0.90	0.22	0.22	5.0	5.0	7.97	1.74		8.004	2.30	76%	6.58	7.23	0.0	286.79	286.64	N/A	3.07%
CO-Z-31	CO-Z-30	7.3		0.12			0.11		5.0	7.97	0.87		8.004	1.17	74%	3.35	3.67	0.0	286.60	286.54	N/A	0.80%
RD-Z-31	CO-Z-31	5.0	0.12	0.12	0.90	0.11	0.11	5.0	5.0	7.97	0.87		6	1.07	82%	5.43	6.05	0.0	286.96	286.81	N/A	3.07%

BOHLER

Energy Grade Line Computation - Table A

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 100-Year

Struct. ID	Pipe Dia. (in)	Q (cu. ft/sec)	Length (ft)	Velocity (ft/s)	d (ft)	d_c (ft)	$v^2/2g$ (ft)	EGL_o (ft)	HGL_o (ft)	S_f (ft/ft)	Total Pipe Loss (ft)	EGL_i (ft)	HGL_i (ft)	E_a (ft)	EGL_a (ft)	U/S TOC (ft)	Surface Elev. (ft)	HGL > Surface Elev.
Z-10	#VALUE!							281.63	281.63							282.50	288.93	
Z-20	24	10.53	22.16	5.78	1.13	1.16	0.52	282.15	281.63			282.26	281.74	1.85	282.46	285.06	288.17	No
Z-30	24	10.14	75.31	5.73	1.10	1.14	0.51	284.67	284.16			285.05	284.54	2.02	285.46	285.84	288.16	No
Z-40	18	4.43	68.93	4.66	0.79	0.81	0.34	285.52	285.37			285.81	285.47	1.25	285.93	285.93	287.89	No
Z-50	15	3.39	185.30	4.34	0.76	0.74	0.29	285.98	285.86	0.005	0.927	286.90	286.61	1.39	287.00	287.85	289.41	No
Z-60	8.004	0.88	309.03	3.30	0.48	0.45	0.17	287.83	287.66	0.006	1.889	289.72	289.55	0.76	289.84	289.76	294.25	No
Z-70	8.004	0.91	114.74	2.59	0.53	0.45	0.11	289.88	289.77	0.005	0.548	290.43	290.32	0.83	290.49	---	291.87	No
Z-51	15	2.82	29.19	2.30	0.68	0.68	0.08	287.03	286.95	0.002	0.048	287.08	286.99	1.36	287.11	---	288.63	No
CO-Z-30	21	5.80	6.21	4.99	0.85	0.89	0.39	285.50	285.40			285.50	285.11	1.61	285.50	285.64	288.79	No
CO-Z-32	21	5.04	92.66	4.81	0.79	0.82	0.36	285.53	285.46			285.53	285.17	1.20	285.55	287.30	288.85	No
CO-Z-33	15	3.42	100.00	4.35	0.76	0.75	0.29	285.60	285.47	0.005	0.5	286.10	285.80	1.32	286.17	285.69	288.82	No
CO-Z-34	9.996	1.74	100.00	3.20	0.83	n/a	0.16	286.23	286.07	0.005	0.539	286.77	286.61	1.55	286.90	285.90	287.77	No
RD-Z-34	6	1.74	5.00	8.88	0.50	n/a	1.23	287.39	286.17	0.082	0.411	287.80	286.58	2.51	288.05	---	289.00	No
RD-Z-33	8.004	1.74	5.00	7.75	0.41	0.60	0.93	287.95	287.02			288.13	287.20	1.34	288.13	---	289.00	No
RD-Z-32	8.004	1.74	5.00	7.23	0.44	0.60	0.81	287.88	287.07			288.04	287.22	1.25	288.04	---	289.00	No
CO-Z-31	8.004	0.87	7.34	3.67	0.43	0.44	0.21	287.18	286.97			287.23	287.03	0.92	287.51	287.31	288.85	No
RD-Z-31	6	0.87	5.00	4.44	0.34	0.46	0.31	287.64	287.33	0.021	0.103	287.74	287.43	0.86	287.82	---	289.00	No

BOHLER

Inlet Analysis Data

Project Name: Hanover Industrial - Chalfont
Project Number: PAC250095.00
Design Storm: 0.314in/hr

Inlet			Gutter Discharge													Inlet Discharge		
Name	Stat. (ft)	Inlet Location	Drain. Area A (sq. ft)	Runoff Coeff. C	Time of Conc. t_c (min)	Rainfall Intens. I (inch/hr)	Q=CIA/K_c (cu. ft/sec)	Long. Slope S_L	Cross Slope S_x or S_w	Prev. Bypass Flow (cu. ft/sec)	Total Gutter Flow (cu. ft/sec)	Depth d (ft)	Grate or Gutter Width (ft)	Spread T (ft)	W / T	Inlet Type	Intercept Flow Q_i (cu. ft/sec)	Bypass Flow Q_b (cu. ft/sec)
Z-30	---	On Grade	0.07	0.90	5.0	8.0	0.52	0.02	0.05		0.52	0.13	2	3.41	0.59	Curb inlet	0.28	0.25
Z-20	---	On Grade	0.08	0.90	5.0	8.0	0.57	0.02	0.05		0.57	0.13	2	3.59	0.56	Curb inlet	0.29	0.28
Z-40	---	On Grade	0.18	0.90	5.0	8.0	1.29	0.02	0.05		1.29	0.17	2	5.63	0.36	Curb inlet	0.46	0.83
Z-51	---	On Grade	0.39	0.90	5.0	8.0	2.82	0.02	0.05		2.82	0.22	2	8.04	0.25	Curb inlet	0.70	2.13
Z-70	---	On Grade	0.13	0.90	5.0	8.0	0.91	0.02	0.05		0.91	0.15	2	4.70	0.43	Curb inlet	0.38	0.53

Appendix 1.0

Post Construction
Stormwater Management Report

Prepared For:

101 Independence Lane Associates, LLC

One Tower Bridge
100 Front Street, Suite 560
West Conshohocken, PA 19428
Phone: 717-435-0911

Project:

141 Independence Lane

New Britain Township
Bucks County, Pennsylvania



Prepared by:

RETTEW ASSOCIATES, INC.
3020 Columbia Ave.
Lancaster, PA 17603
Phone: (717)-697-3551
Project # 111902019

Published:
June 2022
Revised: May 2023

TOWNSHIP

Pre-Development	1yr (cfs)	2yr (cfs)	5yr (cfs)	10yr (cfs)	25yr (cfs)	50yr (cfs)	100yr (cfs)
Off-Site POI 001	7.68	8.47	10.80	13.15	15.88	21.49	34.26
On-Site POI 001	6.47	8.36	11.07	13.30	16.53	19.30	22.26
Allowable Discharge Rate	14.94	19.16	24.22	29.18	38.02	53.56	
Post(BMP+Undetained)							
POI 001		10.83	14.08	17.01	25.14	35.30	51.59
Reduction Summary	1yr	2yr- 1yr	5yr -2yr	10yr-5yr	25yr-10yr	50yr-25yr	100yr - 50yr
POI 001		-4.11	-5.08	-7.21	-4.04	-2.72	-1.97

NPDES

Pre-Development	2yr (cfs)	10yr (cfs)	50yr (cfs)	100yr (cfs)
POI 001	16.83	26.45	40.79	56.52
Post(BMP+Undetained)				
POI 001	10.83	17.01	35.30	51.59
Reduction Summary				
POI 001	-6.00	-9.44	-5.49	-4.93

The Township has a rate requirements that states the following: the 2-Year Post-Development must be less than or equal to the 1-Year Pre-Development, the 5-Year Post Development must be less than or equal to the 2-Year Pre-Development, and so on. For calculation purposes, this requirement was only utilized for the rate produced by On-Site runoff. We believe that we should not be responsible to manage Off-Site runoff with this requirement. The Pre-Development values above and the HydroCAD files below reflect this statement.

Worksheet 4: Change in Runoff Volume for 2-YR Storm Event

Project: 141 Independence Lane
Drainage Basin: POI 001
2-Year Rainfall: 3.25 in

Existing Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	I_a (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Meadow	C	53,425	1.23	71	4.08	0.82	0.91	4,044
Meadow	D	259,059	5.95	78	2.82	0.56	1.31	28,283
TOTAL:		**312,484**	**7.17**					**32,327**

Developed Conditions:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	I_a (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Meadow	C	47,723	1.10	71	4.08	0.82	0.91	3,612
Meadow	D	66,165	1.52	78	2.82	0.56	1.31	7,224
Open Space	D	33,332	0.77	80	2.50	0.50	1.44	4,001
Impervious	N/A	165,264	3.79	98	0.20	0.04	3.02	41,554
TOTAL:		**312,484**	**7.17**					**56,391**

2-Year Volume Increase (ft^3):	**24,064**

To Non-Vegetated MRC Basin 1:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	I_a (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Meadow	D	17,073	0.39	78	2.82	0.56	1.31	1,864
Open Space	D	14,913	0.34	80	2.50	0.50	1.44	1,790
Impervious	N/A	19,103	0.44	98	0.20	0.04	3.02	4,803
TOTAL:		**51,089**	**1.17**					**8,457**

To Non-Vegetated MRC Basin 2:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	I_a (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Meadow	D	17,360	0.40	78	2.82	0.56	1.31	1,895
Open Space	D	18,419	0.42	80	2.50	0.50	1.44	2,211
Impervious	N/A	132,047	3.03	98	0.20	0.04	3.02	33,202
TOTAL:		**167,826**	**3.85**					**37,308**

To Undetained:

Cover Type/Condition	Soil Type	Area (sf)	Area (ac)	CN	S	I_a (0.2*S)	Q Runoff[1] (in)	Runoff Volume[2] (ft^3)
Meadow	C	47,723	1.10	71	4.08	0.82	0.91	3,612
Meadow	D	31,732	0.73	78	2.82	0.56	1.31	3,464
Impervious	N/A	14,114	0.32	98	0.20	0.04	3.02	3,549
TOTAL:		**93,569**	**2.15**					**10,625**

General Information

Instructions | *General* | Volume | Rate | Quality

Project Name:	**141 Independence Lane**	Application Type:	**PAG-02 NOI**
County:	**Bucks**	Municipality:	**New Britain Township**
Project Type:	**Commercial Building**	◉ New Project	○ Minor / Major Amendment

Area: **7.17** acres *(In Watershed)*

Total Earth Disturbance: **7.17** acres *(In Watershed)*

No. of Post-Construction Discharge Points: **1**

Start DP Numbering at: **001**

Discharge Point (DP) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural BMP(s)
001	5.02	5.02	0.00	3.47	UNT to West Branch Neshaminy Creek	WWF, MF	Yes
Undetained Areas	2.15	2.15	0.00	0.32	UNT to West Branch Neshaminy Creek	WWF, MF	
Totals:	**7.17**	**7.17**		**3.79**			

Volume Management

Project: 141 Independence Lane

Instructions | General | *Volume* | Rate | Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): **3.25** inches

Alternative 2-Year / 24-Hour Storm Event _____ inches

Alternative Source: _____

Pre-Construction Conditions: *No. Rows:* **2** ☐ *Exempt from Meadow in Good Condition* ☑ *Automatically Calculate CN, Ia, Runoff and Volume*

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Pervious as Meadow	1.23	C	71	0.817	0.91	4,044
Pervious as Meadow	5.95	D	78	0.564	1.31	28,283
TOTAL (ACRES):	**7.17**				**TOTAL (CF):**	**32,327**

Post-Construction Conditions: *No. Rows:* **4**

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	1.10	C	71	0.817	0.91	3,612
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	1.52	D	78	0.564	1.31	7,224
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.77	D	80	0.500	1.44	4,001
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	3.79	N/A	98	0.041	3.02	41,554
TOTAL (ACRES):	**7.17**				**TOTAL (CF):**	**56,391**

NET CHANGE IN VOLUME TO MANAGE (CF): **24,064**

Non-Structural BMP Volume Credits:

☐ Tree Planting Credit

☐ Other (attach calculations):

Structural BMP Volume Credits: *No. Structural BMPs:* **2** *Start BMP Numbering at:* **1**

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
001	1	Non-Vegetated MRC Basin 1	Y	Off-Site	1.17	6,593	12,601	0.00		No	1.0	6,593		
001	2	Non-Vegetated MRC Basin 2	Y	Off-Site	3.85	37,308	28,078	0.00		No	1.0	13,242		
											Totals:			

INFILTRATION & ET CREDITS (CF):	
MANAGED RELEASE CREDIT (CF):	**43,901**
NET CHANGE IN VOLUME TO MANAGE (CF):	**24,064**
TOTAL CREDITS (CF):	**43,901**

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: 141 Independence Lane

Instructions | General | Volume | *Rate* | Quality

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	**3.25**	Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):	**4.77**	Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):	**6.62**	Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):	**7.53**	Alternative 100-Year 24-Hour Storm Event (in):	

☑ **Report Summary of Peak Rates Only**

Attach model input and output data or other calculations to support the rates reported below.

	Peak Discharge Rates (cfs)			
	Pre-Construction	**Post-Construction**	**Net Change**	
2-Year Storm:	**16.83**	**11.05**	**-5.78**	***Rate Control Satisfied***
10-Year Storm:	**26.45**	**17.40**	**-9.05**	***Rate Control Satisfied***
50-Year Storm:	**40.79**	**35.31**	**-5.48**	***Rate Control Satisfied***
100-Year Storm:	**56.52**	**52.53**	**-3.99**	***Rate Control Satisfied***

Water Quality

Project: 141 Independence Lane

PRINT

Instructions | General | Volume | Rate | *Quality*

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Pervious as Meadow	Grassland/Herbaceous	1.23	C	4,044	48.8	0.22	2.30	12.32	0.06	0.58
Pervious as Meadow	Grassland/Herbaceous	5.95	D	28,283	48.8	0.22	2.30	86.18	0.39	4.06
	TOTAL (ACRES):	**7.17**					**TOTALS:**	**98.51**	**0.44**	**4.64**

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	Grassland/Herbaceous	1.10	C	3,612	48.8	0.22	2.30	11.01	0.05	0.52
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	Grassland/Herbaceous	1.52	D	7,224	48.8	0.22	2.30	22.01	0.10	1.04
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	0.77	D	4,001	78.0	0.25	1.25	19.49	0.06	0.31

Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	3.79	N/A	41,554	65.0	0.29	2.05	168.66	0.75	5.32
	TOTAL (ACRES):	**7.17**					**TOTALS:**	**221.17**	**0.96**	**7.19**

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS): | **122.66** | **0.52** | **2.55**

☑ **Characterize Undetained Areas (for Untreated Stormwater)** *No. Rows:* **3**

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	**1.09556933**	**C**	**71**	**0.817**	**0.91**	**3,612**
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	**0.728466483**	**D**	**78**	**0.564**	**1.31**	**3,464**
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	**0.324012856**	**N/A**	**98**	**0.041**	**3.02**	**3,549**

Non-Structural BMP Water Quality Credits:

☑ Pervious Undetained Area Credit

☐ Other (attach calculations)

TSS	TP	TN

Structural BMP Water Quality Credits:

☑ *Use default BMP Outflows and Median BMP Outflow Concentrations*

DP No.	BMP No.	BMP Name	MRC?	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
001	1	Non-Vegetated MRC Basin 1	Y	1.17	6,593			6,593	-	-	-	-	-	-
001	2	Non-Vegetated MRC Basin 2	Y	3.85	37,308			37,308	-	-	-	-	-	-

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):	0.00	0.00	0.00
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	35.97	0.16	1.47
NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):	5.39	0.02	0.15
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	30.58	0.14	1.32
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	98.51	0.44	4.64

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Trey A. Shellenberger, EIT	5/4/2023
Spreadsheet User Name	Date

Township

Pre-Development	1yr (cfs)	2yr (cfs)	5yr (cfs)	10yr (cfs)	25yr (cfs)	50yr (cfs)	100yr (cfs)
Off-Site POI 001	7.68	8.47	10.80	13.15	15.88	21.49	34.26
On-Site POI 001	6.47	8.36	11.07	13.30	16.53	19.30	22.26
Allowable Discharge Rate	14.94	19.16	24.22	29.18	38.02	53.56	
Post(BMP+Undetained)							
POI 001		10.11	13.33	15.78	23.43	34.55	50.78
Reduction Summary	1 yr	2yr - 1yr	5yr - 2yr	10yr - 5yr	25yr - 10yr	50yr - 25yr	100yr - 50yr
POI 001		-4.83	-5.83	-8.44	-5.75	-3.47	-2.78

NPDES

Pre-Development	2yr (cfs)	10yr (cfs)	50yr (cfs)	100yr (cfs)
POI 001	16.83	26.45	40.79	56.52
Post(BMP+Undetained)				
POI 001	10.11	15.78	34.55	50.78
Reduction Summary				
POI 001	-6.72	-10.67	-6.24	-5.74

Runoff Calculation CN Worksheets

Project: **PAC250095.00: Hanover Industrial - Chalfont**

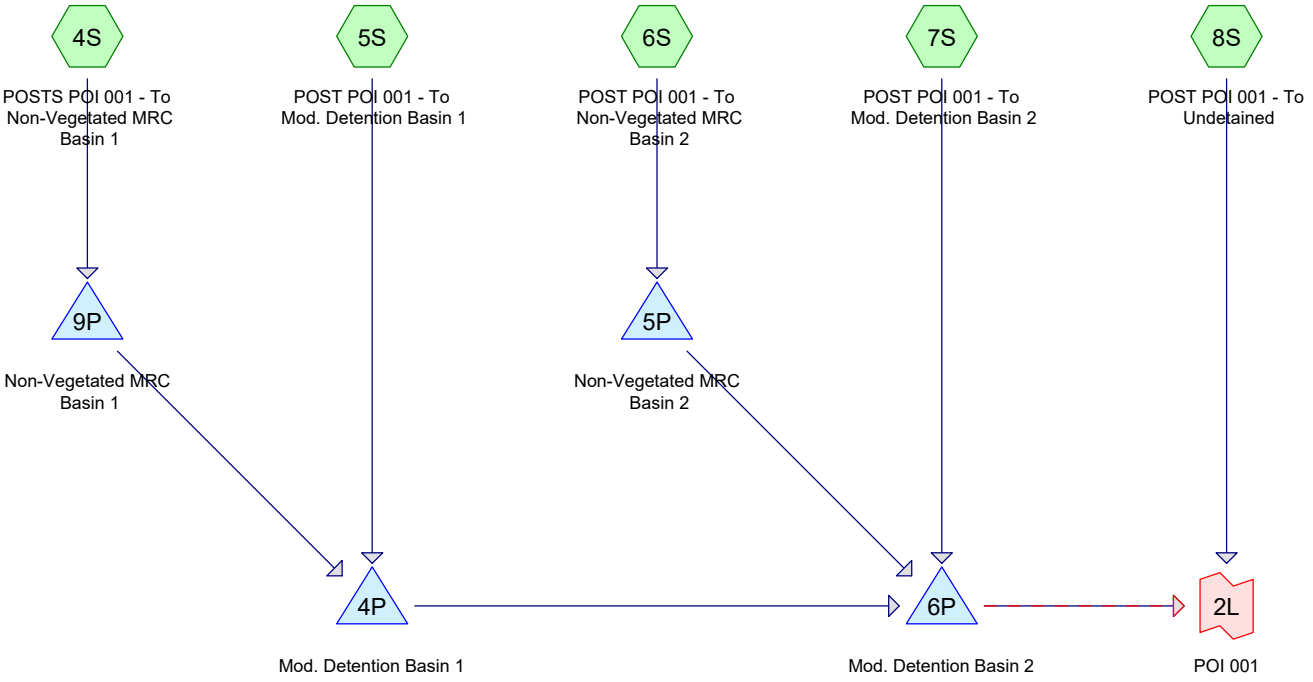
Description: **141 Independence Lane Mod. Detention Basin 2 Post-Development**

$Q = [(P - 0.2S)^2 / (P + 0.8S)] * 1/12 * 43{,}560$, *where* $S = (1000/CN) - 10$ *and:*

P = 3.24

Catchment Areas

	HSG C / CN		HSG D / CN				
Description	Urban Industrial, 72% Imp, Good Condition (91)	Meadow (71)	Urban Industrial, 72% Imp, Good Condition (93)	Meadow (78)	Total Area (Ac)	Composite CN	Runoff Q (cuft)
POST POI 001 - To Mod. Detention Basin 2	0.60	0.31	2.81	0.11	3.83	**90**	31,925
Totals:	0.60	0.31	2.81	0.11	3.83		31,925



Subcat Reach Pond Link

Routing Diagram for PAC250095.00_Hanover Warehouses Lot 3 Access
Prepared by Bohler Engineering, PC, Printed 3/25/2026
HydroCAD® 10.20-7a s/n 03478 © 2025 HydroCAD Software Solutions LLC

Summary for Subcatchment 4S: POSTS POI 001 - To Non-Vegetated MRC Basin 1

Runoff = 5.34 cfs @ 11.97 hrs, Volume= 11,680 cf, Depth= 1.70"
Routed to Pond 9P : Non-Vegetated MRC Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.70"

	Area (sf)	CN	Description
*	31,334	93	Urban industrial, 72% imp, HSG D
*	17,073	80	>75% Grass cover, Good, HSG D
*	14,913	78	Meadow, non-grazed, HSG D
*	19,103	98	Impervious
	82,423		Weighted Average
	40,760		49.45% Pervious Area
	41,663		50.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 5S: POST POI 001 - To Mod. Detention Basin 1

Runoff = 34.91 cfs @ 11.97 hrs, Volume= 74,890 cf, Depth= 1.87"
Routed to Pond 4P : Mod. Detention Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.70"

	Area (sf)	CN	Description
*	37,741	91	Urban industrial, 72% imp, HSG C
*	390,706	93	Urban industrial, 72% imp, HSG D
*	24,652	71	Meadow, non-grazed, HSG C
*	14,659	78	Meadow, non-grazed, HSG D
*	13,693	98	Impervious
	481,451		Weighted Average
	159,276		33.08% Pervious Area
	322,175		66.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 6S: POST POI 001 - To Non-Vegetated MRC Basin 2

Runoff = 16.22 cfs @ 11.97 hrs, Volume= 37,108 cf, Depth= 2.11"
Routed to Pond 5P : Non-Vegetated MRC Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.70"

	Area (sf)	CN	Description
*	42,859	93	Urban industrial, 72% imp, HSG D
*	17,360	80	>75% Grass cover, Good, HSG D
*	18,419	78	Meadow, non-grazed, HSG D
*	132,047	98	Impervious
	210,685		Weighted Average
	47,780		22.68% Pervious Area
	162,905		77.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 7S: POST POI 001 - To Mod. Detention Basin 2

Runoff = 11.74 cfs @ 11.97 hrs, Volume= 25,059 cf, Depth= 1.80"
Routed to Pond 6P : Mod. Detention Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.70"

	Area (sf)	CN	Description
*	26,331	91	Urban industrial, 72% imp, HSG C
*	122,517	93	Urban industrial, 72% imp, HSG D
*	13,397	71	Meadow, non-grazed, HSG C
*	4,754	78	Meadow, non-grazed, HSG D
	166,999		Weighted Average
	59,828		35.83% Pervious Area
	107,171		64.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 8S: POST POI 001 - To Undetained

Runoff = 0.54 cfs @ 11.98 hrs, Volume= 1,140 cf, Depth= 1.08"
Routed to Link 2L : POI 001

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-yr Rainfall=2.70"

	Area (sf)	CN	Description
*	3,806	91	Urban industrial, 72% imp, HSG C
*	4,088	71	Meadow, non-grazed, HSG C
*	4,808	78	Meadow, non-grazed, HSG D
	12,702		Weighted Average
	9,962		78.43% Pervious Area
	2,740		21.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Pond 4P: Mod. Detention Basin 1

Inflow Area = 563,874 sf, 64.52% Impervious, Inflow Depth = 1.59" for 1-yr event
Inflow = 34.91 cfs @ 11.97 hrs, Volume= 74,890 cf
Outflow = 9.21 cfs @ 12.11 hrs, Volume= 74,890 cf, Atten= 74%, Lag= 8.1 min
Primary = 9.21 cfs @ 12.11 hrs, Volume= 74,890 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 289.06' @ 12.11 hrs Surf.Area= 15,529 sf Storage= 21,457 cf

Plug-Flow detention time= 18.0 min calculated for 74,886 cf (100% of inflow)
Center-of-Mass det. time= 18.0 min (815.1 - 797.2)

Volume	Invert	Avail.Storage	Storage Description
#1	286.00'	164,860 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
286.00	111	0	0
287.00	3,780	1,946	1,946
288.00	9,192	6,486	8,432
289.00	15,171	12,182	20,613
290.00	21,678	18,425	39,038
291.00	26,906	24,292	63,330
292.00	33,181	30,044	93,373
293.00	39,698	36,440	129,813
293.83	44,754	35,048	164,860

Device	Routing	Invert	Outlet Devices
#1	Primary	283.70'	**42.0" Round Culvert** L= 103.0' Ke= 0.700 Inlet / Outlet Invert= 283.70' / 282.43' S= 0.0123 '/' Cc= 0.900 n= 0.012, Flow Area= 9.62 sf
#2	Device 1	291.28'	**24.0" x 48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	286.00'	**15.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.75'	**36.0" W x 57.0" H Vert. Doghouse Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=9.21 cfs @ 12.11 hrs HW=289.05' TW=282.11' (Dynamic Tailwater)
└─**1=Culvert** (Passes 9.21 cfs of 77.61 cfs potential flow)
  ├─**2=Grate** (Controls 0.00 cfs)
  ├─**3=Orifice/Grate** (Orifice Controls 9.21 cfs @ 7.51 fps)
  └─**4=Doghouse Grate** (Controls 0.00 cfs)

Summary for Pond 5P: Non-Vegetated MRC Basin 2

Inflow Area = 210,685 sf, 77.32% Impervious, Inflow Depth = 2.11" for 1-yr event
Inflow = 16.22 cfs @ 11.97 hrs, Volume= 37,108 cf
Outflow = 0.93 cfs @ 12.77 hrs, Volume= 33,216 cf, Atten= 94%, Lag= 48.3 min
Primary = 0.93 cfs @ 12.77 hrs, Volume= 33,216 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 285.87' @ 12.77 hrs Surf.Area= 56,156 sf Storage= 23,459 cf

Plug-Flow detention time= 1,798.2 min calculated for 33,214 cf (90% of inflow)
Center-of-Mass det. time= 1,744.5 min (2,515.7 - 771.2)

Volume	Invert	Avail.Storage	Storage Description
#1	283.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 28,078 cf Overall x 0.0% Voids
#2	284.50'	23,560 cf	**Media Storage (Prismatic)** Listed below (Recalc) 84,234 cf Overall - 25,333 cf Embedded = 58,901 cf x 40.0% Voids
#3	287.50'	28,078 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 70,195 cf Overall x 40.0% Voids
#4	284.50'	12,514 cf	**60.0"W x 34.0"H x 265.00'L Parabolic Arch** x 5 Inside #2 14,133 cf Overall - 2.0" Wall Thickness = 12,514 cf
#5	284.50'	9,917 cf	**60.0"W x 34.0"H x 210.00'L Parabolic Arch** x 5 Inside #2 11,200 cf Overall - 2.0" Wall Thickness = 9,917 cf
		74,069 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
283.50	28,078	0	0
284.50	28,078	28,078	28,078

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
284.50	28,078	0	0
287.50	28,078	84,234	84,234

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
287.50	28,078	0	0
290.00	28,078	70,195	70,195

Device	Routing	Invert	Outlet Devices
#1	Primary	283.75'	**24.0" Round Culvert** L= 116.0' Ke= 0.700 Inlet / Outlet Invert= 283.75' / 283.00' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	285.25'	**10.0" W x 4.0" H Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	284.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	283.50'	**6.0" Vert. Perforated Underdrain** C= 0.600

			Limited to weir flow at low heads
#5	Device 1	287.50'	**4.0' long Bypass Weir** 2 End Contraction(s) 1.0' Crest Height
#6	Device 2	284.50'	**30.0" Vert. Chamber Connection** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=0.93 cfs @ 12.77 hrs HW=285.87' TW=282.49' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.93 cfs of 14.14 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 0.90 cfs @ 3.23 fps)
    - **6=Chamber Connection** (Passes 0.90 cfs of 10.49 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.03 cfs @ 5.55 fps)
    - **4=Perforated Underdrain** (Passes 0.03 cfs of 1.11 cfs potential flow)
  - **5=Bypass Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Mod. Detention Basin 2

Inflow Area = 941,558 sf, 67.33% Impervious, Inflow Depth > 1.70" for 1-yr event
Inflow = 20.42 cfs @ 11.98 hrs, Volume= 133,165 cf
Outflow = 8.95 cfs @ 12.76 hrs, Volume= 133,166 cf, Atten= 56%, Lag= 46.8 min
Primary = 8.95 cfs @ 12.76 hrs, Volume= 133,166 cf
Routed to Link 2L : POI 001
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 2L : POI 001

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 282.49' @ 12.76 hrs Surf.Area= 13,090 sf Storage= 22,222 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 35.6 min (1,272.2 - 1,236.5)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	68,907 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2A	279.75'	5,015 cf	**22.75'W x 156.27'L x 5.50'H Field A** 19,553 cf Overall - 7,016 cf Embedded = 12,537 cf x 40.0% Voids
#3A	280.50'	7,016 cf	**ADS_StormTech MC-3500 d +Cap** x 63 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 63 Chambers in 3 Rows Cap Storage= 14.9 cf x 2 x 3 rows = 89.4 cf
		80,938 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	4,593	0	0
281.00	7,165	2,940	2,940
282.00	8,853	8,009	10,949
283.00	10,254	9,554	20,502
284.00	11,173	10,714	31,216
285.00	12,082	11,628	42,843
286.00	13,006	12,544	55,387
287.00	14,033	13,520	68,907

Device	Routing	Invert	Outlet Devices
#1	Primary	277.97'	**36.0" Round Culvert** L= 75.0' Ke= 0.700 Inlet / Outlet Invert= 277.97' / 276.58' S= 0.0185 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	285.14'	**24.0" x 48.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	283.00'	**30.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.50'	**4.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#6	Secondary	285.25'	**50.0' long + 3.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=8.95 cfs @ 12.76 hrs HW=282.49' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 8.95 cfs of 52.16 cfs potential flow)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=Orifice/Grate** (Orifice Controls 8.24 cfs @ 6.18 fps)
  - **4=Orifice/Grate** (Controls 0.00 cfs)
  - **5=Underdrain Orifice** (Orifice Controls 0.71 cfs @ 8.09 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=279.75' TW=0.00' (Dynamic Tailwater)
- **6=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 9P: Non-Vegetated MRC Basin 1

Inflow Area = 82,423 sf, 50.55% Impervious, Inflow Depth = 1.70" for 1-yr event
Inflow = 5.34 cfs @ 11.97 hrs, Volume= 11,680 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond 4P : Mod. Detention Basin 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 292.85' @ 24.34 hrs Surf.Area= 25,202 sf Storage= 11,680 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	290.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 12,601 cf Overall x 0.0% Voids
#2	291.50'	8,900 cf	**Media Storage (Prismatic)** Listed below (Recalc) 37,803 cf Overall - 15,552 cf Embedded = 22,251 cf x 40.0% Voids
#3	294.50'	2,520 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 6,301 cf Overall x 40.0% Voids
#4	291.50'	6,517 cf	**60.0"W x 34.0"H x 115.00'L Parabolic Arch** x 6 Inside #2 7,360 cf Overall - 2.0" Wall Thickness = 6,517 cf
#5	291.50'	5,100 cf	**60.0"W x 34.0"H x 90.00'L Parabolic Arch** x 6 Inside #2 5,760 cf Overall - 2.0" Wall Thickness = 5,100 cf
#6	291.50'	2,153 cf	**60.0"W x 34.0"H x 228.00'L Parabolic Arch** Inside #2 2,432 cf Overall - 2.0" Wall Thickness = 2,153 cf
		25,191 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
290.50	12,601	0	0
291.50	12,601	12,601	12,601

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
291.50	12,601	0	0
294.50	12,601	37,803	37,803

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
294.50	12,601	0	0
295.00	12,601	6,301	6,301

Device	Routing	Invert	Outlet Devices
#1	Primary	290.50'	**18.0" Round Culvert** L= 87.0' Ke= 0.700 Inlet / Outlet Invert= 290.50' / 288.00' S= 0.0287 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	293.00'	**1.0" Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	294.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	290.50'	**4.0" Vert. Perforated Underdrain** C= 0.600 Limited to weir flow at low heads
#5	Device 1	294.50'	**3.0' long Bypass Weir** 2 End Contraction(s) 0.5' Crest Height
#6	Device 2	291.50'	**12.0" Vert. Chamber Connection** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=290.50' TW=286.00' (Dynamic Tailwater)
- **1=Culvert** (Controls 0.00 cfs)
- **2=Weir Orifice** (Controls 0.00 cfs)
  - **6=Chamber Connection** (Controls 0.00 cfs)
- **3=Underdrain Orifice** (Controls 0.00 cfs)
  - **4=Perforated Underdrain** (Controls 0.00 cfs)
- **5=Bypass Weir** (Controls 0.00 cfs)

Summary for Link 2L: POI 001

Inflow Area = 954,260 sf, 66.72% Impervious, Inflow Depth > 1.69" for 1-yr event
Inflow = 8.99 cfs @ 12.76 hrs, Volume= 134,306 cf
Primary = 8.99 cfs @ 12.76 hrs, Volume= 134,306 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: POSTS POI 001 - To Non-Vegetated MRC Basin 1

Runoff = 2.83 cfs @ 1.12 hrs, Volume= 3,528 cf, Depth= 0.51"
Routed to Pond 9P : Non-Vegetated MRC Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2 Inch MRC Rainfall=1.20"

	Area (sf)	CN	Description
*	31,334	93	Urban industrial, 72% imp, HSG D
*	17,073	80	>75% Grass cover, Good, HSG D
*	14,913	78	Meadow, non-grazed, HSG D
*	19,103	98	Impervious
	82,423		Weighted Average
	40,760		49.45% Pervious Area
	41,663		50.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 5S: POST POI 001 - To Mod. Detention Basin 1

Runoff = 19.46 cfs @ 1.12 hrs, Volume= 22,820 cf, Depth= 0.57"
Routed to Pond 4P : Mod. Detention Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2 Inch MRC Rainfall=1.20"

	Area (sf)	CN	Description
*	37,741	91	Urban industrial, 72% imp, HSG C
*	390,706	93	Urban industrial, 72% imp, HSG D
*	24,652	71	Meadow, non-grazed, HSG C
*	14,659	78	Meadow, non-grazed, HSG D
*	13,693	98	Impervious
	481,451		Weighted Average
	159,276		33.08% Pervious Area
	322,175		66.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 6S: POST POI 001 - To Non-Vegetated MRC Basin 2

Runoff = 10.58 cfs @ 1.11 hrs, Volume= 13,430 cf, Depth= 0.76"
Routed to Pond 5P : Non-Vegetated MRC Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2 Inch MRC Rainfall=1.20"

	Area (sf)	CN	Description
*	42,859	93	Urban industrial, 72% imp, HSG D
*	17,360	80	>75% Grass cover, Good, HSG D
*	18,419	78	Meadow, non-grazed, HSG D
*	132,047	98	Impervious
	210,685		Weighted Average
	47,780		22.68% Pervious Area
	162,905		77.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 7S: POST POI 001 - To Mod. Detention Basin 2

Runoff = 6.36 cfs @ 1.12 hrs, Volume= 7,429 cf, Depth= 0.53"
Routed to Pond 6P : Mod. Detention Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2 Inch MRC Rainfall=1.20"

	Area (sf)	CN	Description
*	26,331	91	Urban industrial, 72% imp, HSG C
*	122,517	93	Urban industrial, 72% imp, HSG D
*	13,397	71	Meadow, non-grazed, HSG C
*	4,754	78	Meadow, non-grazed, HSG D
	166,999		Weighted Average
	59,828		35.83% Pervious Area
	107,171		64.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 8S: POST POI 001 - To Undetained

Runoff = 0.17 cfs @ 1.13 hrs, Volume= 218 cf, Depth= 0.21"
Routed to Link 2L : POI 001

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr 1.2 Inch MRC Rainfall=1.20"

	Area (sf)	CN	Description
*	3,806	91	Urban industrial, 72% imp, HSG C
*	4,088	71	Meadow, non-grazed, HSG C
*	4,808	78	Meadow, non-grazed, HSG D
	12,702		Weighted Average
	9,962		78.43% Pervious Area
	2,740		21.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Pond 4P: Mod. Detention Basin 1

Inflow Area = 563,874 sf, 64.52% Impervious, Inflow Depth = 0.49" for 1.2 Inch MRC event
Inflow = 19.46 cfs @ 1.12 hrs, Volume= 22,820 cf
Outflow = 7.10 cfs @ 1.27 hrs, Volume= 22,820 cf, Atten= 64%, Lag= 9.1 min
Primary = 7.10 cfs @ 1.27 hrs, Volume= 22,820 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 288.07' @ 1.27 hrs Surf.Area= 9,603 sf Storage= 9,078 cf

Plug-Flow detention time= 15.3 min calculated for 22,818 cf (100% of inflow)
Center-of-Mass det. time= 15.3 min (90.4 - 75.1)

Volume	Invert	Avail.Storage	Storage Description
#1	286.00'	164,860 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
286.00	111	0	0
287.00	3,780	1,946	1,946
288.00	9,192	6,486	8,432
289.00	15,171	12,182	20,613
290.00	21,678	18,425	39,038
291.00	26,906	24,292	63,330
292.00	33,181	30,044	93,373
293.00	39,698	36,440	129,813
293.83	44,754	35,048	164,860

Device	Routing	Invert	Outlet Devices
#1	Primary	283.70'	**42.0" Round Culvert** L= 103.0' Ke= 0.700 Inlet / Outlet Invert= 283.70' / 282.43' S= 0.0123 '/' Cc= 0.900 n= 0.012, Flow Area= 9.62 sf
#2	Device 1	291.28'	**24.0" x 48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	286.00'	**15.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.75'	**36.0" W x 57.0" H Vert. Doghouse Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.10 cfs @ 1.27 hrs HW=288.07' TW=281.30' (Dynamic Tailwater)
└─**1=Culvert** (Passes 7.10 cfs of 66.15 cfs potential flow)
  ├─**2=Grate** (Controls 0.00 cfs)
  ├─**3=Orifice/Grate** (Orifice Controls 7.10 cfs @ 5.79 fps)
  └─**4=Doghouse Grate** (Controls 0.00 cfs)

Summary for Pond 5P: Non-Vegetated MRC Basin 2

Inflow Area = 210,685 sf, 77.32% Impervious, Inflow Depth = 0.76" for 1.2 Inch MRC event
Inflow = 10.58 cfs @ 1.11 hrs, Volume= 13,430 cf
Outflow = 0.03 cfs @ 2.17 hrs, Volume= 10,671 cf, Atten= 100%, Lag= 63.5 min
Primary = 0.03 cfs @ 2.17 hrs, Volume= 10,671 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 285.26' @ 2.17 hrs Surf.Area= 56,156 sf Storage= 13,339 cf

Plug-Flow detention time= 4,890.6 min calculated for 10,671 cf (79% of inflow)
Center-of-Mass det. time= 4,883.8 min (4,955.3 - 71.6)

Volume	Invert	Avail.Storage	Storage Description
#1	283.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 28,078 cf Overall x 0.0% Voids
#2	284.50'	23,560 cf	**Media Storage (Prismatic)** Listed below (Recalc) 84,234 cf Overall - 25,333 cf Embedded = 58,901 cf x 40.0% Voids
#3	287.50'	28,078 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 70,195 cf Overall x 40.0% Voids
#4	284.50'	12,514 cf	**60.0"W x 34.0"H x 265.00'L Parabolic Arch** x 5 Inside #2 14,133 cf Overall - 2.0" Wall Thickness = 12,514 cf
#5	284.50'	9,917 cf	**60.0"W x 34.0"H x 210.00'L Parabolic Arch** x 5 Inside #2 11,200 cf Overall - 2.0" Wall Thickness = 9,917 cf
		74,069 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
283.50	28,078	0	0
284.50	28,078	28,078	28,078

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
284.50	28,078	0	0
287.50	28,078	84,234	84,234

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
287.50	28,078	0	0
290.00	28,078	70,195	70,195

Device	Routing	Invert	Outlet Devices
#1	Primary	283.75'	**24.0" Round Culvert** L= 116.0' Ke= 0.700 Inlet / Outlet Invert= 283.75' / 283.00' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	285.25'	**10.0" W x 4.0" H Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	284.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	283.50'	**6.0" Vert. Perforated Underdrain** C= 0.600

			Limited to weir flow at low heads
#5	Device 1	287.50'	**4.0' long Bypass Weir** 2 End Contraction(s) 1.0' Crest Height
#6	Device 2	284.50'	**30.0" Vert. Chamber Connection** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=0.03 cfs @ 2.17 hrs HW=285.26' TW=281.30' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.03 cfs of 9.32 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 0.00 cfs @ 0.33 fps)
    - **6=Chamber Connection** (Passes 0.00 cfs of 0.62 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.02 cfs @ 4.08 fps)
    - **4=Perforated Underdrain** (Passes 0.02 cfs of 0.82 cfs potential flow)
  - **5=Bypass Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Mod. Detention Basin 2

Inflow Area = 941,558 sf, 67.33% Impervious, Inflow Depth > 0.52" for 1.2 Inch MRC event
Inflow = 12.56 cfs @ 1.13 hrs, Volume= 40,920 cf
Outflow = 6.09 cfs @ 1.75 hrs, Volume= 40,922 cf, Atten= 52%, Lag= 37.3 min
Primary = 6.09 cfs @ 1.75 hrs, Volume= 40,922 cf
Routed to Link 2L : POI 001
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 2L : POI 001

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 281.58' @ 1.75 hrs Surf.Area= 11,703 sf Storage= 11,677 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 24.5 min (1,380.9 - 1,356.4)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	68,907 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2A	279.75'	5,015 cf	**22.75'W x 156.27'L x 5.50'H Field A** 19,553 cf Overall - 7,016 cf Embedded = 12,537 cf x 40.0% Voids
#3A	280.50'	7,016 cf	**ADS_StormTech MC-3500 d +Cap** x 63 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 63 Chambers in 3 Rows Cap Storage= 14.9 cf x 2 x 3 rows = 89.4 cf
		80,938 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	4,593	0	0
281.00	7,165	2,940	2,940
282.00	8,853	8,009	10,949
283.00	10,254	9,554	20,502
284.00	11,173	10,714	31,216
285.00	12,082	11,628	42,843
286.00	13,006	12,544	55,387
287.00	14,033	13,520	68,907

Device	Routing	Invert	Outlet Devices
#1	Primary	277.97'	**36.0" Round Culvert** L= 75.0' Ke= 0.700 Inlet / Outlet Invert= 277.97' / 276.58' S= 0.0185 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	285.14'	**24.0" x 48.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	283.00'	**30.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.50'	**4.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#6	Secondary	285.25'	**50.0' long + 3.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=6.09 cfs @ 1.75 hrs HW=281.58' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 6.09 cfs of 43.65 cfs potential flow)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=Orifice/Grate** (Orifice Controls 5.51 cfs @ 4.13 fps)
  - **4=Orifice/Grate** (Controls 0.00 cfs)
  - **5=Underdrain Orifice** (Orifice Controls 0.58 cfs @ 6.66 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=279.75' TW=0.00' (Dynamic Tailwater)
- **6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: Non-Vegetated MRC Basin 1

Inflow Area = 82,423 sf, 50.55% Impervious, Inflow Depth = 0.51" for 1.2 Inch MRC event
Inflow = 2.83 cfs @ 1.12 hrs, Volume= 3,528 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Pond 4P : Mod. Detention Basin 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 291.89' @ 2.34 hrs Surf.Area= 25,202 sf Storage= 3,528 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	290.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 12,601 cf Overall x 0.0% Voids
#2	291.50'	8,900 cf	**Media Storage (Prismatic)** Listed below (Recalc) 37,803 cf Overall - 15,552 cf Embedded = 22,251 cf x 40.0% Voids
#3	294.50'	2,520 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 6,301 cf Overall x 40.0% Voids
#4	291.50'	6,517 cf	**60.0"W x 34.0"H x 115.00'L Parabolic Arch** x 6 Inside #2 7,360 cf Overall - 2.0" Wall Thickness = 6,517 cf
#5	291.50'	5,100 cf	**60.0"W x 34.0"H x 90.00'L Parabolic Arch** x 6 Inside #2 5,760 cf Overall - 2.0" Wall Thickness = 5,100 cf
#6	291.50'	2,153 cf	**60.0"W x 34.0"H x 228.00'L Parabolic Arch** Inside #2 2,432 cf Overall - 2.0" Wall Thickness = 2,153 cf
		25,191 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
290.50	12,601	0	0
291.50	12,601	12,601	12,601

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
291.50	12,601	0	0
294.50	12,601	37,803	37,803

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
294.50	12,601	0	0
295.00	12,601	6,301	6,301

Device	Routing	Invert	Outlet Devices
#1	Primary	290.50'	**18.0" Round Culvert** L= 87.0' Ke= 0.700 Inlet / Outlet Invert= 290.50' / 288.00' S= 0.0287 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	293.00'	**1.0" Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	294.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	290.50'	**4.0" Vert. Perforated Underdrain** C= 0.600 Limited to weir flow at low heads
#5	Device 1	294.50'	**3.0' long Bypass Weir** 2 End Contraction(s) 0.5' Crest Height
#6	Device 2	291.50'	**12.0" Vert. Chamber Connection** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=290.50' TW=286.00' (Dynamic Tailwater)
- **1=Culvert** (Controls 0.00 cfs)
- **2=Weir Orifice** (Controls 0.00 cfs)
  - **6=Chamber Connection** (Controls 0.00 cfs)
- **3=Underdrain Orifice** (Controls 0.00 cfs)
  - **4=Perforated Underdrain** (Controls 0.00 cfs)
- **5=Bypass Weir** (Controls 0.00 cfs)

Summary for Link 2L: POI 001

Inflow Area = 954,260 sf, 66.72% Impervious, Inflow Depth > 0.52" for 1.2 Inch MRC event
Inflow = 6.12 cfs @ 1.75 hrs, Volume= 41,140 cf
Primary = 6.12 cfs @ 1.75 hrs, Volume= 41,140 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: POSTS POI 001 - To Non-Vegetated MRC Basin 1

Runoff = 6.79 cfs @ 11.97 hrs, Volume= 14,932 cf, Depth= 2.17"
Routed to Pond 9P : Non-Vegetated MRC Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	31,334	93	Urban industrial, 72% imp, HSG D
*	17,073	80	>75% Grass cover, Good, HSG D
*	14,913	78	Meadow, non-grazed, HSG D
*	19,103	98	Impervious
	82,423		Weighted Average
	40,760		49.45% Pervious Area
	41,663		50.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 5S: POST POI 001 - To Mod. Detention Basin 1

Runoff = 43.72 cfs @ 11.97 hrs, Volume= 94,981 cf, Depth= 2.37"
Routed to Pond 4P : Mod. Detention Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	37,741	91	Urban industrial, 72% imp, HSG C
*	390,706	93	Urban industrial, 72% imp, HSG D
*	24,652	71	Meadow, non-grazed, HSG C
*	14,659	78	Meadow, non-grazed, HSG D
*	13,693	98	Impervious
	481,451		Weighted Average
	159,276		33.08% Pervious Area
	322,175		66.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 6S: POST POI 001 - To Non-Vegetated MRC Basin 2

Runoff = 19.97 cfs @ 11.97 hrs, Volume= 46,037 cf, Depth= 2.62"
Routed to Pond 5P : Non-Vegetated MRC Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	42,859	93	Urban industrial, 72% imp, HSG D
*	17,360	80	>75% Grass cover, Good, HSG D
*	18,419	78	Meadow, non-grazed, HSG D
*	132,047	98	Impervious
	210,685		Weighted Average
	47,780		22.68% Pervious Area
	162,905		77.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 7S: POST POI 001 - To Mod. Detention Basin 2

Runoff = 14.77 cfs @ 11.97 hrs, Volume= 31,924 cf, Depth= 2.29"
Routed to Pond 6P : Mod. Detention Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	26,331	91	Urban industrial, 72% imp, HSG C
*	122,517	93	Urban industrial, 72% imp, HSG D
*	13,397	71	Meadow, non-grazed, HSG C
*	4,754	78	Meadow, non-grazed, HSG D
	166,999		Weighted Average
	59,828		35.83% Pervious Area
	107,171		64.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 8S: POST POI 001 - To Undetained

Runoff = 0.75 cfs @ 11.98 hrs, Volume= 1,557 cf, Depth= 1.47"
Routed to Link 2L : POI 001

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-yr Rainfall=3.24"

	Area (sf)	CN	Description
*	3,806	91	Urban industrial, 72% imp, HSG C
*	4,088	71	Meadow, non-grazed, HSG C
*	4,808	78	Meadow, non-grazed, HSG D
	12,702		Weighted Average
	9,962		78.43% Pervious Area
	2,740		21.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Pond 4P: Mod. Detention Basin 1

Inflow Area = 563,874 sf, 64.52% Impervious, Inflow Depth = 2.06" for 2-yr event
Inflow = 43.72 cfs @ 11.97 hrs, Volume= 96,951 cf
Outflow = 10.00 cfs @ 12.12 hrs, Volume= 96,950 cf, Atten= 77%, Lag= 8.9 min
Primary = 10.00 cfs @ 12.12 hrs, Volume= 96,950 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 289.49' @ 12.12 hrs Surf.Area= 18,365 sf Storage= 28,842 cf

Plug-Flow detention time= 21.6 min calculated for 96,945 cf (100% of inflow)
Center-of-Mass det. time= 21.5 min (862.5 - 841.0)

Volume	Invert	Avail.Storage	Storage Description
#1	286.00'	164,860 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
286.00	111	0	0
287.00	3,780	1,946	1,946
288.00	9,192	6,486	8,432
289.00	15,171	12,182	20,613
290.00	21,678	18,425	39,038
291.00	26,906	24,292	63,330
292.00	33,181	30,044	93,373
293.00	39,698	36,440	129,813
293.83	44,754	35,048	164,860

Device	Routing	Invert	Outlet Devices
#1	Primary	283.70'	**42.0" Round Culvert** L= 103.0' Ke= 0.700 Inlet / Outlet Invert= 283.70' / 282.43' S= 0.0123 '/' Cc= 0.900 n= 0.012, Flow Area= 9.62 sf
#2	Device 1	291.28'	**24.0" x 48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	286.00'	**15.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.75'	**36.0" W x 57.0" H Vert. Doghouse Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.00 cfs @ 12.12 hrs HW=289.49' TW=282.46' (Dynamic Tailwater)
└**1=Culvert** (Passes 10.00 cfs of 82.17 cfs potential flow)
  ├**2=Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Orifice Controls 10.00 cfs @ 8.15 fps)
  └**4=Doghouse Grate** (Controls 0.00 cfs)

Summary for Pond 5P: Non-Vegetated MRC Basin 2

Inflow Area = 210,685 sf, 77.32% Impervious, Inflow Depth = 2.62" for 2-yr event
Inflow = 19.97 cfs @ 11.97 hrs, Volume= 46,037 cf
Outflow = 1.23 cfs @ 12.66 hrs, Volume= 42,120 cf, Atten= 94%, Lag= 41.4 min
Primary = 1.23 cfs @ 12.66 hrs, Volume= 42,120 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 286.22' @ 12.66 hrs Surf.Area= 56,156 sf Storage= 28,901 cf

Plug-Flow detention time= 1,477.9 min calculated for 42,120 cf (91% of inflow)
Center-of-Mass det. time= 1,431.6 min (2,198.8 - 767.3)

Volume	Invert	Avail.Storage	Storage Description
#1	283.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 28,078 cf Overall x 0.0% Voids
#2	284.50'	23,560 cf	**Media Storage (Prismatic)** Listed below (Recalc) 84,234 cf Overall - 25,333 cf Embedded = 58,901 cf x 40.0% Voids
#3	287.50'	28,078 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 70,195 cf Overall x 40.0% Voids
#4	284.50'	12,514 cf	**60.0"W x 34.0"H x 265.00'L Parabolic Arch** x 5 Inside #2 14,133 cf Overall - 2.0" Wall Thickness = 12,514 cf
#5	284.50'	9,917 cf	**60.0"W x 34.0"H x 210.00'L Parabolic Arch** x 5 Inside #2 11,200 cf Overall - 2.0" Wall Thickness = 9,917 cf
		74,069 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
283.50	28,078	0	0
284.50	28,078	28,078	28,078

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
284.50	28,078	0	0
287.50	28,078	84,234	84,234

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
287.50	28,078	0	0
290.00	28,078	70,195	70,195

Device	Routing	Invert	Outlet Devices
#1	Primary	283.75'	**24.0" Round Culvert** L= 116.0' Ke= 0.700 Inlet / Outlet Invert= 283.75' / 283.00' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	285.25'	**10.0" W x 4.0" H Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	284.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	283.50'	**6.0" Vert. Perforated Underdrain** C= 0.600

			Limited to weir flow at low heads
#5	Device 1	287.50'	**4.0' long Bypass Weir** 2 End Contraction(s) 1.0' Crest Height
#6	Device 2	284.50'	**30.0" Vert. Chamber Connection** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=1.23 cfs @ 12.66 hrs HW=286.22' TW=282.90' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.23 cfs of 16.18 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 1.20 cfs @ 4.31 fps)
    - **6=Chamber Connection** (Passes 1.20 cfs of 16.07 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.03 cfs @ 6.24 fps)
    - **4=Perforated Underdrain** (Passes 0.03 cfs of 1.24 cfs potential flow)
  - **5=Bypass Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Mod. Detention Basin 2

Inflow Area = 941,558 sf, 67.33% Impervious, Inflow Depth > 2.18" for 2-yr event
Inflow = 24.61 cfs @ 11.98 hrs, Volume= 170,994 cf
Outflow = 10.06 cfs @ 12.92 hrs, Volume= 170,994 cf, Atten= 59%, Lag= 56.5 min
Primary = 10.06 cfs @ 12.92 hrs, Volume= 170,994 cf
Routed to Link 2L : POI 001
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 2L : POI 001

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 282.94' @ 12.92 hrs Surf.Area= 13,722 sf Storage= 27,822 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 37.2 min (1,216.0 - 1,178.9)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	68,907 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2A	279.75'	5,015 cf	**22.75'W x 156.27'L x 5.50'H Field A** 19,553 cf Overall - 7,016 cf Embedded = 12,537 cf x 40.0% Voids
#3A	280.50'	7,016 cf	**ADS_StormTech MC-3500 d +Cap** x 63 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 63 Chambers in 3 Rows Cap Storage= 14.9 cf x 2 x 3 rows = 89.4 cf
		80,938 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	4,593	0	0
281.00	7,165	2,940	2,940
282.00	8,853	8,009	10,949
283.00	10,254	9,554	20,502
284.00	11,173	10,714	31,216
285.00	12,082	11,628	42,843
286.00	13,006	12,544	55,387
287.00	14,033	13,520	68,907

Device	Routing	Invert	Outlet Devices
#1	Primary	277.97'	**36.0" Round Culvert** L= 75.0' Ke= 0.700 Inlet / Outlet Invert= 277.97' / 276.58' S= 0.0185 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	285.14'	**24.0" x 48.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	283.00'	**30.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.50'	**4.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#6	Secondary	285.25'	**50.0' long + 3.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=10.06 cfs @ 12.92 hrs HW=282.94' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 10.06 cfs of 55.92 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  ├─**3=Orifice/Grate** (Orifice Controls 9.30 cfs @ 6.98 fps)
  ├─**4=Orifice/Grate** (Controls 0.00 cfs)
  └─**5=Underdrain Orifice** (Orifice Controls 0.76 cfs @ 8.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=279.75' TW=0.00' (Dynamic Tailwater)
└─**6=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 9P: Non-Vegetated MRC Basin 1

Inflow Area = 82,423 sf, 50.55% Impervious, Inflow Depth = 2.17" for 2-yr event
Inflow = 6.79 cfs @ 11.97 hrs, Volume= 14,932 cf
Outflow = 0.01 cfs @ 24.12 hrs, Volume= 1,970 cf, Atten= 100%, Lag= 729.2 min
Primary = 0.01 cfs @ 24.12 hrs, Volume= 1,970 cf
Routed to Pond 4P : Mod. Detention Basin 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 293.24' @ 24.12 hrs Surf.Area= 25,202 sf Storage= 14,729 cf

Plug-Flow detention time= 2,702.5 min calculated for 1,970 cf (13% of inflow)
Center-of-Mass det. time= 2,463.4 min (3,253.5 - 790.1)

Volume	Invert	Avail.Storage	Storage Description
#1	290.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 12,601 cf Overall x 0.0% Voids
#2	291.50'	8,900 cf	**Media Storage (Prismatic)** Listed below (Recalc) 37,803 cf Overall - 15,552 cf Embedded = 22,251 cf x 40.0% Voids
#3	294.50'	2,520 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 6,301 cf Overall x 40.0% Voids
#4	291.50'	6,517 cf	**60.0"W x 34.0"H x 115.00'L Parabolic Arch** x 6 Inside #2 7,360 cf Overall - 2.0" Wall Thickness = 6,517 cf
#5	291.50'	5,100 cf	**60.0"W x 34.0"H x 90.00'L Parabolic Arch** x 6 Inside #2 5,760 cf Overall - 2.0" Wall Thickness = 5,100 cf
#6	291.50'	2,153 cf	**60.0"W x 34.0"H x 228.00'L Parabolic Arch** Inside #2 2,432 cf Overall - 2.0" Wall Thickness = 2,153 cf
		25,191 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
290.50	12,601	0	0
291.50	12,601	12,601	12,601

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
291.50	12,601	0	0
294.50	12,601	37,803	37,803

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
294.50	12,601	0	0
295.00	12,601	6,301	6,301

Device	Routing	Invert	Outlet Devices
#1	Primary	290.50'	**18.0" Round Culvert** L= 87.0' Ke= 0.700 Inlet / Outlet Invert= 290.50' / 288.00' S= 0.0287 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	293.00'	**1.0" Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	294.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	290.50'	**4.0" Vert. Perforated Underdrain** C= 0.600 Limited to weir flow at low heads
#5	Device 1	294.50'	**3.0' long Bypass Weir** 2 End Contraction(s) 0.5' Crest Height
#6	Device 2	291.50'	**12.0" Vert. Chamber Connection** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.01 cfs @ 24.12 hrs HW=293.24' TW=286.25' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.01 cfs of 10.60 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 0.01 cfs @ 2.16 fps)
    - **6=Chamber Connection** (Passes 0.01 cfs of 1.86 cfs potential flow)
  - **3=Underdrain Orifice** (Controls 0.00 cfs)
    - **4=Perforated Underdrain** (Controls 0.00 cfs)
  - **5=Bypass Weir** (Controls 0.00 cfs)

Summary for Link 2L: POI 001

Inflow Area = 954,260 sf, 66.72% Impervious, Inflow Depth > 2.17" for 2-yr event
Inflow = 10.11 cfs @ 12.91 hrs, Volume= 172,551 cf
Primary = 10.11 cfs @ 12.91 hrs, Volume= 172,551 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: POSTS POI 001 - To Non-Vegetated MRC Basin 1

Runoff = 9.09 cfs @ 11.97 hrs, Volume= 20,155 cf, Depth= 2.93"
Routed to Pond 9P : Non-Vegetated MRC Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

	Area (sf)	CN	Description
*	31,334	93	Urban industrial, 72% imp, HSG D
*	17,073	80	>75% Grass cover, Good, HSG D
*	14,913	78	Meadow, non-grazed, HSG D
*	19,103	98	Impervious
	82,423		Weighted Average
	40,760		49.45% Pervious Area
	41,663		50.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 5S: POST POI 001 - To Mod. Detention Basin 1

Runoff = 57.43 cfs @ 11.97 hrs, Volume= 126,850 cf, Depth= 3.16"
Routed to Pond 4P : Mod. Detention Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

	Area (sf)	CN	Description
*	37,741	91	Urban industrial, 72% imp, HSG C
*	390,706	93	Urban industrial, 72% imp, HSG D
*	24,652	71	Meadow, non-grazed, HSG C
*	14,659	78	Meadow, non-grazed, HSG D
*	13,693	98	Impervious
	481,451		Weighted Average
	159,276		33.08% Pervious Area
	322,175		66.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 6S: POST POI 001 - To Non-Vegetated MRC Basin 2

Runoff = 25.84 cfs @ 11.97 hrs, Volume= 60,131 cf, Depth= 3.42"
Routed to Pond 5P : Non-Vegetated MRC Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

	Area (sf)	CN	Description
*	42,859	93	Urban industrial, 72% imp, HSG D
*	17,360	80	>75% Grass cover, Good, HSG D
*	18,419	78	Meadow, non-grazed, HSG D
*	132,047	98	Impervious
	210,685		Weighted Average
	47,780		22.68% Pervious Area
	162,905		77.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 7S: POST POI 001 - To Mod. Detention Basin 2

Runoff = 19.51 cfs @ 11.97 hrs, Volume= 42,849 cf, Depth= 3.08"
Routed to Pond 6P : Mod. Detention Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

	Area (sf)	CN	Description
*	26,331	91	Urban industrial, 72% imp, HSG C
*	122,517	93	Urban industrial, 72% imp, HSG D
*	13,397	71	Meadow, non-grazed, HSG C
*	4,754	78	Meadow, non-grazed, HSG D
	166,999		Weighted Average
	59,828		35.83% Pervious Area
	107,171		64.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 8S: POST POI 001 - To Undetained

Runoff = 1.08 cfs @ 11.97 hrs, Volume= 2,257 cf, Depth= 2.13"
Routed to Link 2L : POI 001

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-yr Rainfall=4.08"

	Area (sf)	CN	Description
*	3,806	91	Urban industrial, 72% imp, HSG C
*	4,088	71	Meadow, non-grazed, HSG C
*	4,808	78	Meadow, non-grazed, HSG D
	12,702		Weighted Average
	9,962		78.43% Pervious Area
	2,740		21.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Pond 4P: Mod. Detention Basin 1

Inflow Area = 563,874 sf, 64.52% Impervious, Inflow Depth = 2.85" for 5-yr event
Inflow = 57.43 cfs @ 11.97 hrs, Volume= 133,945 cf
Outflow = 11.00 cfs @ 12.14 hrs, Volume= 133,944 cf, Atten= 81%, Lag= 10.1 min
Primary = 11.00 cfs @ 12.14 hrs, Volume= 133,944 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 290.09' @ 12.14 hrs Surf.Area= 22,142 sf Storage= 40,983 cf

Plug-Flow detention time= 26.8 min calculated for 133,944 cf (100% of inflow)
Center-of-Mass det. time= 26.7 min (983.8 - 957.1)

Volume	Invert	Avail.Storage	Storage Description
#1	286.00'	164,860 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
286.00	111	0	0
287.00	3,780	1,946	1,946
288.00	9,192	6,486	8,432
289.00	15,171	12,182	20,613
290.00	21,678	18,425	39,038
291.00	26,906	24,292	63,330
292.00	33,181	30,044	93,373
293.00	39,698	36,440	129,813
293.83	44,754	35,048	164,860

Device	Routing	Invert	Outlet Devices
#1	Primary	283.70'	**42.0" Round Culvert** L= 103.0' Ke= 0.700 Inlet / Outlet Invert= 283.70' / 282.43' S= 0.0123 '/' Cc= 0.900 n= 0.012, Flow Area= 9.62 sf
#2	Device 1	291.28'	**24.0" x 48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	286.00'	**15.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.75'	**36.0" W x 57.0" H Vert. Doghouse Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.00 cfs @ 12.14 hrs HW=290.09' TW=282.99' (Dynamic Tailwater)
1=Culvert (Passes 11.00 cfs of 88.04 cfs potential flow)
2=Grate (Controls 0.00 cfs)
3=Orifice/Grate (Orifice Controls 11.00 cfs @ 8.96 fps)
4=Doghouse Grate (Controls 0.00 cfs)

Summary for Pond 5P: Non-Vegetated MRC Basin 2

Inflow Area = 210,685 sf, 77.32% Impervious, Inflow Depth = 3.42" for 5-yr event
Inflow = 25.84 cfs @ 11.97 hrs, Volume= 60,131 cf
Outflow = 1.62 cfs @ 12.63 hrs, Volume= 56,179 cf, Atten= 94%, Lag= 39.5 min
Primary = 1.62 cfs @ 12.63 hrs, Volume= 56,179 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 286.82' @ 12.63 hrs Surf.Area= 56,156 sf Storage= 37,711 cf

Plug-Flow detention time= 1,187.6 min calculated for 56,179 cf (93% of inflow)
Center-of-Mass det. time= 1,149.8 min (1,912.3 - 762.5)

Volume	Invert	Avail.Storage	Storage Description
#1	283.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 28,078 cf Overall x 0.0% Voids
#2	284.50'	23,560 cf	**Media Storage (Prismatic)** Listed below (Recalc) 84,234 cf Overall - 25,333 cf Embedded = 58,901 cf x 40.0% Voids
#3	287.50'	28,078 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 70,195 cf Overall x 40.0% Voids
#4	284.50'	12,514 cf	**60.0"W x 34.0"H x 265.00'L Parabolic Arch** x 5 Inside #2 14,133 cf Overall - 2.0" Wall Thickness = 12,514 cf
#5	284.50'	9,917 cf	**60.0"W x 34.0"H x 210.00'L Parabolic Arch** x 5 Inside #2 11,200 cf Overall - 2.0" Wall Thickness = 9,917 cf
		74,069 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
283.50	28,078	0	0
284.50	28,078	28,078	28,078

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
284.50	28,078	0	0
287.50	28,078	84,234	84,234

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
287.50	28,078	0	0
290.00	28,078	70,195	70,195

Device	Routing	Invert	Outlet Devices
#1	Primary	283.75'	**24.0" Round Culvert** L= 116.0' Ke= 0.700 Inlet / Outlet Invert= 283.75' / 283.00' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	285.25'	**10.0" W x 4.0" H Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	284.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	283.50'	**6.0" Vert. Perforated Underdrain** C= 0.600

			Limited to weir flow at low heads
#5	Device 1	287.50'	**4.0' long Bypass Weir** 2 End Contraction(s) 1.0' Crest Height
#6	Device 2	284.50'	**30.0" Vert. Chamber Connection** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=1.62 cfs @ 12.63 hrs HW=286.82' TW=283.28' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.62 cfs of 19.20 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 1.58 cfs @ 5.70 fps)
    - **6=Chamber Connection** (Passes 1.58 cfs of 24.63 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.04 cfs @ 7.27 fps)
    - **4=Perforated Underdrain** (Passes 0.04 cfs of 1.44 cfs potential flow)
  - **5=Bypass Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Mod. Detention Basin 2

Inflow Area = 941,558 sf, 67.33% Impervious, Inflow Depth > 2.97" for 5-yr event
Inflow = 30.64 cfs @ 11.98 hrs, Volume= 232,972 cf
Outflow = 13.25 cfs @ 12.61 hrs, Volume= 232,972 cf, Atten= 57%, Lag= 38.3 min
Primary = 13.25 cfs @ 12.61 hrs, Volume= 232,972 cf
Routed to Link 2L : POI 001
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 2L : POI 001

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 283.28' @ 12.61 hrs Surf.Area= 14,069 sf Storage= 32,225 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 36.8 min (1,208.1 - 1,171.4)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	68,907 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2A	279.75'	5,015 cf	**22.75'W x 156.27'L x 5.50'H Field A** 19,553 cf Overall - 7,016 cf Embedded = 12,537 cf x 40.0% Voids
#3A	280.50'	7,016 cf	**ADS_StormTech MC-3500 d +Cap** x 63 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 63 Chambers in 3 Rows Cap Storage= 14.9 cf x 2 x 3 rows = 89.4 cf
		80,938 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	4,593	0	0
281.00	7,165	2,940	2,940
282.00	8,853	8,009	10,949
283.00	10,254	9,554	20,502
284.00	11,173	10,714	31,216
285.00	12,082	11,628	42,843
286.00	13,006	12,544	55,387
287.00	14,033	13,520	68,907

Device	Routing	Invert	Outlet Devices
#1	Primary	277.97'	**36.0" Round Culvert** L= 75.0' Ke= 0.700 Inlet / Outlet Invert= 277.97' / 276.58' S= 0.0185 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	285.14'	**24.0" x 48.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	283.00'	**30.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.50'	**4.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#6	Secondary	285.25'	**50.0' long + 3.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=13.25 cfs @ 12.61 hrs HW=283.28' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 13.25 cfs of 58.64 cfs potential flow)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=Orifice/Grate** (Orifice Controls 10.04 cfs @ 7.53 fps)
  - **4=Orifice/Grate** (Orifice Controls 2.41 cfs @ 1.71 fps)
  - **5=Underdrain Orifice** (Orifice Controls 0.80 cfs @ 9.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=279.75' TW=0.00' (Dynamic Tailwater)
- **6=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 9P: Non-Vegetated MRC Basin 1

Inflow Area = 82,423 sf, 50.55% Impervious, Inflow Depth = 2.93" for 5-yr event
Inflow = 9.09 cfs @ 11.97 hrs, Volume= 20,155 cf
Outflow = 0.02 cfs @ 24.11 hrs, Volume= 7,095 cf, Atten= 100%, Lag= 728.1 min
Primary = 0.02 cfs @ 24.11 hrs, Volume= 7,095 cf
Routed to Pond 4P : Mod. Detention Basin 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 293.89' @ 24.11 hrs Surf.Area= 25,202 sf Storage= 19,336 cf

Plug-Flow detention time= 3,420.2 min calculated for 7,095 cf (35% of inflow)
Center-of-Mass det. time= 3,277.0 min (4,061.2 - 784.2)

Volume	Invert	Avail.Storage	Storage Description
#1	290.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 12,601 cf Overall x 0.0% Voids
#2	291.50'	8,900 cf	**Media Storage (Prismatic)** Listed below (Recalc) 37,803 cf Overall - 15,552 cf Embedded = 22,251 cf x 40.0% Voids
#3	294.50'	2,520 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 6,301 cf Overall x 40.0% Voids
#4	291.50'	6,517 cf	**60.0"W x 34.0"H x 115.00'L Parabolic Arch** x 6 Inside #2 7,360 cf Overall - 2.0" Wall Thickness = 6,517 cf
#5	291.50'	5,100 cf	**60.0"W x 34.0"H x 90.00'L Parabolic Arch** x 6 Inside #2 5,760 cf Overall - 2.0" Wall Thickness = 5,100 cf
#6	291.50'	2,153 cf	**60.0"W x 34.0"H x 228.00'L Parabolic Arch** Inside #2 2,432 cf Overall - 2.0" Wall Thickness = 2,153 cf
		25,191 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
290.50	12,601	0	0
291.50	12,601	12,601	12,601

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
291.50	12,601	0	0
294.50	12,601	37,803	37,803

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
294.50	12,601	0	0
295.00	12,601	6,301	6,301

Device	Routing	Invert	Outlet Devices
#1	Primary	290.50'	**18.0" Round Culvert** L= 87.0' Ke= 0.700 Inlet / Outlet Invert= 290.50' / 288.00' S= 0.0287 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	293.00'	**1.0" Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	294.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	290.50'	**4.0" Vert. Perforated Underdrain** C= 0.600 Limited to weir flow at low heads
#5	Device 1	294.50'	**3.0' long Bypass Weir** 2 End Contraction(s) 0.5' Crest Height
#6	Device 2	291.50'	**12.0" Vert. Chamber Connection** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 24.11 hrs HW=293.89' TW=286.30' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.02 cfs of 12.21 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 0.02 cfs @ 4.44 fps)
    - **6=Chamber Connection** (Passes 0.02 cfs of 3.57 cfs potential flow)
  - **3=Underdrain Orifice** (Controls 0.00 cfs)
    - **4=Perforated Underdrain** (Controls 0.00 cfs)
  - **5=Bypass Weir** (Controls 0.00 cfs)

Summary for Link 2L: POI 001

Inflow Area = 954,260 sf, 66.72% Impervious, Inflow Depth > 2.96" for 5-yr event
Inflow = 13.33 cfs @ 12.61 hrs, Volume= 235,229 cf
Primary = 13.33 cfs @ 12.61 hrs, Volume= 235,229 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: POSTS POI 001 - To Non-Vegetated MRC Basin 1

Runoff = 11.00 cfs @ 11.97 hrs, Volume= 24,550 cf, Depth= 3.57"
Routed to Pond 9P : Non-Vegetated MRC Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

	Area (sf)	CN	Description
*	31,334	93	Urban industrial, 72% imp, HSG D
*	17,073	80	>75% Grass cover, Good, HSG D
*	14,913	78	Meadow, non-grazed, HSG D
*	19,103	98	Impervious
	82,423		Weighted Average
	40,760		49.45% Pervious Area
	41,663		50.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 5S: POST POI 001 - To Mod. Detention Basin 1

Runoff = 68.68 cfs @ 11.97 hrs, Volume= 153,397 cf, Depth= 3.82"
Routed to Pond 4P : Mod. Detention Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

	Area (sf)	CN	Description
*	37,741	91	Urban industrial, 72% imp, HSG C
*	390,706	93	Urban industrial, 72% imp, HSG D
*	24,652	71	Meadow, non-grazed, HSG C
*	14,659	78	Meadow, non-grazed, HSG D
*	13,693	98	Impervious
	481,451		Weighted Average
	159,276		33.08% Pervious Area
	322,175		66.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 6S: POST POI 001 - To Non-Vegetated MRC Basin 2

Runoff = 30.68 cfs @ 11.97 hrs, Volume= 71,834 cf, Depth= 4.09"
Routed to Pond 5P : Non-Vegetated MRC Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

	Area (sf)	CN	Description
*	42,859	93	Urban industrial, 72% imp, HSG D
*	17,360	80	>75% Grass cover, Good, HSG D
*	18,419	78	Meadow, non-grazed, HSG D
*	132,047	98	Impervious
	210,685		Weighted Average
	47,780		22.68% Pervious Area
	162,905		77.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 7S: POST POI 001 - To Mod. Detention Basin 2

Runoff = 23.40 cfs @ 11.97 hrs, Volume= 51,972 cf, Depth= 3.73"
Routed to Pond 6P : Mod. Detention Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

	Area (sf)	CN	Description
*	26,331	91	Urban industrial, 72% imp, HSG C
*	122,517	93	Urban industrial, 72% imp, HSG D
*	13,397	71	Meadow, non-grazed, HSG C
*	4,754	78	Meadow, non-grazed, HSG D
	166,999		Weighted Average
	59,828		35.83% Pervious Area
	107,171		64.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 8S: POST POI 001 - To Undetained

Runoff = 1.36 cfs @ 11.97 hrs, Volume= 2,863 cf, Depth= 2.71"
Routed to Link 2L : POI 001

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-yr Rainfall=4.77"

	Area (sf)	CN	Description
*	3,806	91	Urban industrial, 72% imp, HSG C
*	4,088	71	Meadow, non-grazed, HSG C
*	4,808	78	Meadow, non-grazed, HSG D
	12,702		Weighted Average
	9,962		78.43% Pervious Area
	2,740		21.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Pond 4P: Mod. Detention Basin 1

Inflow Area = 563,874 sf, 64.52% Impervious, Inflow Depth = 3.51" for 10-yr event
Inflow = 68.68 cfs @ 11.97 hrs, Volume= 164,726 cf
Outflow = 11.68 cfs @ 12.15 hrs, Volume= 164,722 cf, Atten= 83%, Lag= 11.2 min
Primary = 11.68 cfs @ 12.15 hrs, Volume= 164,722 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 290.54' @ 12.15 hrs Surf.Area= 24,478 sf Storage= 51,399 cf

Plug-Flow detention time= 31.1 min calculated for 164,722 cf (100% of inflow)
Center-of-Mass det. time= 30.9 min (1,055.4 - 1,024.5)

Volume	Invert	Avail.Storage	Storage Description
#1	286.00'	164,860 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
286.00	111	0	0
287.00	3,780	1,946	1,946
288.00	9,192	6,486	8,432
289.00	15,171	12,182	20,613
290.00	21,678	18,425	39,038
291.00	26,906	24,292	63,330
292.00	33,181	30,044	93,373
293.00	39,698	36,440	129,813
293.83	44,754	35,048	164,860

Device	Routing	Invert	Outlet Devices
#1	Primary	283.70'	**42.0" Round Culvert** L= 103.0' Ke= 0.700 Inlet / Outlet Invert= 283.70' / 282.43' S= 0.0123 '/' Cc= 0.900 n= 0.012, Flow Area= 9.62 sf
#2	Device 1	291.28'	**24.0" x 48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	286.00'	**15.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.75'	**36.0" W x 57.0" H Vert. Doghouse Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.68 cfs @ 12.15 hrs HW=290.54' TW=283.36' (Dynamic Tailwater)
1=Culvert (Passes 11.68 cfs of 92.18 cfs potential flow)
- **2=Grate** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Orifice Controls 11.68 cfs @ 9.52 fps)
- **4=Doghouse Grate** (Controls 0.00 cfs)

Summary for Pond 5P: Non-Vegetated MRC Basin 2

Inflow Area = 210,685 sf, 77.32% Impervious, Inflow Depth = 4.09" for 10-yr event
Inflow = 30.68 cfs @ 11.97 hrs, Volume= 71,834 cf
Outflow = 1.93 cfs @ 12.62 hrs, Volume= 67,854 cf, Atten= 94%, Lag= 39.2 min
Primary = 1.93 cfs @ 12.62 hrs, Volume= 67,854 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 287.41' @ 12.62 hrs Surf.Area= 56,156 sf Storage= 45,004 cf

Plug-Flow detention time= 1,042.4 min calculated for 67,851 cf (94% of inflow)
Center-of-Mass det. time= 1,010.0 min (1,769.5 - 759.5)

Volume	Invert	Avail.Storage	Storage Description
#1	283.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 28,078 cf Overall x 0.0% Voids
#2	284.50'	23,560 cf	**Media Storage (Prismatic)** Listed below (Recalc) 84,234 cf Overall - 25,333 cf Embedded = 58,901 cf x 40.0% Voids
#3	287.50'	28,078 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 70,195 cf Overall x 40.0% Voids
#4	284.50'	12,514 cf	**60.0"W x 34.0"H x 265.00'L Parabolic Arch** x 5 Inside #2 14,133 cf Overall - 2.0" Wall Thickness = 12,514 cf
#5	284.50'	9,917 cf	**60.0"W x 34.0"H x 210.00'L Parabolic Arch** x 5 Inside #2 11,200 cf Overall - 2.0" Wall Thickness = 9,917 cf
		74,069 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
283.50	28,078	0	0
284.50	28,078	28,078	28,078

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
284.50	28,078	0	0
287.50	28,078	84,234	84,234

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
287.50	28,078	0	0
290.00	28,078	70,195	70,195

Device	Routing	Invert	Outlet Devices
#1	Primary	283.75'	**24.0" Round Culvert** L= 116.0' Ke= 0.700 Inlet / Outlet Invert= 283.75' / 283.00' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	285.25'	**10.0" W x 4.0" H Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	284.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	283.50'	**6.0" Vert. Perforated Underdrain** C= 0.600

			Limited to weir flow at low heads
#5	Device 1	287.50'	**4.0' long Bypass Weir** 2 End Contraction(s) 1.0' Crest Height
#6	Device 2	284.50'	**30.0" Vert. Chamber Connection** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=1.93 cfs @ 12.62 hrs HW=287.41' TW=283.40' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.93 cfs of 21.76 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 1.89 cfs @ 6.79 fps)
    - **6=Chamber Connection** (Passes 1.89 cfs of 30.43 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.04 cfs @ 8.15 fps)
    - **4=Perforated Underdrain** (Passes 0.04 cfs of 1.61 cfs potential flow)
  - **5=Bypass Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Mod. Detention Basin 2

Inflow Area = 941,558 sf, 67.33% Impervious, Inflow Depth > 3.63" for 10-yr event
Inflow = 35.39 cfs @ 11.97 hrs, Volume= 284,548 cf
Outflow = 15.64 cfs @ 12.40 hrs, Volume= 284,548 cf, Atten= 56%, Lag= 25.8 min
Primary = 15.64 cfs @ 12.40 hrs, Volume= 284,548 cf
Routed to Link 2L : POI 001
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 2L : POI 001

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 283.43' @ 12.40 hrs Surf.Area= 14,202 sf Storage= 34,092 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 35.7 min (1,211.3 - 1,175.7)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	68,907 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2A	279.75'	5,015 cf	**22.75'W x 156.27'L x 5.50'H Field A** 19,553 cf Overall - 7,016 cf Embedded = 12,537 cf x 40.0% Voids
#3A	280.50'	7,016 cf	**ADS_StormTech MC-3500 d +Cap** x 63 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 63 Chambers in 3 Rows Cap Storage= 14.9 cf x 2 x 3 rows = 89.4 cf
		80,938 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	4,593	0	0
281.00	7,165	2,940	2,940
282.00	8,853	8,009	10,949
283.00	10,254	9,554	20,502
284.00	11,173	10,714	31,216
285.00	12,082	11,628	42,843
286.00	13,006	12,544	55,387
287.00	14,033	13,520	68,907

Device	Routing	Invert	Outlet Devices
#1	Primary	277.97'	**36.0" Round Culvert** L= 75.0' Ke= 0.700 Inlet / Outlet Invert= 277.97' / 276.58' S= 0.0185 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	285.14'	**24.0" x 48.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	283.00'	**30.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.50'	**4.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#6	Secondary	285.25'	**50.0' long + 3.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=15.64 cfs @ 12.40 hrs HW=283.43' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 15.64 cfs of 59.74 cfs potential flow)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=Orifice/Grate** (Orifice Controls 10.33 cfs @ 7.75 fps)
  - **4=Orifice/Grate** (Orifice Controls 4.49 cfs @ 2.10 fps)
  - **5=Underdrain Orifice** (Orifice Controls 0.81 cfs @ 9.34 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=279.75' TW=0.00' (Dynamic Tailwater)
- **6=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 9P: Non-Vegetated MRC Basin 1

Inflow Area = 82,423 sf, 50.55% Impervious, Inflow Depth = 3.57" for 10-yr event
Inflow = 11.00 cfs @ 11.97 hrs, Volume= 24,550 cf
Outflow = 0.10 cfs @ 23.37 hrs, Volume= 11,329 cf, Atten= 99%, Lag= 683.8 min
Primary = 0.10 cfs @ 23.37 hrs, Volume= 11,329 cf
Routed to Pond 4P : Mod. Detention Basin 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 294.53' @ 23.37 hrs Surf.Area= 37,803 sf Storage= 22,844 cf

Plug-Flow detention time= 3,697.2 min calculated for 11,328 cf (46% of inflow)
Center-of-Mass det. time= 3,572.1 min (4,352.4 - 780.3)

Volume	Invert	Avail.Storage	Storage Description
#1	290.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 12,601 cf Overall x 0.0% Voids
#2	291.50'	8,900 cf	**Media Storage (Prismatic)** Listed below (Recalc) 37,803 cf Overall - 15,552 cf Embedded = 22,251 cf x 40.0% Voids
#3	294.50'	2,520 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 6,301 cf Overall x 40.0% Voids
#4	291.50'	6,517 cf	**60.0"W x 34.0"H x 115.00'L Parabolic Arch** x 6 Inside #2 7,360 cf Overall - 2.0" Wall Thickness = 6,517 cf
#5	291.50'	5,100 cf	**60.0"W x 34.0"H x 90.00'L Parabolic Arch** x 6 Inside #2 5,760 cf Overall - 2.0" Wall Thickness = 5,100 cf
#6	291.50'	2,153 cf	**60.0"W x 34.0"H x 228.00'L Parabolic Arch** Inside #2 2,432 cf Overall - 2.0" Wall Thickness = 2,153 cf
		25,191 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
290.50	12,601	0	0
291.50	12,601	12,601	12,601

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
291.50	12,601	0	0
294.50	12,601	37,803	37,803

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
294.50	12,601	0	0
295.00	12,601	6,301	6,301

Device	Routing	Invert	Outlet Devices
#1	Primary	290.50'	**18.0" Round Culvert** L= 87.0' Ke= 0.700 Inlet / Outlet Invert= 290.50' / 288.00' S= 0.0287 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	293.00'	**1.0" Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	294.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	290.50'	**4.0" Vert. Perforated Underdrain** C= 0.600 Limited to weir flow at low heads
#5	Device 1	294.50'	**3.0' long Bypass Weir** 2 End Contraction(s) 0.5' Crest Height
#6	Device 2	291.50'	**12.0" Vert. Chamber Connection** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.10 cfs @ 23.37 hrs HW=294.53' TW=286.39' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.10 cfs of 13.61 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 0.03 cfs @ 5.88 fps)
    - **6=Chamber Connection** (Passes 0.03 cfs of 4.68 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.00 cfs @ 0.63 fps)
    - **4=Perforated Underdrain** (Passes 0.00 cfs of 0.08 cfs potential flow)
  - **5=Bypass Weir** (Weir Controls 0.06 cfs @ 0.61 fps)

Summary for Link 2L: POI 001

Inflow Area = 954,260 sf, 66.72% Impervious, Inflow Depth > 3.61" for 10-yr event
Inflow = 15.78 cfs @ 12.39 hrs, Volume= 287,412 cf
Primary = 15.78 cfs @ 12.39 hrs, Volume= 287,412 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: POSTS POI 001 - To Non-Vegetated MRC Basin 1

Runoff = 13.81 cfs @ 11.97 hrs, Volume= 31,094 cf, Depth= 4.53"
Routed to Pond 9P : Non-Vegetated MRC Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

	Area (sf)	CN	Description
*	31,334	93	Urban industrial, 72% imp, HSG D
*	17,073	80	>75% Grass cover, Good, HSG D
*	14,913	78	Meadow, non-grazed, HSG D
*	19,103	98	Impervious
	82,423		Weighted Average
	40,760		49.45% Pervious Area
	41,663		50.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 5S: POST POI 001 - To Mod. Detention Basin 1

Runoff = 85.09 cfs @ 11.97 hrs, Volume= 192,639 cf, Depth= 4.80"
Routed to Pond 4P : Mod. Detention Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

	Area (sf)	CN	Description
*	37,741	91	Urban industrial, 72% imp, HSG C
*	390,706	93	Urban industrial, 72% imp, HSG D
*	24,652	71	Meadow, non-grazed, HSG C
*	14,659	78	Meadow, non-grazed, HSG D
*	13,693	98	Impervious
	481,451		Weighted Average
	159,276		33.08% Pervious Area
	322,175		66.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 6S: POST POI 001 - To Non-Vegetated MRC Basin 2

Runoff = 37.78 cfs @ 11.97 hrs, Volume= 89,100 cf, Depth= 5.07"
Routed to Pond 5P : Non-Vegetated MRC Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

	Area (sf)	CN	Description
*	42,859	93	Urban industrial, 72% imp, HSG D
*	17,360	80	>75% Grass cover, Good, HSG D
*	18,419	78	Meadow, non-grazed, HSG D
*	132,047	98	Impervious
	210,685		Weighted Average
	47,780		22.68% Pervious Area
	162,905		77.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 7S: POST POI 001 - To Mod. Detention Basin 2

Runoff = 29.10 cfs @ 11.97 hrs, Volume= 65,483 cf, Depth= 4.71"
Routed to Pond 6P : Mod. Detention Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

	Area (sf)	CN	Description
*	26,331	91	Urban industrial, 72% imp, HSG C
*	122,517	93	Urban industrial, 72% imp, HSG D
*	13,397	71	Meadow, non-grazed, HSG C
*	4,754	78	Meadow, non-grazed, HSG D
	166,999		Weighted Average
	59,828		35.83% Pervious Area
	107,171		64.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 8S: POST POI 001 - To Undetained

Runoff = 1.79 cfs @ 11.97 hrs, Volume= 3,788 cf, Depth= 3.58"
Routed to Link 2L : POI 001

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-yr Rainfall=5.78"

	Area (sf)	CN	Description
*	3,806	91	Urban industrial, 72% imp, HSG C
*	4,088	71	Meadow, non-grazed, HSG C
*	4,808	78	Meadow, non-grazed, HSG D
	12,702		Weighted Average
	9,962		78.43% Pervious Area
	2,740		21.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Pond 4P: Mod. Detention Basin 1

Inflow Area = 563,874 sf, 64.52% Impervious, Inflow Depth = 4.48" for 25-yr event
Inflow = 85.10 cfs @ 11.97 hrs, Volume= 210,511 cf
Outflow = 12.56 cfs @ 12.18 hrs, Volume= 210,508 cf, Atten= 85%, Lag= 12.8 min
Primary = 12.56 cfs @ 12.18 hrs, Volume= 210,508 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 291.14' @ 12.18 hrs Surf.Area= 27,804 sf Storage= 67,243 cf

Plug-Flow detention time= 37.8 min calculated for 210,508 cf (100% of inflow)
Center-of-Mass det. time= 37.7 min (1,010.9 - 973.3)

Volume	Invert	Avail.Storage	Storage Description
#1	286.00'	164,860 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
286.00	111	0	0
287.00	3,780	1,946	1,946
288.00	9,192	6,486	8,432
289.00	15,171	12,182	20,613
290.00	21,678	18,425	39,038
291.00	26,906	24,292	63,330
292.00	33,181	30,044	93,373
293.00	39,698	36,440	129,813
293.83	44,754	35,048	164,860

Device	Routing	Invert	Outlet Devices
#1	Primary	283.70'	**42.0" Round Culvert** L= 103.0' Ke= 0.700 Inlet / Outlet Invert= 283.70' / 282.43' S= 0.0123 '/' Cc= 0.900 n= 0.012, Flow Area= 9.62 sf
#2	Device 1	291.28'	**24.0" x 48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	286.00'	**15.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.75'	**36.0" W x 57.0" H Vert. Doghouse Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=12.56 cfs @ 12.18 hrs HW=291.14' TW=283.79' (Dynamic Tailwater)
└**1=Culvert** (Passes 12.56 cfs of 97.53 cfs potential flow)
  ├**2=Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Orifice Controls 12.56 cfs @ 10.23 fps)
  └**4=Doghouse Grate** (Controls 0.00 cfs)

Summary for Pond 5P: Non-Vegetated MRC Basin 2

Inflow Area = 210,685 sf, 77.32% Impervious, Inflow Depth = 5.07" for 25-yr event
Inflow = 37.78 cfs @ 11.97 hrs, Volume= 89,100 cf
Outflow = 6.75 cfs @ 12.15 hrs, Volume= 85,095 cf, Atten= 82%, Lag= 10.6 min
Primary = 6.75 cfs @ 12.15 hrs, Volume= 85,095 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 287.98' @ 12.15 hrs Surf.Area= 84,234 sf Storage= 51,432 cf

Plug-Flow detention time= 869.1 min calculated for 85,095 cf (96% of inflow)
Center-of-Mass det. time= 841.5 min (1,597.4 - 755.9)

Volume	Invert	Avail.Storage	Storage Description
#1	283.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 28,078 cf Overall x 0.0% Voids
#2	284.50'	23,560 cf	**Media Storage (Prismatic)** Listed below (Recalc) 84,234 cf Overall - 25,333 cf Embedded = 58,901 cf x 40.0% Voids
#3	287.50'	28,078 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 70,195 cf Overall x 40.0% Voids
#4	284.50'	12,514 cf	**60.0"W x 34.0"H x 265.00'L Parabolic Arch** x 5 Inside #2 14,133 cf Overall - 2.0" Wall Thickness = 12,514 cf
#5	284.50'	9,917 cf	**60.0"W x 34.0"H x 210.00'L Parabolic Arch** x 5 Inside #2 11,200 cf Overall - 2.0" Wall Thickness = 9,917 cf
		74,069 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
283.50	28,078	0	0
284.50	28,078	28,078	28,078

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
284.50	28,078	0	0
287.50	28,078	84,234	84,234

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
287.50	28,078	0	0
290.00	28,078	70,195	70,195

Device	Routing	Invert	Outlet Devices
#1	Primary	283.75'	**24.0" Round Culvert** L= 116.0' Ke= 0.700 Inlet / Outlet Invert= 283.75' / 283.00' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	285.25'	**10.0" W x 4.0" H Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	284.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	283.50'	**6.0" Vert. Perforated Underdrain** C= 0.600

			Limited to weir flow at low heads
#5	Device 1	287.50'	**4.0' long Bypass Weir** 2 End Contraction(s) 1.0' Crest Height
#6	Device 2	284.50'	**30.0" Vert. Chamber Connection** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=6.75 cfs @ 12.15 hrs HW=287.98' TW=283.78' (Dynamic Tailwater)
- **1=Culvert** (Passes 6.75 cfs of 24.00 cfs potential flow)
- **2=Weir Orifice** (Orifice Controls 2.14 cfs @ 7.71 fps)
  - **6=Chamber Connection** (Passes 2.14 cfs of 35.33 cfs potential flow)
- **3=Underdrain Orifice** (Orifice Controls 0.05 cfs @ 8.93 fps)
  - **4=Perforated Underdrain** (Passes 0.05 cfs of 1.76 cfs potential flow)
- **5=Bypass Weir** (Weir Controls 4.56 cfs @ 2.41 fps)

Summary for Pond 6P: Mod. Detention Basin 2

Inflow Area = 941,558 sf, 67.33% Impervious, Inflow Depth > 4.60" for 25-yr event
Inflow = 42.17 cfs @ 11.97 hrs, Volume= 361,085 cf
Outflow = 23.16 cfs @ 12.20 hrs, Volume= 361,085 cf, Atten= 45%, Lag= 13.5 min
Primary = 23.16 cfs @ 12.20 hrs, Volume= 361,085 cf
Routed to Link 2L : POI 001
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 2L : POI 001

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 283.79' @ 12.20 hrs Surf.Area= 14,535 sf Storage= 38,766 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 34.3 min (1,140.8 - 1,106.5)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	68,907 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2A	279.75'	5,015 cf	**22.75'W x 156.27'L x 5.50'H Field A** 19,553 cf Overall - 7,016 cf Embedded = 12,537 cf x 40.0% Voids
#3A	280.50'	7,016 cf	**ADS_StormTech MC-3500 d +Cap** x 63 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 63 Chambers in 3 Rows Cap Storage= 14.9 cf x 2 x 3 rows = 89.4 cf
		80,938 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	4,593	0	0
281.00	7,165	2,940	2,940
282.00	8,853	8,009	10,949
283.00	10,254	9,554	20,502
284.00	11,173	10,714	31,216
285.00	12,082	11,628	42,843
286.00	13,006	12,544	55,387
287.00	14,033	13,520	68,907

Device	Routing	Invert	Outlet Devices
#1	Primary	277.97'	**36.0" Round Culvert** L= 75.0' Ke= 0.700 Inlet / Outlet Invert= 277.97' / 276.58' S= 0.0185 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	285.14'	**24.0" x 48.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	283.00'	**30.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.50'	**4.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#6	Secondary	285.25'	**50.0' long + 3.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=23.16 cfs @ 12.20 hrs HW=283.79' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 23.16 cfs of 62.42 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  ├─**3=Orifice/Grate** (Orifice Controls 11.03 cfs @ 8.28 fps)
  ├─**4=Orifice/Grate** (Orifice Controls 11.28 cfs @ 2.85 fps)
  └─**5=Underdrain Orifice** (Orifice Controls 0.85 cfs @ 9.78 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=279.75' TW=0.00' (Dynamic Tailwater)
└─**6=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 9P: Non-Vegetated MRC Basin 1

Inflow Area = 82,423 sf, 50.55% Impervious, Inflow Depth = 4.53" for 25-yr event
Inflow = 13.81 cfs @ 11.97 hrs, Volume= 31,094 cf
Outflow = 0.41 cfs @ 13.93 hrs, Volume= 17,872 cf, Atten= 97%, Lag= 117.7 min
Primary = 0.41 cfs @ 13.93 hrs, Volume= 17,872 cf
Routed to Pond 4P : Mod. Detention Basin 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 294.61' @ 13.93 hrs Surf.Area= 37,803 sf Storage= 23,235 cf

Plug-Flow detention time= 2,466.7 min calculated for 17,871 cf (57% of inflow)
Center-of-Mass det. time= 2,355.1 min (3,130.7 - 775.6)

Volume	Invert	Avail.Storage	Storage Description
#1	290.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 12,601 cf Overall x 0.0% Voids
#2	291.50'	8,900 cf	**Media Storage (Prismatic)** Listed below (Recalc) 37,803 cf Overall - 15,552 cf Embedded = 22,251 cf x 40.0% Voids
#3	294.50'	2,520 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 6,301 cf Overall x 40.0% Voids
#4	291.50'	6,517 cf	**60.0"W x 34.0"H x 115.00'L Parabolic Arch** x 6 Inside #2 7,360 cf Overall - 2.0" Wall Thickness = 6,517 cf
#5	291.50'	5,100 cf	**60.0"W x 34.0"H x 90.00'L Parabolic Arch** x 6 Inside #2 5,760 cf Overall - 2.0" Wall Thickness = 5,100 cf
#6	291.50'	2,153 cf	**60.0"W x 34.0"H x 228.00'L Parabolic Arch** Inside #2 2,432 cf Overall - 2.0" Wall Thickness = 2,153 cf
		25,191 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
290.50	12,601	0	0
291.50	12,601	12,601	12,601

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
291.50	12,601	0	0
294.50	12,601	37,803	37,803

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
294.50	12,601	0	0
295.00	12,601	6,301	6,301

Device	Routing	Invert	Outlet Devices
#1	Primary	290.50'	**18.0" Round Culvert** L= 87.0' Ke= 0.700 Inlet / Outlet Invert= 290.50' / 288.00' S= 0.0287 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	293.00'	**1.0" Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	294.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	290.50'	**4.0" Vert. Perforated Underdrain** C= 0.600 Limited to weir flow at low heads
#5	Device 1	294.50'	**3.0' long Bypass Weir** 2 End Contraction(s) 0.5' Crest Height
#6	Device 2	291.50'	**12.0" Vert. Chamber Connection** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.41 cfs @ 13.93 hrs HW=294.61' TW=289.34' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.41 cfs of 13.77 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 0.03 cfs @ 6.03 fps)
    - **6=Chamber Connection** (Passes 0.03 cfs of 4.80 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.01 cfs @ 1.28 fps)
    - **4=Perforated Underdrain** (Passes 0.01 cfs of 0.14 cfs potential flow)
  - **5=Bypass Weir** (Weir Controls 0.37 cfs @ 1.12 fps)

Summary for Link 2L: POI 001

Inflow Area = 954,260 sf, 66.72% Impervious, Inflow Depth > 4.59" for 25-yr event
Inflow = 23.43 cfs @ 12.19 hrs, Volume= 364,873 cf
Primary = 23.43 cfs @ 12.19 hrs, Volume= 364,873 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: POSTS POI 001 - To Non-Vegetated MRC Basin 1

Runoff = 16.15 cfs @ 11.97 hrs, Volume= 36,607 cf, Depth= 5.33"
Routed to Pond 9P : Non-Vegetated MRC Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

	Area (sf)	CN	Description
*	31,334	93	Urban industrial, 72% imp, HSG D
*	17,073	80	>75% Grass cover, Good, HSG D
*	14,913	78	Meadow, non-grazed, HSG D
*	19,103	98	Impervious
	82,423		Weighted Average
	40,760		49.45% Pervious Area
	41,663		50.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 5S: POST POI 001 - To Mod. Detention Basin 1

Runoff = 98.71 cfs @ 11.97 hrs, Volume= 225,514 cf, Depth= 5.62"
Routed to Pond 4P : Mod. Detention Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

	Area (sf)	CN	Description
*	37,741	91	Urban industrial, 72% imp, HSG C
*	390,706	93	Urban industrial, 72% imp, HSG D
*	24,652	71	Meadow, non-grazed, HSG C
*	14,659	78	Meadow, non-grazed, HSG D
*	13,693	98	Impervious
	481,451		Weighted Average
	159,276		33.08% Pervious Area
	322,175		66.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 6S: POST POI 001 - To Non-Vegetated MRC Basin 2

Runoff = 43.69 cfs @ 11.97 hrs, Volume= 103,544 cf, Depth= 5.90"
Routed to Pond 5P : Non-Vegetated MRC Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

	Area (sf)	CN	Description
*	42,859	93	Urban industrial, 72% imp, HSG D
*	17,360	80	>75% Grass cover, Good, HSG D
*	18,419	78	Meadow, non-grazed, HSG D
*	132,047	98	Impervious
	210,685		Weighted Average
	47,780		22.68% Pervious Area
	162,905		77.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 7S: POST POI 001 - To Mod. Detention Basin 2

Runoff = 33.82 cfs @ 11.97 hrs, Volume= 76,818 cf, Depth= 5.52"
Routed to Pond 6P : Mod. Detention Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

	Area (sf)	CN	Description
*	26,331	91	Urban industrial, 72% imp, HSG C
*	122,517	93	Urban industrial, 72% imp, HSG D
*	13,397	71	Meadow, non-grazed, HSG C
*	4,754	78	Meadow, non-grazed, HSG D
	166,999		Weighted Average
	59,828		35.83% Pervious Area
	107,171		64.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 8S: POST POI 001 - To Undetained

Runoff = 2.15 cfs @ 11.97 hrs, Volume= 4,581 cf, Depth= 4.33"
Routed to Link 2L : POI 001

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-yr Rainfall=6.62"

	Area (sf)	CN	Description
*	3,806	91	Urban industrial, 72% imp, HSG C
*	4,088	71	Meadow, non-grazed, HSG C
*	4,808	78	Meadow, non-grazed, HSG D
	12,702		Weighted Average
	9,962		78.43% Pervious Area
	2,740		21.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Pond 4P: Mod. Detention Basin 1

Inflow Area = 563,874 sf, 64.52% Impervious, Inflow Depth = 5.30" for 50-yr event
Inflow = 98.73 cfs @ 11.97 hrs, Volume= 248,899 cf
Outflow = 18.52 cfs @ 12.14 hrs, Volume= 248,896 cf, Atten= 81%, Lag= 10.3 min
Primary = 18.52 cfs @ 12.14 hrs, Volume= 248,896 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 291.55' @ 12.14 hrs Surf.Area= 30,337 sf Storage= 78,978 cf

Plug-Flow detention time= 42.0 min calculated for 248,896 cf (100% of inflow)
Center-of-Mass det. time= 41.9 min (982.4 - 940.6)

Volume	Invert	Avail.Storage	Storage Description
#1	286.00'	164,860 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
286.00	111	0	0
287.00	3,780	1,946	1,946
288.00	9,192	6,486	8,432
289.00	15,171	12,182	20,613
290.00	21,678	18,425	39,038
291.00	26,906	24,292	63,330
292.00	33,181	30,044	93,373
293.00	39,698	36,440	129,813
293.83	44,754	35,048	164,860

Device	Routing	Invert	Outlet Devices
#1	Primary	283.70'	**42.0" Round Culvert** L= 103.0' Ke= 0.700 Inlet / Outlet Invert= 283.70' / 282.43' S= 0.0123 '/' Cc= 0.900 n= 0.012, Flow Area= 9.62 sf
#2	Device 1	291.28'	**24.0" x 48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	286.00'	**15.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.75'	**36.0" W x 57.0" H Vert. Doghouse Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=18.51 cfs @ 12.14 hrs HW=291.55' TW=284.29' (Dynamic Tailwater)
└**1=Culvert** (Passes 18.51 cfs of 100.93 cfs potential flow)
  ├**2=Grate** (Weir Controls 5.40 cfs @ 1.69 fps)
  ├**3=Orifice/Grate** (Orifice Controls 13.11 cfs @ 10.68 fps)
  └**4=Doghouse Grate** (Controls 0.00 cfs)

Summary for Pond 5P: Non-Vegetated MRC Basin 2

Inflow Area = 210,685 sf, 77.32% Impervious, Inflow Depth = 5.90" for 50-yr event
Inflow = 43.69 cfs @ 11.97 hrs, Volume= 103,544 cf
Outflow = 14.23 cfs @ 12.09 hrs, Volume= 99,523 cf, Atten= 67%, Lag= 7.2 min
Primary = 14.23 cfs @ 12.09 hrs, Volume= 99,523 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 288.40' @ 12.09 hrs Surf.Area= 84,234 sf Storage= 56,113 cf

Plug-Flow detention time= 761.8 min calculated for 99,517 cf (96% of inflow)
Center-of-Mass det. time= 738.1 min (1,491.6 - 753.5)

Volume	Invert	Avail.Storage	Storage Description
#1	283.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 28,078 cf Overall x 0.0% Voids
#2	284.50'	23,560 cf	**Media Storage (Prismatic)** Listed below (Recalc) 84,234 cf Overall - 25,333 cf Embedded = 58,901 cf x 40.0% Voids
#3	287.50'	28,078 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 70,195 cf Overall x 40.0% Voids
#4	284.50'	12,514 cf	**60.0"W x 34.0"H x 265.00'L Parabolic Arch** x 5 Inside #2 14,133 cf Overall - 2.0" Wall Thickness = 12,514 cf
#5	284.50'	9,917 cf	**60.0"W x 34.0"H x 210.00'L Parabolic Arch** x 5 Inside #2 11,200 cf Overall - 2.0" Wall Thickness = 9,917 cf
		74,069 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
283.50	28,078	0	0
284.50	28,078	28,078	28,078

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
284.50	28,078	0	0
287.50	28,078	84,234	84,234

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
287.50	28,078	0	0
290.00	28,078	70,195	70,195

Device	Routing	Invert	Outlet Devices
#1	Primary	283.75'	**24.0" Round Culvert** L= 116.0' Ke= 0.700 Inlet / Outlet Invert= 283.75' / 283.00' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	285.25'	**10.0" W x 4.0" H Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	284.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	283.50'	**6.0" Vert. Perforated Underdrain** C= 0.600

			Limited to weir flow at low heads
#5	Device 1	287.50'	**4.0' long Bypass Weir** 2 End Contraction(s) 1.0' Crest Height
#6	Device 2	284.50'	**30.0" Vert. Chamber Connection** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=14.22 cfs @ 12.09 hrs HW=288.40' TW=284.18' (Dynamic Tailwater)
- **1=Culvert** (Passes 14.22 cfs of 25.50 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 2.31 cfs @ 8.32 fps)
    - **6=Chamber Connection** (Passes 2.31 cfs of 38.48 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.05 cfs @ 9.46 fps)
    - **4=Perforated Underdrain** (Passes 0.05 cfs of 1.87 cfs potential flow)
  - **5=Bypass Weir** (Weir Controls 11.85 cfs @ 3.45 fps)

Summary for Pond 6P: Mod. Detention Basin 2

Inflow Area = 941,558 sf, 67.33% Impervious, Inflow Depth > 5.42" for 50-yr event
Inflow = 50.08 cfs @ 12.00 hrs, Volume= 425,237 cf
Outflow = 34.23 cfs @ 12.19 hrs, Volume= 425,237 cf, Atten= 32%, Lag= 11.5 min
Primary = 34.23 cfs @ 12.19 hrs, Volume= 425,237 cf
Routed to Link 2L : POI 001
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 2L : POI 001

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 284.31' @ 12.19 hrs Surf.Area= 15,014 sf Storage= 45,471 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 33.0 min (1,096.6 - 1,063.6)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	68,907 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2A	279.75'	5,015 cf	**22.75'W x 156.27'L x 5.50'H Field A** 19,553 cf Overall - 7,016 cf Embedded = 12,537 cf x 40.0% Voids
#3A	280.50'	7,016 cf	**ADS_StormTech MC-3500 d +Cap** x 63 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 63 Chambers in 3 Rows Cap Storage= 14.9 cf x 2 x 3 rows = 89.4 cf
		80,938 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	4,593	0	0
281.00	7,165	2,940	2,940
282.00	8,853	8,009	10,949
283.00	10,254	9,554	20,502
284.00	11,173	10,714	31,216
285.00	12,082	11,628	42,843
286.00	13,006	12,544	55,387
287.00	14,033	13,520	68,907

Device	Routing	Invert	Outlet Devices
#1	Primary	277.97'	**36.0" Round Culvert** L= 75.0' Ke= 0.700 Inlet / Outlet Invert= 277.97' / 276.58' S= 0.0185 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	285.14'	**24.0" x 48.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	283.00'	**30.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.50'	**4.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#6	Secondary	285.25'	**50.0' long + 3.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=34.23 cfs @ 12.19 hrs HW=284.31' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 34.23 cfs of 66.10 cfs potential flow)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=Orifice/Grate** (Orifice Controls 11.97 cfs @ 8.98 fps)
  - **4=Orifice/Grate** (Orifice Controls 21.35 cfs @ 4.27 fps)
  - **5=Underdrain Orifice** (Orifice Controls 0.91 cfs @ 10.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=279.75' TW=0.00' (Dynamic Tailwater)
- **6=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 9P: Non-Vegetated MRC Basin 1

Inflow Area = 82,423 sf, 50.55% Impervious, Inflow Depth = 5.33" for 50-yr event
Inflow = 16.15 cfs @ 11.97 hrs, Volume= 36,607 cf
Outflow = 1.21 cfs @ 12.53 hrs, Volume= 23,385 cf, Atten= 93%, Lag= 33.4 min
Primary = 1.21 cfs @ 12.53 hrs, Volume= 23,385 cf
Routed to Pond 4P : Mod. Detention Basin 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 294.74' @ 12.53 hrs Surf.Area= 37,803 sf Storage= 23,855 cf

Plug-Flow detention time= 1,924.4 min calculated for 23,385 cf (64% of inflow)
Center-of-Mass det. time= 1,819.3 min (2,591.7 - 772.3)

Volume	Invert	Avail.Storage	Storage Description
#1	290.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 12,601 cf Overall x 0.0% Voids
#2	291.50'	8,900 cf	**Media Storage (Prismatic)** Listed below (Recalc) 37,803 cf Overall - 15,552 cf Embedded = 22,251 cf x 40.0% Voids
#3	294.50'	2,520 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 6,301 cf Overall x 40.0% Voids
#4	291.50'	6,517 cf	**60.0"W x 34.0"H x 115.00'L Parabolic Arch** x 6 Inside #2 7,360 cf Overall - 2.0" Wall Thickness = 6,517 cf
#5	291.50'	5,100 cf	**60.0"W x 34.0"H x 90.00'L Parabolic Arch** x 6 Inside #2 5,760 cf Overall - 2.0" Wall Thickness = 5,100 cf
#6	291.50'	2,153 cf	**60.0"W x 34.0"H x 228.00'L Parabolic Arch** Inside #2 2,432 cf Overall - 2.0" Wall Thickness = 2,153 cf
		25,191 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
290.50	12,601	0	0
291.50	12,601	12,601	12,601

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
291.50	12,601	0	0
294.50	12,601	37,803	37,803

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
294.50	12,601	0	0
295.00	12,601	6,301	6,301

Device	Routing	Invert	Outlet Devices
#1	Primary	290.50'	**18.0" Round Culvert** L= 87.0' Ke= 0.700 Inlet / Outlet Invert= 290.50' / 288.00' S= 0.0287 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	293.00'	**1.0" Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	294.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	290.50'	**4.0" Vert. Perforated Underdrain** C= 0.600 Limited to weir flow at low heads
#5	Device 1	294.50'	**3.0' long Bypass Weir** 2 End Contraction(s) 0.5' Crest Height
#6	Device 2	291.50'	**12.0" Vert. Chamber Connection** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.21 cfs @ 12.53 hrs HW=294.73' TW=291.34' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.21 cfs of 13.83 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 0.03 cfs @ 6.27 fps)
    - **6=Chamber Connection** (Passes 0.03 cfs of 4.98 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.01 cfs @ 2.12 fps)
    - **4=Perforated Underdrain** (Passes 0.01 cfs of 0.20 cfs potential flow)
  - **5=Bypass Weir** (Weir Controls 1.16 cfs @ 1.68 fps)

Summary for Link 2L: POI 001

Inflow Area = 954,260 sf, 66.72% Impervious, Inflow Depth > 5.41" for 50-yr event
Inflow = 34.55 cfs @ 12.19 hrs, Volume= 429,818 cf
Primary = 34.55 cfs @ 12.19 hrs, Volume= 429,818 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 4S: POSTS POI 001 - To Non-Vegetated MRC Basin 1

Runoff = 18.72 cfs @ 11.97 hrs, Volume= 42,698 cf, Depth= 6.22"
Routed to Pond 9P : Non-Vegetated MRC Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

	Area (sf)	CN	Description
*	31,334	93	Urban industrial, 72% imp, HSG D
*	17,073	80	>75% Grass cover, Good, HSG D
*	14,913	78	Meadow, non-grazed, HSG D
*	19,103	98	Impervious
	82,423		Weighted Average
	40,760		49.45% Pervious Area
	41,663		50.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 5S: POST POI 001 - To Mod. Detention Basin 1

Runoff = 113.59 cfs @ 11.97 hrs, Volume= 261,692 cf, Depth= 6.52"
Routed to Pond 4P : Mod. Detention Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

	Area (sf)	CN	Description
*	37,741	91	Urban industrial, 72% imp, HSG C
*	390,706	93	Urban industrial, 72% imp, HSG D
*	24,652	71	Meadow, non-grazed, HSG C
*	14,659	78	Meadow, non-grazed, HSG D
*	13,693	98	Impervious
	481,451		Weighted Average
	159,276		33.08% Pervious Area
	322,175		66.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 6S: POST POI 001 - To Non-Vegetated MRC Basin 2

Runoff = 50.15 cfs @ 11.97 hrs, Volume= 119,427 cf, Depth= 6.80"
Routed to Pond 5P : Non-Vegetated MRC Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

	Area (sf)	CN	Description
*	42,859	93	Urban industrial, 72% imp, HSG D
*	17,360	80	>75% Grass cover, Good, HSG D
*	18,419	78	Meadow, non-grazed, HSG D
*	132,047	98	Impervious
	210,685		Weighted Average
	47,780		22.68% Pervious Area
	162,905		77.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 7S: POST POI 001 - To Mod. Detention Basin 2

Runoff = 38.99 cfs @ 11.97 hrs, Volume= 89,305 cf, Depth= 6.42"
Routed to Pond 6P : Mod. Detention Basin 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

	Area (sf)	CN	Description
*	26,331	91	Urban industrial, 72% imp, HSG C
*	122,517	93	Urban industrial, 72% imp, HSG D
*	13,397	71	Meadow, non-grazed, HSG C
*	4,754	78	Meadow, non-grazed, HSG D
	166,999		Weighted Average
	59,828		35.83% Pervious Area
	107,171		64.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Subcatchment 8S: POST POI 001 - To Undetained

Runoff = 2.55 cfs @ 11.97 hrs, Volume= 5,467 cf, Depth= 5.17"
Routed to Link 2L : POI 001

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-yr Rainfall=7.54"

	Area (sf)	CN	Description
*	3,806	91	Urban industrial, 72% imp, HSG C
*	4,088	71	Meadow, non-grazed, HSG C
*	4,808	78	Meadow, non-grazed, HSG D
	12,702		Weighted Average
	9,962		78.43% Pervious Area
	2,740		21.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**

Summary for Pond 4P: Mod. Detention Basin 1

Inflow Area = 563,874 sf, 64.52% Impervious, Inflow Depth = 6.20" for 100-yr event
Inflow = 113.62 cfs @ 11.97 hrs, Volume= 291,167 cf
Outflow = 33.28 cfs @ 12.10 hrs, Volume= 291,164 cf, Atten= 71%, Lag= 8.2 min
Primary = 33.28 cfs @ 12.10 hrs, Volume= 291,164 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 291.88' @ 12.10 hrs Surf.Area= 32,443 sf Storage= 89,512 cf

Plug-Flow detention time= 41.1 min calculated for 291,149 cf (100% of inflow)
Center-of-Mass det. time= 41.0 min (954.6 - 913.6)

Volume	Invert	Avail.Storage	Storage Description
#1	286.00'	164,860 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
286.00	111	0	0
287.00	3,780	1,946	1,946
288.00	9,192	6,486	8,432
289.00	15,171	12,182	20,613
290.00	21,678	18,425	39,038
291.00	26,906	24,292	63,330
292.00	33,181	30,044	93,373
293.00	39,698	36,440	129,813
293.83	44,754	35,048	164,860

Device	Routing	Invert	Outlet Devices
#1	Primary	283.70'	**42.0" Round Culvert** L= 103.0' Ke= 0.700 Inlet / Outlet Invert= 283.70' / 282.43' S= 0.0123 '/' Cc= 0.900 n= 0.012, Flow Area= 9.62 sf
#2	Device 1	291.28'	**24.0" x 48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	286.00'	**15.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	291.75'	**36.0" W x 57.0" H Vert. Doghouse Grate X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=33.25 cfs @ 12.10 hrs HW=291.88' TW=285.04' (Dynamic Tailwater)
└**1=Culvert** (Passes 33.25 cfs of 103.66 cfs potential flow)
  ├**2=Grate** (Weir Controls 18.32 cfs @ 2.54 fps)
  ├**3=Orifice/Grate** (Orifice Controls 13.55 cfs @ 11.04 fps)
  └**4=Doghouse Grate** (Orifice Controls 1.38 cfs @ 1.17 fps)

Summary for Pond 5P: Non-Vegetated MRC Basin 2

Inflow Area = 210,685 sf, 77.32% Impervious, Inflow Depth = 6.80" for 100-yr event
Inflow = 50.15 cfs @ 11.97 hrs, Volume= 119,427 cf
Outflow = 23.20 cfs @ 12.06 hrs, Volume= 115,388 cf, Atten= 54%, Lag= 5.7 min
Primary = 23.20 cfs @ 12.06 hrs, Volume= 115,388 cf
Routed to Pond 6P : Mod. Detention Basin 2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 288.79' @ 12.06 hrs Surf.Area= 84,234 sf Storage= 60,450 cf

Plug-Flow detention time= 674.2 min calculated for 115,382 cf (97% of inflow)
Center-of-Mass det. time= 653.3 min (1,404.6 - 751.3)

Volume	Invert	Avail.Storage	Storage Description
#1	283.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 28,078 cf Overall x 0.0% Voids
#2	284.50'	23,560 cf	**Media Storage (Prismatic)** Listed below (Recalc) 84,234 cf Overall - 25,333 cf Embedded = 58,901 cf x 40.0% Voids
#3	287.50'	28,078 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 70,195 cf Overall x 40.0% Voids
#4	284.50'	12,514 cf	**60.0"W x 34.0"H x 265.00'L Parabolic Arch** x 5 Inside #2 14,133 cf Overall - 2.0" Wall Thickness = 12,514 cf
#5	284.50'	9,917 cf	**60.0"W x 34.0"H x 210.00'L Parabolic Arch** x 5 Inside #2 11,200 cf Overall - 2.0" Wall Thickness = 9,917 cf
		74,069 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
283.50	28,078	0	0
284.50	28,078	28,078	28,078

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
284.50	28,078	0	0
287.50	28,078	84,234	84,234

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
287.50	28,078	0	0
290.00	28,078	70,195	70,195

Device	Routing	Invert	Outlet Devices
#1	Primary	283.75'	**24.0" Round Culvert** L= 116.0' Ke= 0.700 Inlet / Outlet Invert= 283.75' / 283.00' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	285.25'	**10.0" W x 4.0" H Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	284.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	283.50'	**6.0" Vert. Perforated Underdrain** C= 0.600

			Limited to weir flow at low heads
#5	Device 1	287.50'	**4.0' long Bypass Weir** 2 End Contraction(s) 1.0' Crest Height
#6	Device 2	284.50'	**30.0" Vert. Chamber Connection** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=23.17 cfs @ 12.06 hrs HW=288.79' TW=284.75' (Dynamic Tailwater)
- **1=Culvert** (Passes 23.17 cfs of 26.80 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 2.45 cfs @ 8.84 fps)
    - **6=Chamber Connection** (Passes 2.45 cfs of 41.18 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.05 cfs @ 9.67 fps)
    - **4=Perforated Underdrain** (Passes 0.05 cfs of 1.90 cfs potential flow)
  - **5=Bypass Weir** (Weir Controls 20.66 cfs @ 4.29 fps)

Summary for Pond 6P: Mod. Detention Basin 2

Inflow Area = 941,558 sf, 67.33% Impervious, Inflow Depth > 6.32" for 100-yr event
Inflow = 72.77 cfs @ 12.04 hrs, Volume= 495,858 cf
Outflow = 50.40 cfs @ 12.19 hrs, Volume= 495,858 cf, Atten= 31%, Lag= 9.0 min
Primary = 50.08 cfs @ 12.19 hrs, Volume= 495,814 cf
Routed to Link 2L : POI 001
Secondary = 0.33 cfs @ 12.19 hrs, Volume= 43 cf
Routed to Link 2L : POI 001

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 285.27' @ 12.19 hrs Surf.Area= 15,886 sf Storage= 58,161 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 31.6 min (1,057.4 - 1,025.8)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	68,907 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#2A	279.75'	5,015 cf	**22.75'W x 156.27'L x 5.50'H Field A** 19,553 cf Overall - 7,016 cf Embedded = 12,537 cf x 40.0% Voids
#3A	280.50'	7,016 cf	**ADS_StormTech MC-3500 d +Cap** x 63 Inside #2 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 63 Chambers in 3 Rows Cap Storage= 14.9 cf x 2 x 3 rows = 89.4 cf
		80,938 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	4,593	0	0
281.00	7,165	2,940	2,940
282.00	8,853	8,009	10,949
283.00	10,254	9,554	20,502
284.00	11,173	10,714	31,216
285.00	12,082	11,628	42,843
286.00	13,006	12,544	55,387
287.00	14,033	13,520	68,907

Device	Routing	Invert	Outlet Devices
#1	Primary	277.97'	**36.0" Round Culvert** L= 75.0' Ke= 0.700 Inlet / Outlet Invert= 277.97' / 276.58' S= 0.0185 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	285.14'	**24.0" x 48.0" Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Device 1	280.50'	**24.0" W x 8.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	283.00'	**30.0" W x 12.0" H Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#5	Device 1	279.50'	**4.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#6	Secondary	285.25'	**50.0' long + 3.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=50.07 cfs @ 12.19 hrs HW=285.27' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 50.07 cfs of 72.32 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 3.64 cfs @ 1.18 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 13.52 cfs @ 10.14 fps)
  ├─**4=Orifice/Grate** (Orifice Controls 31.91 cfs @ 6.38 fps)
  └─**5=Underdrain Orifice** (Orifice Controls 0.99 cfs @ 11.40 fps)

Secondary OutFlow Max=0.32 cfs @ 12.19 hrs HW=285.27' TW=0.00' (Dynamic Tailwater)
└─**6=Broad-Crested Rectangular Weir** (Weir Controls 0.32 cfs @ 0.34 fps)

Summary for Pond 9P: Non-Vegetated MRC Basin 1

Inflow Area = 82,423 sf, 50.55% Impervious, Inflow Depth = 6.22" for 100-yr event
Inflow = 18.72 cfs @ 11.97 hrs, Volume= 42,698 cf
Outflow = 3.75 cfs @ 12.13 hrs, Volume= 29,475 cf, Atten= 80%, Lag= 9.8 min
Primary = 3.75 cfs @ 12.13 hrs, Volume= 29,475 cf
Routed to Pond 4P : Mod. Detention Basin 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs
Peak Elev= 294.99' @ 12.13 hrs Surf.Area= 37,803 sf Storage= 25,160 cf

Plug-Flow detention time= 1,554.8 min calculated for 29,475 cf (69% of inflow)
Center-of-Mass det. time= 1,455.7 min (2,225.0 - 769.3)

Volume	Invert	Avail.Storage	Storage Description
#1	290.50'	0 cf	**Internal Water Storage (Prismatic)** Listed below (Recalc) 12,601 cf Overall x 0.0% Voids
#2	291.50'	8,900 cf	**Media Storage (Prismatic)** Listed below (Recalc) 37,803 cf Overall - 15,552 cf Embedded = 22,251 cf x 40.0% Voids
#3	294.50'	2,520 cf	**Rock Bed Above Media (Prismatic)** Listed below (Recalc) 6,301 cf Overall x 40.0% Voids
#4	291.50'	6,517 cf	**60.0"W x 34.0"H x 115.00'L Parabolic Arch** x 6 Inside #2 7,360 cf Overall - 2.0" Wall Thickness = 6,517 cf
#5	291.50'	5,100 cf	**60.0"W x 34.0"H x 90.00'L Parabolic Arch** x 6 Inside #2 5,760 cf Overall - 2.0" Wall Thickness = 5,100 cf
#6	291.50'	2,153 cf	**60.0"W x 34.0"H x 228.00'L Parabolic Arch** Inside #2 2,432 cf Overall - 2.0" Wall Thickness = 2,153 cf
		25,191 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
290.50	12,601	0	0
291.50	12,601	12,601	12,601

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
291.50	12,601	0	0
294.50	12,601	37,803	37,803

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
294.50	12,601	0	0
295.00	12,601	6,301	6,301

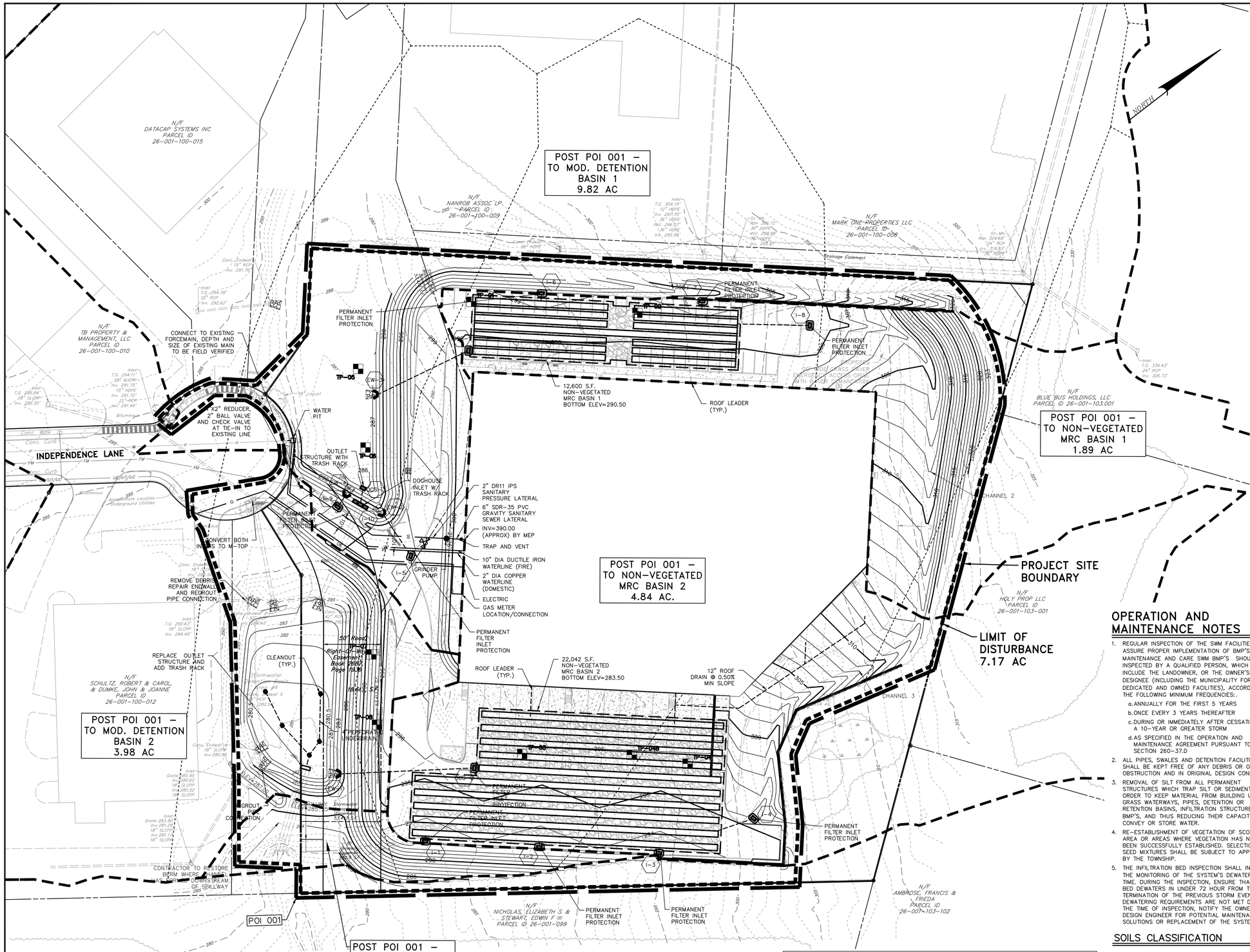
Device	Routing	Invert	Outlet Devices
#1	Primary	290.50'	**18.0" Round Culvert** L= 87.0' Ke= 0.700 Inlet / Outlet Invert= 290.50' / 288.00' S= 0.0287 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	293.00'	**1.0" Vert. Weir Orifice** C= 0.600 Limited to weir flow at low heads
#3	Device 1	294.50'	**1.0" Vert. Underdrain Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 3	290.50'	**4.0" Vert. Perforated Underdrain** C= 0.600 Limited to weir flow at low heads
#5	Device 1	294.50'	**3.0' long Bypass Weir** 2 End Contraction(s) 0.5' Crest Height
#6	Device 2	291.50'	**12.0" Vert. Chamber Connection** C= 0.600 Limited to weir flow at low heads

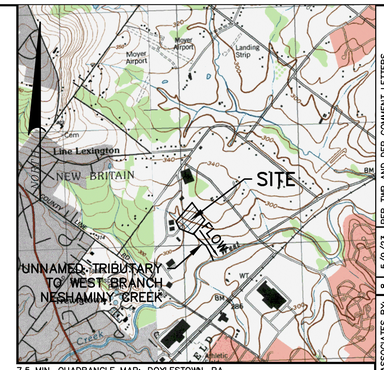
Primary OutFlow Max=3.74 cfs @ 12.13 hrs HW=294.99' TW=291.87' (Dynamic Tailwater)
- **1=Culvert** (Passes 3.74 cfs of 13.27 cfs potential flow)
  - **2=Weir Orifice** (Orifice Controls 0.04 cfs @ 6.73 fps)
    - **6=Chamber Connection** (Passes 0.04 cfs of 5.34 cfs potential flow)
  - **3=Underdrain Orifice** (Orifice Controls 0.02 cfs @ 3.24 fps)
    - **4=Perforated Underdrain** (Passes 0.02 cfs of 0.30 cfs potential flow)
  - **5=Bypass Weir** (Weir Controls 3.69 cfs @ 2.58 fps)

Summary for Link 2L: POI 001

Inflow Area = 954,260 sf, 66.72% Impervious, Inflow Depth > 6.30" for 100-yr event
Inflow = 50.78 cfs @ 12.19 hrs, Volume= 501,325 cf
Primary = 50.78 cfs @ 12.19 hrs, Volume= 501,325 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-192.00 hrs, dt= 0.01 hrs





7.5 MIN. QUADRANGLE MAP: DOYLESTOWN, PA

LOCATION MAP

SCALE – 1"=800'

LEGEND

BENCHMARK
CONCRETE MONUMENT
FOUND PROPERTY MARKER
CALCULATED PROPERTY MARKER
SIGN
MAILBOX
LIGHT POLE
GUY WIRE
UTILITY POLE
GAS METER
GAS VALVE
WATER VALVE
WATER METER
HYDRANT
INLET
SANITARY MANHOLE
STORM MANHOLE
ELECTRIC MANHOLE
UNKNOWN STRUCTURE
ELECTRIC BOX
CABLE BOX
TELEPHONE BOX
TREE LINE
BRUSH LINE
FENCE LINE
WATER LINE
GAS LINE
SANITARY SEWER LINE
UNDERGROUND ELECTRIC
UNDERGROUND TELEPHONE
UNDERGROUND CABLE
OVERHEAD ELECTRIC
OVERHEAD TELEPHONE
OVERHEAD CABLE
STORM PIPE
4" WHITE PAINT LINE
4" DOUBLE YELLOW PAINT LINE
RIGHT OF WAY LINE
PROPERTY LINE
ADJOINER PROPERTY LINE
MAJOR CONTOUR (5')
MINOR CONTOUR (1')
GIS CONTOUR (2')
WETLANDS
EASEMENT LINE
RAILROAD TRACKS
SOIL TYPE BOUNDARY LINE
SOIL TYPE DESIGNATION
PROPOSED SETBACK LINE
PROPOSED PAVEMENT
PROPOSED BUILDING
PROPOSED CONCRETE
PROPOSED PAVEMENT MARKING
PROPOSED CLEAR SITE TRIANGLE
PROPOSED CONTOUR LINE
PROPOSED SPOT ELEVATION
PROPOSED FINISHED FLOOR ELEVATION
LIMITS OF DISTURBANCE
PROJECT SITE BOUNDARY
PROPOSED WATER LINE
PROPOSED SANITARY SEWER LINE
PROPOSED SANITARY SEWER STRUCTURE LABEL
PROPOSED MANHOLE
PROPOSED STORM INLET
PROPOSED STORM HEADWALL/ENDWALL
PROPOSED PIPE OUTLET PROTECTION
PERMANENT INLET PROTECTION
PROPOSED STORM PIPE
PROPOSED STORM STRUCTURE LABEL

OPERATION AND MAINTENANCE NOTES

1. REGULAR INSPECTION OF THE SWM FACILITIES. TO ASSURE PROPER IMPLEMENTATION OF BMP'S, MAINTENANCE AND CARE SWM BMP'S SHOULD BE INSPECTED BY A QUALIFIED PERSON, WHICH MAY INCLUDE THE LANDOWNER, OR THE OWNER'S DESIGNEE (INCLUDING THE MUNICIPALITY FOR DEDICATED AND OWNED FACILITIES), ACCORDING TO THE FOLLOWING MINIMUM FREQUENCIES:.
   a. ANNUALLY FOR THE FIRST 5 YEARS
   b. ONCE EVERY 3 YEARS THEREAFTER
   c. DURING OR IMMEDIATELY AFTER CESSATION OF A 10-YEAR OR GREATER STORM
   d. AS SPECIFIED IN THE OPERATION AND MAINTENANCE AGREEMENT PURSUANT TO SECTION 260-37.D
2. ALL PIPES, SWALES AND DETENTION FACILITIES SHALL BE KEPT FREE OF ANY DEBRIS OR OTHER OBSTRUCTION AND IN ORIGINAL DESIGN CONDITION.
3. REMOVAL OF SILT FROM ALL PERMANENT STRUCTURES WHICH TRAP SILT OR SEDIMENT IN ORDER TO KEEP MATERIAL FROM BUILDING UP IN GRASS WATERWAYS, PIPES, DETENTION OR RETENTION BASINS, INFILTRATION STRUCTURES, OR BMP'S, AND THUS REDUCING THEIR CAPACITY TO CONVEY OR STORE WATER.
4. RE-ESTABLISHMENT OF VEGETATION OF SCOURED AREA OR AREAS WHERE VEGETATION HAS NOT BEEN SUCCESSFULLY ESTABLISHED. SELECTION OF SEED MIXTURES SHALL BE SUBJECT TO APPROVAL BY THE TOWNSHIP.
5. THE INFILTRATION BED INSPECTION SHALL INCLUDE THE MONITORING OF THE SYSTEM'S DEWATERING TIME. DURING THE INSPECTION, ENSURE THAT THE BED DEWATERS IN UNDER 72 HOUR FROM THE TERMINATION OF THE PREVIOUS STORM EVENT. IF DEWATERING REQUIREMENTS ARE NOT MET DURING THE TIME OF INSPECTION, NOTIFY THE OWNER AND DESIGN ENGINEER FOR POTENTIAL MAINTENANCE SOLUTIONS OR REPLACEMENT OF THE SYSTEM.

SOILS CLASSIFICATION

AbA: ABBOTTSTON SILT LOAM, 0 TO 3 PERCENT SLOPES

ReB: READINGTON SILT LOAM, 3 TO 8 PERCENT SLOPES

RIC: REAVILLE CHANNERY SILT LOAM, 8 TO 15 PERCENT SLOPES

RECEIVING WATER CLASSIFICATION WATER QUALITY DESIGNATION

- UNNAMED TRIBUTARY TO WEST BRANCH NESHAMINY CREEK
  - DESIGNATED USE: WARM WATER FISHES (WWF) AND MIGRATORY FISH (MF)
  - EXISTING USE: NO SEPARATE CLASSIFICATION

INFILTRATION TEST RESULTS

TEST LOCATION	SURFACE ELEVATION (FT)	PROPOSED TEST ELEVATION (FT)	ACTUAL TEST ELEVATION (FT)	LIMITING ZONE ELEVATION (FT)	INFILTRATION RATE (IN/HR)*
TP-1	294	290	292	WEATHERED BEDROCK AT 290	0
TP-2	298	290	296.5	WEATHERED BEDROCK AT 294.5	0
TP-3	290	288	289	WEATHERED BEDROCK AT 287	0
TP-4A	298	288	NO TEST	WEATHERED BEDROCK AT 296.7	NO TEST
TP-5	288	288	287.5	GROUNDWATER AT 285.5	0
TP-6	288	288	287.5	GROUNDWATER AT 285.5	0
TP-7	286	282	281	WEATHERED BEDROCK AT 281	0
TP-8	285	282	NO TEST	WEATHERED BEDROCK AT 284	NO TEST

TP-4B 290 288 NO TEST WEATHERED BEDROCK AT 289 NO TEST

*INFILTRATION RATES REPRESENT THE RATES RECORDED IN THE FIELD AND NO SAFETY FACTOR HAS BEEN APPLIED

DESIGN ENGINEER CERTIFICATION

I, DERYK SHAW, ON THIS DATE _____ HEREBY CERTIFY THAT THE SWM SITE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE NESHAMINY CREEK WATERSHED ACT 167 STORMWATER MANAGEMENT ORDINANCE OR PLAN.

_____

LANDOWNER CERTIFICATION

ANY REVISION TO THE APPROVED SWM SITE PLAN MUST BE APPROVED BY THE MUNICIPALITY AND THAT A REVISED E&S PLAN MUST BE SUBMITTED TO THE CONSERVATION DISTRICT.

LANDOWNER: _____

DATE: _____

NO.	DATE	REVISION
8	5/9/23	PER TWP AND DEP COMMENT LETTERS
7	4/6/23	PER TWP COMMENT LETTERS
6	01/27/23	PER TWP COMMENT LETTERS
5	11/23/22	PER TWP AND DEP COMMENT LETTERS
4	10/24/22	CLIENT CHANGES
3	09/20/22	CLIENT REVISIONS
2	08/19/22	PER BCCD AND TWP COMMENT LETTERS
1	07/14/22	PER CNBSA REVIEW

FOR RETTEW ASSOCIATES BY:

XREFS:
111902019-SV-BASE
111902019-LD-BASE
111902019-LD-GRTL
111902019-LD-GRTL1
111902019-LD-EROS
111902019-LD-LAND
111902019-SV-SWM

MANAGER: KIM M. FASNACHT
DESIGN BY: MJB | CHKD BY: KMF
SURV. CHIEF: | FIELDBOOK NO. DATA COLLECTOR
DRAWN BY: JMS | CHKD BY: JAM

DRAWING REFERENCE: C:\LDAD\System\Software\Autodesk\Temp\AC4\Publish_13132\111902019-Prelim_Final LD Plan.dwg

CLIENT
101 INDEPENDENCE LANE ASSOCIATES, LLC
ONE TOWER BRIDGE
100 FRONT STREET, SUITE 560
WEST CONSHOHOCKEN, PA 19428

SCALE
1"=40'
0 20' 40' 80' 120'

RETTEW
RETTEW Associates, Inc.
3020 Columbia Avenue, Lancaster, PA 17603
Phone (717) 435-8366
Email info@rettew.com
Website www.rettew.com
Engineers • Planners • Surveyors • Landscape Architects
Environmental Consultants

PCSM PLAN
PRELIMINARY/FINAL LAND DEVELOPMENT PLAN
141 INDEPENDENCE LANE
NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

DATE: 6/9/2022
SHEET NO. 23 OF 26
DWG. NO. 111902019

Appendix 2.0

Appendix 3.0

NAD83

KEY MAP

SCALE: 1" = 100'

Runoff Calculation CN Worksheets

Project: PAC250095.00: Hanover Industrial - Chalfont

Description: Pre-Development

$Q = [(P - 0.2S)^2 / (P + 0.8S)] * 1/12 * 43,560$, where $S = (1000/CN) - 10$ and:

P = 3.24 Rainfall (in)

Catchment Areas

Description	HSG C / CN Meadow	HSG C / CN Woods, Good Condition	HSG D / CN Meadow	HSG D / CN Woods, Good Condition	Impervious Impervious	Impervious Impervious as Meadow	Impervious Impervious as Meadow	Total Area (Ac)	Composite CN	Runoff Q (cuft)
	71	70	78	77	98	71	78			
POA #1 to West Branch Neshaminy Creek										
POA #1	0.620	0.204	25.830	2.517	0.292	0.292		29.755	78	140,288
Total	0.620	0.204	25.830	2.517	0.292	0.292		29.755		140,288
POA #2 to UNT 02875 to West Branch Neshaminy Creek										
POA #2			4.899	1.156	0.142		0.142	6.339	78	30,594
Total			4.899	1.156	0.142		0.142	6.339		30,594
POA #3 to UNT 02874 to West Branch Neshaminy Creek										
POA #3	0.257		3.339	0.750				4.346	77	20,009
Total	0.257		3.339	0.750				4.346		20,009
Totals										
POA #2 to UNT 02875 to West Totals:	0.877	0.204	34.068	4.423	0.434	0.292	0.284	40.440		190,891

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-DRIN

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
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Fax: (267) 402-3401
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M. KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE092988

SHEET TITLE:

OVERALL PRE DEVELOPMENT DRAINAGE AREA MAP

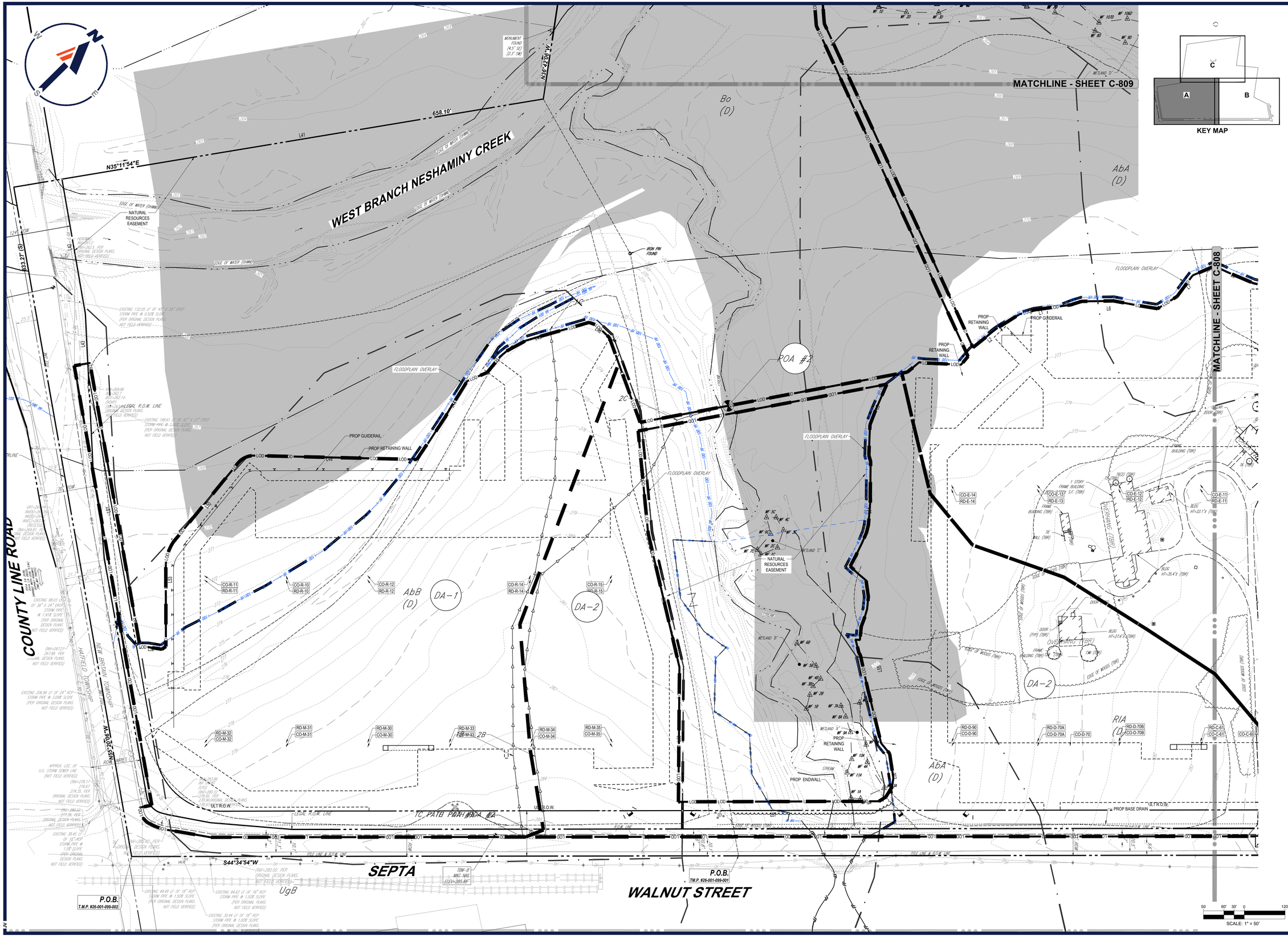
SHEET NUMBER:

C-01

OF 102

REVISION 1 - 07/28/2026

Jul 29, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-DRIN-PAC250095.00-1A-----LAYOUT C-01 OVRL PRED
JV



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PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

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NEW BRITAIN TOWNSHIP
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M. KEARSE

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SHEET TITLE:

PRE DEVELOPMENT DRAINAGE AREA MAP

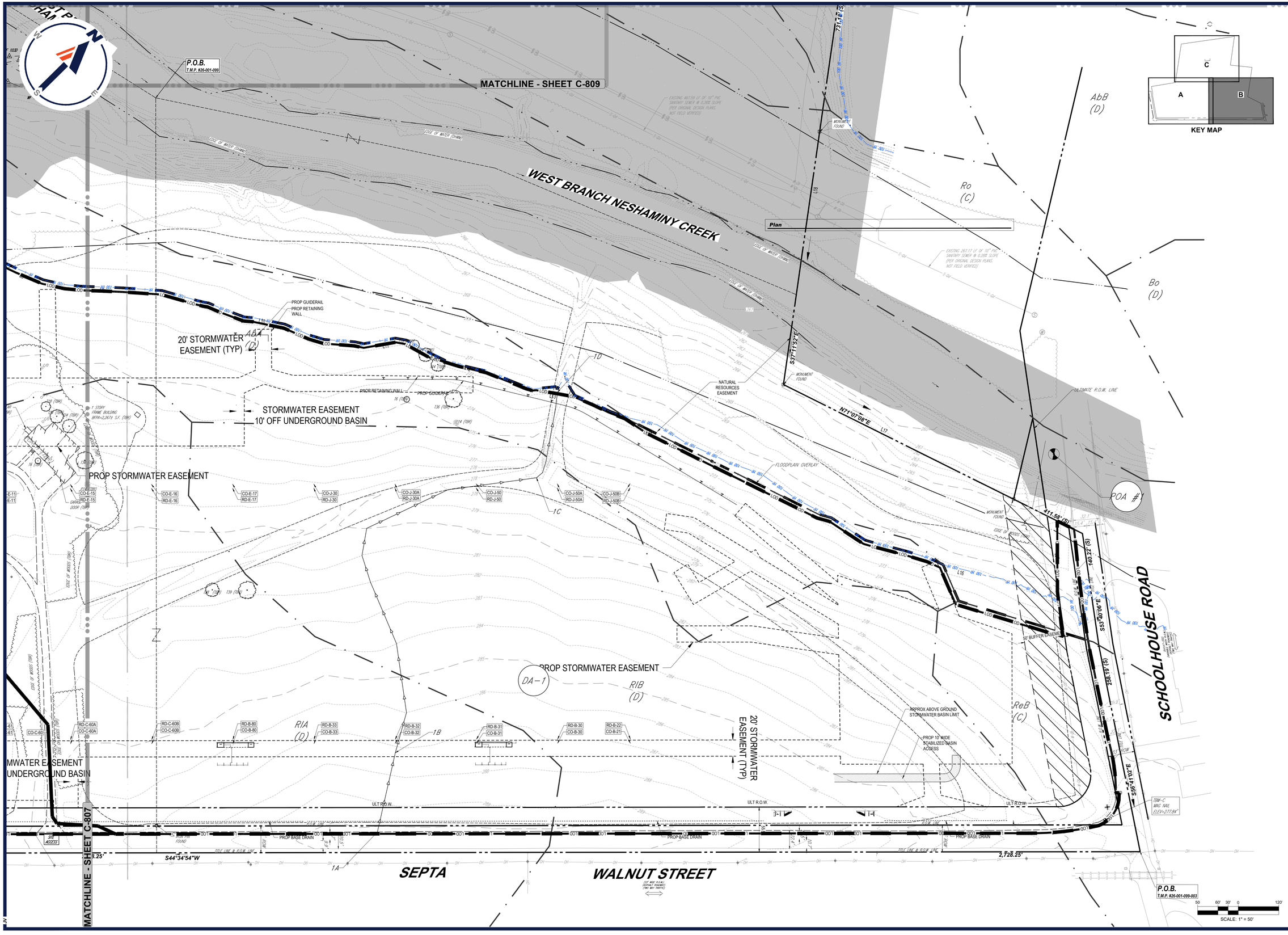
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Jul 28, 2026
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CAD I.D.:	P-CIVL-DRIN

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

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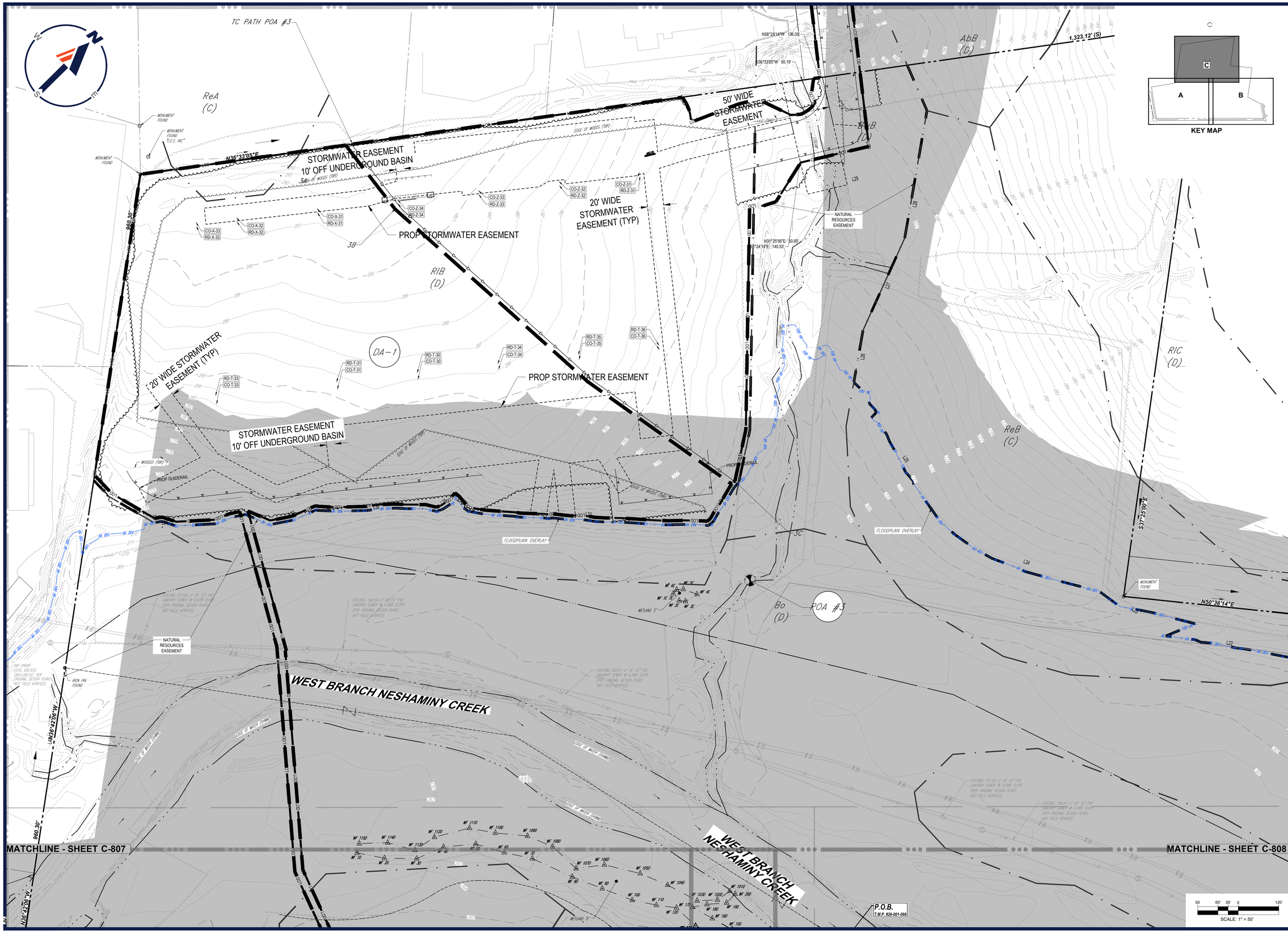
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PRE DEVELOPMENT DRAINAGE AREA MAP

SHEET NUMBER:

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PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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SHEET TITLE:

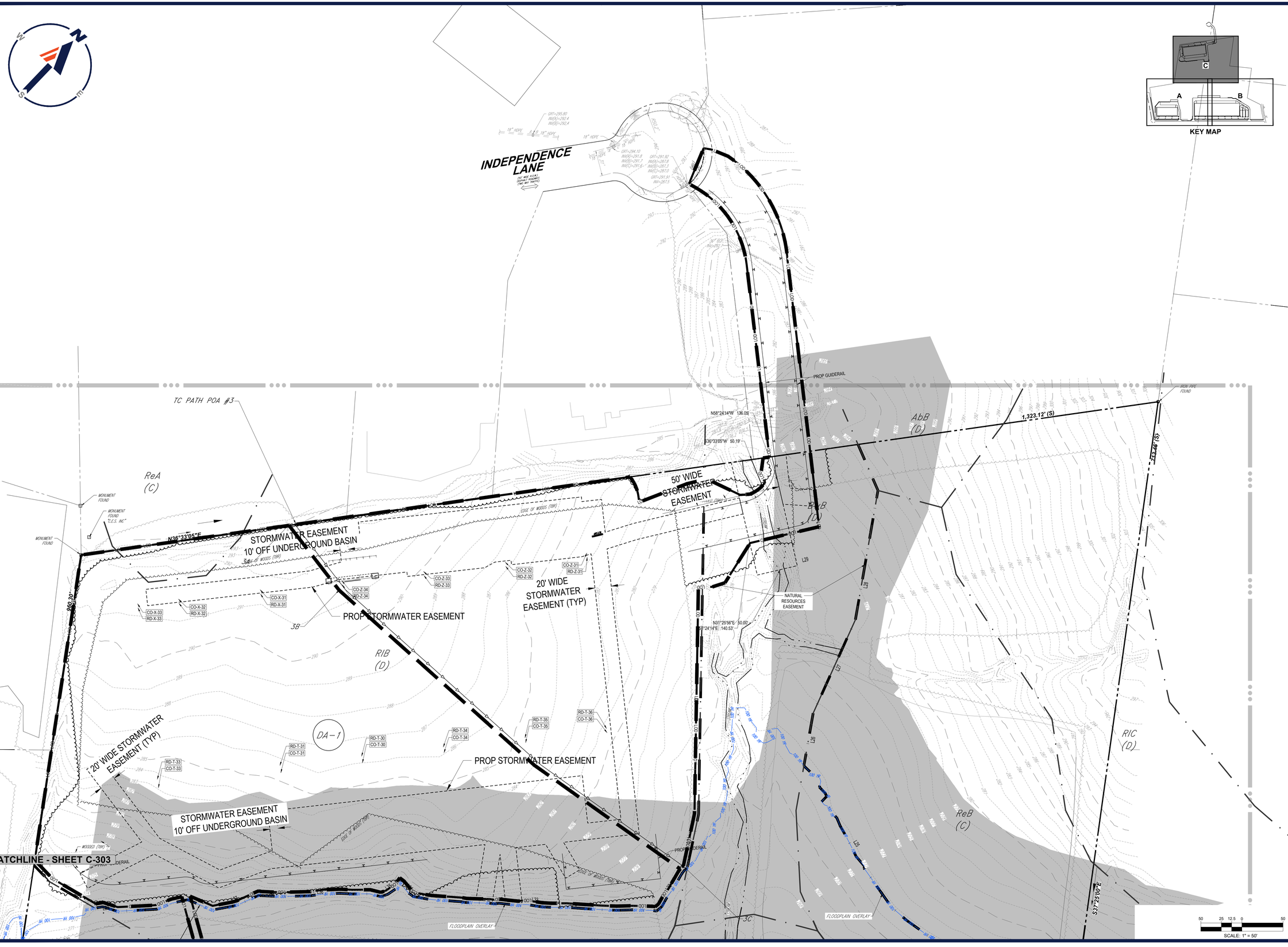
PRE DEVELOPMENT DRAINAGE AREA MAP

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PRE DEVELOPMENT DRAINAGE AREA MAP

SHEET NUMBER:

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JN

NAD83

KEY MAP

SCALE: 1" = 100'

Runoff Calculation CN Worksheets

Project: PAC250095.00: Hanover Industrial - Chalfont

Description: Post-Development

$Q = [(P - 0.2S)^2 / (P + 0.8S)] * 1/12 * 43.560$, where $S = (1000/CN) - 10$ and:

P = 3.24

Catchment Areas

Description	HSG C / CN: Open Space (Lawns), Good Condition 74	HSG C / CN: Woods, Good Condition 70	HSG D / CN: Open Space (Lawns), Good Condition 80	HSG D / CN: Woods, Good Condition 77	Impervious 98	Total Area (Ac)	Composite CN	Runoff Q (cuft)
POA #1 to West Branch Neshaminy Creek								
DA-1	0.222		1.658		4.859	6.739	93	62,524
DA-2			0.137		7.977	8.114	98	87,795
DA-3			0.587		3.830	4.417	96	44,864
DA-4			0.310	3.275		3.585	77	16,359
DA-5			0.381		2.500	2.881	96	29,273
DA-6	0.255	0.084	0.328	0.089	2.580	3.336	93	31,516
DA-7			0.299		3.954	4.253	97	44,719
DA-8	0.374		3.905		0.101	4.380	80	22,855
Total	0.851	0.084	7.605	3.364	25.801	37.705		339,905
POA #2 to UNT 02875 to West Branch Neshaminy Creek								
Bypass POA #2			1.462		0.030	1.492	80	7,931
Total			1.462		0.030	1.492		7,931
POA #3 to UNT 02874 to West Branch Neshaminy Creek								
Bypass to POA #3	0.072		1.171			1.243	80	6,368
Total	0.072		1.171			1.243		6,368
Totals								
Total	0.923	0.084	10.238	3.364	25.831	40.440		354,205

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-DRIN

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER

1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

M. KEARSE

PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE092988

SHEET TITLE:

OVERALL POST DEVELOPMENT DRAINAGE AREA MAP

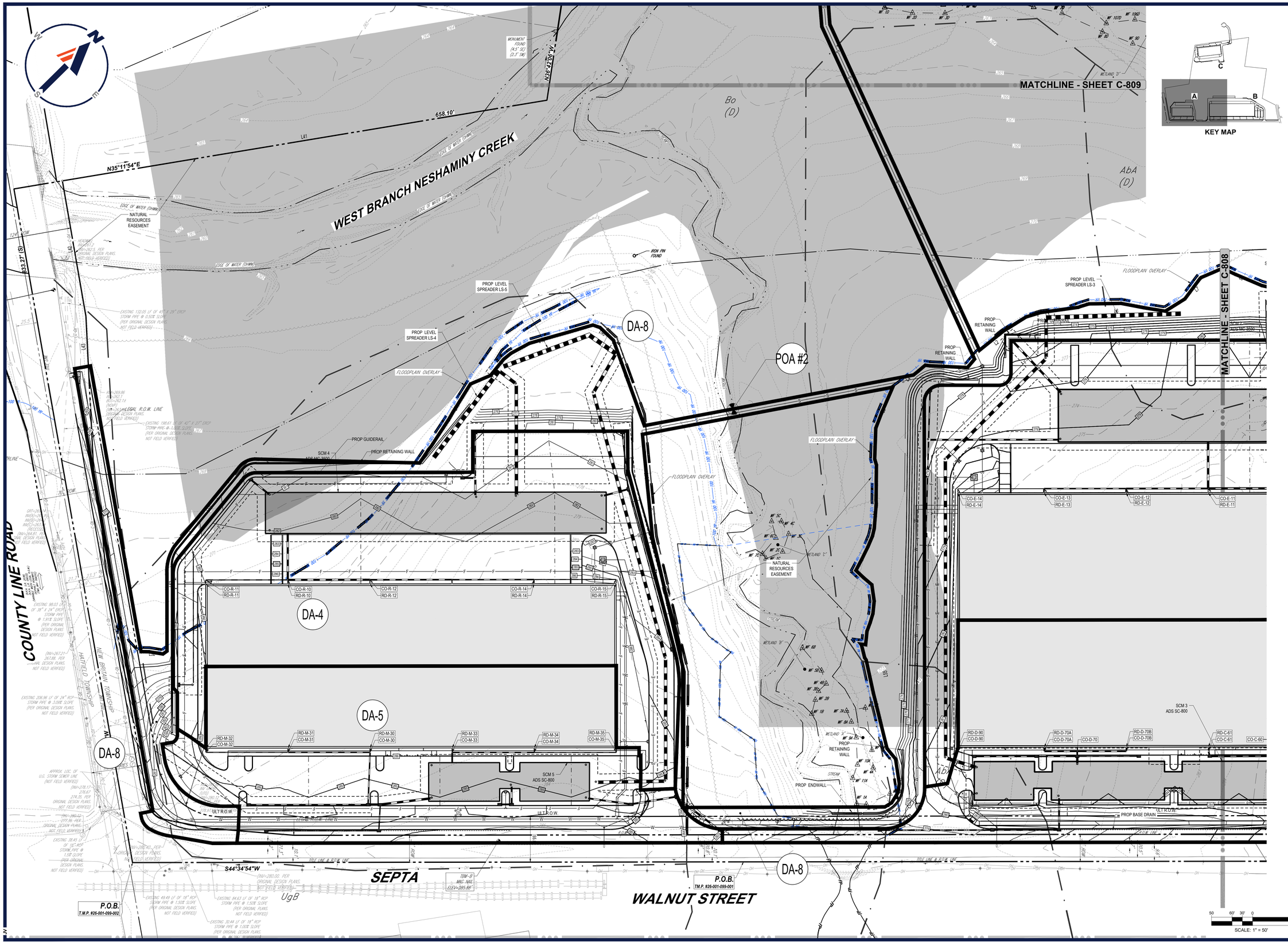
SHEET NUMBER:

C-06

OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-DRIN+PAC250095.00-1A-----LAYOUT: C-06 OVRL PSTD



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PROJECT No.:	PAC250095.00-1A
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PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD NEW BRITAIN TOWNSHIP BUCKS COUNTY, PA

BOHLER

1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

M. KEARSE

PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE092988

SHEET TITLE:

POST DEVELOPMENT DRAINAGE AREA MAP

SHEET NUMBER:

C-07
OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SET\CIVIL SITE PLAN\SP-CIVL-DRIN-PAC250095.00-1A---LAYOUT: C-07 PSTD A

MATCHLINE - SHEET C-809

WEST BRANCH NESHAMINY CREEK

EXISTING 467.53 LF OF 10" PVC SANITARY SEWER @ 0.25% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

EXISTING 267.17 LF OF 10" PVC SANITARY SEWER @ 0.25% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

TOE OF WATER (TYP.)

TOP OF BANK (TYP.)

PROP LEVEL SPREADER LS-2

PROP GUIDERAIL

PROP RETAINING WALL

DA-8

20' STORMWATER EASEMENT (TYP)

STORMWATER EASEMENT 10' OFF UNDERGROUND BASIN

PROP STORMWATER EASEMENT

PROP RETAINING WALL

PROP GUIDERAIL

DA-2

DA-3

DA-1

NATURAL RESOURCES EASEMENT

FLOODPLAIN OVERLAY

MONUMENT FOUND

S37°11'52"E

N71°07'08"E

L17

L16

L15

L18

731.48' (S)

411.58' (S)

140.22' (S)

S53°30'06"E

258.19' (S)

S58°41'02"E

ULTIMATE R.O.W. LINE

ULT.R.O.W.

R.O.W. LINE

TITLE LINE & R.O.W. LINE

PROP BASE DRAIN

PROP EMERGENCY SPILLWAY EL. 278.50

R=40.00'
TAN= 48.75'
Δ=104°55'56"
CHB=S06°03'04"E
CHD=61.85'

TOP OF ABOVE GROUND STORMWATER BASIN LIMIT ELEV=276.00

PROP 10' WIDE STABILIZED BASIN ACCESS

50' BUFFER

INFILTRATION AGB 1-3
INFILTRATION BASIN

SCHOOLHOUSE ROAD

WALNUT STREET

SEPTA

MATCHLINE - SHEET C-807

POA #1

P.O.B.
T.M.P. 926-001-099-003

TBM-C
MAG NAIL
ELEV=277.84'

S44°34'54"W

2,728.25'

AbB (D)

Ro (C)

Bo (D)

ReB (C)

KEY MAP

SCALE: 1" = 50'

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-DRIN-PAC250095.00-1A-----LAYOUT: C-08 PSTD B

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REVISIONS

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CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVL-DRIN

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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BUCKS COUNTY, PA

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Fax: (267) 402-3401
www.BohlerEngineering.com

M. KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE092988

SHEET TITLE:

POST DEVELOPMENT DRAINAGE AREA MAP

SHEET NUMBER:

C-08
OF 102

REVISION 1 - 07/28/2026

OFFSITE

DA-6

DA-7

DA-8

SCM 6
ADS SC-800

SCM 7
ADS MC-3500

STORMWATER EASEMENT
10' OFF UNDERGROUND BASIN

50' WIDE STORMWATER EASEMENT

PROP STORMWATER EASEMENT

NATURAL RESOURCES EASEMENT

RECREATION AREA
7.96 AC

PROP LEVEL SPREADER LS-7

PROP LEVEL SPREADER LS-6

FLOODPLAIN OVERLAY

WEST BRANCH NESHAMINY CREEK

WETLAND 'D'

POA #3

MONUMENT FOUND

IRON PIN FOUND

N36°42'06"W 960.30'

N58°24'14"W 136.03'

N36°33'05"W 50.19'

N36°33'05"E 960.30'

1,323.12' (S)

S37°25'00"E

N50°36'14"E

MATCHLINE - SHEET C-807

MATCHLINE - SHEET C-808

KEY MAP

SCALE: 1" = 50'

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SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ENVIRONMENTAL RESOURCES
PERMITTING SERVICES
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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-DRIN

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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Fax: (267) 402-3401
www.BohlerEngineering.com

M. KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE092988

SHEET TITLE:

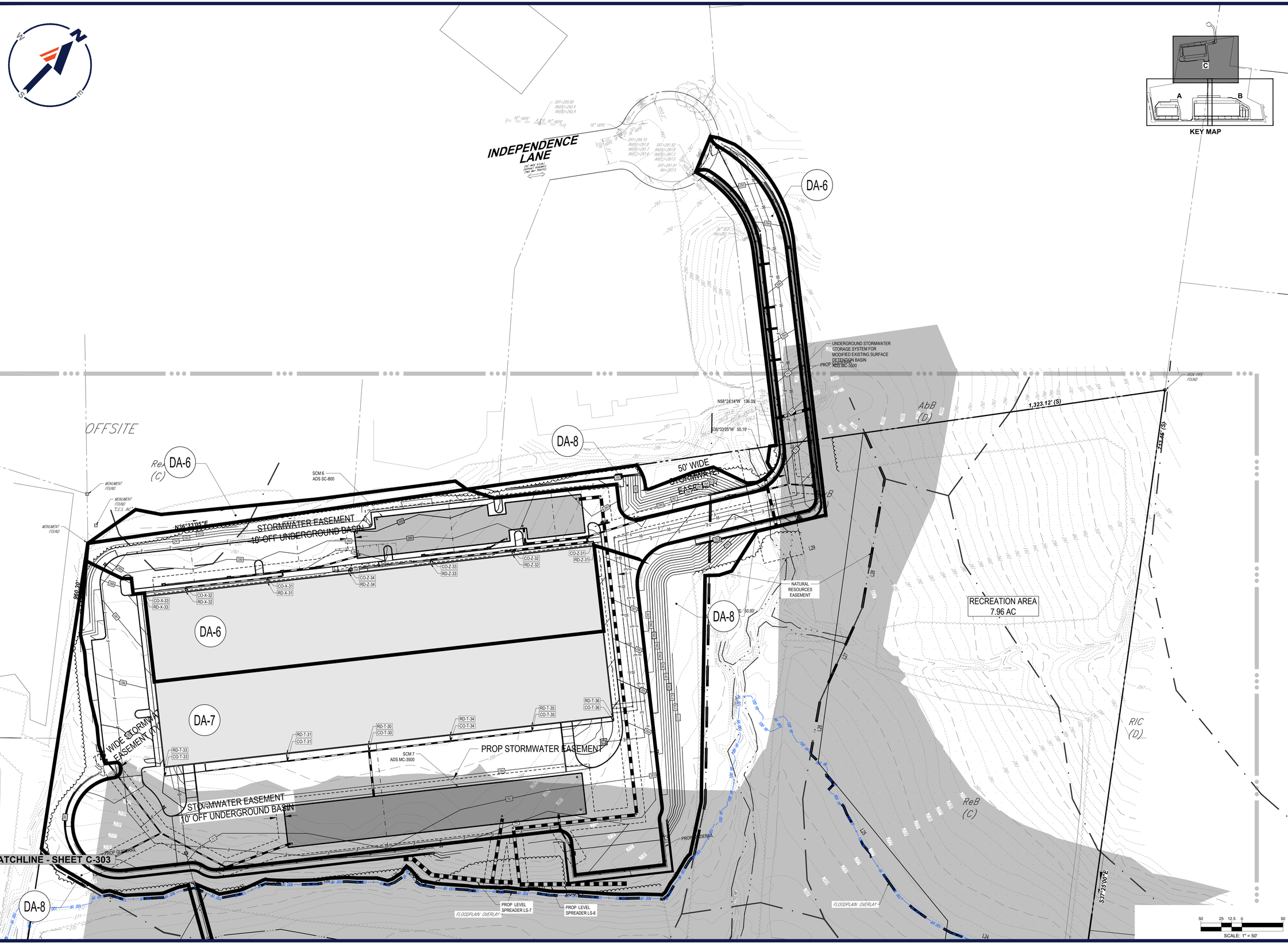
POST DEVELOPMENT DRAINAGE AREA MAP

SHEET NUMBER:

C-09
OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
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CAD I.D.:	P-CIVL-DRIN

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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Fax: (267) 402-3401
www.BohlerEngineering.com

M. KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE092988

SHEET TITLE:

POST DEVELOPMENT DRAINAGE AREA MAP

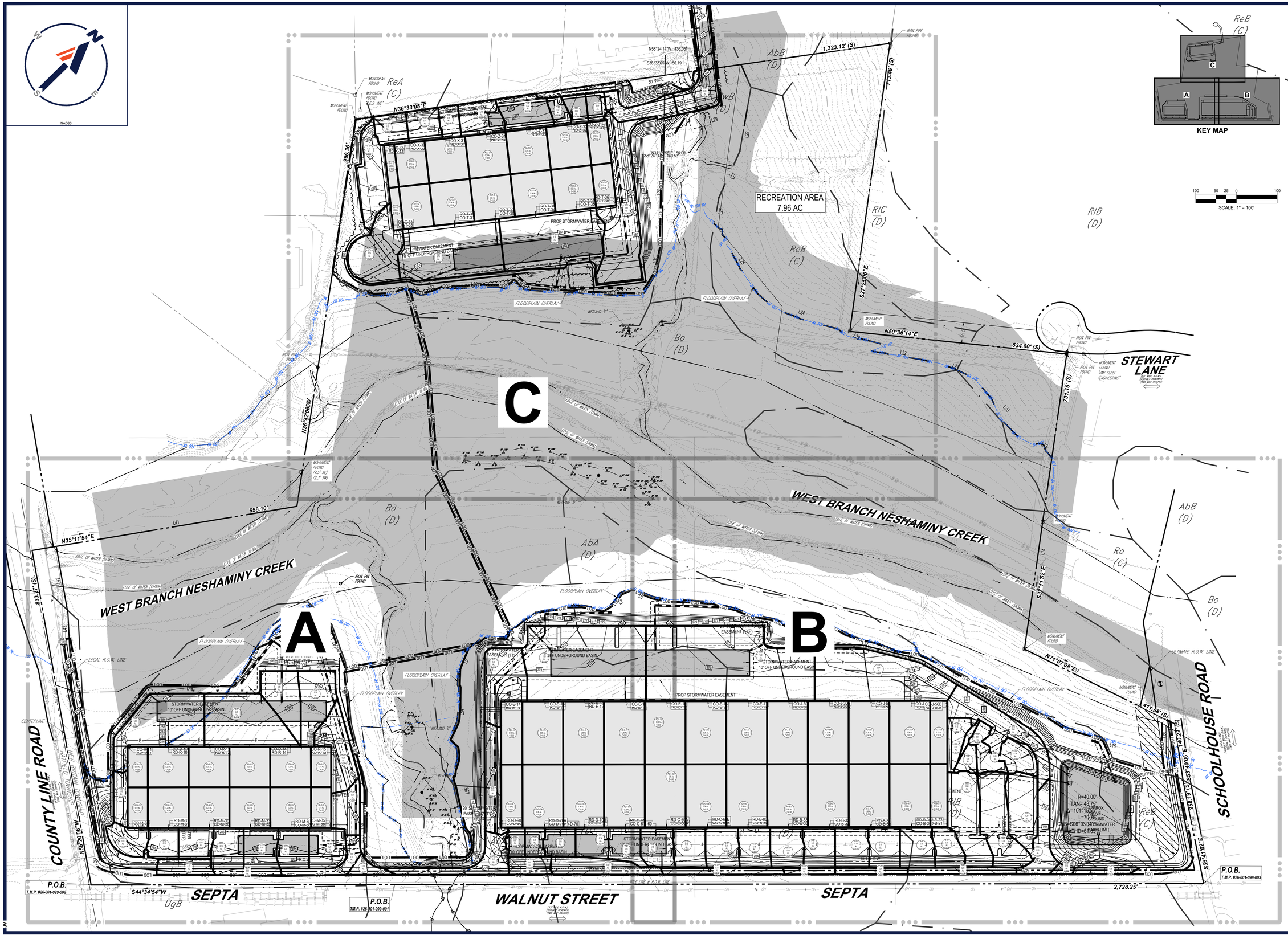
SHEET NUMBER:

C-10
OF 102

REVISION 1 - 07/28/2026

Jul 26, 2026
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NADB3



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PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

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NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

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M. KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE092988

SHEET TITLE:

OVERALL INLET DRAINAGE AREA MAP

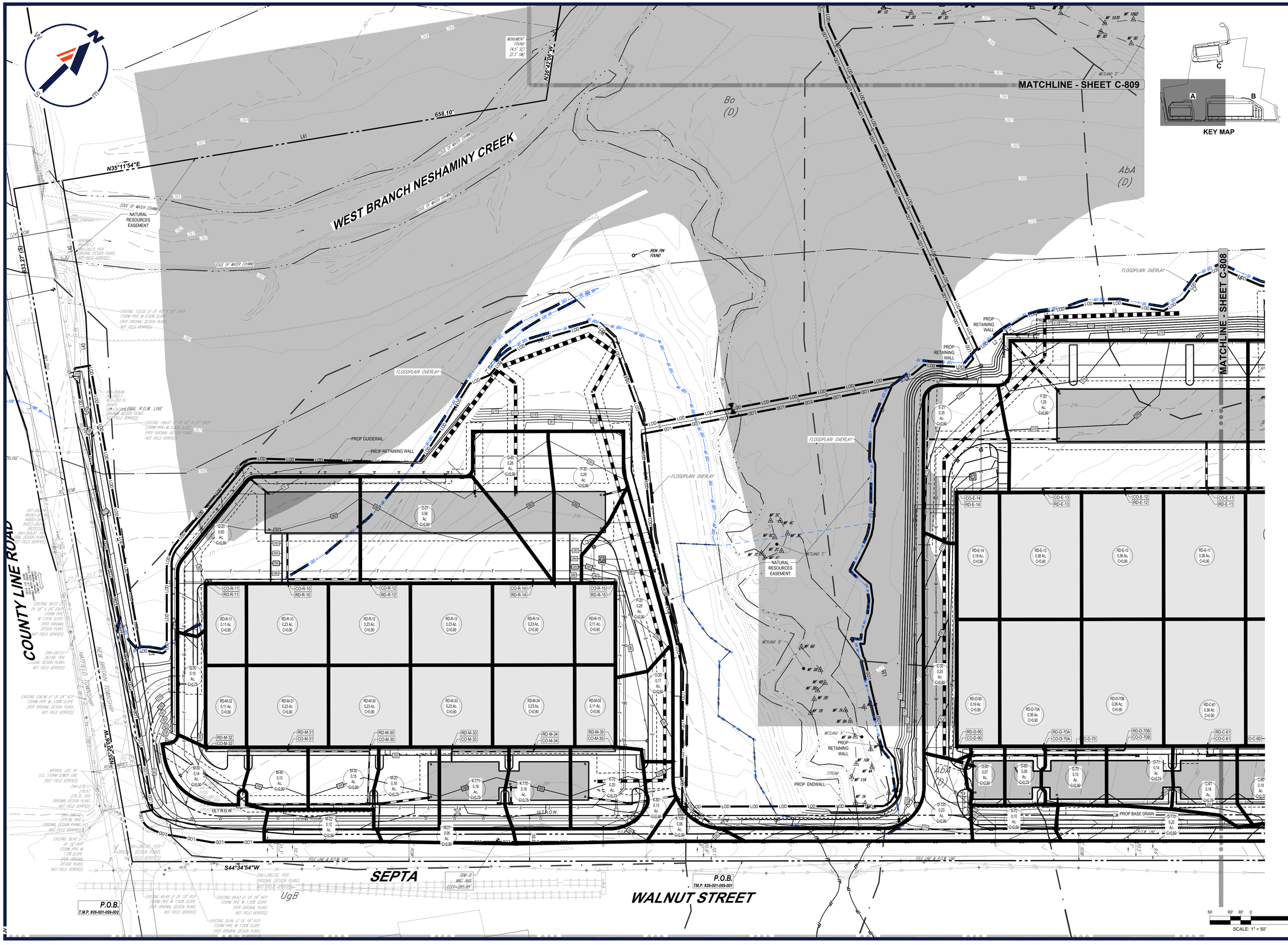
SHEET NUMBER:

C-11

OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVL-DRIN-PAC250095.00-1A-----LAYOUT: C-11 OVRL INLT


MATCHLINE - SHEET C-809
MATCHLINE - SHEET C-808
WEST BRANCH NESHAMINY CREEK
COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
HATFIELD TOWNSHIP
WALNUT STREET
SEPTA
N35°11'54"E
658.10'
N36°42'56"W
S44°34'54"W
693.27'
L41
L45
L42
L43
L44
L46
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L85

MATCHLINE - SHEET C-809

WEST BRANCH NESHAMINY CREEK

TOE OF WATER (TYP)

EXISTING 447.53 LF OF 10" PVC SANITARY SEWER @ 0.25% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

EXISTING 267.17 LF OF 10" PVC SANITARY SEWER @ 0.25% SLOPE (PER ORIGINAL DESIGN PLANS, NOT FIELD VERIFIED)

MONUMENT FOUND

S37°11'52"E

N71°07'08"E

411.58' (S)

140.22' (S)

258.19' (S)

S53°30'06"E

S58°41'07"E

SCHOOLHOUSE ROAD

ULTIMATE R.O.W. LINE

PROP GUIDERAIL

PROP RETAINING WALL

20' STORMWATER EASEMENT (TYP)

STORMWATER EASEMENT 10' OFF UNDERGROUND BASIN

PROP STORMWATER EASEMENT

NATURAL RESOURCES EASEMENT

FLOODPLAIN OVERLAY

50' BUFFER EASEMENT

R=40.00'
TAN= 48.75'
Δ=104°09'56"
CHB=S06°03'04"E
CHD=61.85'

ABOVE GROUND STORMWATER BASIN LIMIT

PROP 10' WIDE STABILIZED BASIN ACCESS

50' STORMWATER EASEMENT

PROP BASE DRAIN

ROW PIN FOUND

TITLE LINE & R.O.W. LINE

S44°34'54"W

2,728.25'

SEPTA

WALNUT STREET

(1ST MOST RURAL) (ASPHALT ROADWAY) (TWO WAY TRAFFIC)

MATCHLINE - SHEET C-807

TEMP C MAC NAIL ELEV=277.84'

P.O.B.
T.M.P. 926-001-099-003

KEY MAP

SCALE: 1" = 50'

Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SET\CIVIL SITE PLANS\P-CIVL-DRIN-PAC250095.00-1A-----LAYOUT: C-13 INLT B
JW

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PENNSYLVANIA LICENSE No. PE092988

SHEET TITLE:

INLET DRAINAGE AREA MAP

SHEET NUMBER:

C-13
OF 102

REVISION 1 - 07/28/2026



Jul 28, 2026
P:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SETS\CIVIL SITE PLANS\P-CIVIL-DRIN-PAC250095.00-1A---LAYOUT C-14 INLT C

BOHLER

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1	07/28/2026	PER TOWNSHIP COMMENTS	PAB / RDE

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PROJECT No.:	PAC250095.00-1A
DRAWN BY:	PAB
CHECKED BY:	RDE
DATE:	04/06/2026
CAD I.D.:	P-CIVIL-DRIN

PROJECT:

PRELIMINARY SUBDIVISION / LAND DEVELOPMENT PLANS

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
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M. KEARSE

PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE092988

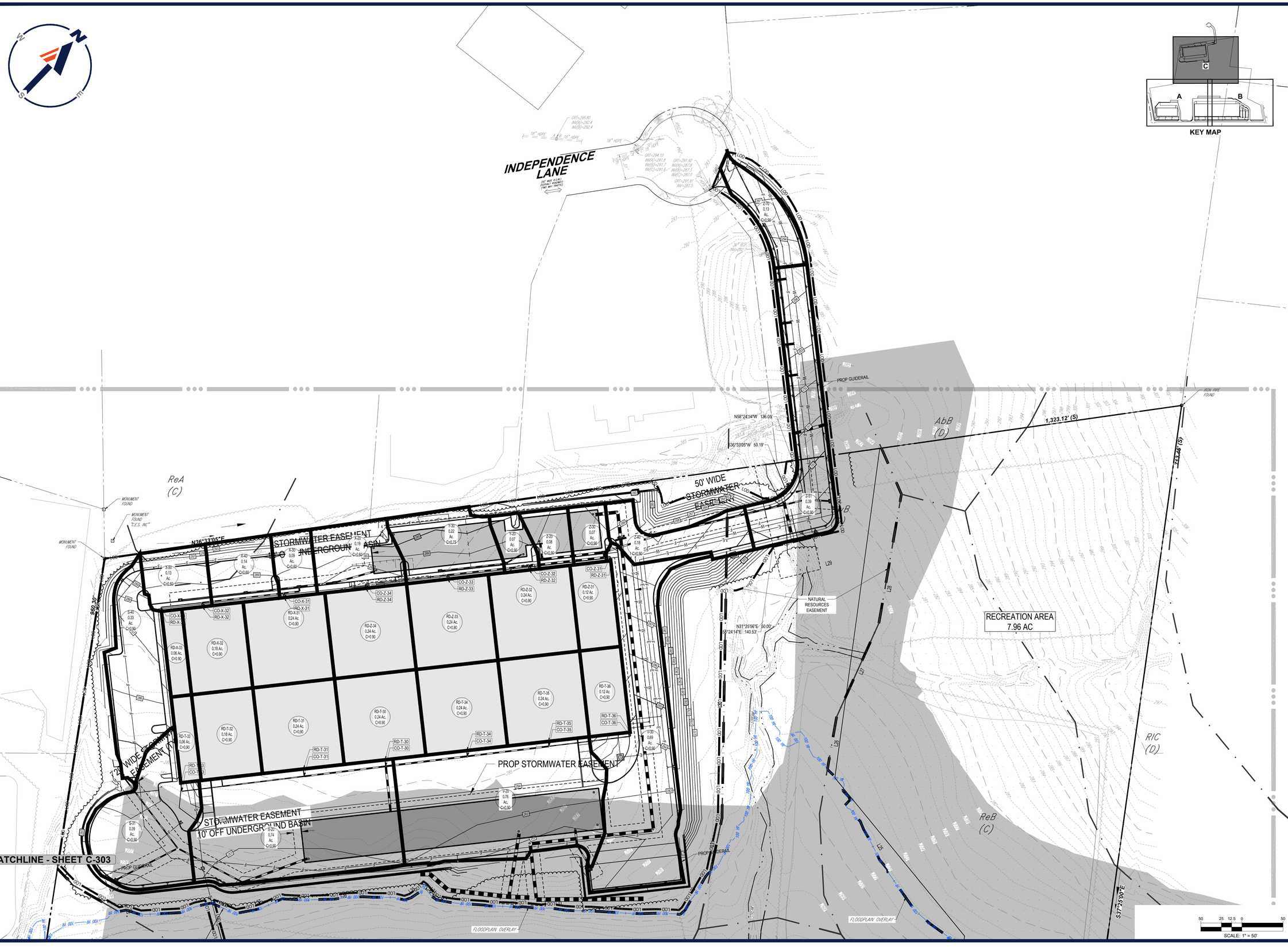
SHEET TITLE:

INLET DRAINAGE AREA MAP

SHEET NUMBER:

C-14
OF 102

REVISION 1 - 07/28/2026



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DRAWN BY:	PAB
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DATE:	04/06/2026
CAD I.D.:	P-CIVL-DRIN

PROJECT:

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SHEET TITLE:

INLET DRAINAGE AREA MAP

SHEET NUMBER:

C-15
OF 102

REVISION 1 - 07/28/2026

Jul 28, 2026
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JV

Appendix 4.0

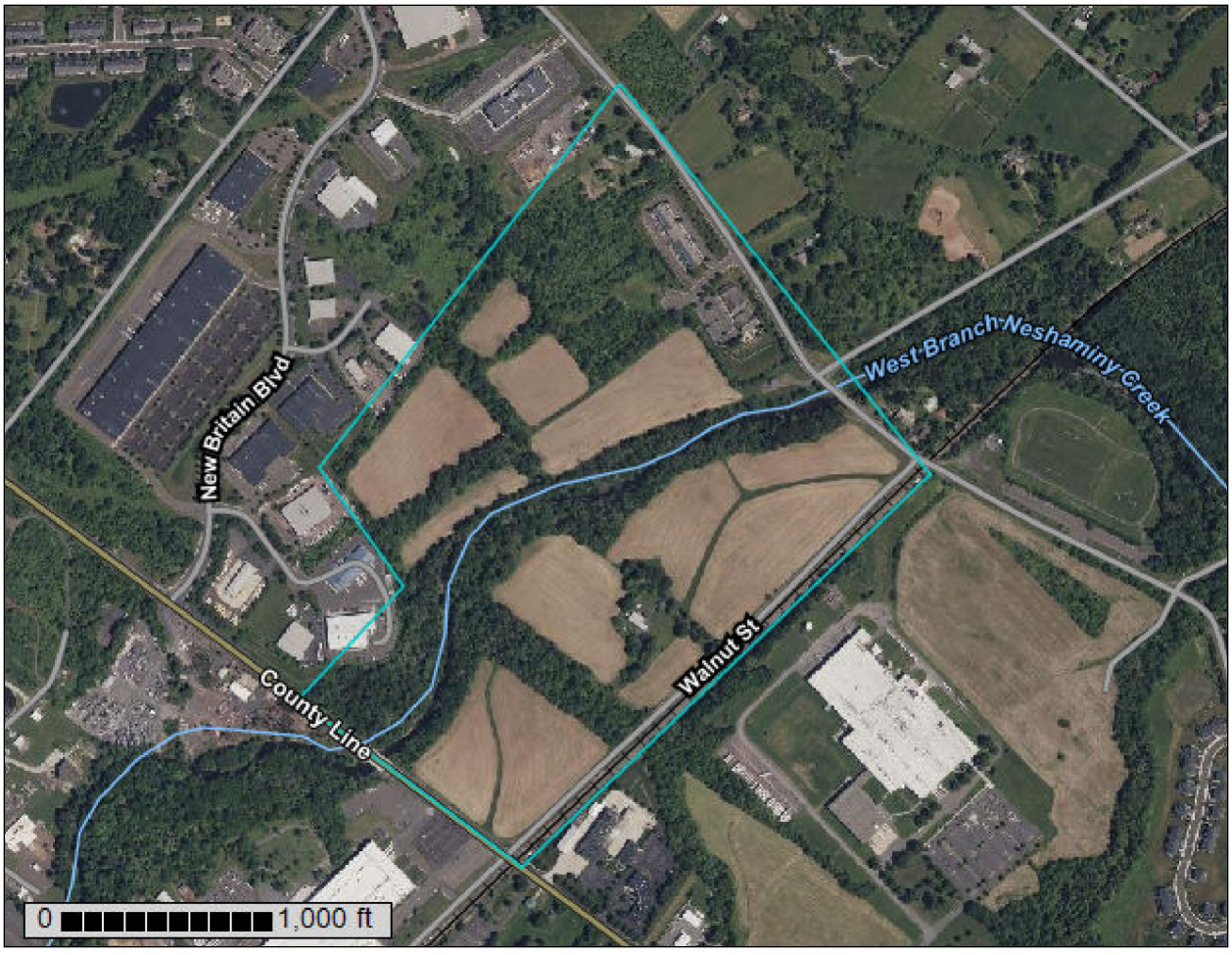
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Bucks County, Pennsylvania, and Montgomery County, Pennsylvania



November 18, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

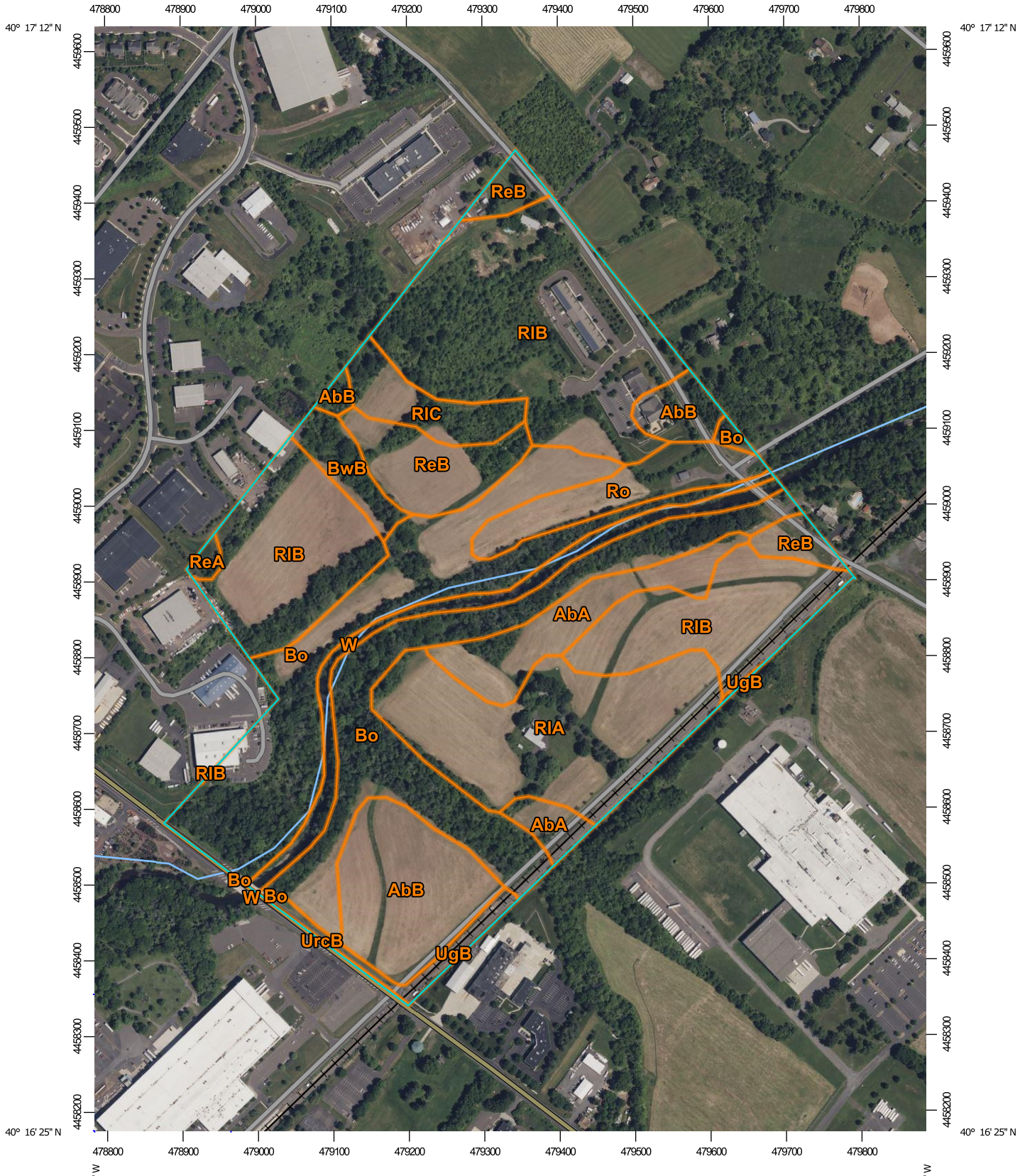
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:7,110 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:12,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bucks County, Pennsylvania
Survey Area Data: Version 22, Sep 5, 2025

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 20, Sep 4, 2025

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 3, 2022—Jul 20, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AbA	Abbottstown silt loam, 0 to 3 percent slopes	6.9	5.2%
AbB	Abbottstown silt loam, 3 to 8 percent slopes	10.9	8.2%
Bo	Bowmansville-Knauers silt loams	33.9	25.5%
BwB	Buckingham silt loam, 3 to 8 percent slopes	2.3	1.7%
ReA	Readington silt loam, 0 to 3 percent slopes	0.4	0.3%
ReB	Readington silt loam, 3 to 8 percent slopes	7.3	5.5%
RlA	Reaville channery silt loam, 0 to 3 percent slopes	16.2	12.2%
RlB	Reaville channery silt loam, 3 to 8 percent slopes	39.9	30.1%
RlC	Reaville channery silt loam, 8 to 15 percent slopes	3.6	2.7%
Ro	Rowland silt loam	5.0	3.7%
UgB	Urban land-Abbottstown complex, 0 to 8 percent slopes	1.8	1.3%
W	Water	4.4	3.3%
Subtotals for Soil Survey Area		**132.6**	**99.9%**
Totals for Area of Interest		**132.7**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bo	Bowmansville-Knauers silt loams	0.0	0.0%
UrcB	Urban land-Abbottstown complex, 0 to 8 percent slopes	0.1	0.1%
W	Water	0.0	0.0%
Subtotals for Soil Survey Area		**0.1**	**0.1%**
Totals for Area of Interest		**132.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps.

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Bucks County, Pennsylvania

AbA—Abbottstown silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tt88
Elevation: 130 to 660 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 150 to 178 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Abbottstown and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Abbottstown

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Acid reddish brown residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 20 inches: silt loam
Bx - 20 to 39 inches: channery silt loam
BCg - 39 to 48 inches: channery silt loam
R - 48 to 58 inches: bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 22 inches to fragipan; 46 to 50 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Croton

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Penn

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

AbB—Abbottstown silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2v7gd
Elevation: 130 to 660 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 190 to 210 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Abbottstown and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Abbottstown

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Acid reddish brown residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 20 inches: silt loam
Bx - 20 to 39 inches: channery silt loam
BCg - 39 to 48 inches: channery silt loam

R - 48 to 58 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 22 inches to fragipan; 40 to 60 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Klinesville

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Croton

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Penn

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Bo—Bowmansville-Knauers silt loams

Map Unit Setting

National map unit symbol: l7nk
Elevation: 150 to 900 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 150 to 210 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Bowmansville and similar soils: 41 percent
Knauers and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bowmansville

Setting

Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Recent alluvial deposits weathered from sandstone and siltstone

Typical profile

Ap - 0 to 7 inches: silt loam
Bg - 7 to 26 inches: silty clay loam
Cg - 26 to 43 inches: fine sandy loam
2Cg - 43 to 65 inches: stratified gravel to sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 72 to 99 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F148XY028PA - Moist, Triassic, Riparian Zone, Ecotonal Meadow-Shrub-Forest

Hydric soil rating: No

Description of Knauers

Setting

Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Recent alluvium derived from sandstone and shale

Typical profile

A - 0 to 8 inches: silt loam
Bg1 - 8 to 17 inches: silt loam
Bg2 - 17 to 24 inches: gravelly sandy loam
2Cg - 24 to 60 inches: stratified sand to gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 72 to 99 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Occasional
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F148XY031PA - Hydric, Triassic, Riparian Zone, Swamp Meadow-Shrub-Forest
Hydric soil rating: Yes

Minor Components

Rowland

Percent of map unit: 20 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

BwB—Buckingham silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: l7nv
Elevation: 150 to 900 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 150 to 210 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Buckingham and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buckingham

Setting

Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Fine-loamy colluvium and old alluvium derived from shale and siltstone

Typical profile

A - 0 to 7 inches: silt loam
Bt - 7 to 30 inches: silt loam
Btx1 - 30 to 44 inches: silty clay loam
Btx2 - 44 to 70 inches: gravelly silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to fragipan; 80 to 99 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D

Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Bowmansville
Percent of map unit: 8 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Knauers
Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Croton
Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

ReA—Readington silt loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: l7s3
Elevation: 200 to 1,000 feet
Mean annual precipitation: 36 to 55 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 160 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Readington and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Readington

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Head slope, side slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 8 inches: silt loam
Bt - 8 to 29 inches: silt loam
Btx - 29 to 58 inches: channery silt loam
R - 58 to 68 inches: bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 36 inches to fragipan; 40 to 70 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 8 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Reaville

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Croton

Percent of map unit: 3 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

ReB—Readington silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w05x
Elevation: 70 to 950 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 43 to 57 degrees F
Frost-free period: 170 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Readington and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Readington

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Head slope, side slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Triassic colluvium derived from shale and siltstone and/or triassic residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 10 inches: silt loam
Bt1 - 10 to 17 inches: silt loam
Bt2 - 17 to 34 inches: silty clay loam
Btx - 34 to 48 inches: clay loam
C - 48 to 58 inches: channery silt loam
R - 58 to 68 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 20 to 36 inches to fragipan; 40 to 60 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Reaville

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Abbottstown

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

RIA—Reaville channery silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: l7s6
Elevation: 150 to 1,300 feet
Mean annual precipitation: 36 to 55 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 130 to 210 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Reaville and similar soils: 90 percent
Minor components: 9 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reaville

Setting

Landform: Hillslopes, drainageways
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Red triassic residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bt - 8 to 19 inches: channery silty clay loam
C - 19 to 32 inches: very channery silt loam
R - 32 to 42 inches: bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Abbottstown

Percent of map unit: 1 percent
Landform: Hillslopes

Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Joanna

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Bowmansville

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Croton

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Klinesville

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Knauers

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

RIB—Reaville channery silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: l7s7
Elevation: 150 to 1,300 feet
Mean annual precipitation: 36 to 55 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 130 to 210 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Reaville and similar soils: 90 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reaville

Setting

Landform: Hillslopes, drainageways
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Red triassic residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bt - 8 to 19 inches: channery silty clay loam
C - 19 to 32 inches: very channery silt loam
R - 32 to 42 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Klinesville

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Bowmansville

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Knauers

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Joanna

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Abbottstown

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

Croton

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

RIC—Reaville channery silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: l7s8
Elevation: 150 to 1,400 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 160 to 210 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Reaville and similar soils: 90 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Reaville

Setting

Landform: Hillslopes, drainageways
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Red triassic residuum weathered from sandstone and shale

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bt - 8 to 19 inches: channery silty clay loam
C - 19 to 32 inches: very channery silt loam
R - 32 to 42 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 36 inches
Frequency of flooding: None
Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Abbottstown

Percent of map unit: 1 percent
Hydric soil rating: No

Knauers

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Croton

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Bowmansville

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Steinsburg

Percent of map unit: 1 percent
Landform: Hillsides
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Convex

Across-slope shape: Convex
Hydric soil rating: No

Ro—Rowland silt loam

Map Unit Setting

National map unit symbol: l7s9
Elevation: 150 to 1,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 150 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Rowland and similar soils: 82 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rowland

Setting

Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Alluvium derived from sandstone and shale

Typical profile

A - 0 to 12 inches: silt loam
B - 12 to 34 inches: silty clay loam
Cg - 34 to 46 inches: silty clay loam
2Cg - 46 to 61 inches: stratified gravel to sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C

Ecological site: F148XY028PA - Moist, Triassic, Riparian Zone, Ecotonal Meadow-Shrub-Forest
Hydric soil rating: No

Minor Components

Knauers
Percent of map unit: 8 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Abbottstown
Percent of map unit: 6 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

UgB—Urban land-Abbottstown complex, 0 to 8 percent slopes

Map Unit Setting
National map unit symbol: l7ss
Elevation: 250 to 1,300 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 130 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition
Urban land: 65 percent
Abbottstown and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artifically covered areas

Typical profile
C - 0 to 6 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Abbottstown

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Acid reddish brown residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 10 inches: silt loam
Btg - 10 to 20 inches: silt loam
Btxg - 20 to 39 inches: channery loam
BCg - 39 to 48 inches: channery silt loam
R - 48 to 58 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 15 to 30 inches to fragipan; 40 to 60 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Klinesville

Percent of map unit: 5 percent
Landform: Hillslopes

Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: l7th
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 120 to 214 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Parent material: Rivers streams ponds

Properties and qualities

Frequency of ponding: Frequent

Montgomery County, Pennsylvania

Bo—Bowmansville-Knauers silt loams

Map Unit Setting

National map unit symbol: 2lh87
Elevation: 150 to 900 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 150 to 210 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Bowmansville and similar soils: 41 percent
Knauers and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bowmansville

Setting

Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Recent alluvial deposits weathered from sandstone and siltstone

Typical profile

Ap - 0 to 7 inches: silt loam
Bg - 7 to 26 inches: silty clay loam
Cg - 26 to 43 inches: fine sandy loam
2Cg - 43 to 65 inches: stratified gravel to sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 72 to 99 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F148XY028PA - Moist, Triassic, Riparian Zone, Ecotonal Meadow-Shrub-Forest
Hydric soil rating: No

Description of Knauers

Setting

Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Recent alluvium derived from sandstone and shale

Typical profile

A - 0 to 8 inches: silt loam
Bg1 - 8 to 17 inches: silt loam
Bg2 - 17 to 24 inches: gravelly sandy loam
2Cg - 24 to 60 inches: stratified sand to gravelly sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 72 to 99 inches to lithic bedrock
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Occasional
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F148XY031PA - Hydric, Triassic, Riparian Zone, Swamp Meadow-Shrub-Forest
Hydric soil rating: Yes

Minor Components

Rowland

Percent of map unit: 20 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

UrcB—Urban land-Abbottstown complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2l0p9
Elevation: 250 to 1,300 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 130 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 65 percent
Abbottstown and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artifically covered areas

Typical profile

C - 0 to 6 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Abbottstown

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Acid reddish brown residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 10 inches: silt loam
Btg - 10 to 20 inches: silt loam
Btxg - 20 to 39 inches: channery loam
BCg - 39 to 48 inches: channery silt loam
R - 48 to 58 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 15 to 30 inches to fragipan; 40 to 60 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F148XY025PA - Moist, Triassic, Upland, Mixed Oak - Hardwood - Conifer Forest
Hydric soil rating: No

Minor Components

Penn

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Klinesville

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: 1nnv3
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 120 to 214 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Parent material: Rivers streams ponds

Properties and qualities

Frequency of ponding: Frequent

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

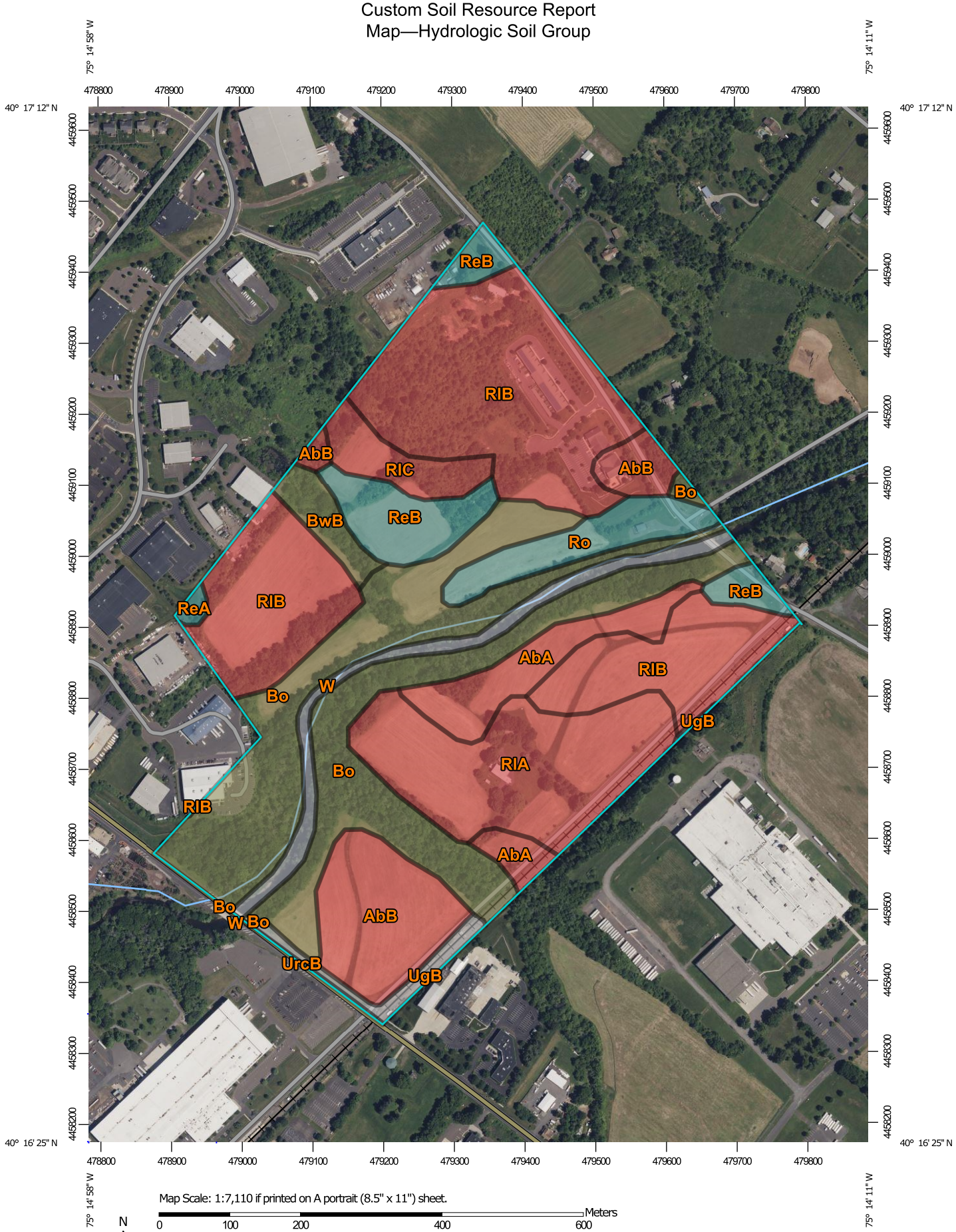
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group



Map Scale: 1:7,110 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:12,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bucks County, Pennsylvania
Survey Area Data: Version 22, Sep 5, 2025

Soil Survey Area: Montgomery County, Pennsylvania
Survey Area Data: Version 20, Sep 4, 2025

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 3, 2022—Jul 20, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AbA	Abbottstown silt loam, 0 to 3 percent slopes	D	6.9	5.2%
AbB	Abbottstown silt loam, 3 to 8 percent slopes	D	10.9	8.2%
Bo	Bowmansville-Knauers silt loams	C/D	33.9	25.5%
BwB	Buckingham silt loam, 3 to 8 percent slopes	C/D	2.3	1.7%
ReA	Readington silt loam, 0 to 3 percent slopes	C	0.4	0.3%
ReB	Readington silt loam, 3 to 8 percent slopes	C	7.3	5.5%
RlA	Reaville channery silt loam, 0 to 3 percent slopes	D	16.2	12.2%
RlB	Reaville channery silt loam, 3 to 8 percent slopes	D	39.9	30.1%
RlC	Reaville channery silt loam, 8 to 15 percent slopes	D	3.6	2.7%
Ro	Rowland silt loam	C	5.0	3.7%
UgB	Urban land-Abbottstown complex, 0 to 8 percent slopes		1.8	1.3%
W	Water		4.4	3.3%
Subtotals for Soil Survey Area			**132.6**	**99.9%**
Totals for Area of Interest			**132.7**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Bo	Bowmansville-Knauers silt loams	C/D	0.0	0.0%
UrcB	Urban land-Abbottstown complex, 0 to 8 percent slopes		0.1	0.1%
W	Water		0.0	0.0%
Subtotals for Soil Survey Area			**0.1**	**0.1%**
Totals for Area of Interest			**132.7**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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EXHIBIT 4

Walnut Street Warehouse
Transportation Impact Study

July 28, 2026
TPD# HANC.00005

Info@TPDinc.com

Walnut Street Warehouse

Transportation Impact Study

New Britian Township, Bucks County, PA

For Submission To:

PennDOT & New Britian Township

Moving ***Forward*** **Together**®

WALNUT STREET WAREHOUSE DEVELOPMENT TRANSPORTATION IMPACT STUDY

FOR SUBMISSION TO:

New Britain Township, Bucks County, PA
& PennDOT 6-0

Prepared For:
Hanover Company
7200 Wisconsin Avenue, Suite 820
Bethesda, MD 20814

November 12, 2025
Last Revised July 28, 2026
TPD # HANC.00005

Prepared By:
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EXECUTIVE SUMMARY

The purpose of this study is to examine the potential traffic impact associated with the proposed Hanover Warehouse Development on the roadway network in New Britain Township, Bucks County, PA. Based on this evaluation, the following conclusions were reached:

- This report has been prepared in accordance with Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits, dated June 2025, of PennDOT *Publication 282*.
- The project scope and the extent of the study area were based on the contents of the PennDOT TIS Scoping Application and associated feedback.
- The project site is located on the western side of Walnut Street, between County Line Road (SR 2038) and Schoolhouse Road.
- The proposed development will consist of three (3) warehouse buildings:
  - Building 1 - a 339,450 s.f. building along the western side of Walnut Street, just south of Schoolhouse Road;
  - Building 2 - a 100,000 s.f. building on the western side of Walnut Street, just north of County Line Road (SR 2038);
  - Building 3 - a 115,500 s.f. building on the western side of the property via a connection to Independence Lane.
- The proposed site will be served by three (3) full-access driveways to Walnut Street and one (1) connection to Independence Lane.
- All proposed driveway location sight distances will exceed PennDOT's applicable sight distance criteria.
- The proposed development is expected to generate 133 total trips (105 passenger vehicles and 28 truck trips) during the weekday A.M. peak hour and 150 total trips (117 passenger vehicles and 33 truck trips) during the weekday P.M. peak hour.
- Under all projected (build) conditions with the development of the proposed site and with site-related recommendations outlined in **Table II**, all study area intersections will satisfy PennDOT ILOS Standards.
- Levels of Service (LOS) for the study area intersections have been summarized in matrix form. **Table I** details the overall intersection LOS for each study area intersection.

TABLE I
OVERALL INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Time Period	2025 Existing	Opening Year 2034		Meets LOS Requirements?
			Base	Projected	
Walnut Street & County Line Road (SR 2038)	Weekday AM Peak	B (16.4)	B (16.7)	B (19.7)	YES
	Weekday PM Peak	B (18.2)	B (18.6)	C (22.2)	
Walnut Street & Schoolhouse Road	Weekday AM Peak	A (2.1)	A (2.1)	A (2.3)	YES
	Weekday PM Peak	A (6.2)	A (6.5)	A (7.5)	
Schoolhouse Road & Railroad Avenue	Weekday AM Peak	A (5.0)	A (5.0)	A (5.1)	YES
	Weekday PM Peak	A (3.8)	A (3.9)	A (4.0)	
County Line Road (SR 2038) & New Britain Boulevard/Private Driveway	Weekday AM Peak	A (4.8)	A (4.9)	A (5.4)	YES
	Weekday PM Peak	A (7.8)	A (7.9)	A (8.7)	
New Britain Boulevard & Independence Lane	Weekday AM Peak	A (1.1)	A (1.1)	A (1.5)	YES
	Weekday PM Peak	A (2.9)	A (2.9)	A (3.6)	
Trewigtown Road & Hamlet Drive/New Britain Boulevard	Weekday AM Peak	A (3.2)	A (3.2)	A (3.2)	YES
	Weekday PM Peak	A (3.0)	A (3.0)	A (3.1)	
Bethlehem Pike (SR 0309) & Line Lexington Road	Weekday AM Peak	C (25.3)	C (29.4)	C (31.5)	YES
	Weekday PM Peak	C (34.9)	D (42.1)	D (44.7)	
County Line Road (SR 2038) & Line Lexington Road[1]	Weekday AM Peak	A (3.9)	A (4.3)	A (4.0)	YES
	Weekday PM Peak	A (5.6)	A (4.8)	A (8.8)	
County Line Road (SR 2038) & Trewigtown Road (Western)	Weekday AM Peak	A (2.5)	A (2.5)	A (2.6)	YES
	Weekday PM Peak	A (4.3)	A (4.5)	A (4.6)	
County Line Road (SR 2038) & Trewigtown Road (Eastern)	Weekday AM Peak	A (1.6)	A (1.6)	A (1.6)	YES
	Weekday PM Peak	A (2.1)	A (2.1)	A (2.1)	
Trewigtown Road & Schoolhouse Road	Weekday AM Peak	A (7.6)	A (7.7)	A (7.8)	YES
	Weekday PM Peak	A (6.4)	A (6.5)	A (6.5)	
Walnut Street & Building 2 Access	Weekday AM Peak	--	--	A (0.5)	YES
	Weekday PM Peak	--	--	A (0.6)	
Walnut Street & Building 1 Southern Access	Weekday AM Peak	--	--	A (1.7)	YES
	Weekday PM Peak	--	--	A (1.7)	
Walnut Street & Building 1 Northern Access	Weekday AM Peak	--	--	A (0.2)	YES
	Weekday PM Peak	--	--	A (0.3)	

1 = Sim Traffic methodology used.
Exist. = Existing, Base = No-Build scenario, Proj. = Build scenario

» Site-related recommendations are summarized in **Table II**:

TABLE II
RECOMMENDATIONS

Intersection	Recommendations
Walnut Street & County Line Road	Modify the site corner radius to accommodate the anticipated truck turns
	Restripe the EB approach to include a 175' left turn lane.
	Relocate the southbound Walnut Street stop-bar to accommodate the anticipated truck turns
	Relocate the mast-arm on the site corner due to the radius modification
	Provide signage on the southbound Walnut Street at the approach to County Line Road to direct trucks to utilize County Line Road westbound to access Bethlehem Pike (Route 309).
Route 309 & Line-Lexington Road (signalized)	Modify the northeast corner radius for right turns from Line-Lexington Road onto northbound Route 309
	Relocate the mast-arm on the northeast corner due to the radius modification
	Install reflective backplates on the traffic signal heads
County Line Road & Line-Lexington Road (unsignalized)	Modify the southeast corner radius to accommodate truck turning right from Line-Lexington Road onto County Line Road
Walnut Street Site Frontage	Widen the Walnut Street site frontage cartway width to provide a minimum of 30-feet cartway
Walnut Street & Building 2 Access	Provide adequate turning ingress/egress radii
	Provide a "STOP" sign on the EB driveway approach
	Provide on-site signage to direct truck traffic to Route 309 via County Line Road
Walnut Street & Building 1 Southern access	Provide adequate turning ingress/egress radii
	Provide a "STOP" sign on the EB driveway approach
	Provide on-site signage to direct truck traffic to Route 309 via County Line Road
Walnut Street & Building 1 Northern Access	Provide adequate turning ingress/egress radii
	Provide a "STOP" sign on the EB driveway approach
	Provide on-site signage to direct truck traffic to Route 309 via County Line Road
Independence Lane Site Access	Provide a full-movement access to the existing cul-de-sac on Independence Lane
	Provide adequate turning ingress/egress radii
	Provide a "STOP" sign on the WB driveway approach

» The above site-related recommendations in **Table II** will be the responsibility of and completed by the developer during the HOP process.

INTRODUCTION

Traffic Planning and Design, Inc. (TPD) has completed a revised Transportation Impact Study (TIS) for the Proposed Walnut Street Warehouse Development in New Britain Township, Bucks County, Pennsylvania. The project site is located on the western side of Walnut Street, between County Line Road (SR 2038) and Schoolhouse Road, as shown in **Figure 1**. As shown in **Figure 2**, the proposed development will consist of three (3) warehouse buildings:

- Building 1 - a 339,450 s.f. building along the western side of Walnut Street, just south of Schoolhouse Road;
- Building 2 - a 100,000 s.f. building on the western side of Walnut Street, just north of County Line Road (SR 2038);
- Building 3 - a 115,500 s.f. building on the western side of the property via a connection to Independence Lane.

The proposed site will be served by three (3) full-access driveways to Walnut Street and one (1) connection to Independence Lane. TPD assumed a design year of 2034.

This report has been prepared in accordance with PennDOT's *Policies and Procedures for Transportation Impact Studies*, found in PennDOT's Publication 282, Appendix A, dated June 2025. The scope of this study was confirmed via a scoping application, dated July 23, 2025 and the subsequent reviews. The project correspondence is included in **Appendix A**.

EXISTING ROADWAY NETWORK

A field review of the existing roadway system in the study area was conducted. The existing roadway characteristics within the study area are summarized in **Table 1**. Photographs of the study area intersections are included in **Appendix B**.

TABLE 1
ROADWAY CHARACTERISTICS WITHIN STUDY AREA

Roadway	Ownership	Functional Classification/ Roadway Type	Predominant Directional Orientation	Average Daily Traffic	Posted Speed Limit
County Line Road	State (SR 2038)	Other Principal Arterial Highways	East-West	13,656[1]	45 mph
Bethlehem Pike	State (SR 0309)	Other Principal Arterial Highways	North-South	41,577[1]	40 mph
Walnut Street	Township		North-South	526[2]	25/40 mph
Schoolhouse Road	Township		East-West	503[2]	35 mph
Railroad Avenue	Township		North-South	3,428[2]	40 mph
Trewigtown Road (Western)	Township		North-South	2,484[1]	35 mph
Trewigtown Road (Eastern)	Township		North-South	--	35 mph
Hamlet Drive	Township		East-West	--	25 mph
New Britain Boulevard	Township		North-South	--	25 mph
Independence Lane	Township		East-West	--	25 mph
Line Lexington Road	State (SR 2008)	Other Principle Arterial Highways	East-West	13,431[1]	35/45 mph

1 = ADT from PennDOT TIRe (Date reviewed - September, 2025)
2 = ADT from PennDOT TIRe (Date reviewed - July, 2026)

Bicycle and Pedestrian Facilities

Based on observations during field visits at the study area intersections, there are no bicycle specific accommodations present. The pedestrian accommodations are described below per intersection.

- Walnut Street and County Line Road (SR 2038) – The signalized intersection does not have any sidewalks or crosswalks. There are "push button for green light" buttons for pedestrians to cross the County Line Road (SR 2038) approaches.
- Walnut Street and Schoolhouse Road – The unsignalized intersection does not have any pedestrian accommodations besides minimally paved shoulders.
- Schoolhouse Road and Railroad Avenue – The unsignalized intersection does not have any pedestrian accommodations besides minimally paved shoulders. There is a sidewalk starting at the intersection and going west along the southern side of Schoolhouse Road, with a pedestrian curb ramp to cross the western approach of the intersection.
- County Line Road (SR 2038) and New Britain Boulevard/Private Driveway – The signalized intersection has sidewalk on both sides of New Britain Boulevard with pedestrian curb ramps and a painted crosswalk to cross New Britain Boulevard. Pedestrians are prohibited via signage from crossing the County Line Road (SR 2038) approaches.
- New Britain Boulevard and Independence Lane – The unsignalized intersection has sidewalk on both sides of New Britain Boulevard and the northern side of Independence Lane. There are pedestrian curb ramps for crossing the Independence Lane approach.
- Trewigtown Road and Hamlet Drive/New Britain Boulevard – The unsignalized intersection has sidewalk on both sides of New Britain Boulevard, both sides of Hamlet Drive, and the western side of Trewigtown Road. There are pedestrian curb ramps on the Hamlet Drive and New Britain Boulevard approaches and painted crosswalks on the southern and western approaches of the intersection.
- Bethlehem Pike (SR 0309) and Line Lexington Road– The signalized intersection has a partial sidewalk along the Royal Farms site frontage. Pedestrians are prohibited via signage from crossing all approaches.
- County Line Road (SR 2038) and Line Lexington Road – The unsignalized intersection does not have any pedestrian accommodations or facilities besides minimally paved shoulders along County Line Road (SR 2038).
- County Line Road (SR 2038) and Trewigtown Road (Western) – The unsignalized intersection does not have any pedestrian accommodations or facilities besides minimally paved shoulders along County Line Road (SR 2038).
- County Line Road (SR 2038) and Trewigtown Road (Eastern) – The unsignalized intersection does not have any pedestrian accommodations or facilities besides minimally paved shoulders along County Line Road (SR 2038).
- Trewigtown Road and Schoolhouse Road - The unsignalized intersection does not have any pedestrian accommodations or facilities.

Mass Transit Facilities

Bucks County is provided with public transportation by SEPTA. SEPTA Bus route 132 (Telford to Montgomery Mall) is close but does not have any stops in the immediate vicinity of the site. The Link Belt train station, part of the Lansdale/Doylestown Line is located approximately 750 feet south of the County Line Road/Walnut Street intersection.

Crash Data Investigation

Crash data were obtained from PennDOT for the study area intersections. PennDOT defines a reportable crash as follows, "A reportable (crash) is one in which an injury or fatality occurs or if at least one of the vehicles involved requires towing from the scene." Reportable crashes were tabulated for the five-year time period beginning 01/01/2020 and ending 12/31/2024. For a given intersection, PennDOT considers a crash occurrence of 5 reportable, correctable crashes over a continuous twelve-month period during the past five years to be a threshold value, above which the intersection design should be reviewed to examine if corrective measures can be taken to enhance safety. The number of reportable crashes at the study area intersections is shown in **Table 2.**

TABLE 2
PENNDOT REPORTABLE CRASH DATA

Study Area Intersection	Number of Reportable Crashes				
	2020	2021	2022	2023	2024
Walnut Street & County Line Road (SR 2038)	1	1	0	1	4
Walnut Street & Schoolhouse Road	0	0	0	0	0
Schoolhouse Road & Railroad Avenue	0	0	0	0	0
County Line Road (SR 2038) & New Britain Boulevard/Private Driveway	0	0	1	1	0
New Britain Boulevard & Independence Lane	0	0	0	0	0
Trewigtown Road & Hamlet Drive/New Britain Boulevard	0	0	0	0	0
Bethlehem Pike (SR 0309) & Line Lexington Road	3	2	8	11	7
County Line Road (SR 2038) & Line Lexington Road	2	0	0	0	0
County Line Road (SR 2038) & Trewigtown Road (Western)	1	2	0	2	0
County Line Road (SR 2038) & Trewigtown Road (Eastern)	0	1	0	3	1
Trewigtown Road & Schoolhouse Road	0	0	0	0	0

Based on a review of the crash data, there was not a crash occurrence of 5 reportable, correctable crashes over a continuous twelve-month period at any of the study area intersections, and thus corrective measures are not necessary to enhance safety. The predominant causation factors for the reported crashes were driver-error (e.g. improper/careless turn, running red light, too fast for conditions).

Note that PennDOT Project ID No. 117793 is listed as in construction phase on PennDOT's TIP website and includes low cost safety countermeasures at various locations on Bethlehem Pike (SR 0309) in the vicinity of the proposed development.

- Walnut Street and County Line Road (SR 2038) - There were 5 crashes during 2023/2024. The primary type of crash was the angle crash. The primary causes of the crashes were due to driver error, such as improper/careless turns and driver was distracted.

- Bethlehem Pike (SR 0309) and Line Lexington Road - There were 5 or more crashes in the crash years of 2022, 2023, and 2024. The primary type of crash was the angle crash. The primary causes of the crashes were due to driver error, such as running red light and improper/careless turn. It should be noted that since one of the primary causes of the crashes was running the red light, TPD conducted traffic signal clearance times and confirmed that the existing yellow and red times are appropriate. The clearance time worksheet can be found in **Appendix H.** Additionally, the added left turn phase and optimized timings could enhance the traffic operations related to the improper/careless turn crashes. Furthermore, the addition of reflective back plates can enhance visibility and awareness at the intersection as a whole.

EXISTING TRAFFIC CONDITIONS

Manual traffic counts were conducted on 15-minute intervals during the weekday morning (6:00 to 10:00 A.M.) and weekday evening (3:00 to 7:00 P.M.) peak periods. Data pertaining to heavy vehicles, pedestrians and transit vehicles were observed during the turning movement counts. Peak hours and count dates for the study area intersections are identified in **Table 3**.

TABLE 3
TRAFFIC COUNT INFORMATION

Intersection	Date of Traffic Counts	Time Period	Intersection Peak Hour[1]
Walnut Street & County Line Road (SR 2038)	Wednesday, June 18, 2025	Weekday A.M.	7:15 to 8:15 A.M.
		Weekday P.M.	3:30 to 4:30 P.M.
Walnut Street & Schoolhouse Road		Weekday A.M.	7:15 to 8:15 A.M.
		Weekday P.M.	4:30 to 5:30 P.M.
Schoolhouse Road & Railroad Avenue		Weekday A.M.	7:45 to 8:45 A.M.
		Weekday P.M.	4:30 to 5:30 P.M.
County Line Road (SR 2038) & New Britain Boulevard/Private Driveway		Weekday A.M.	7:15 to 8:15 A.M.
		Weekday P.M.	3:30 to 4:30 P.M.
New Britain Boulevard & Independence Lane		Weekday A.M.	7:30 to 8:30 A.M.
		Weekday P.M.	4:15 to 5:15 P.M.
Trewigtown Road & Hamlet Drive/New Britain Boulevard		Weekday A.M.	7:15 to 8:15 A.M.
		Weekday P.M.	4:30 to 5:30 P.M.
Bethlehem Pike (SR 0309) & Line Lexington Road	Thursday, November 21, 2024	Weekday A.M.	7:15 to 8:15 A.M.
		Weekday P.M.	3:30 to 4:30 P.M.
County Line Road (SR 2038) & Line Lexington Road	Tuesday, October 7, 2025	Weekday A.M.	7:15 to 8:15 A.M.
		Weekday P.M.	4:30 to 5:30 P.M.
County Line Road (SR 2038) & Trewigtown Road (Western)		Weekday A.M.	7:15 to 8:15 A.M.
		Weekday P.M.	4:00 to 5:00 P.M.
County Line Road (SR 2038) & Trewigtown Road (Eastern)		Weekday A.M.	7:15 to 8:15 A.M.
		Weekday P.M.	4:00 to 5:00 P.M.
Trewigtown Road & Schoolhouse Road		Weekday A.M.	7:30 to 8:30 A.M.
		Weekday P.M.	4:15 to 5:15 P.M.

1 = Peak Hour consists of the four consecutive 15-minute intervals where the highest traffic volumes occur.

The Bethlehem Pike (SR 0309) and Line Lexington Road counts, dated November 21, 2024, were adjusted by one year of BPR growth to increase the counts to 2025. Additionally, the counts conducted on June 18, 2025 were compared to historical counts and a seasonal adjustment factor was determined for each peak hour in order to account for the school traffic, since the counts were originally conducted in the summer, consistent with the methodology outlined in the scoping application (**Appendix A**). The Existing Condition traffic volumes for the weekday A.M. and weekday P.M. peak hours are illustrated in **Figures 3-4**. Traffic count data sheets are provided in **Appendix C**.

BASE (NO-BUILD) CONDITIONS

Annual Background Growth

A background growth factor for the roadways in the study area was developed based on growth factors for August 2024 to July 2025 obtained from the PennDOT Bureau of Planning and Research (BPR). The PennDOT BPR suggests using a background growth trend factor of 0.12% per year in Bucks County for urban non-interstate roadways. TPD is aware that more recent growth factors have been released, however the new growth rate has decreased, therefore TPD assumed the older growth rate to be more conservative. As such the

background growth factor was applied annually to yield an overall growth percentage of 1.09% (0.12% per year, compounded over 9 years) was used for the 2034 future year.

Based on TPD's knowledge of the area, the following two nearby developments were included under the base conditions:

- **Sheetz Convenience Store with Gasoline** – The project site is located on the western leg of the intersection of Bethlehem Pike (SR 0309) & Hilltown Pike (SR 4011)/Existing Zoto's Diner Driveway. The project will consist of a 6,139 square foot (s.f.) Sheetz Convenience Store with a drive-thru and 16 fueling positions. TPD referenced a study completed for the site, dated August 18, 2025 for the trip distributions.

  In conjunction with the Sheetz development, the Sheetz applicant recommended the following improvements at the intersection of Bethlehem Pike (SR 0309) and Line-Lexington Road (SR 2008):
  - Provide a protected/permitted northbound left-turn phase.
  - Maintain the existing protected/permitted southbound left-turn phase.
  - Provide optimized traffic signal timing splits and offsets, as applicable.
  - Provide traffic signal equipment upgrades, as necessary, to accommodate the recommended improvements.

  TPD included the above improvements under the 2034 base and projected conditions.

- **309 Plaza Expansion & Prime Car Wash** - The project site is located on the western side of Bethlehem Pike (SR 0309) generally opposite the Hilltown Crossings Shopping Center in an existing shopping plaza. The expansion will include a 9,500 s.f. of strip retail, a 3,861 s.f. drive-in bank with 3 lanes, and a car wash with 1 automated tunnel. A TIS was not provided for this development, so TPD developed the trip generation and distribution assumptions for the site.

The additional traffic volumes due to background development and growth were added to the existing traffic data to produce the 2034 Base (no-build) Condition traffic volumes as illustrated in **Figures 5-6.** Trip generation/distribution information for the nearby proposed developments is provided in **Appendix D**.

SCHEDULED ROADWAY IMPROVEMENTS

Based on a review of the PennDOT 12-Year Plan and DVRPC Transportation Improvement Program (TIP) the following programmed roadway improvement is in the vicinity of the proposed site.

- PennDOT Project ID No. 117793 is listed as in construction phase on PennDOT's TIP website and includes low cost safety countermeasures at various locations on Bethlehem Pike (SR 0309) in the vicinity of the proposed development. It was assumed that the improvements would not impact the capacity analyses.

PROPOSED SITE ACCESS

The Proposed Site will be served by three (3) full-access driveways to Walnut Street and one connection to the end of Independence Lane.

Sight Distance Analysis

A sight distance analysis was prepared for the proposed site driveways. In general, recommended safe sight distances depend upon the posted speed limit and roadway grades. The existing sight distances at the proposed driveways were measured in accordance with PennDOT Publication 282 Highway Occupancy Permit Operations Manual and compared to PennDOT's desirable sight distance standard, which is identified in 67 PA Code Chapter 441.8(h), "Access to and Occupancy of Highways by Driveways and Local Roads." In addition, measured sight distances at the proposed driveways were compared to PennDOT's safe stopping sight distance standard, which is calculated by the following equation:

$$SSSD = 1.47VT + V^2/[30(f \pm g)]$$

SSSD = safe stopping sight distance (acceptable sight distance)
V = Vehicle Speed
T = Perception Reaction Time of Driver (2.5 seconds)
f = Coefficient of Friction for Wet Pavements
g = Percent of Roadway Grade Divided by 100

Table 4 shows the measured and desirable sight distances at the site driveways for both trucks and vehicles entering and exiting the site.

TABLE 4
SIGHT DISTANCE ANALYSIS

	Direction	Speed (mph)	Grade[1]	Sight Distances (feet)			
				DES		EXIST[2]	
				Car	Truck	Car	Truck
Walnut Street and Building 2 Proposed Site Driveway							
Exiting Movements	To the left	40	+1%	538′	950′	**1000′+**	**1225′+**
	To the right		0%	460′	925′	**1000′+**	**1225′+**
Entering Left Turns	Approaching same direction		0%	N/A	NA	**1000′+**	**1225′+**
	Approaching opposite direction		+1	373′	588′	**1000′+**	**1225′+**
Walnut Street and Building 1 Proposed Southern Site Driveway							
Exiting Movements	To the left	40	-1%	538′	950′	**950′**	**1235′**
	To the right		-1%	460′	925′	**675′**	**1140′**
Entering Left Turns	Approaching same direction		-1%	N/A	NA	**640′**	**1095′**
	Approaching opposite direction		-1%	373′	588′	**985′**	**1270′**
Walnut Street and Building 1 Proposed Northern Site Driveway							
Exiting Movements	To the left	40	+2%	538′	950′	**263′**	**263′**
	To the right		-1%	460′	1225′	**800′**	**1060′**
Entering Left Turns	Approaching same direction		-1%	N/A	NA	**830′**	**1135′**
	Approaching opposite direction		+2%	373′	588′	**263′**	**263′**

DES = PennDOT Desirable Sight Distance
SSSD = PennDOT Acceptable Sight Distance
EXIST = Existing (measured) Sight Distance
1 = Roadway Grade Approaching Driveway
2 = With Maintenance/Removal of On-Site Vegetation

As shown in **Table 4** above, the sight distances will meet all PennDOT sight distance requirements. It should be noted that the proposed northern site driveway to Walnut Street is located approximately 263-feet from the T-intersection with Schoolhouse Road. As such, the sight distance is limited by the separation distance to the intersection. However, approaching southbound Walnut Street vehicles from Schoolhouse Road will be turning at a speed much less than the 40 mph posted speed on Walnut Street. The separation distance provides sufficient sight safe stopping sight distance for even a speed of 35 mph. Therefore, there is adequate sight distance for the site driveway.

TRIP GENERATION

The trip generation rates for the proposed warehouse development were obtained from the Trip Generation Manual, Twelfth Edition, 2025, an Institute of Transportation Engineers (ITE) Informational Report. Per PennDOT's Transportation Impact Study Guidelines outlined in PennDOT's Policies and Procedures for Transportation Impact Studies, found in PennDOT's Publication 282, Appendix A, dated June 2025, the Land Use Code (LUC) 150 (Warehouse) filtered data from Trip Generation were used to calculate the number of vehicular trips the development will generate during the following time periods: (1) average weekday; (2) weekday A.M. peak hour; and (3) weekday P.M. peak hour. The ITE datasheets are included in **Appendix E**.

Please note, while the total square footage of the three (3) proposed buildings exceeds the 500 ksf threshold in PennDOT's Publication 282 regarding warehouse trip generation, the filtered trip generation data for buildings less than 500 ksf was used since each of the three (3) proposed buildings are less than 500 ksf, and each building has independent site access. **Tables 5 and 6** show the rates and directional percentages for the analyzed time periods.

TABLE 5
ITE TRIP GENERATION DATA – TOTAL VEHICLES

Land Use	ITE #	Time Period	Rates	Entering %
Warehouse	150	Average Weekday	T = 2.52*(X)	50%
		Weekday A.M. Peak Hour	T = 0.24*(X)	71%
		Weekday P.M. Peak Hour	T = 0.27*(X)	27%

T = number of site-generated vehicular trips
X = independent variable (ksf = 1,000 feet of leasable floor area)

TABLE 6
ITE TRIP GENERATION DATA - TRUCKS

Land Use	ITE #	Time Period	Rates	Entering %
Warehouse	150	Average Weekday[1]	T = 0.60*(X)	50%
		Weekday A.M. Peak Hour[1]	T = 0.05*(X)	56%
		Weekday P.M. Peak Hour[1]	T = 0.06*(X)	53%

T = number of site-generated vehicular trips
X = independent variable (ksf = 1,000 feet of leasable floor area)
1 = 12th edition filtered data unavailable at the time of the original TIS, used 11th edition data from PennDOT Pub. 282

It should be noted that at the time the previously submitted study was prepared, ITE's 12th Edition filtered truck data was not available, so the 11th Edition data was used. However, the 12th Edition data is now available, and the truck rates are slightly lower (i.e. 0.03 lower per AM and PM peak hour) than those used in the study. Applying the 12th Edition truck rate would result in a 17 truck trip reduction during the peak hours, while the total site traffic would be unchanged. Therefore, the truck trip generation presented in this study continue to utilize the conservative (i.e. high) truck trip generation from ITE's 11th Edition.

Table 7 summarizes the trip generation of the proposed development.

TABLE 7
TRIP GENERATION SUMMARY

Buildings	Size (X) (ksf)	Total			Trucks			Passenger Vehicles		
		Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Average Weekday										
Building 1	339.450	855	428	427	204	102	102	651	326	325
Building 2	100.000	252	126	126	60	30	30	192	96	96
Building 3	115.500	291	146	145	69	35	34	222	111	111
Total	**554.950**	**1398**	**700**	**698**	**333**	**167**	**166**	**1065**	**533**	**532**
Weekday A.M. Peak Hour										
Building 1	339.450	81	58	23	17	10	7	64	48	16
Building 2	100.000	24	17	7	5	3	2	19	14	5
Building 3	115.500	28	20	8	6	3	3	22	17	5
Total	**554.950**	**133**	**95**	**38**	**28**	**16**	**12**	**105**	**79**	**26**
Weekday P.M. Peak Hour										
Building 1	339.450	92	25	67	20	11	9	72	14	58
Building 2	100.000	27	7	20	6	3	3	21	4	17
Building 3	115.500	31	8	23	7	4	3	24	4	20
Total	**554.950**	**150**	**40**	**110**	**33**	**18**	**15**	**117**	**22**	**95**

X = independent variable (ksf = 1,000 feet of leasable floor area)

Based on the trip generation analysis summarized in **Table 7**, the proposed development is expected to generate 133 total trips (105 passenger vehicles and 28 truck trips) during the weekday A.M. peak hour and 150 total trips (117 passenger vehicles and 33 truck trips) during the weekday P.M. peak hour.

TRIP DISTRIBUTION

The distribution and assignment of new trips generated by the proposed development were based upon existing traffic patterns in the study area utilizing the line and cordon methodology. Based on this evaluation, the new trips for the proposed development were distributed to the local roadway network based on the percentages shown in **Table 8.**

TABLE 8
TRIP DISTRIBUTION PERCENTAGES – NEW TRIPS

Direction - To/From	Assignment - To/From	Distribution Percentage (AM/PM)	
		Passenger Vehicles	Trucks
East	via County Line Road (SR 2038)	35%	--
North	via Bethlehem Pike (SR 0309)	15%	50%
South	via Bethlehem Pike (SR 0309)	15%	50%
South	via Walnut Street	15%	--
East	via Schoolhouse Road	13%	--
North	via Railroad Avenue	7%	--

The distribution of site-generated trips for the proposed development during the weekday A.M. and weekday P.M. peak hours are shown in **Figures 7-12.** The trip assignment percentage information is included in **Appendix E**. Please note, the tractor trailers will travel to/from Route 309 via County Line Road, using the signalized intersection of Line-Lexington Road/Route 309.

PROJECTED (BUILD) CONDITION TRAFFIC VOLUMES

The site-generated trips for the proposed development were added to the base (no-build) conditions to develop the 2034 projected (build) Condition traffic volumes, as shown in **Figures 13-14**. Volume development spreadsheets are also contained in **Appendix E.**

LEVELS OF SERVICE FOR AN INTERSECTION

For analysis of intersections, level of service is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. LOS criteria are stated in terms of control delay per vehicle for a one-hour analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The criteria are shown in **Table 9**. Delay, as it relates to level of service, is a complex measure and is dependent upon a number of variables. For signalized intersections, these variables include the quality of vehicle progression, the cycle length, the green time ratio, and the volume/capacity ratio for the lane group in question. For unsignalized intersections, delay is related to the availability of gaps in the flow of traffic on the major street and the driver's discretion in selecting an appropriate gap for a particular movement from the minor street (straight across, left or right turn).

TABLE 9
LEVEL OF SERVICE CRITERIA
SIGNALIZED AND UNSIGNALIZED INTERSECTIONS [1]

Level of Service	Control Delay Per Vehicle (Seconds)	
	Signalized	Unsignalized
A	< 10	< 10
B	> 10 and < 20	> 10 and < 15
C	> 20 and < 35	> 15 and < 25
D	> 35 and < 55	> 25 and < 35
E	> 55 and < 80	> 35 and < 50
F	> 80 or v/c > 1.0	> 50 or v/c > 1.0

[1] Obtained from Exhibits 19-8 and 20-2 of the Transportation Research Board's Highway Capacity Manual 6th Edition

CAPACITY ANALYSIS METHODOLOGY

Capacity analyses were conducted for the weekday A.M. and weekday P.M. peak hours at the study area intersections. These analyses were conducted according to the methodologies contained in the *Highway Capacity Manual 6th Edition* (HCM) using *Synchro 12* software, a Trafficware product.

The following conditions were analyzed, as applicable:

- 2025 Existing Conditions;
- 2034 Base Conditions (future conditions without the proposed development);
- 2034 Projected Conditions (future conditions with the proposed development).

It should be noted that based on methodologies contained in Chapter 10 of PennDOT's Publication 46, TPD adjusted the following 2010 HCM default values in the *Synchro 12* capacity analysis. These adjustments were made at the signalized intersections within the study area for all time periods based on the study area location being classified as Suburban:

- Base saturation flow rates for signalized intersections. The saturation flow rate was changed from the default value of 1900 to 1800 based on Exhibit 10-9.
- Critical and Follow-Up Gap times were adjusted relative to the difference between default and PA Default values contained in Exhibits 10-11 and 10-12. As requested by PennDOT, worksheets/tables showing how these values were calculated are included in **Appendix F**.
- The intersection of Line-Lexington Road and County Line Road (SR 2038) has a stop except for right turn on the northbound approach and is free on the westbound approach. Due to the intersection control, the intersection could not be analyzed using HCM 6th edition and was analyzed using sim traffic instead.

In addition, capacity analyses were conducted at the site driveway intersections under the 2034 projected conditions. The capacity analysis worksheets are included in **Appendix G**. The PennDOT signal plans are included in **Appendix H**.

PennDOT's Transportation Impact Study Guidelines outlined in PennDOT's *Policies and Procedures for Transportation Impact Studies*, found in PennDOT's Publication 282, Appendix A, dated June 2025 contain the following criteria regarding levels of service:

- If evaluation of the With Development Horizon Year Scenario to the Without Development Horizon Year Scenario indicates that the overall intersection level of service has dropped, the applicant will be required to mitigate the level of service if the increase in overall intersection delay is greater than 10-seconds. If the overall intersection delay increase is less than or equal to 10-seconds, mitigation of the intersection will not be required.
- For mitigation scenarios, applicants are expected to mitigate the overall intersection LOS to the original Without Development LOS; the 10-second delay variance is not applied to mitigation scenarios. Applicants may be required to address available storage and queue lengths at critical movements or approaches even if the overall LOS requirements are met.
- If signalization is the preferred alternative for mitigation, overall intersection LOS C in rural areas and LOS D in urban areas is acceptable.
- New signalized or unsignalized intersection established to serve as access to the development shall be designed to operate at minimum LOS C for rural areas, and minimum LOS D for urban areas.

TPD collected intersection queueing data by observing the approaches of the signalized intersection as instructed in the Highway Capacity Manual 6th Edition. In order to determine the initial queue inputs for each movement, TPD observed the queues present for each lane group at the signalized intersections prior to the start of the peak hour for the study time periods to determine if there were any initial queues. The initial queue was determined by observing the queue count continuously during each of the three (3) consecutive signal cycles that occur just before the start of the analysis period. The initial queue calculations are included in **Appendix G**.

LEVELS OF SERVICE IN THE STUDY AREA

Level of service (LOS) matrices for the study area intersections are shown in **Table 10** for the weekday A.M. and weekday P.M. peak hours.

TABLE 10
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

Intersection	Movement	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
		2025 Existing	2034 Design Year		2025 Existing	2034 Design Year	
			Base	Projected		Base	Projected
Walnut Street & County Line Road (SR 2038)	EB L	A	B	A	B	B	A
	EB TR			B			B
	WB LTR	A	B	B	B	B	B
	NB LTR	D	D	D	D	D	D
	SB LTR	D	D	D	D	D	D
	ILOS	**B (16.4)**	**B (16.7)**	**B (19.7)**	**B (18.2)**	**B (18.6)**	**C (22.2)**
Walnut Street & Schoolhouse Road	WB LT	A	A	A	A	A	A
	NB LR	B	B	B	E	E	E
	ILOS	**A (2.1)**	**A (2.1)**	**A (2.3)**	**A (6.2)**	**A (6.5)**	**A (7.5)**
Schoolhouse Road & Railroad Avenue	EB LT	A	A	A	B	B	B
	SB LR	B	B	B	C	C	C
	ILOS	**A (5.0)**	**A (5.0)**	**A (5.1)**	**A (3.8)**	**A (3.9)**	**A (4.0)**
County Line Road (SR 2038) & New Britain Boulevard/ Private Driveway	EB L	A	A	A	A	A	A
	EB TR	A	A	A	A	A	A
	WB L	A	A	A	A	A	A
	WB T	A	A	A	A	A	A
	WB R	A	A	A	A	A	A
	NB LTR	A	A	A	C	C	C
	SB L	D	C	C	C	C	C
	SB TR	C	C	C	C	C	C
	ILOS	**A (4.8)**	**A (4.9)**	**A (5.4)**	**A (7.8)**	**A (7.9)**	**A (8.7)**
New Britain Boulevard & Independence Lane	WB LR	A	A	A	A	A	A
	SB LT	A	A	A	A	A	A
	ILOS	**A (1.1)**	**A (1.1)**	**A (1.5)**	**A (2.9)**	**A (2.9)**	**A (3.6)**

1 = Sim Traffic methodology used.
Exist. = Existing, Base = No-Build scenario, Proj. = Build scenario

TABLE 10 (CONT'D)
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

Intersection	Movement	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
		2025 Existing	2034 Design Year		2025 Existing	2034 Design Year	
			Base	Projected		Base	Projected
Trewigtown Road & Hamlet Drive/ New Britain Boulevard	EB LTR	B	B	B	B	B	B
	WB LTR	A	A	A	B	B	B
	NB LTR	A	A	A	A	A	A
	SB LTR	A	A	A	A	A	A
	ILOS	**A (3.2)**	**A (3.2)**	**A (3.2)**	**A (3.0)**	**A (3.0)**	**A (3.1)**
Bethlehem Pike (SR 0309) & Line Lexington Road	EB L	D	D	D	D	D	D
	EB TR	D	D	D	D	D	D
	WB L	D	D	D	D	D	E
	WB T	D	D	D	E	E	E
	WB R	D	D	C	D	C	D
	NB L	C	C	C	B	B	B
	NB T	C	C	D	D	E	E
	NB TR	A	A	D	D	E	E
	SB L	D	D	D	E	E	F (85.8)
	SB T	B	B	B	A	B	B
	SB R	A	A	A	A	A	A
	ILOS	**C (25.3)**	**C (29.4)**	**C (31.5)**	**C (34.9)**	**D (42.1)**	**D (44.7)**
County Line Road (SR 2038) & Line Lexington Road[1]	EB TR	A	A	A	A	A	A
	WB LT	A	A	A	A	A	A
	NB LR	A	A	A	A	A	A
	ILOS	**A (3.9)**	**A (4.3)**	**A (4.0)**	**A (5.6)**	**A (4.8)**	**A (8.8)**
County Line Road (SR 2038) & Trewigtown Road (Western)	WB LT	B	B	B	B	B	B
	NB LR	C	C	C	C	C	C
	ILOS	**A (2.5)**	**A (2.5)**	**A (2.6)**	**A (4.3)**	**A (4.5)**	**A (4.6)**
County Line Road (SR 2038) & Trewigtown Road (Eastern)	EB LT	B	B	B	B	B	B
	SB LR	B	B	B	C	C	C
	ILOS	**A (1.6)**	**A (1.6)**	**A (1.6)**	**A (2.1)**	**A (2.1)**	**A (2.1)**
Trewigtown Road & Schoolhouse Road	WB LR	C	C	C	B	B	B
	SB LT	A	A	A	A	A	A
	ILOS	**A (7.6)**	**A (7.7)**	**A (7.8)**	**A (6.4)**	**A (6.5)**	**A (6.5)**
Walnut Street & Building 2 Access	EB LR	--	--	A	--	--	A
	NB LT	--	--	A	--	--	A
	ILOS	**--**	**--**	**A (0.5)**	**--**	**--**	**A (0.6)**
Walnut Street & Building 1 Southern Access	EB LR	--	--	A	--	--	A
	NB LT	--	--	A	--	--	A
	ILOS	**--**	**--**	**A (1.7)**	**--**	**--**	**A (1.7)**
Walnut Street & Building 1 Northern Access	EB LR	--	--	A	--	--	A
	NB LT	--	--	A	--	--	A
	ILOS	**--**	**--**	**A (0.2)**	**--**	**--**	**A (0.3)**

1 = SimTraffic methodology used.

Exist. = Existing, Base = No-Build scenario, Proj. = Build scenario

As shown in **Table 10**, under all projected (build) conditions with the development of the proposed site and with site-related recommendations outlined in **Table II**, all study area intersections will satisfy PennDOT ILOS Standards.

Additional analysis was provided at the intersection of Bethlehem Pike (SR 0309) and Line-Lexington Road (SR 2008) showing the sim traffic results as requested in the review. This analysis is included in **Appendix G.**

Additionally, as requested by PennDOT, a supplemental analysis was conducted at the intersection of Bethlehem Pike (SR 0309) and Line-Lexington Road (SR 2008) without the planned Sheetz traffic and without the improvements associated with the Sheetz application. This analysis is included in **Appendix G.**

95TH PERCENTILE QUEUE ANALYSIS

Queue analyses were conducted at the study area intersections using *Synchro 12* software. For this analysis, the 95th percentile queue is defined as the queue length that is exceeded in 5% of the signal cycles. As an example, for a signal with a 90-second cycle, this means that the 95th percentile queue length will be exceeded during 2 of the 40 signal cycles that occur during the peak hour. The queue analysis results are summarized in **Table 11** for the analyzed peak hours.

TABLE 11
95TH PERCENTILE QUEUE (FEET) SUMMARY

Intersection	Movement	Available Storage	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
			2025 Existing	2034 Design Year		2025 Existing	2034 Design Year	
				Base	Projected		Base	Projected
Walnut Street & County Line Road (SR 2038)	EB L	**175′**	300′	310′	18′	325′	340′	13′
	EB TR	1000′+[2]			325′			325′
	WB LTR	1000′+[2]	273′	285′	355′	330′	348′	500′
	NB LTR	1000′+[2]	163′	165′	183′	258′	263′	265′
	SB LTR	600′[3]	215′	220′	248′	158′	160′	250′
Walnut Street & Schoolhouse Road	WB LT	1000′+[2]	3′	3′	5′	5′	5′	5′
	NB LR	350′[3]	13′	15′	15′	103′	110′	125′
Schoolhouse Road & Railroad Avenue	EB LT	625′[2]	3′	3′	3′	5′	5′	5′
	SB LR	1000′+[2]	40′	40′	43′	60′	63′	65′
County Line Road (SR 2038) & New Britain Boulevard/ Private Driveway	EB L	125′	5′	5′	8′	5′	5′	8′
	EB TR	1000′+[2]	70′	73′	88′	100′	105′	123′
	WB L	115′	0′	0′	3′	0′	0′	0′
	WB T	1000′+[2]	43′	45′	53′	123′	128′	155′
	WB R	195′	5′	5′	5′	5′	5′	5′
	NB LTR	110′	0′	0′	0′	3′	3′	3′
	SB L	175′	33′	33′	35′	78′	78′	85′
	SB TR	375′[2]	5′	5′	10′	25′	23′	33′
New Britain Boulevard & Independence Lane	WB LR	95′[2]	0′	0′	3′	8′	8′	13′
	SB LT	250′	0′	0′	3′	0′	0′	0′

Exist. = Existing, Base = No-Build scenario, Proj. = Build scenario
1 = Sim Traffic methodology used.
2 = approximate distance to next public intersection
3 = approximate distance to proposed site driveway
Future Storage

TABLE 11 (CONT'D)
95TH PERCENTILE QUEUE (FEET) SUMMARY

Intersection	Movement	Available Storage	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
			2025 Existing	2034 Design Year		2025 Existing	2034 Design Year	
				Base	Projected		Base	Projected
Trewigtown Road & Hamlet Drive/ New Britain Boulevard	EB LTR	1000'+[2]	3'	3'	3'	3'	3'	3'
	WB LTR	60'[2]	0'	0'	0'	13'	13'	13'
	NB LTR	460'[2]	0'	0'	0'	0'	0'	0'
	SB LTR	450'[2]	8'	8'	8'	0'	0'	0'
Bethlehem Pike (SR 0309) & Line Lexington Road	EB L	115'	48'	50'	50'	113'	120'	120'
	EB TR	125'	208'	218'	218'	165'	173'	173'
	WB L	100'	13'	13'	30'	8'	8'	43'
	WB T	150'	58'	60'	60'	70'	73'	73'
	WB R	150'	325'	330'	325'	113'	125'	150'
	NB L	150'	15'	30'	33'	23'	38'	38'
	NB T	1000'+[2]	365'	395'	433'	753'	873'	898'
	NB TR	1000'+[2]	0'	0'	448'	785'	908'	935'
	SB L	500'	435'	630'	658'	560'	600'	650'
	SB T	650'[2]	393'	538'	538'	228'	340'	340'
	SB R	300'	25'	33'	33'	23'	35'	35'
County Line Road (SR 2038) & Line Lexington Road[1]	EB TR	105'[2]	92'	94'	86'	121'	105'	210'
	WB LT	1000'+[2]	181'	214'	170'	342'	296'	437'
	NB LR	155'[2]	188'	195'	188'	182'	177'	183'
County Line Road (SR 2038) & Trewigtown Road (Western)	WB LT	690'[2]	13'	13'	13'	43'	43'	45'
	NB LR	1000'+[2]	45'	45'	50'	53'	58'	65'
County Line Road (SR 2038) & Trewigtown Road (Eastern)	EB LT	690'[2]	13'	15'	15'	23'	23'	25'
	SB LR	1000'+[2]	18'	18'	18'	23'	23'	25'
Trewigtown Road & Schoolhouse Road	WB LR	1000'+[2]	35'	38'	38'	55'	58'	58'
	SB LT	320'[2]	25'	25'	25'	8'	8'	8'
Walnut Street & Building 2 Access	EB LR	--	--	--	0'	--	--	3'
	NB LT	600'[2]	--	--	0'	--	--	0'
Walnut Street & Building 1 Southern Access	EB LR	--	--	--	3'	--	--	5'
	NB LT	330'[3]	--	--	5'	--	--	3'
Walnut Street & Building 1 Northern Access	EB LR	--	--	--	0'	--	--	0'
	NB LT	1000'+[3]	--	--	0'	--	--	0'

Exist. = Existing, Base = No-Build scenario, Proj. = Build scenario
1 = Sim Traffic methodology used.
2 = approximate distance to next public intersection
3 = approximate distance to proposed site driveway
Future Storage

Queue analysis worksheets are included with the capacity analysis worksheets provided in **Appendix G**.

AUXILIARY TURN LANE ANALYSIS

TPD evaluated auxiliary turn lane warrants at the site access intersections. The warrant analysis methodology contained within Chapter 11 of PennDOT's *Publication 46*, Section 11.17 and Strike-Off Letter

470-08-07 was utilized for this evaluation. **Table 12** summarizes the results of the auxiliary turn lane analysis at the site access intersections.

TABLE 12
AUXILIARY TURN LANE ANALYSIS SUMMARY

Intersection	Auxiliary Lane	Warrant Satisfied?
Walnut Street & Building 2 Access	NB Left-Turn Lane	No
	SB Right-Turn Lane	No
Walnut Street & Building 1 Southern access	NB Left-Turn Lane	No
	SB Right-Turn Lane	No
Walnut Street & Building 1 Northern Access	NB Left-Turn Lane	No
	SB Right-Turn Lane	No
New Britain Boulevard & Independence Lane	SB Left-Turn Lane	No
	NB Right-Turn Lane	No

As shown in **Table 12**, there are no turn lane warrants satisfied at the site driveway locations.

Additionally, auxiliary turn lane warrants were evaluated at the intersection of Walnut Street and County Line Road. **Table 13** summarizes the results.

TABLE 13
AUXILIARY TURN LANE ANALYSIS SUMMARY

Intersection	Auxiliary Lane	Warrant Satisfied?	Warranted Storage Length
Walnut Street & County Line Road (SR 2038)	EB Left-Turn Lane	Yes	175'
	EB Right-Turn Lane	No	--
	WB Left-Turn Lane	Yes	175'
	WB Right-Turn Lane	Yes	150'
	NB Left-Turn Lane	No	--
	NB Right-Turn Lane	No	--
	SB Left-Turn Lane	No	--
	SB Right-Turn Lane	No	--

As shown in **Table 13**, warrants for an eastbound County Line Road 175-foot left turn lane are anticipated to be satisfied. As such, County Line Road is proposed to be restriped to provide the eastbound left turn lane. Also, warrants are anticipated to be satisfied for left and right turn lanes on the westbound County Line Road approach. However, these lanes are not proposed due to the train crossing on the eastern leg of the intersection. Please note, the intersection is anticipated to operate at an acceptable LOS with the proposed improvements. The calculations for the auxiliary turn lane warrants are included in **Appendix I**.

CONFLICT FACTOR ANALYSIS

As requested by PennDOT, TPD evaluated the warrants for advance phases for left turning vehicles at the three signalized intersections of Walnut Street and County Line Road (SR 2038), County Line Road (SR 2038) and New Britain Boulevard, and Bethlehem Pike (SR 0309) and Line Lexington Road. The warrants were based upon the methodologies contained in Chapter 3 of PennDOT's *Publication 149* and Chapter 4 of PennDOT's *Publication 46*. The results under the 2034 conditions are summarized below:

- Walnut Street and County Line Road (SR 2038) – Conflict factors for a westbound County Line Road advance phase are exceeded under the weekday AM and PM peak hours. However, the WB approach is anticipated to operate at LOS B during the peak hours under 2034 projected (build) conditions. Therefore, the advance phase is not required from an operations perspective, and as such is not proposed.

- County Line Road (SR 2038) and New Britain Boulevard – There are no advanced phases warranted during the AM and PM peak hours.

- Bethlehem Pike (SR 0309) and Line Lexington Road – An advanced phase is warranted for the southbound approach during the AM and PM peak hours and for the northbound approach during the PM Peak Hour. As described above in the crash data section and the base development, the Sheetz development is providing or maintaining protected/permitted phasing on both the northbound and southbound approaches.

The conflict factor worksheet is included in **Appendix J.**

RECOMMENDATIONS & CONCLUSIONS

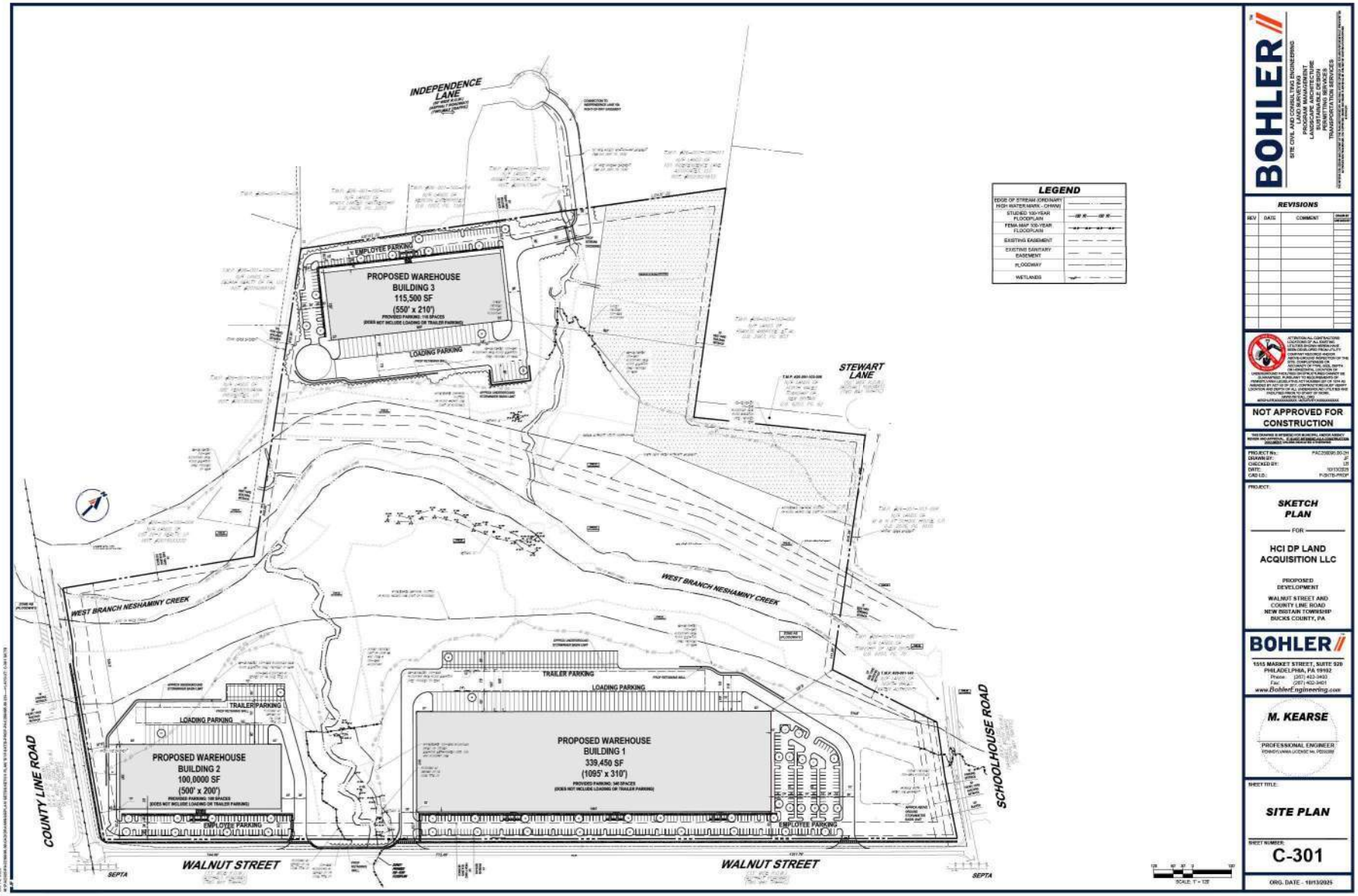
Please see the Executive Summary for the Recommendations and Conclusions in relation to the proposed development.



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FIGURE 1

PROJECT SITE LOCATION

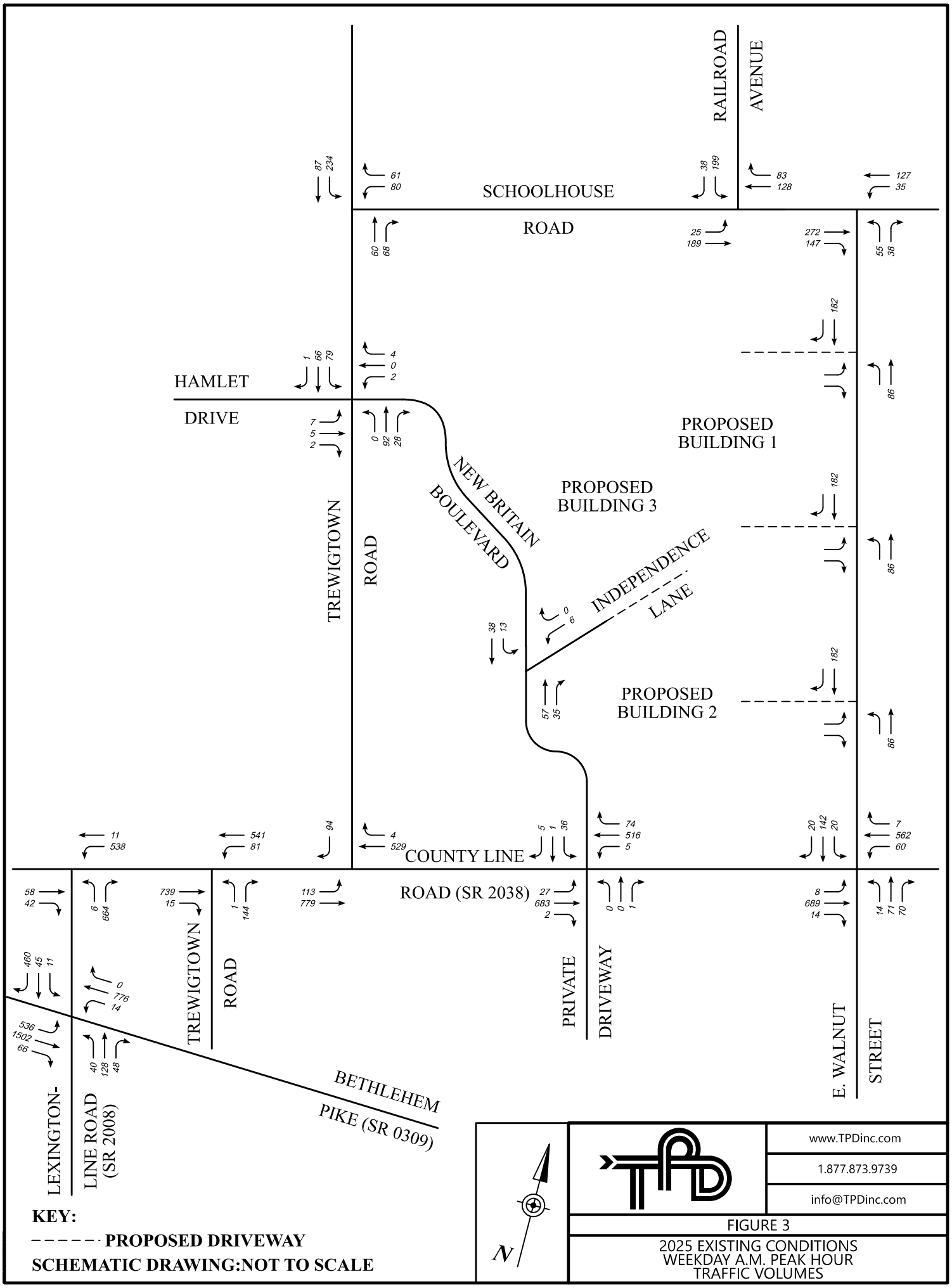


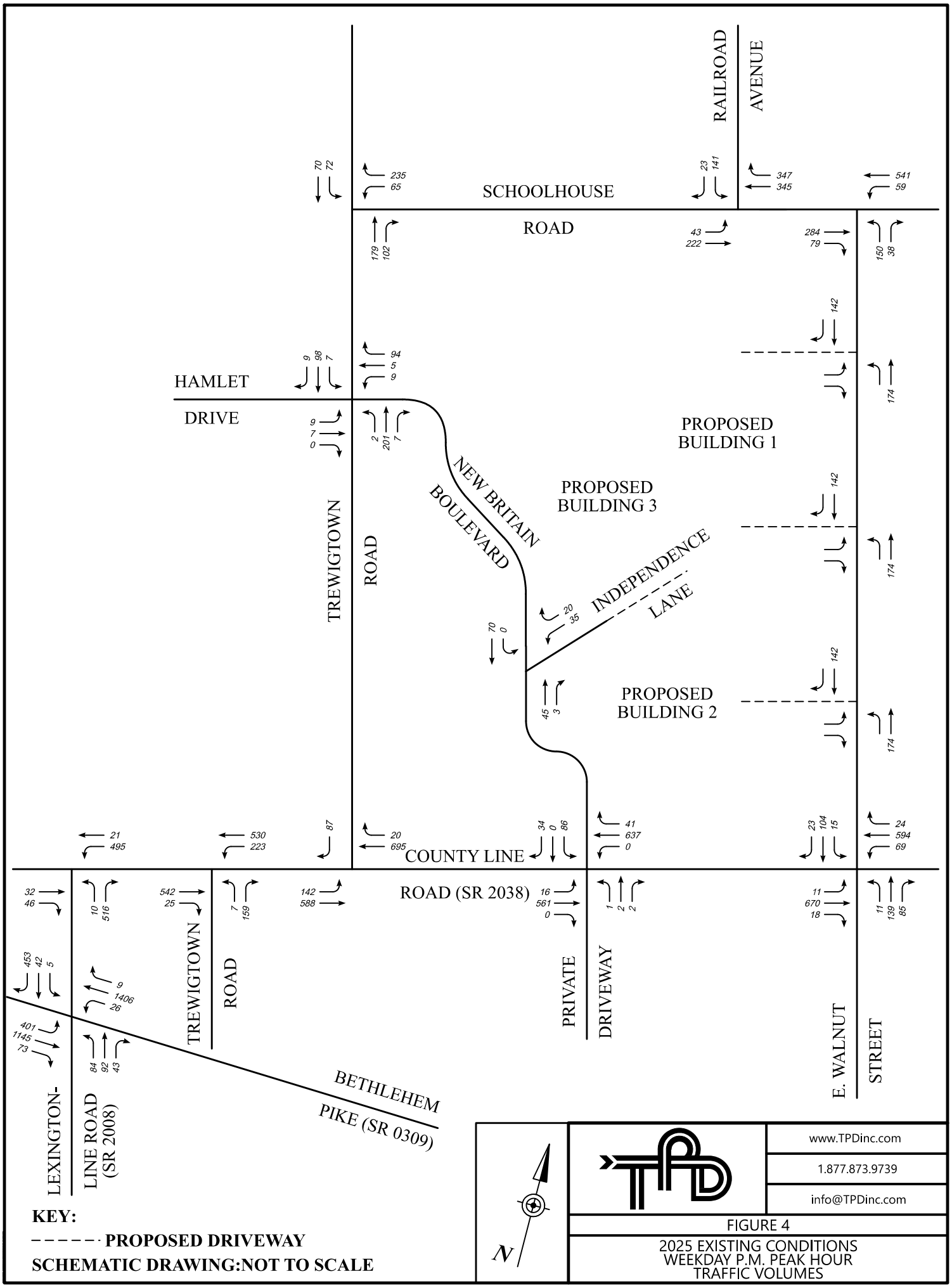
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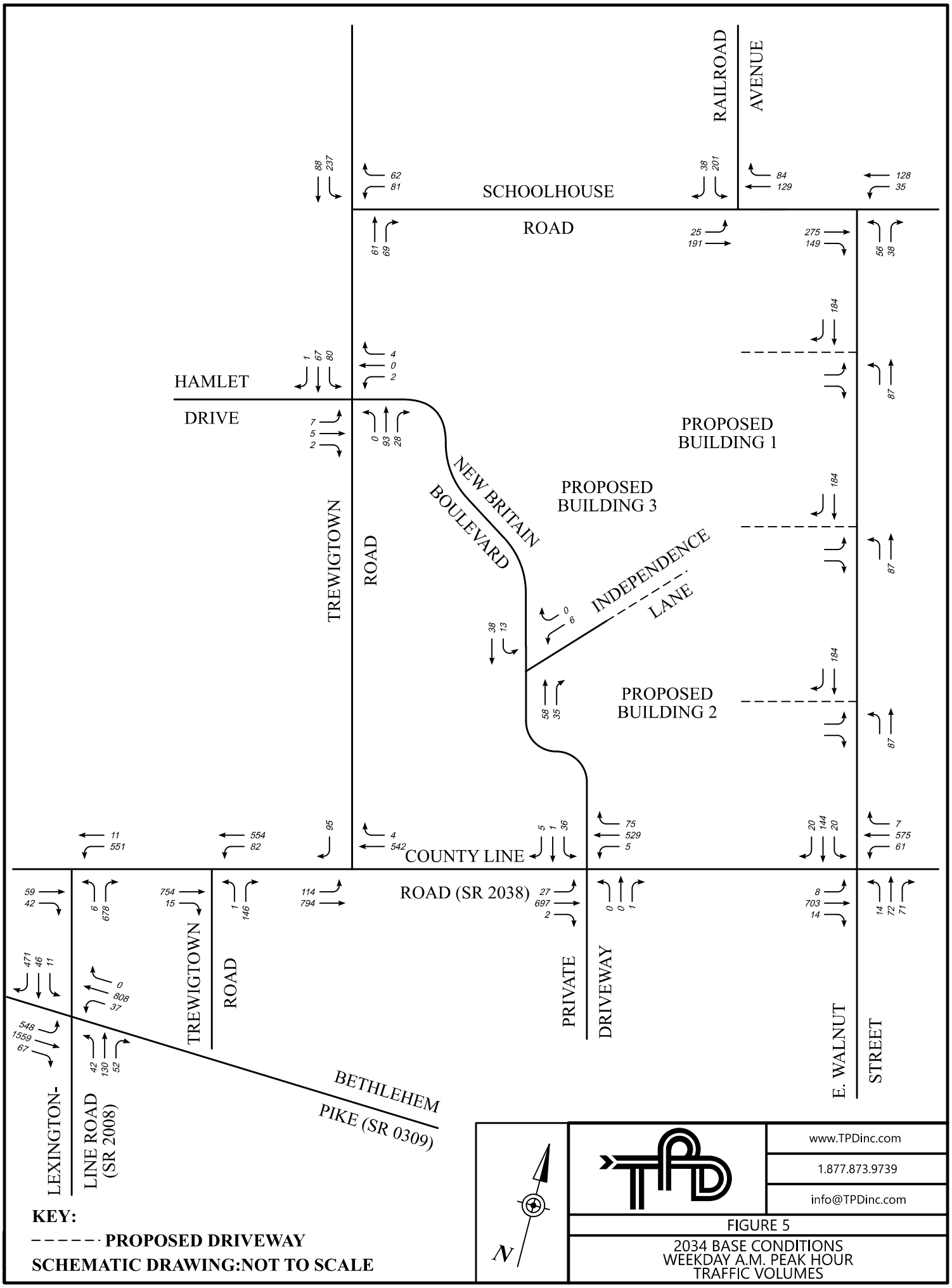
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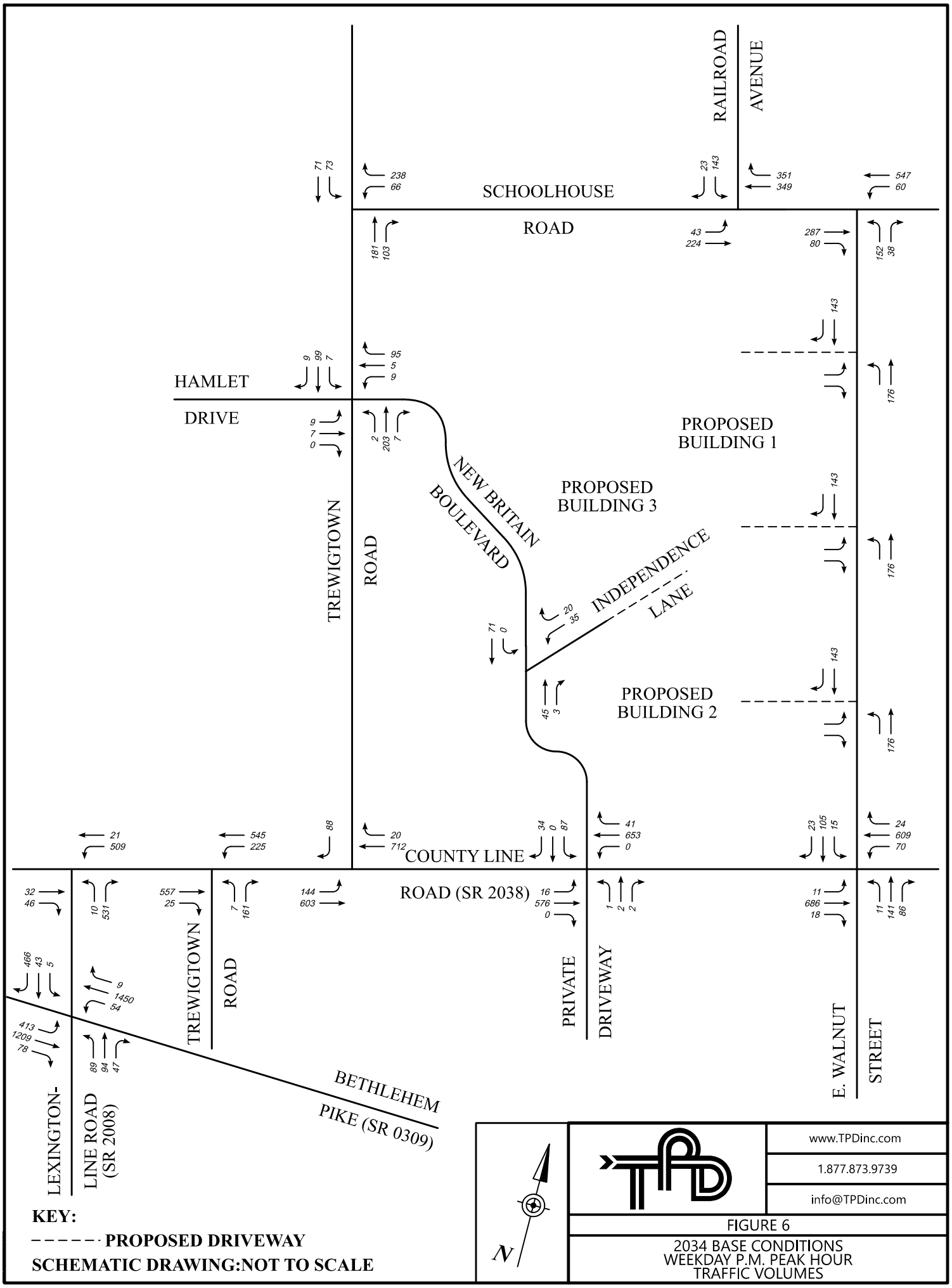
FIGURE 2

PROPOSED SITE PLAN


SCHOOLHOUSE ROAD
RAILROAD AVENUE
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
N
KEY:
PROPOSED DRIVEWAY
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FIGURE 3
2025 EXISTING CONDITIONS
WEEKDAY A.M. PEAK HOUR
TRAFFIC VOLUMES


SCHOOLHOUSE ROAD
RAILROAD AVENUE
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
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PROPOSED DRIVEWAY
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FIGURE 4
2025 EXISTING CONDITIONS
WEEKDAY P.M. PEAK HOUR
TRAFFIC VOLUMES


SCHOOLHOUSE ROAD
RAILROAD AVENUE
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
KEY:
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SCHEMATIC DRAWING:NOT TO SCALE
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FIGURE 5
2034 BASE CONDITIONS
WEEKDAY A.M. PEAK HOUR
TRAFFIC VOLUMES



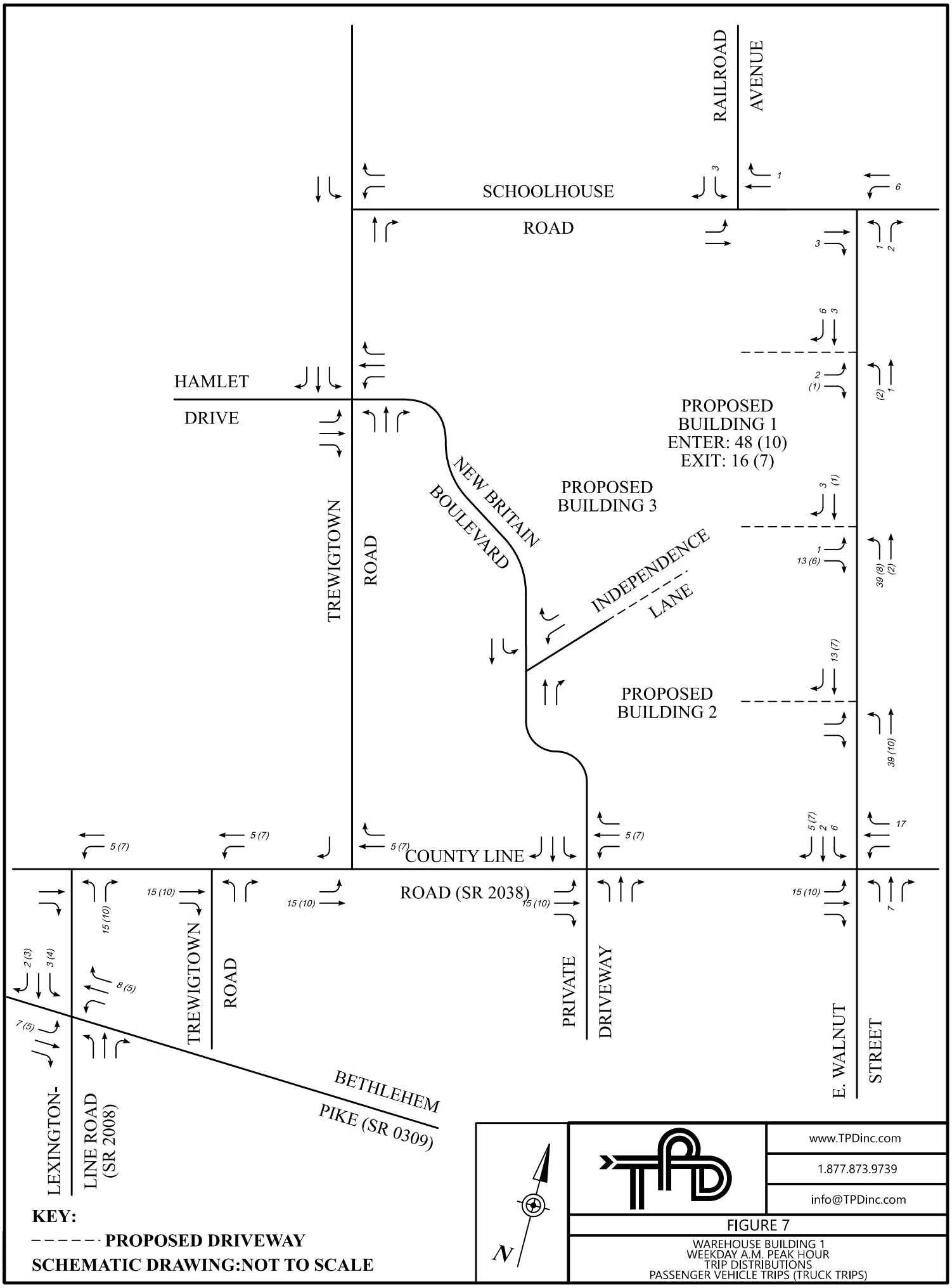
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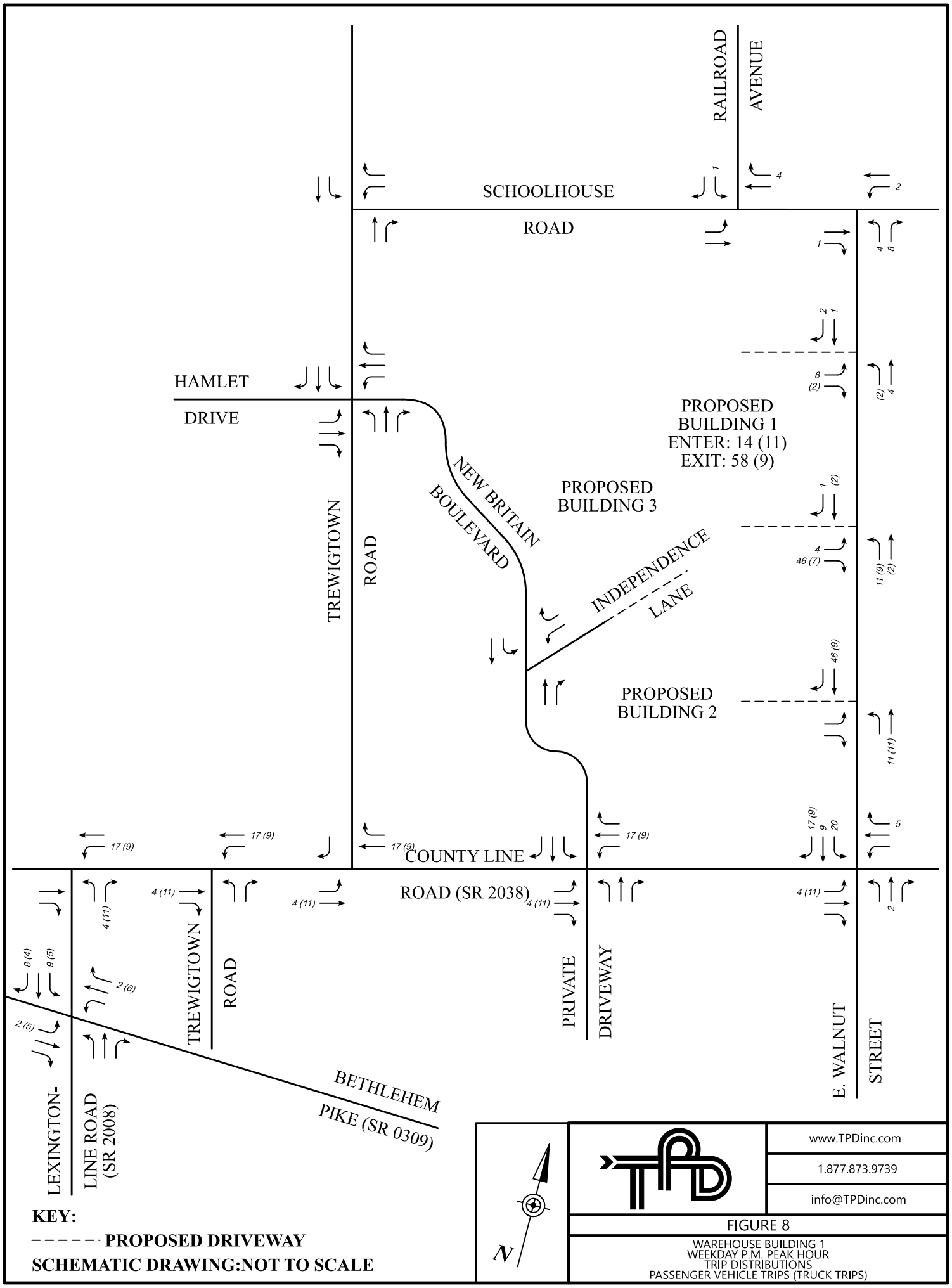
- - - - - - PROPOSED DRIVEWAY

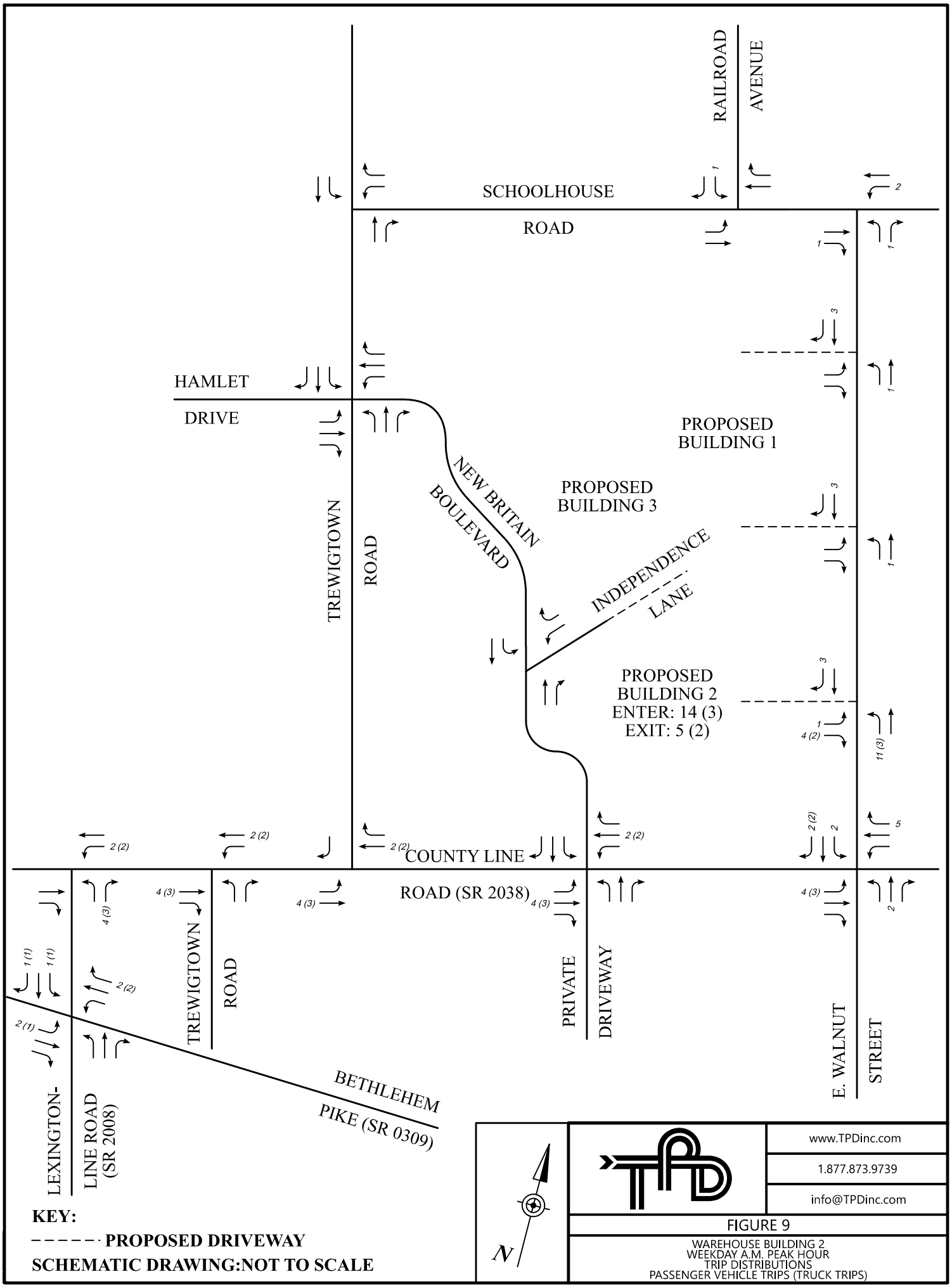
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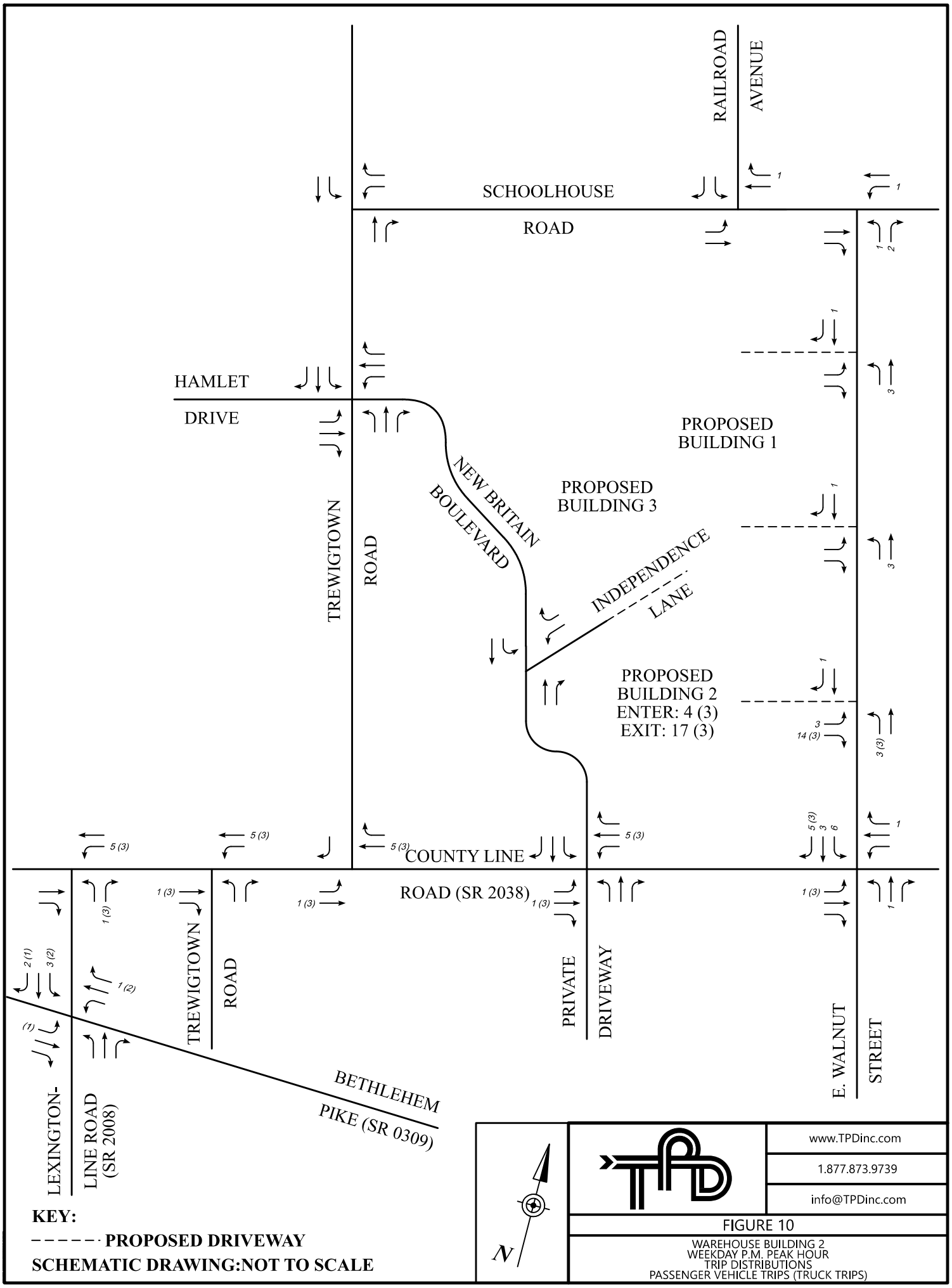
FIGURE 6

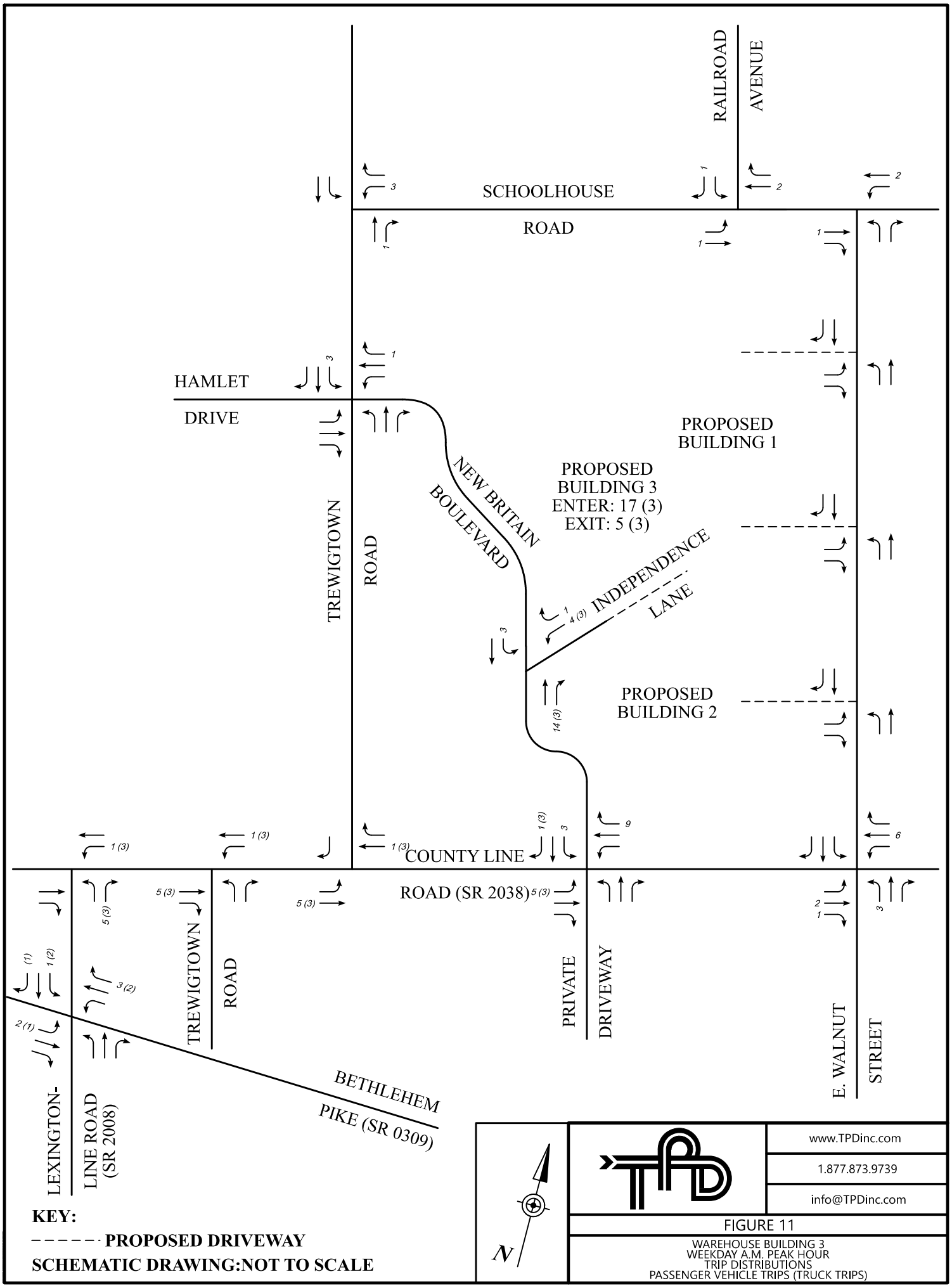
2034 BASE CONDITIONS
WEEKDAY P.M. PEAK HOUR
TRAFFIC VOLUMES

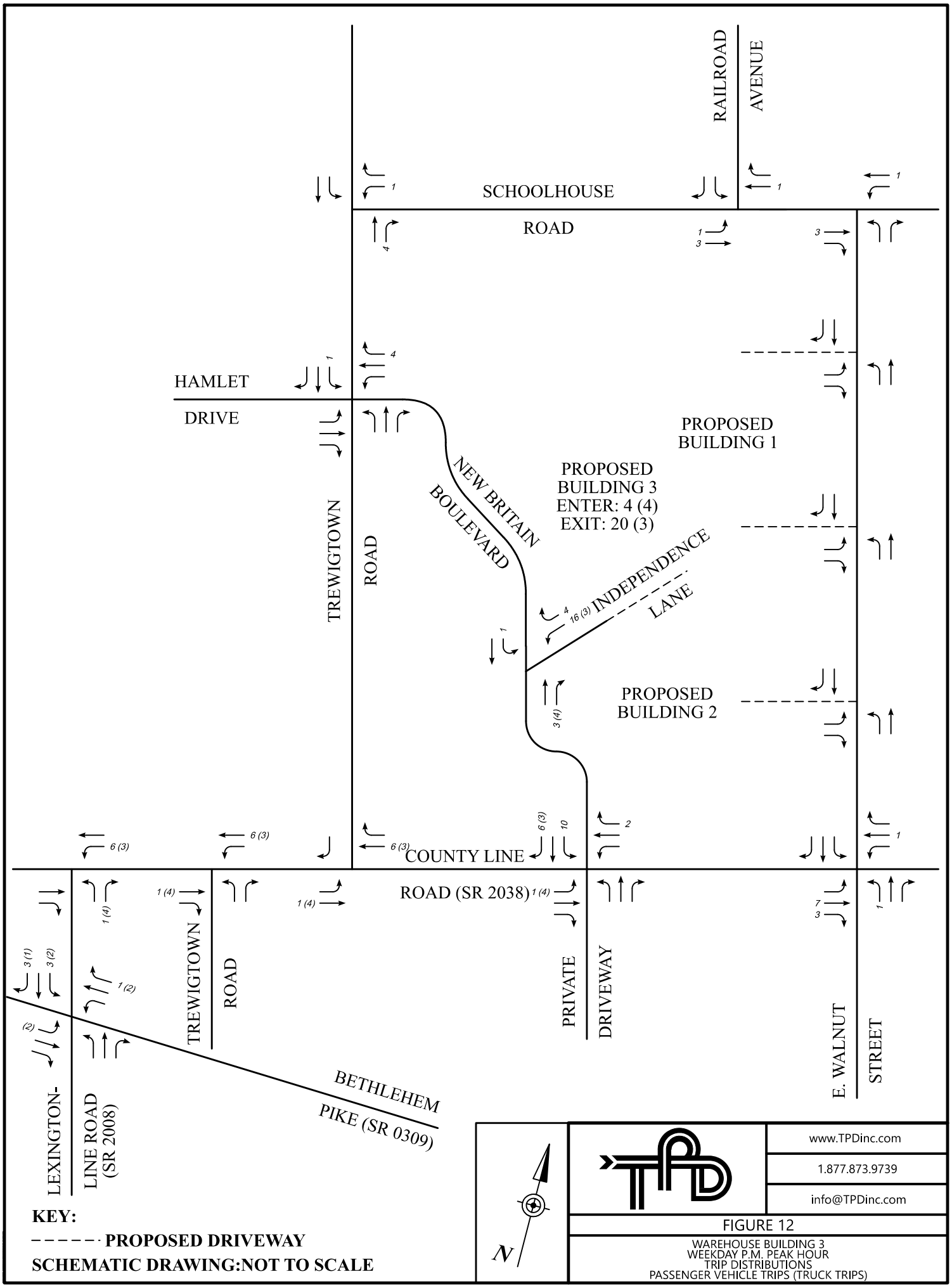

RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
ENTER: 48 (10)
EXIT: 16 (7)
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
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FIGURE 7
WAREHOUSE BUILDING 1
WEEKDAY A.M. PEAK HOUR
TRIP DISTRIBUTIONS
PASSENGER VEHICLE TRIPS (TRUCK TRIPS)

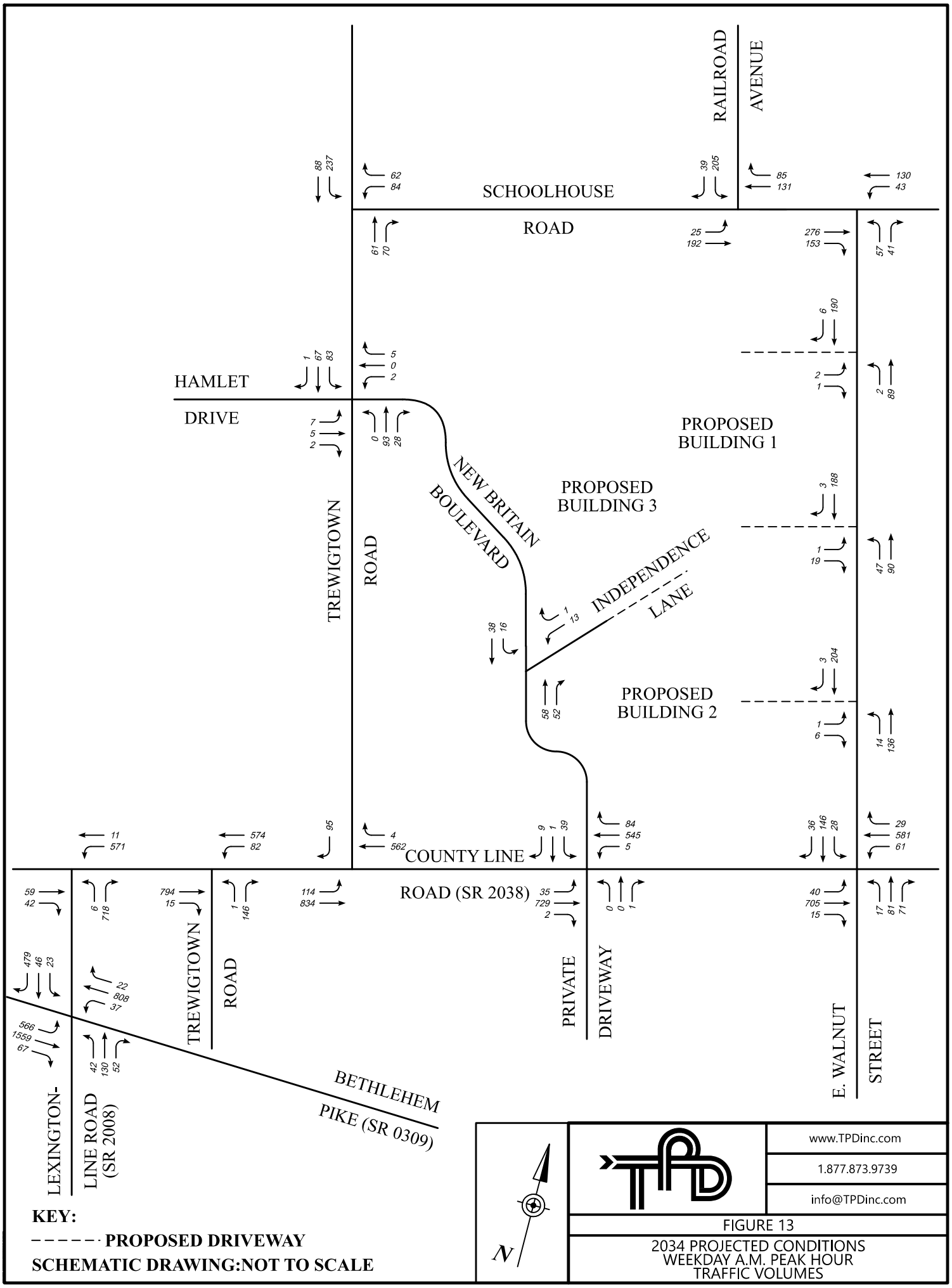

RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
ENTER: 14 (11)
EXIT: 58 (9)
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
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FIGURE 8
WAREHOUSE BUILDING 1
WEEKDAY P.M. PEAK HOUR
TRIP DISTRIBUTIONS
PASSENGER VEHICLE TRIPS (TRUCK TRIPS)

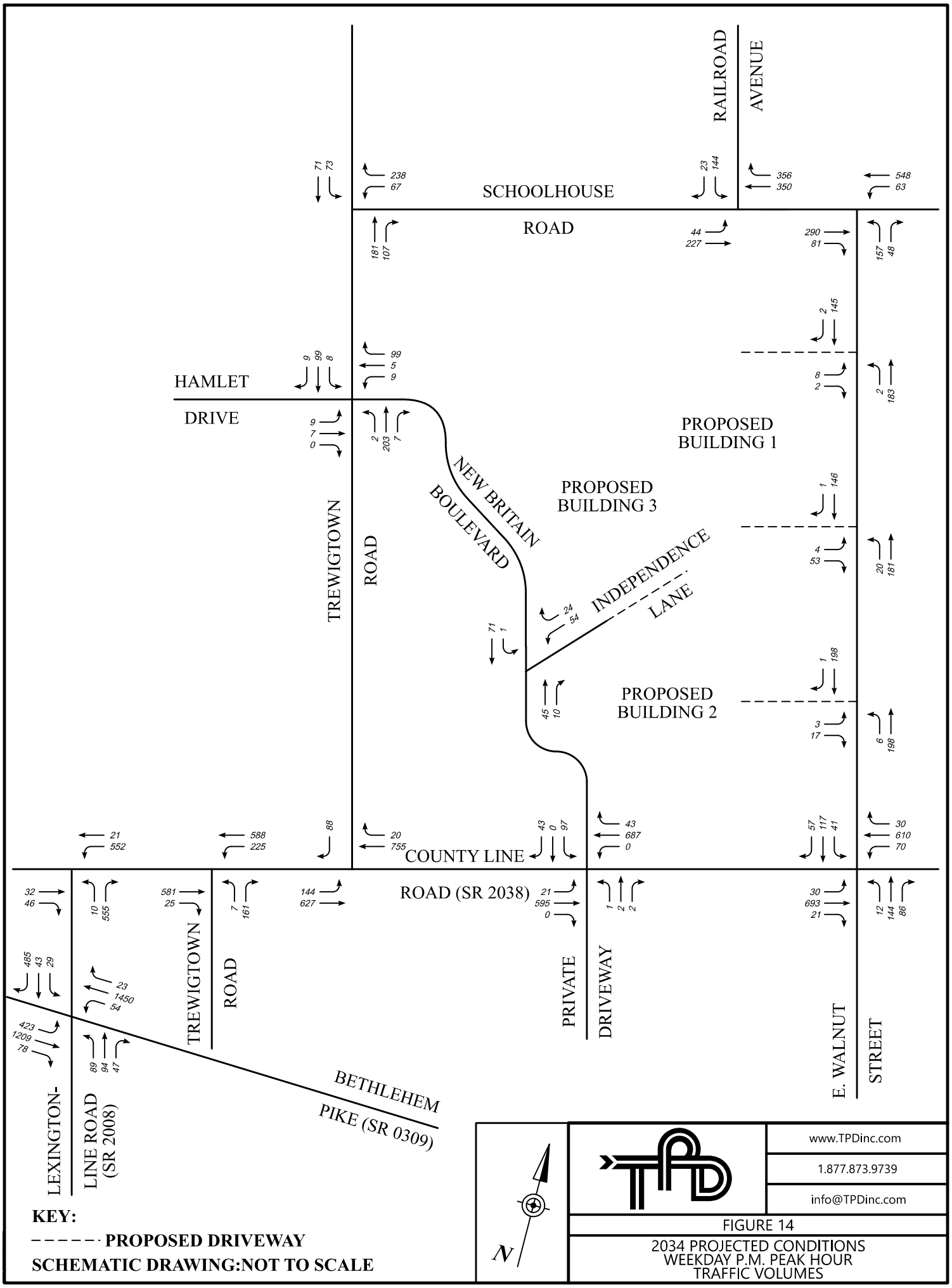

SCHOOLHOUSE ROAD
RAILROAD AVENUE
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
ENTER: 14 (3)
EXIT: 5 (2)
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
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FIGURE 9
WAREHOUSE BUILDING 2
WEEKDAY A.M. PEAK HOUR
TRIP DISTRIBUTIONS
PASSENGER VEHICLE TRIPS (TRUCK TRIPS)


RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
ENTER: 4 (3)
EXIT: 17 (3)
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
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FIGURE 10
WAREHOUSE BUILDING 2
WEEKDAY P.M. PEAK HOUR
TRIP DISTRIBUTIONS
PASSENGER VEHICLE TRIPS (TRUCK TRIPS)


RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
PROPOSED BUILDING 1
PROPOSED BUILDING 3
ENTER: 17 (3)
EXIT: 5 (3)
INDEPENDENCE LANE
PROPOSED BUILDING 2
COUNTY LINE ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
LEXINGTON-LINE ROAD (SR 2008)
TREWIGTOWN ROAD
BETHLEHEM PIKE (SR 0309)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
N
www.TPDinc.com
1.877.873.9739
info@TPDinc.com
FIGURE 11
WAREHOUSE BUILDING 3
WEEKDAY A.M. PEAK HOUR
TRIP DISTRIBUTIONS
PASSENGER VEHICLE TRIPS (TRUCK TRIPS)


RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
PROPOSED BUILDING 1
PROPOSED BUILDING 3
ENTER: 4 (4)
EXIT: 20 (3)
INDEPENDENCE LANE
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
N
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info@TPDinc.com
FIGURE 12
WAREHOUSE BUILDING 3
WEEKDAY P.M. PEAK HOUR
TRIP DISTRIBUTIONS
PASSENGER VEHICLE TRIPS (TRUCK TRIPS)


SCHOOLHOUSE ROAD
RAILROAD AVENUE
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
N
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FIGURE 13
2034 PROJECTED CONDITIONS
WEEKDAY A.M. PEAK HOUR
TRAFFIC VOLUMES


SCHOOLHOUSE ROAD
RAILROAD AVENUE
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
N
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info@TPDinc.com
FIGURE 14
2034 PROJECTED CONDITIONS
WEEKDAY P.M. PEAK HOUR
TRAFFIC VOLUMES

APPENDIX A:

Project Correspondence

2500 East High Street, Suite 650, Pottstown, PA 19464
610.326.3100 | INFO@TPDINC.COM
WWW.TPDINC.COM

July 28, 2026

Ms. Mirlene SaintVal
PennDOT 6-0
7000 Geerdes Boulevard
King of Prussia, PA 19406

RE: Traffic Engineering Review – Transportation Impact Study Cycle 2
Walnut Street Warehouse Development
New Britain Township, Bucks County, PA
TPD Job # HANC.00005

Dear Ms. SaintVal:

This letter pertains to the Proposed Walnut Street Warehouse Development located on the western side of Walnut Street, north of County Line Road (SR 2038) in New Britain Township, Bucks County. Traffic Planning and Design, Inc. (TPD) has prepared this response letter to address the review comments from the Department, dated April 3, 2026 (**attached** for reference). For the discussion below, the review comments are shown in *italic* type, with the corresponding TPD response shown in **bold** type.

GENERAL

1. *As previously commented, since the project is in close proximity to the county and township borders, ongoing documentation of the TIS review must be provided. Provide documentation that each municipality has received the TIS for review and has either provided comment or acknowledged receipt. The response to comments has acknowledged this requirement.*

   Response: The review letters are included in Appendix A.

2. *As previously commented, the Department requires written evidence, prior to the issuance of a permit, that New Britain Township has had the opportunity to comment. Provide written evidence (e.g. municipal engineering review, council or planning commission meeting minutes, executed TE-160, etc.) which is less than one year old, to satisfy this requirement. The response to comments has acknowledged this requirement.*

   Response: The review letters are included in Appendix A.

3. *Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found in the plan set. A copy of these comments and any previously submitted plans should also be provided. Further, if the applicants engineer has made any design changes independent of PennDOT reviewer comments, they must include a section in the response-to-comments letter that describes the additional design changes.*

   ** Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department's representative, Scott Bechard, AICP at sbechard@woolpert.com or 717.732.8576.*

   ** For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459*

and PennDOT Publication 282. This will help expedite the review.

Response: Will comply.

APPLICATION

1. *As previously commented, the Applicant must apply for and obtain an ePermitting Business Partner ID (BP ID) prior to permit issuance. The response to comments has acknowledged this requirement.*

   Response: Will comply during HOP submission.

2. *As previously commented, enter the Applicants contact information, including name and address in the Applicant Contact Info box under the Applicant Team Information section of the EPS application.*

   Response: Will comply during HOP submission.

TRANSPORTATION IMPACT STUDY/TRANSPORTATION IMPACT ASSESSMENT

1. *The HOP plans must address the truck turning templates. Please consider the following in the next submission:*
   a. *The eastbound WB-67 encroaches into the Walnut Street southbound lane*
   b. *Various radius improvements are required throughout*
   c. *Additional templates must be shown for all inbound and outbound directions.*

   Response: Please see the enclosed truck turning plans. These will be designed further during the HOP plan process.

2. *The 95th percentile queue results at Bethlehem Pike (SR 309) / Line-Lexington Road shows the 95th percentile queue exceeds the southbound left storage capacity. This may result in traffic compounding beyond the Hilltown Pike intersection. Provide SimTraffic reports to confirm the intersection will remain unblocked.*

   Response: SimTraffic results have been provided in Appendix G.

3. *Update Table 1 with ADT volumes for Walnut Street, Schoolhouse Road and Railroad Avenue so the distribution in Table 8 can be confirmed.*

   Response: The ADT volumes were referenced from the PennDOT TIRe website.

4. *As previously commented, a condition statement is required to specify that a supplemental trip generation analysis will be submitted to PennDOT once the specific use of the site is known. If the projected site trips exceed those assumed in the TIS, additional traffic analysis and improvements may be required by PennDOT. Provide a draft of the conditions statement in EPS with the next submission.*

   Response: A draft condition statement is enclosed.

SIGNAL SECTION (PUBLICATION 46, 148 AND 149)

1. *The traffic signal at County Line Rd and Walnut Street should be fully modernized. Additionally, investigate adding a left turn lane for EB County Line Road.*

   Response: Turn Lane warrants are included in Appendix I and the EB County Line Road Left Turn Lane will be provided.

2. *Provide truck turning templates for County Line Rd and New Britain Rd.*

   Response: The requested truck turns are enclosed.

3. *Investigate a protected / prohibited left turn phase for SB Bethlehem Pike and Line Lexington Rd.*

   Response: The conflict factors were run and are included in the Appendix J. However, protected/prohibited phasing is not proposed, and the phasing is consistent with the phasing that has been coordinated and planned in conjunction with the ongoing EPS #366879 project that also evaluated the intersection.

4. *On the northeast corner of County Line Rd and Line Lexington Rd replace / relocate the existing mast arm as it is damaged and too close to the proposed curb line. Additionally, consider expanding the proposed radius improvements to provide more space as the existing curb is significantly damaged.*

   Response: Please see the enclosed truck turn with the radius improvement and relocated mast-arm on the northeast corner of the intersection.

5. *Install reflective backplates at County Line and Line Lexington*

   Response: Will comply. Reflective backplates are proposed at the intersection.

If you have any questions, or need any additional information, please do not hesitate to contact us.

Sincerely,
TPD

Guido W. DiMartino, P.E.
Regional Leader – Transportation Planning

Attachment: 4/3/26 PennDOT's TIS Review

cc: New Britain Township
Craig Kennard (Gilmore on behalf of New Britian Township)
Hatfield Township
Anton Kuhner (Bowman on behalf of Hatfield Township)
Project Team
TPD File

pennsylvania
DEPARTMENT OF TRANSPORTATION

Date: 04/03/2026

Subject: Highway Occupancy Permit Application No. 393555, Cycle No.2 - Returned For Revisions

To: Hanover Company/Taylor Riley
7200 Wisconsin Avenue, Suite 820
Bethesda, MD 20814

From: PennDOT Engineering District 6-0
7000 Geerdes Boulevard
King of Prussia, PA 19406

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

As an alternative to contacting the individual indicated below, the District is offering applicants an opportunity to attend HOP Collaboration Workshop Meetings (held weekly) for clarification on any of the following comments. To sign up, please open the HOP Collaboration Workshop link located in the Links section on the EPS Applications Portal and follow the instructions.

If you have any questions regarding this matter, you may contact Gus Fiocca, Asst, District Permit Manager, at (610) 205-6796, and Scott Bechard, AICP at sbechard@woolpert.com or 717.732.8576.

pennsylvania
DEPARTMENT OF TRANSPORTATION

Response Comments
Date: 04/03/2026
Application Number: 393555, Cycle No.2

General

(1) As previously commented, since the project is in close proximity to the county and township borders, ongoing documentation of the TIS review must be provided. Provide documentation that each municipality has received the TIS for review and has either provided comment or acknowledged receipt. The response to comments has acknowledged this requirement.

(2) As previously commented, the Department requires written evidence, prior to the issuance of a permit, that New Britain Township has had the opportunity to comment. Provide written evidence (e.g. municipal engineering review, council or planning commission meeting minutes, executed TE-160, etc.) which is less than one year old, to satisfy this requirement. The response to comments has acknowledged this requirement.

(3) * Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found in the plan set. A copy of these comments and any previously submitted plans should also be provided. Further, if the applicants engineer has made any design changes independent of PennDOT reviewer comments, they must include a section in the response-to-comments letter that describes the additional design changes.

* Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department's representative, Scott Bechard, AICP at sbechard@woolpert.com or 717.732.8576.

* For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review.

Application

(1) As previously commented, the Applicant must apply for and obtain an ePermitting Business Partner ID (BP ID) prior to permit issuance. The response to comments has acknowledged this requirement.

(2) As previously commented, enter the Applicants contact information, including name and address in the Applicant Contact Info box under the Applicant Team Information section of the EPS application.

Transportation Impact Study/Transportation Impact Assessment

(1) The HOP plans must address the truck turning templates. Please consider the following in the next submission:
   a.The eastbound WB-67 encroaches into the Walnut Street southbound lane
   b.Various radius improvements are required throughout
   c.Additional templates must be shown for all inbound and outbound directions.
(2) The 95th percentile queue results at Bethlehem Pike (SR 309) / Line-Lexington Road shows the 95th percentile queue exceeds the southbound left storage capacity. This may result in traffic compounding beyond the Hilltown Pike intersection. Provide SimTraffic reports to confirm the intersection will remain unblocked.
(3) Update Table 1 with ADT volumes for Walnut Street, Schoolhouse Road and Railroad Avenue so the distribution in Table 8 can be confirmed.
(4) As previously commented, a condition statement is required to specify that a supplemental trip generation analysis will be submitted to PennDOT once the specific use of the site is known. If the projected site trips exceed those assumed in the TIS, additional traffic analysis and improvements may be required by PennDOT. Provide a draft of the conditions statement in EPS with the next submission.

Signal Section (Publication 46, 148 And 149)

(1) 1. The traffic signal at County Line Rd and Walnut Street should be fully modernized. Additionally, investigate adding a left turn lane for EB County Line Road.
   2. Provide truck turning templates for County Line Rd and New Britain Rd.
   3. Investigate a protected / prohibited left turn phase for SB Bethlehem Pike and Line Lexington Rd.
   4. On the northeast corner of County Line Rd and Line Lexington Rd replace / relocate the existing mast arm as it is damaged and too close to the proposed curb line. Additionally, consider expanding the proposed radius improvements to provide more space as the existing curb is significantly damaged.
   5. Install reflective backplates at County Line and Line Lexington

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

June 16, 2026

File No. 2500821

Doreen Curtin, Zoning Officer
New Britain Township
207 Park Avenue
Chalfont, PA 18914

Reference: HCI DP Land Acquisition, LLC, Preliminary Plan Review 1
Walnut Street and County Line Road Proposed Warehouses
Tax Parcels #26-001-099, 26-001-099-001, 26-001-099-002, 26-001-099-003

Dear Doreen:

Pursuant to your request, Gilmore & Associates, Inc. has reviewed the preliminary Subdivision and Land Development Plans for the above-referenced project. We offer the following comments for consideration by New Britain Township:

I. Submission

A. Preliminary Subdivision and Land Development Plans for HDI DP Land Acquisition LLC, as prepared by Bohler Engineering, consisting of seventy (70) sheets, dated April 6, 2026.

B. Waiver Request Letter for Proposed Industrial Development, as prepared by Bohler Engineering, dated April 6, 2026.

C. Community Impact Analysis for Chalfont Industrial Park, as prepared by EH Creative Services, LLC, dated April 14, 2026.

D. Environmental Impact Analysis for Chalfont Industrial Park, as prepared by EH Creative Services, LLC, dated April 18, 2026.

E. Walnut Street Warehouse Transportation Impact Study, as prepared by TPD, Inc., dated November 12, 2025, last revised March 3, 2026.

F. Post Construction Stormwater Management Report prepared for HCI DP Land Acquisition, LLC, as prepared by Bohler Engineering, dated April 6, 2026.

G. Stormwater Infiltration Report by Geo-Technology Associates, Inc. dated September 9, 2025, last revised January 8, 2026 for Hanover Company.

H. Wetland Report prepared by Valley Environmental Services, Inc. for Bohler Engineering and HCI DP Land Acquisition LLC dated August 26, 2025

I. Sewer Capacity letter for Walnut Street and County Line Rd., as prepared by Chalfont-New Britain Township Joint Sewage Authority, dated July 14, 2025.

J. Availability of Water Capacity letter for Walnut Stret and County Line Road, as prepared by North Penn Water Authority, dated August 4, 2025.

II. Reference Documentation

A. Zoning Hearing Board Decision and Order by the Zoning Hearing Board of New Britain Township dated April 30, 2026.

65 E. Butler Avenue | Suite 100 | New Britain, PA 18901 Phone: 215-345-4330 | Fax: 215-345-8606
www.gilmore-assoc.com

III. General Information

The site currently contains four parcels totaling approximately 90 acres of land at the northern corner of Walnut Street (T-402) and County Line Road (S.R. 2038) within the IO Industrial/Office Zoning District. The property borders the IO Zoning District to the northwest, Industrial Zoning District across Walnut Street, SR-2 Residential Zoning District across Schoolhouse Road, and Hatfield Township's Light Industrial District across County Line Road. The site is an A1 Agricultural Use under Pennsylvania Act 319 with one single-family dwelling, Use B1. Natural resources include watercourses, floodplain, floodplain soils, riparian buffer, woodlands, steep slopes, wetlands and wetland's margin.

The Applicant proposes to consolidate the four parcels into a single parcel and construct three warehouse buildings totaling 554,950 SF (339,450 SF, 100,000 SF, and 115,500 SF) for Use K3 Warehouse, as permitted by-right. Two of the buildings propose driveway access from Walnut Street and the third warehouse has access proposed through an offsite 50' access right-of-way easement to Independence Lane. The proposed improvements also include parking and loading areas, separate trailer parking, public water and sewer, and road improvements on Walnut Street and County Line Road.

Stormwater management will be provided through six underground basins and two aboveground basins that discharge into the West Branch Neshaminy Creek. Reforestation is proposed to offset disturbance to the riparian buffers and 7.96 acres of park and recreation land is currently proposed at the northern portion of the site.

IV. Review Comments

A. Zoning Ordinance

1. §27-305.L.L2 – A non-residential, accessory L2 Use Outside Storage or Display is permitted by Conditional Use. The L2 Accessory Use is defined as the keeping, in an unenclosed area, of any goods, junk, material, merchandise, or vehicles in the same place…for more than 24 hours. The trailer parking areas designated for each warehouse are considered an accessory L2 Use Outside Storage and require approval of a Conditional Use for each building.

2. §27-1802.a & §27-2110.a – No use in the IO Industrial/Office District shall exceed 35 feet in height. The Zoning Table notes a maximum building height of 42 feet and the Cover Sheet notes that a variance is requested from the maximum building height of 35 feet. We note that the Applicant's request for a variance to allow a building height of 42 feet was denied by the Zoning Hearing Board on April 30, 2026, and appealed by the Applicant on May 29, 2026.

3. §27-1802.b – The plans shall confirm that the layout complies with the maximum building coverage ratio of 50% and the maximum impervious coverage ratio of 65% based on the Ratio Base Site Area.

4. §27-1900.c – The Applicant shall comply with our previous review of the Flood Study dated November 20, 2025, which is attached for reference.

5. §27-1904.a.2 & §27-1906.b.2.(a) – Any areas subject to flooding and as last updated in the Websoil Survey are included in the Floodplain Overlay District. Floodplain soils, including Bowmansville-Knauers silt loam (Bo) and Buckingham silt loam (BwB) are included in the Floodplain Overlay District and shall be shown on a plan along with the floodplain. The Floodplain Overlay District shall also be identified on the plan.

6. §27-1904.a.2 – Within any portion of the Floodplain Overlay District not within the floodway, any development, new construction, fill, use, or activity shall be prohibited unless it is demonstrated that the cumulative effect of the proposed construction, development, or activity would not, together with all other existing and anticipated development, increase the Base Flood Elevation (BFE) at any point. Additional flood analysis shall be provided to demonstrate any improvements within the Floodplain Overlay District will not result in an increase to the BFE.

7. §27-1904.d – No new construction or development shall be allowed within the identified floodplain area unless a permit is obtained from the DEP.
8. §27-1904.j – No new building or structure or any portion thereof shall be erected within the Floodplain Overlay District unless permitted as a special exception by the Zoning Hearing Board. A structure is defined as "Any man-made object having an ascertainable stationary location on or in land or water, whether or not affixed to the land." A special exception is required for all proposed structures within the Floodplain Overlay District.
9. §27-1904.m.4 – Walls are prohibited in the Floodplain Overlay District.
10. §27-1904.o.1 – No encroachment, alteration, or improvement of any kind shall be made to any watercourse unless it can be shown through hydrologic and hydraulic engineering studies and analyses that the activity will not reduce, change, or impede the flood-carrying capacity of the watercourse in any way. The previously submitted Flood Study considered the proposed retaining wall at Building 2. The Flood Study shall be modified to demonstrate all proposed improvements within the Floodplain Overlay District will not reduce, change, or impede the flood-carrying capacity of the watercourse in any way. A permit is required from DEP for any watercourse encroachments and FEMA and DCED shall be notified.
11. §27-1904.o.2 – No encroachment, alteration, or improvement of any kind shall be made to any watercourse until all required permits or approvals have been obtained from the DEP.
12. §27-1904.q – Fill may be placed within the Floodplain Overlay District only when allowed as a special exception by the Zoning Hearing Board. We note that the Applicant's request for a special exception to allow the placement of fill in the Floodplain Overlay District behind Building 2 was denied by the Zoning Hearing Board on April 30, 2026, and appealed by the Applicant on May 29, 2026.
13. §27-1906.b,2.(f) – The appropriate component of the DEP's Planning Module for Land Development shall be included with a Zoning and/or Building application.
14. §27-2401.c – Restrictions must be placed in the deed or an easement recorded for each site that has natural resource protection areas within its boundaries. The means of natural resource protection shall be clarified.
15. §27-2802.c – All plant materials for buffers shall be from the Subdivision and Land Development Ordinance, Appendix D, Required Plant Material List.
16. §27-2803.e – The required buffer yard easement shall be shown on the Record Plan along Schoolhouse Road to permanently protect the proposed buffer yard.
17. §27-2904.e.2.(d) – Detailed spot elevations shall be shown to verify the slope of accessible parking spaces do not exceed 2% in any direction.
18. §27-2906.c – Fire lanes shall be provided where required by state or federal regulations or other local ordinances. Per correspondence from the Fire Marshal dated June 4, 2026, secondary or emergency access shall be provided for Buildings 2 and 3. Fire lanes are defined as unobstructed paved or improved surface areas clearly defined by pavement markings and signs, at least 12 feet wide and designed to provide access for fire-fighting equipment.
19. Appendix A Environmental Impact Statement Report (EIS Report) – We offer the following comments regarding the submitted "Environmental Impact Analysis" prepared by EH Creative Services, LLC, dated April 18, 2026:
    a. §27-Attachment b. – An updated EIS Report shall accompany and form a part of a final land development or subdivision plan.

b. §27-Attachment c. – The EIS Report shall include text, tables, maps and analyses for the purpose of describing the project site, proposed use(s), environmental characteristics and the environmental effect of the proposal. The report does not include much of the information and notes "Where a topic has already been evaluated in a technical submission prepared by another consultant, this report identifies that material and incorporates it by reference." We recommend that following information be incorporated into the EIS Report:

1) §27-Attachment c.1. – The required projections for working population and visitor population for the proposed use in the overview.

2) §27-Attachment c.3. – A location map in accordance with this section.

3) §27-Attachment c.5.(a.) – The Overall Site Plan in accordance with this section.

4) §27-Attachment c.6 – A physical resources inventory in accordance with this section including a narrative summarizing the Geotechnical Engineering report, Phase 1 Environmental Site Assessment, and soils map. In addition, a plan provided with the mapped geology, topography, soils, hydrology and the like.

5) §27-Attachment c.7 – An inventory of the vegetation species and wildlife species associated with the natural environment of the tract and the narrative descriptions.

6) §27-Attachment c.8 – Identification of the current and past land use of the tract and narrative and mapping of existing encumbrances.

7) §27-Attachment c.9 – The required surface water inventory including information, summaries of calculations, mapping, and wetlands delineation.

8) §27-Attachment c.10 – A subsurface water inventory in accordance with this section including narrative summaries of the Geotechnical Engineering Report, Phase 1 Environmental Site Assessment, and Phase II Limited Investigation.

9) §27-Attachment c.11 – More specific existing features details as to the number of structures, type of crops, and location and types of existing utilities on the site.

10) §27-Attachment c.12 – The Overall Existing Conditions/ Demolition Plan incorporated into the report identifying the noted resources.

11) §27-Attachment c.14 – Additional information provided in the Community Needs Inventory narrative regarding the current extent and capacity of local emergency services and their ability to serve the demands of the future users of the proposed site.

12) §27-Attachment c.15 – The Will Serve letters from the Water and Sewer Authorities, and PECO (electric and gas), Verizon, and any other existing or proposed utility correspondence in the Utility Needs Inventory.

13) §27-Attachment c.16 – The Transportation System Inventory narrative expanded to include a summary of the results of the Traffic Impact Study, a summary of the proposed truck route options and offsite transportation improvements, the latest dates of the referenced documentation added to the narrative as applicable, and potential for future connection between Stewart Lane and Independence Lane discussed.

14) §27-Attachment c.17 – An expanded Adverse Impacts narrative to include specific information on the water quality and quantity, air quality, identification of significant plant or wildlife systems and their impact, before and after renderings of the site, impact to agricultural soils and crops, floodplain and floodplain soils, increase in impervious surfaces and stormwater demand, natural resource disturbance, etc. In addition, the narrative revised to indicate whether each of the potential adverse impacts will have primary or secondary implications.

15) §27-Attachment c.18 – Exhibits or diagrams which will depict the type of remedial, protective and mitigative measures described in the Mitigation Measures narrative including measures proposed as required through existing procedures and standards.

16) §27-Attachment c.19 – The Irreversible Impacts narrative expanded to address the irreversible impacts of loss of prime farmland and farmland of statewide significance.

B. Subdivision and Land Development Ordinance Waivers

The following waivers from the Subdivision and Land Development Ordinance have been formally requested by the Applicant in the Waiver Request Letter dated April 6, 2026. Any waivers granted from public improvements are subject to Township Resolution 2007-12:

1. §22-705.3.C – From the requirement to improve the existing street abutting a subdivision or land development to the Township standards for ultimate right-of-way and cartway widths for County Line Road and Schoolhouse Road.

   a. County Line Road (S.R. 2038) is an arterial street which requires a cartway width of 52 feet where the existing cartway is 45 to 52 feet wide along the property frontage. County Line Road is a state road owned by PennDOT and any improvements are subject to PennDOT approval. We recommend deferring a decision on this waiver request until Final Plan Submission in order for the Township to review and discuss PennDOT's requirements for County Line Road, its intersection with Walnut Street (T-402), and any offsite improvements.

   b. Schoolhouse Road (T-332) is a major collector street which requires a minimum half-width cartway of 24 feet with curb and sidewalk along the property frontage. The road is required to be widened approximately 14 feet. The Applicant has provided a Phase 1 Northern Red-bellied Cooter Habitat (NRBC) Assessment indicating potentially suitable NRBC aquatic habitat in two areas onsite. One area is along Schoolhouse Road. In addition, a Clearance Letter from the Pennsylvania Fish and Boat Commission indicated that, based on the currently proposed design and layout, they do not foresee any adverse impacts to the NRBC from the proposed development. However, the Township Ordinance requires Schoolhouse Road to be widened. Before the Township Supervisors take any action on this waiver, we recommend that a Phase 2 Presence/Absence Survey be completed to prove whether the NRBC occupies the site. We note that if these species of turtles are observed in the area of road widening, a mitigation plan will be required and shall be coordinated with the Land Development plans.

2. §22-708.6.A – From the requirement that all off-street parking spaces be set back a minimum of twenty (20) feet from any side of any non-residential building to allow sufficient area for firefighting, sidewalk and foundation landscaping. The proposed parking spaces for Buildings 1, 2 and 3 are proposed 10 feet from the buildings.

C. Subdivision and Land Development Ordinance

1. §22-502.1.B.(8) – The zoning classification(s), owner names and tax parcel numbers of all lands abutting the tract shall be provided on the Preliminary Plans.

2. §22-502.1.B.(9) – The tax parcels numbers, deed book and page numbers of all parcels being developed shall be provided on the Preliminary Plans.

3. §22-502.1.B.(11) – Bearings and distances for all easements, including deed restricted areas such as, floodplain boundary, riparian buffers, wetland transitions areas or other covenants shall be provided on the Preliminary Plans.

4. §22-502.1.B.(13) – Site capacity calculations, including net and gross acreage for all lots shall be provided on the Preliminary Plans. (Reference §27-2402)

5. §22-502.1.B.(16) – Architectural sketches are encouraged to be submitted showing elevation, perspective, building materials and colors. We recommend the Applicant formally present the architectural renderings to the Township Planning Commission and Board of Supervisors.
6. §22-502.1.B.(20) – Plan notations regarding offers of dedication of public rights-of-way and improvements and plan notations for ownership and maintenance responsibilities of open space, agricultural areas, easements, stormwater management facilities and utilities shall be provided on the Preliminary Plans.
7. §22-502.1.B.(21) – The Professional engineer's certification and Township Engineer's signature block shall be provided on a plan to be recorded.
8. §22-502.1.B.(23) – The total amount of impervious area accounted for in the stormwater design within each subdrainage area and bypass area shall be noted on the record plan.
9. §22-502.1.C.(2) – The source of the aerial photo used on the Aerial Plan shall be noted.
10. §22-502.1.C.(2) – The aerial photograph plan shall show the location and distance to the nearest park, stream, major intersection, public sidewalk, walking trail and other public amenities as directed by the Township. When these amenities are located further than 1,600 feet from the property boundary, corresponding notes shall be added to the plans stating this information.
11. §22-502.1.D. – Existing features within 100 feet of the tract boundary shall be shown on the Preliminary Plan.
12. §22-502.1.D.(4) – The location, pipe length, size and material of the existing water main at County Line Road shall be shown on the Preliminary Plans.
13. §22-502.1.D.(5) – The pipe length, size, material, slope, invert and rim elevations shall be shown for the existing sanitary sewer through the site shall be shown on the Preliminary Plans. The location of the sewer service for the existing dwelling shall also be shown.
14. §22-502.1.D.(6) – The pipe length, size, material, slope and invert and grate elevations of all existing storm sewer culverts and pipes on Walnut Street, County Line Road, Schoolhouse Road and any other existing storm sewer shall be shown on the Preliminary Plans.
15. §22-502.1.E(1) – The preliminary plans shall include the following on the Grading and Utility Plans:
    a. Spot elevations along the proposed sidewalk along Walnut Street.
    b. The jagged contours across pavement and sidewalk revised to accurately represent the proposed grading for smooth surfaces.
    c. Spot elevations provided at the center of the radius and corners of all parking lot islands to clarify the grading.
    d. Spot elevations provided at all building corners.
    e. High point spot elevations provided between the proposed 285 contours along the access drive on the southwestern side of Building 2.
    f. At the rear of Building 2, the slope along the curb from the BC 281.75 spot elevation to the BC 281.50 spot elevation revised to a minimum 0.5% slope.
    g. The slope along the curb from the BC 281.35 spot elevation to Inlets O-30 and O-40 at the rear of Building 2 revised to a minimum 0.5% slope.
    h. High point spot elevations provided between the “R” inlets along the northwestern side of Building 3.
    i. Top and bottom of wall elevations provided for the Lot 3 access road retaining wall.

j. Fall protection provided along the wall for the Building 3 access road.

k. Grading provided on the northern side of the Building 3 access road to direct runoff away from the wall.

16. §22-502.1.E.(5) – The material and slope of the proposed sanitary sewer lateral to the force main shall be shown on the Utility Plans. The force main material shall also be noted.

17. §22-502.1.E.(8) – The pipe material proposed for the water and fire services shall be noted on the Utility Plans.

18. §22-502.1.I.(3) – Horizontal plan and profile for sanitary sewers, water mains and storm sewers, showing all required design information and elevations and profile of existing ground surface shall be provided on the Preliminary Plans.

19. §22-502.1.I.(4) – Centerline profiles for all access drives from the parking area to the street intersection, showing elevations at ten-foot intervals, slope, curb line and edge of pavement, legal and ultimate rights-way line, shall be provided on the Preliminary Plans.

20. §22-502.1.I.(5) & §22-705.5 – Required and provided sight distance lines and measurements for each driveway shall be provided on the Preliminary Site and Landscaping Plans in accordance with PA Code Title 67, Publication 441, as amended.

21. §22-502.1.J – The following construction details shall be added, replaced, or modified to be consistent with Township Standard details in the SALDO appendix E:

    a. Typical Roadway Widening Section Detail for Arterial, Collector, and Non-Residential Roads and/or Cross Section Detail

    b. Road Underdrain Detail

    c. Parking Space Striping Detail

    d. Pedestrian Crosswalk Detail

    e. There are multiple details for internal pavement. The Standard Asphalt Pavement (Building 1, 2, and 3) detail shall be removed as the minimum specifications are provided on the Township Non-Residential and Multi Residential Driveways, Parking Areas and Loading Areas Paving Section Detail.

22. §22-502.1.J.(1) – Details for the proposed retaining walls, guiderails, stop bar striping, gore striping, culverts and other proposed improvements shall be provided on the Preliminary Plans.

23. §22-505 – The “Community Impact Analysis for Chalfont Industrial Park”, (CIA) prepared by EH Creative Services, LLC, dated April 18, 2026 does not include many elements required within the document but includes a list of “Plans and Reports reviewed and incorporated by Reference.” The CIA report shall be revised to include the following elements required by §22-505:

    a. §22-505.4.A.(1) – A description of the proposed project, including the proposed sizes of buildings and lots. The report, as submitted, does not include the sizes of each of the four existing lots, sizes for each of the three individual buildings, or a comprehensive description of the extent of alterations and improvements to the site.

    b. §22-505.4.A.(3) – A plan, drawn at a scale not exceeding one-inch equals 100 feet, shall be included with the Community Impact Assessment Report, which shows the information required by this section. The report, as submitted, does not include the required plan. The Overall Site Plan and Overall Existing Conditions /Demolition Plan shall be incorporated into the report.

c. §22-505.4.B – The report shall demonstrate compatibility of the proposed project with the New Britain Township Comprehensive Plan. The report indicates that the proposal is generally consistent with the Comprehensive Plan as it concentrates industrial development in an area identified for non-residential growth, relies on public infrastructure, and has been accompanied by technical studies necessary to avoid, minimize, and mitigate environmental and circulation concerns. The narrative shall discuss encroachments into the identified Floodplain Overlay District, natural resource disturbance, proposed use and truck restrictions, traffic impacts, emergency access, and required zoning variances.

d. §22-505.4.D – Physical resources such as topography and shall be described in a narrative and mapped at a scale not exceeding one-inch equals 100 feet. The Overall Existing Conditions /Demolition Plan shall be incorporated into the report.

e. §22-505.4.D.(1) – The geological characteristics of the tract, including the location and boundaries of rock formations, faults and fractures. The Geotechnical Engineering Report prepared by Geo-Technology Associates, Inc. dated August 28, 2025, last revised November 14, 2025, shall be submitted and incorporated into the report.

f. §22-505.4.D.(3) – The existing and proposed surface runoff from the tract shall be calculated, including the potential development of the remainder of the watershed. The flow, depth, capacity and quality of the receiving waters shall be investigated and need for any on-site streambank stabilization evaluated. The report, as submitted, does not include the required information. The information shall be provided and the Overall Riparian Buffer and Slope Disturbance Plan showing the floodplain shall be incorporated into the report. While the report indicates that the "Proposed Industrial Development Flood Study" prepared by Bohler Engineering concludes that the layout has been organized to avoid encroachment within the Special Flood Hazard Area to the greatest extent feasible and shows that the flood elevations will not increase, we note that it appears that the proposal can be revised to avoid encroachments within the floodplain.

g. §22-505.4.D.(4) –The report, as submitted, does not include the required information for groundwater resources, including aquifers and aquifer recharge areas, depth to groundwater and water supply capabilities. The referenced Phase 1 Environmental Site Assessment prepared by The Vertex Companies, LLC shall be provided for review.

h. §22-505.4.D.(5) – The Community Impact Assessment Report references a Phase I and Phase II environmental site assessment completed for the site. These assessments shall be submitted to the Township for review.

i. §22-505.4.E – Biological Resources Inventory. Biological resources shall be characterized in a narrative description and mapped at a scale not exceeding 1" = 100'. The report, as submitted, does not include the required information. The Overall Existing Conditions / Demolition Plan shall be incorporated into the report. The referenced Wetlands Report prepared by Valley Environmental Services Inc. shall be incorporated into the report.

j. §22-505.4.E(1) – The report, as submitted, does not include the required information for the existing vegetation on the tract, including the locations and boundaries of woodlands and forest areas, specimen trees, shrubs and other plants and ground cover. The Overall Existing Conditions / Demolition Plan shall be incorporated into the report and the narrative revised to include an inventory of native and invasive flora.

k. §22-505.4.E(2) – The existing wildlife on the tract, including their species and habitats. This map may draw upon vegetation, hydrology and soil maps in order to express habitat characteristics associated with terrestrial and aquatic wildlife on the tract. The report, as submitted, does not include the required information. A plan including the required information shall be incorporated into the report and the narrative shall be revised to include an inventory of native and invasive fauna.

l. §22-505.4.F – Land Use and Existing Features Inventory. An identification of the land uses and existing features on the tract and mapped at a scale not exceeding 1" = 100'. The report, as submitted, does not include the required information. The Overall Existing Conditions / Demolition Plan shall be incorporated into the report.

m. §22-505.4.F(1) – The land cover characteristics of the tract, including paved or other surfaces, woodland, cultivated areas, pasture, lawns, landscaped areas, etc. The report, as submitted, does not include the required information. An aerial map showing the property boundary shall be incorporated into the report at a scale of 1" = 100'.

n. §22-505.4.F(2) – Any encumbrances on the tract, such as easements, rights-of-way or deed restrictions. The report, as submitted, does not include the required information. The ALTA/NSPS Land Title Survey shall be incorporated into the report.

o. §22-505.4.F.(3) – Any existing features not part of the natural environment, including principal and accessory buildings, roads, driveways, utility lines and sewer and water facilities. The report, as submitted, does not include the required information. The Overall Existing Conditions / Demolition Plan shall be incorporated into the report.

p. §22-505.4.G – Historic Resources Inventory. An identification of the man-made features that are 50 or more years old, both on the tract and on adjacent properties. The report indicates that the PA State Historic Preservation Office database identifies the property as the Abraham Krout Farm which includes a structure(s) exceeding 150 years of age, however, is currently listed as "Not Eligible" for the National Register of Historic Places." The Overall Existing Conditions / Demolition Plan shall be incorporated into the report and shall identify these resources.

q. §22-505.4.H – Community Needs Inventory. The community needs assessment shall indicate in narrative form the following types of services: schools, parks, recreation areas, libraries, hospitals and other health care facilities, fire protection, police protection, ambulance and rescue services. The assessment will indicate the demand for these facilities and services and the ability of the existing facilities and services to meet the demand. Additional information shall be provided in the narrative regarding the current extent and capacity of local emergency services and their ability to serve the demands of the future users of the proposed site.

r. §22-505.4.I – Utility Needs Inventory. An identification of the utility needs associated with the users of the proposed land development. The Will Serve letters from the Water and Sewer Authorities, and PECO (electric and gas), Verizon, and any other existing or proposed utility correspondence shall be incorporated into the report.

s. §22-505.4.J – Transportation System Inventory. An identification of the relationship of the transportation and circulation system needs of the proposed project to the existing street or highway network. A discussion of this relationship shall be in narrative form and shall indicate factors such as methods to be used for traffic control within the tract and at points of ingress to and egress from it and expected traffic volumes generated from the project, including their relationship to existing traffic volumes on existing streets for both peak hour and non-peak-hour traffic conditions. In addition, there shall be a discussion of the physical condition of existing streets that will service the proposed project and what improvements are proposed to remedy any physical deficiencies. The report, as submitted, does not include the required information. In addition to referencing the project Traffic Impact Study, associated truck turning plans, and transportation correspondence, we recommend the Report include a summary of the results of the Traffic Impact Study and the truck turning and offsite transportation improvement plans. The report shall also discuss the potential connection between Stewart Lane and Independence Lane.

t. §22-505.4.K – Demographics. An identification of the demographic characteristics related to the proposed subdivision and/or land development. The characteristics shall be presented in narrative form, with related tables and shall show the projected number of future users of the project, and their social and economic characteristics. Such information shall be presented for build-out condition and during construction. The report, as submitted, does not include the required information, specifically with respect to a table of a typical or prospective staffing breakdown of the future users of the site for each building.

u. §22-505.4.L – Fiscal Impact. An identification of the economic and fiscal characteristics associated with the proposed subdivision and/or land development. The characteristics shall be presented in narrative form, with related tables and shall show the fiscal impact to the costs and revenues of the Township and the Central Bucks School District. Such information shall be presented for build-out condition and during construction. The analysis shall follow the methods presented in the most recent works by the Center for Urban Policy Research of Rutgers University. The report, as submitted, does not include the required information, specifically with respect to the following:

1) No narrative was submitted.

2) No calculation was submitted to substantiate the assumed number of 555 employees.

3) No calculation was submitted to substantiate the assumed Earned Income Tax (EIT) Revenue of $13,524 to both the New Britain Township and Central Bucks School District. The report shall be revised to include the methodology used to determine total employees, anticipated earned income, anticipated location of residence of employees, percentage and number of employees anticipated to reside in New Britain Township, and percentage of EIT to go to New Britain Township.

4) There appears to be an error in the calculation for the Local Services Tax in the Fiscal Impact Summary Table.

5) The Fiscal Impact Summary Table appears to have an error with respect to the rate of Earned Income Tax for New Britain Township. The PA Department of Community & Economic Development lists the EIT rate for residents of New Britain Township at 0.625% and not the .5% noted in the table.

6) No calculation was submitted to substantiate the anticipated “estimated” $48,868 annual costs to New Britain Township annually, attributed to the proposed development.

v. §22-505.4.M – Compliance with Nuisance Standards. An identification of the existing, construction related and future (after buildout) compliance with provisions of the Township Zoning Ordinance [Chapter 27], regulating noise, smoke and storage and waste disposal. The referenced Hanover Chalfont Pre-Construction Noise Study shall be finalized and incorporated into the report for review.

w. §22-505.4.N – Analysis of Impacts. The implications of the proposed subdivision and/or land development in terms of the type of beneficial or adverse impacts which may result and whether these impacts are short term or long term. In indicating such effects, the analysis shall state whether the beneficial or adverse impacts will have a direct or indirect influence on a particular resource, condition or characteristic. While the report contains a general narrative, we recommend the report be expanded upon to include specific information on the water quality and quantity, air quality, identification of significant plant or wildlife systems and their impact, before and after renderings of the site, impact to agricultural soils and crops, floodplain and floodplain soils, increase in impervious surfaces and stormwater demand, natural resource destruction, etc. In addition, the narrative shall indicate whether each of the potential adverse impacts will have primary or secondary implications.

x. §22-505.4.O – Mitigation Measures. An identification of measures to mitigate any adverse impacts. The applicant shall submit exhibits or diagrams that will depict the type of remedial, protective or mitigative measures described in narrative form. The measures shall include the following:

1) §22-505.4.O.(1) – Mitigation measures that pertain to existing procedures and standards related to current requirements of the state, county and/or Township, such as sedimentation control, stormwater runoff control, water quality control and air quality control. The report, as submitted, does not include the required information or exhibits.

2) §22-505.4.O.(2) – Mitigation measures related to impacts that may be unique to a specific project, such as revegetation, screening, fencing, emission control, traffic improvements, traffic control, noise control, relation of people and/or businesses and land acquisition. The report, as submitted, does not include the required information or exhibits.

y. §22-505.4.P – Irreversible Impacts. An identification of any irreversible environmental or community changes that would be directly or indirectly caused by the proposed subdivision and/or land development. The report, as submitted, does not include the required information, specifically with respect to the impact of the loss of soils classified as “prime farmland” and “farmland of statewide significance” by the US Department of Agriculture.

z. The conclusion states that the development is consistent with the zoning district, compatible with the surrounding corridor setting, responsive to environmental constraints, and adequately served by public infrastructure. However, we note the following inconsistencies with this statement:

- The project is not compliant with the zoning ordinance regarding floodplain regulations.
- The project is not compliant with the zoning ordinance regarding building height.
- The project is not compliant with the zoning ordinance regarding fire lanes.
- Conditional Use is required for outdoor storage for separate trailer parking.
- The project proposes encroachments into the natural resources.
- The project proposes removal of 86 specimen trees.
- The project is not adequately served by public infrastructure as two streets along the property have truck restrictions and access routes for trucks to the arterial streets are inadequate.
- The project proposes underground Managed Release Concept (MRC) stormwater facilities. Additional infiltration testing and alternative layout may allow for traditional infiltration facilities and above ground facilities that can promote natural filtration and evapotranspiration.
- Green infrastructure and low impact development practices are not documented.

24. §22-506 – We note that the Traffic Impact Study (TIS) anticipates 555 employees with an opening year of 2034. Trucks are proposed to be directed to County Line Road and State Route 309 via Line Lexington Road. Upon review, we offer the following comments related to the TIS:

a. The traffic study recommends modifications to the southeast corner of the County Line Road and Line Lexington Road intersection to accommodate truck traffic. The truck turning movement for the County Line Road and Line Lexington Road intersection shows a conflict with the curb. The radius shall be revised to eliminate the conflict. We note that there are steep grades, existing inlets and utilities (utility pole and hydrant) on that corner that would need to be considered during the design.

b. The report indicates that the Bethlehem Pike and Line Lexington Road intersection has more than 5 reportable crashes for several of the years reviewed, but notes causation factors were due to driver error (improper/careless turn, running red light, driving too fast for road conditions) and not correctable. However, there are some measures that could be implemented to mitigate the causes of the crashes, such as dilemma zone detection, increased all-red time, etc., and shall be discussed within the report.

c. We note that several 95th percentile queues exceed the available storage at the Bethlehem Pike and Line Lexington Road intersection. Although this is an existing condition, consideration shall be given to directing truck traffic in both directions of County Line Road so that the development does not exacerbate an already deficient condition.

d. Due to existing steep grades, proposed volumes, horizontal alignment, and the short queueing distance existing between Route 309 and County Line Road along Line-Lexington Road, consideration should be given to using Trewigtown Road to access Route 309 as the designated truck route for the development. The horizontal and vertical geometry of the signalized intersection at Trewigtown Road and Route 309 is more conducive to accommodating trucks. The lane widths appear adequate, the adjacent land uses are mainly commercial/industrial uses, and the grades at the intersection are more favorable for trucks. The intersection of Trewigtown and Route 309 and County Line Road would have to be analyzed using vehicle turning templates to identify any necessary mitigation measures.

e. The 95th percentile queues at the County Line Road and Line Lexington Road decrease in the PM projected conditions despite no capacity-adding improvements being recommended. The analysis shall be revised to resolve this issue.

f. We note that the conflict factor analysis for the Bethlehem Pike and Line Lexington Road intersection supports a protected/prohibited left-turn phase. Additional narrative on these findings shall be provided with justification on why this phasing plan was not recommended.

g. The study indicates that another development (Sheetz) is proposing Flashing Yellow Arrow (FYA) indications at the Bethlehem Pike and Line Lexington Road intersection as part of their mitigation. The report should be updated to identify the anticipated timing of the other development and whether those improvements will be implemented prior to the opening of the proposed warehouse development. We note that the capacity analyses for the base conditions assume the FYA is in place. If the other development will not be constructed first, the analyses should be revised to show existing equipment for the base conditions and identify any mitigation that will be necessary due to just the warehouse development. This improvement should be added to “Table II – Recommendations” as a contingency if the Sheetz development is not constructed before the warehouse development. Whichever project is constructed first should install the advanced phasing.

h. Based on the truck turning exhibits, it appears that roadway widening is required on the northeast corner at the intersection of County Line Road and Walnut Street to accommodate the turning movements and wheel paths of design vehicles.

i. If intersection improvements are identified at County Line Road and Walnut Street and/or County Line Road and New Britain Boulevard, these improvements shall be identified as recommendations in the report.

j. The provided copy of the scoping application includes direct access from County Line Road to Building 2. However, the updated plans have removed this access. Consideration should be given to using this driveway as a possible right-in/right-out configuration to reduce impacts on the traffic signal operation at Walnut Street and to provide a secondary access per the Fire Marshal.

k. An auxiliary turn lane analysis for the intersection of County Line Road and Walnut Street shall be provided.

l. As indicated in the trip generation analysis, filtered trip generation data was utilized per ITE and PennDOT Publication 282. The report shall be revised to include the filtered data calculations assumed in Table 5.

m. The Applicant shall indicate if operations are anticipated on the weekend. If so, the weekend peak trips shall also be analyzed.

n. The queues identified in Table 11 do not support the initial queue observations (0 cars) in Appendix G for the Bethlehem Pike and Line Lexington Road intersection. The data shall be verified and the analyses updated accordingly.

o. The trip generation and distribution calculation summary for the 309 Plaza Expansion project in Appendix D indicates that trip generation data was obtained from the 11th Edition of the Trip Generation Manual. However, the 11th Edition does not have a Land Use Code 948 (Automated Car Wash). Additionally, if the 12th Edition was used for this, there is no "tunnel" independent variable. The report shall clarify where the information was derived from.

p. For the capacity analyses at the Walnut Street and County Line Road intersection, the westbound approach has a "No Turn on Red" restriction that shall be included.

q. It shall be verified that the heavy vehicle percentages used in the capacity analyses along Walnut Street at the proposed site driveways are consistent with the projected truck traffic volumes presented in Table 7. Additionally, it shall be verified that the heavy vehicle percentages assumed in the auxiliary lane warrant analyses accurately reflect the projected truck traffic volumes.

r. Given the existing traffic volumes at the Walnut Street and County Line Road intersection, verify that there is no initial queue volume for the eastbound approach. The table provided in Appendix G does not include the eastbound direction.

s. The storage lengths for the turning lanes at County Line Road and New Britain Boulevard/Driveway intersection shall be verified and updated accordingly (i.e., WB left is approximately 75' and SB left is approximately 150').

t. The grade for the northbound approach of the Line Lexington Road and County Line Road intersection shall be revised to be consistent with the information shown on the signal plan for the adjacent intersection (i.e., -9%). Additionally, verify the peak hour factor and heavy vehicle percentages per the turning movement counts.

u. The text below Table 3 shall be revised to reference the traffic count being conducted on June 18, 2025 rather than July.

25. §22-600.1.A – The entire extent of watercourses shall not be altered, regraded, filled, piped, diverted or built upon, except roads and trails may cross watercourses where design approval is obtained from the Township and PADEP. Based on the current layout, a Chapter 105 permit will be required for any alterations to the watercourses.

26. §22-600.1.G – The Overall Riparian Buffer and Slope Disturbance Plan shall include the slope disturbance for the aboveground basin at Building 3, installation of the sanitary force main and the full extent of the Building 3 access road.

27. §22-600.1.H – No impervious surface area shall be located within 25 feet of a wetland boundary, and no more than 20% of such areas shall be disturbed. Any DEP regulations concerning activities in wetlands margins shall also be met. A retaining wall and fill are currently proposed within the wetlands margin. The Overall Wetland and Woodland Plan shall quantify the wetlands margin disturbance near Walnut Street.

28. §22-600.1.I – The Overall Riparian Buffer & Slope Disturbance Plan shall include the natural resource disturbance for the proposed utilities, access roads and grading, stormwater facilities, etc.

29. §22-600.1.I.(3)(e) – Parking lots are prohibited in the riparian buffer. A portion of the Building 2 paved area is located within the riparian buffer.

30. §22-600.1.I.(4) – The riparian revegetation plan shall be prepared by a qualified professional, who has specific experience in the delineation of riparian buffer areas. The qualified professional who prepared the Reforestation Matrix and Mix on Sheet 70 shall be noted.

31. §22-600.1.I.(4)(b) – Three shrubs shall be provided for every 20 linear feet of waterway in the riparian revegetation area. In addition, invasive plants shall be removed whenever practicable. The plans shall demonstrate compliance with this section.

32. §22-601 – A Natural Resource Protection chart shall be provided to calculate the land with resource restrictions and the total resource protection land. All proposed disturbances shall be considered in the chart.

33. §22-703.4.A.(1) – The area within any existing easement shall not be counted toward the minimum lot area. The Net Lot Area on the Lot Consolidation Plan shall subtract the existing easements.

34. §22-704.1 – Easements shall be provided as necessary for watercourses, stormwater facilities, drainage swales, utilities, deed restricted or conservation areas, natural resource protected areas, pedestrian or vehicular access, buffers, public access for recreational trails and/or other purposes. The required easements for resource protection areas, buffers, and stormwater management facilities shall be provided.

35. §22-704.5 – Easements shall be described by metes and bounds in the deed of the property and shall be shown on the site plans. Deeds to all lots with easements shall state all restrictions on buildings or plantings within the easement area. All required and proposed easements shall be shown and described. Deed restrictions for the easements shall be placed in the deed.

36. §22-705.1.G – All plans that require access to a street or highway under the jurisdiction of PennDOT shall either require a highway occupancy permit prior to recording of final plans or an acknowledgment on the site plan of the requirement to obtain a highway occupancy permit prior to the issuance of a use and occupancy permit. The highway occupancy permit is required pursuant to §420 of the Act of June 1, 1945 (P.L. 1242, No. 428), known as the "State Highway Law." Prior to formal application for a highway occupancy permit, the applicant shall submit a highway occupancy permit application, plans supporting documentation to the Township for review and approval, in accordance with the provisions of 67 Pa. Code, Chapter 441.3(J), as amended. A highway occupancy permit is required for the improvements within the County Line Road legal right-of-way.

37. §22-705.1.I – Prior to applying the final wearing course to any existing or proposed roadway, the applicant must submit as-built plans for review and approval by the Township Engineer. A note to this effect shall be included on the record plan and in the sequence of construction for the widening of Walnut Street.

38. §22-705.3.C & §15-304 – Where a subdivision and/or land development abuts or contains an existing street, the applicant shall be required to improve the street to the Township standards for ultimate right-of-way and cartway widths. The following comments related to existing street improvements shall be addressed:

    a. Truck traffic is currently restricted on Walnut Street for the entire frontage and Schoolhouse Road (Reference Township Code Chapter 15 Motor Vehicles and Traffic §15-304). We note that the Applicant previously submitted a Petition to allow truck traffic on Walnut Street. The response to the request from the Township Solicitor is attached for reference indicating that the Petition does not apply. If the Ordinance is formally amended by the Board of Supervisors to allow truck traffic, a structural analysis will be required of Walnut Street to verify the infrastructure is adequate for the anticipated vehicle loading. There shall be a

discussion about what improvements are proposed to remedy any physical deficiencies, once determined (i.e., widening, lane widths, pavement adequacy, structural adequacy, culvert extension/replacement, etc.).

b. The plans show an access drive for Building 3 extending over TMP #26-001-100-011 from Independence Lane. Though there is a Township right-of-way easement on the property, the property contains an existing stormwater basin which will be impacted by the proposed access drive, associated grading and retaining walls. Additional information shall be provided to demonstrate the access road can be installed as shown. Also, since improvements are shown outside of the right-of-way, Temporary Construction Access Easements shall be secured with the impacted property owners.

c. The Township anticipated a future connection from Independence Lane to Stewart Lane with the development of TMP# 26-001-099 evidenced by the existing right-of-way easements over the two adjacent properties. We note that the proposed improvements may impact the ability to make this connection in the future. We recommend the connection be discussed further with the Township.

d. Existing and proposed ultimate and legal rights-of-way and cartway widths along County Line Road, Walnut Street and Schoolhouse Road shall be clearly identified.

e. We recommend that all proposed public improvements be completed prior to issuance of the first occupancy permit.

f. A 3-to-6-foot grass strip is required along Walnut Street between the curb and sidewalk for the area between Buildings 1 and 2.

39. §22-705.3.G – Where a subdivision and/or land development abuts or contains an existing street, the applicant shall be required to mill and overlay the entire width of the roadway a depth of 1-1/2 inches or install a leveling course and wearing course where requested by the Public Works Superintendent. Mill and overlay shall be proposed for Walnut Street and Schoolhouse Road along the frontage.

40. §22-705.4.F – The minimum right-of-way radius at an intersection shall equal the curb radius plus 10 feet. A radius shall be provided for the ultimate rights-of-way at the intersections of Walnut Street and County Line Road and Walnut Street and Schoolhouse Road. The requirements for the higher classification street shall apply.

41. §22-705.5.C – Within the area of clear sight triangles, obstructions to visibility shall not be permitted within the ranges of height between two feet and seven feet above the edge of paving. Any plant materials placed within clear sight triangles shall be properly maintained to continually comply with the height restrictions herein. The site plan shall contain a notation stating that the applicant is required to maintain the area of the clear sight triangle, and the Township has the right to enter the area and perform maintenance if deemed critical to public welfare.

42. §22-705.13.C – All access drives and driveways shall be provided with a stopping area of 20 feet, at a maximum grade of 4%, measured from the edge of cartway. Spot elevations shall be provided at the driveways to demonstrate the required stopping area is provided.

43. §22-705.13.D – Non-residential, two-way driveways shall have a minimum curb radius of 25 feet. The access driveway radius to Independence Lane is proposed to be 15 feet.

44. §22-705.14.C – Pavement underdrains shall be placed along both sides of all proposed streets and in areas of cartway widening of existing streets. Pavement underdrains shall be provided along the Walnut Street widening.

45. §22-705.15.B – Spot elevations shall be provided for the crosswalk at the southeastern driveway of Building 1 to verify it does not exceed a 2% cross slope.

46. §22-705.17 – The applicant shall be responsible for furnishing and installing all traffic signals, traffic regulatory signs, speed limit signs and pavement striping and markings that are required by the Township or PennDOT. The applicant shall coordinate furnishing and installing these items with the Public Works Superintendent. Labor and materials furnished by the Township shall be paid by the applicant. The applicant shall install such traffic signals, signs and markings prior to the issuance of the first building permit. All traffic signals, signs and markings shall comply with specifications of PennDOT for Traffic Signs, Signals, and Markings (PennDOT Publication 68), as amended, and PennDOT Publication 203, Work Zone Traffic Control (1967 Pa. Code, Chapter 203), as amended. We recommend that the following be addressed:

    a. Any additional signage and striping required by the Public Works Superintendent shall be provided along Walnut Street and Schoolhouse Road.

    b. Signage shall be proposed on Walnut Street opposite the proposed Building 1 and 2 site driveways prohibiting trucks from turning left out of the site.

47. §22-706.1.B – Curbs shall be installed along the property frontage of every existing street abutting a proposed subdivision and/or land development. All accessible routes shall meet ADA and PennDOT standards. No curb is proposed along County Line Road or Schoolhouse Road.

48. §22-706.2.B – Sidewalks shall be installed along the property frontage of every existing street abutting a proposed subdivision and/or land development. No sidewalk is proposed across the West Branch Neshaminy Creek along County Line Road or along the Schoolhouse Road frontage including the intersections.

49. §22-706.3 – All curbs and sidewalks shall be designed and constructed in accordance with specifications and details listed in the Appendix and in accordance with current ACI and PennDOT standards. All curbs and sidewalks shall provide access for persons with disabilities in accordance with Americans with Disability Act, as amended.

    a. The applicant shall demonstrate that accessible routes meet ADA standards by providing sufficient spot elevations to verify grades. All curbs shall be designed in accordance with the latest PennDOT standards. Curb ramps shall be provided at all intersections. Details at a scale of 1” = 5’ shall be provided for all proposed curb ramps and accessible routes throughout the site.

    b. All curb ramps shall be provided with "brick red" detectable warning surfaces or other approved contrasting color.

50. §22-707.1.A – The Board of Supervisors upon recommendation by the Planning Commission, may require pedestrian walkways or trails to connect industrial facilities to parks, etc. No trails are currently proposed. If required, the walkways shall meet the design standards of this section.

51. §22-708.1.G – All parking areas shall include clearly defined and marked traffic patterns. Major vehicular routes shall be separated from major pedestrian routes within the lot. We offer the following comments related to traffic patterns:

    a. Signage shall be provided clearly identifying designated truck access points, truck routes, and areas where truck traffic is prohibited within the site.

    b. Signage shall be provided to discourage passenger cars from entering the truck lots, where appropriate.

    c. The plans shall be revised to identify the signage per the legend on Sheets C-301 to C-304. It is unclear where pedestrian and “Do Not Enter” signs are proposed.

    d. “Do No Enter” signs shall be provided for the driveway on the south side of Building 2 facing the truck loading area to prohibit trucks from entering the employee parking area.

e. "Do Not Enter" signs shall be installed for the driveway on the south side of Building 3 in the truck turnaround area.

f. Details for all proposed markings shall be on the plans (i.e. crosswalk, stop legend, etc.).

g. The plans shall be revised to indicate that all crosswalks shall be a minimum of 4 feet from an adjacent stop bar.

52. §22-708.1.H – Parking lots shall integrate green stormwater infrastructure by the use of plants and soils to naturally detain, treat, and infiltrate runoff from impervious surfaces. Bioretention, infiltration, amended soils, or other designs shall be incorporated into all new parking areas. Runoff from the warehouse parking areas are generally directed to underground basins and the plans do not appear to provide the required green stormwater infrastructure.

53. §22-708.2.D – No more than 15 parking spaces shall be permitted in a continuous row without being separated by a minimum 10' by 18' planting island. The trailer parking for Building 1 and the loading parking areas for all three warehouses do not comply.

54. §22-708.2.F – Where parking stalls are proposed adjacent to a sidewalk or walkway, the minimum width of the sidewalk or walkway shall be increased to a minimum width of 6 feet. The sidewalk adjacent to the parking spaces at Building 3 is 5.3 feet wide.

55. §22-708.4.B – Each access drive shall have a minimum width of 25 feet and maximum width of 30 feet at the street line for two-way use. The access driveways for Buildings 1 and 2 exceed 30 feet in width.

56. §22-708.6.H. – Parking aisle, access drive and service drive intersections shall be provided with stop signs and painted stop bars. Stop signs and stop bars shall be proposed.

57. §22-709.1.C – Each loading space and the area needed for maneuvering shall be located entirely on the lot being served and shall not conflict with parking aisles, stalls, access drives or service drives. We have the following comments regarding the Vehicle Circulation Plan:

    a. Templates shall be provided to demonstrate that there are no conflicts for WB-67 trucks accessing the loading stalls on the far east and west ends of the truck loading areas for each building.

    b. All permitted truck movements shall be depicted for each site access point, including left-in, left-out, right-in, and right-out movements, as applicable.

    c. The movements for trucks making a left onto County Line from Walnut Street shall be depicted.

    d. All permitted truck movements shall be depicted for New Britain Boulevard and Independence Lane and New Britain Boulevard and County Line Road to show that these intersections have adequate turning radii for truck traffic.

    e. The Vehicle Circulation Plan shall depict movements to demonstrate that there is adequate area for trucks to maneuver into the parking spaces.

    f. Building 1:

        1) We recommend that restrictions be considered for the Building 1 access driveway entrances to keep passenger cars and truck traffic separated such as truck access at the western driveway and passenger car access at the eastern driveway.

        2) The truck movements currently show trucks encroaching into the opposing lane at both Building 1 access driveway entrances from Walnut Street. These conflicts shall be eliminated.

g. Building 2:

1) It appears WB-67 trucks entering and exiting the Building 2 site driveway encroach into the opposite wheel path. These conflicts shall be eliminated.

h. Building 3:

1) The WB-67 templates encroach into the opposing lanes to be used by passenger vehicles and/or other trucks at the bend in the site driveway just east of the building. This conflict shall be eliminated.

2) The truck movements provided for WB-67 trucks at the south end of the building overlap the curb throughout the proposed turn around bulb. The conflict shall be eliminated.

3) Separate viewports shall be provided to clearly distinguish between the proposed movements for each vehicle.

4) Truck turning movements shall be provided at Independence Lane and the access driveway.

58. §22-710.2 – Fire hydrants shall be installed in locations as recommended by the Township Fire Marshal's office and approved by the Board. The location of the proposed fire hydrants shall be in accordance with §22-710.2 and reviewed and approved by the Fire Marshal.

59. §22-710.3 – Access to all sides of buildings for industrial uses shall be provided to permit fire apparatus access to the building and roof. The Vehicle Circulation Plan shall show fire truck access to the front of Building 1. The Vehicle Circulation Plan shall be reviewed and approved by the Fire Marshal.

60. §22-710.4 – At least one emergency access shall be provided for subdivisions with a proposed single access loop street or cul-de-sac street. Based on the Fire Marshal's review letter dated June 4, 2026, full access or emergency access shall be provided for Buildings 2 and 3.

61. §22-711.4.A – Retaining wall specifications and design details shall be approved by the Township Engineer prior to final plan approval by the Township. Design plans, specifications and details, signed and sealed by a licensed professional engineer, shall be provided for all proposed walls. Wall style, finish and color shall be coordinated with proposed building architecture.

62. §22-711.2.E – Provisions shall be made to effectively accommodate the increased surface runoff caused by changed soil and surface conditions during and after development. Hydrographs and other supporting documentation shall be provided to demonstrate the runoff rate from the site during construction will not exceed the predevelopment rates.

63. §22-711.4.A – The proposed contours which tie into the retaining wall at the Building 3 access road have a slope of 2:1 where 3:1 is the maximum slope permitted.

64. §22-711.4.C – The top or bottom edge of slopes shall be a minimum of five feet from property lines in order to permit normal rounding of the edge without encroaching onto the abutting property. The proposed grading of improvements extend beyond the property lines; into the ultimate right-of-way of Walnut Street, County Line Road, Independence Lane, TMP #26-001-100-011 (141 Independence Lane, lands n/f of 101 Independence Lane Associates, LLC) and within 5 feet of TMP #26-001-100-012 (140 Independence Lane, lands n/f of Schultz).

65. §22-711.4.D – Fill shall not encroach on wetlands, watercourses and floodplains. A minimum grading buffer of 5 feet shall be maintained from wetlands, watercourses and floodplains unless other federal, state or Township standards require a more restrictive buffer. Fill placed adjacent to wetlands, watercourses or floodplains shall have suitable protection against erosion. Grading along the access drives for Buildings 1 and 2, and level spreaders are within 5 feet of the floodplain.

66. §22-711.5.A – A note stating "The top six inches of soil that existed naturally on the site prior to subdivision and/or land development shall be stockpiled on the site. Following construction, the stockpiled soil shall be redistributed uniformly on the site to a minimum depth of six inches" shall be added to the plan.

67. §22-711.5.E – Any areas of erosion along any on-site embankment, existing watercourse, etc., shall be identified and details provided for means and method of stabilization. A permit shall be obtained from the County Conservation District and/or PADEP as required. The Applicant shall evaluate the on-site embankments and existing watercourses to identify any areas of erosion. A detailed report of the evaluation and details for the method of stabilization shall be provided.

68. §22-711.7.B – The following comments related to soil protection shall be addressed:

    a. The sequence of construction is generic. A detailed construction sequence will be required for the construction of the retaining walls, storm sewer, basin conversion, underground basin for the Building 3 access road, etc.

    b. If the project is phased, a phasing plan and sequence shall be provided for review to ensure that all public improvements are completed prior to issuance of the first occupancy permit.

    c. The limits of disturbance (LOD) extend into the floodplain at the northeastern corner of the site adjacent to Schoolhouse Road where no improvements are shown. The purpose of the LOD at this location shall be clarified.

    d. The erosion control detail tables shall be filled out to provide site specific information.

    e. The size of all filter sock and the filter sock diversion shall be noted on the plans.

    f. Erosion controls shall be provided for the sanitary sewer stream crossings.

    g. Clean out elevations shall be provided for the sediment basins.

    h. A detail is provided for a Compost Sediment Trap. The location of the compost sediment trap shall be shown on the plans.

    i. Details for the 6' by 6' riser and any other associated temporary structures for the sediment trap shall be provided.

    j. Filter sock is shown across the stream at the Walnut Street culvert and shall be revised.

    k. The plans show filter sock over proposed sidewalk and through pavement on Walnut Street. The filter sock shall be relocated beyond the limits of the proposed improvements.

    l. Erosion control matting shall be shown downslope of the level spreaders and the type of matting specified as well.

    m. The topsoil stockpiles are proposed in an area of fill. The stockpile locations shall consider the sequence of construction and the location finalized.

    n. A proposed rock filter is shown beneath the paved area behind Building 2. The use of this rock filter shall be clarified.

69. §22-713.2.E. – Any specimen tree having a diameter of thirty (30) inches or more, measured at twelve (12) inches above natural grade line, shall not be removed, whether located within a woodland area or standalone. All trees to be removed are shown on the Tree Protection and Removal Plans. The Landscape Compliance Chart on Sheet 55 indicates 86 trees with a diameter of thirty (30) inches or more are to be removed with 63 noted as "Poor/Dead" on Sheet 64. The chart notes a waiver which is not included in the waiver request letter. We recommend that a certified arborist review and document the health of the specimen trees proposed to be removed.

70. §22-713.3.A. – All 10-foot by 18-foot planting islands shall contain one shade tree. Several islands in the parking lots for each building do not include a shade tree.

71. §22-713.3.C. – Any lot with 30 parking spaces or more shall have landscaped areas within the paved area equal to a minimum of 5% of the total paved area. The total paved area shall exclude landscape strips around the perimeter. The Landscape Compliance chart lists a landscape area that demonstrates compliance. However, a plan view shall be provided highlighting the areas used to calculate the landscape area to verify the landscaped areas for each building.

72. §22-713.3.D. – All planting islands and strips shall be underlain by soil improved to a minimum depth of 30 inches, not stone or bituminous material. A soil improvement detail and the notes on the landscape plan shall include the removal of all construction debris and existing compacted soils. The specifications for the soil improvement mix shall be provided with the landscape details.

73. §22-713.4.A. – Street trees shall be planted every 30 feet along all proposed streets and existing streets. Five additional trees are required for a total of 82 street trees along Walnut Street. Schoolhouse Road requires 12 street trees and none are proposed. The buffer yard trees cannot be used to satisfy the street tree requirement.

74. §22-713.5.B.(1)(a)1) – For every parking lot buffer that abuts a sidewalk or a street for a parking area of five spaces or more, one shade tree and 10 evergreen shrubs shall be planted for each 30 feet of buffer length and one square foot of perennial plantings for every linear foot of total buffer. The Landscape Plan double counts the street trees as the parking lot buffer shade trees. The street trees shall not be used to satisfy the parking lot buffer requirement. The required canopy trees for the parking lot buffer shall be provided.

75. §22-713.5.B.(2) – A minimum six-foot opaque fence or wall, on at least three sides, with a staggered row of evergreen trees planted every 10 feet along the fence perimeter shall be provided around trash collection areas and mechanical units. All trash collection areas and ground level mechanical units shall be identified on the plans and buffering provided.

76. §22-713.5.B.(4) – A minimum six-foot wooden shadow-box fence, or approved equal, on at least three sides, with evergreen trees planted every 10 feet along the fence perimeter is required for outdoor storage areas. The trailer parking is considered an outdoor storage area and buffering shall be provided if a Conditional Use is approved.

77. §22-713.5.B.(10) – Proposed and existing conservation easements shall be physically delineated in the field by a concrete monument at the intersection of the easement with the property line. A two- or three-rail split-rail tapered fence or stone-shaped concrete monument corner may be substituted at the discretion of the Board of Supervisors. Physical delineation shall be provided for the required conservation easement(s).

78. §22-713.6 – All notes from Sections B through D of this section shall be included on the Landscape Plans.

79. §22-713.6.A – Trees shall be a minimum of 10 feet from all existing and proposed underground and overhead utilities. The proposed trees and underground utilities shall be revised as necessary to provide the 10-foot separation.

80. §22-713.6.E – The Landscape Compliance Chart shall be revised to note the requirements for plant diversity in parking lots and proposed compliance.

81. §22-714.4.B – Public streetlights shall be required for all nonresidential subdivisions along any existing street intersection abutting the proposed subdivision, where required by the Board, and any other location where lighting will improve the function of the street, sidewalk or pedestrian access way, where required by the Board. No streetlights are currently proposed.

82. §22-714.4.D – The site plan shall contain a plan notation stating, "All streetlights shall be installed and energized prior to the issuance of the first occupancy permit for any subdivision and/or land development or first phase or section thereof and the lighting and maintenance costs shall be assessed to affected property owner."

83. §22-714.5.C.(1) – For all industrial applications, a note shall be added to the record plan that all lighting fixtures shall be controlled by programmable timers that accommodate seasonal and annual variations and battery or mechanical (e.g., spring-wound) backup to extinguish light sources between 11:00 p.m. and dawn or within one hour of the close of business, whichever is earlier, to conserve energy and mitigate nuisance glare and sky lighting consequences. Security lighting may be permitted up to 25% of the total number of fixtures onsite."

84. §22-714.8 – Medium Activity Nonresidential Parking, Loading Facilities and Drives (e.g., Industrial) shall have a minimum coverage of 0.4 footcandles. Building 3 access driveway to Independence Lane does not provide the required lighting coverage.

85. §22-714.8 – Building entrances shall have a minimum coverage of 2.0 footcandles. Building 2 and the central entrance for Building 1 do not meet this requirement.

86. §22-715.2.C.(2) & G.(2) – The amount of land to be dedicated for park and recreational areas for nonresidential land development projects shall be 2,500 square feet per 4,000 square feet of building area. Based on a combined building area of 554,950 square feet for Buildings 1, 2, and 3, the amount of park and recreation land that would be required is 346,844 square feet (7.96 acres). The Preliminary Plan designates 7.96 acres at the northern portion of the site as "Recreation Area". The following comments shall be addressed:

    a. §22-715.2.G.(2) – Where, upon agreement with the applicant, it is determined that the dedication of all or any portion of the land area required for park and recreation purposes is not feasible because of the size, shape, location, access, topography, or other features of the land or any other need of the Township, the applicant shall pay to the Township a fee-in-lieu of dedication of such land. Based on the current fee schedule, the fee would be $2,500 per 4,000 square feet of building area or $346,844.00.

    b. §22-715.3.A.(1) – The land proposed for dedication shall be easily and safely accessible, have good ingress and egress, and have access to an external public street. We recommend that a Site Plan be provided for the park and recreation land so the access can be discussed. As noted previously, the Township planned for a connection from Stewart Lane to Independence Lane. This connection would bisect the proposed Park and Recreation Land.

    c. §22-715.3.A.(4) – No more than 25% of the recreation area shall be floodplain or areas with slopes above 8%, or both. The floodplain and steep slopes areas shall be quantified, and these resources shall not exceed 25%.

    d. §22-715.3.A.(6) – Site(s) designated for passive recreation may contain lands with natural resource restrictions, provided that the land can be used by residents for passive recreational activities. The recreation area includes floodplain, steep slopes, woodlands, watercourse, and riparian buffer. The park and recreation land designation i.e. lawn, natural, active, passive, or agricultural) shall be discussed.

    e. §22-715.3.A.(7) – The development plans and recorded plans shall show 1.) the recreational activities and/or facilities for which an area is intended, and 2.) the legal basis by which the recreational, park or open space use is preserved. We recommend the park and recreation land be subdivided, if possible, and dedicated to New Britain Township in lieu of an easement to the Township.

f. §22-715.3.A.(9) – On-site improvements on the dedicated park and recreation land shall be commensurate with the adjacent on-site development improvements, including but not limited to grading, curbing, utilities and walking paths. No grading, curbing, utilities or walking paths are proposed. As previously noted per §22-707.1.A, the Board of Supervisors upon recommendation by the Planning Commission, may require pedestrian walkways or trails to connect industrial facilities to parks, etc.

g. §22-715.3.B – If the Board determines that a park and recreation land dedication is in the public interest, such park and recreation land shall first be offered for dedication to the Township. Acceptance of the dedication shall be by adoption of a resolution of the Board and acceptance of a deed of dedication in a form acceptable to the Township Solicitor. If the Township does not accept dedication, the land may be owned and maintained by an entity that the Board determines is acceptable to ensure proper long-term oversight and maintenance of the land. Deed restrictions and/or easements in favor of the Township shall be required on all park and recreation land to ensure its permanent use for park and recreation purposes and to prohibit the construction of buildings on the land, except buildings for noncommercial recreation or to support maintenance of the land.

h. §22-715.4 – For preliminary and final plans, the Planning Commission shall review the plan for conformance to this section and may on its own motion require formal review by the Park and Recreation Advisory Board, which shall promptly review if so requested.

87. §22-716 – Concrete monuments shall be accurately placed at all outbound existing property corners, including changes in direction of boundary where they do not currently exist, along the street ultimate right-of-way line at all intersections, curves and changes in direction if right-of-way and at the beginning and end of all easements, including changes in direction of easement. The monuments shall be shown.

88. §22-717 – A note shall be added to the record plan that all utilities shall be placed underground.

89. §22-718.3 – The applicant shall construct sufficient water mains to make service available to each building in the land development. The system shall be designed to comply with the standards and requirements of the applicable water authority and shall be subject to its approval. We recommend that final approval of the plans by the Township be conditioned on approval by the North Penn Water Authority.

90. §22-718.4 – The public water supply system shall be designed with adequate capacity and fire hydrants for firefighting purposes. The water system, including the location of all fire hydrants, shall be reviewed by the Township Fire Marshal's office and approved by the Board.

91. §22-720.3 – A partially completed PADEP Sewage Facilities Planning Mailer was submitted with a previous preliminary plan application. The mailer shall be revised to provide all missing information, reference numbers 6 and 8. Prior to submitting the planning module to the Township for approval, the information shall be provided and the planning module shall be executed by the applicant, responsible engineer, CNBJSA, Department of Health and Bucks County Planning Commission. A Sewage Facilities Planning Module shall be approved by the Township, Authority, and PADEP prior to final plan approval by the Township.

92. §22-720.4 – All public sanitary sewer systems shall be designed and constructed in accordance with standards of the Township and Chalfont-New Britain Township Joint Sewage Authority, as well as in accordance with PADEP Sewerage Manual and Domestic Wastewater Facilities Manual, as amended. We recommend that final approval of the plans by the Township be conditioned on approval by the Chalfont-New Britain Township Joint Sewer Authority.

D. Stormwater Management (SWM) Comments

1. §22-712.2.A.(1) – Whenever a stream, intermittent stream, natural drainageway or waters of the commonwealth is located within a development site, it shall remain open in its natural state and location and shall not be piped, unless required or approved by the appropriate federal, state or Township agency. An analysis should be provided to demonstrate that the flood-carrying capacity of any watercourse to be altered is being preserved.
2. §22-712.2.A.(3) – A permanent easement shall be provided along any watercourse, including any associated wetlands and floodplain, located within the boundary of any property being developed for the protection and maintenance of the watercourse area. The terms of the easement shall prohibit excavation, the placing of fill or structures, clearing, and any alterations that may adversely affect the watercourse. The required width of any such easement shall be the greater width as determined by the Township Engineer, U.S. Army Corps of Engineers, PADEP or other public agency having jurisdiction, but in no case shall be less than 50 feet. Where riparian buffers and wetland margins are required, the permanent easement shall be extended to a greater width. The Site Plan and development agreements shall contain a provision permitting access to such easement(s) for inspection or emergency repair/maintenance by the Township.
3. §22-712.2.G.(4) – A stormwater management study shall be submitted with all subdivision and/or land development applications, and shall include computations and supporting data for the design of all erosion control facilities. An Erosion and Sedimentation Control Report shall be provided.
4. §22-712.2.K – The location, size, slope, invert and material of all roof drains shall be shown on the plans and associated calculations provided.
5. §22-712.4.D – Storage facilities shall completely drain both the volume control and rate control capacities over a period of time not less than 24 and not more than 72 hours from the end of the design storm. Dewatering calculations shall be provided for Basin AGB 1-3.
6. §22-712.4.E – The grading and utility plan shall contain a note that all detention basin embankments shall be placed in lifts not to exceed one foot in thickness. Each lift shall be compacted to a minimum of 95% of Modified Proctor Density as established by A.S.T.M. D-1557.
7. §22-712.4.F – Outlet pipes from detention facilities shall be designed to control the peak rate for the 100-year design storm. All basin outlet pipes shall be reinforced concrete pipe having watertight joints, with a minimum size of 15 inches. All basin outlet pipes shall be specified as O-ring RCP.
8. §22-712.4.G – The emergency spillway lining shall extend to the toe of the embankment on the exterior of the berm and shall extend to an elevation of three feet below the spillway crest on the interior of the berm. The spillway liner shall extend over the crest of the spillway.
9. §22-712.4.H – The maximum spillway length shall not exceed 75 feet. The spillway length for Basin aboveground basins 1 to 3 exceeds the 75-foot maximum length.
10. §22-712.4.J – A cutoff trench (keyway) of impervious material shall be provided under all embankments that require fill material. The cut-off trench shall be a minimum of 8 feet wide, 3 feet deep and have side slopes of one horizontal to one vertical. A construction detail shall be provided for the cutoff trench/ basin keyway and berm construction.
11. §22-712.4.K – The [outlet structure] inlet grate shall only be used as an emergency outflow and the grate elevation shall be equal to or higher than the 100-year water surface elevation, but at least six inches below the emergency spillway elevation. The outlet structure grate for Basins 1-3 and 3-4 are less than 6 inches higher than the 100-year water surface elevation and shall be revised.

12. §22-712.4.L – Two anti-seep collars shall be installed around the basin outlet pipe and shall be centered within the normal saturation zone of the berm. The anti-seep collars and their connections to the pipe barrel shall be watertight. Anti-seep collars shall be proposed and calculations and details provided.

13. §22-712.4.O – Energy dissipating devices (cable concrete, rip rap, or equivalent) shall be provided at all discharge points and calculations and details provided.

14. §22-712.4.P.(1) – Bioretention and infiltration facilities shall be planted with vegetation and/or seed mix other than turf grass to encourage evapotranspiration. Planting soil depth shall be at least 18" where only herbaceous plant species will be utilized. If trees and woody shrubs are used, soil media depth shall be increased depending on plant species. A minimum of 18 inches of planting soil shall be provided in Basin 1-3. Planting soil shall be amended with a composted organic material. A typical organic amended soil is combined with 20-30% organic material (compost), and 70-80% soil base (preferably topsoil).

15. §22-712.4.R.(3) – Inlets or storm manhole structures with steps shall be located at each corner of underground detention basins to provide access for maintenance. Structures shall be provided for access at the corners of all underground MRC basins.

16. §22-712.4.R.(5) – An emergency overflow weir shall be provided for outlet structures to convey basin inflow in excess of design flows or in the event the outlet structure becomes blocked and is unable to convey the design flow. The minimum capacity of the emergency overflow weir shall be equivalent to the 100-year peak inflow rate for the post-development design storm. Weir spillway calculations shall be provided for all underground MRC basins.

17. §22-712.4.S – All Managed Release Concept stormwater facilities shall be in accordance with the most recent Managed Release Concept design guidance provided by PADEP. The following comments related to the PADEP design guidance for MRC facilities dated August 15, 2025 shall be addressed:

    a. MRC storage systems shall have a proprietary Manufactured Treatment Device (MTD) for pre-treatment of the volume up to the 2 year/24-hour storm. The plans include a detail for an Arcadia Stormwater Separator. The location of this device shall be specified on the plans and documentation shall be provided to demonstrate certification from the NJDEP or TAPE.

    b. Volume up to the 2-year/24-hour storm for an MRC Storage System shall be directed to a forebay or settling chamber. Flows to the MRC are diverted to separate underground basins, however, the inverts through these forebay/ settling chambers are the same as the rate control portion of the MRC basin and do not detain these flows. Details for the outlet structure from these forebay/ settling chambers shall be provided to demonstrate how these flows are detained.

18. §22-712.5.A – All storm sewer systems shall provide the required capacity for the 100-year design storm based on the Rational Method, as determined by the PennDOT Design Manual, Part 2, as amended, and the U.S. Department of Commerce, Hydraulic Design Series No. 5, Hydraulic Design of Highway Culverts, as amended. Storm sewer systems located along a Township road or state highway shall also be designed to convey the 100-year peak flow rate. Pipe capacity calculations shall be provided for all proposed storm pipes. A minimum of one foot of freeboard shall be provided between the one-hundred-year water surface elevation and the top of inlet grate or manhole rim.

19. §22-712.5.I – When there is a change in storm sewer size at an inlet or manhole structure, the top of pipe elevations shall be the same. For equal storm sewer sizes, a minimum of two inches shall be provided between the inlet pipe and the outlet pipe invert elevations. The required two-inch drop between pipes shall be provided at all storm sewer structures.

20. §22-712.6.C – Inlet spacing in paved areas shall be arranged so that a minimum of 80% of the gutter flow tributary to the inlet will be captured. The designer shall be required to verify that bypass surface runoff from the 100-year design storm will enter the storm sewer piping system at some point, prior to discharge into a stormwater facility or other approved outlet point. Inlet capacity calculations shall be provided.

21. §22-712.6.D – Storm sewer inlet spacing shall not exceed 300 feet. The pipes from Z-50 to Z-70 and T-10 to T-20 exceed 300 feet.

22. §22-712.6.E – At least one inlet shall be required at the curb tangent on the upstream side of all access drive and driveway intersections with public roadways. Additional inlets shall be provided at the driveways for Buildings 1 and 2. In addition, there is an inlet shown in the middle of the southern driveway for Building 1. The inlet shall be relocated to the curb tangent.

23. §22-712.8.B – A Type "DW" endwall shall be provided at the termination of all storm sewer systems. Headwalls shall be provided for the culverts crossing beneath the Lot 3 access road.

24. §22-712.13.A.(1) – When any stormwater facility is proposed within a land development, a blanket or defined easement shall be provided. The defined easement or note of a blanket easement, and the terms of the ownership and required maintenance, shall be provided on the recorded post-construction stormwater management plan. Easements shall be provided for the proposed stormwater management facilities.

25. §22-712.13.A.(2) – A stabilized access to a stormwater facility shall be provided for maintenance and operation. Access to detention basins and similar facilities shall be constructed of interlocking grass paving system and backfilled with topsoil and seeded. Access shall be provided to Basins 1-3 and 3-4a.

26. §§26-121.8.C & 26-132.2.C.(11) – To the maximum extent practicable, incorporate the techniques for low impact development practices described in the PA Stormwater Best Management Practices Manual; PADEP No. 363-0300-002 (2006). A justification must be included in the SWM site plan if BMPs other than green infrastructure methods and LID practices are proposed to achieve the volume, rate and water quality controls. For any SWM site plan that proposes to use any BMPs other than green infrastructure and LID practices to achieve the volume and rate controls required under this Part, the municipality will not approve the SWM site plan unless it determines that green infrastructure and LID practices are not practicable in accordance with §26-134.3.

27. §26-123.2.C.(5) – The stormwater management design is primarily composed of MRC basins which are used at locations where infiltration is not feasible. The PA Stormwater BMP Manual states that “(suitable infiltration) areas should be identified early in the design process and should not be subject to a building program that precludes Infiltration BMPs. An exemption should not be provided for “full build-outs” where suitable soils otherwise exist for infiltration.” The Stormwater Infiltration Report completed by GTA shows that testing completed adjacent to the proposed buildings, such as INF-13, 14, 24, 3 and 54 showed favorable infiltration rates. No testing was completed where the buildings are proposed. Additional infiltration testing shall be completed at the building footprints to determine if an alternate building layout would allow for traditional infiltration facilities.

28. §26-123.2.C.(6)(b) – Field tests shall be provided at the level of the proposed infiltration surface. Test pits and infiltration testing shall be completed within the footprint and design elevation of UGB 3-1a and 3-1b.

29. §26-124 – Development sites must control proposed development conditions runoff rates to existing conditions runoff rates for the lower order design storms (i.e. 2-year post to 1-year pre). Once comments from the letter are addressed, it shall be confirmed that the stormwater management design meets this requirement.

30. §26-124.C – On-site drainage facilities shall be designed to safely convey off-site flows through the development site. Offsite flows getting to the stormwater facilities for Building 3 shall be included in the analysis of these basins.
31. §26-132 – The following comments related to the SWM Site Plan Requirements and design shall be addressed:
    a. Several of the underground basins are shown beneath the loading dock ramps. These foundations for these ramps may conflict with the underground systems. The conflicts shall be resolved.
    b. All stormwater facilities shall be labeled on the Utility Plans and PCSM plans and shall be coordinated with the labels in the PCSM Report.
    c. A drainage area plan shall be provided for the Lot 3 access road.
    d. An inlet drainage area plan shall be provided for all proposed inlets.
    e. Pipe information and details shall be provided for the Equilizer pipes and “CVT” culverts along the Building 3 access road.
    f. Details shall be provided for all diversion structures and associated weirs.
    g. The plans provide generic details of the ADS Stormtech Chambers. Specific details for each basin shall be provided, including layout dimensions, elevations, chamber sizes and models, cleanout locations and underdrain location, size and elevations. The storage volumes modeled in the report shall be verified.
    h. The Underground MRC Basin Outlet Control Structure table lists the outlet control structure for the rate control basins as the outlet control for the forebay/ settling chambers and shall be revised to list the outlet control from these facilities as applicable.
    i. The Outlet Control Structure for Above Ground Basins table lists several rows for the same outlet structure with conflicting information. The detail shall be revised to clarify the outlet structure configuration and verify the structures modeled in the report.
    j. Based on the elevations listed in Underground MRC Basin Outlet Control Structure table, several of the orifice heights will conflict with the weir elevation and shall be revised.
    k. The Typical Basin Spillway Lining Detail lists the elevation for the Building 1 basin and shall be revised to include infiltration for the Building 3 basin. The type of matting shall be specified as well.
    l. The elevations of the basin spillways shall be noted on the plans.
32. §26-132.2.B.(2)(c) – The following comments related to the modeling of the stormwater management design shall be addressed:
    a. The stormwater report includes modeling of the modified basin at the Building 3 access road. However, the existing outlet structure and pipes, as well as a proposed or modified outlet structure is not shown on the plans and details of the underground basin are not provided in the details. The plans shall be revised to show all existing pipes and structures associated with this basin as well as all proposed modifications to determine the impact of the access road and if the modified design is sufficient to provide adequate capacity and rate control.
    b. The Pre-Development Curve Number calculations include 1.12 acres of impervious area where the zoning table notes 19,262 s.f. of impervious area. The pre-development impervious areas shall be clarified and revised accordingly.
    c. Diversion Structures 1, 2 and 4 model two separate outlet pipes to the forebay/ settling chambers. These diversion structures in plan view provide a single pipe from the structure towards these basins and shall be verified and revised.

d. The pipe sizes modeled for the outlet structures and diversion structures are not consistent with the pipe sizes listed in the Strom Pipe Schedule and Underground MRC Basin Outlet Control Structure table and shall be revised for consistency.

33. §26-132.2.C.(9) – The following signature block for the design engineer: "I, (Design Engineer), on this date (date of signature), hereby certify that the SWM site plan meets all design standards and criteria of The Neshaminy Creek Watershed Act 167 Stormwater Management Ordinance or Plan."

34. §26-132.2.C.(10) – A statement signed by the applicant acknowledging that any revision to the approved SWM site plan must be approved by the municipality and that a revised Erosion and Sediment Control Plan must be submitted to the Conservation District shall be provided on a plan to be recorded.

35. §26-132.2.E – The SWM site plan shall include an operations and maintenance (O&M) plan for all existing and proposed physical stormwater management facilities, as well as schedules and costs for O&M activities. This plan shall address long-term ownership and responsibilities for O&M. The Long-Term Operation Maintenance Schedule is generic and shall be revised to specify the inspection and maintenance responsibilities for the underground MRC basins, above ground MRC basins, infiltration basins, level spreader, stormwater conveyance systems, etc.

36. §26-133.A – The NPDES Permit for Stormwater Discharges from Construction Activities and any other permit under applicable state or federal regulations shall be submitted to the Township.

37. §26-162.3.A.(9) – A 20-foot-wide access easement shall be provided around all stormwater facilities and BMPs that would provide ingress to and egress from a public right-of-way.

38. §26-162.3.B – The identity and contact information associated with the person(s) responsible for O&M shall be added to the Long-Term Operation Maintenance Schedule.

39. §26-162.3.D – A statement, signed by the facility owner, acknowledging that the stormwater facilities and BMPs are fixtures that can be altered or removed only after approval by the municipality shall be provided on an O&M plan sheet to be recorded.

40. §26-164.1 – The Applicant shall sign an Operation and Maintenance (O&M) agreement with the municipality covering all stormwater facilities and BMPs that are to be privately owned. The O&M agreement shall be transferred with the transfer of ownership and shall be prepared by the Township Solicitor.

41. §26-172 – Roof drains and sump pumps shall discharge to infiltration or vegetative BMPs and to the maximum extent practicable satisfy the criteria for disconnected impervious areas. The location and discharge point of all roof drains shall be shown on the plan to verify compliance.

42. §26-173.1 – A note stating “No person shall modify, remove, fill, landscape, or alter any stormwater management (SWM) best management practices (BMPs), facilities, areas, or structures unless it is part of an approved maintenance program and written approval of the municipality has been obtained” shall be added to a plan sheet to be recorded.

43. §26-173.1 – A note stating “No person shall place any structure, fill, landscaping, or vegetation into a stormwater facility or BMP or within a drainage easement which would limit or alter the functioning of the stormwater facility or BMP without the written approval of the municipality” shall be added to a plan sheet to be recorded.

44. Township Resolution #2024-02 – The Applicant is required to pay a fee for all proposed stormwater BMPs to provide a financial guarantee for the timely installation, proper construction and continued maintenance by the owner of the subject property prior to plan recording. The fee shall be 5% of the total construction cost of the proposed BMPs with a minimum of $100.00, but not to exceed $10,000.00. The Applicant’s professional shall submit a cost estimate once the design is finalized.

E. Conclusion

The plans shall be revised to address the above comments to the satisfaction of the Township. Please be advised that the Township's Zoning Officer, Fire Marshal, and Public Works Superintendent may have additional review comments. Considering the extent of the required plan revisions identified in this letter and the pending expiration of the 90-day review period under the PA Municipalities Planning Code, we recommend the plans be formally denied.

If you have any questions regarding this project, please do not hesitate to contact us.

Sincerely,

Craig Kennard, P.E.,
Gilmore & Associates, Inc.
Township Engineer
Assistant Township Zoning Officer

CDK/JM/tw

Attachments: Flood Study Review
Solicitors Response to Walnut Street Petition

cc: Terry Fedorchak, Interim Township Manager
Alexandria Mullin, Assistant Township Manager
Ryan Cressman, Public Works Superintendent
Scott Holbert, Esquire, Flager & Associates, Inc.
HCI DP Land Acquisition LLC, Applicant (tmriley@hanoverco.com/ dgordon@hanoverco.com)
Gregg I. Adelman, Esquire, Kaplan Stewart (gadelman@kaplaw.com)
Elizabeth Nicholas and Siobhan Welsh, Owners, 109 Overlook Lane, Wayne, PA 19087
J. Dayton, Bohler, LLC (jdayton@bohlerengineering.com)
Lindsey Breylinger, Bohler, LLC
Janene Marchand, P.E., Gilmore & Associates, Inc.

2500 East High Street, Suite 650, Pottstown, PA 19464
610.326.3100 | INFO@TPDINC.COM
WWW.TPDINC.COM

November 12, 2025

Ms. Mirlene SaintVal
PennDOT 6-0
7000 Geerdes Boulevard
King of Prussia, PA 19406

RE: Traffic Engineering Review – Transportation Impact Study Scoping Meeting Application
Walnut Street Warehouse Development
New Britain Township, Bucks County, PA
TPD Job # HANC.00005

Dear Ms. SaintVal:

This letter pertains to the Proposed Walnut Street Warehouse Development located on the western side of Walnut Street, north of County Line Road (SR 2038) in New Britain Township, Bucks County. Traffic Planning and Design, Inc. (TPD) has prepared this response letter to address the scoping review comments from the Department, dated September 16, 2025 (**attached** for reference). For the discussion below, the review comments are shown in *italic* type, with the corresponding TPD response shown in **bold** type.

Please note, the site access to County Line Road (SR 2038), which was proposed on the site plan in the scoping submission, is no longer proposed under this application.

PENNDOT REVIEW COMMENTS

1. *The PennDOT project number for this scoping application review, S0620250080, must be referenced when the formal Highway Occupancy Permit (HOP) application is submitted.*

   Response: So noted. Will comply on future HOP submissions.

2. *This review is preliminary in nature. The Department reserves the right to make additional comments when the application includes the submission of detailed plans and stormwater calculations. If you have any questions pertaining to the technical aspects of this review, please contact Jason Cowen, PE at Jason.cowen@dawood.net or 855-432-9663.*

   Response: So noted.

3. *Provide copies of correspondence indicating that the municipality is aware of the project and has had a chance to comment.*

   Response: Will comply. All correspondence has been included in Appendix A. The scoping application was sent to New Britain Township and Hatfield Township and a comment letter was received from Hatfield Township.

4. *The proposed site plan shows each warehouse would be accessed by two driveways and there are no*

internal connections between the warehouses. Split the trip generation for each warehouse and the accesses for each warehouse to verify the proposed driveway type.

Response: Individual trip assignment and trip distributions were calculated for each of the three warehouse buildings.

5. *Identify the proposed truck route to and from each warehouse in the TIS.*

   Response: The tractor trailers will travel to/from Route 309 via County Line Road, using the signalized intersection of Line-Lexington Road/Route 309.

6. *Include the following intersections in the study area:- County Line Road & SR 309- County Line Road & Trewigtown Road (North leg)- County Line Road & Trewigtown Road (South leg)- Schoolhouse Road & Trewigtown Road- County Line Road & Walnut Street.*

   Response: The above intersections are included in the enclosed study.

7. *Provide truck turning templates that show back wheel off tracking for the turning movements at the intersection of County Line Road and Walnut Street.*

   Response: The preliminary truck turning template is enclosed with this submission.

8. *Truck turning templates must be provided for the largest vehicle anticipated to access the site (all movements) to ensure that the driveways can safely accommodate the design vehicle. For the full access driveway, the driveways must be wide enough to accommodate an entering single unit truck turning right with a passenger vehicle positioned in the exit lane. Additionally, the templates must show how these vehicles will circulate within the site. For each site access, if the largest permitted vehicle type to utilize that access is smaller than a WB-67, then a note must be included on the plans, turning templates for that vehicle size provided, appropriate signage provided, and that vehicle size will become a condition of the permit and be recorded.*

   Response: Truck turning templates at the proposed site access intersections will be provided in a future submission to the Township. Please note, all site access under the current plan is proposed to Township roadways.

9. *The project site is in close proximity to the county and township border. Provide documentation for the coordination with all municipalities within the proposed truck routes to determine any required improvements (off-site improvements) at intersections along the truck route to facilitate trucks accessing the site.*

   Response: Will comply. All correspondence has been included in Appendix A. The scoping application was sent to the adjacent Hatfield Township and a comment letter was received from Hatfield Township. Coordination with Hatfield Township will continue, as appropriate.

10. *With respect to the formal permit application, please ensure that the following items are addressed: a. Please be advised that pursuant to and in accordance with Title 67, Chapter 441.8(h)(2)(iv) of the code,*

the Safe Stopping Sight Distance is the absolute minimum acceptable sight distance for driveways. It is the designer's responsibility to ensure that this minimum requirement is satisfied. b. It should be understood that in accordance with PennDOT Strike-Off Letter 470-10-03 and pursuant to section 421 of the State Highway Law (36 P.S. ? 670-421) the installation of any drainage facilities within the Legal Right-of-Way may necessitate additional permitting requirements, including, but not limited to, a separate Highway Occupancy Permit from the Municipality for the future maintenance of the new drainage facilities. c. ADA compliance within the limits of work (along the access frontage at a minimum) must be evaluated in the TIS (i.e. new/modified facilities, impact to SEPTA bus stops, etc.). If driveway modifications are proposed, the existing curb ramps must be upgraded to be ADA compliant. At a minimum, the ramp adjacent to the curb replacement would need to be reconstructed. d. Consistent with current Department Policy, applicants for Highway Occupancy Permits must apply for an EPS Business Partner ID (BPID). The BPID is to be used in the establishment of a billing account for the invoicing of inspection costs. For information on obtaining a BPID, you may visit: https://www.dot14.state.pa.us/EPS/home/manageBPRegistration.jsp

Response: Will comply.

If you have any questions, or need any additional information, please do not hesitate to contact us.

Sincerely,
TPD

Guido W. DiMartino, P.E.
Regional Leader – Transportation Planning

Attachment: 9/16/25 PennDOT's TIS Scoping Review

cc: New Britain Township
Craig Kennard (Gilmore)
Hatfield Township
Anton Kuhner (Bowman)
PennDOT 6-0
Project Team
TPD File

DiMartino, Guy

From: ePermitting Help <penndotepermittinghelp@pa.gov>
Sent: Tuesday, September 16, 2025 4:26 PM
To: dgordon@hanoverco.com; DiMartino, Guy; c-jcowen@pa.gov; fhanney@pa.gov; ajurcik@pa.gov; jojgallagh@pa.gov; msaintval@pa.gov; jotten@pa.gov; ajparker@mccormicktaylor.com; ajurcik@pa.gov; jotten@pa.gov; ajparker@mccormicktaylor.com; msaintval@pa.gov; jojgallagh@pa.gov; mwalsh@newbritaintownship.org
Cc: RA-PDEPSPROD@pa.gov
Subject: :: Scoping Meeting Application - Returned - Application Number is : S0620250080 (Sent on: 09/16/2025 04:26:00 PM)

PennDOT has completed its review of the TIS Determination and Scoping Meeting Application.

Please address the following comments below, and resubmit the application to PennDOT for review.

PennDOT Review Comments :

1. The PennDOT project number for this scoping application review, S0620250080, must be referenced when the formal Highway Occupancy Permit (HOP) application is submitted.
2. This review is preliminary in nature. The Department reserves the right to make additional comments when the application includes the submission of detailed plans and stormwater calculations. If you have any questions pertaining to the technical aspects of this review, please contact Jason Cowen, PE at Jason.cowen@dawood.net or 855-432-9663.
3. Provide copies of correspondence indicating that the municipality is aware of the project and has had a chance to comment.
4. The proposed site plan shows each warehouse would be accessed by two driveways and there are no internal connections between the warehouses. Split the trip generation for each warehouse and the accesses for each warehouse to verify the proposed driveway type.
5. Identify the proposed truck route to and from each warehouse in the TIS.
6. Include the following intersections in the study area:- County Line Road & SR 309- County Line Road & Trewigtown Road (North leg)- County Line Road & Trewigtown Road (South leg)- Schoolhouse Road & Trewigtown Road- County Line Road & Walnut Street
7. Provide truck turning templates that show back wheel off tracking for the turning movements at the intersection of County Line Road and Walnut Street.
8. Truck turning templates must be provided for the largest vehicle anticipated to access the site (all movements) to ensure that the driveways can safely accommodate the design vehicle. For the full access driveway, the driveways must be wide enough to accommodate an entering single unit truck turning right with a passenger vehicle positioned in the exit lane. Additionally, the templates must show how these vehicles will circulate within the site. For each site access, if the largest permitted vehicle type to utilize that access is smaller than a WB-67, then a note must be included on the plans, turning templates for that vehicle size provided, appropriate signage provided, and that vehicle size will become a condition of the permit and be recorded.
9. The project site is in close proximity to the county and township border. Provide documentation for the coordination with all municipalities within the proposed truck routes to determine any required improvements (off-site improvements) at intersections along the truck route to facilitate trucks accessing the site.
10. With respect to the formal permit application, please ensure that the following items are addressed:a. Please be advised that pursuant to and in accordance with Title 67, Chapter 441.8(h)(2)(iv) of the code, the Safe Stopping Sight Distance is the absolute minimum acceptable sight distance for driveways. It is the designer?s responsibility to ensure that this minimum requirement is satisfied. b. It should be understood that in accordance with PennDOT Strike-Off Letter 470-10-03 and pursuant to section 421 of the State Highway Law (36 P.S. ? 670-421) the installation of any drainage facilities within the Legal Right-of-Way may necessitate additional permitting requirements, including, but not limited to, a separate Highway Occupancy Permit from the Municipality for the future maintenance of the new drainage facilities.c. ADA compliance within the limits of work (along the access frontage at a minimum) must be evaluated in the TIS (i.e. new/modified facilities, impact to SEPTA bus stops, etc.). If driveway modifications are proposed, the existing curb ramps must be upgraded to be ADA compliant. At a minimum, the ramp adjacent to the curb replacement would need to be reconstructed. d. Consistent with current Department Policy, applicants for Highway Occupancy Permits must apply for an EPS Business Partner ID (BPID). The BPID is to be used in the establishment of a billing account for the invoicing of inspection costs. For information on obtaining a BPID, you may visit: https://www.dot14.state.pa.us/EPS/home/manageBPRegistration.jsp

Click here to access the Scoping Application

PENNDOT EPERMIT - PLEASE DO NOT REPLY TO THIS EMAIL

2500 East High Street, Suite 650, Pottstown, PA 19464
610.326.3100 | INFO@TPDINC.COM
WWW.TPDINC.COM

November 12, 2025

Mr. Aaron Bibro
Township Manager
Hatfield Township
1950 School Road
Hatfield, PA 19440

RE: Traffic Review #1 – Transportation Impact Study Scoping Meeting Application
Walnut Street Warehouse Development
New Britain Township, Bucks County, PA
TPD Job # HANC.00005

Dear Mr. Bibro:

This letter pertains to the Proposed Walnut Street Warehouse Development located on the western side of Walnut Street, north of County Line Road (SR 2038) in New Britain Township, Bucks County. Traffic Planning and Design, Inc. (TPD) has prepared this response letter to address the scoping review comments from Bowman, dated September 23, 2025, on behalf of Hatfield Township. (attached for reference). For the discussion below, the review comments are shown in italic type, with the corresponding TPD response shown in bold and regular type:

TRANSPORTATION IMPACT STUDY SCOPING MEETING APPLICATION

1. *We generally concur with the scoping items and methodologies to be used by the applicant's traffic engineer as contained in the scoping application. This includes other items to be completed in the study evaluation, such as sight distance, auxiliary turn lane needs, and queuing observations. However, we do have additional items that are noted below that we recommend to the applicant, Township, and PennDOT are included in the scope and site design.*

   Response: So noted.

2. *Due to the horizontal curves and residential neighborhood located along Walnut Street between County Line Road (S.R. 2038) and Bethlehem Pike (S.R. 0309), it is recommended that trucks from the proposed warehouse development be restricted from traveling along this section of Walnut Street. The study should identify how trucking companies will be notified of the routes to be taken to/from the site.*

   Response: The tractor trailers will travel to/from Route 309 via County Line Road, using the signalized intersection of Line-Lexington Road/Route 309. Tractor trailers will be notified of the restriction via on-site signage, and notifications prior to visiting the site.

3. *The applicant should investigate radius improvements to the southeastern corner of County Line Road (S.R. 2038) and Line Lexington to better accommodate trucks making a right-turn from Line - Lexington Road onto County Line Road (S.R. 2038). It has been observed that these truck movements are restricted and sometimes cause queues to spill into Bethlehem Pike (S.R. 0309).*

Response: This will be evaluated and addressed as appropriate in a future submission.

4. *Turning storage lengths for new auxiliary and modified turn lane lengths at the study intersections shall be based on the vehicle/truck types and lengths to be using them, both considering commuter peak hours studied and off-peak periods (peak hours of the generator) when more trucks may be stacked in lanes. The frontage and access intersection improvements shall take this into account, as applicable.*

   Response: The study is not proposing any new auxiliary turn lanes. The commuter peak hour queue analysis is included in the study. The commuter peak hour evaluation represents conditions when traffic volumes are the highest on the surrounding roadways. During "off-peak" time periods where the site traffic might be higher than during the A.M. and P.M. commuter peaks, the traffic volumes on the surrounding roadways is less. Therefore, the peak hour volumes evaluated in the study represent the highest total traffic volume condition at the off-site intersections.

5. *A response letter must be provided with the resubmission detailing how the aforementioned comments have been addressed, and where each can be found in the resubmission materials (i.e., page number(s)) to assist in the re-review process. Additional comments may follow upon review of any resubmitted materials.*

   Response: Will comply.

If you have any questions, or need any additional information, please do not hesitate to contact us.

Sincerely,

TPD

Guido W. DiMartino, P.E.
Regional Leader – Transportation Planning

Attachment: 9/23/25 Bowman's TIS Scoping Review

cc: Hatfield Township
Anton Kuhner (Bowman)
New Britain Township
Craig Kennard (Gilmore)
PennDOT 6-0
Project Team
TPD File

Bowman

September 23, 2025

Mr. Guy DiMartino, P.E.
TPD, Inc.
2500 E. High Street, Suite 650
Pottstown, PA 19464

RE: Traffic Engineering Review #1 – Transportation Impact Study Scoping Meeting Application
Walnut Street Warehouse
New Britain Township, Bucks County, PA
Project No. 313520-24-001

Dear Guy:

Bowman Consulting Group (Bowman) has completed a traffic engineering review of the proposed development to be located along the western side of Walnut Street to the north of County Line Road (S.R. 2038) in New Britain Township, Bucks County, PA. According to the submitted materials, the proposed development will consist of three warehouse buildings for a total of 586,650 square feet of warehouse space. As per correspondence, access to the development is proposed via three full-movement driveways along Walnut Street, and one full-movement driveway along Independence Lane. It is noted that the scoping application notes an access onto County Line Road (S.R. 2038), however, it was stated that this access is no longer proposed.

The following document was reviewed and/or referenced in preparation of our traffic review:

- Transportation Impact Study (TIS) Scoping Meeting Application – Walnut Street Warehouse, prepared by TPD, Inc.

PennDOT is requiring that the applicant solicit input from Hatfield Township regarding the transportation impact study (TIS) that will be completed for the proposed development. Based on our review of the document listed above, Bowman offers the following comments as related to this submission.

1. We generally concur with the scoping items and methodologies to be used by the applicant's traffic engineer as contained in the scoping application. This includes other items to be completed in the study evaluation, such as sight distance, auxiliary turn lane needs, and queuing observations. However, we do have additional items that are noted below that we recommend to the applicant, Township, and PennDOT are included in the scope and site design.

2. Due to the horizontal curves and residential neighborhood located along Walnut Street between County Line Road (S.R. 2038) and Bethlehem Pike (S.R. 0309), it is recommended that trucks from the proposed warehouse development be restricted from traveling along this section of Walnut Street. The study should identify how trucking companies will be notified of the routes to be taken to/from the site.

3. The applicant should investigate radius improvements to the southeastern corner of County Line Road (S.R. 2038) and Line Lexington to better accommodate trucks making a right-turn from Line

Lexington Road onto County Line Road (S.R. 2038). It has been observed that these truck movements are restricted and sometimes cause queues to spill into Bethlehem Pike (S.R. 0309).

4. Turning storage lengths for new auxiliary and modified turn lane lengths at the study intersections shall be based on the vehicle/truck types and lengths to be using them, both considering commuter peak hours studied and off-peak periods (peak hours of the generator) when more trucks may be stacked in lanes. The frontage and access intersection improvements shall take this into account, as applicable.

5. A response letter must be provided with the resubmission detailing how the aforementioned comments have been addressed, and where each can be found in the resubmission materials (i.e., page number(s)) to assist in the re-review process. Additional comments may follow upon review of any resubmitted materials.

We trust that this review letter responds to your request and satisfactorily addresses the traffic issues related to the proposed development at this time. If the Township has any questions, or requires further clarification, please contact me.

Sincerely,



Anton Kuhner, P.E.
Regional Service Lead - Signals

BMJ/CED/AKK

cc: Aaron Bibro, Hatfield Township
Don Delamater, Hatfield Township
Mirlene Saintval, PennDOT
John Gallagher, PennDOT
Bryan McAdam, CKS Engineers (Hatfield Township Engineer)
Dan Fox, New Britain Township Manager
Craig Kennard, P.E., Gilmore & Associates (New Britain Township Engineer)
Dan Gordon, HCI DP Land Acquisition, LLC (Applicant)

V:\313520 - Hatfield\313520-24-001 (TRA) - General Services\Engineering\Correspondence\Reviews\Walnut Street Warehouse\2025-09-23_Traffic Engineering Review #1.doc

pennsylvania
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION IMPACT STUDY (TIS) DETERMINATION & SCOPING MEETING APPLICATION

Scoping Meeting Application: Submitted

Scoping Meeting Date: _____ Scoping Number: S0620250080

Tax Parcel Number: _____

Project/Development Name: Walnut Street Warehouse

Applicant Information:

Business Partner ID: _____

Applicant Name: HCI DP Land Acquisition LLC

Phone: 202-747-4583 Email 1: dgordon@hanoverco.com

Primary Contact: Dan Gordon Email 2: _____

Additional Engineering Firm Information:

Business Partner ID: _____

Engineering Firm: _____

Phone: _____ Email 1: _____

Primary Contact: _____ Email 2: _____

Creator Information:

Business Partner ID: 000094 Firm Name: Traffic Planning and Design, Inc.

Phone: 610-326-3100 Email 1: gdimartino@tpdinc.com

(1) LOCATION OF PROPOSED DEVELOPMENT:

PennDOT Engineering District: 06 Email: _____

County: Bucks Email: _____

Municipality: NEW BRITAIN Email: amullin@nbtpa.us

RPO/MPO: DVRPC MPO

Email: amaron@dvrpc.org

NO.	Road Name	Ownership	SR	Segment	Offset	Latitude, Longitude
1	County Line Road	State	2038	0030	0406	40.2762748,-75.2464768
2	Walnut Street	Local Municipality				40.2800900,-75.2385620

3	Walnut Street	Local Municipality				40.2773320,-75.2423430
4	Walnut Street	Local Municipality				40.2766930,-75.2432150
5	Independance Lane	Local Municipality				40.2826510,-75.2472290

NO.	Proposed Activity	Proposed Access Level	Signalized?	Average Daily Trips	Driveway Classification
1	Construct New Driveway	Full Access	N	196	Low Volume
2	Construct New Driveway	Full Access	N	512	Low Volume
3	Construct New Driveway	Full Access	N	513	Low Volume
4	Construct New Driveway	Full Access	N	106	Low Volume
5	Construct New Driveway	Full Access	N	349	Low Volume

Describe Existing or Proposed Multimodal Accommodations:
None proposed.

Are there any vehicle weight or size restrictions along any roadway providing direct access to the site in accordance with 75 PA C.S. ss 4902? : No

(2) DEVELOPMENT SCHEDULE AND STAGING:

Multi-Stage Development ? No
Anticipated Opening Date: 07-01-2029
Full Buildout Date: 07-01-2029

Describe Proposed Development Schedule/Staging:
No phasing proposed at this time.

(3) TRIP GENERATION:

Land Use & Size	Land Use Code	Were ITE results used?	Daily Trips	AM Peak Hour		PM Peak Hour		---	
				Enter	Exit	Enter	Exit	Enter	Exit
3 Warehouse Buildings (586,650 sf total)	150	Yes	1772	177	70	59	159	0	0
		TOTAL:	1772	177	70	59	159	0	0

(4) LEVEL OF STUDY REQUIRED?

Level of Study Required? Transportation Impact Study (TIS)

If Yes, based on:
CONDITION 2: During any one-hour time period, the site will generate 100 or more new trips entering or 100 or more new trips exiting.

Additional considerations as described below:
None

(5) STUDY AREA:

Location Number	Major Street	Minor Street	Signalized?
2	Walnut Street	Driveway Location #2	N

1	County Line Road	Driveway Location #1	N
3	Walnut Street	Driveway Location #3	N
4	Walnut Street	Driveway Location #4	N
5	Independance Lane	Driveway Location #5	N
6	County Line Road	Walnut Street	Y
7	County Line Road	New Britian Boulevard	Y
8	Schoolhouse Road	Walnut Street	N
9	Schoolhouse Road	Railroad Avenue	N
10	Trewigtown Road	New Britian Boulevard	N
11	New Britian Bouleavrd	Independance Lane	N

Land use context (Refer to PennDOT Design Manual, Part 1X, Appendix B):
Suburban

Known Congestion Areas:
None known. To be evaluated in the TIS.

Known Safety Concerns:
None known. To be evaluated in the TIS.

Known Environmental Constraints:
None known.

Pedestrian/Bike Review (Community Centers, Parks, Schools, etc.):
Whistle Stop Park is located on the SE corner of County Line Road/Walnut Street intersection. West Branch Park is located on the NE corner of the Walnut Street/Schoolhouse Road intersection.

Transit Review (Current routes/stops):
SEPTA's Link Belt Station for the Lansdale/Doylestown Line is located to along Walnut Street, approximately 750-feet south of County Line Road.

(6) STUDY AREA TYPE:

Study Area Type: Urban

(7) TIS/TIA ANALYSIS PERIODS AND TIMES:

Opening Year: 2029

Full Buildout Year: 2029

Design Year: 2034

Indicate the analysis times to be included in the TIS/TIA:

1. AM Peak Hour
2. PM Peak Hour
3. ---
4. Other:

No additional peak hours proposed.

Analysis periods to be included in the TIS/TIA:

1. Existing Conditions
2. Design Year Without Development
3. Design Year With Development and Design Year With Mitigation (if necessary)

Additional Analysis Periods (Please Specify):
No additional analysis periods proposed.

(8) TRAFFIC ADJUSTMENT FACTORS:

(a) Seasonal Adjustment (Identify counts requiring adjustment and methodology):
Traffic counts performed in mid-June 2025. As such, 3.24% increase in the AM peak hour, and 9.79% increase in the PM peak hour proposed to account seasonal adjustment. Please see attached data related to the proposed adjustments.

(b) Annual Base Traffic Growth: 0.12 %/yr. **Source:** PennDOT BPR

(c) Pass-By Trips (Attach justification where required):

NO.	Land Use	%	Source
1	150- warehouse	0	ITE

(d) Captured Trips for Multi-Use Sites:
None proposed.

(e) Modal Split Reductions:
None proposed at this time.

(f) Other Reductions:
None proposed at this time.

(9) OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC:

Notes:
To be coordinated during the scoping process.

(10) TRIP DISTRIBUTION AND ASSIGNMENT:

Trip Distribution Notes:
To be based on existing traffic patterns and site access location. It is anticipated the trucks will be oriented to/from Route 309.

(11) DATA COLLECTION ELEMENTS AND CAPACITY ANALYSIS METHODOLOGIES:

NO.	Major Street	Minor Street	Signalized?	Period	Data Collection Method	Capacity Analysis Method
5	Independance Lane	Driveway Location #5	N	Not proposing to count or study	Not proposing to count or study	Not proposing to count or study
6	County Line Road	Walnut Street	Y	Weekday 6-9 AM and 3-6 PM	TMC	Synchro 12th Edition
7	County Line Road	New Britian Boulevard	Y	Weekday 6-9 AM and 3-6 PM	TMC	Synchro 12th Edition
1	County Line Road	Driveway Location #1	N	Weekday AM and PM peaks	Not counting - balance volumes with other ints	Synchro 12th Edition
2	Walnut Street	Driveway Location #2	N	Weekday AM and PM peaks	Not counting - balance volumes with other ints	Synchro 12th Edition
3	Walnut Street	Driveway Location #3	N	Weekday AM and PM peaks	Not counting - balance volumes with other ints	Synchro 12th Edition
4	Walnut Street	Driveway Location #4	N	Weekday AM and PM peaks	Not counting - balance volumes with other ints	Synchro 12th Edition

8	Schoolhouse Road	Walnut Street	N	Weekday 6-9 AM and 3-6 PM	TMC	Synchro 12th Edition
9	Schoolhouse Road	Railroad Avenue	N	Weekday 6-9 AM and 3-6 PM	TMC	Synchro 12th Edition
10	Trewigtown Road	New Britian Boulevard	N	Weekday 6-9 AM and 3-6 PM	TMC	Synchro 12th Edition
11	New Britian Bouleavrd	Independance Lane	N	Weekday 6-9 AM and 3-6 PM	TMC	Synchro 12th Edition

(12) ROADWAY IMPROVEMENTS/MODIFICATIONS BY OTHERS TO BE INCLUDED:

Roadway Improvements:
To be coordinated during the scoping process.

(13) REQUIRED ANALYSIS:

(a) Analysis Acknowledgement:
Yes

(b) Capacity Analysis:
Yes

(c) Queue Analysis:
Yes

(d) Sight Distance Analysis:
Yes

(e) Signal Warrant Analysis:
Yes

(f) Turn Lane Warrant Analysis:
Yes

(g) Intersection Control Evaluation:
Yes

(h) Crash Analysis:
Yes

(i) Gap Studies:
Yes

(j) Identify any other analysis to be performed or revisions to the sections above:
None

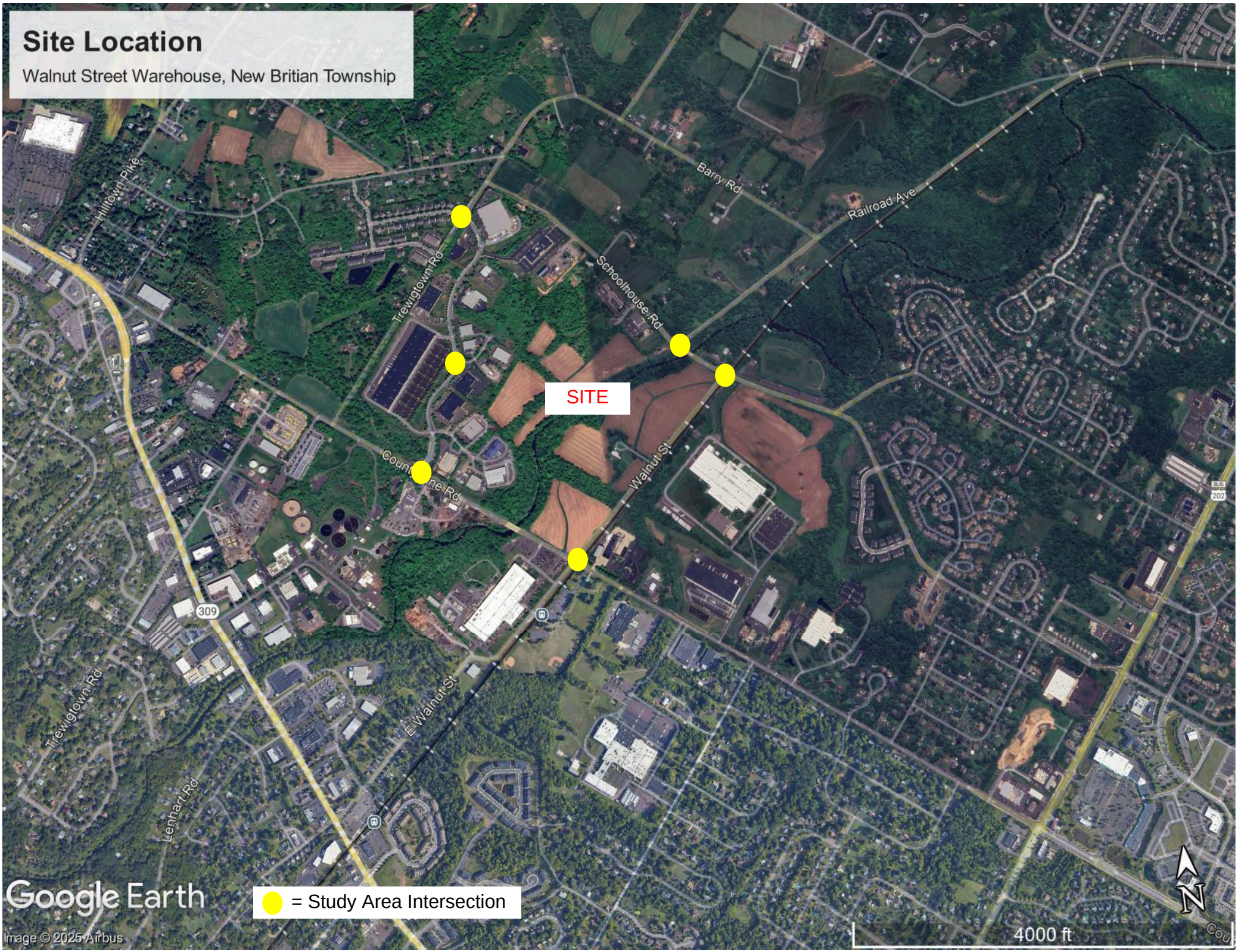
(14) ADDITIONAL COMMENTS OR RECOMMENDATIONS RELATIVE TO THE SCOPE OF THE TIS:

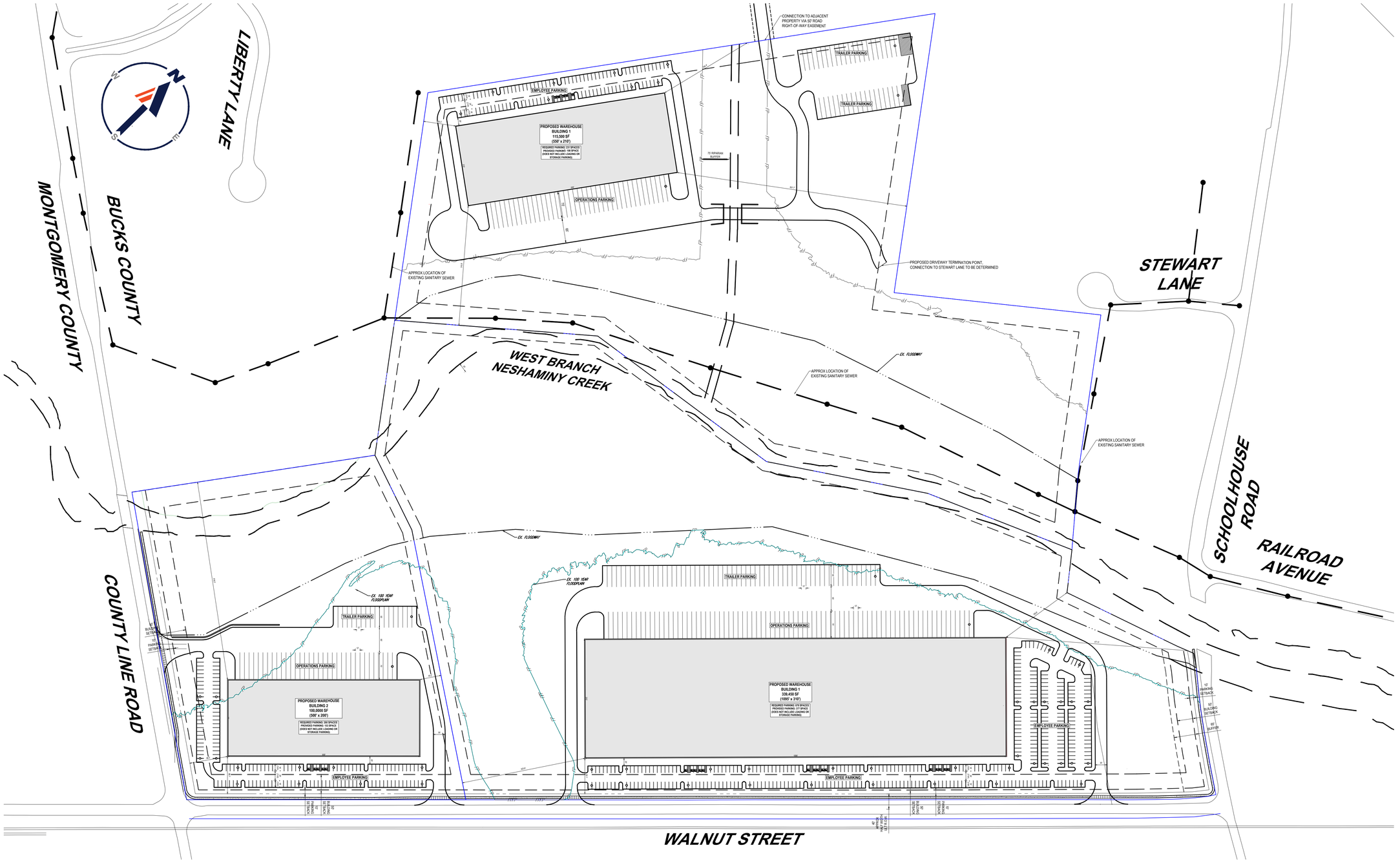
Additional Comments:
Please see the attached location map, site plan, seasonal adjustment data, and trip generation data.

PennDOT Review Comments: (Current Cycle Comments)

After review of the scoping meeting application, the Department will contact the applicant regarding the need for a scoping meeting prior to applying for a highway occupancy permit.

This Electronic Copy Created on: 2025-07-23 20:08:39


Site Location
Walnut Street Warehouse, New Britian Township
SITE
Hilltown Pike
Trewigtown Rd
Barry Rd
Railroad Ave
Schoolhouse Rd
Walnut St
309
E Walnut St
Lenhart Rd
= Study Area Intersection
Google Earth
Image © 2025 Airbus
4000 ft
N



120 60 30 0 120

SCALE: 1" = 120'

Jul 17, 2025
M:\PA\2025\PAC250095.00\CAD\DRAWINGS\PLAN SET\SKETCH PLAN 'A'\P-SKTA-PROP-PAC250095.00-0A-----LAYOUT: C-301 SKTA
JF

BOHLER™

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREIN HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 50 OF 2017, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK.
WWW.PA1CALL.ORG
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NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.:	PAC250095.00-0A
DRAWN BY:	JF
CHECKED BY:	LB
DATE:	07/17/2025
CAD I.D.:	P-SKTA-PROP

PROJECT:

PROP SITE PLAN

FOR

HCI DP LAND ACQUISITION LLC

PROPOSED DEVELOPMENT

WALNUT STREET AND COUNTY LINE ROAD
NEW BRITAIN TOWNSHIP
BUCKS COUNTY, PA

BOHLER™
1515 MARKET STREET, SUITE 920
PHILADELPHIA, PA 19102
Phone: (267) 402-3400
Fax: (267) 402-3401
www.BohlerEngineering.com

M. KEARSE
PROFESSIONAL ENGINEER
PENNSYLVANIA LICENSE No. PE092989

SHEET TITLE:

SITE PLAN

SHEET NUMBER:

C-301

ORG. DATE - 07/17/2025

1025 Andrew Drive, Suite 110, West Chester, PA 19380
610.326.3100 | INFO@TPDINC.COM
WWW.TPDINC.COM

July 2025

HCI DP Land Acquisition LLC
Walnut Street, New Britian Township, Bucks County

ITE TRIP GENERATION DATA

The trip generation rates for the proposed warehouse development were obtained from the *Trip Generation Manual*, Eleventh Edition, 2021, an Institute of Transportation Engineers (ITE) Informational Report. Per PennDOT's Transportation Impact Study Guidelines outlined in PennDOT's *Policies and Procedures for Transportation Impact Studies*, found in PennDOT's Publication 282, Appendix A, dated June 2025, the Land Use Code (LUC) 150 (Warehouse) filtered data from *Trip Generation* were used to calculate the number of vehicular trips the development will generate during the following time periods: (1) average weekday; (2) weekday A.M. peak hour; and (3) weekday P.M. peak hour.

Please note, while the total square footage of the three (3) proposed buildings exceeds the 500 ksf threshold in PennDOT's Publication 282 regarding warehouse trip generation, the filtered trip generation data for buildings less than 500 ksf was used since each of the three (3) proposed buildings are less than 500 ksf, and each building has independent site access. **Table 1** shows the ITE trip generation data for the analyzed time periods.

TABLE 1 – ITE TRIP GENERATION DATA

Time Period	Bldg #	Size (ksf)	Total Trips			Truck Trips			Passenger Car Trips		
			Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Average Weekday	1	339.45	1025	513	512	204	102	102	821	411	410
	2	100.00	302	151	151	60	30	30	242	121	121
	3	115.50	349	175	174	69	35	34	280	140	140
	Total	***554.95***	***1676***	***839***	***837***	***333***	***167***	***166***	***1343***	***672***	***671***
Weekday AM Peak Hour	1	339.45	143	103	40	17	10	7	126	93	33
	2	100.00	42	30	12	5	3	2	37	27	10
	3	115.50	49	35	14	6	3	3	43	32	11
	Total	***554.95***	***234***	***168***	***66***	***28***	***16***	***12***	***206***	***152***	***54***
Weekday PM Peak Hour	1	339.45	126	34	92	20	11	9	106	23	83
	2	100.00	37	10	27	6	3	3	31	7	24
	3	115.50	43	12	31	7	4	3	36	8	28
	Total	***554.95***	***206***	***56***	***150***	***33***	***18***	***15***	***173***	***38***	***135***

SEASONAL ADJUSTMENT

The following is a summary of the proposed seasonal adjustment:

- TPD counted the proposed study area intersections in June, after school was out for the summer.

- TPD has historical (non-summer) traffic counts from 2022 at the following intersections which are common with the proposed study area:
    - County Line Road and New Britian Boulevard;
    - New Britain Boulevard and Trewigtown Road.
- The 2022 traffic counts were increased by the current PennDOT BPR growth rate of 0.12% per year, or 0.36% increase for the 3 years to represent 2025 existing (non-summer) conditions.
- The June 2025 (summer) peak hour traffic volumes were compared to the adjust 2025 (non-summer) peak hour traffic volumes.
- At the County Line Road and New Britian Boulevard intersection, the 2025 existing (non-summer) weekday AM peak hour volumes are less than the 2025 existing summer weekday AM peak hour volumes. During the weekday PM peak hour, the 2025 existing (non-summer) volumes are 9.79% higher than the summer volumes.
- At the New Britain Boulevard and Trewigtown Road intersection, the 2025 existing (non-summer) weekday PM peak hour volumes are less than the 2025 existing summer weekday AM peak hour volumes. During the weekday AM peak hour, the 2025 existing (non-summer) volumes are 3.24% higher than the summer volumes.
- ***Based on the above, the following season adjustments are proposed to be applied to all study area intersections:***
    - ***Weekday AM peak hour - 3.24% increase***
    - ***Weekday PM peak hour – 9.79% increase***

The supporting traffic data is **attached**.

New Britain Boulevard and County Line Road

	Eastbound			Westbound			Northbound			Southbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2022 AM Peak	33	626	0	6	418	80	2	0	4	26	1	4	1200
0.12% for 3 yrs	0	2	0	0	2	0	0	0	0	0	0	0	4
2025 AM Peak	33	628	0	6	420	80	2	0	4	26	1	4	1204

	Eastbound			Westbound			Northbound			Southbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2022 PM Peak	12	566	1	1	584	40	7	1	5	88	2	69	1376
0.12% for 3 yrs	0	2	0	0	2	0	0	0	0	0	0	0	4
2025 PM Peak	12	568	1	1	586	40	7	1	5	88	2	69	1380

New Britain Boulevard and County Line Road

	Eastbound			Westbound			Northbound			Southbound			Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
2025 Adjusted (non-summer)	33	628	0	6	420	80	2	0	4	26	1	4	1204	0.920
June 2025 (summer)	26	662	2	5	500	72	0	0	1	35	1	5	1309	
Net Difference	7	-34	-2	1	-80	8	2	0	3	-9	0	-1	--	

	Eastbound			Westbound			Northbound			Southbound			Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
2025 Adjusted (non-summer)	12	568	1	1	586	40	7	1	5	88	2	69	1380	1.0979
June 2025 (summer)	15	511	0	0	580	37	1	2	2	78	0	31	1257	9.79%
Net Difference	-3	57	1	1	6	3	6	-1	3	10	2	38	--	

New Britain Boulevard and Trewigtown Road

	Eastbound			Westbound			Northbound			Southbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2022 AM Peak	1	100	25	74	55	6	1	0	5	14	5	1	287
0.12% for 3 yrs	0	0	0	0	0	0	0	0	0	0	0	0	0
2025 AM Peak	1	100	25	74	55	6	1	0	5	14	5	1	287

	Eastbound			Westbound			Northbound			Southbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2022 PM Peak	3	147	4	20	87	4	8	4	85	0	1	1	364
0.12% for 3 yrs	0	1	0	0	0	0	0	0	0	0	0	0	1
2025 PM Peak	3	148	4	20	87	4	8	4	85	0	1	1	365

New Britain Boulevard and Trewigtown Road

	Eastbound			Westbound			Northbound			Southbound			Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
2025 Adjusted (non-summer)	1	100	25	74	55	6	1	0	5	14	5	1	287	1.0324
June 2025 (summer)	7	5	2	2	0	4	0	89	27	77	64	1	278	3.24%
Net Difference	-6	95	23	72	55	2	1	-89	-22	-63	-59	0	--	

	Eastbound			Westbound			Northbound			Southbound			Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
2025 Adjusted (non-summer)	3	148	4	20	87	4	8	4	85	0	1	1	365	0.897
June 2025 (summer)	8	6	0	8	5	86	2	183	6	6	89	8	407	
Net Difference	-5	142	4	12	82	-82	6	-179	79	-6	-88	-7	--	

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: New Britain Blvd & County Line Rd
Site Code:
Start Date: 02/01/2022

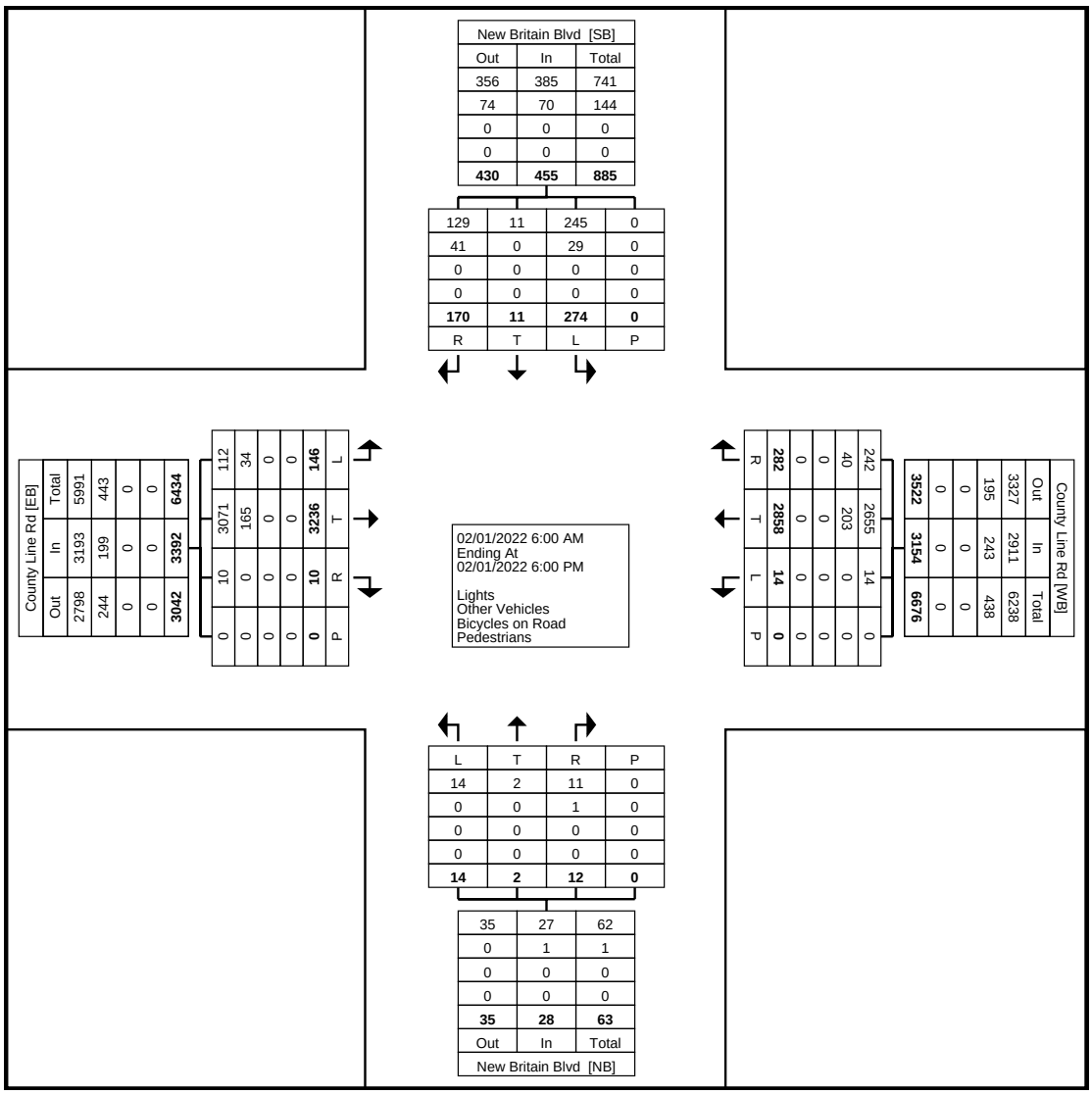
Turning Movement Data

Start Time	County Line Rd Eastbound						County Line Rd Westbound						New Britain Blvd Northbound						New Britain Blvd Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	10	131	0	0	0	141	0	64	8	0	0	72	0	0	0	0	0	0	6	0	1	0	0	7	220
6:15 AM	17	118	0	0	0	135	0	96	3	1	0	100	0	0	0	0	0	0	6	1	5	0	0	12	247
6:30 AM	10	145	0	0	0	155	0	114	8	2	0	124	0	0	0	0	0	0	5	2	2	2	0	11	290
6:45 AM	6	115	0	0	0	121	2	105	16	0	0	123	0	0	0	0	0	0	8	0	1	0	0	9	253
Hourly Total	43	509	0	0	0	552	2	379	35	3	0	419	0	0	0	0	0	0	25	3	9	2	0	39	1010
7:00 AM	7	152	0	0	0	159	1	106	12	0	0	119	0	0	0	0	0	0	5	0	0	0	0	5	283
7:15 AM	5	154	0	0	0	159	1	105	12	0	0	118	0	0	1	0	0	1	6	0	0	1	0	7	285
7:30 AM	6	165	0	0	0	171	0	105	14	3	0	122	2	0	1	0	0	3	4	0	0	0	0	4	300
7:45 AM	12	148	0	0	0	160	3	126	35	0	0	164	0	0	0	0	0	0	3	0	1	0	0	4	328
Hourly Total	30	619	0	0	0	649	5	442	73	3	0	523	2	0	2	0	0	4	18	0	1	1	0	20	1196
8:00 AM	10	159	0	0	0	169	2	82	16	0	0	100	0	0	2	0	0	2	13	1	1	1	0	16	287
8:15 AM	8	135	0	0	0	143	0	123	9	2	0	134	0	0	0	0	0	0	3	1	1	0	0	5	282
8:30 AM	6	144	2	1	0	153	0	116	13	3	0	132	1	0	0	0	0	1	5	1	7	1	0	14	300
8:45 AM	7	122	2	0	0	131	2	85	17	1	0	105	0	1	1	0	0	2	5	2	7	2	0	16	254
Hourly Total	31	560	4	1	0	596	4	406	55	6	0	471	1	1	3	0	0	5	26	5	16	4	0	51	1123
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	4	100	0	0	0	104	1	98	11	0	0	110	1	0	0	0	0	1	9	0	4	3	0	16	231
3:15 PM	2	120	2	0	0	124	0	125	9	1	0	135	0	0	0	1	0	1	11	0	1	3	0	15	275
3:30 PM	6	118	2	0	0	126	0	150	7	0	0	157	1	0	0	0	0	1	24	0	5	4	0	33	317
3:45 PM	6	138	0	0	0	144	0	117	5	0	0	122	0	0	0	0	0	0	14	0	6	0	0	20	286
Hourly Total	18	476	4	0	0	498	1	490	32	1	0	524	2	0	0	1	0	3	58	0	16	10	0	84	1109
4:00 PM	5	125	0	0	0	130	1	159	14	5	0	179	1	0	0	0	0	1	17	1	14	3	0	35	345
4:15 PM	4	151	1	0	0	156	0	111	7	1	0	119	2	0	0	0	0	2	16	0	13	6	0	35	312
4:30 PM	6	130	0	0	0	136	1	171	11	2	0	185	0	0	1	1	0	2	26	0	21	5	0	52	375
4:45 PM	1	149	0	0	0	150	0	144	8	3	0	155	4	0	1	0	0	5	15	2	7	3	0	27	337
Hourly Total	16	555	1	0	0	572	2	585	40	11	0	638	7	0	2	1	0	10	74	3	55	17	0	149	1369
5:00 PM	1	136	0	0	0	137	0	158	7	1	0	166	1	1	2	0	0	4	31	0	10	4	0	45	352
5:15 PM	1	163	0	0	0	164	0	100	4	2	0	106	0	0	0	0	0	0	24	0	7	4	0	35	305
5:30 PM	3	121	0	0	0	124	0	144	4	0	0	148	1	0	1	0	0	2	14	0	8	2	0	24	298
5:45 PM	3	97	0	0	0	100	0	154	4	1	0	159	0	0	0	0	0	0	4	0	4	0	0	8	267
Hourly Total	8	517	0	0	0	525	0	556	19	4	0	579	2	1	3	0	0	6	73	0	29	10	0	112	1222
Grand Total	146	3236	9	1	0	3392	14	2858	254	28	0	3154	14	2	10	2	0	28	274	11	126	44	0	455	7029
Approach %	4.3	95.4	0.3	0.0	-	-	0.4	90.6	8.1	0.9	-	-	50.0	7.1	35.7	7.1	-	-	60.2	2.4	27.7	9.7	-	-	-
Total %	2.1	46.0	0.1	0.0	-	48.3	0.2	40.7	3.6	0.4	-	44.9	0.2	0.0	0.1	0.0	-	0.4	3.9	0.2	1.8	0.6	-	6.5	-
Lights	112	3071	9	1	-	3193	14	2655	214	28	-	2911	14	2	10	1	-	27	245	11	87	42	-	385	6516
% Lights	76.7	94.9	100.0	100.0	-	94.1	100.0	92.9	84.3	100.0	-	92.3	100.0	100.0	100.0	50.0	-	96.4	89.4	100.0	69.0	95.5	-	84.6	92.7
Other Vehicles	34	165	0	0	-	199	0	203	40	0	-	243	0	0	0	1	-	1	29	0	39	2	-	70	513
% Other Vehicles	23.3	5.1	0.0	0.0	-	5.9	0.0	7.1	15.7	0.0	-	7.7	0.0	0.0	0.0	50.0	-	3.6	10.6	0.0	31.0	4.5	-	15.4	7.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: New Britain Blvd & County Line Rd
Site Code:
Start Date: 02/01/2022



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: New Britain Blvd & County Line Rd
Site Code:
Start Date: 02/01/2022

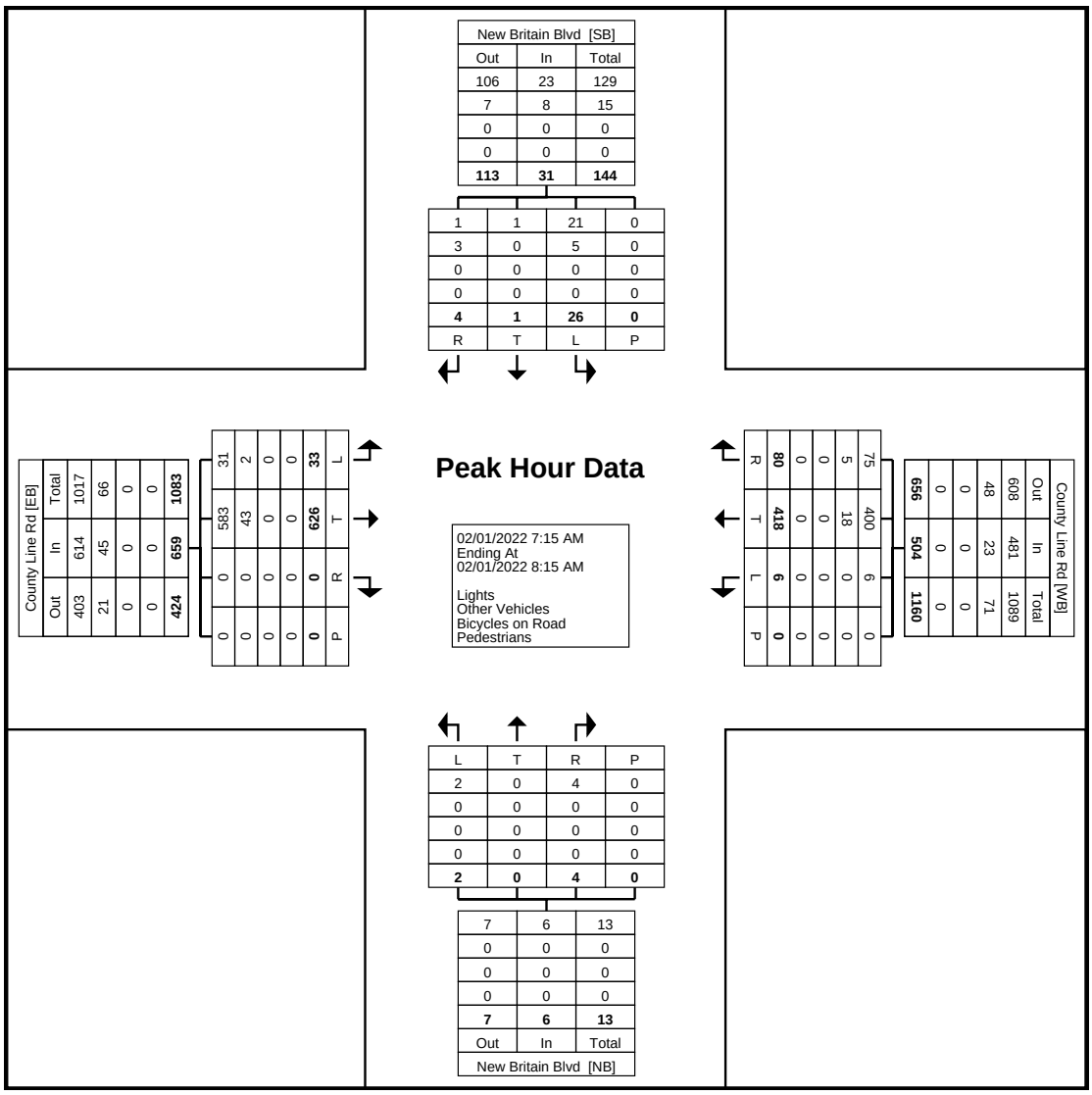
Turning Movement Peak Hour Data (7:15 AM)

Start Time	County Line Rd Eastbound						County Line Rd Westbound						New Britain Blvd Northbound						New Britain Blvd Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:15 AM	5	154	0	0	0	159	1	105	12	0	0	118	0	0	1	0	0	1	6	0	0	1	0	7	285
7:30 AM	6	165	0	0	0	171	0	105	14	3	0	122	2	0	1	0	0	3	4	0	0	0	0	4	300
7:45 AM	12	148	0	0	0	160	3	126	35	0	0	164	0	0	0	0	0	0	3	0	1	0	0	4	328
8:00 AM	10	159	0	0	0	169	2	82	16	0	0	100	0	0	2	0	0	2	13	1	1	1	0	16	287
Total	33	626	0	0	0	659	6	418	77	3	0	504	2	0	4	0	0	6	26	1	2	2	0	31	1200
Approach %	5.0	95.0	0.0	0.0	-	-	1.2	82.9	15.3	0.6	-	-	33.3	0.0	66.7	0.0	-	-	83.9	3.2	6.5	6.5	-	-	-
Total %	2.8	52.2	0.0	0.0	-	54.9	0.5	34.8	6.4	0.3	-	42.0	0.2	0.0	0.3	0.0	-	0.5	2.2	0.1	0.2	0.2	-	2.6	-
PHF	0.688	0.948	0.000	0.000	-	0.963	0.500	0.829	0.550	0.250	-	0.768	0.250	0.000	0.500	0.000	-	0.500	0.500	0.250	0.500	0.500	-	0.484	0.915
Lights	31	583	0	0	-	614	6	400	72	3	-	481	2	0	4	0	-	6	21	1	0	1	-	23	1124
% Lights	93.9	93.1	-	-	-	93.2	100.0	95.7	93.5	100.0	-	95.4	100.0	-	100.0	-	-	100.0	80.8	100.0	0.0	50.0	-	74.2	93.7
Other Vehicles	2	43	0	0	-	45	0	18	5	0	-	23	0	0	0	0	-	0	5	0	2	1	-	8	76
% Other Vehicles	6.1	6.9	-	-	-	6.8	0.0	4.3	6.5	0.0	-	4.6	0.0	-	0.0	-	-	0.0	19.2	0.0	100.0	50.0	-	25.8	6.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: New Britain Blvd & County Line Rd
Site Code:
Start Date: 02/01/2022



Turning Movement Peak Hour Data Plot (7:15 AM)

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2500 East High Street
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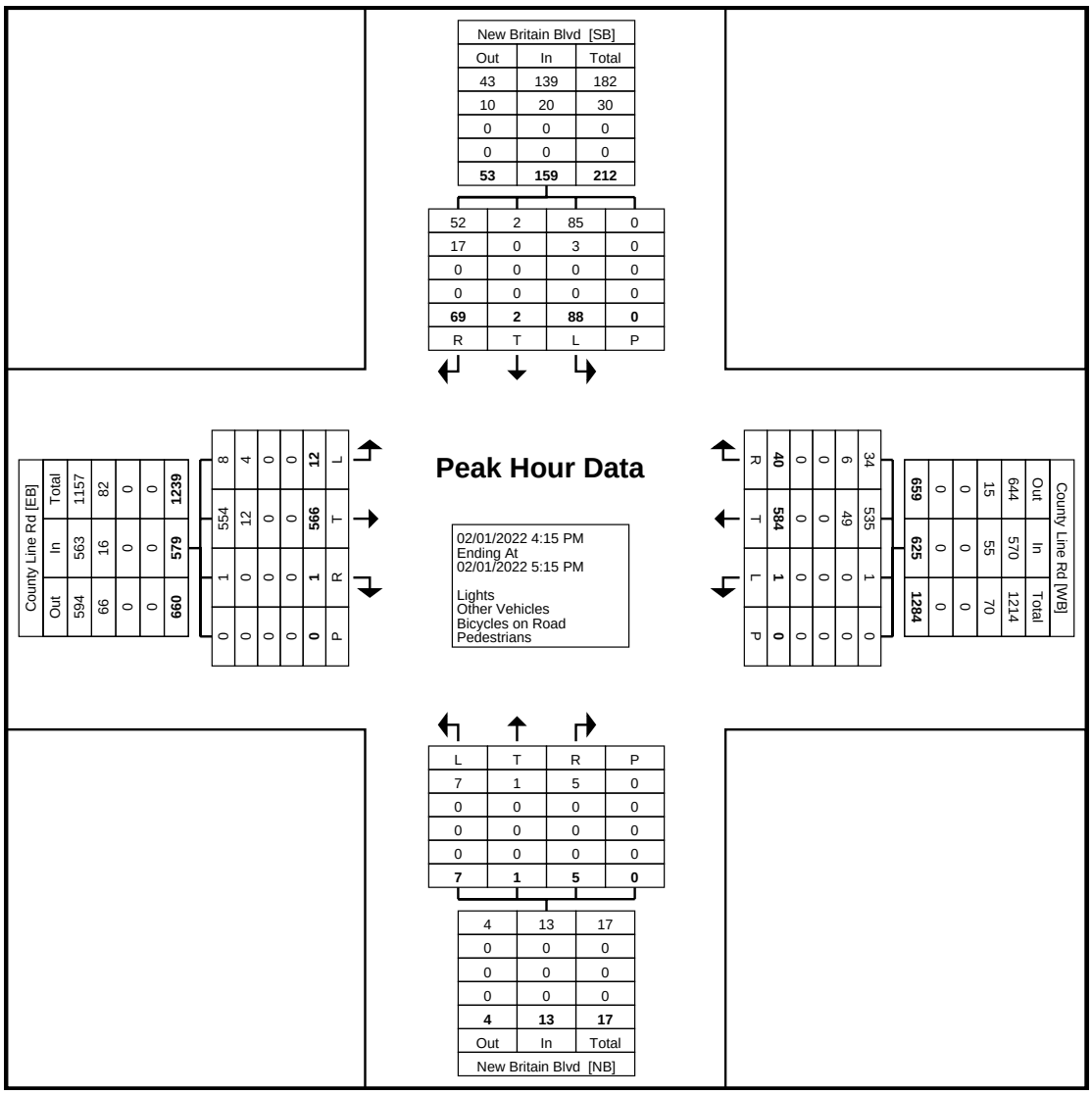
Turning Movement Peak Hour Data (4:15 PM)

Start Time	County Line Rd Eastbound						County Line Rd Westbound						New Britain Blvd Northbound						New Britain Blvd Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
4:15 PM	4	151	1	0	0	156	0	111	7	1	0	119	2	0	0	0	0	2	16	0	13	6	0	35	312
4:30 PM	6	130	0	0	0	136	1	171	11	2	0	185	0	0	1	1	0	2	26	0	21	5	0	52	375
4:45 PM	1	149	0	0	0	150	0	144	8	3	0	155	4	0	1	0	0	5	15	2	7	3	0	27	337
5:00 PM	1	136	0	0	0	137	0	158	7	1	0	166	1	1	2	0	0	4	31	0	10	4	0	45	352
Total	12	566	1	0	0	579	1	584	33	7	0	625	7	1	4	1	0	13	88	2	51	18	0	159	1376
Approach %	2.1	97.8	0.2	0.0	-	-	0.2	93.4	5.3	1.1	-	-	53.8	7.7	30.8	7.7	-	-	55.3	1.3	32.1	11.3	-	-	-
Total %	0.9	41.1	0.1	0.0	-	42.1	0.1	42.4	2.4	0.5	-	45.4	0.5	0.1	0.3	0.1	-	0.9	6.4	0.1	3.7	1.3	-	11.6	-
PHF	0.500	0.937	0.250	0.000	-	0.928	0.250	0.854	0.750	0.583	-	0.845	0.438	0.250	0.500	0.250	-	0.650	0.710	0.250	0.607	0.750	-	0.764	0.917
Lights	8	554	1	0	-	563	1	535	27	7	-	570	7	1	4	1	-	13	85	2	34	18	-	139	1285
% Lights	66.7	97.9	100.0	-	-	97.2	100.0	91.6	81.8	100.0	-	91.2	100.0	100.0	100.0	100.0	-	100.0	96.6	100.0	66.7	100.0	-	87.4	93.4
Other Vehicles	4	12	0	0	-	16	0	49	6	0	-	55	0	0	0	0	-	0	3	0	17	0	-	20	91
% Other Vehicles	33.3	2.1	0.0	-	-	2.8	0.0	8.4	18.2	0.0	-	8.8	0.0	0.0	0.0	0.0	-	0.0	3.4	0.0	33.3	0.0	-	12.6	6.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (4:15 PM)

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Count Name: 5 New Britain Blvd & County Line Road
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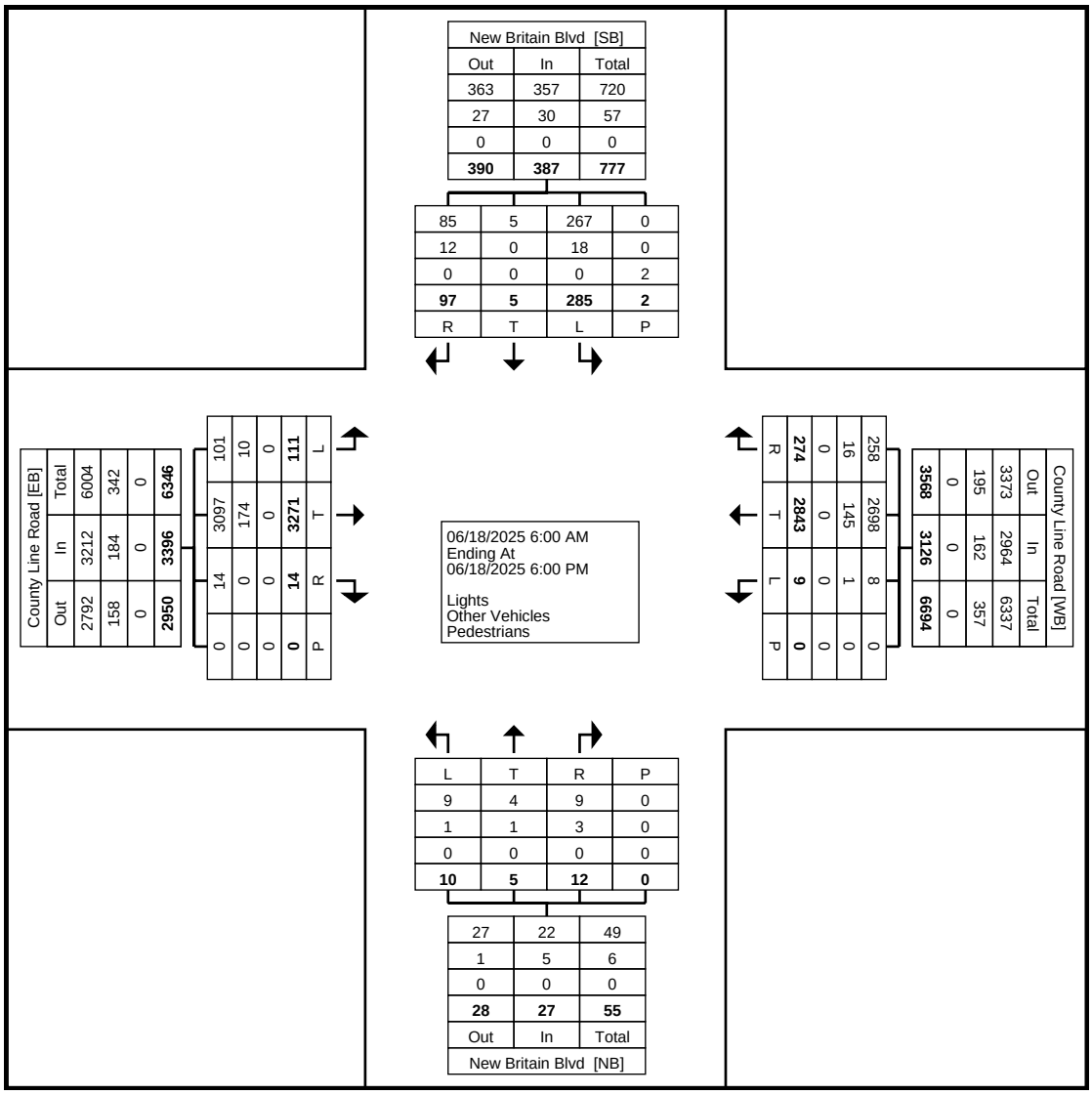
Turning Movement Data

Start Time	County Line Road Eastbound						County Line Road Westbound						New Britain Blvd Northbound						New Britain Blvd Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	3	92	0	0	0	95	0	68	17	0	0	85	0	0	0	0	0	0	3	2	1	0	0	6	186
6:15 AM	3	141	0	0	0	144	1	78	4	0	0	83	0	0	0	0	0	0	1	0	0	0	0	1	228
6:30 AM	4	132	1	0	0	137	0	106	10	3	0	119	0	1	0	0	0	1	5	0	1	0	0	6	263
6:45 AM	9	136	5	0	0	150	1	106	16	2	0	125	0	1	0	0	0	1	6	0	3	1	0	10	286
Hourly Total	19	501	6	0	0	526	2	358	47	5	0	412	0	2	0	0	0	2	15	2	5	1	0	23	963
7:00 AM	8	142	0	0	0	150	0	80	16	2	0	98	1	0	5	0	0	6	5	0	2	0	0	7	261
7:15 AM	4	161	0	0	0	165	2	140	17	2	0	161	0	0	0	0	0	0	10	1	0	0	0	11	337
7:30 AM	5	182	0	0	0	187	2	132	20	2	0	156	0	0	0	0	0	0	7	0	1	0	0	8	351
7:45 AM	10	153	2	0	0	165	1	110	18	0	0	129	0	0	0	0	0	0	9	0	3	0	0	12	306
Hourly Total	27	638	2	0	0	667	5	462	71	6	0	544	1	0	5	0	0	6	31	1	6	0	0	38	1255
8:00 AM	7	166	0	0	0	173	0	118	13	0	0	131	0	0	0	1	0	1	9	0	1	0	0	10	315
8:15 AM	11	156	1	0	0	168	0	103	10	0	0	113	0	0	0	2	0	2	7	1	1	0	0	9	292
8:30 AM	7	172	0	0	0	179	1	115	10	0	0	126	0	0	0	0	0	0	7	1	5	0	0	13	318
8:45 AM	8	132	1	1	0	142	0	99	13	0	0	112	0	1	0	0	0	1	9	0	6	0	0	15	270
Hourly Total	33	626	2	1	0	662	1	435	46	0	0	482	0	1	0	3	0	4	32	2	13	0	0	47	1195
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	2	125	1	0	0	128	0	129	2	1	0	132	1	0	0	0	0	1	12	0	2	1	0	15	276
3:15 PM	5	123	0	0	0	128	0	115	7	1	0	123	0	0	0	0	0	0	10	0	1	3	0	14	265
3:30 PM	3	113	0	0	0	116	0	159	7	1	0	167	0	0	0	0	0	0	37	0	9	5	1	51	334
3:45 PM	5	153	0	0	0	158	0	127	8	2	0	137	1	1	1	0	0	3	9	0	2	1	0	12	310
Hourly Total	15	514	1	0	0	530	0	530	24	5	0	559	2	1	1	0	0	4	68	0	14	10	1	92	1185
4:00 PM	4	113	0	0	0	117	0	158	8	1	0	167	0	1	0	0	0	1	24	0	8	1	0	33	318
4:15 PM	3	132	0	0	0	135	0	136	10	0	0	146	0	0	0	1	0	1	8	0	5	0	0	13	295
4:30 PM	3	108	0	0	0	111	0	101	9	0	0	110	0	0	1	0	0	1	31	0	15	0	0	46	268
4:45 PM	3	135	2	0	0	140	1	136	7	0	0	144	7	0	0	0	0	7	17	0	3	0	0	20	311
Hourly Total	13	488	2	0	0	503	1	531	34	1	0	567	7	1	1	1	0	10	80	0	31	1	0	112	1192
5:00 PM	1	125	0	0	0	126	0	134	13	1	0	148	0	0	1	0	0	1	27	0	4	3	0	34	309
5:15 PM	0	124	0	0	0	124	0	131	7	1	0	139	0	0	0	0	0	0	7	0	2	1	1	10	273
5:30 PM	0	128	0	0	0	128	0	133	6	3	0	142	0	0	0	0	0	0	14	0	4	1	0	19	289
5:45 PM	3	127	0	0	0	130	0	129	4	0	0	133	0	0	0	0	0	0	11	0	1	0	0	12	275
Hourly Total	4	504	0	0	0	508	0	527	30	5	0	562	0	0	1	0	0	1	59	0	11	5	1	75	1146
Grand Total	111	3271	13	1	0	3396	9	2843	252	22	0	3126	10	5	8	4	0	27	285	5	80	17	2	387	6936
Approach %	3.3	96.3	0.4	0.0	-	-	0.3	90.9	8.1	0.7	-	-	37.0	18.5	29.6	14.8	-	-	73.6	1.3	20.7	4.4	-	-	-
Total %	1.6	47.2	0.2	0.0	-	49.0	0.1	41.0	3.6	0.3	-	45.1	0.1	0.1	0.1	0.1	-	0.4	4.1	0.1	1.2	0.2	-	5.6	-
Lights	101	3097	13	1	-	3212	8	2698	238	20	-	2964	9	4	6	3	-	22	267	5	69	16	-	357	6555
% Lights	91.0	94.7	100.0	100.0	-	94.6	88.9	94.9	94.4	90.9	-	94.8	90.0	80.0	75.0	75.0	-	81.5	93.7	100.0	86.3	94.1	-	92.2	94.5
Other Vehicles	10	174	0	0	-	184	1	145	14	2	-	162	1	1	2	1	-	5	18	0	11	1	-	30	381
% Other Vehicles	9.0	5.3	0.0	0.0	-	5.4	11.1	5.1	5.6	9.1	-	5.2	10.0	20.0	25.0	25.0	-	18.5	6.3	0.0	13.8	5.9	-	7.8	5.5
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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Turning Movement Data Plot

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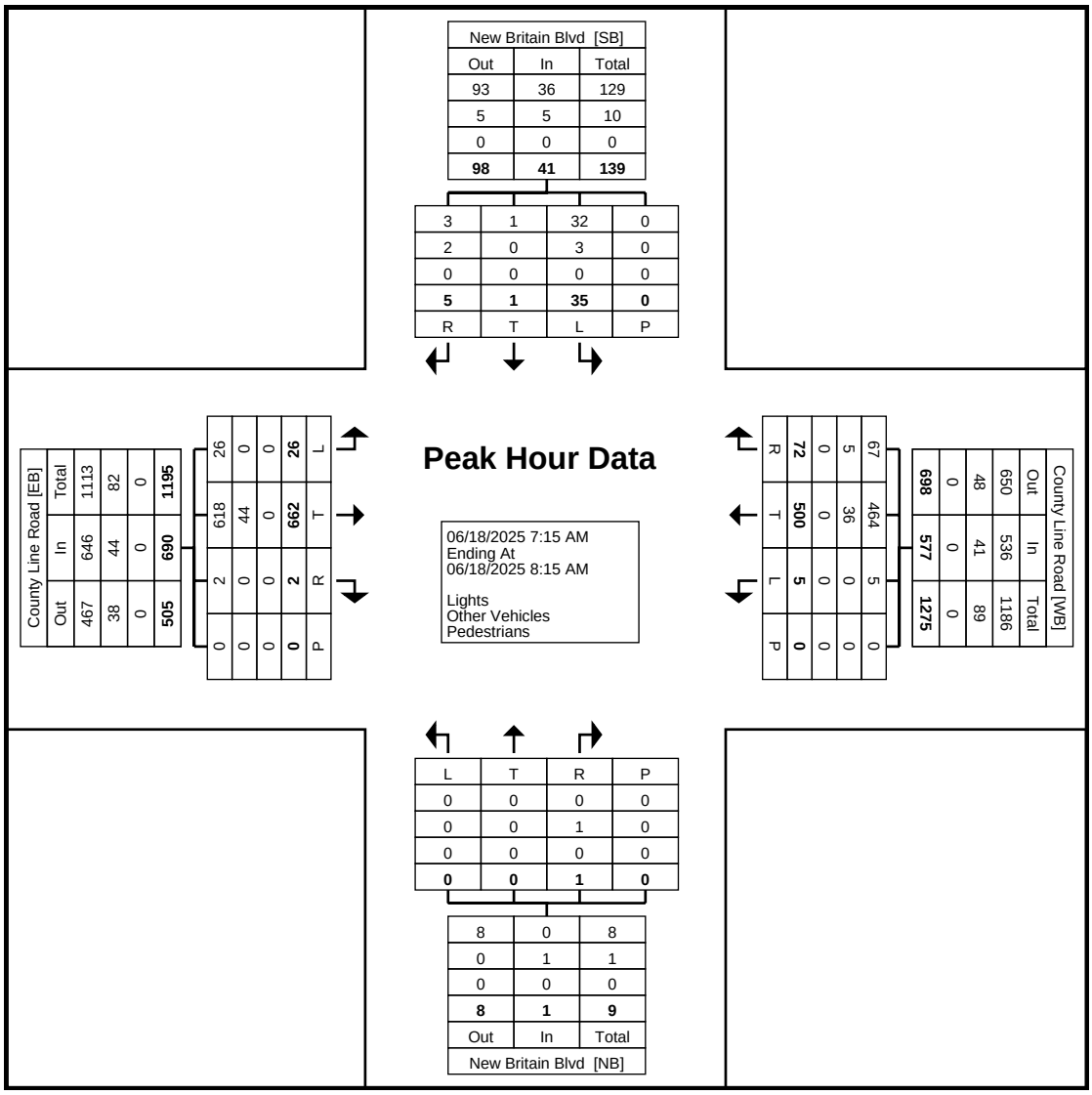
Turning Movement Peak Hour Data (7:15 AM)

Start Time	County Line Road Eastbound						County Line Road Westbound						New Britain Blvd Northbound						New Britain Blvd Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:15 AM	4	161	0	0	0	165	2	140	17	2	0	161	0	0	0	0	0	0	10	1	0	0	0	11	337
7:30 AM	5	182	0	0	0	187	2	132	20	2	0	156	0	0	0	0	0	0	7	0	1	0	0	8	351
7:45 AM	10	153	2	0	0	165	1	110	18	0	0	129	0	0	0	0	0	0	9	0	3	0	0	12	306
8:00 AM	7	166	0	0	0	173	0	118	13	0	0	131	0	0	0	1	0	1	9	0	1	0	0	10	315
Total	26	662	2	0	0	690	5	500	68	4	0	577	0	0	0	1	0	1	35	1	5	0	0	41	1309
Approach %	3.8	95.9	0.3	0.0	-	-	0.9	86.7	11.8	0.7	-	-	0.0	0.0	0.0	100.0	-	-	85.4	2.4	12.2	0.0	-	-	-
Total %	2.0	50.6	0.2	0.0	-	52.7	0.4	38.2	5.2	0.3	-	44.1	0.0	0.0	0.0	0.1	-	0.1	2.7	0.1	0.4	0.0	-	3.1	-
PHF	0.650	0.909	0.250	0.000	-	0.922	0.625	0.893	0.850	0.500	-	0.896	0.000	0.000	0.000	0.250	-	0.250	0.875	0.250	0.417	0.000	-	0.854	0.932
Lights	26	618	2	0	-	646	5	464	63	4	-	536	0	0	0	0	-	0	32	1	3	0	-	36	1218
% Lights	100.0	93.4	100.0	-	-	93.6	100.0	92.8	92.6	100.0	-	92.9	-	-	-	0.0	-	0.0	91.4	100.0	60.0	-	-	87.8	93.0
Other Vehicles	0	44	0	0	-	44	0	36	5	0	-	41	0	0	0	1	-	1	3	0	2	0	-	5	91
% Other Vehicles	0.0	6.6	0.0	-	-	6.4	0.0	7.2	7.4	0.0	-	7.1	-	-	-	100.0	-	100.0	8.6	0.0	40.0	-	-	12.2	7.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (7:15 AM)

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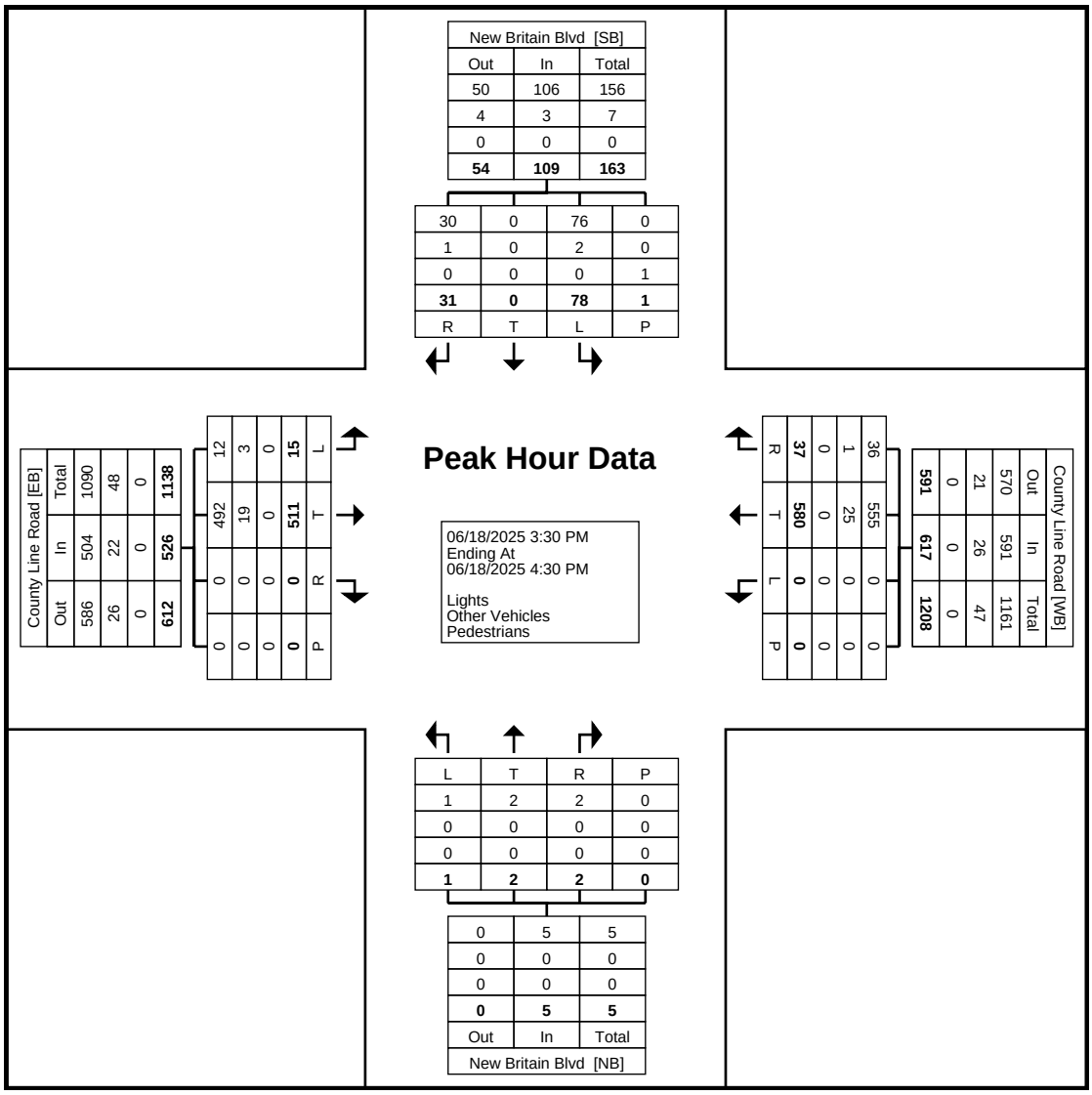
Turning Movement Peak Hour Data (3:30 PM)

Start Time	County Line Road Eastbound						County Line Road Westbound						New Britain Blvd Northbound						New Britain Blvd Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
3:30 PM	3	113	0	0	0	116	0	159	7	1	0	167	0	0	0	0	0	0	37	0	9	5	1	51	334
3:45 PM	5	153	0	0	0	158	0	127	8	2	0	137	1	1	1	0	0	3	9	0	2	1	0	12	310
4:00 PM	4	113	0	0	0	117	0	158	8	1	0	167	0	1	0	0	0	1	24	0	8	1	0	33	318
4:15 PM	3	132	0	0	0	135	0	136	10	0	0	146	0	0	0	1	0	1	8	0	5	0	0	13	295
Total	15	511	0	0	0	526	0	580	33	4	0	617	1	2	1	1	0	5	78	0	24	7	1	109	1257
Approach %	2.9	97.1	0.0	0.0	-	-	0.0	94.0	5.3	0.6	-	-	20.0	40.0	20.0	20.0	-	-	71.6	0.0	22.0	6.4	-	-	-
Total %	1.2	40.7	0.0	0.0	-	41.8	0.0	46.1	2.6	0.3	-	49.1	0.1	0.2	0.1	0.1	-	0.4	6.2	0.0	1.9	0.6	-	8.7	-
PHF	0.750	0.835	0.000	0.000	-	0.832	0.000	0.912	0.825	0.500	-	0.924	0.250	0.500	0.250	0.250	-	0.417	0.527	0.000	0.667	0.350	-	0.534	0.941
Lights	12	492	0	0	-	504	0	555	32	4	-	591	1	2	1	1	-	5	76	0	23	7	-	106	1206
% Lights	80.0	96.3	-	-	-	95.8	-	95.7	97.0	100.0	-	95.8	100.0	100.0	100.0	100.0	-	100.0	97.4	-	95.8	100.0	-	97.2	95.9
Other Vehicles	3	19	0	0	-	22	0	25	1	0	-	26	0	0	0	0	-	0	2	0	1	0	-	3	51
% Other Vehicles	20.0	3.7	-	-	-	4.2	-	4.3	3.0	0.0	-	4.2	0.0	0.0	0.0	0.0	-	0.0	2.6	-	4.2	0.0	-	2.8	4.1
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 5 New Britain Blvd & County Line Road
Site Code:
Start Date: 06/18/2025



Turning Movement Peak Hour Data Plot (3:30 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: New Britain Blvd & Trewigtown Rd
Site Code:
Start Date: 02/01/2022

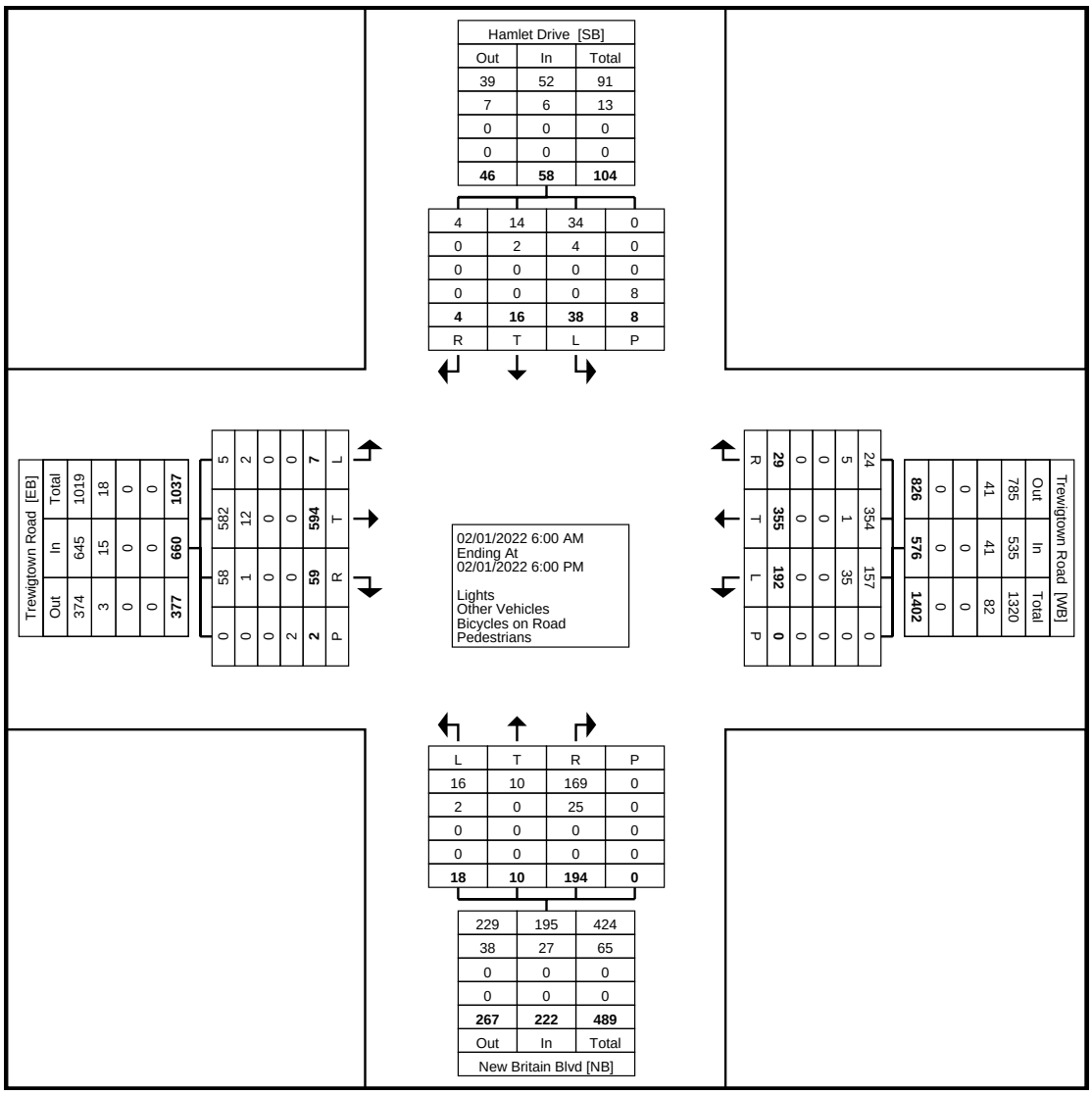
Turning Movement Data

Start Time	Trewigtown Road Eastbound					Trewigtown Road Westbound					New Britain Blvd Northbound					Hamlet Drive Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
6:00 AM	0	3	2	0	5	1	6	0	0	7	0	0	4	0	4	0	1	0	0	1	17
6:15 AM	0	8	2	0	10	2	5	0	0	7	0	0	11	0	11	1	1	0	0	2	30
6:30 AM	0	10	3	0	13	6	6	1	0	13	1	0	4	0	5	2	1	0	0	3	34
6:45 AM	0	14	4	0	18	11	13	1	0	25	0	0	0	0	0	3	0	0	0	3	46
Hourly Total	0	35	11	0	46	20	30	2	0	52	1	0	19	0	20	6	3	0	0	9	127
7:00 AM	0	20	3	0	23	9	16	1	0	26	1	1	0	0	2	5	4	0	0	9	60
7:15 AM	1	36	3	0	40	13	15	0	0	28	0	0	1	0	1	7	1	0	1	8	77
7:30 AM	0	25	5	0	30	8	16	4	0	28	0	0	0	0	0	2	2	0	1	4	62
7:45 AM	0	20	10	0	30	31	14	0	0	45	1	0	4	0	5	1	1	1	0	3	83
Hourly Total	1	101	21	0	123	61	61	5	0	127	2	1	5	0	8	15	8	1	2	24	282
8:00 AM	0	19	7	0	26	22	10	2	0	34	0	0	0	0	0	4	1	0	0	5	65
8:15 AM	0	17	2	0	19	13	11	1	0	25	0	1	0	0	1	1	0	0	0	1	46
8:30 AM	0	15	4	0	19	14	20	1	0	35	0	0	2	0	2	1	0	0	0	1	57
8:45 AM	1	22	2	0	25	12	14	1	0	27	1	0	3	0	4	2	0	0	0	2	58
Hourly Total	1	73	15	0	89	61	55	5	0	121	1	1	5	0	7	8	1	0	0	9	226
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	22	2	0	24	3	11	0	0	14	1	2	2	0	5	0	0	0	2	0	43
3:15 PM	1	20	0	0	21	4	18	3	0	25	0	1	6	0	7	2	2	0	0	4	57
3:30 PM	0	30	0	0	30	3	14	3	0	20	0	1	16	0	17	2	0	0	1	2	69
3:45 PM	0	34	3	0	37	5	15	3	0	23	1	0	5	0	6	2	0	0	0	2	68
Hourly Total	1	106	5	0	112	15	58	9	0	82	2	4	29	0	35	6	2	0	3	8	237
4:00 PM	0	33	2	0	35	5	17	2	0	24	2	0	20	0	22	0	0	0	0	0	81
4:15 PM	0	28	1	0	29	7	15	1	0	23	0	0	11	0	11	0	0	0	0	0	63
4:30 PM	0	33	1	1	34	6	27	0	0	33	1	1	28	0	30	0	1	0	0	1	98
4:45 PM	2	32	0	1	34	7	20	1	0	28	0	1	14	0	15	0	0	0	2	0	77
Hourly Total	2	126	4	2	132	25	79	4	0	108	3	2	73	0	78	0	1	0	2	1	319
5:00 PM	1	40	1	0	42	5	20	2	0	27	6	1	32	0	39	0	0	0	0	0	108
5:15 PM	0	42	2	0	44	2	20	1	0	23	1	1	11	0	13	0	0	1	0	1	81
5:30 PM	1	38	0	0	39	1	15	1	0	17	1	0	14	0	15	1	0	1	1	2	73
5:45 PM	0	33	0	0	33	2	17	0	0	19	1	0	6	0	7	2	1	1	0	4	63
Hourly Total	2	153	3	0	158	10	72	4	0	86	9	2	63	0	74	3	1	3	1	7	325
Grand Total	7	594	59	2	660	192	355	29	0	576	18	10	194	0	222	38	16	4	8	58	1516
Approach %	1.1	90.0	8.9	-	-	33.3	61.6	5.0	-	-	8.1	4.5	87.4	-	-	65.5	27.6	6.9	-	-	-
Total %	0.5	39.2	3.9	-	43.5	12.7	23.4	1.9	-	38.0	1.2	0.7	12.8	-	14.6	2.5	1.1	0.3	-	3.8	-
Lights	5	582	58	-	645	157	354	24	-	535	16	10	169	-	195	34	14	4	-	52	1427
% Lights	71.4	98.0	98.3	-	97.7	81.8	99.7	82.8	-	92.9	88.9	100.0	87.1	-	87.8	89.5	87.5	100.0	-	89.7	94.1
Other Vehicles	2	12	1	-	15	35	1	5	-	41	2	0	25	-	27	4	2	0	-	6	89
% Other Vehicles	28.6	2.0	1.7	-	2.3	18.2	0.3	17.2	-	7.1	11.1	0.0	12.9	-	12.2	10.5	12.5	0.0	-	10.3	5.9
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-	-	-	8	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: New Britain Blvd & Trewigtown Rd
Site Code:
Start Date: 02/01/2022



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: New Britain Blvd & Trewigtown Rd
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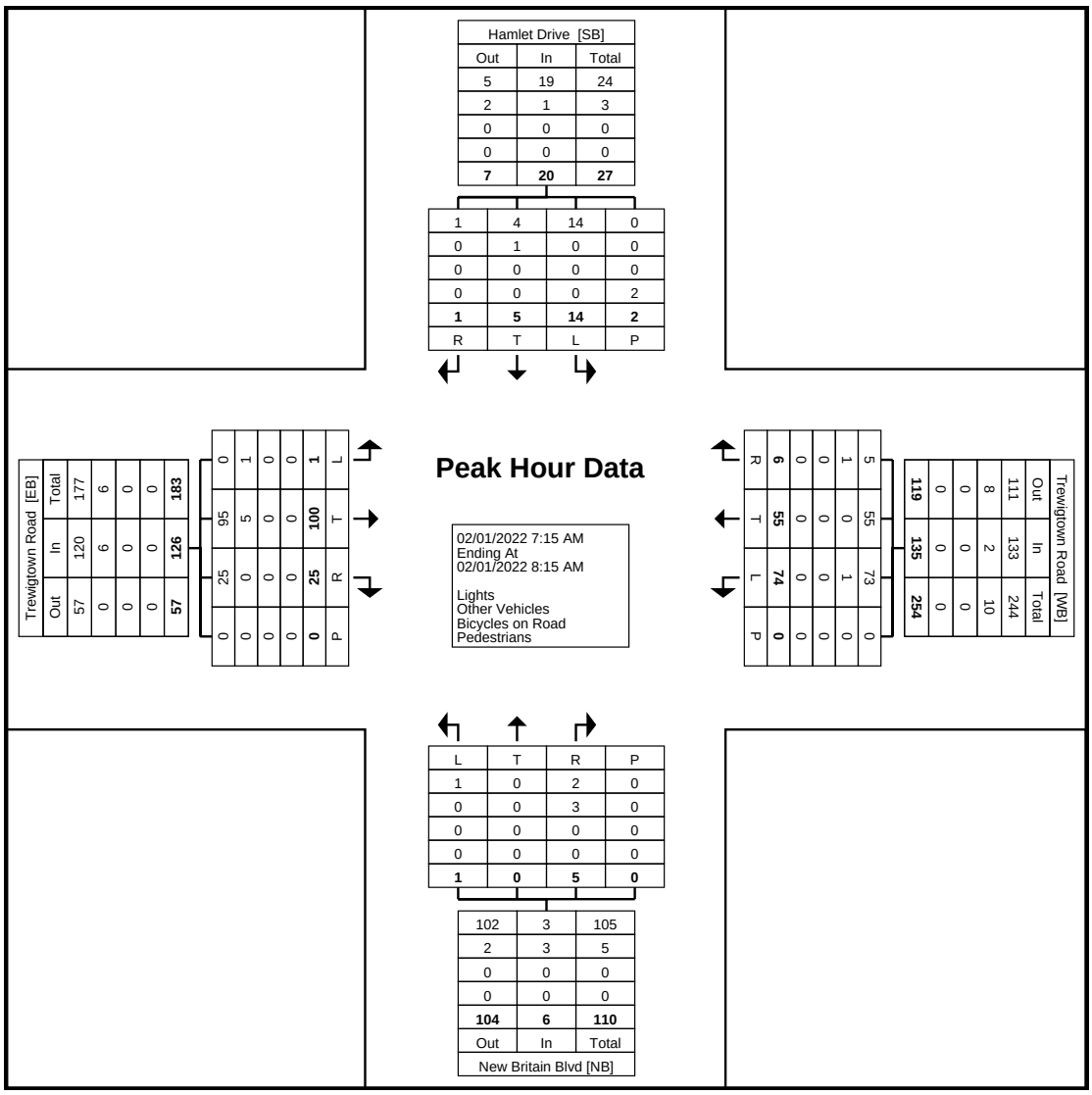
Turning Movement Peak Hour Data (7:15 AM)

Start Time	Trewigtown Road Eastbound					Trewigtown Road Westbound					New Britain Blvd Northbound					Hamlet Drive Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	1	36	3	0	40	13	15	0	0	28	0	0	1	0	1	7	1	0	1	8	77
7:30 AM	0	25	5	0	30	8	16	4	0	28	0	0	0	0	0	2	2	0	1	4	62
7:45 AM	0	20	10	0	30	31	14	0	0	45	1	0	4	0	5	1	1	1	0	3	83
8:00 AM	0	19	7	0	26	22	10	2	0	34	0	0	0	0	0	4	1	0	0	5	65
Total	1	100	25	0	126	74	55	6	0	135	1	0	5	0	6	14	5	1	2	20	287
Approach %	0.8	79.4	19.8	-	-	54.8	40.7	4.4	-	-	16.7	0.0	83.3	-	-	70.0	25.0	5.0	-	-	-
Total %	0.3	34.8	8.7	-	43.9	25.8	19.2	2.1	-	47.0	0.3	0.0	1.7	-	2.1	4.9	1.7	0.3	-	7.0	-
PHF	0.250	0.694	0.625	-	0.788	0.597	0.859	0.375	-	0.750	0.250	0.000	0.313	-	0.300	0.500	0.625	0.250	-	0.625	0.864
Lights	0	95	25	-	120	73	55	5	-	133	1	0	2	-	3	14	4	1	-	19	275
% Lights	0.0	95.0	100.0	-	95.2	98.6	100.0	83.3	-	98.5	100.0	-	40.0	-	50.0	100.0	80.0	100.0	-	95.0	95.8
Other Vehicles	1	5	0	-	6	1	0	1	-	2	0	0	3	-	3	0	1	0	-	1	12
% Other Vehicles	100.0	5.0	0.0	-	4.8	1.4	0.0	16.7	-	1.5	0.0	-	60.0	-	50.0	0.0	20.0	0.0	-	5.0	4.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: New Britain Blvd & Trewigtown Rd
Site Code:
Start Date: 02/01/2022



Turning Movement Peak Hour Data Plot (7:15 AM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: New Britain Blvd & Trewigtown Rd
Site Code:
Start Date: 02/01/2022

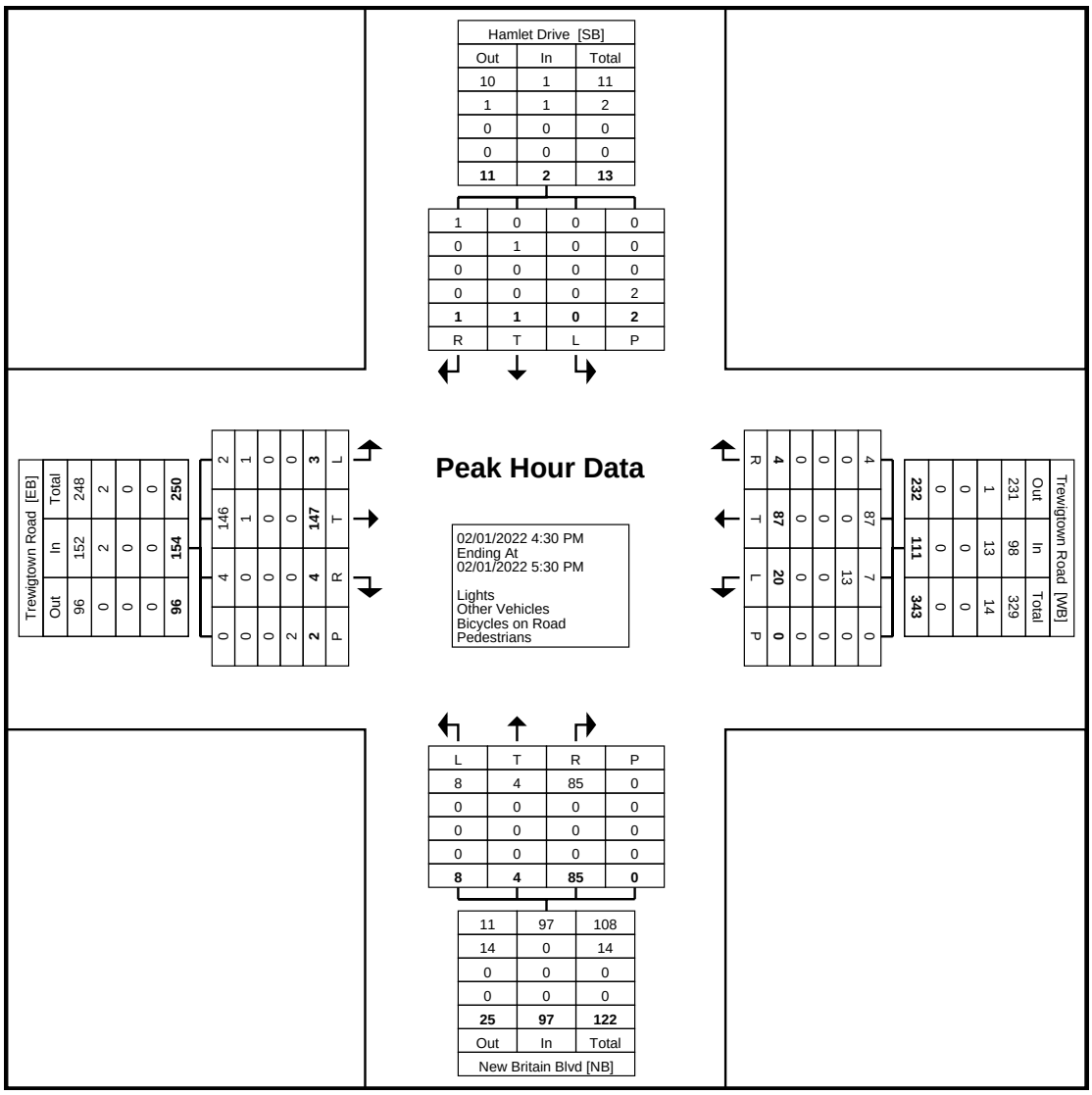
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Trewigtown Road Eastbound					Trewigtown Road Westbound					New Britain Blvd Northbound					Hamlet Drive Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
4:30 PM	0	33	1	1	34	6	27	0	0	33	1	1	28	0	30	0	1	0	0	1	98
4:45 PM	2	32	0	1	34	7	20	1	0	28	0	1	14	0	15	0	0	0	2	0	77
5:00 PM	1	40	1	0	42	5	20	2	0	27	6	1	32	0	39	0	0	0	0	0	108
5:15 PM	0	42	2	0	44	2	20	1	0	23	1	1	11	0	13	0	0	1	0	1	81
Total	3	147	4	2	154	20	87	4	0	111	8	4	85	0	97	0	1	1	2	2	364
Approach %	1.9	95.5	2.6	-	-	18.0	78.4	3.6	-	-	8.2	4.1	87.6	-	-	0.0	50.0	50.0	-	-	-
Total %	0.8	40.4	1.1	-	42.3	5.5	23.9	1.1	-	30.5	2.2	1.1	23.4	-	26.6	0.0	0.3	0.3	-	0.5	-
PHF	0.375	0.875	0.500	-	0.875	0.714	0.806	0.500	-	0.841	0.333	1.000	0.664	-	0.622	0.000	0.250	0.250	-	0.500	0.843
Lights	2	146	4	-	152	7	87	4	-	98	8	4	85	-	97	0	0	1	-	1	348
% Lights	66.7	99.3	100.0	-	98.7	35.0	100.0	100.0	-	88.3	100.0	100.0	100.0	-	100.0	-	0.0	100.0	-	50.0	95.6
Other Vehicles	1	1	0	-	2	13	0	0	-	13	0	0	0	-	0	0	1	0	-	1	16
% Other Vehicles	33.3	0.7	0.0	-	1.3	65.0	0.0	0.0	-	11.7	0.0	0.0	0.0	-	0.0	-	100.0	0.0	-	50.0	4.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-	-	-	2	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: New Britain Blvd & Trewigtown Rd
Site Code:
Start Date: 02/01/2022



Turning Movement Peak Hour Data Plot (4:30 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 7 Trewigtown Road & New Britain Blvd
Site Code:
Start Date: 06/18/2025

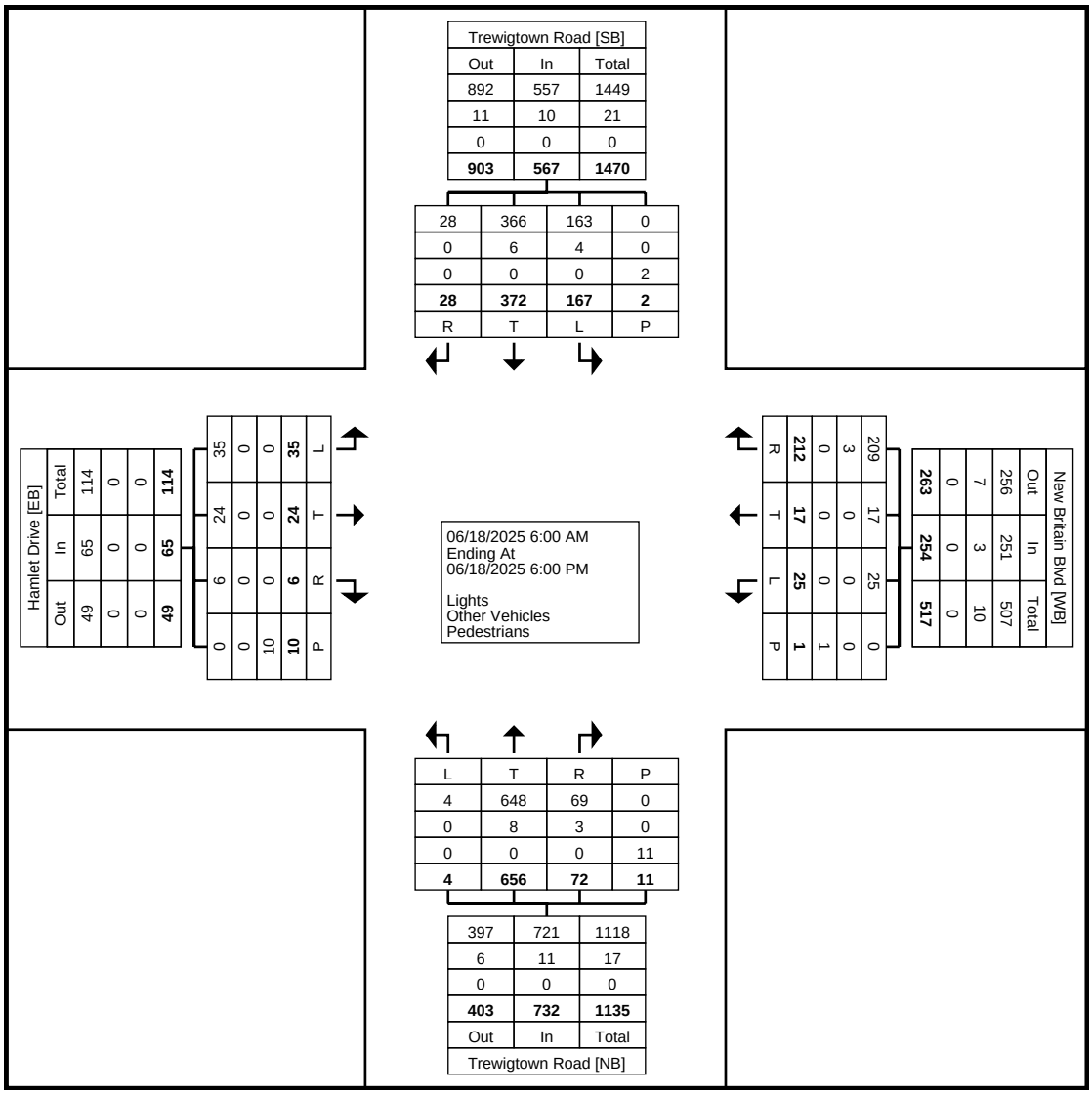
Turning Movement Data

Start Time	Hamlet Drive Eastbound					New Britain Blvd Westbound					Trewigtown Road Northbound					Trewigtown Road Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	4	4	0	8	3	2	0	0	5	13
6:15 AM	1	1	0	0	2	1	0	0	0	1	0	14	1	0	15	1	5	1	0	7	25
6:30 AM	2	1	0	0	3	1	0	1	0	2	0	16	4	0	20	6	8	0	0	14	39
6:45 AM	2	1	0	0	3	0	0	0	0	0	0	22	5	1	27	22	12	0	0	34	64
Hourly Total	5	3	0	0	8	2	0	1	0	3	0	56	14	1	70	32	27	1	0	60	141
7:00 AM	0	2	1	0	3	0	0	1	0	1	0	14	5	0	19	11	14	0	0	25	48
7:15 AM	0	1	0	0	1	1	0	0	0	1	0	19	4	1	23	18	19	0	0	37	62
7:30 AM	4	1	1	0	6	0	0	1	0	1	0	21	7	0	28	11	8	1	0	20	55
7:45 AM	0	1	1	0	2	0	0	0	0	0	0	27	8	0	35	28	20	0	0	48	85
Hourly Total	4	5	3	0	12	1	0	2	0	3	0	81	24	1	105	68	61	1	0	130	250
8:00 AM	3	2	0	1	5	1	0	3	0	4	0	22	8	0	30	20	17	0	0	37	76
8:15 AM	3	1	1	0	5	2	1	6	0	9	0	16	3	0	19	6	19	0	0	25	58
8:30 AM	2	1	0	0	3	0	0	3	0	3	0	18	2	1	20	13	12	0	0	25	51
8:45 AM	1	2	1	0	4	1	0	4	0	5	0	16	4	0	20	8	12	1	0	21	50
Hourly Total	9	6	2	1	17	4	1	16	0	21	0	72	17	1	89	47	60	1	0	108	235
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	1	0	0	1	1	1	8	0	10	0	22	2	0	24	2	16	1	0	19	54
3:15 PM	0	0	0	0	0	0	1	6	0	7	0	25	1	0	26	2	9	1	0	12	45
3:30 PM	0	1	0	0	1	3	2	22	0	27	0	26	1	1	27	2	17	3	0	22	77
3:45 PM	2	0	0	3	2	2	2	18	0	22	0	41	2	0	43	1	16	0	1	17	84
Hourly Total	2	2	0	3	4	6	6	54	0	66	0	114	6	1	120	7	58	5	1	70	260
4:00 PM	0	0	0	0	0	1	3	15	1	19	0	42	1	0	43	1	25	2	0	28	90
4:15 PM	2	1	1	0	4	1	0	17	0	18	0	36	1	0	37	2	15	2	0	19	78
4:30 PM	1	2	0	0	3	1	4	36	0	41	0	31	0	3	31	2	19	1	0	22	97
4:45 PM	2	1	0	2	3	1	0	10	0	11	0	45	2	3	47	2	25	3	0	30	91
Hourly Total	5	4	1	2	10	4	7	78	1	89	0	154	4	6	158	7	84	8	0	99	356
5:00 PM	1	2	0	0	3	5	1	28	0	34	1	48	2	0	51	0	18	3	0	21	109
5:15 PM	4	1	0	1	5	1	0	12	0	13	1	59	2	1	62	2	27	1	0	30	110
5:30 PM	3	1	0	2	4	1	1	17	0	19	2	44	1	0	47	4	16	6	1	26	96
5:45 PM	2	0	0	1	2	1	1	4	0	6	0	28	2	0	30	0	21	2	0	23	61
Hourly Total	10	4	0	4	14	8	3	61	0	72	4	179	7	1	190	6	82	12	1	100	376
Grand Total	35	24	6	10	65	25	17	212	1	254	4	656	72	11	732	167	372	28	2	567	1618
Approach %	53.8	36.9	9.2	-	-	9.8	6.7	83.5	-	-	0.5	89.6	9.8	-	-	29.5	65.6	4.9	-	-	-
Total %	2.2	1.5	0.4	-	4.0	1.5	1.1	13.1	-	15.7	0.2	40.5	4.4	-	45.2	10.3	23.0	1.7	-	35.0	-
Lights	35	24	6	-	65	25	17	209	-	251	4	648	69	-	721	163	366	28	-	557	1594
% Lights	100.0	100.0	100.0	-	100.0	100.0	100.0	98.6	-	98.8	100.0	98.8	95.8	-	98.5	97.6	98.4	100.0	-	98.2	98.5
Other Vehicles	0	0	0	-	0	0	0	3	-	3	0	8	3	-	11	4	6	0	-	10	24
% Other Vehicles	0.0	0.0	0.0	-	0.0	0.0	0.0	1.4	-	1.2	0.0	1.2	4.2	-	1.5	2.4	1.6	0.0	-	1.8	1.5
Pedestrians	-	-	-	10	-	-	-	-	1	-	-	-	-	11	-	-	-	-	2	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Trewigtown Road & New Britain Blvd
Site Code:
Start Date: 06/18/2025



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 7 Trewigtown Road & New Britain Blvd
Site Code:
Start Date: 06/18/2025

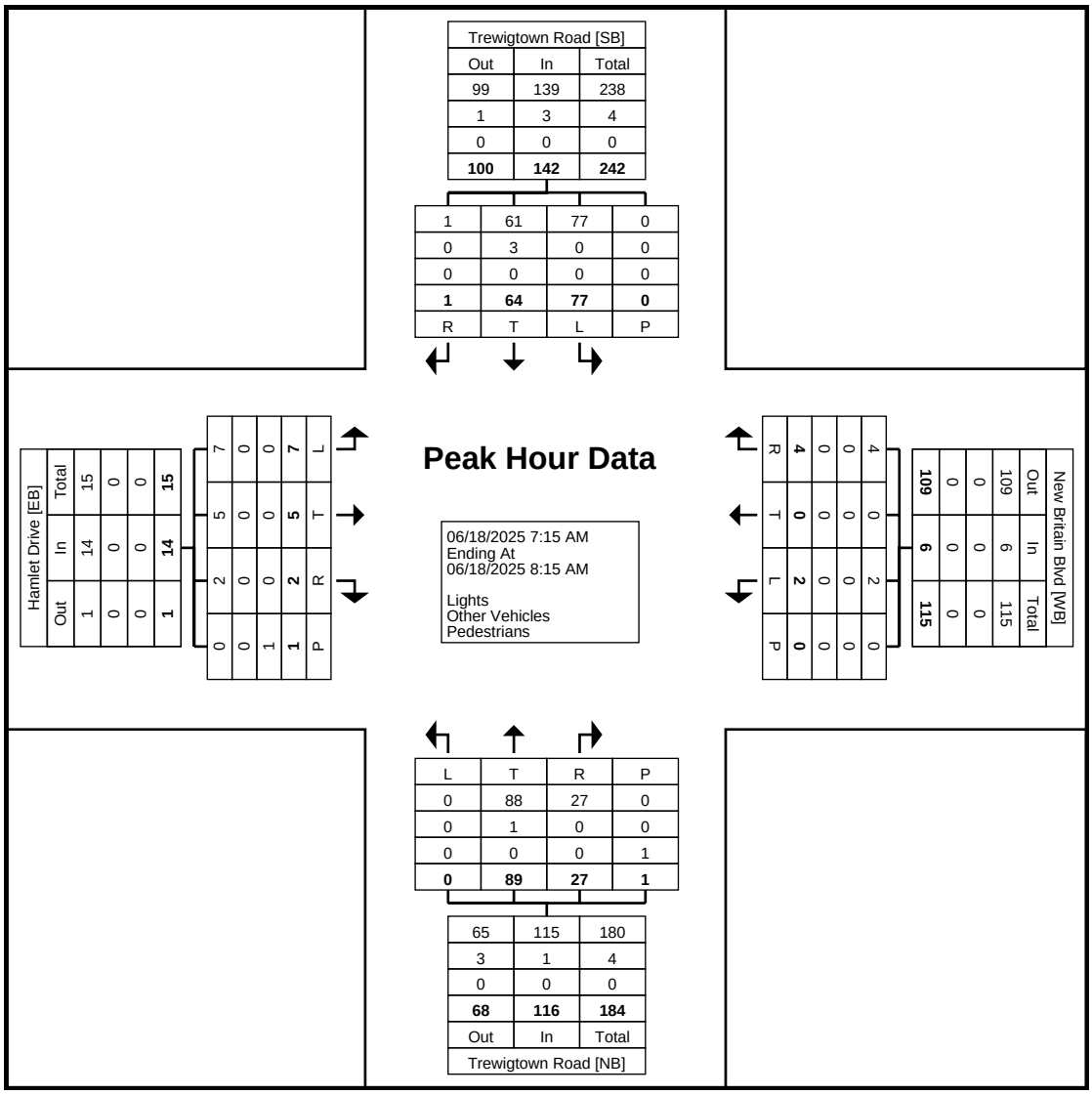
Turning Movement Peak Hour Data (7:15 AM)

Start Time	Hamlet Drive Eastbound					New Britain Blvd Westbound					Trewigtown Road Northbound					Trewigtown Road Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	1	0	0	1	1	0	0	0	1	0	19	4	1	23	18	19	0	0	37	62
7:30 AM	4	1	1	0	6	0	0	1	0	1	0	21	7	0	28	11	8	1	0	20	55
7:45 AM	0	1	1	0	2	0	0	0	0	0	0	27	8	0	35	28	20	0	0	48	85
8:00 AM	3	2	0	1	5	1	0	3	0	4	0	22	8	0	30	20	17	0	0	37	76
Total	7	5	2	1	14	2	0	4	0	6	0	89	27	1	116	77	64	1	0	142	278
Approach %	50.0	35.7	14.3	-	-	33.3	0.0	66.7	-	-	0.0	76.7	23.3	-	-	54.2	45.1	0.7	-	-	-
Total %	2.5	1.8	0.7	-	5.0	0.7	0.0	1.4	-	2.2	0.0	32.0	9.7	-	41.7	27.7	23.0	0.4	-	51.1	-
PHF	0.438	0.625	0.500	-	0.583	0.500	0.000	0.333	-	0.375	0.000	0.824	0.844	-	0.829	0.688	0.800	0.250	-	0.740	0.818
Lights	7	5	2	-	14	2	0	4	-	6	0	88	27	-	115	77	61	1	-	139	274
% Lights	100.0	100.0	100.0	-	100.0	100.0	-	100.0	-	100.0	-	98.9	100.0	-	99.1	100.0	95.3	100.0	-	97.9	98.6
Other Vehicles	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	0	3	0	-	3	4
% Other Vehicles	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	-	1.1	0.0	-	0.9	0.0	4.7	0.0	-	2.1	1.4
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

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Counter: MIO:
Set up By JH::

Count Name: 7 Trewigtown Road & New Britain Blvd
Site Code:
Start Date: 06/18/2025



Turning Movement Peak Hour Data Plot (7:15 AM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 7 Trewigtown Road & New Britain Blvd
Site Code:
Start Date: 06/18/2025

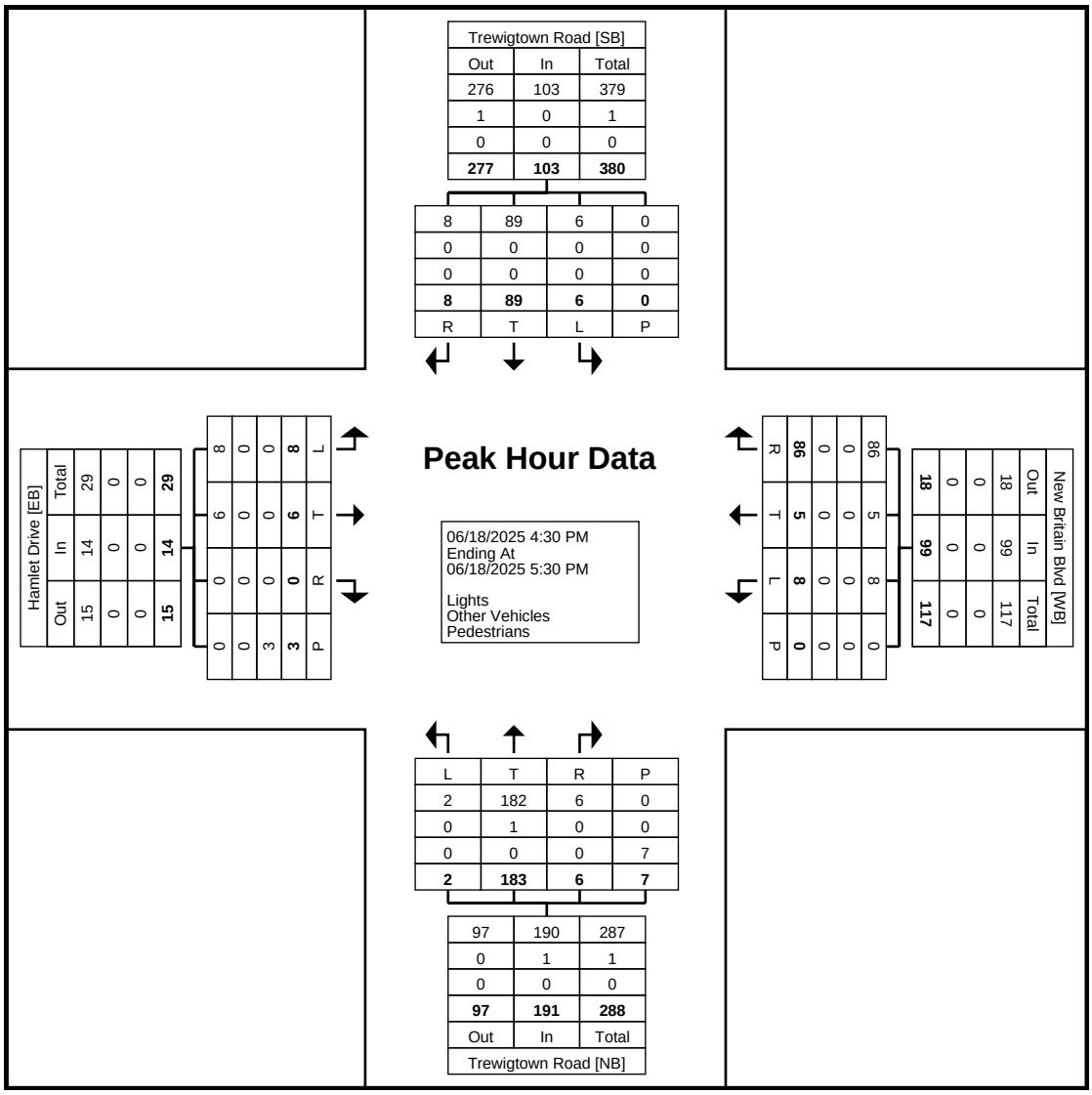
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Hamlet Drive Eastbound					New Britain Blvd Westbound					Trewigtown Road Northbound					Trewigtown Road Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
4:30 PM	1	2	0	0	3	1	4	36	0	41	0	31	0	3	31	2	19	1	0	22	97
4:45 PM	2	1	0	2	3	1	0	10	0	11	0	45	2	3	47	2	25	3	0	30	91
5:00 PM	1	2	0	0	3	5	1	28	0	34	1	48	2	0	51	0	18	3	0	21	109
5:15 PM	4	1	0	1	5	1	0	12	0	13	1	59	2	1	62	2	27	1	0	30	110
Total	8	6	0	3	14	8	5	86	0	99	2	183	6	7	191	6	89	8	0	103	407
Approach %	57.1	42.9	0.0	-	-	8.1	5.1	86.9	-	-	1.0	95.8	3.1	-	-	5.8	86.4	7.8	-	-	-
Total %	2.0	1.5	0.0	-	3.4	2.0	1.2	21.1	-	24.3	0.5	45.0	1.5	-	46.9	1.5	21.9	2.0	-	25.3	-
PHF	0.500	0.750	0.000	-	0.700	0.400	0.313	0.597	-	0.604	0.500	0.775	0.750	-	0.770	0.750	0.824	0.667	-	0.858	0.925
Lights	8	6	0	-	14	8	5	86	-	99	2	182	6	-	190	6	89	8	-	103	406
% Lights	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	100.0	100.0	99.5	100.0	-	99.5	100.0	100.0	100.0	-	100.0	99.8
Other Vehicles	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Other Vehicles	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.5	0.0	-	0.5	0.0	0.0	0.0	-	0.0	0.2
Pedestrians	-	-	-	3	-	-	-	-	0	-	-	-	-	7	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
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Counter: MIO:
Set up By JH::

Count Name: 7 Trewigtown Road & New Britain Blvd
Site Code:
Start Date: 06/18/2025



Turning Movement Peak Hour Data Plot (4:30 PM)

APPENDIX B:

Study Area Photographs

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Walnut Street & County Line Road*



Direction / Road: **Eb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Walnut Street & County Line Road*



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Walnut Street & County Line Road*



Direction / Road: **Nb. *Walnut Street***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Walnut Street***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Walnut Street & County Line Road*



Direction / Road: **Sb. *Walnut Street***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Walnut Street***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Walnut Street & School House Road*



Direction / Road: **Eb. *School House Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *School House Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Walnut Street & School House Road*



Direction / Road: **Wb. *School House Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *School House Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 06-20-2025 *Intersection Of:* Walnut Street & School House Road



Direction / Road: **Nb. *Walnut Street***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Walnut Street***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 06-20-2025 *Intersection Of:* Private Driveway-Railroad Avenue & School House Rd



Direction / Road: **Eb. *School House Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *School House Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Private Driveway-Railroad Avenue & School House Rd*



Direction / Road: **Wb. *School House Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *School House Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 06-20-2025 *Intersection Of:* Private Driveway-Railroad Avenue & School House Rd



Direction / Road: **Nb. *Private Driveway***

Approach / Departure: Approach

Distance: 50 feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Private Driveway-Railroad Avenue & School House Rd*



Direction / Road: **Sb. *Railroad Avenue***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Railroad Avenue***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 06-20-2025 *Intersection Of:* Private Driveway-New Britain Blvd & County Line Road



Direction / Road: **Eb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Private Driveway-New Britain Blvd & County Line Road*



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Private Driveway-New Britain Blvd & County Line Road*



Direction / Road:	**Nb. *Private Driveway***
Approach / Departure:	Approach
Distance:	50 feet

Job #: HANC.00005 *Date Taken:* 06-20-2025 *Intersection Of:* Private Driveway-New Britain Blvd & County Line Road



Direction / Road: **Sb. *Britain Blvd***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Britain Blvd***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *New Britain Blvd & Independence Lane*



Direction / Road: **Wb. *Independence Lane***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *Independence Lane***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *New Britain Blvd & Independence Lane*



Direction / Road: **Nb.** ***New Britain Blvd***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb.** ***New Britain Blvd***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *New Britain Blvd & Independence Lane*



Direction / Road: **Sb.** ***New Britain Blvd***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb.** ***New Britain Blvd***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 06-20-2025 *Intersection Of:* Trewigtown Road & Hamlet Drive-New Britain Blvd



Direction / Road: **Eb. *Hamlet Drive***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *Hamlet Drive***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Trewigtown Road & Hamlet Drive-New Britain Blvd*



Direction / Road: **Wb.** ***New Britain Blvd***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb.** ***New Britain Blvd***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Trewigtown Road & Hamlet Drive-New Britain Blvd*



Direction / Road: **Nb. *Trewigtown Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Trewigtown Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Trewigtown Road & Hamlet Drive-New Britain Blvd*



Direction / Road: **Sb. *Trewigtown Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Trewigtown Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Route 309 & Line Lexington Road- County Line Road*



Direction / Road: **Eb. *Line Lexington Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *Line Lexington Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 06-20-2025 *Intersection Of:* Route 309 & Line Lexington Road- County Line Road



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 06-20-2025 *Intersection Of:* Route 309 & Line Lexington Road- County Line Road



Direction / Road: **Nb. *Route 309***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Route 309***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Route 309 & Line Lexington Road- County Line Road*



Direction / Road: **Sb. *Route 309***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Route 309***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Line Lexington Road & County Line Road*



Direction / Road: **Eb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 06-20-2025 *Intersection Of:* Line Lexington Road & County Line Road



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *06-20-2025* *Intersection Of:* *Line Lexington Road & County Line Road*



Direction / Road: **Sb. *Line Lexington Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Line Lexington Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 10-08-2025 *Intersection Of:* S Trewigtown Road & County Line Road



Direction / Road: **Eb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 10-08-2025 *Intersection Of:* S Trewigtown Road & County Line Road



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 10-08-2025 *Intersection Of:* S Trewigtown Road & County Line Road



Direction / Road: **Nb. *S Trewigtown Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *S Trewigtown Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 10-08-2025 *Intersection Of:* N Trewigtown Road & County Line Road



Direction / Road: **Eb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *10-08-2025* *Intersection Of:* *N Trewigtown Road & County Line Road*



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *County Line Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *10-08-2025* *Intersection Of:* *N Trewigtown Road & County Line Road*



Direction / Road: **Sb. *N Trewigtown Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *N Trewigtown Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *10-08-2025* *Intersection Of:* *Trewigtown Road & School House Road*



Direction / Road: **Wb. *School House Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *School House Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *HANC.00005* *Date Taken:* *10-08-2025* *Intersection Of:* *Trewigtown Road & School House Road*



Direction / Road: **Nb. *Trewigtown Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Trewigtown Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: HANC.00005 *Date Taken:* 10-08-2025 *Intersection Of:* Trewigtown Road & School House Road



Direction / Road: **Sb. *Trewigtown Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Trewigtown Road***
Approach / Departure: Approach
Distance: 200 Feet

APPENDIX C:

Manual Traffic Count Printouts

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Walnut Street & County Line Road
Site Code:
Start Date: 06/18/2025

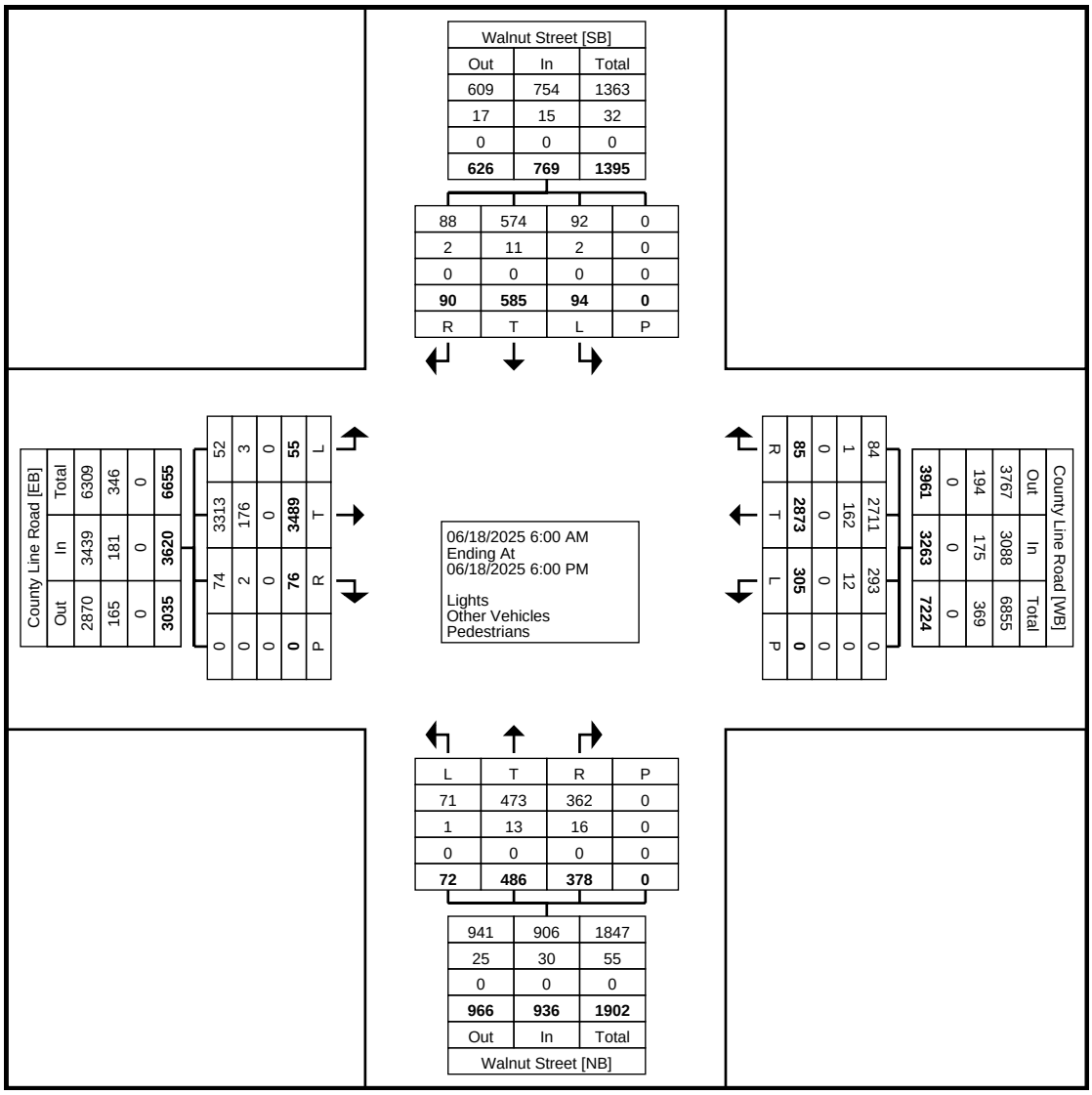
Turning Movement Data

Start Time	County Line Road Eastbound						County Line Road Westbound						Walnut Street Northbound						Walnut Street Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	0	93	0	0	0	93	3	73	1	0	0	77	0	3	5	4	0	12	2	11	1	0	0	14	196
6:15 AM	0	130	1	0	0	131	4	75	0	0	0	79	0	5	4	4	0	13	6	14	1	1	0	22	245
6:30 AM	1	138	1	0	0	140	10	105	2	0	0	117	2	9	7	11	0	29	1	20	3	1	0	25	311
6:45 AM	0	146	3	0	0	149	9	132	0	0	0	141	3	8	9	3	0	23	9	25	3	0	0	37	350
Hourly Total	1	507	5	0	0	513	26	385	3	0	0	414	5	25	25	22	0	77	18	70	8	2	0	98	1102
7:00 AM	4	122	1	2	0	129	6	86	0	0	0	92	6	8	4	1	0	19	4	24	4	1	0	33	273
7:15 AM	2	182	2	0	0	186	15	161	3	0	0	179	2	17	8	3	0	30	8	32	4	2	0	46	441
7:30 AM	3	167	7	0	0	177	13	146	1	0	0	160	5	26	19	8	0	58	4	41	4	0	0	49	444
7:45 AM	2	140	2	1	0	145	20	122	2	0	0	144	5	10	4	5	0	24	4	34	6	0	0	44	357
Hourly Total	11	611	12	3	0	637	54	515	6	0	0	575	18	61	35	17	0	131	20	131	18	3	0	172	1515
8:00 AM	1	178	2	0	0	181	10	115	1	0	0	126	2	16	15	6	0	39	3	31	2	1	0	37	383
8:15 AM	5	135	7	0	0	147	15	105	2	0	0	122	2	13	13	1	0	29	5	23	5	0	0	33	331
8:30 AM	1	180	2	0	0	183	6	124	4	0	0	134	4	18	6	3	0	31	2	33	4	0	0	39	387
8:45 AM	2	134	4	0	0	140	15	103	2	0	0	120	2	16	11	4	0	33	8	29	1	3	0	41	334
Hourly Total	9	627	15	0	0	651	46	447	9	0	0	502	10	63	45	14	0	132	18	116	12	4	0	150	1435
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	4	121	1	0	0	126	7	119	5	0	0	131	3	13	20	3	0	39	5	22	2	0	0	29	325
3:15 PM	1	148	0	1	0	150	13	125	7	0	0	145	1	25	13	2	0	41	1	17	4	0	0	22	358
3:30 PM	1	154	3	0	0	158	20	153	9	0	0	182	2	31	14	3	0	50	3	18	5	3	0	29	419
3:45 PM	4	179	5	0	0	188	12	122	5	0	0	139	4	13	6	6	0	29	3	25	3	0	0	31	387
Hourly Total	10	602	9	1	0	622	52	519	26	0	0	597	10	82	53	14	0	159	12	82	14	3	0	111	1489
4:00 PM	2	124	5	1	0	132	19	143	4	0	0	166	1	42	29	3	0	75	3	29	6	0	0	38	411
4:15 PM	3	153	2	0	0	158	12	123	4	0	0	139	3	41	12	4	0	60	5	23	4	0	0	32	389
4:30 PM	6	144	10	2	0	162	14	104	3	0	0	121	3	35	18	3	0	59	5	32	1	1	0	39	381
4:45 PM	3	155	5	0	0	163	21	139	8	0	0	168	5	30	9	8	0	52	1	30	0	0	0	31	414
Hourly Total	14	576	22	3	0	615	66	509	19	0	0	594	12	148	68	18	0	246	14	114	11	1	0	140	1595
5:00 PM	5	153	4	0	0	162	21	127	9	0	0	157	6	37	24	2	0	69	3	24	1	0	0	28	416
5:15 PM	1	121	1	0	0	123	9	131	5	0	0	145	4	27	9	2	0	42	4	21	6	1	0	32	342
5:30 PM	1	156	1	0	0	158	21	122	6	0	0	149	5	29	11	9	0	54	4	11	2	0	0	17	378
5:45 PM	3	136	0	0	0	139	10	118	2	0	0	130	2	14	9	1	0	26	1	16	4	0	0	21	316
Hourly Total	10	566	6	0	0	582	61	498	22	0	0	581	17	107	53	14	0	191	12	72	13	1	0	98	1452
Grand Total	55	3489	69	7	0	3620	305	2873	85	0	0	3263	72	486	279	99	0	936	94	585	76	14	0	769	8588
Approach %	1.5	96.4	1.9	0.2	-	-	9.3	88.0	2.6	0.0	-	-	7.7	51.9	29.8	10.6	-	-	12.2	76.1	9.9	1.8	-	-	-
Total %	0.6	40.6	0.8	0.1	-	42.2	3.6	33.5	1.0	0.0	-	38.0	0.8	5.7	3.2	1.2	-	10.9	1.1	6.8	0.9	0.2	-	9.0	-
Lights	52	3313	67	7	-	3439	293	2711	84	0	-	3088	71	473	266	96	-	906	92	574	74	14	-	754	8187
% Lights	94.5	95.0	97.1	100.0	-	95.0	96.1	94.4	98.8	-	-	94.6	98.6	97.3	95.3	97.0	-	96.8	97.9	98.1	97.4	100.0	-	98.0	95.3
Other Vehicles	3	176	2	0	-	181	12	162	1	0	-	175	1	13	13	3	-	30	2	11	2	0	-	15	401
% Other Vehicles	5.5	5.0	2.9	0.0	-	5.0	3.9	5.6	1.2	-	-	5.4	1.4	2.7	4.7	3.0	-	3.2	2.1	1.9	2.6	0.0	-	2.0	4.7
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 1 Walnut Street & County Line Road
Site Code:
Start Date: 06/18/2025



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Walnut Street & County Line Road
Site Code:
Start Date: 06/18/2025

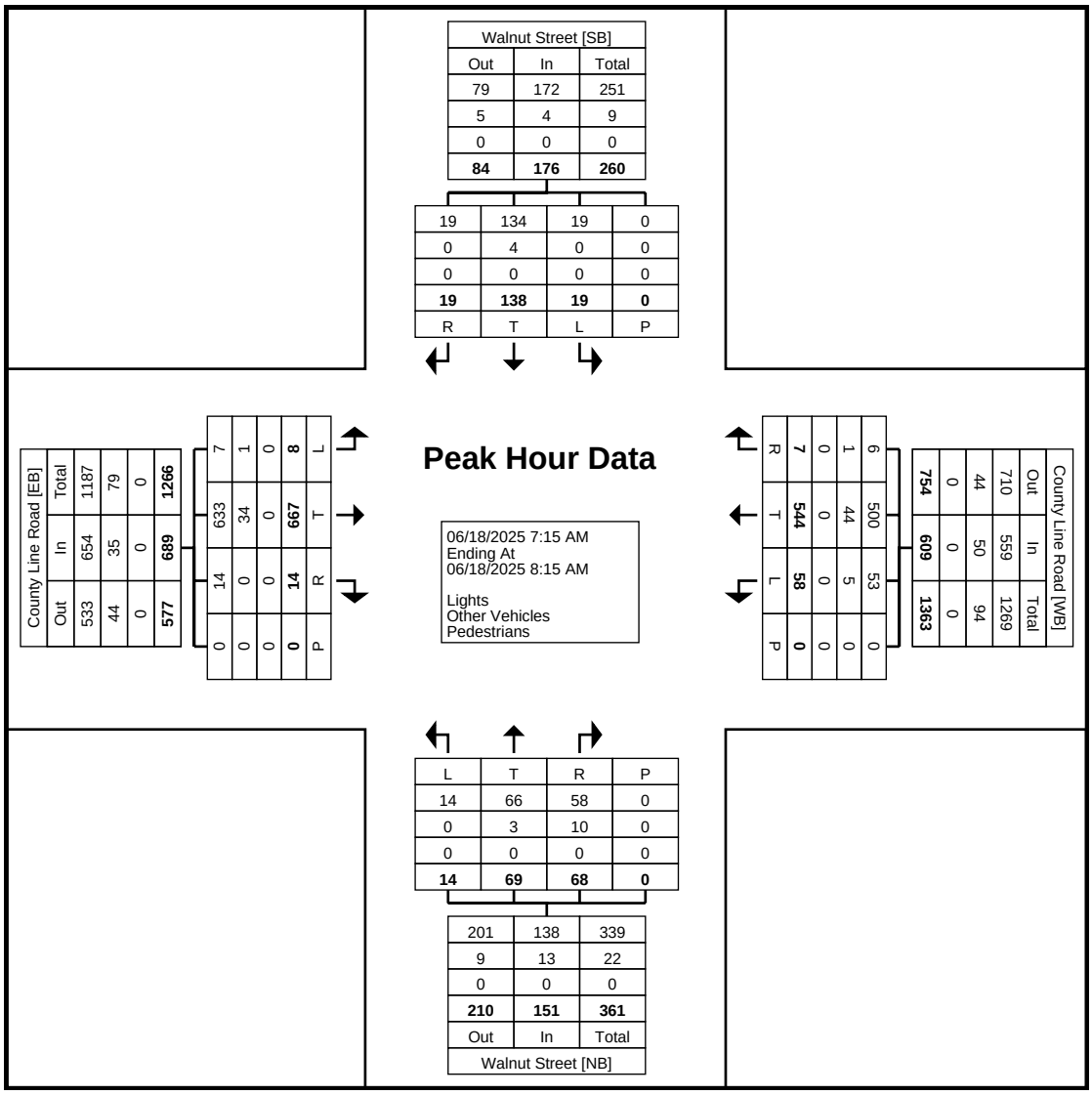
Turning Movement Peak Hour Data (7:15 AM)

Start Time	County Line Road Eastbound						County Line Road Westbound						Walnut Street Northbound						Walnut Street Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:15 AM	2	182	2	0	0	186	15	161	3	0	0	179	2	17	8	3	0	30	8	32	4	2	0	46	441
7:30 AM	3	167	7	0	0	177	13	146	1	0	0	160	5	26	19	8	0	58	4	41	4	0	0	49	444
7:45 AM	2	140	2	1	0	145	20	122	2	0	0	144	5	10	4	5	0	24	4	34	6	0	0	44	357
8:00 AM	1	178	2	0	0	181	10	115	1	0	0	126	2	16	15	6	0	39	3	31	2	1	0	37	383
Total	8	667	13	1	0	689	58	544	7	0	0	609	14	69	46	22	0	151	19	138	16	3	0	176	1625
Approach %	1.2	96.8	1.9	0.1	-	-	9.5	89.3	1.1	0.0	-	-	9.3	45.7	30.5	14.6	-	-	10.8	78.4	9.1	1.7	-	-	-
Total %	0.5	41.0	0.8	0.1	-	42.4	3.6	33.5	0.4	0.0	-	37.5	0.9	4.2	2.8	1.4	-	9.3	1.2	8.5	1.0	0.2	-	10.8	-
PHF	0.667	0.916	0.464	0.250	-	0.926	0.725	0.845	0.583	0.000	-	0.851	0.700	0.663	0.605	0.688	-	0.651	0.594	0.841	0.667	0.375	-	0.898	0.915
Lights	7	633	13	1	-	654	53	500	6	0	-	559	14	66	39	19	-	138	19	134	16	3	-	172	1523
% Lights	87.5	94.9	100.0	100.0	-	94.9	91.4	91.9	85.7	-	-	91.8	100.0	95.7	84.8	86.4	-	91.4	100.0	97.1	100.0	100.0	-	97.7	93.7
Other Vehicles	1	34	0	0	-	35	5	44	1	0	-	50	0	3	7	3	-	13	0	4	0	0	-	4	102
% Other Vehicles	12.5	5.1	0.0	0.0	-	5.1	8.6	8.1	14.3	-	-	8.2	0.0	4.3	15.2	13.6	-	8.6	0.0	2.9	0.0	0.0	-	2.3	6.3
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Walnut Street & County Line Road
Site Code:
Start Date: 06/18/2025



Turning Movement Peak Hour Data Plot (7:15 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Walnut Street & County Line Road
Site Code:
Start Date: 06/18/2025

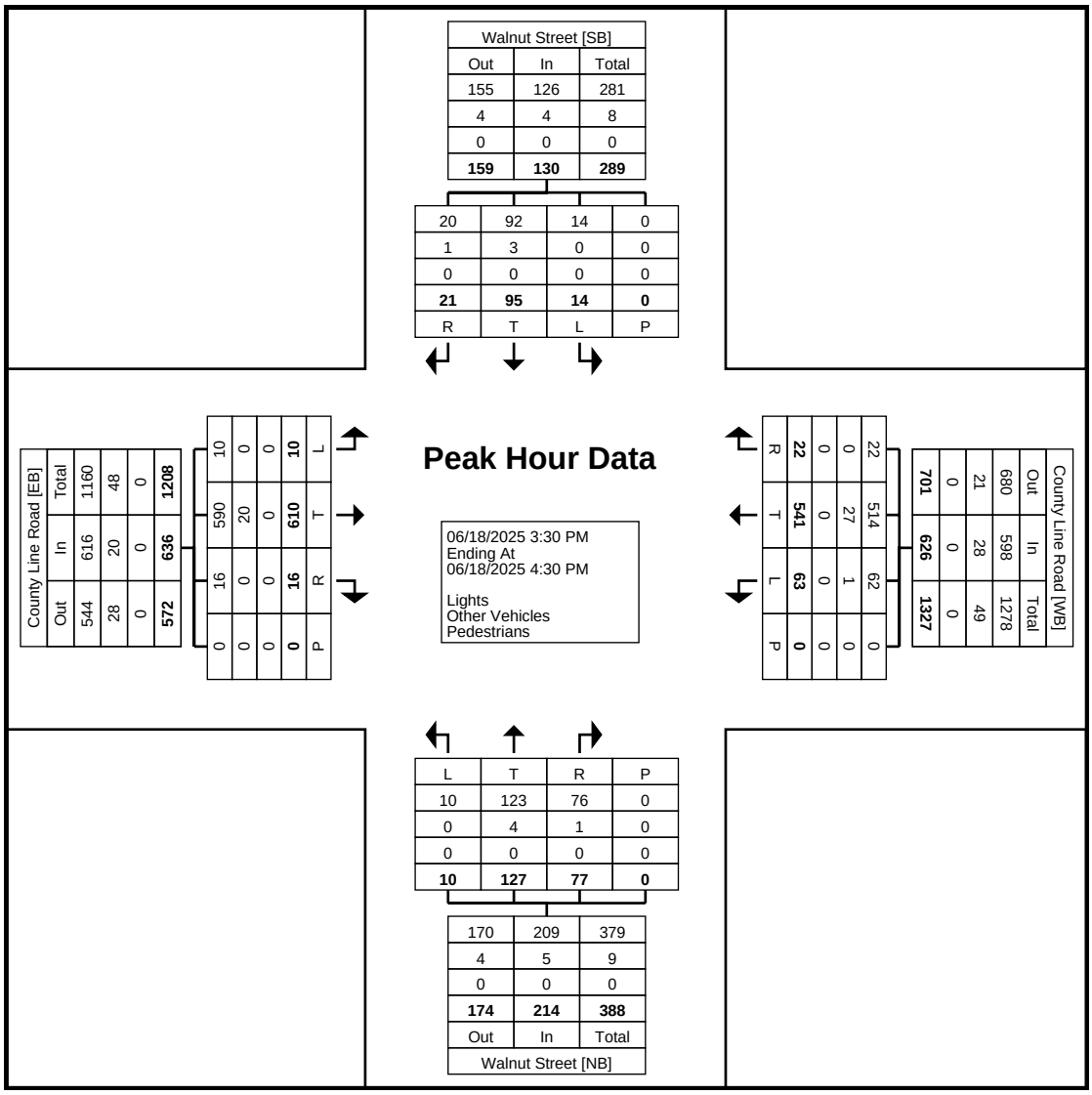
Turning Movement Peak Hour Data (3:30 PM)

Start Time	County Line Road Eastbound						County Line Road Westbound						Walnut Street Northbound						Walnut Street Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
3:30 PM	1	154	3	0	0	158	20	153	9	0	0	182	2	31	14	3	0	50	3	18	5	3	0	29	419
3:45 PM	4	179	5	0	0	188	12	122	5	0	0	139	4	13	6	6	0	29	3	25	3	0	0	31	387
4:00 PM	2	124	5	1	0	132	19	143	4	0	0	166	1	42	29	3	0	75	3	29	6	0	0	38	411
4:15 PM	3	153	2	0	0	158	12	123	4	0	0	139	3	41	12	4	0	60	5	23	4	0	0	32	389
Total	10	610	15	1	0	636	63	541	22	0	0	626	10	127	61	16	0	214	14	95	18	3	0	130	1606
Approach %	1.6	95.9	2.4	0.2	-	-	10.1	86.4	3.5	0.0	-	-	4.7	59.3	28.5	7.5	-	-	10.8	73.1	13.8	2.3	-	-	-
Total %	0.6	38.0	0.9	0.1	-	39.6	3.9	33.7	1.4	0.0	-	39.0	0.6	7.9	3.8	1.0	-	13.3	0.9	5.9	1.1	0.2	-	8.1	-
PHF	0.625	0.852	0.750	0.250	-	0.846	0.788	0.884	0.611	0.000	-	0.860	0.625	0.756	0.526	0.667	-	0.713	0.700	0.819	0.750	0.250	-	0.855	0.958
Lights	10	590	15	1	-	616	62	514	22	0	-	598	10	123	60	16	-	209	14	92	17	3	-	126	1549
% Lights	100.0	96.7	100.0	100.0	-	96.9	98.4	95.0	100.0	-	-	95.5	100.0	96.9	98.4	100.0	-	97.7	100.0	96.8	94.4	100.0	-	96.9	96.5
Other Vehicles	0	20	0	0	-	20	1	27	0	0	-	28	0	4	1	0	-	5	0	3	1	0	-	4	57
% Other Vehicles	0.0	3.3	0.0	0.0	-	3.1	1.6	5.0	0.0	-	-	4.5	0.0	3.1	1.6	0.0	-	2.3	0.0	3.2	5.6	0.0	-	3.1	3.5
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 Walnut Street & County Line Road
Site Code:
Start Date: 06/18/2025



Turning Movement Peak Hour Data Plot (3:30 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 2 Walnut Street & School House Road
Site Code:
Start Date: 06/18/2025

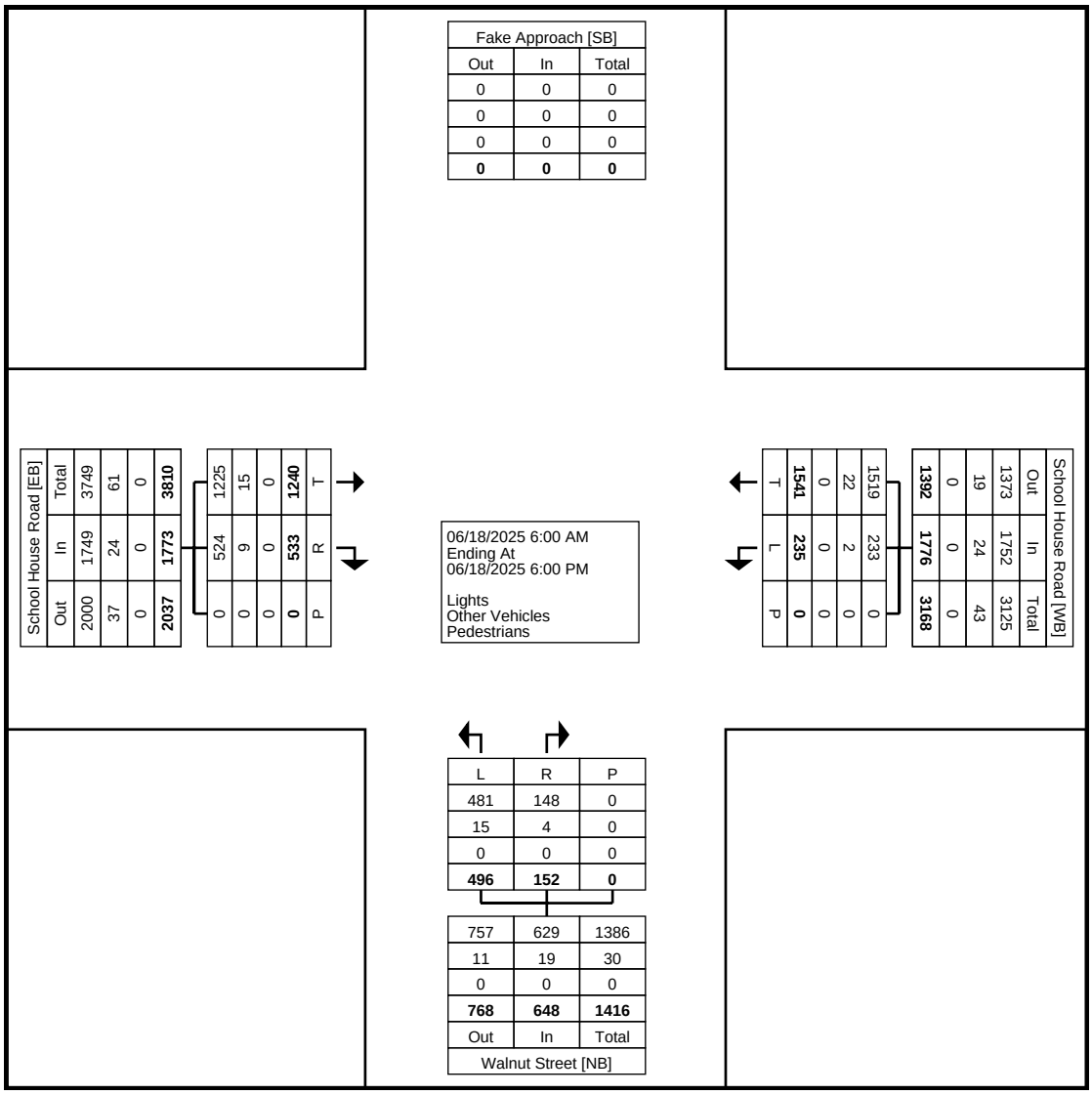
Turning Movement Data

Start Time	School House Road Eastbound				School House Road Westbound				Walnut Street Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
6:00 AM	13	10	0	23	4	7	0	11	3	1	0	4	38
6:15 AM	23	20	0	43	3	5	0	8	2	1	0	3	54
6:30 AM	25	18	0	43	8	19	0	27	11	3	0	14	84
6:45 AM	47	23	0	70	15	28	0	43	9	0	0	9	122
Hourly Total	108	71	0	179	30	59	0	89	25	5	0	30	298
7:00 AM	57	23	0	80	9	26	0	35	7	4	0	11	126
7:15 AM	67	36	0	103	9	27	0	36	16	10	0	26	165
7:30 AM	58	45	0	103	6	26	0	32	12	15	0	27	162
7:45 AM	66	30	0	96	9	39	0	48	15	4	0	19	163
Hourly Total	248	134	0	382	33	118	0	151	50	33	0	83	616
8:00 AM	72	31	0	103	10	31	0	41	10	8	0	18	162
8:15 AM	60	22	0	82	11	36	0	47	14	6	0	20	149
8:30 AM	65	25	0	90	12	43	0	55	15	4	0	19	164
8:45 AM	61	33	0	94	9	32	0	41	19	6	0	25	160
Hourly Total	258	111	0	369	42	142	0	184	58	24	0	82	635
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	28	17	0	45	6	67	0	73	23	4	0	27	145
3:15 PM	23	19	0	42	4	59	0	63	27	5	0	32	137
3:30 PM	43	16	0	59	12	96	0	108	30	9	0	39	206
3:45 PM	47	25	0	72	8	84	0	92	19	5	0	24	188
Hourly Total	141	77	0	218	30	306	0	336	99	23	0	122	676
4:00 PM	58	22	0	80	16	102	0	118	37	11	0	48	246
4:15 PM	57	19	0	76	14	119	0	133	40	6	0	46	255
4:30 PM	71	24	0	95	13	119	0	132	39	11	0	50	277
4:45 PM	49	18	0	67	15	127	0	142	33	9	0	42	251
Hourly Total	235	83	0	318	58	467	0	525	149	37	0	186	1029
5:00 PM	67	17	0	84	10	119	0	129	37	12	0	49	262
5:15 PM	72	13	0	85	16	128	0	144	28	3	0	31	260
5:30 PM	63	13	0	76	8	112	0	120	42	7	0	49	245
5:45 PM	48	14	0	62	8	90	0	98	8	8	0	16	176
Hourly Total	250	57	0	307	42	449	0	491	115	30	0	145	943
Grand Total	1240	533	0	1773	235	1541	0	1776	496	152	0	648	4197
Approach %	69.9	30.1	-	-	13.2	86.8	-	-	76.5	23.5	-	-	-
Total %	29.5	12.7	-	42.2	5.6	36.7	-	42.3	11.8	3.6	-	15.4	-
Lights	1225	524	-	1749	233	1519	-	1752	481	148	-	629	4130
% Lights	98.8	98.3	-	98.6	99.1	98.6	-	98.6	97.0	97.4	-	97.1	98.4
Other Vehicles	15	9	-	24	2	22	-	24	15	4	-	19	67
% Other Vehicles	1.2	1.7	-	1.4	0.9	1.4	-	1.4	3.0	2.6	-	2.9	1.6
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 2 Walnut Street & School House Road
Site Code:
Start Date: 06/18/2025



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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610.326.3100

Counter: MIO:
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Count Name: 2 Walnut Street & School House Road
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Start Date: 06/18/2025

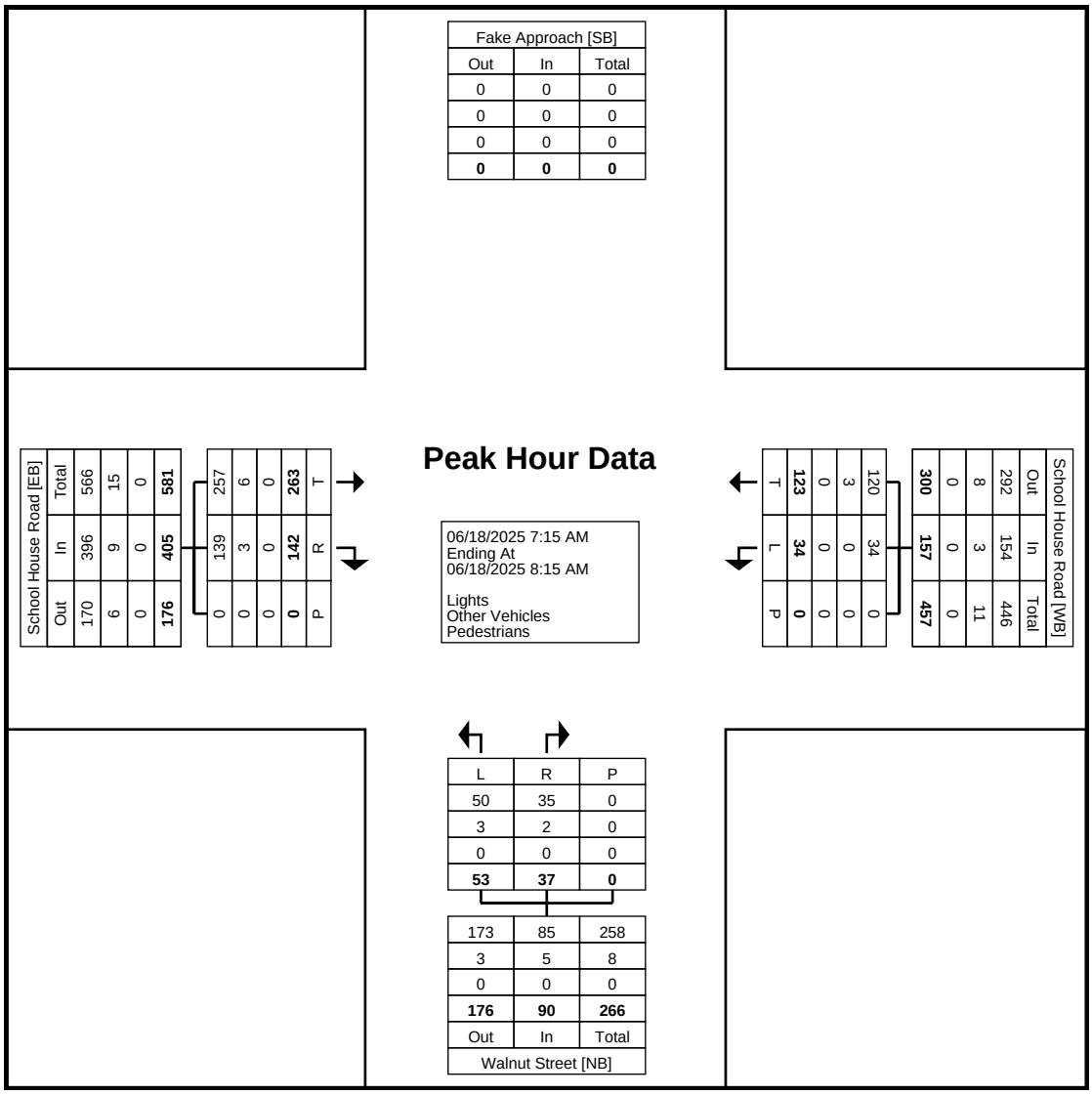
Turning Movement Peak Hour Data (7:15 AM)

Start Time	School House Road Eastbound				School House Road Westbound				Walnut Street Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:15 AM	67	36	0	103	9	27	0	36	16	10	0	26	165
7:30 AM	58	45	0	103	6	26	0	32	12	15	0	27	162
7:45 AM	66	30	0	96	9	39	0	48	15	4	0	19	163
8:00 AM	72	31	0	103	10	31	0	41	10	8	0	18	162
Total	263	142	0	405	34	123	0	157	53	37	0	90	652
Approach %	64.9	35.1	-	-	21.7	78.3	-	-	58.9	41.1	-	-	-
Total %	40.3	21.8	-	62.1	5.2	18.9	-	24.1	8.1	5.7	-	13.8	-
PHF	0.913	0.789	-	0.983	0.850	0.788	-	0.818	0.828	0.617	-	0.833	0.988
Lights	257	139	-	396	34	120	-	154	50	35	-	85	635
% Lights	97.7	97.9	-	97.8	100.0	97.6	-	98.1	94.3	94.6	-	94.4	97.4
Other Vehicles	6	3	-	9	0	3	-	3	3	2	-	5	17
% Other Vehicles	2.3	2.1	-	2.2	0.0	2.4	-	1.9	5.7	5.4	-	5.6	2.6
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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610.326.3100

Counter: MIO:
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Count Name: 2 Walnut Street & School House Road
Site Code:
Start Date: 06/18/2025



Turning Movement Peak Hour Data Plot (7:15 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 2 Walnut Street & School House Road
Site Code:
Start Date: 06/18/2025

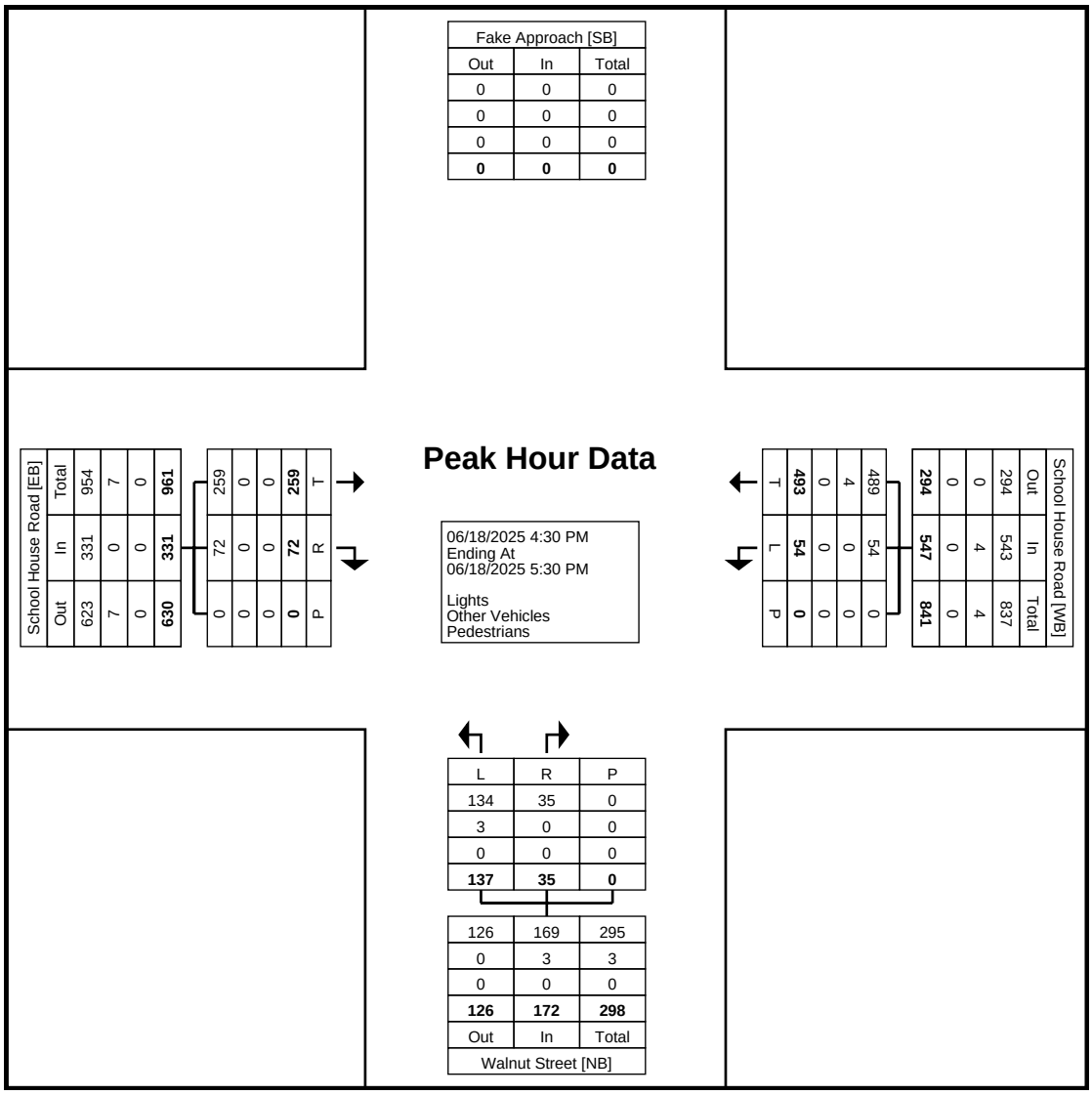
Turning Movement Peak Hour Data (4:30 PM)

Start Time	School House Road Eastbound				School House Road Westbound				Walnut Street Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
4:30 PM	71	24	0	95	13	119	0	132	39	11	0	50	277
4:45 PM	49	18	0	67	15	127	0	142	33	9	0	42	251
5:00 PM	67	17	0	84	10	119	0	129	37	12	0	49	262
5:15 PM	72	13	0	85	16	128	0	144	28	3	0	31	260
Total	259	72	0	331	54	493	0	547	137	35	0	172	1050
Approach %	78.2	21.8	-	-	9.9	90.1	-	-	79.7	20.3	-	-	-
Total %	24.7	6.9	-	31.5	5.1	47.0	-	52.1	13.0	3.3	-	16.4	-
PHF	0.899	0.750	-	0.871	0.844	0.963	-	0.950	0.878	0.729	-	0.860	0.948
Lights	259	72	-	331	54	489	-	543	134	35	-	169	1043
% Lights	100.0	100.0	-	100.0	100.0	99.2	-	99.3	97.8	100.0	-	98.3	99.3
Other Vehicles	0	0	-	0	0	4	-	4	3	0	-	3	7
% Other Vehicles	0.0	0.0	-	0.0	0.0	0.8	-	0.7	2.2	0.0	-	1.7	0.7
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 2 Walnut Street & School House Road
Site Code:
Start Date: 06/18/2025



Turning Movement Peak Hour Data Plot (4:30 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 3 Railroad Avenue & School House Road
Site Code:
Start Date: 06/18/2025

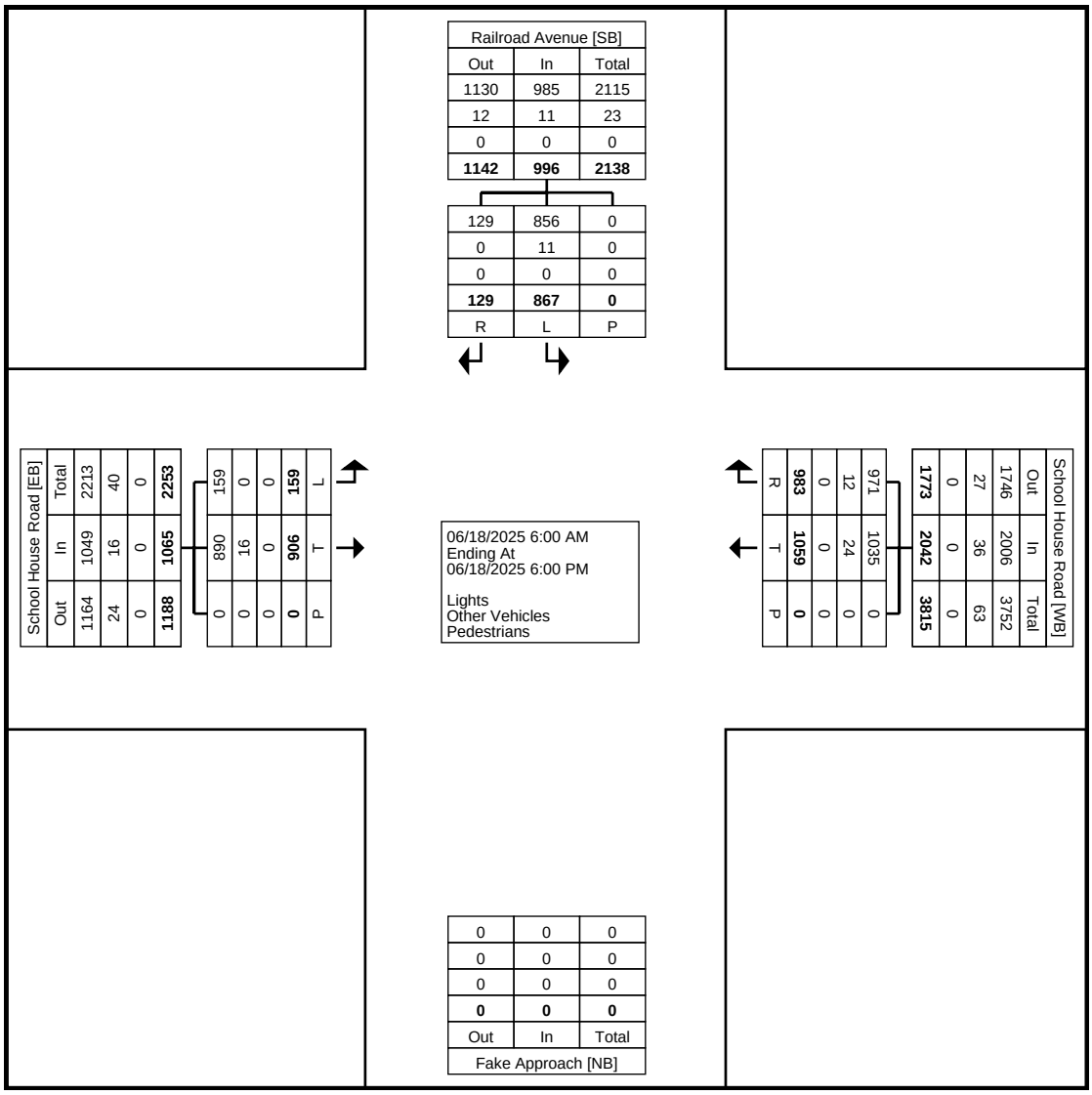
Turning Movement Data

Start Time	School House Road Eastbound				School House Road Westbound				Railroad Avenue Southbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
6:00 AM	2	5	0	7	5	6	0	11	18	1	0	19	37
6:15 AM	4	17	0	21	5	2	0	7	24	1	0	25	53
6:30 AM	3	13	0	16	16	12	0	28	31	5	0	36	80
6:45 AM	5	35	0	40	24	13	0	37	36	6	0	42	119
Hourly Total	14	70	0	84	50	33	0	83	109	13	0	122	289
7:00 AM	3	44	0	47	17	17	0	34	37	6	0	43	124
7:15 AM	3	50	0	53	27	15	0	42	55	1	0	56	151
7:30 AM	9	36	0	45	23	18	0	41	61	6	0	67	153
7:45 AM	2	42	0	44	33	18	0	51	57	10	0	67	162
Hourly Total	17	172	0	189	100	68	0	168	210	23	0	233	590
8:00 AM	6	57	0	63	29	13	0	42	47	12	0	59	164
8:15 AM	6	44	0	50	30	22	0	52	40	11	0	51	153
8:30 AM	10	40	0	50	32	27	0	59	49	4	0	53	162
8:45 AM	9	49	0	58	20	30	0	50	46	4	0	50	158
Hourly Total	31	190	0	221	111	92	0	203	182	31	0	213	637
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	9	21	0	30	39	53	0	92	23	3	0	26	148
3:15 PM	3	17	0	20	47	40	0	87	26	4	0	30	137
3:30 PM	7	36	0	43	75	47	0	122	23	5	0	28	193
3:45 PM	5	41	0	46	56	50	0	106	31	10	0	41	193
Hourly Total	24	115	0	139	217	190	0	407	103	22	0	125	671
4:00 PM	10	36	0	46	71	71	0	142	41	5	0	46	234
4:15 PM	11	42	0	53	78	78	0	156	35	7	0	42	251
4:30 PM	10	52	0	62	83	74	0	157	40	2	0	42	261
4:45 PM	7	42	0	49	79	81	0	160	28	3	0	31	240
Hourly Total	38	172	0	210	311	304	0	615	144	17	0	161	986
5:00 PM	10	54	0	64	75	81	0	156	26	10	0	36	256
5:15 PM	12	54	0	66	77	80	0	157	34	6	0	40	263
5:30 PM	11	44	0	55	75	78	0	153	34	5	0	39	247
5:45 PM	2	35	0	37	43	57	0	100	25	2	0	27	164
Hourly Total	35	187	0	222	270	296	0	566	119	23	0	142	930
Grand Total	159	906	0	1065	1059	983	0	2042	867	129	0	996	4103
Approach %	14.9	85.1	-	-	51.9	48.1	-	-	87.0	13.0	-	-	-
Total %	3.9	22.1	-	26.0	25.8	24.0	-	49.8	21.1	3.1	-	24.3	-
Lights	159	890	-	1049	1035	971	-	2006	856	129	-	985	4040
% Lights	100.0	98.2	-	98.5	97.7	98.8	-	98.2	98.7	100.0	-	98.9	98.5
Other Vehicles	0	16	-	16	24	12	-	36	11	0	-	11	63
% Other Vehicles	0.0	1.8	-	1.5	2.3	1.2	-	1.8	1.3	0.0	-	1.1	1.5
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
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Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 3 Railroad Avenue & School House Road
Site Code:
Start Date: 06/18/2025



Turning Movement Data Plot

Counter: MIO:
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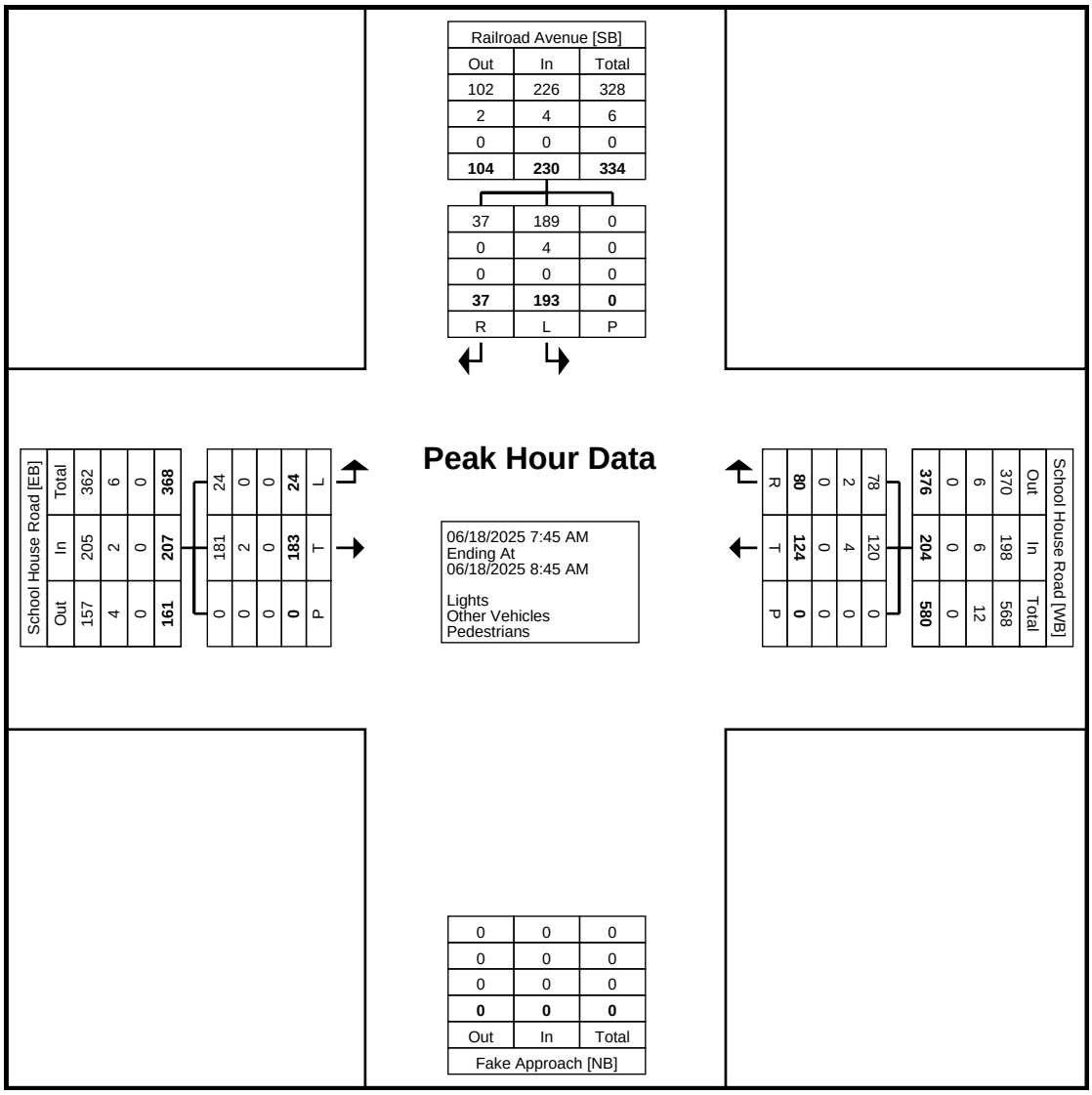
Turning Movement Peak Hour Data (7:45 AM)

Start Time	School House Road Eastbound				School House Road Westbound				Railroad Avenue Southbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:45 AM	2	42	0	44	33	18	0	51	57	10	0	67	162
8:00 AM	6	57	0	63	29	13	0	42	47	12	0	59	164
8:15 AM	6	44	0	50	30	22	0	52	40	11	0	51	153
8:30 AM	10	40	0	50	32	27	0	59	49	4	0	53	162
Total	24	183	0	207	124	80	0	204	193	37	0	230	641
Approach %	11.6	88.4	-	-	60.8	39.2	-	-	83.9	16.1	-	-	-
Total %	3.7	28.5	-	32.3	19.3	12.5	-	31.8	30.1	5.8	-	35.9	-
PHF	0.600	0.803	-	0.821	0.939	0.741	-	0.864	0.846	0.771	-	0.858	0.977
Lights	24	181	-	205	120	78	-	198	189	37	-	226	629
% Lights	100.0	98.9	-	99.0	96.8	97.5	-	97.1	97.9	100.0	-	98.3	98.1
Other Vehicles	0	2	-	2	4	2	-	6	4	0	-	4	12
% Other Vehicles	0.0	1.1	-	1.0	3.2	2.5	-	2.9	2.1	0.0	-	1.7	1.9
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (7:45 AM)

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Count Name: 3 Railroad Avenue & School House Road
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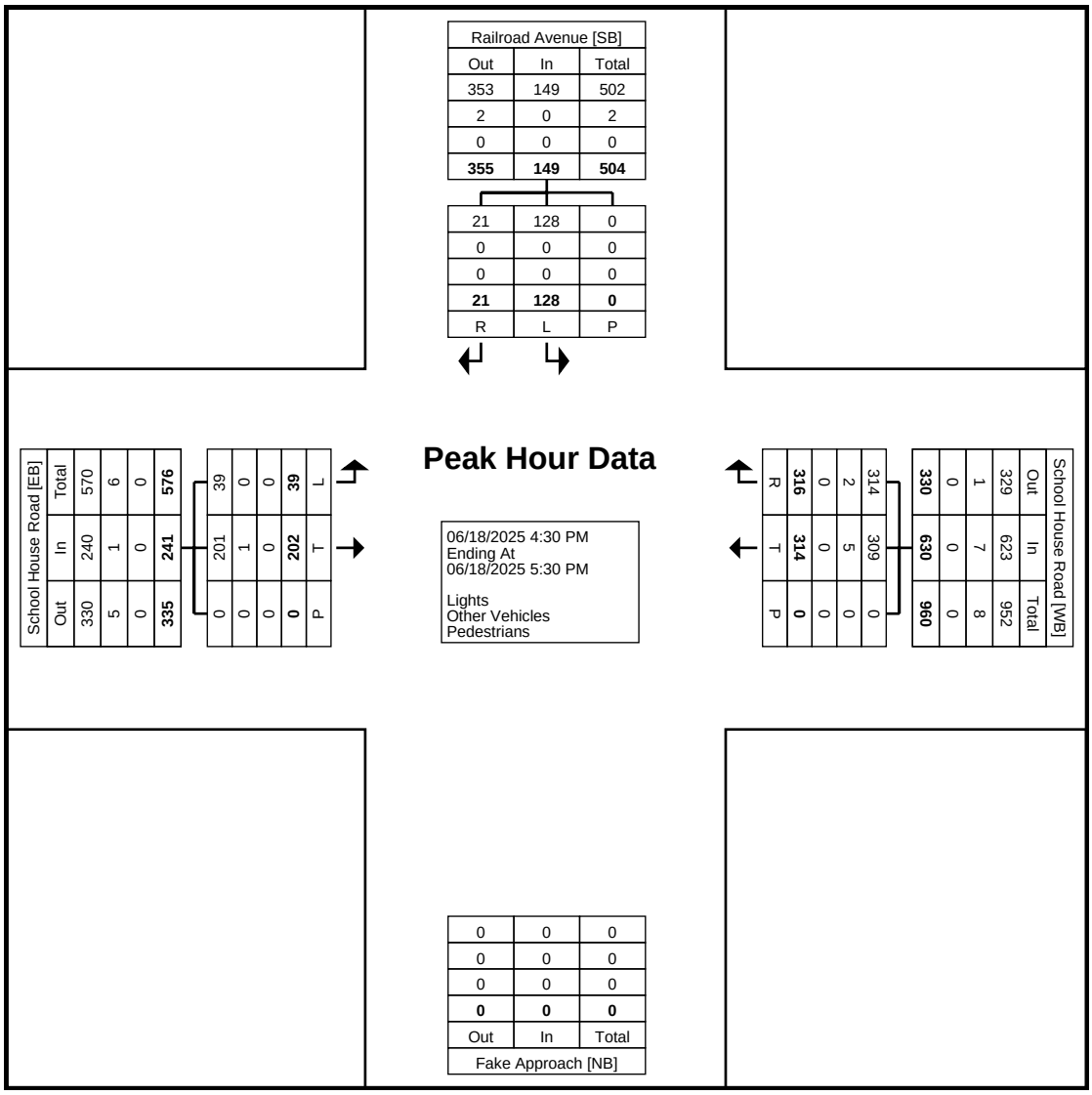
Turning Movement Peak Hour Data (4:30 PM)

Start Time	School House Road Eastbound				School House Road Westbound				Railroad Avenue Southbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
4:30 PM	10	52	0	62	83	74	0	157	40	2	0	42	261
4:45 PM	7	42	0	49	79	81	0	160	28	3	0	31	240
5:00 PM	10	54	0	64	75	81	0	156	26	10	0	36	256
5:15 PM	12	54	0	66	77	80	0	157	34	6	0	40	263
Total	39	202	0	241	314	316	0	630	128	21	0	149	1020
Approach %	16.2	83.8	-	-	49.8	50.2	-	-	85.9	14.1	-	-	-
Total %	3.8	19.8	-	23.6	30.8	31.0	-	61.8	12.5	2.1	-	14.6	-
PHF	0.813	0.935	-	0.913	0.946	0.975	-	0.984	0.800	0.525	-	0.887	0.970
Lights	39	201	-	240	309	314	-	623	128	21	-	149	1012
% Lights	100.0	99.5	-	99.6	98.4	99.4	-	98.9	100.0	100.0	-	100.0	99.2
Other Vehicles	0	1	-	1	5	2	-	7	0	0	-	0	8
% Other Vehicles	0.0	0.5	-	0.4	1.6	0.6	-	1.1	0.0	0.0	-	0.0	0.8
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (4:30 PM)

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Count Name: 5 New Britain Blvd & County Line Road
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Start Date: 06/18/2025

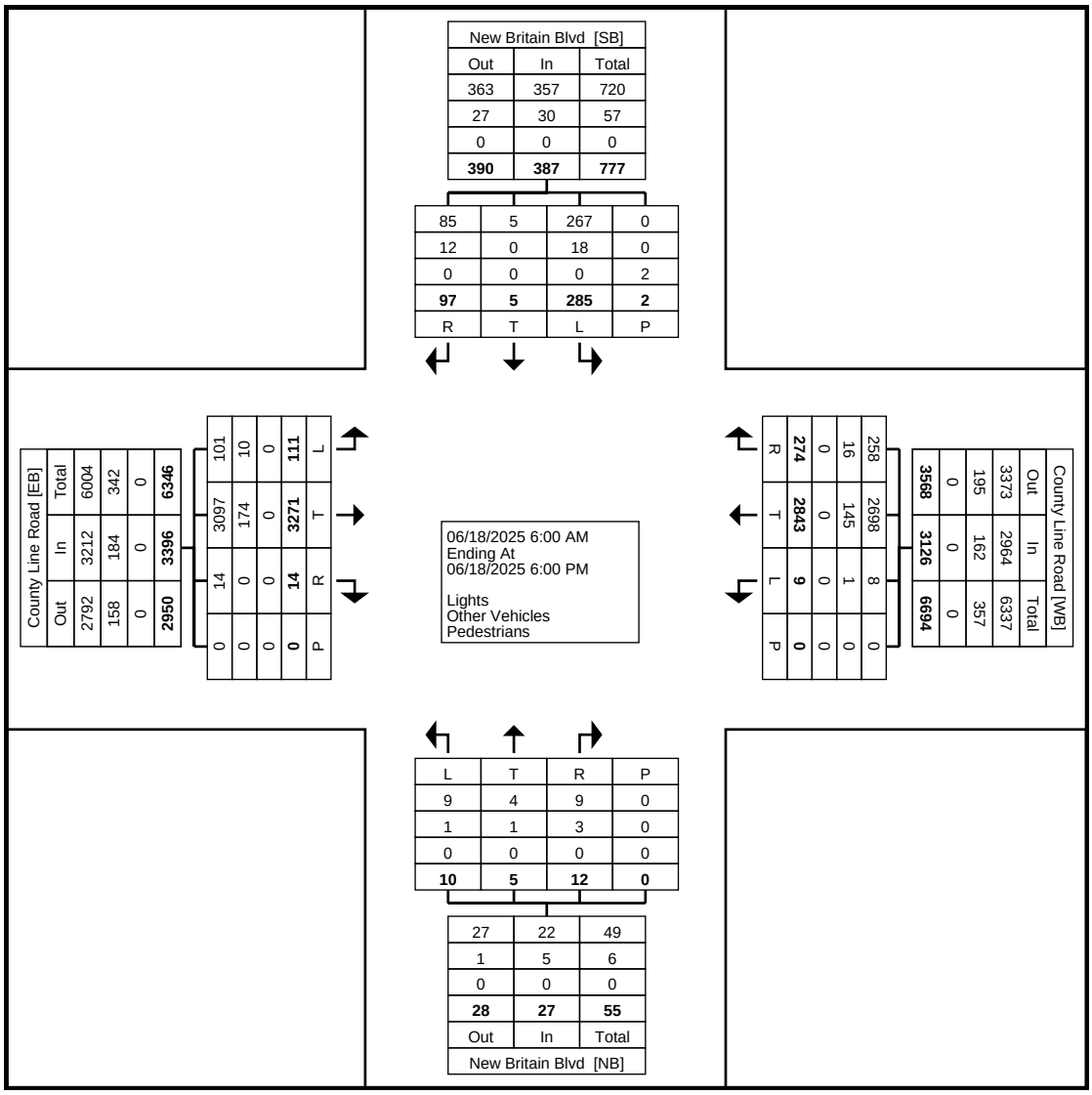
Turning Movement Data

Start Time	County Line Road Eastbound						County Line Road Westbound						New Britain Blvd Northbound						New Britain Blvd Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	3	92	0	0	0	95	0	68	17	0	0	85	0	0	0	0	0	0	3	2	1	0	0	6	186
6:15 AM	3	141	0	0	0	144	1	78	4	0	0	83	0	0	0	0	0	0	1	0	0	0	0	1	228
6:30 AM	4	132	1	0	0	137	0	106	10	3	0	119	0	1	0	0	0	1	5	0	1	0	0	6	263
6:45 AM	9	136	5	0	0	150	1	106	16	2	0	125	0	1	0	0	0	1	6	0	3	1	0	10	286
Hourly Total	19	501	6	0	0	526	2	358	47	5	0	412	0	2	0	0	0	2	15	2	5	1	0	23	963
7:00 AM	8	142	0	0	0	150	0	80	16	2	0	98	1	0	5	0	0	6	5	0	2	0	0	7	261
7:15 AM	4	161	0	0	0	165	2	140	17	2	0	161	0	0	0	0	0	0	10	1	0	0	0	11	337
7:30 AM	5	182	0	0	0	187	2	132	20	2	0	156	0	0	0	0	0	0	7	0	1	0	0	8	351
7:45 AM	10	153	2	0	0	165	1	110	18	0	0	129	0	0	0	0	0	0	9	0	3	0	0	12	306
Hourly Total	27	638	2	0	0	667	5	462	71	6	0	544	1	0	5	0	0	6	31	1	6	0	0	38	1255
8:00 AM	7	166	0	0	0	173	0	118	13	0	0	131	0	0	0	1	0	1	9	0	1	0	0	10	315
8:15 AM	11	156	1	0	0	168	0	103	10	0	0	113	0	0	0	2	0	2	7	1	1	0	0	9	292
8:30 AM	7	172	0	0	0	179	1	115	10	0	0	126	0	0	0	0	0	0	7	1	5	0	0	13	318
8:45 AM	8	132	1	1	0	142	0	99	13	0	0	112	0	1	0	0	0	1	9	0	6	0	0	15	270
Hourly Total	33	626	2	1	0	662	1	435	46	0	0	482	0	1	0	3	0	4	32	2	13	0	0	47	1195
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	2	125	1	0	0	128	0	129	2	1	0	132	1	0	0	0	0	1	12	0	2	1	0	15	276
3:15 PM	5	123	0	0	0	128	0	115	7	1	0	123	0	0	0	0	0	0	10	0	1	3	0	14	265
3:30 PM	3	113	0	0	0	116	0	159	7	1	0	167	0	0	0	0	0	0	37	0	9	5	1	51	334
3:45 PM	5	153	0	0	0	158	0	127	8	2	0	137	1	1	1	0	0	3	9	0	2	1	0	12	310
Hourly Total	15	514	1	0	0	530	0	530	24	5	0	559	2	1	1	0	0	4	68	0	14	10	1	92	1185
4:00 PM	4	113	0	0	0	117	0	158	8	1	0	167	0	1	0	0	0	1	24	0	8	1	0	33	318
4:15 PM	3	132	0	0	0	135	0	136	10	0	0	146	0	0	0	1	0	1	8	0	5	0	0	13	295
4:30 PM	3	108	0	0	0	111	0	101	9	0	0	110	0	0	1	0	0	1	31	0	15	0	0	46	268
4:45 PM	3	135	2	0	0	140	1	136	7	0	0	144	7	0	0	0	0	7	17	0	3	0	0	20	311
Hourly Total	13	488	2	0	0	503	1	531	34	1	0	567	7	1	1	1	0	10	80	0	31	1	0	112	1192
5:00 PM	1	125	0	0	0	126	0	134	13	1	0	148	0	0	1	0	0	1	27	0	4	3	0	34	309
5:15 PM	0	124	0	0	0	124	0	131	7	1	0	139	0	0	0	0	0	0	7	0	2	1	1	10	273
5:30 PM	0	128	0	0	0	128	0	133	6	3	0	142	0	0	0	0	0	0	14	0	4	1	0	19	289
5:45 PM	3	127	0	0	0	130	0	129	4	0	0	133	0	0	0	0	0	0	11	0	1	0	0	12	275
Hourly Total	4	504	0	0	0	508	0	527	30	5	0	562	0	0	1	0	0	1	59	0	11	5	1	75	1146
Grand Total	111	3271	13	1	0	3396	9	2843	252	22	0	3126	10	5	8	4	0	27	285	5	80	17	2	387	6936
Approach %	3.3	96.3	0.4	0.0	-	-	0.3	90.9	8.1	0.7	-	-	37.0	18.5	29.6	14.8	-	-	73.6	1.3	20.7	4.4	-	-	-
Total %	1.6	47.2	0.2	0.0	-	49.0	0.1	41.0	3.6	0.3	-	45.1	0.1	0.1	0.1	0.1	-	0.4	4.1	0.1	1.2	0.2	-	5.6	-
Lights	101	3097	13	1	-	3212	8	2698	238	20	-	2964	9	4	6	3	-	22	267	5	69	16	-	357	6555
% Lights	91.0	94.7	100.0	100.0	-	94.6	88.9	94.9	94.4	90.9	-	94.8	90.0	80.0	75.0	75.0	-	81.5	93.7	100.0	86.3	94.1	-	92.2	94.5
Other Vehicles	10	174	0	0	-	184	1	145	14	2	-	162	1	1	2	1	-	5	18	0	11	1	-	30	381
% Other Vehicles	9.0	5.3	0.0	0.0	-	5.4	11.1	5.1	5.6	9.1	-	5.2	10.0	20.0	25.0	25.0	-	18.5	6.3	0.0	13.8	5.9	-	7.8	5.5
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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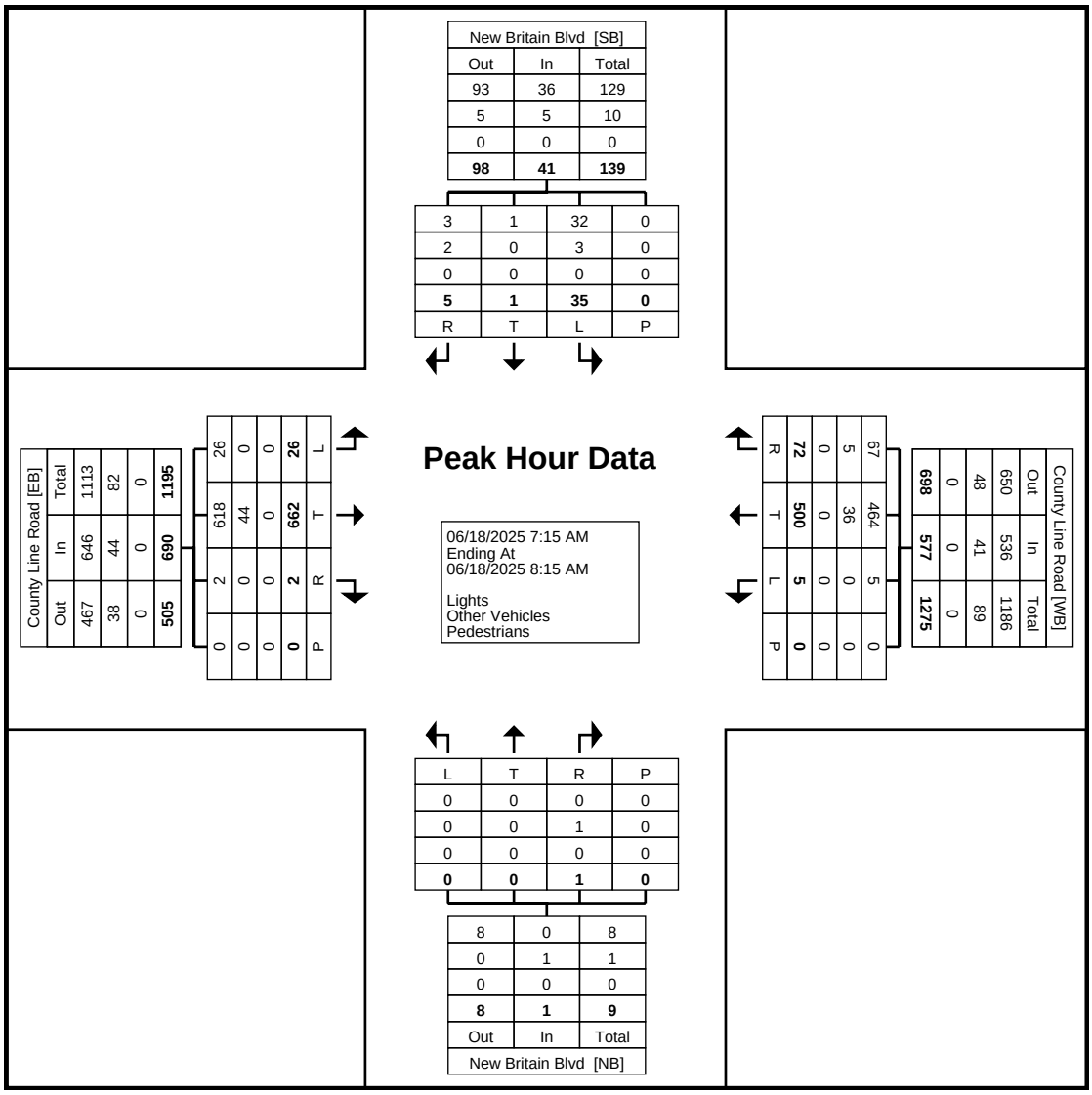
Turning Movement Peak Hour Data (7:15 AM)

Start Time	County Line Road Eastbound						County Line Road Westbound						New Britain Blvd Northbound						New Britain Blvd Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:15 AM	4	161	0	0	0	165	2	140	17	2	0	161	0	0	0	0	0	0	10	1	0	0	0	11	337
7:30 AM	5	182	0	0	0	187	2	132	20	2	0	156	0	0	0	0	0	0	7	0	1	0	0	8	351
7:45 AM	10	153	2	0	0	165	1	110	18	0	0	129	0	0	0	0	0	0	9	0	3	0	0	12	306
8:00 AM	7	166	0	0	0	173	0	118	13	0	0	131	0	0	0	1	0	1	9	0	1	0	0	10	315
Total	26	662	2	0	0	690	5	500	68	4	0	577	0	0	0	1	0	1	35	1	5	0	0	41	1309
Approach %	3.8	95.9	0.3	0.0	-	-	0.9	86.7	11.8	0.7	-	-	0.0	0.0	0.0	100.0	-	-	85.4	2.4	12.2	0.0	-	-	-
Total %	2.0	50.6	0.2	0.0	-	52.7	0.4	38.2	5.2	0.3	-	44.1	0.0	0.0	0.0	0.1	-	0.1	2.7	0.1	0.4	0.0	-	3.1	-
PHF	0.650	0.909	0.250	0.000	-	0.922	0.625	0.893	0.850	0.500	-	0.896	0.000	0.000	0.000	0.250	-	0.250	0.875	0.250	0.417	0.000	-	0.854	0.932
Lights	26	618	2	0	-	646	5	464	63	4	-	536	0	0	0	0	-	0	32	1	3	0	-	36	1218
% Lights	100.0	93.4	100.0	-	-	93.6	100.0	92.8	92.6	100.0	-	92.9	-	-	-	0.0	-	0.0	91.4	100.0	60.0	-	-	87.8	93.0
Other Vehicles	0	44	0	0	-	44	0	36	5	0	-	41	0	0	0	1	-	1	3	0	2	0	-	5	91
% Other Vehicles	0.0	6.6	0.0	-	-	6.4	0.0	7.2	7.4	0.0	-	7.1	-	-	-	100.0	-	100.0	8.6	0.0	40.0	-	-	12.2	7.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (7:15 AM)

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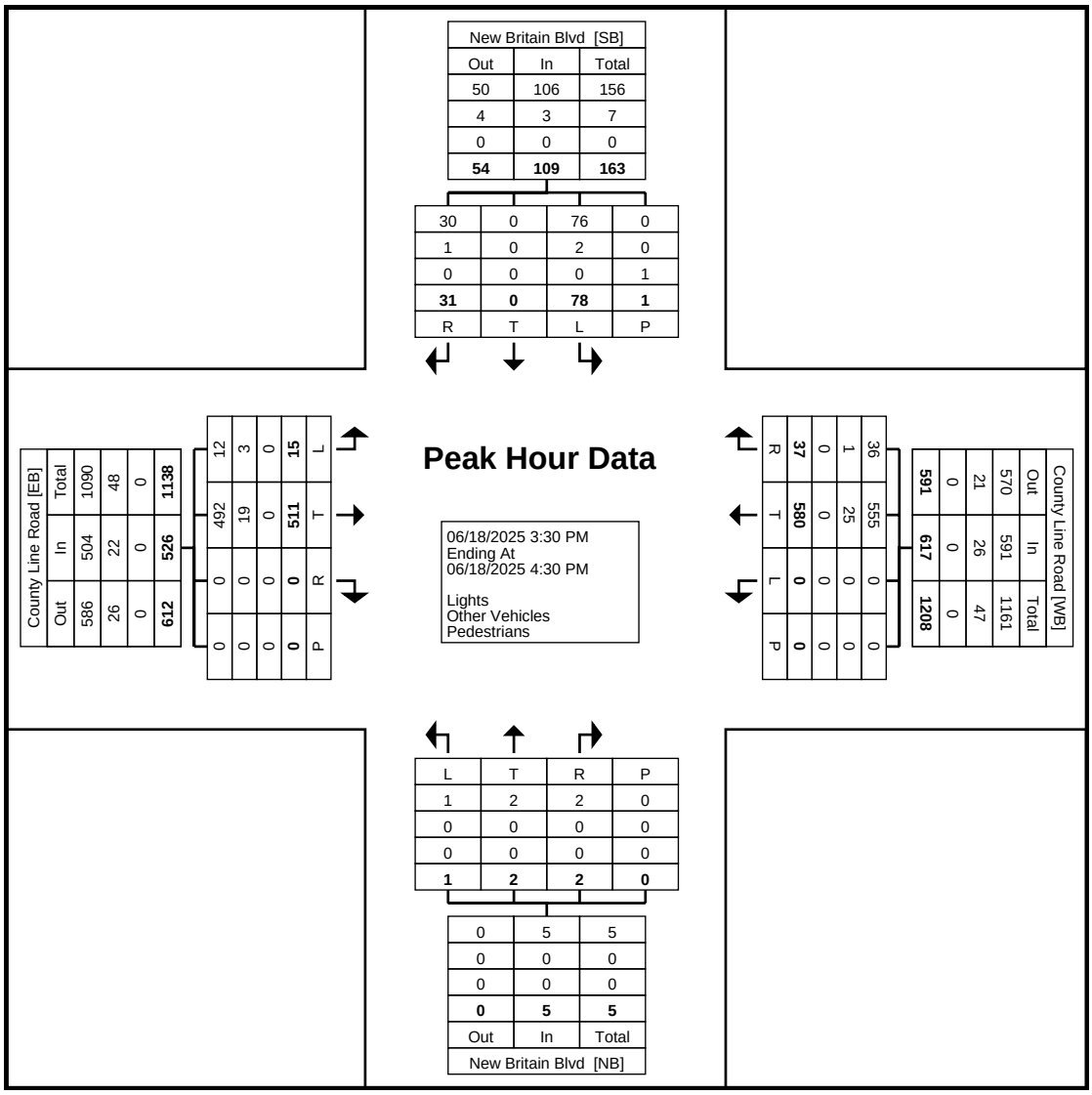
Turning Movement Peak Hour Data (3:30 PM)

Start Time	County Line Road Eastbound						County Line Road Westbound						New Britain Blvd Northbound						New Britain Blvd Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
3:30 PM	3	113	0	0	0	116	0	159	7	1	0	167	0	0	0	0	0	0	37	0	9	5	1	51	334
3:45 PM	5	153	0	0	0	158	0	127	8	2	0	137	1	1	1	0	0	3	9	0	2	1	0	12	310
4:00 PM	4	113	0	0	0	117	0	158	8	1	0	167	0	1	0	0	0	1	24	0	8	1	0	33	318
4:15 PM	3	132	0	0	0	135	0	136	10	0	0	146	0	0	0	1	0	1	8	0	5	0	0	13	295
Total	15	511	0	0	0	526	0	580	33	4	0	617	1	2	1	1	0	5	78	0	24	7	1	109	1257
Approach %	2.9	97.1	0.0	0.0	-	-	0.0	94.0	5.3	0.6	-	-	20.0	40.0	20.0	20.0	-	-	71.6	0.0	22.0	6.4	-	-	-
Total %	1.2	40.7	0.0	0.0	-	41.8	0.0	46.1	2.6	0.3	-	49.1	0.1	0.2	0.1	0.1	-	0.4	6.2	0.0	1.9	0.6	-	8.7	-
PHF	0.750	0.835	0.000	0.000	-	0.832	0.000	0.912	0.825	0.500	-	0.924	0.250	0.500	0.250	0.250	-	0.417	0.527	0.000	0.667	0.350	-	0.534	0.941
Lights	12	492	0	0	-	504	0	555	32	4	-	591	1	2	1	1	-	5	76	0	23	7	-	106	1206
% Lights	80.0	96.3	-	-	-	95.8	-	95.7	97.0	100.0	-	95.8	100.0	100.0	100.0	100.0	-	100.0	97.4	-	95.8	100.0	-	97.2	95.9
Other Vehicles	3	19	0	0	-	22	0	25	1	0	-	26	0	0	0	0	-	0	2	0	1	0	-	3	51
% Other Vehicles	20.0	3.7	-	-	-	4.2	-	4.3	3.0	0.0	-	4.2	0.0	0.0	0.0	0.0	-	0.0	2.6	-	4.2	0.0	-	2.8	4.1
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 5 New Britain Blvd & County Line Road
Site Code:
Start Date: 06/18/2025



Turning Movement Peak Hour Data Plot (3:30 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 6 New Britain Blvd & Independence Lane
Site Code:
Start Date: 06/18/2025

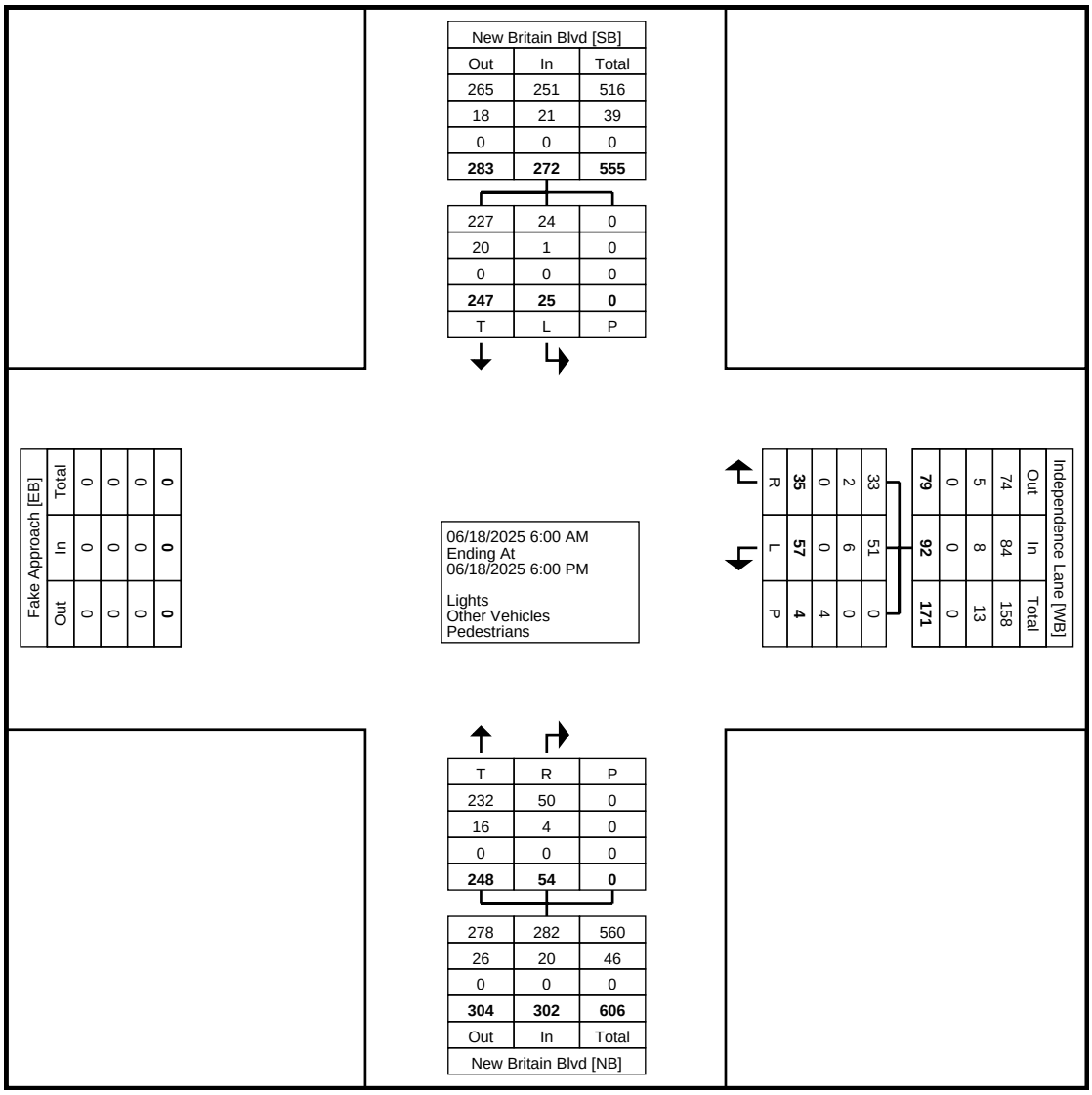
Turning Movement Data

Start Time	Independence Lane Westbound				New Britain Blvd Northbound				New Britain Blvd Southbound				
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
6:00 AM	1	0	0	1	11	1	0	12	0	3	0	3	16
6:15 AM	0	0	0	0	4	0	0	4	0	1	0	1	5
6:30 AM	0	1	0	1	7	0	0	7	1	8	0	9	17
6:45 AM	0	0	0	0	10	3	0	13	3	13	0	16	29
Hourly Total	1	1	0	2	32	4	0	36	4	25	0	29	67
7:00 AM	0	0	1	0	13	1	0	14	3	8	0	11	25
7:15 AM	0	0	0	0	11	3	0	14	2	12	0	14	28
7:30 AM	0	0	0	0	15	6	0	21	2	10	0	12	33
7:45 AM	3	0	0	3	15	14	0	29	6	11	0	17	49
Hourly Total	3	0	1	3	54	24	0	78	13	41	0	54	135
8:00 AM	2	0	0	2	9	9	0	18	4	8	0	12	32
8:15 AM	1	0	0	1	16	5	0	21	1	8	0	9	31
8:30 AM	0	0	0	0	9	2	0	11	1	12	0	13	24
8:45 AM	0	0	0	0	14	1	0	15	0	13	0	13	28
Hourly Total	3	0	0	3	48	17	0	65	6	41	0	47	115
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	4	3	0	7	5	0	0	5	1	7	0	8	20
3:15 PM	3	2	0	5	6	2	0	8	1	6	0	7	20
3:30 PM	1	3	0	4	11	2	0	13	0	15	0	15	32
3:45 PM	0	2	1	2	14	2	0	16	0	8	0	8	26
Hourly Total	8	10	1	18	36	6	0	42	2	36	0	38	98
4:00 PM	6	2	0	8	14	0	0	14	0	9	0	9	31
4:15 PM	4	0	0	4	13	1	0	14	0	10	0	10	28
4:30 PM	20	17	0	37	6	1	0	7	0	19	0	19	63
4:45 PM	3	0	1	3	9	0	0	9	0	9	0	9	21
Hourly Total	33	19	1	52	42	2	0	44	0	47	0	47	143
5:00 PM	5	1	0	6	13	1	0	14	0	26	0	26	46
5:15 PM	1	2	1	3	8	0	0	8	0	9	0	9	20
5:30 PM	1	2	0	3	11	0	0	11	0	15	0	15	29
5:45 PM	2	0	0	2	4	0	0	4	0	7	0	7	13
Hourly Total	9	5	1	14	36	1	0	37	0	57	0	57	108
Grand Total	57	35	4	92	248	54	0	302	25	247	0	272	666
Approach %	62.0	38.0	-	-	82.1	17.9	-	-	9.2	90.8	-	-	-
Total %	8.6	5.3	-	13.8	37.2	8.1	-	45.3	3.8	37.1	-	40.8	-
Lights	51	33	-	84	232	50	-	282	24	227	-	251	617
% Lights	89.5	94.3	-	91.3	93.5	92.6	-	93.4	96.0	91.9	-	92.3	92.6
Other Vehicles	6	2	-	8	16	4	-	20	1	20	-	21	49
% Other Vehicles	10.5	5.7	-	8.7	6.5	7.4	-	6.6	4.0	8.1	-	7.7	7.4
Pedestrians	-	-	4	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 6 New Britain Blvd & Independence Lane
Site Code:
Start Date: 06/18/2025



Turning Movement Data Plot

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
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Count Name: 6 New Britain Blvd & Independence Lane
Site Code:
Start Date: 06/18/2025

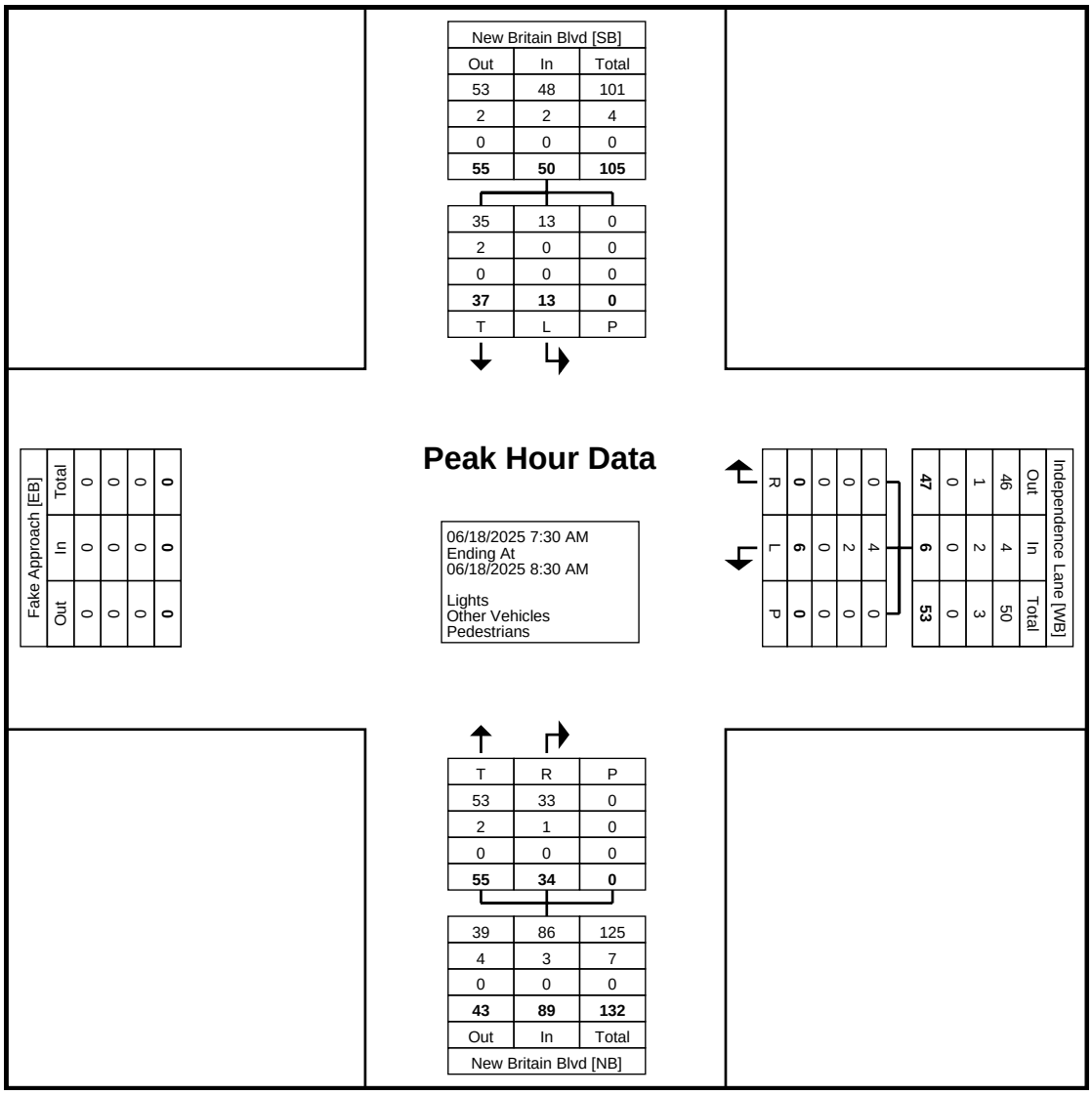
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Independence Lane Westbound				New Britain Blvd Northbound				New Britain Blvd Southbound				
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
7:30 AM	0	0	0	0	15	6	0	21	2	10	0	12	33
7:45 AM	3	0	0	3	15	14	0	29	6	11	0	17	49
8:00 AM	2	0	0	2	9	9	0	18	4	8	0	12	32
8:15 AM	1	0	0	1	16	5	0	21	1	8	0	9	31
Total	6	0	0	6	55	34	0	89	13	37	0	50	145
Approach %	100.0	0.0	-	-	61.8	38.2	-	-	26.0	74.0	-	-	-
Total %	4.1	0.0	-	4.1	37.9	23.4	-	61.4	9.0	25.5	-	34.5	-
PHF	0.500	0.000	-	0.500	0.859	0.607	-	0.767	0.542	0.841	-	0.735	0.740
Lights	4	0	-	4	53	33	-	86	13	35	-	48	138
% Lights	66.7	-	-	66.7	96.4	97.1	-	96.6	100.0	94.6	-	96.0	95.2
Other Vehicles	2	0	-	2	2	1	-	3	0	2	-	2	7
% Other Vehicles	33.3	-	-	33.3	3.6	2.9	-	3.4	0.0	5.4	-	4.0	4.8
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (7:30 AM)

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610.326.3100

Count Name: 6 New Britain Blvd & Independence Lane
Site Code:
Start Date: 06/18/2025

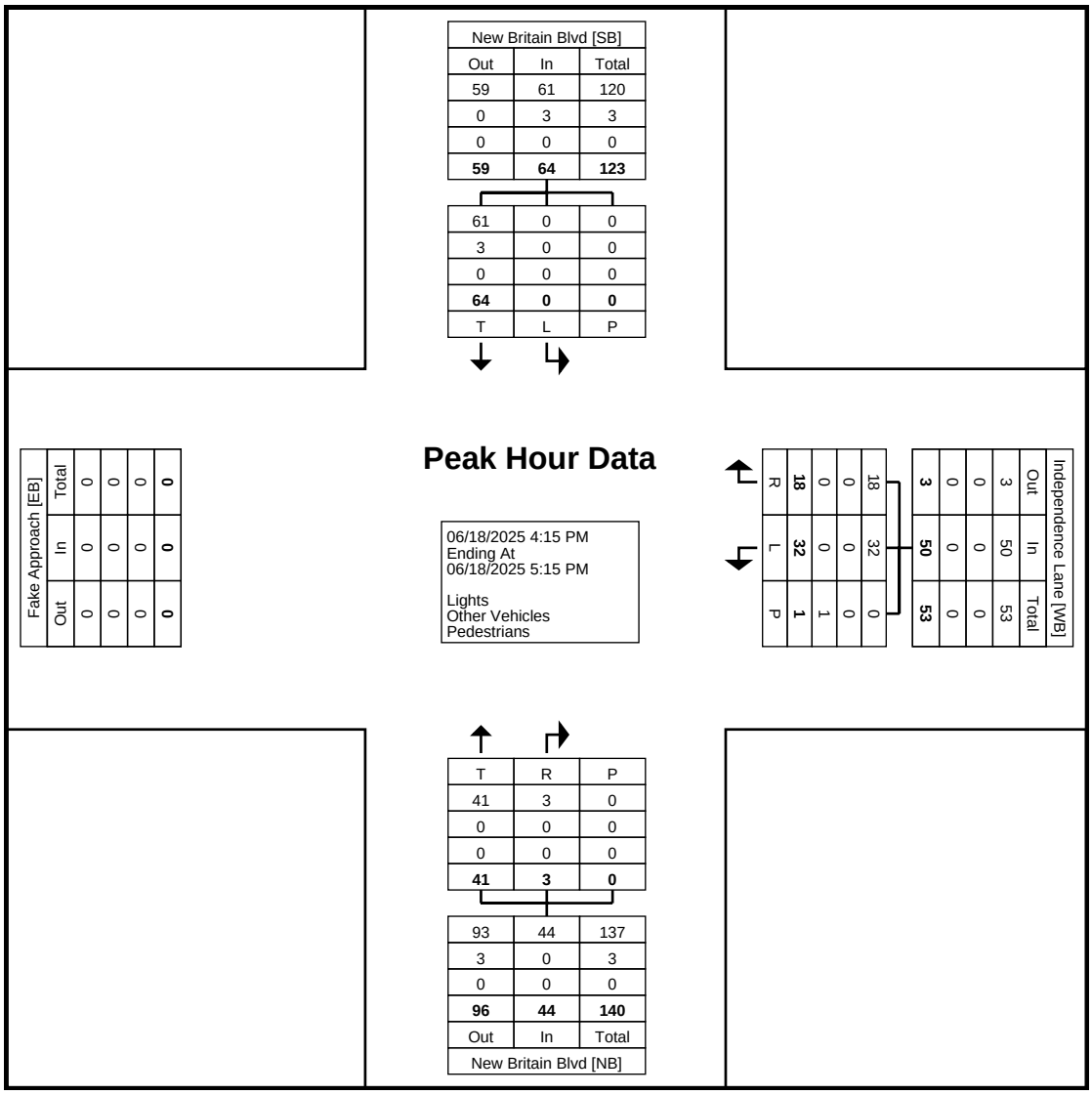
Turning Movement Peak Hour Data (4:15 PM)

Start Time	Independence Lane Westbound				New Britain Blvd Northbound				New Britain Blvd Southbound				
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
4:15 PM	4	0	0	4	13	1	0	14	0	10	0	10	28
4:30 PM	20	17	0	37	6	1	0	7	0	19	0	19	63
4:45 PM	3	0	1	3	9	0	0	9	0	9	0	9	21
5:00 PM	5	1	0	6	13	1	0	14	0	26	0	26	46
Total	32	18	1	50	41	3	0	44	0	64	0	64	158
Approach %	64.0	36.0	-	-	93.2	6.8	-	-	0.0	100.0	-	-	-
Total %	20.3	11.4	-	31.6	25.9	1.9	-	27.8	0.0	40.5	-	40.5	-
PHF	0.400	0.265	-	0.338	0.788	0.750	-	0.786	0.000	0.615	-	0.615	0.627
Lights	32	18	-	50	41	3	-	44	0	61	-	61	155
% Lights	100.0	100.0	-	100.0	100.0	100.0	-	100.0	-	95.3	-	95.3	98.1
Other Vehicles	0	0	-	0	0	0	-	0	0	3	-	3	3
% Other Vehicles	0.0	0.0	-	0.0	0.0	0.0	-	0.0	-	4.7	-	4.7	1.9
Pedestrians	-	-	1	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-

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Counter: MIO:
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Count Name: 6 New Britain Blvd & Independence Lane
Site Code:
Start Date: 06/18/2025



Turning Movement Peak Hour Data Plot (4:15 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 7 Trewigtown Road & New Britain Blvd
Site Code:
Start Date: 06/18/2025

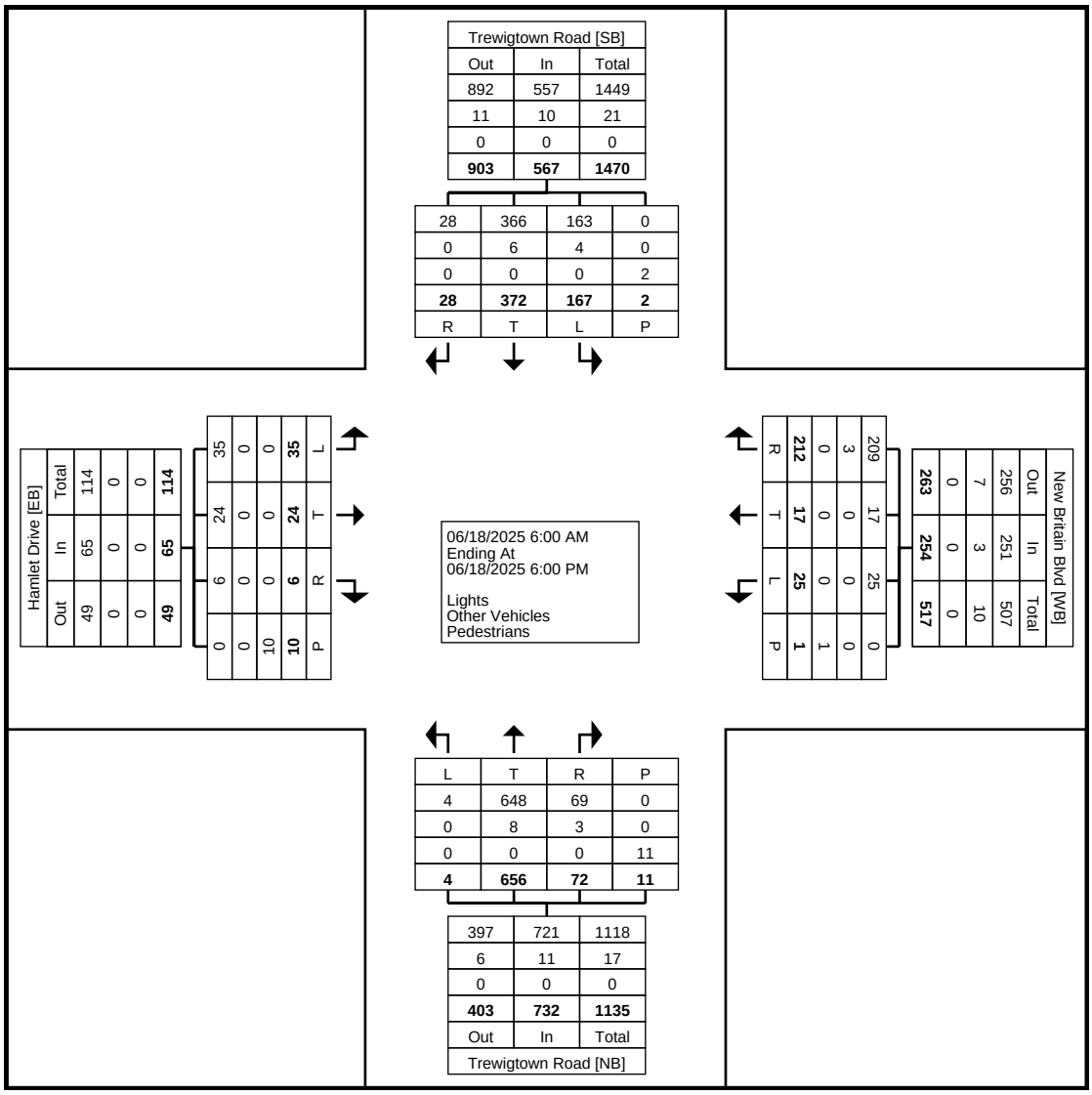
Turning Movement Data

Start Time	Hamlet Drive Eastbound					New Britain Blvd Westbound					Trewigtown Road Northbound					Trewigtown Road Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	4	4	0	8	3	2	0	0	5	13
6:15 AM	1	1	0	0	2	1	0	0	0	1	0	14	1	0	15	1	5	1	0	7	25
6:30 AM	2	1	0	0	3	1	0	1	0	2	0	16	4	0	20	6	8	0	0	14	39
6:45 AM	2	1	0	0	3	0	0	0	0	0	0	22	5	1	27	22	12	0	0	34	64
Hourly Total	5	3	0	0	8	2	0	1	0	3	0	56	14	1	70	32	27	1	0	60	141
7:00 AM	0	2	1	0	3	0	0	1	0	1	0	14	5	0	19	11	14	0	0	25	48
7:15 AM	0	1	0	0	1	1	0	0	0	1	0	19	4	1	23	18	19	0	0	37	62
7:30 AM	4	1	1	0	6	0	0	1	0	1	0	21	7	0	28	11	8	1	0	20	55
7:45 AM	0	1	1	0	2	0	0	0	0	0	0	27	8	0	35	28	20	0	0	48	85
Hourly Total	4	5	3	0	12	1	0	2	0	3	0	81	24	1	105	68	61	1	0	130	250
8:00 AM	3	2	0	1	5	1	0	3	0	4	0	22	8	0	30	20	17	0	0	37	76
8:15 AM	3	1	1	0	5	2	1	6	0	9	0	16	3	0	19	6	19	0	0	25	58
8:30 AM	2	1	0	0	3	0	0	3	0	3	0	18	2	1	20	13	12	0	0	25	51
8:45 AM	1	2	1	0	4	1	0	4	0	5	0	16	4	0	20	8	12	1	0	21	50
Hourly Total	9	6	2	1	17	4	1	16	0	21	0	72	17	1	89	47	60	1	0	108	235
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	1	0	0	1	1	1	8	0	10	0	22	2	0	24	2	16	1	0	19	54
3:15 PM	0	0	0	0	0	0	1	6	0	7	0	25	1	0	26	2	9	1	0	12	45
3:30 PM	0	1	0	0	1	3	2	22	0	27	0	26	1	1	27	2	17	3	0	22	77
3:45 PM	2	0	0	3	2	2	2	18	0	22	0	41	2	0	43	1	16	0	1	17	84
Hourly Total	2	2	0	3	4	6	6	54	0	66	0	114	6	1	120	7	58	5	1	70	260
4:00 PM	0	0	0	0	0	1	3	15	1	19	0	42	1	0	43	1	25	2	0	28	90
4:15 PM	2	1	1	0	4	1	0	17	0	18	0	36	1	0	37	2	15	2	0	19	78
4:30 PM	1	2	0	0	3	1	4	36	0	41	0	31	0	3	31	2	19	1	0	22	97
4:45 PM	2	1	0	2	3	1	0	10	0	11	0	45	2	3	47	2	25	3	0	30	91
Hourly Total	5	4	1	2	10	4	7	78	1	89	0	154	4	6	158	7	84	8	0	99	356
5:00 PM	1	2	0	0	3	5	1	28	0	34	1	48	2	0	51	0	18	3	0	21	109
5:15 PM	4	1	0	1	5	1	0	12	0	13	1	59	2	1	62	2	27	1	0	30	110
5:30 PM	3	1	0	2	4	1	1	17	0	19	2	44	1	0	47	4	16	6	1	26	96
5:45 PM	2	0	0	1	2	1	1	4	0	6	0	28	2	0	30	0	21	2	0	23	61
Hourly Total	10	4	0	4	14	8	3	61	0	72	4	179	7	1	190	6	82	12	1	100	376
Grand Total	35	24	6	10	65	25	17	212	1	254	4	656	72	11	732	167	372	28	2	567	1618
Approach %	53.8	36.9	9.2	-	-	9.8	6.7	83.5	-	-	0.5	89.6	9.8	-	-	29.5	65.6	4.9	-	-	-
Total %	2.2	1.5	0.4	-	4.0	1.5	1.1	13.1	-	15.7	0.2	40.5	4.4	-	45.2	10.3	23.0	1.7	-	35.0	-
Lights	35	24	6	-	65	25	17	209	-	251	4	648	69	-	721	163	366	28	-	557	1594
% Lights	100.0	100.0	100.0	-	100.0	100.0	100.0	98.6	-	98.8	100.0	98.8	95.8	-	98.5	97.6	98.4	100.0	-	98.2	98.5
Other Vehicles	0	0	0	-	0	0	0	3	-	3	0	8	3	-	11	4	6	0	-	10	24
% Other Vehicles	0.0	0.0	0.0	-	0.0	0.0	0.0	1.4	-	1.2	0.0	1.2	4.2	-	1.5	2.4	1.6	0.0	-	1.8	1.5
Pedestrians	-	-	-	10	-	-	-	-	1	-	-	-	-	11	-	-	-	-	2	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Trewigtown Road & New Britain Blvd
Site Code:
Start Date: 06/18/2025



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 7 Trewigtown Road & New Britain Blvd
Site Code:
Start Date: 06/18/2025

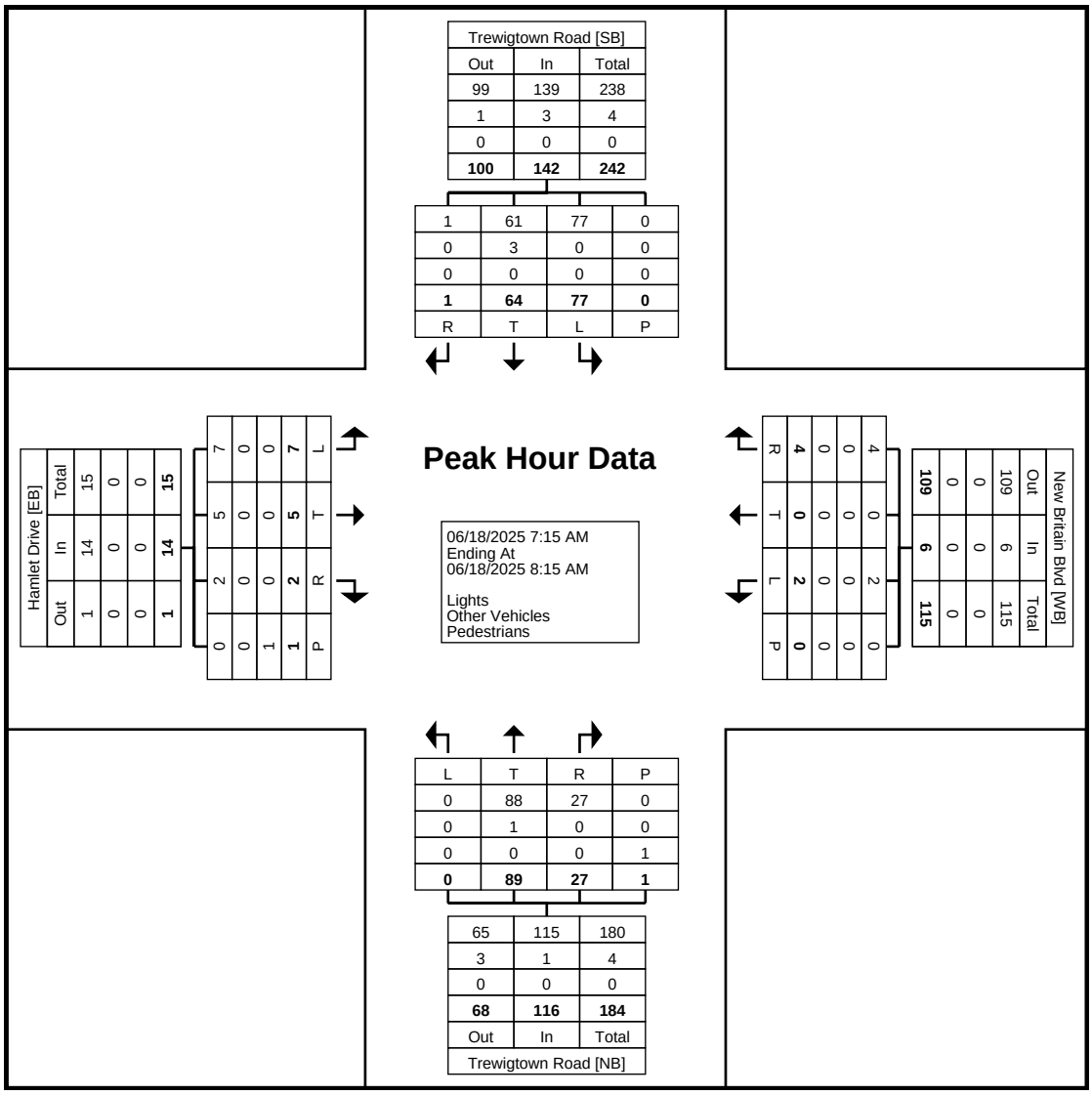
Turning Movement Peak Hour Data (7:15 AM)

Start Time	Hamlet Drive Eastbound					New Britain Blvd Westbound					Trewigtown Road Northbound					Trewigtown Road Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
7:15 AM	0	1	0	0	1	1	0	0	0	1	0	19	4	1	23	18	19	0	0	37	62
7:30 AM	4	1	1	0	6	0	0	1	0	1	0	21	7	0	28	11	8	1	0	20	55
7:45 AM	0	1	1	0	2	0	0	0	0	0	0	27	8	0	35	28	20	0	0	48	85
8:00 AM	3	2	0	1	5	1	0	3	0	4	0	22	8	0	30	20	17	0	0	37	76
Total	7	5	2	1	14	2	0	4	0	6	0	89	27	1	116	77	64	1	0	142	278
Approach %	50.0	35.7	14.3	-	-	33.3	0.0	66.7	-	-	0.0	76.7	23.3	-	-	54.2	45.1	0.7	-	-	-
Total %	2.5	1.8	0.7	-	5.0	0.7	0.0	1.4	-	2.2	0.0	32.0	9.7	-	41.7	27.7	23.0	0.4	-	51.1	-
PHF	0.438	0.625	0.500	-	0.583	0.500	0.000	0.333	-	0.375	0.000	0.824	0.844	-	0.829	0.688	0.800	0.250	-	0.740	0.818
Lights	7	5	2	-	14	2	0	4	-	6	0	88	27	-	115	77	61	1	-	139	274
% Lights	100.0	100.0	100.0	-	100.0	100.0	-	100.0	-	100.0	-	98.9	100.0	-	99.1	100.0	95.3	100.0	-	97.9	98.6
Other Vehicles	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	0	3	0	-	3	4
% Other Vehicles	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	0.0	-	1.1	0.0	-	0.9	0.0	4.7	0.0	-	2.1	1.4
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (7:15 AM)

Counter: MIO:
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Site Code:
Start Date: 06/18/2025

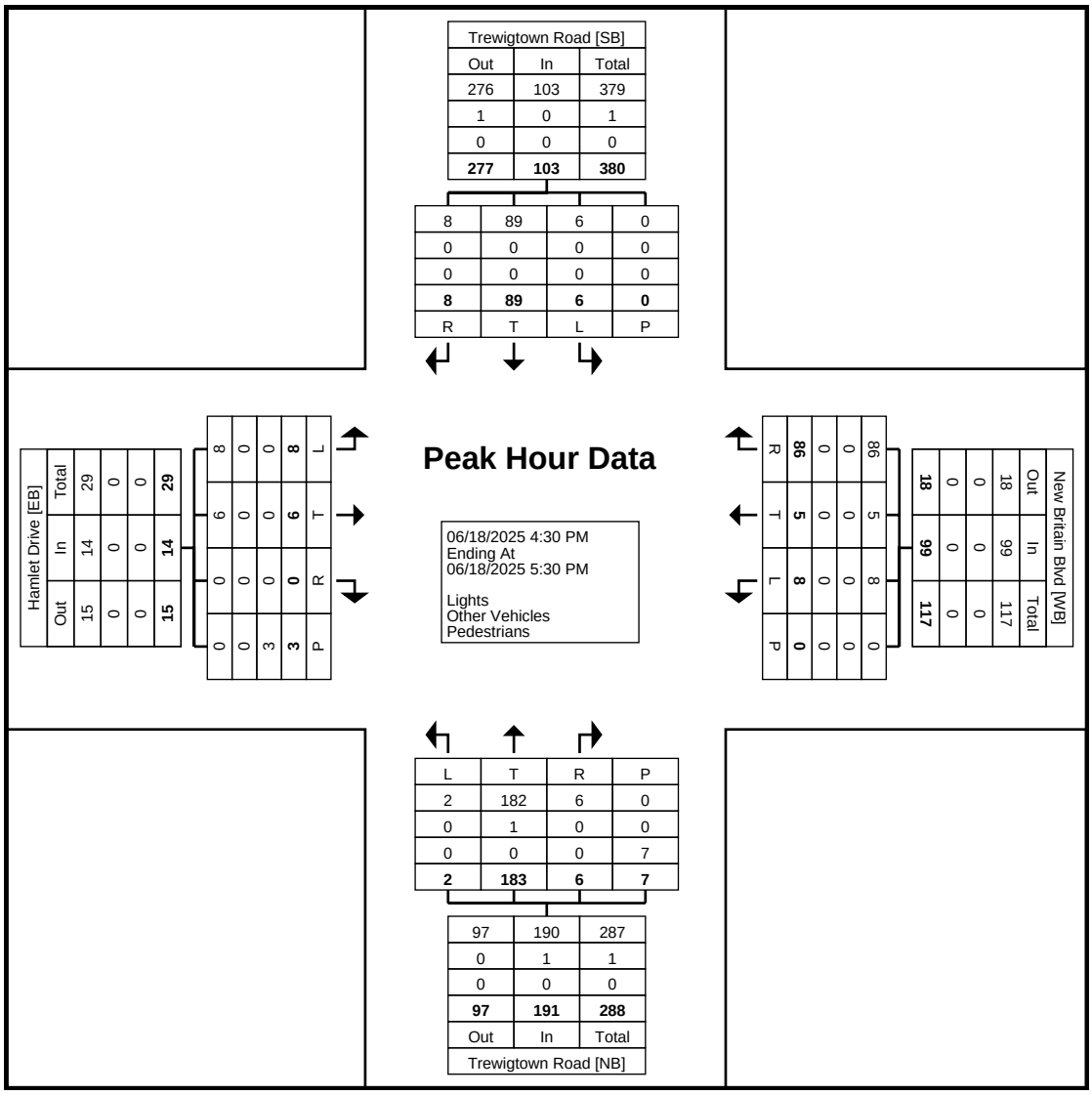
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Hamlet Drive Eastbound					New Britain Blvd Westbound					Trewigtown Road Northbound					Trewigtown Road Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
4:30 PM	1	2	0	0	3	1	4	36	0	41	0	31	0	3	31	2	19	1	0	22	97
4:45 PM	2	1	0	2	3	1	0	10	0	11	0	45	2	3	47	2	25	3	0	30	91
5:00 PM	1	2	0	0	3	5	1	28	0	34	1	48	2	0	51	0	18	3	0	21	109
5:15 PM	4	1	0	1	5	1	0	12	0	13	1	59	2	1	62	2	27	1	0	30	110
Total	8	6	0	3	14	8	5	86	0	99	2	183	6	7	191	6	89	8	0	103	407
Approach %	57.1	42.9	0.0	-	-	8.1	5.1	86.9	-	-	1.0	95.8	3.1	-	-	5.8	86.4	7.8	-	-	-
Total %	2.0	1.5	0.0	-	3.4	2.0	1.2	21.1	-	24.3	0.5	45.0	1.5	-	46.9	1.5	21.9	2.0	-	25.3	-
PHF	0.500	0.750	0.000	-	0.700	0.400	0.313	0.597	-	0.604	0.500	0.775	0.750	-	0.770	0.750	0.824	0.667	-	0.858	0.925
Lights	8	6	0	-	14	8	5	86	-	99	2	182	6	-	190	6	89	8	-	103	406
% Lights	100.0	100.0	-	-	100.0	100.0	100.0	100.0	-	100.0	100.0	99.5	100.0	-	99.5	100.0	100.0	100.0	-	100.0	99.8
Other Vehicles	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Other Vehicles	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.5	0.0	-	0.5	0.0	0.0	0.0	-	0.0	0.2
Pedestrians	-	-	-	3	-	-	-	-	0	-	-	-	-	7	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 7 Trewigtown Road & New Britain Blvd
Site Code:
Start Date: 06/18/2025



Turning Movement Peak Hour Data Plot (4:30 PM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100 jhudak@trafficpd.com

Counted By: Mio:
Set Up By: JH:
Weather:Clear:

Count Name: 4 Route 309 & Line Lexington Road
Site Code:
Start Date: 11/21/2024

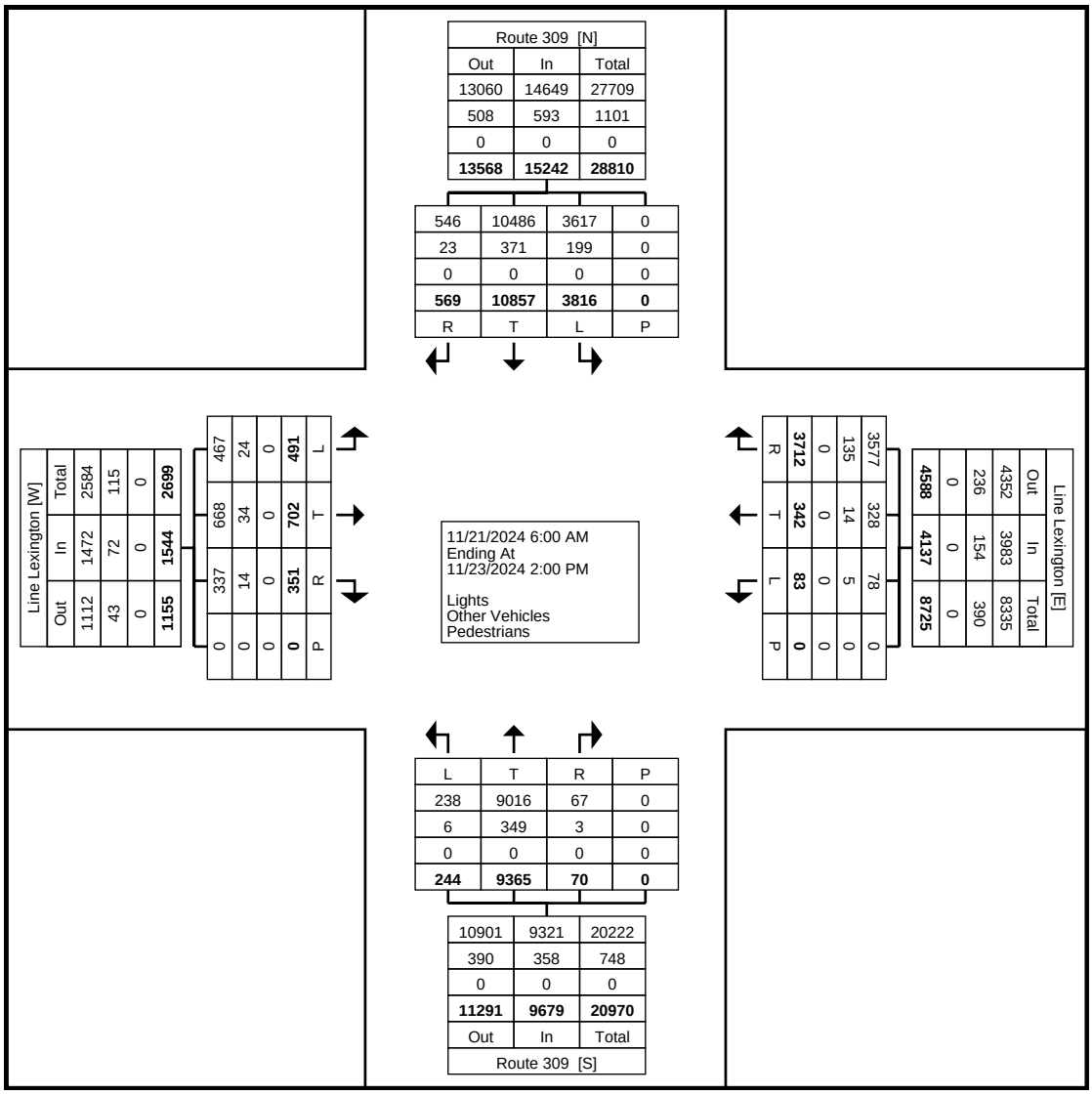
Turning Movement Data

Start Time	Line Lexington Eastbound						Line Lexington Westbound						Route 309 Northbound						Route 309 Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	4	7	2	5	0	18	0	3	19	38	0	60	5	123	0	0	0	128	95	220	8	0	0	323	529
6:15 AM	6	9	5	4	0	24	1	9	18	62	0	90	5	119	0	0	0	124	96	276	9	3	0	384	622
6:30 AM	6	13	3	4	0	26	2	7	38	74	0	121	2	168	0	0	0	170	119	333	7	1	0	460	777
6:45 AM	6	38	11	1	0	56	1	10	28	70	0	109	0	189	0	0	0	189	131	337	16	0	0	484	838
Hourly Total	22	67	21	14	0	124	4	29	103	244	0	380	12	599	0	0	0	611	441	1166	40	4	0	1651	2766
7:00 AM	14	20	6	3	0	43	0	5	75	16	0	96	4	172	0	0	0	176	138	347	18	1	0	504	819
7:15 AM	8	27	7	1	0	43	4	7	90	20	0	121	2	201	0	0	0	203	133	358	20	2	0	513	880
7:30 AM	11	39	19	0	0	69	4	15	93	27	0	139	6	173	0	0	0	179	149	372	8	0	0	529	916
7:45 AM	8	31	12	1	0	52	1	8	89	22	0	120	2	201	0	0	0	203	143	411	16	2	0	572	947
Hourly Total	41	117	44	5	0	207	9	35	347	85	0	476	14	747	0	0	0	761	563	1488	62	5	0	2118	3562
8:00 AM	13	31	6	2	0	52	2	15	27	92	0	136	4	200	0	0	0	204	111	360	18	0	0	489	881
8:15 AM	8	29	11	0	0	48	3	7	25	63	0	98	4	192	2	0	0	198	134	318	14	0	0	466	810
8:30 AM	9	20	8	5	0	42	1	8	22	104	0	135	6	219	0	0	0	225	127	327	13	0	0	467	869
8:45 AM	10	16	8	7	0	41	3	11	18	72	0	104	7	234	1	0	0	242	113	283	14	2	0	412	799
Hourly Total	40	96	33	14	0	183	9	41	92	331	0	473	21	845	3	0	0	869	485	1288	59	2	0	1834	3359
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	12	15	6	5	0	38	3	8	32	57	0	100	5	300	0	0	0	305	87	280	13	0	0	380	823
3:15 PM	19	21	5	2	0	47	3	15	28	74	0	120	6	254	1	0	0	261	81	247	14	0	0	342	770
3:30 PM	27	21	8	3	0	59	2	12	20	96	0	130	5	364	2	0	0	371	101	263	11	1	0	376	936
3:45 PM	10	22	10	4	0	46	1	10	25	82	0	118	7	387	5	0	0	399	109	323	19	0	0	451	1014
Hourly Total	68	79	29	14	0	190	9	45	105	309	0	468	23	1305	8	0	0	1336	378	1113	57	1	0	1549	3543
4:00 PM	26	21	6	2	0	55	1	11	35	82	0	129	8	335	2	0	0	345	91	240	19	0	0	350	879
4:15 PM	21	28	8	2	0	59	1	9	18	95	0	123	6	319	0	0	0	325	100	318	22	1	0	441	948
4:30 PM	20	22	10	1	0	53	3	10	23	65	0	101	11	341	1	0	0	353	100	268	12	1	0	381	888
4:45 PM	18	30	8	4	0	60	1	14	31	67	0	113	5	353	1	0	0	359	91	272	20	0	0	383	915
Hourly Total	85	101	32	9	0	227	6	44	107	309	0	466	30	1348	4	0	0	1382	382	1098	73	2	0	1555	3630
5:00 PM	14	27	9	1	0	51	4	12	31	107	0	154	8	309	4	0	0	321	120	290	17	0	0	427	953
5:15 PM	33	31	12	0	0	76	4	7	22	79	0	112	12	351	1	2	0	366	82	292	15	3	0	392	946
5:30 PM	12	13	2	2	0	29	2	14	32	74	0	122	12	343	0	1	0	356	97	287	15	2	0	401	908
5:45 PM	12	10	1	2	0	25	3	10	40	104	0	157	8	273	2	0	0	283	105	221	14	0	0	340	805
Hourly Total	71	81	24	5	0	181	13	43	125	364	0	545	40	1276	7	3	0	1326	404	1090	61	5	0	1560	3612
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	22	8	8	7	0	45	8	8	51	46	0	113	8	232	4	0	0	244	102	302	13	5	0	422	824
11:15 AM	13	14	9	4	0	40	1	6	48	63	0	118	10	244	4	0	0	258	84	279	11	2	0	376	792
11:30 AM	19	12	3	6	0	40	4	11	51	60	0	126	6	243	3	0	0	252	103	284	12	4	0	403	821
11:45 AM	19	16	6	2	0	43	1	13	54	49	0	117	6	290	1	1	0	298	91	309	13	3	0	416	874
Hourly Total	73	50	26	19	0	168	14	38	204	218	0	474	30	1009	12	1	0	1052	380	1174	49	14	0	1617	3311
12:00 PM	12	16	8	4	0	40	3	14	40	58	0	115	9	252	4	0	0	265	102	319	11	2	0	434	854
12:15 PM	8	8	6	1	0	23	4	8	29	65	0	106	12	283	3	0	0	298	91	329	15	0	0	435	862
12:30 PM	13	12	3	2	0	30	3	6	29	66	0	104	9	236	8	0	0	253	106	327	23	3	0	459	846
12:45 PM	9	13	4	3	0	29	2	6	26	67	0	101	7	318	5	1	0	331	91	333	12	1	0	437	898
Hourly Total	42	49	21	10	0	122	12	34	124	256	0	426	37	1089	20	1	0	1147	390	1308	61	6	0	1765	3460
1:00 PM	20	14	3	5	0	42	0	8	43	32	0	83	7	275	1	0	0	283	92	277	15	3	0	387	795
1:15 PM	7	13	6	2	0	28	1	9	46	78	0	134	15	270	0	0	0	285	110	287	11	2	0	410	857
1:30 PM	10	19	4	0	0	33	4	8	50	56	0	118	5	302	4	0	0	311	93	295	16	3	0	407	869
1:45 PM	12	16	8	3	0	39	2	8	34	50	0	94	10	300	6	0	0	316	98	273	16	2	0	389	838
Hourly Total	49	62	21	10	0	142	7	33	173	216	0	429	37	1147	11	0	0	1195	393	1132	58	10	0	1593	3359
Grand Total	491	702	251	100	0	1544	83	342	1380	2332	0	4137	244	9365	65	5	0	9679	3816	10857	520	49	0	15242	30602
Approach %	31.8	45.5	16.3	6.5	-	-	2.0	8.3	33.4	56.4	-	-	2.5	96.8	0.7	0.1	-	-	25.0	71.2	3.4	0.3	-	-	-
Total %	1.6	2.3	0.8	0.3	-	5.0	0.3	1.1	4.5	7.6	-	13.5	0.8	30.6	0.2	0.0	-	31.6	12.5	35.5	1.7	0.2	-	49.8	-
Lights	467	668	239	98	-	1472	78	328	1324	2253	-	3983	238	9016	62	5	-	9321	3617	10486	499	47	-	14649	29425
% Lights	95.1	95.2	95.2	98.0	-	95.3	94.0	95.9	95.9	96.6	-	96.3	97.5	96.3	95.4	100.0	-	96.3	94.8	96.6	96.0	95.9	-	96.1	96.2
Other Vehicles	24	34	12	2	-	72	5	14	56	79	-	154	6	349	3	0	-	358	199	371	21	2	-	593	1177
% Other Vehicles	4.9	4.8	4.8	2.0	-	4.7	6.0	4.1	4.1	3.4	-	3.7	2.5	3.7	4.6	0.0	-	3.7	5.2	3.4	4.0	4.1	-	3.9	3.8
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Counted By: Mio:
Set Up By: JH:
Weather:Clear:

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100 jhudak@trafficpd.com

Count Name: 4 Route 309 & Line Lexington Road
Site Code:
Start Date: 11/21/2024



Turning Movement Data Plot

Counted By: Mio:
Set Up By: JH:
Weather:Clear:

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100 jhudak@trafficpd.com

Count Name: 4 Route 309 & Line Lexington Road
Site Code:
Start Date: 11/21/2024

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Line Lexington Eastbound						Line Lexington Westbound						Route 309 Northbound						Route 309 Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:15 AM	8	27	7	1	0	43	4	7	90	20	0	121	2	201	0	0	0	203	133	358	20	2	0	513	880
7:30 AM	11	39	19	0	0	69	4	15	93	27	0	139	6	173	0	0	0	179	149	372	8	0	0	529	916
7:45 AM	8	31	12	1	0	52	1	8	89	22	0	120	2	201	0	0	0	203	143	411	16	2	0	572	947
8:00 AM	13	31	6	2	0	52	2	15	27	92	0	136	4	200	0	0	0	204	111	360	18	0	0	489	881
Total	40	128	44	4	0	216	11	45	299	161	0	516	14	775	0	0	0	789	536	1501	62	4	0	2103	3624
Approach %	18.5	59.3	20.4	1.9	-	-	2.1	8.7	57.9	31.2	-	-	1.8	98.2	0.0	0.0	-	-	25.5	71.4	2.9	0.2	-	-	-
Total %	1.1	3.5	1.2	0.1	-	6.0	0.3	1.2	8.3	4.4	-	14.2	0.4	21.4	0.0	0.0	-	21.8	14.8	41.4	1.7	0.1	-	58.0	-
PHF	0.769	0.821	0.579	0.500	-	0.783	0.688	0.750	0.804	0.438	-	0.928	0.583	0.964	0.000	0.000	-	0.967	0.899	0.913	0.775	0.500	-	0.919	0.957
Lights	28	119	39	4	-	190	10	39	283	147	-	479	12	711	0	0	-	723	490	1429	59	2	-	1980	3372
% Lights	70.0	93.0	88.6	100.0	-	88.0	90.9	86.7	94.6	91.3	-	92.8	85.7	91.7	-	-	-	91.6	91.4	95.2	95.2	50.0	-	94.2	93.0
Other Vehicles	12	9	5	0	-	26	1	6	16	14	-	37	2	64	0	0	-	66	46	72	3	2	-	123	252
% Other Vehicles	30.0	7.0	11.4	0.0	-	12.0	9.1	13.3	5.4	8.7	-	7.2	14.3	8.3	-	-	-	8.4	8.6	4.8	4.8	50.0	-	5.8	7.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

RT HV% = 10%
5/48

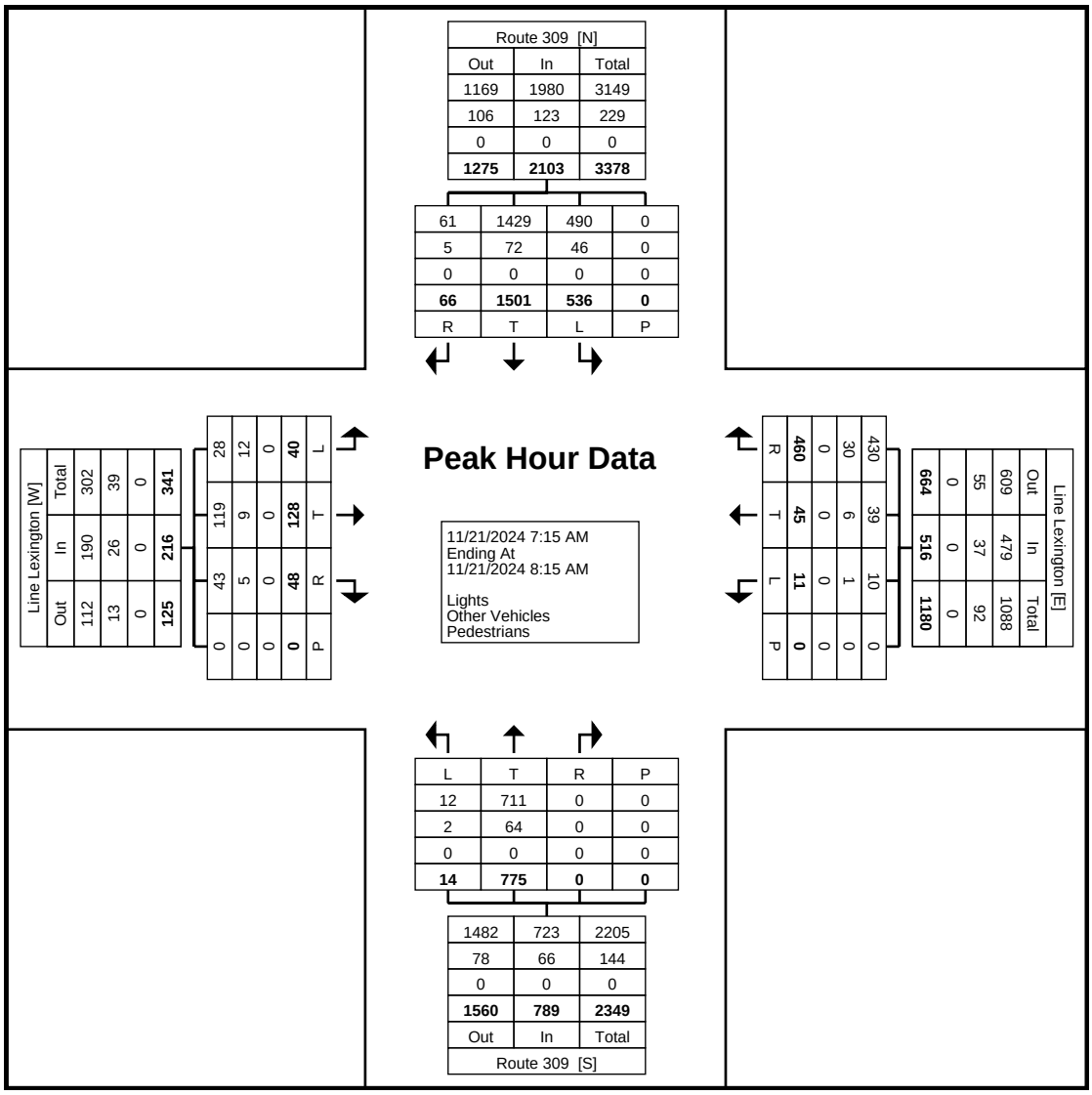
RT HV% = 7%
30/460

RT HV% = 8%
5/66

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100 jhudak@trafficpd.com

Counted By: Mio:
Set Up By: JH:
Weather:Clear:

Count Name: 4 Route 309 & Line Lexington Road
Site Code:
Start Date: 11/21/2024



Turning Movement Peak Hour Data Plot (7:15 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100 jhudak@trafficpd.com

Counted By: Mio:
Set Up By: JH:
Weather:Clear:

Count Name: 4 Route 309 & Line Lexington Road
Site Code:
Start Date: 11/21/2024

Turning Movement Peak Hour Data (3:30 PM)

Start Time	Line Lexington Eastbound						Line Lexington Westbound						Route 309 Northbound						Route 309 Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
3:30 PM	27	21	8	3	0	59	2	12	20	96	0	130	5	364	2	0	0	371	101	263	11	1	0	376	936
3:45 PM	10	22	10	4	0	46	1	10	25	82	0	118	7	387	5	0	0	399	109	323	19	0	0	451	1014
4:00 PM	26	21	6	2	0	55	1	11	35	82	0	129	8	335	2	0	0	345	91	240	19	0	0	350	879
4:15 PM	21	28	8	2	0	59	1	9	18	95	0	123	6	319	0	0	0	325	100	318	22	1	0	441	948
Total	84	92	32	11	0	219	5	42	98	355	0	500	26	1405	9	0	0	1440	401	1144	71	2	0	1618	3777
Approach %	38.4	42.0	14.6	5.0	-	-	1.0	8.4	19.6	71.0	-	-	1.8	97.6	0.6	0.0	-	-	24.8	70.7	4.4	0.1	-	-	-
Total %	2.2	2.4	0.8	0.3	-	5.8	0.1	1.1	2.6	9.4	-	13.2	0.7	37.2	0.2	0.0	-	38.1	10.6	30.3	1.9	0.1	-	42.8	-
PHF	0.778	0.821	0.800	0.688	-	0.928	0.625	0.875	0.700	0.924	-	0.962	0.813	0.908	0.450	0.000	-	0.902	0.920	0.885	0.807	0.500	-	0.897	0.931
Lights	80	88	30	11	-	209	4	40	95	341	-	480	26	1362	9	0	-	1397	379	1112	70	2	-	1563	3649
% Lights	95.2	95.7	93.8	100.0	-	95.4	80.0	95.2	96.9	96.1	-	96.0	100.0	96.9	100.0	-	-	97.0	94.5	97.2	98.6	100.0	-	96.6	96.6
Other Vehicles	4	4	2	0	-	10	1	2	3	14	-	20	0	43	0	0	-	43	22	32	1	0	-	55	128
% Other Vehicles	4.8	4.3	6.3	0.0	-	4.6	20.0	4.8	3.1	3.9	-	4.0	0.0	3.1	0.0	-	-	3.0	5.5	2.8	1.4	0.0	-	3.4	3.4
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

RT HV% = 5%
2/43

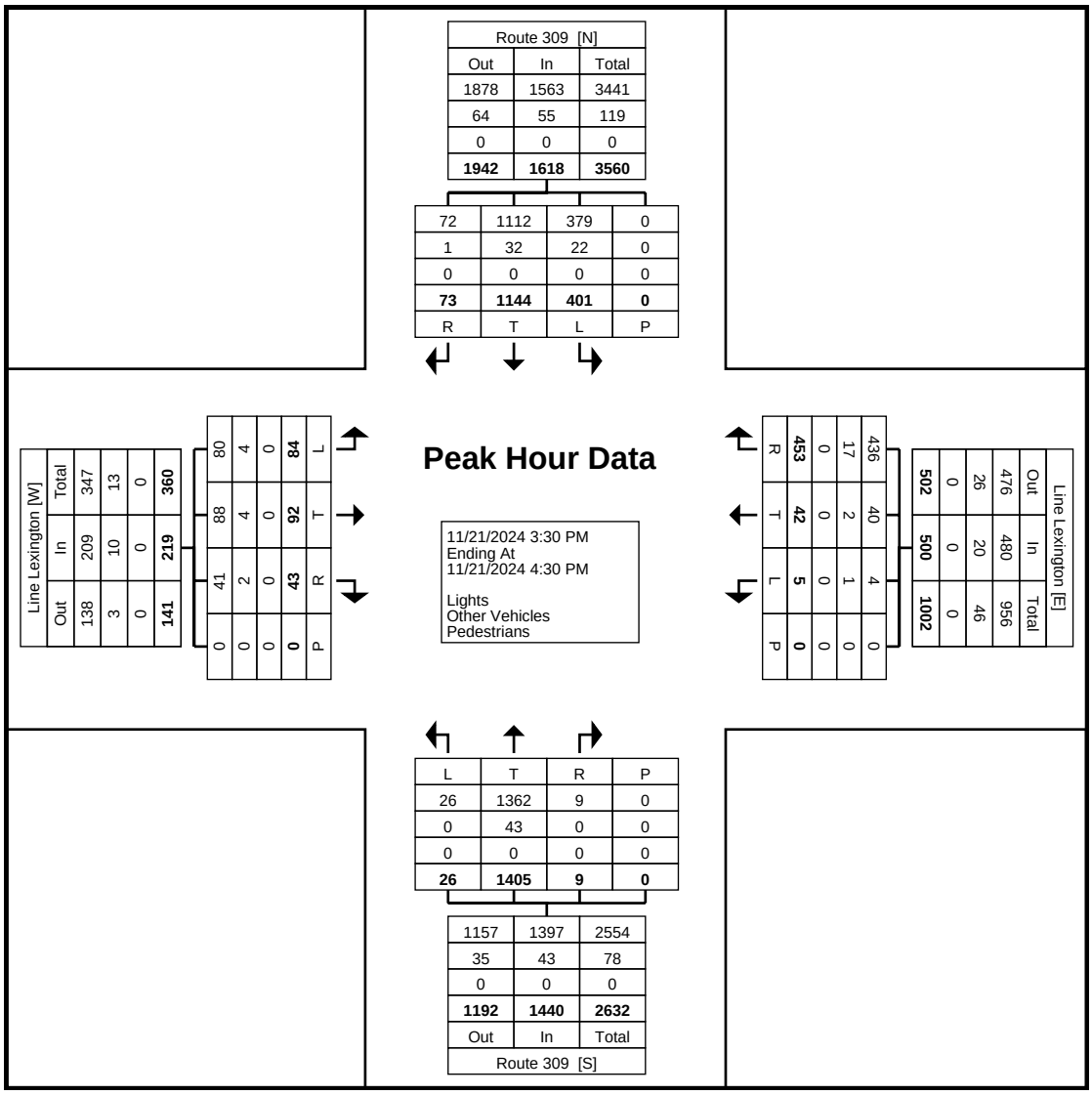
RT HV% = 4%
17/453

RT HV% = 1%
1/73

Counted By: Mio:
Set Up By: JH:
Weather:Clear:

Traffic Planning and Design, Inc
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610.326.3100 jhudak@trafficpd.com

Count Name: 4 Route 309 & Line Lexington Road
Site Code:
Start Date: 11/21/2024



Turning Movement Peak Hour Data Plot (3:30 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 9 Line Lexington Road & County Line Road
Site Code:
Start Date: 10/07/2025

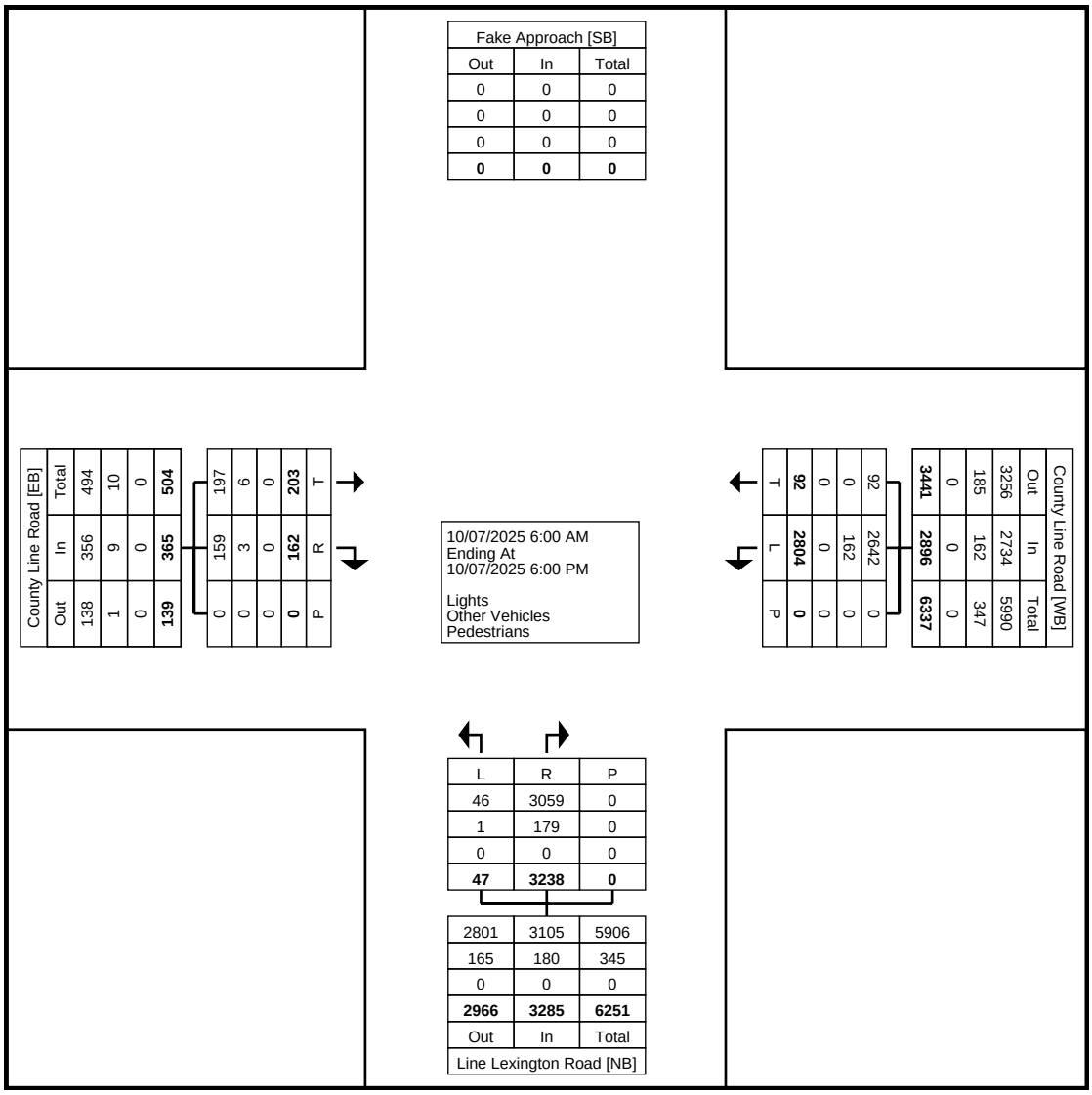
Turning Movement Data

Start Time	County Line Road Eastbound				County Line Road Westbound				Line Lexington Road Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
6:00 AM	8	3	0	11	61	4	0	65	0	117	0	117	193
6:15 AM	11	2	0	13	74	3	0	77	1	138	0	139	229
6:30 AM	8	1	0	9	114	2	0	116	1	138	0	139	264
6:45 AM	7	2	0	9	117	2	0	119	2	145	0	147	275
Hourly Total	34	8	0	42	366	11	0	377	4	538	0	542	961
7:00 AM	10	8	0	18	99	2	0	101	0	146	0	146	265
7:15 AM	14	6	0	20	138	4	0	142	1	139	0	140	302
7:30 AM	12	12	0	24	142	1	0	143	1	156	0	157	324
7:45 AM	18	8	0	26	120	2	0	122	3	190	0	193	341
Hourly Total	54	34	0	88	499	9	0	508	5	631	0	636	1232
8:00 AM	14	16	0	30	138	4	0	142	1	179	0	180	352
8:15 AM	8	5	0	13	99	4	0	103	1	139	0	140	256
8:30 AM	9	7	0	16	115	1	0	116	1	128	0	129	261
8:45 AM	9	3	0	12	110	4	0	114	0	148	0	148	274
Hourly Total	40	31	0	71	462	13	0	475	3	594	0	597	1143
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	5	3	0	8	113	6	0	119	2	117	0	119	246
3:15 PM	2	5	0	7	97	3	0	100	3	133	0	136	243
3:30 PM	3	4	0	7	137	4	0	141	4	122	0	126	274
3:45 PM	7	4	0	11	120	4	0	124	4	120	0	124	259
Hourly Total	17	16	0	33	467	17	0	484	13	492	0	505	1022
4:00 PM	4	8	0	12	122	3	0	125	1	114	0	115	252
4:15 PM	8	10	0	18	142	5	0	147	4	148	0	152	317
4:30 PM	3	7	0	10	116	5	0	121	4	147	0	151	282
4:45 PM	6	6	0	12	128	3	0	131	5	116	0	121	264
Hourly Total	21	31	0	52	508	16	0	524	14	525	0	539	1115
5:00 PM	10	3	0	13	125	5	0	130	1	104	0	105	248
5:15 PM	13	30	0	43	126	8	0	134	0	149	0	149	326
5:30 PM	8	2	0	10	123	6	0	129	3	104	0	107	246
5:45 PM	6	7	0	13	128	7	0	135	4	101	0	105	253
Hourly Total	37	42	0	79	502	26	0	528	8	458	0	466	1073
Grand Total	203	162	0	365	2804	92	0	2896	47	3238	0	3285	6546
Approach %	55.6	44.4	-	-	96.8	3.2	-	-	1.4	98.6	-	-	-
Total %	3.1	2.5	-	5.6	42.8	1.4	-	44.2	0.7	49.5	-	50.2	-
Lights	197	159	-	356	2642	92	-	2734	46	3059	-	3105	6195
% Lights	97.0	98.1	-	97.5	94.2	100.0	-	94.4	97.9	94.5	-	94.5	94.6
Other Vehicles	6	3	-	9	162	0	-	162	1	179	-	180	351
% Other Vehicles	3.0	1.9	-	2.5	5.8	0.0	-	5.6	2.1	5.5	-	5.5	5.4
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 9 Line Lexington Road & County Line Road
Site Code:
Start Date: 10/07/2025



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

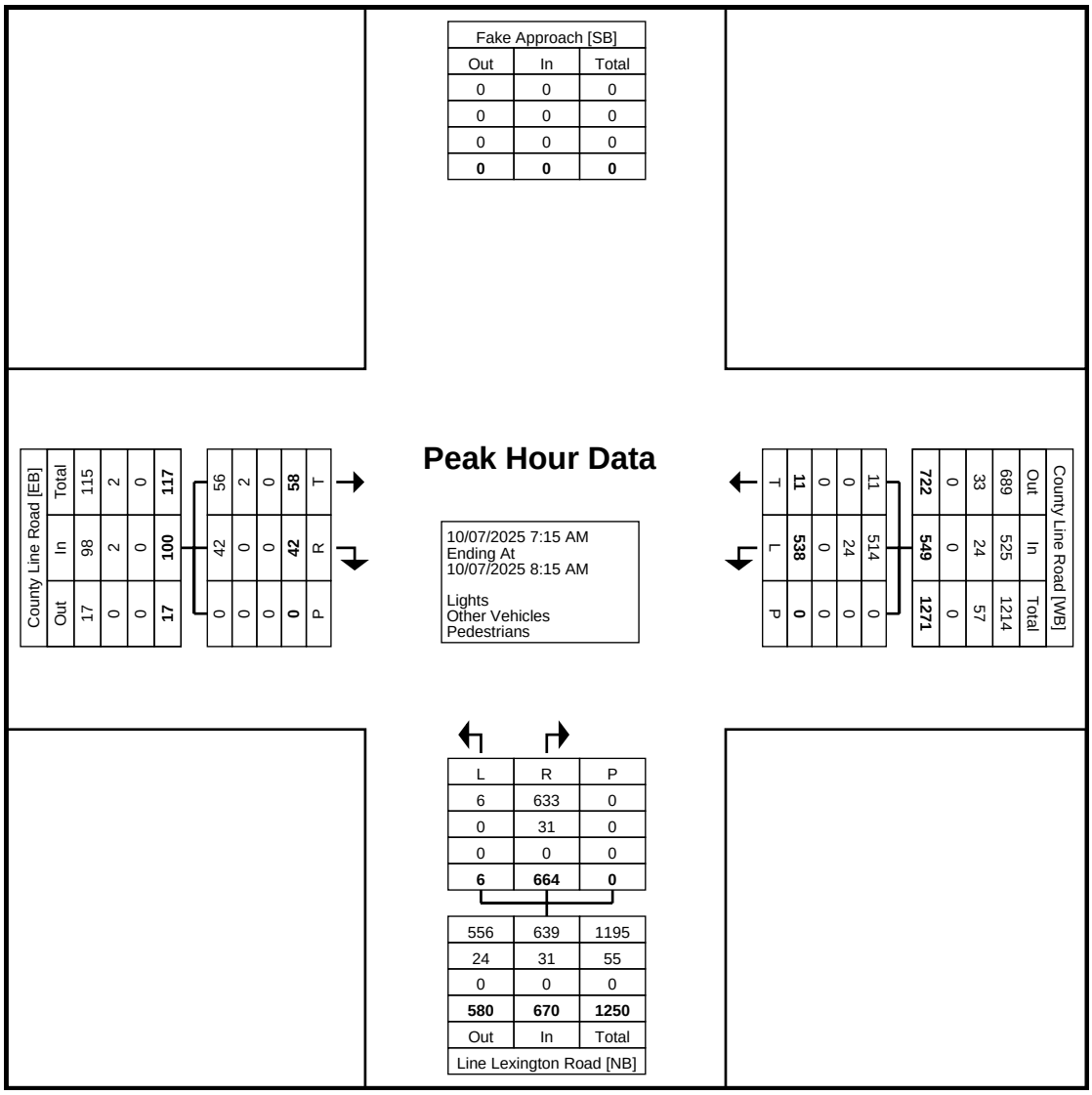
Turning Movement Peak Hour Data (7:15 AM)

Start Time	County Line Road Eastbound				County Line Road Westbound				Line Lexington Road Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:15 AM	14	6	0	20	138	4	0	142	1	139	0	140	302
7:30 AM	12	12	0	24	142	1	0	143	1	156	0	157	324
7:45 AM	18	8	0	26	120	2	0	122	3	190	0	193	341
8:00 AM	14	16	0	30	138	4	0	142	1	179	0	180	352
Total	58	42	0	100	538	11	0	549	6	664	0	670	1319
Approach %	58.0	42.0	-	-	98.0	2.0	-	-	0.9	99.1	-	-	-
Total %	4.4	3.2	-	7.6	40.8	0.8	-	41.6	0.5	50.3	-	50.8	-
PHF	0.806	0.656	-	0.833	0.947	0.688	-	0.960	0.500	0.874	-	0.868	0.937
Lights	56	42	-	98	514	11	-	525	6	633	-	639	1262
% Lights	96.6	100.0	-	98.0	95.5	100.0	-	95.6	100.0	95.3	-	95.4	95.7
Other Vehicles	2	0	-	2	24	0	-	24	0	31	-	31	57
% Other Vehicles	3.4	0.0	-	2.0	4.5	0.0	-	4.4	0.0	4.7	-	4.6	4.3
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 9 Line Lexington Road & County Line Road
Site Code:
Start Date: 10/07/2025



Turning Movement Peak Hour Data Plot (7:15 AM)

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 9 Line Lexington Road & County Line Road
Site Code:
Start Date: 10/07/2025

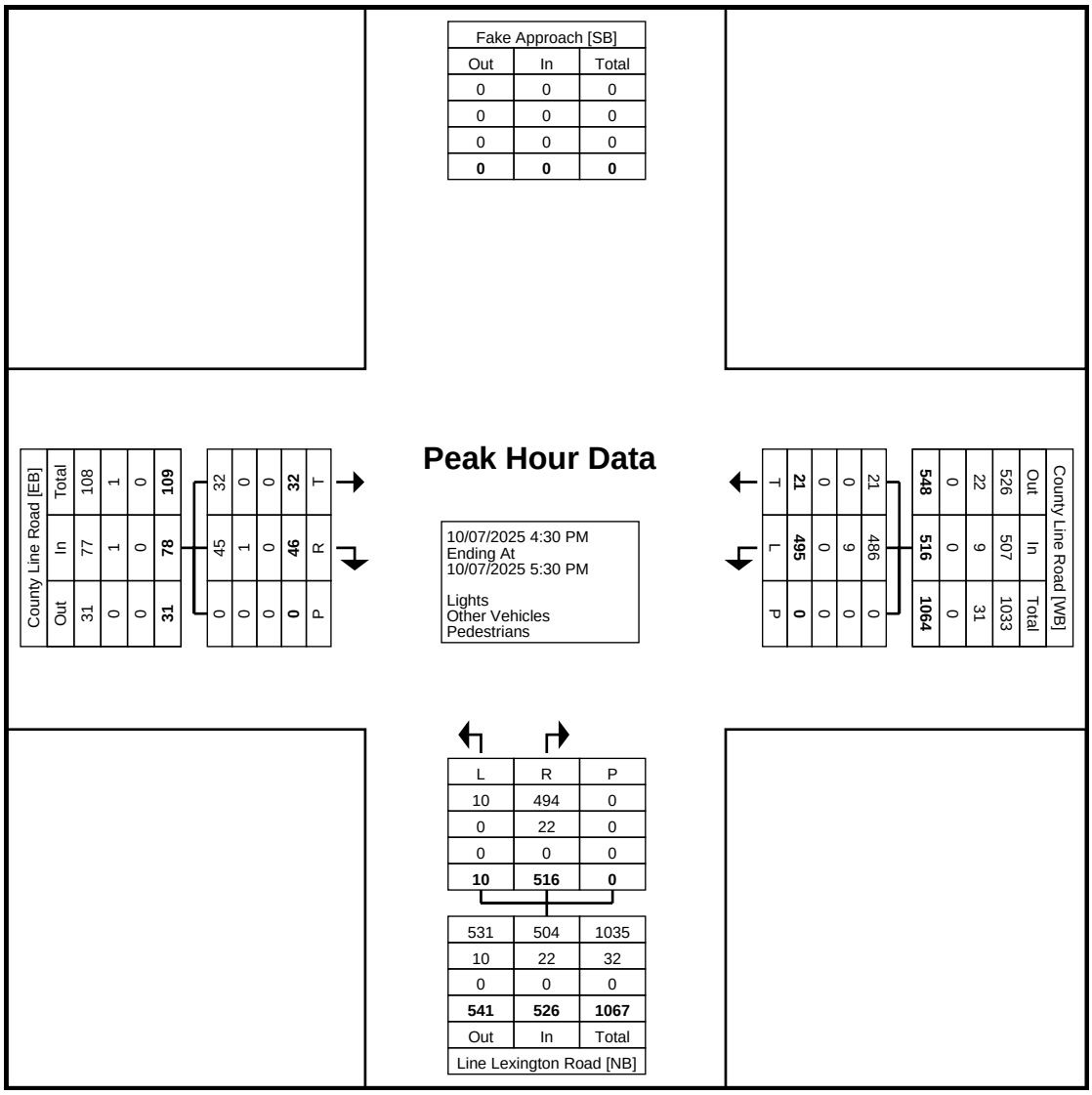
Turning Movement Peak Hour Data (4:30 PM)

Start Time	County Line Road Eastbound				County Line Road Westbound				Line Lexington Road Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
4:30 PM	3	7	0	10	116	5	0	121	4	147	0	151	282
4:45 PM	6	6	0	12	128	3	0	131	5	116	0	121	264
5:00 PM	10	3	0	13	125	5	0	130	1	104	0	105	248
5:15 PM	13	30	0	43	126	8	0	134	0	149	0	149	326
Total	32	46	0	78	495	21	0	516	10	516	0	526	1120
Approach %	41.0	59.0	-	-	95.9	4.1	-	-	1.9	98.1	-	-	-
Total %	2.9	4.1	-	7.0	44.2	1.9	-	46.1	0.9	46.1	-	47.0	-
PHF	0.615	0.383	-	0.453	0.967	0.656	-	0.963	0.500	0.866	-	0.871	0.859
Lights	32	45	-	77	486	21	-	507	10	494	-	504	1088
% Lights	100.0	97.8	-	98.7	98.2	100.0	-	98.3	100.0	95.7	-	95.8	97.1
Other Vehicles	0	1	-	1	9	0	-	9	0	22	-	22	32
% Other Vehicles	0.0	2.2	-	1.3	1.8	0.0	-	1.7	0.0	4.3	-	4.2	2.9
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 9 Line Lexington Road & County Line Road
Site Code:
Start Date: 10/07/2025



Turning Movement Peak Hour Data Plot (4:30 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 10 S Trewigtown Road & County Line Road
Site Code:
Start Date: 10/07/2025

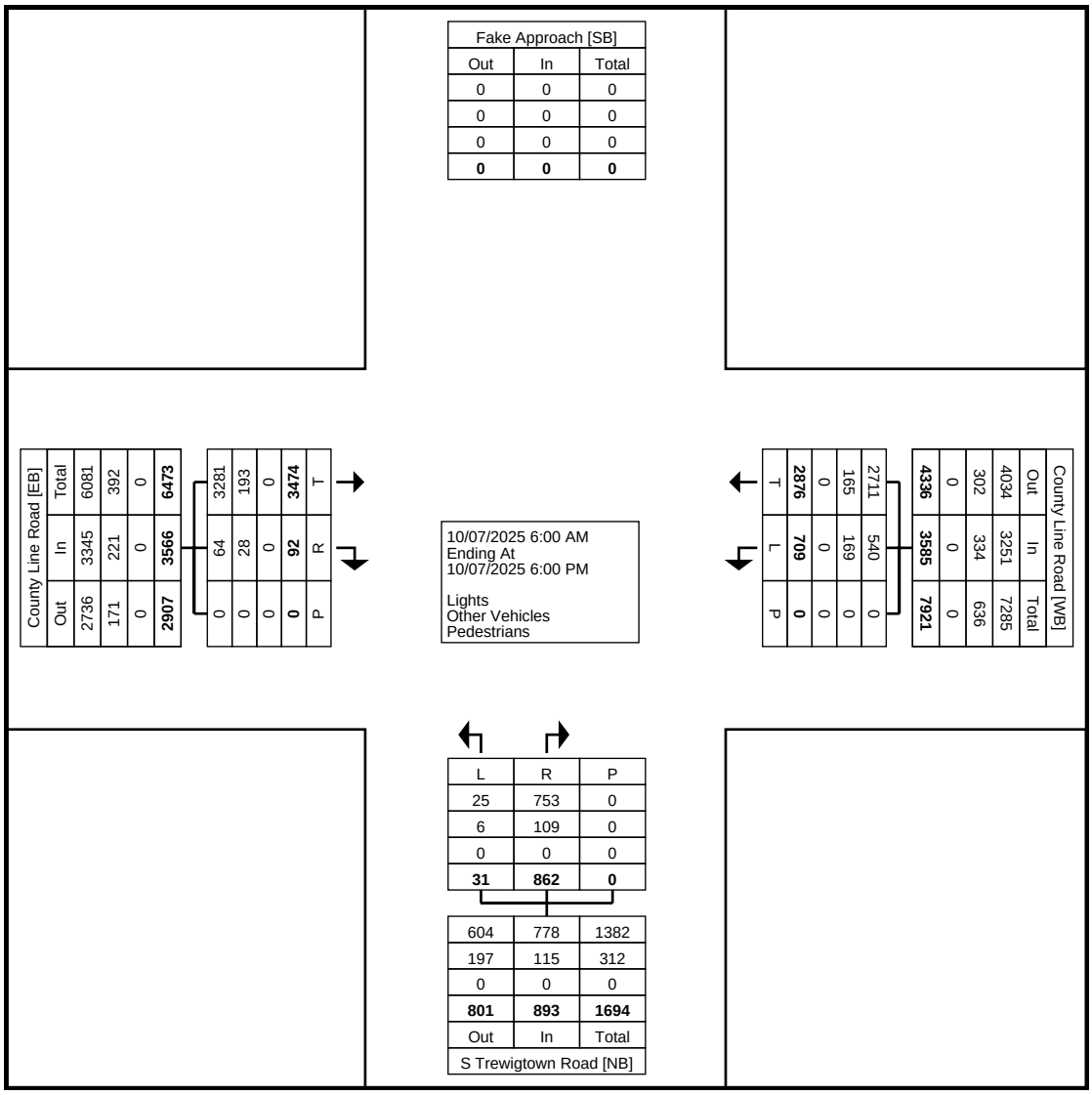
Turning Movement Data

Start Time	County Line Road Eastbound				County Line Road Westbound				S Trewigtown Road Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
6:00 AM	127	6	0	133	6	67	0	73	4	35	0	39	245
6:15 AM	145	6	0	151	10	88	0	98	3	38	0	41	290
6:30 AM	152	3	0	155	10	106	0	116	0	33	0	33	304
6:45 AM	162	2	0	164	20	137	0	157	2	20	0	22	343
Hourly Total	586	17	0	603	46	398	0	444	9	126	0	135	1182
7:00 AM	150	7	0	157	10	95	0	105	1	13	0	14	276
7:15 AM	157	4	0	161	18	134	0	152	0	33	0	33	346
7:30 AM	180	4	0	184	19	143	0	162	0	34	0	34	380
7:45 AM	202	4	0	206	18	129	0	147	0	48	0	48	401
Hourly Total	689	19	0	708	65	501	0	566	1	128	0	129	1403
8:00 AM	200	3	0	203	26	135	0	161	1	29	0	30	394
8:15 AM	148	3	0	151	21	105	0	126	1	32	0	33	310
8:30 AM	138	2	0	140	43	131	0	174	2	38	0	40	354
8:45 AM	146	3	0	149	37	104	0	141	2	34	0	36	326
Hourly Total	632	11	0	643	127	475	0	602	6	133	0	139	1384
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	122	2	0	124	26	115	0	141	0	24	0	24	289
3:15 PM	138	2	0	140	24	96	0	120	1	27	0	28	288
3:30 PM	132	0	0	132	31	141	0	172	0	37	0	37	341
3:45 PM	133	5	0	138	26	125	0	151	1	43	0	44	333
Hourly Total	525	9	0	534	107	477	0	584	2	131	0	133	1251
4:00 PM	119	5	0	124	51	126	0	177	0	35	0	35	336
4:15 PM	145	8	0	153	59	153	0	212	2	27	0	29	394
4:30 PM	151	6	0	157	50	103	0	153	1	49	0	50	360
4:45 PM	127	6	0	133	63	148	0	211	4	48	0	52	396
Hourly Total	542	25	0	567	223	530	0	753	7	159	0	166	1486
5:00 PM	115	1	0	116	28	106	0	134	2	64	0	66	316
5:15 PM	159	4	0	163	45	119	0	164	1	43	0	44	371
5:30 PM	120	4	0	124	45	139	0	184	2	40	0	42	350
5:45 PM	106	2	0	108	23	131	0	154	1	38	0	39	301
Hourly Total	500	11	0	511	141	495	0	636	6	185	0	191	1338
Grand Total	3474	92	0	3566	709	2876	0	3585	31	862	0	893	8044
Approach %	97.4	2.6	-	-	19.8	80.2	-	-	3.5	96.5	-	-	-
Total %	43.2	1.1	-	44.3	8.8	35.8	-	44.6	0.4	10.7	-	11.1	-
Lights	3281	64	-	3345	540	2711	-	3251	25	753	-	778	7374
% Lights	94.4	69.6	-	93.8	76.2	94.3	-	90.7	80.6	87.4	-	87.1	91.7
Other Vehicles	193	28	-	221	169	165	-	334	6	109	-	115	670
% Other Vehicles	5.6	30.4	-	6.2	23.8	5.7	-	9.3	19.4	12.6	-	12.9	8.3
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 10 S Trewigtown Road & County Line Road
Site Code:
Start Date: 10/07/2025



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
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610.326.3100

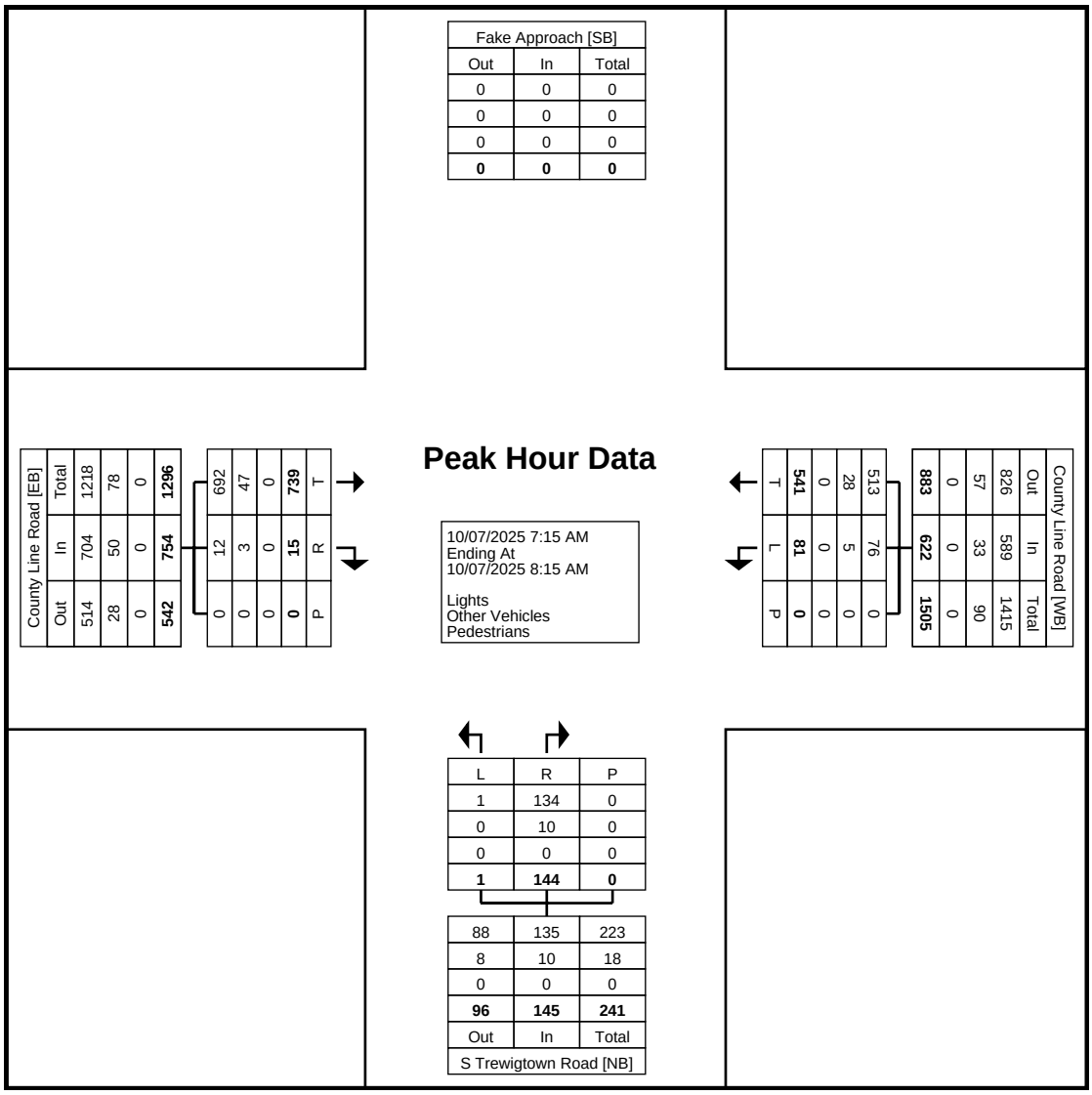
Turning Movement Peak Hour Data (7:15 AM)

Start Time	County Line Road Eastbound				County Line Road Westbound				S Trewigtown Road Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:15 AM	157	4	0	161	18	134	0	152	0	33	0	33	346
7:30 AM	180	4	0	184	19	143	0	162	0	34	0	34	380
7:45 AM	202	4	0	206	18	129	0	147	0	48	0	48	401
8:00 AM	200	3	0	203	26	135	0	161	1	29	0	30	394
Total	739	15	0	754	81	541	0	622	1	144	0	145	1521
Approach %	98.0	2.0	-	-	13.0	87.0	-	-	0.7	99.3	-	-	-
Total %	48.6	1.0	-	49.6	5.3	35.6	-	40.9	0.1	9.5	-	9.5	-
PHF	0.915	0.938	-	0.915	0.779	0.946	-	0.960	0.250	0.750	-	0.755	0.948
Lights	692	12	-	704	76	513	-	589	1	134	-	135	1428
% Lights	93.6	80.0	-	93.4	93.8	94.8	-	94.7	100.0	93.1	-	93.1	93.9
Other Vehicles	47	3	-	50	5	28	-	33	0	10	-	10	93
% Other Vehicles	6.4	20.0	-	6.6	6.2	5.2	-	5.3	0.0	6.9	-	6.9	6.1
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 10 S Trewigtown Road & County Line Road
Site Code:
Start Date: 10/07/2025



Turning Movement Peak Hour Data Plot (7:15 AM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

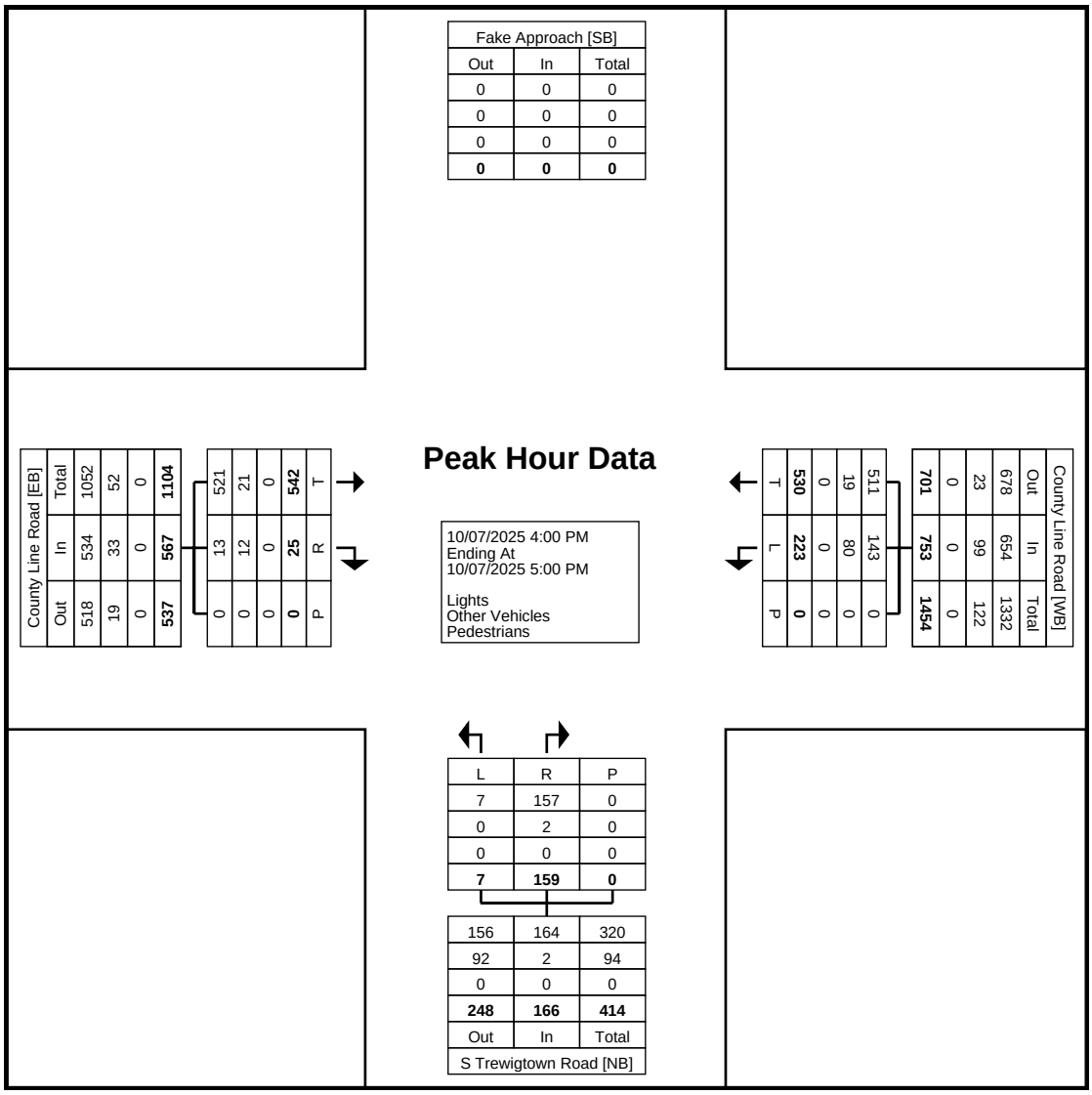
Turning Movement Peak Hour Data (4:00 PM)

Start Time	County Line Road Eastbound				County Line Road Westbound				S Trewigtown Road Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
4:00 PM	119	5	0	124	51	126	0	177	0	35	0	35	336
4:15 PM	145	8	0	153	59	153	0	212	2	27	0	29	394
4:30 PM	151	6	0	157	50	103	0	153	1	49	0	50	360
4:45 PM	127	6	0	133	63	148	0	211	4	48	0	52	396
Total	542	25	0	567	223	530	0	753	7	159	0	166	1486
Approach %	95.6	4.4	-	-	29.6	70.4	-	-	4.2	95.8	-	-	-
Total %	36.5	1.7	-	38.2	15.0	35.7	-	50.7	0.5	10.7	-	11.2	-
PHF	0.897	0.781	-	0.903	0.885	0.866	-	0.888	0.438	0.811	-	0.798	0.938
Lights	521	13	-	534	143	511	-	654	7	157	-	164	1352
% Lights	96.1	52.0	-	94.2	64.1	96.4	-	86.9	100.0	98.7	-	98.8	91.0
Other Vehicles	21	12	-	33	80	19	-	99	0	2	-	2	134
% Other Vehicles	3.9	48.0	-	5.8	35.9	3.6	-	13.1	0.0	1.3	-	1.2	9.0
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 10 S Trewigtown Road & County Line Road
Site Code:
Start Date: 10/07/2025



Turning Movement Peak Hour Data Plot (4:00 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 11 N Trewigtown Road & County Line Road
Site Code:
Start Date: 10/07/2025

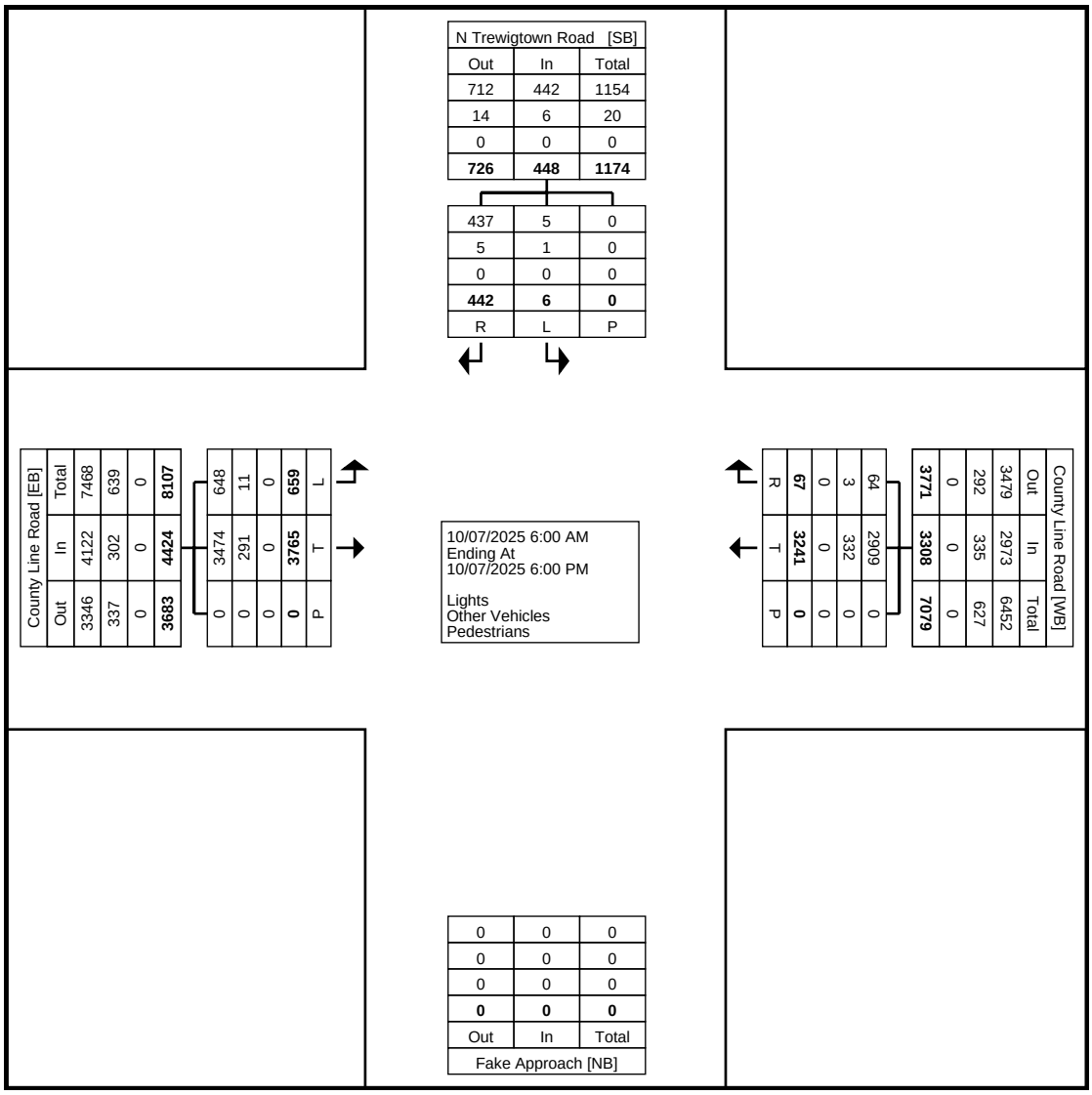
Turning Movement Data

Start Time	County Line Road Eastbound				County Line Road Westbound				N Trewigtown Road Southbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
6:00 AM	6	156	0	162	74	0	0	74	0	7	0	7	243
6:15 AM	10	174	0	184	96	0	0	96	0	6	0	6	286
6:30 AM	20	175	0	195	108	1	0	109	0	9	0	9	313
6:45 AM	18	160	0	178	142	3	0	145	0	14	0	14	337
Hourly Total	54	665	0	719	420	4	0	424	0	36	0	36	1179
7:00 AM	15	154	0	169	93	0	0	93	0	15	0	15	277
7:15 AM	24	155	0	179	135	1	0	136	0	24	0	24	339
7:30 AM	30	204	0	234	133	0	0	133	0	27	0	27	394
7:45 AM	32	221	0	253	121	1	0	122	0	24	0	24	399
Hourly Total	101	734	0	835	482	2	0	484	0	90	0	90	1409
8:00 AM	27	199	0	226	140	2	0	142	0	19	0	19	387
8:15 AM	32	143	0	175	109	2	0	111	0	17	0	17	303
8:30 AM	24	168	0	192	161	1	0	162	2	14	0	16	370
8:45 AM	35	152	0	187	127	2	0	129	1	16	0	17	333
Hourly Total	118	662	0	780	537	7	0	544	3	66	0	69	1393
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	17	125	0	142	120	3	0	123	0	18	0	18	283
3:15 PM	25	153	0	178	104	3	0	107	1	17	0	18	303
3:30 PM	25	139	0	164	152	3	0	155	0	22	0	22	341
3:45 PM	40	141	0	181	145	4	0	149	0	12	0	12	342
Hourly Total	107	558	0	665	521	13	0	534	1	69	0	70	1269
4:00 PM	35	124	0	159	165	5	0	170	0	16	0	16	345
4:15 PM	29	146	0	175	195	5	0	200	0	27	0	27	402
4:30 PM	43	155	0	198	148	5	0	153	0	20	0	20	371
4:45 PM	35	163	0	198	187	5	0	192	0	24	0	24	414
Hourly Total	142	588	0	730	695	20	0	715	0	87	0	87	1532
5:00 PM	37	144	0	181	132	9	0	141	0	17	0	17	339
5:15 PM	36	166	0	202	149	5	0	154	0	27	0	27	383
5:30 PM	35	123	0	158	163	6	0	169	1	38	0	39	366
5:45 PM	29	125	0	154	142	1	0	143	1	12	0	13	310
Hourly Total	137	558	0	695	586	21	0	607	2	94	0	96	1398
Grand Total	659	3765	0	4424	3241	67	0	3308	6	442	0	448	8180
Approach %	14.9	85.1	-	-	98.0	2.0	-	-	1.3	98.7	-	-	-
Total %	8.1	46.0	-	54.1	39.6	0.8	-	40.4	0.1	5.4	-	5.5	-
Lights	648	3474	-	4122	2909	64	-	2973	5	437	-	442	7537
% Lights	98.3	92.3	-	93.2	89.8	95.5	-	89.9	83.3	98.9	-	98.7	92.1
Other Vehicles	11	291	-	302	332	3	-	335	1	5	-	6	643
% Other Vehicles	1.7	7.7	-	6.8	10.2	4.5	-	10.1	16.7	1.1	-	1.3	7.9
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Counter: MIO:
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Count Name: 11 N Trewigtown Road & County Line Road
Site Code:
Start Date: 10/07/2025



Turning Movement Data Plot

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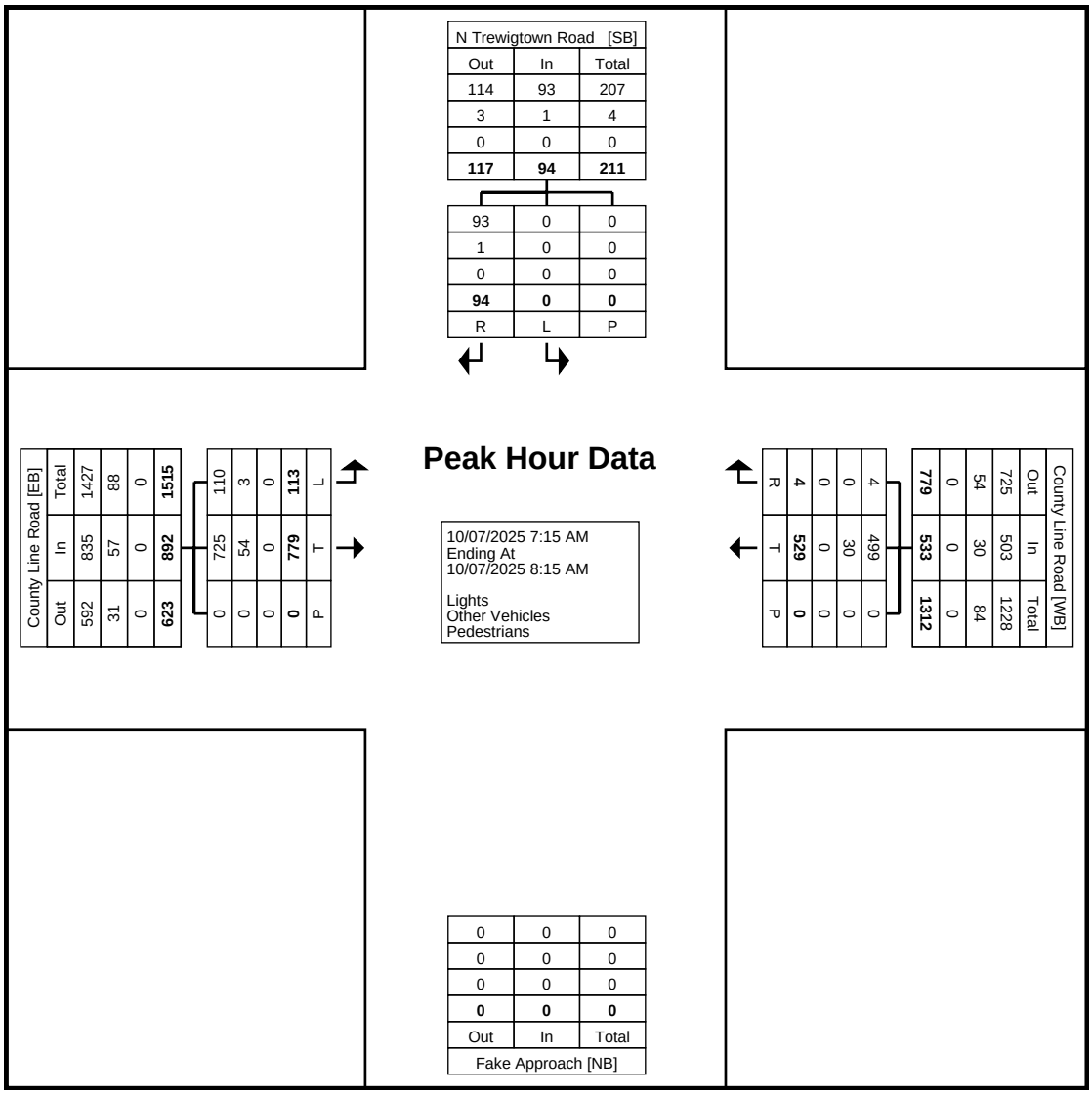
Turning Movement Peak Hour Data (7:15 AM)

Start Time	County Line Road Eastbound				County Line Road Westbound				N Trewigtown Road Southbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:15 AM	24	155	0	179	135	1	0	136	0	24	0	24	339
7:30 AM	30	204	0	234	133	0	0	133	0	27	0	27	394
7:45 AM	32	221	0	253	121	1	0	122	0	24	0	24	399
8:00 AM	27	199	0	226	140	2	0	142	0	19	0	19	387
Total	113	779	0	892	529	4	0	533	0	94	0	94	1519
Approach %	12.7	87.3	-	-	99.2	0.8	-	-	0.0	100.0	-	-	-
Total %	7.4	51.3	-	58.7	34.8	0.3	-	35.1	0.0	6.2	-	6.2	-
PHF	0.883	0.881	-	0.881	0.945	0.500	-	0.938	0.000	0.870	-	0.870	0.952
Lights	110	725	-	835	499	4	-	503	0	93	-	93	1431
% Lights	97.3	93.1	-	93.6	94.3	100.0	-	94.4	-	98.9	-	98.9	94.2
Other Vehicles	3	54	-	57	30	0	-	30	0	1	-	1	88
% Other Vehicles	2.7	6.9	-	6.4	5.7	0.0	-	5.6	-	1.1	-	1.1	5.8
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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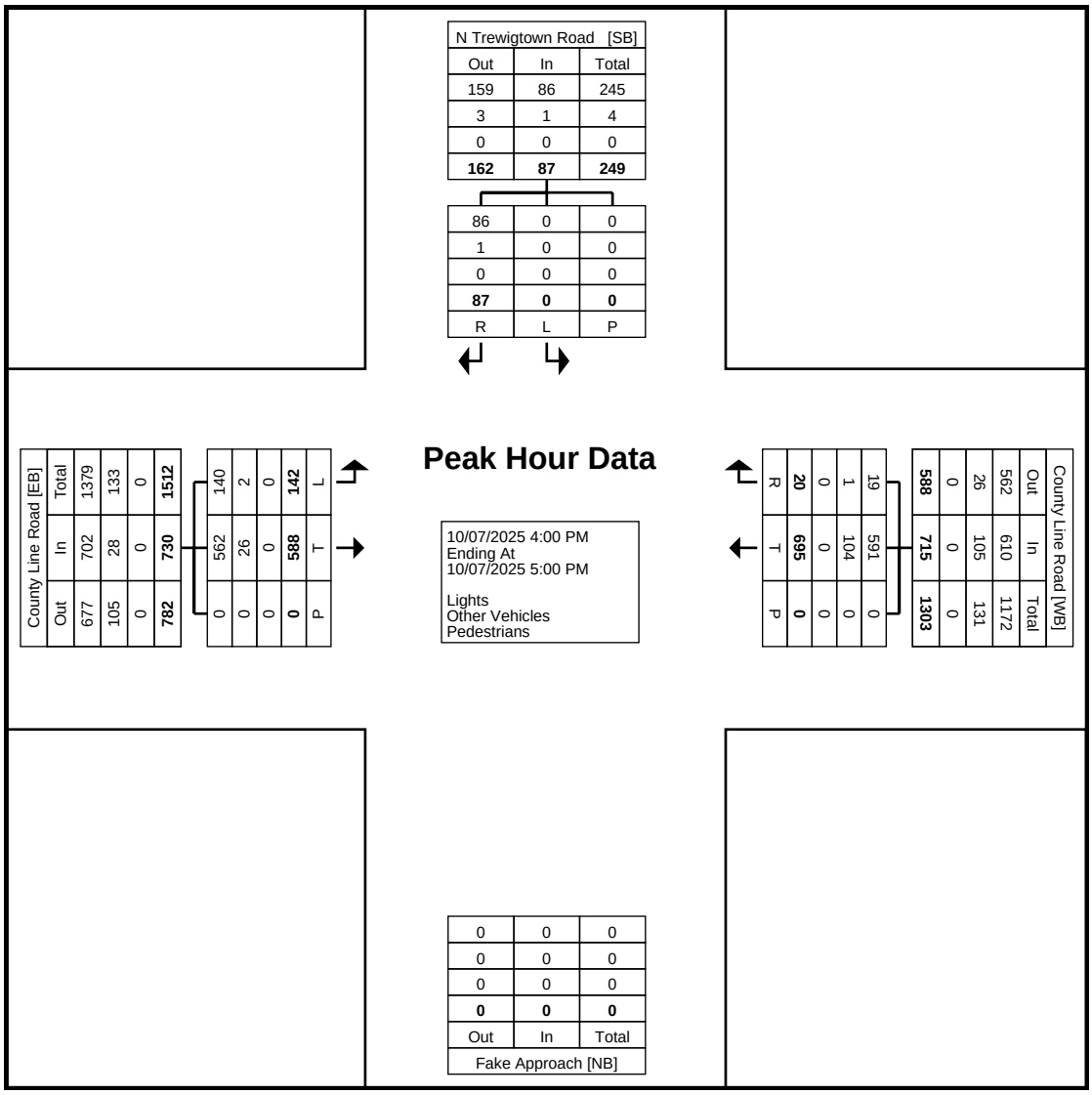
Turning Movement Peak Hour Data (4:00 PM)

Start Time	County Line Road Eastbound				County Line Road Westbound				N Trewigtown Road Southbound				
	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
4:00 PM	35	124	0	159	165	5	0	170	0	16	0	16	345
4:15 PM	29	146	0	175	195	5	0	200	0	27	0	27	402
4:30 PM	43	155	0	198	148	5	0	153	0	20	0	20	371
4:45 PM	35	163	0	198	187	5	0	192	0	24	0	24	414
Total	142	588	0	730	695	20	0	715	0	87	0	87	1532
Approach %	19.5	80.5	-	-	97.2	2.8	-	-	0.0	100.0	-	-	-
Total %	9.3	38.4	-	47.7	45.4	1.3	-	46.7	0.0	5.7	-	5.7	-
PHF	0.826	0.902	-	0.922	0.891	1.000	-	0.894	0.000	0.806	-	0.806	0.925
Lights	140	562	-	702	591	19	-	610	0	86	-	86	1398
% Lights	98.6	95.6	-	96.2	85.0	95.0	-	85.3	-	98.9	-	98.9	91.3
Other Vehicles	2	26	-	28	104	1	-	105	0	1	-	1	134
% Other Vehicles	1.4	4.4	-	3.8	15.0	5.0	-	14.7	-	1.1	-	1.1	8.7
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (4:00 PM)

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Count Name: 12 Trewigtown Road & School House Road
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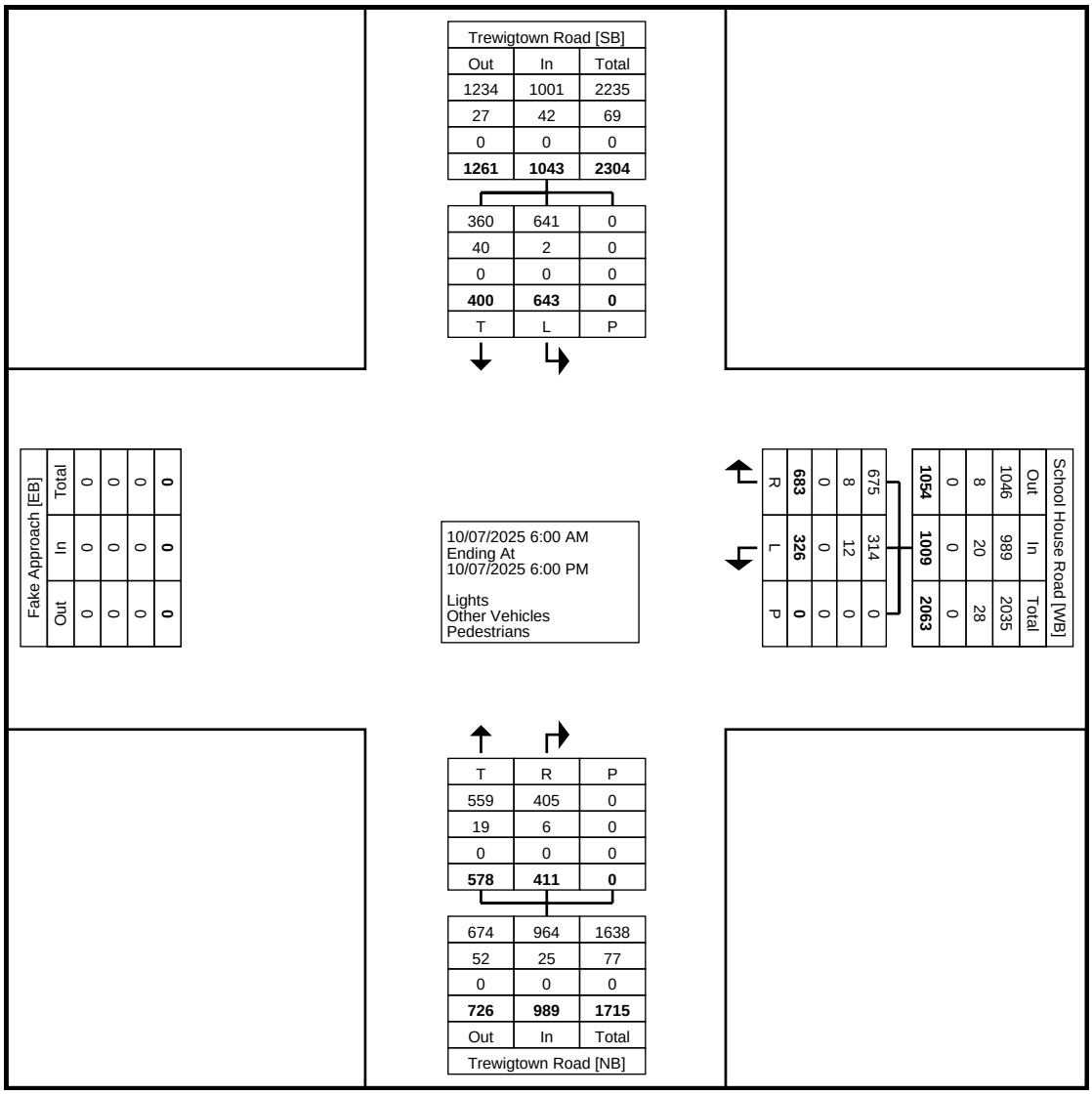
Turning Movement Data

Start Time	School House Road Westbound				Trewigtown Road Northbound				Trewigtown Road Southbound				
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
6:00 AM	8	1	0	9	8	0	0	8	3	11	0	14	31
6:15 AM	4	1	0	5	9	1	0	10	2	7	0	9	24
6:30 AM	5	13	0	18	13	7	0	20	8	10	0	18	56
6:45 AM	7	5	0	12	6	26	0	32	25	24	0	49	93
Hourly Total	24	20	0	44	36	34	0	70	38	52	0	90	204
7:00 AM	15	9	0	24	10	19	0	29	35	10	0	45	98
7:15 AM	20	12	0	32	11	12	0	23	37	18	0	55	110
7:30 AM	22	11	0	33	15	21	0	36	50	22	0	72	141
7:45 AM	17	9	0	26	19	10	0	29	56	27	0	83	138
Hourly Total	74	41	0	115	55	62	0	117	178	77	0	255	487
8:00 AM	25	12	0	37	10	14	0	24	65	21	0	86	147
8:15 AM	16	29	0	45	16	23	0	39	63	17	0	80	164
8:30 AM	15	18	0	33	16	17	0	33	34	17	0	51	117
8:45 AM	8	20	0	28	22	20	0	42	48	17	0	65	135
Hourly Total	64	79	0	143	64	74	0	138	210	72	0	282	563
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	11	20	0	31	15	13	0	28	12	15	0	27	86
3:15 PM	16	51	0	67	20	9	0	29	20	9	0	29	125
3:30 PM	7	44	0	51	31	16	0	47	10	19	0	29	127
3:45 PM	14	43	0	57	36	16	0	52	27	9	0	36	145
Hourly Total	48	158	0	206	102	54	0	156	69	52	0	121	483
4:00 PM	12	41	0	53	41	21	0	62	13	17	0	30	145
4:15 PM	21	65	0	86	36	21	0	57	14	22	0	36	179
4:30 PM	17	60	0	77	54	29	0	83	18	21	0	39	199
4:45 PM	18	49	0	67	42	24	0	66	19	15	0	34	167
Hourly Total	68	215	0	283	173	95	0	268	64	75	0	139	690
5:00 PM	9	61	0	70	47	28	0	75	21	12	0	33	178
5:15 PM	18	41	0	59	37	29	0	66	30	22	0	52	177
5:30 PM	11	38	0	49	33	23	0	56	16	29	0	45	150
5:45 PM	10	30	0	40	31	12	0	43	17	9	0	26	109
Hourly Total	48	170	0	218	148	92	0	240	84	72	0	156	614
Grand Total	326	683	0	1009	578	411	0	989	643	400	0	1043	3041
Approach %	32.3	67.7	-	-	58.4	41.6	-	-	61.6	38.4	-	-	-
Total %	10.7	22.5	-	33.2	19.0	13.5	-	32.5	21.1	13.2	-	34.3	-
Lights	314	675	-	989	559	405	-	964	641	360	-	1001	2954
% Lights	96.3	98.8	-	98.0	96.7	98.5	-	97.5	99.7	90.0	-	96.0	97.1
Other Vehicles	12	8	-	20	19	6	-	25	2	40	-	42	87
% Other Vehicles	3.7	1.2	-	2.0	3.3	1.5	-	2.5	0.3	10.0	-	4.0	2.9
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Data Plot

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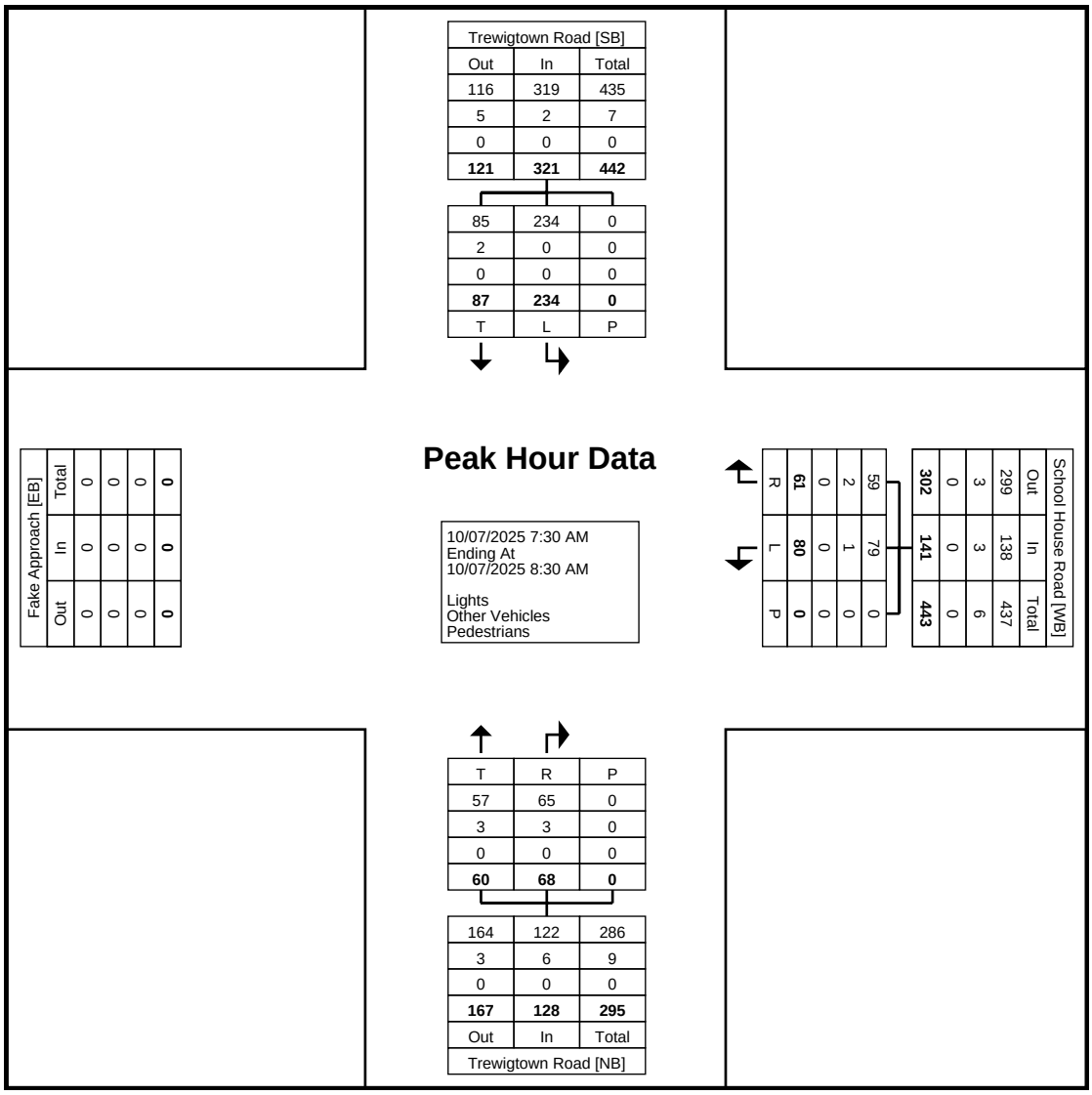
Turning Movement Peak Hour Data (7:30 AM)

Start Time	School House Road Westbound				Trewigtown Road Northbound				Trewigtown Road Southbound				
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
7:30 AM	22	11	0	33	15	21	0	36	50	22	0	72	141
7:45 AM	17	9	0	26	19	10	0	29	56	27	0	83	138
8:00 AM	25	12	0	37	10	14	0	24	65	21	0	86	147
8:15 AM	16	29	0	45	16	23	0	39	63	17	0	80	164
Total	80	61	0	141	60	68	0	128	234	87	0	321	590
Approach %	56.7	43.3	-	-	46.9	53.1	-	-	72.9	27.1	-	-	-
Total %	13.6	10.3	-	23.9	10.2	11.5	-	21.7	39.7	14.7	-	54.4	-
PHF	0.800	0.526	-	0.783	0.789	0.739	-	0.821	0.900	0.806	-	0.933	0.899
Lights	79	59	-	138	57	65	-	122	234	85	-	319	579
% Lights	98.8	96.7	-	97.9	95.0	95.6	-	95.3	100.0	97.7	-	99.4	98.1
Other Vehicles	1	2	-	3	3	3	-	6	0	2	-	2	11
% Other Vehicles	1.3	3.3	-	2.1	5.0	4.4	-	4.7	0.0	2.3	-	0.6	1.9
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (7:30 AM)

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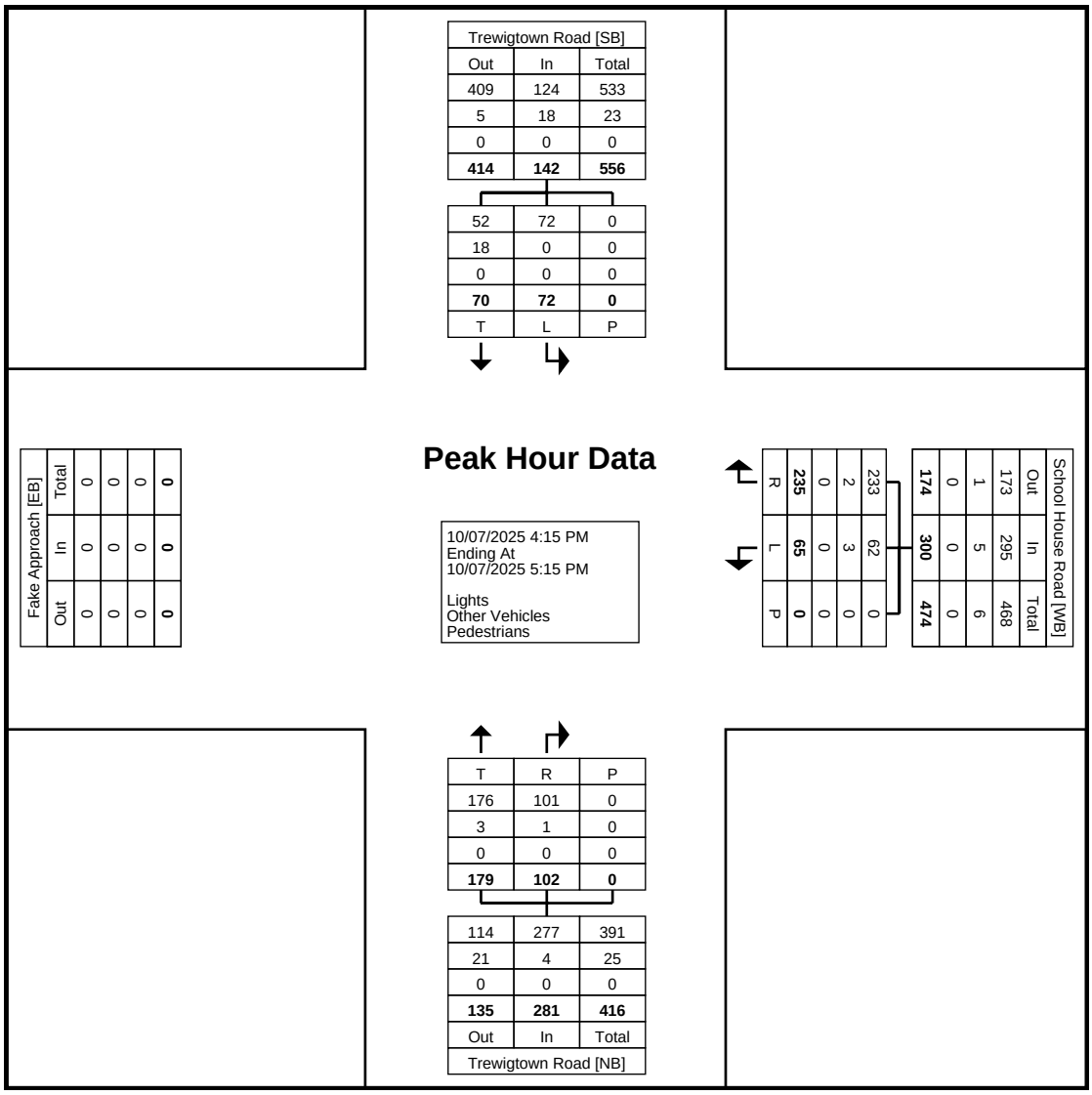
Turning Movement Peak Hour Data (4:15 PM)

Start Time	School House Road Westbound				Trewigtown Road Northbound				Trewigtown Road Southbound				
	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Int. Total
4:15 PM	21	65	0	86	36	21	0	57	14	22	0	36	179
4:30 PM	17	60	0	77	54	29	0	83	18	21	0	39	199
4:45 PM	18	49	0	67	42	24	0	66	19	15	0	34	167
5:00 PM	9	61	0	70	47	28	0	75	21	12	0	33	178
Total	65	235	0	300	179	102	0	281	72	70	0	142	723
Approach %	21.7	78.3	-	-	63.7	36.3	-	-	50.7	49.3	-	-	-
Total %	9.0	32.5	-	41.5	24.8	14.1	-	38.9	10.0	9.7	-	19.6	-
PHF	0.774	0.904	-	0.872	0.829	0.879	-	0.846	0.857	0.795	-	0.910	0.908
Lights	62	233	-	295	176	101	-	277	72	52	-	124	696
% Lights	95.4	99.1	-	98.3	98.3	99.0	-	98.6	100.0	74.3	-	87.3	96.3
Other Vehicles	3	2	-	5	3	1	-	4	0	18	-	18	27
% Other Vehicles	4.6	0.9	-	1.7	1.7	1.0	-	1.4	0.0	25.7	-	12.7	3.7
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (4:15 PM)

APPENDIX D:

Nearby Developments

Sheetz Convenience Store with Gasoline

EXECUTIVE SUMMARY

The purpose of this study is to examine the potential traffic impact associated with the proposed Sheetz Convenience Store with Gasoline on the roadway network in Hatfield Township, Montgomery County, PA. Based on this evaluation, the following conclusions were reached:

1. This report has been prepared in accordance with Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated February 2024 and Chapter 250 Article X Section 250-97 of the Hatfield Township Subdivision and Land Development Ordinance (SALDO).

2. The project scope and the extent of the study area were based on the contents of the TIS Scoping Application and the associated feedback from representatives of PennDOT, Hatfield Township, Hilltown Township, and New Britain Township, and is summarized as follows:

   Study Area Intersections:

   - Bethlehem Pike (SR 0309) & Orvilla Road (SR 1004) / Hilltown Crossings Northern Driveway.
   - Bethlehem Pike (SR 0309) & 309 Plaza Access / Hilltown Crossings Southern Driveway.
   - Bethlehem Pike (SR 0309) & Hilltown Pike (SR 4011) / Site Driveway.
   - Bethlehem Pike (SR 0309) & Line Lexington Road (SR 2008).
   - Line Lexington Road & Old Bethlehem Pike.
   - Old Bethlehem Pike & Site Driveway.

   Peak Hours Evaluated:

   - Weekday A.M. peak hour (peak hour between 6:00 – 9:00 A.M.).
   - Weekday P.M. peak hour (peak hour between 3:00 – 6:00 P.M.).
   - Saturday Midday peak hour (peak hour between 11:00 A.M. – 2:00 P.M.).

   Study Years Evaluated:

   - 2024 Existing Conditions.
   - 2026 Base Conditions (Full build-out year without development).
   - 2026 Projected Conditions (Full build-out year with development).
   - 2031 Base Conditions (Design year without development).
   - 2031 Projected Conditions (Design year with development).

3. The project site is located on the western leg of the intersection of Bethlehem Pike (SR 0309) & Hilltown Pike (SR 4011)/Existing Zoto's Diner Driveway. The site tract totals ±2.98 acres and is located in the Commercial (C) zoning district. The development proposal consists of razing the existing use and constructing a 6,139 square foot (s.f.) Sheetz Convenience Store with a drive-thru and 16 fueling positions.

4. The site is served by two (2) existing access locations that will be reconstructed, as applicable:
   - One (1) signalized driveway to Bethlehem Pike (SR 0309) with an ADT of 6,827 trips per day.
   - One (1) unsignalized driveway to Old Bethlehem Pike with an ADT of 1,052 trips per day.

5. Based on trip generation data obtained from the latest edition of the manual *Trip Generation,* the proposed development is anticipated to generate 135 new vehicle-trips during the weekday A.M. peak hour; 121 new vehicle-trips during the weekday P.M. peak hour; and 167 new vehicle-trips during the Saturday midday peak hour.

6. Capacity analyses were conducted to determine the quality of operation (LOS) at the study area intersections for the 2024 existing, 2026 and 2031 base (no-build), and 2026 and 2031 projected (build) conditions. The capacity analyses were conducted in accordance with the standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated February 2024, as well as Chapter 250 Article X Section 250-97 of the Hatfield Township SALDO.

7. Levels of Service (LOS) for the study area intersections have been summarized in matrix form. **Table I** details the overall intersection LOS for each study area intersection for the analyzed conditions and time periods. **Tables 14-16** of the report detail the LOS for all approaches and movements at the study area intersections for the analyzed conditions and time periods.

TABLE I
OVERALL INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Time Period	2024 Existing	Build-Out Year 2026			Design Year 2031			Meets LOS Requirements?
			Base	Projected	Projected[1]	Base	Projected	Projected[1]	
Bethlehem Pike (SR 0309) & Orvilla Road (SR 1004) / Hilltown Crossings Northern Driveway	AM Peak	C (24.2)	C (27.7)	C (31.4)	C (31.4)	C (29.5)	C (33.3)	C (33.3)	YES
	PM Peak	B (19.4)	B (19.5)	C (20.1)	C (21.2)	B (19.8)	C (20.5)	C (21.4)	YES
	SAT Peak	B (17.6)	B (18.7)	B (19.9)	B (19.9)	B (19.2)	C (20.4)	C (20.4)	YES
Bethlehem Pike (SR 0309) & 309 Plaza Access / Hilltown Crossings Southern Driveway	AM Peak	A (9.5)	B (13.4)	B (13.5)	A (10.0)	B (13.5)	B (13.7)	B (10.1)	YES
	PM Peak	B (13.5)	B (15.4)	B (15.4)	B (15.4)	B (15.5)	B (15.5)	B (15.5)	YES
	SAT Peak	C (31.7)	C (32.9)	C (32.8)	C (27.2)	C (33.5)	C (33.3)	C (27.7)	YES
Bethlehem Pike (SR 0309) & Hilltown Pike (SR 4011) / Site Driveway	AM Peak	C (24.3)	C (24.5)	D (48.6)	C (27.7)	C (24.8)	D (48.9)	C (28.3)	YES
	PM Peak	C (23.5)	C (31.4)	D (42.3)	C (28.9)	C (33.1)	D (43.9)	C (30.6)	YES
	SAT Peak	C (25.4)	C (27.0)	D (37.3)	C (30.3)	C (27.4)	D (37.9)	C (30.8)	YES
Bethlehem Pike (SR 0309) & Line Lexington Road (SR 2008)	AM Peak	C (23.8)	C (24.4)	C (29.5)	C (32.9)	C (30.5)	C (29.9)	C (33.3)	YES
	PM Peak	C (30.3)	C (34.1)	C (33.3)	C (32.9)	D (35.3)	C (34.5)	C (34.1)	YES
	SAT Peak	B (16.0)	B (17.4)	B (17.5)	B (19.3)	B (18.0)	B (18.0)	B (19.8)	YES
Line Lexington Road & Old Bethlehem Pike	AM Peak	A (1.8)	A (1.7)	A (2.4)	A (2.4)	A (1.7)	A (2.4)	A (2.4)	YES
	PM Peak	A (1.4)	A (1.3)	A (1.9)	A (1.9)	A (1.3)	A (1.9)	A (1.9)	YES
	SAT Peak	A (1.5)	A (1.5)	A (2.1)	A (2.1)	A (1.4)	A (2.1)	A (2.1)	YES
Old Bethlehem Pike & Site Driveway	AM Peak	A (7.7)	A (7.7)	A (8.1)	A (8.1)	A (7.7)	A (8.1)	A (8.1)	YES
	PM Peak	A (7.9)	A (7.9)	A (8.1)	A (8.1)	A (7.9)	A (8.1)	A (8.1)	YES
	SAT Peak	A (7.9)	A (7.9)	A (8.0)	A (8.0)	A (7.9)	A (8.0)	A (8.0)	YES

Base = No-Build scenario
Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements

8. Under the 2026 and 2031 projected (build) conditions, with implementation of the recommended improvements, the study area intersections will operate in accordance with the standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway

Occupancy Permits of PennDOT *Publication 282,* dated February 2024, as well as Chapter 250 Article X Section 250-97 of the Hatfield Township SALDO.

9. Traffic Planning and Design Inc. (TPD) recommends the following roadway improvements as outlined at the study area intersections:

Bethlehem Pike (SR 0309) & Orvilla Road (SR 1004) / Hilltown Crossings North Drwy

- No improvements are recommended for this intersection.

Bethlehem Pike (SR 0309) & 309 Plaza Access / Hilltown Crossings South Drwy

- No improvements are recommended for this intersection.

Bethlehem Pike (SR 0309) & Hilltown Pike (SR 4011) / Site Driveway

- Reconstruct the existing site driveway as a high-volume, full movement driveway with one entering lane and two exiting lanes. The exiting lanes should consist of a dedicated left-turn lane and a shared through/right lane with channelization for a yield-controlled right-turn egress. The entering and exiting lanes should be separated by a mountable median that provides proper alignment with Hilltown Pike.
- Design the radii to accommodate turning movements by the design vehicle (i.e. Sheetz distribution truck).
- Provide a 185′ right-turn lane with a 75′ bay taper on the southbound Bethlehem Pike (SR 0309) approach.
- Restripe the westbound Hilltown Pike approach to provide two dedicated left-turn lanes and a shared through/right lane and revise the associated overhead lane-use signage accordingly.
- Revise the signal phasing operation to eliminate the existing split phasing for the side street approaches (i.e. Hilltown Pike / Site Driveway) and provide a protected/prohibited westbound left-turn phase for the dual left-turn lanes of the westbound Hilltown Pike approach.
- Provide a protected/permitted northbound left-turn phase and provide Flashing Yellow Arrow operation.
- Maintain the existing protected/permitted southbound left-turn phase and provide Flashing Yellow Arrow operation.
- Provide optimized traffic signal timing splits and offsets, as applicable.
- Provide traffic signal equipment and ADA upgrades, as necessary, to accommodate the recommended improvements.

Bethlehem Pike (SR 0309) & Line Lexington Road (SR 2008)

- Provide a protected/permitted northbound left-turn phase and provide Flashing Yellow Arrow operation.
- Maintain the existing protected/permitted southbound left-turn phase and provide Flashing Yellow Arrow operation.
- Provide optimized traffic signal timing splits and offsets, as applicable.
- Provide traffic signal equipment upgrades, as necessary, to accommodate the recommended improvements.

Line Lexington Road & Old Bethlehem Pike

» No improvements recommended.

Old Bethlehem Pike & Site Driveway

» Design the proposed site driveway as a restricted-movement driveway; the exiting left-turn movement should be restricted via construction of a mountable channelization island and the placement of "No Left Turn" signs (PennDOT designation R3-2).

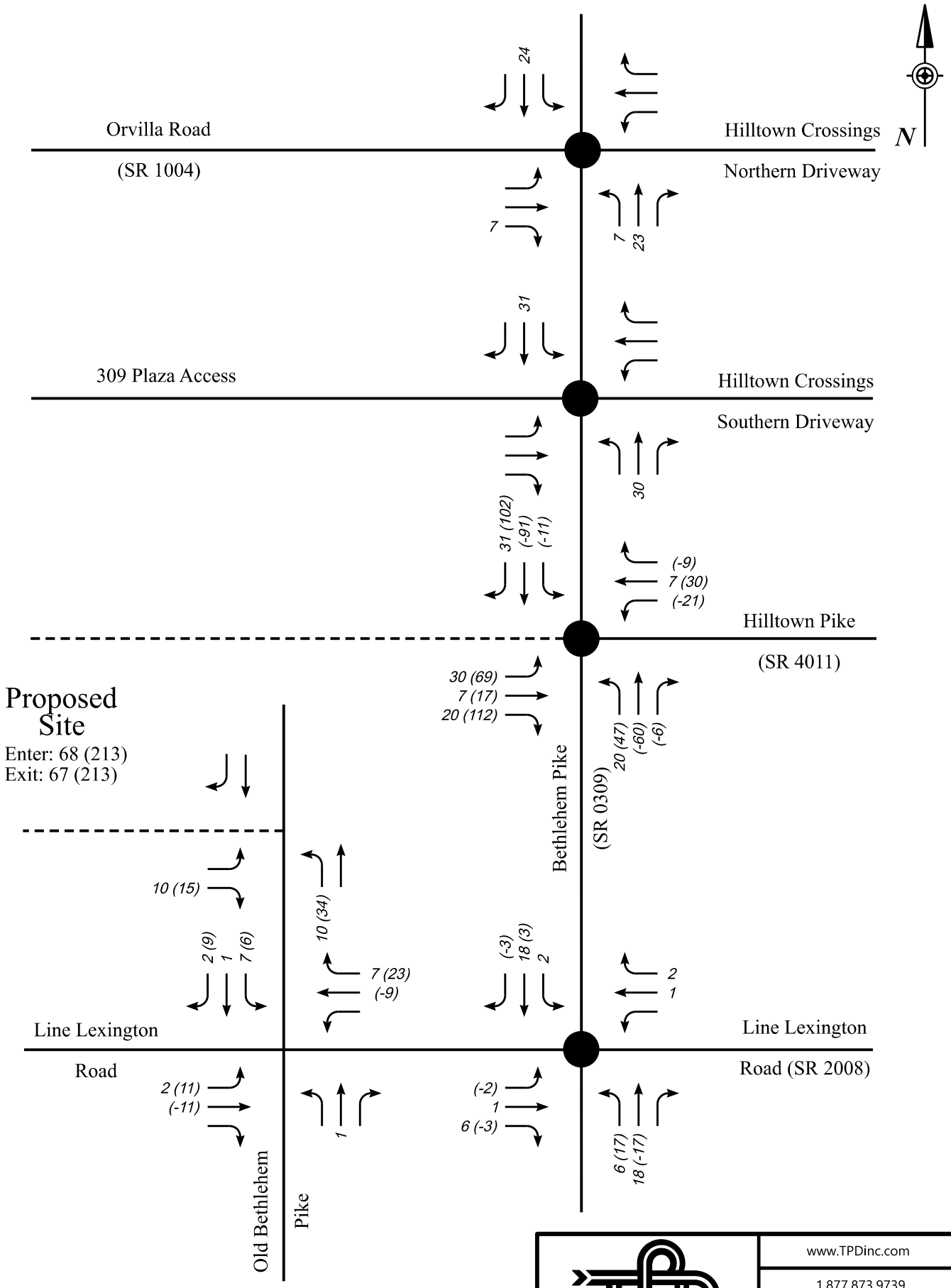
» Provide one entering and one exiting lane.

» Provide a stop sign (PennDOT designation R1-1) to control exiting traffic.

» Design the radii to accommodate turning movements by the corresponding design vehicle.

» Provide and perpetually maintain required sight distances for the site driveway.

The above noted recommendations are depicted on a conceptual roadway improvement plan, as applicable, included in **Appendix I**. As part of PennDOT's HOP process, the applicant will coordinate and fund the implementation of the recommended roadway improvements. Additionally, all improvements will be constructed to accommodate non-motorized access/circulation and be ADA-compliant unless otherwise approved by the Department.



KEY:

● **SIGNALIZED INTERSECTION**

- - - - - **PROPOSED DRIVEWAY**

NEW(PASS-BY)TRIPS

SCHEMATIC DRAWING:NOT TO SCALE

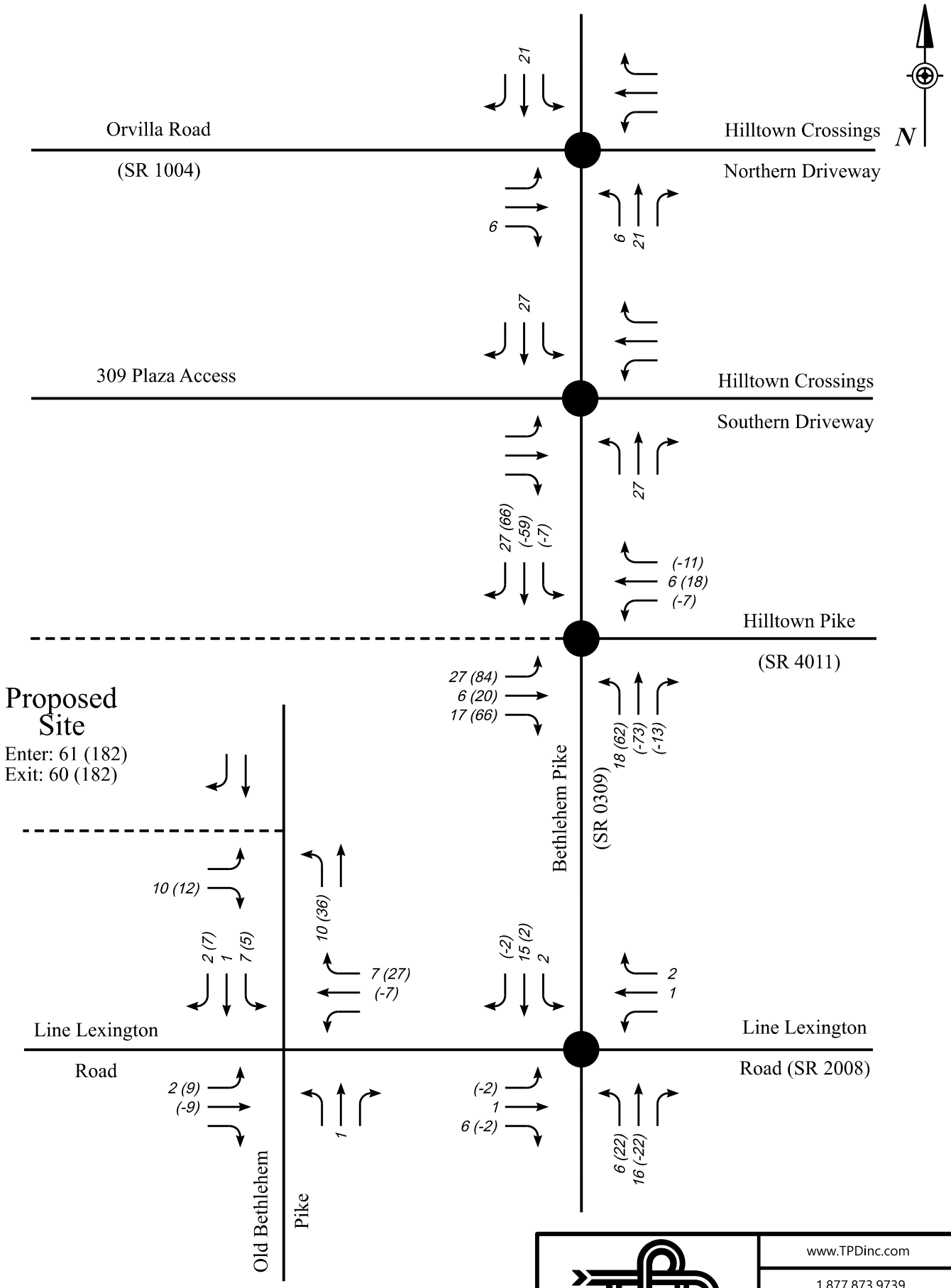
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1.877.873.9739

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FIGURE 16

SHEETZ CONVENIENCE STORE WITH GASOLINE
WEEKDAY A.M. PEAK HOUR
TRIP DISTRIBUTIONS



KEY:

● **SIGNALIZED INTERSECTION**

- - - - - **PROPOSED DRIVEWAY**

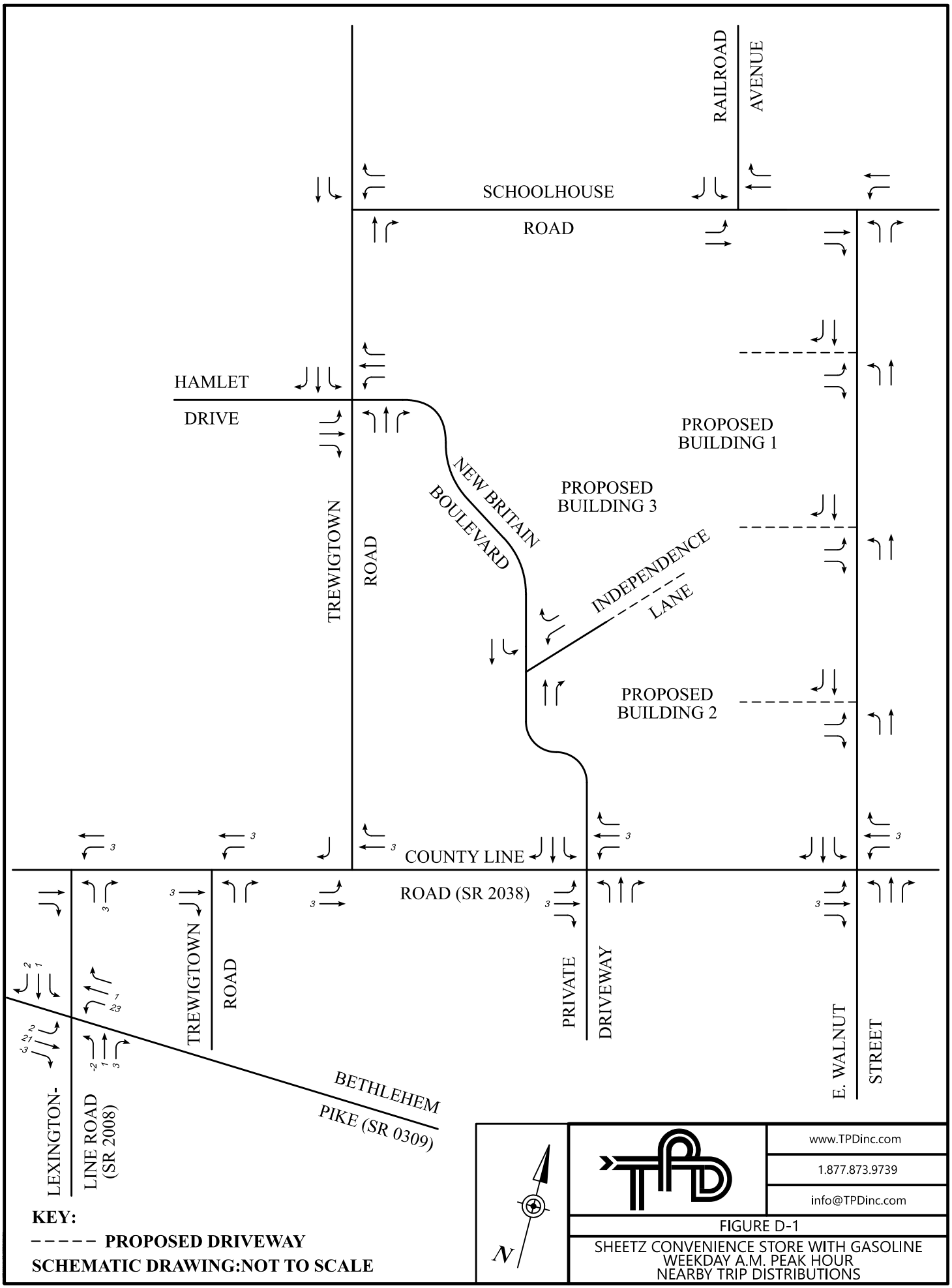
NEW(PASS-BY)TRIPS

SCHEMATIC DRAWING:NOT TO SCALE

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FIGURE 17

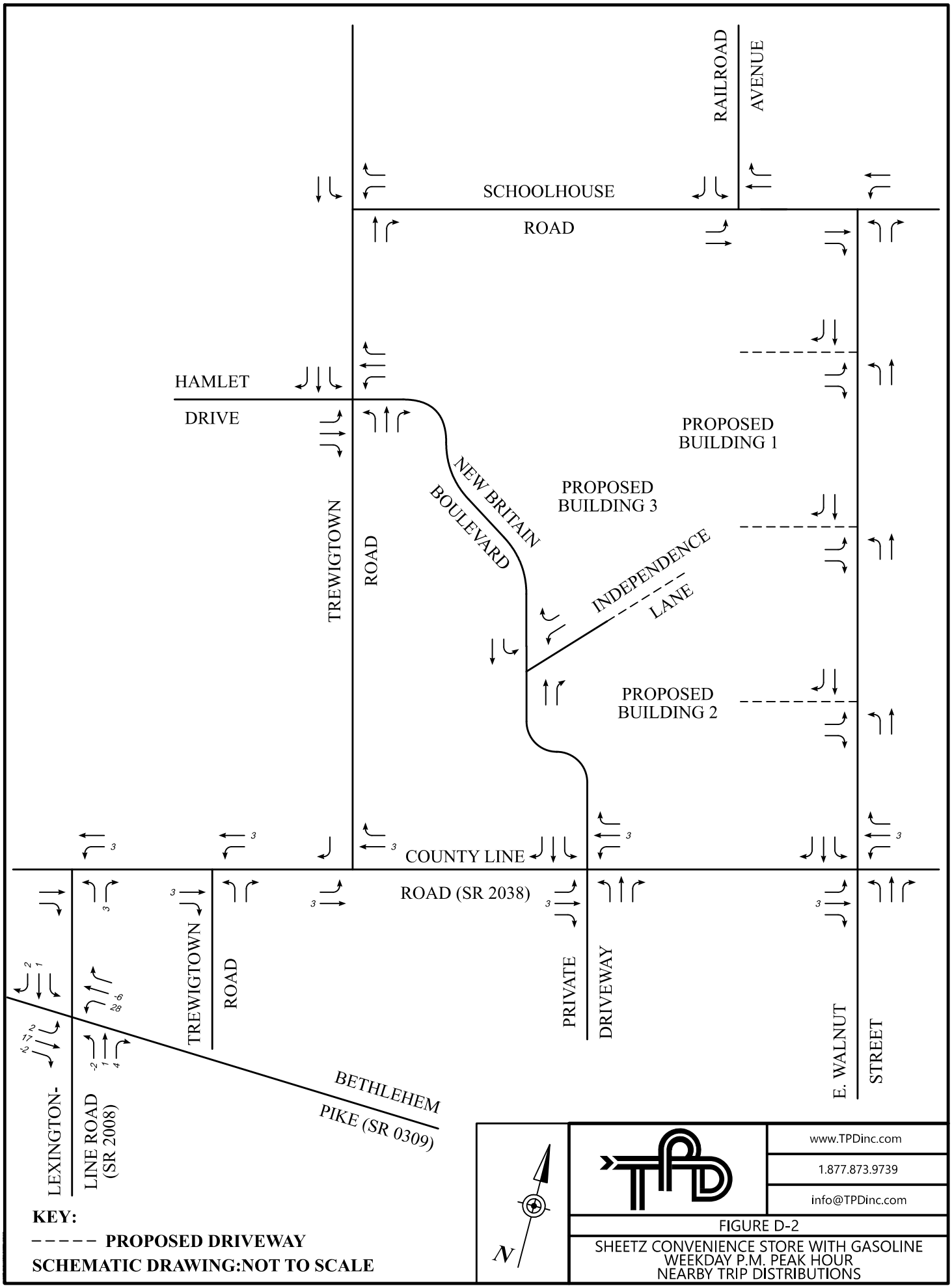
SHEETZ CONVENIENCE STORE WITH GASOLINE
WEEKDAY P.M. PEAK HOUR
TRIP DISTRIBUTIONS



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FIGURE D-1

SHEETZ CONVENIENCE STORE WITH GASOLINE
WEEKDAY A.M. PEAK HOUR
NEARBY TRIP DISTRIBUTIONS


RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
TREWIGTOWN ROAD
COUNTY LINE ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
N
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FIGURE D-2
SHEETZ CONVENIENCE STORE WITH GASOLINE
WEEKDAY P.M. PEAK HOUR
NEARBY TRIP DISTRIBUTIONS

309 Plaza Expansion & Prime Car Wash

TRIP GENERATION & DISTRIBUTION CALCULATIONS

The trip generation data for the proposed development were obtained from the Trip Generation Manual, Eleventh Edition, 2021, an Institute of Transportation Engineers (ITE) Informational Report. For the proposed development, Land Use Codes #822 (Strip Retail Plaza <40k), #912 (Drive-In Bank), and #948 (Automated Car Wash) were utilized to calculate the number of vehicular trips the development will generate during the following time periods: (1) weekday A.M. peak hour; (2) weekday P.M. peak hour; and (3) Saturday midday peak hour.

- Using the trip generation data for Land Use Code #912 (Drive-In Bank) the number of trips were calculated utilizing the independent variables of 1,000 SF Gross Floor Area and number of Drive-In Lanes, and the more conservative trip generation methodology (shown in **bold**) was utilized for all subsequent analysis.
- Although some trips will be pass-by and internal in nature, no adjustments were made for pass-by and internal capture trips to provide a conservative analysis.

Table D-1 shows the trip generation data for the analyzed time periods.

TABLE D-1
TRIP GENERATION DATA

Land Use	Independent Variable	Time Period	Equation/Rate	Directional Splits	
				Enter %	Exit %
Strip Retail Plaza (<40k) (ITE #822)	9.5 KSF	Weekday A.M. Peak Hour	Ln(T) = 0.66 Ln(X) + 1.84	60%	40%
		Weekday P.M. Peak Hour	Ln(T) = 0.71*Ln(X) + 2.72	50%	50%
		Saturday Midday Peak Hour	T = 6.57*(X)	51%	49%
Drive-In Bank (ITE #912)	3.861 KSF	**Weekday A.M. Peak Hour**	**T = 9.95*(X)**	**58%**	**42%**
		Weekday P.M. Peak Hour	T = 21.01*(X)	50%	50%
		Saturday Midday Peak Hour	**T = 26.35*(X)**	**51%**	**49%**
	3 Lanes	Weekday A.M. Peak Hour	T = 8.54*(X)	61%	39%
		Weekday P.M. Peak Hour	**T = 27.07*(X)**	**49%**	**51%**
		Saturday Midday Peak Hour	T = 27.67*(X)	49%	51%
Automated Car Wash (ITE #948)	1 Tunnel	Weekday A.M. Peak Hour[1]	T = 77.50*(X)	50%	50%
		Weekday P.M. Peak Hour	T = 77.50*(X)	50%	50%
		Saturday Midday Peak Hour	T = 41.00*(X)	46%	54%

T = number of site-generated vehicular trips
X = independent variable (e.g. KSF = 1,000 s.f. gross floor area, number of drive-in lanes, number of car wash tunnels)
1 = Published data not available, utilized P.M. peak hour equation for a conservative analysis

Table D-2 summarizes the trip generation of the proposed development during the analyzed time periods.

TABLE D-2
TRIP GENERATION SUMMARY

Land Use	Total Trips		
	Total	Enter	Exit
Weekday A.M. Peak Hour			
Retail (ITE #822)	28	17	11
Bank (ITE #912)	38	22	16
Car Wash (ITE #948)	78	39	39
Total	**144**	**78**	**66**
Weekday P.M. Peak Hour			
Retail (ITE #822)	75	38	37
Bank (ITE #912)	81	40	41
Car Wash (ITE #948)	78	39	39
Total	**234**	**117**	**117**
Saturday Midday Peak Hour			
Retail (ITE #822)	62	32	30
Bank (ITE #912)	100	51	49
Car Wash (ITE #948)	41	19	22
Total	**203**	**102**	**101**

The new site-generated trips for the proposed development were distributed to the study area intersections based on the percentages shown in **Table D-3**. These percentages were based on the methodology utilized in the TIS for the proposed Sheetz including: a review of existing traffic volumes; the location of surrounding land uses that would typically attract trips to/from the proposed development; the location of any existing nearby retail, banks, and car washes; and the available routes of travel.

TABLE D-3
TRIP DISTRIBUTION PERCENTAGES

Assignment – To/From	Distribution Percentages
East via Line Lexington Road	5%
East via Hilltown Pike (SR 4011)	10%
West via Orvilla Road (SR 1004)	15%
West via Line Lexington Road	5%
North via Bethlehem Pike (SR 0309)	35%
South via Bethlehem Pike (SR 0309)	30%

Zheng, Jason

From: Anton Kuhner <akuhner@bowman.com>
Sent: Monday, November 18, 2024 2:46 PM
To: Zheng, Jason
Cc: Mountz, Eric
Subject: RE: TIS Scoping Meeting -

Jason,

For the Retail and drive thru, that sounds good. For the Car wash, I would also use calculate per ITE. The $145,000 Traffic Impact Fee was for the original development. An additional $45,000 was required as part of the car wash, which calculated to 20 additional trips over the previous approved plan.

ANTON KUHNER
Regional Service Lead - Signals | **BOWMAN**
D: (267) 419-1239
akuhner@bowman.com

From: Zheng, Jason <jzheng@tpdinc.com>
Sent: Monday, November 18, 2024 2:32 PM
To: Anton Kuhner <akuhner@bowman.com>
Cc: Mountz, Eric <emountz@tpdinc.com>
Subject: [EXTERNAL] RE: TIS Scoping Meeting -

Hi Anton,

For the 9,500 SF retail and 3,861 SF drive-in bank with 3 lanes, we plan to calculate the trip generation per ITE and make distribution/percentage assumptions based on existing volumes.

For the car wash, can you provide any trip generation calculations that were completed? It seems like there was an impact fee calculated per the May 25, 2022 board of commissioners meeting totaling $142,978.90. (https://www.hatfield.org/common/pages/DisplayFile.aspx?itemId=18569805) Alternatively, we can assume 1 automated tunnel and calculate the trip gen per ITE.

Thank you,
Jason

Jason Zheng, P.E.,, *Project Manager*
he/him/his

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****Please note our URL has changed from **TrafficPD.com** to **TPDinc.com,** which includes updates to all TPD st*

From: Anton Kuhner <akuhner@bowman.com>
Sent: Monday, November 18, 2024 8:01 AM
To: Zheng, Jason <jzheng@tpdinc.com>
Cc: Mountz, Eric <emountz@tpdinc.com>
Subject: RE: TIS Scoping Meeting -

Jason,

I checked and we no longer have the TIS for the 309 Plaza. It goes back to 2008. There was not a TIS update completed for the Car Wash.

ANTON KUHNER
Regional Service Lead - Signals | **BOWMAN**
D: (267) 419-1239
akuhner@bowman.com

From: Zheng, Jason <jzheng@tpdinc.com>
Sent: Thursday, November 14, 2024 8:56 AM
To: Anton Kuhner <akuhner@bowman.com>
Cc: Mountz, Eric <emountz@tpdinc.com>
Subject: [EXTERNAL] RE: TIS Scoping Meeting -

Morning Anton,

We were able to download the plans. Can you provide the associated traffic impact studies showing trip generation and distribution/assignment percentages; or a contact to obtain a copy of the TIS?

Thank you,
Jason

Jason Zheng, P.E.,, *Project Manager*
he/him/his

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From: Anton Kuhner <akuhner@bowman.com>
Sent: Tuesday, November 12, 2024 1:10 PM
To: Mountz, Eric <emountz@tpdinc.com>
Cc: Zheng, Jason <jzheng@tpdinc.com>
Subject: RE: TIS Scoping Meeting -

BETHLEHEM PIKE S.R. 0309
(POSTED SPEED – 40 MPH)

NORTH WALMAR

SOUTH WALMAR

HILLTOWN TOWNSHIP, BUCKS COUNTY
HATFIELD TOWNSHIP, Mmontgomery COUNTY

S.R. 1004 ORVILLA ROAD (POSTED SPEED – 40 MPH)

LI–LIMITED INDUSTRIAL
RA1–RESIDENTIAL
C–COMMERCIAL
T–TOWNHOUSE

AREA A
0.84 Ac (36,380 SF)

AREA B
1.17 Ac (50,863 SF)

AREA C
1.02 Ac (44,565 SF)

AREA D
6.08 Ac (264,828 SF)

COMMON AREA FOR
UNIT A, B & C
2.09 Ac (90,942 SF)

BUILDING #3
PROPOSED CAR WASH
10,311 S.F. (TOTAL)
21 PARKING SPACES REQ.
FF: 344.50

BUILDING #5
PROPOSED WENDY'S RESTAURANT
2,859 S.F. (TOTAL)
42 PARKING SPACES REQ.
FF: 345.00

FUTURE PHASE
BUILDING #2
RETAIL
9,500 S.F. (TOTAL)
5,700 S.F. (SALES FLOOR)
57 PARKING SPACES REQ.
FF: 342.75

FUTURE PHASE
BUILDING #4
PROPOSED BANK
2,500 S.F. (SALES FLOOR)
3,861 S.F. (TOTAL)
25 PARKING SPACES REQ.
FF: 342.57

PHASE II AREA OF CONSTRUCTION

LOCATION MAP
SCALE: 1" = 800'

LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM EXISTING RECORDS AND/OR ABOVE–GROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH CANNOT BE GUARANTEED. CONTRACTOR MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES BEFORE START OF WORK BY CALLING PA ONE CALL SYSTEM, INC. – PHONE: 1–800–242–1776 THREE DAYS PRIOR TO EXCAVATION. REFERENCE PA ACT 121 DATED 10/09/08.

DESIGN SERIAL NUMBER: 20212391900

REV.	DATE	DESCRIPTION	BY
1	1/21/22	PER TWP CONSULTANT REVIEWS	KWC

LAND DEVELOPMENT PLAN (1 OF 2)

PRIME CAR WASH/309 PLAZA

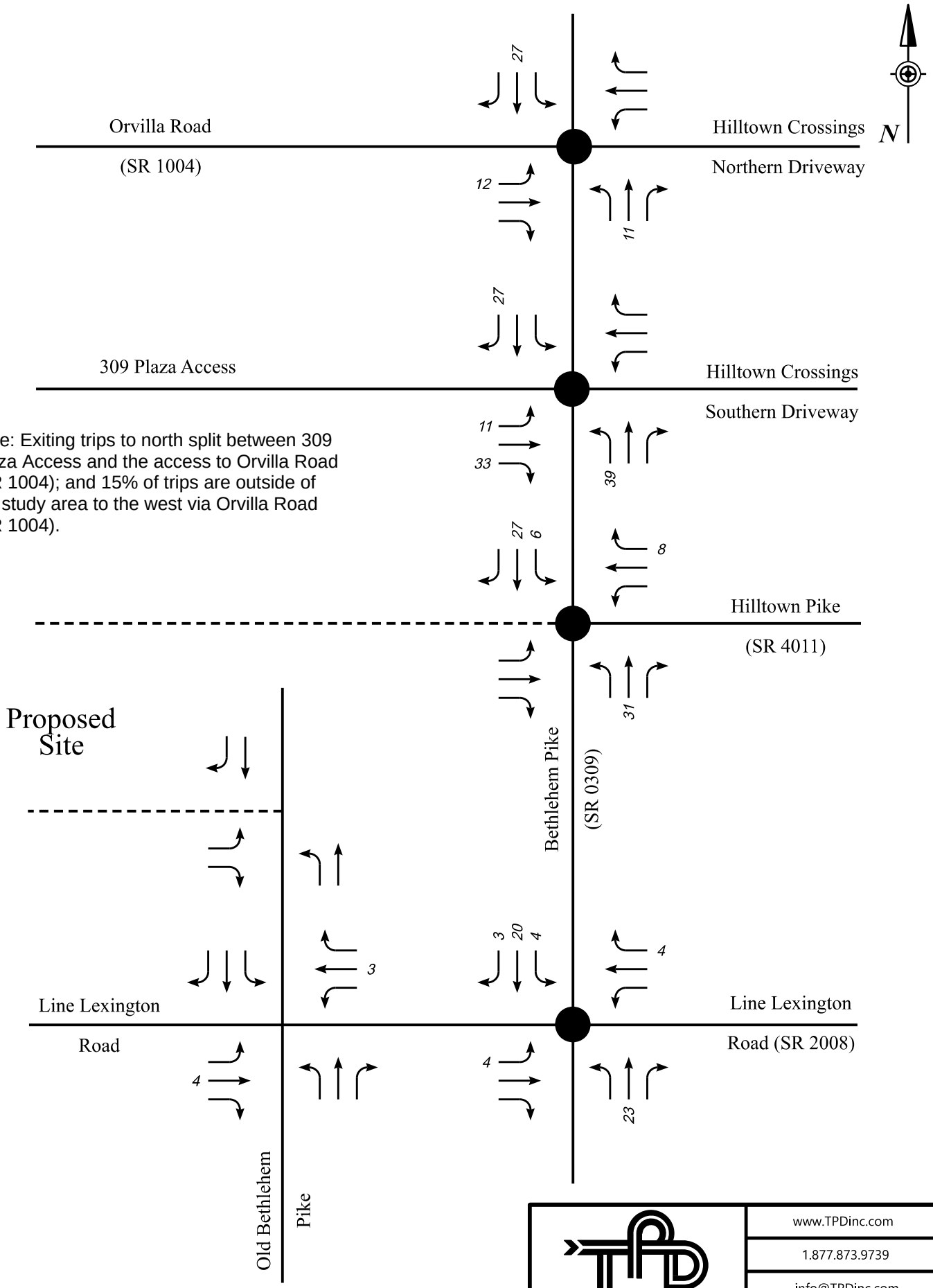
SITUATE:
HATFIELD TOWNSHIP
MONTGOMERY COUNTY
PENNSYLVANIA

SCHLOSSER & CLAUSS
CONSULTING ENGINEERS, INC.
21 EAST LINCOLN AVE., SUITE 200
HATFIELD, PA 19440–2540
PHONE: 215–855–3000 FAX: 215–855–3300
EMAIL: SCCE_INC@COMCAST.NET

A RED INKED PROFESSIONAL SEAL MUST BE CLEARLY VISIBLE ON THIS PLAN FOR IT TO BE CONSIDERED OFFICIAL FOR RECORDING OR CONSTRUCTION.

SCALE: 1"= 40'

DRAWN BY: CRK
DATE: 09–01–2021
CHECKED BY: KWC
DWG NO: 21011
JOB NO: 21011
SHEET 3 OF 21



Note: Exiting trips to north split between 309 Plaza Access and the access to Orvilla Road (SR 1004); and 15% of trips are outside of the study area to the west via Orvilla Road (SR 1004).

KEY:

● **SIGNALIZED INTERSECTION**

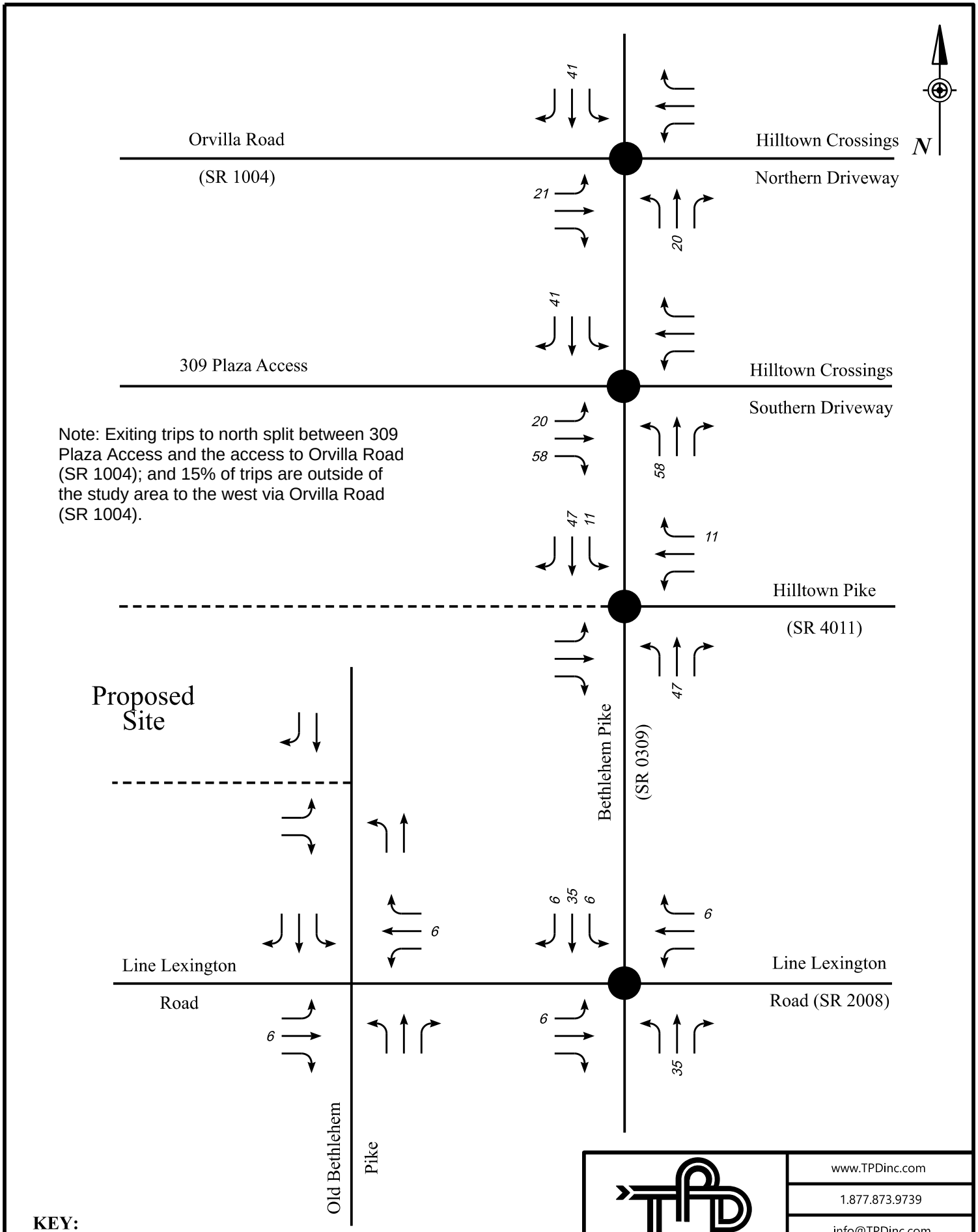
- - - - - **PROPOSED DRIVEWAY**

SCHEMATIC DRAWING:NOT TO SCALE

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FIGURE NB - 1

309 PLAZA EXPANSION NEARBY DEVELOPMENT
WEEKDAY A.M. PEAK HOUR
TRAFFIC VOLUMES



Note: Exiting trips to north split between 309 Plaza Access and the access to Orvilla Road (SR 1004); and 15% of trips are outside of the study area to the west via Orvilla Road (SR 1004).

KEY:

● **SIGNALIZED INTERSECTION**

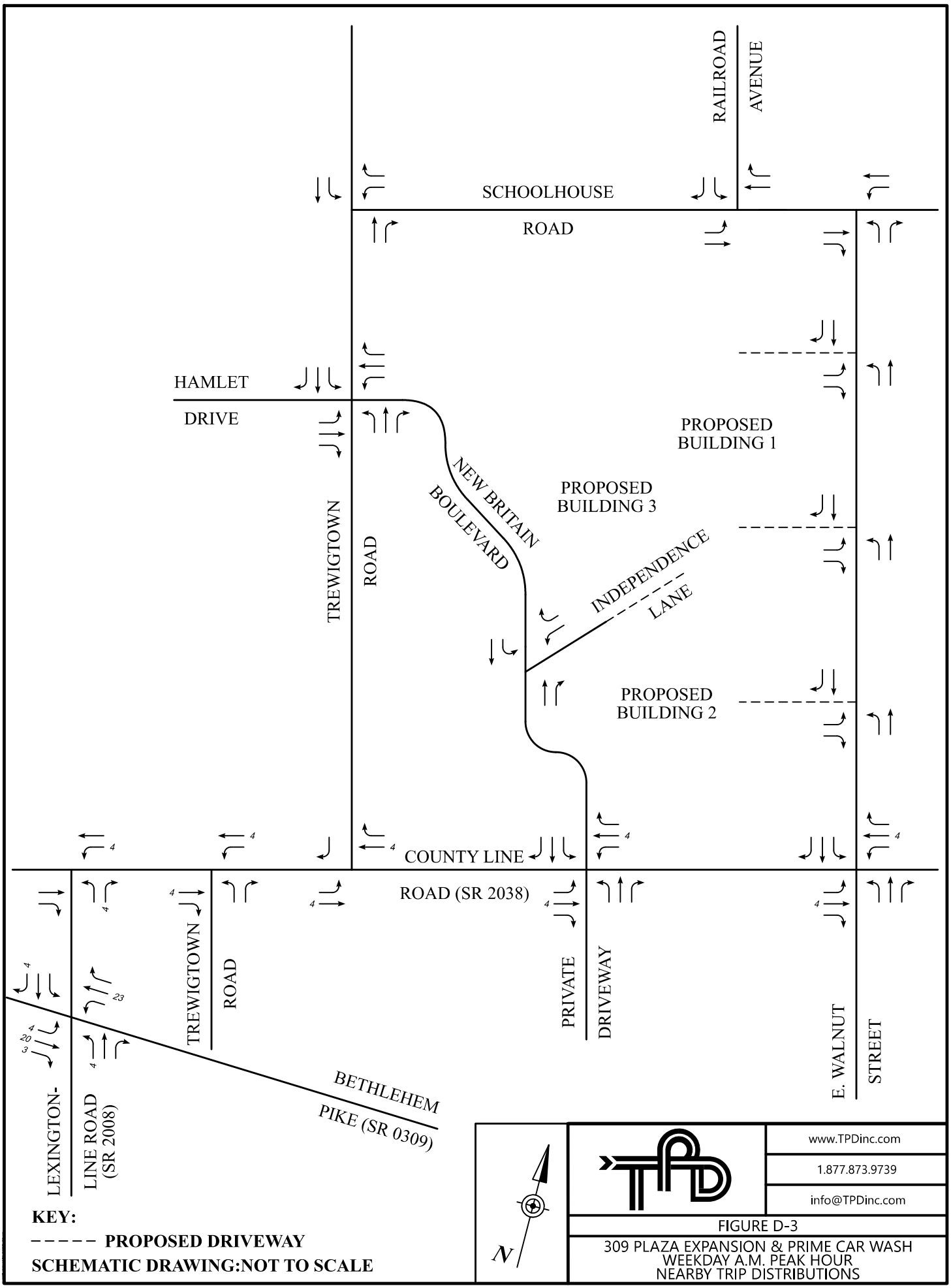
- - - - - **PROPOSED DRIVEWAY**

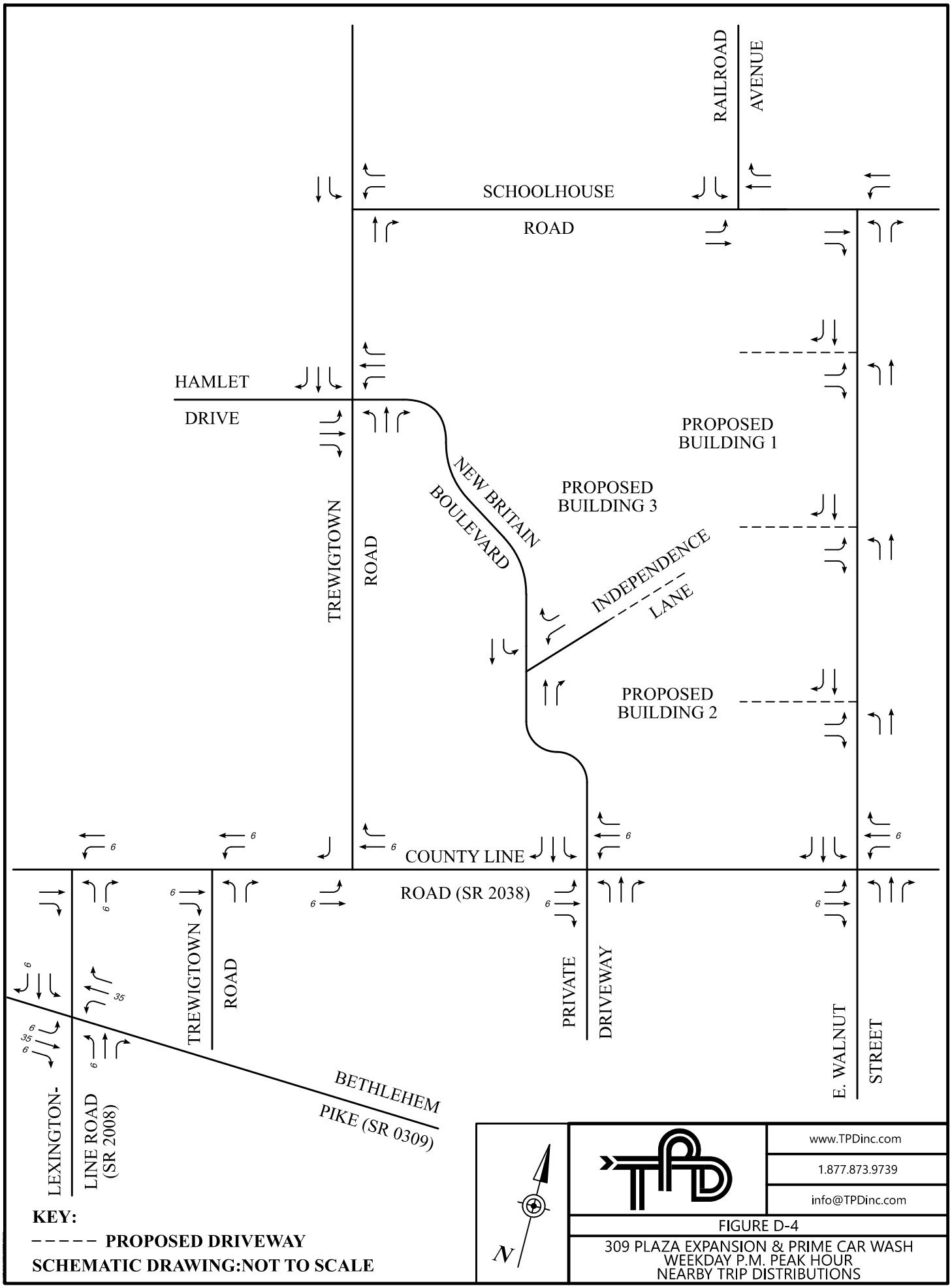
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FIGURE NB - 2

309 PLAZA EXPANSION NEARBY DEVELOPMENT
WEEKDAY P.M. PEAK HOUR
TRAFFIC VOLUMES


RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
N
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
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FIGURE D-3
309 PLAZA EXPANSION & PRIME CAR WASH
WEEKDAY A.M. PEAK HOUR
NEARBY TRIP DISTRIBUTIONS


RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
BETHLEHEM PIKE (SR 0309)
LEXINGTON-LINE ROAD (SR 2008)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
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FIGURE D-4
309 PLAZA EXPANSION & PRIME CAR WASH
WEEKDAY P.M. PEAK HOUR
NEARBY TRIP DISTRIBUTIONS

APPENDIX E:

Volume Development Spreadsheets & Trip Generation/Assignment Data

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**County Line Road (SR 2038) & Walnut Street**								
Synchro Node:	**1**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts	**8**	**667**	**14**	**58**	**544**	**7**	**14**	**69**	**68**	**19**	**138**	**19**	**1625**
Seasonal Adjustment (3.24%)	0	22	0	2	18	0	0	2	2	1	4	1	52
2025 Existing Volumes (Balanced)	**8**	**689**	**14**	**60**	**562**	**7**	**14**	**71**	**70**	**20**	**142**	**20**	**1677**
Base growth (0.12% compounded for 9 yrs)	0	7	0	1	6	0	0	1	1	0	2	0	18
Sheetz Convenience Store with Gasoline		3			3								6
309 Plaza Expansion and Prime Car Wash		4			4								8
													0
													0
2034 Base Volumes	**8**	**703**	**14**	**61**	**575**	**7**	**14**	**72**	**71**	**20**	**144**	**20**	**1709**

	Building One		**Building Two**		**Building Three**	
	Car	**Truck**	**Car**	**Truck**	**Car**	**Truck**
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter	30.0%					35.0%		15.0%					
Building 1 - PC - Trip Assignment % - New Exit										35.0%	15.0%	30.0%	
Building 1 - Truck - Trip Assignment % - New Enter	100.0%												
Building 1 - Truck - Trip Assignment % - New Exit												100.0%	
Building 2 - PC - Trip Assignment % - New Enter	30.0%					35.0%		15.0%					
Building 2 - PC - Trip Assignment % - New Exit										35.0%	15.0%	30.0%	
Building 2 - Truck - Trip Assignment % - New Enter	100.0%												
Building 2 - Truck - Trip Assignment % - New Exit												100.0%	
Building 3 - PC - Trip Assignment % - New Enter					35.0%		15.0%						
Building 3 - PC - Trip Assignment % - New Exit		35.0%	15.0%										
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	15	0	0	0	0	17	0	7	0	6	2	5	**52**
Building 1 Truck Trips	10	0	0	0	0	0	0	0	0	0	0	7	**17**
Building 2 Pass Cars Trips	4	0	0	0	0	5	0	2	0	2	0	2	**15**
Building 2 Truck Trips	3	0	0	0	0	0	0	0	0	0	0	2	**5**
Building 3 Pass Cars Trips	0	2	1	0	6	0	3	0	0	0	0	0	**12**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	19	2	1	0	6	22	3	9	0	8	2	7	**79**
Total Truck Trips	13	0	0	0	0	0	0	0	0	0	0	9	**22**
2034 Projected Volumes	**40**	**705**	**15**	**61**	**581**	**29**	**17**	**81**	**71**	**28**	**146**	**36**	**1810**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts	**10**	**610**	**16**	**63**	**541**	**22**	**10**	**127**	**77**	**14**	**95**	**21**	**1606**
Seasonal Adjustment (9.79%)	1	60	2	6	53	2	1	12	8	1	9	2	157
2025 Existing Volumes (Balanced)	**11**	**670**	**18**	**69**	**594**	**24**	**11**	**139**	**85**	**15**	**104**	**23**	**1763**
Base growth (0.12% compounded for 9 yrs)	0	7	0	1	6	0	0	2	1	0	1	0	18
Sheetz Convenience Store with Gasoline		3			3								
309 Plaza Expansion and Prime Car Wash		6			6								12
													0
													0
2034 Base Volumes	**11**	**686**	**18**	**70**	**609**	**24**	**11**	**141**	**86**	**15**	**105**	**23**	**1799**

	Building One		**Building Two**		**Building Three**	
	Car	**Truck**	**Car**	**Truck**	**Car**	**Truck**
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter	30.0%					35.0%		15.0%					
Building 1 - PC - Trip Assignment % - New Exit										35.0%	15.0%	30.0%	
Building 1 - Truck - Trip Assignment % - New Enter	100.0%												
Building 1 - Truck - Trip Assignment % - New Exit												100.0%	
Building 2 - PC - Trip Assignment % - New Enter	30.0%					35.0%		15.0%					
Building 2 - PC - Trip Assignment % - New Exit										35.0%	15.0%	30.0%	
Building 2 - Truck - Trip Assignment % - New Enter	100.0%												
Building 2 - Truck - Trip Assignment % - New Exit												100.0%	
Building 3 - PC - Trip Assignment % - New Enter					35.0%		15.0%						
Building 3 - PC - Trip Assignment % - New Exit		35.0%	15.0%										
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	4	0	0	0	0	5	0	2	0	20	9	17	**57**
Building 1 Truck Trips	11	0	0	0	0	0	0	0	0	0	0	9	**20**
Building 2 Pass Cars Trips	1	0	0	0	0	1	0	1	0	6	3	5	**17**
Building 2 Truck Trips	3	0	0	0	0	0	0	0	0	0	0	3	**6**
Building 3 Pass Cars Trips	0	7	3	0	1	0	1	0	0	0	0	0	**12**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	5	7	3	0	1	6	1	3	0	26	12	22	**86**
Total Truck Trips	14	0	0	0	0	0	0	0	0	0	0	12	**26**
2034 Projected Volumes	**30**	**693**	**21**	**70**	**610**	**30**	**12**	**144**	**86**	**41**	**117**	**57**	**1911**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**Walnut Street & Schoolhouse Road**									
Synchro Node:	**2**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts		**263**	**142**	**34**	**123**		**53**		**37**				**652**
Seasonal Adjustment (3.24%)		9	5	1	4		2		1				22
2025 Existing Volumes (Balanced)		**272**	**147**	**35**	**127**		**55**		**38**				**674**
Base growth (0.12% compounded for 9 yrs)		3	2	0	1		1		0				7
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes		**275**	**149**	**35**	**128**		**56**		**38**				**681**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter			7.0%	13.0%									
Building 1 - PC - Trip Assignment % - New Exit							7.0%		13.0%				
Building 1 - Truck - Trip Assignment % - New Enter													
Building 1 - Truck - Trip Assignment % - New Exit													
Building 2 - PC - Trip Assignment % - New Enter			7.0%	13.0%									
Building 2 - PC - Trip Assignment % - New Exit							7.0%		13.0%				
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter					13.0%								
Building 3 - PC - Trip Assignment % - New Exit		13.0%											
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	0	0	3	6	0	0	1	0	2	0	0	0	**12**
Building 1 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Pass Cars Trips	0	0	1	2	0	0	0	0	1	0	0	0	**4**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	1	0	0	2	0	0	0	0	0	0	0	**3**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	0	1	4	8	2	0	1	0	3	0	0	0	**19**
Total Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2034 Projected Volumes	**0**	**276**	**153**	**43**	**130**	**0**	**57**	**0**	**41**	**0**	**0**	**0**	**700**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts		**259**	**72**	**54**	**493**		**137**		**35**				**1050**
Seasonal Adjustment (9.79%)		25	7	5	48		13		3				101
2025 Existing Volumes (Balanced)		**284**	**79**	**59**	**541**		**150**		**38**				**1151**
Base growth (0.12% compounded for 9 yrs)		3	1	1	6		2		0				13
Sheetz Convenience Store with Gasoline													
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes		**287**	**80**	**60**	**547**		**152**		**38**				**1164**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter			7.0%	13.0%									
Building 1 - PC - Trip Assignment % - New Exit							7.0%		13.0%				
Building 1 - Truck - Trip Assignment % - New Enter													
Building 1 - Truck - Trip Assignment % - New Exit													
Building 2 - PC - Trip Assignment % - New Enter			7.0%	13.0%									
Building 2 - PC - Trip Assignment % - New Exit							7.0%		13.0%				
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter					13.0%								
Building 3 - PC - Trip Assignment % - New Exit		13.0%											
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	0	0	1	2	0	0	4	0	8	0	0	0	**15**
Building 1 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Pass Cars Trips	0	0	0	1	0	0	1	0	2	0	0	0	**4**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	3	0	0	1	0	0	0	0	0	0	0	**4**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	0	3	1	3	1	0	5	0	10	0	0	0	**23**
Total Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2034 Projected Volumes	**0**	**290**	**81**	**63**	**548**	**0**	**157**	**0**	**48**	**0**	**0**	**0**	**1187**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**Schoolhouse Road & Railroad Avenue**											
Synchro Node:	**3**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**		

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts	**24**	**183**			**124**	**80**				**193**		**37**	**641**
Seasonal Adjustment (3.24%)	1	6			4	3				6		1	21
2025 Existing Volumes (Balanced)	**25**	**189**			**128**	**83**				**199**		**38**	**662**
Base growth (0.12% compounded for 9 yrs)	0	2			1	1				2		0	6
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes	**25**	**191**			**129**	**84**				**201**		**38**	**668**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter										7.0%			
Building 1 - PC - Trip Assignment % - New Exit						7.0%							
Building 1 - Truck - Trip Assignment % - New Enter													
Building 1 - Truck - Trip Assignment % - New Exit													
Building 2 - PC - Trip Assignment % - New Enter										7.0%			
Building 2 - PC - Trip Assignment % - New Exit						7.0%							
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter					13.0%							7.0%	
Building 3 - PC - Trip Assignment % - New Exit	7.0%	13.0%											
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	0	0	0	0	0	1	0	0	0	3	0	0	**4**
Building 1 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	0	0	1	0	0	**1**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	1	0	0	2	0	0	0	0	0	0	1	**4**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	0	1	0	0	2	1	0	0	0	4	0	1	**9**
Total Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2034 Projected Volumes	**25**	**192**	**0**	**0**	**131**	**85**	**0**	**0**	**0**	**205**	**0**	**39**	**677**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts	**39**	**202**			**314**	**316**				**128**		**21**	**1020**
Seasonal Adjustment (9.79%)	4	20			31	31				13		2	101
2025 Existing Volumes (Balanced)	**43**	**222**			**345**	**347**				**141**		**23**	**1121**
Base growth (0.12% compounded for 9 yrs)	0	2			4	4				2		0	12
Sheetz Convenience Store with Gasoline													
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes	**43**	**224**			**349**	**351**				**143**		**23**	**1133**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter										7.0%			
Building 1 - PC - Trip Assignment % - New Exit						7.0%							
Building 1 - Truck - Trip Assignment % - New Enter													
Building 1 - Truck - Trip Assignment % - New Exit													
Building 2 - PC - Trip Assignment % - New Enter										7.0%			
Building 2 - PC - Trip Assignment % - New Exit						7.0%							
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter					13.0%							7.0%	
Building 3 - PC - Trip Assignment % - New Exit	7.0%	13.0%											
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	0	0	0	0	0	4	0	0	0	1	0	0	**5**
Building 1 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Pass Cars Trips	0	0	0	0	0	1	0	0	0	0	0	0	**1**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	1	3	0	0	1	0	0	0	0	0	0	0	**5**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	1	3	0	0	1	5	0	0	0	1	0	0	**11**
Total Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2034 Projected Volumes	**44**	**227**	**0**	**0**	**350**	**356**	**0**	**0**	**0**	**144**	**0**	**23**	**1144**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**County Line Road (SR 2038) & New Britain Boulevard/Private Driveway**								
Synchro Node:	**5**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts	**26**	**662**	**2**	**5**	**500**	**72**	**0**	**0**	**1**	**35**	**1**	**5**	**1309**
Seasonal Adjustment (3.24%)	1	21	0	0	16	2	0	0	0	1	0	0	41
2025 Existing Volumes (Balanced)	**27**	**683**	**2**	**5**	**516**	**74**	**0**	**0**	**1**	**36**	**1**	**5**	**1350**
Base growth (0.12% compounded for 9 yrs)	0	7	0	0	6	1	0	0	0	0	0	0	14
Sheetz Convenience Store with Gasoline		3			3								6
309 Plaza Expansion and Prime Car Wash		4			4								8
													0
													0
2034 Base Volumes	**27**	**697**	**2**	**5**	**529**	**75**	**0**	**0**	**1**	**36**	**1**	**5**	**1378**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter		30.0%											
Building 1 - PC - Trip Assignment % - New Exit					30.0%								
Building 1 - Truck - Trip Assignment % - New Enter		100.0%											
Building 1 - Truck - Trip Assignment % - New Exit					100.0%								
Building 2 - PC - Trip Assignment % - New Enter		30.0%											
Building 2 - PC - Trip Assignment % - New Exit					30.0%								
Building 2 - Truck - Trip Assignment % - New Enter		100.0%											
Building 2 - Truck - Trip Assignment % - New Exit					100.0%								
Building 3 - PC - Trip Assignment % - New Enter	30.0%					50.0%							
Building 3 - PC - Trip Assignment % - New Exit										50.0%		30.0%	
Building 3 - Truck - Trip Assignment % - New Enter	100.0%												
Building 3 - Truck - Trip Assignment % - New Exit												100.0%	
Building 1 Pass Cars Trips	0	15	0	0	5	0	0	0	0	0	0	0	**20**
Building 1 Truck Trips	0	10	0	0	7	0	0	0	0	0	0	0	**17**
Building 2 Pass Cars Trips	0	4	0	0	2	0	0	0	0	0	0	0	**6**
Building 2 Truck Trips	0	3	0	0	2	0	0	0	0	0	0	0	**5**
Building 3 Pass Cars Trips	5	0	0	0	0	9	0	0	0	3	0	1	**18**
Building 3 Truck Trips	3	0	0	0	0	0	0	0	0	0	0	3	**6**
Total Pass Cars Trips	5	19	0	0	7	9	0	0	0	3	0	1	**44**
Total Truck Trips	3	13	0	0	9	0	0	0	0	0	0	3	**28**
2034 Projected Volumes	**35**	**729**	**2**	**5**	**545**	**84**	**0**	**0**	**1**	**39**	**1**	**9**	**1450**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts	**15**	**511**	**0**	**0**	**580**	**37**	**1**	**2**	**2**	**78**	**0**	**31**	**1257**
Seasonal Adjustment (9.79%)	1	50	0	0	57	4	0	0	0	8	0	3	123
2025 Existing Volumes (Balanced)	**16**	**561**	**0**	**0**	**637**	**41**	**1**	**2**	**2**	**86**	**0**	**34**	**1380**
Base growth (0.12% compounded for 9 yrs)	0	6	0	0	7	0	0	0	0	1	0	0	14
Sheetz Convenience Store with Gasoline		3			3								
309 Plaza Expansion and Prime Car Wash		6			6								12
													0
													0
2034 Base Volumes	**16**	**576**	**0**	**0**	**653**	**41**	**1**	**2**	**2**	**87**	**0**	**34**	**1412**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter		30.0%											
Building 1 - PC - Trip Assignment % - New Exit					30.0%								
Building 1 - Truck - Trip Assignment % - New Enter		100.0%											
Building 1 - Truck - Trip Assignment % - New Exit					100.0%								
Building 2 - PC - Trip Assignment % - New Enter		30.0%											
Building 2 - PC - Trip Assignment % - New Exit					30.0%								
Building 2 - Truck - Trip Assignment % - New Enter		100.0%											
Building 2 - Truck - Trip Assignment % - New Exit					100.0%								
Building 3 - PC - Trip Assignment % - New Enter	30.0%					50.0%							
Building 3 - PC - Trip Assignment % - New Exit										50.0%		30.0%	
Building 3 - Truck - Trip Assignment % - New Enter	100.0%												
Building 3 - Truck - Trip Assignment % - New Exit												100.0%	
Building 1 Pass Cars Trips	0	4	0	0	17	0	0	0	0	0	0	0	**21**
Building 1 Truck Trips	0	11	0	0	9	0	0	0	0	0	0	0	**20**
Building 2 Pass Cars Trips	0	1	0	0	5	0	0	0	0	0	0	0	**6**
Building 2 Truck Trips	0	3	0	0	3	0	0	0	0	0	0	0	**6**
Building 3 Pass Cars Trips	1	0	0	0	0	2	0	0	0	10	0	6	**19**
Building 3 Truck Trips	4	0	0	0	0	0	0	0	0	0	0	3	**7**
Total Pass Cars Trips	1	5	0	0	22	2	0	0	0	10	0	6	**46**
Total Truck Trips	4	14	0	0	12	0	0	0	0	0	0	3	**33**
2034 Projected Volumes	**21**	**595**	**0**	**0**	**687**	**43**	**1**	**2**	**2**	**97**	**0**	**43**	**1491**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**New Britain Boulevard & Independence Lane**									
Synchro Node:	**6**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts				**6**		**0**		**55**	**34**	**13**	**37**		**145**
Seasonal Adjustment (3.24%)				0		0		2	1	0	1		4
2025 Existing Volumes (Balanced)				**6**		**0**		**57**	**35**	**13**	**38**		**149**
Base growth (0.12% compounded for 9 yrs)				0		0		1	0	0	0		1
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes				**6**		**0**		**58**	**35**	**13**	**38**		**150**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter													
Building 1 - PC - Trip Assignment % - New Exit													
Building 1 - Truck - Trip Assignment % - New Enter													
Building 1 - Truck - Trip Assignment % - New Exit													
Building 2 - PC - Trip Assignment % - New Enter													
Building 2 - PC - Trip Assignment % - New Exit													
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter									80.0%	20.0%			
Building 3 - PC - Trip Assignment % - New Exit				80.0%		20.0%							
Building 3 - Truck - Trip Assignment % - New Enter									100.0%				
Building 3 - Truck - Trip Assignment % - New Exit				100.0%									
Building 1 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 1 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	0	0	4	0	1	0	0	14	3	0	0	**22**
Building 3 Truck Trips	0	0	0	3	0	0	0	0	3	0	0	0	**6**
Total Pass Cars Trips	0	0	0	4	0	1	0	0	14	3	0	0	**22**
Total Truck Trips	0	0	0	3	0	0	0	0	3	0	0	0	**6**
2034 Projected Volumes	**0**	**0**	**0**	**13**	**0**	**1**	**0**	**58**	**52**	**16**	**38**	**0**	**178**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts				**32**		**18**		**41**	**3**	**0**	**64**		**158**
Seasonal Adjustment (9.79%)				3		2		4	0	0	6		15
2025 Existing Volumes (Balanced)				**35**		**20**		**45**	**3**	**0**	**70**		**173**
Base growth (0.12% compounded for 9 yrs)				0		0		0	0	0	1		1
Sheetz Convenience Store with Gasoline													
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes				**35**		**20**		**45**	**3**	**0**	**71**		**174**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter													
Building 1 - PC - Trip Assignment % - New Exit													
Building 1 - Truck - Trip Assignment % - New Enter													
Building 1 - Truck - Trip Assignment % - New Exit													
Building 2 - PC - Trip Assignment % - New Enter													
Building 2 - PC - Trip Assignment % - New Exit													
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter									80.0%	20.0%			
Building 3 - PC - Trip Assignment % - New Exit				80.0%		20.0%							
Building 3 - Truck - Trip Assignment % - New Enter									100.0%				
Building 3 - Truck - Trip Assignment % - New Exit				100.0%									
Building 1 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 1 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	0	0	16	0	4	0	0	3	1	0	0	**24**
Building 3 Truck Trips	0	0	0	3	0	0	0	0	4	0	0	0	**7**
Total Pass Cars Trips	0	0	0	16	0	4	0	0	3	1	0	0	**24**
Total Truck Trips	0	0	0	3	0	0	0	0	4	0	0	0	**7**
2034 Projected Volumes	**0**	**0**	**0**	**54**	**0**	**24**	**0**	**45**	**10**	**1**	**71**	**0**	**205**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**Trewigtown Road & New Britain Boulevard/Hamlet Drive**											
Synchro Node:	**7**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**		

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts	**7**	**5**	**2**	**2**	**0**	**4**	**0**	**89**	**27**	**77**	**64**	**1**	**278**
Seasonal Adjustment (3.24%)	0	0	0	0	0	0	0	3	1	2	2	0	8
2025 Existing Volumes (Balanced)	**7**	**5**	**2**	**2**	**0**	**4**	**0**	**92**	**28**	**79**	**66**	**1**	**286**
Base growth (0.12% compounded for 9 yrs)	0	0	0	0	0	0	0	1	0	1	1	0	3
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes	**7**	**5**	**2**	**2**	**0**	**4**	**0**	**93**	**28**	**80**	**67**	**1**	**289**

	Building One		**Building Two**		**Building Three**	
	Car	**Truck**	**Car**	**Truck**	**Car**	**Truck**
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter													
Building 1 - PC - Trip Assignment % - New Exit													
Building 1 - Truck - Trip Assignment % - New Enter													
Building 1 - Truck - Trip Assignment % - New Exit													
Building 2 - PC - Trip Assignment % - New Enter													
Building 2 - PC - Trip Assignment % - New Exit													
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter										20.0%			
Building 3 - PC - Trip Assignment % - New Exit						20.0%							
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 1 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	0	0	0	0	1	0	0	0	3	0	0	**4**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	0	0	0	0	0	1	0	0	0	3	0	0	**4**
Total Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2034 Projected Volumes	**7**	**5**	**2**	**2**	**0**	**5**	**0**	**93**	**28**	**83**	**67**	**1**	**293**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts	**8**	**6**	**0**	**8**	**5**	**86**	**2**	**183**	**6**	**6**	**89**	**8**	**407**
Seasonal Adjustment (9.79%)	1	1	0	1	0	8	0	18	1	1	9	1	41
2025 Existing Volumes (Balanced)	**9**	**7**	**0**	**9**	**5**	**94**	**2**	**201**	**7**	**7**	**98**	**9**	**448**
Base growth (0.12% compounded for 9 yrs)	0	0	0	0	0	1	0	2	0	0	1	0	4
Sheetz Convenience Store with Gasoline													
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes	**9**	**7**	**0**	**9**	**5**	**95**	**2**	**203**	**7**	**7**	**99**	**9**	**452**

	Building One		**Building Two**		**Building Three**	
	Car	**Truck**	**Car**	**Truck**	**Car**	**Truck**
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter													
Building 1 - PC - Trip Assignment % - New Exit													
Building 1 - Truck - Trip Assignment % - New Enter													
Building 1 - Truck - Trip Assignment % - New Exit													
Building 2 - PC - Trip Assignment % - New Enter													
Building 2 - PC - Trip Assignment % - New Exit													
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter										20.0%			
Building 3 - PC - Trip Assignment % - New Exit						20.0%							
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 1 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	0	0	0	0	4	0	0	0	1	0	0	**5**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	0	0	0	0	0	4	0	0	0	1	0	0	**5**
Total Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2034 Projected Volumes	**9**	**7**	**0**	**9**	**5**	**99**	**2**	**203**	**7**	**8**	**99**	**9**	**457**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**Bethlehem Pike (SR 0309) & Line Lexington Road (SR 2008)**									
Synchro Node:	**8**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts	**40**	**128**	**48**	**11**	**45**	**460**	**14**	**775**	**0**	**536**	**1501**	**66**	**3624**
Balancing (1 Year of Growth = 0.08%)	0	0	0	0	0	0	0	1	0	0	1	0	
2025 Existing Volumes (Balanced)	**40**	**128**	**48**	**11**	**45**	**460**	**14**	**776**	**0**	**536**	**1502**	**66**	**3626**
Base growth (0.12% compounded for 9 yrs)	0	1	1	0	0	5	0	8	0	6	16	1	38
Sheetz Convenience Store with Gasoline	-2	1	3		1	2	23	1		2	21	-3	49
309 Plaza Expansion and Prime Car Wash	4					4		23		4	20	3	58
													0
													0
2034 Base Volumes	**42**	**130**	**52**	**11**	**46**	**471**	**37**	**808**	**0**	**548**	**1559**	**67**	**3771**

Building One	**Car**	**Truck**
ENTER =	**48**	**(10)**
EXIT =	**16**	**(7)**

Building Two	**Car**	**Truck**
ENTER =	**14**	**(3)**
EXIT =	**5**	**(2)**

Building Three	**Car**	**Truck**
ENTER =	**17**	**3**
EXIT =	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter									15.0%	15.0%			
Building 1 - PC - Trip Assignment % - New Exit				15.0%		15.0%							
Building 1 - Truck - Trip Assignment % - New Enter									50.0%	50.0%			
Building 1 - Truck - Trip Assignment % - New Exit				50.0%		50.0%							
Building 2 - PC - Trip Assignment % - New Enter									15.0%	15.0%			
Building 2 - PC - Trip Assignment % - New Exit				15.0%		15.0%							
Building 2 - Truck - Trip Assignment % - New Enter									50.0%	50.0%			
Building 2 - Truck - Trip Assignment % - New Exit				50.0%		50.0%							
Building 3 - PC - Trip Assignment % - New Enter									15.0%	15.0%			
Building 3 - PC - Trip Assignment % - New Exit				15.0%		15.0%							
Building 3 - Truck - Trip Assignment % - New Enter									50.0%	50.0%			
Building 3 - Truck - Trip Assignment % - New Exit				50.0%		50.0%							
Building 1 Pass Cars Trips	0	0	0	3	0	2	0	0	8	7	0	0	**20**
Building 1 Truck Trips	0	0	0	4	0	3	0	0	5	5	0	0	**17**
Building 2 Pass Cars Trips	0	0	0	1	0	1	0	0	2	2	0	0	**6**
Building 2 Truck Trips	0	0	0	1	0	1	0	0	2	1	0	0	**5**
Building 3 Pass Cars Trips	0	0	0	1	0	0	0	0	3	2	0	0	**6**
Building 3 Truck Trips	0	0	0	2	0	1	0	0	2	1	0	0	**6**
Total Pass Cars Trips	0	0	0	5	0	3	0	0	13	11	0	0	**32**
Total Truck Trips	0	0	0	7	0	5	0	0	9	7	0	0	**28**
2034 Projected Volumes	**42**	**130**	**52**	**23**	**46**	**479**	**37**	**808**	**22**	**566**	**1559**	**67**	**3831**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2024 Existing Counts	**84**	**92**	**43**	**5**	**42**	**453**	**26**	**1405**	**9**	**401**	**1144**	**73**	**3777**
Balancing (1 Year of Growth = 0.08%)	0	0	0	0	0	0	0	1	0	0	1	0	
2025 Existing Volumes (Balanced)	**84**	**92**	**43**	**5**	**42**	**453**	**26**	**1406**	**9**	**401**	**1145**	**73**	**3779**
Base growth (0.12% compounded for 9 yrs)	1	1	0	0	0	5	0	15	0	4	12	1	39
Sheetz Convenience Store with Gasoline	-2	1	4		1	2	28	-6		2	17	-2	
309 Plaza Expansion and Prime Car Wash	6					6		35		6	35	6	94
													0
													0
2034 Base Volumes	**89**	**94**	**47**	**5**	**43**	**466**	**54**	**1450**	**9**	**413**	**1209**	**78**	**3957**

Building One	**Car**	**Truck**
ENTER =	**14**	**(11)**
EXIT =	**58**	**(9)**

Building Two	**Car**	**Truck**
ENTER =	**4**	**3**
EXIT =	**17**	**3**

Building Three	**Car**	**Truck**
ENTER =	**4**	**4**
EXIT =	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter									15.0%	15.0%			
Building 1 - PC - Trip Assignment % - New Exit				15.0%		15.0%							
Building 1 - Truck - Trip Assignment % - New Enter									50.0%	50.0%			
Building 1 - Truck - Trip Assignment % - New Exit				50.0%		50.0%							
Building 2 - PC - Trip Assignment % - New Enter									15.0%	15.0%			
Building 2 - PC - Trip Assignment % - New Exit				15.0%		15.0%							
Building 2 - Truck - Trip Assignment % - New Enter									50.0%	50.0%			
Building 2 - Truck - Trip Assignment % - New Exit				50.0%		50.0%							
Building 3 - PC - Trip Assignment % - New Enter									15.0%	15.0%			
Building 3 - PC - Trip Assignment % - New Exit				15.0%		15.0%							
Building 3 - Truck - Trip Assignment % - New Enter									50.0%	50.0%			
Building 3 - Truck - Trip Assignment % - New Exit				50.0%		50.0%							
Building 1 Pass Cars Trips	0	0	0	9	0	8	0	0	2	2	0	0	**21**
Building 1 Truck Trips	0	0	0	5	0	4	0	0	6	5	0	0	**20**
Building 2 Pass Cars Trips	0	0	0	3	0	2	0	0	1	0	0	0	**6**
Building 2 Truck Trips	0	0	0	2	0	1	0	0	2	1	0	0	**6**
Building 3 Pass Cars Trips	0	0	0	3	0	3	0	0	1	0	0	0	**7**
Building 3 Truck Trips	0	0	0	2	0	1	0	0	2	2	0	0	**7**
Total Pass Cars Trips	0	0	0	15	0	13	0	0	4	2	0	0	**34**
Total Truck Trips	0	0	0	9	0	6	0	0	10	8	0	0	**33**
2034 Projected Volumes	**89**	**94**	**47**	**29**	**43**	**485**	**54**	**1450**	**23**	**423**	**1209**	**78**	**4024**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**County Line Road (SR 2038) & Line Lexington Road (SR 2008)**									
Synchro Node:	**9**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts		**58**	**42**	**538**	**11**		**6**		**664**				**1319**
2025 Existing Volumes (Balanced)		**58**	**42**	**538**	**11**		**6**		**664**				**1319**
Base growth (0.12% compounded for 9 yrs)		1	0	6	0		0		7				14
Sheetz Convenience Store with Gasoline				3					3				6
309 Plaza Expansion and Prime Car Wash				4					4				8
													0
													0
2034 Base Volumes		**59**	**42**	**551**	**11**		**6**		**678**				**1347**

	Building One		**Building Two**		**Building Three**	
	Car	**Truck**	**Car**	**Truck**	**Car**	**Truck**
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter									30.0%				
Building 1 - PC - Trip Assignment % - New Exit				30.0%									
Building 1 - Truck - Trip Assignment % - New Enter									100.0%				
Building 1 - Truck - Trip Assignment % - New Exit				100.0%									
Building 2 - PC - Trip Assignment % - New Enter									30.0%				
Building 2 - PC - Trip Assignment % - New Exit				30.0%									
Building 2 - Truck - Trip Assignment % - New Enter									100.0%				
Building 2 - Truck - Trip Assignment % - New Exit				100.0%									
Building 3 - PC - Trip Assignment % - New Enter									30.0%				
Building 3 - PC - Trip Assignment % - New Exit				30.0%									
Building 3 - Truck - Trip Assignment % - New Enter									100.0%				
Building 3 - Truck - Trip Assignment % - New Exit				100.0%									
Building 1 Pass Cars Trips	0	0	0	5	0	0	0	0	15	0	0	0	**20**
Building 1 Truck Trips	0	0	0	7	0	0	0	0	10	0	0	0	**17**
Building 2 Pass Cars Trips	0	0	0	2	0	0	0	0	4	0	0	0	**6**
Building 2 Truck Trips	0	0	0	2	0	0	0	0	3	0	0	0	**5**
Building 3 Pass Cars Trips	0	0	0	1	0	0	0	0	5	0	0	0	**6**
Building 3 Truck Trips	0	0	0	3	0	0	0	0	3	0	0	0	**6**
Total Pass Cars Trips	0	0	0	8	0	0	0	0	24	0	0	0	**32**
Total Truck Trips	0	0	0	12	0	0	0	0	16	0	0	0	**28**
2034 Projected Volumes	**0**	**59**	**42**	**571**	**11**	**0**	**6**	**0**	**718**	**0**	**0**	**0**	**1407**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts		**32**	**46**	**495**	**21**		**10**		**516**				**1120**
2025 Existing Volumes (Balanced)		**32**	**46**	**495**	**21**		**10**		**516**				**1120**
Base growth (0.12% compounded for 9 yrs)		0	0	5	0		0		6				11
Sheetz Convenience Store with Gasoline				3					3				
309 Plaza Expansion and Prime Car Wash				6					6				12
													0
													0
2034 Base Volumes		**32**	**46**	**509**	**21**		**10**		**531**				**1149**

	Building One		**Building Two**		**Building Three**	
	Car	**Truck**	**Car**	**Truck**	**Car**	**Truck**
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter									30.0%				
Building 1 - PC - Trip Assignment % - New Exit				30.0%									
Building 1 - Truck - Trip Assignment % - New Enter									100.0%				
Building 1 - Truck - Trip Assignment % - New Exit				100.0%									
Building 2 - PC - Trip Assignment % - New Enter									30.0%				
Building 2 - PC - Trip Assignment % - New Exit				30.0%									
Building 2 - Truck - Trip Assignment % - New Enter									100.0%				
Building 2 - Truck - Trip Assignment % - New Exit				100.0%									
Building 3 - PC - Trip Assignment % - New Enter									30.0%				
Building 3 - PC - Trip Assignment % - New Exit				30.0%									
Building 3 - Truck - Trip Assignment % - New Enter									100.0%				
Building 3 - Truck - Trip Assignment % - New Exit				100.0%									
Building 1 Pass Cars Trips	0	0	0	17	0	0	0	0	4	0	0	0	**21**
Building 1 Truck Trips	0	0	0	9	0	0	0	0	11	0	0	0	**20**
Building 2 Pass Cars Trips	0	0	0	5	0	0	0	0	1	0	0	0	**6**
Building 2 Truck Trips	0	0	0	3	0	0	0	0	3	0	0	0	**6**
Building 3 Pass Cars Trips	0	0	0	6	0	0	0	0	1	0	0	0	**7**
Building 3 Truck Trips	0	0	0	3	0	0	0	0	4	0	0	0	**7**
Total Pass Cars Trips	0	0	0	28	0	0	0	0	6	0	0	0	**34**
Total Truck Trips	0	0	0	15	0	0	0	0	18	0	0	0	**33**
2034 Projected Volumes	**0**	**32**	**46**	**552**	**21**	**0**	**10**	**0**	**555**	**0**	**0**	**0**	**1216**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**County Line Road (SR 2038) & Trewigtown Road (Western)**								
Synchro Node:	**10**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts		**739**	**15**	**81**	**541**		**1**		**144**				**1521**
2025 Existing Volumes (Balanced)		**739**	**15**	**81**	**541**		**1**		**144**				**1521**
Base growth (0.12% compounded for 9 yrs)		8	0	1	6		0		2				17
Sheetz Convenience Store with Gasoline		3			3								6
309 Plaza Expansion and Prime Car Wash		4			4								8
													0
													0
2034 Base Volumes		**754**	**15**	**82**	**554**		**1**		**146**				**1552**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter		30.0%											
Building 1 - PC - Trip Assignment % - New Exit					30.0%								
Building 1 - Truck - Trip Assignment % - New Enter		100.0%											
Building 1 - Truck - Trip Assignment % - New Exit					100.0%								
Building 2 - PC - Trip Assignment % - New Enter		30.0%											
Building 2 - PC - Trip Assignment % - New Exit					30.0%								
Building 2 - Truck - Trip Assignment % - New Enter		100.0%											
Building 2 - Truck - Trip Assignment % - New Exit					100.0%								
Building 3 - PC - Trip Assignment % - New Enter		30.0%											
Building 3 - PC - Trip Assignment % - New Exit					30.0%								
Building 3 - Truck - Trip Assignment % - New Enter		100.0%											
Building 3 - Truck - Trip Assignment % - New Exit					100.0%								
Building 1 Pass Cars Trips	0	15	0	0	5	0	0	0	0	0	0	0	**20**
Building 1 Truck Trips	0	10	0	0	7	0	0	0	0	0	0	0	**17**
Building 2 Pass Cars Trips	0	4	0	0	2	0	0	0	0	0	0	0	**6**
Building 2 Truck Trips	0	3	0	0	2	0	0	0	0	0	0	0	**5**
Building 3 Pass Cars Trips	0	5	0	0	1	0	0	0	0	0	0	0	**6**
Building 3 Truck Trips	0	3	0	0	3	0	0	0	0	0	0	0	**6**
Total Pass Cars Trips	0	24	0	0	8	0	0	0	0	0	0	0	**32**
Total Truck Trips	0	16	0	0	12	0	0	0	0	0	0	0	**28**
2034 Projected Volumes	**0**	**794**	**15**	**82**	**574**	**0**	**1**	**0**	**146**	**0**	**0**	**0**	**1612**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts		**542**	**25**	**223**	**530**		**7**		**159**				**1486**
2025 Existing Volumes (Balanced)		**542**	**25**	**223**	**530**		**7**		**159**				**1486**
Base growth (0.12% compounded for 9 yrs)		6	0	2	6		0		2				16
Sheetz Convenience Store with Gasoline		3			3								
309 Plaza Expansion and Prime Car Wash		6			6								12
													0
													0
2034 Base Volumes		**557**	**25**	**225**	**545**		**7**		**161**				**1520**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter		30.0%											
Building 1 - PC - Trip Assignment % - New Exit					30.0%								
Building 1 - Truck - Trip Assignment % - New Enter		100.0%											
Building 1 - Truck - Trip Assignment % - New Exit					100.0%								
Building 2 - PC - Trip Assignment % - New Enter		30.0%											
Building 2 - PC - Trip Assignment % - New Exit					30.0%								
Building 2 - Truck - Trip Assignment % - New Enter		100.0%											
Building 2 - Truck - Trip Assignment % - New Exit					100.0%								
Building 3 - PC - Trip Assignment % - New Enter		30.0%											
Building 3 - PC - Trip Assignment % - New Exit					30.0%								
Building 3 - Truck - Trip Assignment % - New Enter		100.0%											
Building 3 - Truck - Trip Assignment % - New Exit					100.0%								
Building 1 Pass Cars Trips	0	4	0	0	17	0	0	0	0	0	0	0	**21**
Building 1 Truck Trips	0	11	0	0	9	0	0	0	0	0	0	0	**20**
Building 2 Pass Cars Trips	0	1	0	0	5	0	0	0	0	0	0	0	**6**
Building 2 Truck Trips	0	3	0	0	3	0	0	0	0	0	0	0	**6**
Building 3 Pass Cars Trips	0	1	0	0	6	0	0	0	0	0	0	0	**7**
Building 3 Truck Trips	0	4	0	0	3	0	0	0	0	0	0	0	**7**
Total Pass Cars Trips	0	6	0	0	28	0	0	0	0	0	0	0	**34**
Total Truck Trips	0	18	0	0	15	0	0	0	0	0	0	0	**33**
2034 Projected Volumes	**0**	**581**	**25**	**225**	**588**	**0**	**7**	**0**	**161**	**0**	**0**	**0**	**1587**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**County Line Road (SR 2038) & Trewigtown Road (Eastern)**
Synchro Node:	**11**

Adjacent intersections: West 0 | East 0 | North 0 | South 0

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts	**113**	**779**			**529**	**4**				**0**		**94**	**1519**
2025 Existing Volumes (Balanced)	**113**	**779**			**529**	**4**				**0**		**94**	**1519**
Base growth (0.12% compounded for 9 yrs)	1	8			6	0				0		1	16
Sheetz Convenience Store with Gasoline		3			3								6
309 Plaza Expansion and Prime Car Wash		4			4								8
													0
													0
2034 Base Volumes	**114**	**794**			**542**	**4**				**0**		**95**	**1549**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter		30.0%											
Building 1 - PC - Trip Assignment % - New Exit					30.0%								
Building 1 - Truck - Trip Assignment % - New Enter		100.0%											
Building 1 - Truck - Trip Assignment % - New Exit					100.0%								
Building 2 - PC - Trip Assignment % - New Enter		30.0%											
Building 2 - PC - Trip Assignment % - New Exit					30.0%								
Building 2 - Truck - Trip Assignment % - New Enter		100.0%											
Building 2 - Truck - Trip Assignment % - New Exit					100.0%								
Building 3 - PC - Trip Assignment % - New Enter		30.0%											
Building 3 - PC - Trip Assignment % - New Exit					30.0%								
Building 3 - Truck - Trip Assignment % - New Enter		100.0%											
Building 3 - Truck - Trip Assignment % - New Exit					100.0%								
Building 1 Pass Cars Trips	0	15	0	0	5	0	0	0	0	0	0	0	**20**
Building 1 Truck Trips	0	10	0	0	7	0	0	0	0	0	0	0	**17**
Building 2 Pass Cars Trips	0	4	0	0	2	0	0	0	0	0	0	0	**6**
Building 2 Truck Trips	0	3	0	0	2	0	0	0	0	0	0	0	**5**
Building 3 Pass Cars Trips	0	5	0	0	1	0	0	0	0	0	0	0	**6**
Building 3 Truck Trips	0	3	0	0	3	0	0	0	0	0	0	0	**6**
Total Pass Cars Trips	0	24	0	0	8	0	0	0	0	0	0	0	**32**
Total Truck Trips	0	16	0	0	12	0	0	0	0	0	0	0	**28**
2034 Projected Volumes	**114**	**834**	**0**	**0**	**562**	**4**	**0**	**0**	**0**	**0**	**0**	**95**	**1609**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts	**142**	**588**			**695**	**20**				**0**		**87**	**1532**
2025 Existing Volumes (Balanced)	**142**	**588**			**695**	**20**				**0**		**87**	**1532**
Base growth (0.12% compounded for 9 yrs)	2	6			8	0				0		1	17
Sheetz Convenience Store with Gasoline		3			3								
309 Plaza Expansion and Prime Car Wash		6			6								12
													0
													0
2034 Base Volumes	**144**	**603**			**712**	**20**				**0**		**88**	**1567**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter		30.0%											
Building 1 - PC - Trip Assignment % - New Exit					30.0%								
Building 1 - Truck - Trip Assignment % - New Enter		100.0%											
Building 1 - Truck - Trip Assignment % - New Exit					100.0%								
Building 2 - PC - Trip Assignment % - New Enter		30.0%											
Building 2 - PC - Trip Assignment % - New Exit					30.0%								
Building 2 - Truck - Trip Assignment % - New Enter		100.0%											
Building 2 - Truck - Trip Assignment % - New Exit					100.0%								
Building 3 - PC - Trip Assignment % - New Enter		30.0%											
Building 3 - PC - Trip Assignment % - New Exit					30.0%								
Building 3 - Truck - Trip Assignment % - New Enter		100.0%											
Building 3 - Truck - Trip Assignment % - New Exit					100.0%								
Building 1 Pass Cars Trips	0	4	0	0	17	0	0	0	0	0	0	0	**21**
Building 1 Truck Trips	0	11	0	0	9	0	0	0	0	0	0	0	**20**
Building 2 Pass Cars Trips	0	1	0	0	5	0	0	0	0	0	0	0	**6**
Building 2 Truck Trips	0	3	0	0	3	0	0	0	0	0	0	0	**6**
Building 3 Pass Cars Trips	0	1	0	0	6	0	0	0	0	0	0	0	**7**
Building 3 Truck Trips	0	4	0	0	3	0	0	0	0	0	0	0	**7**
Total Pass Cars Trips	0	6	0	0	28	0	0	0	0	0	0	0	**34**
Total Truck Trips	0	18	0	0	15	0	0	0	0	0	0	0	**33**
2034 Projected Volumes	**144**	**627**	**0**	**0**	**755**	**20**	**0**	**0**	**0**	**0**	**0**	**88**	**1634**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**Trewigtown Road and Schoolhouse Road**									
Synchro Node:	**12**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts				**80**		**61**		**60**	**68**	**234**	**87**		**590**
2025 Existing Volumes (Balanced)				**80**		**61**		**60**	**68**	**234**	**87**		**590**
Base growth (0.12% compounded for 9 yrs)				1		1		1	1	3	1		8
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes				**81**		**62**		**61**	**69**	**237**	**88**		**598**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter													
Building 1 - PC - Trip Assignment % - New Exit													
Building 1 - Truck - Trip Assignment % - New Enter													
Building 1 - Truck - Trip Assignment % - New Exit													
Building 2 - PC - Trip Assignment % - New Enter													
Building 2 - PC - Trip Assignment % - New Exit													
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter				20.0%									
Building 3 - PC - Trip Assignment % - New Exit									20.0%				
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 1 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	0	0	3	0	0	0	0	1	0	0	0	**4**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	0	0	0	3	0	0	0	0	1	0	0	0	**4**
Total Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2034 Projected Volumes	**0**	**0**	**0**	**84**	**0**	**62**	**0**	**61**	**70**	**237**	**88**	**0**	**602**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts				**65**		**235**		**179**	**102**	**72**	**70**		**723**
2025 Existing Volumes (Balanced)				**65**		**235**		**179**	**102**	**72**	**70**		**723**
Base growth (0.12% compounded for 9 yrs)				1		3		2	1	1	1		9
Sheetz Convenience Store with Gasoline													
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes				**66**		**238**		**181**	**103**	**73**	**71**		**732**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter													
Building 1 - PC - Trip Assignment % - New Exit													
Building 1 - Truck - Trip Assignment % - New Enter													
Building 1 - Truck - Trip Assignment % - New Exit													
Building 2 - PC - Trip Assignment % - New Enter													
Building 2 - PC - Trip Assignment % - New Exit													
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter				20.0%									
Building 3 - PC - Trip Assignment % - New Exit									20.0%				
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 1 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	0	0	1	0	0	0	0	4	0	0	0	**5**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	0	0	0	1	0	0	0	0	4	0	0	0	**5**
Total Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2034 Projected Volumes	**0**	**0**	**0**	**67**	**0**	**238**	**0**	**181**	**107**	**73**	**71**	**0**	**737**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**Walnut Street and Building 2 Access**									
Synchro Node:	**13**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts								**84**			**176**		**260**
Seasonal Adjustment (3.24%)								**2**			**6**		8
2025 Existing Volumes (Balanced)	**0**		**0**				**0**	**86**			**182**	**0**	**268**
Base growth (0.12% compounded for 9 yrs)	0		0				0	**1**			**2**	0	3
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes	**0**		**0**				**0**	**87**			**184**	**0**	**271**

	Building One		**Building Two**		**Building Three**	
	Car	**Truck**	**Car**	**Truck**	**Car**	**Truck**
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter								80.0%					
Building 1 - PC - Trip Assignment % - New Exit											80.0%		
Building 1 - Truck - Trip Assignment % - New Enter								100.0%					
Building 1 - Truck - Trip Assignment % - New Exit											100.0%		
Building 2 - PC - Trip Assignment % - New Enter							80.0%					20.0%	
Building 2 - PC - Trip Assignment % - New Exit	20.0%		80.0%										
Building 2 - Truck - Trip Assignment % - New Enter							100.0%						
Building 2 - Truck - Trip Assignment % - New Exit			100.0%										
Building 3 - PC - Trip Assignment % - New Enter													
Building 3 - PC - Trip Assignment % - New Exit													
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	0	0	0	0	0	0	0	39	0	0	13	0	**52**
Building 1 Truck Trips	0	0	0	0	0	0	0	10	0	0	7	0	**17**
Building 2 Pass Cars Trips	1	0	4	0	0	0	11	0	0	0	0	3	**19**
Building 2 Truck Trips	0	0	2	0	0	0	3	0	0	0	0	0	**5**
Building 3 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	1	0	4	0	0	0	11	39	0	0	13	3	**71**
Total Truck Trips	0	0	2	0	0	0	3	10	0	0	7	0	**22**
2034 Projected Volumes	**1**	**0**	**6**	**0**	**0**	**0**	**14**	**136**	**0**	**0**	**204**	**3**	**364**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts								**159**			**130**		**289**
Seasonal Adjustment (9.79%)								**15**			**12**		27
2025 Existing Volumes (Balanced)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**174**	**0**	**0**	**142**	**0**	**316**
Base growth (0.12% compounded for 9 yrs)	0	0	0	0	0	0	0	**2**	0	0	**1**	0	3
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**176**	**0**	**0**	**143**	**0**	**319**

	Building One		**Building Two**		**Building Three**	
	Car	**Truck**	**Car**	**Truck**	**Car**	**Truck**
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter								80.0%					
Building 1 - PC - Trip Assignment % - New Exit											80.0%		
Building 1 - Truck - Trip Assignment % - New Enter								100.0%					
Building 1 - Truck - Trip Assignment % - New Exit											100.0%		
Building 2 - PC - Trip Assignment % - New Enter							80.0%					20.0%	
Building 2 - PC - Trip Assignment % - New Exit	20.0%		80.0%										
Building 2 - Truck - Trip Assignment % - New Enter							100.0%						
Building 2 - Truck - Trip Assignment % - New Exit			100.0%										
Building 3 - PC - Trip Assignment % - New Enter													
Building 3 - PC - Trip Assignment % - New Exit													
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	0	0	0	0	0	0	0	11	0	0	46	0	**57**
Building 1 Truck Trips	0	0	0	0	0	0	0	11	0	0	9	0	**20**
Building 2 Pass Cars Trips	3	0	14	0	0	0	3	0	0	0	0	1	**21**
Building 2 Truck Trips	0	0	3	0	0	0	3	0	0	0	0	0	**6**
Building 3 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	3	0	14	0	0	0	3	11	0	0	46	1	**78**
Total Truck Trips	0	0	3	0	0	0	3	11	0	0	9	0	**26**
2034 Projected Volumes	**3**	**0**	**17**	**0**	**0**	**0**	**6**	**198**	**0**	**0**	**198**	**1**	**423**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**Walnut Street and Building 1 Southern Access**									
Synchro Node:	**14**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts								**84**			**176**		**260**
Seasonal Adjustment (3.24%)								**2**			**6**		8
2025 Existing Volumes (Balanced)	**0**		**0**				**0**	**86**			**182**	**0**	**268**
Base growth (0.12% compounded for 9 yrs)	0		0				0	**1**			**2**	0	3
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes	**0**		**0**				**0**	**87**			**184**	**0**	**271**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

Building 1 - PC - Trip Assignment % - New Enter							80.0%					7.0%	
Building 1 - PC - Trip Assignment % - New Exit	7.0%		80.0%										
Building 1 - Truck - Trip Assignment % - New Enter							80.0%	20.0%					
Building 1 - Truck - Trip Assignment % - New Exit			80.0%								20.0%		
Building 2 - PC - Trip Assignment % - New Enter											20.0%		
Building 2 - PC - Trip Assignment % - New Exit								20.0%					
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter													
Building 3 - PC - Trip Assignment % - New Exit													
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	1	0	13	0	0	0	39	0	0	0	0	3	**56**
Building 1 Truck Trips	0	0	6	0	0	0	8	2	0	0	1	0	**17**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	1	0	0	3	0	**4**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	1	0	13	0	0	0	39	1	0	0	3	3	**60**
Total Truck Trips	0	0	6	0	0	0	8	2	0	0	1	0	**17**
2034 Projected Volumes	**1**	**0**	**19**	**0**	**0**	**0**	**47**	**90**	**0**	**0**	**188**	**3**	**348**

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts								**159**			**130**		**289**
Seasonal Adjustment (9.79%)								**15**			**12**		27
2025 Existing Volumes (Balanced)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**174**	**0**	**0**	**142**	**0**	**316**
Base growth (0.12% compounded for 9 yrs)	0	0	0	0	0	0	0	**2**	0	0	**1**	0	3
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**176**	**0**	**0**	**143**	**0**	**319**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

Building 1 - PC - Trip Assignment % - New Enter							80.0%					7.0%	
Building 1 - PC - Trip Assignment % - New Exit	7.0%		80.0%										
Building 1 - Truck - Trip Assignment % - New Enter							80.0%	20.0%					
Building 1 - Truck - Trip Assignment % - New Exit			80.0%								20.0%		
Building 2 - PC - Trip Assignment % - New Enter											20.0%		
Building 2 - PC - Trip Assignment % - New Exit								20.0%					
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter													
Building 3 - PC - Trip Assignment % - New Exit													
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	4	0	46	0	0	0	11	0	0	0	0	1	**62**
Building 1 Truck Trips	0	0	7	0	0	0	9	2	0	0	2	0	**20**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	3	0	0	1	0	**4**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	4	0	46	0	0	0	11	3	0	0	1	1	**66**
Total Truck Trips	0	0	7	0	0	0	9	2	0	0	2	0	**20**
2034 Projected Volumes	**4**	**0**	**53**	**0**	**0**	**0**	**20**	**181**	**0**	**0**	**146**	**1**	**405**

HANC.005
2/11/2026
Traffic Volumes Worksheet

Intersection:	**Walnut Street and Building 1 Northern Access**									
Synchro Node:	**15**	**Adjacent intersections:**	**West**	**0**	**East**	**0**	**North**	**0**	**South**	**0**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts								**84**			**176**		**260**
Seasonal Adjustment (3.24%)								**2**			**6**		8
2025 Existing Volumes (Balanced)	**0**		**0**				**0**	**86**			**182**	**0**	**268**
Base growth (0.12% compounded for 9 yrs)	0		0				0	**1**			**2**	0	3
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes	**0**		**0**				**0**	**87**			**184**	**0**	**271**

	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**48**	**(10)**	**14**	**(3)**	**17**	**3**
EXIT =	**16**	**(7)**	**5**	**(2)**	**5**	**3**

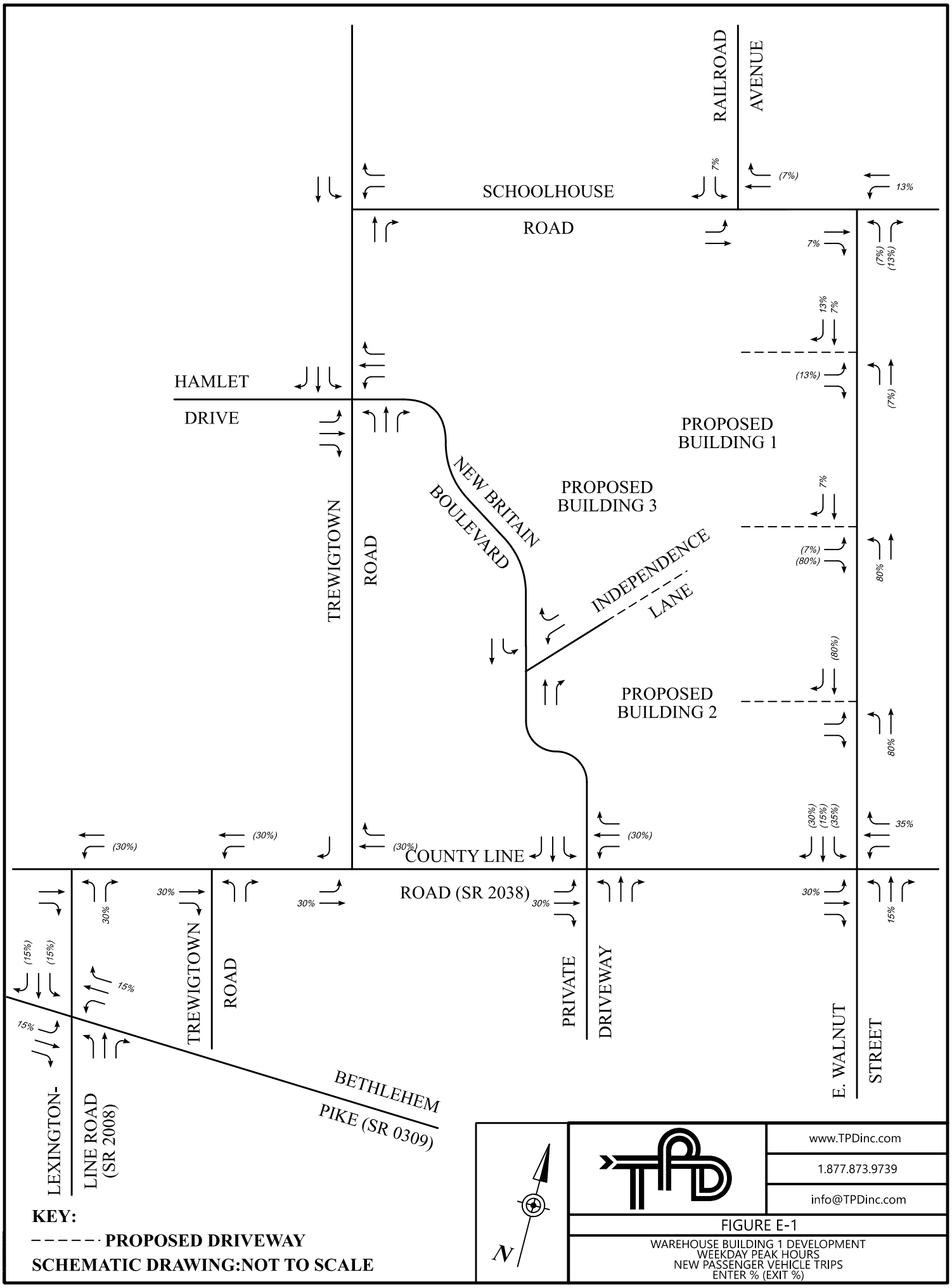
Building 1 - PC - Trip Assignment % - New Enter											7.0%	13.0%	
Building 1 - PC - Trip Assignment % - New Exit	13.0%							7.0%					
Building 1 - Truck - Trip Assignment % - New Enter							20.0%						
Building 1 - Truck - Trip Assignment % - New Exit			20.0%										
Building 2 - PC - Trip Assignment % - New Enter											20.0%		
Building 2 - PC - Trip Assignment % - New Exit								20.0%					
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter													
Building 3 - PC - Trip Assignment % - New Exit													
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	2	0	0	0	0	0	0	1	0	0	3	6	**12**
Building 1 Truck Trips	0	0	1	0	0	0	2	0	0	0	0	0	**3**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	1	0	0	3	0	**4**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	2	0	0	0	0	0	0	2	0	0	6	6	**16**
Total Truck Trips	0	0	1	0	0	0	2	0	0	0	0	0	**3**
2034 Projected Volumes	**2**	**0**	**1**	**0**	**0**	**0**	**2**	**89**	**0**	**0**	**190**	**6**	**290**

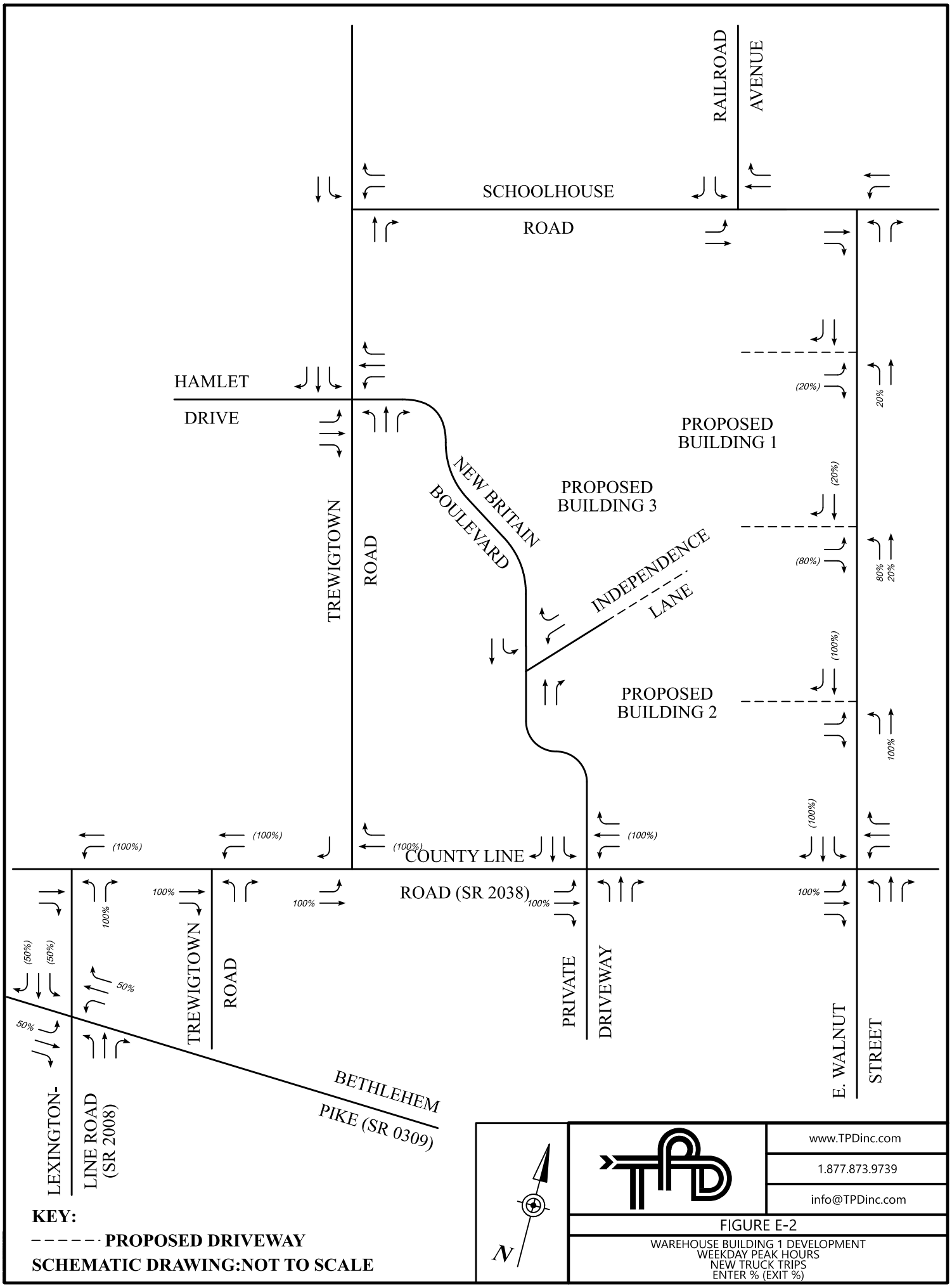
Time Period: Weekday P.M. Peak Hour

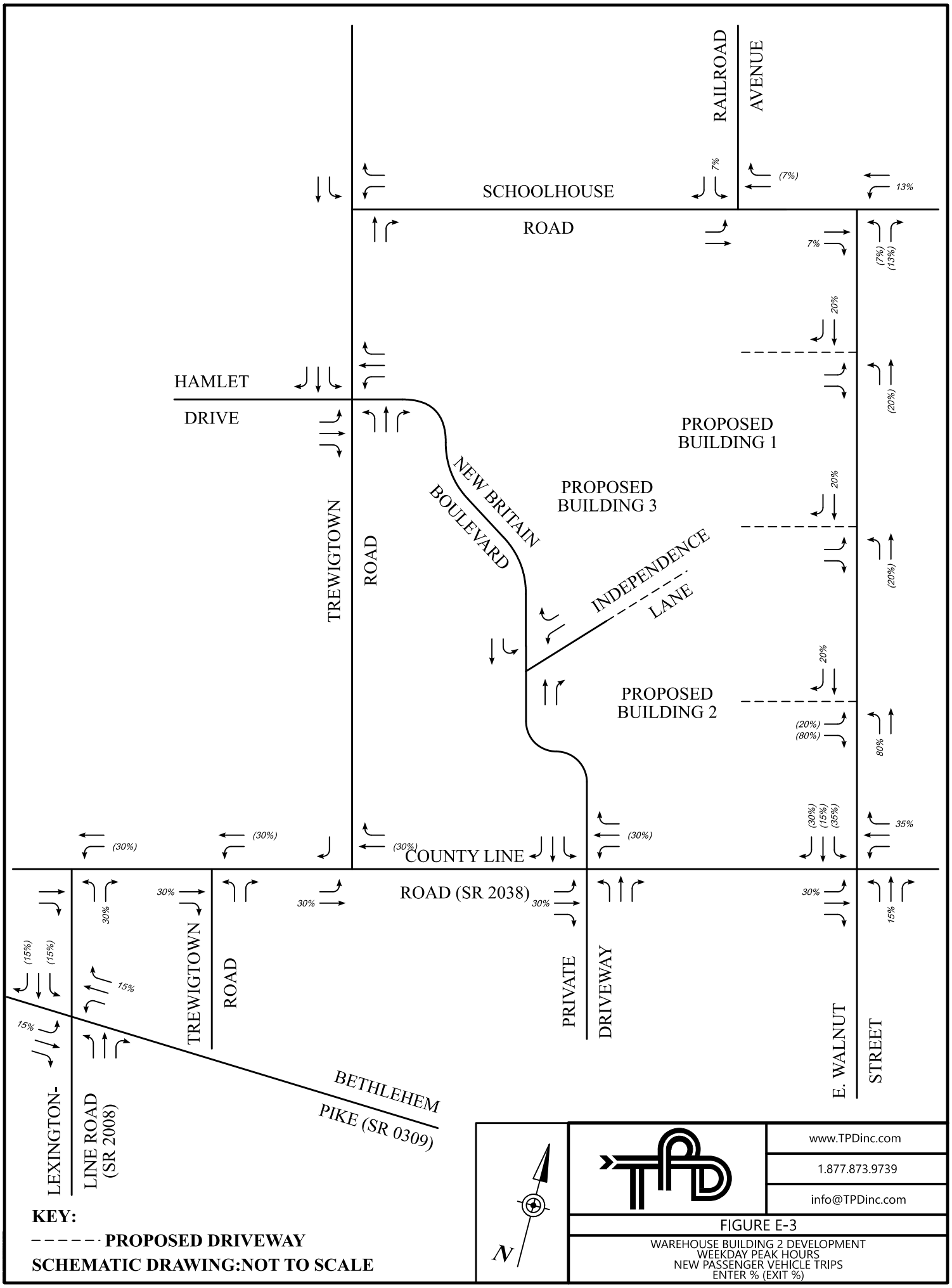
	Eastbound			Westbound			Northbound			Southbound			Intersection
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	Volume
2025 Existing Counts								**159**			**130**		**289**
Seasonal Adjustment (9.79%)								**15**			**12**		27
2025 Existing Volumes (Balanced)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**174**	**0**	**0**	**142**	**0**	**316**
Base growth (0.12% compounded for 9 yrs)	0	0	0	0	0	0	0	**2**	0	0	**1**	0	3
Sheetz Convenience Store with Gasoline													0
309 Plaza Expansion and Prime Car Wash													0
													0
													0
2034 Base Volumes	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**176**	**0**	**0**	**143**	**0**	**319**

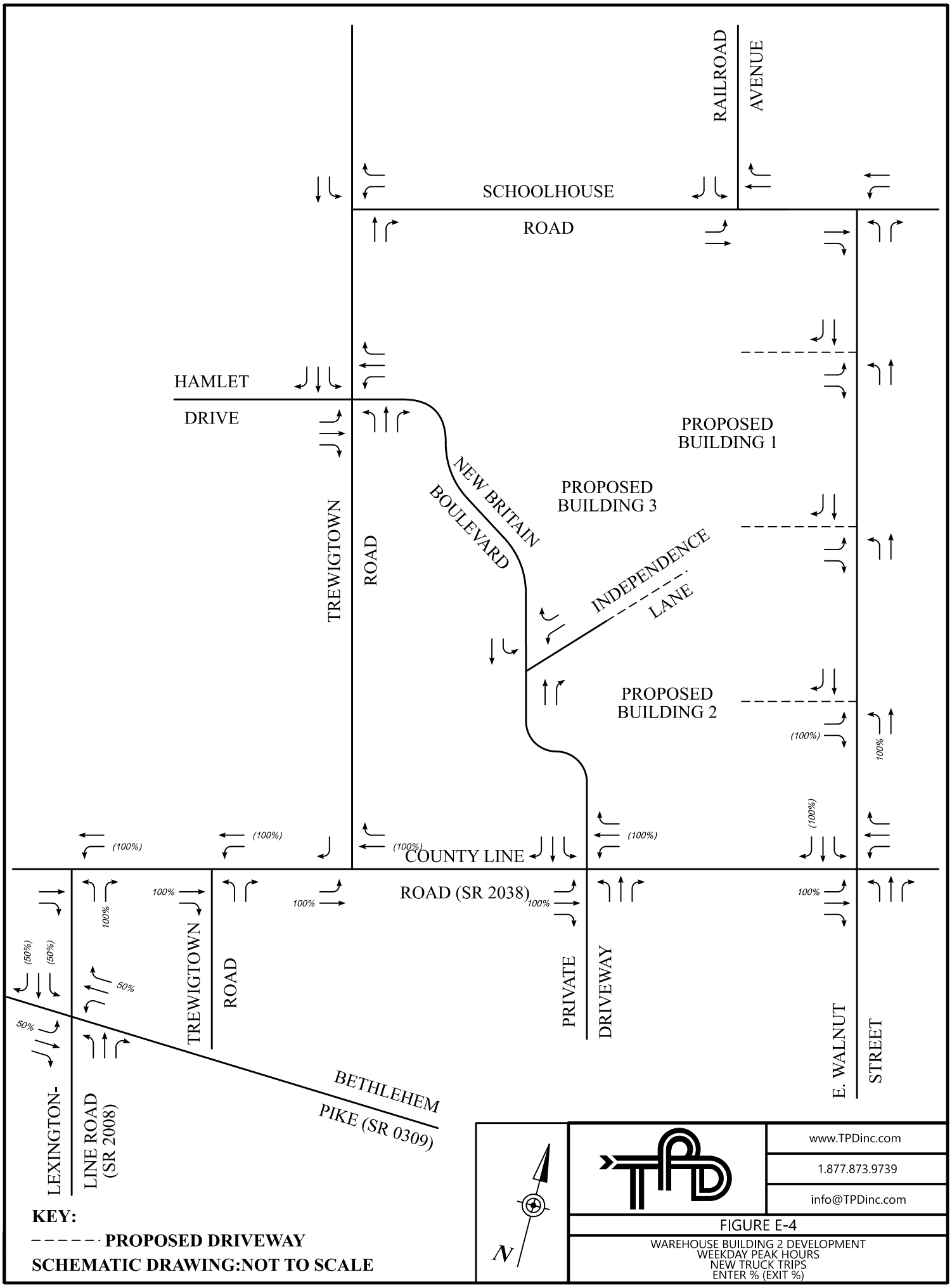
	Building One		Building Two		Building Three	
	Car	Truck	Car	Truck	Car	Truck
ENTER =	**14**	**(11)**	**4**	**3**	**4**	**4**
EXIT =	**58**	**(9)**	**17**	**3**	**20**	**3**

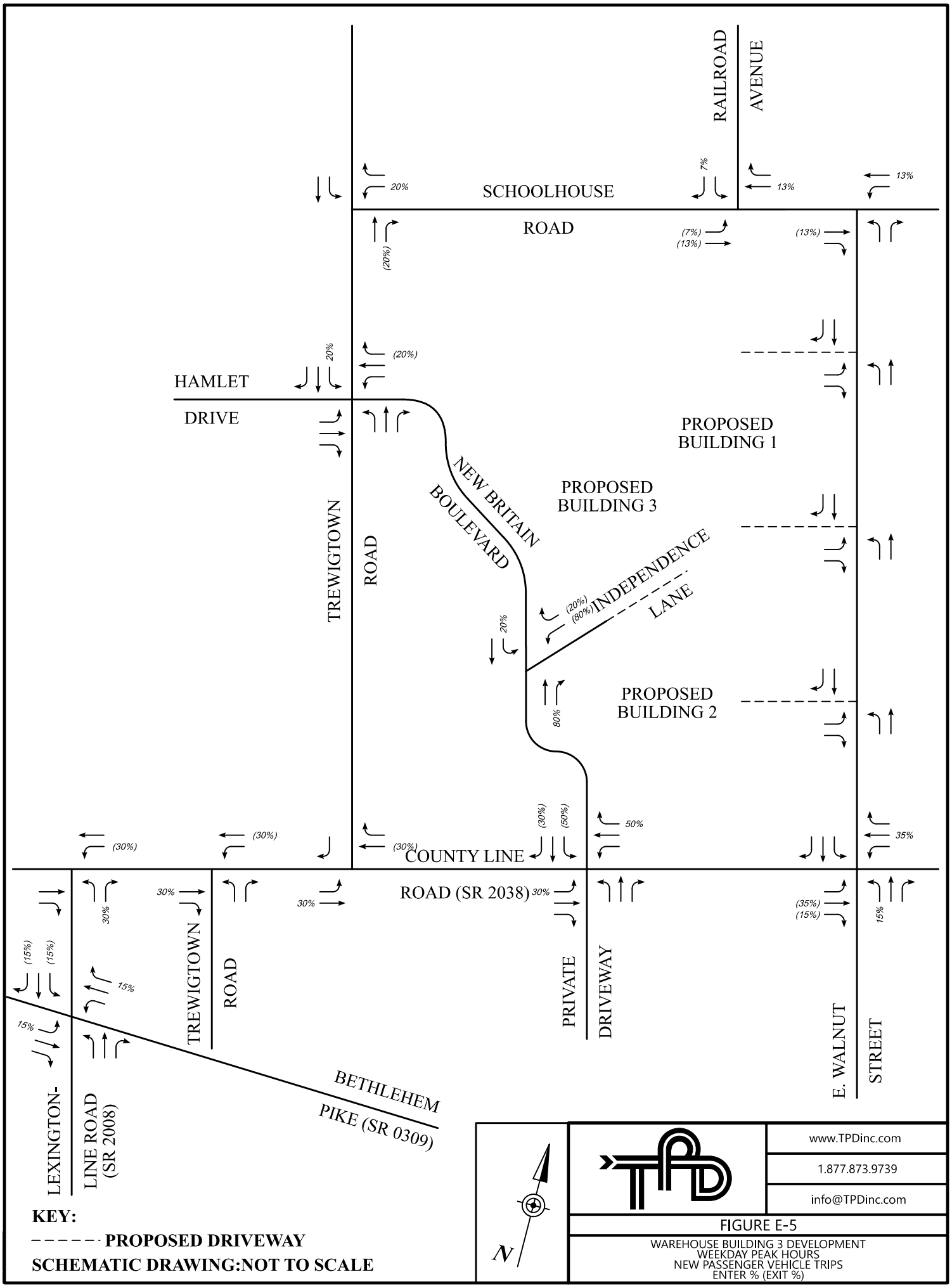
Building 1 - PC - Trip Assignment % - New Enter											7.0%	13.0%	
Building 1 - PC - Trip Assignment % - New Exit	13.0%							7.0%					
Building 1 - Truck - Trip Assignment % - New Enter							20.0%						
Building 1 - Truck - Trip Assignment % - New Exit			20.0%										
Building 2 - PC - Trip Assignment % - New Enter											20.0%		
Building 2 - PC - Trip Assignment % - New Exit								20.0%					
Building 2 - Truck - Trip Assignment % - New Enter													
Building 2 - Truck - Trip Assignment % - New Exit													
Building 3 - PC - Trip Assignment % - New Enter													
Building 3 - PC - Trip Assignment % - New Exit													
Building 3 - Truck - Trip Assignment % - New Enter													
Building 3 - Truck - Trip Assignment % - New Exit													
Building 1 Pass Cars Trips	8	0	0	0	0	0	0	4	0	0	1	2	**15**
Building 1 Truck Trips	0	0	2	0	0	0	2	0	0	0	0	0	**4**
Building 2 Pass Cars Trips	0	0	0	0	0	0	0	3	0	0	1	0	**4**
Building 2 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Pass Cars Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Building 3 Truck Trips	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Pass Cars Trips	8	0	0	0	0	0	0	7	0	0	2	2	**19**
Total Truck Trips	0	0	2	0	0	0	2	0	0	0	0	0	**4**
2034 Projected Volumes	**8**	**0**	**2**	**0**	**0**	**0**	**2**	**183**	**0**	**0**	**145**	**2**	**342**

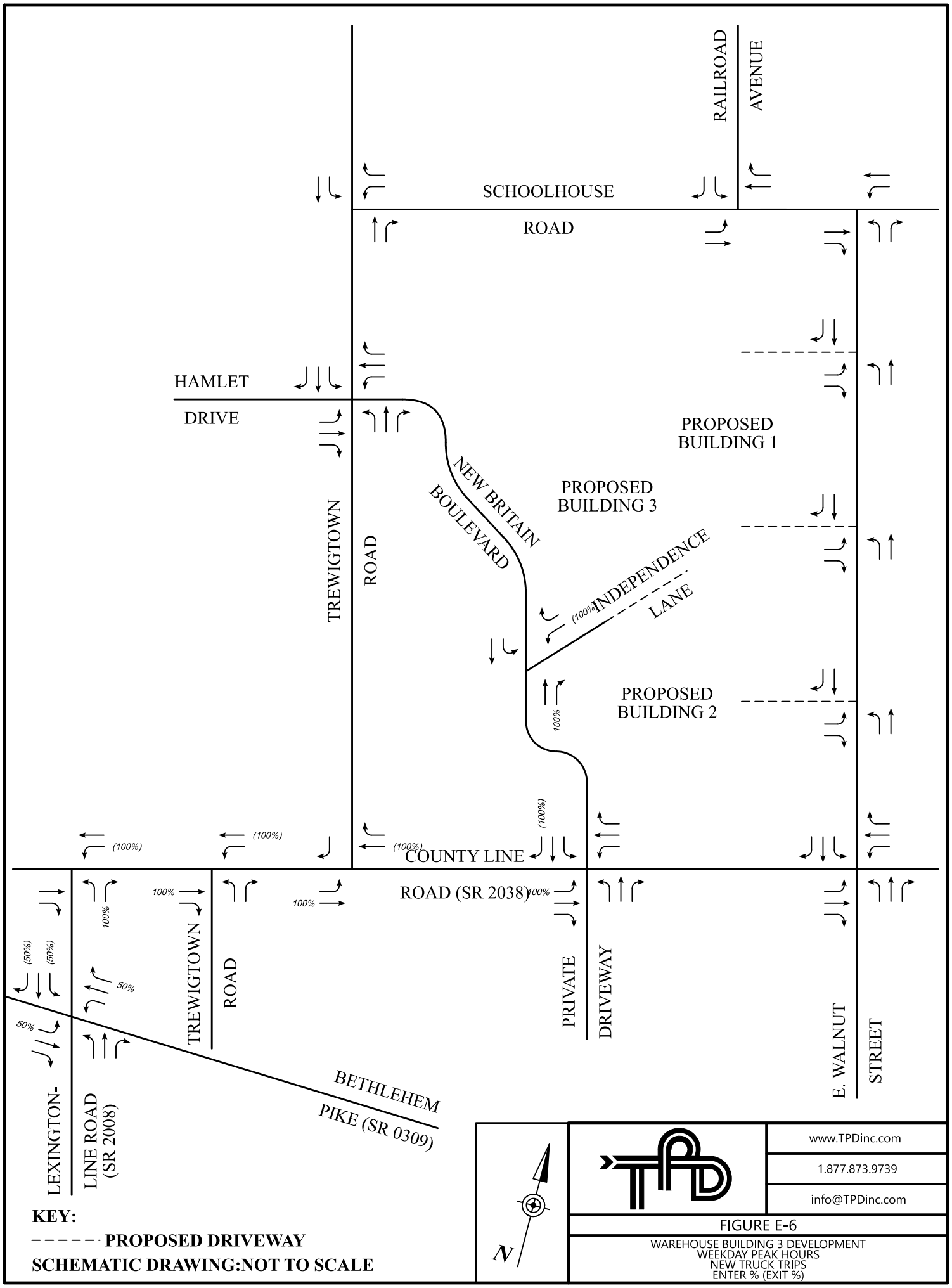

RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
N
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FIGURE E-1
WAREHOUSE BUILDING 1 DEVELOPMENT
WEEKDAY PEAK HOURS
NEW PASSENGER VEHICLE TRIPS
ENTER % (EXIT %)


RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
(20%)
20%
(80%)
80%
20%
(100%)
100%
50%
N
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
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FIGURE E-2
WAREHOUSE BUILDING 1 DEVELOPMENT
WEEKDAY PEAK HOURS
NEW TRUCK TRIPS
ENTER % (EXIT %)


RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
7%
(7%)
13%
20%
(20%)
80%
(20%) (80%)
(30%)
(30%) (15%) (35%)
35%
30%
15%
(15%)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
N
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FIGURE E-3
WAREHOUSE BUILDING 2 DEVELOPMENT
WEEKDAY PEAK HOURS
NEW PASSENGER VEHICLE TRIPS
ENTER % (EXIT %)


RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
INDEPENDENCE LANE
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
(100%)
100%
50%
N
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
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FIGURE E-4
WAREHOUSE BUILDING 2 DEVELOPMENT
WEEKDAY PEAK HOURS
NEW TRUCK TRIPS
ENTER % (EXIT %)


RAILROAD AVENUE
SCHOOLHOUSE ROAD
HAMLET DRIVE
TREWIGTOWN ROAD
NEW BRITAIN BOULEVARD
PROPOSED BUILDING 1
PROPOSED BUILDING 3
PROPOSED BUILDING 2
INDEPENDENCE LANE
COUNTY LINE
ROAD (SR 2038)
PRIVATE DRIVEWAY
E. WALNUT STREET
TREWIGTOWN ROAD
LEXINGTON-LINE ROAD (SR 2008)
BETHLEHEM PIKE (SR 0309)
KEY:
PROPOSED DRIVEWAY
SCHEMATIC DRAWING:NOT TO SCALE
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FIGURE E-5
WAREHOUSE BUILDING 3 DEVELOPMENT
WEEKDAY PEAK HOURS
NEW PASSENGER VEHICLE TRIPS
ENTER % (EXIT %)



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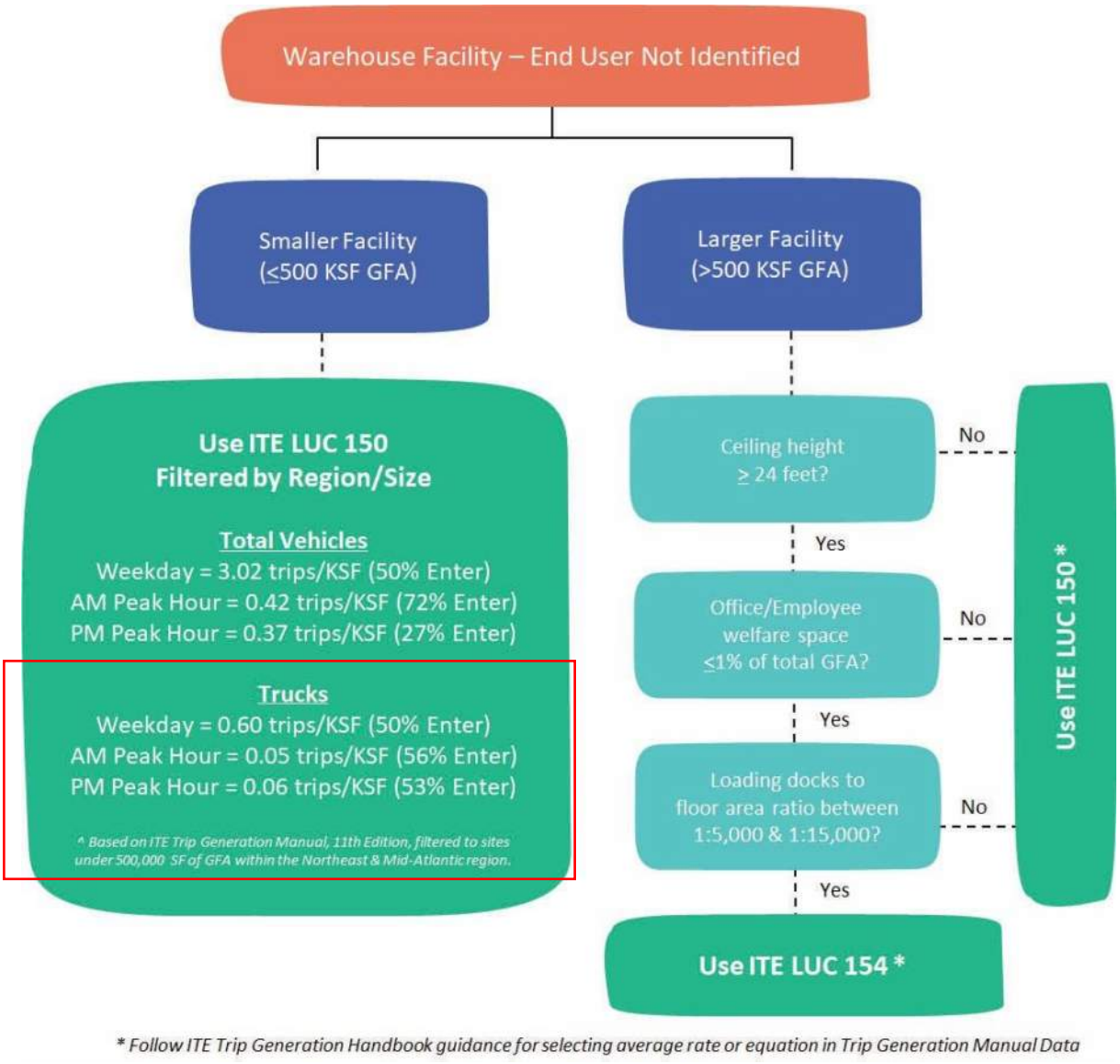
FIGURE E-6

WAREHOUSE BUILDING 3 DEVELOPMENT
WEEKDAY PEAK HOURS
NEW TRUCK TRIPS
ENTER % (EXIT %)

WAREHOUSE FACILITIES

Based on the findings from a Department study, the following best practices guidance was developed for Districts to consider when permitting speculative warehouse facilities:

- Understand the use in the land use: The amount of traffic associated with a warehouse facility can vary greatly depending on the function and logistics designation. As part of the scoping meeting, applicants should document the characteristics of the warehouse use.
    - Cross docks may signify major distribution centers or large fulfillment centers.
    - Building height greater than 40 feet may signify cold storage facilities.
    - Large parking fields may signify larger employee count for the facility indicative of fulfillment centers.
    - Parking fields that accommodate various vehicle types may signify a last- mile fulfillment center.
    - Facilities with very high truck parking ratios to dock positions may signify a parcel hub.
- Utilize data subsets in ITE TripGen web app: The ITE digital trip generation database can be filtered to provide a better estimation of trips for smaller facilities. If employed, consider the use of ITE Land Use Code 150 warehouse trip data filtered by size (under 500 KSF) and region (Northeast & Mid-Atlantic) for smaller facilities.
- Specify Land Use Code 150 permits are not inclusive: Understanding trip characteristics vary based on the function and logistics of a warehouse facility, consider clearly specifying that highway occupancy permits classified under Land Use 150 are not inclusive of other warehouse-type facility, including but not limited to cold storage, last-mile fulfillment centers, and parcel hubs. If tenancy changes occur in the future, applicants should be required to supplement the existing permit with additional information so the Department can determine if additional traffic mitigations are warranted.
- A step-by-step procedure (flow chart) is provided below for the Department to consider in determining how best to estimate trip generation for future speculative warehouse facilities until such time that a new version of ITE's Trip Generation Manual is published.



Note: The Department's Warehouse Trip Generation Study can be found in the Department's P:\permits shared folder.

APPENDIX F:

Critical/Follow-Up Gap Data

CRITICAL HEADWAY CALCULATIONS FOR TWSC INTERSECTION WITHIN SUBURBAN LAND USE CONTEXT
BASED ON PENNSYLVANIA DEFAULT VALUES FROM CHAPTER 10 OF PENNDOT PUBLICATION 46

$t_{c,x} = t_{c,\,base} + t_{c,HV} * P_{HV} + t_{c,G} * G - t_{3,LT}$

where:

$t_{c,x}$ = critical headway for movement x (s)
$t_{c,base}$ = base crtitcal headway from Chapter 10 of PennDOT Publication 46
$t_{c,HV}$ = adjustment factor for heavy vehciles (1.0 for major streets with one lane in each direction; 2.0 for major streets with two or three lanes in each direction) (s)
P_{HV} = proportion of heavy vehciles for movement (expressed as a decimal; e.g., P_{HV}=0.02 for 2% heavy vehciles)
$t_{c,G}$ = adjustment factor for grade (0.1 for Movement 9 and 12; 0.2 for Movements 7,8,10, and 11) (s)
G = percent grade (expressed as an integer; e.g., G= -2 for a 2% downhill grade)
$t_{c,base}$ = adjustment factor for intersction geometry (0.7 for minor street left-turn movement at three-leg intersections; 0.0 otherwise) (s)

LEFT TURN FROM MAJOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 4.3)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
7	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
9	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
10	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4

LEFT TURN FROM MINOR ROADWAY - TWO LANES - 4-LEG INTERSECTION ($t_{c,\,base}$ = 7.1)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
1	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
2	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
3	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
4	7.1	6.9	7.3	6.7	7.5	6.5	7.7	6.3	7.9	6.1	8.1	5.9	8.3	5.7	8.5	5.5	8.7	5.3	8.9	5.1	9.1
5	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
6	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
7	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
8	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
9	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2
10	7.2	7.0	7.4	6.8	7.6	6.6	7.8	6.4	8.0	6.2	8.2	6.0	8.4	5.8	8.6	5.6	8.8	5.4	9.0	5.2	9.2

THROUGH TRAFFIC ON MINOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 6.5)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
1	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
2	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
3	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
4	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
5	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
6	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
7	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
8	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
9	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6
10	6.6	6.4	6.8	6.2	7.0	6.0	7.2	5.8	7.4	5.6	7.6	5.4	7.8	5.2	8.0	5.0	8.2	4.8	8.4	4.6	8.6

RIGHT TURN FROM MINOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 6.2)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
1	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
2	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
3	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
4	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
5	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
6	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
7	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
8	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
9	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
10	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3

CRITICAL HEADWAY CALCULATIONS FOR TWSC INTERSECTION WITHIN SUBURBAN LAND USE CONTEXT
BASED ON PENNSYLVANIA DEFAULT VALUES FROM CHAPTER 10 OF PENNDOT PUBLICATION 46

$t_{c,x} = t_{c,\,base} + t_{c,HV} * P_{HV} + t_{c,G} * G - t_{3,LT}$

where:

$t_{c,x}$ = critical headway for movement x (s)
$t_{c,base}$ = base crtitcal headway from Chapter 10 of PennDOT Publication 46
$t_{c,HV}$ = adjustment factor for heavy vehciles (1.0 for major streets with one lane in each direction; 2.0 for major streets with two or three lanes in each direction) (s)
P_{HV} = proportion of heavy vehciles for movement (expressed as a decimal; e.g., P_{HV}=0.02 for 2% heavy vehciles)
$t_{c,G}$ = adjustment factor for grade (0.1 for Movement 9 and 12; 0.2 for Movements 7,8,10, and 11) (s)
G = percent grade (expressed as an integer; e.g., G= -2 for a 2% downhill grade)
$t_{c,base}$ = adjustment factor for intersction geometry (0.7 for minor street left-turn movement at three-leg intersections; 0.0 otherwise) (s)

LEFT TURN FROM MAJOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 4.3)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
1	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
5	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
7	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
8	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
9	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
10	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4

LEFT TURN FROM MINOR ROADWAY - TWO LANES - 3-LEG INTERSECTION ($t_{c,\,base}$ = 7.1)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
1	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
2	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
3	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
4	6.4	6.2	6.6	6.0	6.8	5.8	7.0	5.6	7.2	5.4	7.4	5.2	7.6	5.0	7.8	4.8	8.0	4.6	8.2	4.4	8.4
5	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
6	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
7	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
8	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
9	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5
10	6.5	6.3	6.7	6.1	6.9	5.9	7.1	5.7	7.3	5.5	7.5	5.3	7.7	5.1	7.9	4.9	8.1	4.7	8.3	4.5	8.5

RIGHT TURN FROM MINOR ROADWAY - TWO LANES ($t_{c,\,base}$ = 6.2)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
1	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
2	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
3	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
4	6.2	6.1	6.3	6.0	6.4	5.9	6.5	5.8	6.6	5.7	6.7	5.6	6.8	5.5	6.9	5.4	7.0	5.3	7.1	5.2	7.2
5	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
6	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
7	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
8	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
9	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3
10	6.3	6.2	6.4	6.1	6.5	6.0	6.6	5.9	6.7	5.8	6.8	5.7	6.9	5.6	7.0	5.5	7.1	5.4	7.2	5.3	7.3

FOLLOW-UP HEADWAY CALCULATIONS FOR TWSC INTERSECTION WITHIN SUBURBAN LAND USE CONTEXT
BASED ON PENNSYLVANIA DEFAULT VALUES FROM CHAPTER 10 OF PENNDOT PUBLICATION 46

$t_{f,x} = t_{f,\,base} + t_{f,HV} * P_{HV}$

where:

$t_{f,x}$ = follow-up headway for movement x (s)
$t_{f,base}$ = base follow-up headway from Chapter 10 of PennDOT Publication 46
$t_{f,HV}$ = adjustment factor for heavy vehciles (0.9 for major streets with one lane in each direction; 1.0 for major streets with two or three lanes in each direction) (s)
P_{HV} = proportion of heavy vehciles for movement (expressed as a decimal; e.g., P_{HV}=0.02 for 2% heavy vehciles)

LEFT TURN FROM MAJOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 3.0)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
6	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
7	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
8	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
10	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1

LEFT TURN FROM MINOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 3.0)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
6	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
7	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
8	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
9	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
10	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1

THROUGH TRAFFIC ON MINOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 4.0)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
1	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
3	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
4	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
6	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
7	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
8	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
9	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
10	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1

RIGHT TURN FROM MINOR ROADWAY - TWO LANES ($t_{f,\,base}$ = 3.1)

GRADE	0	-1	1	-2	2	-3	3	-4	4	-5	5	-6	6	-7	7	-8	8	-9	9	-10	10
HV %																					
0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
5	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
6	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
7	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
8	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
9	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
10	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2

APPENDIX G:

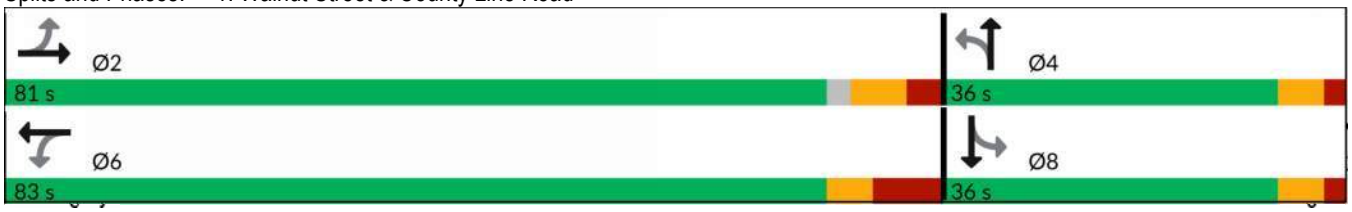
Capacity Analyses

Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	689	14	60	562	7	14	71	70	20	142	20
Future Volume (vph)	8	689	14	60	562	7	14	71	70	20	142	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	12	12	12	11	12	12	10	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.998			0.939			0.985	
Flt Protected		0.999			0.995			0.996			0.994	
Satd. Flow (prot)	0	1651	0	0	1652	0	0	1498	0	0	1607	0
Flt Permitted		0.992			0.863			0.953			0.943	
Satd. Flow (perm)	0	1639	0	0	1433	0	0	1434	0	0	1525	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		2						34			5	
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2046			1226			473			2694	
Travel Time (s)		31.0			18.6			12.9			45.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	5%	0%	9%	8%	14%	0%	4%	15%	0%	3%	0%
Adj. Flow (vph)	9	749	15	65	611	8	15	77	76	22	154	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	773	0	0	684	0	0	168	0	0	198	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		25.0	25.0		16.0	16.0		16.0	16.0	
Total Split (s)	81.0	81.0		83.0	83.0		36.0	36.0		36.0	36.0	
Total Split (%)	68.1%	68.1%		69.7%	69.7%		30.3%	30.3%		30.3%	30.3%	
Yellow Time (s)	5.0	5.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		6.0	6.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		7.0			9.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 119	
Actuated Cycle Length: 107.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: Walnut Street & County Line Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	689	14	60	562	7	14	71	70	20	142	20
Future Volume (veh/h)	8	689	14	60	562	7	14	71	70	20	142	20
Initial Q (Qb), veh	0	0	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1617	1730	1800	1674	1688	1603	1800	1744	1589	1800	1758	1800
Adj Flow Rate, veh/h	9	749	14	65	611	8	15	77	52	22	154	19
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	5	0	9	8	14	0	4	15	0	3	0
Cap, veh/h	40	1205	22	112	1011	13	52	139	86	56	206	24
Arrive On Green	0.71	0.72	0.71	0.71	0.72	0.71	0.14	0.15	0.14	0.14	0.15	0.14
Sat Flow, veh/h	7	1678	31	104	1403	18	92	954	592	117	1415	165
Grp Volume(v), veh/h	772	0	0	684	0	0	144	0	0	195	0	0
Grp Sat Flow(s),veh/h/ln	1715	0	0	1525	0	0	1638	0	0	1698	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	23.8	0.0	0.0	20.2	0.0	0.0	8.5	0.0	0.0	11.4	0.0	0.0
Prop In Lane	0.01		0.02	0.10		0.01	0.10		0.36	0.11		0.10
Lane Grp Cap(c), veh/h	1251	0	0	1121	0	0	261	0	0	269	0	0
V/C Ratio(X)	0.62	0.00	0.00	0.61	0.00	0.00	0.55	0.00	0.00	0.72	0.00	0.00
Avail Cap(c_a), veh/h	1252	0	0	1119	0	0	503	0	0	525	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.4	0.0	0.0	7.1	0.0	0.0	41.5	0.0	0.0	42.5	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	2.5	0.0	0.0	1.8	0.0	0.0	3.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.0	0.0	0.0	10.9	0.0	0.0	6.5	0.0	0.0	8.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.7	0.0	0.0	9.7	0.0	0.0	43.3	0.0	0.0	46.2	0.0	0.0
LnGrp LOS	A			A			D			D		
Approach Vol, veh/h		772			684			144			195	
Approach Delay, s/veh		9.7			9.7			43.3			46.2	
Approach LOS		A			A			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	83.0	20.0	83.0	20.0
Change Period (Y+Rc), s	* 10	6.0	10.0	6.0
Max Green Setting (Gmax), s	* 73	30.0	73.0	30.0
Max Q Clear Time (g_c+I1), s	25.8	10.5	22.2	13.4
Green Ext Time (p_c), s	32.8	0.5	30.8	0.5

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	16.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	272	147	35	127	55	38
Future Volume (vph)	272	147	35	127	55	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	10	10	12
Grade (%)	2%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.953				0.945	
Flt Protected				0.989	0.971	
Satd. Flow (prot)	1554	0	0	1628	1467	0
Flt Permitted				0.989	0.971	
Satd. Flow (perm)	1554	0	0	1628	1467	0
Link Speed (mph)	35			35	40	
Link Distance (ft)	610			554	2694	
Travel Time (s)	11.9			10.8	45.9	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	2%	2%	0%	2%	6%	5%
Adj. Flow (vph)	275	148	35	128	56	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	423	0	0	163	94	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

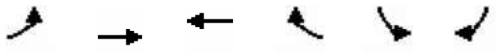
Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	272	147	35	127	55	38
Future Vol, veh/h	272	147	35	127	55	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	1	-1	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	0	2	6	5
Mvmt Flow	275	148	35	128	56	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	423	0	547	349
Stage 1	-	-	-	-	349	-
Stage 2	-	-	-	-	198	-
Critical Hdwy	-	-	4.3	-	6.26	6.15
Critical Hdwy Stg 1	-	-	-	-	5.26	-
Critical Hdwy Stg 2	-	-	-	-	5.26	-
Follow-up Hdwy	-	-	3	-	3.1	3.1
Pot Cap-1 Maneuver	-	-	859	-	563	741
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	946	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	859	-	538	741
Mov Cap-2 Maneuver	-	-	-	-	538	-
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	904	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	2	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	606	-	-	859	-
HCM Lane V/C Ratio	0.155	-	-	0.041	-
HCM Control Delay (s/veh)	12	-	-	9.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	0.5	-	-	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	189	128	83	199	38
Future Volume (vph)	25	189	128	83	199	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	10	12	10	12
Grade (%)		-1%	-1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.947		0.978	
Flt Protected		0.994			0.960	
Satd. Flow (prot)	0	2020	1552	0	1551	0
Flt Permitted		0.994			0.960	
Satd. Flow (perm)	0	2020	1552	0	1551	0
Link Speed (mph)		35	35		40	
Link Distance (ft)		2987	610		1173	
Travel Time (s)		13.4	11.9		20.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	3%	3%	2%	0%
Adj. Flow (vph)	26	193	131	85	203	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	219	216	0	242	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	189	128	83	199	38
Future Vol, veh/h	25	189	128	83	199	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-1	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	1	3	3	2	0
Mvmt Flow	26	193	131	85	203	39

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	216	0	-	0	419	174
Stage 1	-	-	-	-	174	-
Stage 2	-	-	-	-	245	-
Critical Hdwy	4.3	-	-	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1013	-	-	-	673	927
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	917	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1013	-	-	-	653	927
Mov Cap-2 Maneuver	-	-	-	-	653	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	917	-

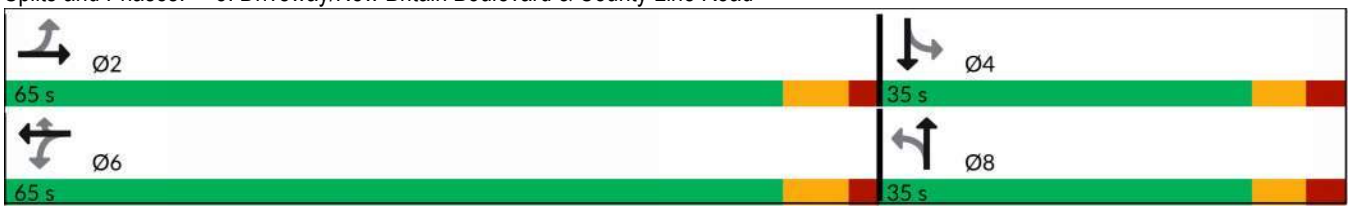
Approach	EB	WB	SB
HCM Control Delay, s/v	1	0	13.1
HCM LOS			B

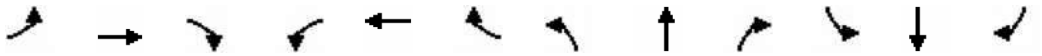
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1013	-	-	-	685
HCM Lane V/C Ratio	0.025	-	-	-	0.353
HCM Control Delay (s/veh)	8.6	0	-	-	13.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0.1	-	-	-	1.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	683	2	5	516	74	0	0	1	36	1	5
Future Volume (vph)	27	683	2	5	516	74	0	0	1	36	1	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	11	11	11	12	14	12	13	13	12
Grade (%)		0%			0%			0%			-4%	
Storage Length (ft)	125		0	115		195	0		0	175		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.865			0.875	
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1710	1626	0	1653	1626	1382	0	830	0	1654	1245	0
Flt Permitted	0.441			0.346						0.757		
Satd. Flow (perm)	794	1626	0	602	1626	1382	0	830	0	1318	1245	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						80		214			5	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1136			2046			112			467	
Travel Time (s)		17.2			31.0			3.1			12.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	7%	0%	0%	7%	7%	0%	0%	100%	9%	0%	40%
Adj. Flow (vph)	29	734	2	5	555	80	0	0	1	39	1	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	736	0	5	555	80	0	1	0	39	6	0
Turn Type	Perm	NA		Perm	NA	Perm		NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0	22.0	11.0	11.0		11.0	11.0	
Total Split (s)	65.0	65.0		65.0	65.0	65.0	35.0	35.0		35.0	35.0	
Total Split (%)	65.0%	65.0%		65.0%	65.0%	65.0%	35.0%	35.0%		35.0%	35.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 80.7	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 5: Driveway/New Britain Boulevard & County Line Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	683	2	5	516	74	0	0	1	36	1	5
Future Volume (veh/h)	27	683	2	5	516	74	0	0	1	36	1	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1702	1800	1800	1702	1702	1800	1872	396	1894	2027	1380
Adj Flow Rate, veh/h	29	734	2	5	555	76	0	0	0	39	1	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	7	0	0	7	7	0	0	100	9	0	40
Cap, veh/h	626	1343	4	541	1347	1142	0	89	0	182	14	70
Arrive On Green	0.79	0.79	0.78	0.79	0.79	0.79	0.00	0.00	0.00	0.05	0.05	0.03
Sat Flow, veh/h	766	1696	5	694	1702	1442	0	1872	0	1804	294	1469
Grp Volume(v), veh/h	29	0	736	5	555	76	0	0	0	39	0	6
Grp Sat Flow(s),veh/h/ln	766	0	1701	694	1702	1442	0	1872	0	1804	0	1763
Q Serve(g_s), s	0.9	0.0	11.8	0.2	7.5	0.9	0.0	0.0	0.0	1.6	0.0	0.2
Cycle Q Clear(g_c), s	8.4	0.0	11.8	11.5	7.5	0.9	0.0	0.0	0.0	1.6	0.0	0.2
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.00	1.00		0.83
Lane Grp Cap(c), veh/h	626	0	1347	541	1347	1142	0	89	0	182	0	83
V/C Ratio(X)	0.05	0.00	0.55	0.01	0.41	0.07	0.00	0.00	0.00	0.21	0.00	0.07
Avail Cap(c_a), veh/h	626	0	1347	541	1347	1142	0	728	0	798	0	686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.7	0.0	2.9	4.9	2.4	1.7	0.0	0.0	0.0	34.6	0.0	34.3
Incr Delay (d2), s/veh	0.1	0.0	1.6	0.0	0.9	0.1	0.0	0.0	0.0	0.6	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	2.8	0.0	1.7	0.2	0.0	0.0	0.0	1.3	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	3.8	0.0	4.5	4.9	3.3	1.8	0.0	0.0	0.0	35.1	0.0	34.7
LnGrp LOS	A		A	A	A	A				D		C
Approach Vol, veh/h		765			636			0			45	
Approach Delay, s/veh		4.4			3.2			0.0			35.1	
Approach LOS		A			A						D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.0		9.5		65.0		9.5				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		58.0		28.0		58.0		28.0				
Max Q Clear Time (g_c+I1), s		13.8		4.1		14.0		0.0				
Green Ext Time (p_c), s		19.4		0.1		13.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			4.8									
HCM 6th LOS			A									



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	0	57	35	13	38
Future Volume (vph)	6	0	57	35	13	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	12	16	12	12	16
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.949			
Flt Protected	0.950					0.987
Satd. Flow (prot)	1407	0	1859	0	0	1951
Flt Permitted	0.950					0.987
Satd. Flow (perm)	1407	0	1859	0	0	1951
Link Speed (mph)	25		25			25
Link Distance (ft)	418		923			1662
Travel Time (s)	11.4		25.2			45.3
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	33%	0%	4%	3%	0%	5%
Adj. Flow (vph)	8	0	77	47	18	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	124	0	0	69
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

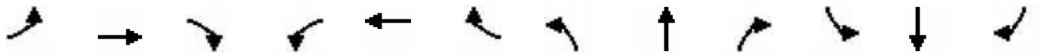
Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	0	57	35	13	38
Future Vol, veh/h	6	0	57	35	13	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	33	0	4	3	0	5
Mvmt Flow	8	0	77	47	18	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	188	101	0	0	124	0
Stage 1	101	-	-	-	-	-
Stage 2	87	-	-	-	-	-
Critical Hdwy	6.93	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.93	-	-	-	-	-
Critical Hdwy Stg 2	5.93	-	-	-	-	-
Follow-up Hdwy	3.3	3.1	-	-	3	-
Pot Cap-1 Maneuver	827	1016	-	-	1089	-
Stage 1	967	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	813	1016	-	-	1089	-
Mov Cap-2 Maneuver	813	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.5	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	813	1089	-
HCM Lane V/C Ratio	-	-	0.01	0.016	-
HCM Control Delay (s/veh)	-	-	9.5	8.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	5	2	2	0	4	0	92	28	79	66	1
Future Volume (vph)	7	5	2	2	0	4	0	92	28	79	66	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	15	12	12	16	12	12	15	12	12	16	12
Grade (%)		-1%			-1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.984			0.904			0.969			0.999	
Flt Protected		0.974			0.986						0.974	
Satd. Flow (prot)	0	1907	0	0	1827	0	0	1914	0	0	1931	0
Flt Permitted		0.974			0.986						0.974	
Satd. Flow (perm)	0	1907	0	0	1827	0	0	1914	0	0	1931	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		206			205			2796			530	
Travel Time (s)		5.6			5.6			6.8			6.7	
Confl. Peds. (#/hr)	1		1				1		1			
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	5%	0%
Adj. Flow (vph)	9	6	2	2	0	5	0	112	34	96	80	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	7	0	0	146	0	0	177	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

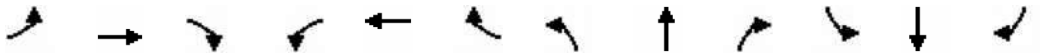
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	5	2	2	0	4	0	92	28	79	66	1
Future Vol, veh/h	7	5	2	2	0	4	0	92	28	79	66	1
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-1	-	-	-1	-	-	1	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	5	0
Mvmt Flow	9	6	2	2	0	5	0	112	34	96	80	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	407	421	83	408	404	131	82	0	0	147	0	0
Stage 1	274	274	-	130	130	-	-	-	-	-	-	-
Stage 2	133	147	-	278	274	-	-	-	-	-	-	-
Critical Hdwy	6.9	6.3	6.1	6.9	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	649	539	1045	648	551	984	1126	-	-	1070	-	-
Stage 1	857	697	-	1023	798	-	-	-	-	-	-	-
Stage 2	1019	786	-	852	697	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	598	487	1043	593	498	982	1125	-	-	1069	-	-
Mov Cap-2 Maneuver	598	487	-	593	498	-	-	-	-	-	-	-
Stage 1	856	631	-	1022	797	-	-	-	-	-	-	-
Stage 2	1013	785	-	762	631	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.3	9.5	0	4.7
HCM LOS	B	A		

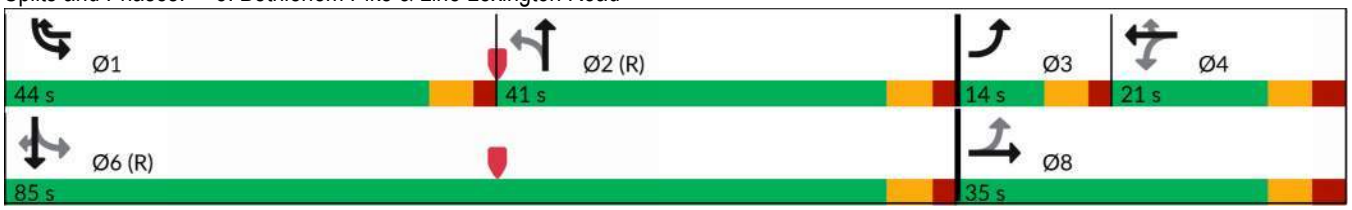
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1125	-	-	586	806	1069	-	-
HCM Lane V/C Ratio	-	-	-	0.029	0.009	0.09	-	-
HCM Control Delay (s/veh)	0	-	-	11.3	9.5	8.7	0	-
HCM Lane LOS	A	-	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.1	0	0.3	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	128	48	11	45	460	14	776	0	536	1502	66
Future Volume (vph)	40	128	48	11	45	460	14	776	0	536	1502	66
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	14	12	12	12	15	12	12	12	12	12	11
Grade (%)		-1%			9%			0%			-1%	
Storage Length (ft)	0		0	0		0	150		0	500		300
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.959				0.850						0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1278	1716	0	1498	1521	1502	1500	3167	0	1577	3273	1376
Flt Permitted	0.501			0.642			0.162			0.173		
Satd. Flow (perm)	674	1716	0	1012	1521	1502	256	3167	0	287	3273	1376
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		15				170						
Link Speed (mph)		35			45			40			40	
Link Distance (ft)		242			272			984			319	
Travel Time (s)		4.7			4.1			16.8			5.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	30%	7%	10%	9%	13%	7%	14%	8%	0%	9%	5%	8%
Adj. Flow (vph)	42	133	50	11	47	479	15	808	0	558	1565	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	183	0	11	47	479	15	808	0	558	1565	69
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm
Protected Phases	3	8			4	1		2		1	6	
Permitted Phases	8			4		4	2			6		6
Detector Phase	3	8		4	4	1	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	10.0	10.0		3.0	10.0	10.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	16.0	16.0		13.0	16.0	16.0
Total Split (s)	14.0	35.0		21.0	21.0	44.0	41.0	41.0		44.0	85.0	85.0
Total Split (%)	11.7%	29.2%		17.5%	17.5%	36.7%	34.2%	34.2%		36.7%	70.8%	70.8%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		3.0	3.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0		6.0	6.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 28 (23%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Bethlehem Pike & Line Lexington Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	128	48	11	45	460	14	776	0	536	1502	66
Future Volume (veh/h)	40	128	48	11	45	460	14	776	0	536	1502	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1411	1807	1695	1222	1166	1300	1603	1688	1800	1709	1766	1724
Adj Flow Rate, veh/h	42	133	46	11	47	311	15	808	0	558	1565	69
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	30	7	10	9	13	7	14	8	0	9	5	8
Cap, veh/h	187	270	93	157	146	426	164	1265	0	604	2342	1019
Arrive On Green	0.04	0.21	0.20	0.13	0.13	0.13	0.39	0.39	0.00	0.26	0.70	0.70
Sat Flow, veh/h	1343	1283	444	787	1166	1101	264	3291	0	1628	3356	1461
Grp Volume(v), veh/h	42	0	179	11	47	311	15	808	0	558	1565	69
Grp Sat Flow(s),veh/h/ln	1343	0	1727	787	1166	1101	264	1603	0	1628	1678	1461
Q Serve(g_s), s	3.1	0.0	11.0	1.5	4.4	15.0	4.4	24.5	0.0	26.3	31.7	1.8
Cycle Q Clear(g_c), s	3.1	0.0	11.0	1.7	4.4	15.0	4.4	24.5	0.0	26.3	31.7	1.8
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	187	0	364	157	146	426	164	1265	0	604	2342	1019
V/C Ratio(X)	0.22	0.00	0.49	0.07	0.32	0.73	0.09	0.64	0.00	0.92	0.67	0.07
Avail Cap(c_a), veh/h	229	0	417	157	146	426	164	1265	0	706	2342	1019
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	0.0	41.8	46.8	47.9	31.4	23.3	29.4	0.0	23.5	10.3	5.7
Incr Delay (d2), s/veh	0.6	0.0	1.0	0.2	1.3	6.3	1.1	2.5	0.0	16.5	1.5	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	0.0	8.3	0.5	2.3	13.0	0.6	14.6	0.0	17.4	15.7	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.5	0.0	42.9	47.0	49.1	37.7	24.4	31.9	0.0	40.0	11.8	5.9
LnGrp LOS	D		D	D	D	D	C	C		D	B	A
Approach Vol, veh/h		221			369			823			2192	
Approach Delay, s/veh		42.6			39.4			31.8			18.8	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	36.4	52.3	10.3	21.0		88.7		31.3				
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0		6.0		7.0				
Max Green Setting (Gmax), s	38.0	35.0	8.0	14.0		79.0		28.0				
Max Q Clear Time (g_c+I1), s	28.8	27.0	5.6	17.5		34.2		13.0				
Green Ext Time (p_c), s	1.6	2.5	0.0	0.0		10.5		0.5				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	25.3
HCM 6th LOS	C

Notes

User approved changes to right turn type.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	58	42	538	11	6	664
Future Volume (vph)	58	42	538	11	6	664
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	14	12
Grade (%)	-2%			0%	-9%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.943				0.866	
Flt Protected				0.953		
Satd. Flow (prot)	1685	0	0	1635	1655	0
Flt Permitted				0.953		
Satd. Flow (perm)	1685	0	0	1635	1655	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	1745			1911	272	
Travel Time (s)	47.6			73.8	5.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	0%	5%	0%	0%	5%
Adj. Flow (vph)	62	45	572	12	6	706
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	0	0	584	712	0
Sign Control	Stop			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:10	7:10	7:10	7:10	7:10	7:10
End Time	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5019	4901	4732	4825	4907	4879
Vehs Exited	5022	4930	4722	4785	4881	4867
Starting Vehs	154	144	145	119	124	135
Ending Vehs	151	115	155	159	150	140
Travel Distance (mi)	3300	3281	3225	3263	3251	3264
Travel Time (hr)	173.7	167.2	327.6	211.4	271.7	230.3
Total Delay (hr)	75.9	70.1	232.4	114.9	174.9	133.6
Total Stops	4960	4777	4765	4642	4642	4759
Fuel Used (gal)	126.8	123.6	158.0	133.6	146.6	137.7

Interval #0 Information Seeding

Start Time	7:10
End Time	7:15
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	8:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	5019	4901	4732	4825	4907	4879
Vehs Exited	5022	4930	4722	4785	4881	4867
Starting Vehs	154	144	145	119	124	135
Ending Vehs	151	115	155	159	150	140
Travel Distance (mi)	3300	3281	3225	3263	3251	3264
Travel Time (hr)	173.7	167.2	327.6	211.4	271.7	230.3
Total Delay (hr)	75.9	70.1	232.4	114.9	174.9	133.6
Total Stops	4960	4777	4765	4642	4642	4759
Fuel Used (gal)	126.8	123.6	158.0	133.6	146.6	137.7

9: Line Lexington Road & County Line Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Total Delay (hr)	0.5	1.1	2.4	3.9

Intersection: 9: Line Lexington Road & County Line Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	114	289	182
Average Queue (ft)	50	55	148
95th Queue (ft)	92	181	188
Link Distance (ft)	1667	1856	161
Upstream Blk Time (%)			4
Queuing Penalty (veh)			29
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	739	15	81	541	1	144
Future Volume (vph)	739	15	81	541	1	144
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	11	16	12
Grade (%)	0%			0%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.866	
Flt Protected				0.994		
Satd. Flow (prot)	1632	0	0	1645	1660	0
Flt Permitted				0.994		
Satd. Flow (perm)	1632	0	0	1645	1660	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	1911			743	829	
Travel Time (s)	29.0			11.3	16.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	20%	6%	5%	0%	7%
Adj. Flow (vph)	778	16	85	569	1	152
Shared Lane Traffic (%)						
Lane Group Flow (vph)	794	0	0	654	153	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

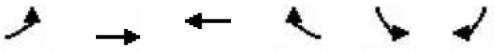
Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	739	15	81	541	1	144
Future Vol, veh/h	739	15	81	541	1	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	20	6	5	0	7
Mvmt Flow	778	16	85	569	1	152

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	794	0	1525	786
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	739	-
Critical Hdwy	-	-	4.4	-	6.2	6.17
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3.1	-	3	3.2
Pot Cap-1 Maneuver	-	-	607	-	153	406
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	553	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	607	-	122	406
Mov Cap-2 Maneuver	-	-	-	-	122	-
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	440	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.5	19.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	400	-	-	607	-
HCM Lane V/C Ratio	0.382	-	-	0.14	-
HCM Control Delay (s/veh)	19.4	-	-	11.9	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q (veh)	1.8	-	-	0.5	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	113	779	529	4	0	94
Future Volume (vph)	113	779	529	4	0	94
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	8	12
Grade (%)		-1%	1%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			0.865
Flt Protected		0.994				
Satd. Flow (prot)	0	1632	1632	0	0	1526
Flt Permitted		0.994				
Satd. Flow (perm)	0	1632	1632	0	0	1526
Link Speed (mph)		45	45		35	
Link Distance (ft)		743	1136		2796	
Travel Time (s)		39.9	17.5		3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	7%	6%	0%	0%	1%
Adj. Flow (vph)	119	820	557	4	0	99
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	939	561	0	0	99
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	113	779	529	4	0	94
Future Vol, veh/h	113	779	529	4	0	94
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	1	-	2	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	7	6	0	0	1
Mvmt Flow	119	820	557	4	0	99

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	561	0	-	0	-	559
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.3	-	-	-	-	6.41
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	3	-	-	-	-	3.1
Pot Cap-1 Maneuver	769	-	-	-	0	541
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	769	-	-	-	-	541
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.3	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	769	-	-	-	541
HCM Lane V/C Ratio	0.155	-	-	-	0.183
HCM Control Delay (s/veh)	10.5	0	-	-	13.1
HCM Lane LOS	B	A	-	-	B
HCM 95th %tile Q (veh)	0.5	-	-	-	0.7



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	80	61	60	68	234	87
Future Volume (vph)	80	61	60	68	234	87
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12
Grade (%)	-1%		-1%			1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.942		0.928			
Flt Protected	0.972					0.965
Satd. Flow (prot)	1572	0	1607	0	0	1719
Flt Permitted	0.972					0.965
Satd. Flow (perm)	1572	0	1607	0	0	1719
Link Speed (mph)	35		35			35
Link Distance (ft)	2987		530			406
Travel Time (s)	3.3		10.3			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	5%	4%	0%	2%
Adj. Flow (vph)	89	68	67	76	260	97
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	0	143	0	0	357
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	7.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	80	61	60	68	234	87
Future Vol, veh/h	80	61	60	68	234	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-1	-	-	1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	3	5	4	0	2
Mvmt Flow	89	68	67	76	260	97

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	722	105	0	0	143	0
Stage 1	105	-	-	-	-	-
Stage 2	617	-	-	-	-	-
Critical Hdwy	6.21	6.13	-	-	4.3	-
Critical Hdwy Stg 1	5.21	-	-	-	-	-
Critical Hdwy Stg 2	5.21	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	460	1016	-	-	1073	-
Stage 1	1077	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	342	1016	-	-	1073	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	1077	-	-	-	-	-
Stage 2	467	-	-	-	-	-

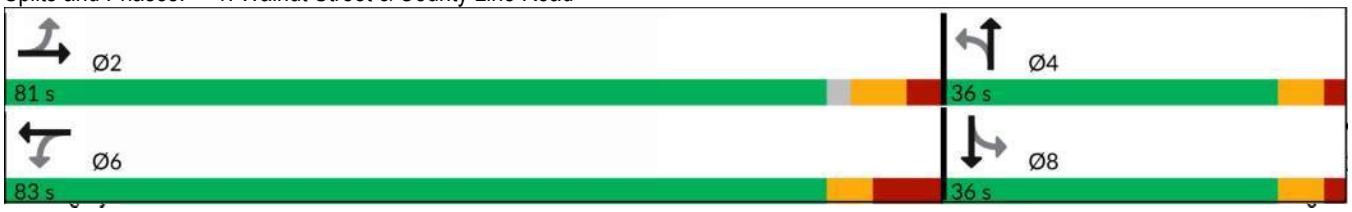
Approach	WB	NB	SB
HCM Control Delay, s/v	16.1	0	6.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	480	1073	-
HCM Lane V/C Ratio	-	-	0.326	0.242	-
HCM Control Delay (s/veh)	-	-	16.1	9.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q (veh)	-	-	1.4	1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	670	18	69	594	24	11	139	85	15	104	23
Future Volume (vph)	11	670	18	69	594	24	11	139	85	15	104	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	12	12	12	11	12	12	10	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.995			0.951			0.978	
Flt Protected		0.999			0.995			0.998			0.995	
Satd. Flow (prot)	0	1683	0	0	1705	0	0	1617	0	0	1587	0
Flt Permitted		0.988			0.860			0.984			0.919	
Satd. Flow (perm)	0	1664	0	0	1474	0	0	1594	0	0	1466	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		2						23			8	
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2046			1226			473			2694	
Travel Time (s)		31.0			18.6			12.9			45.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	2%	5%	0%	0%	3%	1%	0%	3%	5%
Adj. Flow (vph)	11	698	19	72	619	25	11	145	89	16	108	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	728	0	0	716	0	0	245	0	0	148	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		25.0	25.0		16.0	16.0		16.0	16.0	
Total Split (s)	81.0	81.0		83.0	83.0		36.0	36.0		36.0	36.0	
Total Split (%)	68.1%	68.1%		69.7%	69.7%		30.3%	30.3%		30.3%	30.3%	
Yellow Time (s)	5.0	5.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		6.0	6.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		7.0			9.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 119	
Actuated Cycle Length: 109.8	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: Walnut Street & County Line Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	670	18	69	594	24	11	139	85	15	104	23
Future Volume (veh/h)	11	670	18	69	594	24	11	139	85	15	104	23
Initial Q (Qb), veh	0	4	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1800	1772	1730	1800	1800	1758	1786	1800	1758	1730
Adj Flow Rate, veh/h	11	698	18	72	619	25	11	145	72	16	108	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	3	0	2	5	0	0	3	1	0	3	5
Cap, veh/h	41	1177	29	115	958	37	42	185	88	54	225	41
Arrive On Green	0.69	0.70	0.69	0.69	0.70	0.69	0.16	0.17	0.16	0.16	0.17	0.16
Sat Flow, veh/h	10	1684	43	117	1379	54	36	1090	520	95	1328	241
Grp Volume(v), veh/h	727	0	0	716	0	0	228	0	0	145	0	0
Grp Sat Flow(s),veh/h/ln	1737	0	0	1551	0	0	1647	0	0	1664	0	0
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	22.9	0.0	0.0	24.2	0.0	0.0	14.3	0.0	0.0	8.2	0.0	0.0
Prop In Lane	0.02		0.02	0.10		0.03	0.05		0.32	0.11		0.14
Lane Grp Cap(c), veh/h	1231	0	0	1093	0	0	299	0	0	304	0	0
V/C Ratio(X)	0.59	0.00	0.00	0.65	0.00	0.00	0.76	0.00	0.00	0.48	0.00	0.00
Avail Cap(c_a), veh/h	1231	0	0	1106	0	0	500	0	0	502	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.5	0.0	0.0	8.8	0.0	0.0	42.6	0.0	0.0	40.1	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	3.1	0.0	0.0	4.0	0.0	0.0	1.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.0	0.0	0.0	13.2	0.0	0.0	10.3	0.0	0.0	6.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.8	0.0	0.0	12.0	0.0	0.0	46.6	0.0	0.0	41.2	0.0	0.0
LnGrp LOS	B			B			D			D		
Approach Vol, veh/h		727			716			228			145	
Approach Delay, s/veh		10.8			12.0			46.6			41.2	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		83.0		22.9		83.0		22.9				
Change Period (Y+Rc), s		* 10		6.0		10.0		6.0				
Max Green Setting (Gmax), s		* 73		30.0		73.0		30.0				
Max Q Clear Time (g_c+I1), s		24.9		16.3		26.2		10.2				
Green Ext Time (p_c), s		31.1		0.7		30.7		0.4				

Intersection Summary		
HCM 6th Ctrl Delay, s/veh		18.2
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	284	79	59	541	150	38
Future Volume (vph)	284	79	59	541	150	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	10	10	12
Grade (%)	2%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.971				0.973	
Flt Protected				0.995	0.962	
Satd. Flow (prot)	1615	0	0	1648	1556	0
Flt Permitted				0.995	0.962	
Satd. Flow (perm)	1615	0	0	1648	1556	0
Link Speed (mph)	35			35	40	
Link Distance (ft)	610			554	2694	
Travel Time (s)	11.9			10.8	45.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Adj. Flow (vph)	299	83	62	569	158	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	382	0	0	631	198	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

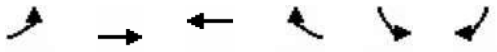
Intersection	
Int Delay, s/veh	6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	284	79	59	541	150	38
Future Vol, veh/h	284	79	59	541	150	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	1	-1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	299	83	62	569	158	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	382	0	1034	341
Stage 1	-	-	-	-	341	-
Stage 2	-	-	-	-	693	-
Critical Hdwy	-	-	4.3	-	6.22	6.1
Critical Hdwy Stg 1	-	-	-	-	5.22	-
Critical Hdwy Stg 2	-	-	-	-	5.22	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	888	-	300	752
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	578	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	888	-	269	752
Mov Cap-2 Maneuver	-	-	-	-	269	-
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	519	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.9	35.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	309	-	-	888	-
HCM Lane V/C Ratio	0.64	-	-	0.07	-
HCM Control Delay (s/veh)	35.3	-	-	9.4	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q (veh)	4.1	-	-	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	43	222	345	347	141	23
Future Volume (vph)	43	222	345	347	141	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	10	12	10	12
Grade (%)		-1%	-1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.932		0.981	
Flt Protected		0.992			0.959	
Satd. Flow (prot)	0	2017	1550	0	1581	0
Flt Permitted		0.992			0.959	
Satd. Flow (perm)	0	2017	1550	0	1581	0
Link Speed (mph)		35	35		40	
Link Distance (ft)		2978	610		1173	
Travel Time (s)		13.4	11.9		20.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	2%	1%	0%	0%
Adj. Flow (vph)	44	229	356	358	145	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	273	714	0	169	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	222	345	347	141	23
Future Vol, veh/h	43	222	345	347	141	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-1	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	1	2	1	0	0
Mvmt Flow	44	229	356	358	145	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	714	0	-	0	852	535
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	317	-
Critical Hdwy	4.3	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	679	-	-	-	369	577
Stage 1	-	-	-	-	667	-
Stage 2	-	-	-	-	849	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	679	-	-	-	342	577
Mov Cap-2 Maneuver	-	-	-	-	342	-
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	849	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.7	0	23.3
HCM LOS			C

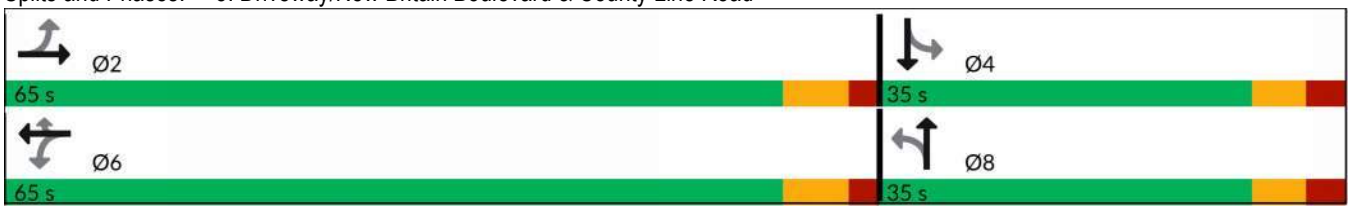
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	679	-	-	-	363
HCM Lane V/C Ratio	0.065	-	-	-	0.466
HCM Control Delay (s/veh)	10.7	0	-	-	23.3
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q (veh)	0.2	-	-	-	2.4

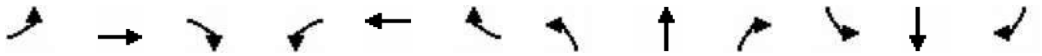
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	561	0	0	637	41	1	2	2	86	0	34
Future Volume (vph)	16	561	0	0	637	41	1	2	2	86	0	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	11	11	11	12	14	12	13	13	12
Grade (%)		0%			0%			0%			-4%	
Storage Length (ft)	125		0	115		195	0		0	175		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor										0.99	0.97	
Frt						0.850		0.946			0.850	
Flt Protected	0.950							0.990		0.950		
Satd. Flow (prot)	1425	1673	0	1740	1673	1436	0	1798	0	1750	1532	0
Flt Permitted	0.358							0.941		0.754		
Satd. Flow (perm)	537	1673	0	1740	1673	1436	0	1709	0	1386	1532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						44		2			244	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1135			2046			112			467	
Travel Time (s)		17.2			31.0			3.1			12.7	
Confl. Peds. (#/hr)										1		1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	20%	4%	0%	0%	4%	3%	0%	0%	0%	3%	0%	3%
Adj. Flow (vph)	17	597	0	0	678	44	1	2	2	91	0	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	597	0	0	678	44	0	5	0	91	36	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0	22.0	11.0	11.0		11.0	11.0	
Total Split (s)	65.0	65.0		65.0	65.0	65.0	35.0	35.0		35.0	35.0	
Total Split (%)	65.0%	65.0%		65.0%	65.0%	65.0%	35.0%	35.0%		35.0%	35.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 83.1	
Natural Cycle: 45	

Control Type: Semi Act-Uncoord

Splits and Phases: 5: Driveway/New Britain Boulevard & County Line Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	561	0	0	637	41	1	2	2	86	0	34
Future Volume (veh/h)	16	561	0	0	637	41	1	2	2	86	0	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1519	1744	1800	1800	1744	1758	1800	1872	1800	1983	2027	1906
Adj Flow Rate, veh/h	17	597	0	0	678	40	1	2	1	91	0	29
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	20	4	0	0	4	3	0	0	0	3	0	3
Cap, veh/h	441	1303	0	91	1303	1113	76	112	43	242	0	172
Arrive On Green	0.75	0.75	0.00	0.00	0.75	0.75	0.09	0.10	0.09	0.10	0.00	0.09
Sat Flow, veh/h	596	1744	0	790	1744	1490	187	1108	432	1499	0	1708
Grp Volume(v), veh/h	17	597	0	0	678	40	4	0	0	91	0	29
Grp Sat Flow(s),veh/h/ln	596	1744	0	790	1744	1490	1727	0	0	1499	0	1708
Q Serve(g_s), s	1.0	10.4	0.0	0.0	12.7	0.6	0.0	0.0	0.0	4.6	0.0	1.2
Cycle Q Clear(g_c), s	13.7	10.4	0.0	0.0	12.7	0.6	0.2	0.0	0.0	4.6	0.0	1.2
Prop In Lane	1.00		0.00	1.00		1.00	0.25		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	441	1303	0	91	1303	1113	209	0	0	242	0	172
V/C Ratio(X)	0.04	0.46	0.00	0.00	0.52	0.04	0.02	0.00	0.00	0.38	0.00	0.17
Avail Cap(c_a), veh/h	441	1303	0	91	1303	1113	649	0	0	642	0	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.9	3.8	0.0	0.0	4.1	2.6	32.2	0.0	0.0	34.0	0.0	32.9
Incr Delay (d2), s/veh	0.2	1.2	0.0	0.0	1.5	0.1	0.0	0.0	0.0	1.0	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	4.0	0.0	0.0	4.9	0.2	0.1	0.0	0.0	3.1	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.1	5.0	0.0	0.0	5.6	2.7	32.3	0.0	0.0	35.0	0.0	33.4
LnGrp LOS	A	A			A	A	C			C		C
Approach Vol, veh/h		614			718			4			120	
Approach Delay, s/veh		5.1			5.4			32.3			34.6	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.0		14.0		65.0		14.0				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		58.0		28.0		58.0		28.0				
Max Q Clear Time (g_c+I1), s		16.2		7.1		15.2		2.5				
Green Ext Time (p_c), s		14.1		0.4		16.8		0.0				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			7.8									
HCM 6th LOS			A									



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	20	45	3	0	70
Future Volume (vph)	35	20	45	3	0	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	12	16	12	12	16
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.951		0.991			
Flt Protected	0.969					
Satd. Flow (prot)	1815	0	2012	0	0	1953
Flt Permitted	0.969					
Satd. Flow (perm)	1815	0	2012	0	0	1953
Link Speed (mph)	25		25			25
Link Distance (ft)	418		923			1662
Travel Time (s)	11.4		25.2			45.3
Confl. Peds. (#/hr)	1	1				
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%
Adj. Flow (vph)	56	32	71	5	0	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	76	0	0	111
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	20	45	3	0	70
Future Vol, veh/h	35	20	45	3	0	70
Conflicting Peds, #/hr	1	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	0	0	0	0	0	5
Mvmt Flow	56	32	71	5	0	111

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	186	75	0	0	76	0
Stage 1	74	-	-	-	-	-
Stage 2	112	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	921	1052	-	-	1131	-
Stage 1	1103	-	-	-	-	-
Stage 2	1056	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	920	1051	-	-	1131	-
Mov Cap-2 Maneuver	920	-	-	-	-	-
Stage 1	1103	-	-	-	-	-
Stage 2	1055	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	964	1131	-
HCM Lane V/C Ratio	-	-	0.091	-	-
HCM Control Delay (s/veh)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	0.3	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	7	0	9	5	94	2	201	7	7	98	9
Future Volume (vph)	9	7	0	9	5	94	2	201	7	7	98	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	15	12	12	16	12	12	15	12	12	16	12
Grade (%)		-1%			-1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.882			0.995			0.989	
Flt Protected		0.973			0.996						0.997	
Satd. Flow (prot)	0	1936	0	0	1801	0	0	1961	0	0	2001	0
Flt Permitted		0.973			0.996						0.997	
Satd. Flow (perm)	0	1936	0	0	1801	0	0	1961	0	0	2001	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		206			205			2785			530	
Travel Time (s)		5.6			5.6			6.8			6.7	
Confl. Peds. (#/hr)	3		3				7		7			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	10	8	0	10	5	101	2	216	8	8	105	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	116	0	0	226	0	0	123	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	7	0	9	5	94	2	201	7	7	98	9
Future Vol, veh/h	9	7	0	9	5	94	2	201	7	7	98	9
Conflicting Peds, #/hr	3	0	3	0	0	0	7	0	7	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-1	-	-	-1	-	-	1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	10	8	0	10	5	101	2	216	8	8	105	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	413	368	120	364	369	230	122	0	0	231	0	0
Stage 1	133	133	-	231	231	-	-	-	-	-	-	-
Stage 2	280	235	-	133	138	-	-	-	-	-	-	-
Critical Hdwy	6.9	6.3	6.1	6.9	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	643	576	997	692	575	867	1091	-	-	1001	-	-
Stage 1	1019	796	-	903	726	-	-	-	-	-	-	-
Stage 2	850	724	-	1019	792	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	552	560	985	671	559	856	1082	-	-	992	-	-
Mov Cap-2 Maneuver	552	560	-	671	559	-	-	-	-	-	-	-
Stage 1	1009	782	-	893	718	-	-	-	-	-	-	-
Stage 2	740	716	-	997	779	-	-	-	-	-	-	-

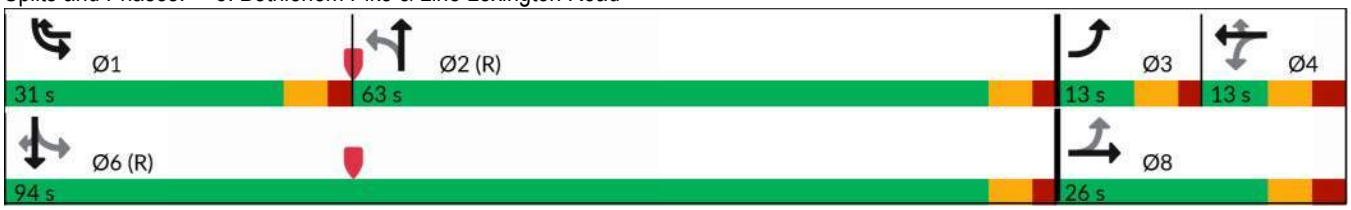
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.7	10.1	0.1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1082	-	-	555	817	992	-	-
HCM Lane V/C Ratio	0.002	-	-	0.031	0.142	0.008	-	-
HCM Control Delay (s/veh)	8.3	0	-	11.7	10.1	8.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.1	0.5	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	92	43	5	42	453	26	1406	9	401	1145	73
Future Volume (vph)	84	92	43	5	42	453	26	1406	9	401	1145	73
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	14	12	12	12	15	12	12	12	12	12	11
Grade (%)		-1%			9%			0%			-1%	
Storage Length (ft)	0		0	0		0	150		0	500		300
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.952				0.850		0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1582	1761	0	1361	1637	1545	1710	3318	0	1621	3337	1472
Flt Permitted	0.391			0.690			0.228			0.063		
Satd. Flow (perm)	651	1761	0	988	1637	1545	410	3318	0	108	3337	1472
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		17				82						
Link Speed (mph)		35			45			40			40	
Link Distance (ft)		242			272			984			319	
Travel Time (s)		4.7			4.1			16.8			5.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	4%	5%	20%	5%	4%	0%	3%	0%	6%	3%	1%
Adj. Flow (vph)	90	99	46	5	45	487	28	1512	10	431	1231	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	145	0	5	45	487	28	1522	0	431	1231	78
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm
Protected Phases	3	8			4	1		2		1	6	
Permitted Phases	8			4		4	2			6		6
Detector Phase	3	8		4	4	1	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	10.0	10.0		3.0	10.0	10.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	16.0	16.0		13.0	16.0	16.0
Total Split (s)	13.0	26.0		13.0	13.0	31.0	63.0	63.0		31.0	94.0	94.0
Total Split (%)	10.8%	21.7%		10.8%	10.8%	25.8%	52.5%	52.5%		25.8%	78.3%	78.3%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		3.0	3.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0		6.0	6.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Bethlehem Pike & Line Lexington Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	92	43	5	42	453	26	1406	9	401	1145	73
Future Volume (veh/h)	84	92	43	5	42	453	26	1406	9	401	1145	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1766	1852	1766	1067	1278	1344	1800	1758	1800	1752	1795	1823
Adj Flow Rate, veh/h	90	99	34	5	45	105	28	1512	10	431	1231	78
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	4	5	20	5	4	0	3	0	6	3	1
Cap, veh/h	200	220	75	102	75	313	255	1644	11	444	2529	1146
Arrive On Green	0.07	0.17	0.16	0.06	0.06	0.06	0.48	0.48	0.47	0.22	0.74	0.74
Sat Flow, veh/h	1682	1318	453	717	1278	1139	404	3401	22	1669	3410	1545
Grp Volume(v), veh/h	90	0	133	5	45	105	28	742	780	431	1231	78
Grp Sat Flow(s),veh/h/ln	1682	0	1770	717	1278	1139	404	1670	1754	1669	1705	1545
Q Serve(g_s), s	5.8	0.0	8.1	0.8	4.1	7.0	4.6	49.6	49.7	24.7	17.5	1.6
Cycle Q Clear(g_c), s	5.8	0.0	8.1	0.8	4.1	7.0	4.6	49.6	49.7	24.7	17.5	1.6
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	200	0	295	102	75	313	255	807	848	444	2529	1146
V/C Ratio(X)	0.45	0.00	0.45	0.05	0.60	0.34	0.11	0.92	0.92	0.97	0.49	0.07
Avail Cap(c_a), veh/h	200	0	295	102	75	313	255	807	848	444	2529	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	0.0	45.2	53.6	55.1	34.7	17.2	28.8	28.8	37.5	6.3	4.2
Incr Delay (d2), s/veh	1.6	0.0	1.1	0.2	13.0	0.6	0.9	17.2	16.7	35.0	0.7	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.5	0.0	6.6	0.3	2.8	4.5	0.9	30.1	31.4	22.4	9.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.0	0.0	46.2	53.8	68.1	35.4	18.1	46.1	45.5	72.5	6.9	4.3
LnGrp LOS	D		D	D	E	D	B	D	D	E	A	A
Approach Vol, veh/h		223			155			1550			1740	
Approach Delay, s/veh		47.0			45.5			45.3			23.1	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	31.0	63.0	13.0	13.0		94.0		26.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0		6.0		7.0				
Max Green Setting (Gmax), s	25.0	57.0	7.0	6.0		88.0		19.0				
Max Q Clear Time (g_c+I1), s	27.2	52.1	8.3	9.5		20.0		10.1				
Green Ext Time (p_c), s	0.0	3.0	0.0	0.0		7.3		0.2				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			34.9									
HCM 6th LOS			C									

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	32	46	495	21	10	516
Future Volume (vph)	32	46	495	21	10	516
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	14	12
Grade (%)	-2%			0%	-9%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.868	
Flt Protected				0.954	0.999	
Satd. Flow (prot)	1653	0	0	1685	1674	0
Flt Permitted				0.954	0.999	
Satd. Flow (perm)	1653	0	0	1685	1674	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	1745			1899	272	
Travel Time (s)	47.6			73.8	5.3	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	2%	2%	0%	0%	4%
Adj. Flow (vph)	37	53	576	24	12	600
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	0	600	612	0
Sign Control	Stop			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:25	4:25	4:25	4:25	4:25	4:25
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5729	5816	5667	5812	5686	5743
Vehs Exited	5657	5717	5663	5774	5638	5687
Starting Vehs	164	157	199	173	187	175
Ending Vehs	236	256	203	211	235	229
Travel Distance (mi)	3495	3534	3568	3591	3571	3552
Travel Time (hr)	284.0	278.5	289.8	275.3	356.5	296.8
Total Delay (hr)	180.0	173.4	183.8	168.7	250.5	191.3
Total Stops	6000	5856	6156	6301	6105	6081
Fuel Used (gal)	156.3	157.2	159.4	158.3	174.5	161.1

Interval #0 Information Seeding

Start Time	4:25
End Time	4:30
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	5729	5816	5667	5812	5686	5743
Vehs Exited	5657	5717	5663	5774	5638	5687
Starting Vehs	164	157	199	173	187	175
Ending Vehs	236	256	203	211	235	229
Travel Distance (mi)	3495	3534	3568	3591	3571	3552
Travel Time (hr)	284.0	278.5	289.8	275.3	356.5	296.8
Total Delay (hr)	180.0	173.4	183.8	168.7	250.5	191.3
Total Stops	6000	5856	6156	6301	6105	6081
Fuel Used (gal)	156.3	157.2	159.4	158.3	174.5	161.1

9: Line Lexington Road & County Line Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Total Delay (hr)	1.0	2.9	1.7	5.6

Intersection: 9: Line Lexington Road & County Line Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	151	409	184
Average Queue (ft)	55	134	143
95th Queue (ft)	121	342	182
Link Distance (ft)	1667	1844	161
Upstream Blk Time (%)			2
Queuing Penalty (veh)			12
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	542	25	223	530	7	159
Future Volume (vph)	542	25	223	530	7	159
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	11	16	12
Grade (%)	0%			0%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.870	
Flt Protected				0.985	0.998	
Satd. Flow (prot)	1632	0	0	1510	1763	0
Flt Permitted				0.985	0.998	
Satd. Flow (perm)	1632	0	0	1510	1763	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	1899			755	414	
Travel Time (s)	28.8			11.4	8.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	48%	36%	4%	0%	1%
Adj. Flow (vph)	577	27	237	564	7	169
Shared Lane Traffic (%)						
Lane Group Flow (vph)	604	0	0	801	176	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

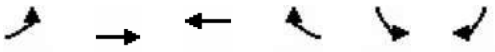
Intersection	
Int Delay, s/veh	4.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	542	25	223	530	7	159
Future Vol, veh/h	542	25	223	530	7	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-1	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	48	36	4	0	1
Mvmt Flow	577	27	237	564	7	169

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	604	0	1629	591
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	1038	-
Critical Hdwy	-	-	4.7	-	6.2	6.11
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3.3	-	3	3.1
Pot Cap-1 Maneuver	-	-	646	-	133	543
Stage 1	-	-	-	-	647	-
Stage 2	-	-	-	-	400	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	646	-	62	543
Mov Cap-2 Maneuver	-	-	-	-	62	-
Stage 1	-	-	-	-	647	-
Stage 2	-	-	-	-	186	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	4.1	20.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	409	-	-	646	-
HCM Lane V/C Ratio	0.432	-	-	0.367	-
HCM Control Delay (s/veh)	20.3	-	-	13.8	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q (veh)	2.1	-	-	1.7	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	142	588	695	20	0	87
Future Volume (vph)	142	588	695	20	0	87
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	8	8
Grade (%)		-1%	1%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996			0.865
Flt Protected		0.990				
Satd. Flow (prot)	0	1674	1503	0	0	1323
Flt Permitted		0.990				
Satd. Flow (perm)	0	1674	1503	0	0	1323
Link Speed (mph)		45	45		35	
Link Distance (ft)		755	1135		2785	
Travel Time (s)		40.1	17.3		7.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	4%	15%	5%	0%	1%
Adj. Flow (vph)	153	632	747	22	0	94
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	785	769	0	0	94
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	142	588	695	20	0	87
Future Vol, veh/h	142	588	695	20	0	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	1	-	2	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	4	15	5	0	1
Mvmt Flow	153	632	747	22	0	94

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	769	0	-	0	-	758
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.3	-	-	-	-	6.41
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	3	-	-	-	-	3.1
Pot Cap-1 Maneuver	649	-	-	-	0	410
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	649	-	-	-	-	410
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	2.4	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	649	-	-	-	410
HCM Lane V/C Ratio	0.235	-	-	-	0.228
HCM Control Delay (s/veh)	12.2	0	-	-	16.4
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q (veh)	0.9	-	-	-	0.9



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	65	235	179	102	72	70
Future Volume (vph)	65	235	179	102	72	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12
Grade (%)	-1%		-1%			1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.894		0.951			
Flt Protected	0.989					0.975
Satd. Flow (prot)	1518	0	1693	0	0	1548
Flt Permitted	0.989					0.975
Satd. Flow (perm)	1518	0	1693	0	0	1548
Link Speed (mph)	35		35			35
Link Distance (ft)	2978		530			232
Travel Time (s)	5.6		10.3			4.5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	1%	2%	1%	0%	26%
Adj. Flow (vph)	71	258	197	112	79	77
Shared Lane Traffic (%)						
Lane Group Flow (vph)	329	0	309	0	0	156
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	6.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	235	179	102	72	70
Future Vol, veh/h	65	235	179	102	72	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-1	-	-	1
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	1	2	1	0	26
Mvmt Flow	71	258	197	112	79	77

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	488	253	0	0	309	0
Stage 1	253	-	-	-	-	-
Stage 2	235	-	-	-	-	-
Critical Hdwy	6.25	6.11	-	-	4.3	-
Critical Hdwy Stg 1	5.25	-	-	-	-	-
Critical Hdwy Stg 2	5.25	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	626	841	-	-	941	-
Stage 1	920	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	571	841	-	-	941	-
Mov Cap-2 Maneuver	571	-	-	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.3	0	4.7
HCM LOS	B		

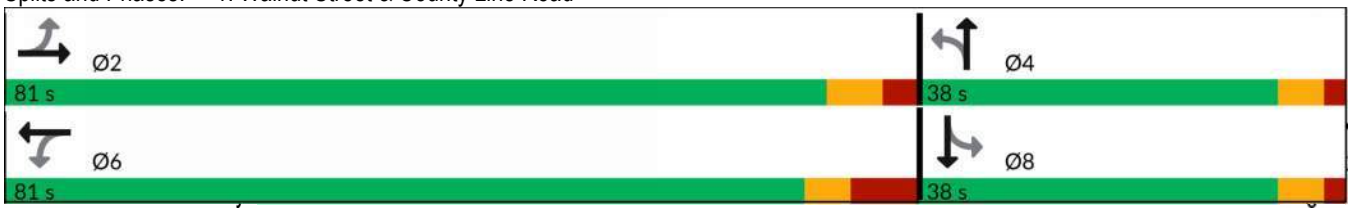
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	763	941	-
HCM Lane V/C Ratio	-	-	0.432	0.084	-
HCM Control Delay (s/veh)	-	-	13.3	9.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	2.2	0.3	-

2034 Base Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	703	14	61	575	7	14	72	71	20	144	20
Future Volume (vph)	8	703	14	61	575	7	14	72	71	20	144	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	12	12	12	11	12	12	10	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.998			0.939			0.985	
Flt Protected		0.999			0.995			0.996			0.995	
Satd. Flow (prot)	0	1651	0	0	1653	0	0	1498	0	0	1609	0
Flt Permitted		0.992			0.861			0.954			0.945	
Satd. Flow (perm)	0	1639	0	0	1430	0	0	1435	0	0	1528	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		2						35			5	
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2046			1226			473			2694	
Travel Time (s)		31.0			18.6			12.9			45.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	5%	0%	9%	8%	14%	0%	4%	15%	0%	3%	0%
Adj. Flow (vph)	9	764	15	66	625	8	15	78	77	22	157	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	788	0	0	699	0	0	170	0	0	201	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		25.0	25.0		16.0	16.0		16.0	16.0	
Total Split (s)	81.0	81.0		81.0	81.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.1%	68.1%		68.1%	68.1%		31.9%	31.9%		31.9%	31.9%	
Yellow Time (s)	5.0	5.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		6.0	6.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		7.0			9.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 119	
Actuated Cycle Length: 105.8	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: Walnut Street & County Line Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	8	703	14	61	575	7	14	72	71	20	144	20
Future Volume (veh/h)	8	703	14	61	575	7	14	72	71	20	144	20
Initial Q (Qb), veh	0	0	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1617	1730	1800	1674	1688	1603	1800	1744	1589	1800	1758	1800
Adj Flow Rate, veh/h	9	764	14	66	625	8	15	78	53	22	157	19
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	5	0	9	8	14	0	4	15	0	3	0
Cap, veh/h	40	1203	22	112	1006	12	52	140	88	56	209	24
Arrive On Green	0.71	0.72	0.71	0.71	0.72	0.71	0.14	0.15	0.14	0.14	0.15	0.14
Sat Flow, veh/h	6	1678	31	104	1399	17	90	952	594	115	1421	163
Grp Volume(v), veh/h	787	0	0	699	0	0	146	0	0	198	0	0
Grp Sat Flow(s),veh/h/ln	1716	0	0	1520	0	0	1637	0	0	1698	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Cycle Q Clear(g_c), s	24.8	0.0	0.0	21.4	0.0	0.0	8.6	0.0	0.0	11.6	0.0	0.0
Prop In Lane	0.01		0.02	0.09		0.01	0.10		0.36	0.11		0.10
Lane Grp Cap(c), veh/h	1248	0	0	1115	0	0	264	0	0	272	0	0
V/C Ratio(X)	0.63	0.00	0.00	0.63	0.00	0.00	0.55	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	1249	0	0	1114	0	0	532	0	0	556	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.6	0.0	0.0	7.3	0.0	0.0	41.4	0.0	0.0	42.5	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.0	0.0	2.7	0.0	0.0	1.8	0.0	0.0	3.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.4	0.0	0.0	11.4	0.0	0.0	6.6	0.0	0.0	8.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.1	0.0	0.0	10.1	0.0	0.0	43.3	0.0	0.0	46.2	0.0	0.0
LnGrp LOS	B			B			D			D		
Approach Vol, veh/h		787			699			146			198	
Approach Delay, s/veh		10.1			10.1			43.3			46.2	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		83.0		20.2		83.0		20.2				
Change Period (Y+Rc), s		* 10		6.0		10.0		6.0				
Max Green Setting (Gmax), s		* 73		32.0		71.0		32.0				
Max Q Clear Time (g_c+I1), s		26.8		10.6		23.4		13.6				
Green Ext Time (p_c), s		32.9		0.5		30.3		0.6				

Intersection Summary		
HCM 6th Ctrl Delay, s/veh		16.7
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	275	149	35	128	56	38
Future Volume (vph)	275	149	35	128	56	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	10	10	12
Grade (%)	2%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.952				0.946	
Flt Protected				0.989	0.971	
Satd. Flow (prot)	1552	0	0	1628	1469	0
Flt Permitted				0.989	0.971	
Satd. Flow (perm)	1552	0	0	1628	1469	0
Link Speed (mph)	35			35	40	
Link Distance (ft)	610			554	2694	
Travel Time (s)	11.9			10.8	45.9	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	2%	2%	0%	2%	6%	5%
Adj. Flow (vph)	278	151	35	129	57	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	429	0	0	164	95	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

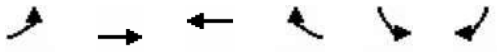
Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	275	149	35	128	56	38
Future Vol, veh/h	275	149	35	128	56	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	1	-1	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	0	2	6	5
Mvmt Flow	278	151	35	129	57	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	429	0	553	354
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	199	-
Critical Hdwy	-	-	4.3	-	6.26	6.15
Critical Hdwy Stg 1	-	-	-	-	5.26	-
Critical Hdwy Stg 2	-	-	-	-	5.26	-
Follow-up Hdwy	-	-	3	-	3.1	3.1
Pot Cap-1 Maneuver	-	-	855	-	558	736
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	855	-	533	736
Mov Cap-2 Maneuver	-	-	-	-	533	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	903	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	2	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	600	-	-	855	-
HCM Lane V/C Ratio	0.158	-	-	0.041	-
HCM Control Delay (s/veh)	12.1	-	-	9.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	0.6	-	-	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	191	129	84	201	38
Future Volume (vph)	25	191	129	84	201	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	10	12	10	12
Grade (%)		-1%	-1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.947		0.978	
Flt Protected		0.994			0.960	
Satd. Flow (prot)	0	2020	1552	0	1551	0
Flt Permitted		0.994			0.960	
Satd. Flow (perm)	0	2020	1552	0	1551	0
Link Speed (mph)		35	35		40	
Link Distance (ft)		2987	610		1173	
Travel Time (s)		13.4	11.9		20.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	3%	3%	2%	0%
Adj. Flow (vph)	26	195	132	86	205	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	221	218	0	244	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

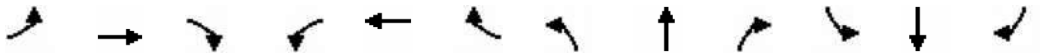
Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	191	129	84	201	38
Future Vol, veh/h	25	191	129	84	201	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-1	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	1	3	3	2	0
Mvmt Flow	26	195	132	86	205	39

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	218	0	-	0	422	175
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	247	-
Critical Hdwy	4.3	-	-	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1011	-	-	-	671	925
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	915	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1011	-	-	-	652	925
Mov Cap-2 Maneuver	-	-	-	-	652	-
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	915	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1	0	13.2
HCM LOS			B

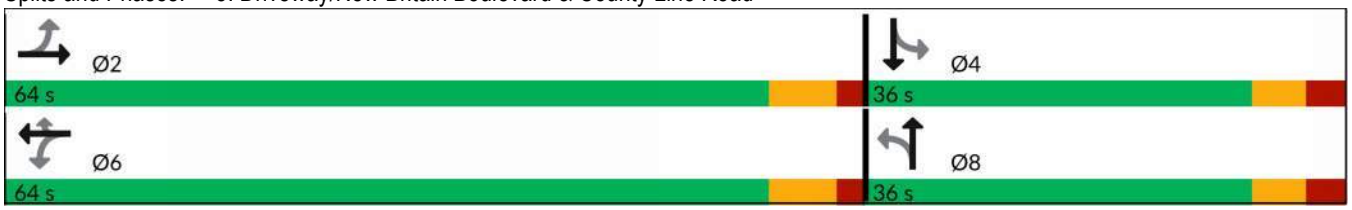
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1011	-	-	-	684
HCM Lane V/C Ratio	0.025	-	-	-	0.357
HCM Control Delay (s/veh)	8.7	0	-	-	13.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0.1	-	-	-	1.6

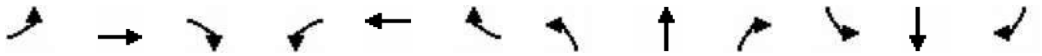


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	697	2	5	529	75	0	0	1	36	1	5
Future Volume (vph)	27	697	2	5	529	75	0	0	1	36	1	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	11	11	11	12	14	12	13	13	12
Grade (%)		0%			0%			0%			-4%	
Storage Length (ft)	125		0	115		195	0		0	175		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.865			0.875	
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1710	1626	0	1653	1626	1382	0	830	0	1654	1245	0
Flt Permitted	0.433			0.338						0.757		
Satd. Flow (perm)	779	1626	0	588	1626	1382	0	830	0	1318	1245	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						81		201			5	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1136			2046			112			467	
Travel Time (s)		17.2			31.0			3.1			12.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	7%	0%	0%	7%	7%	0%	0%	100%	9%	0%	40%
Adj. Flow (vph)	29	749	2	5	569	81	0	0	1	39	1	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	29	751	0	5	569	81	0	1	0	39	6	0
Turn Type	Perm	NA		Perm	NA	Perm		NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0	22.0	11.0	11.0		11.0	11.0	
Total Split (s)	64.0	64.0		64.0	64.0	64.0	36.0	36.0		36.0	36.0	
Total Split (%)	64.0%	64.0%		64.0%	64.0%	64.0%	36.0%	36.0%		36.0%	36.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 79.6	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Splits and Phases: 5: Driveway/New Britain Boulevard & County Line Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	697	2	5	529	75	0	0	1	36	1	5
Future Volume (veh/h)	27	697	2	5	529	75	0	0	1	36	1	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1702	1800	1800	1702	1702	1800	1872	396	1894	2027	1380
Adj Flow Rate, veh/h	29	749	2	5	569	77	0	0	0	39	1	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	7	0	0	7	7	0	0	100	9	0	40
Cap, veh/h	614	1339	4	529	1343	1138	0	89	0	184	14	70
Arrive On Green	0.79	0.79	0.78	0.79	0.79	0.79	0.00	0.00	0.00	0.05	0.05	0.03
Sat Flow, veh/h	755	1696	5	685	1702	1442	0	1872	0	1804	294	1469
Grp Volume(v), veh/h	29	0	751	5	569	77	0	0	0	39	0	6
Grp Sat Flow(s),veh/h/ln	755	0	1701	685	1702	1442	0	1872	0	1804	0	1763
Q Serve(g_s), s	0.9	0.0	12.3	0.2	7.8	0.9	0.0	0.0	0.0	1.5	0.0	0.2
Cycle Q Clear(g_c), s	8.7	0.0	12.3	12.0	7.8	0.9	0.0	0.0	0.0	1.5	0.0	0.2
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.00	1.00		0.83
Lane Grp Cap(c), veh/h	614	0	1342	529	1343	1138	0	89	0	184	0	84
V/C Ratio(X)	0.05	0.00	0.56	0.01	0.42	0.07	0.00	0.00	0.00	0.21	0.00	0.07
Avail Cap(c_a), veh/h	614	0	1342	529	1343	1138	0	764	0	834	0	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.8	0.0	2.9	5.1	2.5	1.7	0.0	0.0	0.0	34.1	0.0	33.8
Incr Delay (d2), s/veh	0.1	0.0	1.7	0.0	1.0	0.1	0.0	0.0	0.0	0.6	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	2.9	0.0	1.8	0.2	0.0	0.0	0.0	1.3	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	4.0	0.0	4.6	5.1	3.4	1.8	0.0	0.0	0.0	34.6	0.0	34.2
LnGrp LOS	A		A	A	A	A				C		C
Approach Vol, veh/h		780			651			0			45	
Approach Delay, s/veh		4.6			3.3			0.0			34.6	
Approach LOS		A			A						C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.0		9.5		64.0		9.5				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		57.0		29.0		57.0		29.0				
Max Q Clear Time (g_c+I1), s		14.3		4.0		14.5		0.0				
Green Ext Time (p_c), s		19.7		0.1		13.3		0.0				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			4.9									
HCM 6th LOS			A									



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	0	58	35	13	38
Future Volume (vph)	6	0	58	35	13	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	12	16	12	12	16
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.949			
Flt Protected	0.950					0.987
Satd. Flow (prot)	1407	0	1859	0	0	1951
Flt Permitted	0.950					0.987
Satd. Flow (perm)	1407	0	1859	0	0	1951
Link Speed (mph)	25		25			25
Link Distance (ft)	418		923			1662
Travel Time (s)	11.4		25.2			45.3
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	33%	0%	4%	3%	0%	5%
Adj. Flow (vph)	8	0	78	47	18	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	125	0	0	69
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	0	58	35	13	38
Future Vol, veh/h	6	0	58	35	13	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	33	0	4	3	0	5
Mvmt Flow	8	0	78	47	18	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	189	102	0	0	125	0
Stage 1	102	-	-	-	-	-
Stage 2	87	-	-	-	-	-
Critical Hdwy	6.93	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.93	-	-	-	-	-
Critical Hdwy Stg 2	5.93	-	-	-	-	-
Follow-up Hdwy	3.3	3.1	-	-	3	-
Pot Cap-1 Maneuver	826	1015	-	-	1088	-
Stage 1	966	-	-	-	-	-
Stage 2	983	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	812	1015	-	-	1088	-
Mov Cap-2 Maneuver	812	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.5	0	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	812	1088	-
HCM Lane V/C Ratio	-	-	0.01	0.016	-
HCM Control Delay (s/veh)	-	-	9.5	8.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	5	2	2	0	4	0	93	28	80	67	1
Future Volume (vph)	7	5	2	2	0	4	0	93	28	80	67	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	15	12	12	16	12	12	15	12	12	16	12
Grade (%)		-1%			-1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.984			0.904			0.969			0.999	
Flt Protected		0.974			0.986						0.974	
Satd. Flow (prot)	0	1907	0	0	1827	0	0	1914	0	0	1931	0
Flt Permitted		0.974			0.986						0.974	
Satd. Flow (perm)	0	1907	0	0	1827	0	0	1914	0	0	1931	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		206			205			2796			530	
Travel Time (s)		5.6			5.6			6.8			6.7	
Confl. Peds. (#/hr)	1		1				1		1			
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	5%	0%
Adj. Flow (vph)	9	6	2	2	0	5	0	113	34	98	82	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	7	0	0	147	0	0	181	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

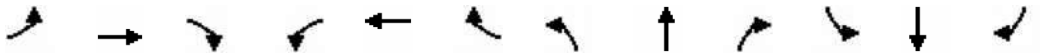
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	5	2	2	0	4	0	93	28	80	67	1
Future Vol, veh/h	7	5	2	2	0	4	0	93	28	80	67	1
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-1	-	-	-1	-	-	1	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	5	0
Mvmt Flow	9	6	2	2	0	5	0	113	34	98	82	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	414	428	85	415	411	132	84	0	0	148	0	0
Stage 1	280	280	-	131	131	-	-	-	-	-	-	-
Stage 2	134	148	-	284	280	-	-	-	-	-	-	-
Critical Hdwy	6.9	6.3	6.1	6.9	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	642	535	1043	641	546	982	1124	-	-	1069	-	-
Stage 1	850	693	-	1022	797	-	-	-	-	-	-	-
Stage 2	1018	785	-	846	693	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	591	483	1041	585	492	980	1123	-	-	1068	-	-
Mov Cap-2 Maneuver	591	483	-	585	492	-	-	-	-	-	-	-
Stage 1	849	626	-	1021	796	-	-	-	-	-	-	-
Stage 2	1012	784	-	755	626	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.4	9.5	0	4.7
HCM LOS	B	A		

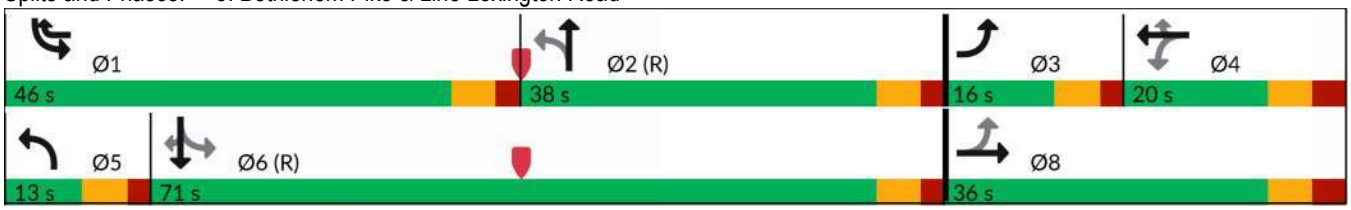
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1123	-	-	580	800	1068	-	-
HCM Lane V/C Ratio	-	-	-	0.029	0.009	0.091	-	-
HCM Control Delay (s/veh)	0	-	-	11.4	9.5	8.7	0	-
HCM Lane LOS	A	-	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.1	0	0.3	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	130	52	11	46	471	37	808	0	548	1559	67
Future Volume (vph)	42	130	52	11	46	471	37	808	0	548	1559	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	14	12	12	12	15	12	12	12	12	12	11
Grade (%)		-1%			9%			0%			-1%	
Storage Length (ft)	0		0	0		0	150		0	500		300
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.957				0.850						0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1278	1712	0	1498	1521	1502	1500	3167	0	1577	3273	1376
Flt Permitted	0.502			0.639			0.148			0.137		
Satd. Flow (perm)	675	1712	0	1008	1521	1502	234	3167	0	227	3273	1376
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		16				203						
Link Speed (mph)		35			45			40			40	
Link Distance (ft)		242			272			984			319	
Travel Time (s)		4.7			4.1			16.8			5.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	30%	7%	10%	9%	13%	7%	14%	8%	0%	9%	5%	8%
Adj. Flow (vph)	44	135	54	11	48	491	39	842	0	571	1624	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	189	0	11	48	491	39	842	0	571	1624	70
Turn Type	pm+pt	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	3	8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2			6		6
Detector Phase	3	8		4	4	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	10.0		3.0	10.0	10.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	9.0	16.0		13.0	16.0	16.0
Total Split (s)	16.0	36.0		20.0	20.0	46.0	13.0	38.0		46.0	71.0	71.0
Total Split (%)	13.3%	30.0%		16.7%	16.7%	38.3%	10.8%	31.7%		38.3%	59.2%	59.2%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		3.0	3.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0		6.0	6.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 28 (23%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Bethlehem Pike & Line Lexington Road



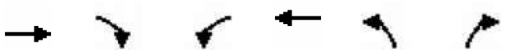
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	130	52	11	46	471	37	808	0	548	1559	67
Future Volume (veh/h)	42	130	52	11	46	471	37	808	0	548	1559	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1411	1807	1695	1222	1166	1300	1603	1688	1800	1709	1766	1724
Adj Flow Rate, veh/h	44	135	50	11	48	323	39	842	0	571	1624	70
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	30	7	10	9	13	7	14	8	0	9	5	8
Cap, veh/h	182	257	95	148	136	441	182	1215	0	616	2107	917
Arrive On Green	0.05	0.20	0.20	0.12	0.12	0.12	0.03	0.38	0.00	0.28	0.63	0.63
Sat Flow, veh/h	1343	1258	466	783	1166	1101	1527	3291	0	1628	3356	1461
Grp Volume(v), veh/h	44	0	185	11	48	323	39	842	0	571	1624	70
Grp Sat Flow(s),veh/h/ln	1343	0	1723	783	1166	1101	1527	1603	0	1628	1678	1461
Q Serve(g_s), s	3.3	0.0	11.5	1.5	4.6	14.0	1.8	26.5	0.0	28.9	41.9	2.2
Cycle Q Clear(g_c), s	3.3	0.0	11.5	2.0	4.6	14.0	1.8	26.5	0.0	28.9	41.9	2.2
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	0	352	148	136	441	182	1215	0	616	2107	917
V/C Ratio(X)	0.24	0.00	0.53	0.07	0.35	0.73	0.21	0.69	0.00	0.93	0.77	0.08
Avail Cap(c_a), veh/h	243	0	431	148	136	441	231	1215	0	710	2107	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	0.0	42.7	47.9	48.8	30.5	21.9	31.4	0.0	25.4	16.1	8.7
Incr Delay (d2), s/veh	0.7	0.0	1.2	0.2	1.6	6.2	0.6	3.3	0.0	17.0	2.8	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	0.0	8.7	0.5	2.4	13.2	1.2	15.8	0.0	25.2	21.5	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.3	0.0	43.9	48.2	50.4	36.7	22.5	34.6	0.0	42.4	18.9	8.9
LnGrp LOS	D		D	D	D	D	C	C		D	B	A
Approach Vol, veh/h		229			382			881			2265	
Approach Delay, s/veh		43.6			38.8			34.1			24.5	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	39.0	50.5	10.5	20.0	9.2	80.3		30.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	40.0	32.0	10.0	13.0	7.0	65.0		29.0				
Max Q Clear Time (g_c+I1), s	31.4	29.0	5.8	16.5	4.3	44.4		13.5				
Green Ext Time (p_c), s	1.6	1.2	0.0	0.0	0.0	8.9		0.5				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	29.4
HCM 6th LOS	C

Notes

User approved changes to right turn type.



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	59	42	551	11	6	678
Future Volume (vph)	59	42	551	11	6	678
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	14	12
Grade (%)	-2%			0%	-9%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.944				0.866	
Flt Protected				0.953		
Satd. Flow (prot)	1687	0	0	1635	1655	0
Flt Permitted				0.953		
Satd. Flow (perm)	1687	0	0	1635	1655	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	1745			1911	272	
Travel Time (s)	47.6			73.8	5.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	0%	5%	0%	0%	5%
Adj. Flow (vph)	63	45	586	12	6	721
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	0	0	598	727	0
Sign Control	Stop			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:10	7:10	7:10	7:10	7:10	7:10
End Time	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4916	4845	4750	4896	4966	4875
Vehs Exited	4884	4805	4786	4848	4968	4858
Starting Vehs	126	131	158	126	128	128
Ending Vehs	158	171	122	174	126	148
Travel Distance (mi)	3283	3263	3255	3290	3319	3282
Travel Time (hr)	282.2	421.6	401.5	405.7	266.7	355.5
Total Delay (hr)	185.2	325.1	305.2	308.5	168.5	258.5
Total Stops	4750	5121	4897	4933	4911	4922
Fuel Used (gal)	149.7	181.4	175.8	177.9	147.6	166.5

Interval #0 Information Seeding

Start Time	7:10
End Time	7:15
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	8:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

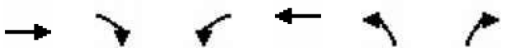
Run Number	1	2	3	4	5	Avg
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Total Stops	4750	5121	4897	4933	4911	4922
Fuel Used (gal)	149.7	181.4	175.8	177.9	147.6	166.5

9: Line Lexington Road & County Line Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Total Delay (hr)	0.5	1.2	2.5	4.3

Intersection: 9: Line Lexington Road & County Line Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	129	276	201
Average Queue (ft)	51	72	156
95th Queue (ft)	94	214	195
Link Distance (ft)	1667	1856	161
Upstream Blk Time (%)			5
Queuing Penalty (veh)			36
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	754	15	82	554	1	146
Future Volume (vph)	754	15	82	554	1	146
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	11	16	12
Grade (%)	0%			0%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.866	
Flt Protected				0.994		
Satd. Flow (prot)	1632	0	0	1645	1660	0
Flt Permitted				0.994		
Satd. Flow (perm)	1632	0	0	1645	1660	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	1911			743	829	
Travel Time (s)	29.0			11.3	16.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	20%	6%	5%	0%	7%
Adj. Flow (vph)	794	16	86	583	1	154
Shared Lane Traffic (%)						
Lane Group Flow (vph)	810	0	0	669	155	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

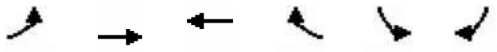
Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	754	15	82	554	1	146
Future Vol, veh/h	754	15	82	554	1	146
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	6	20	6	5	0	7
Mvmt Flow	794	16	86	583	1	154

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	810	0	1557	802
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	755	-
Critical Hdwy	-	-	4.4	-	6.2	6.17
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3.1	-	3	3.2
Pot Cap-1 Maneuver	-	-	599	-	147	398
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	543	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	599	-	116	398
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	428	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.5	20
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	392	-	-	599	-
HCM Lane V/C Ratio	0.395	-	-	0.144	-
HCM Control Delay (s/veh)	20	-	-	12	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q (veh)	1.8	-	-	0.5	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	114	794	542	4	0	95
Future Volume (vph)	114	794	542	4	0	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	8	12
Grade (%)		-1%	1%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			0.865
Flt Protected		0.994				
Satd. Flow (prot)	0	1632	1632	0	0	1526
Flt Permitted		0.994				
Satd. Flow (perm)	0	1632	1632	0	0	1526
Link Speed (mph)		45	45		35	
Link Distance (ft)		743	1136		2796	
Travel Time (s)		39.9	17.5		3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	7%	6%	0%	0%	1%
Adj. Flow (vph)	120	836	571	4	0	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	956	575	0	0	100
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	114	794	542	4	0	95
Future Vol, veh/h	114	794	542	4	0	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	1	-	2	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	7	6	0	0	1
Mvmt Flow	120	836	571	4	0	100

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	575	0	-	0	-	573
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.3	-	-	-	-	6.41
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	3	-	-	-	-	3.1
Pot Cap-1 Maneuver	760	-	-	-	0	530
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	760	-	-	-	-	530
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.3	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	760	-	-	-	530
HCM Lane V/C Ratio	0.158	-	-	-	0.189
HCM Control Delay (s/veh)	10.6	0	-	-	13.4
HCM Lane LOS	B	A	-	-	B
HCM 95th %tile Q (veh)	0.6	-	-	-	0.7



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	81	62	61	69	237	88
Future Volume (vph)	81	62	61	69	237	88
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12
Grade (%)	-1%		-1%			1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.941		0.928			
Flt Protected	0.972					0.965
Satd. Flow (prot)	1570	0	1607	0	0	1719
Flt Permitted	0.972					0.965
Satd. Flow (perm)	1570	0	1607	0	0	1719
Link Speed (mph)	35		35			35
Link Distance (ft)	2987		530			406
Travel Time (s)	3.3		10.3			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	5%	4%	0%	2%
Adj. Flow (vph)	90	69	68	77	263	98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	159	0	145	0	0	361
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	7.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	81	62	61	69	237	88
Future Vol, veh/h	81	62	61	69	237	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-1	-	-	1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	3	5	4	0	2
Mvmt Flow	90	69	68	77	263	98

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	731	107	0	0	145	0
Stage 1	107	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.21	6.13	-	-	4.3	-
Critical Hdwy Stg 1	5.21	-	-	-	-	-
Critical Hdwy Stg 2	5.21	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	454	1013	-	-	1071	-
Stage 1	1074	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	336	1013	-	-	1071	-
Mov Cap-2 Maneuver	336	-	-	-	-	-
Stage 1	1074	-	-	-	-	-
Stage 2	462	-	-	-	-	-

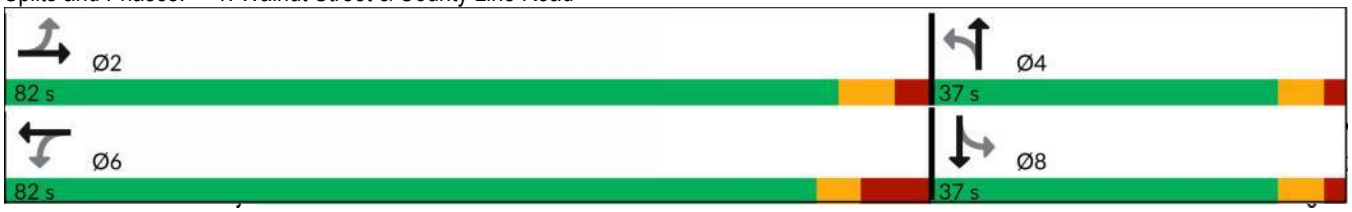
Approach	WB	NB	SB
HCM Control Delay, s/v	16.4	0	6.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	473	1071	-
HCM Lane V/C Ratio	-	-	0.336	0.246	-
HCM Control Delay (s/veh)	-	-	16.4	9.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q (veh)	-	-	1.5	1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	686	18	70	609	24	11	141	86	15	105	23
Future Volume (vph)	11	686	18	70	609	24	11	141	86	15	105	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	12	12	12	11	12	12	10	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.995			0.951			0.978	
Flt Protected		0.999			0.995			0.998			0.995	
Satd. Flow (prot)	0	1685	0	0	1705	0	0	1617	0	0	1587	0
Flt Permitted		0.988			0.858			0.984			0.920	
Satd. Flow (perm)	0	1666	0	0	1470	0	0	1594	0	0	1468	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		2						24			8	
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2046			1226			473			2694	
Travel Time (s)		31.0			18.6			12.9			45.9	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	0%	2%	5%	0%	0%	3%	1%	0%	3%	5%
Adj. Flow (vph)	11	715	19	73	634	25	11	147	90	16	109	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	745	0	0	732	0	0	248	0	0	149	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		25.0	25.0		16.0	16.0		16.0	16.0	
Total Split (s)	82.0	82.0		82.0	82.0		37.0	37.0		37.0	37.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Yellow Time (s)	5.0	5.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		6.0	6.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		7.0			9.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 119	
Actuated Cycle Length: 108.8	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: Walnut Street & County Line Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	686	18	70	609	24	11	141	86	15	105	23
Future Volume (veh/h)	11	686	18	70	609	24	11	141	86	15	105	23
Initial Q (Qb), veh	0	4	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1758	1800	1772	1730	1800	1800	1758	1786	1800	1758	1730
Adj Flow Rate, veh/h	11	715	18	73	634	25	11	147	73	16	109	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	3	0	2	5	0	0	3	1	0	3	5
Cap, veh/h	41	1179	28	114	954	35	41	186	89	53	227	41
Arrive On Green	0.69	0.70	0.69	0.69	0.70	0.69	0.16	0.17	0.16	0.16	0.17	0.16
Sat Flow, veh/h	9	1685	42	116	1374	53	36	1091	520	94	1328	239
Grp Volume(v), veh/h	744	0	0	732	0	0	231	0	0	146	0	0
Grp Sat Flow(s),veh/h/ln	1737	0	0	1543	0	0	1647	0	0	1662	0	0
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	24.2	0.0	0.0	26.2	0.0	0.0	14.6	0.0	0.0	8.4	0.0	0.0
Prop In Lane	0.01		0.02	0.10		0.03	0.05		0.32	0.11		0.14
Lane Grp Cap(c), veh/h	1231	0	0	1086	0	0	301	0	0	306	0	0
V/C Ratio(X)	0.60	0.00	0.00	0.67	0.00	0.00	0.77	0.00	0.00	0.48	0.00	0.00
Avail Cap(c_a), veh/h	1231	0	0	1101	0	0	508	0	0	510	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.8	0.0	0.0	9.1	0.0	0.0	43.1	0.0	0.0	40.5	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	3.4	0.0	0.0	4.1	0.0	0.0	1.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.6	0.0	0.0	13.9	0.0	0.0	10.5	0.0	0.0	6.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	11.2	0.0	0.0	12.6	0.0	0.0	47.2	0.0	0.0	41.6	0.0	0.0
LnGrp LOS	B			B			D			D		
Approach Vol, veh/h		744			732			231			146	
Approach Delay, s/veh		11.2			12.6			47.2			41.6	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		84.0		23.3		84.0		23.3				
Change Period (Y+Rc), s		* 10		6.0		10.0		6.0				
Max Green Setting (Gmax), s		* 74		31.0		72.0		31.0				
Max Q Clear Time (g_c+I1), s		26.2		16.6		28.2		10.4				
Green Ext Time (p_c), s		31.8		0.7		30.0		0.4				

Intersection Summary		
HCM 6th Ctrl Delay, s/veh		18.6
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	287	80	60	547	152	38
Future Volume (vph)	287	80	60	547	152	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	10	10	12
Grade (%)	2%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.971				0.973	
Flt Protected				0.995	0.962	
Satd. Flow (prot)	1615	0	0	1648	1555	0
Flt Permitted				0.995	0.962	
Satd. Flow (perm)	1615	0	0	1648	1555	0
Link Speed (mph)	35			35	40	
Link Distance (ft)	610			554	2694	
Travel Time (s)	11.9			10.8	45.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Adj. Flow (vph)	302	84	63	576	160	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	386	0	0	639	200	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

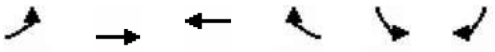
Intersection	
Int Delay, s/veh	6.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	287	80	60	547	152	38
Future Vol, veh/h	287	80	60	547	152	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	1	-1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	302	84	63	576	160	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	386	0	1046	344
Stage 1	-	-	-	-	344	-
Stage 2	-	-	-	-	702	-
Critical Hdwy	-	-	4.3	-	6.22	6.1
Critical Hdwy Stg 1	-	-	-	-	5.22	-
Critical Hdwy Stg 2	-	-	-	-	5.22	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	885	-	295	749
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	573	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	885	-	264	749
Mov Cap-2 Maneuver	-	-	-	-	264	-
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	513	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.9	37.2
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	303	-	-	885	-
HCM Lane V/C Ratio	0.66	-	-	0.071	-
HCM Control Delay (s/veh)	37.2	-	-	9.4	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q (veh)	4.4	-	-	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	43	224	349	351	143	23
Future Volume (vph)	43	224	349	351	143	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	10	12	10	12
Grade (%)		-1%	-1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.932		0.981	
Flt Protected		0.992			0.959	
Satd. Flow (prot)	0	2017	1550	0	1581	0
Flt Permitted		0.992			0.959	
Satd. Flow (perm)	0	2017	1550	0	1581	0
Link Speed (mph)		35	35		40	
Link Distance (ft)		2978	610		1173	
Travel Time (s)		13.4	11.9		20.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	2%	1%	0%	0%
Adj. Flow (vph)	44	231	360	362	147	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	275	722	0	171	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	224	349	351	143	23
Future Vol, veh/h	43	224	349	351	143	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-1	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	1	2	1	0	0
Mvmt Flow	44	231	360	362	147	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	722	0	-	0	860	541
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	319	-
Critical Hdwy	4.3	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	674	-	-	-	364	572
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	847	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	674	-	-	-	337	572
Mov Cap-2 Maneuver	-	-	-	-	337	-
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	847	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.7	0	24
HCM LOS			C

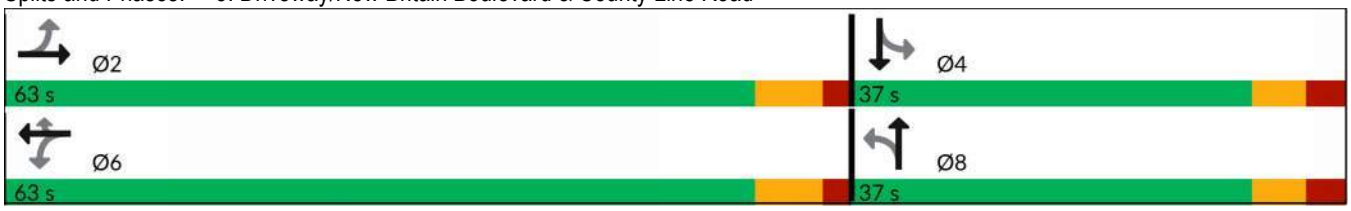
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	674	-	-	-	357
HCM Lane V/C Ratio	0.066	-	-	-	0.479
HCM Control Delay (s/veh)	10.7	0	-	-	24
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q (veh)	0.2	-	-	-	2.5

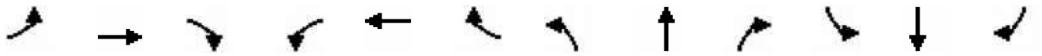
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	576	0	0	653	41	1	2	2	87	0	34
Future Volume (vph)	16	576	0	0	653	41	1	2	2	87	0	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	11	11	11	12	14	12	13	13	12
Grade (%)		0%			0%			0%			-4%	
Storage Length (ft)	125		0	115		195	0		0	175		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor										0.99	0.97	
Frt						0.850		0.946			0.850	
Flt Protected	0.950							0.990		0.950		
Satd. Flow (prot)	1425	1673	0	1740	1673	1436	0	1798	0	1750	1532	0
Flt Permitted	0.347							0.941		0.754		
Satd. Flow (perm)	520	1673	0	1740	1673	1436	0	1709	0	1387	1532	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						44		2			222	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1135			2046			112			467	
Travel Time (s)		17.2			31.0			3.1			12.7	
Confl. Peds. (#/hr)										1		1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	20%	4%	0%	0%	4%	3%	0%	0%	0%	3%	0%	3%
Adj. Flow (vph)	17	613	0	0	695	44	1	2	2	93	0	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	613	0	0	695	44	0	5	0	93	36	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0	22.0	11.0	11.0		11.0	11.0	
Total Split (s)	63.0	63.0		63.0	63.0	63.0	37.0	37.0		37.0	37.0	
Total Split (%)	63.0%	63.0%		63.0%	63.0%	63.0%	37.0%	37.0%		37.0%	37.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 81.1	
Natural Cycle: 50	

Control Type: Semi Act-Uncoord

Splits and Phases: 5: Driveway/New Britain Boulevard & County Line Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	576	0	0	653	41	1	2	2	87	0	34
Future Volume (veh/h)	16	576	0	0	653	41	1	2	2	87	0	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1519	1744	1800	1800	1744	1758	1800	1872	1800	1983	2027	1906
Adj Flow Rate, veh/h	17	613	0	0	695	40	1	2	1	93	0	29
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	20	4	0	0	4	3	0	0	0	3	0	3
Cap, veh/h	427	1292	0	94	1292	1104	78	114	45	248	0	176
Arrive On Green	0.74	0.74	0.00	0.00	0.74	0.74	0.09	0.10	0.09	0.10	0.00	0.09
Sat Flow, veh/h	587	1744	0	779	1744	1490	187	1108	432	1499	0	1708
Grp Volume(v), veh/h	17	613	0	0	695	40	4	0	0	93	0	29
Grp Sat Flow(s),veh/h/ln	587	1744	0	779	1744	1490	1727	0	0	1499	0	1708
Q Serve(g_s), s	1.0	10.8	0.0	0.0	13.2	0.6	0.0	0.0	0.0	4.6	0.0	1.2
Cycle Q Clear(g_c), s	14.2	10.8	0.0	0.0	13.2	0.6	0.2	0.0	0.0	4.6	0.0	1.2
Prop In Lane	1.00		0.00	1.00		1.00	0.25		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	427	1292	0	94	1292	1104	214	0	0	248	0	176
V/C Ratio(X)	0.04	0.47	0.00	0.00	0.54	0.04	0.02	0.00	0.00	0.37	0.00	0.16
Avail Cap(c_a), veh/h	427	1292	0	94	1292	1104	708	0	0	697	0	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.4	4.0	0.0	0.0	4.3	2.7	31.2	0.0	0.0	33.0	0.0	31.9
Incr Delay (d2), s/veh	0.2	1.3	0.0	0.0	1.6	0.1	0.0	0.0	0.0	0.9	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	4.2	0.0	0.0	5.1	0.2	0.1	0.0	0.0	3.1	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.5	5.2	0.0	0.0	5.9	2.7	31.3	0.0	0.0	33.9	0.0	32.4
LnGrp LOS	A	A			A	A	C			C		C
Approach Vol, veh/h		630			735			4			122	
Approach Delay, s/veh		5.3			5.7			31.3			33.6	
Approach LOS		A			A			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.0		13.9		63.0		13.9				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		56.0		30.0		56.0		30.0				
Max Q Clear Time (g_c+I1), s		16.7		7.1		15.7		2.5				
Green Ext Time (p_c), s		14.3		0.4		17.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			7.9									
HCM 6th LOS			A									



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	20	45	3	0	71
Future Volume (vph)	35	20	45	3	0	71
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	12	16	12	12	16
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.951		0.991			
Flt Protected	0.969					
Satd. Flow (prot)	1815	0	2012	0	0	1953
Flt Permitted	0.969					
Satd. Flow (perm)	1815	0	2012	0	0	1953
Link Speed (mph)	25		25			25
Link Distance (ft)	418		923			1662
Travel Time (s)	11.4		25.2			45.3
Confl. Peds. (#/hr)	1	1				
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%
Adj. Flow (vph)	56	32	71	5	0	113
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	76	0	0	113
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

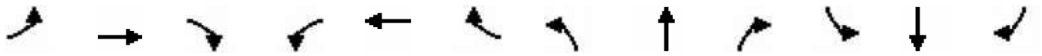
Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	20	45	3	0	71
Future Vol, veh/h	35	20	45	3	0	71
Conflicting Peds, #/hr	1	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	0	0	0	0	0	5
Mvmt Flow	56	32	71	5	0	113

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	188	75	0	0	76	0
Stage 1	74	-	-	-	-	-
Stage 2	114	-	-	-	-	-
Critical Hdwy	6.6	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.6	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	918	1052	-	-	1131	-
Stage 1	1103	-	-	-	-	-
Stage 2	1053	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	917	1051	-	-	1131	-
Mov Cap-2 Maneuver	917	-	-	-	-	-
Stage 1	1103	-	-	-	-	-
Stage 2	1052	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	962	1131	-
HCM Lane V/C Ratio	-	-	0.091	-	-
HCM Control Delay (s/veh)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	0.3	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	9	7	0	9	5	95	2	203	7	7	99	9
Future Volume (vph)	9	7	0	9	5	95	2	203	7	7	99	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	15	12	12	16	12	12	15	12	12	16	12
Grade (%)		-1%			-1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.882			0.995			0.989	
Flt Protected		0.973			0.996						0.997	
Satd. Flow (prot)	0	1936	0	0	1801	0	0	1961	0	0	2001	0
Flt Permitted		0.973			0.996						0.997	
Satd. Flow (perm)	0	1936	0	0	1801	0	0	1961	0	0	2001	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		206			205			2785			530	
Travel Time (s)		5.6			5.6			6.8			6.7	
Confl. Peds. (#/hr)	3		3				7		7			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	10	8	0	10	5	102	2	218	8	8	106	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	117	0	0	228	0	0	124	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	7	0	9	5	95	2	203	7	7	99	9
Future Vol, veh/h	9	7	0	9	5	95	2	203	7	7	99	9
Conflicting Peds, #/hr	3	0	3	0	0	0	7	0	7	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-1	-	-	-1	-	-	1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	10	8	0	10	5	102	2	218	8	8	106	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	417	371	121	367	372	232	123	0	0	233	0	0
Stage 1	134	134	-	233	233	-	-	-	-	-	-	-
Stage 2	283	237	-	134	139	-	-	-	-	-	-	-
Critical Hdwy	6.9	6.3	6.1	6.9	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	639	574	996	689	573	865	1090	-	-	1000	-	-
Stage 1	1018	795	-	901	725	-	-	-	-	-	-	-
Stage 2	847	722	-	1018	792	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	547	558	984	668	557	854	1081	-	-	991	-	-
Mov Cap-2 Maneuver	547	558	-	668	557	-	-	-	-	-	-	-
Stage 1	1008	781	-	891	717	-	-	-	-	-	-	-
Stage 2	736	714	-	996	779	-	-	-	-	-	-	-

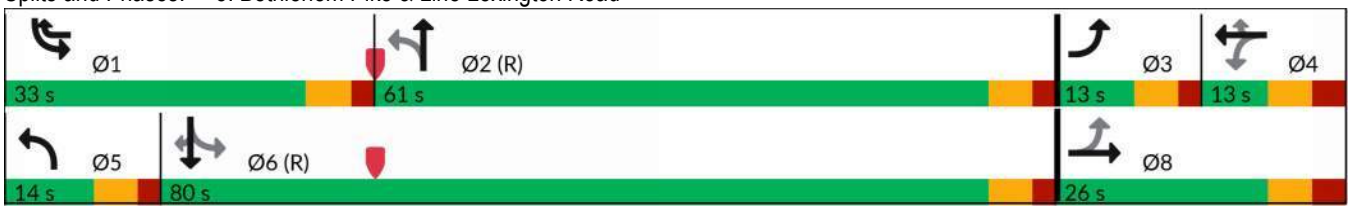
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.7	10.2	0.1	0.5
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1081	-	-	552	815	991	-	-
HCM Lane V/C Ratio	0.002	-	-	0.031	0.144	0.008	-	-
HCM Control Delay (s/veh)	8.3	0	-	11.7	10.2	8.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.1	0.5	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	94	47	5	43	466	54	1450	9	413	1209	78
Future Volume (vph)	89	94	47	5	43	466	54	1450	9	413	1209	78
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	14	12	12	12	15	12	12	12	12	12	11
Grade (%)		-1%			9%			0%			-1%	
Storage Length (ft)	0		0	0		0	150		0	500		300
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.950				0.850		0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1582	1757	0	1361	1637	1545	1710	3318	0	1621	3337	1472
Flt Permitted	0.390			0.690			0.212			0.065		
Satd. Flow (perm)	650	1757	0	988	1637	1545	382	3318	0	111	3337	1472
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		18				82						
Link Speed (mph)		35			45			40			40	
Link Distance (ft)		242			272			984			319	
Travel Time (s)		4.7			4.1			16.8			5.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	4%	5%	20%	5%	4%	0%	3%	0%	6%	3%	1%
Adj. Flow (vph)	96	101	51	5	46	501	58	1559	10	444	1300	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	152	0	5	46	501	58	1569	0	444	1300	84
Turn Type	pm+pt	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	3	8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2			6		6
Detector Phase	3	8		4	4	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	10.0		3.0	10.0	10.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	9.0	16.0		13.0	16.0	16.0
Total Split (s)	13.0	26.0		13.0	13.0	33.0	14.0	61.0		33.0	80.0	80.0
Total Split (%)	10.8%	21.7%		10.8%	10.8%	27.5%	11.7%	50.8%		27.5%	66.7%	66.7%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		3.0	3.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0		6.0	6.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Bethlehem Pike & Line Lexington Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	94	47	5	43	466	54	1450	9	413	1209	78
Future Volume (veh/h)	89	94	47	5	43	466	54	1450	9	413	1209	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1766	1852	1766	1067	1278	1344	1800	1758	1800	1752	1795	1823
Adj Flow Rate, veh/h	96	101	39	5	46	119	58	1559	10	444	1300	84
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	4	5	20	5	4	0	3	0	6	3	1
Cap, veh/h	199	212	82	102	75	332	299	1588	10	454	2247	1018
Arrive On Green	0.07	0.17	0.16	0.06	0.06	0.06	0.04	0.47	0.46	0.23	0.66	0.66
Sat Flow, veh/h	1682	1272	491	713	1278	1139	1714	3402	22	1669	3410	1545
Grp Volume(v), veh/h	96	0	140	5	46	119	58	765	804	444	1300	84
Grp Sat Flow(s),veh/h/ln	1682	0	1763	713	1278	1139	1714	1670	1754	1669	1705	1545
Q Serve(g_s), s	6.2	0.0	8.6	0.8	4.2	7.0	2.1	54.1	54.2	27.0	25.2	2.4
Cycle Q Clear(g_c), s	6.2	0.0	8.6	0.8	4.2	7.0	2.1	54.1	54.2	27.0	25.2	2.4
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	199	0	294	102	75	332	299	779	819	454	2247	1018
V/C Ratio(X)	0.48	0.00	0.48	0.05	0.62	0.36	0.19	0.98	0.98	0.98	0.58	0.08
Avail Cap(c_a), veh/h	199	0	294	102	75	332	357	779	819	454	2247	1018
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	0.0	45.4	53.6	55.2	33.6	15.1	31.5	31.5	38.7	11.3	7.4
Incr Delay (d2), s/veh	1.8	0.0	1.2	0.2	14.4	0.7	0.3	28.1	27.5	36.3	1.1	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.8	0.0	6.9	0.3	2.9	5.0	1.5	34.9	36.3	24.0	13.6	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.4	0.0	46.6	53.8	69.6	34.3	15.4	59.5	59.0	75.0	12.4	7.5
LnGrp LOS	D		D	D	E	C	B	E	E	E	B	A
Approach Vol, veh/h		236			170			1627			1828	
Approach Delay, s/veh		47.3			44.4			57.7			27.4	
Approach LOS		D			D			E			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	33.0	61.0	13.0	13.0	9.9	84.1		26.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	27.0	55.0	7.0	6.0	8.0	74.0		19.0				
Max Q Clear Time (g_c+I1), s	29.5	56.6	8.7	9.5	4.6	27.7		10.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	7.8		0.2				

Intersection Summary			
HCM 6th Ctrl Delay, s/veh		42.1	
HCM 6th LOS		D	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	32	46	509	21	10	531
Future Volume (vph)	32	46	509	21	10	531
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	14	12
Grade (%)	-2%			0%	-9%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.868	
Flt Protected				0.954	0.999	
Satd. Flow (prot)	1653	0	0	1685	1674	0
Flt Permitted				0.954	0.999	
Satd. Flow (perm)	1653	0	0	1685	1674	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	1745			1899	272	
Travel Time (s)	47.6			73.8	5.3	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	2%	2%	0%	0%	4%
Adj. Flow (vph)	37	53	592	24	12	617
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	0	616	629	0
Sign Control	Stop			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:25	4:25	4:25	4:25	4:25	4:25
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5824	6035	6037	5856	5683	5882
Vehs Exited	5804	5983	5996	5812	5610	5839
Starting Vehs	204	169	194	180	179	182
Ending Vehs	224	221	235	224	252	226
Travel Distance (mi)	3545	3649	3660	3508	3521	3577
Travel Time (hr)	298.6	287.3	261.4	303.3	410.2	312.2
Total Delay (hr)	193.3	178.4	152.4	198.7	305.2	205.6
Total Stops	6737	6717	7229	6176	6310	6633
Fuel Used (gal)	162.7	162.2	157.1	161.9	186.8	166.1

Interval #0 Information Seeding

Start Time	4:25
End Time	4:30
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

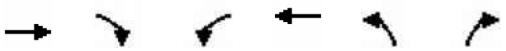
Run Number	1	2	3	4	5	Avg
Vehs Entered	5824	6035	6037	5856	5683	5882
Vehs Exited	5804	5983	5996	5812	5610	5839
Starting Vehs	204	169	194	180	179	182
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Total Delay (hr)	193.3	178.4	152.4	198.7	305.2	205.6
Total Stops	6737	6717	7229	6176	6310	6633
Fuel Used (gal)	162.7	162.2	157.1	161.9	186.8	166.1

9: Line Lexington Road & County Line Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Total Delay (hr)	0.8	2.3	1.8	4.8

Intersection: 9: Line Lexington Road & County Line Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	136	351	177
Average Queue (ft)	51	114	143
95th Queue (ft)	105	296	177
Link Distance (ft)	1667	1844	161
Upstream Blk Time (%)			2
Queuing Penalty (veh)			11
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	557	25	225	545	7	161
Future Volume (vph)	557	25	225	545	7	161
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	11	16	12
Grade (%)	0%			0%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.870	
Flt Protected				0.986	0.998	
Satd. Flow (prot)	1633	0	0	1514	1763	0
Flt Permitted				0.986	0.998	
Satd. Flow (perm)	1633	0	0	1514	1763	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	1899			755	414	
Travel Time (s)	28.8			11.4	8.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	48%	36%	4%	0%	1%
Adj. Flow (vph)	593	27	239	580	7	171
Shared Lane Traffic (%)						
Lane Group Flow (vph)	620	0	0	819	178	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

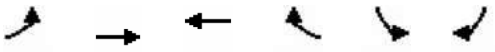
Intersection	
Int Delay, s/veh	4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	557	25	225	545	7	161
Future Vol, veh/h	557	25	225	545	7	161
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-1	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	4	48	36	4	0	1
Mvmt Flow	593	27	239	580	7	171

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	620	0	1665	607
Stage 1	-	-	-	-	607	-
Stage 2	-	-	-	-	1058	-
Critical Hdwy	-	-	4.7	-	6.2	6.11
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3.3	-	3	3.1
Pot Cap-1 Maneuver	-	-	637	-	126	532
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	392	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	637	-	56	532
Mov Cap-2 Maneuver	-	-	-	-	56	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	175	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	4.1	21.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	393	-	-	637	-
HCM Lane V/C Ratio	0.455	-	-	0.376	-
HCM Control Delay (s/veh)	21.6	-	-	14	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q (veh)	2.3	-	-	1.7	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	144	603	712	20	0	88
Future Volume (vph)	144	603	712	20	0	88
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	8	8
Grade (%)		-1%	1%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996			0.865
Flt Protected		0.990				
Satd. Flow (prot)	0	1674	1503	0	0	1323
Flt Permitted		0.990				
Satd. Flow (perm)	0	1674	1503	0	0	1323
Link Speed (mph)		45	45		35	
Link Distance (ft)		755	1135		2785	
Travel Time (s)		40.1	17.3		7.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	4%	15%	5%	0%	1%
Adj. Flow (vph)	155	648	766	22	0	95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	803	788	0	0	95
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	144	603	712	20	0	88
Future Vol, veh/h	144	603	712	20	0	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	1	-	2	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	4	15	5	0	1
Mvmt Flow	155	648	766	22	0	95

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	788	0	-	0	-	777
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.3	-	-	-	-	6.41
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	3	-	-	-	-	3.1
Pot Cap-1 Maneuver	639	-	-	-	0	399
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	639	-	-	-	-	399
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	2.4	0	16.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	639	-	-	-	399
HCM Lane V/C Ratio	0.242	-	-	-	0.237
HCM Control Delay (s/veh)	12.4	0	-	-	16.8
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q (veh)	0.9	-	-	-	0.9



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	66	238	181	103	73	71
Future Volume (vph)	66	238	181	103	73	71
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12
Grade (%)	-1%		-1%			1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.894		0.951			
Flt Protected	0.989					0.975
Satd. Flow (prot)	1518	0	1693	0	0	1548
Flt Permitted	0.989					0.975
Satd. Flow (perm)	1518	0	1693	0	0	1548
Link Speed (mph)	35		35			35
Link Distance (ft)	2978		530			232
Travel Time (s)	5.6		10.3			4.5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	1%	2%	1%	0%	26%
Adj. Flow (vph)	73	262	199	113	80	78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	335	0	312	0	0	158
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	6.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	66	238	181	103	73	71
Future Vol, veh/h	66	238	181	103	73	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-1	-	-	1
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	1	2	1	0	26
Mvmt Flow	73	262	199	113	80	78

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	494	256	0	0	312	0
Stage 1	256	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.25	6.11	-	-	4.3	-
Critical Hdwy Stg 1	5.25	-	-	-	-	-
Critical Hdwy Stg 2	5.25	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	621	838	-	-	939	-
Stage 1	917	-	-	-	-	-
Stage 2	935	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	566	838	-	-	939	-
Mov Cap-2 Maneuver	566	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	852	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.4	0	4.7
HCM LOS	B		

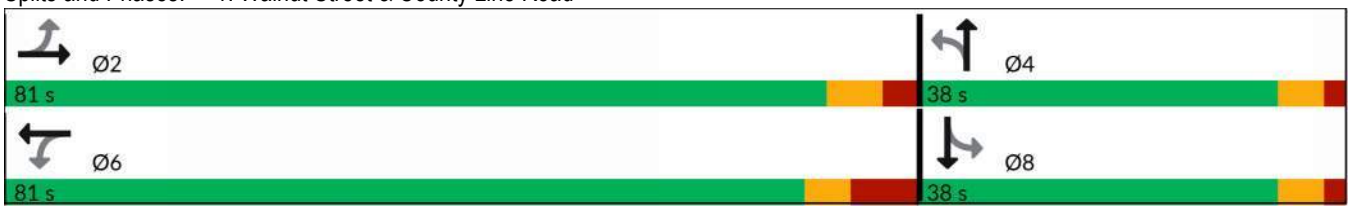
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	759	939	-
HCM Lane V/C Ratio	-	-	0.44	0.085	-
HCM Control Delay (s/veh)	-	-	13.4	9.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	2.3	0.3	-

2034 Projected Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	705	15	61	581	29	17	81	71	28	146	36
Future Volume (vph)	40	705	15	61	581	29	17	81	71	28	146	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	12	12	12	11	12	12	10	12
Storage Length (ft)	175		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.994			0.943			0.977	
Flt Protected	0.950				0.995			0.995			0.993	
Satd. Flow (prot)	1267	1654	0	0	1643	0	0	1508	0	0	1532	0
Flt Permitted	0.380				0.754			0.945			0.925	
Satd. Flow (perm)	507	1654	0	0	1245	0	0	1433	0	0	1427	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		2						30			9	
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		2005			1226			473			605	
Travel Time (s)		30.4			18.6			12.9			10.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	35%	5%	0%	9%	8%	14%	0%	4%	15%	0%	3%	25%
Adj. Flow (vph)	43	766	16	66	632	32	18	88	77	30	159	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	782	0	0	730	0	0	183	0	0	228	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		25.0	25.0		16.0	16.0		16.0	16.0	
Total Split (s)	81.0	81.0		81.0	81.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.1%	68.1%		68.1%	68.1%		31.9%	31.9%		31.9%	31.9%	
Yellow Time (s)	5.0	5.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		6.0	6.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)	7.0	7.0			9.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 119	
Actuated Cycle Length: 108.8	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: Walnut Street & County Line Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	705	15	61	581	29	17	81	71	28	146	36
Future Volume (veh/h)	40	705	15	61	581	29	17	81	71	28	146	36
Initial Q (Qb), veh	0	0	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1309	1730	1800	1674	1688	1603	1800	1744	1589	1800	1758	1449
Adj Flow Rate, veh/h	43	766	15	66	632	32	18	88	53	30	159	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	35	5	0	9	8	14	0	4	15	0	3	25
Cap, veh/h	291	1187	23	95	849	40	55	161	89	63	207	44
Arrive On Green	0.70	0.70	0.69	0.69	0.70	0.69	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	540	1691	33	85	1202	59	101	977	539	147	1255	267
Grp Volume(v), veh/h	43	0	781	730	0	0	159	0	0	225	0	0
Grp Sat Flow(s),veh/h/ln	540	0	1724	1345	0	0	1617	0	0	1670	0	0
Q Serve(g_s), s	0.0	0.0	26.0	17.2	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0
Cycle Q Clear(g_c), s	10.3	0.0	26.0	43.2	0.0	0.0	9.5	0.0	0.0	13.7	0.0	0.0
Prop In Lane	1.00		0.02	0.09		0.04	0.11		0.33	0.13		0.16
Lane Grp Cap(c), veh/h	291	0	1211	971	0	0	289	0	0	298	0	0
V/C Ratio(X)	0.15	0.00	0.65	0.75	0.00	0.00	0.55	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	297	0	1211	969	0	0	519	0	0	536	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.3	0.0	8.5	10.8	0.0	0.0	40.9	0.0	0.0	42.5	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	2.7	5.3	0.0	0.0	1.6	0.0	0.0	3.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	0.0	13.0	14.2	0.0	0.0	7.3	0.0	0.0	9.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.4	0.0	11.2	16.4	0.0	0.0	42.5	0.0	0.0	46.4	0.0	0.0
LnGrp LOS	A		B	B			D			D		
Approach Vol, veh/h		824			730			159			225	
Approach Delay, s/veh		11.0			16.4			42.5			46.4	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		83.0		22.4		83.0		22.4				
Change Period (Y+Rc), s		* 10		6.0		10.0		6.0				
Max Green Setting (Gmax), s		* 73		32.0		71.0		32.0				
Max Q Clear Time (g_c+I1), s		28.0		11.5		45.2		15.7				
Green Ext Time (p_c), s		32.7		0.5		19.7		0.7				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			19.7									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	276	153	43	130	57	41
Future Volume (vph)	276	153	43	130	57	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	10	10	12
Grade (%)	2%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.952				0.944	
Flt Protected				0.988	0.972	
Satd. Flow (prot)	1552	0	0	1627	1467	0
Flt Permitted				0.988	0.972	
Satd. Flow (perm)	1552	0	0	1627	1467	0
Link Speed (mph)	35			35	40	
Link Distance (ft)	610			554	350	
Travel Time (s)	11.9			10.8	45.9	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	2%	2%	0%	2%	6%	5%
Adj. Flow (vph)	279	155	43	131	58	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	434	0	0	174	99	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

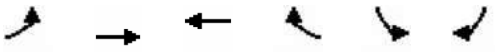
Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	276	153	43	130	57	41
Future Vol, veh/h	276	153	43	130	57	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	1	-1	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	0	2	6	5
Mvmt Flow	279	155	43	131	58	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	434	0	574	357
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	217	-
Critical Hdwy	-	-	4.3	-	6.26	6.15
Critical Hdwy Stg 1	-	-	-	-	5.26	-
Critical Hdwy Stg 2	-	-	-	-	5.26	-
Follow-up Hdwy	-	-	3	-	3.1	3.1
Pot Cap-1 Maneuver	-	-	852	-	542	733
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	927	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	852	-	513	733
Mov Cap-2 Maneuver	-	-	-	-	513	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	877	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	2.3	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	587	-	-	852	-
HCM Lane V/C Ratio	0.169	-	-	0.051	-
HCM Control Delay (s/veh)	12.4	-	-	9.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	0.6	-	-	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	192	131	85	205	39
Future Volume (vph)	25	192	131	85	205	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	10	12	10	12
Grade (%)		-1%	-1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.947		0.978	
Flt Protected		0.994			0.960	
Satd. Flow (prot)	0	2020	1552	0	1551	0
Flt Permitted		0.994			0.960	
Satd. Flow (perm)	0	2020	1552	0	1551	0
Link Speed (mph)		35	35		40	
Link Distance (ft)		2987	610		1173	
Travel Time (s)		13.4	11.9		20.0	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	3%	3%	2%	0%
Adj. Flow (vph)	26	196	134	87	209	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	222	221	0	249	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	192	131	85	205	39
Future Vol, veh/h	25	192	131	85	205	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-1	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	1	3	3	2	0
Mvmt Flow	26	196	134	87	209	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	221	0	-	0	426	178
Stage 1	-	-	-	-	178	-
Stage 2	-	-	-	-	248	-
Critical Hdwy	4.3	-	-	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	1009	-	-	-	667	922
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1009	-	-	-	648	922
Mov Cap-2 Maneuver	-	-	-	-	648	-
Stage 1	-	-	-	-	959	-
Stage 2	-	-	-	-	914	-

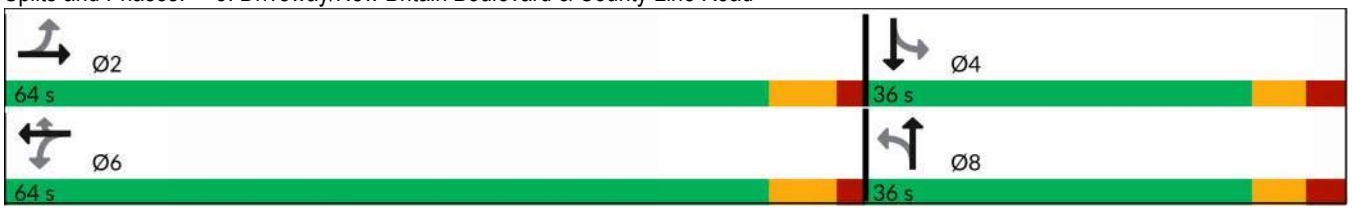
Approach	EB	WB	SB
HCM Control Delay, s/v	1	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1009	-	-	-	680
HCM Lane V/C Ratio	0.025	-	-	-	0.366
HCM Control Delay (s/veh)	8.7	0	-	-	13.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0.1	-	-	-	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	729	2	5	545	84	0	0	1	39	1	9
Future Volume (vph)	35	729	2	5	545	84	0	0	1	39	1	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	11	11	11	12	14	12	13	13	12
Grade (%)		0%			0%			0%			-4%	
Storage Length (ft)	125		0	115		195	0		0	175		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.865			0.864	
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1569	1611	0	1653	1611	1382	0	830	0	1654	1086	0
Flt Permitted	0.423			0.320						0.757		
Satd. Flow (perm)	699	1611	0	557	1611	1382	0	830	0	1318	1086	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						90		185			10	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1136			2005			112			467	
Travel Time (s)		17.2			30.4			3.1			12.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	9%	8%	0%	0%	8%	7%	0%	0%	100%	9%	0%	56%
Adj. Flow (vph)	38	784	2	5	586	90	0	0	1	42	1	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	786	0	5	586	90	0	1	0	42	11	0
Turn Type	Perm	NA		Perm	NA	Perm		NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0	22.0	11.0	11.0		11.0	11.0	
Total Split (s)	64.0	64.0		64.0	64.0	64.0	36.0	36.0		36.0	36.0	
Total Split (%)	64.0%	64.0%		64.0%	64.0%	64.0%	36.0%	36.0%		36.0%	36.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 79.8	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	

Splits and Phases: 5: Driveway/New Britain Boulevard & County Line Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	729	2	5	545	84	0	0	1	39	1	9
Future Volume (veh/h)	35	729	2	5	545	84	0	0	1	39	1	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1674	1688	1800	1800	1688	1702	1800	1872	396	1894	2027	1153
Adj Flow Rate, veh/h	38	784	2	5	586	86	0	0	0	42	1	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	9	8	0	0	8	7	0	0	100	9	0	56
Cap, veh/h	557	1321	3	498	1325	1133	0	98	0	192	8	83
Arrive On Green	0.79	0.79	0.77	0.79	0.79	0.79	0.00	0.00	0.00	0.05	0.05	0.04
Sat Flow, veh/h	685	1683	4	663	1688	1442	0	1872	0	1804	158	1584
Grp Volume(v), veh/h	38	0	786	5	586	86	0	0	0	42	0	11
Grp Sat Flow(s),veh/h/ln	685	0	1687	663	1688	1442	0	1872	0	1804	0	1742
Q Serve(g_s), s	1.4	0.0	13.8	0.2	8.4	1.0	0.0	0.0	0.0	1.7	0.0	0.4
Cycle Q Clear(g_c), s	9.9	0.0	13.8	13.6	8.4	1.0	0.0	0.0	0.0	1.7	0.0	0.4
Prop In Lane	1.00		0.00	1.00		1.00	0.00		0.00	1.00		0.91
Lane Grp Cap(c), veh/h	557	0	1325	498	1325	1133	0	98	0	192	0	91
V/C Ratio(X)	0.07	0.00	0.59	0.01	0.44	0.08	0.00	0.00	0.00	0.22	0.00	0.12
Avail Cap(c_a), veh/h	557	0	1325	498	1325	1133	0	760	0	830	0	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.2	0.0	3.2	5.8	2.6	1.8	0.0	0.0	0.0	34.0	0.0	33.8
Incr Delay (d2), s/veh	0.2	0.0	2.0	0.0	1.1	0.1	0.0	0.0	0.0	0.6	0.0	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.0	3.5	0.1	2.1	0.2	0.0	0.0	0.0	1.4	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	4.5	0.0	5.1	5.8	3.7	1.9	0.0	0.0	0.0	34.5	0.0	34.4
LnGrp LOS	A		A	A	A	A				C		C
Approach Vol, veh/h		824			677			0			53	
Approach Delay, s/veh		5.1			3.5			0.0			34.5	
Approach LOS		A			A						C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.0		9.8		64.0		9.8				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		57.0		29.0		57.0		29.0				
Max Q Clear Time (g_c+I1), s		15.8		4.2		16.1		0.0				
Green Ext Time (p_c), s		20.8		0.1		13.7		0.0				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			5.4									
HCM 6th LOS			A									



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	13	1	58	52	16	38
Future Volume (vph)	13	1	58	52	16	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	12	16	12	12	16
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993		0.936			
Flt Protected	0.955					0.985
Satd. Flow (prot)	1374	0	1794	0	0	1951
Flt Permitted	0.955					0.985
Satd. Flow (perm)	1374	0	1794	0	0	1951
Link Speed (mph)	25		25			25
Link Distance (ft)	418		923			1662
Travel Time (s)	11.4		25.2			45.3
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	38%	0%	4%	8%	0%	5%
Adj. Flow (vph)	18	1	78	70	22	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	148	0	0	73
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	1	58	52	16	38
Future Vol, veh/h	13	1	58	52	16	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	38	0	4	8	0	5
Mvmt Flow	18	1	78	70	22	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	208	113	0	0	148	0
Stage 1	113	-	-	-	-	-
Stage 2	95	-	-	-	-	-
Critical Hdwy	6.98	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.98	-	-	-	-	-
Critical Hdwy Stg 2	5.98	-	-	-	-	-
Follow-up Hdwy	3.3	3.1	-	-	3	-
Pot Cap-1 Maneuver	801	1000	-	-	1069	-
Stage 1	952	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	784	1000	-	-	1069	-
Mov Cap-2 Maneuver	784	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.6	0	2.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	796	1069	-
HCM Lane V/C Ratio	-	-	0.024	0.02	-
HCM Control Delay (s/veh)	-	-	9.6	8.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q (veh)	-	-	0.1	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	5	2	2	0	5	0	93	28	83	67	1
Future Volume (vph)	7	5	2	2	0	5	0	93	28	83	67	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	15	12	12	16	12	12	15	12	12	16	12
Grade (%)		-1%			-1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.984			0.899			0.969			0.999	
Flt Protected		0.974			0.988						0.973	
Satd. Flow (prot)	0	1907	0	0	1821	0	0	1914	0	0	1930	0
Flt Permitted		0.974			0.988						0.973	
Satd. Flow (perm)	0	1907	0	0	1821	0	0	1914	0	0	1930	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		206			205			2796			530	
Travel Time (s)		5.6			5.6			6.8			6.7	
Confl. Peds. (#/hr)	1		1				1		1			
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	5%	0%
Adj. Flow (vph)	9	6	2	2	0	6	0	113	34	101	82	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	8	0	0	147	0	0	184	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

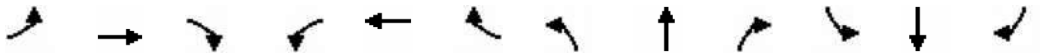
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	5	2	2	0	5	0	93	28	83	67	1
Future Vol, veh/h	7	5	2	2	0	5	0	93	28	83	67	1
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-1	-	-	-1	-	-	1	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	5	0
Mvmt Flow	9	6	2	2	0	6	0	113	34	101	82	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	420	434	85	421	417	132	84	0	0	148	0	0
Stage 1	286	286	-	131	131	-	-	-	-	-	-	-
Stage 2	134	148	-	290	286	-	-	-	-	-	-	-
Critical Hdwy	6.9	6.3	6.1	6.9	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	636	531	1043	635	542	982	1124	-	-	1069	-	-
Stage 1	844	690	-	1022	797	-	-	-	-	-	-	-
Stage 2	1018	785	-	840	690	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	583	477	1041	578	487	980	1123	-	-	1068	-	-
Mov Cap-2 Maneuver	583	477	-	578	487	-	-	-	-	-	-	-
Stage 1	843	621	-	1021	796	-	-	-	-	-	-	-
Stage 2	1010	784	-	747	621	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.5	9.4	0	4.8
HCM LOS	B	A		

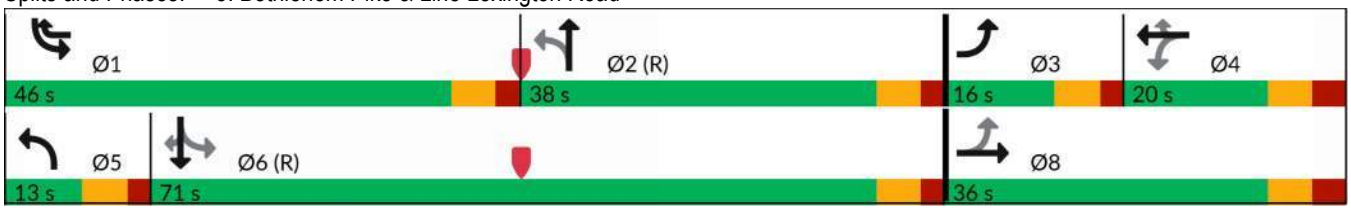
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1123	-	-	574	818	1068	-	-
HCM Lane V/C Ratio	-	-	-	0.03	0.01	0.095	-	-
HCM Control Delay (s/veh)	0	-	-	11.5	9.4	8.7	0	-
HCM Lane LOS	A	-	-	B	A	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.1	0	0.3	-	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	130	52	23	46	479	37	808	22	566	1559	67
Future Volume (vph)	42	130	52	23	46	479	37	808	22	566	1559	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	14	12	12	12	15	12	12	12	12	12	11
Grade (%)		-1%			9%			0%			-1%	
Storage Length (ft)	0		0	0		0	150		0	500		300
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.957				0.850		0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1278	1712	0	1210	1521	1502	1500	3129	0	1577	3273	1376
Flt Permitted	0.503			0.639			0.151			0.120		
Satd. Flow (perm)	677	1712	0	814	1521	1502	238	3129	0	199	3273	1376
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		16				203						
Link Speed (mph)		35			45			40			40	
Link Distance (ft)		242			272			984			319	
Travel Time (s)		4.7			4.1			16.8			5.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	30%	7%	10%	35%	13%	7%	14%	8%	41%	9%	5%	8%
Adj. Flow (vph)	44	135	54	24	48	499	39	842	23	590	1624	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	189	0	24	48	499	39	865	0	590	1624	70
Turn Type	pm+pt	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	3	8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2			6		6
Detector Phase	3	8		4	4	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	10.0		3.0	10.0	10.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	9.0	16.0		13.0	16.0	16.0
Total Split (s)	16.0	36.0		20.0	20.0	46.0	13.0	38.0		46.0	71.0	71.0
Total Split (%)	13.3%	30.0%		16.7%	16.7%	38.3%	10.8%	31.7%		38.3%	59.2%	59.2%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		3.0	3.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0		6.0	6.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 28 (23%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Bethlehem Pike & Line Lexington Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	130	52	23	46	479	37	808	22	566	1559	67
Future Volume (veh/h)	42	130	52	23	46	479	37	808	22	566	1559	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1411	1807	1695	857	1166	1300	1603	1688	1224	1709	1766	1724
Adj Flow Rate, veh/h	44	135	50	24	48	331	39	842	23	590	1624	70
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	30	7	10	35	13	7	14	8	41	9	5	8
Cap, veh/h	181	257	95	122	136	465	183	1138	31	631	2105	916
Arrive On Green	0.05	0.20	0.20	0.12	0.12	0.12	0.04	0.36	0.35	0.31	0.63	0.63
Sat Flow, veh/h	1343	1258	466	549	1166	1101	1527	3188	87	1628	3356	1461
Grp Volume(v), veh/h	44	0	185	24	48	331	39	423	442	590	1624	70
Grp Sat Flow(s),veh/h/ln	1343	0	1723	549	1166	1101	1527	1603	1672	1628	1678	1461
Q Serve(g_s), s	3.3	0.0	11.5	4.9	4.6	14.0	1.9	27.7	27.7	31.9	41.9	2.3
Cycle Q Clear(g_c), s	3.3	0.0	11.5	5.4	4.6	14.0	1.9	27.7	27.7	31.9	41.9	2.3
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	181	0	352	122	136	465	183	572	597	631	2105	916
V/C Ratio(X)	0.24	0.00	0.53	0.20	0.35	0.71	0.21	0.74	0.74	0.93	0.77	0.08
Avail Cap(c_a), veh/h	243	0	431	122	136	465	231	572	597	690	2105	916
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	0.0	42.7	49.4	48.8	28.6	23.2	33.7	33.7	26.8	16.1	8.7
Incr Delay (d2), s/veh	0.7	0.0	1.2	0.8	1.6	5.0	0.6	8.4	8.0	19.1	2.8	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	0.0	8.7	1.2	2.4	13.0	1.3	17.3	17.9	26.3	21.5	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.3	0.0	43.9	50.2	50.4	33.7	23.8	42.1	41.8	45.9	19.0	8.9
LnGrp LOS	D		D	D	D	C	C	D	D	D	B	A
Approach Vol, veh/h		229			403			904			2284	
Approach Delay, s/veh		43.6			36.6			41.1			25.6	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	41.7	47.8	10.5	20.0	9.2	80.3		30.5				
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	40.0	32.0	10.0	13.0	7.0	65.0		29.0				
Max Q Clear Time (g_c+I1), s	34.4	30.2	5.8	16.5	4.4	44.4		13.5				
Green Ext Time (p_c), s	1.3	0.7	0.0	0.0	0.0	8.9		0.5				

Intersection Summary			
HCM 6th Ctrl Delay, s/veh		31.5	
HCM 6th LOS		C	

Notes

User approved changes to right turn type.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	59	42	571	11	6	718
Future Volume (vph)	59	42	571	11	6	718
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	14	12
Grade (%)	-2%			0%	-9%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.944				0.866	
Flt Protected				0.953		
Satd. Flow (prot)	1687	0	0	1620	1625	0
Flt Permitted				0.953		
Satd. Flow (perm)	1687	0	0	1620	1625	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	1745			1911	272	
Travel Time (s)	47.6			73.8	5.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	0%	6%	0%	0%	7%
Adj. Flow (vph)	63	45	607	12	6	764
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	0	0	619	770	0
Sign Control	Stop			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:10	7:10	7:10	7:10	7:10	7:10
End Time	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4900	5010	4987	4903	5030	4962
Vehs Exited	4896	4970	4983	4899	5015	4950
Starting Vehs	154	128	149	169	132	142
Ending Vehs	158	168	153	173	147	156
Travel Distance (mi)	3347	3325	3328	3212	3388	3320
Travel Time (hr)	426.1	334.1	305.5	386.6	383.8	367.2
Total Delay (hr)	326.9	235.1	207.1	291.4	283.1	268.7
Total Stops	4997	4962	5197	4754	5272	5036
Fuel Used (gal)	184.8	164.3	157.2	172.6	177.0	171.2

Interval #0 Information Seeding

Start Time	7:10
End Time	7:15
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	8:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4900	5010	4987	4903	5030	4962
Vehs Exited	4896	4970	4983	4899	5015	4950
Starting Vehs	154	128	149	169	132	142
Ending Vehs	158	168	153	173	147	156
Travel Distance (mi)	3347	3325	3328	3212	3388	3320
Travel Time (hr)	426.1	334.1	305.5	386.6	383.8	367.2
Total Delay (hr)	326.9	235.1	207.1	291.4	283.1	268.7
Total Stops	4997	4962	5197	4754	5272	5036
Fuel Used (gal)	184.8	164.3	157.2	172.6	177.0	171.2

9: Line Lexington Road & County Line Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Total Delay (hr)	0.5	1.0	2.5	4.0

Intersection: 9: Line Lexington Road & County Line Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	116	224	182
Average Queue (ft)	48	55	152
95th Queue (ft)	86	170	188
Link Distance (ft)	1667	1856	161
Upstream Blk Time (%)			5
Queuing Penalty (veh)			37
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	794	15	82	574	1	146
Future Volume (vph)	794	15	82	574	1	146
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	11	16	12
Grade (%)	0%			0%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.866	
Flt Protected				0.994		
Satd. Flow (prot)	1603	0	0	1618	1660	0
Flt Permitted				0.994		
Satd. Flow (perm)	1603	0	0	1618	1660	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	1911			743	829	
Travel Time (s)	29.0			11.3	16.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	8%	20%	6%	7%	0%	7%
Adj. Flow (vph)	836	16	86	604	1	154
Shared Lane Traffic (%)						
Lane Group Flow (vph)	852	0	0	690	155	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

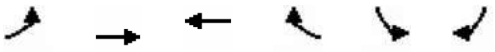
Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	794	15	82	574	1	146
Future Vol, veh/h	794	15	82	574	1	146
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	8	20	6	7	0	7
Mvmt Flow	836	16	86	604	1	154

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	852	0	1620	844
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	776	-
Critical Hdwy	-	-	4.4	-	6.2	6.17
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3.1	-	3	3.2
Pot Cap-1 Maneuver	-	-	579	-	134	376
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	531	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	579	-	104	376
Mov Cap-2 Maneuver	-	-	-	-	104	-
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	412	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.5	21.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	369	-	-	579	-
HCM Lane V/C Ratio	0.419	-	-	0.149	-
HCM Control Delay (s/veh)	21.6	-	-	12.3	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q (veh)	2	-	-	0.5	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	114	834	562	4	0	95
Future Volume (vph)	114	834	562	4	0	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	8	12
Grade (%)		-1%	1%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999			0.865
Flt Protected		0.994				
Satd. Flow (prot)	0	1618	1617	0	0	1526
Flt Permitted		0.994				
Satd. Flow (perm)	0	1618	1617	0	0	1526
Link Speed (mph)		45	45		35	
Link Distance (ft)		743	1136		2796	
Travel Time (s)		39.9	17.5		3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	8%	7%	0%	0%	1%
Adj. Flow (vph)	120	878	592	4	0	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	998	596	0	0	100
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	114	834	562	4	0	95
Future Vol, veh/h	114	834	562	4	0	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	1	-	2	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	8	7	0	0	1
Mvmt Flow	120	878	592	4	0	100

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	596	0	-	0	-	594
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.3	-	-	-	-	6.41
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	3	-	-	-	-	3.1
Pot Cap-1 Maneuver	747	-	-	-	0	515
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	747	-	-	-	-	515
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.3	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	747	-	-	-	515
HCM Lane V/C Ratio	0.161	-	-	-	0.194
HCM Control Delay (s/veh)	10.7	0	-	-	13.7
HCM Lane LOS	B	A	-	-	B
HCM 95th %tile Q (veh)	0.6	-	-	-	0.7



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	84	62	61	70	237	88
Future Volume (vph)	84	62	61	70	237	88
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12
Grade (%)	-1%		-1%			1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.942		0.928			
Flt Protected	0.972					0.965
Satd. Flow (prot)	1572	0	1607	0	0	1719
Flt Permitted	0.972					0.965
Satd. Flow (perm)	1572	0	1607	0	0	1719
Link Speed (mph)	35		35			35
Link Distance (ft)	2987		530			406
Travel Time (s)	3.3		10.3			7.9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	5%	4%	0%	2%
Adj. Flow (vph)	93	69	68	78	263	98
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	0	146	0	0	361
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	7.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	84	62	61	70	237	88
Future Vol, veh/h	84	62	61	70	237	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-1	-	-	1
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	3	5	4	0	2
Mvmt Flow	93	69	68	78	263	98

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	731	107	0	0	146	0
Stage 1	107	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.21	6.13	-	-	4.3	-
Critical Hdwy Stg 1	5.21	-	-	-	-	-
Critical Hdwy Stg 2	5.21	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	454	1013	-	-	1071	-
Stage 1	1074	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	336	1013	-	-	1071	-
Mov Cap-2 Maneuver	336	-	-	-	-	-
Stage 1	1074	-	-	-	-	-
Stage 2	462	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	16.7	0	6.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	469	1071	-
HCM Lane V/C Ratio	-	-	0.346	0.246	-
HCM Control Delay (s/veh)	-	-	16.7	9.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q (veh)	-	-	1.5	1	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	6	14	136	204	3
Future Volume (vph)	1	6	14	136	204	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	10	10	12
Grade (%)	0%			0%	1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.998	
Flt Protected	0.994			0.995		
Satd. Flow (prot)	1222	0	0	1494	1589	0
Flt Permitted	0.994			0.995		
Satd. Flow (perm)	1222	0	0	1494	1589	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	290			605	333	
Travel Time (s)	6.6			10.3	35.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	33%	21%	11%	5%	2%
Adj. Flow (vph)	1	7	15	148	222	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	163	225	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	6	14	136	204	3
Future Vol, veh/h	1	6	14	136	204	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	33	21	11	5	2
Mvmt Flow	1	7	15	148	222	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	402	224	225	0	-	0
Stage 1	224	-	-	-	-	-
Stage 2	178	-	-	-	-	-
Critical Hdwy	6.42	6.53	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	690	851	1006	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	988	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	679	851	1006	-	-	-
Mov Cap-2 Maneuver	679	-	-	-	-	-
Stage 1	924	-	-	-	-	-
Stage 2	988	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.4	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1006	-	821	-	-
HCM Lane V/C Ratio	0.015	-	0.009	-	-
HCM Control Delay (s/veh)	8.6	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	19	47	90	188	3
Future Volume (vph)	1	19	47	90	188	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	10	10	12
Grade (%)	0%			-1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.871				0.998	
Flt Protected	0.998			0.983		
Satd. Flow (prot)	1198	0	0	1494	1636	0
Flt Permitted	0.998			0.983		
Satd. Flow (perm)	1198	0	0	1494	1636	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	236			333	1415	
Travel Time (s)	5.4			7.5	28.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	32%	17%	8%	3%	2%
Adj. Flow (vph)	1	21	51	98	204	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	149	207	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	19	47	90	188	3
Future Vol, veh/h	1	19	47	90	188	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	-1	-1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	32	17	8	3	2
Mvmt Flow	1	21	51	98	204	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	406	206	207	0	-	0
Stage 1	206	-	-	-	-	-
Stage 2	200	-	-	-	-	-
Critical Hdwy	6.42	6.52	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	686	873	1020	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	964	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	650	873	1020	-	-	-
Mov Cap-2 Maneuver	650	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	964	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.3	3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1020	-	858	-	-
HCM Lane V/C Ratio	0.05	-	0.025	-	-
HCM Control Delay (s/veh)	8.7	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0.2	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	1	2	89	190	6
Future Volume (vph)	2	1	2	89	190	6
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	10	10	12
Grade (%)	0%			-1%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.955				0.996	
Flt Protected	0.968			0.999		
Satd. Flow (prot)	1236	0	0	1563	1624	0
Flt Permitted	0.968			0.999		
Satd. Flow (perm)	1236	0	0	1563	1624	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	216			1415	350	
Travel Time (s)	4.9			18.3	11.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	100%	100%	6%	2%	2%
Adj. Flow (vph)	2	1	2	97	207	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	99	214	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1	2	89	190	6
Future Vol, veh/h	2	1	2	89	190	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	-1	2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	100	100	6	2	2
Mvmt Flow	2	1	2	97	207	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	312	211	214	0	-	0
Stage 1	211	-	-	-	-	-
Stage 2	101	-	-	-	-	-
Critical Hdwy	6.42	7.2	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	781	833	1015	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	1075	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	779	833	1015	-	-	-
Mov Cap-2 Maneuver	779	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	1075	-	-	-	-	-

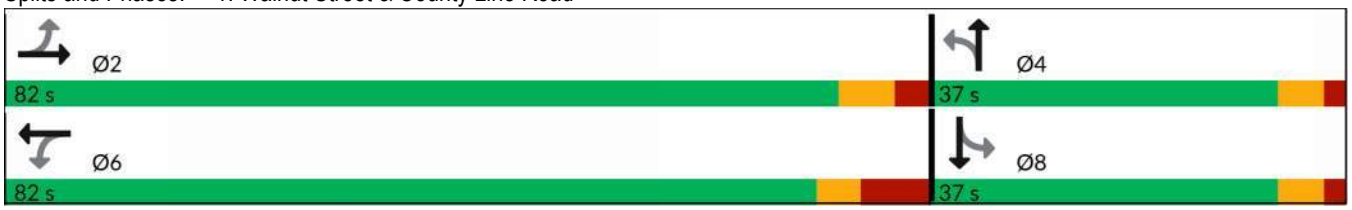
Approach	EB	NB	SB
HCM Control Delay, s/v	9.5	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1015	-	796	-	-
HCM Lane V/C Ratio	0.002	-	0.004	-	-
HCM Control Delay (s/veh)	8.6	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	693	21	70	610	30	12	144	86	41	117	57
Future Volume (vph)	30	693	21	70	610	30	12	144	86	41	117	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	12	12	12	12	11	12	12	10	12
Storage Length (ft)	175		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.994			0.952			0.964	
Flt Protected	0.950				0.995			0.997			0.990	
Satd. Flow (prot)	1163	1684	0	0	1704	0	0	1617	0	0	1489	0
Flt Permitted	0.375				0.745			0.980			0.767	
Satd. Flow (perm)	459	1684	0	0	1276	0	0	1589	0	0	1153	0
Right Turn on Red			Yes			No			Yes			Yes
Satd. Flow (RTOR)		2						23			15	
Link Speed (mph)		45			45			25			40	
Link Distance (ft)		1995			1226			473			605	
Travel Time (s)		30.2			18.6			12.9			10.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	47%	3%	0%	2%	5%	0%	0%	3%	1%	0%	3%	23%
Adj. Flow (vph)	31	722	22	73	635	31	13	150	90	43	122	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	744	0	0	739	0	0	253	0	0	224	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.0	23.0		25.0	25.0		16.0	16.0		16.0	16.0	
Total Split (s)	82.0	82.0		82.0	82.0		37.0	37.0		37.0	37.0	
Total Split (%)	68.9%	68.9%		68.9%	68.9%		31.1%	31.1%		31.1%	31.1%	
Yellow Time (s)	5.0	5.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.0	3.0		6.0	6.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)	7.0	7.0			9.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 119	
Actuated Cycle Length: 111	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 1: Walnut Street & County Line Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	693	21	70	610	30	12	144	86	41	117	57
Future Volume (veh/h)	30	693	21	70	610	30	12	144	86	41	117	57
Initial Q (Qb), veh	0	0	0	0	3	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1140	1758	1800	1772	1730	1800	1800	1758	1786	1800	1758	1477
Adj Flow Rate, veh/h	31	722	21	73	635	31	12	150	73	43	122	56
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	47	3	0	2	5	0	0	3	1	0	3	23
Cap, veh/h	248	1173	34	102	834	38	42	202	94	76	162	67
Arrive On Green	0.69	0.69	0.68	0.68	0.69	0.68	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	469	1700	49	97	1201	57	41	1112	519	201	891	371
Grp Volume(v), veh/h	31	0	743	739	0	0	235	0	0	221	0	0
Grp Sat Flow(s),veh/h/ln	469	0	1749	1355	0	0	1672	0	0	1463	0	0
Q Serve(g_s), s	0.0	0.0	24.9	22.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0
Cycle Q Clear(g_c), s	8.7	0.0	24.9	46.9	0.0	0.0	14.6	0.0	0.0	16.1	0.0	0.0
Prop In Lane	1.00		0.03	0.10		0.04	0.05		0.31	0.19		0.25
Lane Grp Cap(c), veh/h	248	0	1207	961	0	0	323	0	0	291	0	0
V/C Ratio(X)	0.13	0.00	0.62	0.77	0.00	0.00	0.73	0.00	0.00	0.76	0.00	0.00
Avail Cap(c_a), veh/h	253	0	1207	959	0	0	506	0	0	462	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.7	0.0	9.1	12.6	0.0	0.0	42.6	0.0	0.0	42.9	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	2.4	5.9	0.0	0.0	3.2	0.0	0.0	4.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	0.0	13.0	20.0	0.0	0.0	10.6	0.0	0.0	10.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.7	0.0	11.5	18.8	0.0	0.0	45.8	0.0	0.0	47.0	0.0	0.0
LnGrp LOS	A		B	B			D			D		
Approach Vol, veh/h		774			739			235			221	
Approach Delay, s/veh		11.3			18.8			45.8			47.0	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	84.0	24.7	84.0	24.7
Change Period (Y+Rc), s	* 10	6.0	10.0	6.0
Max Green Setting (Gmax), s	* 74	31.0	72.0	31.0
Max Q Clear Time (g_c+I1), s	26.9	16.6	48.9	18.1
Green Ext Time (p_c), s	32.1	0.7	18.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	22.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	290	81	63	548	157	48
Future Volume (vph)	290	81	63	548	157	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	12	10	10	12
Grade (%)	2%			1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.971				0.968	
Flt Protected				0.995	0.963	
Satd. Flow (prot)	1615	0	0	1648	1550	0
Flt Permitted				0.995	0.963	
Satd. Flow (perm)	1615	0	0	1648	1550	0
Link Speed (mph)	35			35	40	
Link Distance (ft)	610			554	350	
Travel Time (s)	11.9			10.8	45.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	1%	2%	0%
Adj. Flow (vph)	305	85	66	577	165	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	390	0	0	643	216	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

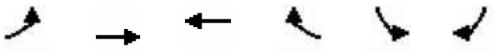
Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	290	81	63	548	157	48
Future Vol, veh/h	290	81	63	548	157	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	1	-1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	305	85	66	577	165	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	390	0	1057	348
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	709	-
Critical Hdwy	-	-	4.3	-	6.22	6.1
Critical Hdwy Stg 1	-	-	-	-	5.22	-
Critical Hdwy Stg 2	-	-	-	-	5.22	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	882	-	291	745
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	568	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	882	-	259	745
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	506	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1	40.6
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	306	-	-	882	-
HCM Lane V/C Ratio	0.705	-	-	0.075	-
HCM Control Delay (s/veh)	40.6	-	-	9.4	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q (veh)	5	-	-	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	44	227	350	356	144	23
Future Volume (vph)	44	227	350	356	144	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	16	10	12	10	12
Grade (%)		-1%	-1%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.932		0.981	
Flt Protected		0.992			0.959	
Satd. Flow (prot)	0	2017	1550	0	1581	0
Flt Permitted		0.992			0.959	
Satd. Flow (perm)	0	2017	1550	0	1581	0
Link Speed (mph)		35	35		40	
Link Distance (ft)		2978	610		1173	
Travel Time (s)		13.4	11.9		20.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	2%	1%	0%	0%
Adj. Flow (vph)	45	234	361	367	148	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	279	728	0	172	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	44	227	350	356	144	23
Future Vol, veh/h	44	227	350	356	144	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	-1	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	1	2	1	0	0
Mvmt Flow	45	234	361	367	148	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	728	0	-	0	869	545
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	324	-
Critical Hdwy	4.3	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	671	-	-	-	360	569
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	842	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	671	-	-	-	332	569
Mov Cap-2 Maneuver	-	-	-	-	332	-
Stage 1	-	-	-	-	608	-
Stage 2	-	-	-	-	842	-

Approach	EB	WB	SB
HCM Control Delay, s/v	1.7	0	24.6
HCM LOS			C

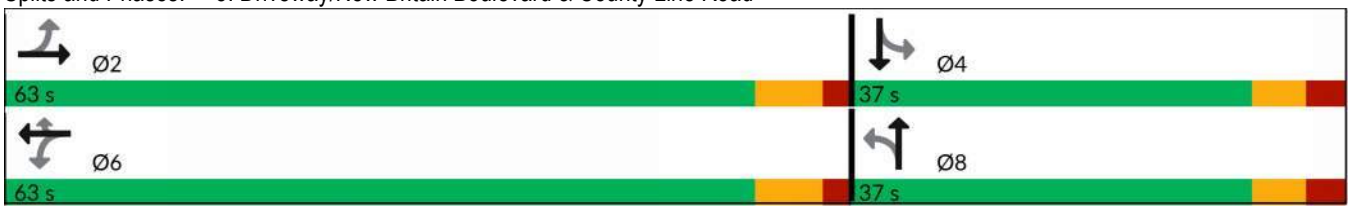
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	671	-	-	-	352
HCM Lane V/C Ratio	0.068	-	-	-	0.489
HCM Control Delay (s/veh)	10.8	0	-	-	24.6
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q (veh)	0.2	-	-	-	2.6

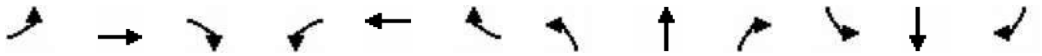
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	595	0	0	687	43	1	2	2	97	0	43
Future Volume (vph)	21	595	0	0	687	43	1	2	2	97	0	43
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	12	11	11	11	12	14	12	13	13	12
Grade (%)		0%			0%			0%			-4%	
Storage Length (ft)	125		0	115		195	0		0	175		0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor										0.99	0.97	
Frt						0.850		0.946			0.850	
Flt Protected	0.950							0.990		0.950		
Satd. Flow (prot)	1286	1642	0	1740	1657	1436	0	1798	0	1750	1448	0
Flt Permitted	0.325							0.942		0.754		
Satd. Flow (perm)	440	1642	0	1740	1657	1436	0	1711	0	1387	1448	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						46		2			204	
Link Speed (mph)		45			45			25			25	
Link Distance (ft)		1135			1995			112			467	
Travel Time (s)		17.2			30.2			3.1			12.7	
Confl. Peds. (#/hr)										1		1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	33%	6%	0%	0%	5%	3%	0%	0%	0%	3%	0%	9%
Adj. Flow (vph)	22	633	0	0	731	46	1	2	2	103	0	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	633	0	0	731	46	0	5	0	103	46	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2	2		6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0	15.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	22.0	22.0		22.0	22.0	22.0	11.0	11.0		11.0	11.0	
Total Split (s)	63.0	63.0		63.0	63.0	63.0	37.0	37.0		37.0	37.0	
Total Split (%)	63.0%	63.0%		63.0%	63.0%	63.0%	37.0%	37.0%		37.0%	37.0%	
Yellow Time (s)	5.0	5.0		5.0	5.0	5.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0		-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0		6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max	Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 81.7	
Natural Cycle: 50	

Control Type: Semi Act-Uncoord

Splits and Phases: 5: Driveway/New Britain Boulevard & County Line Road





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	595	0	0	687	43	1	2	2	97	0	43
Future Volume (veh/h)	21	595	0	0	687	43	1	2	2	97	0	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1337	1716	1800	1800	1730	1758	1800	1872	1800	1983	2027	1821
Adj Flow Rate, veh/h	22	633	0	0	731	42	1	2	1	103	0	39
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	33	6	0	0	5	3	0	0	0	3	0	9
Cap, veh/h	361	1259	0	93	1269	1093	80	123	48	260	0	191
Arrive On Green	0.73	0.73	0.00	0.00	0.73	0.73	0.10	0.11	0.10	0.11	0.00	0.10
Sat Flow, veh/h	498	1716	0	764	1730	1490	197	1094	430	1499	0	1709
Grp Volume(v), veh/h	22	633	0	0	731	42	4	0	0	103	0	39
Grp Sat Flow(s),veh/h/ln	498	1716	0	764	1730	1490	1721	0	0	1499	0	1709
Q Serve(g_s), s	1.7	12.1	0.0	0.0	15.1	0.6	0.0	0.0	0.0	5.1	0.0	1.6
Cycle Q Clear(g_c), s	16.8	12.1	0.0	0.0	15.1	0.6	0.2	0.0	0.0	5.1	0.0	1.6
Prop In Lane	1.00		0.00	1.00		1.00	0.25		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	361	1259	0	93	1269	1093	228	0	0	260	0	191
V/C Ratio(X)	0.06	0.50	0.00	0.00	0.58	0.04	0.02	0.00	0.00	0.40	0.00	0.20
Avail Cap(c_a), veh/h	361	1259	0	93	1269	1093	701	0	0	691	0	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.7	4.4	0.0	0.0	4.8	2.8	30.9	0.0	0.0	32.9	0.0	31.8
Incr Delay (d2), s/veh	0.3	1.4	0.0	0.0	1.9	0.1	0.0	0.0	0.0	1.0	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	4.9	0.0	0.0	6.2	0.2	0.1	0.0	0.0	3.4	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.0	5.8	0.0	0.0	6.7	2.9	31.0	0.0	0.0	33.9	0.0	32.3
LnGrp LOS	A	A			A	A	C			C		C
Approach Vol, veh/h		655			773			4			142	
Approach Delay, s/veh		5.9			6.5			31.0			33.5	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.0		14.7		63.0		14.7				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		56.0		30.0		56.0		30.0				
Max Q Clear Time (g_c+I1), s		19.3		7.6		17.6		2.5				
Green Ext Time (p_c), s		14.7		0.4		17.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			8.7									
HCM 6th LOS			A									



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	54	24	45	10	1	71
Future Volume (vph)	54	24	45	10	1	71
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	15	12	16	12	12	16
Grade (%)	1%		1%			-1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.959		0.975			
Flt Protected	0.966					0.999
Satd. Flow (prot)	1752	0	1843	0	0	1952
Flt Permitted	0.966					0.999
Satd. Flow (perm)	1752	0	1843	0	0	1952
Link Speed (mph)	25		25			25
Link Distance (ft)	418		923			1662
Travel Time (s)	11.4		25.2			45.3
Confl. Peds. (#/hr)	1	1				
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	6%	0%	0%	40%	0%	5%
Adj. Flow (vph)	86	38	71	16	2	113
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	0	87	0	0	115
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

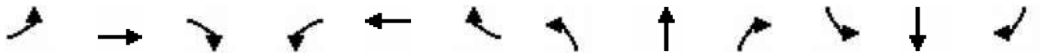
Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	24	45	10	1	71
Future Vol, veh/h	54	24	45	10	1	71
Conflicting Peds, #/hr	1	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	1	-	1	-	-	-1
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	6	0	0	40	0	5
Mvmt Flow	86	38	71	16	2	113

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	197	80	0	0	87	0
Stage 1	79	-	-	-	-	-
Stage 2	118	-	-	-	-	-
Critical Hdwy	6.66	6.3	-	-	4.3	-
Critical Hdwy Stg 1	5.66	-	-	-	-	-
Critical Hdwy Stg 2	5.66	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	904	1045	-	-	1121	-
Stage 1	1095	-	-	-	-	-
Stage 2	1047	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	901	1044	-	-	1121	-
Mov Cap-2 Maneuver	901	-	-	-	-	-
Stage 1	1095	-	-	-	-	-
Stage 2	1044	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.4	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	941	1121	-
HCM Lane V/C Ratio	-	-	0.132	0.001	-
HCM Control Delay (s/veh)	-	-	9.4	8.2	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q (veh)	-	-	0.5	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	7	0	9	5	99	2	203	7	8	99	9
Future Volume (vph)	9	7	0	9	5	99	2	203	7	8	99	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	15	12	12	16	12	12	15	12	12	16	12
Grade (%)		-1%			-1%			-1%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.882			0.995			0.989	
Flt Protected		0.973			0.996						0.996	
Satd. Flow (prot)	0	1936	0	0	1801	0	0	1961	0	0	1999	0
Flt Permitted		0.973			0.996						0.996	
Satd. Flow (perm)	0	1936	0	0	1801	0	0	1961	0	0	1999	0
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		206			205			2785			530	
Travel Time (s)		5.6			5.6			6.8			6.7	
Confl. Peds. (#/hr)	3		3				7		7			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Adj. Flow (vph)	10	8	0	10	5	106	2	218	8	9	106	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	121	0	0	228	0	0	125	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	7	0	9	5	99	2	203	7	8	99	9
Future Vol, veh/h	9	7	0	9	5	99	2	203	7	8	99	9
Conflicting Peds, #/hr	3	0	3	0	0	0	7	0	7	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-1	-	-	-1	-	-	1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	10	8	0	10	5	106	2	218	8	9	106	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	421	373	121	369	374	232	123	0	0	233	0	0
Stage 1	136	136	-	233	233	-	-	-	-	-	-	-
Stage 2	285	237	-	136	141	-	-	-	-	-	-	-
Critical Hdwy	6.9	6.3	6.1	6.9	6.3	6.1	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.9	5.3	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	635	572	996	687	572	865	1090	-	-	1000	-	-
Stage 1	1016	794	-	901	725	-	-	-	-	-	-	-
Stage 2	845	722	-	1016	790	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	540	555	984	665	555	854	1081	-	-	991	-	-
Mov Cap-2 Maneuver	540	555	-	665	555	-	-	-	-	-	-	-
Stage 1	1006	780	-	891	717	-	-	-	-	-	-	-
Stage 2	730	714	-	993	776	-	-	-	-	-	-	-

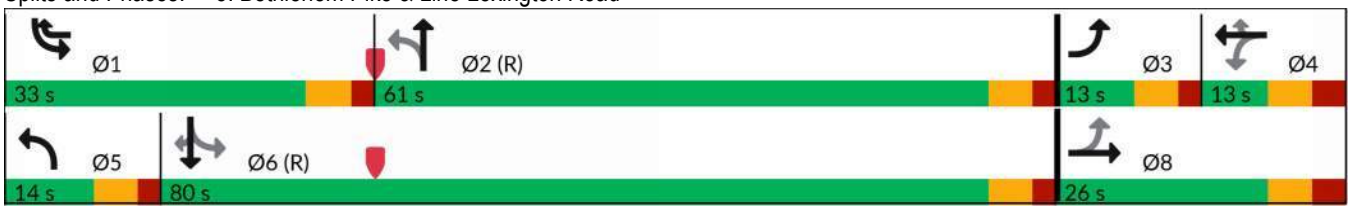
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.8	10.2	0.1	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1081	-	-	546	816	991	-	-
HCM Lane V/C Ratio	0.002	-	-	0.032	0.149	0.009	-	-
HCM Control Delay (s/veh)	8.3	0	-	11.8	10.2	8.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.1	0.5	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	94	47	29	43	485	54	1450	23	423	1209	78
Future Volume (vph)	89	94	47	29	43	485	54	1450	23	423	1209	78
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	14	12	12	12	15	12	12	12	12	12	11
Grade (%)		-1%			9%			0%			-1%	
Storage Length (ft)	0		0	0		0	150		0	500		300
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.950				0.850		0.998				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1582	1757	0	1219	1637	1531	1710	3294	0	1606	3337	1472
Flt Permitted	0.390			0.690			0.212			0.065		
Satd. Flow (perm)	650	1757	0	885	1637	1531	382	3294	0	110	3337	1472
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		18				82						
Link Speed (mph)		35			45			40			40	
Link Distance (ft)		242			272			984			319	
Travel Time (s)		4.7			4.1			16.8			5.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	4%	5%	34%	5%	5%	0%	3%	43%	7%	3%	1%
Adj. Flow (vph)	96	101	51	31	46	522	58	1559	25	455	1300	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	96	152	0	31	46	522	58	1584	0	455	1300	84
Turn Type	pm+pt	NA		Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	3	8			4	1	5	2		1	6	
Permitted Phases	8			4		4	2			6		6
Detector Phase	3	8		4	4	1	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	10.0		3.0	10.0	10.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	9.0	16.0		13.0	16.0	16.0
Total Split (s)	13.0	26.0		13.0	13.0	33.0	14.0	61.0		33.0	80.0	80.0
Total Split (%)	10.8%	21.7%		10.8%	10.8%	27.5%	11.7%	50.8%		27.5%	66.7%	66.7%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		3.0	3.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0		6.0	6.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Bethlehem Pike & Line Lexington Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	94	47	29	43	485	54	1450	23	423	1209	78
Future Volume (veh/h)	89	94	47	29	43	485	54	1450	23	423	1209	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1766	1852	1766	871	1278	1329	1800	1758	1196	1738	1795	1823
Adj Flow Rate, veh/h	96	101	39	31	46	140	58	1559	25	455	1300	84
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	4	5	34	5	5	0	3	43	7	3	1
Cap, veh/h	198	212	82	94	75	328	299	1570	25	448	2247	1018
Arrive On Green	0.07	0.17	0.16	0.06	0.06	0.06	0.04	0.47	0.46	0.23	0.66	0.66
Sat Flow, veh/h	1682	1272	491	581	1278	1126	1714	3364	54	1655	3410	1545
Grp Volume(v), veh/h	96	0	140	31	46	140	58	773	811	455	1300	84
Grp Sat Flow(s),veh/h/ln	1682	0	1763	581	1278	1126	1714	1670	1748	1655	1705	1545
Q Serve(g_s), s	6.2	0.0	8.6	6.4	4.2	7.0	2.1	55.2	55.4	28.0	25.2	2.4
Cycle Q Clear(g_c), s	6.2	0.0	8.6	6.4	4.2	7.0	2.1	55.2	55.4	28.0	25.2	2.4
Prop In Lane	1.00		0.28	1.00		1.00	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	198	0	294	94	75	328	299	779	816	448	2247	1018
V/C Ratio(X)	0.48	0.00	0.48	0.33	0.62	0.43	0.19	0.99	0.99	1.02	0.58	0.08
Avail Cap(c_a), veh/h	198	0	294	94	75	328	357	779	816	448	2247	1018
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	0.0	45.4	56.2	55.2	34.4	15.1	31.8	31.9	39.4	11.3	7.4
Incr Delay (d2), s/veh	1.8	0.0	1.2	2.0	14.4	0.9	0.3	30.3	30.1	46.3	1.1	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.8	0.0	6.9	1.7	2.9	6.0	1.5	35.9	37.4	26.0	13.6	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.5	0.0	46.6	58.2	69.6	35.3	15.4	62.1	62.0	85.8	12.4	7.5
LnGrp LOS	D		D	E	E	D	B	E	E	F	B	A
Approach Vol, veh/h		236			217			1642			1839	
Approach Delay, s/veh		47.3			45.8			60.4			30.3	
Approach LOS		D			D			E			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	33.0	61.0	13.0	13.0	9.9	84.1		26.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	27.0	55.0	7.0	6.0	8.0	74.0		19.0				
Max Q Clear Time (g_c+I1), s	30.5	57.7	8.7	9.5	4.6	27.7		10.6				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	7.8		0.2				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			44.7									
HCM 6th LOS			D									

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	32	46	552	21	10	555
Future Volume (vph)	32	46	552	21	10	555
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	14	12
Grade (%)	-2%			0%	-9%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.920				0.867	
Flt Protected				0.954	0.999	
Satd. Flow (prot)	1653	0	0	1653	1626	0
Flt Permitted				0.954	0.999	
Satd. Flow (perm)	1653	0	0	1653	1626	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	1745			1899	272	
Travel Time (s)	47.6			73.8	5.3	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	2%	4%	0%	0%	7%
Adj. Flow (vph)	37	53	642	24	12	645
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	0	666	657	0
Sign Control	Stop			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:25	4:25	4:25	4:25	4:25	4:25
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	6087	5998	6019	6040	5918	6009
Vehs Exited	6089	5939	5989	5928	5855	5959
Starting Vehs	224	221	218	177	192	203
Ending Vehs	222	280	248	289	255	255
Travel Distance (mi)	3730	3702	3714	3686	3613	3689
Travel Time (hr)	277.5	293.0	398.3	463.5	392.0	364.9
Total Delay (hr)	165.7	182.4	287.5	353.3	284.4	254.7
Total Stops	7722	7621	7374	8003	7785	7698
Fuel Used (gal)	164.1	166.8	190.4	206.5	187.0	183.0

Interval #0 Information Seeding

Start Time	4:25
End Time	4:30
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	6087	5998	6019	6040	5918	6009
Vehs Exited	6089	5939	5989	5928	5855	5959
Starting Vehs	224	221	218	177	192	203
Ending Vehs	222	280	248	289	255	255
Travel Distance (mi)	3730	3702	3714	3686	3613	3689
Travel Time (hr)	277.5	293.0	398.3	463.5	392.0	364.9
Total Delay (hr)	165.7	182.4	287.5	353.3	284.4	254.7
Total Stops	7722	7621	7374	8003	7785	7698
Fuel Used (gal)	164.1	166.8	190.4	206.5	187.0	183.0

9: Line Lexington Road & County Line Road Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Total Delay (hr)	2.5	4.3	2.0	8.8

Intersection: 9: Line Lexington Road & County Line Road

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	236	525	180
Average Queue (ft)	91	189	151
95th Queue (ft)	210	437	183
Link Distance (ft)	1667	1844	161
Upstream Blk Time (%)			4
Queuing Penalty (veh)			21
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	581	25	225	588	7	161
Future Volume (vph)	581	25	225	588	7	161
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	11	16	12
Grade (%)	0%			0%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.870	
Flt Protected				0.986	0.998	
Satd. Flow (prot)	1591	0	0	1501	1763	0
Flt Permitted				0.986	0.998	
Satd. Flow (perm)	1591	0	0	1501	1763	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	1899			755	414	
Travel Time (s)	28.8			11.4	8.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	7%	48%	36%	6%	0%	1%
Adj. Flow (vph)	618	27	239	626	7	171
Shared Lane Traffic (%)						
Lane Group Flow (vph)	645	0	0	865	178	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

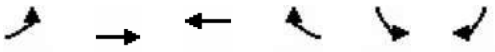
Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	581	25	225	588	7	161
Future Vol, veh/h	581	25	225	588	7	161
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	-1	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	7	48	36	6	0	1
Mvmt Flow	618	27	239	626	7	171

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	645	0	1736	632
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	1104	-
Critical Hdwy	-	-	4.7	-	6.2	6.11
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3.3	-	3	3.1
Pot Cap-1 Maneuver	-	-	623	-	114	515
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	373	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	623	-	47	515
Mov Cap-2 Maneuver	-	-	-	-	47	-
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	154	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	4	24.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	364	-	-	623	-
HCM Lane V/C Ratio	0.491	-	-	0.384	-
HCM Control Delay (s/veh)	24.1	-	-	14.3	0
HCM Lane LOS	C	-	-	B	A
HCM 95th %tile Q (veh)	2.6	-	-	1.8	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	144	627	755	20	0	88
Future Volume (vph)	144	627	755	20	0	88
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	11	11	12	8	8
Grade (%)		-1%	1%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996			0.865
Flt Protected		0.991				
Satd. Flow (prot)	0	1637	1490	0	0	1323
Flt Permitted		0.991				
Satd. Flow (perm)	0	1637	1490	0	0	1323
Link Speed (mph)		45	45		35	
Link Distance (ft)		755	1135		2785	
Travel Time (s)		40.1	17.3		7.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	7%	16%	5%	0%	1%
Adj. Flow (vph)	155	674	812	22	0	95
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	829	834	0	0	95
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	144	627	755	20	0	88
Future Vol, veh/h	144	627	755	20	0	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	1	-	2	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	7	16	5	0	1
Mvmt Flow	155	674	812	22	0	95

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	834	0	-	0	-	823
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.3	-	-	-	-	6.41
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	3	-	-	-	-	3.1
Pot Cap-1 Maneuver	615	-	-	-	0	374
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	615	-	-	-	-	374
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s/v	2.4	0	17.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	615	-	-	-	374
HCM Lane V/C Ratio	0.252	-	-	-	0.253
HCM Control Delay (s/veh)	12.8	0	-	-	17.9
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q (veh)	1	-	-	-	1



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	238	181	107	73	71
Future Volume (vph)	67	238	181	107	73	71
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	12	12	12	12	12
Grade (%)	-1%		-1%			1%
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.895		0.950			
Flt Protected	0.989					0.975
Satd. Flow (prot)	1519	0	1691	0	0	1548
Flt Permitted	0.989					0.975
Satd. Flow (perm)	1519	0	1691	0	0	1548
Link Speed (mph)	35		35			35
Link Distance (ft)	2978		530			232
Travel Time (s)	5.6		10.3			4.5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	1%	2%	1%	0%	26%
Adj. Flow (vph)	74	262	199	118	80	78
Shared Lane Traffic (%)						
Lane Group Flow (vph)	336	0	317	0	0	158
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	6.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	238	181	107	73	71
Future Vol, veh/h	67	238	181	107	73	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-1	-	-1	-	-	1
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	1	2	1	0	26
Mvmt Flow	74	262	199	118	80	78

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	496	258	0	0	317	0
Stage 1	258	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.25	6.11	-	-	4.3	-
Critical Hdwy Stg 1	5.25	-	-	-	-	-
Critical Hdwy Stg 2	5.25	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	619	836	-	-	935	-
Stage 1	915	-	-	-	-	-
Stage 2	935	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	564	836	-	-	935	-
Mov Cap-2 Maneuver	564	-	-	-	-	-
Stage 1	915	-	-	-	-	-
Stage 2	852	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	13.5	0	4.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	756	935	-
HCM Lane V/C Ratio	-	-	0.443	0.086	-
HCM Control Delay (s/veh)	-	-	13.5	9.2	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	2.3	0.3	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	17	6	198	198	1
Future Volume (vph)	3	17	6	198	198	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	10	10	12
Grade (%)	0%			0%	1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.884				0.999	
Flt Protected	0.993			0.998		
Satd. Flow (prot)	1365	0	0	1534	1561	0
Flt Permitted	0.993			0.998		
Satd. Flow (perm)	1365	0	0	1534	1561	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	244			605	332	
Travel Time (s)	5.5			10.6	35.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	18%	50%	8%	7%	2%
Adj. Flow (vph)	3	18	7	215	215	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	0	0	222	216	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	17	6	198	198	1
Future Vol, veh/h	3	17	6	198	198	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	18	50	8	7	2
Mvmt Flow	3	18	7	215	215	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	445	216	216	0	-	0
Stage 1	216	-	-	-	-	-
Stage 2	229	-	-	-	-	-
Critical Hdwy	6.42	6.38	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	649	868	1013	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	644	868	1013	-	-	-
Mov Cap-2 Maneuver	644	-	-	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	934	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.5	0.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1013	-	825	-	-
HCM Lane V/C Ratio	0.006	-	0.026	-	-
HCM Control Delay (s/veh)	8.6	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	53	20	181	146	1
Future Volume (vph)	4	53	20	181	146	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	10	10	12
Grade (%)	0%			-1%	-1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.874				0.999	
Flt Protected	0.997			0.995		
Satd. Flow (prot)	1397	0	0	1567	1622	0
Flt Permitted	0.997			0.995		
Satd. Flow (perm)	1397	0	0	1567	1622	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	149			332	1424	
Travel Time (s)	3.4			6.2	29.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	13%	45%	3%	4%	2%
Adj. Flow (vph)	4	58	22	197	159	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	0	0	219	160	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	53	20	181	146	1
Future Vol, veh/h	4	53	20	181	146	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	-1	-1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	13	45	3	4	2
Mvmt Flow	4	58	22	197	159	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	401	160	160	0	-	0
Stage 1	160	-	-	-	-	-
Stage 2	241	-	-	-	-	-
Critical Hdwy	6.42	6.33	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	690	938	1059	-	-	-
Stage 1	1007	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	674	938	1059	-	-	-
Mov Cap-2 Maneuver	674	-	-	-	-	-
Stage 1	984	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.2	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1059	-	913	-	-
HCM Lane V/C Ratio	0.021	-	0.068	-	-
HCM Control Delay (s/veh)	8.5	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0.1	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	2	2	183	145	2
Future Volume (vph)	8	2	2	183	145	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	10	10	12
Grade (%)	0%			-1%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.975				0.998	
Flt Protected	0.961					
Satd. Flow (prot)	1408	0	0	1640	1612	0
Flt Permitted	0.961					
Satd. Flow (perm)	1408	0	0	1640	1612	0
Link Speed (mph)	30			40	40	
Link Distance (ft)	242			1424	350	
Travel Time (s)	5.5			25.1	4.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	100%	100%	2%	3%	2%
Adj. Flow (vph)	9	2	2	199	158	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	0	0	201	160	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	2	2	183	145	2
Future Vol, veh/h	8	2	2	183	145	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	-1	2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	100	100	2	3	2
Mvmt Flow	9	2	2	199	158	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	362	159	160	0	-	0
Stage 1	159	-	-	-	-	-
Stage 2	203	-	-	-	-	-
Critical Hdwy	6.42	7.2	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	729	904	1059	-	-	-
Stage 1	1008	-	-	-	-	-
Stage 2	961	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	728	904	1059	-	-	-
Mov Cap-2 Maneuver	728	-	-	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	961	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	9.8	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1059	-	757	-	-
HCM Lane V/C Ratio	0.002	-	0.014	-	-
HCM Control Delay (s/veh)	8.4	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Bethlehem Pike and Line Lexington Road
SIM Traffic Results

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:10	7:10	7:10	7:10	7:10	7:10
End Time	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5019	4901	4732	4825	4907	4879
Vehs Exited	5022	4930	4722	4785	4881	4867
Starting Vehs	154	144	145	119	124	135
Ending Vehs	151	115	155	159	150	140
Travel Distance (mi)	3300	3281	3225	3263	3251	3264
Travel Time (hr)	173.7	167.2	327.6	211.4	271.7	230.3
Total Delay (hr)	75.9	70.1	232.4	114.9	174.9	133.6
Total Stops	4960	4777	4765	4642	4642	4759
Fuel Used (gal)	126.8	123.6	158.0	133.6	146.6	137.7

Interval #0 Information Seeding

Start Time	7:10
End Time	7:15
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	8:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	5019	4901	4732	4825	4907	4879
Vehs Exited	5022	4930	4722	4785	4881	4867
Starting Vehs	154	144	145	119	124	135
Ending Vehs	151	115	155	159	150	140
Travel Distance (mi)	3300	3281	3225	3263	3251	3264
Travel Time (hr)	173.7	167.2	327.6	211.4	271.7	230.3
Total Delay (hr)	75.9	70.1	232.4	114.9	174.9	133.6
Total Stops	4960	4777	4765	4642	4642	4759
Fuel Used (gal)	126.8	123.6	158.0	133.6	146.6	137.7

8: Bethlehem Pike & Line Lexington Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.2	55.4	2.5	77.2
Total Delay (hr)	0.4	1.7	0.4	0.2	0.6	1.7	0.2	7.9	8.1	3.5	0.1	24.8

Intersection: 8: Bethlehem Pike & Line Lexington Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	T	R
Maximum Queue (ft)	121	208	57	111	187	174	395	362	322	292	290	70
Average Queue (ft)	43	136	15	42	146	19	236	192	285	218	139	9
95th Queue (ft)	99	210	44	93	205	93	344	298	335	361	291	38
Link Distance (ft)	184	184	161	161	161		934	934		264	264	
Upstream Blk Time (%)		3		0	7				59	15	1	
Queuing Penalty (veh)		0		0	13				0	0	0	
Storage Bay Dist (ft)						150			500			300
Storage Blk Time (%)							32		59	15	1	
Queuing Penalty (veh)							4		443	79	1	

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:29	3:29	3:29	3:29	3:29	3:29
End Time	4:30	4:30	4:30	4:30	4:30	4:30
Total Time (min)	61	61	61	61	61	61
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5746	5785	5760	5873	5879	5813
Vehs Exited	5580	5609	5632	5737	5737	5659
Starting Vehs	79	70	77	79	69	71
Ending Vehs	245	246	205	215	211	224
Travel Distance (mi)	3516	3451	3499	3540	3578	3517
Travel Time (hr)	295.1	222.8	241.3	247.7	208.1	243.0
Total Delay (hr)	190.6	120.3	136.9	142.3	101.6	138.3
Total Stops	5944	6128	5836	6217	5999	6022
Fuel Used (gal)	160.3	142.6	145.6	149.8	141.2	147.9

Interval #0 Information Seeding

Start Time	3:29
End Time	3:30
Total Time (min)	1

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	3:30
End Time	4:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	5746	5785	5760	5873	5879	5813
Vehs Exited	5580	5609	5632	5737	5737	5659
Starting Vehs	79	70	77	79	69	71
Ending Vehs	245	246	205	215	211	224
Travel Distance (mi)	3516	3451	3499	3540	3578	3517
Travel Time (hr)	295.1	222.8	241.3	247.7	208.1	243.0
Total Delay (hr)	190.6	120.3	136.9	142.3	101.6	138.3
Total Stops	5944	6128	5836	6217	5999	6022
Fuel Used (gal)	160.3	142.6	145.6	149.8	141.2	147.9

8: Bethlehem Pike & Line Lexington Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	14.3	37.6	2.2
Total Delay (hr)	1.1	1.4	0.4	0.1	1.0	3.3	0.4	16.4	0.1	8.8	1.8	0.0

8: Bethlehem Pike & Line Lexington Road Performance by movement

Movement	All
Denied Delay (hr)	54.4
Total Delay (hr)	34.7

Intersection: 8: Bethlehem Pike & Line Lexington Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	T	R
Maximum Queue (ft)	140	198	47	108	190	175	674	640	325	284	273	82
Average Queue (ft)	62	97	4	40	155	29	411	378	277	181	82	7
95th Queue (ft)	119	174	24	91	218	115	635	599	338	342	210	46
Link Distance (ft)	184	184	161	161	161		934	934		264	264	
Upstream Blk Time (%)	0	1		0	24				64	9	0	0
Queuing Penalty (veh)	0	0		0	44				0	0	0	0
Storage Bay Dist (ft)						150			500			300
Storage Blk Time (%)							40		64	9	0	0
Queuing Penalty (veh)							10		368	38	0	0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:10	7:10	7:10	7:10	7:10	7:10
End Time	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4916	4845	4750	4896	4966	4875
Vehs Exited	4884	4805	4786	4848	4968	4858
Starting Vehs	126	131	158	126	128	128
Ending Vehs	158	171	122	174	126	148
Travel Distance (mi)	3283	3263	3255	3290	3319	3282
Travel Time (hr)	282.2	421.6	401.5	405.7	266.7	355.5
Total Delay (hr)	185.2	325.1	305.2	308.5	168.5	258.5
Total Stops	4750	5121	4897	4933	4911	4922
Fuel Used (gal)	149.7	181.4	175.8	177.9	147.6	166.5

Interval #0 Information Seeding

Start Time	7:10
End Time	7:15
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	8:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4916	4845	4750	4896	4966	4875
Vehs Exited	4884	4805	4786	4848	4968	4858
Starting Vehs	126	131	158	126	128	128
Ending Vehs	158	171	122	174	126	148
Travel Distance (mi)	3283	3263	3255	3290	3319	3282
Travel Time (hr)	282.2	421.6	401.5	405.7	266.7	355.5
Total Delay (hr)	185.2	325.1	305.2	308.5	168.5	258.5
Total Stops	4750	5121	4897	4933	4911	4922
Fuel Used (gal)	149.7	181.4	175.8	177.9	147.6	166.5

8: Bethlehem Pike & Line Lexington Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	50.2	136.0	6.1	192.5
Total Delay (hr)	0.4	1.9	0.5	0.1	0.6	1.7	0.4	10.4	8.9	3.4	0.1	28.5

Intersection: 8: Bethlehem Pike & Line Lexington Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	T	R
Maximum Queue (ft)	94	210	38	125	183	175	435	418	322	292	295	198
Average Queue (ft)	43	146	9	44	149	46	286	244	291	233	137	13
95th Queue (ft)	85	219	29	103	204	145	421	384	316	373	302	78
Link Distance (ft)	184	184	161	161	161		934	934		264	264	
Upstream Blk Time (%)		6		0	8				72	20	2	0
Queuing Penalty (veh)		0		1	15				0	0	0	0
Storage Bay Dist (ft)						150			500			300
Storage Blk Time (%)						0	41		72	20	2	0
Queuing Penalty (veh)						0	15		559	111	1	0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:29	3:29	3:29	3:29	3:29	3:29
End Time	4:30	4:30	4:30	4:30	4:30	4:30
Total Time (min)	61	61	61	61	61	61
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	6119	6191	5929	5956	5781	5994
Vehs Exited	5953	5999	5742	5719	5557	5794
Starting Vehs	83	67	78	82	60	73
Ending Vehs	249	259	265	319	284	273
Travel Distance (mi)	3624	3674	3586	3575	3485	3589
Travel Time (hr)	330.0	266.9	289.0	345.5	303.9	307.1
Total Delay (hr)	222.1	157.6	182.4	239.2	200.3	200.3
Total Stops	7074	7129	7115	6875	6198	6879
Fuel Used (gal)	172.2	158.6	160.1	173.4	160.7	165.0

Interval #0 Information Seeding

Start Time	3:29
End Time	3:30
Total Time (min)	1

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	3:30
End Time	4:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	6119	6191	5929	5956	5781	5994
Vehs Exited	5953	5999	5742	5719	5557	5794
Starting Vehs	83	67	78	82	60	73
Ending Vehs	249	259	265	319	284	273
Travel Distance (mi)	3624	3674	3586	3575	3485	3589
Travel Time (hr)	330.0	266.9	289.0	345.5	303.9	307.1
Total Delay (hr)	222.1	157.6	182.4	239.2	200.3	200.3
Total Stops	7074	7129	7115	6875	6198	6879
Fuel Used (gal)	172.2	158.6	160.1	173.4	160.7	165.0

8: Bethlehem Pike & Line Lexington Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	21.0	59.9	4.0
Total Delay (hr)	1.2	1.3	0.4	0.1	1.0	3.4	0.7	25.1	0.1	9.1	2.6	0.1

8: Bethlehem Pike & Line Lexington Road Performance by movement

Movement	All
Denied Delay (hr)	85.4
Total Delay (hr)	45.2

Intersection: 8: Bethlehem Pike & Line Lexington Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	T	R
Maximum Queue (ft)	154	196	28	110	184	175	836	780	315	290	279	89
Average Queue (ft)	66	95	4	43	157	44	547	505	277	191	103	9
95th Queue (ft)	126	173	19	93	217	149	864	820	334	355	253	51
Link Distance (ft)	184	184	161	161	161		934	934		264	264	
Upstream Blk Time (%)	0	2			27		2	2	67	13	1	0
Queuing Penalty (veh)	0	0			50		0	0	0	0	0	0
Storage Bay Dist (ft)						150			500			300
Storage Blk Time (%)							47		67	13	1	0
Queuing Penalty (veh)							26		407	54	1	0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:10	7:10	7:10	7:10	7:10	7:10
End Time	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4900	5010	4987	4903	5030	4962
Vehs Exited	4896	4970	4983	4899	5015	4950
Starting Vehs	154	128	149	169	132	142
Ending Vehs	158	168	153	173	147	156
Travel Distance (mi)	3347	3325	3328	3212	3388	3320
Travel Time (hr)	426.1	334.1	305.5	386.6	383.8	367.2
Total Delay (hr)	326.9	235.1	207.1	291.4	283.1	268.7
Total Stops	4997	4962	5197	4754	5272	5036
Fuel Used (gal)	184.8	164.3	157.2	172.6	177.0	171.2

Interval #0 Information Seeding

Start Time	7:10
End Time	7:15
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	8:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	4900	5010	4987	4903	5030	4962
Vehs Exited	4896	4970	4983	4899	5015	4950
Starting Vehs	154	128	149	169	132	142
Ending Vehs	158	168	153	173	147	156
Travel Distance (mi)	3347	3325	3328	3212	3388	3320
Travel Time (hr)	426.1	334.1	305.5	386.6	383.8	367.2
Total Delay (hr)	326.9	235.1	207.1	291.4	283.1	268.7
Total Stops	4997	4962	5197	4754	5272	5036
Fuel Used (gal)	184.8	164.3	157.2	172.6	177.0	171.2

8: Bethlehem Pike & Line Lexington Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.3	143.4	6.8
Total Delay (hr)	0.5	1.8	0.5	0.4	0.7	1.6	0.3	11.0	0.3	8.8	3.6	0.1

8: Bethlehem Pike & Line Lexington Road Performance by movement

Movement	All
Denied Delay (hr)	202.7
Total Delay (hr)	29.7

Intersection: 8: Bethlehem Pike & Line Lexington Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	T	R
Maximum Queue (ft)	148	218	94	102	187	175	460	442	327	309	288	114
Average Queue (ft)	55	145	30	50	150	41	287	259	289	233	137	9
95th Queue (ft)	121	227	74	95	203	141	412	394	326	383	306	52
Link Distance (ft)	184	184	161	161	161		934	934		264	264	
Upstream Blk Time (%)	0	7			7				70	18	3	0
Queuing Penalty (veh)	0	0			14				0	0	0	0
Storage Bay Dist (ft)						150			500			300
Storage Blk Time (%)						0	43		70	18	3	0
Queuing Penalty (veh)						0	16		546	101	2	0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:29	3:29	3:29	3:29	3:29	3:29
End Time	4:30	4:30	4:30	4:30	4:30	4:30
Total Time (min)	61	61	61	61	61	61
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	6055	6118	6142	6072	5989	6075
Vehs Exited	5864	5916	5954	5895	5790	5885
Starting Vehs	78	84	85	88	85	78
Ending Vehs	269	286	273	265	284	272
Travel Distance (mi)	3695	3712	3654	3670	3614	3669
Travel Time (hr)	332.9	278.9	355.9	344.4	398.2	342.1
Total Delay (hr)	222.5	168.2	246.4	234.7	290.2	232.4
Total Stops	7026	7551	6997	7806	7813	7435
Fuel Used (gal)	175.0	163.1	179.6	176.8	187.6	176.4

Interval #0 Information Seeding

Start Time	3:29
End Time	3:30
Total Time (min)	1

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	3:30
End Time	4:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	6055	6118	6142	6072	5989	6075
Vehs Exited	5864	5916	5954	5895	5790	5885
Starting Vehs	78	84	85	88	85	78
Ending Vehs	269	286	273	265	284	272
Travel Distance (mi)	3695	3712	3654	3670	3614	3669
Travel Time (hr)	332.9	278.9	355.9	344.4	398.2	342.1
Total Delay (hr)	222.5	168.2	246.4	234.7	290.2	232.4
Total Stops	7026	7551	6997	7806	7813	7435
Fuel Used (gal)	175.0	163.1	179.6	176.8	187.6	176.4

8: Bethlehem Pike & Line Lexington Road Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.0	24.9	71.2	5.1
Total Delay (hr)	1.3	1.6	0.5	0.5	1.2	3.5	0.9	29.5	0.4	9.3	2.6	0.1

8: Bethlehem Pike & Line Lexington Road Performance by movement

Movement	All
Denied Delay (hr)	101.8
Total Delay (hr)	51.5

Intersection: 8: Bethlehem Pike & Line Lexington Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	T	R
Maximum Queue (ft)	163	196	116	120	183	175	895	840	325	292	279	180
Average Queue (ft)	71	111	30	49	160	54	617	576	283	200	107	15
95th Queue (ft)	133	181	83	101	214	168	933	886	332	364	267	84
Link Distance (ft)	184	184	161	161	161		934	934		264	264	
Upstream Blk Time (%)	0	1	0	0	29		4	3	72	15	2	0
Queuing Penalty (veh)	0	0	0	0	57		0	0	0	0	0	0
Storage Bay Dist (ft)						150			500			300
Storage Blk Time (%)							51		72	15	2	0
Queuing Penalty (veh)							27		435	63	1	2

Initial Queue/Unmet Demand

Initial Queue Observation

Walnut Street & County Line Road

7:15 – 8:15 A.M	WB L/T/R	NB L/T/R	SB L/T/R
Signal Cycle 1	3	0	0
Signal Cycle 2	3	0	0
Signal Cycle 3	2	0	0
Average*	**3**	**0**	**0**
3:30 – 4:30 P.M.	WB L/T/R	NB L/T/R	SB L/T/R
Signal Cycle 1	3	0	0
Signal Cycle 2	3	0	0
Signal Cycle 3	3	0	0
Average*	**3**	**0**	**0**

*** An initial queue of 3 cars was added to the WB approach. It was determined that there were train crossings before and during the peak hours which can result in temporarily longer queues.**

County Line Road & New Britain Boulevard

7:15 - 8:15 A.M	EB L	EB T/R	WB L	WB T	WB R	NB L/T/R	SB L	SB T/R
Signal Cycle 1	0	0	0	0	0	0	0	0
Signal Cycle 2	0	0	0	0	0	0	0	0
Signal Cycle 3	0	0	0	0	0	0	0	0
Average	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3:30 - 4:30 P.M.	EB L	EB T/R	WB L	WB T	WB R	NB L/T/R	SB L	SB T/R
Signal Cycle 1	0	0	0	0	0	0	0	0
Signal Cycle 2	0	0	0	0	0	0	0	0
Signal Cycle 3	0	0	0	0	0	0	0	0
Average	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Bethlehem Pike & Line Lexington Road

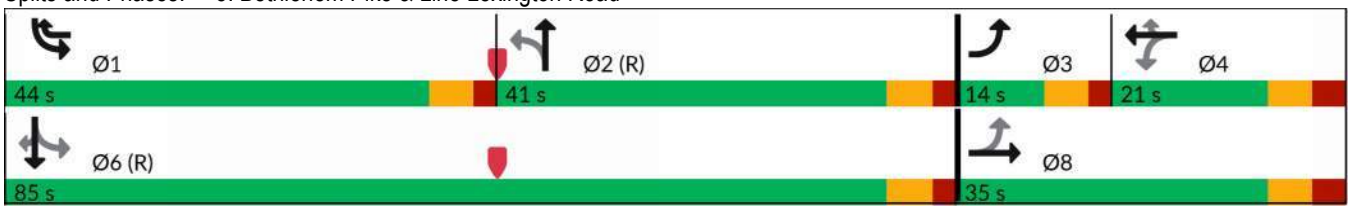
7:15 - 8:15 A.M	EB L	EB T/R	WB L	WB T	WB R	NB L	NB T/R	SB L	SB T	SB R
Signal Cycle 1	0	0	0	0	0	0	0	0	0	0
Signal Cycle 2	0	0	0	0	0	0	0	0	0	0
Signal Cycle 3	0	0	0	0	0	0	0	0	0	0
Average	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3:30 - 4:30 P.M.	EB L	EB T/R	WB L	WB T	WB R	NB L	NB T/R	SB L	SB T	SB R
Signal Cycle 1	0	0	0	0	0	0	0	0	0	0
Signal Cycle 2	0	0	0	0	0	0	0	0	0	0
Signal Cycle 3	0	0	0	0	0	0	0	0	0	0
Average	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Alternative Analyses

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	129	49	11	45	469	14	807	0	546	1538	70
Future Volume (vph)	44	129	49	11	45	469	14	807	0	546	1538	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	14	12	12	12	15	12	12	12	12	12	11
Grade (%)		-1%			9%			0%			-1%	
Storage Length (ft)	115		0	150		150	115		0	485		230
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.959				0.850						0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1278	1716	0	1498	1521	1502	1500	3167	0	1577	3273	1376
Flt Permitted	0.501			0.641			0.156			0.151		
Satd. Flow (perm)	674	1716	0	1011	1521	1502	246	3167	0	251	3273	1376
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				163						91
Link Speed (mph)		35			45			40			40	
Link Distance (ft)		242			272			984			319	
Travel Time (s)		4.7			4.1			16.8			5.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	30%	7%	10%	9%	13%	7%	14%	8%	0%	9%	5%	8%
Adj. Flow (vph)	46	134	51	11	47	489	15	841	0	569	1602	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	185	0	11	47	489	15	841	0	569	1602	73
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm
Protected Phases	3	8			4	1		2		1	6	
Permitted Phases	8			4		4	2			6		6
Detector Phase	3	8		4	4	1	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	10.0	10.0		3.0	10.0	10.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	16.0	16.0		13.0	16.0	16.0
Total Split (s)	14.0	35.0		21.0	21.0	44.0	41.0	41.0		44.0	85.0	85.0
Total Split (%)	11.7%	29.2%		17.5%	17.5%	36.7%	34.2%	34.2%		36.7%	70.8%	70.8%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		3.0	3.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0		6.0	6.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 28 (23%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Bethlehem Pike & Line Lexington Road



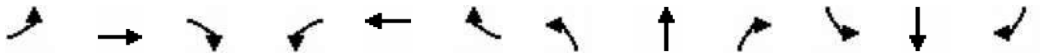
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	129	49	11	45	469	14	807	0	546	1538	70
Future Volume (veh/h)	44	129	49	11	45	469	14	807	0	546	1538	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1411	1807	1695	1222	1166	1300	1603	1688	1800	1709	1766	1724
Adj Flow Rate, veh/h	46	134	47	11	47	321	15	841	0	569	1602	69
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	30	7	10	9	13	7	14	8	0	9	5	8
Cap, veh/h	191	273	96	158	146	454	153	1174	0	611	2330	1014
Arrive On Green	0.05	0.21	0.21	0.13	0.13	0.13	0.37	0.37	0.00	0.29	0.69	0.69
Sat Flow, veh/h	1343	1278	448	786	1166	1101	254	3291	0	1628	3356	1461
Grp Volume(v), veh/h	46	0	181	11	47	321	15	841	0	569	1602	69
Grp Sat Flow(s),veh/h/ln	1343	0	1727	786	1166	1101	254	1603	0	1628	1678	1461
Q Serve(g_s), s	3.4	0.0	11.1	1.5	4.4	15.0	4.8	27.0	0.0	29.7	33.5	1.8
Cycle Q Clear(g_c), s	3.4	0.0	11.1	1.5	4.4	15.0	4.8	27.0	0.0	29.7	33.5	1.8
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	191	0	369	158	146	454	153	1174	0	611	2330	1014
V/C Ratio(X)	0.24	0.00	0.49	0.07	0.32	0.71	0.10	0.72	0.00	0.93	0.69	0.07
Avail Cap(c_a), veh/h	228	0	417	158	146	454	153	1174	0	673	2330	1014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	0.0	41.5	46.6	47.9	29.3	25.6	32.7	0.0	26.2	10.7	5.9
Incr Delay (d2), s/veh	0.6	0.0	1.0	0.2	1.3	5.0	1.3	3.8	0.0	18.8	1.7	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	0.0	8.4	0.5	2.3	12.8	0.6	16.1	0.0	25.5	16.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.3	0.0	42.6	46.8	49.1	34.3	26.9	36.4	0.0	45.0	12.4	6.0
LnGrp LOS	D		D	D	D	C	C	D		D	B	A
Approach Vol, veh/h		227			379			856			2240	
Approach Delay, s/veh		42.3			36.5			36.3			20.5	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	39.4	48.9	10.7	21.0		88.3		31.7				
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0		6.0		7.0				
Max Green Setting (Gmax), s	38.0	35.0	8.0	14.0		79.0		28.0				
Max Q Clear Time (g_c+I1), s	32.2	29.5	5.9	17.5		36.0		13.1				
Green Ext Time (p_c), s	1.2	2.0	0.0	0.0		10.9		0.5				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	27.1
HCM 6th LOS	C

Notes

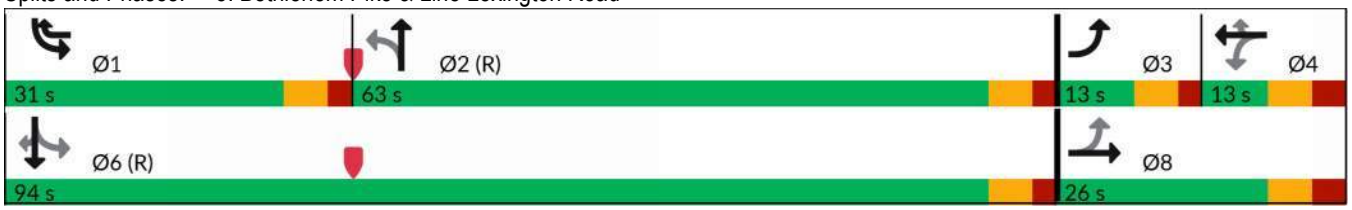
User approved changes to right turn type.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	93	43	5	42	464	26	1456	9	411	1192	80
Future Volume (vph)	91	93	43	5	42	464	26	1456	9	411	1192	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	14	12	12	12	15	12	12	12	12	12	11
Grade (%)		-1%			9%			0%			-1%	
Storage Length (ft)	115		0	150		150	115		0	485		230
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.953				0.850		0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1582	1763	0	1361	1637	1545	1710	3318	0	1621	3337	1472
Flt Permitted	0.391			0.690			0.216			0.063		
Satd. Flow (perm)	651	1763	0	988	1637	1545	389	3318	0	108	3337	1472
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				82		1				91
Link Speed (mph)		35			45			40			40	
Link Distance (ft)		242			272			984			319	
Travel Time (s)		4.7			4.1			16.8			5.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	4%	5%	20%	5%	4%	0%	3%	0%	6%	3%	1%
Adj. Flow (vph)	98	100	46	5	45	499	28	1566	10	442	1282	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	146	0	5	45	499	28	1576	0	442	1282	86
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm
Protected Phases	3	8			4	1		2		1	6	
Permitted Phases	8			4		4	2			6		6
Detector Phase	3	8		4	4	1	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	10.0	10.0		3.0	10.0	10.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	16.0	16.0		13.0	16.0	16.0
Total Split (s)	13.0	26.0		13.0	13.0	31.0	63.0	63.0		31.0	94.0	94.0
Total Split (%)	10.8%	21.7%		10.8%	10.8%	25.8%	52.5%	52.5%		25.8%	78.3%	78.3%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		3.0	3.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0		6.0	6.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

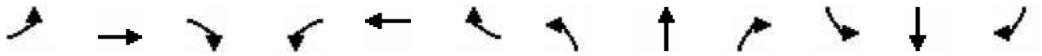
Splits and Phases: 8: Bethlehem Pike & Line Lexington Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	93	43	5	42	464	26	1456	9	411	1192	80
Future Volume (veh/h)	91	93	43	5	42	464	26	1456	9	411	1192	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1766	1852	1766	1067	1278	1344	1800	1758	1800	1752	1795	1823
Adj Flow Rate, veh/h	98	100	34	5	45	117	28	1566	10	442	1282	84
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	4	5	20	5	4	0	3	0	6	3	1
Cap, veh/h	200	220	75	102	75	313	245	1644	10	435	2529	1146
Arrive On Green	0.07	0.17	0.16	0.06	0.06	0.06	0.48	0.48	0.47	0.22	0.74	0.74
Sat Flow, veh/h	1682	1321	449	716	1278	1139	383	3402	22	1669	3410	1545
Grp Volume(v), veh/h	98	0	134	5	45	117	28	768	808	442	1282	84
Grp Sat Flow(s),veh/h/ln	1682	0	1771	716	1278	1139	383	1670	1754	1669	1705	1545
Q Serve(g_s), s	6.3	0.0	8.2	0.8	4.1	7.0	4.9	52.8	52.9	26.0	18.7	1.8
Cycle Q Clear(g_c), s	6.3	0.0	8.2	0.8	4.1	7.0	4.9	52.8	52.9	26.0	18.7	1.8
Prop In Lane	1.00		0.25	1.00		1.00	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	200	0	295	102	75	313	245	807	848	435	2529	1146
V/C Ratio(X)	0.49	0.00	0.45	0.05	0.60	0.37	0.11	0.95	0.95	1.02	0.51	0.07
Avail Cap(c_a), veh/h	200	0	295	102	75	313	245	807	848	435	2529	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	0.0	45.2	53.6	55.1	35.1	17.3	29.7	29.7	39.1	6.4	4.2
Incr Delay (d2), s/veh	1.9	0.0	1.1	0.2	13.0	0.7	0.9	21.9	21.4	47.5	0.7	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.9	0.0	6.6	0.3	2.8	5.1	0.9	32.8	34.1	24.7	9.5	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.5	0.0	46.3	53.8	68.1	35.9	18.2	51.6	51.0	86.6	7.1	4.4
LnGrp LOS	D		D	D	E	D	B	D	D	F	A	A
Approach Vol, veh/h		232			167			1604			1808	
Approach Delay, s/veh		47.2			45.1			50.7			26.4	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	31.0	63.0	13.0	13.0		94.0		26.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0		6.0		7.0				
Max Green Setting (Gmax), s	25.0	57.0	7.0	6.0		88.0		19.0				
Max Q Clear Time (g_c+I1), s	28.5	55.3	8.8	9.5		21.2		10.2				
Green Ext Time (p_c), s	0.0	1.2	0.0	0.0		7.8		0.2				

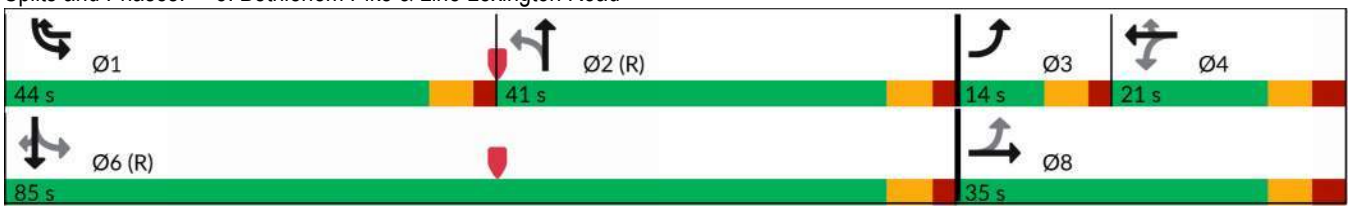
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			38.8									
HCM 6th LOS			D									



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	129	49	23	45	477	14	807	22	564	1538	70
Future Volume (vph)	44	129	49	23	45	477	14	807	22	564	1538	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	14	12	12	12	15	12	12	12	12	12	11
Grade (%)		-1%			9%			0%			-1%	
Storage Length (ft)	115		0	150		150	115		0	485		230
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.959				0.850		0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1278	1716	0	1498	1521	1502	1500	3160	0	1577	3273	1376
Flt Permitted	0.501			0.641			0.156			0.141		
Satd. Flow (perm)	674	1716	0	1011	1521	1502	246	3160	0	234	3273	1376
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				163		2				91
Link Speed (mph)		35			45			40			40	
Link Distance (ft)		242			272			984			319	
Travel Time (s)		4.7			4.1			16.8			5.4	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	30%	7%	10%	9%	13%	7%	14%	8%	0%	9%	5%	8%
Adj. Flow (vph)	46	134	51	24	47	497	15	841	23	588	1602	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	185	0	24	47	497	15	864	0	588	1602	73
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm
Protected Phases	3	8			4	1		2		1	6	
Permitted Phases	8			4		4	2			6		6
Detector Phase	3	8		4	4	1	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	10.0	10.0		3.0	10.0	10.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	16.0	16.0		13.0	16.0	16.0
Total Split (s)	14.0	35.0		21.0	21.0	44.0	41.0	41.0		44.0	85.0	85.0
Total Split (%)	11.7%	29.2%		17.5%	17.5%	36.7%	34.2%	34.2%		36.7%	70.8%	70.8%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		3.0	3.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0		6.0	6.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 28 (23%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Bethlehem Pike & Line Lexington Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	129	49	23	45	477	14	807	22	564	1538	70
Future Volume (veh/h)	44	129	49	23	45	477	14	807	22	564	1538	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1411	1807	1695	1222	1166	1300	1603	1688	1800	1709	1766	1724
Adj Flow Rate, veh/h	46	134	47	24	47	329	15	841	23	588	1602	69
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	30	7	10	9	13	7	14	8	0	9	5	8
Cap, veh/h	190	273	96	158	146	476	148	1102	30	625	2330	1014
Arrive On Green	0.05	0.21	0.21	0.13	0.13	0.13	0.35	0.35	0.34	0.31	0.69	0.69
Sat Flow, veh/h	1343	1278	448	786	1166	1101	254	3188	87	1628	3356	1461
Grp Volume(v), veh/h	46	0	181	24	47	329	15	423	441	588	1602	69
Grp Sat Flow(s),veh/h/ln	1343	0	1727	786	1166	1101	254	1603	1672	1628	1678	1461
Q Serve(g_s), s	3.4	0.0	11.1	3.3	4.4	15.0	4.9	28.1	28.1	32.6	33.5	1.8
Cycle Q Clear(g_c), s	3.4	0.0	11.1	3.3	4.4	15.0	4.9	28.1	28.1	32.6	33.5	1.8
Prop In Lane	1.00		0.26	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	190	0	369	158	146	476	148	554	578	625	2330	1014
V/C Ratio(X)	0.24	0.00	0.49	0.15	0.32	0.69	0.10	0.76	0.76	0.94	0.69	0.07
Avail Cap(c_a), veh/h	228	0	417	158	146	476	148	554	578	654	2330	1014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	0.0	41.5	47.4	47.9	27.6	27.3	34.9	34.9	27.6	10.7	5.9
Incr Delay (d2), s/veh	0.6	0.0	1.0	0.4	1.3	4.2	1.4	9.6	9.2	21.4	1.7	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	0.0	8.4	1.2	2.3	12.6	0.6	17.8	18.4	26.8	16.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.3	0.0	42.6	47.8	49.1	31.8	28.7	44.5	44.1	48.9	12.4	6.0
LnGrp LOS	D		D	D	D	C	C	D	D	D	B	A
Approach Vol, veh/h		227			400			879			2259	
Approach Delay, s/veh		42.3			34.8			44.0			21.7	
Approach LOS		D			C			D			C	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	41.8	46.5	10.7	21.0		88.3		31.7				
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0		6.0		7.0				
Max Green Setting (Gmax), s	38.0	35.0	8.0	14.0		79.0		28.0				
Max Q Clear Time (g_c+I1), s	35.1	30.6	5.9	17.5		36.0		13.1				
Green Ext Time (p_c), s	0.8	1.6	0.0	0.0		10.9		0.5				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			29.6									
HCM 6th LOS			C									

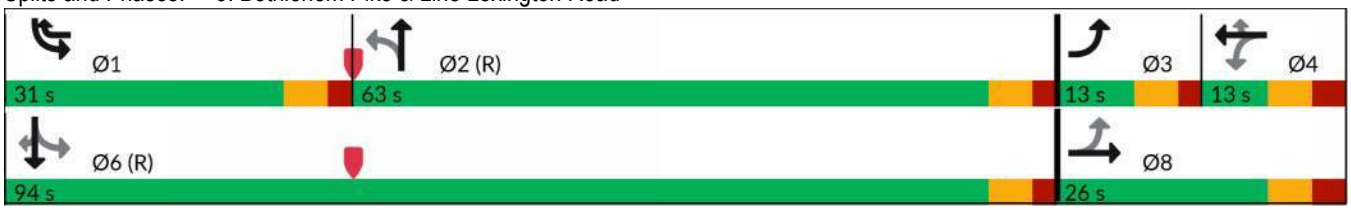
Notes

User approved changes to right turn type.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	93	43	29	42	483	26	1456	23	421	1192	80
Future Volume (vph)	91	93	43	29	42	483	26	1456	23	421	1192	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	14	12	12	12	15	12	12	12	12	12	11
Grade (%)		-1%			9%			0%			-1%	
Storage Length (ft)	115		0	150		150	115		0	485		230
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.953				0.850		0.998				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1582	1763	0	1361	1637	1545	1710	3315	0	1621	3337	1472
Flt Permitted	0.391			0.690			0.216			0.063		
Satd. Flow (perm)	651	1763	0	988	1637	1545	389	3315	0	108	3337	1472
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				82		2				91
Link Speed (mph)		35			45			40			40	
Link Distance (ft)		242			272			984			319	
Travel Time (s)		4.7			4.1			16.8			5.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	5%	4%	5%	20%	5%	4%	0%	3%	0%	6%	3%	1%
Adj. Flow (vph)	98	100	46	31	45	519	28	1566	25	453	1282	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	146	0	31	45	519	28	1591	0	453	1282	86
Turn Type	pm+pt	NA		Perm	NA	pm+ov	Perm	NA		pm+pt	NA	Perm
Protected Phases	3	8			4	1		2		1	6	
Permitted Phases	8			4		4	2			6		6
Detector Phase	3	8		4	4	1	2	2		1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	10.0	10.0		3.0	10.0	10.0
Minimum Split (s)	13.0	13.0		13.0	13.0	13.0	16.0	16.0		13.0	16.0	16.0
Total Split (s)	13.0	26.0		13.0	13.0	31.0	63.0	63.0		31.0	94.0	94.0
Total Split (%)	10.8%	21.7%		10.8%	10.8%	25.8%	52.5%	52.5%		25.8%	78.3%	78.3%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		3.0	3.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0
Total Lost Time (s)	5.0	6.0		6.0	6.0	5.0	5.0	5.0		5.0	5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes	Yes	Yes	Yes		Yes		
Recall Mode	None	None		None	None	None	C-Max	C-Max		None	C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 117 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Bethlehem Pike & Line Lexington Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	93	43	29	42	483	26	1456	23	421	1192	80
Future Volume (veh/h)	91	93	43	29	42	483	26	1456	23	421	1192	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1766	1852	1766	1067	1278	1344	1800	1758	1800	1752	1795	1823
Adj Flow Rate, veh/h	98	100	34	31	45	137	28	1566	25	453	1282	84
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	5	4	5	20	5	4	0	3	0	6	3	1
Cap, veh/h	199	220	75	102	75	313	245	1626	26	432	2529	1146
Arrive On Green	0.07	0.17	0.16	0.06	0.06	0.06	0.48	0.48	0.47	0.22	0.74	0.74
Sat Flow, veh/h	1682	1321	449	716	1278	1139	383	3365	54	1669	3410	1545
Grp Volume(v), veh/h	98	0	134	31	45	137	28	776	815	453	1282	84
Grp Sat Flow(s),veh/h/ln	1682	0	1771	716	1278	1139	383	1670	1748	1669	1705	1545
Q Serve(g_s), s	6.3	0.0	8.2	5.1	4.1	7.0	4.9	53.9	54.1	26.0	18.7	1.8
Cycle Q Clear(g_c), s	6.3	0.0	8.2	5.1	4.1	7.0	4.9	53.9	54.1	26.0	18.7	1.8
Prop In Lane	1.00		0.25	1.00		1.00	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	199	0	295	102	75	313	245	807	845	432	2529	1146
V/C Ratio(X)	0.49	0.00	0.45	0.30	0.60	0.44	0.11	0.96	0.96	1.05	0.51	0.07
Avail Cap(c_a), veh/h	199	0	295	102	75	313	245	807	845	432	2529	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	0.0	45.2	55.6	55.1	35.9	17.3	29.9	30.0	39.4	6.4	4.2
Incr Delay (d2), s/veh	1.9	0.0	1.1	1.7	13.0	1.0	0.9	23.7	23.4	56.7	0.7	0.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.9	0.0	6.6	1.7	2.8	6.0	0.9	33.7	35.1	26.3	9.5	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	48.6	0.0	46.3	57.3	68.1	36.8	18.2	53.6	53.4	96.1	7.1	4.4
LnGrp LOS	D		D	E	E	D	B	D	D	F	A	A
Approach Vol, veh/h		232			213			1619			1819	
Approach Delay, s/veh		47.2			46.4			52.9			29.2	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	31.0	63.0	13.0	13.0		94.0		26.0				
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0		6.0		7.0				
Max Green Setting (Gmax), s	25.0	57.0	7.0	6.0		88.0		19.0				
Max Q Clear Time (g_c+I1), s	28.5	56.4	8.8	9.5		21.2		10.2				
Green Ext Time (p_c), s	0.0	0.5	0.0	0.0		7.8		0.2				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			41.1									
HCM 6th LOS			D									

TABLE 1 – ALTERNATIVE ANALYSES
LEVEL OF SERVICE DELAY (SECONDS) & 95th PERCENTILE QUEUE (FEET) SUMMARY

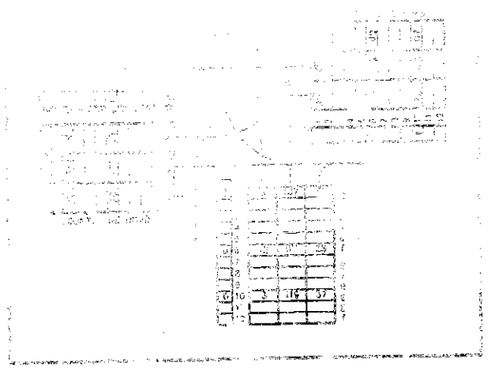
Intersection	Movement	Available Storage	Weekday A.M. Peak Hour				Weekday P.M. Peak Hour			
			2034 Design Year							
			Base		Projected		Base		Projected	
			LOS	QUEUE	LOS	QUEUE	LOS	QUEUE	LOS	QUEUE
Bethlehem Pike (SR 0309) & Line Lexington Road	EB L	115′	D	53′	D	53′	D	123′	D	123′
	EB TR	125′	D	210′	D	210′	D	165′	D	165′
	WB L	100′	D	13′	D	30′	D	8′	E	43′
	WB T	150′	D	58′	D	58′	E	70′	E	70′
	WB R	150′	C	320′	C	315′	D	128′	D	150′
	NB L	115′	C	15′	C	15′	B	23′	B	23′
	NB T	1000′+[2]	D	403′	D	445′	D	820′	D	843′
	NB TR	1000′+[2]	A	0′	D	460′	D	853′	D	878′
	SB L	485′	D	638′	D	670′	F (86.6)	618′	F (96.1)	658′
	SB T	650′[2]	B	413′	B	413′	A	238′	A	238′
	SB R	230′	A	25′	A	25′	A	23′	A	23′
	ILOS	--	**C (27.1)**	--	**C (29.6)**	--	**D (38.8)**	--	**D (41.1)**	--

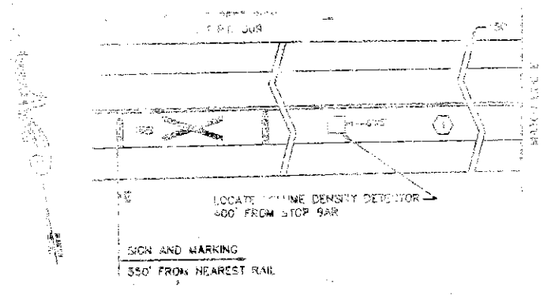
APPENDIX H:

PennDOT Traffic Signal Diagrams

NEW Britain.

BUCKS COUNTY
NEW BRITAIN TOWNSHIP



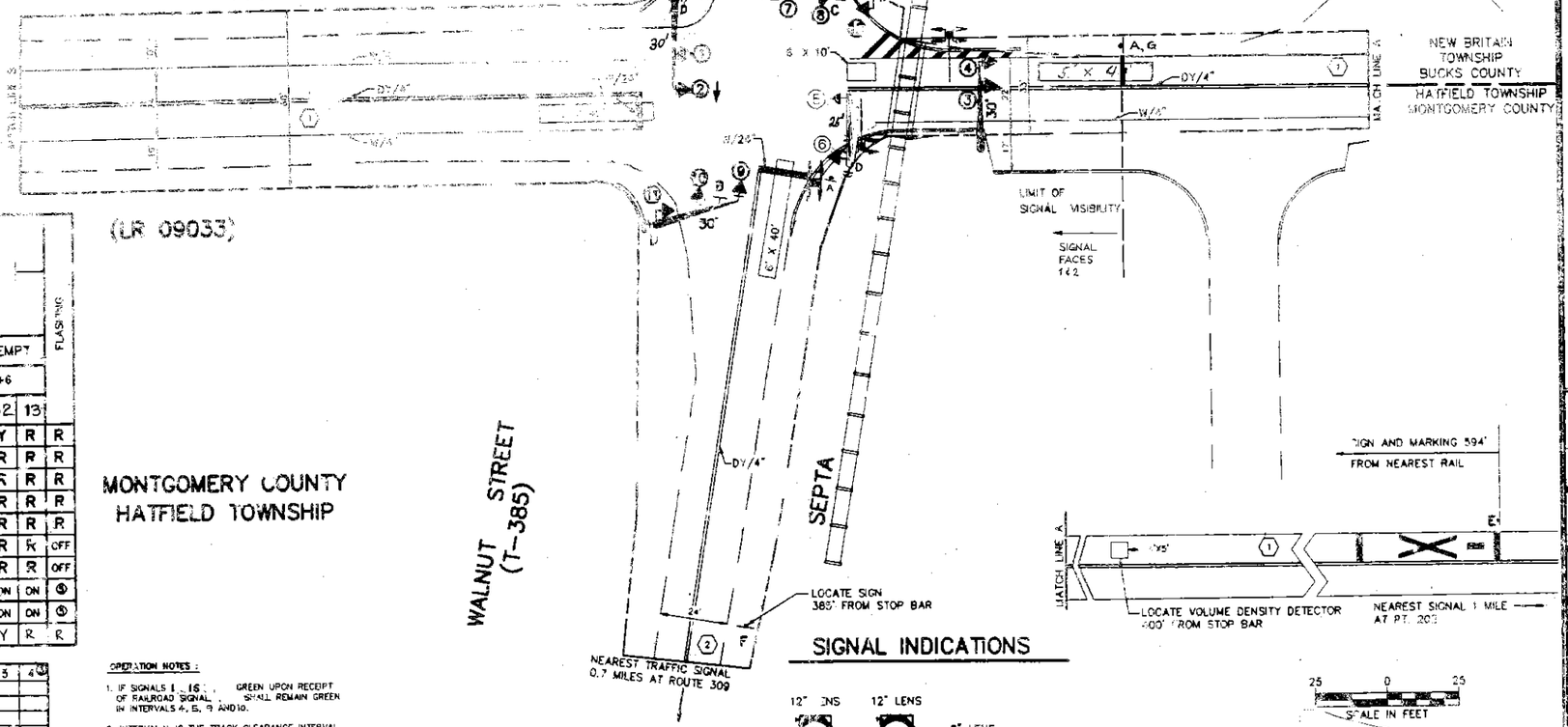


SIGN SYMBOL	SIGN NUMBER	SIZE	REMARKS
A	R10-6L	24"X 30"	STOP HERE ON RED
B	R3-2	30"X 30"	No Left Turn Sign
C	R3-1	30"X 30"	No Right Turn Sign
D	R10-5	24" X 18"	PUSH BUTTON FOR GREEN LIGHT
E	W10-1	36" DIA.	Railroad Advance Warning Sign
F	W10-2	36"X 6"	Railroad Crossing at Cross Road Sign
G	R10-11	24"x30"	NO TURN ON RED

@ FIBER OPTIC BLANKOUT SIGN

SIGN NOTE:

1. Sign F shall be rotated as necessary to properly depict roadway and railroad geometry



MOVEMENT, SEQUENCE AND TIMING CHART

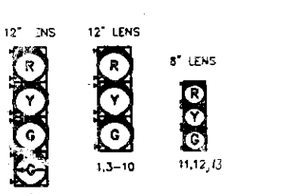
FUNCTIONAL PHASE	1					2			TRAIN PRE-EMPT		FLASHING
MEMA PHASE	2+6					4+8			N/A	1+6	
INTERVAL	1	2	3	4	5	6	7	8	9	10	11	12	13	
2	G	G	G/Gc	Y	R	R	R	R	SELECTIVE YELLOW	CORRESPONDING SELECTIVE RED	R	Y	R	R
3,4	G	Y	R	R	R	R	R	R			R	R	R	R
5,6	G	Y	R	R	R	R	R	R			R	R	R	R
7,8	R	R	R	R	R	G	Y	R			R	R	R	R
9,10	R	R	R	R	R	G	Y	R			R	R	R	OFF
11	G	G	G	Y	R	R	R	R			R	R	R	OFF
12, 13	G	G	G	Y	R	R	R	R			R	R	R	OFF
SIGN B ①	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	⑤
SIGN C ②	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	⑤
1	G	G	G	Y⑥	R⑥	R	R	R	SEL. YEL⑥	SEL. RED⑥	G	Y	R	R

		4	6	5	3		4	2	①	④	10	5	4
FIXED													
MINIMUM	15					10							
SEC ACT	23												
MAX. INITIAL	30												
PASSAGE: DENSITY	5					N/A							
PASSAGE: NORMAL	3					3							
TIME TO REDUCE	15												
TIME BEFORE REDUCTION	15												
MIN. GAP	3												
MAX 1	73					30							
PEDESTRIAN⑦						15							
MEMORY	MIR					NL				N/A			

OPERATION NOTES:

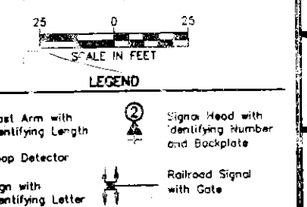
1. IF SIGNALS 1 & 16 ARE GREEN UPON RECEIPT OF RAILROAD SIGNAL, SHALL REMAIN GREEN IN INTERVALS 4, 5, 9 AND 10.
2. INTERVAL 11 IS THE TRACK CLEARANCE INTERVAL.
3. SIGNAL TO REMAIN IN INTERVAL 13 FOR DURATION OF PRE-EMPTION, MINIMUM 4 SECONDS.
4. SELECTIVE YELLOW AND RED TIMES TO CORRESPOND TO THOSE NORMALLY SET FOR THE PHASE THAT IS ACTIVE WHEN THE RAILROAD SIGNAL IS RECEIVED.
5. SIGNS B AND C TO TURN ON IMMEDIATELY UPON RECEIPT OF RAILROAD SIGNAL AND TO TURN OFF IMMEDIATELY UPON CESSATION OF RAILROAD SIGNAL IN BOTH STOP-AND-GO MODE AND FLASHING MODE.
6. UPON PEDESTRIAN ACTUATION ONLY.
7. INTERVAL 13 SHALL BE FOLLOWED BY INTERVAL 1
8. IF SIGNAL 2 IS G/Gc UPON RECEIPT OF RAILROAD SIGNAL, SHALL REMAIN G/Gc IN INTERVALS 4, 5, 9 AND 10.

SIGNAL INDICATIONS



SIGNALS TO BE OPTICALLY PROGRAMMED FOR DISTANCE LIMITING 1,2

SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS AND LOUVERS 11



FILE # 2695

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION No. 68.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT GRADE.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 38 OF 1990, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

REVISED

REVISED: ADDED SEQUENTIAL CLEARANCE, NO TURN ON RED, RELOCATED WB STOP BAR, INCREASED MIN GAP, ADDED WALNUT ST STOP HERE ON RED SIGNS, WHITE GORE STRIPING 10-17-95 MK

REV: Added clearance to normal operation Changed note 7. 4/8/97 MK

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: BUCKS/ MONTGOMERY

MUNICIPALITY: NEW BRITAIN/ HATFIELD TOWNSHIPS

INTERSECTION: COUNTY LINE ROAD (S.R. 2038) & WALNUT STREET

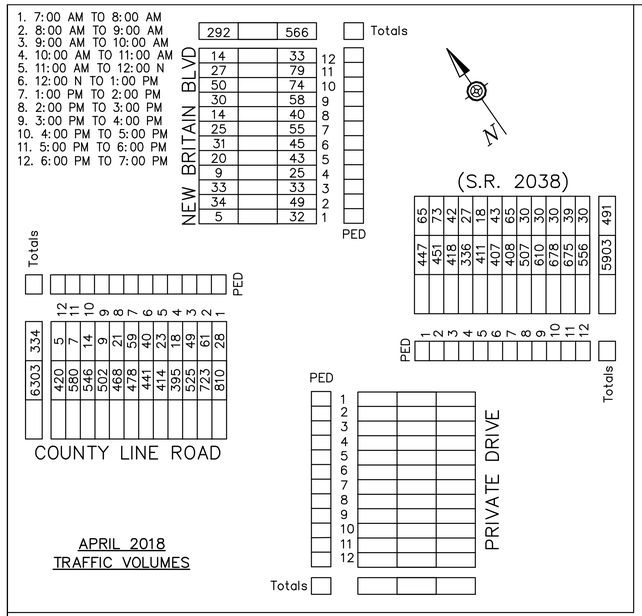
REVIEWED: Robert A Kuehn - Traffic Mgr 8/12/94
MUNICIPAL OFFICIAL DATE

RECOMMENDED: Mary F. Kray 1/18/95
Douglas W. Frey 1/23/95
DISTRICT TRAFFIC ENGINEER DATE

Revised NEW DRAWING 1-17-95 MK 1/18/95 1/23/95
Revised 10-17-95 MK 3/21/95
REVISED CHANGE LENGTH OF N.B. ROD S.H. #13 6-5-96 MK 6/19/96

File # 2695 C39-120

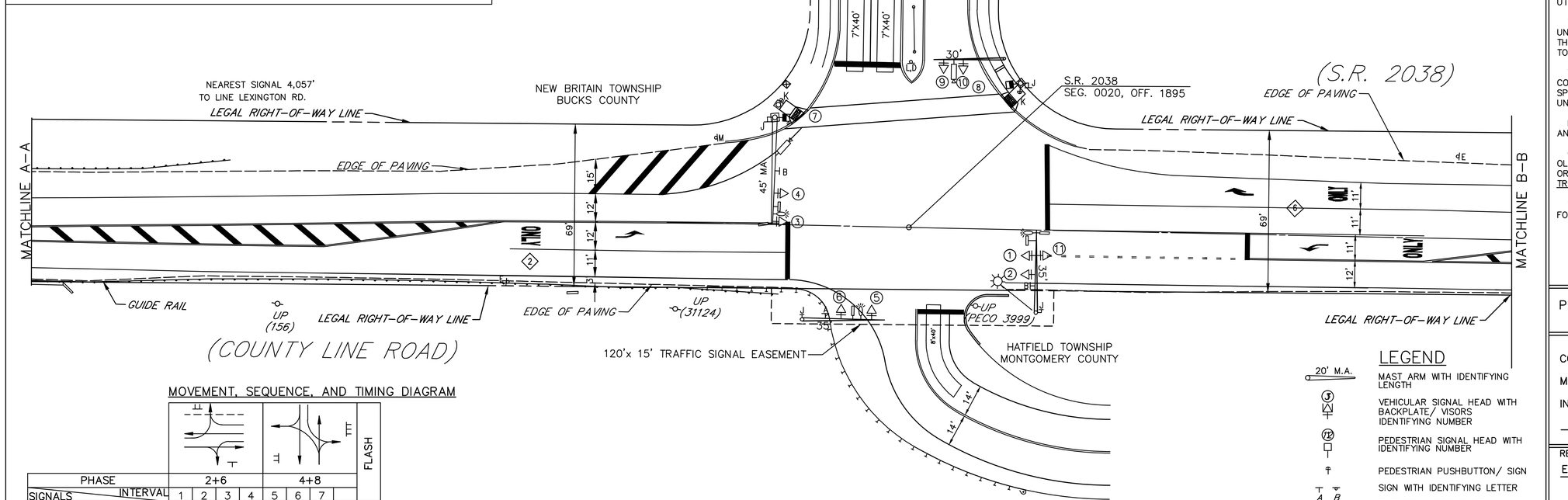
1. 7:00 AM TO 8:00 AM
2. 8:00 AM TO 9:00 AM
3. 9:00 AM TO 10:00 AM
4. 10:00 AM TO 11:00 AM
5. 11:00 AM TO 12:00 N
6. 12:00 N TO 1:00 PM
7. 1:00 PM TO 2:00 PM
8. 2:00 PM TO 3:00 PM
9. 3:00 PM TO 4:00 PM
10. 4:00 PM TO 5:00 PM
11. 5:00 PM TO 6:00 PM
12. 6:00 PM TO 7:00 PM



APRIL 2018
TRAFFIC VOLUMES

SIGN TABULATION

PLAN SYMBOL	SERIES	SIZE	MESSAGE
A	D3-4	96"x16"	County Line Rd
B	D3-4	96"x16"	New Britain Blvd
C	W1-7	48"x24"	LARGE DOUBLE ARROW
D	OM1-3	18"x18"	OBJECT MARKER
E	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT
F	R3-7R	30"x30"	RIGHT LANE MUST TURN RIGHT
J	R9-3	18"x18"	NO PEDESTRIAN CROSSING
K	R10-3EL	9"x15"	EDUCATIONAL PUSH BUTTON FOR WALK WITH COUNTDOWN TIMER SIGN
L	R4-7	24"x30"	KEEP RIGHT
M	R4-107	30"x30"	KEEP OFF SHOULDER



MOVEMENT, SEQUENCE, AND TIMING DIAGRAM

PHASE	2+6				4+8				FLASH
SIGNALS \ INTERVAL	1	2	3	4	5	6	7		
1,2	G	G	Y	R	R	R	R		Y
3,4,11	G	G	Y	R	R	R	R		Y
5,6	R	R	R	R	G	Y	R		R
7,8	M	FH	H	H	H	H	H		OFF
9,10	R	R	R	R	G	Y	R		R

FIXED			5	2		4	3	
MINIMUM	15				4			
MAXIMUM 1	50				26			
MAXIMUM 2	58				28			
PEDESTRIAN*	7	24						
MEMORY	MN				NL			

* MAN SYMBOL UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE HAND SYMBOL AT ALL TIMES

OPERATION NOTES

- CONTROLLER TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 4.
- MAX 2 TO OPERATE FROM 7:00 AM TO 9:00 AM, AND 4:00 PM TO 6:00 PM ON WEEKDAYS AND MAX 1 TO OPERATE ALL OTHER TIMES.

**ADVANCED DILEMMA ZONE NOTES

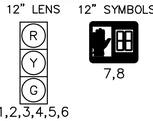
EST. TIME OF ARRIVAL: MIN. 2.5 – MAX. 5.5 SEC.
RANGE OF PROTECTION: MIN. 0 – MAX. 450 FT.
SPEED BOUNDARY: MIN. 27 – MAX. 100 MPH

**DENSITY ZONE NOTES

RANGE OF DETECTION: 0 TO 100 FEET FROM STOP BAR
SPEED BOUNDARY: MIN. 5 – MAX. 30 MPH

SIGNAL INDICATIONS

12" LENS 12" SYMBOLS



1,2,3,4,5,6
9,10,11

SIGNALS EQUIPPED WITH TUNNEL VISORS _____

SIGNALS EQUIPPED WITH BLACK BACK PLATES 1,2,3,4,5,6,9,10,11

LEGEND

- 20' M.A. — MAST ARM WITH IDENTIFYING LENGTH
- (3) — VEHICULAR SIGNAL HEAD WITH BACKPLATE/ VISORS IDENTIFYING NUMBER
- (12) — PEDESTRIAN SIGNAL HEAD WITH IDENTIFYING NUMBER
- PEDESTRIAN PUSHBUTTON/ SIGN
- A B — SIGN WITH IDENTIFYING LETTER
- EMERGENCY PRE-EMPTION DETECTOR
- EMERGENCY PRE-EMPTION FLASHING BEACON
- CURB RAMP
- D.C. — DEPRESSED CURB
- ø — UTILITY POLE
- (1) — PHASE NUMBER
- VIDEO DETECTION
- ZONE OF DETECTION
- WAVETRONIX RADAR DETECTOR
- LUMINAIRE
- CONTROLLER BOX

25' 0' 25'
SCALE IN FEET

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FROM PUB. 408, AS AMENDED.

ALL ADA RAMPS & PUSH BUTTON ACCESS MUST MEET FEDERAL AND STATE GUIDELINES.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF THE LATEST AMENDMENT TO ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, DATED DECEMBER 10, 1974, AS AMENDED.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT FOR REVIEW PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

THREADED PLATE MAST ARM CONNECTIONS WILL NOT BE PERMITTED FOR THIS TRAFFIC SIGNAL PERMIT.

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: BUCKS/ MONTGOMERY
MUNICIPALITY: NEW BRITAIN / HATFIELD TOWNSHIPS
INTERSECTION: COUNTY LINE ROAD (S.R. 2038) & NEW BRITAIN BOULEVARD

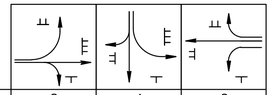
REVIEWED:
EILEEN BRADLEY 5/4/18
DATE
MUNICIPAL OFFICIAL DATE

RECOMMENDED:
NIPUL PATEL 5/17/18
DATE
DAVID ADAMS 5/7/18
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./ REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	AS-BUILT	G&A	6/30/20				

SHEET 2 OF 3 | PERMIT # 61-3879 | FILE # 3879

EMERGENCY PRE-EMPTION PHASING
MOVEMENT, SEQUENCE, AND TIMING DIAGRAM



PHASE	2			4			6		
INTERVAL / SIGNALS	8	9	10	11	12	13	14	15	16
1,2	G	Y ⓐ	R ⓐ	R	R	R	R	R	R
3,4,11	R	R	R	R	R	R	G	Y ⓐ	R ⓐ
5,6	R	R	R	G	Y	R	R	R	R
7,8	H	H	H	H	H	H	H	H	H
9,10	R	R	R	R	R	R	R	R	R
FIXED	▲	5	2	▲	4	3	▲	5	2

▲ FOR DURATION OF PRE-EMPTION

NOTE: IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PRE-EMPTION.

PRE-EMPTION OPERATION NOTES
ⓐ SIGNAL TO INDICATE G WHEN RETURNING TO NORMAL OPERATION

EMERGENCY PRE-EMPTION NOTES
- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE EASTBOUND AND WESTBOUND APPROACHES OF COUNTY LINE ROAD (S.R. 2038) AND THE SOUTHBOUND APPROACH OF NEW BRITAIN BOULEVARD WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.
- THIS FAIL SAFE DEVICE SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH. LOCATION OF THE EMERGENCY VEHICLE DETECTORS ARE TO BE FIELD ADJUSTED TO ACHIEVE MAXIMUM OPERATION.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLES, SHALL TERMINATE ALL INDICATIONS EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PRE-EMPTION OCCURS. THE GREEN INDICATIONS FOR THE PRE-EMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF THE SIGNAL PRE-EMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLES, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE. ONLY THOSE PHASES NOT POSING A YELLOW TRAP CONDITION (PHASES 2+6, 2 AND 4) MAY REMAIN GREEN.
- IF THE SIGNALS HAVE BEEN ACTUATED BY PEDESTRIAN PUSHBUTTON, AND THE SIGNAL IS PRE-EMPTED DURING THE "MAN" PHASE, THE MAN PHASE SHALL TERMINATE IMMEDIATELY, FOLLOWED BY THE "FLASHING HAND" AND COUNTDOWN INDICATION IN ITS ENTIRETY, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE PROCEEDING TO THE PRE-EMPTION PHASE.

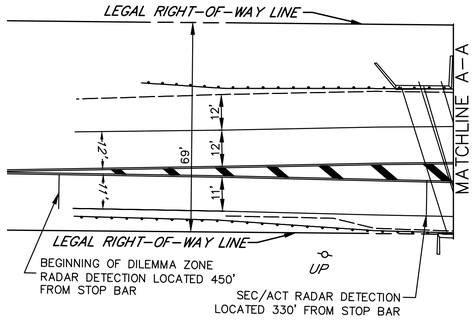
IF THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLES, ARE FLASHING, ALL SIGNALS SHALL REMAIN FLASHING.

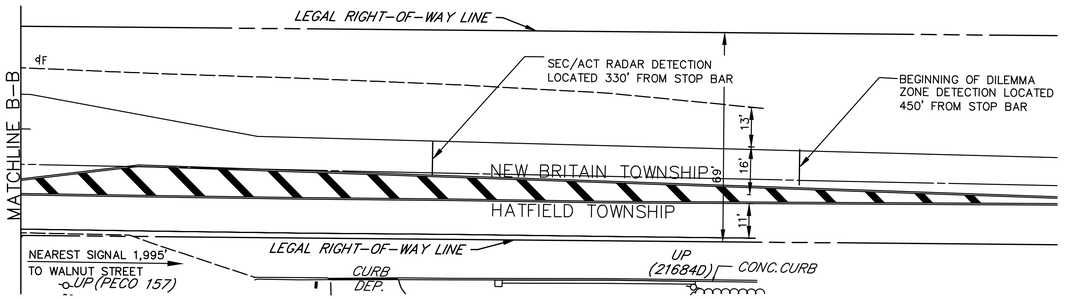
UPON COMPLETION OF PRE-EMPTION PHASE 2, 4, OR 6, IN RETURNING TO NORMAL OPERATION, PHASE 2+6, INTERVAL 1 SHALL FOLLOW.

IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.

IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED, PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.

THE FIELD LOCATIONS OF THE PRE-EMPTION DETECTORS MAY DIFFER FROM THE LOCATIONS DEPICTED ON THE CONDITION DIAGRAM, AS THE DETECTORS MAY NEED TO BE RELOCATED AND/OR ADJUSTED TO PROVIDE ACCEPTABLE OPERATION AS DEEMED APPROPRIATE BY DEPARTMENT PERSONNEL.





SIGN DETAILS
FONT: CLEARVIEW 1W
10.6" UPPERCASE
8" LOWERCASE
0% REDUCTION

SIGN A



SIGN DETAILS
FONT: CLEARVIEW 1W
10.6" UPPERCASE
8" LOWERCASE
35% REDUCTION

SIGN B



NOTE:
ALL OVERHEAD STREET NAME SIGNS SHOULD HAVE GREEN BACKGROUND AND WHITE LETTERING.

LEGEND

20' M.A.	MAST ARM WITH IDENTIFYING LENGTH
③	VEHICULAR SIGNAL HEAD WITH BACKPLATE/ VISORS IDENTIFYING NUMBER
⑫	PEDESTRIAN SIGNAL HEAD WITH IDENTIFYING NUMBER
	PEDESTRIAN PUSHBUTTON/ SIGN
A B	SIGN WITH IDENTIFYING LETTER
	EMERGENCY PRE-EMPTION DETECTOR
	EMERGENCY PRE-EMPTION FLASHING BEACON
	CURB RAMP
D.C.	DEPRESSED CURB
⌀	UTILITY POLE
①	PHASE NUMBER
	VIDEO DETECTION
	ZONE OF DETECTION
RS	WAVETRONIX RADAR DETECTOR
	LUMINAIRE
	CONTROLLER BOX

25' 0' 25'
SCALE IN FEET

GENERAL NOTES

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ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 212.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FROM PUB. 408, AS AMENDED.

ALL ADA RAMPS & PUSH BUTTON ACCESS MUST MEET FEDERAL AND STATE GUIDELINES.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF THE LATEST AMENDMENT TO ACT 287, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, DATED DECEMBER 10, 1974, AS AMENDED.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT FOR REVIEW PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-8800 SERIES.

THREADED PLATE MAST ARM CONNECTIONS WILL NOT BE PERMITTED FOR THIS TRAFFIC SIGNAL PERMIT.

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

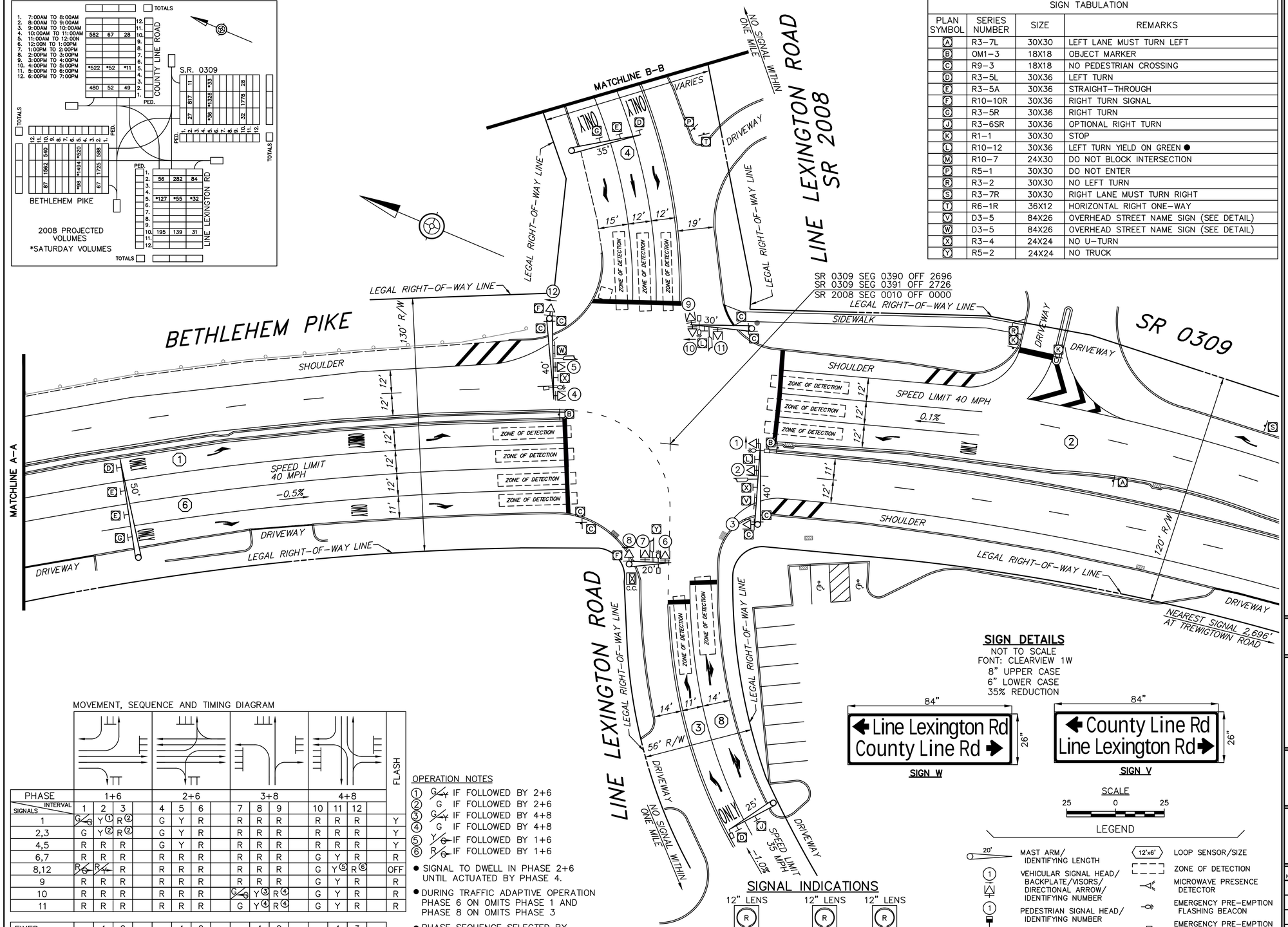
COUNTY: BUCKS/ MONTGOMERY
MUNICIPALITY: NEW BRITAIN / HATFIELD TOWNSHIPS
INTERSECTION: COUNTY LINE ROAD (S.R. 2038) & NEW BRITAIN BOULEVARD

REVIEWED:
EILEEN BRADLEY 5/4/18
DATE
MUNICIPAL OFFICIAL DATE

RECOMMENDED:
NIPUL PATEL 5/17/18
DATE
DAVID ADAMS 5/7/18
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./ REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	AS-BUILT	G&A	6/30/20				

SHEET 3 OF 3 | PERMIT # 61-3879 | FILE # 3879



SIGN TABULATION

PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	R3-7L	30X30	LEFT LANE MUST TURN LEFT
B	OM1-3	18X18	OBJECT MARKER
C	R9-3	18X18	NO PEDESTRIAN CROSSING
D	R3-5L	30X36	LEFT TURN
E	R3-5A	30X36	STRAIGHT-THROUGH
F	R10-10R	30X36	RIGHT TURN SIGNAL
G	R3-5R	30X36	RIGHT TURN
J	R3-6SR	30X36	OPTIONAL RIGHT TURN
K	R1-1	30X30	STOP
L	R10-12	30X36	LEFT TURN YIELD ON GREEN ●
M	R10-7	24X30	DO NOT BLOCK INTERSECTION
P	R5-1	30X30	DO NOT ENTER
R	R3-2	30X30	NO LEFT TURN
S	R3-7R	30X30	RIGHT LANE MUST TURN RIGHT
T	R6-1R	36X12	HORIZONTAL RIGHT ONE-WAY
V	D3-5	84X26	OVERHEAD STREET NAME SIGN (SEE DETAIL)
W	D3-5	84X26	OVERHEAD STREET NAME SIGN (SEE DETAIL)
X	R3-4	24X24	NO U-TURN
Y	R5-2	24X24	NO TRUCK

GENERAL NOTES

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MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	1+6				2+6				3+8				4+8				FLASH
INTERVAL / SIGNALS	1	2	3		4	5	6		7	8	9		10	11	12		
1	G/G	Y ①	R ②		G	Y	R		R	R	R		R	R	R		Y
2,3	G	Y ②	R ②		G	Y	R		R	R	R		R	R	R		Y
4,5	R	R	R		G	Y	R		R	R	R		R	R	R		Y
6,7	R	R	R		R	R	R		R	R	R		G	Y	R		R
8,12	R/G	R/Y	R		R	R	R		R	R	R		G	Y ⑤	R ⑥		OFF
9	R	R	R		R	R	R		R	R	R		G	Y	R		R
10	R	R	R		R	R	R		G/G	Y ③	R ④		G	Y	R		R
11	R	R	R		R	R	R		G	Y ④	R ④		G	Y	R		R

FIXED		4	2			4	2			4	2			4	3		
MINIMUM	3				10				3				3				
PASSAGE	1≠				1≠				1≠				1≠				
MAX. 1	20				42				7				7				
MAX. 2	15				49				7				7				
PEDESTRIAN																	
MEMORY	NL				SVR				NL				NL				

OPERATION NOTES

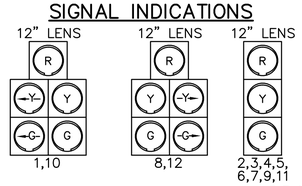
① G/G IF FOLLOWED BY 2+6
② G IF FOLLOWED BY 2+6
③ G/G IF FOLLOWED BY 4+8
④ G IF FOLLOWED BY 4+8
⑤ Y/G IF FOLLOWED BY 1+6
⑥ R/G IF FOLLOWED BY 1+6

- SIGNAL TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 4.
- DURING TRAFFIC ADAPTIVE OPERATION PHASE 6 ON OMITS PHASE 1 AND PHASE 8 ON OMITS PHASE 3
- PHASE SEQUENCE SELECTED BY TRAFFIC ADAPTIVE PROCESSOR.

≠ PHASE PASSAGE CALCULATED BY TRAFFIC ADAPTIVE PROCESSOR.

SYSTEM NOTE:
REFER TO SYSTEM PERMIT #I-0030 FOR PROGRAM TIMES AND WEEKLY PROGRAM CHART.

SIGNAL INDICATIONS



SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS 2,3,4,5,6,7,9,11

SIGN DETAILS
NOT TO SCALE
FONT: CLEARVIEW 1W
8" UPPER CASE
6" LOWER CASE
35% REDUCTION

SIGN W

SIGN V

SCALE
25 0 25

LEGEND

- 20' MAST ARM/ IDENTIFYING LENGTH
- ① VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS/ DIRECTIONAL ARROW/ IDENTIFYING NUMBER
- ① PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
- PEDESTRIAN PUSHBUTTON/ SIGN
- A SIGN/IDENTIFYING LETTER
- VIDEO DETECTOR
- OMNI DIRECTIONAL VIDEO DETECTOR
- C.C. CONTROLLER CABINET
- 12'x6' LOOP SENSOR/SIZE
- ZONE OF DETECTION
- MICROWAVE PRESENCE DETECTOR
- EMERGENCY PRE-EMPTION FLASHING BEACON
- EMERGENCY PRE-EMPTION DEVICE
- CURB RAMP
- UTILITY POLE
- ① PHASE NUMBER
- INLET
- DILEMMA ZONE DETECTOR

SYSTEM PERMIT #I-0030

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY
MUNICIPALITY: HATFIELD TOWNSHIP
INTERSECTION: BETHLEHEM PIKE (SR 0309) AND LINE LEXINGTON RD (SR 2008)/COUNTY LINE RD (SR 2038)

REVIEWED:

DATE

Karen Bibro 10/23/2024
IAL DATE

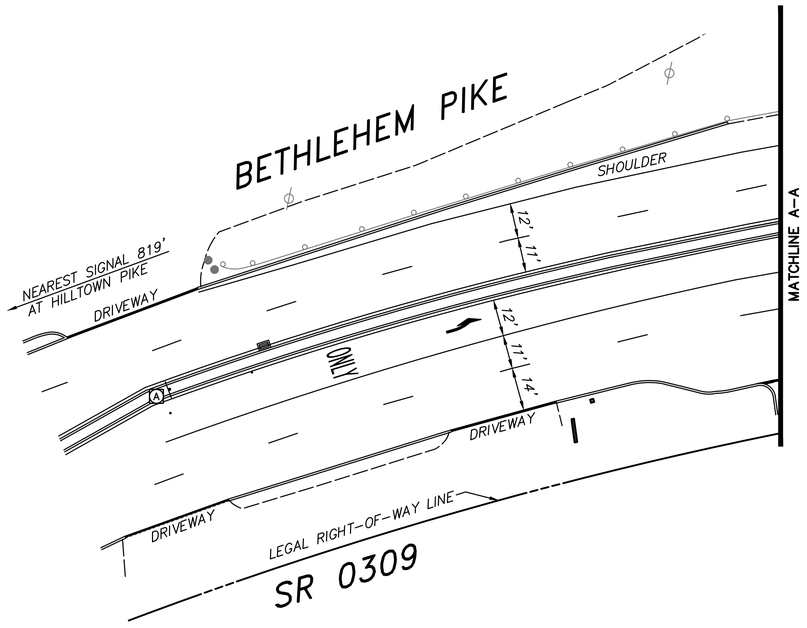
RECOMMENDED:

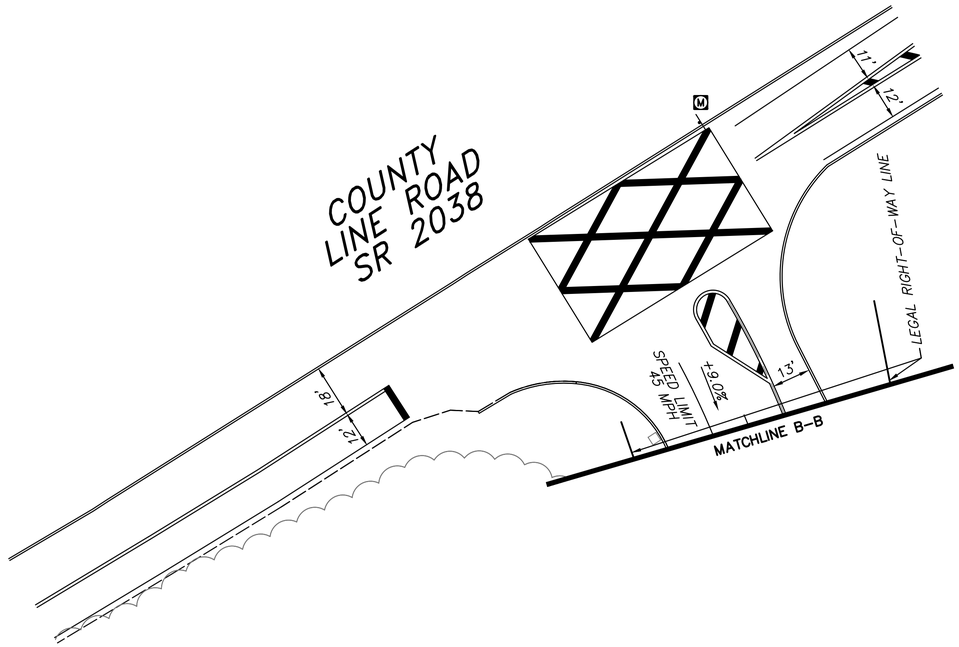
MARK L. KRAY 3/5/96

DOUGLAS W. MAY 3/5/96
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	MODIFIED & UPGRADE INTERSECTION	JJL	11/23/95	MLK	11/22/95	DWM	11/22/95
2	REVISED PER CURB CUTS & ADDITIONAL CURBING LOCATED AT NE CORNER	JJL	3/5/96	MLK	3/5/96	DWM	3/5/96
3	ADDED COORDINATION	RFW	1/25/07	MLK	1/26/07	ABP	2/12/07
4	LENGTHEN SB LEFT TURN LANE ADD EMERGENCY PRE-EMPTION	MCM/RFW	8/19/08	NBP	8/26/08	ABP	8/27/08
5	REVISE PHASING NUMBERS PER EXISTING	JLH	4/20/10	DLA	4/27/10	ABP	5/3/10
6	ADD CONTROLLER, ADAPTIVE, SR0063-ITS	ZCS	8/23/19	KPL	10/14/22	LUTZ	11/7/22
7	ADD NEARSIDE 5-SECTION SH #12 FOR COUNTY LINE RD	MCM		KPL	10/14/22	LUTZ	11/7/22
8	ADD DO NOT BLOCK BOX	BWMN	10/15/24				

SHEET 2 OF 3 | PERMIT # 64-1531 | FILE # 1531





EMERGENCY PRE-EMPTION PHASING

MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE		2			4			6			8		
INTERVAL / SIGNALS		13	14	15	16	17	18	19	20	21	22	23	24
1	SELECTIVE CLEARANCES	R	R	R	R	R	R	G(a)	Y(a)	R(a)	R	R	R
2,3		R	R	R	R	R	R	G	Y(b)	R(b)	R	R	R
4,5		G	Y(b)	R(b)	R	R	R	R	R	R	R	R	R
6,7		R	R	R	G	Y	R	R	R	R	R	R	R
8,12		R	R	R	G(a)	Y	R	R	R	R	R	R	R
9		R	R	R	G	Y	R	R	R	R	R	R	R
10		R	R	R	R	R	R	R	R	R	G(a)	Y	R
11		R	R	R	R	R	R	R	R	R	G	Y	R
FIXED		**	4	2	**	4	3	**	4	2	**	4	3

** FOR DURATION OF PRE-EMPTION

NOTE:
IF PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR VEHICLE IDENTIFICATION, IT IS RECOMMENDED TO HAVE THE ZERO "00" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO ACTIVATE THE EMERGENCY PRE-EMPTION.

(a) G/A WHEN RETURNING TO NORMAL OPERATION
(b) G WHEN RETURNING TO NORMAL OPERATION

EMERGENCY PRE-EMPTION NOTES:

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE NORTHBOUND & SOUTHBOUND APPROACHES OF BETHLEHEM PIKE (S.R. 0309), THE EASTBOUND APPROACH OF LINE LEXINGTON ROAD & THE WESTBOUND APPROACH OF COUNTY LINE ROAD WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.
  THIS EMERGENCY BEACON SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.
  LOCATION OF EMERGENCY VEHICLE DETECTORS ARE TO BE FIELD ADJUSTED TO ACHIEVE MAXIMUM OPERATION.
- THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TERMINATE ALL GREEN INDICATIONS IMMEDIATELY. FOLLOWED BY THE COMPLETE YELLOW AND RED CLEARANCE INTERVALS, ACCORDINGLY. THEN THE GREEN INTERVAL FOR THE PRE-EMPTED PHASE SHALL FOLLOW. ONLY THOSE PHASES NOT POSING A YELLOW TRAP CONDITION MAY REMAIN GREEN (PHASE 1+6 OR 3+8) WHEN GOVERNED BY APPROACHING EMERGENCY VEHICLE.
- THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.
- IF SIGNALS HAVE BEEN ACTUATED BY PEDESTRIAN PUSH BUTTON AND THE SIGNAL IS PRE-EMPTED, THE PEDESTRIAN TIME SHALL BE SPLIT BETWEEN "PED WALK" AND "PED CLEAR". THE "PED WALK" INTERVAL SHALL TERMINATE IMMEDIATELY FOLLOWED BY THE "PED CLEAR" INTERVAL. THIS INTERVAL SHALL TIME OUT FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE GOING INTO EMERGENCY PRE-EMPTION.
- IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING ALL SIGNALS SHALL REMAIN FLASHING.
- IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.
- UPON COMPLETION OF PRE-EMPTION, PHASE 2,4,6 OR 8 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 4 SHALL FOLLOW.
- IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED, PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.

SCALE
25 0 25

LEGEND

- 20' — MAST ARM/ IDENTIFYING LENGTH
- (1) — VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS/ DIRECTIONAL ARROW/ IDENTIFYING NUMBER
- (1) — PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
- PEDESTRIAN PUSHBUTTON/ SIGN
- SIGN/IDENTIFYING LETTER
- VIDEO DETECTOR
- OMNI DIRECTIONAL VIDEO DETECTOR
- C.C. — CONTROLLER CABINET
- 12'x6' — LOOP SENSOR/SIZE
- ZONE OF DETECTION
- MICROWAVE PRESENCE DETECTOR
- EMERGENCY PRE-EMPTION FLASHING BEACON
- EMERGENCY PRE-EMPTION DEVICE
- CURB RAMP
- UTILITY POLE
- (1) — PHASE NUMBER
- INLET
- DILEMMA ZONE DETECTOR

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SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

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SYSTEM PERMIT #I-0030

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY
MUNICIPALITY: HATFIELD TOWNSHIP
INTERSECTION: BETHLEHEM PIKE (SR 0309) AND LINE LEXINGTON RD (SR 2008)/COUNTY LINE RD (SR 2038)

REVIEWED:

DATE 10/23/2024

Marcia Ebro
TL DATE

RECOMMENDED:

MARK L. KRAY 3/5/96

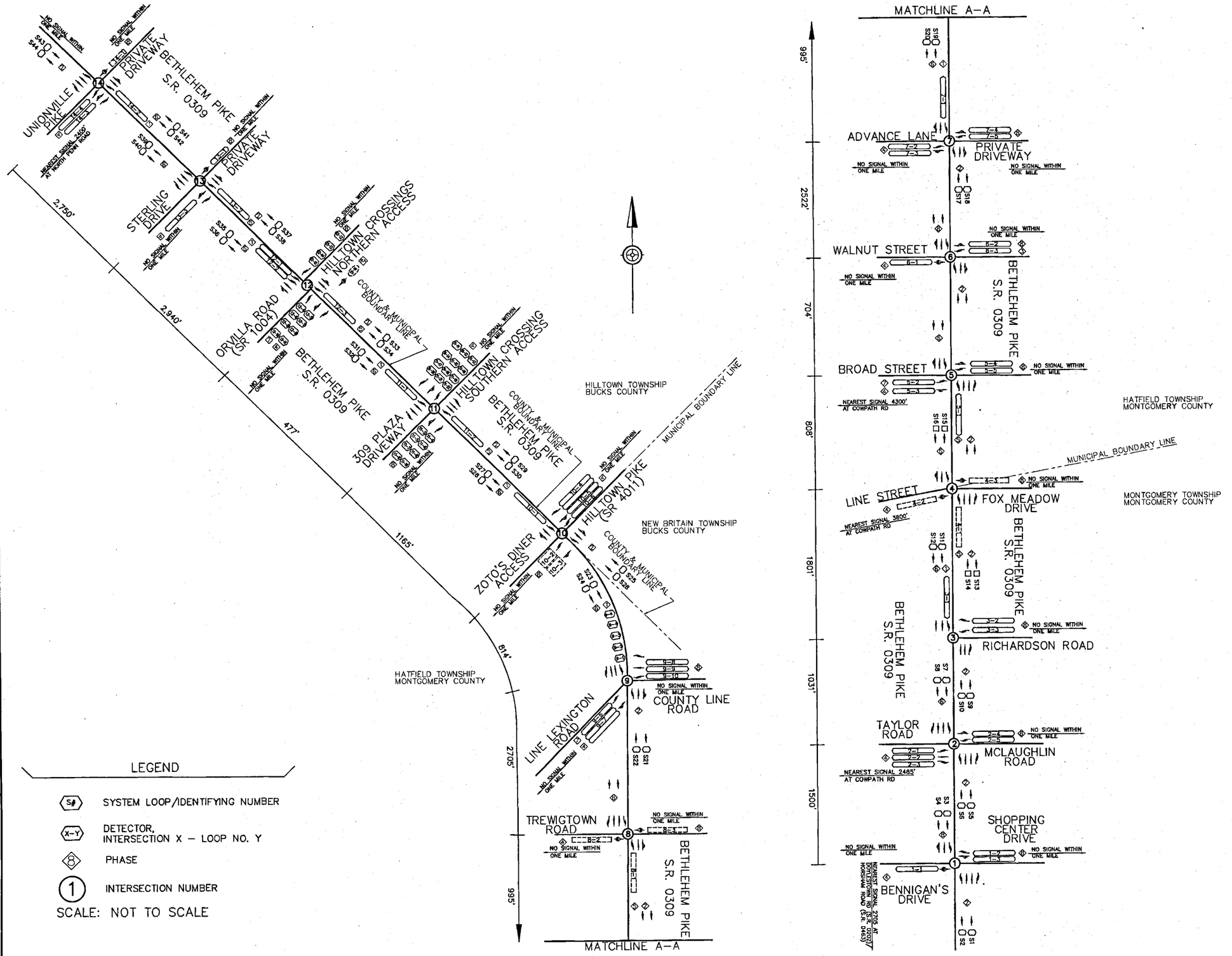
DOUGLAS W. MAY 3/5/96
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./ REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	MODIFIED & UPGRADE INTERSECTION	JJL	11/23/95	MLK	11/22/95	DWM	11/22/95
2	REVISED PER CURB CUTS & ADDITIONAL CURBING LOCATED AT NE CORNER	JJL	3/5/96	MLK	3/5/96	DWM	3/5/96
3	ADDED COORDINATION	RFW	1/25/07	MLK	1/26/07	ABP	2/12/07
4	LENGTHEN SB LEFT TURN LANE ADD EMERGENCY PRE-EMPTION	MCM / RFW	8/19/08	NBP	8/26/08	ABP	8/27/08
5	REVISE PHASING NUMBERS PER EXISTING	JLH	4/20/10	DLA	4/27/10	ABP	5/3/10
6	ADD CONTROLLER, ADAPTIVE, SR0063-ITS	ZCS	8/23/19	KPL	10/14/22	LUTZ	11/7/22
7	ADD NEARSIDE 5-SECTION SH #12 FOR COUNTY LINE RD	MCM /		KPL	10/14/22	LUTZ	11/7/22
8	ADD DO NOT BLOCK BOX	BWMN	10/15/24				

SHEET 3 OF 3 | PERMIT # 64-1531 | FILE # 1531

HATFIELD / HILLTOWN / NEW BRITAIN / MONTHOMERY

I-0030



LEGEND

- S# — SYSTEM LOOP/IDENTIFYING NUMBER
- X-Y — DETECTOR, INTERSECTION X – LOOP NO. Y
- 8 — PHASE
- 1 — INTERSECTION NUMBER

SCALE: NOT TO SCALE

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SYSTEM PERMIT PLAN

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: MONTGOMERY/BUCKS
MUNICIPALITY: HATFIELD, HILLTOWN, NEW BRITIAN, AND MONTGOMERY TOWNSHIPS
INTERSECTION: BETHLEHEM PIKE (S.R. 0309) FROM SHOPPING CNTR/BENNIGANS DR TO UNIONVILLE PK

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:
DAVID ADAMS 6/8/09

ASHWIN PATEL 6/13/09
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	REVISED SPLITS AT INT. 10	JLH	10/6/09	DLA	10/28/09	ABP	11/9/09
2	REVISED TIMING	JLH	4/9/10	DLA	4/21/10	ABP	5/10/10
3	REVISED SPLITS AT INTERSECTION 14 & LANE CONFIGURATION	TPD		DLA	4/12/12	ABP	4/24/12
4	REVISED TIMINGS	BJD	11/14/12	NB	11/14/12	ABP	12/17/12
5	REVISED APPROACHES AT INT. 11 & 12	H&K	2/28/13	DLA	4/3/13	ABP	4/5/13
6							
7							
8							

SHEET 1 OF 2 | PERMIT # I-0030 | FILE #

CYCLE / SPLIT / OFFSET

	PROGRAM 1	PHASE									CYCLE	OFFSET#1	OFFSET#2	OFFSET#3
	INTERSECTIONS	FILE #	1	2	3	4	5	6	7	8				
1	BETHLEHEM PIKE & SHOPPING CENTER DR / BENNIGANS DR	3572	–	96	–	24	–	96	–	24	120	52		
2	BETHLEHEM PIKE & MCLAUGHLIN/TAYLOR ROAD	2616	–	90	–	30	–	90	–	30	120	55		
3	BETHLEHEM PIKE & RICHARDSON ROAD	0032	16(LEAD)	69	–	35	–	85	–	35	120	7		
4	BETHLEHEM PIKE & LINE ST/FOX MEADOW DRIVE	2807	–	102	–	18	17(LEAD)	85	–	18	120	116		
5	BETHLEHEM PIKE & BROAD STREET	0332	–	85	–	35	14(LEAD)	71	21(LEAD)	35	120	0		
6	BETHLEHEM PIKE & WALNUT STREET	2046	–	76	20(LEAD)	24	–	76	–	44	120	116		
7	BETHLEHEM PIKE & ADVANCE LANE	3295	15(LEAD)	84	–	21	–	99	–	21	120	62		
8	BETHLEHEM PIKE & TREWIGTOWN ROAD	1817	–	99	–	21	13(LEAD)	86	–	21	120	115		
9	BETHLEHEM PIKE & LINE LEXINGTON ROAD/COUNTY LINE ROAD	1531	44(LEAD)	41	–	35	–	85	14(LEAD)	35	120	28		
10	BETHLEHEM PIKE & HILLTOWN PIKE	0301	19(LEAD)	63	–	25(SPLIT)	–	82	–	13(SPLIT)	120	24		
11	BETHLEHEM PIKE & HILLTOWN CROSSINGS SOUTHERN ACCESS	2036	13(LEAD)	76	–	13(SPLIT)	13(LEAD)	76	–	13(SPLIT)	120	54		
12	BETHLEHEM PIKE & HILLTOWN CROSSINGS NORTHERN ACCESS/ORVILLA ROAD	2141	13(LEAD)	90	–	17	25(LEAD)	78	–	13 *	120	52		
13	BETHLEHEM PIKE & STERLING DRIVE	3565	–	104	–	16	14(LEAD)	90	–	16	120	115		
14	BETHLEHEM PIKE & UNIONVILLE PIKE	1555	15(LEAD)	70	–	22(SPLIT)	–	85	–	13(SPLIT)	120	93		

	PROGRAM 2	PHASE									CYCLE	OFFSET#1	.OFFSET#2	OFFSET#3
	INTERSECTIONS	FILE #	1	2	3	4	5	6	7	8				
1	BETHLEHEM PIKE & SHOPPING CENTER DR / BENNIGANS DR	3572	–	76	–	24	–	76	–	24	100	84		
2	BETHLEHEM PIKE & MCLAUGHLIN/TAYLOR ROAD	2616	–	76	–	24	–	76	–	24	100	27		
3	BETHLEHEM PIKE & RICHARDSON ROAD	0032	14(LEAD)	53	–	28	–	72	–	28	100	41		
4	BETHLEHEM PIKE & LINE ST/FOX MEADOW DRIVE	2807	–	74	–	26	15(LEAD)	60	–	26	100	92		
5	BETHLEHEM PIKE & BROAD STREET	0332	–	62	–	38	14(LEAD)	48	24(LEAD)	14	100	0		
6	BETHLEHEM PIKE & WALNUT STREET	2046	–	66	15(LEAD)	19	–	66	–	34	100	80		
7	BETHLEHEM PIKE & ADVANCE LANE	3295	16(LEAD)	63	–	21	–	79	–	21	100	38		
8	BETHLEHEM PIKE & TREWIGTOWN ROAD	1817	–	83	–	17	17(LEAD)	66	–	17	100	91		
9	BETHLEHEM PIKE & LINE LEXINGTON ROAD/COUNTY LINE ROAD	1531	28(LEAD)	46	–	26	–	74	13(LEAD)	13	100	6		
10	BETHLEHEM PIKE & HILLTOWN PIKE	0301	13(LEAD)	55	–	19(SPLIT)	–	68	–	13(SPLIT)	100	16		
11	BETHLEHEM PIKE & HILLTOWN CROSSINGS SOUTHERN ACCESS	2036	20(LEAD)	43	–	24(SPLIT)	15(LEAD)	48	–	13(SPLIT)	100	41		
12	BETHLEHEM PIKE & HILLTOWN CROSSINGS NORTHERN ACCESS/ORVILLA ROAD	2141	16(LEAD)	68	–	16	21(LEAD)	63	–	13 *	100	31		
13	BETHLEHEM PIKE & STERLING DRIVE	3565	–	88	–	12	14(LEAD)	74	–	12	100	87		
14	BETHLEHEM PIKE & UNIONVILLE PIKE	1555	13(LEAD)	54	–	20(SPLIT)	–	67	–	13(SPLIT)	100	39		

	PROGRAM 3	PHASE									CYCLE	OFFSET#1	OFFSET#2	OFFSET#3
	INTERSECTIONS	FILE #	1	2	3	4	5	6	7	8				
1	BETHLEHEM PIKE & SHOPPING CENTER DR / BENNIGANS DR	3572	–	96	–	24	–	96	–	24	120	109		
2	BETHLEHEM PIKE & MCLAUGHLIN/TAYLOR ROAD	2616	–	88	–	32	–	88	–	32	120	55		
3	BETHLEHEM PIKE & RICHARDSON ROAD	0032	21(LEAD)	67	–	32	–	88	–	32	120	60		
4	BETHLEHEM PIKE & LINE ST/FOX MEADOW DRIVE	2807	–	97	–	23	17(LEAD)	80	–	23	120	112		
5	BETHLEHEM PIKE & BROAD STREET	0332	–	79	–	41	14(LEAD)	65	22(LEAD)	19	120	0		
6	BETHLEHEM PIKE & WALNUT STREET	2046	–	83	20(LEAD)	17	–	83	–	37	120	100		
7	BETHLEHEM PIKE & ADVANCE LANE	3295	14(LEAD)	85	–	21	–	99	–	21	120	49		
8	BETHLEHEM PIKE & TREWIGTOWN ROAD	1817	–	100	–	20	23(LEAD)	77	–	20	120	65		
9	BETHLEHEM PIKE & LINE LEXINGTON ROAD/COUNTY LINE ROAD	1531	31(LEAD)	63	–	26	–	94	13(LEAD)	13	120	117		
10	BETHLEHEM PIKE & HILLTOWN PIKE	0301	17(LEAD)	71	–	19(SPLIT)	–	88	–	13(SPLIT)	120	95		
11	BETHLEHEM PIKE & HILLTOWN CROSSINGS SOUTHERN ACCESS	2036	14(LEAD)	70	–	21(SPLIT)	15(LEAD)	69	–	15(SPLIT)	120	112		
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14	BETHLEHEM PIKE & UNIONVILLE PIKE	1555	13(LEAD)	60	–	34(SPLIT)	–	73	–	13(SPLIT)	120	40		

* PHASE 8A UPON ACTUATION ONLY.

WEEKLY PROGRAM CHART				
EVENT	▲DAY	TIME	PROGRAM*	REMARKS
1	1–7	0000	MAX 1	FREE
2	1–5	0600	1	AM PEAK
3	1–5	1000	2	OFF PEAK
4	1–5	1500	3	PM PEAK
5	1–7	2100	MAX 2	FREE
6	6,7	0800	2	WEEKEND

▲DAY 1 = MONDAY
*MAX/FREE WHERE NOTED IN CYCLE/CPLIT/OFFSET MATRIX

SYSTEM NOTES

1. THE SIGNALS ALONG BETHLEHEM PIKE FROM SHOPPING CENTER DRIVE / BENNIGANS DRIVE TO WALNUT STREET TO BE COORDINATED VIA FIBER OPTIC INTERCONNECTION. THE INTERSECTIONS FROM ADVANCE LANE TO UNIONVILLE PIKE ARE TO BE COORDINATED VIA GPS TIME CLOCKS.
2. PROGRAM TO BE SELECTED BY TBC BACKUP.
3. OFFSETS ARE REFERENCED TO THE BEGINNING OF GREEN (PHASE 2+6).
4. SYSTEM LIMITS:
   BETHLEHEM PIKE (SR 0309) – FROM UNIONVILLE PIKE
   TO SHOPPING CENTER DRIVE/ BENNIGANS DRIVE
5. ON–STREET MASTER: LOCATED AT RICHARDSON ROAD
6. PRIMARY COORDINATION: TBC VIA GPS TIME CLOCKS
7. CYCLES, SPLITS & OFFSETS ARE IN SECONDS.

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6–0

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REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

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ASHWIN PATEL 6/13/09
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4	REVISED TIMINGS	BJD	11/14/12	NB	11/14/12	ABP	12/17/12
5	REVISED APPROACHES AT INT. 11 & 12	H&K	2/28/13	DLA	4/7/14	[illegible]	4/21/14
6							
7							
8							

SHEET 2 OF 2 | PERMIT # 1–0030 | FILE #

Clearance Time Calculations

CLEARANCE TIME CALCULATIONS

Publication 46 (1/13)

COUNTY: **Montgomery**
MUNICIPALITY: **Hatfield Township**
INTERSECTION: **Bethlehem Pike (SR 0309) & Line Lexington Road (SR 2008) / County Line Road (SR 2038)**

VEHICLE CHANGE AND CLEARANCE INTERVALS (§4.3)

$$Y = t + \frac{1.47V}{2a \pm 64.4g}$$

$$AR = \frac{W + L}{1.47V}$$

Where: Y = Yellow change interval; s (typically 3 to 6 seconds)
AR = All-red clearance interval; s
t = Perception-reaction time; s (typically 1 second)
V = Approach speed of roadway; mph
a = Deceleration rate; ft/s² (typically 10 ft/s²)
g = Grade of approach; %/100
W = Width of intersection (from the stop bar to the end of the farthest traveled lane); ft
L = Length of vehicle; ft (typically 20 ft)
Sum = Y + AR rounded up to nearest whole number

MAJOR STREET: **Bethlehem Pike (SR 0309)**

Approach: **NB**			USE	COMMENTS
V (mph) = **40**	Yellow (sec) =	3.9	4	
g (%/100) = **0.001**	Red (sec) =	1.9	2	
W (feet) = **90**	Sum (sec) =	6		

Approach: **SB**			USE	COMMENTS
V (mph) = **40**	Yellow (sec) =	4.0	4	
g (%/100) = **-0.005**	Red (sec) =	1.6	2	
W (feet) = **77**	Sum (sec) =	6		

MINOR STREET: **Line Lexington Road (SR 2008) / County Line Road (SR 2038)**

Approach: **EB**			USE	COMMENTS
V (mph) = **35**	Yellow (sec) =	3.7	4	
g (%/100) = **-0.01**	Red (sec) =	2.6	3	
W (feet) = **116**	Sum (sec) =	7		

Approach: **WB**			USE	COMMENTS
V (mph) = **45**	Yellow (sec) =	3.6	4	**Match Eastbound**
g (%/100) = **0.09**	Red (sec) =	1.9	3	
W (feet) = **107**	Sum (sec) =	6		

Compiled by: **ARC**
Date: **10/9/2025**
Checked by: **MJR**
Date: **10/24/2025**

APPENDIX I:

Auxiliary Turn Lane Warrant Analysis

Walnut Street & Building 2 Access

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 2 Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	21.0%	16
	Through	-	136	11.0%	144
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	2.0%	0
	Through	-	204	5.0%	210
	Right	Yes	3	2.0%	4

Advancing Volume:	160
Opposing Volume:	214
Left Turn Volume:	16
% Left Turns in Advancing Volume:	10.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	N/A
	Through	-	204	5.0%	N/A
	Right	-	3	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 2

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	16
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

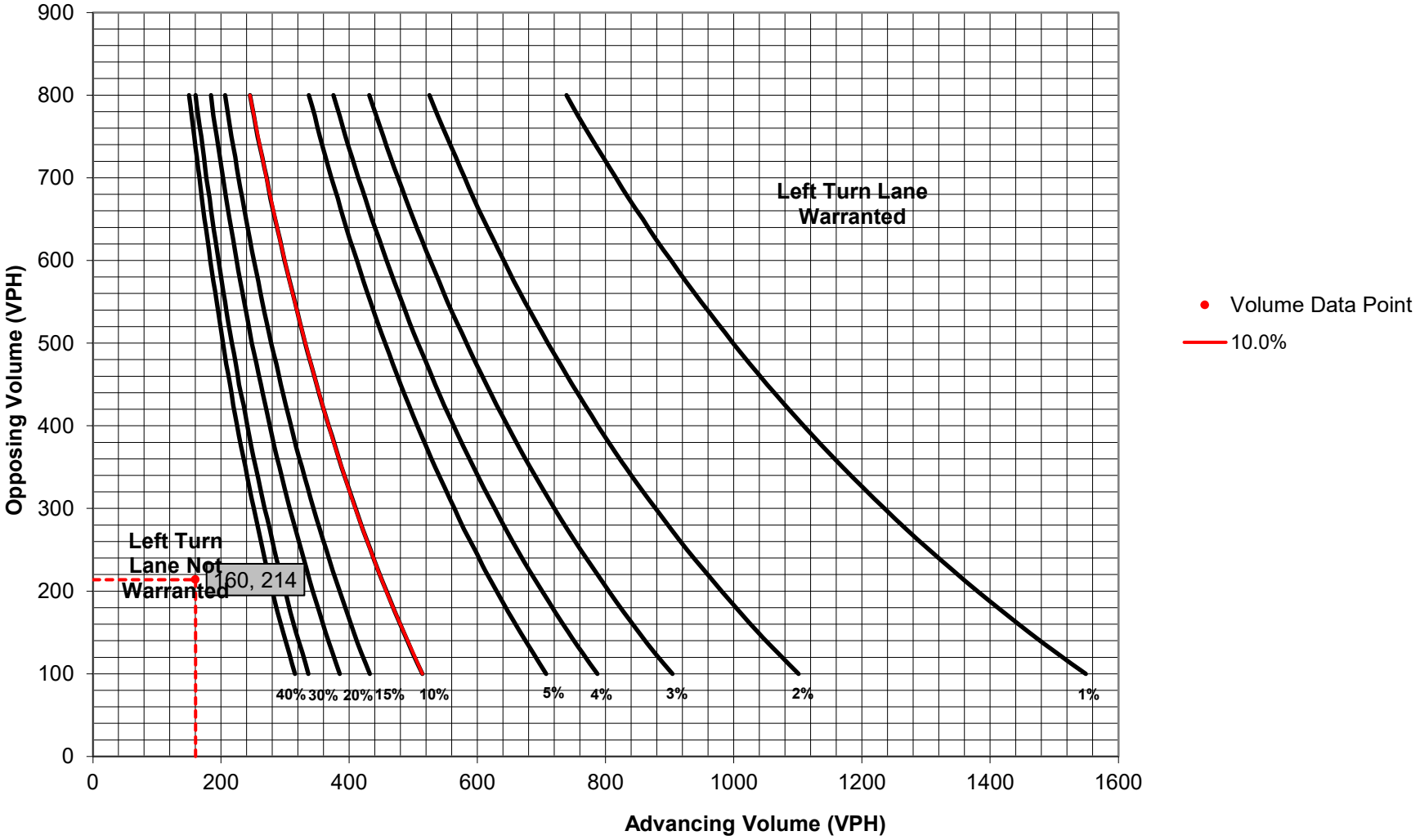
Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 2 Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40	**Type of Analysis**	
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	21.0%	N/A
	Through	-	136	11.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	2.0%	N/A
	Through	-	204	5.0%	N/A
	Right	Yes	3	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	0
	Through	-	204	5.0%	210
	Right	-	3	2.0%	4

Advancing Volume:	214
Right Turn Volume:	4

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

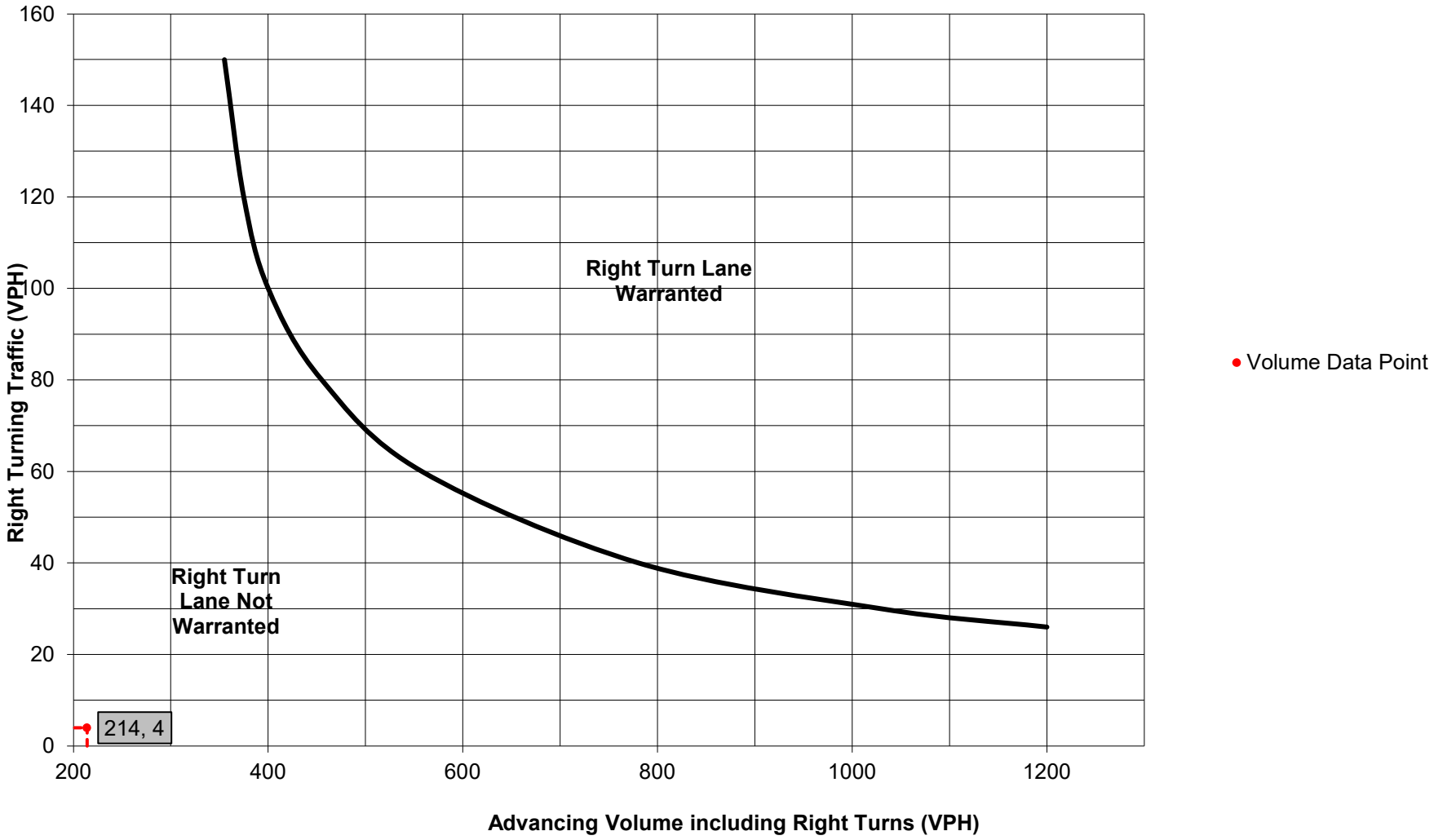
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 2 Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40	**Type of Analysis**	
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	50.0%	8
	Through	-	198	8.0%	206
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	2.0%	0
	Through	-	198	7.0%	205
	Right	Yes	1	2.0%	2

Advancing Volume:	214
Opposing Volume:	207
Left Turn Volume:	8
% Left Turns in Advancing Volume:	3.74%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	N/A
	Through	-	198	7.0%	N/A
	Right	-	1	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 2

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

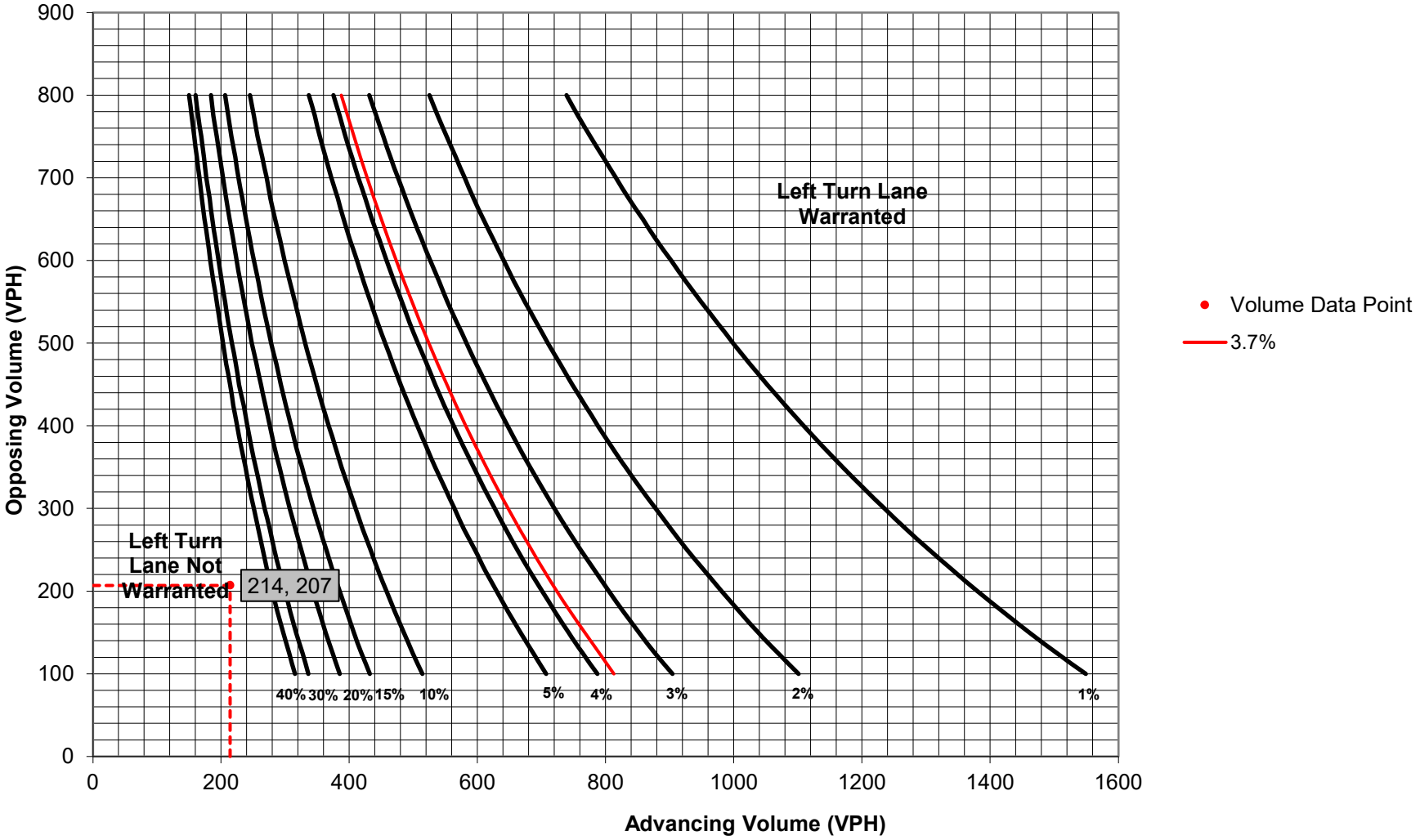
Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 2 Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40	**Type of Analysis**	
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	50.0%	N/A
	Through	-	198	8.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	2.0%	N/A
	Through	-	198	7.0%	N/A
	Right	Yes	1	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	0
	Through	-	198	7.0%	205
	Right	-	1	2.0%	2

Advancing Volume:	207
Right Turn Volume:	2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

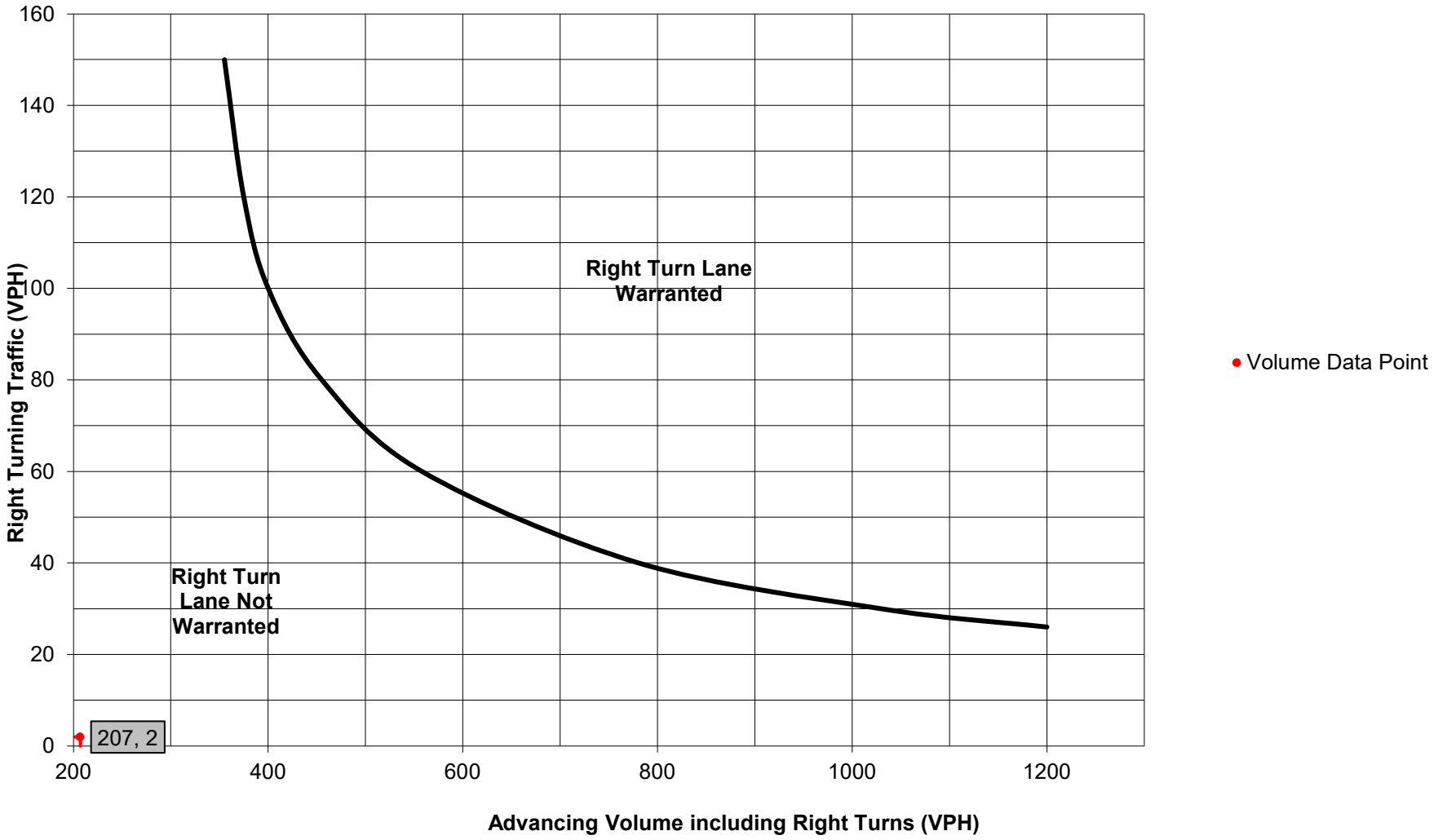
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Walnut Street & Building 1 Southern access

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 1 Southern Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	47	17.0%	51
	Through	-	90	8.0%	94
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	2.0%	0
	Through	-	188	3.0%	191
	Right	Yes	3	2.0%	4

Advancing Volume:	145
Opposing Volume:	195
Left Turn Volume:	51
% Left Turns in Advancing Volume:	35.17%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	N/A
	Through	-	188	3.0%	N/A
	Right	-	3	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 2**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	51
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

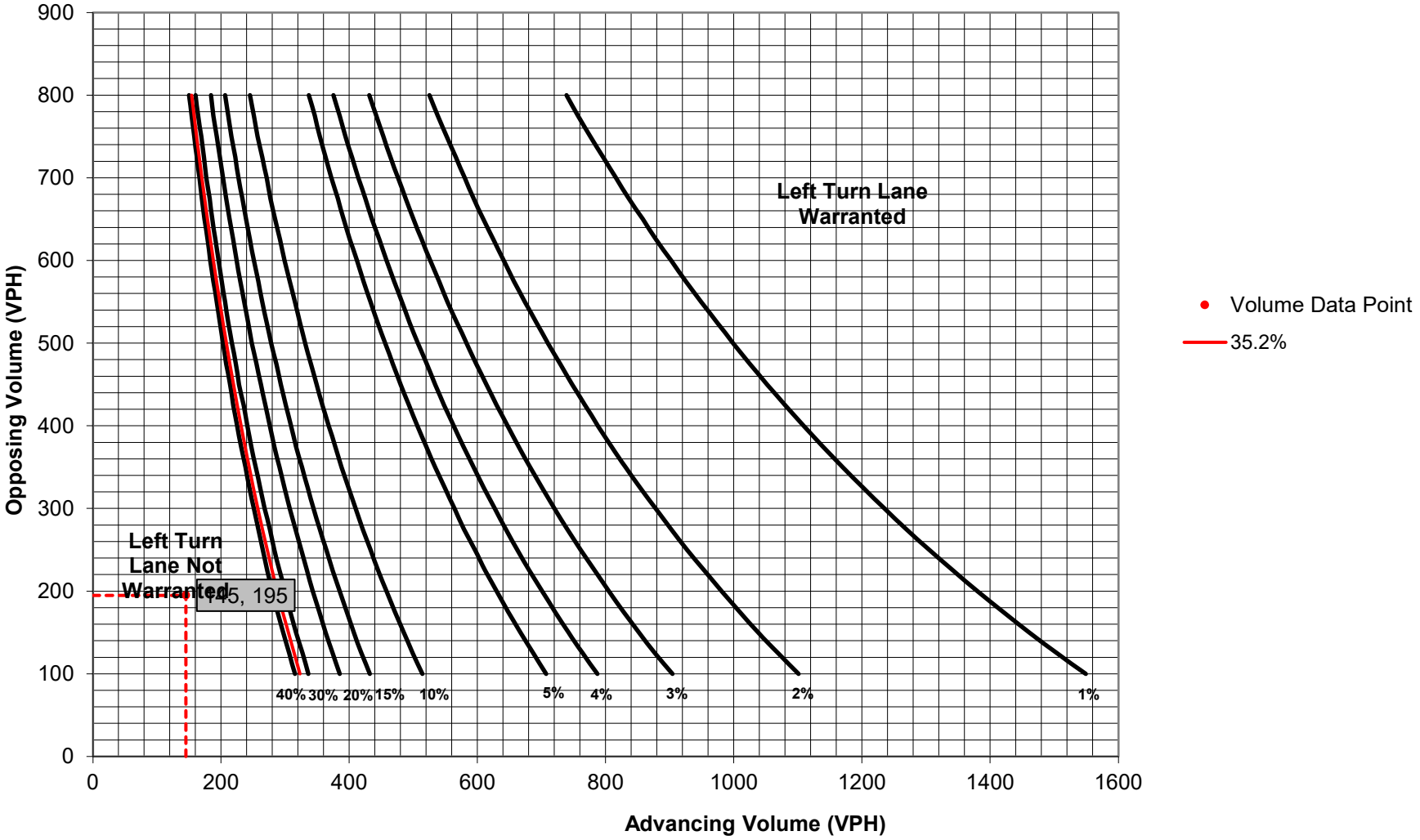
Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 1 Southern Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	47	17.0%	N/A
	Through	-	90	8.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	2.0%	N/A
	Through	-	188	3.0%	N/A
	Right	Yes	3	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	0
	Through	-	188	3.0%	191
	Right	-	3	2.0%	4

Advancing Volume:	195
Right Turn Volume:	4

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

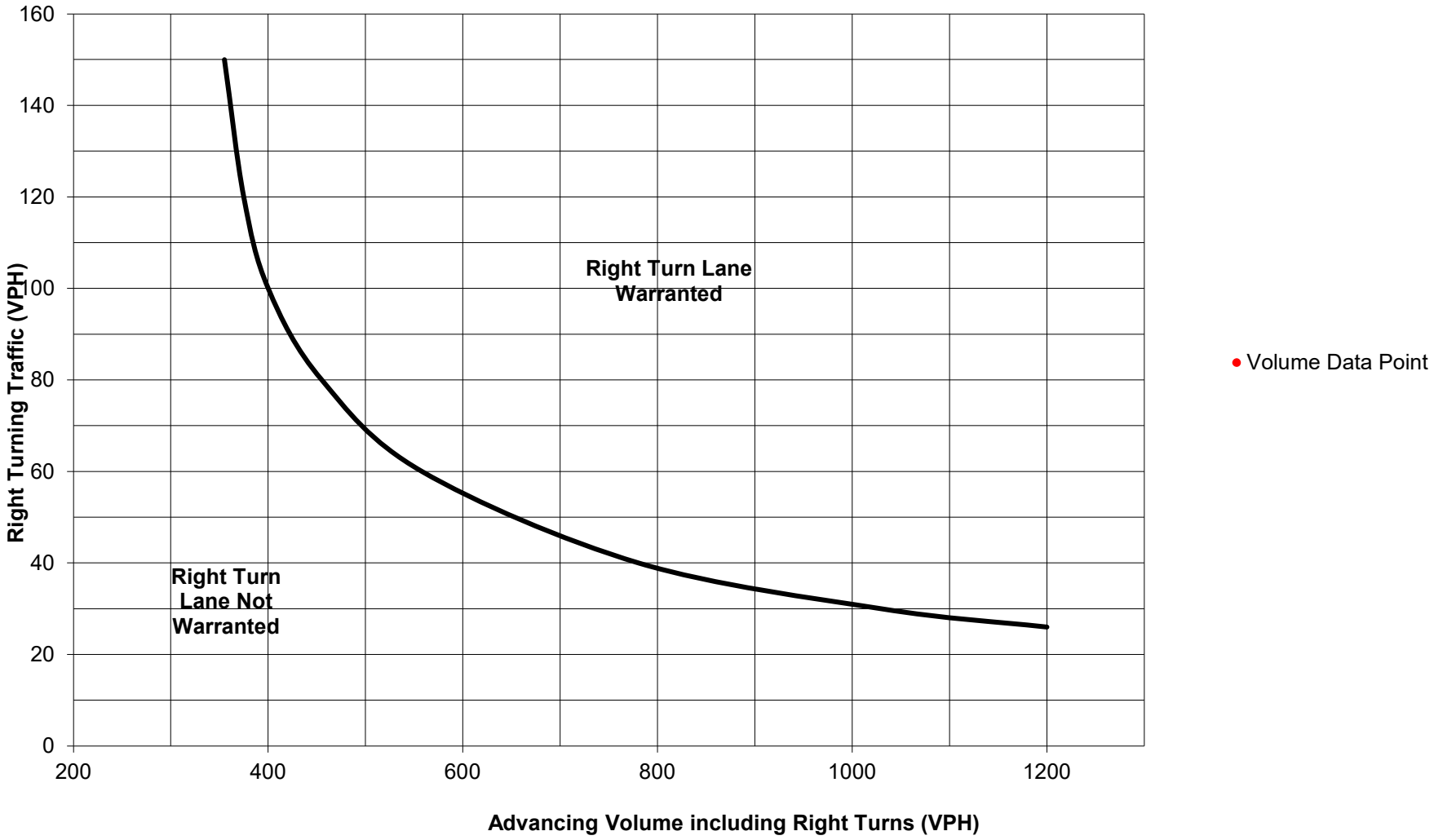
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 1 Southern Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	20	45.0%	25
	Through	-	181	3.0%	184
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	2.0%	0
	Through	-	146	4.0%	149
	Right	Yes	1	2.0%	2

Advancing Volume:	209
Opposing Volume:	151
Left Turn Volume:	25
% Left Turns in Advancing Volume:	11.96%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	N/A
	Through	-	146	4.0%	N/A
	Right	-	1	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 2

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	25
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

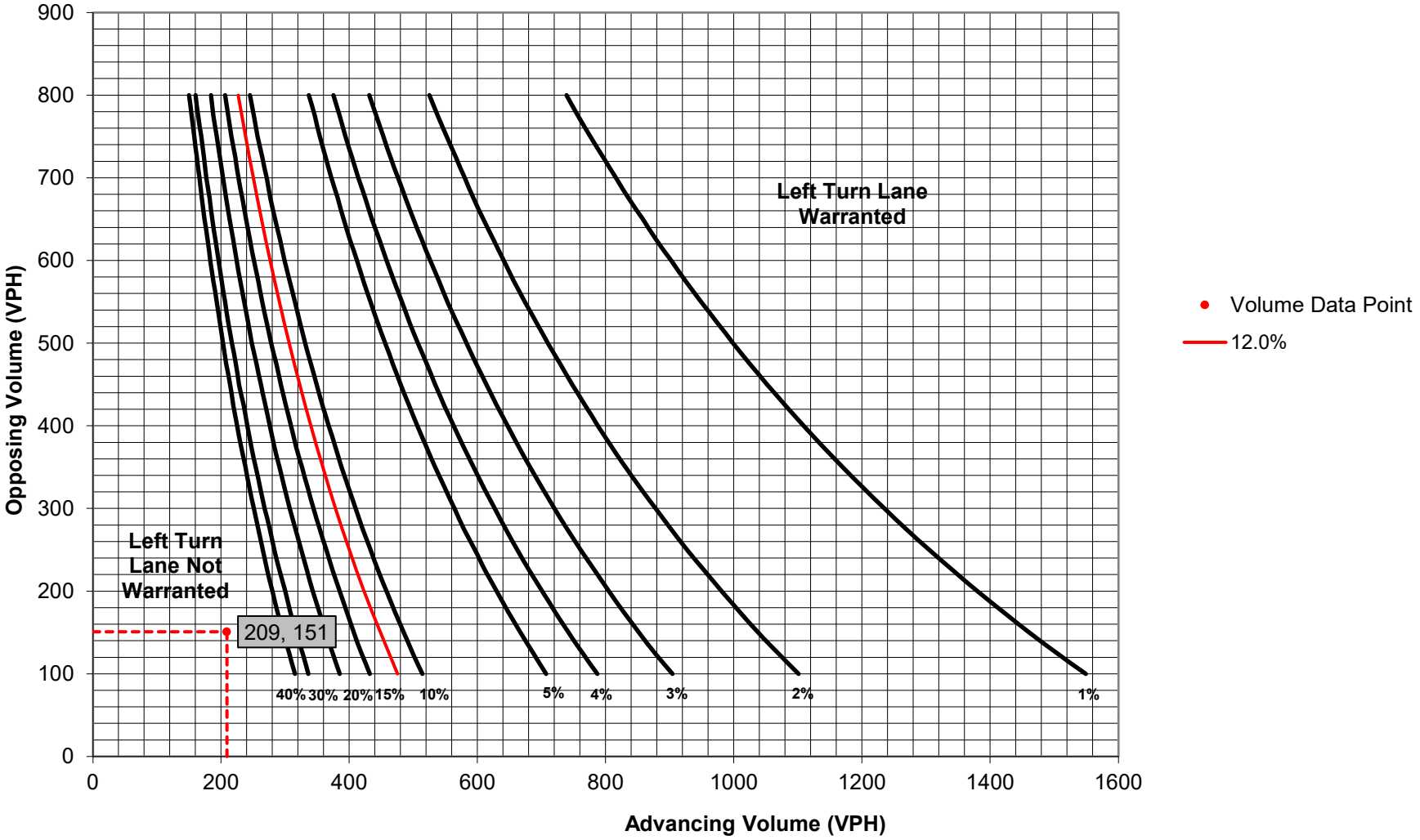
Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 1 Southern Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	20	45.0%	N/A
	Through	-	181	3.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	2.0%	N/A
	Through	-	146	4.0%	N/A
	Right	Yes	1	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	0
	Through	-	146	4.0%	149
	Right	-	1	2.0%	2

Advancing Volume:	151
Right Turn Volume:	2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

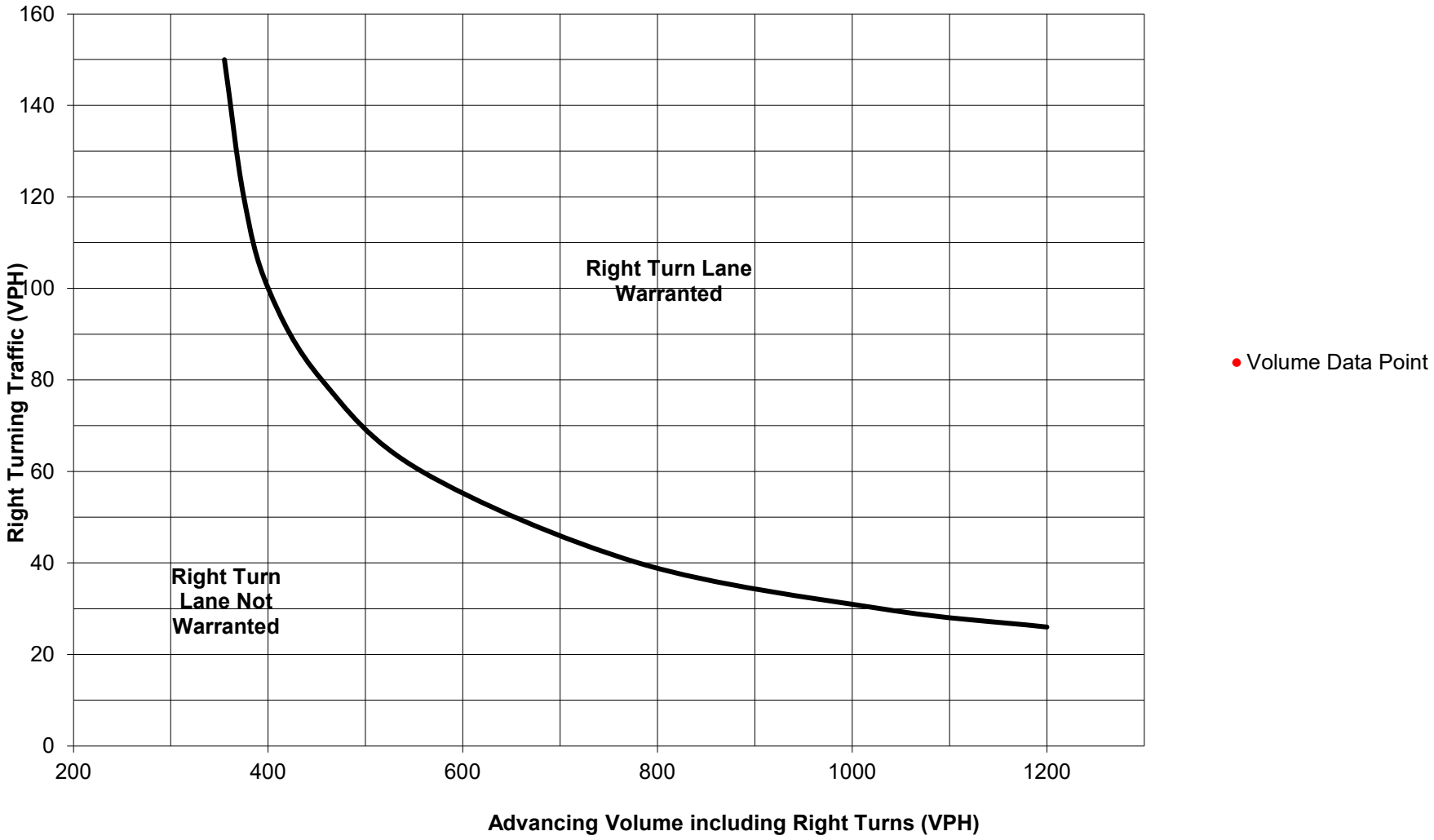
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Walnut Street & Building 1 Northern Access

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 1 Northern Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	100.0%	3
	Through	-	89	6.0%	92
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	2.0%	0
	Through	-	190	2.0%	192
	Right	Yes	6	2.0%	7

Advancing Volume:	95
Opposing Volume:	199
Left Turn Volume:	3
% Left Turns in Advancing Volume:	3.16%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	N/A
	Through	-	190	2.0%	N/A
	Right	-	6	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 2**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

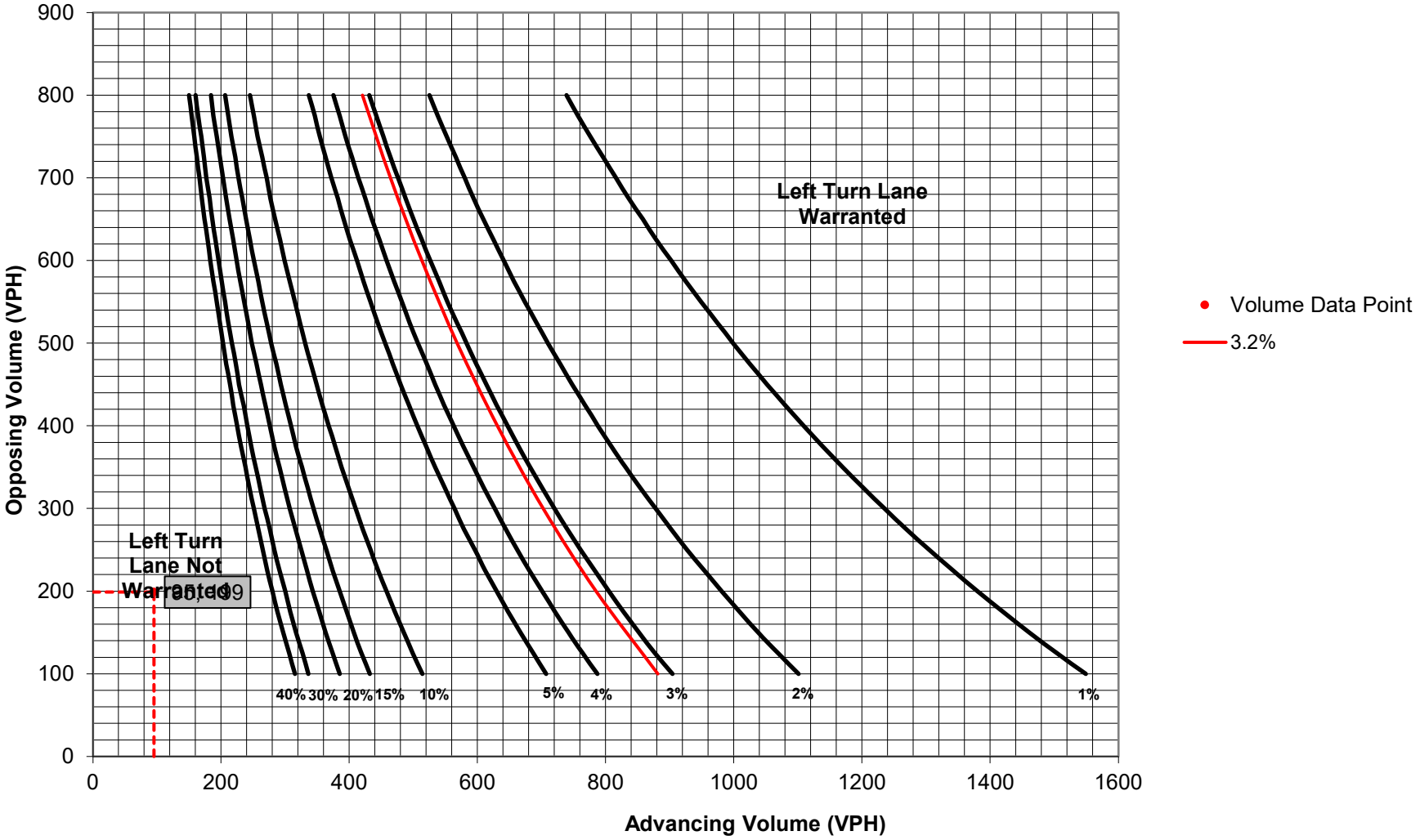
Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 1 Northern Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	100.0%	N/A
	Through	-	89	6.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	2.0%	N/A
	Through	-	190	2.0%	N/A
	Right	Yes	6	2.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	0
	Through	-	190	2.0%	192
	Right	-	6	2.0%	7

Advancing Volume:	199
Right Turn Volume:	7

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

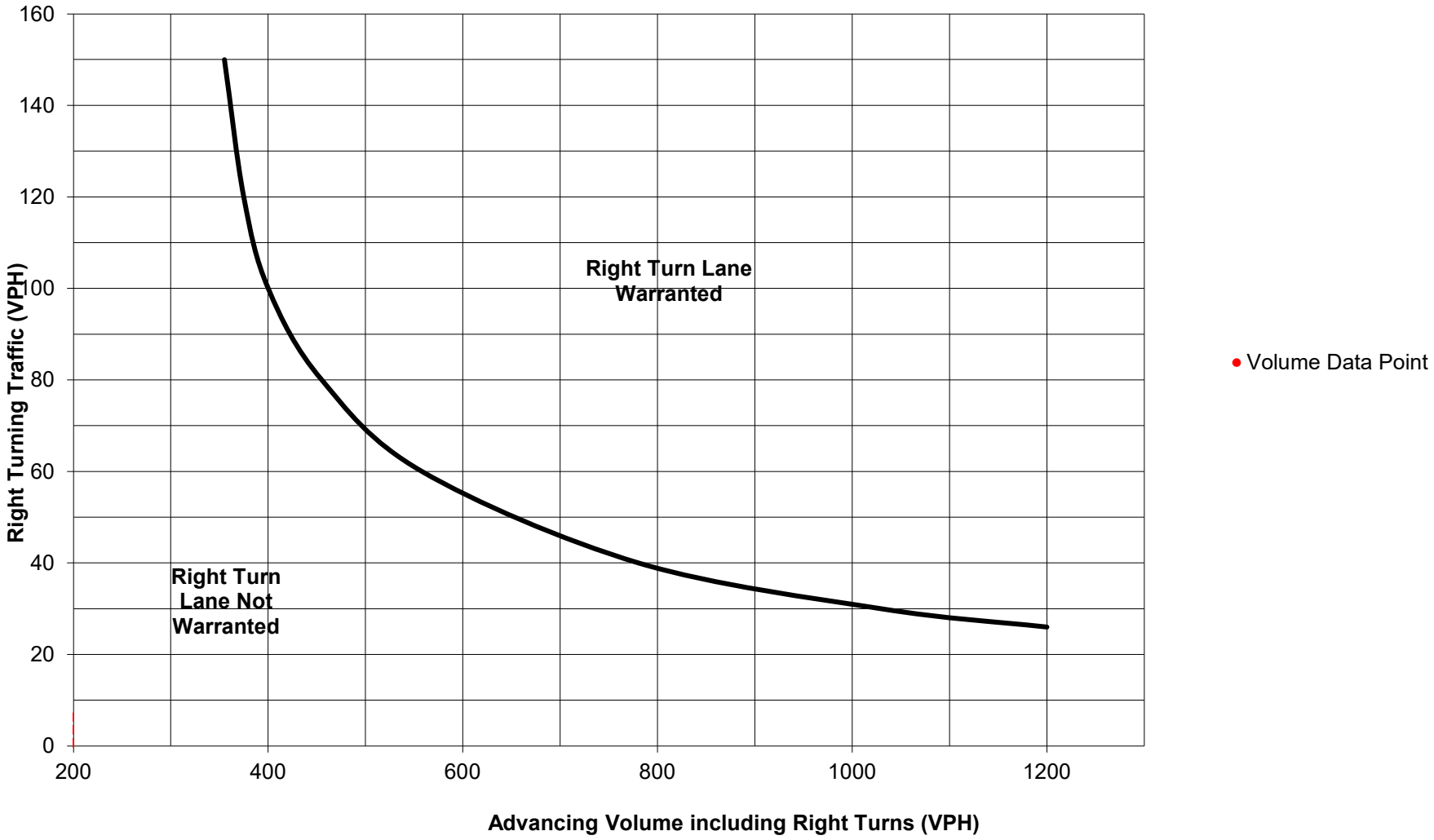
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 1 Northern Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	100.0%	3
	Through	-	183	2.0%	185
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	2.0%	0
	Through	-	145	3.0%	148
	Right	Yes	2	2.0%	3

Advancing Volume:	188
Opposing Volume:	151
Left Turn Volume:	3
% Left Turns in Advancing Volume:	1.60%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	N/A
	Through	-	145	3.0%	N/A
	Right	-	2	2.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 2

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

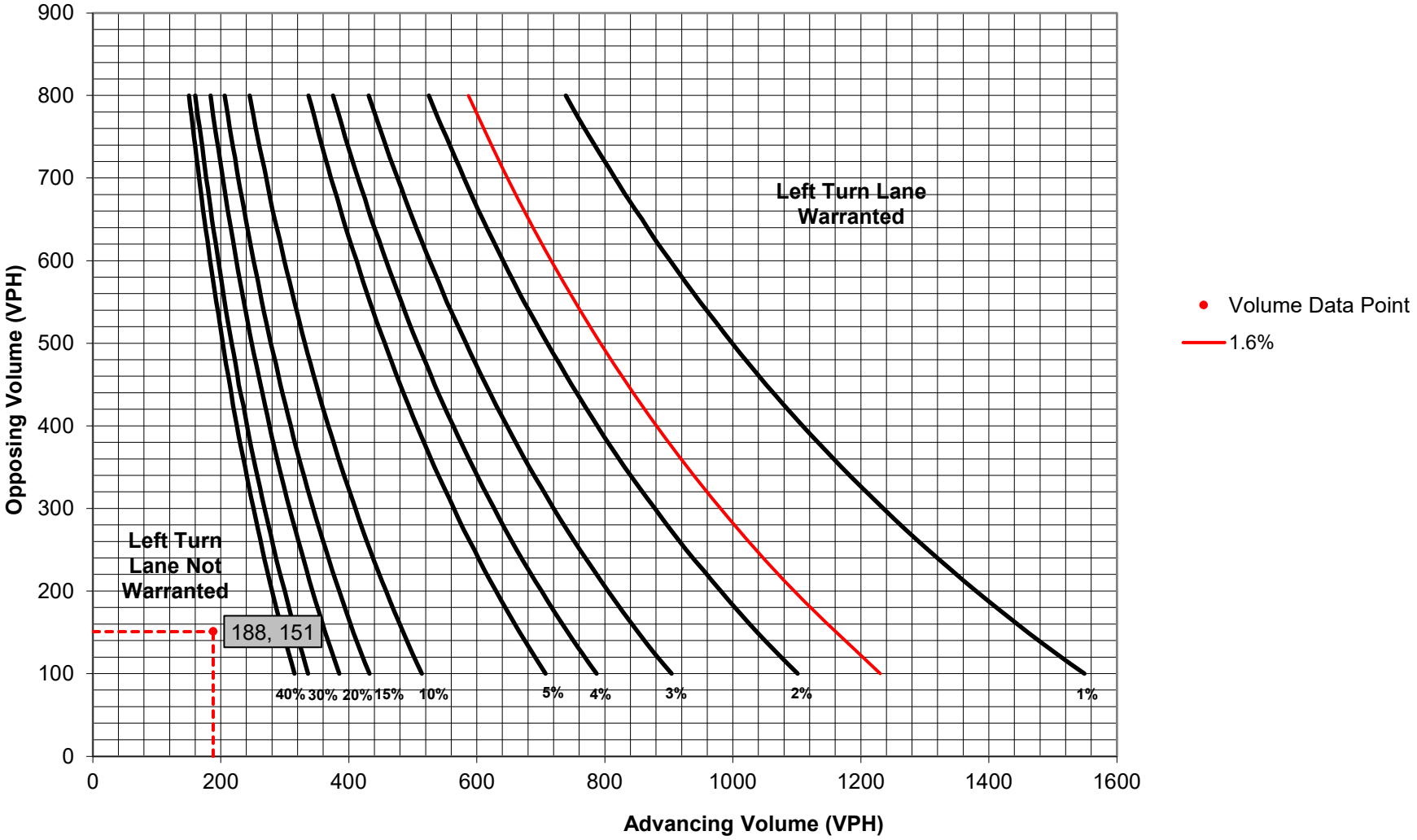
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Walnut Street & Building 1 Northern Access

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	100.0%	N/A
	Through	-	183	2.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	2.0%	N/A
	Through	-	145	3.0%	N/A
	Right	Yes	2	2.0%	N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	0
	Through	-	145	3.0%	148
	Right	-	2	2.0%	3

Advancing Volume: 151
Right Turn Volume: 3

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

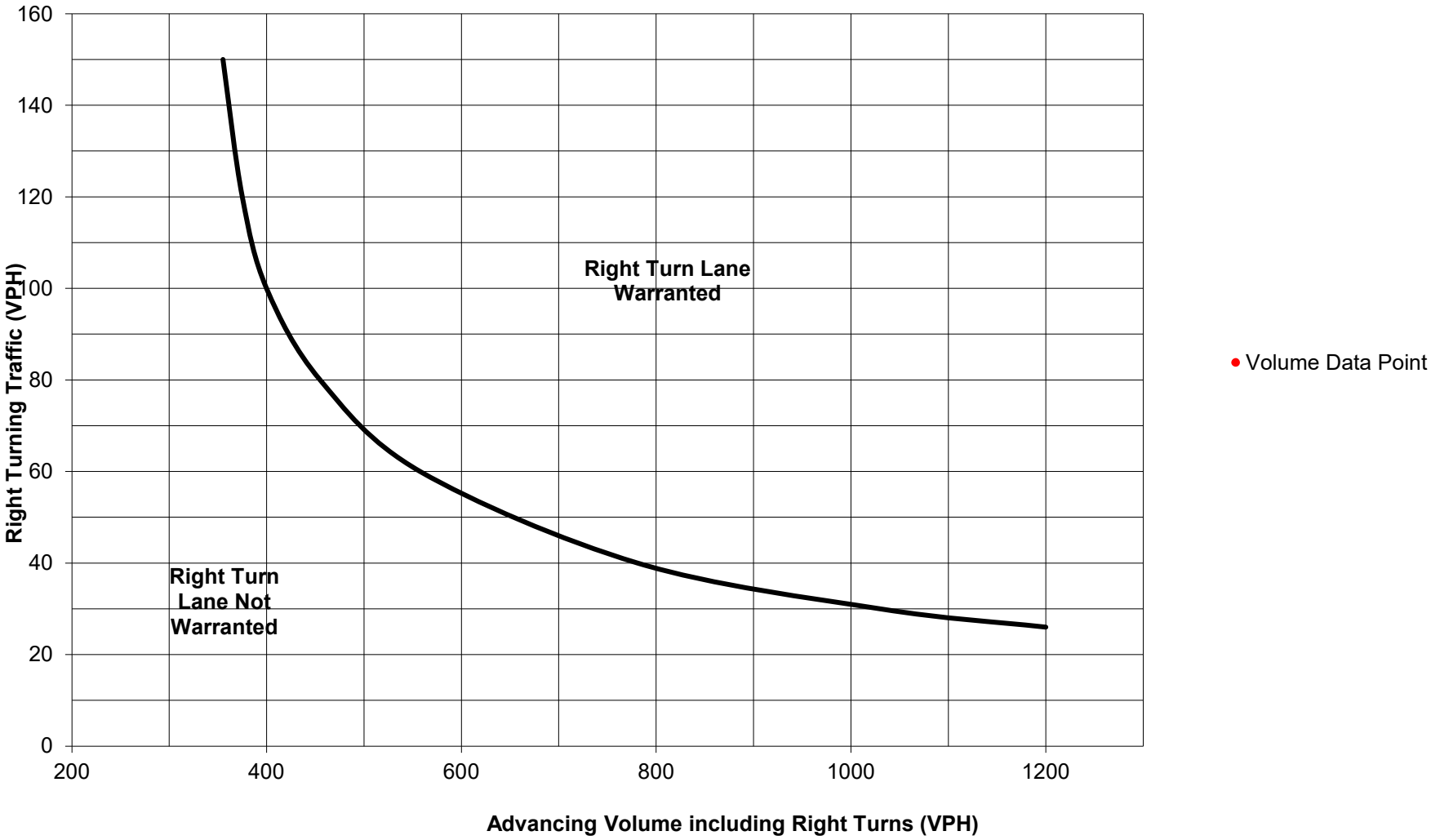
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



New Britain Boulevard & Independence Lane

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: New Britain Boulevard & Independence Lane

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	17
	Through	-	38	5.0%	39
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	2.0%	0
	Through	-	58	4.0%	60
	Right	Yes	52	8.0%	55

Advancing Volume:	56
Opposing Volume:	115
Left Turn Volume:	17
% Left Turns in Advancing Volume:	30.36%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	N/A
	Through	-	58	4.0%	N/A
	Right	-	52	8.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

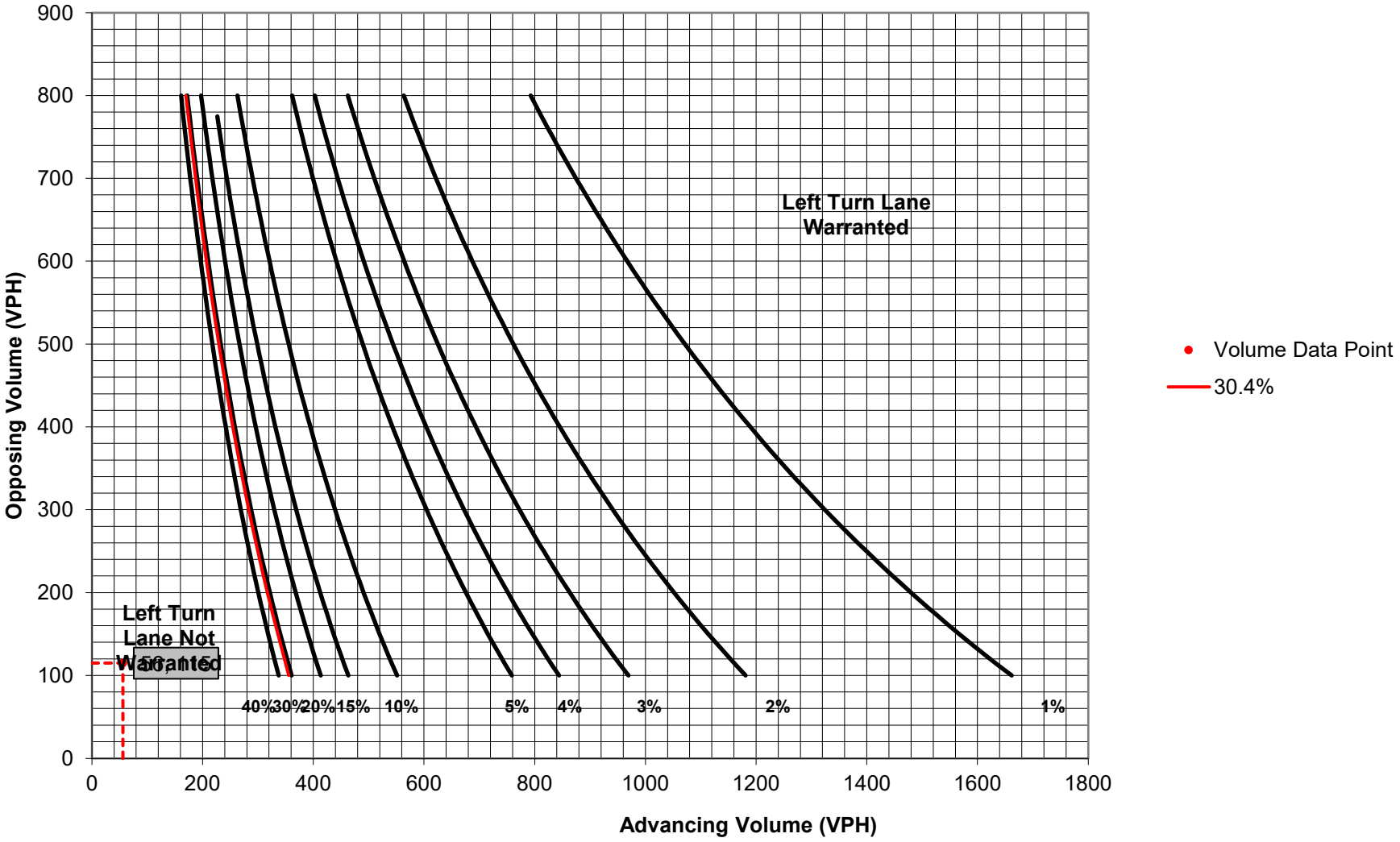
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: New Britain Boulevard & Independence Lane

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	N/A
	Through	-	38	5.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	2.0%	N/A
	Through	-	58	4.0%	N/A
	Right	Yes	52	8.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	0
	Through	-	58	4.0%	60
	Right	-	52	8.0%	55

Advancing Volume:	115
Right Turn Volume:	55

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	55
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

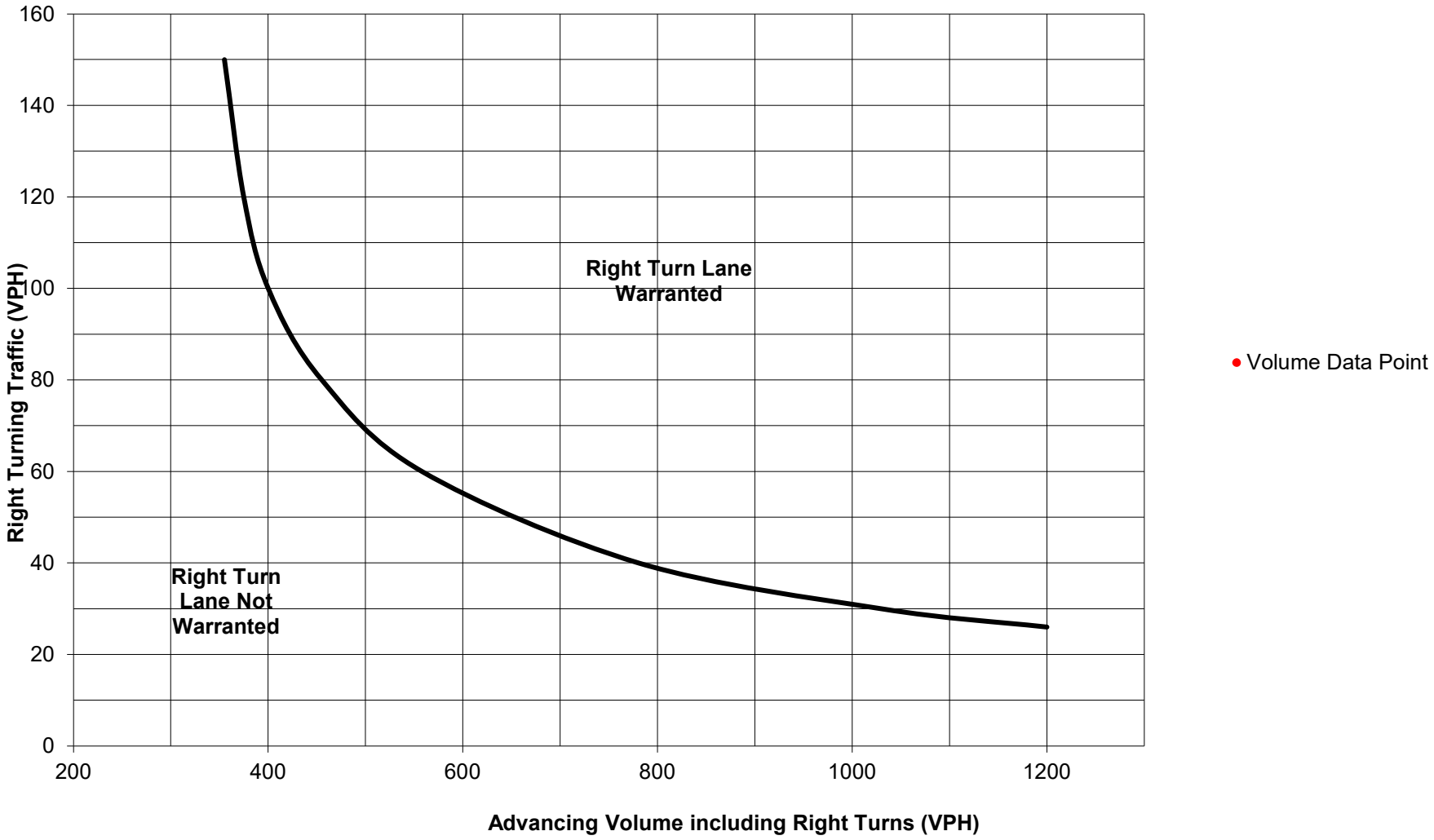
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: New Britain Boulevard & Independence Lane

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	2.0%	2
	Through	-	71	5.0%	73
	Right	Yes	0	2.0%	0
Opposing	Left	Yes	0	2.0%	0
	Through	-	45	0.0%	45
	Right	Yes	10	40.0%	12

Advancing Volume:	75
Opposing Volume:	57
Left Turn Volume:	2
% Left Turns in Advancing Volume:	2.67%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	N/A
	Through	-	45	0.0%	N/A
	Right	-	10	40.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

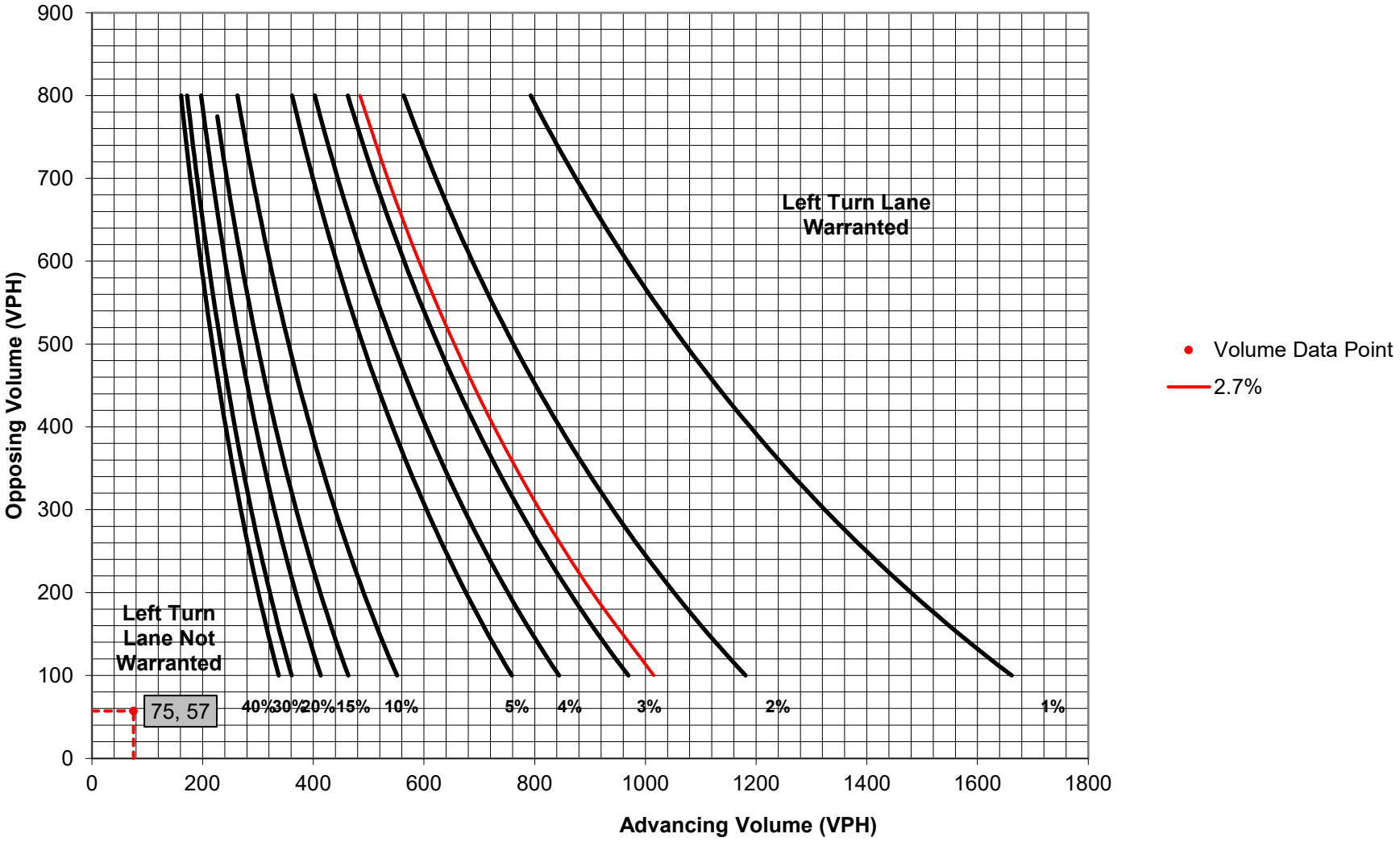
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: New Britain Boulevard & Independence Lane

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	2.0%	N/A
	Through	-	71	5.0%	N/A
	Right	Yes	0	2.0%	N/A
Opposing	Left	Yes	0	2.0%	N/A
	Through	-	45	0.0%	N/A
	Right	Yes	10	40.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	2.0%	0
	Through	-	45	0.0%	45
	Right	-	10	40.0%	12

Advancing Volume:	57
Right Turn Volume:	12

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	12
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

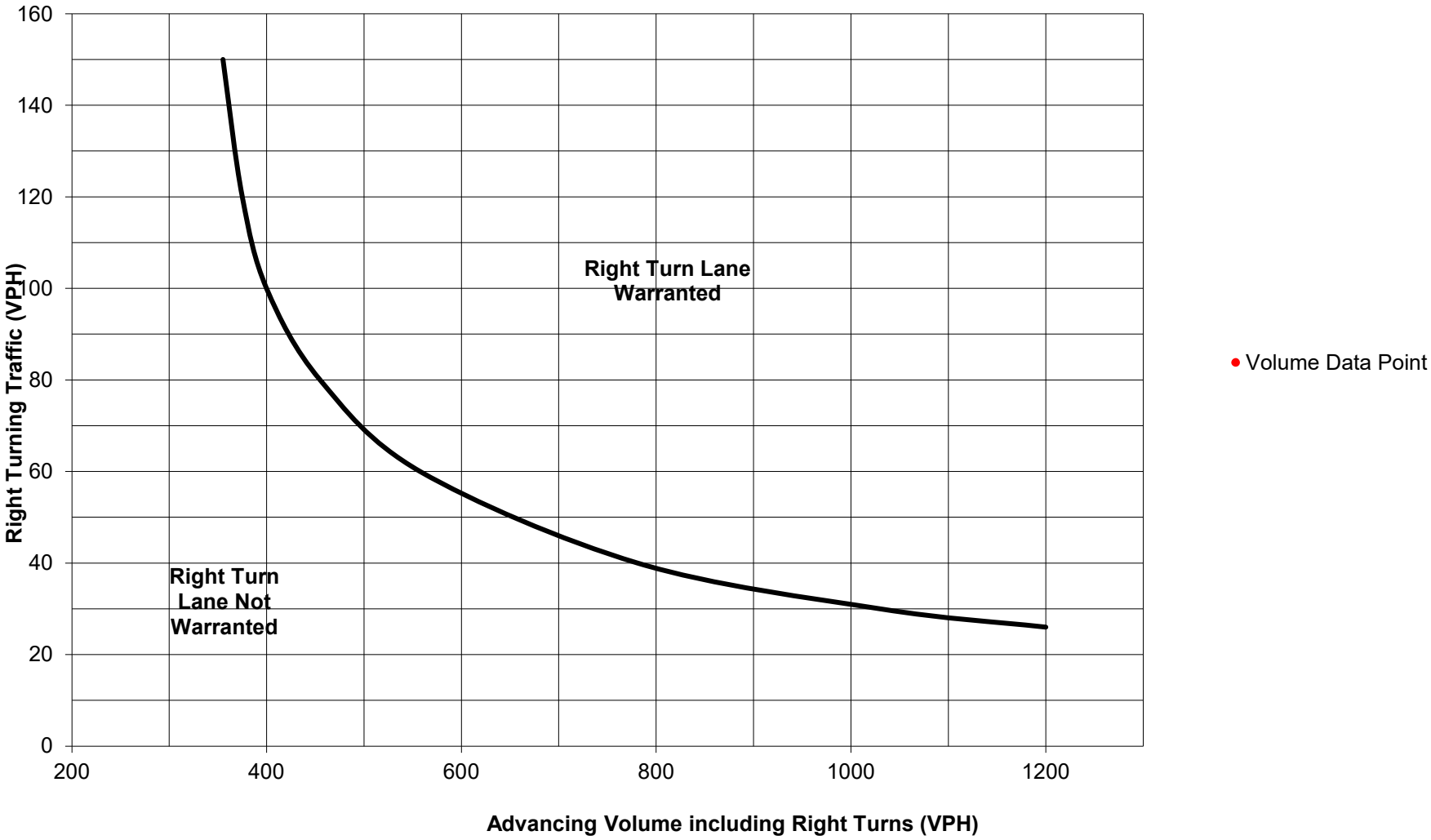
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Walnut Street & County Line Road

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Eastbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	40	35.0%	47
	Through	-	705	5.0%	723
	Right	Yes	15	0.0%	15
Opposing	Left	Yes	61	9.0%	64
	Through	-	581	8.0%	605
	Right	Yes	29	14.0%	32

Advancing Volume:	785
Opposing Volume:	701
Left Turn Volume:	47
% Left Turns in Advancing Volume:	5.99%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	40	35.0%	N/A
	Through	-	705	5.0%	N/A
	Right	-	15	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	47
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

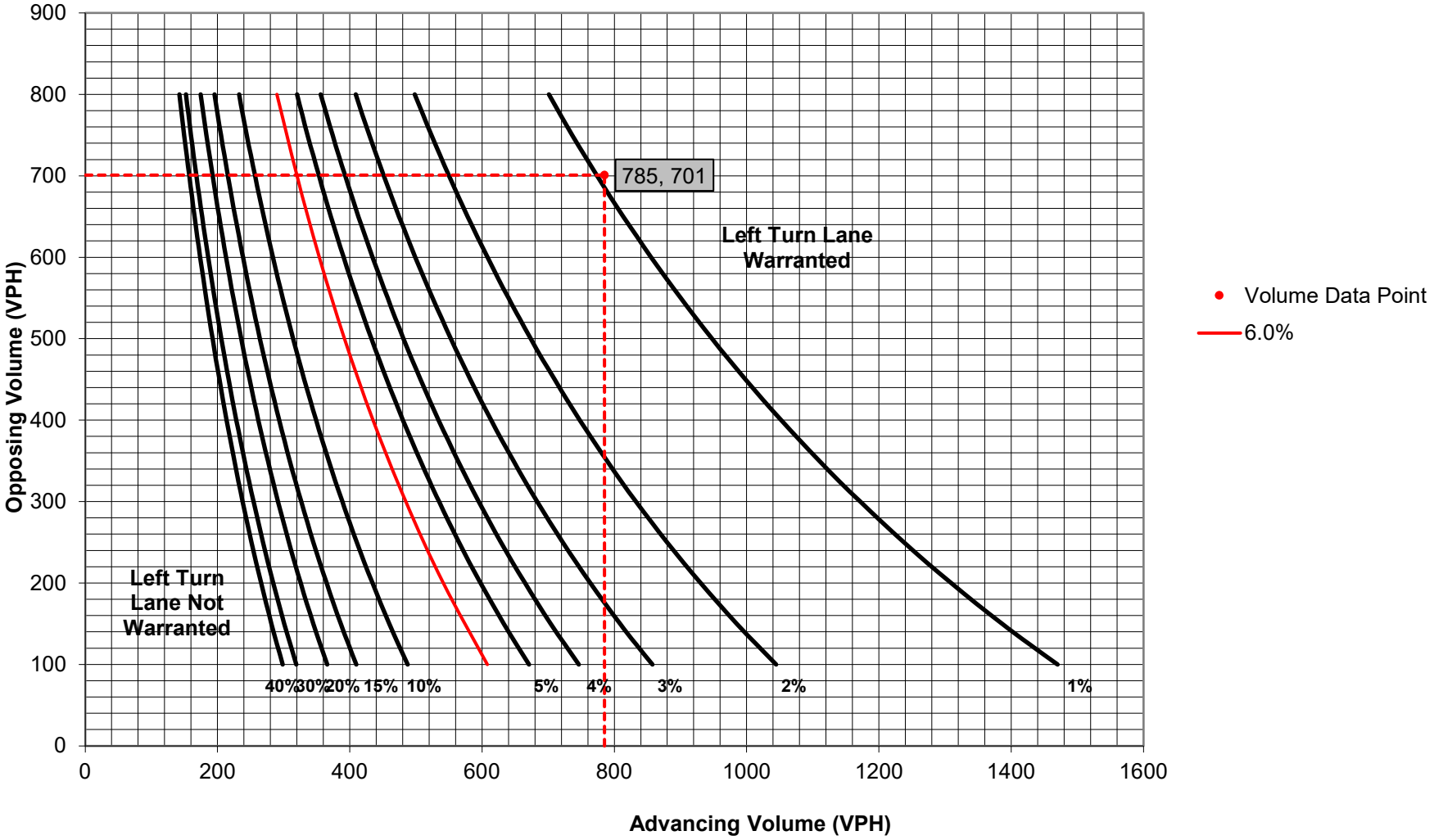
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**175**	**Feet**
Required Left Turn Lane Storage Length:	**175**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Eastbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	40	35.0%	N/A
	Through	-	705	5.0%	N/A
	Right	Yes	15	0.0%	N/A
Opposing	Left	Yes	61	9.0%	N/A
	Through	-	581	8.0%	N/A
	Right	Yes	29	14.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	40	35.0%	47
	Through	-	705	5.0%	723
	Right	-	15	0.0%	15

Advancing Volume:	785
Right Turn Volume:	15

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	15
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

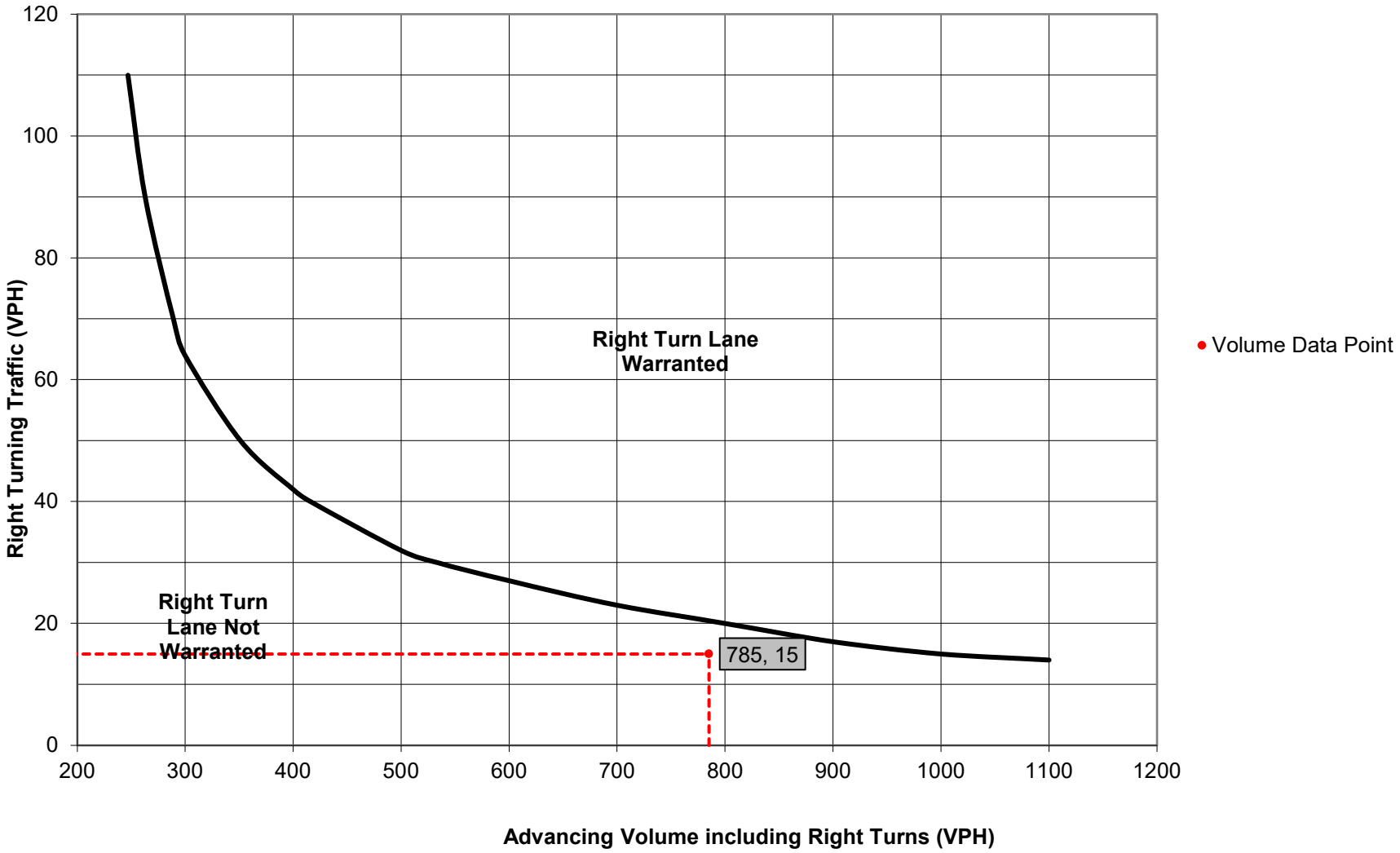
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Westbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	61	9.0%	64
	Through	-	581	8.0%	605
	Right	Yes	29	14.0%	32
Opposing	Left	Yes	40	35.0%	47
	Through	-	705	5.0%	723
	Right	Yes	15	0.0%	15

Advancing Volume:	701
Opposing Volume:	785
Left Turn Volume:	64
% Left Turns in Advancing Volume:	9.13%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	61	9.0%	N/A
	Through	-	581	8.0%	N/A
	Right	-	29	14.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	64
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

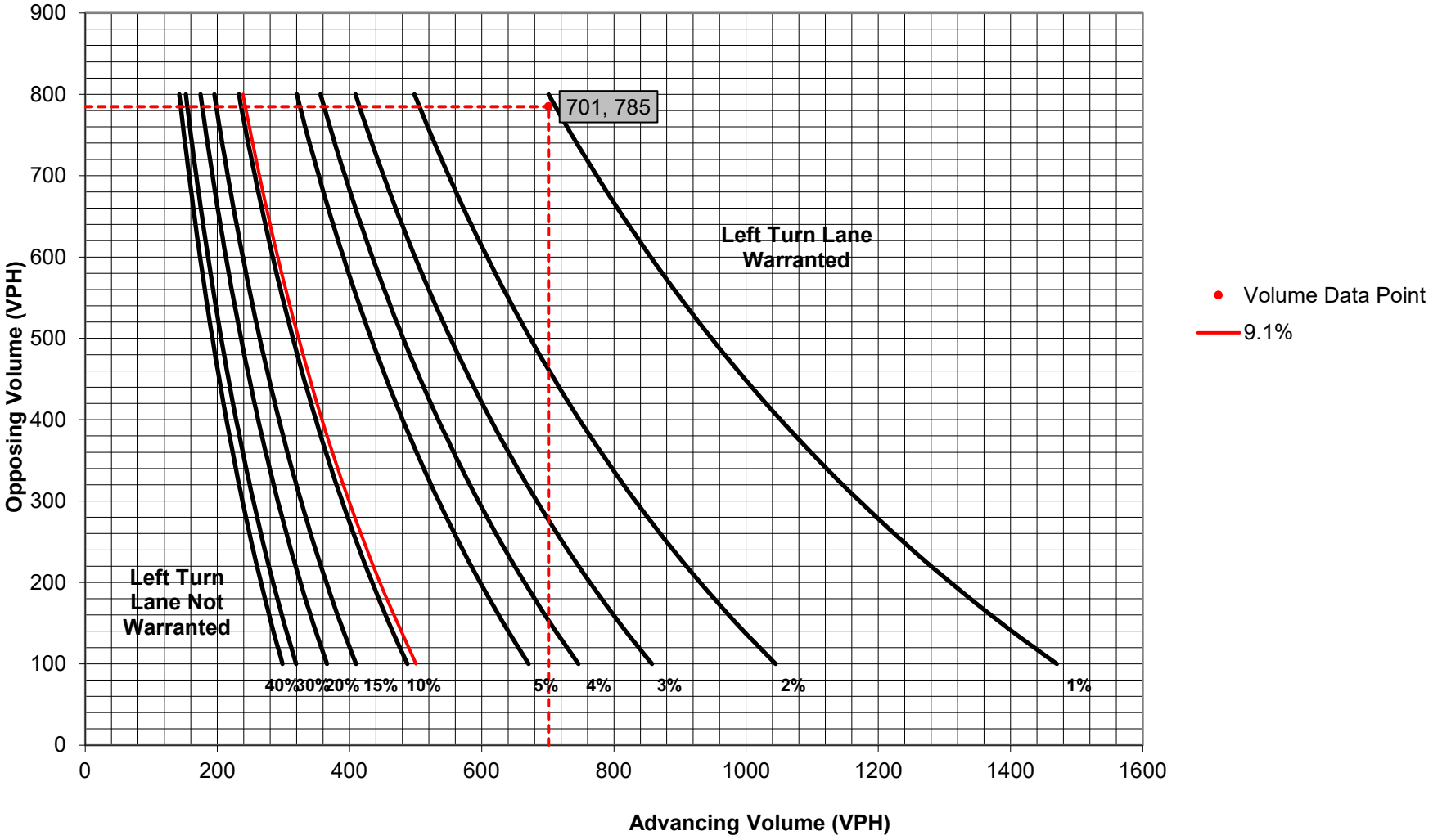
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	175	Feet
Required Left Turn Lane Storage Length:	175	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Westbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	61	9.0%	N/A
	Through	-	581	8.0%	N/A
	Right	Yes	29	14.0%	N/A
Opposing	Left	Yes	40	35.0%	N/A
	Through	-	705	5.0%	N/A
	Right	Yes	15	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	61	9.0%	64
	Through	-	581	8.0%	605
	Right	-	29	14.0%	32

Advancing Volume:	701
Right Turn Volume:	32

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	32
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

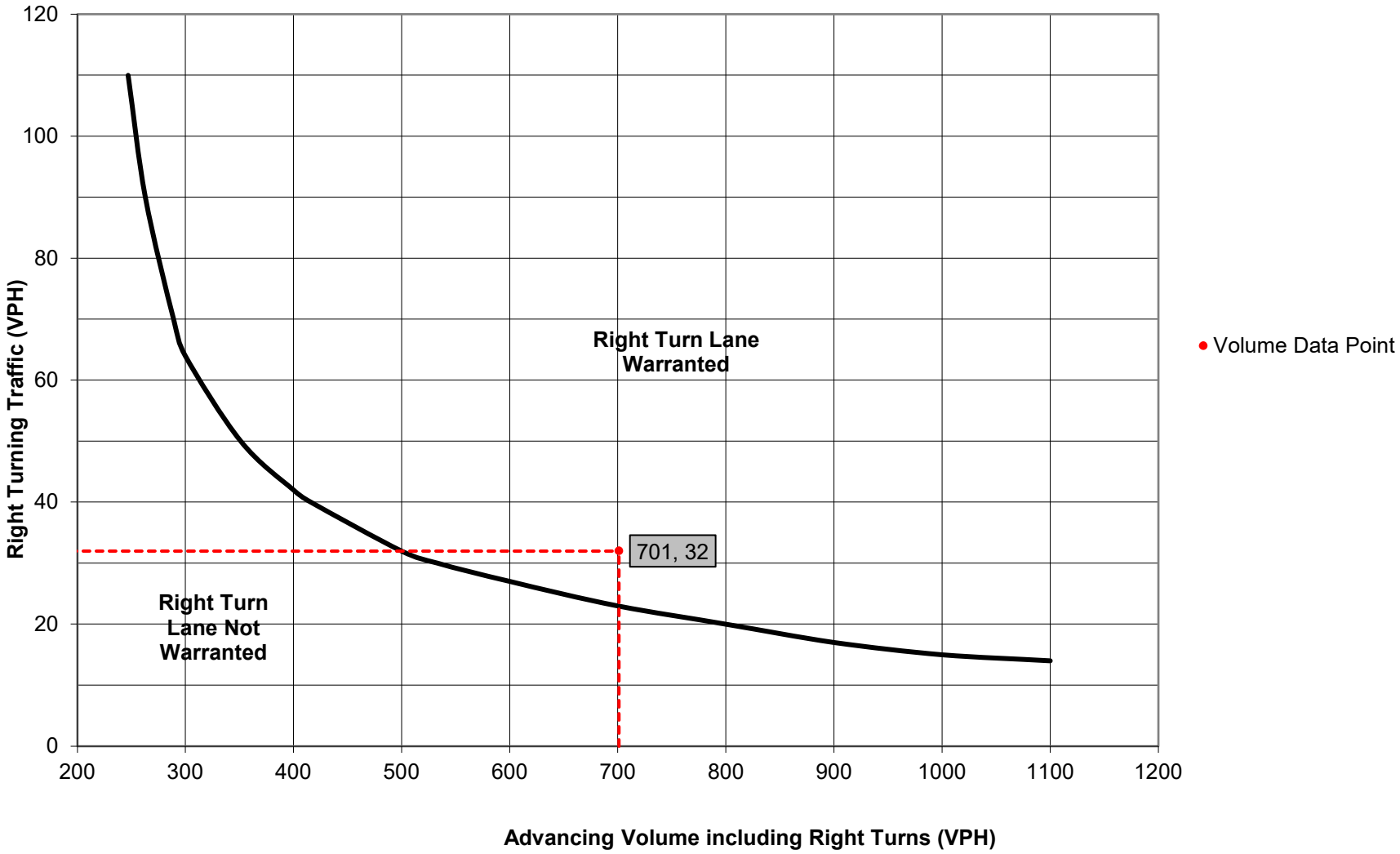
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	150	Feet
Required Right Turn Lane Storage Length:	150	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Northbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	0.0%	17
	Through	-	81	4.0%	83
	Right	Yes	71	15.0%	77
Opposing	Left	Yes	28	0.0%	28
	Through	-	146	3.0%	149
	Right	Yes	36	25.0%	41

Advancing Volume:	177
Opposing Volume:	218
Left Turn Volume:	17
% Left Turns in Advancing Volume:	9.60%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	0.0%	N/A
	Through	-	81	4.0%	N/A
	Right	-	71	15.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

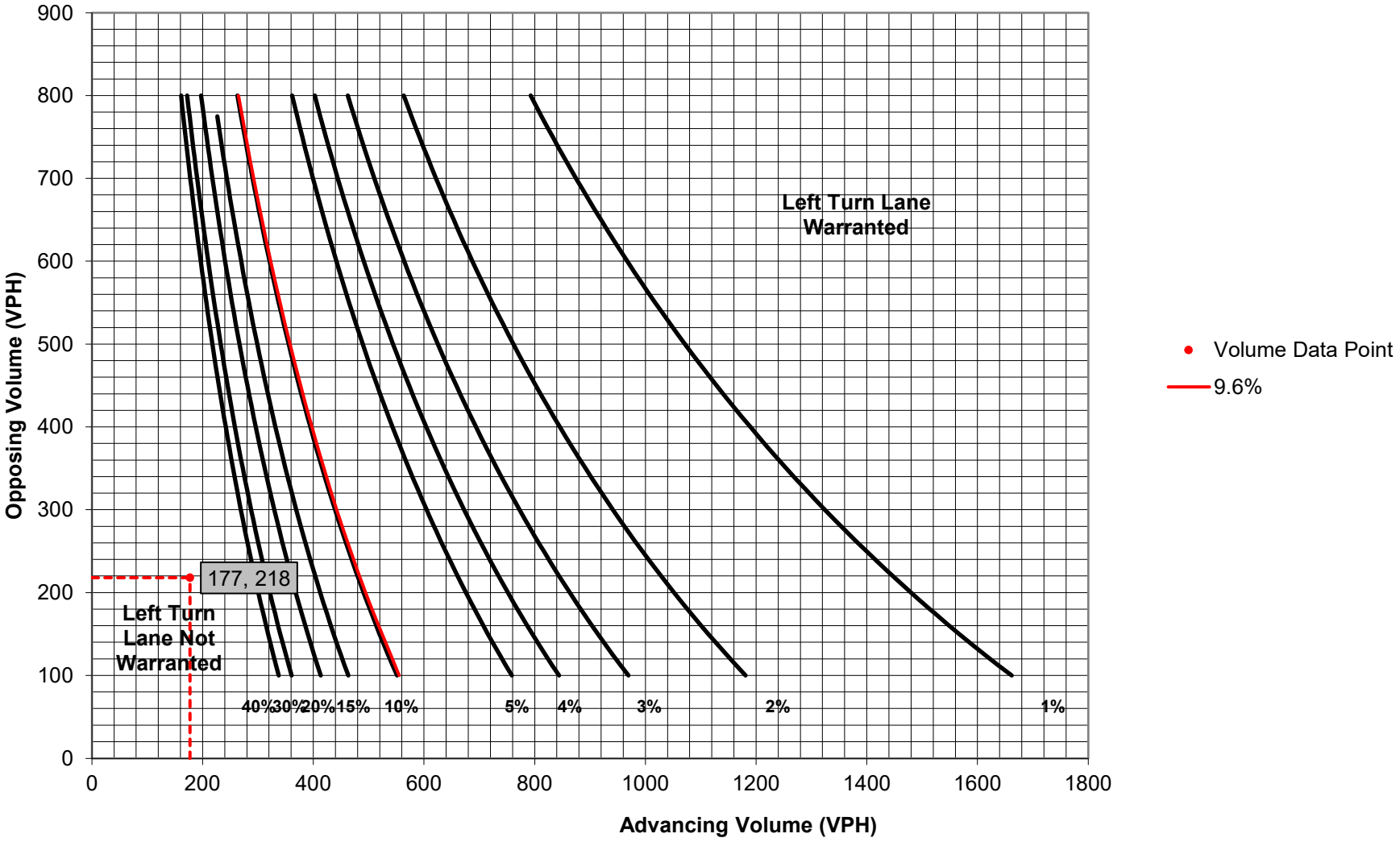
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Northbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	0.0%	N/A
	Through	-	81	4.0%	N/A
	Right	Yes	71	15.0%	N/A
Opposing	Left	Yes	28	0.0%	N/A
	Through	-	146	3.0%	N/A
	Right	Yes	36	25.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	0.0%	17
	Through	-	81	4.0%	83
	Right	-	71	15.0%	77

Advancing Volume:	177
Right Turn Volume:	77

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	77
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

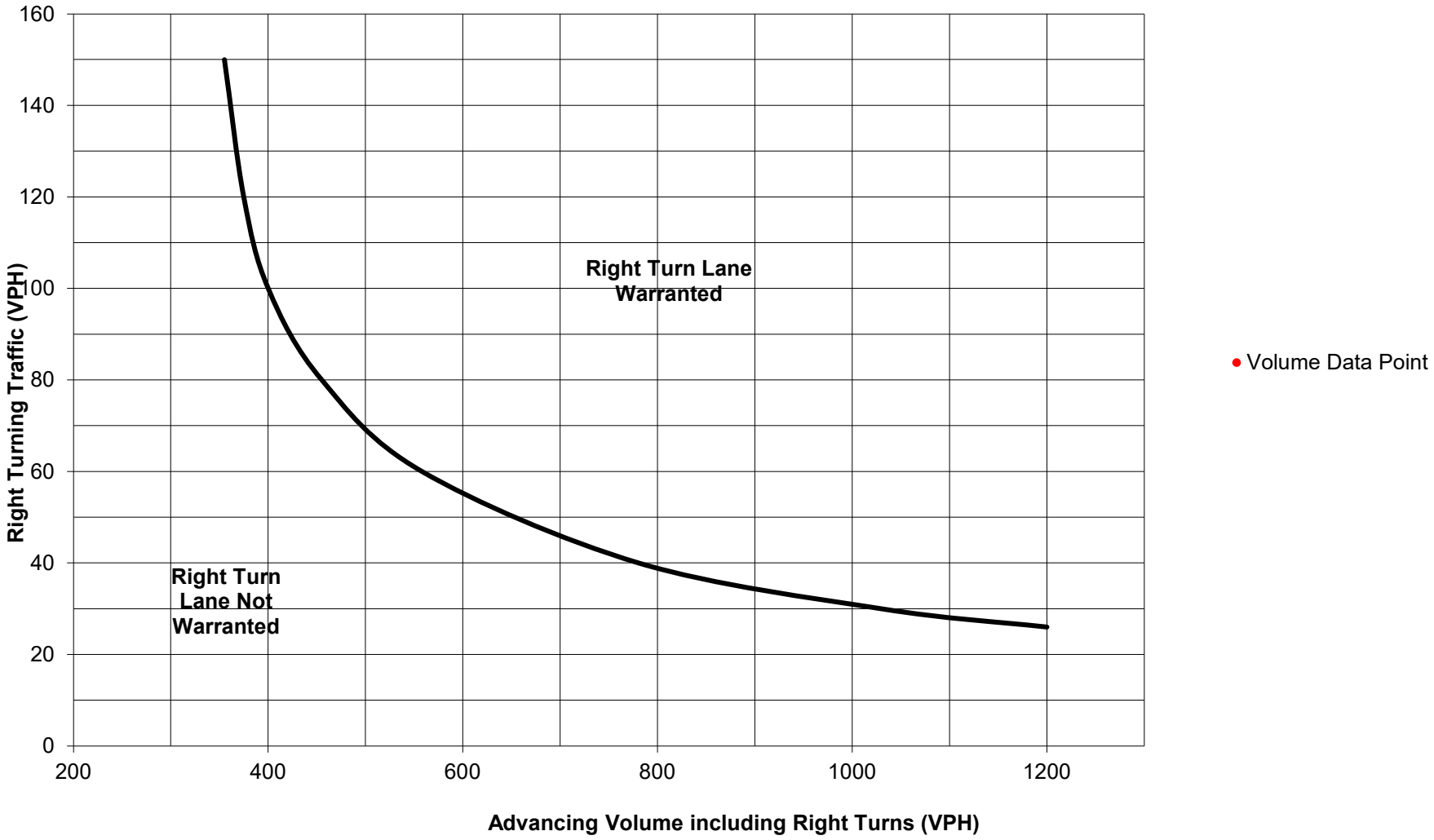
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Southbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	28	0.0%	28
	Through	-	146	3.0%	149
	Right	Yes	36	25.0%	41
Opposing	Left	Yes	17	0.0%	17
	Through	-	81	4.0%	83
	Right	Yes	71	15.0%	77

Advancing Volume:	218
Opposing Volume:	177
Left Turn Volume:	28
% Left Turns in Advancing Volume:	12.84%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	28	0.0%	N/A
	Through	-	146	3.0%	N/A
	Right	-	36	25.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 2**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	28
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

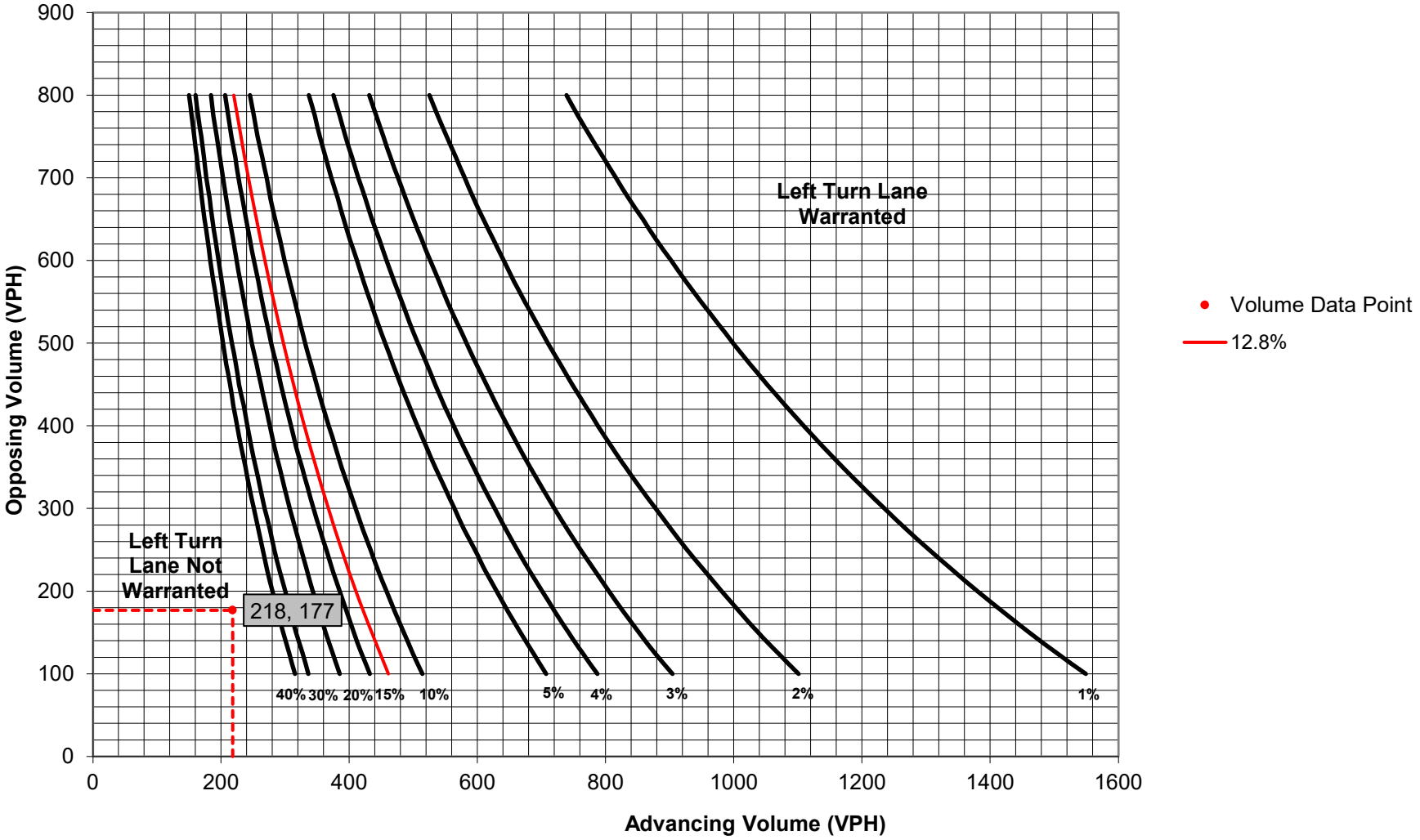
Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Southbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	28	0.0%	N/A
	Through	-	146	3.0%	N/A
	Right	Yes	36	25.0%	N/A
Opposing	Left	Yes	17	0.0%	N/A
	Through	-	81	4.0%	N/A
	Right	Yes	71	15.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	28	0.0%	28
	Through	-	146	3.0%	149
	Right	-	36	25.0%	41

Advancing Volume:	218
Right Turn Volume:	41

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	41
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

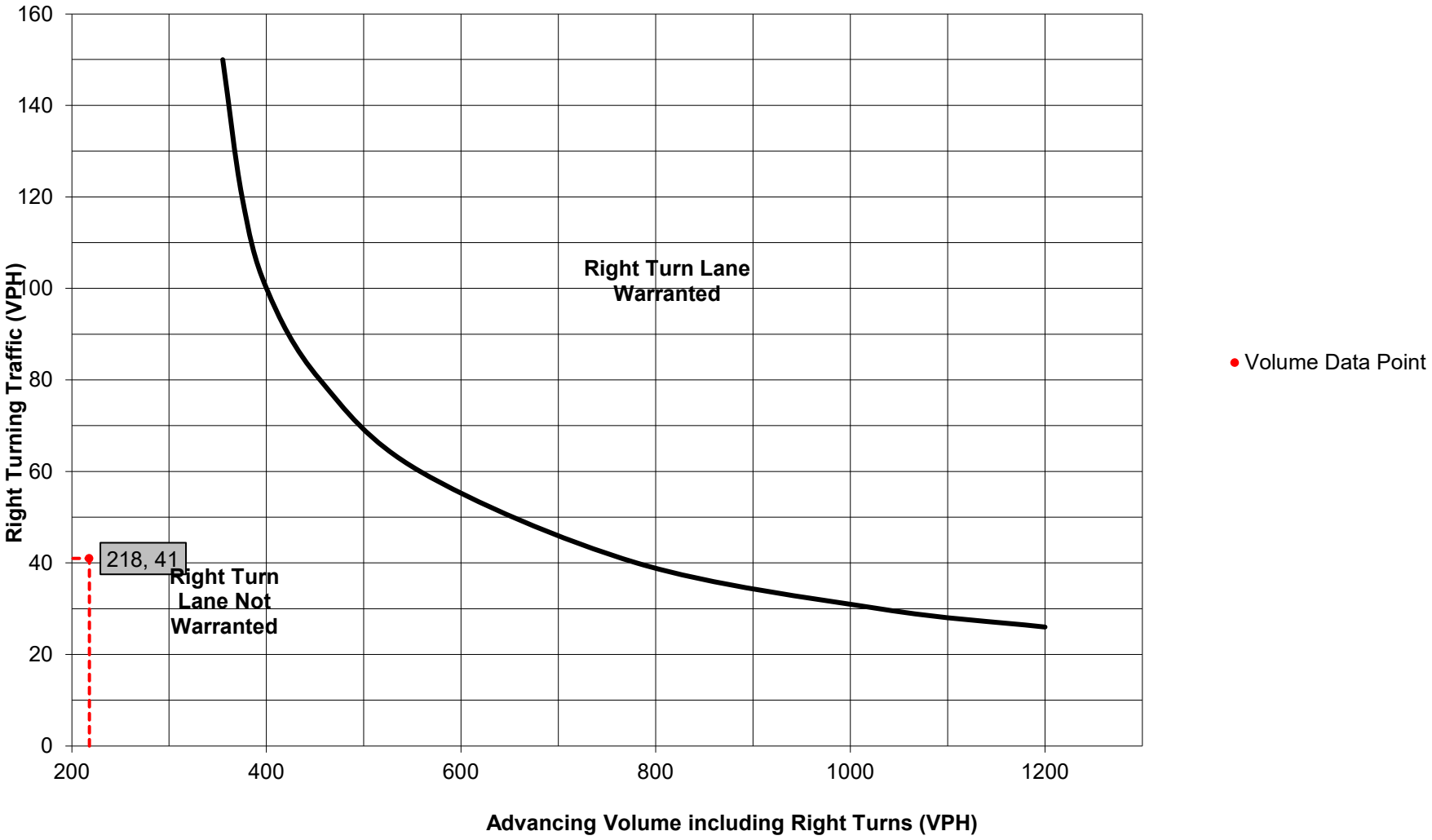
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Eastbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	47.0%	38
	Through	-	693	3.0%	704
	Right	Yes	21	0.0%	21
Opposing	Left	Yes	70	2.0%	71
	Through	-	610	5.0%	626
	Right	Yes	30	0.0%	30

Advancing Volume:	763
Opposing Volume:	727
Left Turn Volume:	38
% Left Turns in Advancing Volume:	4.98%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	47.0%	N/A
	Through	-	693	3.0%	N/A
	Right	-	21	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	38
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

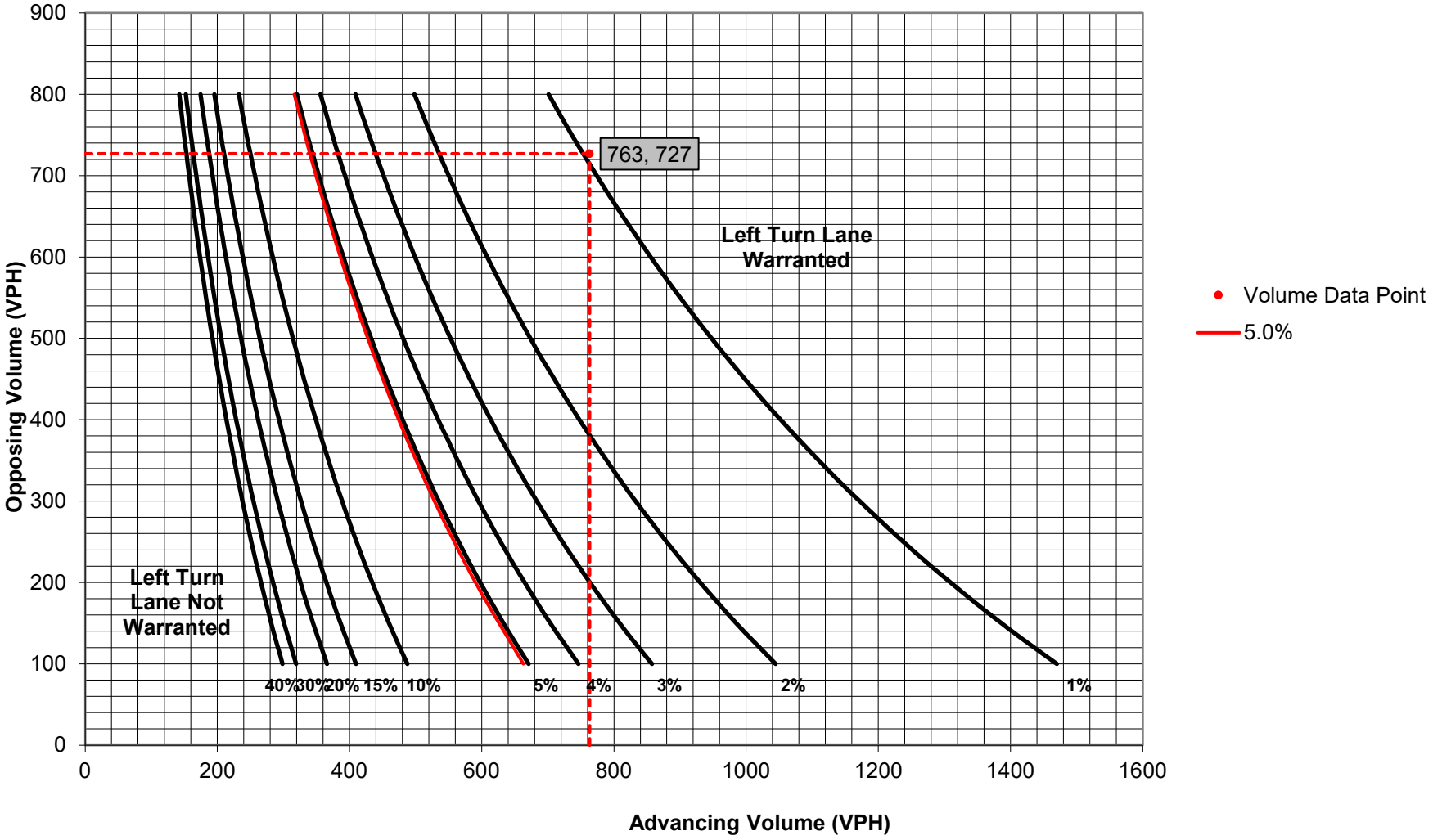
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**150**	**Feet**
Required Left Turn Lane Storage Length:	**150**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Eastbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	47.0%	N/A
	Through	-	693	3.0%	N/A
	Right	Yes	21	0.0%	N/A
Opposing	Left	Yes	70	2.0%	N/A
	Through	-	610	5.0%	N/A
	Right	Yes	30	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	47.0%	38
	Through	-	693	3.0%	704
	Right	-	21	0.0%	21

Advancing Volume:	763
Right Turn Volume:	21

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	21
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

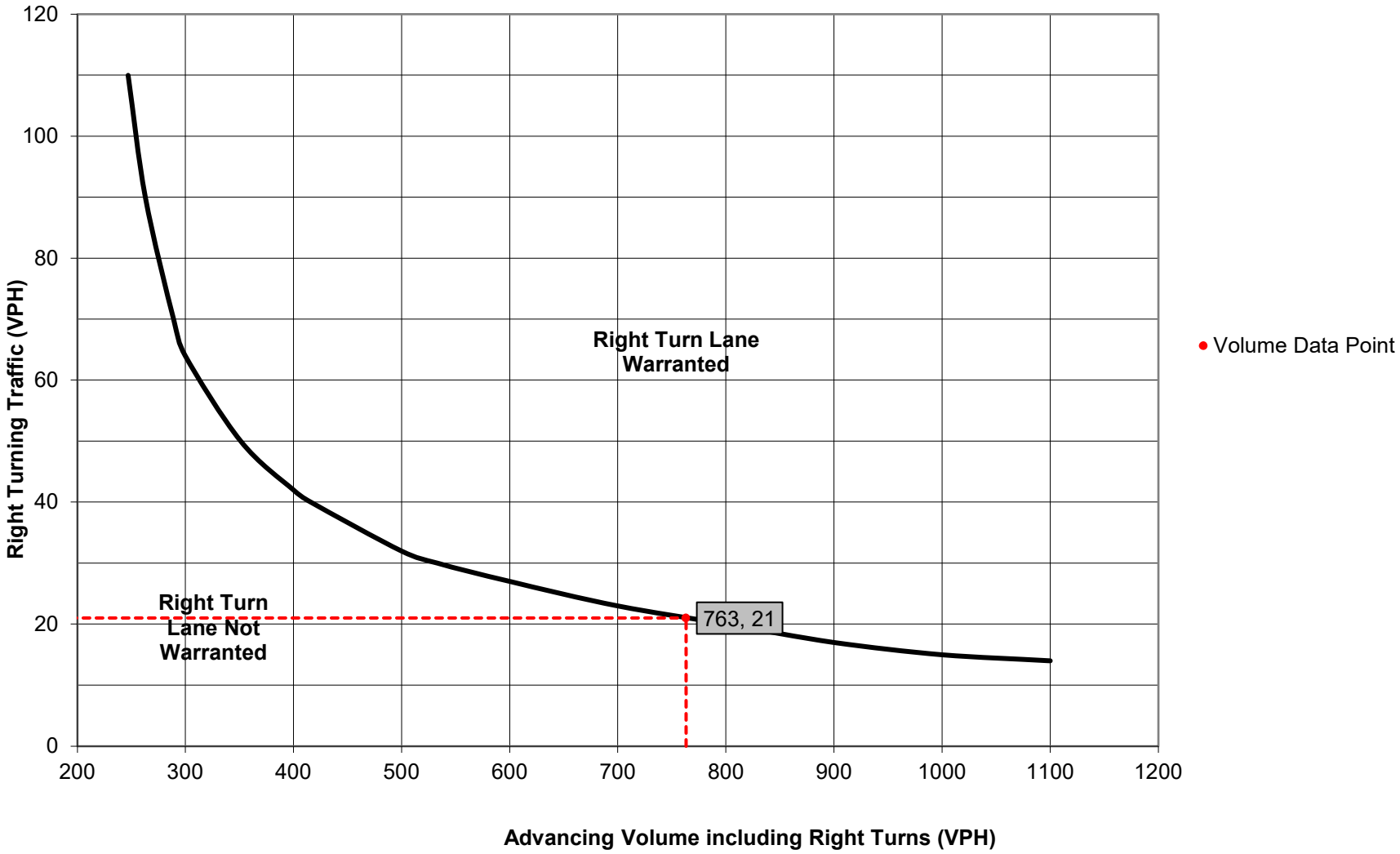
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Westbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	70	2.0%	71
	Through	-	610	5.0%	626
	Right	Yes	30	0.0%	30
Opposing	Left	Yes	30	47.0%	38
	Through	-	693	3.0%	704
	Right	Yes	21	0.0%	21

Advancing Volume:	727
Opposing Volume:	763
Left Turn Volume:	71
% Left Turns in Advancing Volume:	9.77%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	70	2.0%	N/A
	Through	-	610	5.0%	N/A
	Right	-	30	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	71
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**175**	**Feet**
Required Left Turn Lane Storage Length:	**175**	**Feet**

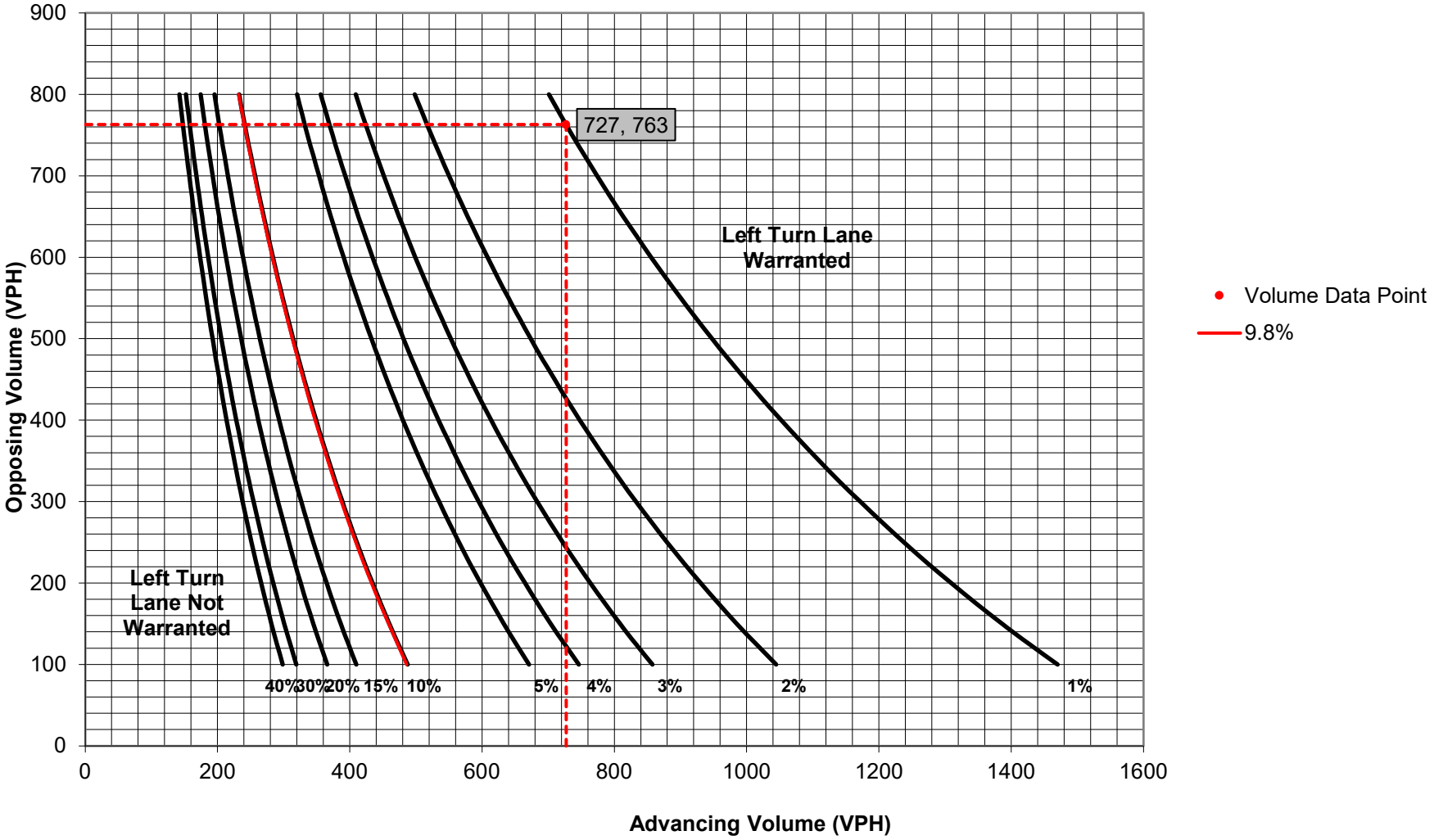
Additional Findings:

N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Westbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	70	2.0%	N/A
	Through	-	610	5.0%	N/A
	Right	Yes	30	0.0%	N/A
Opposing	Left	Yes	30	47.0%	N/A
	Through	-	693	3.0%	N/A
	Right	Yes	21	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	70	2.0%	71
	Through	-	610	5.0%	626
	Right	-	30	0.0%	30

Advancing Volume:	727
Right Turn Volume:	30

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	30
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

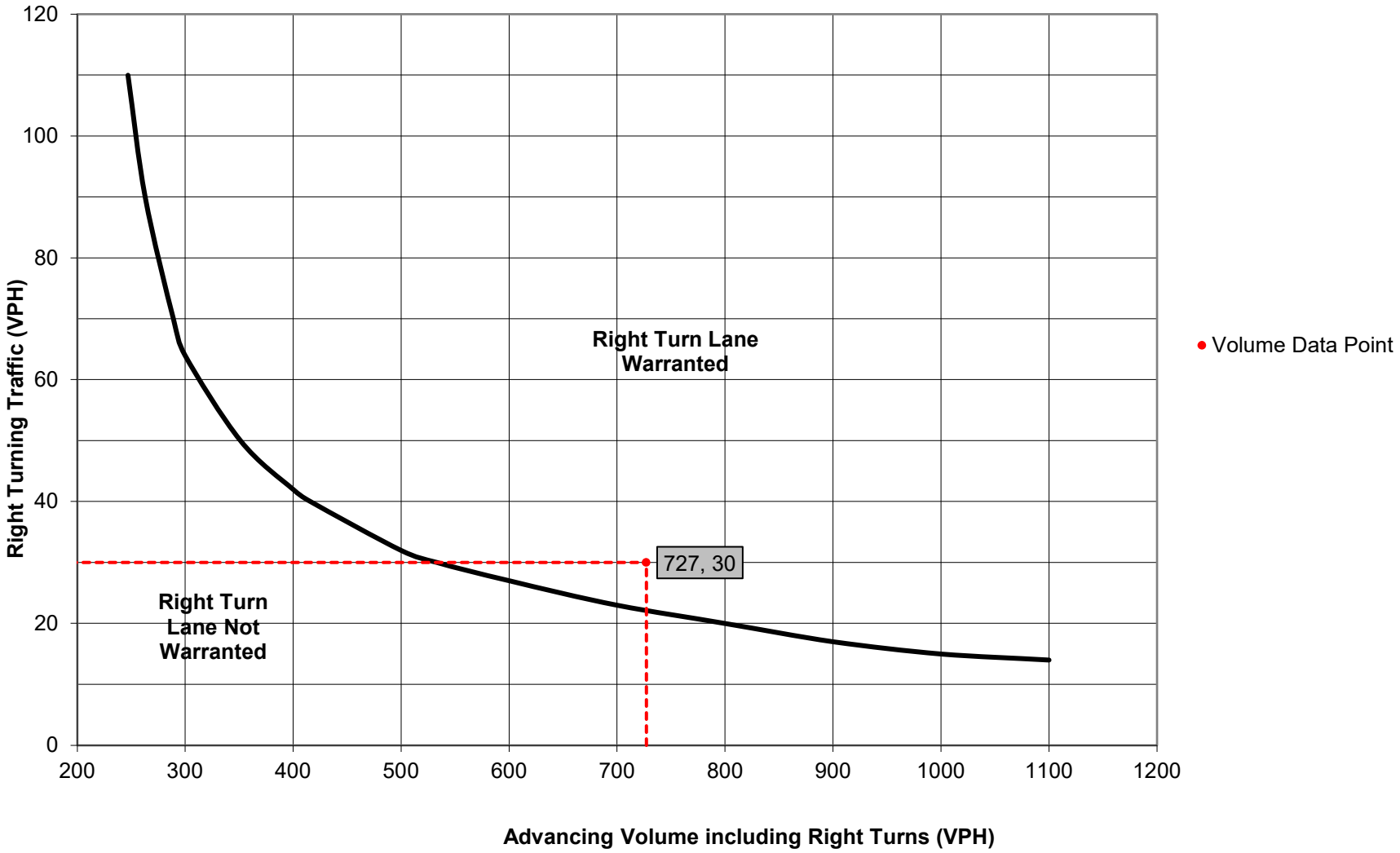
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	150	Feet
Required Right Turn Lane Storage Length:	150	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Northbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	12
	Through	-	144	3.0%	147
	Right	Yes	86	1.0%	87
Opposing	Left	Yes	41	0.0%	41
	Through	-	117	3.0%	119
	Right	Yes	57	23.0%	64

Advancing Volume:	246
Opposing Volume:	224
Left Turn Volume:	12
% Left Turns in Advancing Volume:	4.88%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	N/A
	Through	-	144	3.0%	N/A
	Right	-	86	1.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

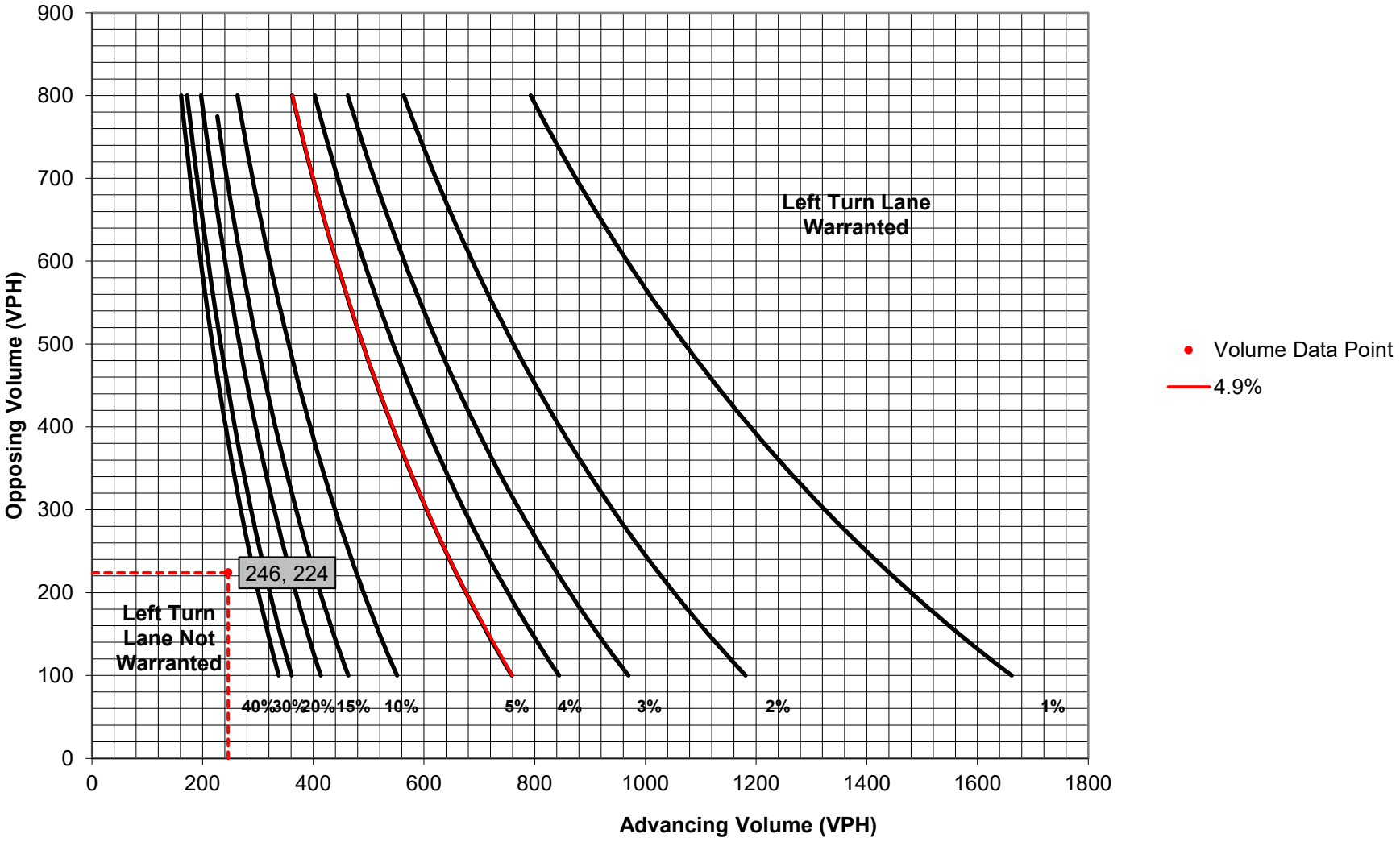
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Northbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	N/A
	Through	-	144	3.0%	N/A
	Right	Yes	86	1.0%	N/A
Opposing	Left	Yes	41	0.0%	N/A
	Through	-	117	3.0%	N/A
	Right	Yes	57	23.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	12
	Through	-	144	3.0%	147
	Right	-	86	1.0%	87

Advancing Volume:	246
Right Turn Volume:	87

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	87
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

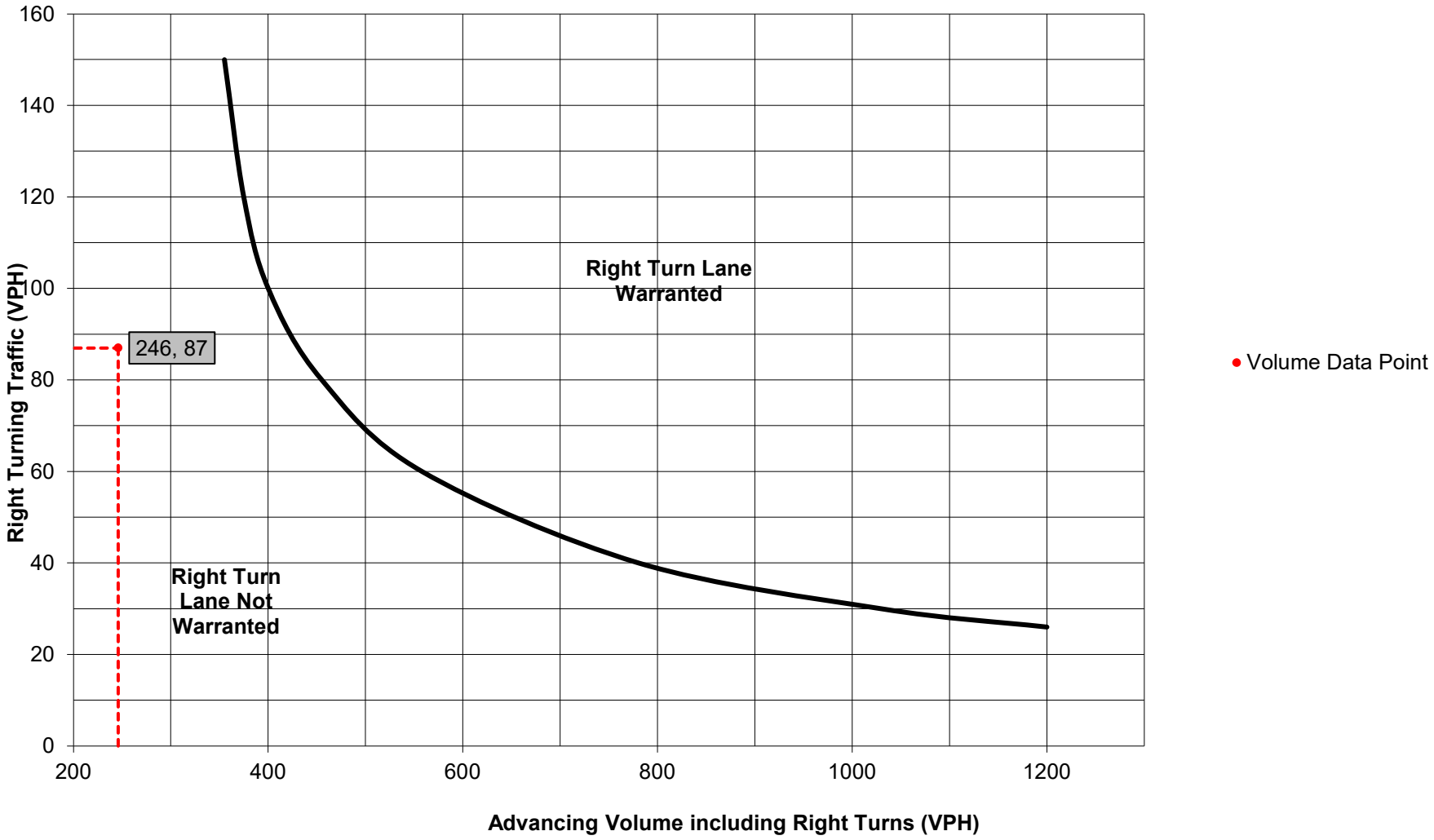
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Southbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	41	0.0%	41
	Through	-	117	3.0%	119
	Right	Yes	57	23.0%	64
Opposing	Left	Yes	12	0.0%	12
	Through	-	144	3.0%	147
	Right	Yes	86	1.0%	87

Advancing Volume:	224
Opposing Volume:	246
Left Turn Volume:	41
% Left Turns in Advancing Volume:	18.30%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	41	0.0%	N/A
	Through	-	117	3.0%	N/A
	Right	-	57	23.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 2**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	41
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

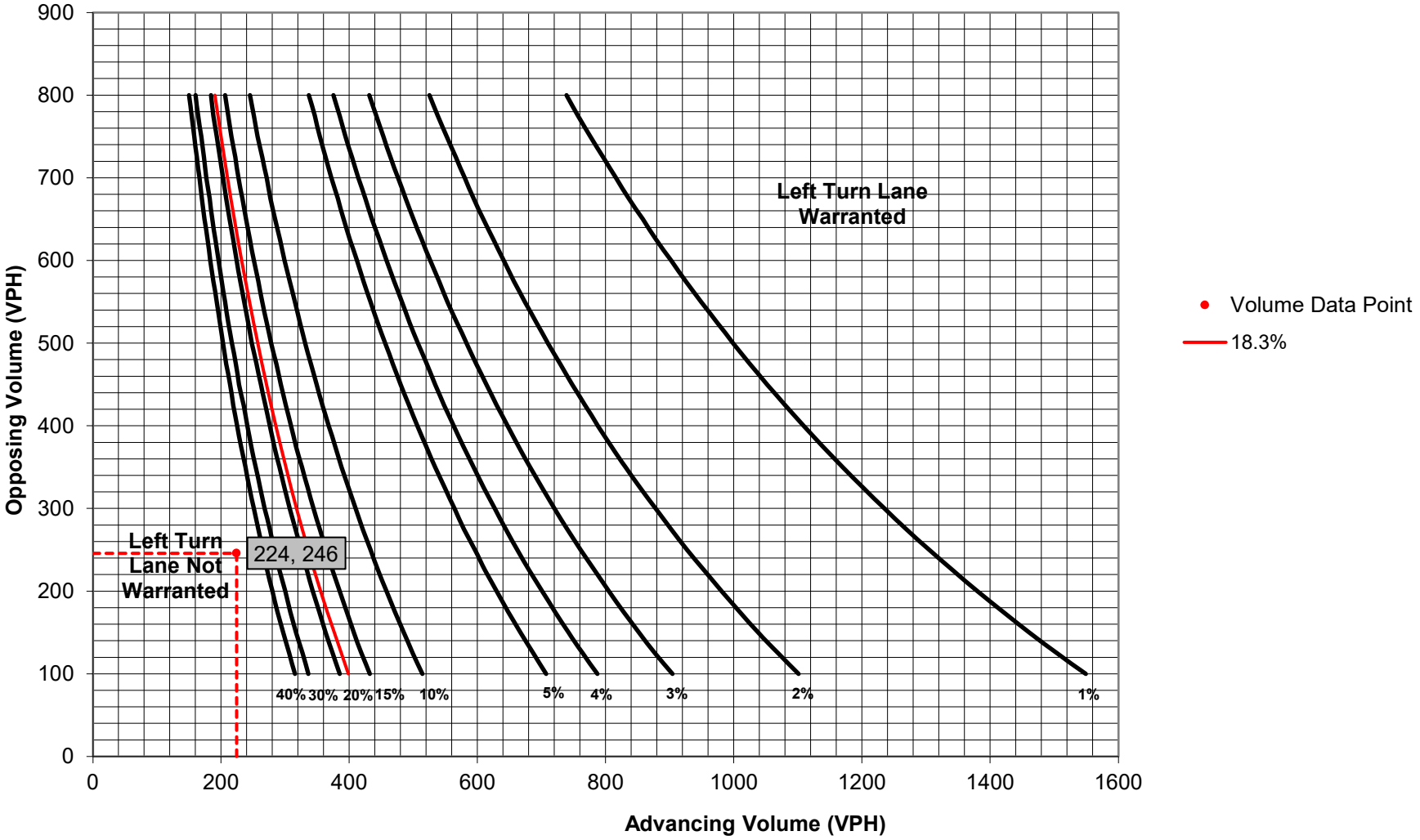
Additional Findings:

N/A

Additional Comments / Justifications:

Figure 2. Warrant for left turn lanes on two-lane highways (40 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	New Britain Township	**Analysis Date:**	7/7/2026
County:	Bucks County	**Conducted By:**	BH
PennDOT Engineering District:	6	**Checked By:**	GD
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: County Line Road & Walnut Street - Southbound Approach

Analysis Period:	2034 Build	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	40		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	41	0.0%	N/A
	Through	-	117	3.0%	N/A
	Right	Yes	57	23.0%	N/A
Opposing	Left	Yes	12	0.0%	N/A
	Through	-	144	3.0%	N/A
	Right	Yes	86	1.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	41	0.0%	41
	Through	-	117	3.0%	119
	Right	-	57	23.0%	64

Advancing Volume:	224
Right Turn Volume:	64

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	64
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	30

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

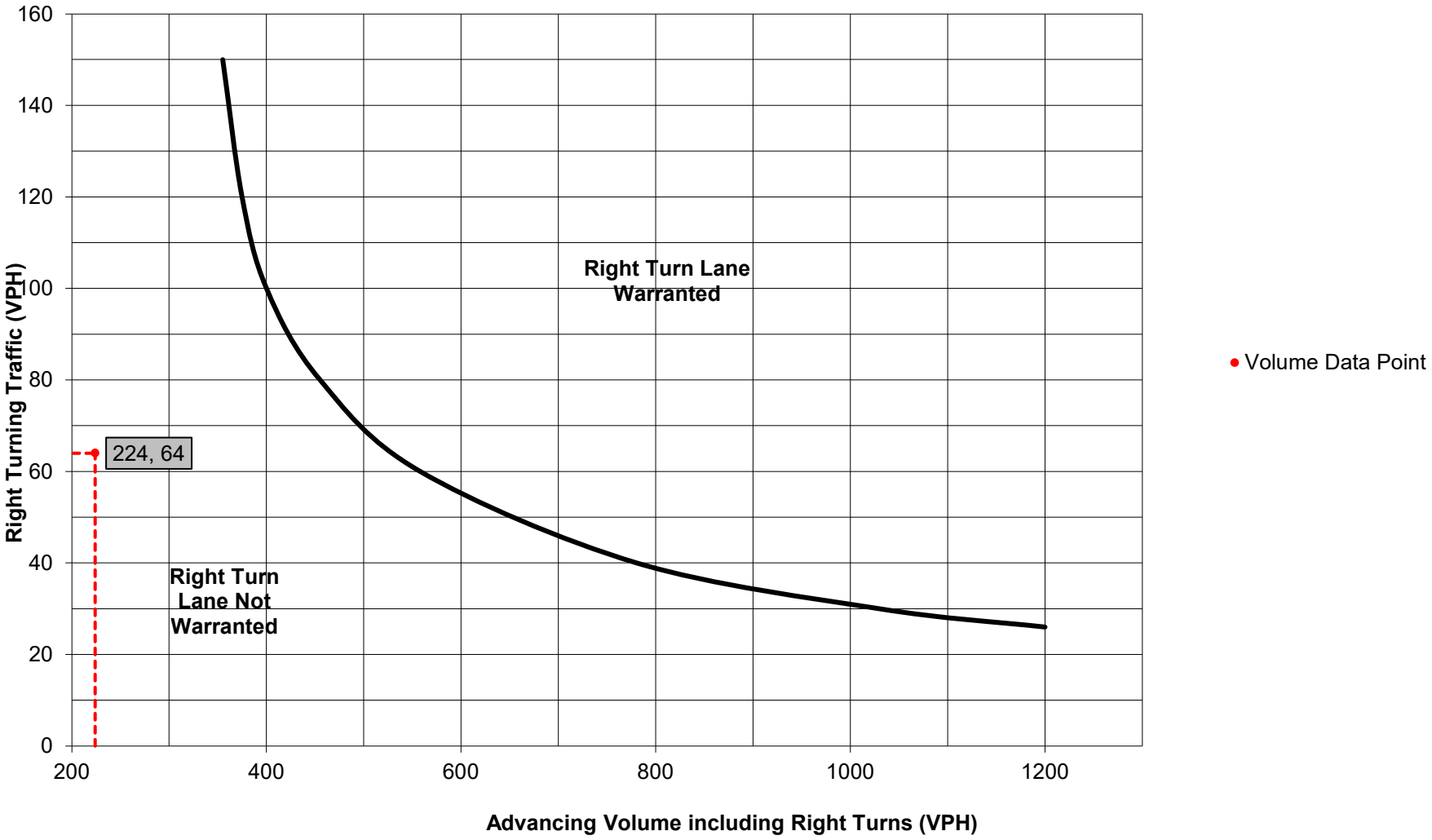
Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



APPENDIX J:

Conflict Factor Analysis

LEFT TURN SIGNALIZATION DOCUMENTATION

COUNTY: **BUCKS**
MUNICIPALITY: **NEW BRITAIN TOWNSHIP**
INTERSECTION: **WALNUT STREET & COUNTY LINE ROAD (SR 2038)**
DIRECTION: **(N/S)** **(E/W)**

Time	Left Turn				Opposing		Calculated	Required
	Direction	Exclusive Lane	Per Cycle	Volume	Through Volume	# of Lanes	Conflict Factor	Conflict Factor
AM PEAK	EB	N	1.32	40	610	1	24,400	35,000
	WB	N	2.02	61	720	1	43,920	35,000
	NB	N	0.56	17	182	1	3,094	35,000
	SB	N	0.93	28	152	1	4,256	35,000
PM PEAK	EB	N	0.99	30	640	1	19,200	35,000
	WB	N	2.31	70	714	1	49,980	35,000
	NB	N	0.40	12	174	1	2,088	35,000
	SB	N	1.36	41	230	1	9,430	35,000

*Volumes based upon 2034 Projected Conditions
AM Cycle Length (Seconds) - 119
PM Cycle Length (Seconds) - 119

Protected/Permitted
No Turn Lane **>35,000 one lane** **>45,000 two lane**
Turn Lane **>50,000 one lane** **>65,000 two lane**

Protected/Prohibited
Turn Lane **>67,500 one lane** **>90,000 two lane**

DIRECTION	LEFT TURN PHASES		
	Warrant Satisfied	Existing	Proposed
Eastbound	NO	Perm	Perm
Westbound	YES	Perm	Perm
Northbound	NO	Perm	Perm
Southbound	NO	Perm	Perm

LEFT TURN SIGNALIZATION DOCUMENTATION

COUNTY: **BUCKS**
MUNICIPALITY: **NEW BRITAIN TOWNSHIP**
INTERSECTION: **COUNTY LINE ROAD (SR 2038) & NEW BRITAIN BOULEVARD**
DIRECTION: **(E/W)** **(N/S)**

Time	Left Turn				Opposing		Calculated	Required
	Direction	Exclusive Lane	Per Cycle	Volume	Through Volume	# of Lanes	Conflict Factor	Conflict Factor
AM PEAK	EB	Y	0.97	35	629	2	22,015	65,000
	WB	Y	0.14	5	731	1	3,655	50,000
	NB	N	0.00	0	10	1	0	35,000
	SB	Y	1.08	39	1	1	39	50,000
PM PEAK	EB	Y	0.58	21	730	2	15,330	65,000
	WB	Y	0.00	0	595	1	0	50,000
	NB	N	0.03	1	43	1	43	35,000
	SB	Y	2.69	97	4	1	388	50,000

*Volumes based upon 2034 Projected Conditions
AM Cycle Length (Seconds) - 100
PM Cycle Length (Seconds) - 100

DIRECTION	LEFT TURN PHASES		
	Warrant Satisfied	Existing	Proposed
Eastbound	NO	Perm	Perm
Westbound	NO	Perm	Perm
Northbound	NO	Perm	Perm
Southbound	NO	Perm	Perm

Protected/Permitted
No Turn Lane **>35,000 one lane** **>45,000 two lane**
Turn Lane **>50,000 one lane** **>65,000 two lane**

Protected/Prohibited
Turn Lane **>67,500 one lane** **>90,000 two lane**

LEFT TURN SIGNALIZATION DOCUMENTATION

COUNTY: **BUCKS**
MUNICIPALITY: **NEW BRITAIN TOWNSHIP**
INTERSECTION: **BETHLEHEM PIKE (SR 0309) & LINE LEXINGTON ROAD (SR 2008) / COUNTY LINE ROAD (SR 2038)**
DIRECTION: **(N/S)** **(E/W)**

Time	Left Turn				Opposing		Calculated	Required
	Direction	Exclusive Lane	Per Cycle	Volume	Through Volume	# of Lanes	Conflict Factor	Conflict Factor
AM PEAK	EB	Y	1.40	42	525	2	22,050	65,000
	WB	Y	0.77	23	182	1	4,186	50,000
	NB	Y	1.23	37	1,626	3	60,162	65,000
	SB	Y	18.87	566	830	2	469,780	65,000
PM PEAK	EB	Y	2.97	89	528	2	46,992	65,000
	WB	Y	0.97	29	141	1	4,089	50,000
	NB	Y	1.80	54	1,287	3	69,498	65,000
	SB	Y	14.10	423	1,473	2	623,079	65,000

*Volumes based upon 2034 Projected Conditions
AM Cycle Length (Seconds) - 120
PM Cycle Length (Seconds) - 120

Protected/Permitted

No Turn Lane	**>35,000 one lane**	**>45,000 two lane**
Turn Lane	**>50,000 one lane**	**>65,000 two lane**

Protected/Prohibited

Turn Lane	**>67,500 one lane**	**>90,000 two lane**

DIRECTION	LEFT TURN PHASES		
	Warrant Satisfied	Existing	Proposed
Eastbound	NO	Prot/Perm	Prot/Perm
Westbound	NO	Perm	Perm
Northbound	NO	Perm	Prot/Perm
Southbound	YES	Prot/Perm	Prot/Perm

1515 Market Street, Suite 920
Philadelphia, PA 19102
267.402.3400

EXHIBIT 5

Truck Turning Plan
County Line Road & Walnut Street

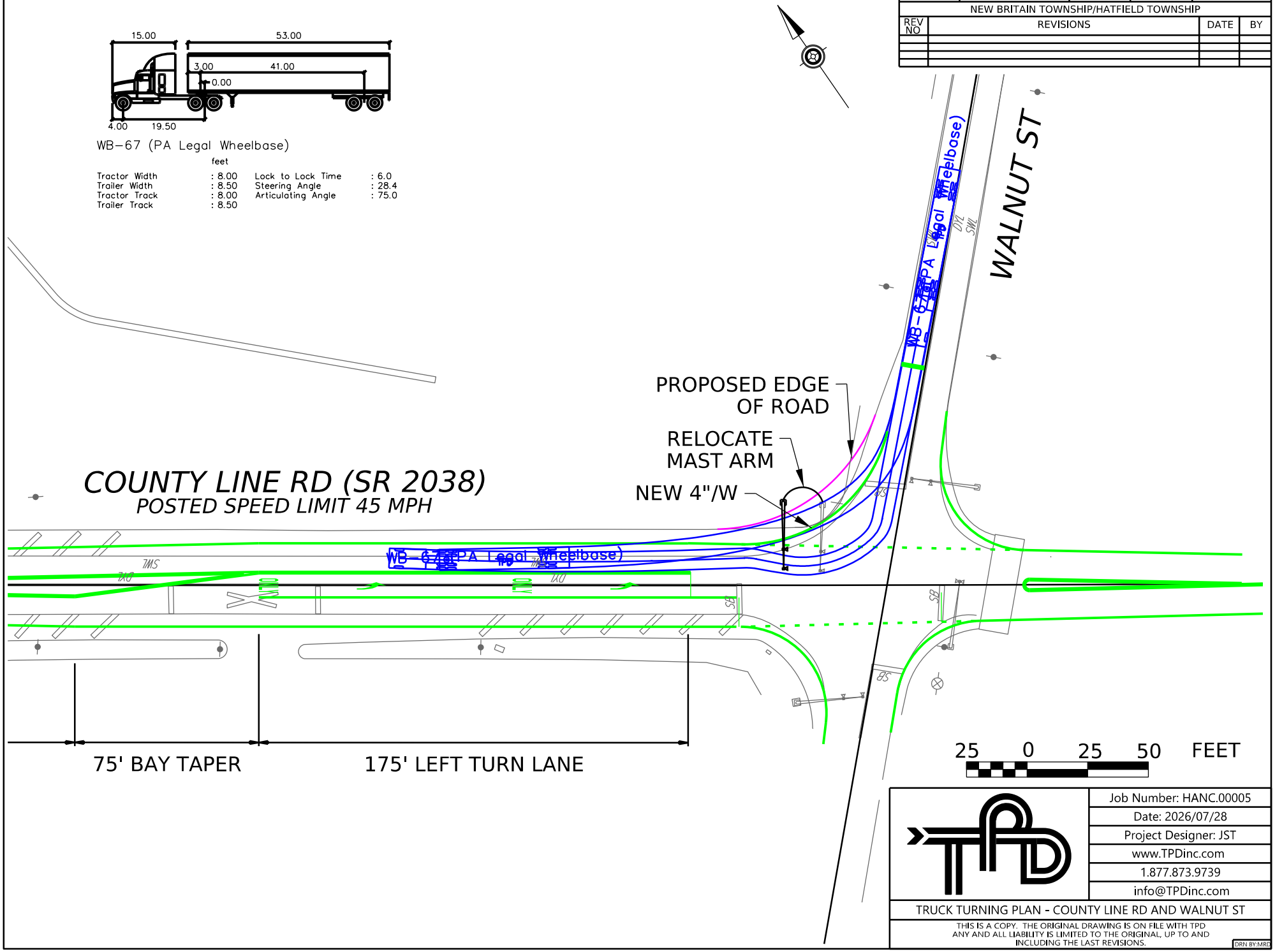
DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	BUCKS/MONTGOMERY	2038	--	1 OF 6
NEW BRITAIN TOWNSHIP/HATFIELD TOWNSHIP				

REV NO	REVISIONS	DATE	BY

WB-67 (PA Legal Wheelbase)

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		



	Job Number: HANC.00005
	Date: 2026/07/28
	Project Designer: JST
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	info@TPDinc.com

TRUCK TURNING PLAN - COUNTY LINE RD AND WALNUT ST

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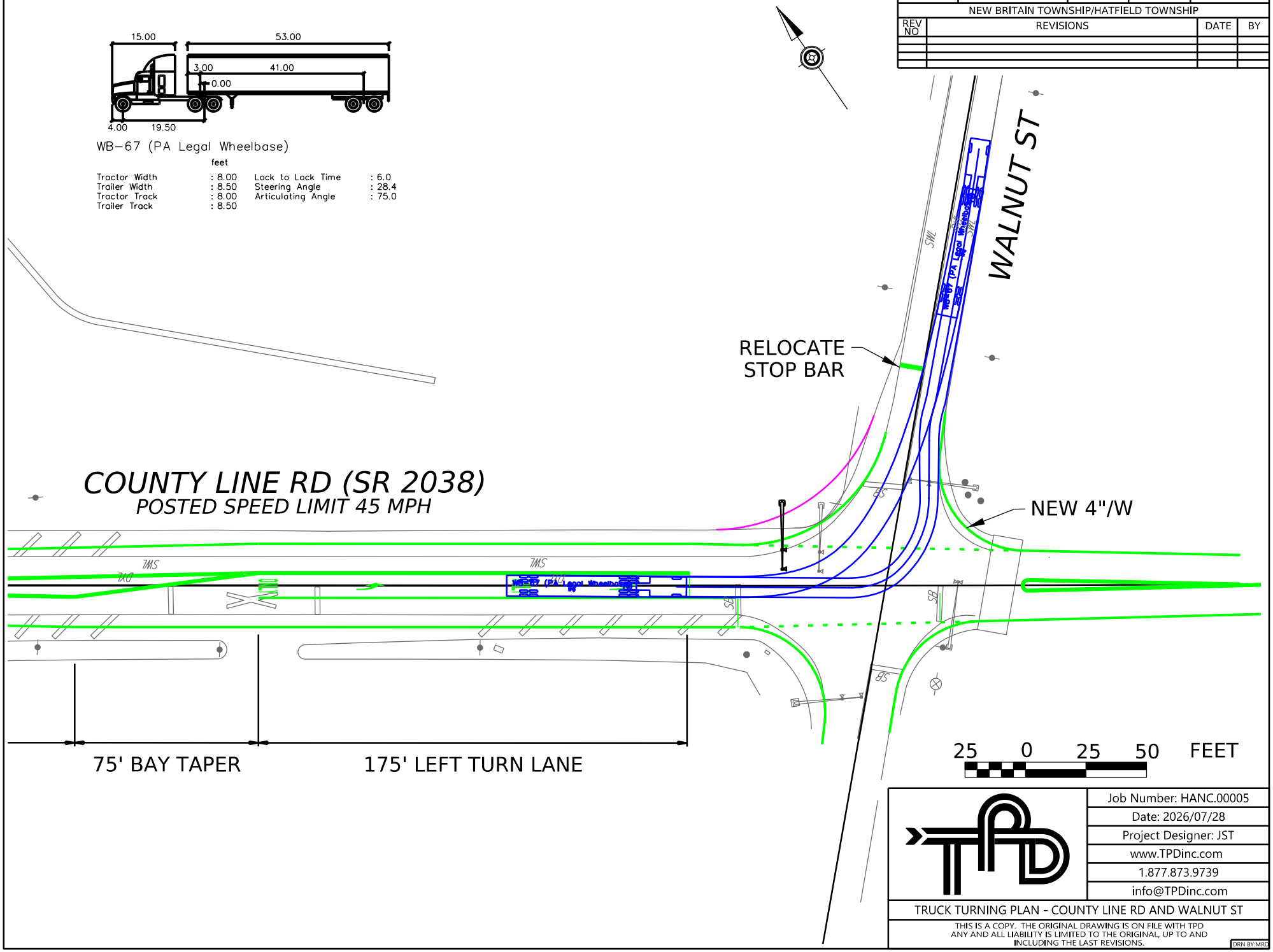
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6-0	BUCKS/MONTGOMERY	2038	--	2 OF 6
NEW BRITAIN TOWNSHIP/HATFIELD TOWNSHIP				

REV NO	REVISIONS	DATE	BY

WB–67 (PA Legal Wheelbase)

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		



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	Date: 2026/07/28
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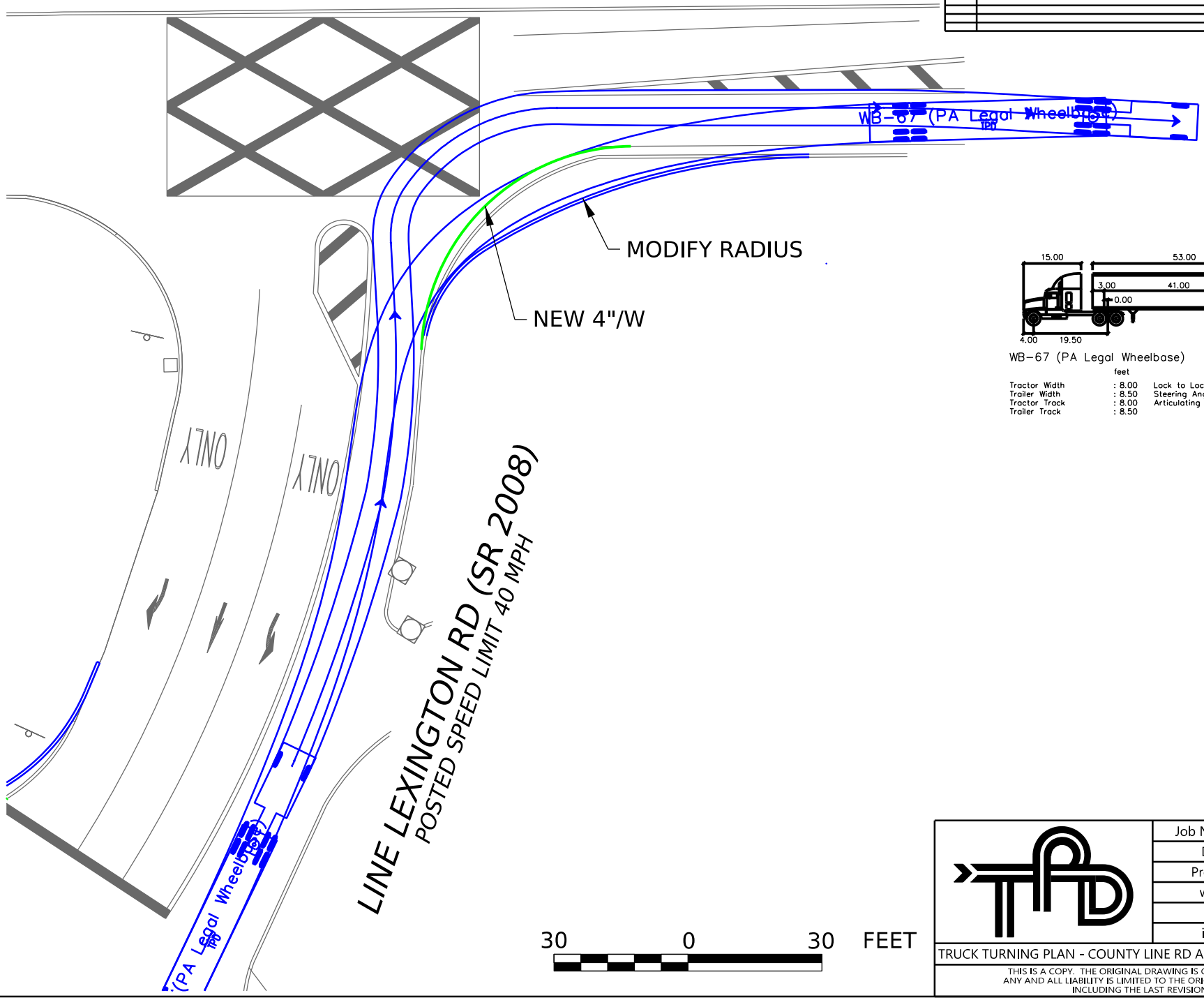
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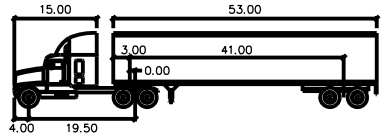
COUNTY LINE RD (SR 2038)

POSTED SPEED LIMIT 45 MPH

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	BUCKS/MONTGOMERY	2038/2008	--	3 OF 6
NEW BRITAIN TOWNSHIP/HATFIELD TOWNSHIP				

REV NO	REVISIONS	DATE	BY





WB-67 (PA Legal Wheelbase)

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

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Date: 2026/07/28	
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TRUCK TURNING PLAN - COUNTY LINE RD AND LINE LEXINGTON RD

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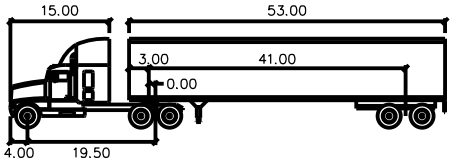
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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	MONTGOMERY	2008/0309	--	4 OF 6
HATFIELD TOWNSHIP				

REV NO	REVISIONS	DATE	BY

COUNTY LINE RD (SR 2038)
POSTED SPEED LIMIT 45 MPH

LINE LEXINGTON RD (SR 2008)
POSTED SPEED LIMIT 40 MPH



WB-67 (PA Legal Wheelbase)

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

MODIFY RADIUS
NEW 4"/W
REMOVE EX. MA
REPLACE WITH 55' MA

BETHLEHEM PK (SR 0309)
POSTED SPEED LIMIT 40 MPH

WB-67 (PA Legal Wheelbase)

30 0 30 FEET

Job Number:	HANC.00005
Date:	2026/07/28
Project Designer:	JST
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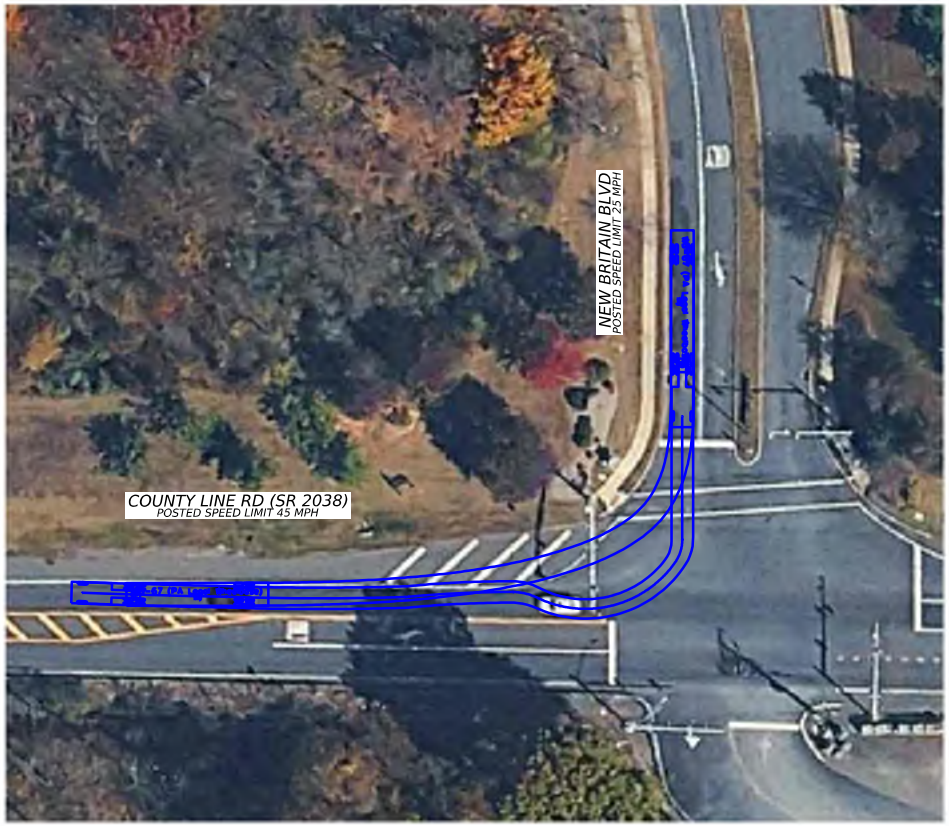
TRUCK TURNING PLAN - BETHLEHEM PK AND LINE LEXINGTON RD

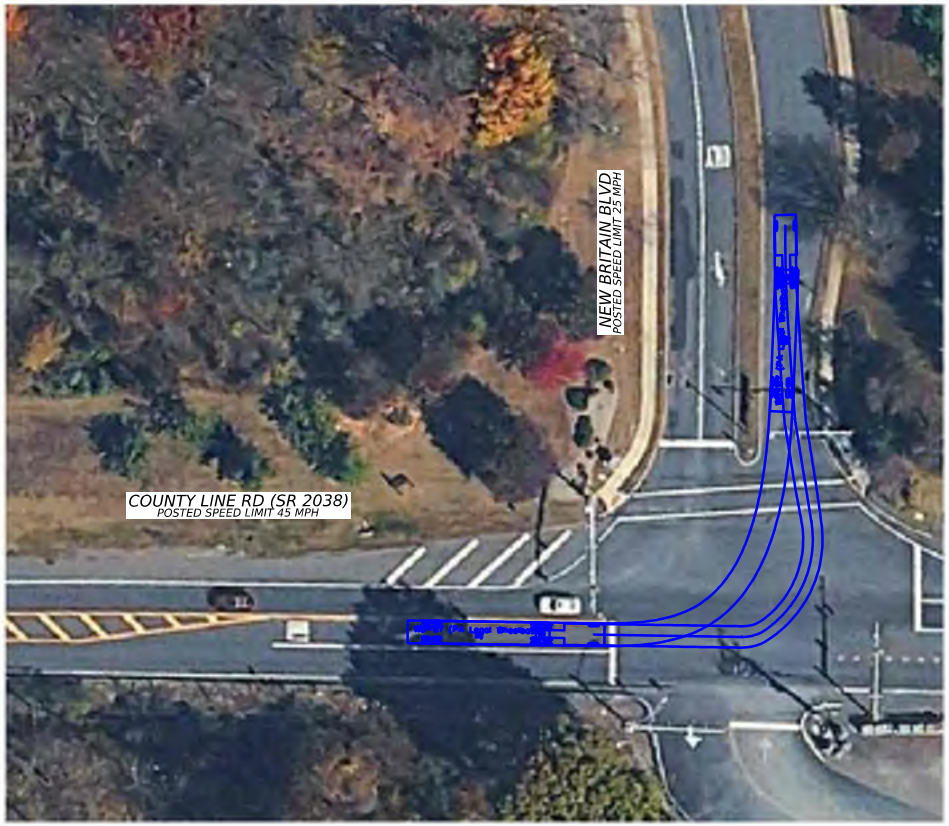
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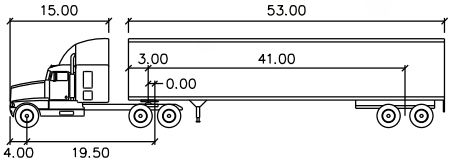
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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	BUCKS/MONTGOMERY	2038	--	5 OF 6
NEW BRITAIN TOWNSHIP/HATFIELD TOWNSHIP				

REV NO	REVISIONS	DATE	BY







WB-67 (PA Legal Wheelbase)

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

Job Number: HANC.00005
Date: 2026/07/28
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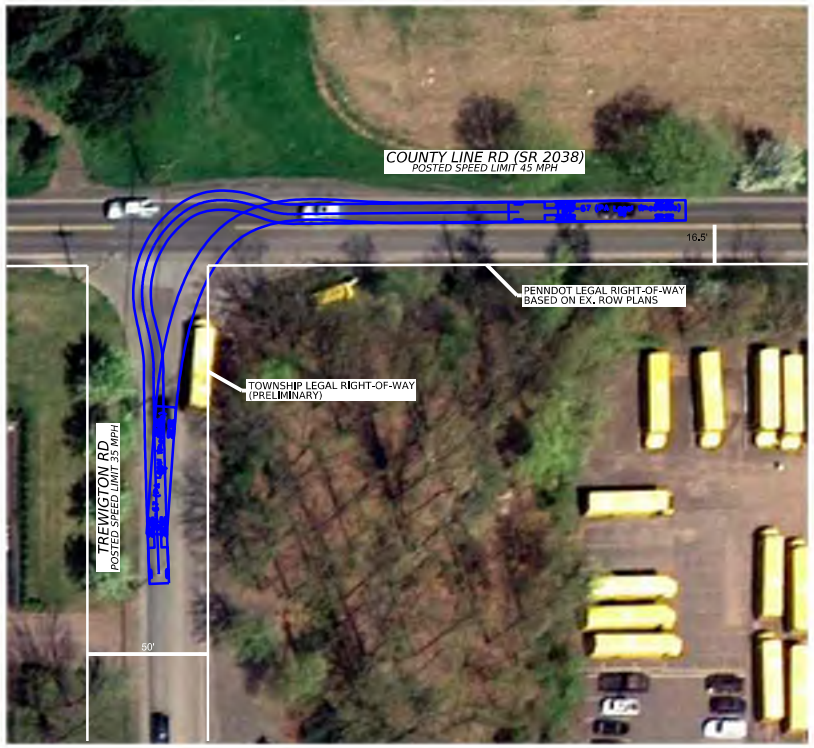
TRUCK TURNING PLAN - COUNTY LINE RD AND NEW BRITAIN BLVD

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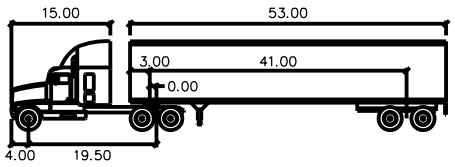
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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	BUCKS/MONTGOMERY	2038	--	6 OF 6
NEW BRITAIN TOWNSHIP/HATFIELD TOWNSHIP				

REV NO	REVISIONS	DATE	BY







WB–67 (PA Legal Wheelbase)

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

Job Number: HANC.00005
Date: 2026/07/28
Project Designer: JST
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TRUCK TURNING PLAN - COUNTY LINE RD AND TREWIGTON RD

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DRN BY:MRD

1515 Market Street, Suite 920
Philadelphia, PA 19102
267.402.3400

EXHIBIT 6

Geotechnical Engineering Report
Walnut Street – Chalfont, New Britain Township
Bucks County, Pennsylvania

GEOTECHNICAL ENGINEERING REPORT

Walnut Street - Chalfont

New Britain Township, Bucks County, Pennsylvania

August 28, 2025
Revised November 4, 2025

Prepared for:
Hanover Industrial LLC
7200 Wisconsin Avenue, Suite 820
Bethesda, Maryland 20814

Attn: Taylor M. (Gelinas) Riley, P.E.
Site Development Associates - Industrial

Prepared by:
Geo-Technology Associates, Inc.
Geotechnical and Environmental Consultants

2405 John Fries Highway
Quakertown, Pennsylvania, 18951
(215) 536-8363
www.gtaeng.com

GTA Project No: 31251589

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing Geoprofessional Business Association Member Firm

August 28, 2025
Revised November 4, 2025

Hanover Industrial LLC
7200 Wisconsin Avenue, Suite 820
Bethesda, Maryland 20814

Attn: Taylor M. (Gelinas) Riley, P.E.
Site Development Associates - Industrial

Re: Geotechnical Engineering Report
Walnut Street - Chalfont
New Britain Township, Bucks County, Pennsylvania

Dear Ms. Riley:

In accordance with our agreement, Geo-Technology Associates, Inc. (GTA) has conducted a geotechnical engineering study in support of the proposed commercial development to be constructed along Walnut Street in New Britain Township, Bucks County, Pennsylvania. GTA has prepared this report to convey our findings, conclusions, and recommendations about subsurface conditions that could affect foundation support and related geotechnical considerations for the construction of the proposed commercial development.

Please note that, unless you make other arrangements, GTA will discard all soil samples obtained from the explorations 60 days after the date of this report. If you have any questions or concerns about this report, or if you want additional information, please contact our office at (215) 536-8363.

Sincerely,

GEO-TECHNOLOGY ASSOCIATES, INC.

Timothy J. Fetter, P.E.
Senior Project Engineer

Michael W. Derr, P.E.
Vice President

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
MICHAEL W. DERR
ENGINEER
PE080964

31251589
SKG/TJF/MWD/mwd

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Appendix A – Figures

Figure No. 1 Site Location Map
Figure No. 2 Historical Site Aerial
Figure No. 3 Site Geology Map
Figure No. 4 Exploration Location Plan

Appendix B – Exploration Logs

Notes for Exploration Logs
Subsurface Exploration Summary Tables
Boring Logs
Test Pit Logs

Appendix C – Laboratory Test Results

Grain-Size Analysis Reports

1.0 SUMMARY OF FINDINGS AND RECOMMENDATIONS

GTA has prepared this summary for the user's convenience only. Do not rely on it exclusively for any decision-making purpose. Please review the full text of the report which addresses each topic in further detail.

Project Description	
Existing Conditions	• Agricultural land with a central farmstead and some wooded terrain. • Existing elevations (EL): EL 264.0 feet to EL 308.0 feet.
Proposed Construction	Three 1-story distribution warehouses and associated site infrastructure.
Site Exploration	32 Test Pits and 30 borings
Geotechnical Study	
Surficial Materials	Topsoil was encountered within all of the exploration locations except TP-22,with thicknesses ranging from one to 13 inches.
Native Soils	Mostly consisted of fine-grained silt and clay and coarse-grained gravel. Relatively stiff/medium dense to very stiff/dense within the upper five feet. Isolated areas encountered soft soils.
Weathered Rock	Encountered within 56 of the 63 exploration locations at depths ranging from two feet to nine feet bgs*.
Apparent Bedrock	Encountered within all of the exploration locations, except Test Pit TP-12, at depths ranging from 3.8 feet to 19 feet bgs.
Groundwater	• Groundwater was encountered within Test Pits TP-6 and TP-12 and Borings B-23, B-24, and B-26 at depths ranging from four feet to 10 feet bgs. • Long term (24-hour or greater) water levels were not measured as the exploration locations were backfilled upon completion.
Conclusions and Recommendations	
Demolition and Site Preparation	Removal all surficial materials, existing site improvements, existing fill materials, topsoil, root mats, tree stumps, and any soft saturated native soils prior to mass grading.
Existing Fills	If encountered, will require removal and replacement prior to new fill placement of foundation construction.
Rock & Difficult Excavation	• Bedrock was encountered throughout the site at relatively shallow depths. • Weathered rock and/or bedrock will likely be encountered in localized deeper foundation, utility, and stormwater facility excavations but will be dependent on the final design grades. Removing these materials will require increased excavation effort.
Groundwater	• Widespread groundwater impacts not anticipated. • Perched water may be encountered in localized excavations during relatively wet periods of the year, specifically within downslope rock excavations, or in low-lying areas of the site, or just outside floodplain limits. • Commonly used temporary dewatering techniques (e.g., sumps, gravity flow trenches) will be sufficient. Perimeter drains around foundation or below grade walls are recommended to eliminate a "bathtub" effect
Moisture Sensitivity & Fill Material Criteria	• Excavated soils will be suitable for reuse as fills. Localized excavations into weathered rock and more competent rock may produce oversized (i.e., larger than 8-inch) rock fragments. These fragments should be broken up or removed. • Imported soils should be approved by the geotechnical engineer prior to import. Granular soils are preferred for imported soils. All imported soils should meet PA DEP Clean Fill Standards.

	• The fine-grained surface soils are moisture sensitive and will lose strength and stability if disturbed in the presence of water.
Fill Placement Requirements	• Place fill in maximum 8-inch (loose-measure) lifts. Break up clay clumps/clods. • Compact to minimum 95% of max. dry density (Standard Proctor) for structural fills. • Compact to minimum 98% of max. dry density (Standard Proctor) for top 12 in. of pavement subgrade.
Foundation Design	• Net allowable soil-bearing pressure: **4,000 psf if footings are constructed on controlled, compacted fill, native material, weathered rock, and/or rock.** • Minimum widths: 24 inches (wall footings); 36 inches (column footings). • Maximum anticipated settlements: 1 inch total; ½ inch differential between columns. • Frost Depth Embedment – 36 inches • IBC Seismic Site Class of C
Slabs Design & Construction	Place slab on minimum 4-inch-thick gravel covered with a vapor barrier where moisture sensitive floor finishes are planned.
Utilities	Localized excavations will likely encounter weathered rock/bedrock but will be dependent on final design. Break up clay clumps/clods when backfilling.
Pavements	Widespread areas of soft native soils or soils not meeting pavement subgrade requirements may require overexcavation and replacement with approved granular materials, or chemical stabilization. Proposed design of pavement sections are provided.
Site Retaining Walls	• Wall design should be performed by a licensed geotechnical engineer. • Approved granular soils should be used for retaining wall backfill. Import and/or processing of on-site soils will likely be required. • Global stability analysis should be performed as part of any wall design.

*bgs = below existing ground surface

2.0 INTRODUCTION

Hanover Industrial LLC ("Client") is considering the development of the property located along Walnut Street in New Britain Township, Bucks County, Pennsylvania. GTA has conducted a geotechnical study and prepared this report for Hanover Industrial LLC in accordance with our proposal, dated May 8, 2025, revised June 3, 2025.

2.1 Study Purpose

GTA conducted this study to develop confirmation-dependent geotechnical engineering recommendations for the proposed commercial development. The scope of GTA's study included the entire property referred herein as the "project site".

2.2 Referenced Documents

GTA based its understanding of the project on its review of the plans, prior reports, and other references identified in the attached *List of Reference Documents*. If the reference documents are modified after the date of GTA's initial review, Client should provide the updated versions to GTA. Modifications may make it necessary for GTA to revise its geotechnical engineering recommendations.

3.0 PROJECT DESCRIPTION

3.1 Site Location

The subject site is located along Walnut Street in New Britain Township, Bucks County, Pennsylvania. The site is bound to the north by moderately-wooded terrain followed by commercial properties and Schoolhouse Road; by Schoolhouse Road and Walnut Street to the east; by Walnut Street to the south; and by moderately-wooded terrain, commercial properties, and County Line Road to the west. The *Site Location Map*, in Appendix A, Figure No. 1, indicates the site location and the condition of adjacent properties.

3.2 Existing Site Conditions

At the time of GTA's exploration, the subject site consisted mostly of planted agricultural fields with the West Branch Neshaminy Creek intersecting the central portion of the site from the northeast to southwest. Additionally, the site contains several small sections of moderately-wooded terrain and a central farmstead that consists of several structures. Approximate ground surface elevations range from a low elevation (EL) of 264 feet within the center the site within the West Branch Neshaminy Creek, to a high of EL 308 within the northeastern corner of the site.

3.3 Proposed Construction

The Client proposes to construct three one-story commercial warehouses totaling approximately 554,950 square feet with associated stormwater management facilities and associated infrastructure. Based on the provided information, the commercial development will be accessed from new site entrances that will connect with Walnut Street, County Line Road, and Stewart Lane.

No specific site grading, commercial design, or utility infrastructure information was provided at the time of this report. Based on previous projects of similar scope, GTA anticipates that the anticipated grading will results in earth cuts and fills generally on the order of five (5) to 15 feet to balance the commercial building pads. Additional cuts and fills may be required to obtain final site infrastructure grading and stormwater management facility subgrades but will be dependent on the final design.

Based on the information provided by the Client and our experience with projects of similar scope, GTA assumes that the buildings will likely consist of interior steel framing with concrete panel-type exterior walls and a concrete floor slab-on-grade. While no specific loading information was available at the time of this report, based on previous projects of similar scope, we anticipate the structures will have a maximum column load of 250 kips and maximum wall loads of 6.0 kips per linear foot.

4.0 GEOTECHNICAL STUDY

4.1 Historical Review

GTA reviewed available online aerial photographs dating back to 1938. In 1938, the site consisted of open agricultural fields with the existing centralized farmstead consisting of several structures. Based on the available aerial imagery, the immediate subject site has remained relatively unchanged from 1938 to the present day aside from vegetation growth and agricultural use. The adjacent properties have undergone commercial development starting in the early 1990's and ceasing around 2015. The *Historical Site Aerial* (Appendix A, Figure No. 2) indicates historical site conditions.

4.2 Geologic Review

According to the *Pennsylvania Department of Conservation and Natural Resources Pennsylvania GEOlogic Data Exploration* mapping tool, the site is located within the Gettysburg-Newark Lowland Section of the Piedmont Providence. Specifically, the subject site is underlain by the Jurassic- and Triassic-Aged Brunswick Formation. The Brunswick Formation consists of reddish-brown shale, mudstone, and siltstone with beds of green shale and brown shale with red argillite interested in some places dark-gray argillite near its base. The *Site Geology Map* (Appendix A, Figure No. 3) provides more detail about the mineralogy and geologic formations mapped in the site vicinity.

4.3 Subsurface Exploration Scope

GTA performed a subsurface exploration of the site in July 2025, as summarized in the table below. The *Exploration Location Plan* (Appendix A, Figure No. 5) indicates the approximate exploration locations.

Number & Type of Explorations	Exploration Nos.
33 Test Pits	TP-1 through TP-33
30 Soil Borings	B-1 through B-30

GTA selected the exploration locations and field-located by measuring from existing site features and utilizing a hand-held GPS unit. GTA estimated ground surface elevations at the exploration locations using topographic contour lines depicted on the available plans. All ground surface elevations are approximate.

GTA personnel overserved the drilling of the 30 Standard Penetration Test (SPT) borings to depths ranging between six (6) to 19 feet below the ground surface (bgs). SPT's generate an SPT N-value, which indicates the relative density of coarse-grained soils and the consistency of fine-grained soils. The N-value can be correlated with the engineering properties of the soils.

A GTA-subcontracted operator extended the test pits to approximate depths ranging between 3.75 feet to 12 feet bgs using a Bobcat E60 excavator. GTA field representatives observed and logged the test locations and collected soil samples. The test locations were backfilled upon completion.

The soil samples obtained from the explorations were delivered to GTA's laboratory for visual classification and laboratory testing. The classifications shown on the logs are based on the Unified Soil Classification System (USCS) visual/manual methods and laboratory testing.

4.4 Subsurface Conditions

The results of the subsurface exploration were, for the most part, consistent with the known site history and geologic setting of the project site. For more information about subsurface conditions, refer to *Subsurface Exploration Summary Tables* and individual exploration logs within Appendix B. GTA has summarized the subsurface conditions encountered in the following sections.

4.4.1 Surficial Materials

Surficial cover consisting of topsoil was encountered in all of the testing locations, except Test Pit TP-22 and generally ranged in thickness from approximately one inches to 13 inches. The reported topsoil thickness generally represents the upper layer of dark and organic soil.

4.4.2 Native Soils

Beneath the topsoil, the explorations encountered native soils generally consistent with the mapped geology. GTA personnel generally visually classified these soils as silt (ML), lean clay (CL), clayey sand (SC), silty sand (SM), clayey gravel (GC), silty gravel (GM) and poorly graded gravel (GP). Observed consistencies were generally medium stiff/medium dense to very stiff/dense. Consistencies generally increased with depth, but isolated locations encountered deeper layers of lower density soils at increased depths.

4.4.3 Weathered Rock & Apparent Rock

GTA defines highly weathered rock (HWR) as residual materials that exhibit SPT N-values of 51 bpf to 50 blows for 1 inch of penetration or an apparent increased excavation effort required to progress. HWR was encountered within 56 of the 63 exploration locations with depths ranging from two feet to nine feet bgs.

Materials sufficiently dense to impede auger advancement and/or excavator bucket refusal was encountered within all of the exploration locations, except Test Pit TP-12 at depths ranging from 3.8 feet to 19 feet bgs. For the purpose of this report, the top of bedrock is defined as the point at which the auger and/or excavator bucket is unable to advance in a safe or timely manner. This is not a definite indicator of bedrock as several factors can limit excavation ability.

SPT N-values provide a means of differentiating varying levels of weathering and decomposition within rock. Test pit bucket refusal indicates the presence of very dense materials, such as highly weathered to relatively intact, unweathered rock, but it does not indicate the degree of weathering. Considering the results of the borings and locations at which bucket refusal was encountered, GTA believes that the above-referenced test pits encountered refusal on relatively competent rock, but, due to the absence of SPT N-values or rock coring for these explorations, GTA cannot assess the degree of weathering at these exact locations.

4.4.4 Groundwater

Static/perched groundwater was encountered within Test Pits TP-6 and TP-12 and Borings B-23, B-24, and B-26 at depths between four feet to 10 feet bgs. Long term (24-hour or greater) water levels were not measured as the exploration locations were backfilled upon completion for safety reasons. Based on the conditions encountered, trapped/perched water that may be encountered during construction is likely to be perched and encountered within a more granular soil stratum above a relatively impermeable soil layer, at the soil/fill interface, and/or at the soil/rock interface, especially during the wet season of the year (late winter/early spring).

4.5 Laboratory Testing

GTA performed laboratory testing on selected soil samples obtained from the explorations, including natural moisture content determination, grain size analysis, and Atterberg Limits for classification in accordance with the USCS. Test results and summary of natural moisture contents are provided in Appendix C and are summarized in the table below.

SUMMARY OF CLASSIFICATION TESTING

BORING NO.	DEPTH (FT)	USCS CLASSIFICATION	LL	PI	NMC%
B-1	2.0 - 4.0	Clayey GRAVEL (GC), with Sand	27	9	12.4
B-5	6.0 – 8.0	Silty GRAVEL (GM), with Sand	NP	NP	19.0
B-14	4.0 – 6.0	Clayey SAND (SC)	34	11	17.2
B-16	8.0 – 10.0	Clayey SAND (SC)	30	9	27.0
B-22	0.0 – 2.0	Clayey SAND (SC)	42	17	18.4
B-25	6.0 – 8.0	Silty Sand, with Gravel (SM)	38	11	16.9
B-26	4.0 – 6.0	Silty GRAVEL (GM), with Sand	36	2	22.4

NP=non-plastic, LL=liquid limit, PI=plasticity index, NMC=natural moisture content

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of the geotechnical engineering study, it is GTA's professional opinion that the subsurface conditions at the project site are generally suitable for construction of the proposed site development, provided the following geotechnical engineering recommendations are adhered to, and that applicable standard of care is maintained during construction. **Significant considerations include: moisture sensitive fine-grained site soils that may require conditioning depending on the time of year of construction; the potential for difficult excavation of weathered rock and bedrock above**

assumed finished grade, particularly in deeper foundation, utility, and storm management facility excavations; the potential to encounter localized soft soils and the potential to encounter undocumented existing fill materials that will require removal and replacement prior to new fill placement or foundation construction. GTA's recommendations for foundations, slabs, subsurface utilities, pavements, and other geotechnical considerations are presented in the following paragraphs.

5.1 Demolition and Site Preparation

5.1.1 Demolition of Existing Structures & Stripping

Due to the potential conflicts with new construction, GTA recommends the demolition include removal of any site improvements that may remain from within the proposed development areas. The resulting excavations should then be backfilled with structural fill (sourced on-site or imported) that is placed and compacted in accordance with the recommendations contained in the Fill Placement Section. It should be noted that soft/loose existing fill materials and wet soils may be encountered adjacent to and below any existing foundation elements and abandoned utilities. Therefore, GTA recommends that the subgrade be evaluated prior to backfilling. Where soft/loose materials are encountered, localized over excavation will be required.

Existing utilities outside building areas that will not be incorporated into the proposed construction can be abandoned in-place. In-place abandonment of utilities should consist of completely filling the pipelines with grout or flowable fill. Alternatively, these utilities can be removed, and the resulting excavations backfilled in accordance with the recommendations presented in the Fill Placement Section.

Following removal or relocation of the existing site improvements, the site should be stripped and grubbed to remove any topsoil, or organic material. The removal of topsoil, any existing fill materials, and unstable surface soils should be performed before controlled fill placement. The actual stripping thickness will depend on the localized topsoil development, soil moisture, disturbance by construction traffic, and contractor care. A thicker depth of stripping should be anticipated within areas where soils with higher moisture contents are present at the surface. Stripping in the existing wooded areas will contain leaves and wood which could require some processing to generate quality topsoil for reuse in proposed landscaped areas, which will reduce the volume of topsoil that will be available for reuse. Topsoil may also not meet the requirements for amended soils or planting soils without further processing or the addition of sand or other organic amendments.

5.1.2 Existing Fills

Existing fill materials were not encountered within any of the exploration locations. Based on the site history, undocumented existing fill materials will likely be encountered across the site, particularly in close proximity to the existing structures. **Any undocumented existing fill materials and/or buried topsoil are not considered suitable for direct foundation support. There is an inherent risk of settlement of the foundation and floor slabs if any undocumented fill materials are left in-place.** To lower the associated risk of settlement of the foundation elements and floor slabs, any encountered existing fill materials should be removed to suitable natural soils and be replaced with structural fill to provide adequate foundation and slab support at the proposed elevations. Fill materials should be removed and extend laterally a minimum of five feet beyond the building limits prior to replacement with controlled, compacted fills as recommended in the Fill Placement Section. A majority of any encountered existing fill materials will likely be able to be reused as structural fill provided the material is screened and processed to meet the conditions described in the Fill Criteria Section.

5.2 Earthwork

5.2.1 Rock & Difficult Excavation

Based on the exploration data and assumed final grades, rock excavations will likely be required to reach the proposed final grades but will be dependent on the final design. Where bedrock is encountered above the subgrade elevation, excavation techniques such as hydraulic hoe-ramming or blasting will be required in areas of deepest cuts to fracture and remove rock. Bulk excavation should be performed using heavy-duty construction equipment capable of ripping and removing, debris, weathered rock, and large boulders. Prior to bidding, we recommend prospective earthwork contractors to be provided the opportunity to perform their own excavation or drilling to further delineate the depth to rock.

The exploration logs may be used to estimate rock excavation based on the refusal depths; however, refusal should not be considered to be a definite indicator of rock excavation effort or means of excavation required. The geologic factors affecting the difficulty of excavation include rock hardness, rock structures (i.e. foliation or bedding), joint and fracture spacing and degree of weathering. The ease of excavation will also be governed by the type of excavation equipment used and the contractor's willingness to utilize the equipment to its full potential. Rock excavation is expected to vary due to variability in the rock surface between exploration points. Prior to bidding, we recommend prospective earthwork contractors to be provided the opportunity to perform their own excavation or drilling to further delineate rock depths.

If blasting is utilized for rock fracturing and removal, it should be carefully controlled within about two feet of finished grade in an effort to reduce the potential for creating large fractures and over blasting, which could require additional backfilling to planned design grades with dense-graded crushed stone. Overblasting behind cut retaining walls should be minimized to the depth of any proposed geogrids.

If blasting is performed, GTA recommends it be completed prior to starting building construction to minimize the potential for flying shot rock and the possibility of damaging work in progress. Vibrations should be monitored to evaluate the potential for damage to adjacent structures and utilities. It should be noted that blasting vibrations can have detrimental effects on freshly placed concrete depending on timing, distance, and blast design. Therefore, GTA recommends a preconstruction meeting prior to blasting adjacent to any building construction to review the sequence of construction and the blasting design. Vibration monitoring should be performed for adjacent structures.

For contractual purposes, we recommend that your agreement include a clear definition of rock unless the project is bid as "unclassified". An example definition is presented below:

> Rock is defined as massive bedrock which cannot be dislodged by a D-9 Caterpillar tractor, or equivalent, equipped with a hydraulically operated power ripper, or by a Caterpillar 325 excavator, or equivalent, without the use of hoe rams or other breaking techniques. Boulders or masses of rock exceeding 1 cubic yard in volume shall also be considered rock excavation. This classification does not include materials such as loose rock, concrete or other materials that can be removed by means other than breaking by hoe rams, etc., but which for reasons of economy in excavating the Contractor chooses to remove by other methods.

Refer to the *Subsurface Exploration Summary Tables* and *Exploration Logs* included in Appendix B for additional information.

5.2.2 Groundwater

The presence of groundwater will not likely affect mass grading activities on a widespread basis. However, perched water conditions may develop where water becomes trapped in granular soils underlain by less-permeable soils or rock, particularly after periods of precipitation. Also, groundwater levels may fluctuate with seasonal variations in precipitation and as a result of development activity. Accordingly, the contractor should be prepared to de-water and shore excavations during construction. Excavations that penetrate this seepage zone or are excavated below the rock surface can create a sump or "bathtub effect" where water can accumulate but cannot drain into the underlying bedrock.

5.2.3 Moisture Sensitivity & Fill Material Criteria

The fine-grained surface soils are moisture sensitive and will lose strength and stability if disturbed in the presence of water. Additionally, near surface materials and any existing fill may be soft and unstable under construction equipment. Drying of the fine-grained surface soils will only be feasible during the warm, dry season of the year and may require extended drying times and discing effort to adequately dry the soils to a moisture content that is acceptable for compaction. Alternatively, drying using lime or cement can be performed to adequately stabilize subgrade soils for subsequent placement of fill. Based on the encountered fine-grained surficial soils, drying of the on-site soils should be anticipated on this project.

GTA recommends that positive drainage be maintained across the site during construction to prevent ponding of water since the exposed subgrades could destabilize in combination with construction traffic and precipitation. If the subgrade is disturbed by construction traffic and becomes unstable, undercutting and replacement of these surficial materials will be required.

The soils encountered in the explorations will generally be suitable for reuse as structural fill, with the following limitations:

- Pavement Subgrade Fills: Fine-grained and/or plastic soils (USCS Classifications ML, CL, MH, CH, and the more-plastic SC) will likely be moisture- and disturbance-sensitive. MH and CH soils will be unsuitable for use as fill within the top 12 inches of pavement subgrade, unless chemical stabilization of the pavement subgrade or use of geogrids/geotextiles may be required to stabilize soft or wet areas. Refer to the Pavement Subgrade Preparation Section for pavement subgrade materials requirements.

- Utility Backfills: GTA recommends against using clays (USCS Classifications CL or CH) as utility trench backfill. If clays are nonetheless used for trench backfill, the constructors involved must apply the special construction methods described in the Utility Trench Backfill Section.

- Retaining Wall Backfill: Soils used as retaining wall backfill will need to meet specific criteria. Some materials may be generated during mass-grading excavations and should be segregated and stockpiled for reuse as retaining wall backfill. Otherwise imported granular fill or crushed rock may be required.

- Over-sized Materials: Rock fragments, cobbles, and boulders larger than eight (8) inches in the largest dimension should be broken up or removed from fill materials.

- Imported Fills: Off-site borrow materials, if required, should be approved by the geotechnical engineer before import. Granular soils are preferred for import. All imported soils should meet PA DEP Clean Fill Standards.

- Existing Fills: Existing fills may be reused as new fill, provided organic material, debris, and other deleterious materials are removed. Concrete fragments may be reused as controlled fills, provided they are crushed to particles with average particle size of three inches in dimension and mixed with soil at a ratio of at least one part soil to one part concrete. Concrete should not be used as material that is intended to promote drainage (e.g., drainage stone for walls).

5.2.4 Fill Placement Requirements

The areas to receive fill should first be proofrolled with a loaded, tandem-axle dump truck under the observation of the third-party testing consultant. Any subgrade materials identified as soft/loose, wet, or otherwise unsuitable should be overexcavated to a stable bearing stratum before placement of structural fill. After an approved subgrade has been achieved, fills should be placed and compacted in controlled, compacted lifts. These fills should be placed in lifts of no more than eight inches (as measured before compaction) and compacted to the following specifications:

COMPACTION SPECIFICATIONS

Fill Location	Compaction Specification
Below foundations, slabs-on-grade, and retaining walls; slopes steeper than 5H:1V; utility and roadway fills greater than 12 inches below pavement subgrade	95% of Maximum Dry Density of ASTM D698 Moisture: ±3% of optimum
Utility and roadway fills within the top 12 inches of pavement subgrade	98% of Maximum Dry Density of ASTM D698 Moisture: ±2% of optimum

Fill placement should be observed full-time by a field representative working under the supervision of a licensed geotechnical engineer. All compactive effort should be verified by in-place density testing.

5.3 Foundations

5.3.1 Foundation Design

Based on our analysis, shallow spread footings will be able to support the proposed commercial structures, **provided any encountered existing fill materials are completely removed and replaced with new structural fill (sourced on-site or imported) as discussed in previous sections of this report** or the footings are constructed on controlled, compacted fills, firm, native materials, weathered rock, or rock. Footings that are supported on controlled, compacted fills and/or natural soils can be

proportioned for a net allowable soil-bearing pressure of 4,000 pounds per square foot (psf). Based upon this design, GTA anticipates the foundations will experience maximum settlements on the order of 1 inch total and ½ inch differential over a 30-foot span. GTA recommends minimum widths of 24 inches for wall footings and 36 inches for column footings, where foundation design based on the recommended allowable soil-bearing pressure would otherwise yield a narrower footing. To protect exterior footings from the effects of frost, they should be founded at least 36 inches below final exterior grades.

5.3.2 Foundation Construction Considerations

Based on the assumed grading, the proposed footings will likely be supported on a combination of native soils, weathered rock, bedrock, and/or newly compacted structural fill placed during mass grading. The native soils encountered during our subsurface exploration were generally firm enough for foundation support. New fills will be suitable for foundation support only if they are placed and compacted as we recommend in the Fill Placement Section. Due to the shallow bedrock encountered, some of the proposed footings will likely be supported on weathered rock and/or bedrock. Each individual column footing should be founded on similar material to reduce the potential for excessive differential settlement or brittle fracture. Therefore, overexcavation of soil and replacement with dense-graded aggregate or unreinforced concrete will be necessary where an individual footing bears on both rock and soil. The decision on the method of support of individual footings will be based upon the depth to bedrock encountered at each footing location during excavation. If individual strip footings bear on a combination of rock and soil, the soil should be overexcavated to depth of about 12 inches for a minimum length of 10 feet along the footing line and replaced with compacted dense-graded aggregate to reduce stress concentrations and differential settlement. The details of the transition zone should be provided in the field by the geotechnical engineer at the time the footings are excavated.

Before concrete placement, a licensed geotechnical engineer or a qualified representative selected by such engineer should evaluate footing subgrades and perform penetration testing on the exposed footing subgrades to confirm the design allowable bearing capacity. **Any loose/soft soils should be overexcavated to a stable bearing stratum.** Overexcavations should be replaced with concrete, AASHTO No. 57 stone, dense-graded aggregate, or controlled, compacted, soil fill. If overexcavations are replaced with soil fill, they should be placed and compacted as recommended in the Fill Placement Section. Alternatively, the footings could be lowered to a competent bearing stratum. Overexcavation and replacement, if required, should be performed as recommended by a licensed geotechnical engineer or a qualified representative selected by such engineer based on conditions observed in the field during construction. Footings should be concreted on the day they are excavated in order to prevent excessive disturbance and/or moisture increase.

Perched water or seepage from more granular lenses may be encountered within footing excavations. The presence of water may have a tendency to soften the soil subgrade. If water is encountered during foundation construction, the excavation should be dewatered through the use of sumps or gravity flow trenches. A four to six-inch layer of dense-graded aggregate stone (PennDOT 2A), AASHTO No. 57 stone or unreinforced concrete can be placed in the bottom of the footing excavation to facilitate dewatering and to provide a stable working mat to install reinforcing steel and concrete. Final grades should be established to provide adequate surface drainage away from foundations.

5.3.3 Seismic Site Class Designation

The soil conditions within the upper 100 feet at this site can be categorized as Site Class C per the International Building Code (IBC). This categorization is based on the exploration data, general geologic information for the region, and the information contained in the applicable code.

5.3.4 Slab Design

Lowest-level slabs should be designed as concrete slabs-on-grade. A design modulus of subgrade reaction (k) of 150 pounds per cubic inch (pci) is suggested for the floor slab design) The slabs may bear over footing projections, but they should be isolated and jointed so that the foundations can settle slightly without affecting the slab. To prevent or retard the rise of capillary moisture through the slab, GTA recommends that the slabs should be founded on a minimum four-inch-thick layer of open-graded stone, covered with a polyethylene vapor barrier installed in accordance with ACI guidelines beneath the slab where moisture sensitive floor finishes are proposed. The open-graded stone layer should comprise of imported washed gravel or crushed stone materials with less than five percent fines.

5.3.5 Slab Construction

Before concrete placement, a representative of the third-party testing consultant should verify the stability and compaction of natural and compacted fill subgrades for support of the floor slabs. Soft or loose layers should be removed from the slab subgrade and replaced as recommended in the Fill Placement Section. Floor slabs should not be rigidly connected to foundation walls, so that wall movements will not affect the slab. Control joints should be provided to control shrinkage cracking of the concrete floor system.

5.4 Utilities

5.4.1 Utility Excavations

Utility excavations can likely be accomplished using standard excavation techniques. **Weathered rock and/or bedrock will likely be encountered in utility excavations but will depend on the final design of the utilities.** See the Rock Section for more information. If groundwater is encountered in utility excavations, dewatering devices like sumps or gravity-flow trenches will likely be sufficient to deal with the situation. Utility excavations should be properly shored and supported in accordance with the latest requirements of OSHA and such other regulatory authorities with jurisdiction.

5.4.2 Utility Support

The native soils and controlled fills placed during mass grading will likely be suitable for supporting the proposed utilities. Any soft/loose or unstable soils encountered at the utility subgrades should be overexcavated and replaced with controlled, compacted fill or open-graded stone. To facilitate compaction, provide additional protection for the pipe, and decrease the risk of excessive trench settlement, GTA recommends placing AASHTO No. 57 stone, graded aggregate base (GAB), or crushed stone (PennDOT 2A) to at least six inches above utility pipes made of plastic or flexible metal (i.e., ductile iron) and to the spring-line of rigid pipes.

5.4.3 Utility Trench Backfill

Utilities below pavement and other structural areas should be backfilled with controlled, compacted fill. The backfill should be placed and compacted in accordance with project requirements. Utility trenches should be backfilled with the most granular material available. The soils encountered during the subsurface exploration will generally be suitable for use as utility backfill. However, clays (CL) were encountered throughout the site at various depths and will likely be encountered in utility excavations. **Depending on weather conditions/moisture content, moisture conditioning and breaking of clay clumps/clods *may be required* for proper placement and compaction of clayey soils as utility backfill to reduce the risk of trench settlement and associated impacts.** The use of fine-grained, plastic soils for utility backfill should be limited to the extent feasible. If fine-grained/plastic soils are used as utility backfill, they should be placed in maximum six-inch (loose measure) lifts and compacted with a sheep's-foot type roller at a moisture content of two to four percent above optimum. Unless subgrade stabilization is planned, do not place these materials within 12 inches of final pavement subgrade.

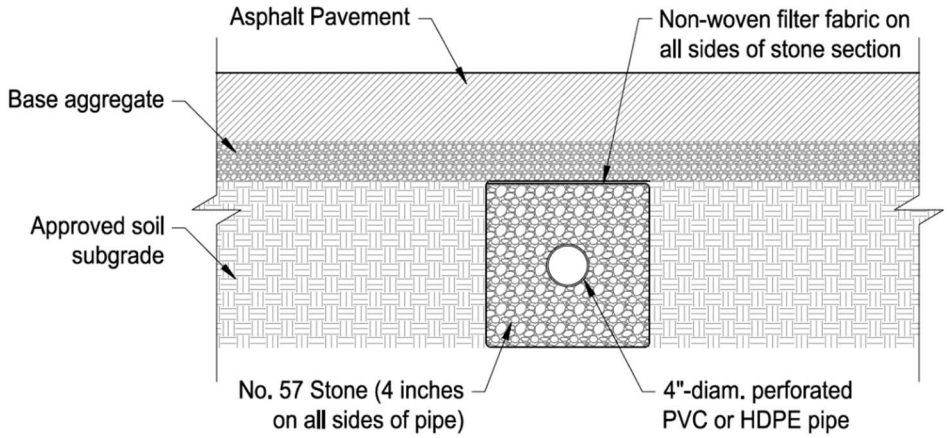
It should be noted that excavated rock materials removed during utility installations may not be suitable for reuse as backfill unless these over-size materials are segregated or processed to a gradation similar of dense graded aggregate (PennDOT Size 2A Stone).

Hand-operated equipment should be used for compaction around utility structures. Where hand-operated equipment is used for compaction, lift thicknesses should not exceed four inches (as measured before compaction). When backfilling around utility structures, each lift should be uniformly compacted with a sufficient number of passes to obtain the required degree of compaction.

5.5 Pavement

5.5.1 Pavement Drainage

GTA recommends installation of "stub" or "finger" pavement drains in topographic low points per the following detail:



Note: Drainage pipe and No. 57 Stone section should be set below chemically stabilized subgrade, if chemical stabilization is planned.

The drainpipe should be connected to the on-site storm drain system and should be sloped to allow for gravity flow of collected water toward the inlet. GTA recommends that the slope of the underdrain pipe should be similar to the slope of the pavement-subgrade surface above the pipe. The pipe should extend 5 to 10 feet out from the inlet on both sides. The locations of the pavement drains should be determined by the project civil engineer and concentrated in low "sump" areas that collect water.

5.5.2 Pavement Subgrade Preparation

The upper 12 inches of pavement subgrade should be constructed of soils meeting the following characteristics:

Liquid Limit (AASHTO T-89)	Plasticity Index (AASHTO T-89, T-90)	California Bearing Ratio (ASTM D1883)	Maximum Dry Density (ASTM D698)
≤ 40	≤ 12	≥ 5.0	≥ 105.0 pcf

Any on-site soils with USCS classifications of SP, SW, SM, and the less-plastic SC, will likely meet pavement-subgrade criteria. Plastic and/or fine-grained soils (USCS classifications ML, MH, CL, CH, and the more-plastic SC), may fail to meet pavement-subgrade criteria and may not be used as fill in the top 12 inches of pavement subgrade.

Soils not meeting pavement-subgrade criteria will likely be encountered on a widespread basis at the pavement subgrade. Where such soils are encountered, the top 12 inches of pavement subgrade can be chemically stabilized with cement or lime. Alternatively, the top 12 inches of pavement subgrade should be undercut and replaced with controlled, compacted fills meeting pavement-subgrade criteria. If chemical treatment is considered, GTA should be engaged to perform additional laboratory testing during mass grading to provide specific recommendations for chemical application rates.

5.5.3 Pavement Construction

The third-party testing consultant should make observations of trafficability during mass grading. GTA recommends that a testing program, including CBR testing, be implemented to develop a suitable paving section for the project. The pavement subgrade should be proofrolled (using a loaded, tandem-axle dump truck) before pavement sections are constructed. An appropriately experienced representative of the third-party testing consultant should observe the entire proofrolling operation to evaluate stability. Unstable soils or otherwise unsuitable materials, if encountered, should be overexcavated to a stable stratum and replaced with controlled, compacted fill, placed as recommended in the Fill Placement Section.

Construction traffic should be controlled in order to limit disturbance of previously approved subgrade, or stone base course, or partially completed asphalt pavements. Too much traffic can result in damage to or premature failure of the pavement. Any damaged pavement areas should be repaired adequately before placing asphalt surface courses. The chemically stabilized subgrade, if used, will provide improved pavement subgrade support and will reduce the potential and extent of pavement damage during construction.

5.5.4 Pavement Design

5.5.4.1 Soil Laboratory Analyses

During GTA's subsurface investigation in July 2025, GTA collected and tested representative samples from the test borings for classification per the USCS ASTM D2487. Based on the predominantly fine-grained nature of the soils, and the anticipated composition of the pavement subgrades, a California Bearing Ratio (CBR) of 6 was used in design.

5.5.4.2 Traffic Loading Information

GTA was provided with anticipated traffic loading conditions by the Client that indicated the proposed facility would support an average daily traffic (ADT) as provided below for each of the proposed buildings.

Vehicle Type	ADT		
	Building 1	Building 2	Building 3
Passenger Cars	821	242	280
Trucks	204	60	70

Based on the provided ADT values, GTA performed 2 separate pavement analysis as follows:

1. Using Building 1 ADT values
2. Using highest ADT values of Buildings 2 and 3

Utilizing the American Association of State Highway and Transportation Officials (AASHTO) 1993 *Guide for Design of Pavement Structures,* design parameters recommended by the Pennsylvania Department of Transportation (PennDOT) Publication No. 242 (Pub 242), a PennDOT Equivalent Single Axle Load (ESAL) calculator, and an in-house pavement design calculator, GTA calculated anticipated traffic loading as equivalent ESALs over a 20-year period with zero percent annual growth as below:

Item	ESALs		ESALs	
	Flexible Pavement		Rigid Pavement	
	Building 1	Building 2 & 3	Building 1	Buildings 2 & 3
Standard Duty (Passenger cars)	4,798	1,636	-	-
Heavy Duty (5-Axle Tractor Trucks)	3,431,884	1,177,741	3,576,096	1,227,240

Changes in the projected traffic volume or distribution of truck type from those used herein may result in a different recommended pavement thickness design, so GTA should re-evaluate any changes.

5.5.4.3 Pavement Analysis and Recommendations

GTA's analysis within this report is limited to the new proposed interior roadways, and parking areas, and does not provide recommendations or analysis for any improvements to other State or Township - owned roadways.

Proposed Pavement Design Recommendations

GTA utilized the following parameters for the proposed pavement design:

Initial Serviceability (Flexible/Rigid)	Terminal Serviceability	Reliability	Standard Deviation (Flexible/Rigid)	Design Period
4.2/4.5	2.5	80%	0.45/0.35	20 years

A design CBR of 6 was used in GTA's pavement design analysis. Following the establishment of a suitable compacted subgrade, GTA recommends the following pavement sections:

Flexible Pavement Design Building 1	
Standard Duty	
Layer [1]	**Thickness (inches)**
Wearing Course WMA/HMA Bituminous Concrete (Superpave, 0.3 to <3.0 M ESALs, 9.5 mm)	1.5
Binder Course WMA/HMA Bituminous Concrete (Superpave, 0.3 to <3.0 M ESALs, 19 mm)	2.5
Dense-Grade Aggregate Subbase (PennDOT No. 2A)	4
Heavy Duty	
Layer [1]	**Thickness (inches)**
Wearing Course WMA/HMA Bituminous Concrete (Superpave, 3 to <10.0 M ESALs, 12.5 mm)	2
Binder Course WMA/HMA Bituminous Concrete (Superpave, 3 to <10.0 M ESALs, 25 mm)	4.5
Dense-Grade Aggregate Subbase (PennDOT No. 2A)	8

1. All materials should meet the current Construction Specifications for Pennsylvania Department of Transportation (PennDOT) publication 408/2020.
   - Asphalt material – Section 702
   - Base Courses – Section 300

Flexible Pavement Design Buildings 2 & 3	
Standard Duty	
Layer [1]	**Thickness (inches)**
Wearing Course WMA/HMA Bituminous Concrete (Superpave, 0.3 to <3.0 M ESALs, 9.5 mm)	1.5
Binder Course WMA/HMA Bituminous Concrete (Superpave, 0.3 to <3.0 M ESALs, 19 mm)	2.5
Dense-Grade Aggregate Subbase (PennDOT No. 2A)	4
Heavy Duty	
Layer [1]	**Thickness (inches)**
Wearing Course WMA/HMA Bituminous Concrete (Superpave, 0.3 to <3.0 M ESALs, 12.5 mm)	2
Binder Course WMA/HMA Bituminous Concrete (Superpave, 0.3 to <3.0 M ESALs, 25 mm)	4
Dense-Grade Aggregate Subbase (PennDOT No. 2A)	8

1. All materials should meet the current Construction Specifications for Pennsylvania Department of Transportation (PennDOT) publication 408/2020.
   - Asphalt material – Section 702
   - Base Courses – Section 300

Proposed Rigid Pavement Design Recommendations

A rigid heavy duty pavement section should be used in certain areas where repeated high loads or concentrated loads will be applied to the pavement. These areas generally include turning lanes, dumpster pads, loading dock aprons, and "landing gear" areas for trailers. The rigid pavement section provided herein was also designed in accordance with the AASHTO Design Guide for Standard and heavy traffic areas. Our analysis indicates that 4,000 psi, air entrained, Portland cement concrete pavement section may be used:

Rigid Pavement Design		
Layer [1]	**Thickness (inches)**	
	Building 1	**Building 2 & 3**
PennDOT Class AA Portland Cement Concrete	10	8
Dense-Grade Aggregate Subbase (PennDOT No. 2A)	8	8

1. All materials should meet the current Construction Specifications for Pennsylvania Department of Transportation (PennDOT) publication 408/2020.
    - Cement Concrete: Section 704
    - Base Courses – Section 300

It is GTA's understanding that where dolly pads and aprons exist, they are not expected to see the total truck traffic loading. Therefore, a reduced concrete thickness of 6 inches can be considered in those areas. However, if they are exposed to significant traffic loading, deterioration and/or cracking may occur. If the traffic loading is expected to be minimal, then the risk should be low.

Joints in concrete pavements should be water-tight to prevent entry of water into the subbase stone and subgrades. Water-tight joints should use elastic sealant, hot mix polymer or latex modified asphalt sealant. The sealant should be placed following thorough cleaning of the joint. Cleaning can usually be achieved using compressed air; however, the use of a wire brush may be required to achieve a joint free of soil and other foreign matter.

5.6 Lateral Earth Pressures

Any retaining walls, including below-grade building walls, will be subjected to unbalanced lateral-earth pressures and so must be designed to resist such pressures.

For design, GTA recommends the following design parameters and considerations:

Soil Property	On-Site Backfill (PI < 15)	Dense-Graded Aggregate backfill	Highly Weathered Rock/ Bedrock
Unit Weight, γ	125 pcf	145 pcf	140 pcf
Angle of Internal Friction, Φ	28º	42º	42º
Coefficient of Active Earth Pressure (Ka)	0.36	0.20	0.20
Coefficient of Passive Earth Pressure (Kp)	2.77	5.00	5.00
Coefficient of Earth Pressure at Rest (Ko)	0.53	0.33	0.33
Base Friction, tan δ	0.35	0.55	0.55
Equivalent Fluid Pressure (Unrestrained Top of Wall)	45 psf/ft	29 psf/ft	29 psf/ft

Soil Property	On-Site Backfill (PI < 15)	Dense-Graded Aggregate backfill	Highly Weathered Rock/ Bedrock
Equivalent Fluid Pressure (Restrained Top of Wall)	66 psf/ft	48 psf/ft	48 psf/ft

Hydrostatic pressure is not included in the above values since it is assumed adequate drainage will be provided. Drainage panels and a perimeter drain should be provided behind below grade walls and retaining walls to carry away any infiltrating surface water so that hydrostatic pressures do not develop. The perimeter drain should consist of a minimum four-inch diameter slotted or perforated pipe encased in a minimum of six inches of crushed stone that is wrapped by a geotextile filter. The crushed stone should meet the gradational requirements of AASHTO Size No. 57 aggregate. The perimeter drain should tie into a sump pit, adjacent storm sewer, or off-site drainage system. Where retaining walls are used, the collection system should discharge water to weepholes which are at least two inches in diameter and spaced at maximum eight feet on center. All below grade foundation walls should be waterproofed.

5.6.1 Site Retaining Walls

Based on the provided plans and assumed site grading, site retaining walls may be required as part of the proposed site improvements. The retaining walls will likely contain mainly soils and weathered rock in the foundation/retained/reinforced zone. Therefore, the wall design should include details where retained materials consist of either soils and/or weathered rock and be designed in accordance with the soil parameters outlined above.

The retaining wall design must be performed by an appropriately experienced, licensed engineer and must include a global-stability analysis. Using available subsurface data, an appropriately experienced, licensed engineer should select soil parameters for foundation soils and retained soils (behind the granular backfill zone). Retaining wall design is beyond GTA's scope of services for this *Geotechnical Engineering Report;* however, GTA can provide those services, if required. If retaining walls are designed by others, GTA should be provided the opportunity to review and comment on the retaining wall designs.

Based on the available subsurface information, interbedded layers of variable-plasticity, clay soils were encountered at varying depths in the explorations and may be present at or below proposed wall bearing elevations. Clayey soils can exhibit low shear strengths, and the presence of these soils will likely impact the global stability of the walls and associated slopes. Therefore, detailed global stability analyses should be performed in conjunction with the wall designs and will likely control the wall designs.

GTA has assumed that the any proposed retaining walls will consist of geogrid-reinforced, modular block walls. The use of longer than "typical" geogrid lengths may be required to mitigate potential global stability issues and will likely be the most efficient form of mitigation. The required geogrid lengths will be dependent upon several factors, including the final site design details, the results of the design-phase explorations and testing, and the results of the global stability analyses that will be required during final retaining wall design. Localized undercuts and/or increasing the wall embedment may also be required to improve global stability. However, note that these methods are typically less efficient, depending on the subsurface conditions along the wall alignment and the final proposed grading scheme. If necessary, based on the results of the global stability analyses, the incorporation of deep foundation elements or other mitigating measures may be required to provide adequate factors of safety for the global stability of the retaining walls. Additional design-phase exploration and evaluation should include specific explorations to further evaluate the conditions along the final alignments of the proposed walls, as well as direct shear testing to further evaluate the shear strength parameters of the clays.

Allowable bearing capacities on the order of 4,000 psf are recommended for site retaining walls. Higher bearing capacities may be possible but will be dependent on wall location, bottom of wall elevation, wall types, and encountered soils. Additional explorations may be required for higher capacities.

The following additional recommendations may be used in the design of below grade foundation walls and retaining walls:

- Walls subjected to surcharge loads (e.g., buildings, roadways, backslopes) should be designed to resist such loads.
- Structural-wall elements (e.g., wall blocks, geogrid reinforcement) should not be installed within the influence zone of building footings, defined by a 1H:1V line extending downward and outward from the nearest corner of the building footing. If retaining walls cannot be shifted outside the building influence zone, the building should be supported on deep foundations.
- Where SWM facilities are planned at the bottoms of retaining walls, SWM facility elements (including below-grade planting media and stone) should not be planned below a 1.5H:1V line extending downward and outward from the nearest retaining wall block/footing.
- Re-locates SWM facilities from behind/above retaining walls, to the extent possible. Where SWM facilities are planned behind or at the tops of retaining walls, they should be lined or otherwise designed to prevent water infiltration into the soils retained by the retaining walls. Infiltration facilities should not be located within the retained zone immediately behind the reinforced zone without further analysis.

- Retaining walls should incorporate drainage systems to prevent buildup of hydrostatic pressure behind the walls.

- Proximity of retaining walls to LODs and other proposed improvements planned behind/in-front of walls. Lateral space limitations due to boundaries and improvements, such as pavements and subsurface utilities, will impact design and construction of retaining walls.

- The height and gradient of proposed slopes planned behind/in-front of walls.

- If feasible, the site grading scheme should be revised to reduce maximum wall heights. However, note that any slopes behind/in-front of the walls that are created or increased in height due to a reduction in wall height will also impact the global stability and design of the walls. The ratio of required wall heights to slope heights/gradients should be carefully evaluated during design, particularly in regards to global stability, prior to finalization of the site development plans.

- Where retaining walls are planned to span existing drainage areas/streams, incorporation of drainage measures into the wall designs, such as pipe penetrations or culverts, may be required. These drainage measures/penetrations, will require careful design and coordination between the wall design engineer, the civil engineer, and the project structural engineer, if needed. Additional, design-phase explorations along the proposed wall alignments will be required to assist with this evaluation.

The *NCMA Segmental Retaining Walls Best Practices Guide* recommends soil fill placed within the reinforced zone contain less than 35 percent fines (Material passing the No. 200 sieve). Taller walls (over 20 feet tall) may require backfill soils with less than 15 percent fines. ***It should be noted that significant portions of the site soils will likely not meet this gradation and will not be suitable as reinforced backfill for segmental block retaining walls and granular or processed stone materials will likely be required.*** Segregation of soils will be necessary to effectively re-use portions of the onsite soils within the reinforced zones. Based on review of preliminary grading plans provided to GTA, the maximum exposed heights of retaining walls are approximately 16 feet. Compaction requirements for retaining wall backfill material is provided within Section 5.2.4, Fill Placement Requirements.

A qualified representative of the third-party testing consultant should evaluate exposed retaining wall subgrades in the field. Soft/loose, unstable, or otherwise-unsuitable materials present at the retaining wall subgrade should be undercut and replaced at the time of construction. The third-party testing consultant representative should observe any such undercutting and replacement on a full-time basis. **Weathered rock and bedrock may be encountered in portions of the cut retaining wall excavations but will be dependent on the final design.** See the Rock Section for more information.

In order to help ensure that imported wall-backfill materials meet the wall design criteria, a qualified third-party testing consultant representative should evaluate such materials before they are imported. Compaction equipment used within six feet of the walls should be limited to light, self-propelled rollers or other, similar equipment. Heavy compaction equipment must not be used within six feet of the walls to avoid imposing increased lateral loads on the walls.

5.7 Slopes

New fills constructed on existing slopes steeper than 5H:1V (horizontal to vertical) should be keyed into existing slopes for stability considerations. All proposed fill slopes steeper than 5H:1V should be placed as structural fill and be controlled and compacted to the densities specified in the Structural Fill and Backfill section of this report. Based upon the surficial fine-grained soils encountered in our exploration, the use of fill slopes steeper than 3H:1V will require additional engineering evaluation, may warrant special erosion protection, and will likely require geosynthetic reinforcement or the use of granular materials. GTA recommends flattening fill slopes to 3H:1V or flatter or the use of high-quality granular materials or geogrid reinforcement will be required. be required at this time.

2.5H:1V or steeper slopes may be possible in weathered rock/competent rock cut scenarios but will depend on rock structure (i.e. foliation or bedding), joint and fracture spacing, orientation/dip of the fracturing, degree of weathering, and the presence of soils seams or troughs. Slope stability analyses are beyond GTA's scope of services for this *Geotechnical Engineering Report*, however, GTA can provide those services if requested. Based on review of the preliminary grading plans provided to GTA, slopes steeper than 3H:1V are not proposed. Therefore, additional engineering evaluations or global stability analyses are not anticipated at this time. However, if there are any changes to the grading plans or slopes during final design, GTA should be given an opportunity to re-evaluate and verify the recommendations provided herein.

6.0 LIMITATIONS

This report, including all supporting exploration logs, field data, field notes, laboratory test data, calculations, estimates and other documents prepared by GTA in connection with this project have been prepared for the exclusive use of Hanover Industrial LLC pursuant to agreements between GTA and Hanover Industrial LLC in accordance with generally accepted engineering practice. All terms and conditions set forth in the Agreement and the *General Provisions* attached thereto are incorporated herein by reference. No warranty, express or implied, is made herein. Use and reproduction of this report by any other person without the expressed written permission of GTA and Hanover Industrial LLC is unauthorized and such use is at the sole risk of the user.

The analysis and recommendations contained in this report are based on the data obtained from limited observation and testing of the encountered materials. Explorations indicate soil conditions only at specific locations and times and only at the depths penetrated. They do not necessarily reflect strata or variations that may exist between exploration locations. Consequently, the analysis and recommendations must be considered preliminary until the subsurface conditions can be verified by direct observation at the time of construction. If variations of subsurface conditions from those described in this report are noted during construction, recommendations in this report may need to be reevaluated.

In the event that any changes in the nature, design, or location of the facilities are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report are verified in writing. GTA is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data or engineering analysis without the expressed written authorization of GTA.

The scope of our services for this geotechnical exploration did not include any environmental assessment or investigation for the presence or absence of wetlands, or hazardous or toxic materials in the soil, surface water, groundwater or air, on or below or around this site. Any statements in this report or on the logs regarding odors or unusual or suspicious items or conditions observed are strictly for the information of our client.

This report and the attached logs are instruments of service. The subject matter of this report is limited to the facts and matters stated herein. Absence of a reference to any other conditions or subject matter shall not be construed by the reader to imply approval by the writer.

7.0 LIST OF REFERENCE DOCUMENTS

Document Title	Prepared by:	Date	Description
Concept Plan	Bohler Engineering	06/18/2025, last revised 06/26/2025	Site Plan, Existing Topography, Concept Plan

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed*. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

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APPENDIX A
Figures



Notes:

1) Base map obtained from *Google Earth Pro.* *Google LLC, Version 7.3.6.9345, June 2, 2025.

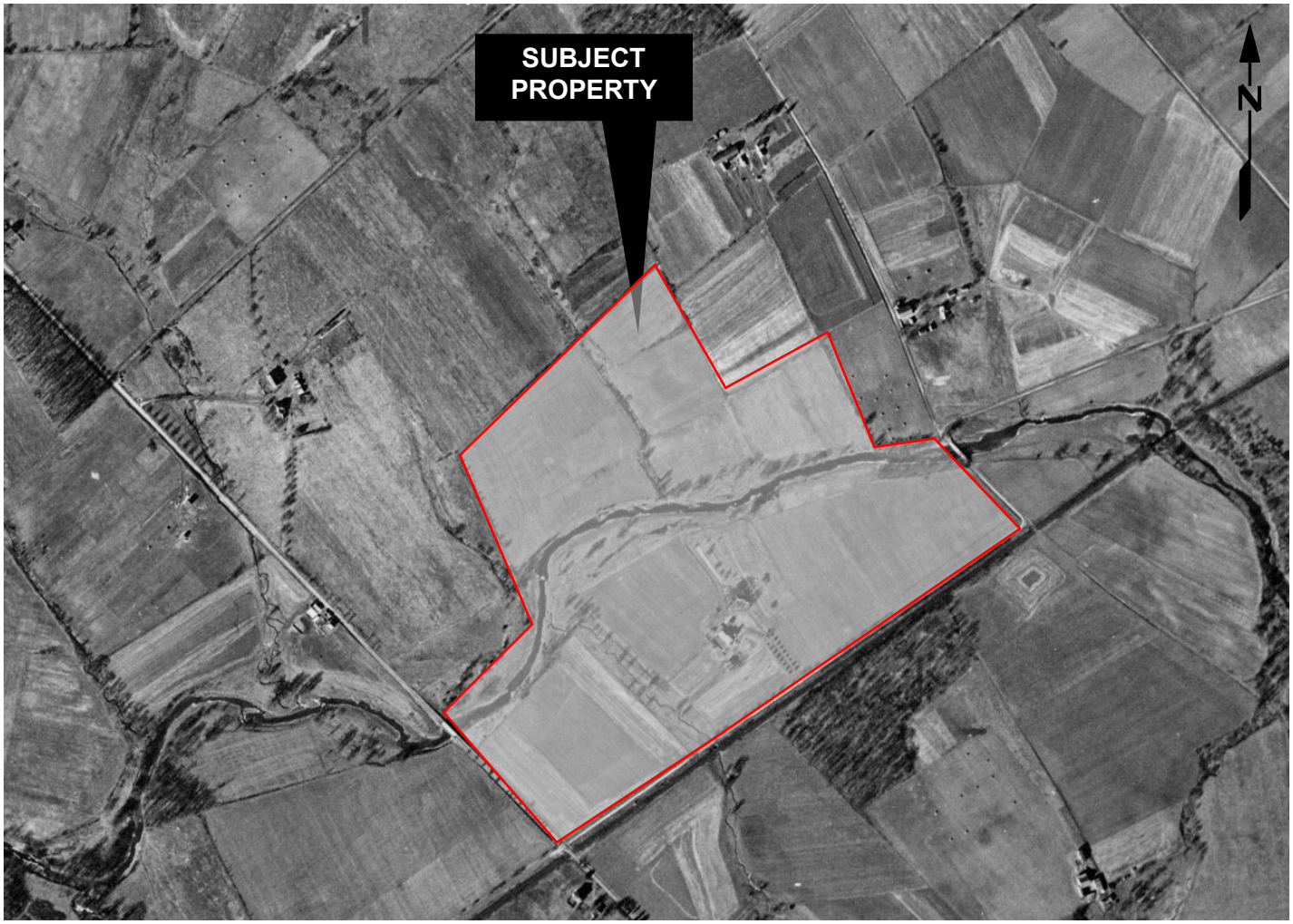
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(215) 536-8363
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SITE LOCATION MAP

WALNUT STREET - CHALFONT

BUCKS COUNTY, PENNSYLVANIA

SCALE	DATE	DRAWN BY	REVIEW BY	JOB NO.	FIGURE NO.
NTS	JULY 2025	SKG	MWD	31251589	1



Notes:

1) Base map obtained from USDA Farm Service Agency accessed via Pennsylvania Imagery Navigator, photograph dated February 16, 1936.

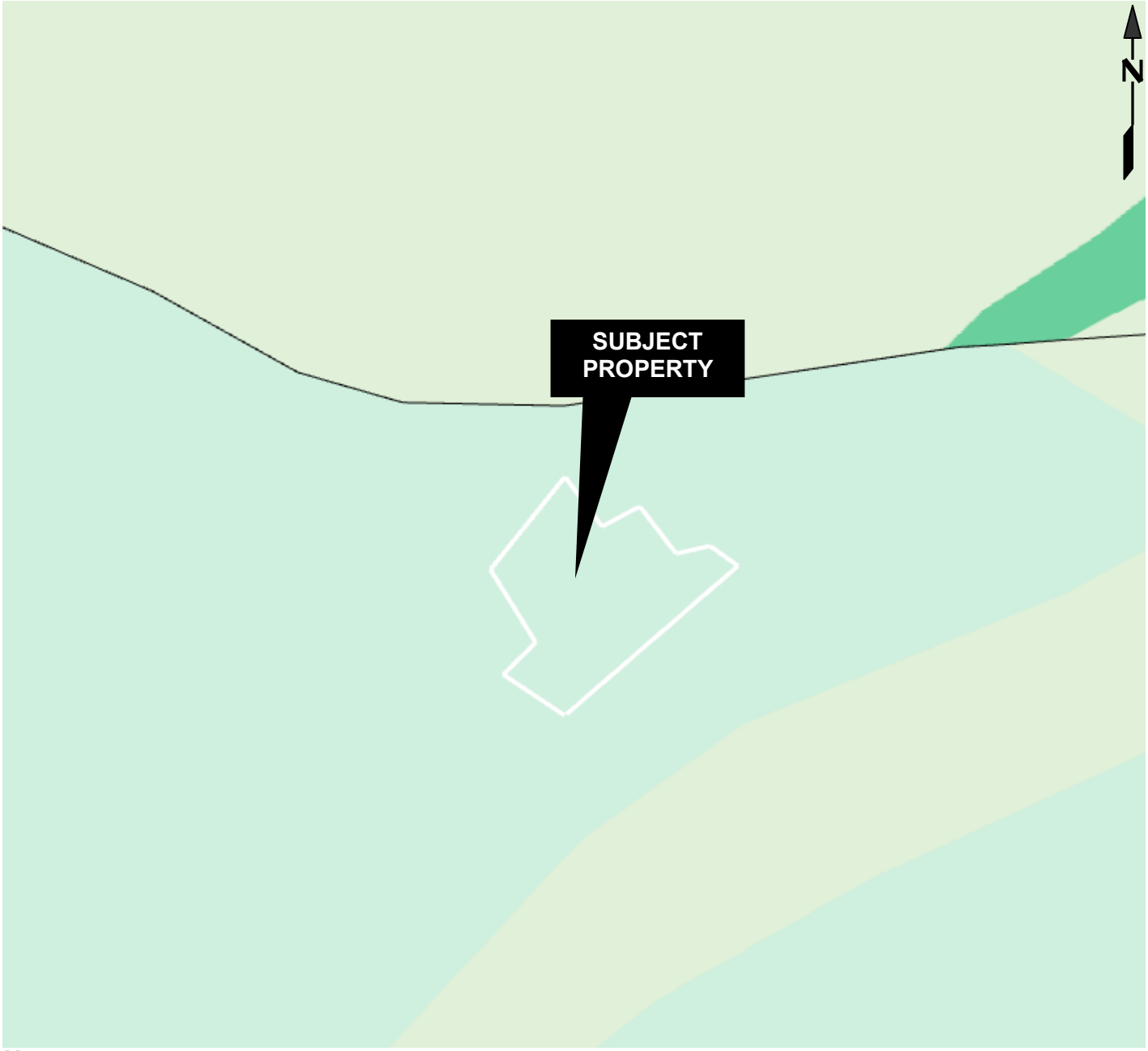
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HISTORICAL SITE AERIAL

Walnut Street - Chalfont

Bucks County, Pennsylvania

SCALE	DATE	DRAWN BY	REVIEW BY	JOB NO.	FIGURE NO.
NTS	AUG 2025	TJF	MWD	31251589	2



Notes:

1) **Light Blue Shading:** Consists of Triassic-aged Brunswick Formation: reddish-brown mudstone, siltstone, and shale containing a few green and brown shale interbeds.
2) **Tan Shading:** Consists of Triassic-aged Lockatong Formation: dark grey to black thick-bedded argillite containing a few zones of thin bedded black shale.
    a. Base map obtained from the Pennsylvania *Department of Conservation and Natural Resources online GeoLogic* mapping tool.

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SITE GEOLOGY MAP

Walnut Street

Bucks County, Pennyslvania

SCALE	DATE	DRAWN BY	REVIEW BY	JOB NO.	FIGURE NO.
NTS	AUG 2025	SKG	MWD	31251589	3



Key:

TP-# Number and approximate location of test pits conducted for this study.

B-# Number and approximate location of borings conducted for this study.

Notes:

1) Layout was obtained from a drawing titled *Concept Plan* prepared by Bohler, dated June 18, 2025, last revised June 26, 2025.

2) Exploration Location Plan should be read together with GTA Report Job No. 31251589 for complete evaluation.

JOB NUMBER.:
31251589

FIGURE:
4

REVIEW BY:
MWD

SCALE:
NTS

DATE:
AUG 2025

EXPLORATION LOCATION PLAN

WALNUT STREET

BCUKS COUNTY, PENNSYLVANIA

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APPENDIX B
Exploration Logs

Project: Walnut Street - Chalfont
Project Number: 31251589
Project Location: New Britain Township, Bucks County, Pennsylvania
Client: Hanover Company

Geotechnical Exploration Summary Tables

Test Location No.	Existing Surface Elevation (EL)	Top of Highly Weathered Rock Depth (ft bgs)	Highly Weathered Rock (EL)	Top of Bedrock (ft bgs)	Top of Bedrock Elevation (EL)	Perched Groundwater Depth (ft bgs)	Perched Groundwater Elevation (EL)	Assumed Finish Floor / Subgrade Elevation (EL)	Cut/Fill to Achieve Subgrade (ft)	Rock Removal Above Subgrade (ft)	Comments Regarding Fill or Rock Removal
Building 1 (361,150 Square Feet)											
B-1	286.0	4.0	282.0	7.0	279.0	NE	N/A	284.0	(2.0)	N/A	Rock within 5 feet of subgrade
B-2	287.0	4.0	283.0	7.0	280.0	NE	N/A	284.0	(3.0)	N/A	Rock within 4 feet of subgrade
B-3	287.0	4.0	283.0	7.0	280.0	NE	N/A	284.0	(3.0)	N/A	Rock within 4 feet of subgrade
B-4	285.0	6.0	279.0	10.0	275.0	NE	N/A	284.0	(1.0)	N/A	
B-5	277.0	4.0	273.0	8.8	268.2	NE	N/A	284.0	7.0	N/A	
B-6	281.0	8.0	273.0	19.0	262.0	NE	N/A	284.0	3.0	N/A	
B-7	275.0	6.0	269.0	12.0	263.0	NE	N/A	284.0	9.0	N/A	
B-8	279.0	4.0	275.0	8.0	271.0	NE	N/A	284.0	5.0	N/A	
B-9	278.0	4.0	274.0	7.0	271.0	NE	N/A	284.0	6.0	N/A	
B-10	282.0	4.0	278.0	8.0	274.0	NE	N/A	284.0	2.0	N/A	
B-11	277.0	2.0	275.0	7.0	270.0	NE	N/A	284.0	7.0	N/A	
B-12	279.0	4.0	275.0	6.1	272.9	NE	N/A	284.0	5.0	N/A	
B-13	273.0	2.0	271.0	10.0	263.0	NE	N/A	284.0	11.0	N/A	
B-14	275.0	8.0	267.0	10.0	265.0	NE	N/A	284.0	9.0	N/A	
TP-1	279.0	3.0	276.0	4.5	274.5	NE	N/A	282.0	3.0	N/A	
TP-2	284.0	6.0	278.0	7.0	277.0	NE	N/A	282.0	(2.0)	N/A	Rock within 5 feet of subgrade
TP-3	281.0	4.0	277.0	6.5	274.5	NE	N/A	282.0	1.0	N/A	
TP-4	275.0	4.0	271.0	5.5	269.5	NE	N/A	282.0	7.0	N/A	
TP-5	272.0	4.5	267.5	6.5	265.5	NE	N/A	280.0	8.0	N/A	
TP-6	278.0	6.0	272.0	6.5	271.5	6.0	272.0	280.0	2.0	N/A	
TP-7	276.0	5.0	271.0	6.0	270.0	NE	N/A	280.0	4.0	N/A	
TP-8	278.0	5.0	273.0	6.5	271.5	NE	N/A	280.0	2.0	N/A	
TP-9	285.0	7.0	278.0	8.0	277.0	NE	N/A	280.0	(5.0)	N/A	Rock within 3 feet of subgrade
TP-10	279.0	5.5	273.5	7.0	272.0	NE	N/A	280.0	1.0	N/A	
TP-11	284.0	6.0	278.0	7.0	277.0	NE	N/A	284.0	0.0	N/A	
TP-12	281.0	NE	N/A	NE	N/A	4.0	277.0	282.0	1.0	N/A	Possible weathered rock at bottom of test pit at 23 feet bgs
Building 3 (115,500 Square Feet)											
B-15	292.0	6.0	286.0	10.0	282.0	NE	N/A	288.0	(4.0)	N/A	
B-16	288.0	NE	N/A	12.0	276.0	NE	N/A	288.0	0.0	N/A	
B-17	283.0	2.0	281.0	7.0	276.0	NE	N/A	288.0	5.0	N/A	
B-18	280.0	4.0	276.0	8.0	272.0	NE	N/A	288.0	8.0	N/A	
B-19	276.0	2.0	274.0	6.5	269.5	NE	N/A	288.0	12.0	N/A	
B-20	270.0	4.0	266.0	6.0	264.0	NE	N/A	288.0	18.0	N/A	
B-21	279.0	4.0	275.0	7.0	272.0	NE	N/A	288.0	9.0	N/A	
B-22	290.0	6.0	284.0	8.0	282.0	NE	N/A	288.0	(2.0)	N/A	
TP-21	279.0	5.0	274.0	6.0	273.0	NE	N/A	284.0	5.0	N/A	
TP-22	282.0	2.3	279.8	5.0	277.0	NE	N/A	284.0	2.0	N/A	
TP-23	284.0	4.0	280.0	5.3	278.7	NE	N/A	286.0	2.0	N/A	
TP-24	278.0	NE	N/A	3.8	274.3	NE	N/A	285.0	7.0	N/A	
TP-25	276.0	NE	N/A	5.0	271.0	NE	N/A	284.0	8.0	N/A	
Building 2 (110,000 Square Feet)											
B-23	278.0	6.0	272.0	10.0	268.0	10.0	268.0	280.0	2.0	N/A	
B-24	276.0	8.0	268.0	10.0	266.0	7.0	269.0	280.0	4.0	N/A	
B-25	273.0	8.0	265.0	10.0	263.0	NE	N/A	280.0	7.0	N/A	
B-26	277.0	6.0	271.0	10.0	267.0	4.0	273.0	280.0	3.0	N/A	
B-27	283.0	4.0	279.0	9.0	274.0	NE	N/A	280.0	(3.0)	N/A	
B-28	282.0	4.0	278.0	8.0	274.0	NE	N/A	280.0	(2.0)	N/A	
B-29	282.0	4.0	278.0	8.0	274.0	NE	N/A	280.0	(2.0)	N/A	
B-30	280.0	4.0	276.0	8.0	272.0	NE	N/A	280.0	0.0	N/A	
TP-13	283.0	4.0	279.0	6.5	276.5	NE	N/A	282.0	(1.0)	N/A	
TP-14	279.0	4.0	275.0	5.0	274.0	NE	N/A	276.0	(3.0)	N/A	Rock within 2 feet of subgrade
TP-15	275.0	4.0	271.0	5.0	270.0	NE	N/A	276.0	1.0	N/A	
TP-16	271.0	6.5	264.5	8.5	262.5	NE	N/A	276.0	5.0	N/A	
TP-17	280.0	4.0	276.0	5.5	274.5	NE	N/A	280.0	0.0	N/A	
TP-18	283.0	4.5	278.5	6.5	276.5	NE	N/A	280.0	(3.0)	N/A	Rock within 4 feet of subgrade
Site Infrastructure											
TP-19	282.0	5.8	276.3	6.0	276.0	NE	N/A	280.0	(2.0)	N/A	
TP-20	278.0	8.0	270.0	10.0	268.0	NE	N/A	280.0	2.0	N/A	
TP-26	279.0	4.6	274.4	5.5	273.5	NE	N/A	286.0	7.0	N/A	
TP-27	275.0	NE	N/A	4.3	270.7	NE	N/A	284.0	9.0	N/A	
TP-28	272.0	4.5	267.5	5.3	266.8	NE	N/A	282.0	10.0	N/A	
TP-29	298.0	4.5	293.5	8.0	290.0	NE	N/A	294.0	(4.0)	N/A	Rock within 4 feet of subgrade
TP-30	292.0	NE	N/A	9.0	283.0	NE	N/A	294.0	2.0	N/A	
TP-31	284.0	9.0	275.0	12.0	272.0	NE	N/A	292.0	8.0	N/A	
TP-32	290.0	NE	N/A	6.0	284.0	NE	N/A	286.0	(4.0)	N/A	Rock within 2 feet of subgrade
TP-33	276.0	5.0	271.0	7.3	268.8	NE	N/A	282.0	6.0	N/A	

Note: NE - Not Not Encountered, N/A - Not Applicable

NOTES FOR EXPLORATION LOGS

KEY TO USCS TERMINOLOGY AND GRAPHIC SYMBOLS

MAJOR DIVISIONS (BASED UPON ASTM D 2488)			SYMBOLS GRAPHIC	SYMBOLS LETTER
COARSE - GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% PASSING THE NO. 200 SIEVE)		GW
				GP
		GRAVELS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		GM
				GC
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% PASSING THE NO. 200 SIEVE)		SW
				SP
		SANDS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		SM
				SC
FINE - GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	SILT OR CLAY (<15% RETAINED THE NO. 200 SIEVE)		ML
		SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED THE NO. 200 SIEVE)		CL
		SANDY OR GRAVELY SILT OR CLAY (>30% RETAINED THE NO. 200 SIEVE)		OL
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	SILT OR CLAY (<15% RETAINED THE NO. 200 SIEVE)		MH
		SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED THE NO. 200 SIEVE)		CH
		SANDY OR GRAVELY SILT OR CLAY (>30% RETAINED THE NO. 200 SIEVE)		OH
HIGHLY ORGANIC SOILS				PT

NOTE: DUAL SYMBOLS ARE USED TO INDICATE COARSE-GRAINED SOILS CONTAINING AN ESTIMATED 10% FINES BY VISUAL CLASSIFICATION OR WHEN THE SOIL HAS BETWEEN 5 AND 12 PERCENT FINES FROM LABORATORY TESTS; AND FOR FINE-GRAINED SOILS WHEN THE PLOT OF LIQUID LIMIT & PLASTICITY INDEX VALUES FALLS IN THE PLASTICITY CHART'S CROSSHATCHED AREA. RESULTS OF LABORATORY TESTING ARE USED TO SUPPLEMENT THE CLASSIFICATION OF THE SOILS BASED ON THE VISUAL-MANUAL PROCEDURES OF ASTM D2488.

ADDITIONAL TERMINOLOGY AND GRAPHIC SYMBOLS

	DESCRIPTION		GRAPHIC SYMBOLS
ADDITIONAL DESIGNATION	TOPSOIL		
	MAN-MADE FILL		
	GLACIAL TILL		
	COBBLES AND BOULDERS		
RESIDUAL SOIL DESIGNATION	DESCRIPTION	"N" VALUE	
	HIGHLY WEATHERED ROCK	50 TO 50/1"	
	PARTIALLY WEATHERED ROCK	MORE THAN 50 BLOWS FOR 1" PENETRATION, AUGER PENETRABLE	

COARSE-GRAINED SOILS
(GRAVEL AND SAND)

DESIGNATION	BLOWS PER FOOT (BPF) "N"
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	>50

NOTE: "N" VALUE DETERMINED AS PER ASTM D1586

FINE-GRAINED SOILS
(SILT AND CLAY)

CONSISTENCY	BPF "N"
VERY SOFT	<2
SOFT	2 - 4
MEDIUM STIFF	5 - 8
STIFF	9 - 15
VERY STIFF	16 - 30
HARD	>30

NOTE: ADDITIONAL DESIGNATIONS TO ADVANCE SAMPLER INDICATED IN BLOW COUNT COLUMN:
WOH = WEIGHT OF HAMMER
WOR = WEIGHT OF ROD(S)

SAMPLE TYPE

DESIGNATION	SYMBOL
SPLIT-SPOON	S-
SHELBY TUBE	U-
ROCK CORE	R-

WATER DESIGNATION

DESCRIPTION	SYMBOL
ENCOUNTERED DURING DRILLING	▽
UPON COMPLETION OF DRILLING	▼
24 HOURS AFTER COMPLETION	⧩

NOTE: WATER OBSERVATIONS WERE MADE AT THE TIME INDICATED. POROSITY OF SOIL STRATA, WEATHER CONDITIONS, SITE TOPOGRAPHY, ETC. MAY CAUSE WATER LEVEL CHANGES.

LOG OF BORING NO. B-1

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/21/2025**
CAVED (ft): **6.0**

DATE STARTED: **7/21/2025**
DATE COMPLETED: **7/21/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **286**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	16	4-4-11-9	15	286.0	0	CL		Light Brown, moist, stiff, Lean Clay	Topsoil +/- 3 inches
S2	2.0	17	15-20-19-25	39	284.0	3	GC		Red-brown, moist, dense, Clayey GRAVEL, with Sand	
S3	4.0	20	14-15-28-50/2"	43	282.0	6			Brown, moist, very dense, Highly Weathered ROCK (Shale rock fragments)	
					279.0	7			Auger refusal on BEDROCK at 7.0 feet bgs.	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-1

LOG OF BORING NO. B-2

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/21/2025**
CAVED (ft): **3.0**

DATE STARTED: **7/21/2025**
DATE COMPLETED: **7/21/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **287**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					287.0	0				
S1	0.0	18	2-6-7-9	13			CL		Brown, moist, stiff, Lean CLAY	Topsoil +/- 2 inches
S2	2.0	23	4-29-18-36	47		3			As above, hard	
					283.0					
S3	4.0	18	8-26-38-41	64					Red, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	4	50/5"	50+		6			As above	
					280.0				Auger refusal on BEDROCK at 7.0 feet bgs	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-2

BOHLER

1515 Market Street, Suite 920
Philadelphia, PA 19102
267.402.3400

VOLUME 3 OF 5

LOG OF BORING NO. B-3

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/21/2025**
CAVED (ft): **4.50**

DATE STARTED: **7/21/2025**
DATE COMPLETED: **7/21/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **287**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	16	3-7-8-13	15	287.0	0	CL		Brown-red, moist, stiff, Lean CLAY	Topsoil +/- 2 inches
S2	2.0	21	18-12-13-17	25	285.0	3	ML		Brown-red, moist, very stiff, SILT	
S3	4.0	23	17-30-41-38	71	283.0				Red, moist, very dense, Highly Weathered ROCK (Poorly Graded Gravel with CLAY)	
S4	6.0	7	20-50/1"	50+		6			Red, moist, hard, Highly Weathered ROCK (Shale rock fragments)	
					280.0				Auger refusal on BEDROCK at 7.0 feet bgs	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-3

LOG OF BORING NO. B-4

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/21/2025**
CAVED (ft): **7.0**

DATE STARTED: **7/21/2025**
DATE COMPLETED: **7/21/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **285**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					285.0	0				
S1	0.0	17	4-4-6-10	10			CL		Red-brown, moist, stiff, Lean CLAY	Topsoil +/- 4 inches
S2	2.0	21	8-6-11-15	17		3			Red-grey, moist, very stiff, Lean CLAY	
S3	4.0	24	13-14-15-25	29					Red, dry, very stiff, Gravelly CLAY	
					279.0	6				
S4	6.0	14	23-37-47-50	84					Red, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
S5	8.0	9	50/4"	50+		9			As above	
					275.0				Auger refusal on BEDROCK at 10.0 feet bgs.	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-4

LOG OF BORING NO. B-5

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/21/2025**
CAVED (ft): **4.50**

DATE STARTED: **7/21/2025**
DATE COMPLETED: **7/21/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **277**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	13	4-7-6-10	13	277.0	0	CL		Brown-grey-orange, moist, stiff, Lean CLAY	Topsoil +/- 2 inches
S2	2.0	15	13-14-25-26	39	275.0	3	GP		Red-brown, moist, hard, Poorly Graded Gravel with CLAY	
S3	4.0	22	17-50-38-47	88	273.0				Red, dry, very dense, Highly Weathered ROCK (Clayey GRAVEL)	
S4	6.0	7	50-50/2"	50+	271.0	6	GM		Red, dry, hard, Silty GRAVEL, with Sand	
S5	8.0	6	50/6"	50+	269.0				As above	
					268.2	9			Auger refusal on BEDROCK at 8.83 feet bgs	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-5

LOG OF BORING NO. B-6

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/21/2025**
CAVED (ft): **12.0**

DATE STARTED: **7/21/2025**
DATE COMPLETED: **7/21/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **281**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	17	2-5-3-3	8	281.0	0	CL		Brown-red, moist, medium stiff, Lean CLAY	Topoil +/- 4 inches
S2	2.0	16	5-12-16-16	28		3			As above, very stiff	
S3	4.0	25	5-8-12-22	20					Red-light brown, moist, very stiff, Lean CLAY	
S4	6.0	23	14-13-27-25	40	275.0	6	GP		Red-brown, moist, dense, Poorly Graded Gravel with CLAY	
S5	8.0	18	20-30-50/3"	50+	273.0	9			Red-Brown, moist, very dense, Highly Weahered ROCK (Poorly Graded GRAVEL with Clay)	
						12				
S6	13.0	23	20-29-23-17	52					As above	
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-6

LOG OF BORING NO. B-6

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/21/2025**
CAVED (ft): **12.0**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S7	18.0	2	50/2"	50+	262.0				Red-brown, moist, hard, Highly Weathered ROCK (Shale rock fragments)	
									Auger refusal on BEDROCK at 19.0 feet bgs.	
						21				
						24				
						27				
						30				
						33				
						36				
						39				

LOG OF BORING NO. B-7

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/21/2025**
CAVED (ft): **3.0**

DATE STARTED: **7/21/2025**
DATE COMPLETED: **7/21/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **275**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					275.0	0				
S1	0.0	17	1-2-2-1	4			CL		Brown, moist, soft, Lean CLAY	Topsoil +/- 3 inches
S2	2.0	26	6-8-9-7	17		3			Brown-red, moist, very stiff, Lean CLAY	
S3	4.0	26	4-5-10-6	15					As above, stiff	
					269.0	6				
S4	6.0	26	11-17-20-27	37					Red-brown, dry, dense, Highly Weathered ROCK (Shale rock fragments)	
S5	8.0	20	13-42-50/3"	50+		9			As above, very dense	
					263.0	12			Auger refusal on BEDROCK at 12.0 feet bgs.	
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-7

LOG OF BORING NO. B-8

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/22/2025**
CAVED (ft): **4.0**

DATE STARTED: **7/22/2025**
DATE COMPLETED: **7/22/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **279**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	6	3-7-10-11	17	279.0	0	CL		Brown, moist, very stiff, Lean CLAY	
S2	2.0	16	12-19-20-23	39		3			As above, hard	
S3	4.0	20	12-16-17-23	33	275.0				Red-brown, dry, dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	7	30-50/4"	50+		6			As above, very dense	
S5	8.0	1	50/1"	50+	270.9				As above	
						9			Auger refusal on BEDROCK at 8.0 feet bgs.	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-8

LOG OF BORING NO. B-9

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/22/2025**
CAVED (ft): **5.0**

DATE STARTED: **7/22/2025**
DATE COMPLETED: **7/22/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **278**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	15	2-2-6-10	8	278.0	0	CL		Brown, moist, medium stiff, Lean CLAY	Topsoil +/- 3 inches
S2	2.0	19	5-15-15-21	30		3			Brown-red, moist, very stiff, Lean CLAY	
S3	4.0	20	21-43-49-43	92	274.0				Red-dark brown, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	3	50/4"	50+		6			As above	
					271.0				Auger refusal on BEDROCK at 7.0 feet bgs	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-9

LOG OF BORING NO. B-10

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/22/2025**
CAVED (ft): **4.0**

DATE STARTED: **7/22/2025**
DATE COMPLETED: **7/22/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **282**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	18	4-5-10-10	15	282.0	0	CL		Brown, moist, stiff, Lean CLAY	Topsoil +/- 3 inches
S2	2.0	18	13-13-15-25	28		3			Brown-red, moist, very stiff, Lean CLAY	
S3	4.0	20	16-15-20-20	35	278.0				Red, moist, dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	2	50/4"	50+		6			As above	
					274.0				Auger refusal on BEDROCK at 8.0 feet bgs.	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

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LOG OF BORING NO. B-10

LOG OF BORING NO. B-11

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/22/2025**
CAVED (ft): **6.0**

DATE STARTED: **7/22/2025**
DATE COMPLETED: **7/22/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **277**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	8	2-4-12-16	16	277.0	0	CL		Brown, moist, very stiff, Lean CLAY	Topsoil +/- 3 inches
					275.0					
S2	2.0	10	12-16-23-25	39		3			Dark brown, moist, dense, Highly Weathered ROCK (Shale rock fragments)	
S3	4.0	12	8-16-28-34	44					As above	
S4	6.0	6	38-50/2"	50+		6			As above, very dense	
					270.0				Auger refusal on BEDROCK at 7.0 feet bgs	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
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LOG OF BORING NO. B-11

LOG OF BORING NO. B-12

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/22/2025**
CAVED (ft): **N/A**

DATE STARTED: **7/22/2025**
DATE COMPLETED: **7/22/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **279**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	8	2-4-8-10	12	279.0	0	CL		Light brown-grey, moist, stiff, Lean CLAY	Topsoil +/- 2 inches
S2	2.0	14	15-18-20-22	38		3			Grey-brown, moist, hard, Lean CLAY	
S3	4.0	7	38-50/4"	50+	275.0				Dark brown-red, moist, very dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	1	50/2"	50+	272.9	6			Red, dry, hard, Highly Weathered ROCK (Shale rock fragments) Auger refusal on BEDROCK at 6.1 feet bgs	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF BORING NO. B-12

LOG OF BORING NO. B-13

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/22/2025**
CAVED (ft): **8.0**

DATE STARTED: **7/22/2025**
DATE COMPLETED: **7/22/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **273**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	14	5-6-13-22	19	273.0	0	CL		Brown-red, moist/dry, very stiff, Lean CLAY with Gravel	Topsoil +/- 3 inches
S2	2.0	15	24-39-50/4"	50+	271.0	3			Brown-red, dry, hard, Highly Weathered ROCK (Lean CLAY)	
S3	4.0	13	26-24-28-50/2"	52					Red, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	2	50/1"	50+		6			As above	
S5	8.0	12	50/4"	50+		9			As above	
					263.0				Auger refusal on BEDROCK at 10.0 feet bgs.	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
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LOG OF BORING NO. B-14

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/22/2025**
CAVED (ft): **7.0**

DATE STARTED: **7/22/2025**
DATE COMPLETED: **7/22/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **275**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					275.0	0				
S1	0.0	14	3-3-5-7	8			CL		Red-brown, moist, medium stiff, Lean CLAY	Topsoil +/- 3 inches
S2	2.0	18	9-8-12-10	20		3			Red-brown-grey, dry, very stiff, Lean CLAY	
					271.0					
S3	4.0	26	10-7-11-9	18			SC		Dark brown-purple, dry, medium dense, Clayey Sand	
					269.0	6				
S4	6.0	25	15-29-10-30	39			GP		Red-purple, dry, dense, Poorly Graded GRAVEL with Clay	
					267.0					
S5	8.0	19	33-50-50/5"	50+		9			Red-purple, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
					265.0				Auger refusal on BEDROCK at 10.0 feet bgs.	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF BORING NO. B-15

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/22/2025**
CAVED (ft): **9.0**

DATE STARTED: **7/22/2025**
DATE COMPLETED: **7/22/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Cartwright**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **292**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					292.0	0				
S1	0.0	18	5-11-13-27	24			CL		Brown-red, dry, very stiff, Lean CLAY	Topsoil +/- 6 inches
S2	2.0	12	12-48-50/ 3"	50+		3			As above, hard	
S3	4.0	24	20-21-22-21	43					As above	
S4	6.0	24	10-26-32-50/4"	58	286.0	6			Red, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
S5	8.0	13	32-50/3"	50+		9			As above	
					282.0				Auger refusal on BEDROCK at 10.0 feet bgs.	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF BORING NO. B-15

LOG OF BORING NO. B-16

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/22/2025**
CAVED (ft): **11.0**

DATE STARTED: **7/22/2025**
DATE COMPLETED: **7/22/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Cartwright**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **288**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					288.0	0				
S1	0.0	21	4-5-7-6	12			CL		Brown-red, dry, stiff, Lean CLAY	Topsoil +/- 4 inches
S2	2.0	19	6-6-7-6	13		3			Brown-red-orange-grey, dry, stiff, Lean CLAY	
S3	4.0	23	6-10-8-9	18					As above, moist, very stiff	
S4	6.0	26	7-8-10-5	18		6			Brown-red-grey, moist, very stiff, Lean CLAY	
					280.0					
S5	8.0	26	8-8-12-10	20		9	SC		Brown-Red-Grey, moist, very stiff, Clayey SAND	
					276.0	12			Auger refusal on BEDROCK at 12.0 feet bgs.	
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
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LOG OF BORING NO. B-16

LOG OF BORING NO. B-17

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/22/2025**
CAVED (ft): **4.0**

DATE STARTED: **7/22/2025**
DATE COMPLETED: **7/22/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Cartwright**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **283**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	23	4-7-26-35	33	283.0	0	CL		Red-brown, moist, hard, Lean CLAY	Topsoil +/- 7 inches
S2	2.0	14	37-27-32-25	59	281.0	3			Brown-grey-red, moist, hard, Highly Weathered ROCK (Lean CLAY)	
S3	4.0	26	16-23-29-44	52					Brown-red, dry, hard, Highly Weathered ROCK (Lean CLAY)	
S4	6.0	4	50/4"	50+		6			Brown-red, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
					276.0				Auger refusal on BEDROCK at 7.0 feet bgs.	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-17

LOG OF BORING NO. B-18

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/23/2025**
CAVED (ft): **N/A**

DATE STARTED: **7/23/2025**
DATE COMPLETED: **7/23/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Cartwright**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **280**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	15	7-10-12-11	22	280.0	0	CL		Brown-red, moist, very stiff, Lean CLAY	topsoil +/- 2 inches
S2	2.0	18	18-34-31-20	65	278.0	3	GC		Red, dry, very dense, Clayey GRAVEL	
S3	4.0	16	10-15-19-22	34	276.0	6			Red, dry, dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	10	49-50/1"	50+	272.0	9			Auger refusal on BEDROCK at 8.0 feet bgs	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-18

LOG OF BORING NO. B-19

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/23/2025**
CAVED (ft): **5.0**

DATE STARTED: **7/23/2025**
DATE COMPLETED: **7/23/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Cartwright**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **276**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	18	4-6-12-17	18	276.0	0	CL		Red-brown, dry, very stiff, Lean CLAY	Topsoil +/- 3 inches
S2	2.0	22	27-32-31-35	63	274.0	3			Red-brown, moist, very dense, Highly Weathered ROCK (Shale rock fragments)	
S3	4.0	21	18-23-28-50/4"	51					As above	
S4	6.0	6	50/3"	50+	269.5	6			Red-brown, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
									Auger refusal on BEDROCK at 6.50 feet bgs.	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF BORING NO. B-19

LOG OF BORING NO. B-20

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/23/2025**
CAVED (ft): **6.0**

DATE STARTED: **7/23/2025**
DATE COMPLETED: **7/23/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Cartwright**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **270**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	18	4-6-9-10	15	270.0	0	CL		Brown-red, moist, stiff, Lean CLAY	Topsoil +/- 5 inches
S2	2.0	21	10-11-12-22	23		3			Grey-brown-red, moist, very stiff, Lean CLAY	
S3	4.0	22	20-48-25-39	73	266.0				Red-purple, moist, very dense, Highly Weathered ROCK (Shale rock fragments)	
					264.0	6			Auger refusal on BEDROCK at 6.0 feet	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF BORING NO. B-20

LOG OF BORING NO. B-21

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/23/2025**
CAVED (ft): **3.0**

DATE STARTED: **7/23/2025**
DATE COMPLETED: **7/23/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Cartwright**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **279**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	14	6-11-17-22	28	279.0	0	GP		Brown, dry, medium dense, Poorly-Graded GRAVEL, with Clay	Topsoil +/- 5 inches
S2	2.0	22	23-19-17-14	36	277.0	3	CL		Brown, dry, hard, Lean CLAY	
S3	4.0	21	26-22-27-38	49	275.0	6			Red-brown, moist, dense, Highly Weathered ROCK (Shale rock fragments)	
					272.0	7			Auger refusal on BEDROCK at 7.0 feet bgs.	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF BORING NO. B-21

LOG OF BORING NO. B-22

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/23/2025**
CAVED (ft): **4.0**

DATE STARTED: **7/23/2025**
DATE COMPLETED: **7/23/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Cartwright**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **290**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	16	5-12-13-14	25	290.0	0	SC		Brown-red, moist, very stiff, Clayey SAND	Topsoil +/- 4 inches
S2	2.0	22	10-6-13-14	19		3			As above	
S3	4.0	26	21-12-27-31	39					As above, hard	
S4	6.0	40	33-50/4"	50+	284.0	6			Red, moist/dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
					282.0				Auger refusal on BEDROCK at 8.0 feet bgs.	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-22

LOG OF BORING NO. B-23

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/24/2025**
CAVED (ft): **N/A**

DATE STARTED: **7/24/2025**
DATE COMPLETED: **7/24/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft) ▽ **10.0**
GROUND SURFACE ELEVATION: **278**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					278.0	0				
S1	0.0	14	1-4-6-7	10			CL		Brown, moist, stiff, Lean CLAY	Topsoil +/- 8 inches
S2	2.0	23	7-10-16-12	26		3			Brown-red-grey, moist, very stiff, Lean CLAY	
S3	4.0	18	3-12-14-13	26					As above	
					272.0	6				
S4	6.0	20	15-12-16-17	28					Red, moist, medium dense, Highly Weathered ROCK (Shale rock fragments)	
S5	8.0	18	11-32-46-50/3"	78		9			As above	
					268.0				Auger refusal on BEDROCK at 10.0 feet bgs.	▽ Perched water
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-23

LOG OF BORING NO. B-24

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/24/2025**
CAVED (ft): **6.0**

DATE STARTED: **7/24/2025**
DATE COMPLETED: **7/24/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft) ▽ **7.0**
GROUND SURFACE ELEVATION: **276**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					276.0	0				
S1	0.0	20	3-5-7-8	12			CL		Brown-red, moist, stiff, Lean CLAY	Topsoil +/- 6 inches
S2	2.0	17	10-11-16-18	27		3			As above, very stiff	
S3	4.0	26	3-5-7-8	12					As above, stiff	
S4	6.0	25	4-10-16-17	26		6			Red, moist, very stiff, Lean CLAY	Perched water encountered between 7-9 feet bgs. ▽
S5	8.0	20	15-28-50/2"	50+	268.0	9			Red, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
					266.0				Auger refusal on BEDROCK at 10.0 feet bgs.	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF BORING NO. B-24

LOG OF BORING NO. B-25

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/24/2025**
CAVED (ft): **7.0**

DATE STARTED: **7/24/2025**
DATE COMPLETED: **7/24/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **273**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					273.0	0				
S1	0.0	17	3-5-7-9	12			CL		Red-brown-grey, dry, stiff, Lean CLAY	Topsoil +/- 2 inches
S2	2.0	21	8-12-14-14	26		3			Red-brown, dry, very stiff, Lean CLAY	
S3	4.0	26	4-5-6-10	11					As above, stiff	
S4	6.0	24	6-9-9-8	18	267.0	6	SM		Red-tan, dry, very stiff, Silty SAND, with Gravel	
S5	8.0	22	19-28-49-50/4"	77	265.0	9			Red, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
					263.0				Auger refusal on BEDROCK at 10.0 feet bgs.	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF BORING NO. B-25

LOG OF BORING NO. B-26

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/24/2025**
CAVED (ft): **N/A**

DATE STARTED: **7/24/2025**
DATE COMPLETED: **7/24/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft) **4.0**
GROUND SURFACE ELEVATION: **277**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					277.0	0				
S1	0.0	17	6-12-18-17	30			GC		Red, dry, medium dense, Clayey GRAVEL	Topsoil +/- 3 inches
S2	2.0	21	13-16-26-16	42		3			As above, dense	
S3	4.0	25	15-21-8-33	29	273.0		GM		Red, dry, medium dense, Silty GRAVEL, with Sand	▽ Perched water encountered between 4-6 feet bgs.
S4	6.0	19	36-39-50/3"	50+	271.0	6			Red, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
S5	8.0	11	50/2"	50+		9			As above	
					267.0				Auger refusal on BEDROCK at 10.0 feet bgs.	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-26

LOG OF BORING NO. B-27

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/24/2025**
CAVED (ft): **5.0**

DATE STARTED: **7/24/2025**
DATE COMPLETED: **7/24/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **283**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					283.0	0				
S1	0.0	20	3-4-6-7	10			CL		Red-brown-grey, moist, stiff, Lean CLAY	Topsoil +/- 2 inches
S2	2.0	21	9-10-15-12	25		3			Red-brown-grey, dry, very stiff, Lean CLAY	
					279.0					
S3	4.0	26	14-19-31-50/4"	50					Red-brown-grey, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	10	15-50/3"	50+		6			As above	
S5	8.0	9	50/2"	50+					Red, dry, hard, Highly Weathered ROCK (Shale rock fragments)	
					274.0	9			Auger refusal on BEDROCK at 9.0 feet bgs.	
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

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2405 John Fries Highway
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LOG OF BORING NO. B-27

LOG OF BORING NO. B-28

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/24/2025**
CAVED (ft): **7.0**

DATE STARTED: **7/24/2025**
DATE COMPLETED: **7/24/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **282**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
					282.0	0				
S1	0.0	17	3-9-10-9	19			GC		Brown-red, dry, very stiff, Clayey GRAVEL	Topsoil +/- 1 inch
S2	2.0	16	9-12-21-21	33		3			As above, hard	
					278.0					
S3	4.0	23	18-39-45-39	84					Brown-red, dry, very dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	9	19-50/4"	50+		6			As above	
					274.0					
									Auger refusal on BEDROCK at 8.0 feet bgs	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF BORING NO. B-28

LOG OF BORING NO. B-29

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/24/2025**
CAVED (ft): **6.0**

DATE STARTED: **7/24/2025**
DATE COMPLETED: **7/24/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **282**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	17	6-8-10-9	18	282.0	0	CL		Brown-red, dry, very stiff, Lean CLAY	Topsoil +/- 2 inches
S2	2.0	20	15-16-16-13	32	280.0	3	GC		Red, dry, dense, Clayey GRAVEL	
S3	4.0	23	11-14-36-50/1"	50	278.0				Red, dry, dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	4	50/3"	50+		6			As above, very dense	
					274.0	8			Auger refusal on BEDROCK at 8.0 feet bgs	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF BORING NO. B-29

LOG OF BORING NO. B-30

PROJECT: **Walnut Street - Chalfont**
PROJECT NO.: **31251589**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**

WATER LEVEL (ft): **DRY**
DATE: **7/24/2025**
CAVED (ft): **4.0**

DATE STARTED: **7/24/2025**
DATE COMPLETED: **7/24/2025**
DRILLING CONTRACTOR: **Accurate Drilling, LLC.**
DRILLER: **R. Macowski**
DRILLING METHOD: **3.25" Hollow Stem Augers**
SAMPLING METHOD: **Split-Spoon**

WATER ENCOUNTERED DURING DRILLING (ft): **N/A**
GROUND SURFACE ELEVATION: **280**
DATUM: **Topo**
EQUIPMENT: **CME-55**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

SAMPLE NUMBER	SAMPLE DEPTH (ft.)	SAMPLE RECOVERY (in.)	SAMPLE BLOWS/6 inches	N (blows/ft.)	ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
S1	0.0	16	4-6-7-10	13	280.0	0	CL		Brown-grey, dry, stiff, Lean CLAY	Topsoil +/- 1 inch
S2	2.0	21	13-13-12-14	25		3			Brown-grey, moist, very stiff, Lean CLAY	
S3	4.0	26	11-14-22-36	36	276.0				Brown-grey, moist, dense, Highly Weathered ROCK (Shale rock fragments)	
S4	6.0	15	32-50/2"	50+		6			As above	
					272.0				Auger refusal on BEDROCK at 8.0 feet bgs.	
						9				
						12				
						15				
						18				

NOTES: **Locations and elevations are considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF BORING NO. B-30

LOG OF TEST PIT NO. TP-1

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **279 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
278.4				Topsoil +/- 7 inches	
		GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Sand and Silt	
276.0	3			Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
274.5				Excavator refusal on BEDROCK at 4.5 feet bgs.	
	6				
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-1

LOG OF TEST PIT NO. TP-2

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **284 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
283.5				Topsoil +/- 6 inches	
		ML		Red-brown, dry, medium stiff, Sandy SILT	
	3			Red-brown, dry, very stiff, Sandy SILT, with Gravel	
279.0		SM		Red-brown, dry, dense, Silty SAND, with Gravel	
278.0	6			Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
277.0				Excavator refusal on BEDROCK at 7 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-2

LOG OF TEST PIT NO. TP-3

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **281 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
280.5				Topsoil +/- 6 inches	
		ML		Red-brown, dry, medium stiff, Sandy SILT	
	3			Red-brown, moist, stiff, Sandy SILT, with Gravel	
277.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
	6				
274.5				Excavator refusal on BEDROCK at 6.5 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-3

LOG OF TEST PIT NO. TP-4

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **275 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
274.4				Topsoil +/- 7 inches	
		ML		Red-brown, moist, stiff, Sandy SILT, with Gravel	
273.0		SM		Red-brown, moist, dense, Silty SAND, with Gravel	
	3				
271.5		GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Sand and Silt	
271.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
269.5				Excavator refusal on BEDROCK at 5.5 feet bgs.	
	6				
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-4

LOG OF TEST PIT NO. TP-5

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **272 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 8 inches	
271.3		SC		Red-brown, moist, medium dense, Clayey SAND, with Gravel	
269.0	3	GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Silt and Sand	
267.5				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
265.5	6			Excavator refusal on BEDROCK at 6.5 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-5

LOG OF TEST PIT NO. TP-6

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **6 ft**
GROUND SURFACE ELEVATION: **278 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 8 inches	
277.3		CL		Red-brown, moist, stiff, Sandy Lean CLAY, with Gravel	
275.0	3	GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Sand and Clay	
272.0	6			Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	▼ Rippable
271.5				Excavator refusal on BEDROCK at 6.5 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
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LOG OF TEST PIT NO. TP-6

LOG OF TEST PIT NO. TP-7

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**

PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **276 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
275.4				Topsoil +/- 7 inches	
		SC		Red-brown, moist, medium dense, Clayey SAND, with Gravel	Grey mottling
273.0	3	GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Sand and Clay	
271.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
270.0	6			Excavator refusal on BEDROCK at 6 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-7

LOG OF TEST PIT NO. TP-8

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **278 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
277.5				Topsoil +/- 6 inches	
		CL		Red-brown, moist, stiff, Sandy Lean CLAY, with Gravel	
	3				
274.5		GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Clay and Sand	
273.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
	6				
271.5				Excavator refusal on BEDROCK at 6.5 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-8

LOG OF TEST PIT NO. TP-9

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **285 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 8 inches	
284.3		CL		Red-brown, dry, stiff, Lean CLAY, with Sand	
	3			Red-brown, moist, stiff, Sandy Lean CLAY, with Gravel	
	6				
278.5		GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Sand and Clay	
278.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
277.0				Excavator refusal on BEDROCK at 8 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-9

LOG OF TEST PIT NO. TP-10

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **279 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 9 inches	
278.3		CL		Red-brown, dry to moist, stiff, Sandy Lean CLAY	
				As above, with Gravel	
	3				
274.5		SC		Red-brown, moist, medium dense, Clayey SAND, with Gravel	
273.5				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
	6				
272.0				Excavator refusal on BEDROCK at 7 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
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Quakertown, PA 18951

LOG OF TEST PIT NO. TP-10

LOG OF TEST PIT NO. TP-11

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **284 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
283.4				Topsoil +/- 7 inches	
		CL		Red-brown, dry to moist, stiff, Sandy Lean CLAY, with Gravel	
	3				
280.5		GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Clay and Sand	
278.0	6			Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
277.0				Excavator refusal on BEDROCK at 7 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-11

LOG OF TEST PIT NO. TP-12

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **4 ft**
GROUND SURFACE ELEVATION: **281 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
280.5				Topsoil +/- 6 inches	
		CL		Yellow/red-brown, moist, medium stiff, Lean CLAY	
	3			Red-brown, moist, stiff, Lean CLAY	
277.0		SP		Red-brown, wet, dense, Poorly-Graded SAND with Gravel and Clay	▼ Perched water
275.0	6	GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Sand and Clay	
	9				
269.0	12			Test pit terminated at 12 feet bgs.	Probable weathered rock starting at 12 feet bgs
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-12

LOG OF TEST PIT NO. TP-13

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **283 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
282.4				Topsoil +/- 7 inches	
		GC		Red-brown, dry, dense, Clayey GRAVEL, with Sand	
	3				
279.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
	6				
276.5				Excavator refusal on BEDROCK at 6.5 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
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Quakertown, PA 18951

LOG OF TEST PIT NO. TP-13

LOG OF TEST PIT NO. TP-14

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **279 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
278.4				Topsoil +/- 7 inches	
		CL		Red-brown, dry to moist, stiff, Lean CLAY, with Gravel	
277.0		GP		Red-brown, dry to moist, dense, Poorly Graded GRAVEL, with Clay and Sand	
	3				
275.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
274.0				Excavator refusal on BEDROCK at 5 feet bgs.	
	6				
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-14

LOG OF TEST PIT NO. TP-15

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **275 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
274.5				Topsoil +/- 6 inches	
		SC		Red-brown, moist, medium dense, Clayey SAND, with Gravel	
273.0		GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Sand	
	3				
271.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
270.0				Excavator refusal on BEDROCK at 5 feet bgs.	
	6				
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-15

LOG OF TEST PIT NO. TP-16

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **271 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 8 inches	
270.3		CL		Red-brown, moist, stiff, Sandy Lean CLAY, with Gravel	
	3				
267.0		SC		Red-brown, moist, medium dense, Clayey SAND, with Gravel	
	6				
264.5				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
262.5				Excavator refusal on BEDROCK at 8.5 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-16

LOG OF TEST PIT NO. TP-17

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **280 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 9 inches	
279.3		CL		Red-brown, moist, stiff, Sandy Lean CLAY, with Gravel	
278.5		GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Sand and Clay	
	3				
276.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
274.5				Excavator refusal on BEDROCK at 5.5 feet bgs.	
	6				
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-17

LOG OF TEST PIT NO. TP-18

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/9/2025**
DATE COMPLETED: **7/9/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **283 ft**
DATUM: **Topo**
LOGGED BY: **J. Kupchinsky**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 10 inches	
282.2		CL		Red-brown, moist, stiff, Sandy Lean CLAY, with Gravel	
280.5	3	GP		Red-brown, moist, dense, Poorly-Graded GRAVEL, with Sand and Clay	
278.5				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
276.5	6			Excavator refusal on BEDROCK at 6.5 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-18

LOG OF TEST PIT NO. TP-19

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/14/2025**
DATE COMPLETED: **7/14/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **282ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			Topsoil +/- 2 inches	
281.3		ML		Dark-brown, moist, loose, SILT	
	3			Brown, moist, medium dense, SILT	
276.3				Red-brown, moist, dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
276.0	6			Excavator refusal on BEDROCK at 6.0 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-19

LOG OF TEST PIT NO. TP-20

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/14/2025**
DATE COMPLETED: **7/14/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **278ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 13 inches	
277.0		ML		Dark-brown, moist, loose, SILT	
	3				
				Brown, moist, medium dense, SILT	
	6				
270.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
	9				
268.0				Excavator refusal on BEDROCK at 10.0 feet bgs.	
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-20

LOG OF TEST PIT NO. TP-21

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/15/2025**
DATE COMPLETED: **7/15/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **279ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 10 inches	
278.2		CL		Brown-red, moist, stiff, Lean CLAY with Gravel	
	3			As above	
274.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
273.0	6			Excavator refusal on BEDROCK at 6.0 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-21

LOG OF TEST PIT NO. TP-22

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/15/2025**
DATE COMPLETED: **7/15/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **282ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0	CL		Brown, moist, stiff, Lean CLAY Brown-red, moist, stiff, Lean CLAY	No topsoil
279.8	3			Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
277.0	6			Excavator refusal on BEDROCK at 5.0 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-22

LOG OF TEST PIT NO. TP-23

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/15/2025**
DATE COMPLETED: **7/15/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **284ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 10 inches	
283.3		CL		Brown, moist, stiff, Lean CLAY	
	3				
280.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
278.7				Excavator refusal on BEDROCK at 5.3 feet bgs.	
	6				
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-23

LOG OF TEST PIT NO. TP-24

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/15/2025**
DATE COMPLETED: **7/15/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **278ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
277.5				Topsoil +/- 5 inches	
		GC		Brown, moist, dense to very dense, GRAVEL, with Clay As above, very dense	
	3				
274.3				Excavator refusal on BEDROCK at 3.75 feet bgs.	
	6				
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-24

LOG OF TEST PIT NO. TP-25

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/15/2025**
DATE COMPLETED: **7/15/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **276ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
275.8	0	CL		Topsoil +/- 3 inches Brown, moist, stiff, Lean CLAY	
273.7	3			Brown-red, moist, hard, SILT with Gravel	
271.0	6			Excavator refusal on BEDROCK at 5.0 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-25

LOG OF TEST PIT NO. TP-26

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

GROUNDWATER ENCOUNTERED: **DRY**
DATE STARTED: **7/15/2025**
GROUND SURFACE ELEVATION: **279ft**
DATE COMPLETED: **7/15/2025**
DATUM: **Topo**
CONTRACTOR: **Neighbors Property Management**
LOGGED BY: **S. Giampa**
EQUIPMENT: **Bobcat E60**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
278.6				Topsoil +/- 5 inches	
		CL		Brown, moist, stiff, Lean CLAY	
	3			As above, very stiff	
274.4				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
273.5	6			Excavator refusal on BEDROCK at 5.5 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-26

LOG OF TEST PIT NO. TP-27

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/15/2025**
DATE COMPLETED: **7/15/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **275ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
274.4				Topsoil +/- 7 inches	
		CL		Brown, moist, stiff, Sandy Lean CLAY	
273.4		GC		Brown-red, moist, dense, CLayey GRAVEL	
	3				
270.7				Excavator refusal on BEDROCK at 4.3 feet bgs.	
	6				
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-27

LOG OF TEST PIT NO. TP-28

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/15/2025**
DATE COMPLETED: **7/15/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **272ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 8 inches	
271.3		CL		Light brown, moist, stiff, Sandy Lean CLAY	
269.0	3	GC		Brown-red, moist, very stiff, Clayey GRAVEL	
267.5				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
266.8				Excavator refusal on BEDROCK at 5.25 feet bgs.	
	6				
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-28

LOG OF TEST PIT NO. TP-29

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/15/2025**
DATE COMPLETED: **7/15/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **298ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 12 inches	
297.0		CL		Red-brown, moist, very stiff, Sandy Lean CLAY with Gravel	
	3				
				As above	
293.5				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
	6				
290.0				Excavator refusal on BEDROCK at 8.0 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

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Quakertown, PA 18951

LOG OF TEST PIT NO. TP-29

LOG OF TEST PIT NO. TP-30

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/16/2025**
DATE COMPLETED: **7/16/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **292ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 14 inches	
290.8		CL		Red-brown, moist, stiff, Sandy Lean CLAY	
	3			Red-brown, moist, hard, Lean CLAY	
287.8		GC		Red-brown, moist, dense, Clayey GRAVEL	
	6			As above, very dense	
283.0	9			Excavator refusal on BEDROCK at 9.0 feet bgs.	
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

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Quakertown, PA 18951

LOG OF TEST PIT NO. TP-30

LOG OF TEST PIT NO. TP-31

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/16/2025**
DATE COMPLETED: **7/16/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **284ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
283.3				Topsoil +/- 8 inches	
		CL		Red-brown, moist, stiff, Sandy Lean CLAY, with Gravel As above	
	3				
	6				
275.0	9			Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
272.0	12			Excavator refusal on BEDROCK at 12.0 feet bgs.	
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

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2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-31

LOG OF TEST PIT NO. TP-32

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/16/2025**
DATE COMPLETED: **7/16/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **290ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 9 inches	
289.3		CL		Red-brown, moist, stiff, Sandy Lean CLAY	
	3				
286.0		GC		Red-brown, moist, dense, Clayey GRAVEL	
284.0	6			Excavator refusal on BEDROCK at 6.0 feet bgs.	
	9				
	12				
	15				
	18				

NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-32

LOG OF TEST PIT NO. TP-33

PROJECT: **Walnut Street - Chalfont**
PROJECT LOCATION: **New Britain Township, Bucks County, PA**
CLIENT: **Hanover Company**
PROJECT NO.: **31251589**

DATE STARTED: **7/16/2025**
DATE COMPLETED: **7/16/2025**
CONTRACTOR: **Neighbors Property Management**
EQUIPMENT: **Bobcat E60**

GROUNDWATER ENCOUNTERED: **DRY**
GROUND SURFACE ELEVATION: **276ft**
DATUM: **Topo**
LOGGED BY: **S. Giampa**
CHECKED BY: **M. Derr**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0				
				Topsoil +/- 9 inches	
275.3		CL		Red-brown, moist, stiff, Sandy Lean CLAY, with Gravel	
				As above, very stiff	
	3				
271.0				Red-brown, moist, very dense, HIGHLY WEATHERED ROCK (Shale)	Rippable
	6				
268.8				Ecavator refusal on BEDROCK at 7.25 feet bgs.	
	9				
	12				
	15				
	18				

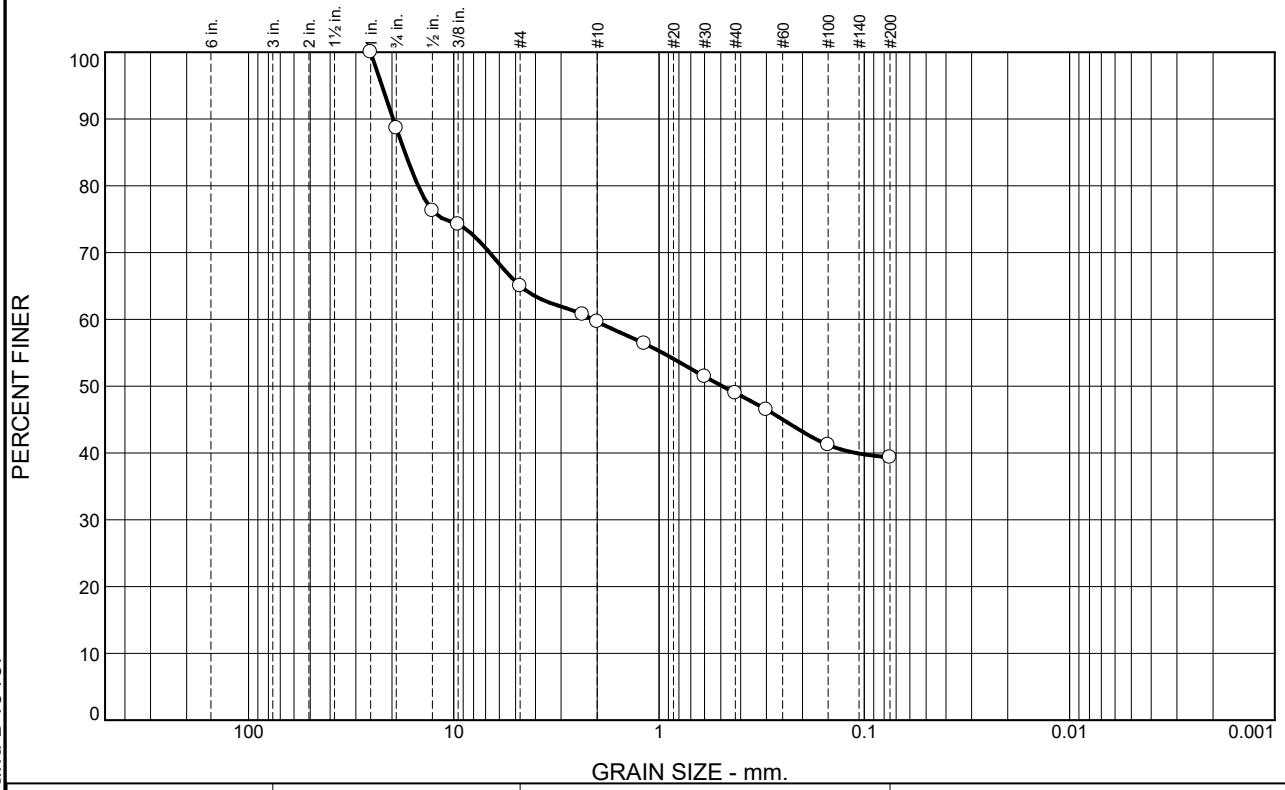
NOTES: **Location and elevation should be considered approximate.**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

LOG OF TEST PIT NO. TP-33

APPENDIX C
Laboratory Test Results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	11.3	23.7	5.4	10.6	9.7	39.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
.75	88.7		
0.5	76.3		
0.375	74.2		
#4	65.0		
#8	60.8		
#10	59.6		
#16	56.4		
#30	51.5		
#40	49.0		
#50	46.5		
#100	41.2		
#200	39.3		

* (no specification provided)

Soil Description

Red-brown, moist, dense, Clayey GRAVEL, with Sand

Atterberg Limits

PL= 18 LL= 27 PI= 9 NM= 12.4

Coefficients

D_{90}= 19.7218 D_{85}= 17.3076 D_{60}= 2.1069
D_{50}= 0.4917 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GC AASHTO=

Remarks

Source of Sample: B-1 **Depth:** 2
Sample Number: S2

Date: 8/29/2025

GEO-TECHNOLOGY ASSOCIATES, INC.
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Quakertown, PA 18951

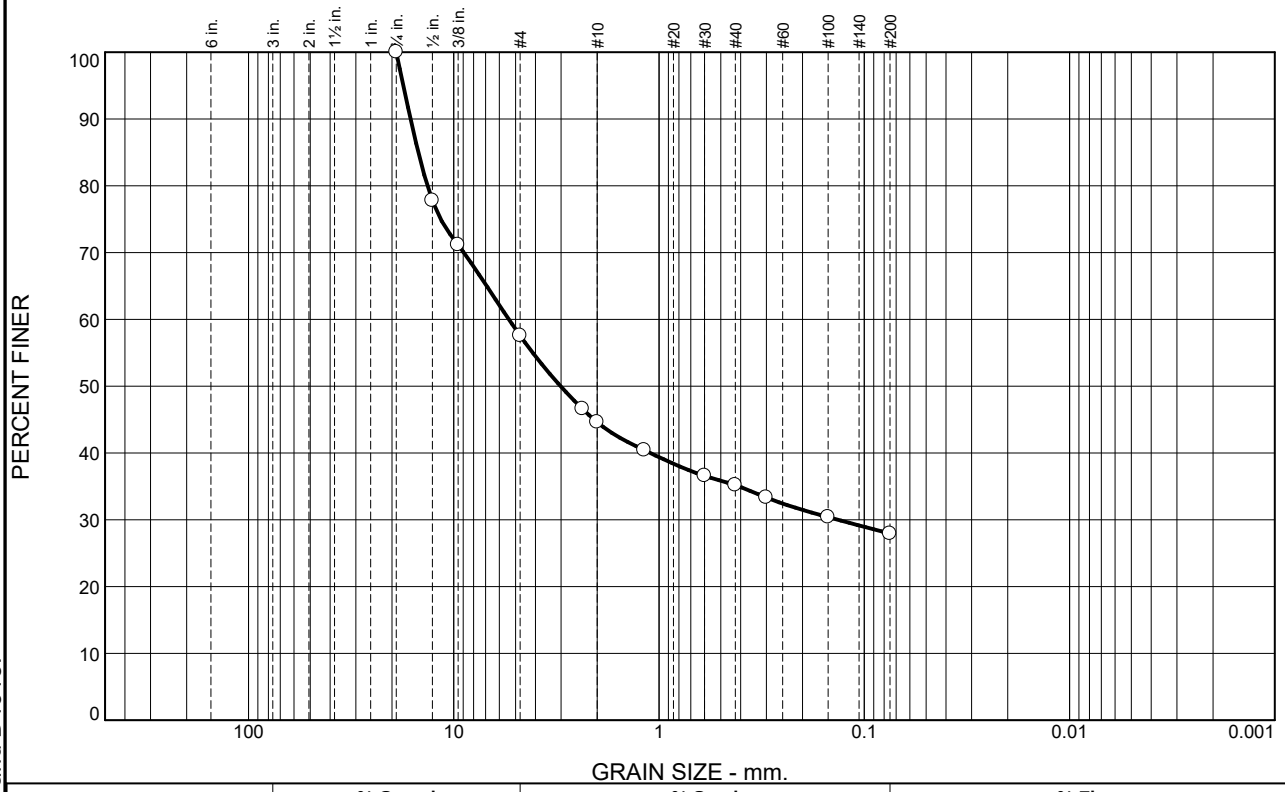
Client: Hanover Company
Project: Walnut Street - Chalfont

Project No: 31251589 **Figure**

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

Tested By: P. Amato **Checked By:** T. Fetter

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	42.4	13.0	9.4	7.3	27.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
0.5	77.8		
0.375	71.1		
#4	57.6		
#8	46.6		
#10	44.6		
#16	40.4		
#30	36.6		
#40	35.2		
#50	33.3		
#100	30.4		
#200	27.9		

* (no specification provided)

Soil Description

Red, dry, hard, Silty GRAVEL, with Sand

Atterberg Limits

PL= NP LL= NP PI= NP NM= 19.0

Coefficients

D_{90}= 16.2464 D_{85}= 14.8830 D_{60}= 5.3902
D_{50}= 3.0168 D_{30}= 0.1343 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO=

Remarks

Source of Sample: B-5 **Depth:** 6
Sample Number: S4

Date: 8/29/2025

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2405 John Fries Highway
Quakertown, PA 18951

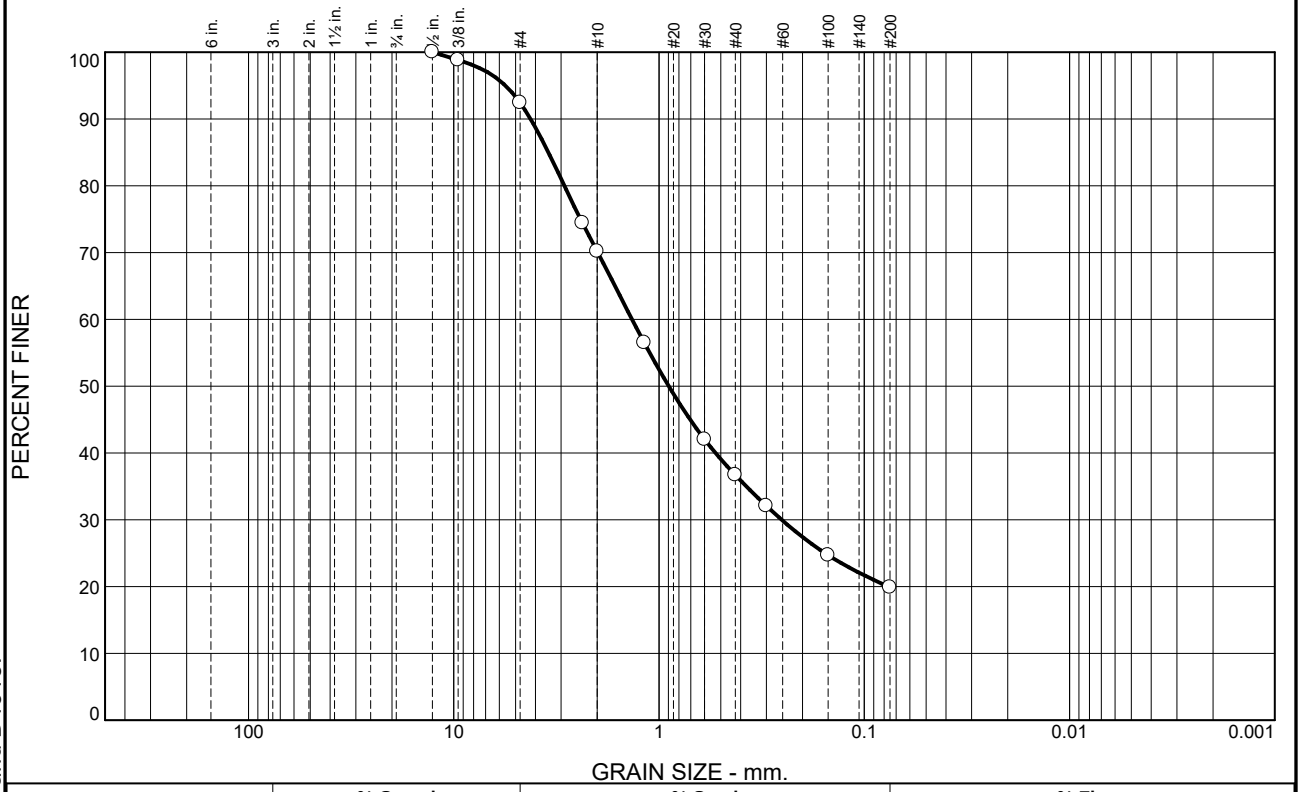
Client: Hanover Company
Project: Walnut Street - Chalfont

Project No: 31251589 **Figure**

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

Tested By: P. Amato **Checked By:** T. Fetter

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.6	22.2	33.5	16.8	19.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.5	100.0		
0.375	98.8		
#4	92.4		
#8	74.4		
#10	70.2		
#16	56.5		
#30	42.0		
#40	36.7		
#50	32.1		
#100	24.7		
#200	19.9		

* (no specification provided)

Soil Description

Dark brown-purple, dry, medium dense, Clayey Sand

Atterberg Limits

PL= 23 LL= 34 PI= 11 NM= 17.2

Coefficients

D_{90}= 4.2251 D_{85}= 3.4612 D_{60}= 1.3539
D_{50}= 0.8966 D_{30}= 0.2524 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Source of Sample: B-14 **Depth:** 4
Sample Number: S3

Date: 8/29/2025

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Quakertown, PA 18951

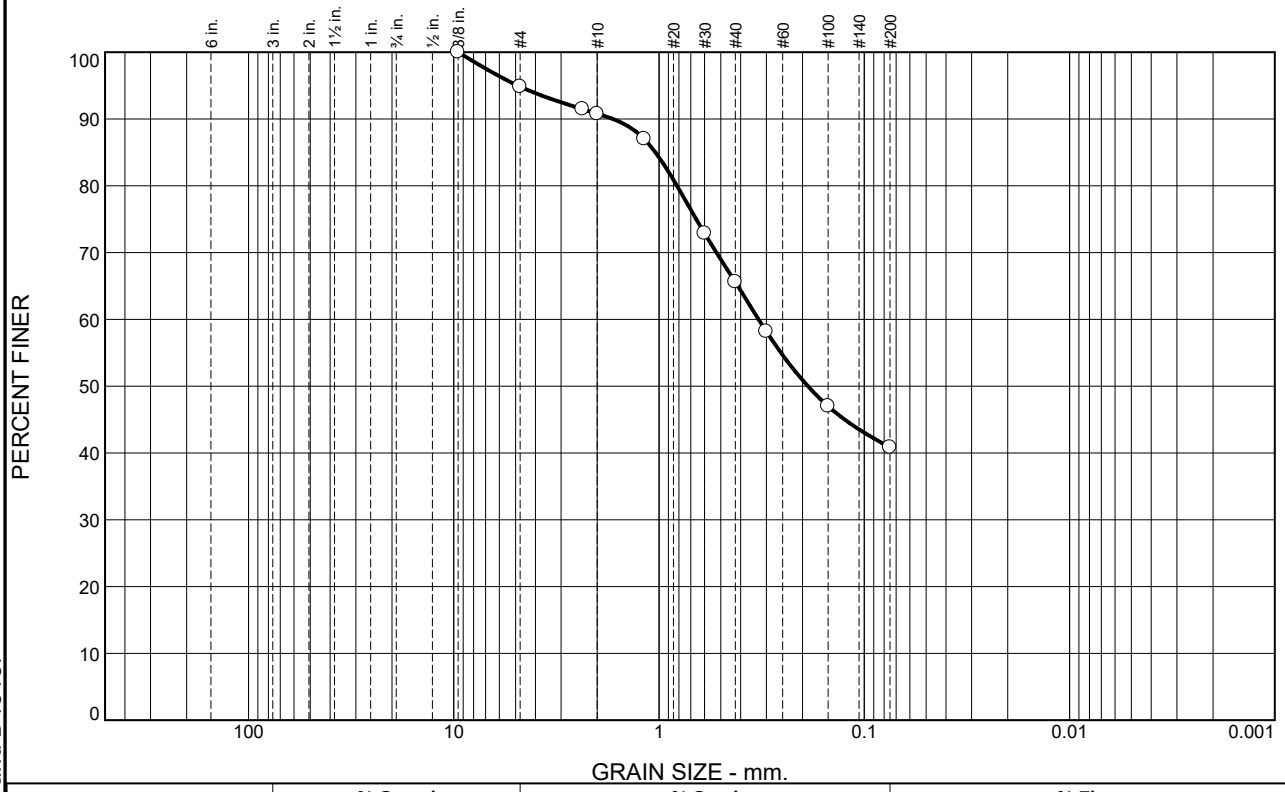
Client: Hanover Company
Project: Walnut Street - Chalfont

Project No: 31251589 **Figure**

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

Tested By: P. Amato **Checked By:** T. Fetter

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.2	4.0	25.2	24.8	40.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.375	100.0		
#4	94.8		
#8	91.5		
#10	90.8		
#16	87.0		
#30	72.9		
#40	65.6		
#50	58.2		
#100	47.0		
#200	40.8		

* (no specification provided)

Soil Description

Brown-Red-Grey, moist, very stiff, Clayey SAND

Atterberg Limits

PL= 21 LL= 30 PI= 9 NM= 27.0

Coefficients

D_{90}= 1.6761 D_{85}= 1.0413 D_{60}= 0.3274
D_{50}= 0.1882 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Source of Sample: B-16 **Depth:** 8
Sample Number: S5

Date: 8/29/2025

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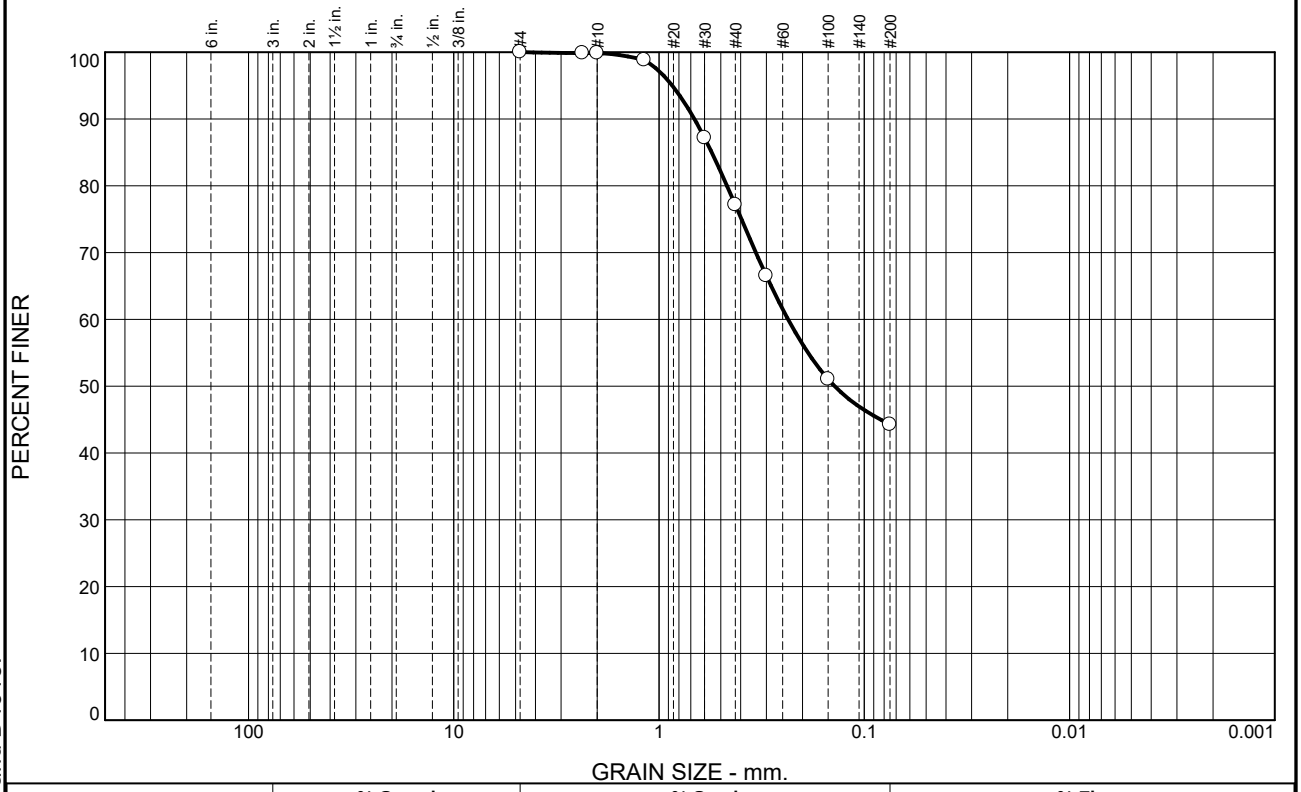
Client: Hanover Company
Project: Walnut Street - Chalfont

Project No: 31251589 **Figure**

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

Tested By: P. Amato **Checked By:** T. Fetter

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	22.8	32.9	44.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#8	99.9		
#10	99.9		
#16	98.8		
#30	87.2		
#40	77.1		
#50	66.5		
#100	51.0		
#200	44.2		

* (no specification provided)

Soil Description

Brown-red, moist, very stiff, Clayey SAND

Atterberg Limits

PL= 25 LL= 42 PI= 17 NM= 18.4

Coefficients

D_{90}= 0.6726 D_{85}= 0.5537 D_{60}= 0.2350
D_{50}= 0.1396 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Source of Sample: B-22 **Depth:** 0
Sample Number: S1

Date: 8/29/2025

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

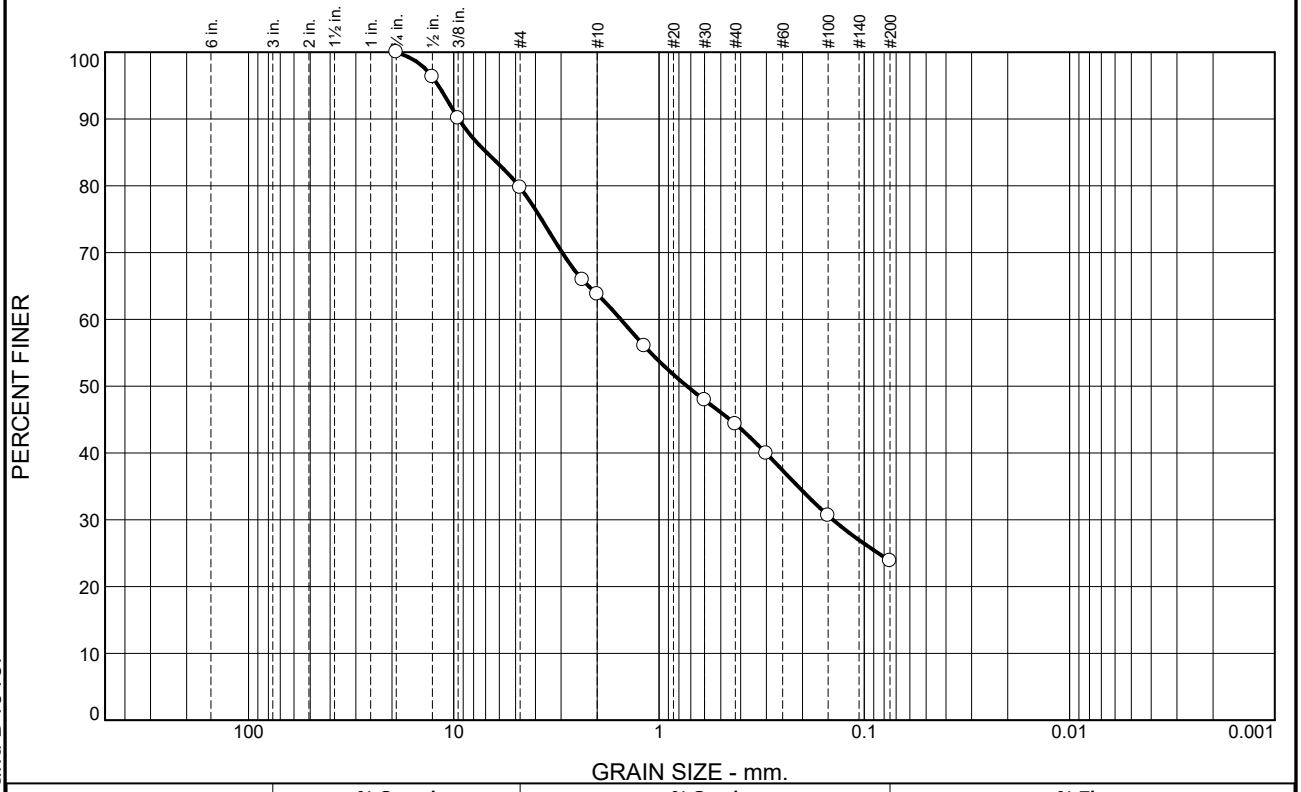
GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

Client: Hanover Company
Project: Walnut Street - Chalfont

Project No: 31251589 **Figure**

Tested By: P. Amato **Checked By:** T. Fetter

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	20.3	15.9	19.5	20.5	23.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
0.5	96.3		
0.375	90.1		
#4	79.7		
#8	65.9		
#10	63.8		
#16	56.0		
#30	47.9		
#40	44.3		
#50	39.9		
#100	30.6		
#200	23.8		

* (no specification provided)

Soil Description

Red-tan, dry, very stiff, Silty SAND, with Gravel

Atterberg Limits

PL= 27 LL= 38 PI= 11 NM= 16.9

Coefficients

D_{90}= 9.4755 D_{85}= 6.9287 D_{60}= 1.5361
D_{50}= 0.7308 D_{30}= 0.1420 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Source of Sample: B-25 **Depth:** 6
Sample Number: S4

Date: 8/29/2025

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

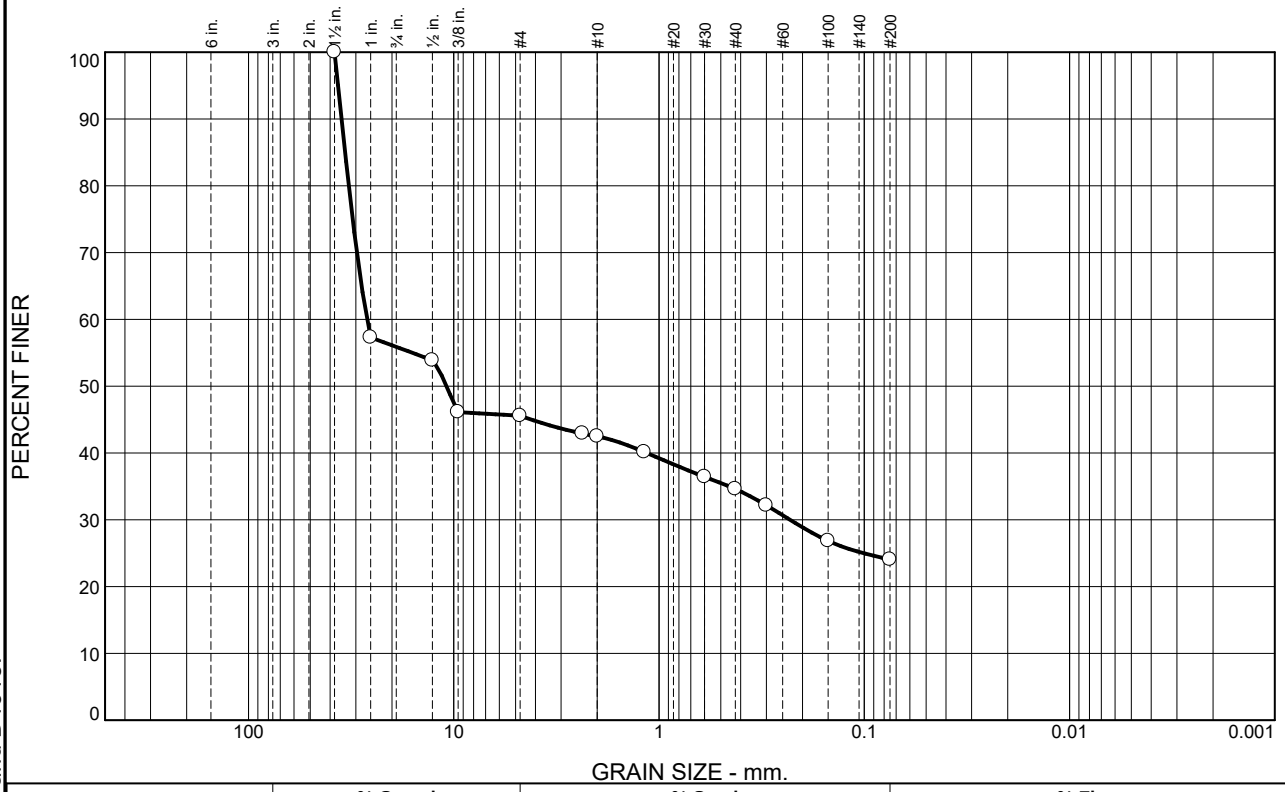
GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

Client: Hanover Company
Project: Walnut Street - Chalfont

Project No: 31251589 **Figure**

Tested By: P. Amato **Checked By:** T. Fetter

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	44.1	10.3	3.1	7.9	10.5	24.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5	100.0		
1	57.3		
0.5	53.9		
0.375	46.1		
#4	45.6		
#8	42.9		
#10	42.5		
#16	40.1		
#30	36.4		
#40	34.6		
#50	32.2		
#100	26.8		
#200	24.1		

* (no specification provided)

Soil Description

Red, dry, medium dense, Silty GRAVEL, with Sand

Atterberg Limits

PL= 34 LL= 36 PI= 2 NM= 22.4

Coefficients

D_{90}= 35.2234 D_{85}= 33.8326 D_{60}= 26.4596
D_{50}= 10.8533 D_{30}= 0.2301 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO=

Remarks

Source of Sample: B-26 **Depth:** 4
Sample Number: S3 **Date:**

GEO-TECHNOLOGY ASSOCIATES, INC.
2405 John Fries Highway
Quakertown, PA 18951

Client: Hanover Company
Project: Walnut Street - Chalfont

Project No: 31251589 **Figure**

ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

Tested By: _____ **Checked By:** _____

1515 Market Street, Suite 920
Philadelphia, PA 19102
267.402.3400

EXHIBIT 7

Wetland Report
The Hanover Company
Walnut Street

VALLEY
ENVIRONMENTAL SERVICES, INC.

610.762.0990
484.661.6209

3282 Hope Drive
Emmaus, PA 18049

www.valenv.com

Wetland Report

Bohler Engineering

HCI DP Land Acquisition LLC

New Britain Township, Bucks County, PA

TMP Nos. 26-001-099, 26-001-099-001, 26-001-099-002, & 26-001-099-003

Valley Environmental Services Job No. 25-228

Prepared by:
Valley Environmental Services, Inc.



Jason J. Mease, PWS
Professional Wetland
Scientist

August 26, 2025

Summary

On June 24 and 25, 2025 Valley Environmental Services, Inc. ("VES") evaluated an approximate 90-acre study area located along Walnut Street in New Britain Township, Bucks County, Pennsylvania. This evaluation was completed in accordance with the *U.S. Army Corps of Engineers Wetland Delineation Manual (Technical Report Y-87-1)* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, (Version 2.0) (April 2012)*. As prescribed, the hydrology, vegetation, and soil throughout the study area were evaluated to determine the presence of wetlands and other regulated aquatic resources. The study area is represented on the enclosed the ALTA/NSPS Land Title Survey, sheets 1-4 of 4, dated July 30, 2025, last revised August 25, 2025, prepared by Control Point Associates, Inc.

Much of the study area is occupied by actively cultivated fields. An existing residence, and associated accessory structures, lie along the southeastern portion of the study area. The West Branch Neshaminy Creek bisects the property, flowing east through the central portion of the study area. Three (3) unnamed tributaries ("UNTs") to West Branch Neshaminy Creek lie along the northern, southern, and western limits of the study area. VES delineated the ordinary high water mark ("OHWM") along West Branch Neshaminy Creek and its UNTs. Forested habitat envelopes West Branch Neshaminy Creek and the UNTs. Forested habitat and tree-rows mark much of the outbound property lines and separate cultivated fields to the north.

Five (5) distinct wetland features were identified and delineated throughout the study area (Wetlands A-E). Wetlands A, B, and C lie along the eastern bank of the southern unnamed tributary ("UNT"), displaying a mix of emergent ("PEM"), scrub-shrub ("PSS"), and forested ("PFO") habitat. Wetland D lies along the southern bank of West Branch Neshaminy Creek, near the center of the study area, and displays PEM habitat. Wetland E occupies a closed depression along the western side of the northern UNT and displays PEM habitat. Except for Wetland E, all wetland habitat exhibits a discernible hydrologic connection to West Branch Neshaminy Creek or its UNTs.

Site Identification

Approximate Center Coordinates (40.279722°, -75.243800°)

The study area is located at the intersection of County Line Road and Walnut Street in New Britain Township, Bucks County. The address of the residence on-site is 56 Walnut Street, Chalfont, PA 18914. The study area lies between County Line Road to the west, Schoolhouse Road to the east, Walnut Street to the south, and New Britain Boulevard to the north. The study area occupies approximately 90-acres and encompasses the entirety of Tax Map Parcels 26-001-099, 26-001-099-001, 26-001-099-002, & 26-001-099-003. A Google Earth Aerial Image identifying the approximate location and extent of the study area is enclosed for reference.

The major watercourse associated with this site is West Branch Neshaminy Creek; designated as WWF, MF (Warm Water Fished, Migratory Fishes) in *25 Pa. Code Chapter 93. Water Quality Standards*. Stream progression: West Branch Neshaminy Creek, Neshaminy Creek, Delaware River.

Topography & Drainage

Enclosed is a topographic map generated from the Doylestown and Telford, Pennsylvania USGS 7.5-Minute Series Topographic Quadrangle Maps. Topography is represented on the enclosed site plans using one-foot contour lines. Highest elevations generally occur along the northern portion of the study area. Grades converge along the West Branch Neshaminy Creek that runs through the central portion of the site. As indicated by the Natural Resources Conservation Service's (NRCS) Web Soil Survey, slopes throughout the study area range between 0-15%. Drainage occurs through West Branch Neshaminy Creek and the 3 associated UNTs. Surface flow and runoff volume travel down slope, converging along the low-lying creek corridor. Volume is carried east through the study area within the confines of West Branch Neshaminy Creek.

Soil

A copy of the NRCS Web Soil Survey Map for the study area is enclosed. There are 7 predominant soil series mapped on-site:

Abbottstown silt loam (Aba)	0-3% slopes
Abbottstown silt loam (AbB)	3-8% slopes
Bowmansville-Knauers silt loams (Bo)	
Buckingham silt loam (BwB)	3-8% slopes
Readington silt loam (ReA)	0-3% slopes
Readington silt loam (ReB)	3-8% slopes
Reaville channery silt loam (RlB)	0-3% slopes
Reaville channery silt loam (RlB)	3-8% slopes
Reaville channery silt loam (RlC)	8-15% slopes
Rowland silt loam (Ro)	
Urban land-Abbottstown complex (UgB)	0-8% slopes

Soils were evaluated throughout the property utilizing a hand-turned auger and/or spade. Soil profile descriptions were recorded on the enclosed Wetland Determination Data Forms at 13 representative sampling points. The approximate location of each sampling point is noted on the corresponding Wetland Determination Data Form and illustrated in red on the enclosed plan. Soil was evaluated to a depth of 18-20 inches unless refusal was attained shallower due to rock or coarse fragments. Soil color was determined

utilizing a Munsell Soil Color Book. As defined by the NRCS in their Official Soil Series Descriptions, the soil series mapped on-site are characterized as follows:

Abbottstown silt loam (Ab) series consists of deep and very deep, somewhat poorly drained soils formed in residuum from acid red shale, siltstone, and sandstone. Abbottstown soils are found on nearly level to sloping concave upland flats, depressions, and drainageways.

Bowmansville-Knauers silt loams (Bo) series consists of very deep, poorly, and somewhat poorly drained soils formed in recent alluvial deposits derived from upland soil materials weathered from red and brown shale and sandstone, or from dolerite or basalt. Bowmansville soils are found on nearly level flood plains.

Buckingham silt loam (Bw) series consists of very deep, somewhat poorly drained soils formed in colluvium derived from weathered gray and red shale, siltstone, and sandstone materials. Buckingham soils are found on head slopes, in drainage ways, and U-shaped valleys on hills.

Readington silt loam (Re) series consists of deep and very deep, moderately well drained soils formed in medium textured residuum weathered from noncalcareous shale, siltstone, and fine-grained sandstone. Readington soils are found on concave, nearly level to sloping lower hillsides, upland flats, drainage ways, and stream heads.

Reaville channery silt loam (Rl) series consists of moderately deep, moderately well and somewhat poorly drained soils formed in residuum weathered from red Triassic, interbedded shale, siltstone, and fine-grained sandstone. Reaville soils are found on on interfluves with very little dissection.

Rowland silt loam (Ro) series consists of very deep, moderately well and somewhat poorly drained soils formed in alluvial sediments weathered from red and brown shale, sandstone, and conglomerate. Rowland soils are found on relatively narrow, nearly level flood plains in alluvial sediments washed from nearby gently sloping to sloping uplands.

Urban land-Abbottstown complex (Ug) series consists of soils found throughout improved or urbanized landscapes that have generally been altered, disturbed, or manipulated by anthropogenic processes. While degraded, characteristics of the Abbottstown series can be found throughout the profile.

Soils evaluated throughout upland habitats on-site were generally moderately well drained, and demonstrated bright matrix chromas of 3 or greater. Some upland soils displayed evidence of seasonal saturation and a seasonal high-water table through an accumulation of redoximorphic features (e.g., concentrations and/or depletions) shown across the soil matrix. The Bowmansville-Knauers series is mapped throughout the entirety of West Branch Neshaminy Creek, all 5 of the identified wetland habitats, and much of the 3 UNTs. Soils evaluated throughout wetland habitats were hydric, meeting Depleted Matrix (i.e., Field Indicator F3) and Red Parent Material (i.e., Field Indicator F21) criteria established by *United States Department of Agriculture, Natural Resources Conservation Service. 2024. Field Indicators of Hydric Soils in the United States, Version 9.0.* All hydric soils displayed prominent redox concentrations as masses found across the soil matrix and within pore linings.

Vegetation

At each of the 13 representative sampling points established throughout the study area, the dominant plant species encountered across each stratum (e.g., trees, saplings/shrubs, herbs, and woody vines) were recorded on the enclosed Wetland Determination Data Forms. The wetland indicator status of each species was taken from the *U.S. Army Corps of Engineers 2022 National Wetland Plant List (Version 3.6).* The approximate location of each sampling point is noted on the corresponding Wetland Determination Data Form and illustrated in red on the enclosed plan.

At the time of this evaluation much of the study area was sown with corn (*Zea mays*) that stood about 2-feet tall. Field edges and fallow portions of the fields were inhabited by commonplace grasses and weeds. Frequently encountered species include orchard grass (*Dactylis glomerata*), annual meadowgrass (*Poa annua*), broom sedge (*Andropogon virginicus*), Japanese stiltgrass (*Microstegium vimineum*), Timothy grass (*Phleum pratense*), foxtail (*Setaria spp*.), goldenrod (*Solidago spp*.), annual ragweed (*Ambrosia artemisiifolia*), spreading dogbane (*Apocynum androsaemifolium*), clover (*Trifolium spp*.), thistle (*Cirsium spp*.), common milkweed (*Asclepias syriaca*), wild onion (*Allium canadense*), garlic mustard (*Alliaria petiolata*), and pokeweed (*Phytolacca decandra*).

The West Branch Neshaminy Creek corridor, and other forested portions of the site, are primarily inhabited deciduous hardwood tree species like black walnut (*Juglans nigra*), black cherry (*Prunus serotina*), box elder (*Acer negundo*), ash (*Fraxinus spp*.), slippery elm (*Ulmus rubra*), hickory (*Carya spp*.), black locust (*Robinia pseudoacacia*), pin oak (*Quercus palustris*), red maple (*Acer rubrum*), blackhaw (*Viburnum prunifolium*), Norway maple (*Acer platanoides*), and sycamore (*Platanus occidentalis*). The forested understory across the site mainly consists of northern spicebush (*Lindera benzoin*) and invasive woody-shrub species like multiflora rose (*Rosa multiflora*), privet (*Ligustrum spp*.), burning bush (Euonymus alatus), Japanese barberry (*Berberis thunbergii*), and bush honeysuckle (*Lonicera spp*.). Woody-vines, like summer grape (Vitis aestivalis), Virginia creeper (*Parthenocissus quinquefolia*), poison ivy (*Toxicodendron radicans*), and Japanese honeysuckle (*Lonicera japonica*) persist throughout.

Commonly encountered herbaceous hydrophytes throughout the wetland habitats on-site include reed canary grass (*Phalaris arudinacea*), sensitive fern (Onoclea *sensibilis*), skunk cabbage (*Symplocarpus foetidus*), spotted touch-me-not (*Impatiens capensis*), harvestlice (*Agrimonia parviflora*), creeping jenny (*Lysimachia nummularia*), Pennsylvania smartweed (*Persicaria pensylvanica*), false nettle (*Boehmeria cylindrica*), soft rush (*Juncus effusus*), path rush (*Juncus tenuis*), and spike rush (*Eleocharis palustris*). Duck potato (*Sagittaria latifolia*) was noted in the standing water at Wetland E. Portions of Wetlands A, B, and C exhibit PSS habitat, characterized by thickets of wet-type woody-shrubs like silky dogwood (*Cornus amomum*), northern spicebush (*Lindera benzoin*), and arrowwood (*Viburnum dentatum*). Portions of Wetlands B and C exhibit PFO habitat, with canopy cover afforded by a mix of wet-type tree species like black willow (*Salix nigra*), box elder (*Acer negundo*), pin oak (*Quercus palustris*), sycamore (*Platanus occidentalis*), and red maple (*Acer rubrum*).

Hydrology

At the time of this evaluation the wetland habitats on-site displayed a combination of primary and secondary indicators of wetland hydrology. Commonly encountered primary indicators included the presence of surface water (generally ≤ 1-inch), soil saturation within 12-inches of the soil surface, water marks (i.e., discoloration/staining on woody vegetation), and drift deposits (i.e., rafted depositional debris). Secondary indicators included the presence of drainage patterns, geomorphic position (i.e., located in a depression or

concave position on floodplain), and a plant community that passes the FAC-Neutral Test. Based upon observations made during the completion of this evaluation Wetlands A, B, C and D appear to be primarily sustained by hydrology associated with West Branch Neshaminy Creek and the UNTs. Runoff volume from the nearby cultivated landscape likely provides a source of supplemental hydrology. Wetland E occupies an isolated depression, fed by trapped runoff volume that inundates the concave topography.

West Branch Neshaminy Creek enters the site from the southwest through a culvert beneath County Line Road. The creek flows east/northeast through the entirety of the property, exiting the study area to the east via a culvert beneath Schoolhouse Road. At the time of this evaluation West Branch Neshaminy Creek displayed about 3-6-inches of active flow atop a stream bed of unconsolidated rock and coarse fragments. The southern UNT enters the site via a culvert beneath Walnut Street, about 800-feet east of County Line Road. The southern UNT flows northwest before making confluence with West Branch Neshaminy Creek. At the time of this evaluation the southern UNT displayed about 1-3-inches of active flow atop a stream bed primarily consisting of unconsolidated rock and coarse fragments. The northern UNT enters the study area from the northwest, flowing southeast through a forested tree-row before joining West Branch Neshaminy Creek. At the time of this evaluation the northern UNT displayed about 1-2-inches of active flow atop a stream bed primarily consisting of a mix of unconsolidated rock and coarse fragments. The western UNT enters the site along the forested western limits of the study area, flowing east a short distance before making confluence with the creek. At the time of this inspection the western UNT displayed about 0.5-1-inch of active flow atop a stream bed primarily consisting of soil.

Photographs

Representative photographs, documenting site conditions, were collected throughout the property on June 24 and 25, 2025. These photographs are enclosed and arranged alphabetically. Each photograph is accompanied with a description. The approximate location of each photograph (Photos A-M) is indicated in red on the enclosed site plan. The accompanying arrows (red) illustrate the approximate direction each photograph was taken.

Maps & Figures

Enclosed are the following maps and figures:

1. USGS. 7.5-Minute Series Topographic Quadrangle Map. Doylestown and Telford, PA (Earth Point Topo Maps – USGS Topographic Maps on Google Earth. Available online. Accessed July 22, 2025)

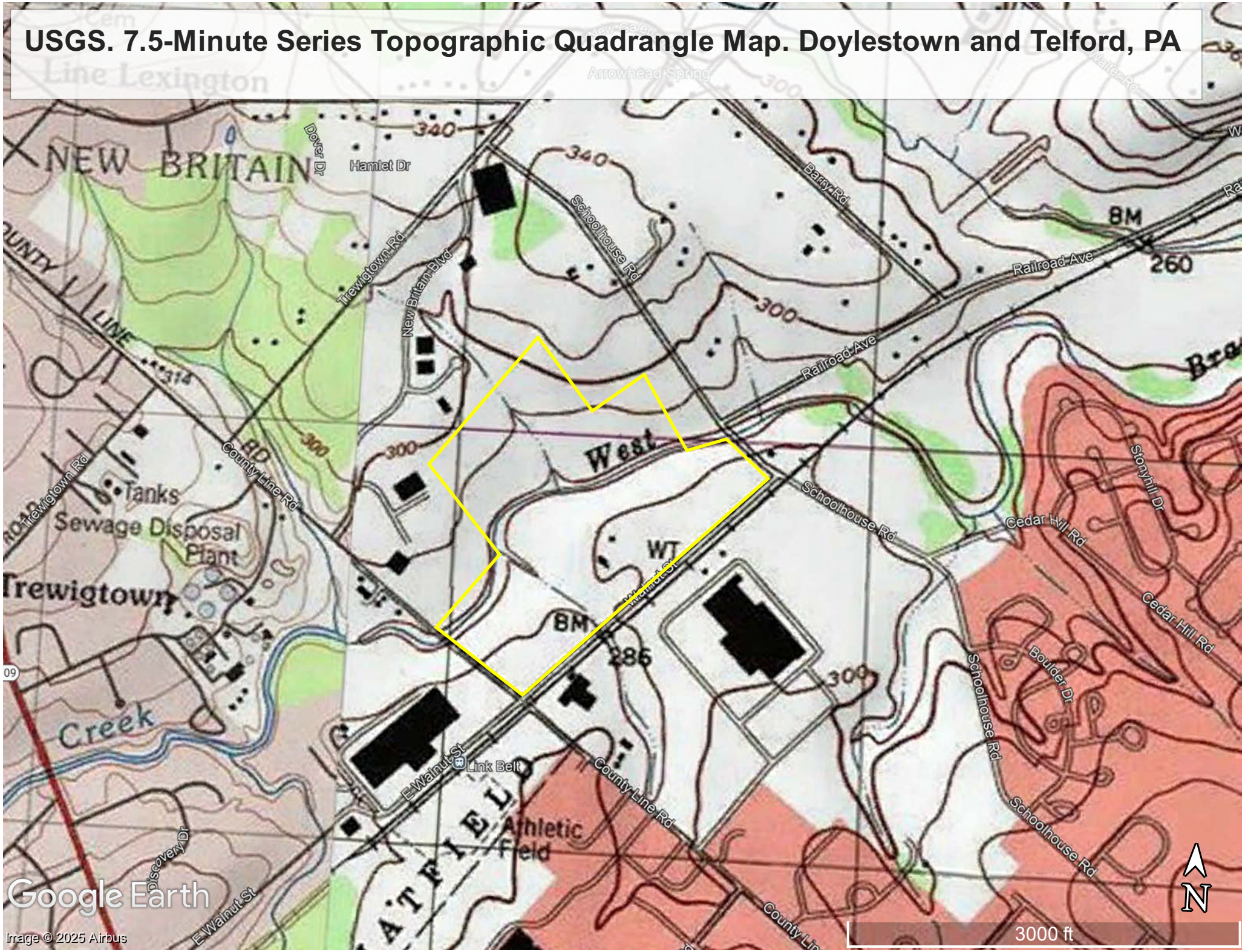
2. Soil Map (Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online. Accessed July 22, 2025)

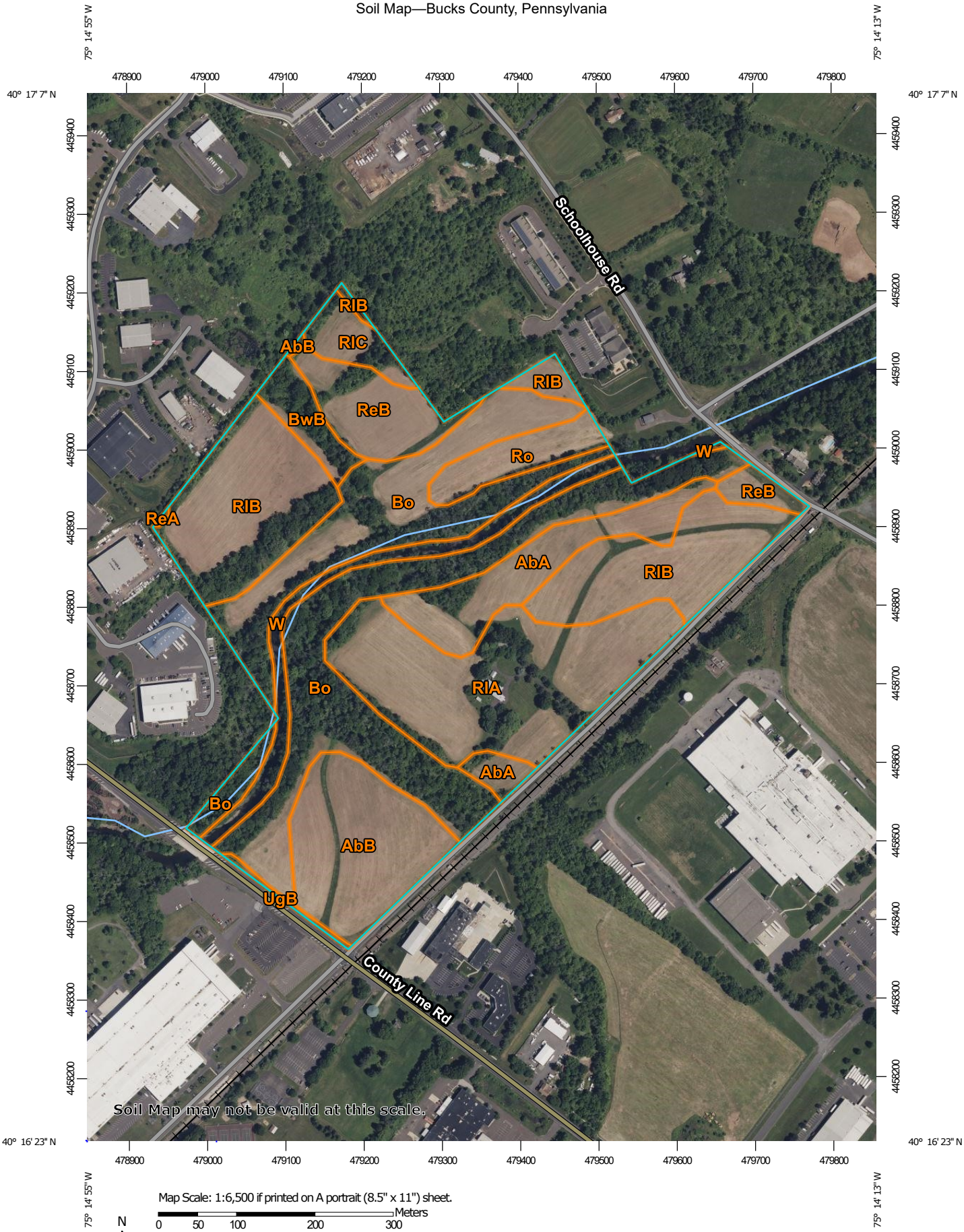
3. National Wetland Inventory Map (U.S. Fish and Wildlife Service. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available online. Accessed July 22, 2025)

4. Site Location Map (Google Earth Pro Aerial Image. Image Date May 7, 2025. Available online. Accessed July 22, 2025)

Maps & Figures

USGS. 7.5-Minute Series Topographic Quadrangle Map. Doylestown and Telford, PA




75° 14' 55" W
75° 14' 13" W
40° 17' 7" N
40° 16' 23" N
478900
479000
479100
479200
479300
479400
479500
479600
479700
479800
4459400
4459300
4459200
4459100
4459000
4458900
4458800
4458700
4458600
4458500
4458400
4458300
4458200
Schoolhouse Rd
County Line Rd
RIB
AbB
RIC
RIB
ReB
BwB
Ro
W
ReB
RIB
ReA
Bo
AbA
RIB
W
Bo
RIA
AbA
Bo
AbB
UgB
Soil Map may not be valid at this scale.
Map Scale: 1:6,500 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 50 100 200 300
Feet
0 300 600 1200 1800
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bucks County, Pennsylvania
Survey Area Data: Version 21, Sep 4, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 3, 2022—Jul 20, 2022

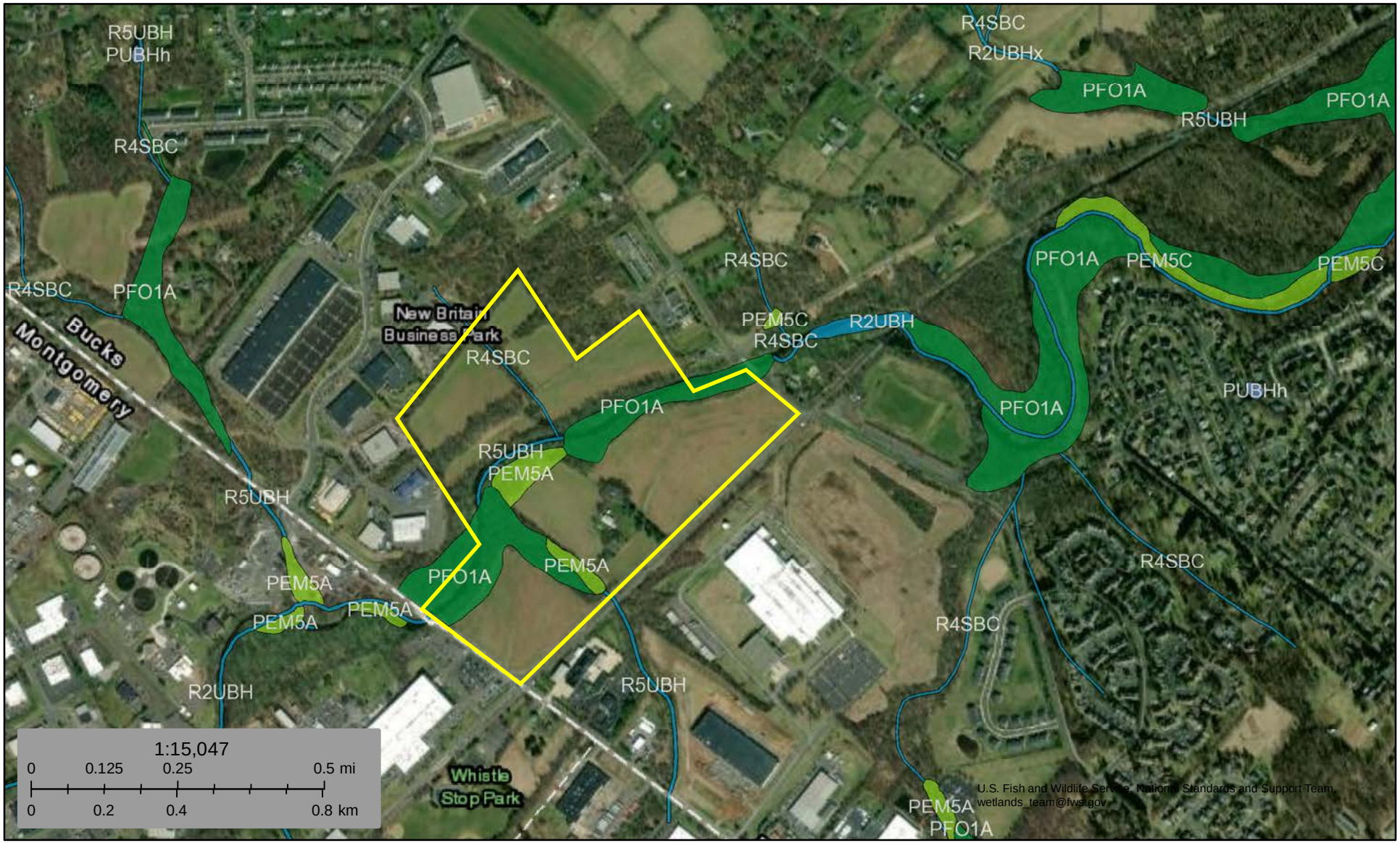
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AbA	Abbottstown silt loam, 0 to 3 percent slopes	6.4	7.3%
AbB	Abbottstown silt loam, 3 to 8 percent slopes	8.2	9.5%
Bo	Bowmansville-Knauers silt loams	26.0	29.9%
BwB	Buckingham silt loam, 3 to 8 percent slopes	1.9	2.2%
ReA	Readington silt loam, 0 to 3 percent slopes	0.0	0.0%
ReB	Readington silt loam, 3 to 8 percent slopes	5.0	5.7%
RlA	Reaville channery silt loam, 0 to 3 percent slopes	14.3	16.5%
RlB	Reaville channery silt loam, 3 to 8 percent slopes	16.7	19.2%
RlC	Reaville channery silt loam, 8 to 15 percent slopes	1.8	2.1%
Ro	Rowland silt loam	2.6	3.0%
UgB	Urban land-Abbottstown complex, 0 to 8 percent slopes	0.3	0.3%
W	Water	3.6	4.2%
Totals for Area of Interest		**87.0**	**100.0%**

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands



July 22, 2025

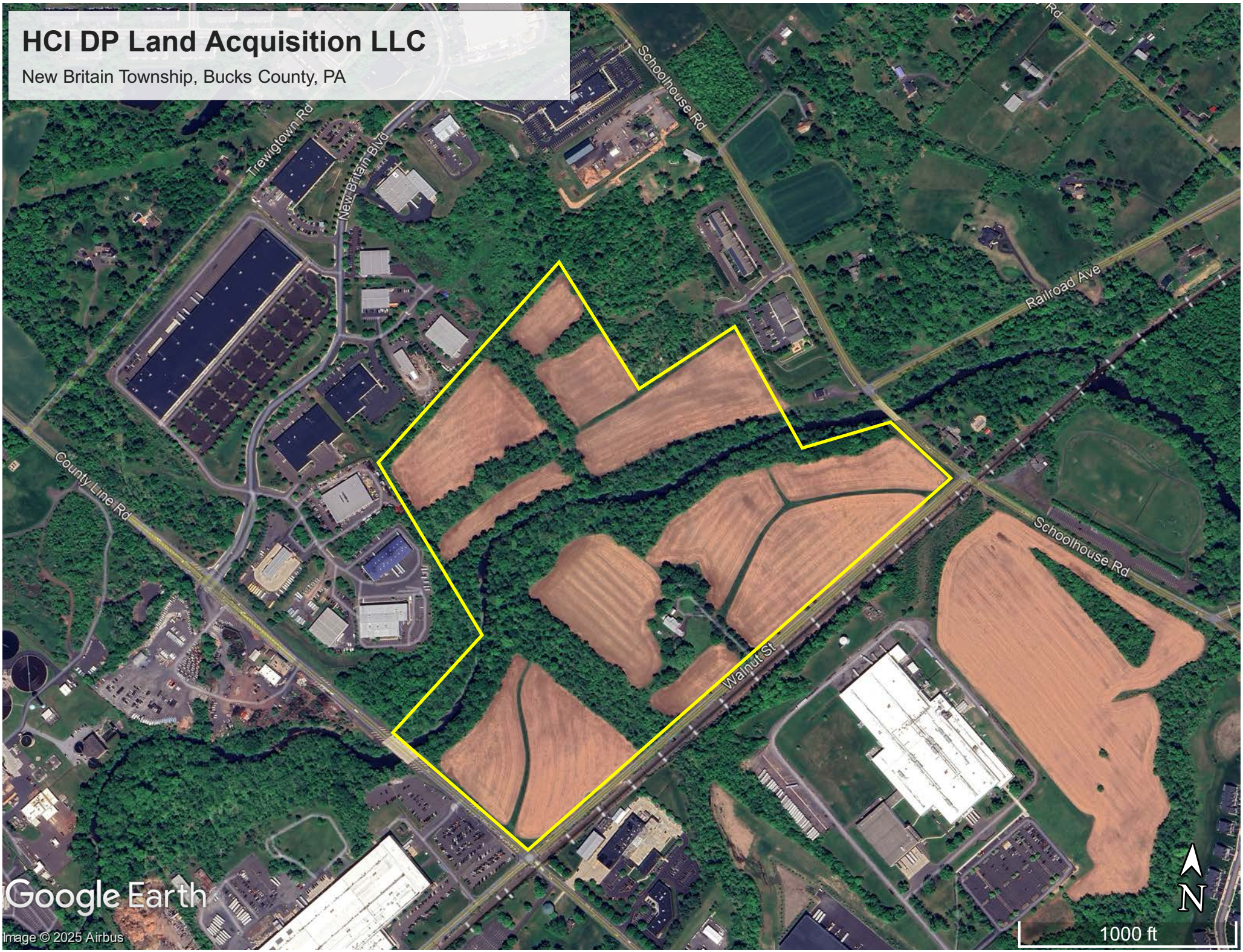
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

HCI DP Land Acquisition LLC

New Britain Township, Bucks County, PA



Wetland Determination Data Forms

Valley Environmental Services, Inc., 3282 Hope Drive, Emmaus, PA 18049
www.valenv.com

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Walnut Street City/County: Bucks County Sampling Date: 6/24/2025

Applicant/Owner: HCI DP Land Acquisition LLC State: PA Sampling Point: 1

Investigator(s): Jason J. Mease Section, Township, Range: New Britain Township

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3%

Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.280532 Long: -75.242334 Datum: WGS 84

Soil Map Unit Name: Bowmansville-Knauers silt loams (Bo) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
West Branch Neshaminy Creek

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- X Sediment Deposits (B2)
- X Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- X Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 3
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Channel about 50-60' wide with 1-3' banks.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
								channel bed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock/coarse fragments

Depth (inches): 0

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Channel bed primarily consists of unconsolidated coarse fragments.

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Walnut Street City/County: Bucks County Sampling Date: 6/24/2025

Applicant/Owner: HCI DP Land Acquisition LLC State: PA Sampling Point: 2

Investigator(s): Jason J. Mease Section, Township, Range: New Britain Township

Landform (hillside, terrace, etc.): Footslope Local relief (concave, convex, none): Convex Slope (%): 0-3%

Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.280388 Long: -75.242239 Datum: WGS 84

Soil Map Unit Name: Bowmansville-Knauers silt loams (Bo) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Upland forested bank

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus sp.*	30	Yes	
2. *Juglans nigra*	25	Yes	FACU
3. *Prunus serotina*	10	No	FACU
4. *Acer negundo*	5	No	FAC
5.			
6.			
7.			
	70	=Total Cover	
50% of total cover: 35		20% of total cover:	14
Sapling/Shrub Stratum (Plot size: 15')			
1. *Euonymus alatus*	15	Yes	UPL
2. *Lonicera tatarica*	10	Yes	FACU
3. *Ligustrum vulgare*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover:	6
Herb Stratum (Plot size: 5')			
1. *Microstegium vimineum*	15	Yes	FAC
2. *Persicaria virginiana*	5	Yes	FAC
3. *Alliaria petiolata*	5	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25	=Total Cover	
50% of total cover: 13		20% of total cover:	5
Woody Vine Stratum (Plot size: 30')			
1. *Parthenocissus quinquefolia*	5	Yes	FACU
2. *Lonicera japonica*	2	Yes	FACU
3. *Toxicodendron radicans*	1	No	FAC
4.			
5.			
	8	=Total Cover	
50% of total cover: 4		20% of total cover:	2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 22.2% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	7.5YR 3/3	100					Loamy/Clayey	
3-15	7.5YR 4/4	100					Loamy/Clayey	
15-20	7.5YR 4/4	97	7.5YR 5/2	2	D	M		
			5YR 4/6	1	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Walnut Street City/County: Bucks County Sampling Date: 6/24/2025

Applicant/Owner: HCI DP Land Acquisition LLC State: PA Sampling Point: 3

Investigator(s): Jason J. Mease Section, Township, Range: New Britain Township

Landform (hillside, terrace, etc.): Footslope Local relief (concave, convex, none): Convex Slope (%): 0-3%

Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.277296 Long: -75.242834 Datum: WGS 84

Soil Map Unit Name: Bowmansville-Knauers silt loams (Bo) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
PEM/PSS Wetland A

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 4

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lindera benzoin*	10	Yes	FAC
2. *Cornus amomum*	5	Yes	FACW
3. *Salix nigra*	2	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
	17 =Total Cover		
50% of total cover: 9	20% of total cover: 4		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	20	Yes	FACW
2. *Onoclea sensibilis*	5	No	FACW
3. *Symplocarpus foetidus*	5	No	OBL
4. *Impatiens capensis*	2	No	FACW
5. *Agrimonia parviflora*	1	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	33 =Total Cover		
50% of total cover: 17	20% of total cover: 7		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	7	x 1 =	7
FACW species	33	x 2 =	66
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	50 (A)		103 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 3/3	99	5YR 4/6	1	C	PL/M	Loamy/Clayey	Prominent redox concentrations
5-17	7.5YR 4/3	90	7.5YR 5/2	8	D	M	Loamy/Clayey	
			2.5YR 4/6	2	C	M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- X Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock/coarse fragments

Depth (inches): 17

Hydric Soil Present? **Yes** X **No** ___

Remarks:

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Walnut Street City/County: Bucks County Sampling Date: 6/24/2025

Applicant/Owner: HCI DP Land Acquisition LLC State: PA Sampling Point: 4

Investigator(s): Jason J. Mease Section, Township, Range: New Britain Township

Landform (hillside, terrace, etc.): Footslope Local relief (concave, convex, none): Convex Slope (%): 0-3%

Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.277271 Long: -75.242934 Datum: WGS 84

Soil Map Unit Name: Bowmansville-Knauers silt loams (Bo) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Upland forested bank

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juglans nigra*	25	Yes	FACU
2. *Acer negundo*	10	Yes	FAC
3. *Malus coronaria*	5	No	UPL
4.			
5.			
6.			
7.			
	40	=Total Cover	
50% of total cover: 20		20% of total cover:	8
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lonicera tatarica*	15	Yes	FACU
2. *Lindera benzoin*	10	Yes	FAC
3. *Rosa multiflora*	2	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	27	=Total Cover	
50% of total cover: 14		20% of total cover:	6
Herb Stratum (Plot size: 5')			
1. *Microstegium vimineum*	15	Yes	FAC
2. *Urtica dioica*	10	Yes	FACU
3. *Alliaria petiolata*	2	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	27	=Total Cover	
50% of total cover: 14		20% of total cover:	6
Woody Vine Stratum (Plot size: 30')			
1. *Vitis aestivalis*	2	No	FACU
2.			
3.			
4.			
5.			
	2	=Total Cover	
50% of total cover: 1		20% of total cover:	1

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	56	x 4 =	224
UPL species	5	x 5 =	25
Column Totals:	96 (A)		354 (B)

Prevalence Index = B/A = 3.69

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/3	100					Loamy/Clayey	
4-16	7.5YR 4/4	100					Loamy/Clayey	
16-20	7.5YR 4/4	97	7.5YR 5/2	2	D	M		channery
			5YR 4/6	1	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Walnut Street City/County: Bucks County Sampling Date: 6/24/2025
Applicant/Owner: HCI DP Land Acquisition LLC State: PA Sampling Point: 5
Investigator(s): Jason J. Mease Section, Township, Range: New Britain Township
Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3%
Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.277214 Long: -75.242875 Datum: WGS 84
Soil Map Unit Name: Bowmansville-Knauers silt loams (Bo) NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Southern Unnamed Tributary to West Branch Neshaminy Creek

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- X Sediment Deposits (B2)
- X Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- X Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (inches): 1
Water Table Present?	Yes X	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Unnamed tributary about 12-15' wide with 1-2' banks.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
								channel bed

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock/coarse fragments

Depth (inches): 0

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Channel bed primarily consists of unconsolidated coarse fragments.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Walnut Street City/County: Bucks County Sampling Date: 6/24/2025

Applicant/Owner: HCI DP Land Acquisition LLC State: PA Sampling Point: 6

Investigator(s): Jason J. Mease Section, Township, Range: New Britain Township

Landform (hillside, terrace, etc.): Footslope Local relief (concave, convex, none): Concave Slope (%): 0-3%

Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.277385 Long: -75.243304 Datum: WGS 84

Soil Map Unit Name: Bowmansville-Knauers silt loams (Bo) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
PSS/PFO Wetland B

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ____ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 2

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	10	Yes	OBL
2. *Acer negundo*	5	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	15	=Total Cover	
50% of total cover: 8		20% of total cover: 3	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Lindera benzoin*	15	Yes	FAC
2. *Cornus amomum*	5	Yes	FACW
3. *Salix nigra*	2	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
	22	=Total Cover	
50% of total cover: 11		20% of total cover: 5	

Herb Stratum (Plot size: 5')			
1. *Lysimachia nummularia*	15	Yes	FACW
2. *Symplocarpus foetidus*	5	Yes	OBL
3. *Impatiens capensis*	2	No	FACW
4. *Agrimonia parviflora*	1	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	23	=Total Cover	
50% of total cover: 12		20% of total cover: 5	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	17	x 1 =	17
FACW species	23	x 2 =	46
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	60 (A)		123 (B)

Prevalence Index = B/A = 2.05

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 3/3	98	2.5YR 4/6	2	C	PL/M	Loamy/Clayey	Prominent redox concentrations
5-15	7.5YR 4/3	90	7.5YR 5/2	8	D	M	Loamy/Clayey	
			2.5YR 4/6	2	C	M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- X Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock/coarse fragments

Depth (inches): 15

Hydric Soil Present? **Yes** X **No** ___

Remarks:

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Walnut Street City/County: Bucks County Sampling Date: 6/24/2025

Applicant/Owner: HCI DP Land Acquisition LLC State: PA Sampling Point: 7

Investigator(s): Jason J. Mease Section, Township, Range: New Britain Township

Landform (hillside, terrace, etc.): Footslope Local relief (concave, convex, none): Concave Slope (%): 0-3%

Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.277579 Long: -75.243810 Datum: WGS 84

Soil Map Unit Name: Bowmansville-Knauers silt loams (Bo) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
PSS/PFO Wetland C

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ____ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 2

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	15	Yes	OBL
2. *Acer negundo*	10	Yes	FAC
3. *Acer rubrum*	5	No	FAC
4.			
5.			
6.			
7.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Lindera benzoin*	10	Yes	FAC
2. *Cornus amomum*	5	Yes	FACW
3. *Salix nigra*	2	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
	17	=Total Cover	
50% of total cover: 9		20% of total cover: 4	

Herb Stratum (Plot size: 5')			
1. *Lysimachia nummularia*	15	Yes	FACW
2. *Phalaris arundinacea*	10	Yes	FACW
3. *Symplocarpus foetidus*	5	No	OBL
4. *Impatiens capensis*	2	No	FACW
5. *Onoclea sensibilis*	1	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	33	=Total Cover	
50% of total cover: 17		20% of total cover: 7	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
50% of total cover:		20% of total cover:	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	22	x 1 =	22
FACW species	33	x 2 =	66
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		163 (B)

Prevalence Index = B/A = 2.04

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/3	98	2.5YR 4/6	2	C	PL/M	Loamy/Clayey	Prominent redox concentrations
4-16	7.5YR 4/3	90	7.5YR 5/2	8	D	M	Loamy/Clayey	
			2.5YR 4/6	2	C	M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- X Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock/coarse fragments

Depth (inches): 16

Hydric Soil Present? **Yes** X **No** ___

Remarks:

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Walnut Street City/County: Bucks County Sampling Date: 6/24/2025

Applicant/Owner: HCI DP Land Acquisition LLC State: PA Sampling Point: 8

Investigator(s): Jason J. Mease Section, Township, Range: New Britain Township

Landform (hillside, terrace, etc.): Footslope Local relief (concave, convex, none): Convex Slope (%): 0-3%

Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.277649 Long: -75.243856 Datum: WGS 84

Soil Map Unit Name: Bowmansville-Knauers silt loams (Bo) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Upland forested bank

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Juglans nigra*	30	Yes	FACU
2. *Acer negundo*	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
	45	=Total Cover	
50% of total cover: 23		20% of total cover: 9	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lonicera tatarica*	10	Yes	FACU
2. *Lindera benzoin*	5	Yes	FAC
3. *Rosa multiflora*	2	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	17	=Total Cover	
50% of total cover: 9		20% of total cover: 4	
Herb Stratum (Plot size: 5')			
1. *Microstegium vimineum*	10	Yes	FAC
2. *Persicaria virginiana*	5	Yes	FAC
3. *Solidago rugosa*	2	No	FAC
4. *Alliaria petiolata*	1	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	18	=Total Cover	
50% of total cover: 9		20% of total cover: 4	
Woody Vine Stratum (Plot size: 30')			
1. *Parthenocissus quinquefolia*	5	Yes	FACU
2. *Vitis aestivalis*	2	Yes	FACU
3.			
4.			
5.			
	7	=Total Cover	
50% of total cover: 4		20% of total cover: 2	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	37	x 3 =	111
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	87 (A)		311 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 3/3	100					Loamy/Clayey	
5-16	7.5YR 4/4	98	7.5YR 4/2	2	D	M	Loamy/Clayey	channery

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: rock/coarse fragments

Depth (inches): 16

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region
See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Walnut Street City/County: Bucks County Sampling Date: 6/24/2025
Applicant/Owner: HCI DP Land Acquisition LLC State: PA Sampling Point: 9
Investigator(s): Jason J. Mease Section, Township, Range: New Britain Township
Landform (hillside, terrace, etc.): Footslope Local relief (concave, convex, none): Concave Slope (%): 0-3%
Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.279626 Long: -75.244513 Datum: WGS 84
Soil Map Unit Name: Bowmansville-Knauers silt loams (Bo) NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
PEM Wetland D

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ____ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ True Aquatic Plants (B14)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: 9

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	30	Yes	FACW
2. *Onoclea sensibilis*	10	Yes	FACW
3. *Impatiens capensis*	5	No	FACW
4. *Boehmeria cylindrica*	2	No	FACW
5. *Juncus effusus*	1	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
	48 =Total Cover		
50% of total cover: 24	20% of total cover: 10		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	48	x 2 =	96
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	48 (A)		96 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/3	99	2.5YR 4/6	1	C	PL/M	Loamy/Clayey	Prominent redox concentrations
4-18	7.5YR 4/3	90	7.5YR 5/2	8	D	M	Loamy/Clayey	
			2.5YR 4/6	2	C	M		Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Mucky Mineral (F1) **(MLRA 136)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 122, 136)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- X Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

U.S. Army Corps of Engineers

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

See ERDC/EL TR-12-9; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Walnut Street City/County: Bucks County Sampling Date: 6/24/2025

Applicant/Owner: HCI DP Land Acquisition LLC State: PA Sampling Point: 10

Investigator(s): Jason J. Mease Section, Township, Range: New Britain Township

Landform (hillside, terrace, etc.): Footslope Local relief (concave, convex, none): Convex Slope (%): 0-3%

Subregion (LRR or MLRA): LRR S, MLRA 148 Lat: 40.279272 Long: -75.244525 Datum: WGS 84

Soil Map Unit Name: Bowmansville-Knauers silt loams (Bo) NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Upland forested bank

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: