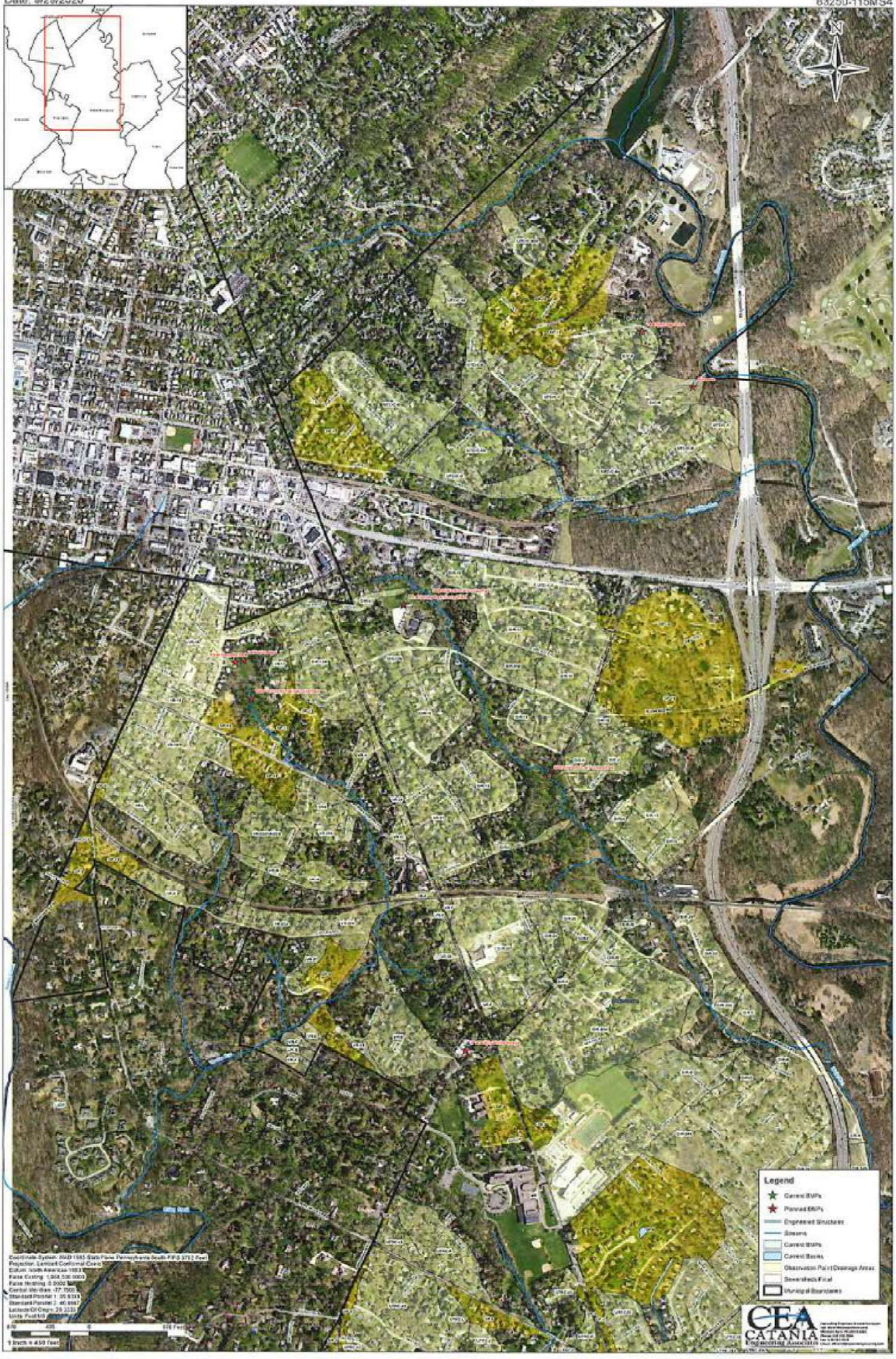
Existing and Planned BMP Map
(Northern Section)

Date: 9/29/2020

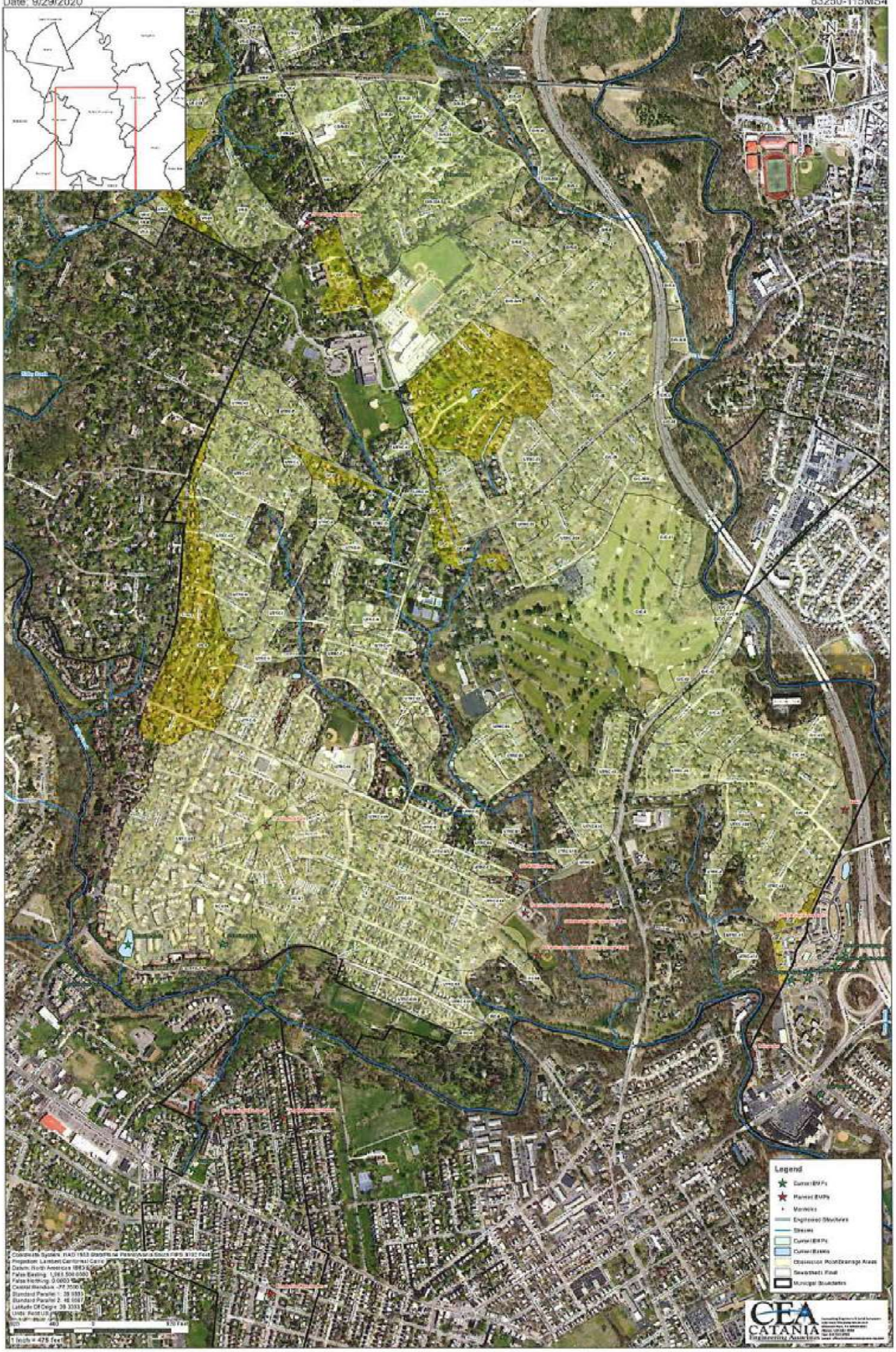
Nether Providence Township
63250-115MS4



Existing and Planned BMP Map
(Southern Section)

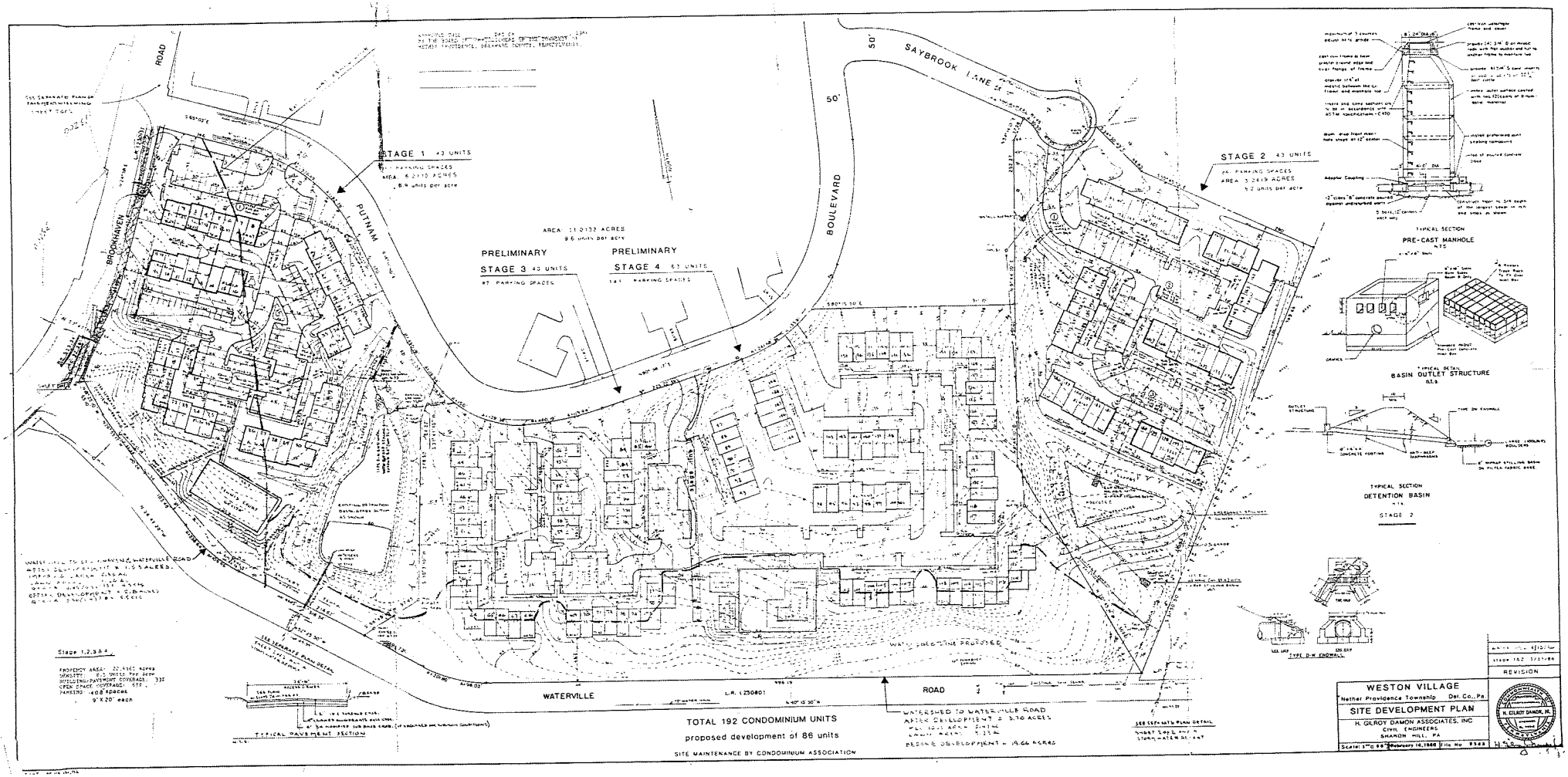
Date: 9/29/2020

Nether Providence Township
83250-115MS4



Appendix 10

Plans of existing BMPs


STAGE 1 43 UNITS
STAGE 2 43 UNITS
PRELIMINARY
STAGE 3 43 UNITS
PRELIMINARY
STAGE 4 63 UNITS
SAYBROOK LANE
BOULEVARD
PUTNAM
BROOKHAVEN
ROAD
WATERVILLE
ROAD
TOTAL 192 CONDOMINIUM UNITS
proposed development of 86 units
SITE MAINTENANCE BY CONDOMINIUM ASSOCIATION
TYPICAL PAVEMENT SECTION
TYPICAL SECTION
PRE-CAST MANHOLE
TYPICAL DETAIL
BASIN OUTLET STRUCTURE
TYPICAL SECTION
DETENTION BASIN
STAGE 2
TYPE D-W ENDWALL
WESTON VILLAGE
Nether Providence Township Del. Co., Pa.
SITE DEVELOPMENT PLAN
H. GILROY DAMON ASSOCIATES, INC.
CIVIL ENGINEERS
SHARON HILL, PA
REVISION

Twp Building - Rain Garden

View Description | View Rating

View Options

Map ☑
Table ☑
Description of Rating ☑
Rating Options ☐
Detailed Description ☐

Advanced Options

Aggregation Method: Dominant Condition
Component Percent Cutoff:
Tie-break Rule: Lower / Higher

View Description | View Rating

- Map Unit Name
- Parent Material Name
- Representative Slope
- Soil Slippage Potential
- Unified Soil Classification (Surface)
- Water Features

Warning: Soil Ratings Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:20,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map 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.

Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — Delaware County, Pennsylvania (PA045)

Summary by Map Unit — Delaware County, Pennsylvania (PA045)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Me	Made land, schist and gneiss materials	C	0.6	100.0%
Totals for Area of Interest			**0.6**	**100.0%**

Sapovits Park - Rain Garden

View Options

Map ☑

Table ☑

Description of Rating ☑

Rating Options ☐

Detailed Description ☐

Advanced Options

Aggregation Method: Dominant Condition

Component Percent Cutoff:

Tie-break Rule: Lower / Higher

View Description | View Rating

Map Unit Name

Parent Material Name

Representative Slope

Soil Slippage Potential

Unified Soil Classification (Surface)

Water Features

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Summary by Map Unit — Delaware County, Pennsylvania (PA045)

Summary by Map Unit — Delaware County, Pennsylvania (PA045)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GeC2	Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded	B	0.1	15.4%
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C/D	0.7	84.6%
Totals for Area of Interest			**0.9**	**100.0%**

Appendix 11
Existing BMP Calculations

BMP	Location	Sewershed	Year Built	Category	Area (sq. ft)	Total Drainage Area (acres)	TSS (Sediment) lbs/acre/yr	Sediment Loading (lb/yr)	Sediment Effectiveness Value	Reduction (lbs/yr)
Bioretention – Raingarden (C/D soils w/ underdrain)	Nether Providence Township Building	DiR-33A	2009/2010	impervious developed	3,430.56	0.08	1,839.00	144.83		
				pervious developed	3,056.78	0.07	264.96	18.59		
				Total:	6,487.35	0.15		**163.42**	55%	**89.88**
Bioretention / Raingarden (B soils w/ underdrain)	Sapovits Park	VR-17	2009/2010	impervious developed	34,421.13	0.79	1,839.00	1,453.18		
				pervious developed	56,459.11	1.30	264.96	343.42		
				Total:	90,880.24	2.09		**1,796.60**	80%	**1,437.28**
Detention Basin	West of Weston Village	UTRC-60	Late 1980s	impervious developed						
				pervious developed	In a sewershed that does not have a requirement for siltation.					
				Total:						
Detention Basin	East of Weston Village	RC-58A	Early 1980s	impervious developed	346,686.08	7.96	1,839.00	14,636.26		
				pervious developed	412,235.84	9.46	264.96	2,507.48		
				Total:	758,921.92	17.42		**17,143.75**	60%	**10,286.25**

Appendix 12

Total Existing Loading Rates

Sewershed Designation	Impaired for Sediment	Final Existing Sediment Loading (lbs/yr)	10% Reduction Requirement (lbs/yr)
Crum Creek	Yes	174,967	17,497
Dicks Run	Yes	259,692	25,969
Ridley Creek	Yes	72,574	7,257
Vernon Run	Yes	136,354	13,635
*Delaware River	No	0	0
*Unnamed Tributaries to Crum Creek	No	0	0
*Unnamed Tributaries to Ridley Creek	No	0	0

*These streams do not have a requirement for siltation.

Appendix 13
Planned BMP Calculations

Crum Creek

Required Reduction (lb/yr): 17,497

Type of BMP	Location	Category	Treated Area (sq. ft)	Treated Area (acres)	TSS (Sediment) lbs/acre/yr	Sediment Loading (lb/yr)	Sediment Effectiveness Value	Reduction (lbs/yr)
Infiltration Trench	Parkridge Drive	impervious developed		0.00	1839	0		
		pervious developed	115,627.08	2.65	264.96	703.3184214		
		Total:	115,627.08	2.65		703.3184214	95%	**668.15**
Detention Basin	Canterbury Drive and Govenors Drive	impervious developed	422,208.56	9.69	1839	17824.64509		
		pervious developed	1,015,410.08	23.31	264.96	6176.378683		
		Total:	1,437,618.64	33.00		24001.02377	60%	**14,400.61**
Bioswale	Behind Hemlock Road	impervious developed	114,442.62	2.63	1839	4831.496381		
		pervious developed	489,139.05	11.23	264.96	2975.259025		
		Total:	603,581.67	13.86		7806.755406	80%	**6,245.40**
Total Reduction (lbs/yr) =	**21,314.17**							

Dicks Run

Required Reduction (lb/yr): 25,969

Type of BMP	Location	Length (ft)	Sediment Effectivness Value (lbs/ft/yr)	Reduction (lbs/yr)
Stream Bank Restoration	Dick's Run at Gouley Park	400	44.88	17,952.00
Stream Bank Restoration	Dick's Run at Furness Park	200	44.88	8,976.00
Total Reduction (lbs/yr) =	**26,928.00**			

Ridley Creek

Required Reduction (lb/yr): 7,257

Type of BMP	Location	Length (ft)	Sediment Effectivness Value (lbs/ft/yr)	Reduction (lbs/yr)
Stream Bank Restoration		200	44.88	8,976.00
Total Reduction (lbs/yr) =	**8,976.00**			

Vernon Run								
Required Reduction (lb/yr): 13,635								
Type of BMP	Location	Category	Treated Area (sq. ft)	Treated Area (acres)	TSS (Sediment) lbs/acre/yr	Sediment Loading (lb/yr)	Sediment Effectiveness Value	Reduction (lbs/yr)
Bioretention – Raingarden (C/D soils w/ underdrain)	Sapovits Park	impervious developed	427,257.67	9.81	1839	18037.80651		
		pervious developed	514,010.47	11.80	264.96	3126.543054		
		Total:	941,268.14	21.61		21164.34956	55%	**11,640.39**
Infiltration System	Sapovits Park	impervious developed	427,257.67	9.81	1839	18037.80651		
		pervious developed	514,010.47	11.80	264.96	3126.543054		
		Total:	941,268.14	21.61		21164.34956	95%	**20,106.13**

Type of BMP	Location	Length (ft)	Sediment Effectivness Value (lbs/ft/yr)	Reduction (lbs/yr)
Stream Bank Restoration	Vernon Run at Sapovits Park	200	44.88	8,976.00

Total Reduction (lbs/yr) = 40,722.52

Note:
The Township does not have to construct every project listed. However, the sediment reduction of the BMPs selected must reach the required reductions.

Sapovits Park - planned Rain Garden

Map ☑
Table ☑
Description of Rating ☑
Rating Options ☐
Detailed Description ☐

Advanced Options

Aggregation Method: Dominant Condition
Component Percent Cutoff:
Tie-break Rule: Lower / Higher

View Description | View Rating

- Map Unit Name
- Parent Material Name
- Representative Slope
- Soil Slippage Potential
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GeC2	Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded	B	0.4	9.8%
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C/D	2.7	62.2%
Me	Made land, schist and gneiss materials	C	1.2	28.0%
Totals for Area of Interest			**4.4**	**100.0%**

Appendix 14

Streambank Restoration documents

These documents were not able to be obtained as of this date.

Attachment 1

Tributary Investigation: Dicks Run

Date: 5/8/2020

Dicks Run Tributary

Nether Providence Township
83250-115MS4

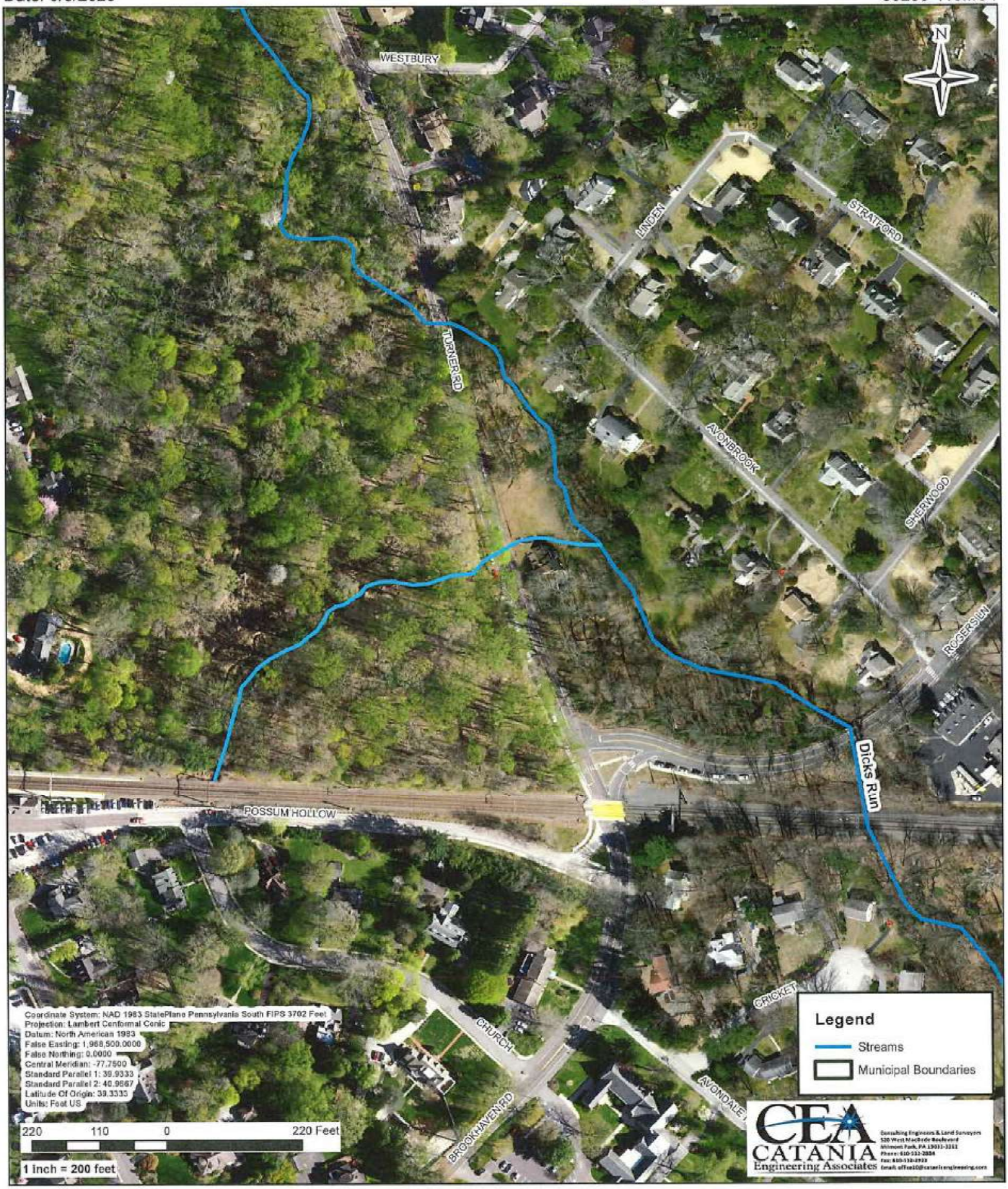

Figure 1. Flow first observed here by the train tracks. Beginning of tributary.

Figure 2. Flowing water observed.

The following pictures (Figures 3 – 8) were taken in order following the stream down towards where it crosses Turner Road.

Figure 3

Figure 4

Figure 5

Figure 6

Figure 7

Figure 8

Figure 9. Tributary crosses underneath Turner Road.

Figure 10. Tributary crosses underneath Turner Road.

Figure 11. Turner Road where the Tributary crosses underneath.

Figure 12. Culvert on the other side of Turner Road where the Tributary resurfaces.

Figure 13. Flowing water in front of the culvert.

Figure 14. Tributary flowing down from the culvert.

Figure 15. Flowing water observed.

Figure 16. Flowing water observed near a footbridge near Dicks Run.

Figure 17. Location where the Tributary flows into Dicks Run.

Attachment 2

Tributary Investigation: Pine Ridge Run

Date: 5/8/2020

Pine Ridge Run

Nether Providence Township
83250-115MS4

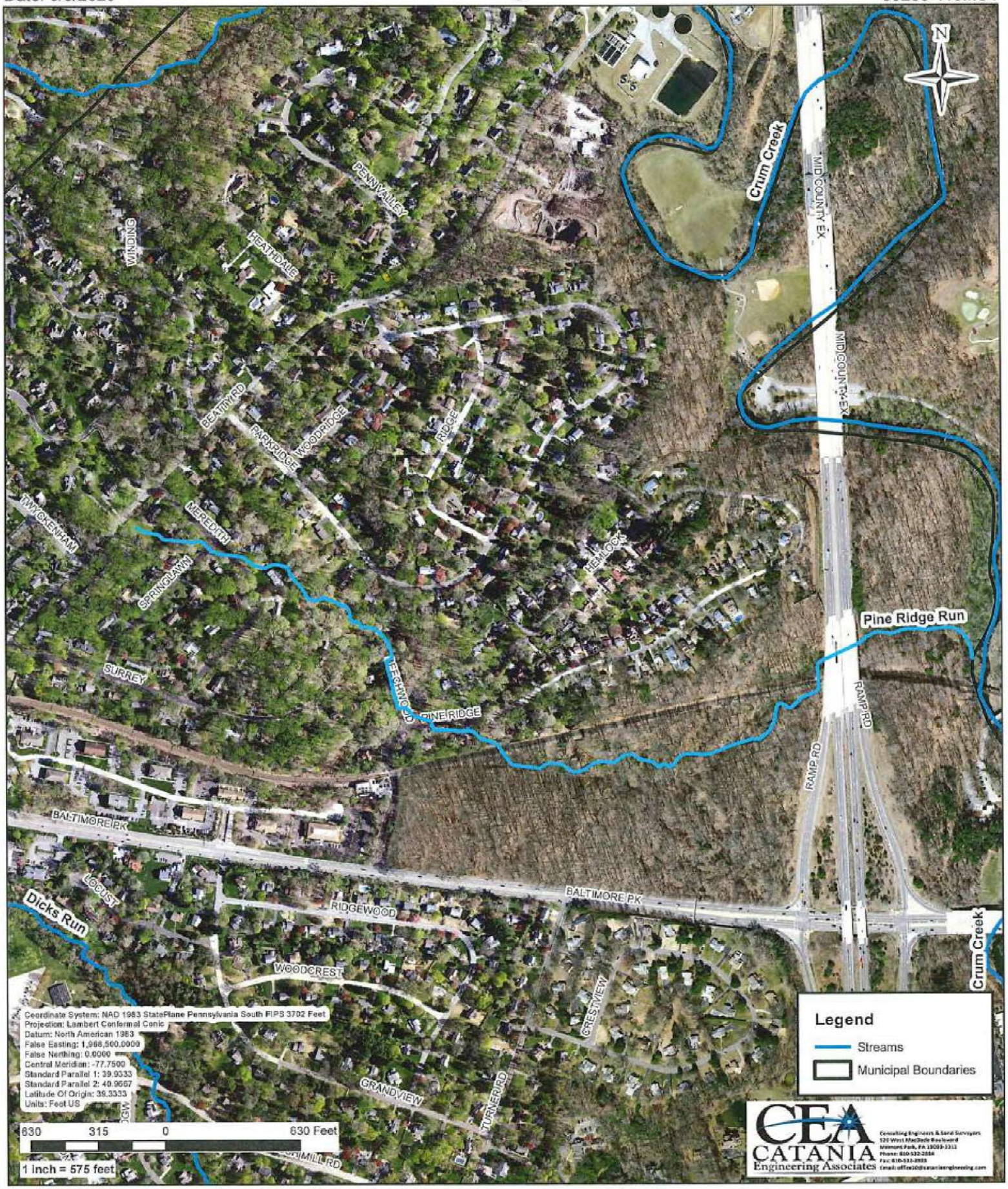

Figure 1. Beatty Road close to where Pine Ridge Run starts.

Figure 2. Multiple pipes discharge in location to the left of the street in Figure 1.

Figure 3. Closer image of pipes from Figure 2. No flowing water present.

Figure 4. Flowing water is not present until the fence.

Figure 5. Flowing water first observed here. Beginning of Pine Ridge Run.

Figure 6. Flowing water present.

Figure 7. Pine Ridge Run flowing down from location in Figure 6.

Figure 8. Flowing water present. Location where Pine Ridge Run crosses under Springlawn Drive and Meredith Drive.

Figure 9. Meredith Drive and Springlawn Drive in the distance. Location where Pine Ridge Run resurfaces.

Figure 10. Culvert on the other side of Meredith Drive where Pine Ridge Run resurfaces.

The following pictures (Figures 11 – 15) were taken in order following the stream down towards where it reaches Beechwood Road and Pine Ridge Road.

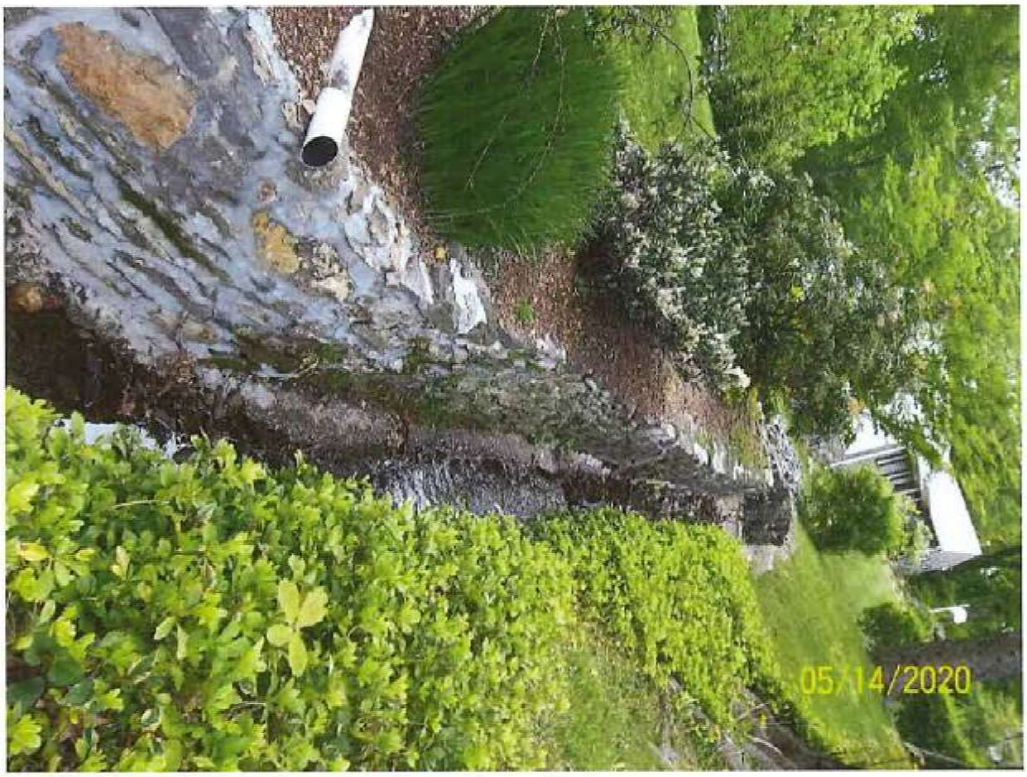

Figure 11

Figure 12

Figure 13

Figure 14

Figure 15

Figure 16

Figure 17. A small branch splits from Pine Ridge Run near the intersection of Beechwood Road and Pine Ridge Road. Flowing water is observed.

Figure 18. View of the branch facing Beechwood Road.

Figure 19. Pine Ridge Run branch. Flowing water observed.

Figure 20. Pine Ridge Run branch parallel to 601 Pine Ridge Road. Flowing water observed.

Figure 21. Last view of flowing water. End of Pine Ridge Run branch.

Figure 22. Continuation of Pine Ridge Run where the branch flows into.

Figure 23. Pine Ridge Run crossing under Pine Ridge Road.

Figure 24. Pine Ridge Run on the other side of Pine Ridge Road. View looking down from Trolley tracks.

Figure 25. Another view of Pine Ridge Run on the other side of Pine Ridge Road.

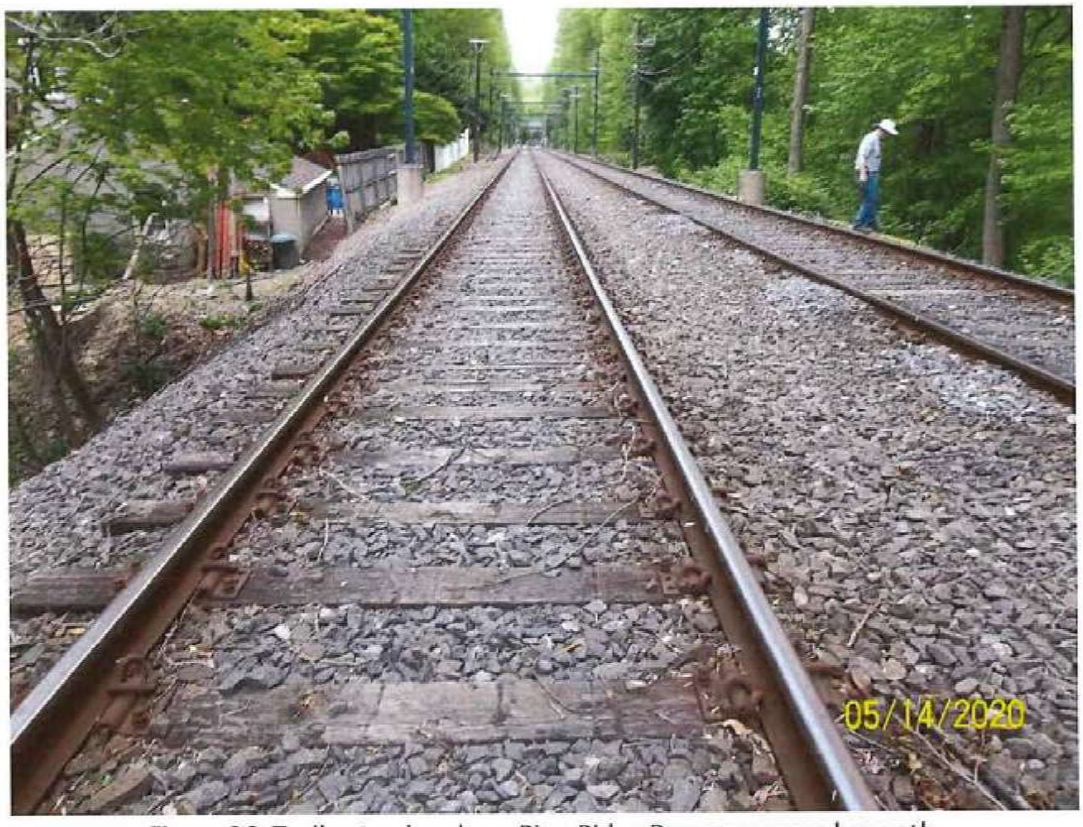

Figure 26. Trolley tracks where Pine Ridge Run crosses underneath.

Figure 27. Other side of the trolley tracks where Pine Ridge Run resurfaces.

Figure 28. Flowing water in Pine Ridge Run on the other side of the trolley tracks.

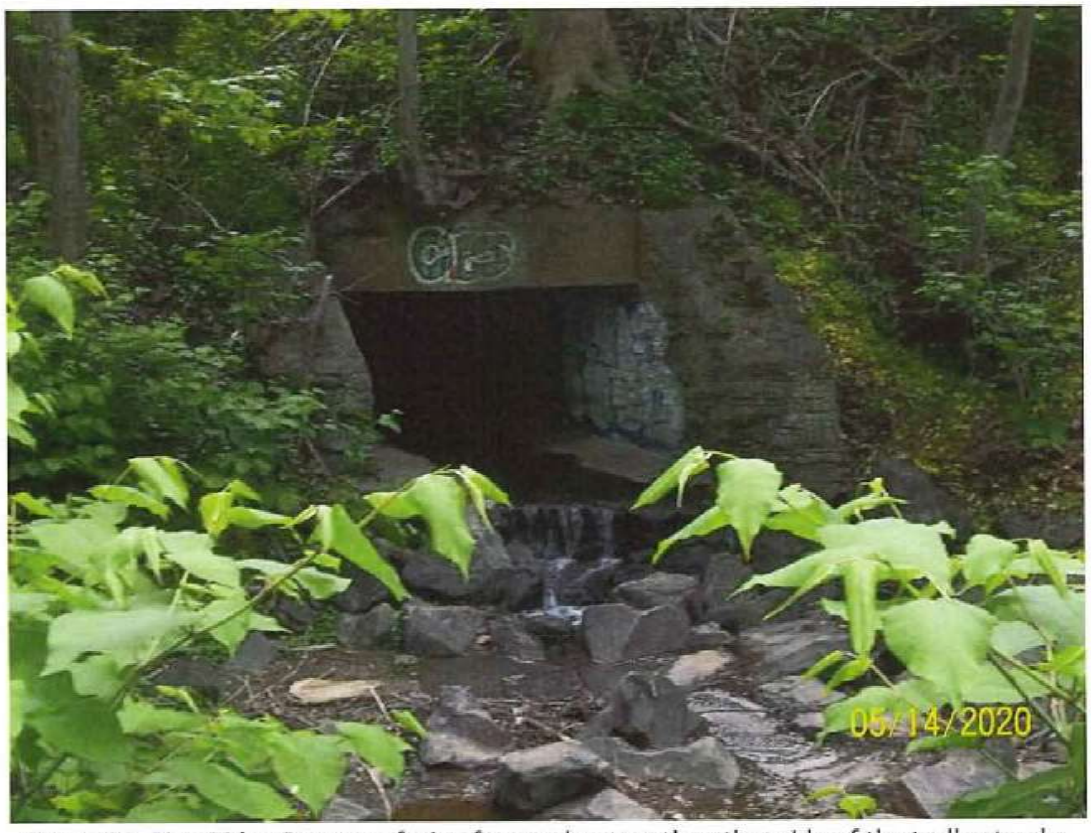

Figure 29. Pine Ridge Run resurfacing from culvert on the other side of the trolley tracks.

Figure 30. Pine Ridge Run resurfacing from culvert on the other side of the trolley tracks.

The following pictures (Figures 31 – 37) were taken in order following the stream down towards the end where it discharges to Crum Creek.

Figure 31

Figure 32

Figure 33

Figure 34

Figure 35

Figure 36

Figure 37. Pine Ridge Run right before it discharges into Crum Creek.

Figure 38. Pine Ridge Run flowing into Crum Creek.

Figure 39. Pine Ridge Run flowing into Crum Creek.

Figure 40. Location where Pine Ridge Run discharges into Crum Creek. Crum Creek is on the other side of the pillars.

Attachment 3

Tributary Investigation: Ridley Creek Tributary (Harvey Road)

Date: 5/8/2020

Ridley Creek Tributary - Harvey Road

Nether Providence Township
83250-115MS4