PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN
EAGLE & RADNOR ROADS, WAYNE

ADJOINING PROPERTIES:

LANDS N/F:*

1. FOLIO # 36-0201268-00
   2 PAUL RD
   MARINO REYNOLDS FAMILY TRUST
   MAP #36-06-055:000
   BOOK 5952 PAGE 0258
2. FOLIO # 36-02-00979050
   4 PAUL RD
   VANDEBEEK M LOUIS & DIANE
   MAP #36-06 -055:004
   BOOK 1040 PAGE 2020

* PER BASE PLAN

VICINITY MAP INCLUDING STRUCTURES WITHIN 200' OF SITE
2020 DITIFAL GLODE MAPS TILE PA-X28-Y082, DVRPC 2015 AERIAL PHOTOGRAPHY, PASDA WEBSITE

DRAWING SCHEDULE

1. COVER SHEET
2. EXISTING FEATURES PLAN
   SOIL, VEGETATION & WATER RESOURCES MAP
3. SUBDIVISION PLAN
4. E&SC PLAN & DEMOLITION PLAN
5. E&SC NOTES & DETAILS
6. E&SC DETAILS
7. PRELIMINARY LAND DEVELOPMENT PLAN & PCSM PLAN
8. PCSM DETAILS & NOTES
9. STORM PROFILES & DRAINAGE MAPS
10. UTILITY PLAN
11. SANITARY PROFILES & CONSTRUCTION DETAILS

PLANS PREPARES BY JONATHAN ALDERSON LANDSCAPE ARCHITECTS:

12. L001 – TREE REMOVALS AND PRESERVATION PLAN
13. L101 – PLANTING PLAN

CIVIL ENGINEER:

SITE ENGINEERING CONCEPTS, LLC
ATTN: PATRICK SPELLMAN, P.E.
P.O. BOX 1992 SOUTHEASTERN, PA 19399
P: 610-523-9002
E: PSPELLMAN@SITE-ENGINEERS.COM

LANDSCAPE ARCHITECT:

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ATTORNEY:

SAUL EWING ARNSTEIN & LEHR LLP
ATTN: DAVID J. FALCONE
1200 LIBERTY RIDGE, SUITE 200
WAYNE, PA 19087-5569
P: 610-251-5752
E: DAVID.FALCONE@SAUL.COM

OWNER/APPLICANT:

CG WAYNE, LLC
ATTN: DEVIN TUOHEY
161 LEVERINGTON AVENUE, SUITE 101
PHILADELPHIA, PA 19147
P: 347-330-0048
E: DTUOHEY@CONCORDIAGROUP.BIZ

NUM.	DATE	REVISION

PLAN PREPARED BY:
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PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN
PLAN PREPARED FOR:
CG WAYNE, LLC
EAGLE & RADNOR ROAD, WAYNE, PA 19087

RADNOR TOWNSHIP DELAWARE COUNTY PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
PATRICK SPELLMAN
No. 40021E

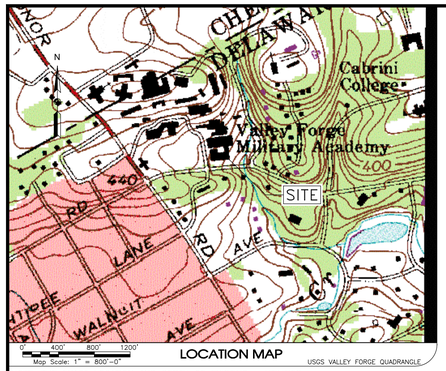
PATRICK SPELLMAN, P.E.
PE-40021

SEPT. 15, 2020

COVER SHEET

SHEET 1 of 13

SCALE: 1" = 80'



LOCATION MAP

USGS VALLEY FORGE QUADRANGLE

NOTE: THE EXACT LOCATION AND DEPTH OF EXISTING UTILITIES CANNOT BE GUARANTEED. ALL UTILITIES DEPICTED ON THIS PLAN HAVE BEEN DEVELOPED FROM ABOVE GROUND OBSERVATIONS AND/OR EXISTING RECORDS. CONTRACTOR MUST VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. PENNSYLVANIA STATE LAW REQUIRES NOTIFICATION TO 1-800-242-1776 3-10 BUSINESS DAYS PRIOR TO ANY EXCAVATION.

BASE PLAN S/N: 20192664614

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776

PLAN LEGEND

- 1' INTERVAL CONTOUR
- 5' INTERVAL CONTOUR
- STORM SEWER PIPING
- SANITARY SEWER PIPING
- GAS MAIN
- WATER MAIN / SERVICE
- UNDERGROUND ELECTRIC
- OVERHEAD WIRES
- COMMUNICATIONS
- EDGE OF LANDSCAPING
- EDGE OF PAVEMENT
- FENCE LINE
- PROPERTY LINE
- RIGHT-OF-WAY
- BUILDING SETBACK LINE
- LIMIT OF DISTURBANCE LINE
- STREAM
- 100 YR FLOOD BOUNDARY
- TWP RIPARIAN SETBACK
- EXISTING BUILDINGS
- EXISTING ASPHALT
- EXISTING WALKS & PADS
- EXISTING WALLS
- xxx.xx SPOT ELEVATION
- DSxxx.xx DOOR SILL
- GSxxx.xx GARAGE SILL
- WV WATER VALVE
- WM WATER METER
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- STRM MH STORMWATER MANHOLE
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- CO STORM CLEAN OUT
- DS DOWNSPOUT
- 14-20% SLOPES (NATURAL / MAN-MADE)
- >20% SLOPES (NATURAL / MAN-MADE)

ZONING SUMMARY

ORDINANCE ITEM	PI PLANNED INSTITUTIONAL REQUIREMENT *	R-2 RESIDENTIAL REQUIREMENT *	PARCEL A	PARCEL B
MIN. LOT AREA	10 AC (435,600 SF)	20,000 SF	677,097 SF	50,504 SF
LOT WIDTH @ BLDG	100 FT	100 FT	500 FT	323 FT
MIN. SETBACKS				
FRONT	**	40 FT	60 FT	60 FT
SIDE (MIN/AGG)	***	20/45 FT	N/A	30/70 FT
REAR	***	40 FT	60 FT	N/A
MAX. BUILDING HEIGHT	38 FT	35 FT	<35 FT	<35 FT
MAX BUILDING COVERAGE	30%	18%	2.2%	4.6%
MAX. IMPERV SURFACE	45%	30%	19.9%	11.1%
RIPARIAN BUFFER	35 FT	35 FT	25 FT	28 FT

* THE PROPERTY IS IN PLANNED INSTITUTIONAL ZONING DISTRICT. PROPOSED PROJECT BEING COMPARED TO R-2 DISTRICT REQUIREMENTS.
** PI FROM STREET ROW: STRUCTURES - 120 FT; PARKING - 60.
*** REAR & SIDE YARD:
CATEGORY 1: RESIDENTIAL ADJOINER- 125 FT; OTHERS- 75 FT
CATEGORY 2: RESIDENTIAL ADJOINER- 200 FT; OTHERS- 75 FT
SEE CHAPTER 280, ARTICLE XVI OF THE RADNOR CODE FOR ALL PI DISTRICT REQUIREMENTS.

BASE SURVEY PLAN

"BOUNDARY & TOPOGRAPHIC SURVEY" PREPARED FOR ASTERN UNIVERSITY, PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED MARCH 31, 2010, LAST REVISED DECEMBER 20, 2019.

BASE SURVEY NOTES:

1. PROPERTY KNOWN AS FOLIO 36-02-0097810 & FOLIO 36-02-0097820 AS IDENTIFIED ON THE TAX MAPS OF DELAWARE COUNTY, RADNOR TOWNSHIP, COMMONWEALTH OF PENNSYLVANIA.
2. AREA = 850,552 SQUARE FEET OR 19.526 ACRES.
3. LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. LOCATIONS AND SIZES ARE BASED ON UTILITY MARK-OUTS, ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS AS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEY. AVAILABLE AS-BUILT PLANS AND UTILITY MARKOUT DOES NOT ENSURE MAPPING OF ALL UNDERGROUND UTILITIES AND STRUCTURES. BEFORE ANY EXCAVATION IS TO BEGIN, ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE AND TYPE BY THE PROPER UTILITY COMPANIES. CONTROL POINT ASSOCIATES, INC. DOES NOT GUARANTEE THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA EITHER IN SERVICE OR ABANDONED.
4. THIS PLAN IS BASED ON INFORMATION PROVIDED, BY A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON.
5. BY GRAPHIC PLOTTING ONLY PROPERTY IS LOCATED IN FLOOD HAZARD ZONE 'X' (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) PER REF. #2.
6. THE EXISTENCE OF UNDERGROUND STORAGE TANKS, IF ANY, WAS NOT KNOWN AT THE TIME OF THE FIELD SURVEY.
7. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88, BASED ON GPS OBSERVATIONS UTILIZING THE KEYSTONE VRS NETWORK (KEYNETGPS).
8. THE OFFSETS SHOWN ARE NOT TO BE USED FOR THE CONSTRUCTION OF ANY STRUCTURE, FENCE, PERMANENT ADDITION, ETC.

BASE SURVEY REFERENCES:

1. MAP #6 OF THE OFFICIAL TAX MAPS OF DELAWARE COUNTY, RADNOR TOWNSHIP, COMMONWEALTH OF PENNSYLVANIA.
2. MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, DELAWARE COUNTY, PENNSYLVANIA (ALL JURISDICTIONS) PANEL 17 OF 250" PREPARED BY FEDERAL EMERGENCY MANAGEMENT AGENCY, MAP REVISED NOVEMBER 18, 2009, MAP NUMBER 42045C0017F.
3. MAP ENTITLED "RECORD PLAN PREPARED FOR MICHAEL G. & JEANNIE D. O'NEILL, RADNOR TOWNSHIP, DELAWARE COUNTY, PENNSYLVANIA" PREPARED BY TURNER-PAHUTSKI ASSOCIATES, INC., DATED OCTOBER 4, 1991, LAST REVISED JANUARY 1992, SHEET 1 OF 5. RECORDED AS PLAN VOLUME 17, PAGE 410.
4. MAP ENTITLED "MAIN EXTENTION FOR CHAMOUNIX ROAD, RADNOR, DELAWARE COUNTY" PREPARED BY AQUA PENNSYLVANIA INCORPORATED, DATED 1-11-08, PROJECT #561.07, PLATE F19,G20, SHEET 2 OF 16
5. MAP ENTITLED "WATER MAIN REPLACEMENT FOR: EAGLE ROAD (S.R. 1042) FROM RADNOR ROAD TO KING OF PRUSSIA ROAD, RADNOR TOWNSHIP, DELAWARE CO., PENNSYLVANIA" PREPARED BY AQUA PENNSYLVANIA, INC., DATED 01/2007.
6. MAP ENTITLED "GRID MAP NO. 40C3-EH12, DELAWARE COUNTY" DELCO MAP NO. 2018, DATED 10-5-06, SHEET 1 OF 1.
7. MAP ENTITLED "GRID MAP NO. 40C2-CD78, DELCHESTER REGION" DATED 11-30-06, SHEET 1 OF 1.
8. MAP ENTITLED "TREE EVALUATION FOR THE EASTERN DEVELOPMENT", PREPARED BY JOHNATHAN ANDERSON LANDSCAPE ARCHITECTS, INC. DATED 9/4/2019.
9. UTILITY LOCATION MAPS OBTAINED FROM PECO ENERGY COMPANY.

NET LOT CALCULATION (SF)

	PARCEL A		PARCEL B	
GROSS LOT AREA	792,229		58,395	
LESS				
RIGHT OF WAYS (R DISTRICTS)	88,612		6,384	
FLAG LOT ACCESS STRIP	0		0	
75% OF:				
FLOODPLAIN	16782	12,587	2010	1,508
WETLANDS	0	0	0	0
SLOPES GREAT THAN 20%	18578	13,934	0	0
NET LOT AREA	677,097		50,504	

EXISTING IMPERVIOUS COVERAGE SUMMARY (SQ. FT.)

	PARCEL A	PARCEL B
GROSS LOT AREA	792,229	58,395
BUILDINGS	17,244	2,669
WALKWAYS/SIDEWALKS	18,723	398
PATIOS, DECKS	0	0
DRIVEWAY	122,024	3166
OTHER	0	244
TOTAL IMPERVIOUS COVERAGE	157,991	6,477
TOTAL BUILDING %	2.2%	4.6%
TOTAL IMPERV %	19.9%	11.1%

PROJECT NARRATIVE

THE APPLICANT PROPOSES REMOVE THE 14 EXISTING DWELLING AND ALL ASSOCIATED IMPROVEMENTS AND SUBDIVIDE PARCEL A AND B INTO 20 SINGLE FAMILY LOTS.

SECTION 255-20.B(2) SOIL MAP

(a) SOIL TYPES: SEE BELOW TABLE.
(b) CONTOUR LINES: SEE EXISTING SURVEY PLAN.
(c) DATUM: SEE EXISTING SURVEY PLAN.
(d) FLOODPLAIN AREAS: SEE WATER RESOURCES MAP ON EXISTING SURVEY PLAN.
(e) BASE FLOOD ELEVATION: SEE WATER RESOURCES MAP EXISTING SURVEY PLAN.
(f) FLOODPLAIN SOILS: SEE WATER RESOURCES MAP EXISTING SURVEY PLAN.
(g) STEEP SLOPE AREAS: SEE EXISTING SURVEY PLAN.

SECTION 255-20.B(3) VEGETATION MAP

(a) FOREST AREAS AND GROVE AREAS:SEE TREE REMOVAL & PREPARATION PLAN PREPARED BY JLA, SHEET 12
(b) LARGE TREES OVER 6" IN CALIPER: SEE TREE REMOVAL & PREPARATION PLAN PREPARED BY JLA, SHEET 12.
(c) OTHER SIGNIFICANT VEGETATION: N/A

SECTION 255-20.B(4) WATER RESOURCES MAP

(a) STREAMS: SEE EXISTING SURVEY PLAN. UNNAMED TRIBUTARY TO GULPH CREEK. WWF/MF DESIGNATION. IN PROJECT AREA ARE SHOWN ON PLAN...NAME...CLASS
(b) SWALES: NO NATURE DRAINAGE SWALES.
(c) LAKES AND PONDS: NONE
(d) WETLANDS: NONE. SEE 2019 REPORT.

THIS SITE IS FULLY DEVELOPED. THE PROJECT AREA INCLUDES LITTLE WILDLIFE HABITAT.

WOODED LOT DATA COMBINED LOT (TREES OF 6" CALIPER OR GREATER)

SEE TREE REMOVAL & PREPARATION PLAN PREPARED BY JLA, SHEET 12

VEGETATIVE COVER

CANOPY	UNDERSTORY	SHRUB LAYER
MAPLE	AILANTHUS	ARBORVITAE
OAK	LOCUST	
	DOGWOOD	

SOIL DATA 255-20.B(2)

(PER WEB SOIL SURVEY, USDA, NRCS AS OF SEPTEMBER 1, 2020)

MAP SYMBOL	SOIL NAME	% SLOPE	INCHES TO HIGH WATER	INCHES TO BEDROCK	LAND CAPABILITY	DRAINAGE CLASS	HSG	HYDRIC SOIL	DWELLING W/BASEMENT	LAWNS	ROADS	SEPTIC -DRIP	DEEP INFILTRATION
GeB	GLENELG CHANNERY LOAM	3-8	>80"	60-80"	2e (NONIRRIG)	WELL	B	NO	NOT	SOMEWHAT	SOMEWHAT	SLIGHTLY	SOMEWHAT
GeC	GLENELG CHANNERY LOAM	8-15	>80"	40-60"	3e (NONIRRIG)	WELL	B	NO	SOMEWHAT	SOMEWHAT	SOMEWHAT	SLIGHTLY	SOMEWHAT
GeC2	GLENELG CHANNERY LOAM	8-15	>80"	>80"	3e (NONIRRIG)	WELL	B	NO	VERY	VERY	VERY	VERY	SEVERELY
GnB	GLENVILLE SILT LOAM	3-8	0-6"	29-31"	2e (NONIRRIG)	MODERATE	C/D	NO	VERY	VERY	VERY	VERY	SEVERELY
Me	MADE LANDS	0-8	>60"	40-72"	7e (NONIRRIG)	WELL	C	NO	SOMEWHAT	SOMEWHAT	SOMEWHAT	SLIGHTLY	SOMEWHAT

NUM.	DATE	REVISION

PLAN PREPARED BY:
SITE ENGINEERING CONCEPTS, LLC
P.O. BOX 1992
SOUTHEASTERN, PA 19399
P: 610-240-0450 F: 610-240-0451 E:INFO@SITE-ENGINEERS.COM

PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN
PLAN PREPARED FOR:
CG WAYNE, LLC
EAGLE & RADNOR ROAD, WAYNE, PA 19087

RADNOR TOWNSHIP DELAWARE COUNTY PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER PATRICK SPELLMAN No. 40021E

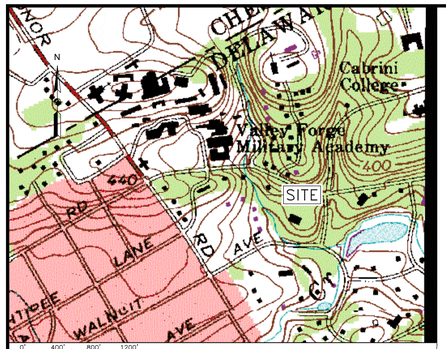
PATRICK SPELLMAN, P.E.
PE-40021

EXISTING FEATURES PLAN SOILS, VEGETATION, AND WATER RESOURCES MAP

SEPT. 15, 2020

SHEET 2 of 13

SCALE: 1" = 60'



LOCATION MAP

USGS VALLEY FORGE QUADRANGLE

NOTE: THE EXACT LOCATION AND DEPTH OF EXISTING UTILITIES CANNOT BE GUARANTEED. ALL UTILITIES DEPICTED ON THIS PLAN HAVE BEEN DEVELOPED FROM ABOVE GROUND OBSERVATIONS AND/OR EXISTING RECORDS. CONTRACTOR MUST VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. PENNSYLVANIA STATE LAW REQUIRES NOTIFICATION TO 1-800-242-1776 3-10 BUSINESS DAYS PRIOR TO ANY EXCAVATION.

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 IT'S THE LAW

BASE PLAN S/N: 20192664614

BASE SURVEY PLAN

"BOUNDARY & TOPOGRAPHIC SURVEY" PREPARED FOR ASTERN UNIVERSITY, PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED MARCH 31, 2010, LAST REVISED DECEMBER 20, 2019. SEE EXISTING FEATURES SHEET FOR COMPLETE LIST OF NOTES AND REFERENCES.

PLAN LEGEND

- 1' INTERVAL CONTOUR
- 5' INTERVAL CONTOUR
- ST> STORM SEWER PIPING
- S SANITARY SEWER PIPING
- G GAS MAIN
- W WATER MAIN / SERVICE
- E UNDERGROUND ELECTRIC
- OHW OVERHEAD WIRES
- T COMMUNICATIONS
- EDGE OF LANDSCAPING
- EDGE OF PAVEMENT
- FENCE LINE
- PROPERTY LINE
- RIGHT-OF-WAY
- BUILDING SETBACK LINE
- ACCESSORY SETBACK LINE
- STREAM
- 100 YR FLOOD BOUNDARY
- TWP RIPARIAN SETBACK
- EXISTING BUILDINGS
- EXISTING ASPHALT
- EXISTING WALKS & PADS
- EXISTING WALLS
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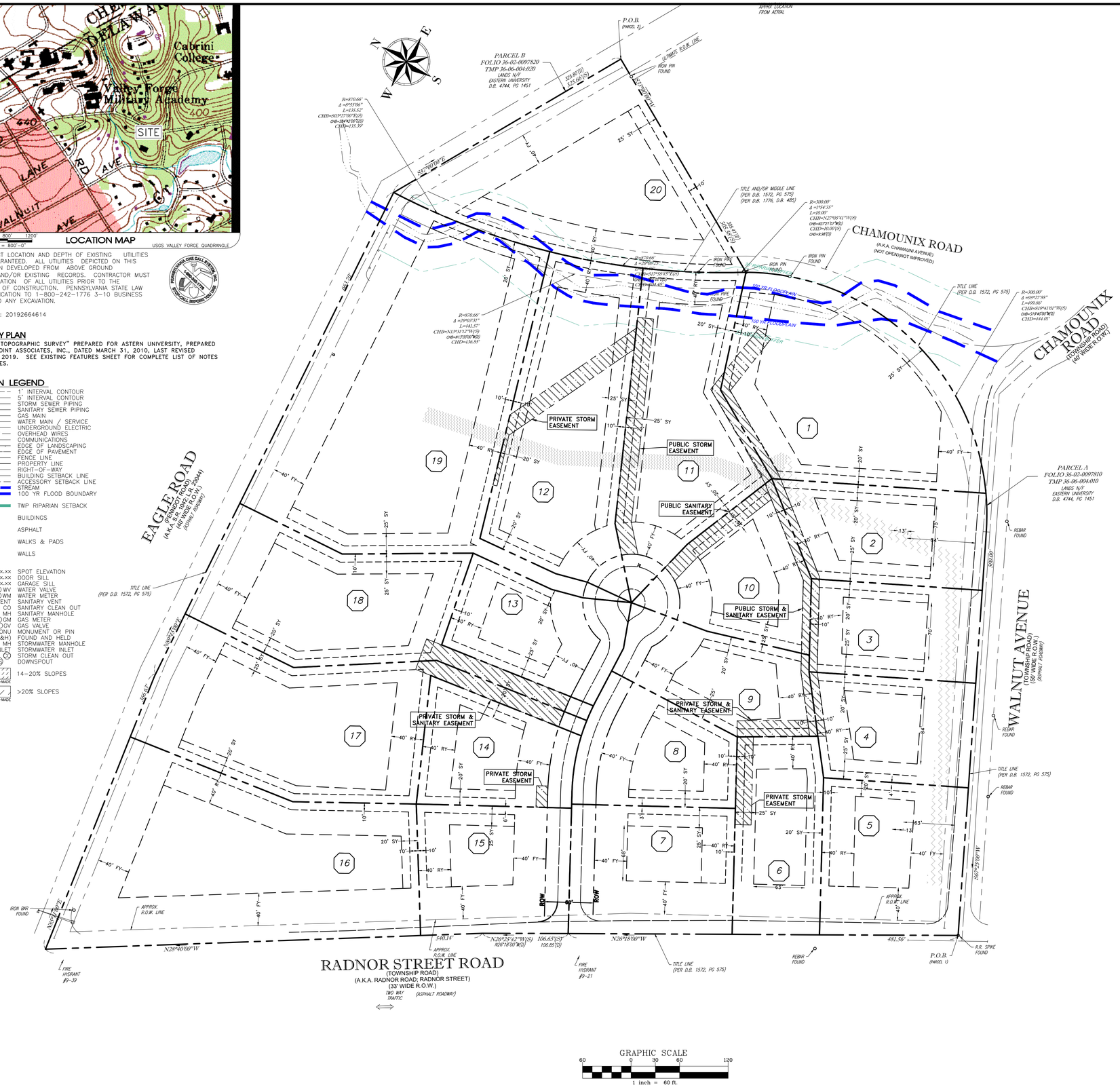
- 14-20% SLOPES (NATURAL / MAN-MADE)
- >20% SLOPES (NATURAL / MAN-MADE)



GRAPHIC SCALE

60 0 30 60 120

PROPOSED LOTS

LOT #	PROPOSED GROSS AREA	PROPOSED ROW & <50' WIDTH	FLOODPLAIN, WETLANDS & >20% SLOPES *	PROPOSED LOT AREA (20,000 SF MIN**)	ALLOWABLE IMPERVIOUS (35%)	LOT WIDTH @ BLDG LINE (100' MIN)	DEPTH TO STREET LINE	DEPTH/WIDTH RATIO (2.5:1 MAX***)
1	57,609	173	6,329	52,689	17,283	140	262	1.9
2	28,787	3,015		25,772	8,636	124	217	1.8
3	24,055	2,926		21,129	7,217	111	187	1.7
4	24,982	3,271		21,711	7,495	129	181	1.4
5	33,042	7,373		25,669	9,913	169	171	1.0
6	26,226	2,336		23,890	7,868	121	207	1.7
7	31,963	8,964		22,999	9,589	119	140	1.2
8	25,137	5,020		20,117	7,541	143	145	1.0
9	25,311	3,592		21,719	7,593	106	217	2.0
10	26,887	2,099		24,788	8,066	124	149	1.2
11	52,047	1,741	5,103	46,479	15,614	101	325	2.2
12	55,669	1,679	10,330	46,243	16,701	100	390	2.3
13	25,103	5,003		20,100	7,531	120	177	1.5
14	23,857	2,878		20,979	7,157	119	162	1.4
15	29,553	7,930		21,623	8,866	132	162	1.2
16	82,634	14,175		68,459	24,790	152	145	1.0
17	61,225	7,306		53,919	18,368	162	324	2.0
18	48,959	7,049		41,910	14,688	152	269	1.8
19	109,183	12,082	13,598	86,903	32,755	458	240	0.5
20	58,395	6,384	2,010	50,504	17,519	286	185	0.6

*ASSUMES SLOPES ARE MAN-MADE AND QUALIFY FOR EXEMPTION PER 280-112.I. ASSUME NO WETLANDS ARE PRESENT BEYOND LIMITS OF FLOODPLAIN.
** LOT AREA = TOTAL AREA LESS ROW AND 75% OF EACH OF THE FOLLOWING: FLOODPLAINS, WETLANDS AND 20%+ SLOPES.
*** LOTS 11 & 12 BASED ON AVERAGE WIDTH TO EXTENDED TO INCLUDE TREE PRESERVATION AREA.

CERT BLOCKS

PROJECT NARRATIVE

THE APPLICANT PROPOSES REMOVE ALL IMPROVEMENTS AND SUBDIVIDE PARCEL A AND B INTO 20 SINGLE FAMILY LOTS.

NUM.	DATE	REVISION

PLAN PREPARED BY:

SITE ENGINEERING CONCEPTS, LLC
P.O. BOX 1992
SOUTHEASTERN, PA 19399
P: 610-240-0450 F: 610-240-0451 E:INFO@SITE-ENGINEERS.COM

PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN

PLAN PREPARED FOR:

CG WAYNE, LLC

EAGLE & RADNOR ROAD, WAYNE, PA 19087

RADNOR TOWNSHIP DELAWARE COUNTY PENNSYLVANIA

SEPT. 15, 2020

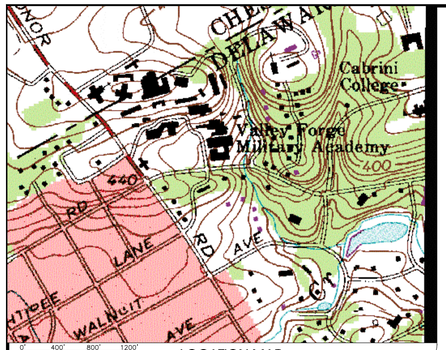
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER PATRICK SPELLMAN No. 40021E

PATRICK SPELLMAN, P.E.
PE-40021

SUBDIVISION PLAN

SHEET 3 of 13

SCALE: 1" = 60'



LOCATION MAP

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BASE PLAN S/N: 20192664614

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 NON-MEMBERS CALL DIRECT

PLAN LEGEND

RED LINES: TBR
BOLD LINES: E&CS PROPOSED
FADED LINES: EXISTING

- 5' INTERVAL CONTOUR
- ST> STORM SEWER PIPING
- SW> STORM SEWER PIPING
- S SANITARY SEWER PIPING
- G GAS MAIN
- W WATER MAIN / SERVICE
- E UNDERGROUND ELECTRIC
- OHW OVERHEAD WIRES
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- INLET STORMWATER INLET
- CO STORM CLEAN OUT
- DS DOWNSPOUT
- NATURAL MAN-MADE 14-20% SLOPES
- NATURAL MAN-MADE >20% SLOPES

CONSTRUCTION ENTRANCE NOTES

CONSTRUCTION ENTRANCE LOCATION CONTINGENT ON OBTAINING A HIGHWAY OCCUPANCY PERMIT FOR PennDOT.

LEGEND - E & S CONTROL FEATURES

- 8" COMPOST SOCK
- 12" COMPOST SOCK
- CONSTRUCTION FENCING
- TREE PROTECTION FENCING
- ROCK CONSTRUCTION ENTRANCE
- MaD SOIL BOUNDARY & MAP SYMBOL
- SL SLOPE LENGTH CALCULATION
- Tc Tc CALCULATION
- INLET PROTECTION
- TREES TO BE REMOVED
- W/ COMPOST ON UPSTREAM FACE ROCK FILTER

SOIL DATA 102.4.(b)(5)(I)

(PER WEB SOIL SURVEY, USDA, NRCS AS OF APRIL 27, 2018)

MAP SYMBOL	SOIL NAME	% SLOPE	INCHES TO HIGH WATER	INCHES TO BEDROCK	LAND CAPABILITY	DRAINAGE CLASS	HSG	DWELLING W/BASEMENT	LAWNS	ROADS	SEPTIC -DRIP	DEEP INFILTRATION
GdB	GLADSTONE GRAVELLY LOAM	3-8	>80"	60-80"	2e (NONIRRIG)	WELL	B	NOT	SOMEWHAT	SOMEWHAT	SLIGHTLY	SOMEWHAT
GdC	GLADSTONE GRAVELLY LOAM	8-15	>80"	65-67"	3e (NONIRRIG)	WELL	B	SOMEWHAT	SOMEWHAT	SOMEWHAT	SLIGHTLY	SOMEWHAT
Ha	HATBORO SILT LOAM	0-3	0-6"	60-99"	4w (NONIRRIG)	POORLY	D	VERY	VERY	VERY	VERY	SEVERELY
ToA	TOWHEE SILT LOAM	0-3	0-6"	48-96"	4w (NONIRRIG)	POORLY	D	VERY	VERY	VERY	VERY	SEVERELY

§102.8(b)(5)(xii) RECYCLING AND DISPOSAL

CONSTRUCTION WASTE TO CONSIST OF TYPICAL BUILDING MATERIALS. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS ACT 25 PA CODE 260.1, ET SEQ 271.1 ET SEQ, AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP OR DISCHARGE ANY BUILDING MATERIAL OR WASTE AT THE SITE.

REPORTING AND RECORDKEEPING

THE E&S PLAN, INSPECTION REPORTS AND MONITORING RECORDS SHALL BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

E&S CONTROL NOTES

1. E&S CONTROL FOR TRENCH CONSTRUCTION WILL CONSIST OF PLACING EXCAVATED MATERIAL ON THE UPHILL SIDE OF THE TRENCH AND BACKFILLING AND STABILIZING WITHIN THE SAME WORK DAY.
2. EROSION AND SEDIMENT BMPS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPS.
3. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.
4. CONTRACTOR MUST WASH VEHICLE TIRES PRIOR TO LEAVING SITE. SHOULD WASHING TIRES PROVE INEFFECTIVE, CONTRACTOR MUST INSTALL ROCK CONSTRUCTION ENTRANCE.
5. CONTRACTOR MUST CLEAN DRIVEWAY AND ROAD OF ANY SEDIMENT AT THE END OF EACH WORK DAY.
6. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
7. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.

EROSION CONTROL MAINTENANCE REQUIREMENTS

1. *SILT BARRIER, TREE PROTECTION FENCING, AND THE ROCK CONSTRUCTION ENTRANCE MUST BE CHECKED ON A DAILY BASIS AND AFTER ALL STORM EVENTS TO ENSURE THAT THEY ARE STILL FUNCTIONING PROPERLY. IF NOT, THEY SHALL BE REPLACED OR CLEANED OF SEDIMENT.*
2. *SEDIMENT MUST BE REMOVED FROM SILT BARRIER WHEN ACCUMULATIONS REACH 1/2 OF THE ABOVE GROUND HEIGHT OF THE FENCE OR AS RECOMMENDED BY MANUFACTURER.*
3. *ANY SECTION OF SILT BARRIER WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.*
4. *DIVERSION BERMS, STONED CONSTRUCTION STAGING AREAS, AND INLETS/PIPING SHALL BE PROVIDED AS REQUIRED OR AS DIRECTED BY THE TOWNSHIP SO AS TO ENSURE ACCEPTABLE CONDITIONS DURING THE CONSTRUCTION PHASE*

NOTICE OF TERMINATION

UPON PERMANENT STABILIZATION OF THE EARTH DISTURBANCE ACTIVITY UNDER CH. 102.22(A)(2) (RELATING TO PERMANENT STABILIZATION), AND INSTALLATION OF BMPS IN ACCORDANCE WITH AN APPROVED PLAN PREPARED AND IMPLEMENTED IN ACCORDANCE WITH CH. 102.4 AND 102.8 (RELATING TO EROSION AND SEDIMENT CONTROL REQUIREMENTS; AND PCSM REQUIREMENTS), THE PERMITTEE OR CO-PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR CONSERVATION DISTRICT. THE NOTICE OF TERMINATION MUST INCLUDE:
(1) THE FACILITY NAME, ADDRESS AND LOCATION.
(2) THE OPERATOR NAME AND ADDRESS.
(3) THE PERMIT NUMBER.
(4) THE REASON FOR PERMIT TERMINATION.
(5) IDENTIFICATION OF THE PERSONS WHO HAVE AGREED TO AND WILL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS IN ACCORDANCE WITH §102.8(M) AND PROOF OF COMPLIANCE WITH §102.8(M)(2).

FINAL CERTIFICATION

THE PERMITTEE SHALL INCLUDE WITH THE NOTICE OF TERMINATION "RECORD DRAWINGS" WITH A FINAL CERTIFICATION STATEMENT FROM A LICENSED PROFESSIONAL, WHICH READS AS FOLLOWS: "I (NAME) DO HEREBY CERTIFY PURSUANT TO THE PENALTIES OF 18 PA. C.S.A. CHAPTER 4904 TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE ACCOMPANYING RECORD DRAWINGS ACCURATELY REFLECT THE AS-BUILT CONDITIONS, ARE TRUE AND CORRECT, AND ARE IN CONFORMANCE WITH CHAPTER 102 OF THE RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE PROJECT SITE WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PCSM PLAN, ALL APPROVED PLAN CHANGES AND ACCEPTED CONSTRUCTION PRACTICES." (1) THE PERMITTEE SHALL RETAIN A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN. (2) THE PERMITTEE SHALL PROVIDE A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN TO THE PERSON IDENTIFIED IN THIS SECTION AS BEING RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS.

BASE SURVEY PLAN

"BOUNDARY & TOPOGRAPHIC SURVEY" PREPARED FOR ASTERN UNIVERSITY, PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED MARCH 31, 2010, LAST REVISED DECEMBER 20, 2019. SEE EXISTING FEATURES SHEET FOR COMPLETE LIST OF NOTES AND REFERENCES.

NUM.	DATE	REVISION

PLAN PREPARED BY:

SITE ENGINEERING CONCEPTS, LLC
P.O. BOX 1992
SOUTHEASTERN, PA 19399
P: 610-240-0450 F: 610-240-0451 E:INFO@SITE-ENGINEERS.COM

PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN

PLAN PREPARED FOR:
CG WAYNE, LLC
EAGLE & RADNOR ROAD, WAYNE, PA 19087

RADNOR TOWNSHIP | DELAWARE COUNTY | PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL PATRICK SPELLMAN ENGINEER No. 40021E

PATRICK SPELLMAN, P.E.
PE-40021

EROSION & SEDIMENT CONTROL PLAN DEMOLITION PLAN

SEPT. 15, 2020

SHEET 4 of 13

SCALE: 1" = 60'

EROSION AND SEDIMENTATION CONTROL NOTES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.
10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING. IF THE SITE WILL HAVE EXCESS FILL THAT WILL NEED TO BE EXPORTED TO AN OFFSITE LOCATION, THE RESPONSIBILITY OF CLEAN FILL DETERMINATION AND ENVIRONMENTAL DUE DILIGENCE RESTS ON THE APPLICANT.
13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
14. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
15. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
16. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
17. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
18. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES (6 TO 12 INCHES ON COMPACTED SOILS) PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
26. UPON TEMPORARY CESSATION OF AN EARTH DISTURBANCE OR ANY STAGE OR PHASE OF AN ACTIVITY WHERE A CESSATION OF EARTH DISTURBANCE ACTIVITIES EXCEED 4 DAYS, THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION PENDING FUTURE EARTH DISTURBANCE ACTIVITIES.
27. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
28. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
29. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
30. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.
31. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
32. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
33. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.
33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.

CLEAN FILL NOTES

IF THE SITE WILL NEED TO IMPORT OR EXPORT MATERIAL FROM THE SITE, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND DETERMINATION OF CLEAN FILL WILL REST WITH THE PERMITTEE(S).

CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE).

CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE: FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1A AND FP-1B FOUND IN THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL. A COPY OF FORM FP-001 CAN BE FOUND AT THE END OF THESE INSTRUCTIONS.

ENVIRONMENTAL DUE DILIGENCE: THE APPLICANT MUST PERFORM ENVIRONMENTAL DUE DILIGENCE TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL.

ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

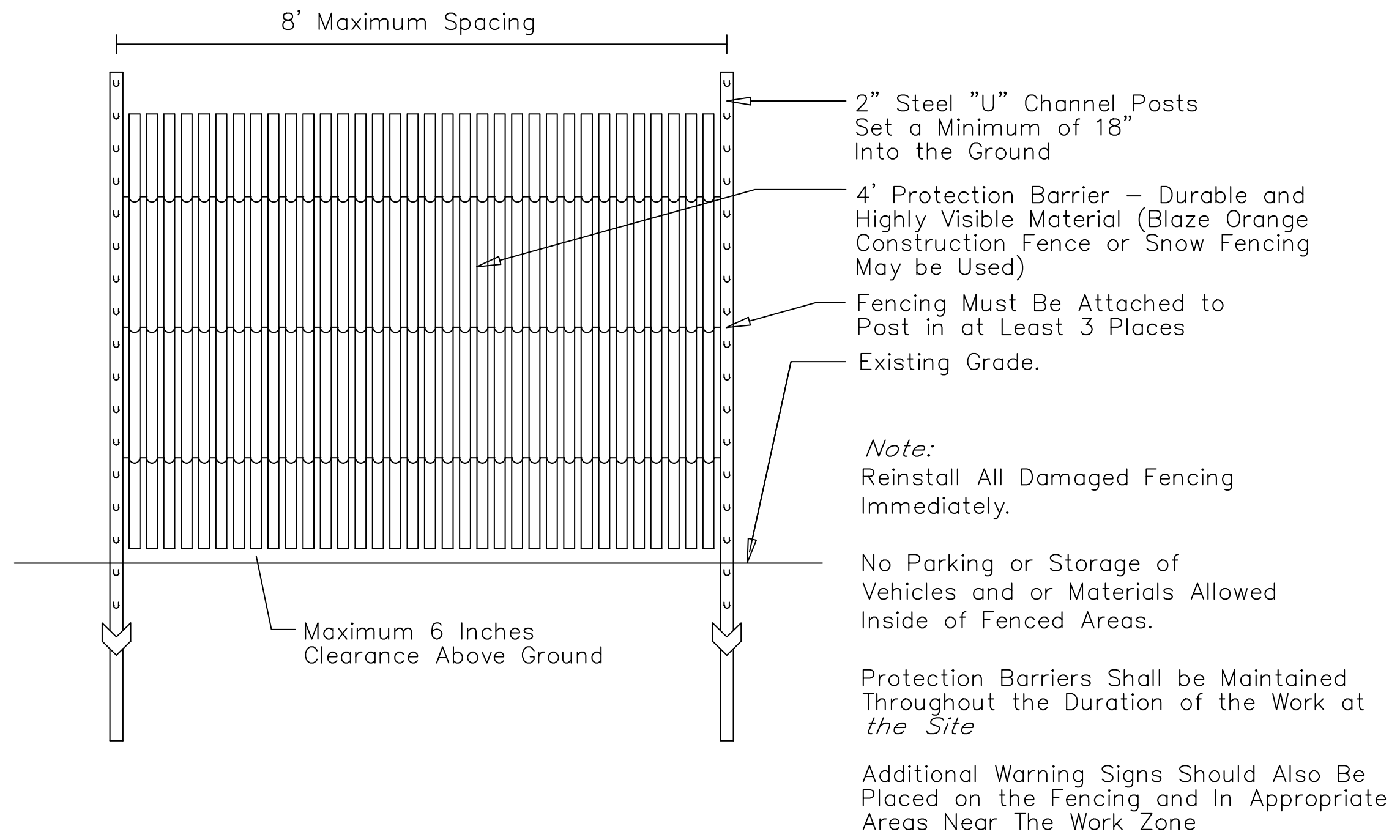
FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE. THESE REGULATIONS ARE AVAILABLE ON-LINE AT WWW.PACODE.COM.

UTILITY LINE TRENCH EXCAVATION NOTES

A. LIMIT ADVANCED CLEARING AND GRUBBING OPERATIONS TO A DISTANCE EQUAL TO TWO TIMES THE LENGTH OF PIPE INSTALLATION THAT CAN BE COMPLETED IN ONE DAY.
B. WORK CREWS AND EQUIPMENT FOR TRENCHING, PLACEMENT OF PIPE, PLUG CONSTRUCTION AND BACKFILLING WILL BE SELF-CONTAINED AND SEPARATE FROM CLEARING AND GRUBBING AND SITE RESTORATION AND STABILIZATION OPERATIONS.
C. ALL SOIL EXCAVATED FROM THE TRENCH WILL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
D. LIMIT DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT, PLUG INSTALLATION AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.
E. WATER WHICH ACCUMULATES IN THE OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING BEFORE PIPE PLACEMENT AND/OR BACKFILLING BEGINS. WATER REMOVED FROM THE TRENCH SHALL BE PUMPED THROUGH A FILTRATION DEVICE.
F. ON THE DATE FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND IMMEDIATELY STABILIZED.

EROSION CONTROL MAINTENANCE REQUIREMENTS

1. *SILT BARRIER, TREE PROTECTION FENCING, AND THE ROCK CONSTRUCTION ENTRANCE MUST BE CHECKED ON A DAILY BASIS AND AFTER ALL STORM EVENTS TO ENSURE THAT THEY ARE STILL FUNCTIONING PROPERLY. IF NOT, THEY SHALL BE REPLACED OR CLEANED OF SEDIMENT.*
2. *SEDIMENT MUST BE REMOVED FROM SILT BARRIER WHEN ACCUMULATIONS REACH 1/2 OF THE ABOVE GROUND HEIGHT OF THE FENCE OR AS RECOMMENDED BY MANUFACTURER.*
3. *ANY SECTION OF SILT BARRIER WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.*
4. *DIVERSION BERMS, STONED CONSTRUCTION STAGING AREAS, AND INLETS/PIPING SHALL BE PROVIDED AS REQUIRED OR AS DIRECTED BY THE TOWNSHIP SO AS TO ENSURE ACCEPTABLE CONDITIONS DURING THE CONSTRUCTION PHASE*



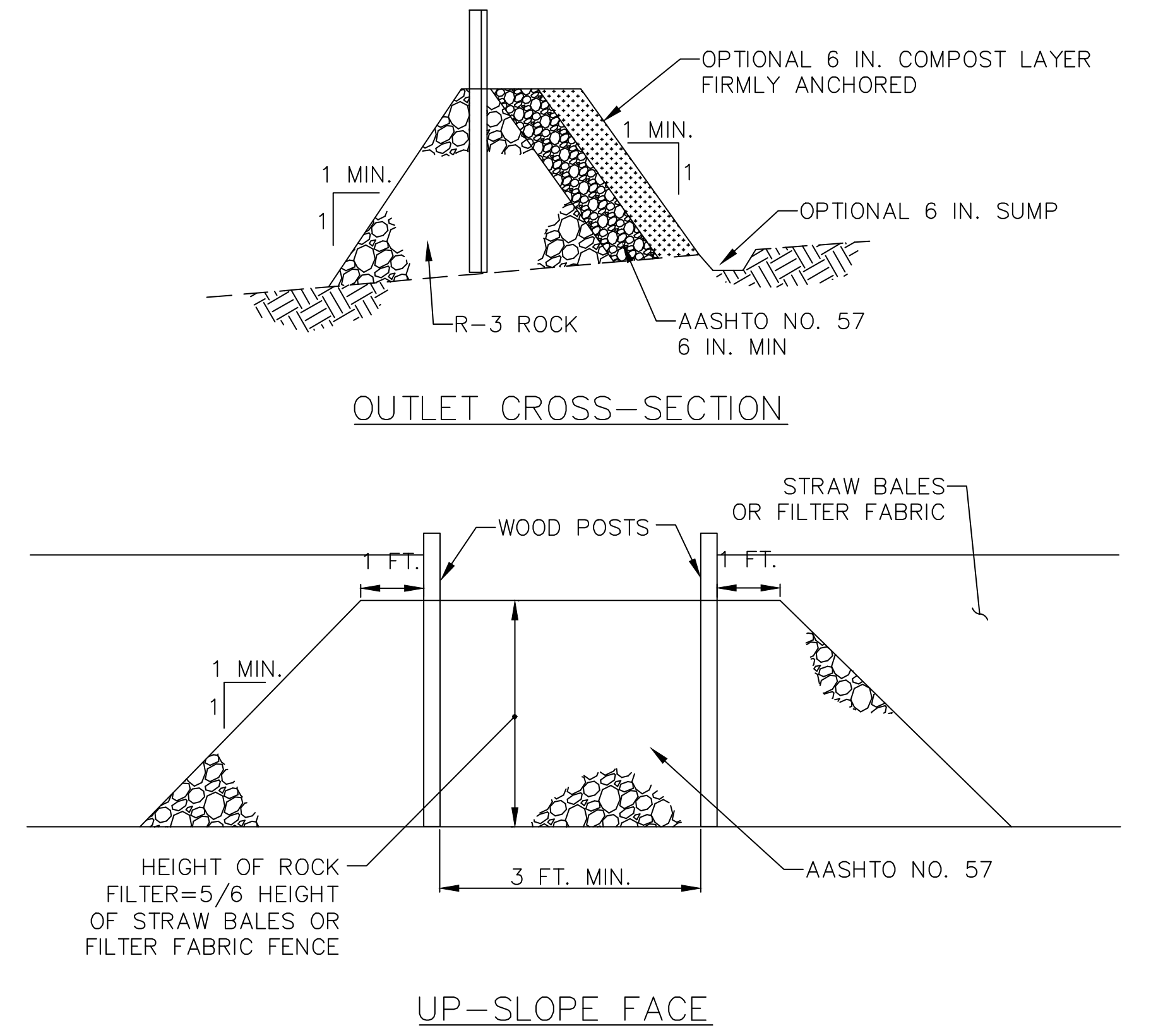
Note:
Reinstall All Damaged Fencing Immediately.

No Parking or Storage of Vehicles and or Materials Allowed Inside of Fenced Areas.

Protection Barriers Shall be Maintained Throughout the Duration of the Work at *the Site*

Additional Warning Signs Should Also Be Placed on the Fencing and In Appropriate Areas Near The Work Zone

CONSTRUCTION FENCING



NOTES:

A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A SILT FENCE OR STRAW BALE BARRIER HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UPSLOPE FACE IN HQ AND EV WATERSHEDS.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

STANDARD CONSTRUCTION DETAIL #4-6
ROCK FILTER OUTLET

NOT TO SCALE

SEEDING & MULCHING NOTES

1. ANY DISTURBED AREA ON WHICH CONSTRUCTION ACTIVITY HAS CEASED MUST BE IMMEDIATELY SEEDED AND MULCHED. DURING NON-GERMINATION PERIODS, MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN ONE (1) YEAR SHALL BE IMMEDIATELY MULCHED AND SEEDED WITH A QUICK-GROWING TEMPORARY SEED MIXTURE. DISTURBED AREAS WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE REDISTURBED WITHIN ONE YEAR MUST BE IMMEDIATELY MULCHED AND SEEDED WITH THE PERMANENT SEED MIXTURE.
2. DIVERSIONS, CHANNELS, SWALES, SEDIMENT BASINS, SEDIMENT TRAPS AND SOIL STOCKPILES SHALL BE SEEDED AND MULCHED IMMEDIATELY.
3. HAY/STRAW MULCH MUST BE APPLIED AT A RATE OF AT LEAST 1 LB PER 100 SF.
4. AREAS UTILIZING VEGETATIVE STABILIZATION MUST BE SEEDED AND MULCHED WITHIN THE APRIL 15th TO OCTOBER 15th GERMINATION WINDOW. SEEDING WILL BE ACCOMPLISHED THROUGH HYDROSEEDING OR CONVENTIONAL SEEDING METHODS.
5. GEOTEXTILE EROSION CONTROL CHANNEL LINING AND SLOPE PROTECTION SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS IMMEDIATELY UPON THE COMPLETION OF GRADING ACTIVITIES.

PERMANENT SEED MIXTURE

NAME	PARTS BY WEIGHT	PERCENT PURITY	GERMINATION
KENTUCKY BLUE GRASS VARIETIES	33%	95%	85%
PENNSTAR OR PENNFINE			
PERENNIAL RYEGRASS	33%	95%	85%
ANNUAL RYEGRASS	33%	95%	85%

MULCH: SHALL BE HAY WHICH IS FREE OF WEEDS AND SEEDS, NOT MOLDY OR ROTTEN, AND SHALL BE APPLIED TO ALL AREAS AT A RATE OF 3 TONS PER ACRE. ON STEEP SLOPE AREAS (GREATER THAN 3:1), COVER SEEDED AREAS WITH AN ACCEPTABLE GEOTEXTILE EROSION CONTROL BLANKET.

SOD: KENTUCKY BLUEGRASS SOD (IF CALLED FOR). SOD SHALL BE GROWN UNDER THE SUPERVISION OF THE PENNSYLVANIA DEPARTMENT OF AGRICULTURE BUREAU OF PLANT INDUSTRY OR SHALL BE COMPOSED OF ONLY BLUE TAC CERTIFIED SEED.

SEED: ALL SEED SHALL BE FRESH. ALL NEW CROP SEED SHALL BE LABELED IN ACCORDANCE WITH THE U.S. DEPARTMENT OF AGRICULTURE RULES AND REGULATIONS UNDER THE FEDERAL SEED ACT IN EFFECT ON THE DATE OF INVITATION FOR BIDS. ALL SEED SHALL BE FURNISHED IN SCALE STANDARD TO KIND, PERCENT BY WEIGHT, PURITY AND GERMINATION. THE GRASS SEED SHALL CONTAIN THE PERCENTAGES OF PURITY AND GERMINATION INDICATED ON THE LIST FURNISHED WITH THE APPLICABLE PLAN. SEED MIX SHALL BE AS SPECIFIED, SPREAD AT THE RATE OF 5 POUNDS PER 1,000 SQUARE FEET (MINIMUM). FOR SLOPE 3:1 OR GREATER, USE 7.5 POUNDS OF SEED PER 1,000 SQUARE FEET.

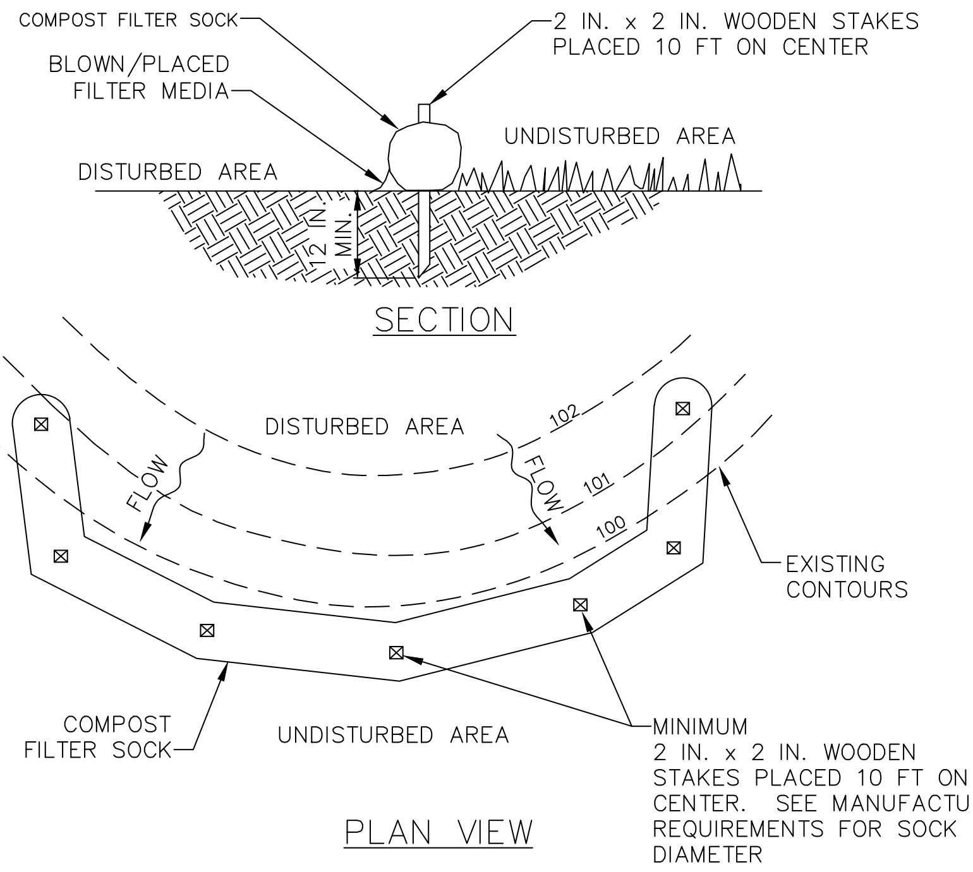
TEMPORARY SEED MIXTURE

SITE PREPARATION: APPLY 1 TON OF AGRICULTURAL-GRADE LIMESTONE PER ACRE PLUS FERTILIZER AT THE RATE OF 50-50-50 PER ACRE. WORK INTO THE SOIL WHERE POSSIBLE. SECURE A SOIL TEST BEFORE APPLICATION OF PERMANENT SEEDING. AFTER SEEDING, MULCH WITH HAY OR STRAW AT A RATE OF 3 TONS PER ACRE.

SPECIES:	LBS/ACRE:
FOR SPRING SEEDING (UP TO JUNE 15)	
ANNUAL RYEGRASS	40
OR SPRING OATS	96 (3 BU)
OR SPRING OATS PLUS RYEGRASS	64 LBS OATS (2 BU) + 20 LBS ANNUAL OR PERENNIAL RYEGRASS
OR WINTER WHEAT	180 (3 BU)
OR WINTER RYE	168 (3 BU)
FOR LATE SPRING & SUMMER SEEDING (JUNE 16 TO AUGUST 15)	
ANNUAL RYEGRASS	40
OR JAPANESE OR FOXTAIL MILLET	35
OR SUDANGRASS	40
OR SPRING OATS	96 (3 BU)
OR WINTER WHEAT	180 (3 BU)
OR WINTER RYE	168 (3 BU)
FOR LATE SUMMER & FALL SEEDING (AUGUST 16 AND LATER)	
ANNUAL RYEGRASS	40
OR WINTER RYE	168 (3 BU)
OR WINTER WHEAT	180 (3 BU)
OR SPRING OATS	96
(CAN BE USED BUT WILL WINTER KILL)	

§102.4(b)(5)(x) MAINTENANCE,INSPECTION AND REPLACEMENT REQUIREMENTS

- *ALL CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY.*
- *ACCUMULATED MATERIALS SHOULD BE REMOVED WHEN THEY REACH 75% CAPACITY.*
- *PLASTIC LINERS SHOULD BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.*



NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

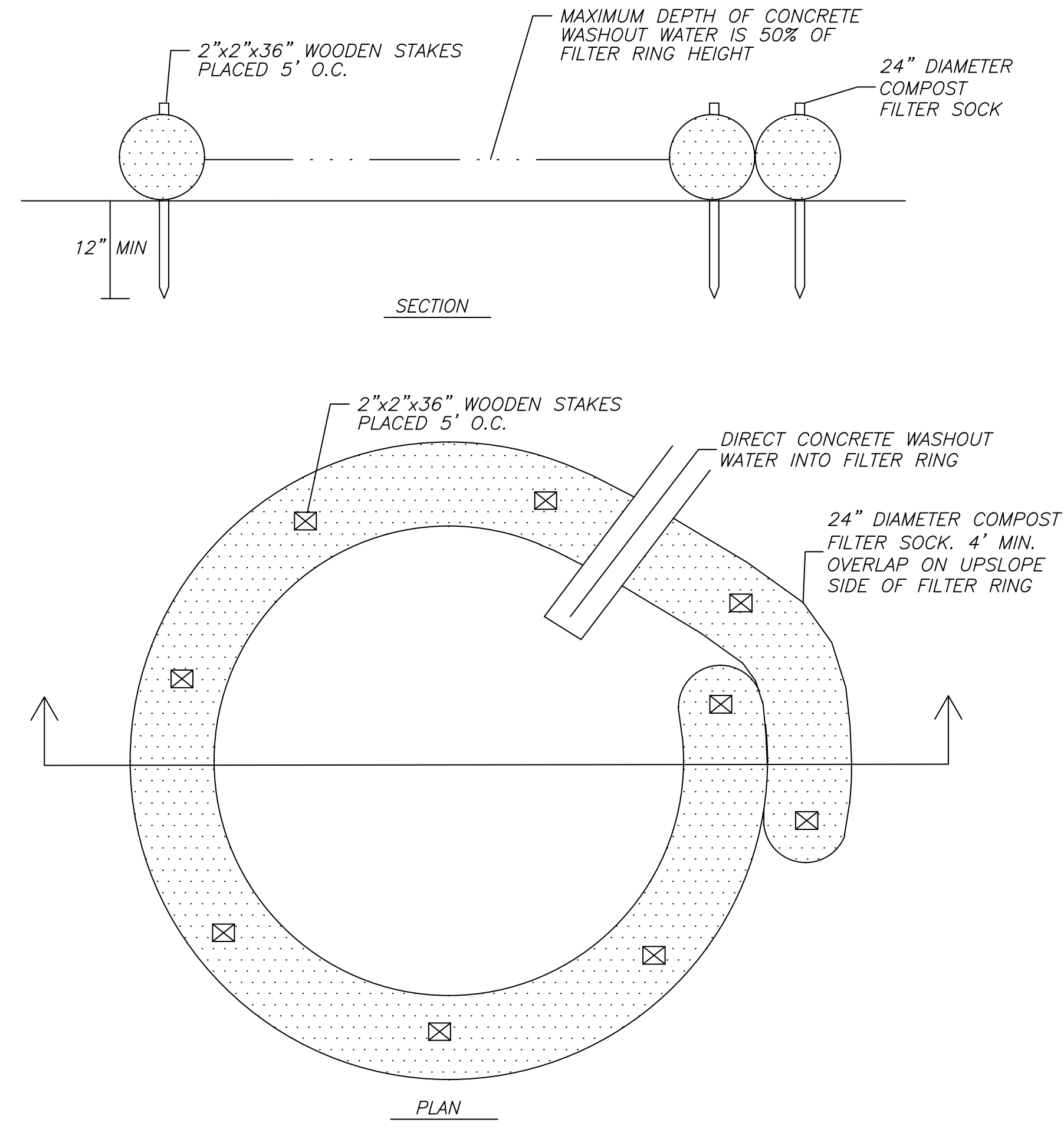
BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

SOCK ID	DIAMETER
STOCK PILES	8"
ALL OTHERS	12"

STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK

NOT TO SCALE



INSTALLATION NOTES:
1. A SUITABLE IMPERVIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS. CARE SHOULD BE TAKEN TO ENSURE CONTINUOUS CONTACT OF THE SOCK WITH THE GEOMEMBRANE AT ALL LOCATIONS
2. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE
3. 18" DIAMETER FILTER SOCK MAY BE STACKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.
4. FOR MORE INFORMATION CONTACT: WEBSITE http://www.filtrexx.com

GENERAL NOTES:
1. FOR ANY PROJECT ON WHICH CONCRETE WILL BE POURED OR OTHERWISE FORMED ONSITE, A SUITABLE WASHOUT FACILITY MUST BE PROVIDED FOR CLEANING OF CHUTES, MIXERS, AND HOPPERS FOR THE DELIVERY VEHICLES UNLESS ALL DELIVERY VEHICLES WILL BE CLEANED OFFSITE.
2. UNDER NO CIRCUMSTANCES MAY WASH WATER BE ALLOWED TO ENTER ANY SURFACE WATERS.
3. WASHOUT FACILITIES MUST BE MORE THAN 50 FEET FROM STORM DRAINS, OPEN DITCHES, AND SURFACE WATERS.
4. NOTIFICATION MUST BE PROVIDED TO DRIVERS SO THEY ARE AWARE OF THE WASHOUT FACILITIES.

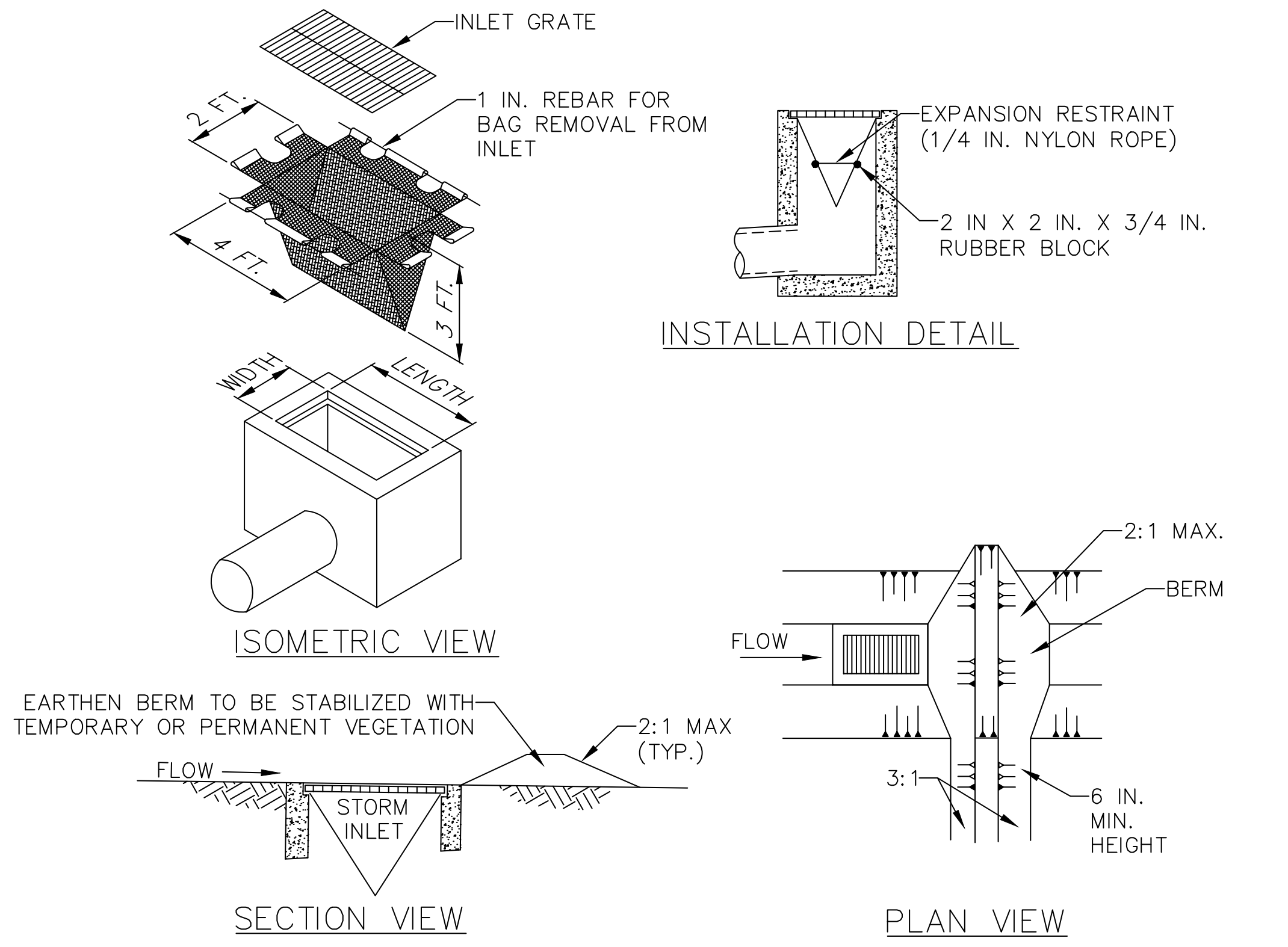
MAINTENANCE NOTES:
1. CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY.
2. ACCUMULATED MATERIALS SHOULD BE REMOVED WHEN THEY REACH 75% CAPACITY.
3. PLASTIC LINERS SHOULD BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.

CONCRETE WASHOUT DETAIL (USING COMPOST SOCK)

(TAKEN FROM 2012 PADEP E&SPC PROGRAM MANUAL PG 58)

E&S CONTROL NOTES

1. E&S CONTROL FOR TRENCH CONSTRUCTION WILL CONSIST OF PLACING EXCAVATED MATERIAL ON THE UPHILL SIDE OF THE TRENCH AND BACKFILLING AND STABILIZING WITHIN THE SAME WORK DAY.
2. EROSION AND SEDIMENT BMPS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPS.
3. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.
4. CONTRACTOR MUST WASH VEHICLE TIRES PRIOR TO LEAVING SITE. SHOULD WASHING TIRES PROVE INEFFECTIVE, CONTRACTOR MUST INSTALL ROCK CONSTRUCTION ENTRANCE.
5. CONTRACTOR MUST CLEAN DRIVEWAY AND ROAD OF ANY SEDIMENT AT THE END OF EACH WORK DAY.
6. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
7. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY.

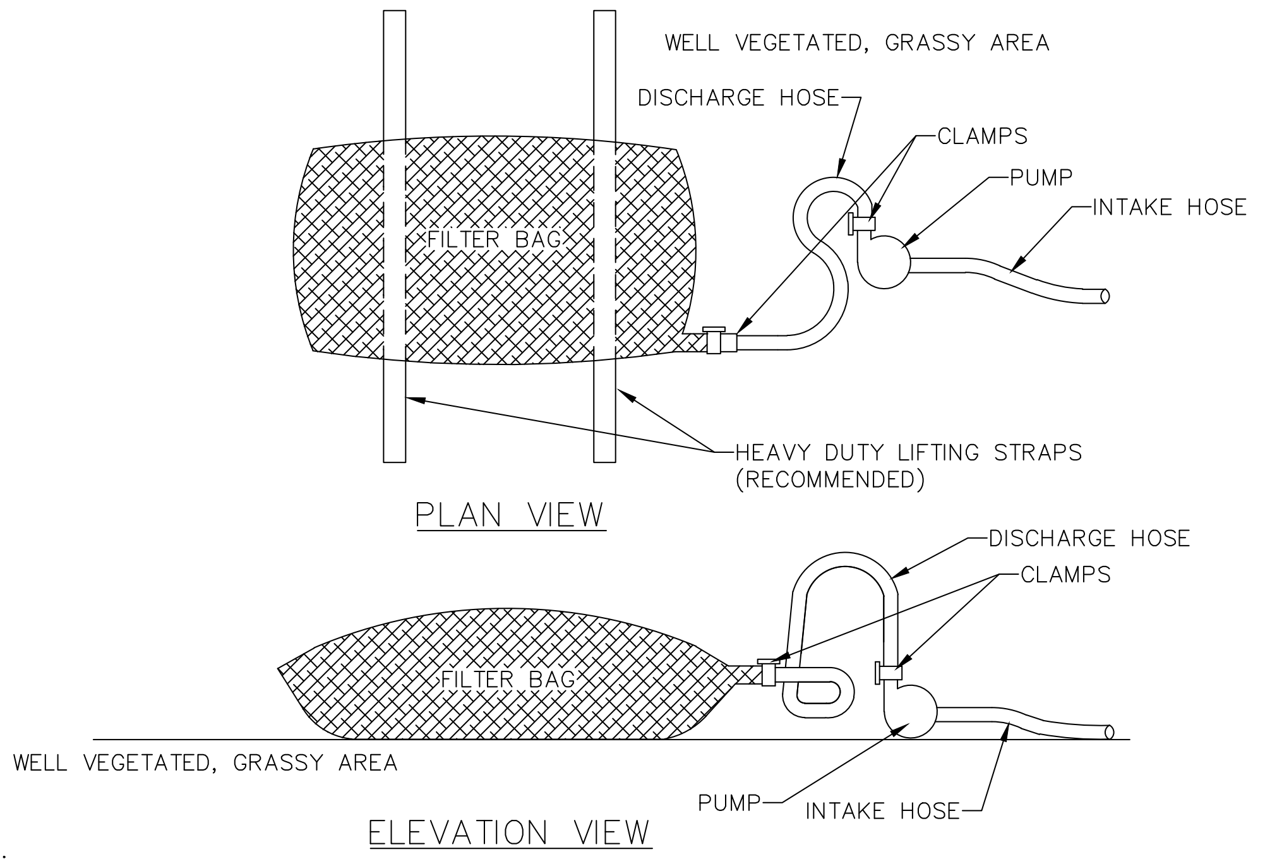
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-16
FILTER BAG INLET PROTECTION - TYPE M INLET

NOT TO SCALE



NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

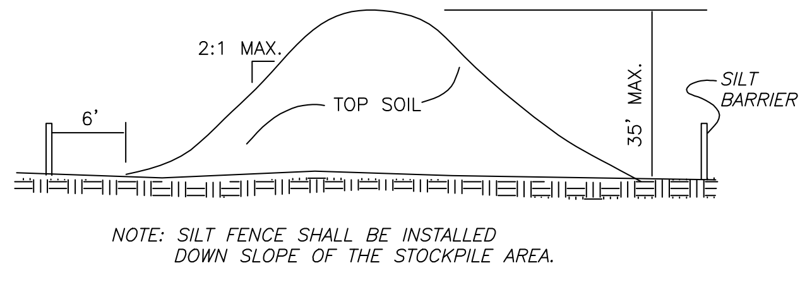
THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

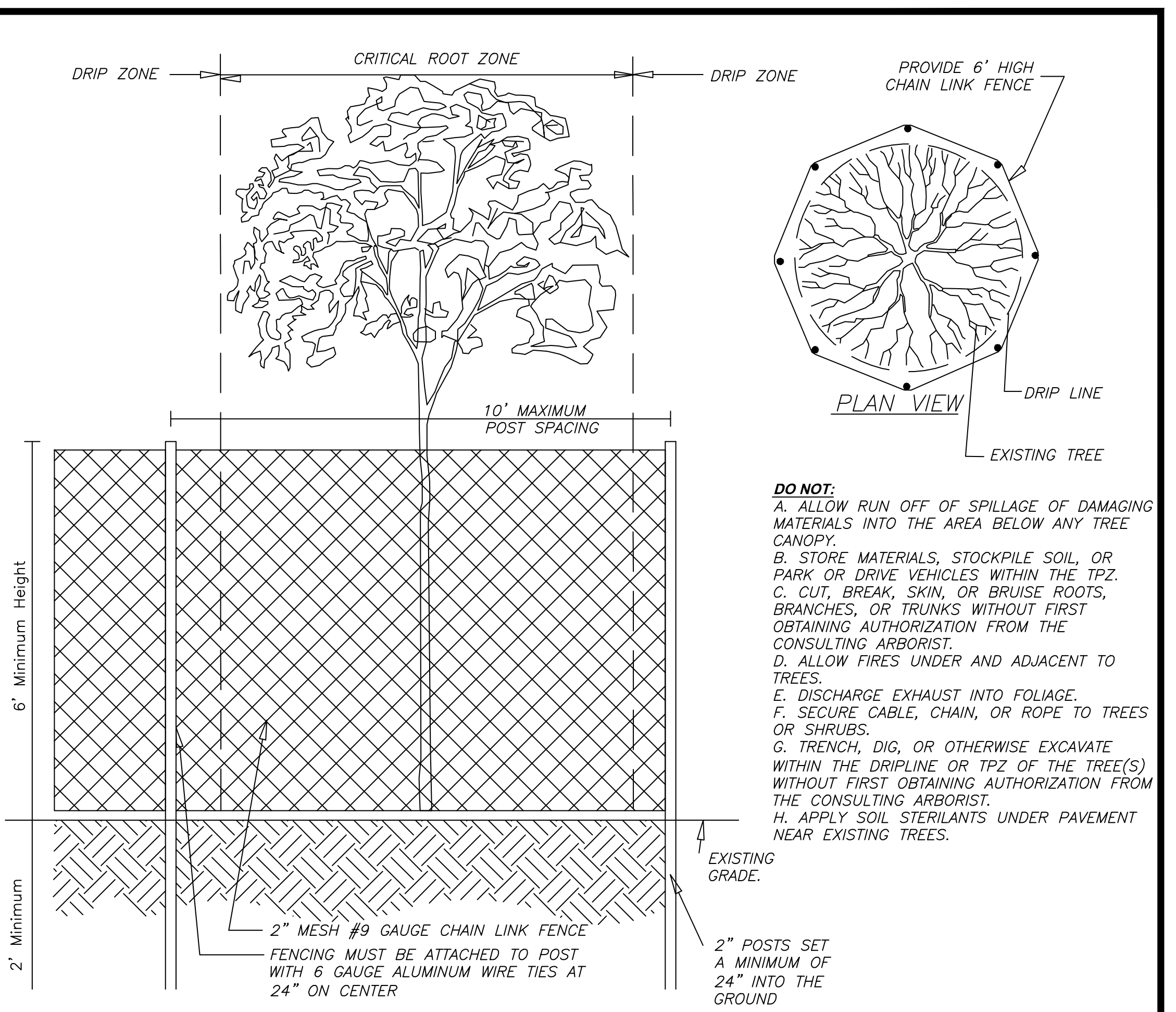
STANDARD CONSTRUCTION DETAIL #3-16
PUMPED WATER FILTER BAG

NOT TO SCALE



NOTE: SILT FENCE SHALL BE INSTALLED DOWN SLOPE OF THE STOCKPILE AREA.

TOPSOIL STOCKPILE DETAIL



DO NOT:
A. ALLOW RUN OFF OF SPILLAGE OF DAMAGING MATERIALS INTO THE AREA BELOW ANY TREE CANOPY.
B. STORE MATERIALS, STOCKPILE SOIL, OR PARK OR DRIVE VEHICLES WITHIN THE TPZ.
C. CUT, BREAK, SKIN, OR BRUISE ROOTS, BRANCHES, OR TRUNKS WITHOUT FIRST OBTAINING AUTHORIZATION FROM THE CONSULTING ARBORIST.
D. ALLOW FIRES UNDER AND ADJACENT TO TREES.
E. DISCHARGE EXHAUST INTO FOLIAGE.
F. SECURE CABLE, CHAIN, OR ROPE TO TREES OR SHRUBS.
G. TRENCH, DIG, OR OTHERWISE EXCAVATE WITHIN THE DRIPLINE OR TPZ OF THE TREE(S) WITHOUT FIRST OBTAINING AUTHORIZATION FROM THE CONSULTING ARBORIST.
H. APPLY SOIL STERILANTS UNDER PAVEMENT NEAR EXISTING TREES.

TREE PROTECTION SPECIFICATIONS

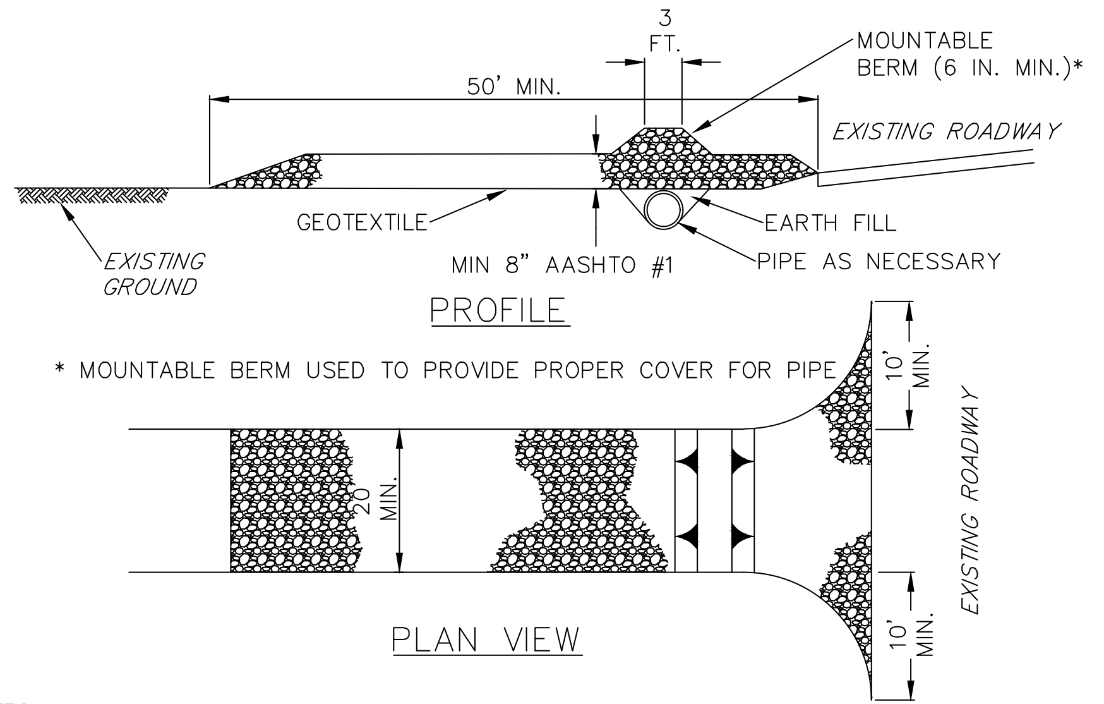
I. A 4" LAYER OF COURSE MULCH OR WOODCHIPS IS TO BE PLACED BENEATH THE DRIPLINE OF THE PROTECTED TREES. MULCH IS TO BE KEPT 12" FROM THE TRUCK.

II. A PROTECTIVE BARRIER OF 6' CHAIN LINK FENCING SHALL BE INSTALLED AROUND THE DRIPLINE OF PROTECTED TREE(S). THE FENCING CAN BE MOVED WITHIN THE DRIPLINE IF AUTHORIZED BY THE CONSULTING ARBORIST BUT NOR CLOSER THAN 2' FROM THE TRUNK OF ANY TREE. FENCE POSTS SHALL BE 2.0" IN DIAMETER AND ARE TO BE DRIVEN 2' INTO THE GROUND. THE DISTANCE BETWEEN POSTS SHALL NOT BE MORE THAN 10'. THIS ENCLOSED AREA IS THE TREE PROTECTION ZONE (TPZ).

III. MOVABLE BARRIERS OF CHAIN LINK FENCING SECURED TO CEMENT BLOCKS CAN BE SUBSTITUTED FOR "FIXED" FENCING IF THE CONSULTING ARBORIST AGREE THAT THE FENCING WILL HAVE TO BE MOVED TO ACCOMMODATE CERTAIN PHASES OF CONSTRUCTION. THE BUILDER MAY NOT MOVE THE FENCE WITHOUT AUTHORIZATION FROM THE CONSULTING ARBORIST.

IV. WHERE THE CONSULTING ARBORIST HAS THE DETERMINED THAT TREE PROTECTION WILL INTERFERE WITH THE SAFETY OF WORK CREWS, TREE WRAP MAY BE USED AS AN ALTERNATIVE FORM OF TREE PROTECTION. WOODEN SLATS AT LEAST ONE INCH THICK ARE TO BE BOUND SECURELY, EDGE TO EDGE, AROUND THE TRUCK. A SINGLE LAYER OR MORE OF ORANGE PLASTIC CONSTRUCTION FENCING IS TO BE WRAPPED AND SECURED AROUND THE OUTSIDE OF THE WOODEN SLATS. MAJOR SCAFFOLD LIMBS MAY REQUIRE PROTECTION AS DETERMINED BY THE CONSULTING ARBORIST. STRAW WADDLE MAY BE USED AS A TRUNK WRAP BY COILING THE WADDLE AROUND THE TRUNK UP TO A MINIMUM HEIGHT OF SIX FEET FROM GRADE. A SINGLE LAYER OR MORE OR ORANGE PLASTIC CONSTRUCTION FENCING IS TO BE WRAPPED AND SECURED AROUND THE STRAW WADDLE.

TREE PROTECTION FENCING



* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

STANDARD CONSTRUCTION DETAIL #3-1
ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE

NUM.	DATE	REVISION

PLAN PREPARED BY:
SITE ENGINEERING CONCEPTS, LLC
P.O. BOX 1992
SOUTHEASTERN, PA 19399
P: 610-240-0450 F: 610-240-0451 E:INFO@SITE-ENGINEERS.COM

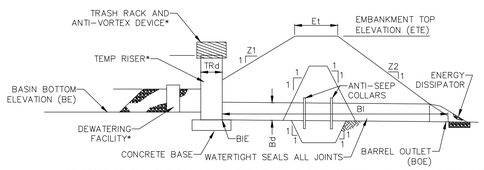
PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN
PLAN PREPARED FOR:
CG WAYNE, LLC
EAGLE & RADNOR ROAD, WAYNE, PA 19087
RADNOR TOWNSHIP DELAWARE COUNTY PENNSYLVANIA

L. PATRICK SPELLMAN
No. 40021E

PATRICK SPELLMAN, P.E.
PE-40021

E&S NOTES AND DETAILS

SEPT. 15, 2020
SHEET
5 of 13
SCALE: 1" = NTS



* ALSO REFER TO SEDIMENT BASIN TEMPORARY RISER, EMERGENCY SPILLWAY, ENERGY DISSIPATER, TRASH RACK AND ANTI-VORTEX DEVICE, AND SEDIMENT STORAGE DEWATERING FACILITY DETAILS.

BASIN NO.	Z1 (FT)	Z2 (FT)	TEMPORARY RISER			BARREL				
			DIA TRd (IN)	CREST ELEV TRCE (FT)	MAT'L	DIA Bd (IN)	INLEY ELEV BIE (FT)	MAT'L	LENGTH (FT)	OUTLET ELEV BOE (FT)
1	2	3	15	355.25	HDPE	8	353.5	HDPE	85	348

EMBANKMENT					
TOP ELEV ETE (FT)	TOP WIDTH ETW (FT)	KEY TRENCH DEPTH (FT)	KEY TRENCH WIDTH (FT)	CLEANOUT ELEV COE (FT)	BOTTOM ELEV BE (FT)
359	5	2	2	353	353.5

NOTES:

SEDIMENT BASINS, INCLUDING ALL APPURTENANT WORKS, SHALL BE CONSTRUCTED TO THE DETAIL AND DIMENSIONS SHOWN ON THE E&S PLAN DRAWINGS.

AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO A DEPTH OF TWO FEET PRIOR TO ANY PLACEMENT AND COMPACTION OF EARTHEN FILL. FILL MATERIAL FOR THE EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN LAYERED LIFTS OF NOT MORE THAN 6 TO 9 IN. THE MAXIMUM ROCK SIZE SHALL BE NO GREATER THAN 2/3 THE LIFT THICKNESS. UPON COMPLETION, THE EMBANKMENT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS. TREES SHALL NOT BE PLANTED ON THE EMBANKMENT.

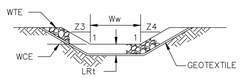
ACCESS SHALL BE PROVIDED FOR SEDIMENT REMOVAL AND OTHER REQUIRED MAINTENANCE ACTIVITIES.

A CLEAN OUT STAKE SHALL BE PLACED NEAR THE CENTER OF EACH BASIN. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED THE CLEAN OUT ELEVATION ON THE STAKE AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED IN THE E&S PLAN.

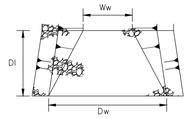
INSPECT ALL SEDIMENT BASINS ON AT LEAST A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. CHECK BASIN EMBANKMENTS, SPILLWAYS, AND OUTLETS FOR EROSION, PIPING AND SETTLEMENT. NECESSARY REPAIRS SHALL BE MADE IMMEDIATELY. DISPLACED RIPRAP WITHIN THE OUTLET ENERGY DISSIPATER SHALL BE REPLACED IMMEDIATELY. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE STABILIZED INSIDE THE BASIN BEFORE CONVERSION TO A STORMWATER MANAGEMENT FACILITY. THE DEVICE SHOWN IN STANDARD CONSTRUCTION DETAIL #7-16 MAY BE USED TO DEWATER SATURATED SEDIMENT PRIOR TO ITS REMOVAL. ROCK FILTERS SHALL BE ADDED AS NECESSARY.

STANDARD CONSTRUCTION DETAIL #7-6
SEDIMENT BASIN EMBANKMENT AND SPILLWAY DETAILS
PERFORATED RISER

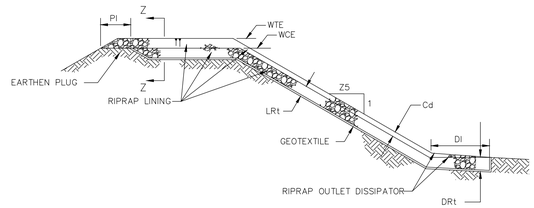
NOT TO SCALE



WEIR
SECTION Z-Z



RIPRAP OUTLET DISSIPATOR
PLAN VIEW



EMBANKMENT SECTION ALONG EMERGENCY SPILLWAY

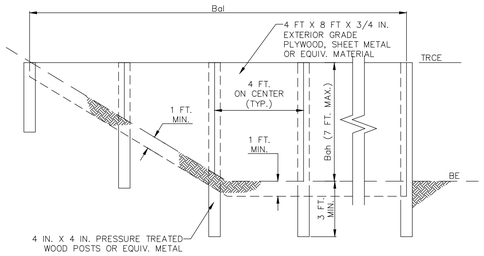
BASIN NO.	WEIR					LINING		CHANNEL		DISSIPATOR			
	Z3 (FT)	Z4 (FT)	TOP ELEV WTE (FT)	CREST ELEV WCE (FT)	WIDTH Ww (FT)	RIPRAP SIZE (R-_)	RIPRAP THICK. LRt (IN)	Z5 (FT)	DEPTH Cd (FT)	LENGTH DI (FT)	WIDTH Dw (FT)	RIPRAP SIZE (R-_)	RIPRAP THICK. DRt (IN)
1	3	3	359	358	20	5	15	5	.5	10	5	5	15

NOTES:

DIMENSION PI SHALL BE 5' MINIMUM.
DISPLACED RIPRAP WITHIN THE SPILLWAY AND/OR OUTLET CHANNEL SHALL BE REPLACED IMMEDIATELY.

STANDARD CONSTRUCTION DETAIL #7-12
SEDIMENT BASIN EMERGENCY SPILLWAY
WITH RIPRAP LINING

NOT TO SCALE



BASIN OR TRAP NO.	BAFFLE		TEMPORARY RISER	BOTTOM
	LENGTH Bal (FT)	HEIGHT Bah (FT)	CREST ELEV. TRCE (FT)	BOTTOM ELEV BE (FT)
1	188	4	357.3	353.5

NOTES:

SEE APPROPRIATE BASIN DETAIL FOR PROPER LOCATION AND ORIENTATION.

AN ACCEPTABLE ALTERNATIVE IS TO INSTALL A SUPER SILT FENCE AT THE BAFFLE LOCATION

IN POOLS WITH DEPTHS EXCEEDING 7', THE TOP OF THE PLYWOOD BAFFLE DOES NOT NEED TO EXTEND TO THE TEMPORARY RISER CREST. SUPER SILT FENCE BAFFLES NEED NOT EXTEND TO TRCE ELEVATION.

BAFFLES SHALL BE TIED INTO ONE SIDE OF THE BASIN UNLESS OTHERWISE SHOWN ON THE PLAN DRAWINGS.

SUBSTITUTION OF MATERIALS NOT SPECIFIED IN THIS DETAIL SHALL BE APPROVED BY THE DEPARTMENT OR THE LOCAL CONSERVATION DISTRICT BEFORE INSTALLATION.

DAMAGED OR WARPED BAFFLES SHALL BE REPLACED WITHIN 7 DAYS OF INSPECTION.

BAFFLES REQUIRING SUPPORT POSTS SHALL NOT BE INSTALLED IN BASINS REQUIRING IMPERVIOUS LINERS.

STANDARD CONSTRUCTION DETAIL #7-14
BAFFLE

NOT TO SCALE

NUM.	DATE	REVISION

PLAN PREPARED BY:
SITE ENGINEERING CONCEPTS, LLC
P.O. BOX 1992
SOUTHEASTERN, PA 19399
P: 610-240-0450 F: 610-240-0451 E:INFO@SITE-ENGINEERS.COM

PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN
PLAN PREPARED FOR:
CG WAYNE, LLC
EAGLE & RADNOR ROAD, WAYNE, PA 19087
RADNOR TOWNSHIP DELAWARE COUNTY PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
PATRICK SPELLMAN
ENGINEER
No. 40021E

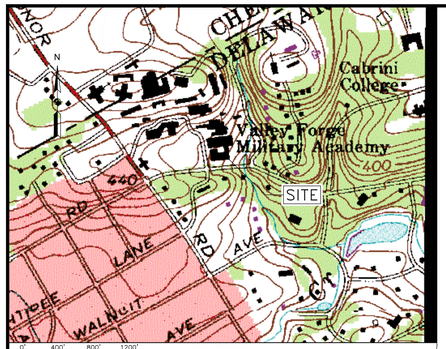
PATRICK SPELLMAN, P.E.
PE-40021

E&S DETAILS

SEPT. 15, 2020

SHEET 6 of 13

SCALE: 1" = NTS



LOCATION MAP

USGS VALLEY FORGE QUADRANGLE

NOTE: THE EXACT LOCATION AND DEPTH OF EXISTING UTILITIES CANNOT BE GUARANTEED. ALL UTILITIES DEPICTED ON THIS PLAN HAVE BEEN DEVELOPED FROM ABOVE GROUND OBSERVATIONS AND/OR EXISTING RECORDS. CONTRACTOR MUST VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. PENNSYLVANIA STATE LAW REQUIRES NOTIFICATION TO 1-800-242-1776 3-10 BUSINESS DAYS PRIOR TO ANY EXCAVATION.

BASE PLAN S/N: 20192664614

BASE SURVEY PLAN

"BOUNDARY & TOPOGRAPHIC SURVEY" PREPARED FOR ASTERN UNIVERSITY, PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED MARCH 31, 2010, LAST REVISED DECEMBER 20, 2019. SEE EXISTING FEATURES SHEET FOR COMPLETE LIST OF NOTES AND REFERENCES.

PLAN LEGEND

BOLD LINES: PROPOSED
FADED LINES: EXISTING

- 1' INTERVAL CONTOUR
- 5' INTERVAL CONTOUR
- ST — STORM SEWER PIPING
- S — SANITARY SEWER MAIN
- L — SANITARY LATERAL
- G — GAS MAIN
- W — WATER MAIN / SERVICE
- E — UNDERGROUND ELECTRIC
- OHW — OVERHEAD WIRES
- T — COMMUNICATIONS
- EDGE OF LANDSCAPING
- EDGE OF PAVEMENT
- FENCE LINE
- PROPERTY LINE
- RIGHT-OF-WAY
- BUILDING SETBACK LINE
- ACCESSORY SETBACK LINE
- STREAM
- 100 YR FLOOD BOUNDARY
- TWP RIPARIAN SETBACK
- EXISTING — BUILDINGS
- EXISTING — ASPHALT
- EXISTING — WALKS & PADS
- EXISTING — WALLS
- XXXX.XX — SPOT ELEVATION
- DSXXX.XX — DOOR SILL
- GSXXX.XX — GARAGE SILL
- WV — WATER VALVE
- WM — WATER METER
- SAN VENT — SANITARY VENT
- SAN CO — SANITARY CLEAN OUT
- SAN MH — SANITARY MANHOLE
- GM — GAS METER
- GV — GAS VALVE
- MONU — MONUMENT OR PIN
- (F&H) — FOUND AND HELD
- STRM MH — STORMWATER MANHOLE
- INLET — STORMWATER INLET
- CO — STORM CLEAN OUT
- DS — DOWNSPOUT
- NATURAL MAN-MADE — 14-20% SLOPES
- NATURAL MAN-MADE — >20% SLOPES

PROJECT NOTES

1. EROSION AND SEDIMENT BMPS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPS.
2. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.
3. VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT DIRECTLY WITHOUT TRAVERSING A ROCK CONSTRUCTION ENTRANCE SHOULD THE CLEANING OF TIRES PROVE INEFFECTIVE.
4. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
5. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A DAILY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, MODIFICATIONS OR REPLACEMENT BMPS WILL BE REQUIRED.
6. THE MAXIMUM TIME OF EXPOSURE FOR BARE SOIL AREAS SHALL BE TWENTY (20) DAYS BEFORE STABILIZATION MEASURES ARE IMPLEMENTED.
7. NEWLY CREATED SLOPES GREATER THAN 4:1 (25%) SHALL BE STABILIZED WITH SOD AND/OR JUTE NETTING AND SEED.
8. ALL WOODY VEGETATION TO BE RETAINED WITHIN 25' FEET OF A BUILDING SITE OR DISTURBED AREA SHALL BE PROTECTED FROM EQUIPMENT DAMAGE BY FENCING PLACED AT THE DRIPLINES. SINCE THE TREE PROTECTION FENCE HAS NOT BEEN SHOWN AT THE DRIPLINES OF ALL TREES TO REMAIN, THE TOWNSHIP ARBORIST MUST APPROVE THE LOCATION OF THE TREE PROTECTION FENCE.
9. NO IMPERVIOUS COVER SHALL BE PERMITTED WITHIN THE DRIPLINES OF TREES TO REMAIN WITHOUT APPROVAL FROM THE TOWNSHIP ARBORIST. THE TOWNSHIP ARBORIST MUST APPROVE THE LOCATION AND EXTENT OF THE PAVING IF THE IMPACTED TREES ARE SCHEDULED TO REMAIN.
10. GRADE CHANGES AROUND THE DRIPLINES OF TREES TO BE RETAINED SHALL BE MINIMIZED. IMPACTED TREES SHALL BE CLEARLY IDENTIFIED ON THE PLAN. TREATMENT OF THE IMPACTED TREES PRIOR TO CONSTRUCTION TO PROTECT THE ROOT SYSTEM SHALL BE PERFORMED IF/AS DIRECTED BY THE TOWNSHIP ARBORIST. THE TOWNSHIP ARBORIST MUST ALSO APPROVE THE PROCEDURE.
11. CONTRACTOR TO DEEP ROOT FERTILIZE TREES IMPACTED BY CONSTRUCTION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE TOWNSHIP ARBORIST MUST APPROVE THE PROCEDURE.
12. SHOULD ANY TREES NOT SCHEDULED OR PERMITTED TO BE REMOVED BE IRREPARABLY DAMAGED DURING CONSTRUCTION AND DIE WITHIN EIGHTEEN (18) MONTHS OF THE CONCLUSION OF CONSTRUCTION ACTIVITIES, THESE TREES WILL BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE PROVISION OF TOWNSHIP ORDINANCE SECTION 101-9(2). ESCROW SHALL BE POSTED TO GUARANTEE THE SURVIVAL OF THE IMPACTED TREES UNTIL THE ALLOTTED TIME HAS EXPIRED.
13. IF TRENCHES FOR UTILITIES OR STORM SEWERS ARE PROPOSED WITHIN THE DRIPLINES OF TREES, ALL DISTURBED ROOTS MUST BE CUT AS CLEANLY AS POSSIBLE. THE TRENCH MUST BE BACKFILLED AS QUICKLY AS POSSIBLE, AVOIDING COMPACTION.
14. MINIMAL GRADING AND DISTURBANCE IS NECESSARY WITHIN DRIPLINES OF SOME OF THE TREES ON THIS PROPERTY. CONTRACTOR SHALL MAKE EVERY EFFORT TO SAVE TREES, HOWEVER SOME OF THE TREES MAY BE DAMAGED AND HAVE TO BE REMOVED DUE TO PROXIMITY OF GRADING/DISTURBANCE.
15. THE ARCHITECTURAL PLANS MUST BE COORDINATED WITH BUILDING HEIGHT CALCULATION AND MUST COMPLY WITH THE GRADING PROPOSED BY THIS PERMIT PLAN.
16. STORMWATER COLLECTION PIPING SHALL BE X" SMOOTH WALL HIGH DENSITY POLYETHYLENE (SWHDPE) @ 0.02 FT/FT MIN. CLEANOUTS SHALL BE PROVIDED AT ALL CHANGES IN GRADE AND/OR DIRECTION.
17. GAS, ELECTRIC, WATER OR ANY OTHER UTILITIES TO BE ABANDONED SHALL BE PROPERLY SEALED/REMOVED.
18. THE EXISTING SERVICE UTILITIES TO REMAIN WITHIN THE LIMITS OF DISTURBANCE SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION.
19. PROPOSED WATER, STORM SEWER, AND ELECTRIC SERVICE SHALL HAVE A MINIMUM OF X FEET OF COVER.

ZONING SUMMARY

LOT #	PROPOSED LOT AREA (20,000 SF MIN**)	LOT WIDTH @ BLDG LINE (100' MIN)	FRONT YARD SETBACK (40' MIN) ***	SIDE YARD SETBACK (20'/45') ***	REAR YARD SETBACK (40' MIN) ***	BUILDING COVERAGE (30% MAX) ***	ALLOWABLE IMPERVIOUS (35%) ***
1	52,689	140	40	20/25	40	30%	35%
2	25,772	124	40	20/25	40	30%	35%
3	21,129	111	40	20/25	40	30%	35%
4	21,711	129	40	20/25	40	30%	35%
5	25,669	169	40	20/25	40	30%	35%
6	23,890	121	40	20/25	40	30%	35%
7	22,999	119	40	20/25	40	30%	35%
8	20,117	143	40	20/25	40	30%	35%
9	21,719	106	40	20/25	40	30%	35%
10	24,788	124	40	20/25	40	30%	35%
11	46,479	101	40	20/25	40	30%	35%
12	46,243	100	40	20/25	40	30%	35%
13	20,100	120	40	20/25	40	30%	35%
14	20,979	119	40	20/25	40	30%	35%
15	216,263	132	40	20/25	40	30%	35%
16	68,459	152	40	20/25	40	30%	35%
17	53,919	162	40	20/25	40	30%	35%
18	41,910	152	40	20/25	40	30%	35%
19	94,386	458	40	20/25	40	30%	35%
20	50,504	286	40	20/25	40	30%	35%

** LOT AREA = TOTAL AREA LESS ROW AND 75% OF EACH OF THE FOLLOWING: FLOODPLAINS, WETLANDS AND 20%+ SLOPES.
*** YARD SETBACKS AND COVERAGE ESTIMATES BASED ON PRELIMINARY SKETCH, ACTUAL COVERAGE TO BE DETERMINED AT THE TIME OF PERMITTING, AND NOT TO EXCEED AMOUNTS PERMITTED BY APPLICABLE CODE REQUIREMENTS.

PROJECT NARRATIVE

THE APPLICANT PROPOSES REMOVE THE 14 EXISTING DWELLING AND ALL ASSOCIATED IMPROVEMENTS AND SUBDIVIDE PARCEL A AND B INTO 20 SINGLE FAMILY LOTS.

NUM.	DATE	REVISION

PLAN PREPARED BY:
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PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN

PLAN PREPARED FOR:
CG WAYNE, LLC
EAGLE & RADNOR ROAD, WAYNE, PA 19087

RADNOR TOWNSHIP DELAWARE COUNTY PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER PATRICK SPELLMAN No. 40021E

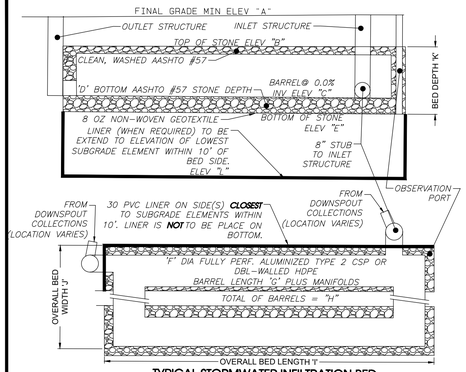
PATRICK SPELLMAN, P.E.
PE-40021

PRELIMINARY LAND DEVELOPMENT & PCSM PLAN

SEPT. 15, 2020

SHEET 7 of 13

SCALE: 1" = 50'



TYPICAL STORMWATER INFILTRATION BED DETAIL

STORMWATER INFILTRATION BED NOTES

1. BED BOTTOM DEPTH REQUIRED PER STORMWATER SOIL EVALUATION REPORT.
2. A 30 MIL PVC LINER, OR TOWNSHIP-APPROVED EQUIVALENT, IS TO BE PLACED ALONG ALL BED SIDE(S) WITHIN 10' OF A SUBGRADE ELEMENT IF THE ELEMENT ELEVATION IS BELOW BOTTOM BED ELEVATION. THE BOTTOM OF THE LINER IS TO EXTEND FROM THE BED TOP ELEVATION TO THE LOWEST SUBGRADE ELEMENT ELEVATION. LINERS ARE NOT TO BE PLACED ON BED BOTTOMS.
3. THE EXCAVATION FOR THE INFILTRATION BED SHOULD BE PERFORMED WITH EQUIPMENT THAT WILL NOT COMPACT THE BOTTOM OF THE FACILITY.
4. SCARIFY BOTTOM OF BED, TAKING CARE NOT TO COMPACT SOIL.
5. PERFORATIONS SHALL MEET AASHTO CLASS II PATTERN FOR PIPE DIAMETER.
6. ENTIRE BED, SIDES TOP AND BOTTOM, SHALL BE WRAPPED IN SYNTHETIC INDUSTRIES NON-WOVEN #801 OR ENGINEER APPROVED EQUAL. PROVIDE A MINIMUM 1' OVERLAP AT ALL SEAMS AND JOINTS. WHERE PROTRUSIONS OR PENETRATIONS OCCUR, GEOTEXTILE SHALL BE PERMANENTLY AFFIXED TO OBJECT.
7. CARE SHOULD BE TAKEN IN THE PLACING OF STONE ATOP THE GEOTEXTILE SO AS TO AVOID TEARING OR RIPPING OF THE FABRIC. STONE SHOULD NOT BE DUMPED UNTIL A 6" LAYER OF STONE IS IN PLACE.
8. THERE ARE NO PROVISIONS FOR THE CONNECTIONS OF SUMP PUMPS AND FOUNDATION DRAINS TO THE INFILTRATION BED AND ANY PROVISIONS FOR FUTURE CONNECTIONS OF SUMP PUMPS. THE INFILTRATION BED WILL REQUIRE A RE-DESIGN IF THESE OR OTHER CONNECTIONS NOT INCLUDED IN THE DESIGN ARE INSTALLED.
9. GUTTER LEAF GUARDS OR OTHER DEBRIS COLLECTORS SHOULD BE PROVIDED FOR THE RUNOFF ENTERING THE INFILTRATION BED. INVISIFLOW SELF-CLEANING DOWNSPOUT FILTERS OR EQUIVALENT WOULD BE AN ACCEPTABLE ALTERNATIVE.
10. ALL INLETS AND DRAIN BEDS THAT DRAIN DIRECTLY TO INFILTRATION BEDS SHALL SUMPED AND CLEANED PER O&M REQUIREMENTS.

BED CONSTRUCTION SEQUENCE

1.INSTALL ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS.
a.THE AREA IMMEDIATELY ADJACENT TO THE BED MUST BE STABILIZED IN ACCORDANCE WITH THE PADEP'S EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL (2000 OR LATEST EDITION) PRIOR TO BED CONSTRUCTION.
2.PREPARE SITE FOR EXCAVATION AND/OR EMBANKMENT CONSTRUCTION.
a.ALL EXISTING VEGETATION SHOULD REMAIN IF FEASIBLE AND SHOULD ONLY BE REMOVED IF NECESSARY FOR CONSTRUCTION.
b.CARE SHOULD BE TAKEN TO PREVENT COMPACTION OF THE BED BOTTOM.
c.IF EXCAVATION IS REQUIRED, CLEAR THE AREA TO BE EXCAVATED OF ALL VEGETATION. REMOVE ALL TREE ROOTS, ROCKS, AND BOULDERS ONLY IN EXCAVATION AREA
3.EXCAVATE BOTTOM OF BED TO DESIRED ELEVATION (IF NECESSARY).
4.INSTALL SURROUNDING EMBANKMENTS AND INLET AND OUTLET CONTROL STRUCTURES.
5.GRADE SUBSOIL IN BOTTOM OF BED, TAKING CARE TO PREVENT COMPACTION. COMPACT SURROUNDING EMBANKMENT AREAS AND AROUND INLET AND OUTLET STRUCTURES.
6.APPLY AND GRADE PLANTING SOIL.
7.APPLY GEO-TEXTILES AND OTHER EROSION-CONTROL MEASURES.
8.SEED, PLANT AND MULCH ACCORDING TO PLANTING PLAN
9.INSTALL ANY ANTI-GRAZING MEASURES, IF NECESSARY.

MAINTENANCE, INSPECTION AND REPLACEMENT REQUIREMENTS

MAINTENANCE ISSUES

MAINTENANCE IS NECESSARY TO ENSURE PROPER FUNCTIONALITY OF THE EXTENDED DETENTION BED AND SHOULD TAKE PLACE ON A QUARTERLY BASIS. A BED MAINTENANCE PLAN SHOULD BE DEVELOPED WHICH INCLUDES THE FOLLOWING MEASURES:

- ALL BED STRUCTURES EXPECTED TO RECEIVE AND/OR TRAP DEBRIS AND SEDIMENT SHOULD BE INSPECTED FOR CLOGGING AND EXCESSIVE DEBRIS AND SEDIMENT ACCUMULATION AT LEAST FOUR TIMES PER YEAR, AS WELL AS AFTER EVERY STORM GREATER THAN 1 INCH.
  - STRUCTURES INCLUDE BED BOTTOMS, TRASH RACKS, OUTLETS STRUCTURES, RIPRAP OR GABION STRUCTURES, AND INLETS.
- SEDIMENT REMOVAL SHOULD BE CONDUCTED WHEN THE BED IS COMPLETELY DRY. SEDIMENT SHOULD BE DISPOSED OF PROPERLY AND ONCE SEDIMENT IS REMOVED, DISTURBED AREAS NEED TO BE IMMEDIATELY STABILIZED AND REVEGETATED.
- MOWING AND/OR TRIMMING OF VEGETATION SHOULD BE PERFORMED AS NECESSARY TO SUSTAIN THE SYSTEM, BUT ALL DETRITUS SHOULD BE REMOVED FROM THE BED.
  - VEGETATED AREAS SHOULD BE INSPECTED ANNUALLY FOR EROSION.
  - VEGETATED AREAS SHOULD BE INSPECTED ANNUALLY FOR UNWANTED GROWTH OF EXOTIC/INVASIVE SPECIES.
  - VEGETATIVE COVER SHOULD BE MAINTAINED AT A MINIMUM OF 95 PERCENT. IF VEGETATIVE COVER HAS BEEN REDUCED BY 10%, VEGETATION SHOULD BE REESTABLISHED.

PROPOSED INFILTRATION BED DIMENSIONS

LOT #	PROPOSED GROSS AREA	ALLOWABLE IMPERVIOUS (SF) (35% OF LOT)	IMPERVIOUS USED IN STORM DESIGN (SF)*	'A' MIN FINAL GRADE	'B' TOP OF STONE ELEVATION	'C' BARREL INVERT ELEVATION	'D' DEPTH OF BOTTOM STONE (FT)	'E' BED BOTTOM ELEVATION	'F' BARREL DIA (IN)	'G' BARREL LENGTH (FT)	'H' # OF BARRELS	'I' 'J' 'K' OVERALL BED DIMENSIONS (FT)	'L' LINER ELEVATION IF NEEDED*	INFILTRATION TEST PIT ID***
1	57,609	20,163	8,550	357.00	355.50	351.00	0.50	350.50	48	65	4	80x26x5.0	N/A	1A
2	28,787	10,075	7,550	359.0	357.50	353.00	0.50	352.50	48	50	3	64x20x5.0	N/A	2
3	24,055	8,419	7,550	364.0	362.50	358.00	0.50	357.50	48	50	4	64x26x5.0	N/A	3
4	24,982	8,744	7,450	N/A – DID NOT PASS INFILTRATION TESTING PROTOCOLS***										
5	33,042	11,565	7,350	N/A – DID NOT PASS INFILTRATION TESTING PROTOCOLS***										
6	26,226	9,179	7,100	383.0	381.50	377.00	0.50	376.50	48	30	2	44x14x5.0	N/A	8
7	31,963	11,187	7,000	385.0	383.50	379.00	0.50	378.50	48	40	3	54x20x5.0	N/A	7
8	25,137	8,798	7,000	383.0	381.50	377.00	0.50	376.50	48	60	4	74x26x5.0	N/A	8
9	25,311	8,859	7,550	376.0	374.50	370.00	0.50	369.50	48	60	3	74X20x5.0	N/A	9
10	26,887	9,410	7,500	375.0	373.50	369.00	0.50	368.50	48	70	3	84x20x5.0	N/A	11
11	52,047	18,216	7,600	365.0	363.50	359.00	0.50	358.50	48	60	4	74x26x5.0	N/A	11B
12	55,669	19,484	7,650	0.0	–1.50	–6.00	0.50	–6.50	48	60	4	74x26x5.0	N/A	12
13	25,103	8,786	7,500	388.0	386.50	382.00	0.50	381.50	48	60	4	74x26x5.0	N/A	13
14	23,857	8,350	7,250	392.0	390.50	386.00	0.50	385.50	48	75	6	88x38x5.0	N/A	14
15	29,553	10,344	7,200	0.0	N/A – DID NOT PASS INFILTRATION TESTING PROTOCOLS***									
16	82,634	28,922	7,200	407.0	405.50	401.00	0.50	400.50	48	90	4	103x26x5.0	N/A	16
17	61,225	21,429	8,600	410.0	408.50	404.00	0.50	403.50	48	80	4	93x26x5.0	N/A	18
18	48,959	17,136	8,600	406.0	404.50	400.00	0.50	399.50	48	60	3	74x19x5.0	N/A	19
19	109,183	38,214	9,200	397.5	396.00	391.50	0.50	391.00	48	60	4	74x26x5.0	N/A	20
20	58,395	20,438	9,600	359.0	357.50	353.00	0.50	352.50	48	60	2	74x14x5.0	N/A	21

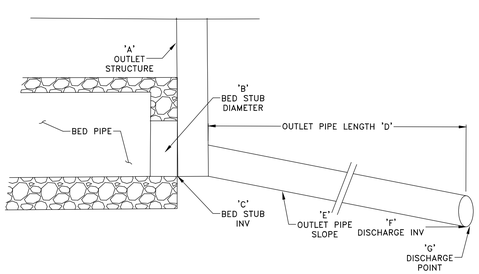
* COVERAGE ESTIMATES BASED ON PRELIMINARY SKETCH, ACTUAL COVERAGE TO BE DETERMINED AT THE TIME OF PERMITTING, AND NOT TO EXCEED AMOUNTS PERMITTED BY APPLICABLE CODE REQUIREMENTS.

** LINER REQUIRED ALONG ANY SIDE OF BED WITHIN 10' OF HOUSE SUBSTRUCTURE (FOUNDATION, BASEMENT). LINER TO EXTEND TO BOTTOM ELEVATION OF SUBSTRUCTURE. DO NOT PUT LINER UNDER BED OR ON ANY SIDE GREATER THAN 10' FROM STRUCTURE.

*** SEE 'INFILTRATION TESTING REPORT, RADNOR STREET & EAGLE ROADS DEVELOPMENT – PROPOSED STORMWATER MANAGEMENT FACILITIES", PREPARED BY GEOSTRUCTURES, DATED MAY 22, 2020. FOR DETAILS.

PROPOSED BED OUTLET DIMENSIONS

PO-#	'A' OUTLET STRUCTURE	'B' BED STUB DIA (INCHES)	'C' BED STUB INV	'D' PIPE LENGTH (FEET)	'E' SLOPE (%)	'F' DISCHARGE INV	'G' RECEIVING STRUCTURE
1	8" CLEAN OUT	8.0	358.00	10.00	2.00%	357.80	OUTFALL A6
2	8" CLEAN OUT	8.0	356.00	22.00	2.00%	355.56	PI-R7
3	8" CLEAN OUT	8.0	361.00	19.80	2.00%	360.60	PI-R6
4	N/A – NO BED						
5	N/A – NO BED						
6	8" CLEAN OUT	8.0	380.00	51.60	14.20%	372.67	PSTH-3
7	8" CLEAN OUT	8.0	382.00	156.00	2.00%	378.88	PSTH-2
8	8" CLEAN OUT	8.0	380.00	8.00	2.00%	379.84	PSTH-2
9	8" CLEAN OUT	8.0	373.00	10.00	2.00%	372.80	PP-9B
10	8" CLEAN OUT	8.0	372.00	10.00	2.00%	371.80	PSTH-4
11	8" CLEAN OUT	8.0	362.00	68.00	1.50%	360.98	OUTFALL A4
12	8" CLEAN OUT	8.0	383.00	26.00	2.00%	382.48	PI-R4
13	8" CLEAN OUT	8.0	385.00	46.40	2.00%	384.07	PI-R3B
14	8" CLEAN OUT	8.0	389.00	18.00	2.00%	388.64	PI-R2
15	N/A – NO BED						
16	8" CLEAN OUT	8.0	403.00	89.00	1.69%	401.50	PI-R1A
17	8" CLEAN OUT	8.0	407.00	150.60	3.80%	401.28	PSTH-18
18	8" CLEAN OUT	8.0	403.00	46.40	3.71%	401.28	PSTH-18
19	8" CLEAN OUT	8.0	394.50	297.00	11.00%	361.83	OUTFALL A2
20	8" CLEAN OUT	8.0	356.00	10.00	2.00%	355.80	OUTFALL A1



STORMWATER MANAGEMENT FACILITY OWNERSHIP AND MAINTENANCE NOTES:

THE RESPONSIBILITY FOR THE CONTINUED MAINTENANCE AND OPERATION OF THE DETENTION BED AND OTHER FACILITIES SHALL BE THE OBLIGATION OF THE PERMITTEE OR CURRENT PROPERTY OWNER.

1. THE INFILTRATION BED MUST BE INSPECTED FOR ROUTINE MAINTENANCE A MINIMUM OF TWO TIMES A YEAR, ONCE IN THE EARLY SPRING AND ONCE IN THE FALL AFTER THE MAJORITY OF THE LEAVES HAVE FALLEN.
2. VISUAL OBSERVATION OF THE GROUND SURFACE TO DETECT PONDING OF WATER OR GROUND SETTLEMENTS THAT WOULD PREVENT ALL RUNOFF FROM ENTERING INLETS AS DESIGNED MUST BE MADE. THE DRAINAGE AREAS DESIGNED FOR THE SYSTEM MUST BE MAINTAINED. ADJUSTMENTS TO THE GRADING OR INLETS MUST BE MADE TO ENSURE THAT THE SYSTEM IS FUNCTIONING AS DESIGNED. SMALL SINKHOLES CAN BE REPAIRED EASILY BY FILLING WITH TOPSOIL AND MAY BE THE RESULT OF SETTLEMENT OF THE SOILS. LARGER SINKHOLES OR SINKHOLES THAT REAPPEAR IN THE SAME LOCATION MAY INDICATE A BREACH IN THE GEOTEXTILE LINER, INLET BOX STRUCTURE, PIPE CONNECTION, OR BREAK IN A STORM CONVEYANCE LINE. THESE TYPES OF SINKHOLES MUST BE EXCAVATED AND THE FAILURE IDENTIFIED AND REPAIRED IMMEDIATELY IN ORDER TO PREVENT SOIL FROM ENTERING THE INFILTRATION BED BED AND CLOGGING IT OR REDUCING THE CAPACITY OF THE BED FOR RECHARGE OF RUNOFF.
3. ALL SEDIMENT TRAPS AND INLETS MUST BE VISUALLY INSPECTED SEVERAL TIMES A YEAR FOR ACCUMULATED SOIL AND DEBRIS. INLET GRATES MUST BE KEPT FREE OF LEAVES, STICKS, MULCH, AND OTHER LAWN DEBRIS OR TRASH THAT WOULD PREVENT INFLOW OF RUNOFF. SUMPS IN SEDIMENT TRAPS OR INLET BOTTOMS MUST HAVE ACCUMULATED SEDIMENT REMOVED TO ENSURE DESIGN CAPACITY SUFFICIENT TO TRAP SEDIMENT AND DEBRIS FROM ENTERING ANY INFILTRATION BED.
4. ONCE A YEAR, THE INFILTRATION BED MUST BE INSPECTED TO DETERMINE IF IT IS DRAINING WITHIN THE REQUIRED TIME PERIOD (USUALLY TWENTY-FOUR HOURS). THE INSPECTION PORT SHALL BE OPENED AT LEAST TWENTY-FOUR HOURS FOLLOWING A STORM AND THE LEVEL OF WATER IN THE BED NOTED. IF IT IS DETERMINED THAT THE SYSTEM WILL NOT RECHARGE THE STORMWATER RUNOFF AS DESIGNED, THE SYSTEM WILL NEED TO BE MODIFIED OR REPLACED. THE TOWNSHIP SHALL BE CONTACTED FOR APPROVAL OF ANY MODIFICATION OR REPLACEMENT OF THE SYSTEM.
5. ANY CLEAN-OUT OR INLET THAT HAS BEEN DAMAGED BY LAWN EQUIPMENT MUST BE REPLACED OR REPAIRED. CLEAN-OUTS THAT BECOME BURIED SHOULD BE RAISED TO GRADE. THE CONFIGURATION MUST NOT ALLOW SOIL OR OTHER DEBRIS TO CLOG THE COLLECTION PIPE. ALL COLLECTION PIPES MUST BE CHECKED ANNUALLY TO ENSURE THEY ARE FLOWING FREELY. IF THE COLLECTION PIPES BECOME CLOGGED, JET CLEANING MUST BE PERFORMED AT THE CLEAN-OUTS. ADDITIONAL PROTECTION MUST BE MADE AT THE SEDIMENT TRAP DURING JET CLEANING TO ENSURE THAT DEBRIS IS NOT TRANSMITTED TO THE INFILTRATION BED.
6. THE OUTLET PIPE, OR CONNECTION OF THE OUTLET OF THE INFILTRATION BED MUST BE CHECKED TO ENSURE THAT IT IS PERMITTING FREE FLOW OF WATER OUT OF THE BED. LEVEL SPREADER AT THE TERMINATION OF THE BED OUTLET SHALL BE CHECKED. STONE SHALL BE REPLACED WITH EQUAL OR LARGER SIZE STONE IF THE DISSIPATER IS OBSERVED TO BE INEFFECTIVE. PERFORATED PIPE AND GEOTEXTILE SHALL BE INSPECTED AND REPAIRED AS REQUIRED.
7. SMALL TREES THAT BEGIN TO GROW IN THE VICINITY OF INFILTRATION BEDS OR STRUCTURES MUST BE REMOVED TO ENSURE THAT THE ROOTS DO NOT PUNCTURE THE FILTER FABRIC OF THE SEEPAGE BED OR DAMAGE ANY STORMWATER COLLECTION/CONVEYANCE STRUCTURE.
8. ROOF GUTTER SYSTEMS THAT ARE INTEGRAL WITH THE INFILTRATION BED MUST BE FUNCTIONAL. REPAIRS TO GUTTERS THAT BECOME SEPARATED, SAG, OR OTHERWISE DO NOT FUNCTION AS DESIGNED MUST BE MADE.
9. PREVENTATIVE MAINTENANCE WOULD INCLUDE REMOVAL OF LEAVES FROM GUTTER SYSTEMS AND LAWN AREAS AS SOON AS POSSIBLE TO AVOID CONTAMINATION OR CLOGGING OF THE SYSTEM. LOCATING LANDSCAPE-MULCHED AREAS AWAY FROM CONCENTRATED RUNOFF AREAS OR SWALES THAT COULD WASH MULCH INTO INLETS IS RECOMMENDED.

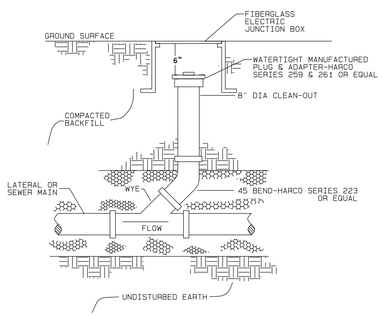
PCSM LONG TERM OPERATIONS AND MAINTENANCE REQUIREMENTS

UNTIL THE PERMITTEE OR CO-PERMITTEE HAS RECEIVED WRITTEN APPROVAL OF A NOTICE OF TERMINATION, THE PERMITTEE OR CO-PERMITTEE WILL REMAIN RESPONSIBLE FOR COMPLIANCE WITH THE PERMIT TERMS AND CONDITIONS INCLUDING LONG-TERM OPERATION AND MAINTENANCE OF ALL PCSM BMPS ON THE PROJECT SITE AND IS RESPONSIBLE FOR VIOLATIONS OCCURRING ON THE PROJECT SITE. THE PERMITTEE OR CO-PERMITTEE SHALL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPS UNLESS A DIFFERENT PERSON IS IDENTIFIED IN THE NOTICE OF TERMINATION AND HAS AGREED TO LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPS. FOR ANY PROPERTY CONTAINING A PCSM BMP, THE PERMITTEE OR CO-PERMITTEE SHALL RECORD AN INSTRUMENT WITH THE RECORDER OF DEEDS WHICH WILL ASSURE DISCLOSURE OF THE PCSM BMP AND THE RELATED OBLIGATIONS IN THE ORDINARY COURSE OF A TITLE SEARCH OF THE SUBJECT PROPERTY. THE RECORDED INSTRUMENT MUST IDENTIFY THE PCSM BMP, PROVIDE FOR NECESSARY ACCESS RELATED TO LONG-TERM OPERATION AND MAINTENANCE FOR PCSM BMPS AND PROVIDE NOTICE THAT THE RESPONSIBILITY FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP IS A COVENANT THAT RUNS WITH THE LAND THAT IS BINDING UPON AND ENFORCEABLE BY SUBSEQUENT GRANTEES, AND PROVIDE PROOF OF FILING WITH THE NOTICE OF TERMINATION UNDER PA CODE CHAPTER 102.7(B)(5) (RELATING TO PERMIT TERMINATION). THE PERSON RESPONSIBLE FOR PERFORMING LONG-TERM OPERATION AND MAINTENANCE MAY ENTER INTO AN AGREEMENT WITH ANOTHER PERSON INCLUDING A CONSERVATION DISTRICT, NONPROFIT ORGANIZATION, MUNICIPALITY, AUTHORITY, PRIVATE CORPORATION OR OTHER PERSON, TO TRANSFER THE RESPONSIBILITY FOR PCSM BMPS OR TO PERFORM LONG-TERM OPERATION AND MAINTENANCE AND PROVIDE NOTICE THEREOF TO THE DEPARTMENT. A PERMITTEE OR CO-PERMITTEE THAT FAILS TO TRANSFER LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP OR OTHERWISE FAILS TO COMPLY WITH THIS REQUIREMENT SHALL REMAIN JOINTLY AND SEVERALLY RESPONSIBLE WITH THE LANDOWNER FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS LOCATED ON THE PROPERTY.

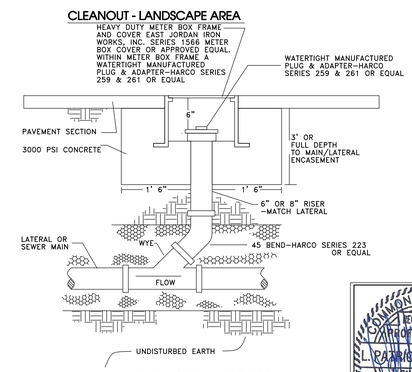
Table 1. Summary of Stormwater Infiltration Testing Results
Radnor Street & Eagle Roads Development

Test Location	Description of Tested Stratum	Exist. Grade[1] El. (ft)	Test El. (ft)	Test Depth[1] (ft)	SHWT El. (ft)	Limiting Zone	Field Rate (in/hr)	Adjusted Infiltr. Rate[2] (in/hr)	FS	Factored Rate[3] (in/hr)	Remarks
1A	Medium dense, light yellowish brown (2.5Y, 6/3), silty sand with gravel (SM), moist (RESIDUAL).	357.50	350.00	7.50	None	No water or rock to 12' (El. 345.5)	0.24	0.16	2.00	0.08	Slow rate and infiltration is *not* feasible.
1B	Loose, dark brown (7.5YR, 3/4), silty sand with gravel (SM), moist to very moist (RESIDUAL).	365.50	358.00	7.50	None	No water or rock to 12' (El. 353.5)	4.80	3.20		1.60	Favorable rate in sandy soils and infiltration is feasible.
2	Medium dense, light olive brown (2.5Y 5/6), silty sand with gravel (SM), moist to damp (RESIDUAL).	359.80	352.30	7.50	None	No water or rock to 12' (El. 347.8)	7.92	5.28		2.64	
3	Medium dense, light olive brown (2.5YR, 5/6), silty sand (SM), moist to damp (RESIDUAL).	365.50	357.50	8.00	None	No water or rock to 12' (El. 353.5)	5.04	3.36		1.68	
4	Stiff to very stiff, yellowish brown (10YR, 5/8) sandy silt (ML), moist (RESIDUAL).	369.00	362.00	7.00	Mottles @9.5'	Perched water @6.5' (El. 362.5')	-	-		-	Perched water seeped into the test hole prior the testing and test was terminated.
5	Medium dense, olive yellow (2.5Y, 6/8), silty fine sand (SM), damp (RESIDUAL).	373.00	365.50	7.50	None	Perched water @4.6' (El. 368.4')	-	-		-	Perched water seeped into the test hole prior the testing and test was terminated.
6	Medium dense, light olive brown (2.5YR 5/4), silty sand with gravel (SM), damp (RESIDUAL).	380.00	368.00	12.00	None	No water or rock to 16' (El. 364.0)	7.92	5.28	2.00	2.64	The mottles at SWB-17 is well below the testing level. Favorable rate in sandy soils and feasible.
7	Med. dense to dense, light olive brown (2.5 YR, 5/4), silty fine sand (SM), occasional rock fragments, damp to moist (RESIDUAL).	383.30	376.30	7.00	Mottles @11.3'	No water or rock to 12' (El. 371.3)	4.32	2.88		1.44	
8	Medium dense to dense, light olive brown (2.5YR, 5/4), silty fine sand (SM), damp (RESIDUAL).	381.30	375.30	6.00	None	No water or rock to 12' (El. 369.3)	5.76	3.84	2.00	1.92	Favorable rate in sandy soils and infiltration is feasible.
9	Medium dense, light olive brown (2.5YR, 5/4), silty fine sand (SM), damp (RESIDUAL).	376.50	367.50	9.00	None	No water or rock to 14' (El. 352.5)	7.44	4.96		2.48	
10	Loose to medium dense, yellowish brown (10YR, 5/6), silty fine sand (SM), moist (RESIDUAL).	374.50	368.00	6.50	None	No water or rock to 12' (El. 362.5)	2.16	1.44		0.72	Relatively *marginal* rates but rates are still above 0.1 in./hr. after applying a fsafety factor of 2. Infiltration is still considered feasible.
11A	Medium dense, light yellowish brown (10YR, 6/4), silty sand (SM), moist (RESIDUAL).	370.00	364.00	6.00	None	No water or rock to 10' (El. 360.0)	0.72	0.48		0.24	
11B	Soft, dark yellowish brown (10YR, 5/8), sandy lean clay (CL), very moist, micaceous (RESIDUAL).	365.00	361.00	4.00	None	Perched water @6.4' (El. 358.6')	1.92	0.77		0.39	Perched water is more than 2 ft below the testing level. The marginal rate is above 0.1 in./hr. and infiltration is still feasible.
12	Loose, dark yellowish brown (10 YR 4/6), silty sand (SM), damp (RESIDUAL).	383.50	379.50	4.00	None	No water or rock to 10' (El. 373.5)	1.68	1.12		0.56	Relatively marginal rates but rates are still above 0.1 in./hr. after applying a fsafety factor of 2. Infiltration is still considered feasible.
13	Loose, light olive brown (2.5Y, 5/4) silty fine sand (SM), damp to moist (RESIDUAL).	385.50	381.50	4.00	None	No water or rock to 10' (El. 364.0)	0.96	0.64	2.00	0.32	
14	Loose, brownish yellow (10YR 6/8), silty fine sand (SM), damp (RESIDUAL).	392.00	387.00	5.00	None	No water or rock to 10' (El. 382.0)	1.44	0.96		0.48	
15	Medium to stiff, brownish yellow (10YR, 6/8), silty lean clay with sand (CL), moist.	394.50	387.75	6.75	None	No water or rock to 12' (El. 382.5)	0.24	0.16		0.08	Slow rate and infiltration is *not* feasible.
16	Medium dense, dark yellowish brown (10YR, 4/6), silty sand (SM), trace friable rock fragments, moist to damp (RESIDUAL).	407.50	400.50	7.00	None	No water or rock to 12' (El. 395.5)	7.92	5.28		2.64	Favorable rate in sandy soils and infiltration is feasible.
17	Medium dense, yellowish red (5YR, 5/8), silty sand with rock fragments (SM), micaceous, moist to damp (RESIDUAL).	427.50	417.50	10.00	None	Auger Refusal @ 12' (El.415.5)	15.60	7.88	2.00	3.94	Favorable rate in sandy soils and infiltration is feasible.
18	Loose, yellowish brown (10YR, 5/8), silty sand (SM), micaceous, damp (RESIDUAL).	407.00	400.70	6.30	None	No water or rock to 12' (El. 395.0)	2.16	1.44		0.72	
19	Medium dense, strong brown (7.5YR 5/8), silty sand with rock fragments (SM), micaceous, damp.	406.50	396.00	10.50	None	No water or rock to 16' (El. 300.5)	4.32	2.88		1.44	
20	Medium dense, reddish yellow (7.5YR 6/8), silty sand (SM), micaceous, trace to little rocks fragments, moist to damp.	394.00	387.50	6.50	None	No water or rock to 12' (El. 382.0)	5.76	3.84		1.92	
21	Loose to medium dense, reddish yellow (7.5YR, 6/8), silty sand (SM), micaceous, trace rock fragments, moist to damp.	377.50	370.00	7.50	None	No water or rock to 12' (El. 365.5)	13.20	8.80		4.40	

[1] Existing grade elevations and testing depths are provided by Site Engineering Concepts.
[2] Reduction factors were applied to adjust the field measured infiltration rates for the *cased borehole* method per PADEP BMP Manual Appendix E.
[3] Also, for design purposes a recommended safety factor of 2 was applied on to the adjusted infiltration rates.



CLEANOUT - LANDSCAPE AREA



CLEANOUT - PAVED AREA

L. PATRICK SPELLMAN
ENGINEER
No. 40021E

PATRICK SPELLMAN, P.E.
PE-40021

STORMWATER BLANKET EASEMENT

A BLANKET EASEMENT OF THE PROJECT AREA AS SHOWN ON THE PLANS IS HEREBY GRANTED GIVING THE TOWNSHIP THE RIGHT, BUT NOT THE OBLIGATION, TO ENTER THE PROPERTY TO PERFORM ANY REQUIRED INSPECTION AND MAINTENANCE WHICH HAS NOT BEEN PROPERTY PERFORMED IN A TIMELY MANNER. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE COST OF ANY MAINTENANCE WHICH IS PERFORMED BY THE TOWNSHIP.

§102.8(f)(10) MAINTENANCE, INSPECTION AND REPLACEMENT REQUIREMENTS

MAINTENANCE ISSUES

SUBSURFACE INFILTRATION IS GENERALLY LESS MAINTENANCE INTENSIVE THAN OTHER PRACTICES OF ITS TYPE. GENERALLY SPEAKING, VEGETATION ASSOCIATED WITH SUBSURFACE INFILTRATION PRACTICES IS LESS SUBSTANTIAL THAN PRACTICES SUCH AS RECHARGE GARDENS AND VEGETATED SWALES AND THEREFORE REQUIRES LESS MAINTENANCE. MAINTENANCE ACTIVITIES REQUIRED FOR THE SUBSURFACE BED ARE SIMILAR TO THOSE OF ANY INFILTRATION SYSTEM AND FOCUS ON REGULAR SEDIMENT AND DEBRIS REMOVAL. THE FOLLOWING REPRESENTS THE RECOMMENDED MAINTENANCE EFFORTS:

- ALL CATCH BEDS AND INLETS SHOULD BE INSPECTED AND CLEANED AT LEAST 2 TIMES PER YEAR.
- THE OVERLYING VEGETATION OF SUBSURFACE INFILTRATION FEATURES SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED AS SOON AS POSSIBLE.
- VEHICULAR ACCESS ON SUBSURFACE INFILTRATION AREAS SHOULD BE PROHIBITED, AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS. IF ACCESS IS NEEDED, USE OF PERMEABLE, TURF REINFORCEMENT SHOULD BE CONSIDERED.

§102.11(A)(2) INFILTRATION AND DETENTION BED FAILURE

BEDS DEFINED AS FAILED IF ONE OF THE FOLLOWING IS OBSERVED:

- STANDING WATER IN OBSERVATION PORTS AFTER THE REQUIRED DEWATERING TIME (72 HOURS).
- WATER DISCHARGING FOR INLETS NOT DESIGNED AS OUTLET STRUCTURE.

CONSTRUCTION STAGING

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE. PERMITTEE OR PERMITTEE'S DESIGNEE SHALL CONTACT THE TOWNSHIP AT 610-688-5600 TO ARRANGE THE PRE-CONSTRUCTION CONFERENCE WITH THE TOWNSHIP ENGINEER. THE PRE-CONSTRUCTION CONFERENCE MUST BE HELD PRIOR TO COMMENCEMENT OF ANY WORK ASSOCIATED WITH THE DRAINAGE PERMIT.

STAGE 1. INSTALL ROCK CONSTRUCTION ENTRANCE.
STAGE 2. INSTALL SILT FENCE AND TREE PROTECTION FENCING.
STAGE 3. FIELD LOCATE ALL UTILITIES AND COORDINATE WITH UTILITIES FOR SHUTOFF/ REMOVAL/ CONSTRUCTION AS NECESSARY. IMMEDIATELY STABILIZE ANY DISTURBED AREAS.
STAGE 4. REMOVE EXISTING IMPROVEMENTS. STRIP TOPSOIL AND ROUGH GRADE AREA OF PROPOSED IMPROVEMENTS. IMMEDIATELY STABILIZE DORMANT DISTURBED AREAS WITH THE APPROPRIATE SEED MIXTURE. TOPSOIL STOCKPILES ARE TO BE LIMITED TO 15 FEET WITH A MAXIMUM SIDE SLOPE OF 2:1. IMMEDIATELY STABILIZE STOCKPILE.
STAGE 5. CONSTRUCT NEW IMPROVEMENTS.
STAGE 6. COMPLETE CONSTRUCTION. A MINIMUM OF 4 INCHES OF TOPSOIL SHOULD BE PROVIDED OVER ALL DISTURBED AREAS PRIOR TO SEEDING OPERATIONS. IMMEDIATELY STABILIZE DORMANT DISTURBED AREAS WITH THE APPROPRIATE SEED MIXTURE.
STAGE 6. NOTIFY TOWNSHIP ENGINEER PRIOR TO CONSTRUCT PERMANENT STORMWATER BMPS.
STAGE 7. CONSTRUCT THE STORMWATER BED AND CONVEYANCE SYSTEM. SUB-GRADE SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC. ANY SEDIMENT THAT ACCUMULATES IN THE BED SHALL BE REMOVED.
STAGE 8. THE CONVEYANCE SYSTEM OR BED SHOULD NOT RECEIVE RUNOFF FROM UNSTABILIZED AREAS. ALL AREAS TRIBUTARY TO THE BED SHALL ACHIEVED A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER BEFORE RUNOFF IS ALLOWED TO ENTER THE STORMWATER SYSTEM.
ONCE SITE IS STABILIZED WITH 70% COVERAGE, CONTRACTOR MUST REMOVE EROSION AND SEDIMENTATION CONTROLS. AREAS DISTURBED DURING REMOVAL MUST BE STABILIZED IMMEDIATELY.

ANTICIPATED START OF CONSTRUCTION – WINTER 2021
ANTICIPATED COMPLETION OF CONSTRUCTION – SUMMER 2023

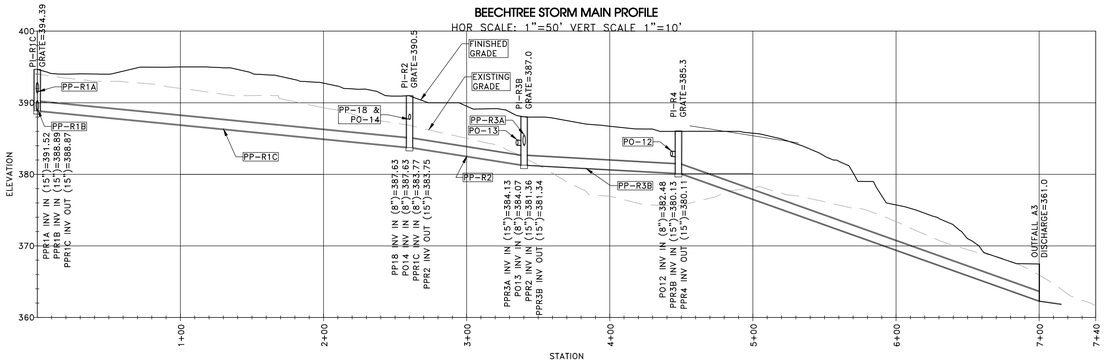
NUM.	DATE	REVISION

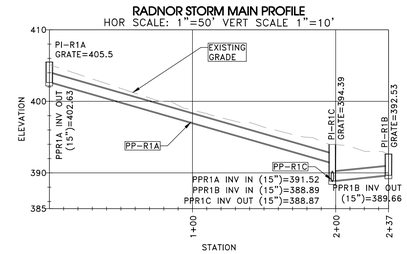
PLAN PREPARED BY:
SITE ENGINEERING CONCEPTS, LLC
P.O. BOX 1992
SOUTHEASTERN, PA 19399
P: 610-240-0450 F: 610-240-0451 E:INFO@SITE-ENGINEERS.COM

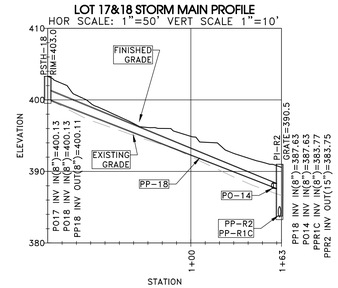
PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN
PLAN PREPARED FOR:
CG WAYNE, LLC
EAGLE & RADNOR ROAD, WAYNE, PA 19087
RADNOR TOWNSHIP DELAWARE COUNTY PENNSYLVANIA

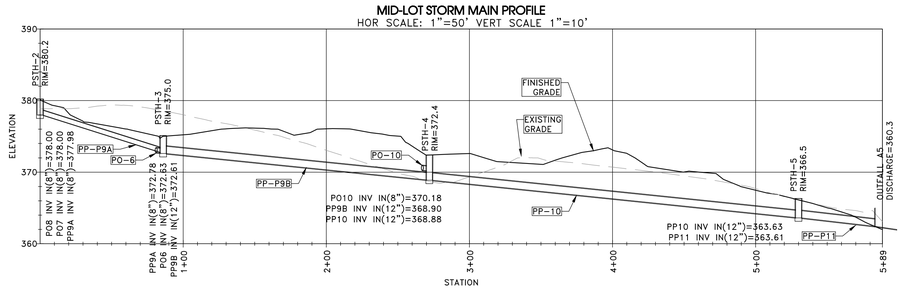
PCSM AND CONSTRUCTION DETAILS AND NOTES

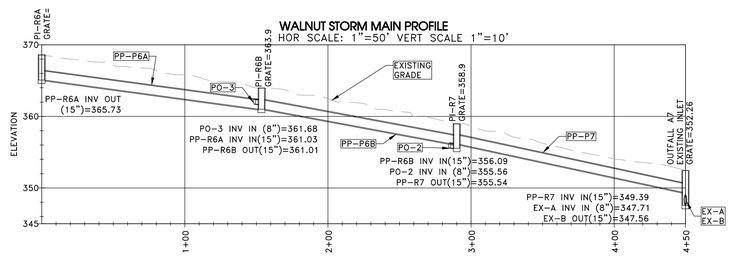
SEPT. 15, 2020
SHEET
8 of 13
SCALE: 1" = NTS











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PLAN PREPARED FOR:

CG WAYNE, LLC

EAGLE & RADNOR ROAD, WAYNE, PA 19087

RADNOR TOWNSHIP DELAWARE COUNTY PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL PATRICK SPELLMAN ENGINEER No. 40021E

PATRICK SPELLMAN, P.E.
PE:40021

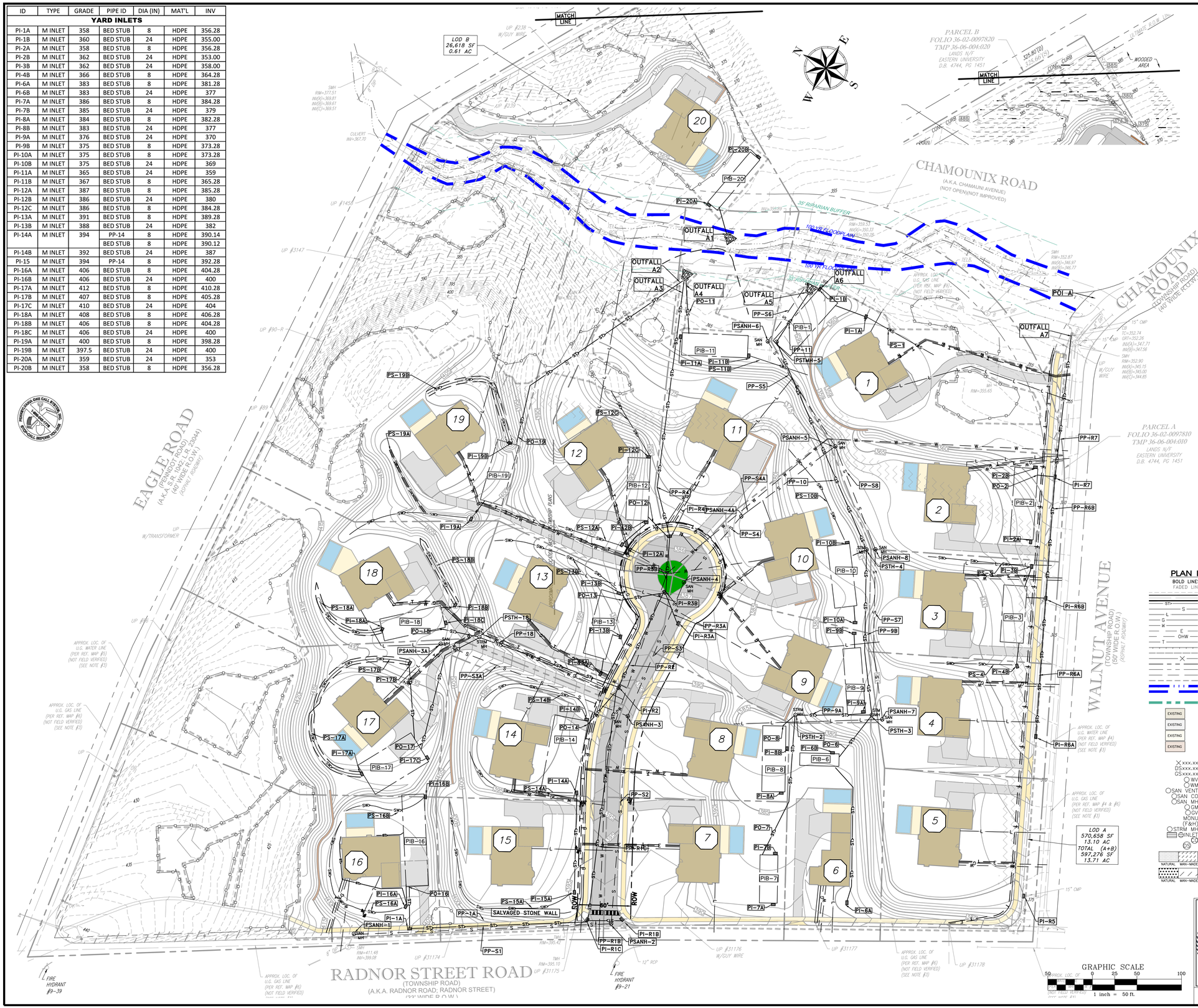
STORM PROFILES AND DRAINAGE MAPS

SEPT. 15, 2020

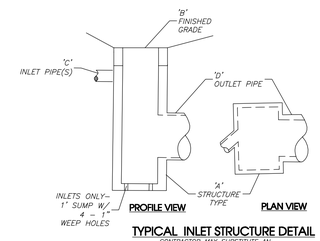
SHEET 9 of 13

AS NOTED

ID	TYPE	GRADE	PIPE ID	DIA (IN)	MAT'L	INV
YARD INLETS						
PI-1A	M INLET	358	BED STUB	8	HDPE	356.28
PI-1B	M INLET	360	BED STUB	24	HDPE	355.00
PI-2A	M INLET	358	BED STUB	8	HDPE	356.28
PI-2B	M INLET	362	BED STUB	24	HDPE	353.00
PI-3B	M INLET	362	BED STUB	24	HDPE	358.00
PI-4B	M INLET	366	BED STUB	8	HDPE	364.28
PI-6A	M INLET	383	BED STUB	8	HDPE	381.28
PI-6B	M INLET	383	BED STUB	24	HDPE	377
PI-7A	M INLET	386	BED STUB	8	HDPE	384.28
PI-7B	M INLET	385	BED STUB	24	HDPE	379
PI-8A	M INLET	384	BED STUB	8	HDPE	382.28
PI-8B	M INLET	383	BED STUB	24	HDPE	377
PI-9A	M INLET	376	BED STUB	24	HDPE	370
PI-9B	M INLET	375	BED STUB	8	HDPE	373.28
PI-10A	M INLET	375	BED STUB	8	HDPE	373.28
PI-10B	M INLET	375	BED STUB	24	HDPE	369
PI-11A	M INLET	365	BED STUB	24	HDPE	359
PI-11B	M INLET	367	BED STUB	8	HDPE	365.28
PI-12A	M INLET	387	BED STUB	8	HDPE	385.28
PI-12B	M INLET	386	BED STUB	24	HDPE	380
PI-12C	M INLET	386	BED STUB	8	HDPE	384.28
PI-13A	M INLET	391	BED STUB	8	HDPE	389.28
PI-13B	M INLET	388	BED STUB	24	HDPE	382
PI-14A	M INLET	394	PP-14	8	HDPE	390.14
			BED STUB	8	HDPE	390.12
PI-14B	M INLET	392	BED STUB	24	HDPE	387
PI-15	M INLET	394	PP-14	8	HDPE	392.28
PI-16A	M INLET	406	BED STUB	8	HDPE	404.28
PI-16B	M INLET	406	BED STUB	24	HDPE	400
PI-17A	M INLET	412	BED STUB	8	HDPE	410.28
PI-17B	M INLET	407	BED STUB	8	HDPE	405.28
PI-17C	M INLET	410	BED STUB	24	HDPE	404
PI-18A	M INLET	408	BED STUB	8	HDPE	406.28
PI-18B	M INLET	406	BED STUB	8	HDPE	404.28
PI-18C	M INLET	406	BED STUB	24	HDPE	400
PI-19A	M INLET	400	BED STUB	8	HDPE	398.28
PI-19B	M INLET	397.5	BED STUB	24	HDPE	400
PI-20A	M INLET	359	BED STUB	24	HDPE	353
PI-20B	M INLET	358	BED STUB	8	HDPE	356.28



ID	TYPE	GRADE	PIPE ID	DIA (IN)	MAT'L	INV	PIPE ID	DIA (IN)	MAT'L	INV
BEECHTREE SANITARY MAIN										
PSANH-1	4' ECC	394.00	-	-	-	-	PP-S1	8	HDPE	390.28
PSANH-2	4' ECC	407.00	-	-	-	-	PP-S2	8	HDPE	403.28
PSANH-3	4' ECC	391.20	PP-S2	8	HDPE	387.48	-	-	-	-
			PPS-1	8	HDPE	386.61	PP-S3	8	HDPE	386.59
PSANH-4	4' ECC	387.75	PP-S3	8	HDPE	383.33	PP-S4	8	HDPE	383.31
PSANH-5	4' ECC	375.70	PP-S4	8	HDPE	371.78	PP-S5	8	HDPE	371.76
PSANH-6	4' ECC	367.00	PP-S5	8	HDPE	363.28	-	-	-	-
			PP-S8	8	HDPE	360.73	PP-S6	8	HDPE	360.71
EX MHOLE	EXISTING	359.53	PP-S6	8	HDPE	351.43	-	-	-	-
			EX A	8	DIP	350.33	EX B	8	DIP	350.28
MID-LOT SANITARY MAIN										
PSANH-7	4' ECC	373.50	-	-	-	-	PP-S7	8	HDPE	369.78
PSANH-8	4' ECC	374.00	PP-S7	8	HDPE	366.11	PP-S8	8	HDPE	366.09
RADNOR/ BEECHTREE STORM MAIN										
PI-R1A	C INLET	405.50	-	-	-	-	PP-R1A	15	HDPE	402.63
PI-R1B	C INLET	392.53	-	-	-	-	PP-R1B	15	HDPE	389.66
PI-R1C	C INLET	394.39	PP-R1A	15	HDPE	391.52	-	-	-	-
			PP-R1B	15	HDPE	388.89	PP-R1C	15	HDPE	388.87
PSTH-18	4' ECC	403.00	PO-17	8	HDPE	400.13	-	-	-	-
			PO-18	8	HDPE	400.13	PP-18	8	HDPE	400.11
PI-R2	C INLET	390.50	PP-18	8	HDPE	387.63	-	-	-	-
			PO-14	8	HDPE	387.63	-	-	-	-
			PP-R1C	15	HDPE	383.77	PP-R2	15	HDPE	383.75
PI-R3A	C INLET	387.90	-	-	-	-	PP-R3A	15	HDPE	385.03
PI-R3B	C INLET	387.00	PP-R3A	15	HDPE	384.13	-	-	-	-
			PO-13	8	HDPE	384.07	-	-	-	-
			PP-R2	15	HDPE	381.36	PP-R3B	15	HDPE	381.34
PI-R4	C INLET	385.30	PO-12	8	HDPE	382.48	-	-	-	-
			PP-R3B	15	HDPE	380.13	PP-R4	15	HDPE	380.13
OUTFALL A3	ENDWALL	365.00					PP-R4	15	HDPE	361.00
MID-LOT STORM MAIN										
PSTMH-2	MANHOLE	382.50	PO-8	8	HDPE	379.84	-	-	-	-
			PO-7	8	HDPE	378.88	PP-9A	8	HDPE	378.86
PSTMH-3	MANHOLE	375.00	PP-9A	8	HDPE	372.78	-	-	-	-
			PO-6	8	HDPE	372.63	PP-9B	12	HDPE	372.61
PSTMH-4	MANHOLE	375.00	PO-10	8	HDPE	371.80	-	-	-	-
			PP-9B	12	HDPE	368.90	PP-10	12	HDPE	368.88
PSTMH-5	MANHOLE	366.50	PP-10	12	HDPE	363.63	PP11	12	HDPE	363.61
OUTFALL A5	ENDWALL	364.00					PP-11	12	HDPE	360.13
WEST WALNUT STORM MAIN										
PI-R5	C INLET	374.66	EX A	15	CMP	371.16	EX B	15	CMP	370.01
PI-R6	C INLET	363.90	PO-3	8	HDPE	360.60	PP-R6	15	HDPE	360.58
PI-R7	C INLET	358.80	PP-R6	15	HDPE	355.93	-	-	-	-
			PO-2	8	HDPE	355.56	PP-R7	15	HDPE	355.54
OUTFALL A7	EX INLET	352.26	EX A	15	CMP	347.71	-	-	-	-
			PP-R7	15	HDPE	349.39	EX B	15	CMP	347.56



TYPICAL INLET STRUCTURE DETAIL

CONTRACTOR MAY SUBSTITUTE AN PRE-FAB EQUIVALENT IF FIRST APPROVED BY THE TOWNSHIP ENGINEER

PLAN LEGEND

BOLD LINES: PROPOSED
FADED LINES: EXISTING

- 1' INTERVAL CONTOUR
- 5' INTERVAL CONTOUR
- STORM SEWER PIPING
- SANITARY SEWER MAIN
- SANITARY LATERAL
- GAS MAIN
- WATER MAIN / SERVICE
- UNDERGROUND ELECTRIC
- OVERHEAD WIRES
- COMMUNICATIONS
- EDGE OF LANDSCAPING
- EDGE OF PAVEMENT
- FENCE LINE
- PROPERTY LINE
- RIGHT-OF-WAY
- BUILDING SETBACK LINE
- STREAM
- TWP RIPARIAN SETBACK
- BUILDINGS (EXISTING)
- ASPHALT (EXISTING)
- WALKS & PADS (EXISTING)
- WALLS (EXISTING)
- XXX.XX SPOT ELEVATION
- DS XXX.XX DOOR SILL
- GS XXX.XX GARAGE SILL
- WV WATER VALVE
- WM WATER METER
- SAN VENT SANITARY VENT
- SAN CO SANITARY CLEAN OUT
- SAN MH SANITARY MANHOLE
- GM GAS METER
- GV GAS VALVE
- MONU (F&H) MONUMENT OR PIN FOUND AND HELD
- STRM MH STORMWATER MANHOLE
- INLET STORMWATER INLET
- CO STORM CLEAN OUT
- DS DOWNSPOUT
- 14-20% SLOPES (NATURAL / MAN-MADE)
- >20% SLOPES (NATURAL / MAN-MADE)

BASE SURVEY PLAN

"BOUNDARY & TOPOGRAPHIC SURVEY" PREPARED FOR ASTERN UNIVERSITY, PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED MARCH 31, 2010, LAST REVISED DECEMBER 20, 2019. SEE EXISTING FEATURES SHEET FOR COMPLETE LIST OF NOTES AND REFERENCES.

NUM.	DATE	REVISION

PLAN PREPARED BY:
SITE ENGINEERING CONCEPTS, LLC
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PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN

PLAN PREPARED FOR:
CG WAYNE, LLC
EAGLE & RADNOR ROAD, WAYNE, PA 19087

RADNOR TOWNSHIP DELAWARE COUNTY PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
PATRICK SPELLMAN
ENGINEER
No. 40021E

PATRICK SPELLMAN, P.E.
PE-40021

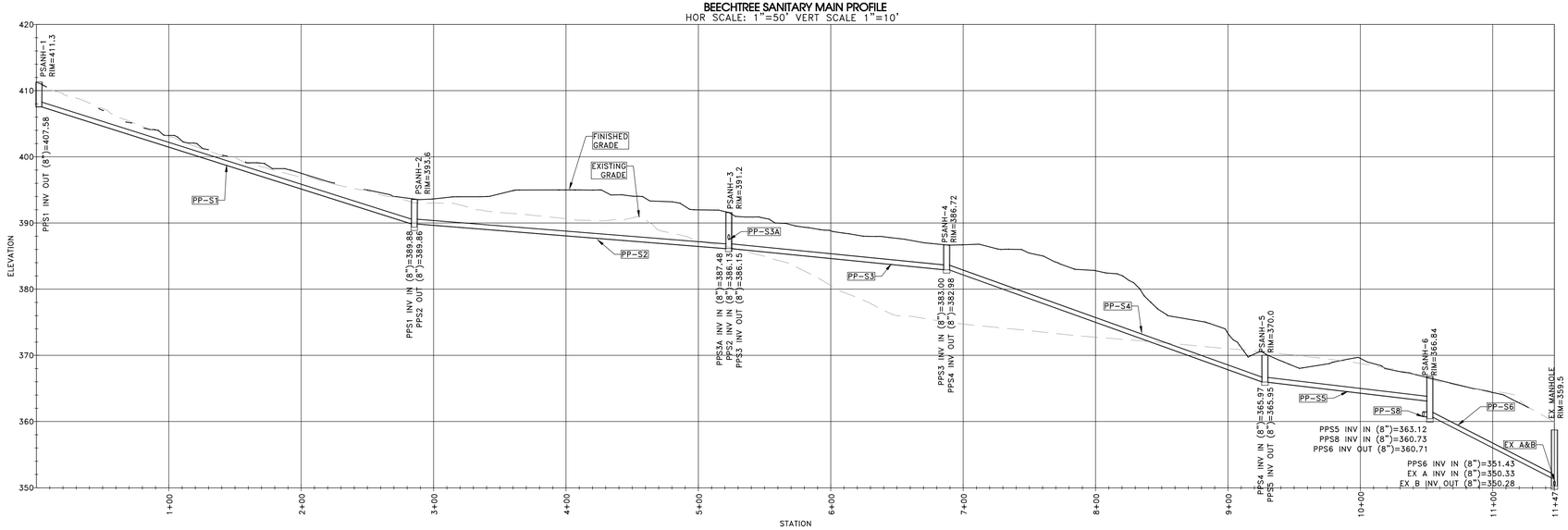
UTILITY PLAN

SEPT. 15, 2020

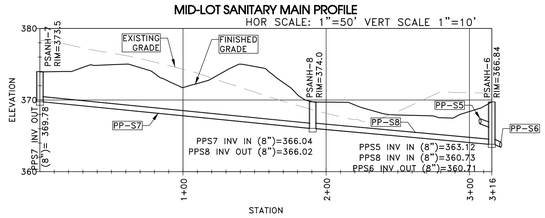
SHEET 10 of 13

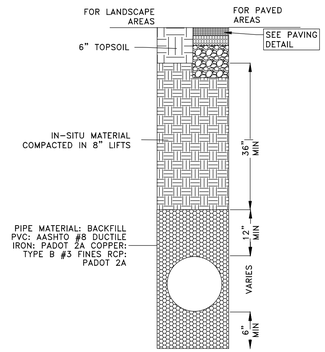
SCALE: 1" = 50'

BEECHTREE SANITARY MAIN PROFILE
HOR SCALE: 1"=50' VERT SCALE 1"=10'



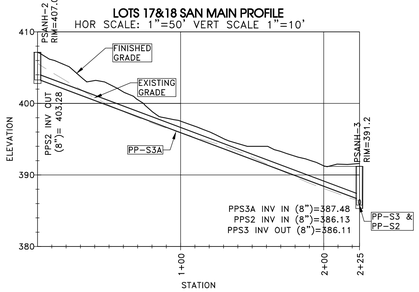
MID-LOT SANITARY MAIN PROFILE
HOR SCALE: 1"=50' VERT SCALE 1"=10'





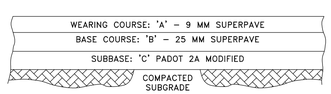
TYPICAL UTILITY TRENCH

LOTS 17&18 SAN MAIN PROFILE
HOR SCALE: 1"=50' VERT SCALE 1"=10'



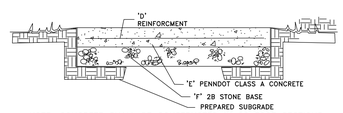
Line ID	Node U/S	Node D/S	Length (feet)	Invert U/S	Invert D/S	Slope (ft/ft)	Pipe Size (inch)	Pipe Material	Ground Elevation U/S	Ground Elevation D/S	Cover U/S	Cover D/S
PIPE RUN TABLE - BEECHTREE LANE SANITARY MAIN												
PP-S1	PSANH-1	PSANH-2	288.90	407.58	389.88	0.061	8	HDPE	411.30	393.60	3.05	3.05
PP-S2	PSANH-2	PSANH-3	234.00	389.86	387.48	0.010	8	HDPE	393.60	391.20	3.07	3.05
PP-S3A	PSANH-3A	PSANH-3	225.00	403.28	387.48	0.070	8	HDPE	407.00	391.20	3.05	3.05
PP-S3	PSANH-3	PSANH-4	162.70	386.11	383.00	0.019	8	HDPE	391.20	386.72	4.42	3.05
PP-S4	PSANH-4	PSANH-5	229.60	382.98	365.97	0.074	8	HDPE	386.72	370.00	3.07	3.36
PP-S5	PSANH-5	PSANH-6	139.90	365.95	363.12	0.020	8	HDPE	370.00	366.84	3.38	3.05
PP-S6	PSANH-6	EXISTING	91.90	360.71	351.43	0.101	8	HDPE	366.84	360.00	5.46	7.90
PIPE RUN TABLE - MID-LOT SANITARY MAIN												
PP-S7	PSANH-7	PSANH-8	191.60	369.78	366.04	0.020	8	HDPE	373.50	369.76	3.05	3.05
PP-S8	PSANH-8	PSANH-6	122.40	366.02	360.73	0.043	8	HDPE	369.76	366.84	3.07	5.44
PIPE RUN TABLE - BEECHTREE LANE STORM MAIN												
PP-R1A	PI-R1A	PI-R1C	195.50	402.63	391.52	0.057	15	HDPE	405.50	392.53	1.62	-0.24
PP-R1B	PP-R1B	PI-R1C	37.00	389.66	388.89	0.021	15	HDPE	392.53	392.53	1.62	2.39
PP-1RC	PI-R1C	PI-R2	250.90	388.87	383.77	0.020	15	HDPE	392.53	390.50	2.41	5.48
PP-18	PSTM-18	PI-R2	224.00	400.11	387.63	0.056	8	HDPE	403.00	390.50	2.22	2.20
PP-R2	PI-R2	PI-R3B	116.50	383.75	381.36	0.021	15	HDPE	390.50	387.00	5.50	4.39
PP-R3A	PI-R3A	PI-R3B	37.00	385.03	384.13	0.024	15	HDPE	387.90	387.00	1.62	1.62
PP-R3B	PI-R3B	PI-R4	56.10	381.34	380.13	0.022	15	HDPE	387.00	385.30	4.41	3.92
PP-R4	PI-R4	OUTFALL A3	287.80	380.13	361.00	0.066	15	HDPE	385.30	365.00	3.92	2.75
PIPE RUN TABLE - MID-LOT STORM MAIN												
PP-9A	PSTH-2	PSTH-3	84.50	377.98	372.78	0.062	8	HDPE	380.22	375.00	1.57	1.55
PP-9B	PSTH-3	PSTH-4	181.40	372.61	368.90	0.020	12	HDPE	375.00	372.40	1.39	2.50
PP-10	PSTH-4	PSTH-5	253.90	368.88	363.63	0.021	12	HDPE	372.40	366.50	2.52	1.87
PP-11	PSTH-5	OUTFALL A5	67.10	363.61	360.13	0.052	12	HDPE	366.50	364.00	1.89	2.87
PIPE RUN TABLE - WALNUT LANE STORM MAIN												
PP-R6	PI-R6	PI-R7	178.00	360.58	355.93	0.026	15	HDPE	363.90	358.80	2.07	1.62
PP-R7	PI-R7	OUTFALL A7	112.00	355.54	349.39	0.055	15	HDPE	358.80	352.26	2.01	1.62

ASPHALT THICKNESS	'A' WEAR COAT (INCHES)	'B' BINDER (INCHES)	'C' BASE (INCHES)
STREET ROW	2.5	4.0	6.0
DRIVEWAY	1.5	3.0	4.0



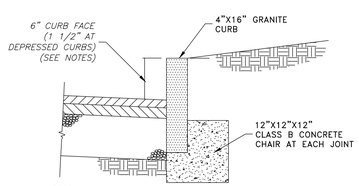
ASPHALT PAVING DETAIL

CONCRETE THICKNESS	'D' REINFORCEMENT	'E' CONCRETE THICKNESS (IN)	'F' STONE BASE THICKNESS (IN)
SIDEWALK ROW	6 x 6/1.4–1.4 W.W.F.	4.0	4.0
WALKWAY	0.00	4.0	4.0
DRIVEWAY APRON	#4'S @ 10" O.C.E.W. AT CENTER OF SLAB	7.0	6.0



NOTE: CONCRETE SHALL BE CONSTRUCTED IN 20 FOOT SECTIONS WHICH SHALL BE SEPARATED BY 1/4" THICK FELT IMPREGNATED WITH BITUMINOUS MATERIAL. FELT TO BE INSTALLED BETWEEN SECTIONS AND AT ALL STRUCTURES. WALK TO BE SCORED EVERY 4 FEET. CUT REINFORCEMENT BETWEEN SECTIONS.

CONCRETE PAVEMENT (DRIVEWAY & WALKWAY)



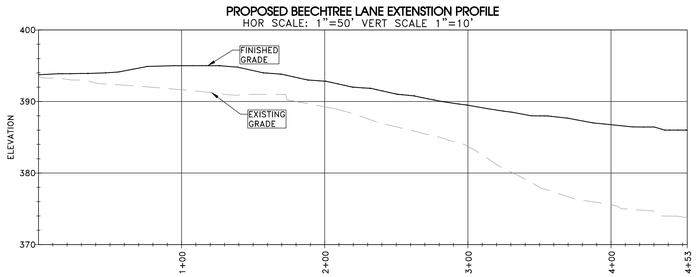
NOTES:
1. THE DEPRESSED CURB HEIGHT FOR THE DRIVEWAY SHALL BE 1/4 INCH FOR EACH INCH OF EXISTING CURB
2. ANY CURB REPLACEMENT MUST MEET EXISTING CURB REVEAL HEIGHT
3. ONE FOOT CUTBACK IS NEEDED IN THE STREET AREA WHERE ANY CURB IS ADJUSTED AND/OR REPLACED. ALL JOINTS MUST BE SEALED.
4. AN ADDITIONAL CONCRETE SUPPORT IS NEEDED MID–SPAN OF EACH SECTION OF DEPRESSED CURB IN THE DRIVEWAY AREA.
5. CURB SHALL BE REPAIRED/REPLACED AS DIRECTED BY THE TOWNSHIP

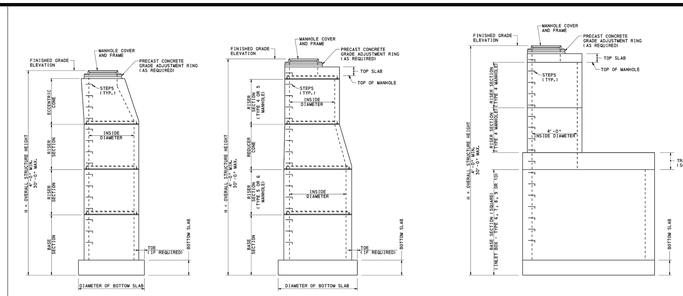
GRANITE CURB DETAIL

CONCRETE NOTES
FOR CURBS, WALKS AND PIPE ANCHORS. SEE BUILDING PLANS FOR STRUCTURAL CONCRETE SPECIFICATIONS.

1. CLASS "A" CONCRETE
2. MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 4800 PSI
3. CONTAIN 5–8% AIR–ENTRAINMENT BY VOLUME
4. MAXIMUM W/C RATIO OF 0.45
5. CURING COMPOUND PLACED AFTER FINISHING

PROPOSED BEECHTREE LANE EXTENSTION PROFILE
HOR SCALE: 1"=50' VERT SCALE 1"=10'





MANHOLE ASSEMBLY WITH ECCENTRIC CONE (PRECAST ONLY)

MANHOLE ASSEMBLY WITH REDUCER CONE (PRECAST ONLY)

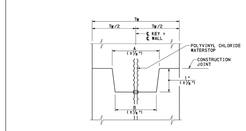
MANHOLE ASSEMBLY WITH SQUARE INLET BOX (BOTTOM) AND TYPE 4 MANHOLE (TOP)

NOTES:
1. FOR NOTES, SEE SHEETS 1 - 3.
2. FOR PIPE LOCATION AND PIPE OPENING NOTES SEE SHEET 2.
3. FOR MANHOLE TYPES, SEE SHEET 4.
4. FOR ADDITIONAL MANHOLE ASSEMBLIES, SEE SHEET 5.
5. FOR PRECAST GRADE ADJUSTMENT RING DETAILS, SEE SHEET 8.
6. FOR MANHOLE COVER AND FRAME DETAILS, SEE SHEET 9.
7. FOR STEP DETAILS, SEE SHEET 10.
8. FOR TOP SLAB DETAILS, SEE SHEETS 11 - 15.
9. FOR ROUND TRANSITION SLAB DETAILS, SEE SHEETS 16 & 17.
10. FOR SQUARE TRANSITION SLAB DETAILS, SEE SHEETS 18 & 19.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF PROJECT DELIVERY

STORM WATER MANHOLES
MANHOLE ASSEMBLIES - 2
REFER TO PADOT'S RC-39M, DATED 9/15/2016, FOR COMPLETE SPECIFICATIONS, DETAILS AND NOTES

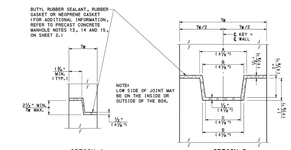
RECOMMENDED: SEPT. 15, 2016 — CHIEF, ENG. DELIVERY DIVISION
RECOMMENDED: SEPT. 15, 2016 — DIRECTOR, BUREAU OF PROJECT DELIVERY
SHT. 8 OF 34 — RC-39M



JOINT DETAIL (CAST-IN-PLACE)
(KEYED CONSTRUCTION JOINT)

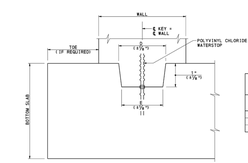
JOINT WIDTHS	A (IN.)	B (IN.)
TYPE 4	1½	1¼
TYPE 5	2	1¾
TYPE 6	2	1¾

CAST-IN-PLACE MANHOLES



JOINT WIDTHS FOR KEYED JOINTS	A (IN.)	B (IN.)	C (IN.)
TYPE 4	1½	1¼	1
TYPE 5	2	1¾	1½
TYPE 6	2	1¾	1½

JOINT DETAILS (PRECAST)



JOINT WIDTHS	A (IN.)	B (IN.)
TYPE 4	1½	1¼
TYPE 5	2	1¾
TYPE 6	2	1¾

JOINT DETAIL BETWEEN BOTTOM SLAB AND WALL
(REQUIRED WHEN BOTTOM SLAB IS NOT POURED WITH THE WALLS)
NOTE:
FOR ADDITIONAL DETAILS, SEE DETAIL C ON RC-39M, SHEET 25. WATERSTOP MUST BE INCLUDED.

PRECAST MANHOLES

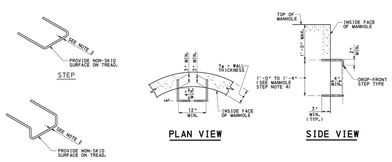
WATERSTOP NOTES:
1. PROVIDE A CONTINUOUS WATERSTOP. SPLICE THE WATERSTOP PER MANUFACTURER'S RECOMMENDATIONS. LAPPING OF WATERSTOP IS NOT PERMITTED.
2. PROVIDE HOLES OR SLOTS IN WATERSTOP AS REQUIRED, WHEN PLACING CONCRETE AROUND REINFORCEMENT STEEL, BUT DO NOT COMPROMISE THE SEAL.
3. PLACE WATERSTOP AT THE CENTERLINE OF THE WALL.

NOTES:
1. FOR NOTES, SEE SHEETS 1 - 3.
2. FOR MANHOLE TYPES, SEE RC-39M, SHEET 4.
3. FOR CAST-IN-PLACE MANHOLE DETAILS AND DESIGN TABLES, SEE RC-39M, SHEETS 20 - 23.
4. FOR PRECAST MANHOLE DETAILS AND DESIGN TABLES, SEE RC-39M, SHEETS 24 - 26.
5. REINFORCEMENT NOT SHOWN IN JOINT DETAILS FOR CLARITY.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF PROJECT DELIVERY

SANITARY SEWER MANHOLES
DETAILS
REFER TO PADOT'S RC-38M & RC-39M, DATED 9/15/2016, FOR COMPLETE SPECIFICATIONS, DETAILS AND NOTES

RECOMMENDED: SEPT. 15, 2016 — CHIEF, ENG. DELIVERY DIVISION
RECOMMENDED: SEPT. 15, 2016 — DIRECTOR, BUREAU OF PROJECT DELIVERY
SHT. 3 OF 3 — RC-38M



TYPICAL STEP CONFIGURATION MANHOLE STEPS

MANHOLE STEP NOTES:
1. PROVIDE MANHOLE STEPS SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15.
2. PROVIDE MINIMUM 1" SECTION DIMENSION FOR METAL STEPS. PROVIDE ¾" SECTION DIMENSION FOR NON-DETERIORATING MATERIAL STEPS.
3. SECURELY EMBED MANHOLE STEPS INTO INSERTS CAST INTO THE WALLS OR PREFORMED HOLES.
4. PROVIDE UNIFORM SPACING OF MANHOLE STEPS WITHIN A MANHOLE/INLET ASSEMBLY.
5. SEE GENERAL NOTE 12 ON SHEET 1.

REFERENCE: PADOT RC-39M, SHT 10, 9/15/20016

NUM.	DATE	REVISION

PLAN PREPARED BY:
SITE ENGINEERING CONCEPTS, LLC
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PRELIMINARY/FINAL SUBDIVISION AND LAND DEVELOPMENT PLAN
PLAN PREPARED FOR:
CG WAYNE, LLC
EAGLE & RADNOR ROAD, WAYNE, PA 19087

RADNOR TOWNSHIP — DELAWARE COUNTY — PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL PATRICK SPELLMAN ENGINEER No. 40021E

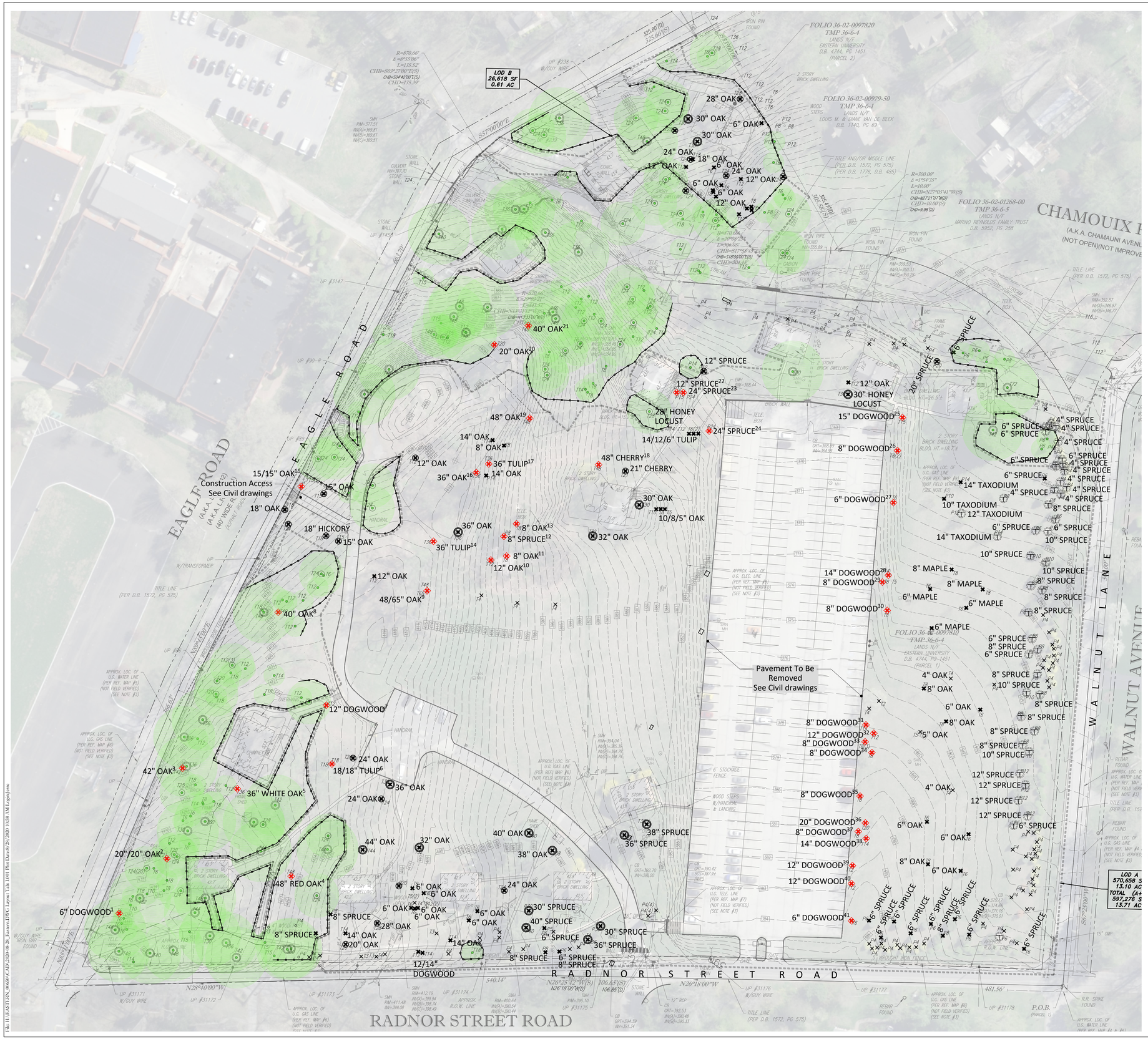
PATRICK SPELLMAN, P.E.
PE-40021

SANITARY PROFILES AND CONSTRUCTION DETAILS

SEPT. 15, 2020

SHEET 11 of 13

AS NOTED



RADNOR TOWNSHIP TREE REPLACEMENT FORMULA:
For every tree greater than 30" DBH, 6 Trees will be planted, 4 of which will be Canopy Trees

For every tree between 19 and 29" DBH, 3 Trees will be planted, 2 of which will be Canopy Trees

For every tree between 6 and 18" DBH, 1 Tree will be planted.

TREES TO BE REMOVED

Symbol	Count	Size/Quality	Replacement Requirement: total trees	number of which must be canopy trees
⊗	17	Heritage Tree (30"+)	102	68
⊗	21	19-29" DBH	63	42
✖	65	6-18" DBH	65	0
×	73	<5" DBH	0	0
✖	41	Hazards/>30% Dead	0	0
		Total Required	**230**	**110**

TREES PRESERVED
(Shaded Area Indicates Approx. Root Zone)

	41	Heritage Tree (30"+)
	46	19-29" DBH
	90	6-18" DBH
	15	<5" DBH
	41	Transplant

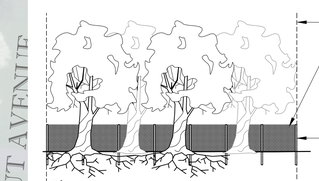
Proposed Limit of Disturbance

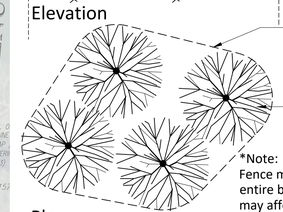
Proposed Tree Fence Location

DBH, Type Inventory Key* — Information for Trees to be Removed
*Hazard Trees Will be Inventoried for Shade Tree Review

NOTE:
ALL TRANSPLANTS WILL BE PLANTED IN AREAS OUTSIDE OF THE LIMIT OF DISTURBANCE TO ALLOW FOR A SINGLE MOVE. SEE SHEET L101 FOR LOCATION OF TRANSPLANTS.

ALL TRANSPLANTS TO INCLUDE ONGOING WATERING THROUGH THE FIRST GROWING SEASON AND SUPPLEMENTAL WATERING DURING PERIODS OF DROUGHT THROUGH THE SECOND AND THIRD GROWING SEASONS.





*Note:
Fence must remain and be maintained throughout entire building phase during which construction may affect trees.
See plan for location and areas of protection.

Tree Protection

NTS

BASE INFORMATION TAKEN FROM 191217 ACAD-R-Concordia Concept-Model.dwg and R-1912-20 CP BASE UPDATE.dwg by: Site Engineering Concepts LLC
PO Box 1992, Southeastern, PA 19399
TEL: 610.240.0451

0 25' 50' 100' 150'

CALL BEFORE YOU DIG!
PA ONE-CALL 1.800.242.1776
www.paonecall.org
NOT FOR CONSTRUCTION

NOTES:
THIS DRAWING IS TO ILLUSTRATE THE WORK TO BE DONE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK OR THE SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE DRAWING EXPRESSED OR IMPLIED CHANGES THIS CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS. BY SUBMITTAL OF A BID TO PERFORM THIS WORK IS AN ACKNOWLEDGMENT BY THE CONTRACTOR THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA COMPENSATION DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

JONATHAN LANDSCAPE ARCHITECTS
ALDERSON
Post Office Box 661 Wayne, Pennsylvania 19087-0661
(610) 341-9925 Fax (610) 341-9926
e-mail information@jonathanalderson.com

EASTERN DEVELOPMENT

WAYNE
PENNSYLVANIA

ISSUED:	
Land Development	08/28/2020

DATE:	2020-08-28
CHECKED:	JF
DRAWN BY:	JF
PROJECT #:	00650
SHEET:	12 of 13

L001
Tree Removals and Preservation Plan

SCALE: 1" = 50'

LEGEND

- Transplant Tree (Original Location)
- Existing Canopy Tree To Be Preserved Heritage Size
- Existing Canopy Tree To Be Preserved 19-29" DBH
- Existing Canopy Tree To Be Preserved 6-18" DBH
- Proposed Canopy Trees: 110
- Proposed Flowering Trees: 102
- Proposed Evergreen Trees: 18
- Proposed Transplanted Trees: 41 (Final Location)
- Proposed Limit of Disturbance
- Tree Protection Fence

TREE REPLACEMENT

REQUIRED: 230 PROVIDED: 230

CANOPY TREES REQUIRED: 110 CANOPY TREES PROVIDED: 110

NOTES:

See Removals Plan L001 for Tree Replacement Formula, Removals Quantities and Detailed Replacement Calculations.

All Proposed Trees to be 2.5" Caliper (or Equivalent for Multistemmed Trees) Unless Otherwise Indicated.

Tree Replacement Plant Schedule	Preliminary
BOTANICAL NAME	COMMON NAME
Acer rubrum 'October Glory'	October Glory Red Maple
Acer rubrum 'Armstrong'	Armstrong Red Maple
Acer saccharum 'Green Mountain'	Green Mountain Sugar Maple
Betula nigra 'Heritage'	Heritage River Birch
Cercis canadensis	Redbud
Crataegus viridus	Winter King Hawthorn
Cryptomeria japonica 'Yoshino'	Yoshino Inscense Cedar
Gymnocladus dioicus 'Espresso'	Kentucky Coffeetree
Liquidambar styraciflua 'Rotundiloba'	Sweetgum
Magnolia virginiana	Sweetbay Magnolia
Malus 'Prariefire'	Prariefire Crabapple
Nyssa sylvatica	Black Gum
Picea abies	Norway Spruce
Picea omorika	Serbian Spruce
Platanus occidentalis 'Exclamation'	Exclamation Plane Tree
Quercus alba	White Oak
Quercus bicolor	Swamp White Oak
Quercus phellos	Willow Oak
Taxodium distichum	Bald Cypress

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PENNSYLVANIA

ISSUED:

Land Development	8/28/2020

DATE:	2020-08-28
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DRAWN BY:	JF
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SHEET:	13 of 13

L101

Planting Plan

SCALE: 1" = 50'

File: H:\EASTERN_00650\CAD\2020-08-28_Eastern.DWG Layout Tab: L101 Plot Date:8/26/2020 10:48 AM Eugene Jesse