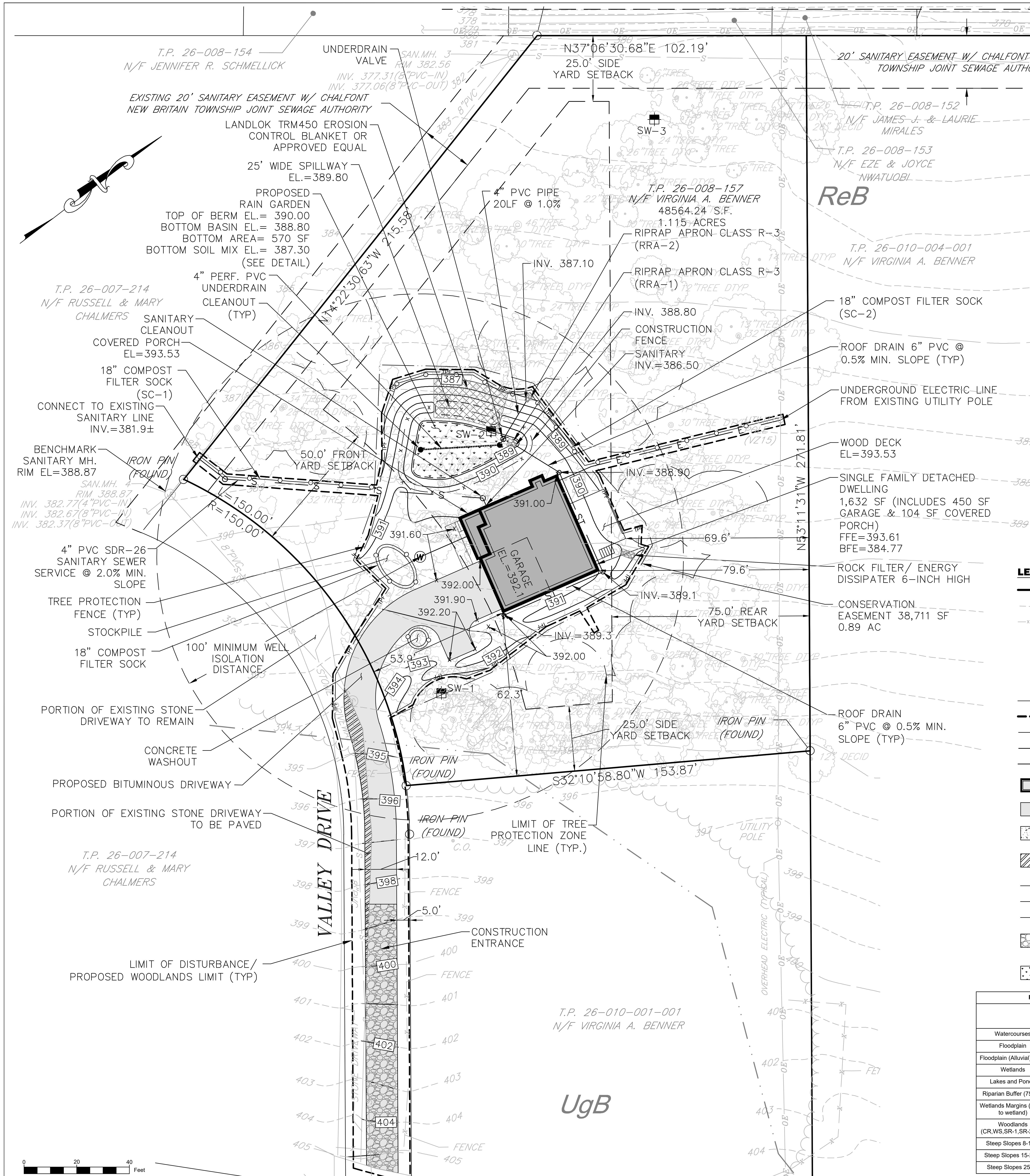
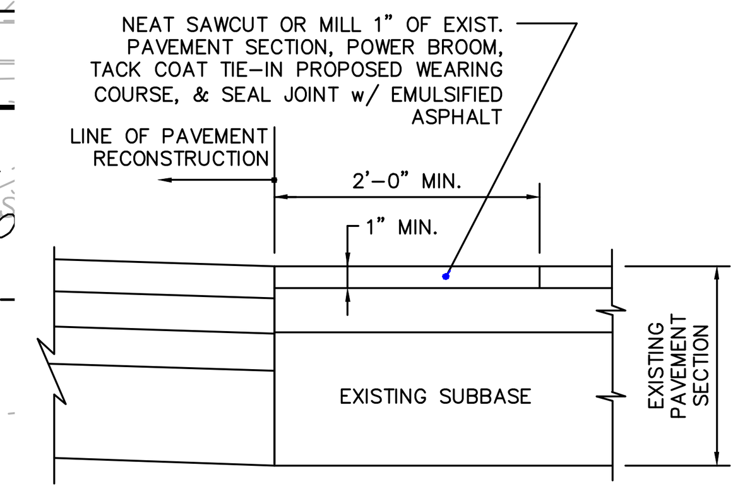
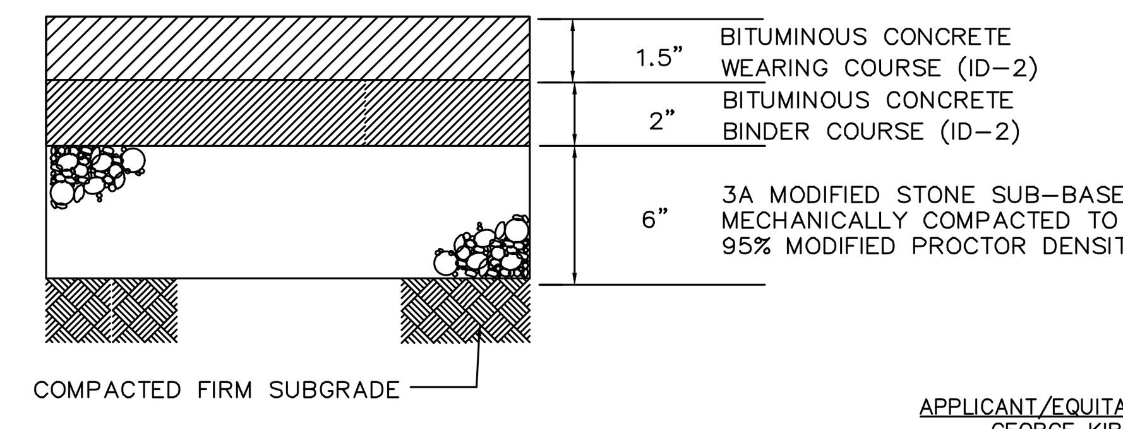




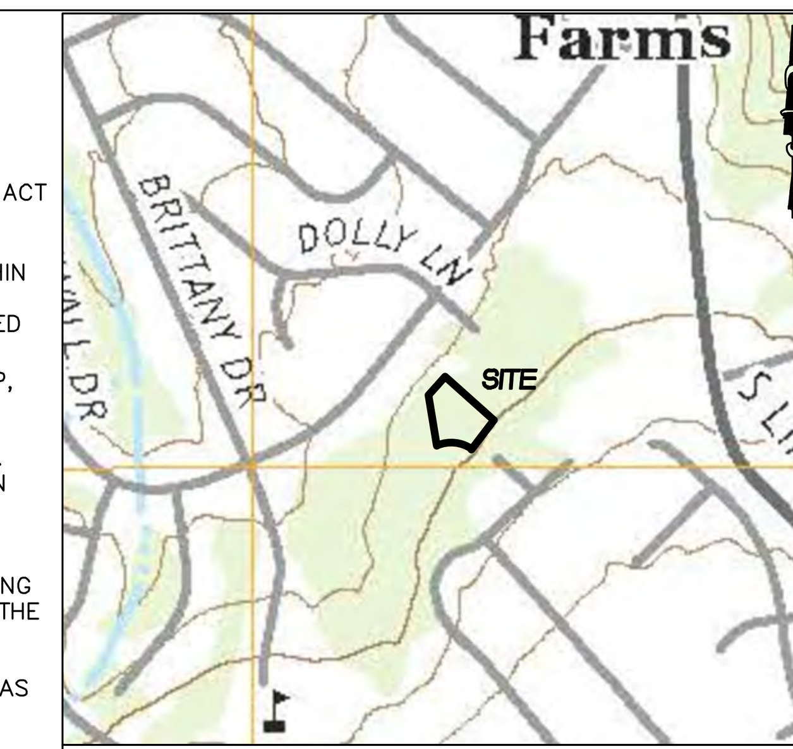
PAVEMENT TIE-IN



DRIVEWAY PAVEMENT SECTION

NOTES:

1. THIS PLAN IS BASED ON A BOUNDARY AND TOPOGRAPHIC SURVEY PLAN PREPARED BY VW CONSULTANTS, LLC DATED MARCH 11, 2019.
2. REFERENCE IS MADE TO PENNSYLVANIA ONE CALL SYSTEM, ASSIGNED SERIAL NUMBERS AND IN ACCORDANCE WITH PA ACT 287 OF 1974 AS AMENDED BY PA ACT 187 OF 2008. (800-242-1776).
3. SUBJECT PROPERTY AND SURROUNDING PROPERTIES ARE WITHIN RR- RESIDENTIAL DISTRICT.
4. FLOOD ZONE INFORMATION: SUBJECT PARCEL AREA IS LOCATED OUTSIDE ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN) OF THE FLOOD INSURANCE RATE MAP, PANEL NO. 280 OF 532, COMMUNITY MAP NO. 42017C0287J WHICH BEARS AN EFFECTIVE DATE OF MARCH 16, 2015.
5. NO NEW STREETS ARE PROPOSED AS PART OF THIS PROJECT.
6. THE OWNER OF THE LOT SHALL BE RESPONSIBLE TO MAINTAIN ANY STORMWATER IMPROVEMENTS LOCATED ON THEIR LOT IN ACCORDANCE WITH THE PLANS FOR THE PROJECT.
7. ALL PROPOSED LAWN SLOPES SHALL BE 2% MINIMUM.
8. THE LIMITS OF DISTURBANCE AND THE TREES TO REMAIN ALONG THE BOUNDARY TO BE MARKED OUT IN THE FIELD PRIOR TO THE START OF CONSTRUCTION AND REVIEWED BY THE TOWNSHIP ENGINEER PRIOR TO CONSTRUCTION.
9. ANY DAMAGE DONE TO WOODSIDE AVENUE OR VALLEY DRIVE AS A RESULT OF CONSTRUCTION AND TREE CLEARING VEHICLE ACCESSING THE SITE SHALL BE RESTORED.



LOCATION MAP

REFERENCE: DOYLESTOWN U.S.G.S. QUADRANGLE MAP SCALE 1" = 800'

LIMIT OF DISTURBANCE =0.32 ACRES

APPLICANT/EQUITABLE OWNER
GEORGE KIRIAKIDI
PRIME DEVELOPMENT GROUP, LP
350 SOUTH MAIN STREET, SUITE 307
DOYLESTOWN, PA 18901

SEQUENCE OF CONSTRUCTION

1. CONTACT BUCKS COUNTY CONSERVATION DISTRICT AND NEW BRITAIN TOWNSHIP AT LEAST THREE WORKING DAYS PRIOR TO SITE DISTURBANCE.
2. STAKE THE LIMITS OF DISTURBANCE.
3. INSTALL COMPOST FILTER SOCK, TREE PROTECTION FENCE, AND CONSTRUCTION ENTRANCE AS SHOWN ON THE PLAN.
4. ROUGH GRADE FOR PROPOSED BUILDING FOUNDATIONS.
5. CONSTRUCT BUILDING FOUNDATIONS.
6. PERFORM SITE WORK GRADING.
7. INSTALL WELL AND CONNECT TO PUBLIC SEWER SYSTEM.
8. COMPLETE BUILDING CONSTRUCTION.
9. STABILIZE GRADING WITHIN THE LIMIT OF DISTURBANCE.
10. CONSTRUCT RAIN GARDEN.
11. PAVE PROPOSED DRIVEWAY AND CONSTRUCT PROPOSED WALKWAYS.
12. COMPLETE FINAL GRADING TO ACHIEVE PROPOSED DESIGN ELEVATIONS AND STABILIZE ALL DISTURBED AREAS.
13. EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL SITE IS COMPLETELY STABILIZED.

STORMWATER IMPERVIOUS COVERAGE CALCULATIONS WITHIN LIMIT OF DISTURBANCE		
Existing Impervious		
Existing Off Lot Stone Driveway	2,553	0.059
Proposed Impervious		
Existing Off Lot Stone Driveway to Remain	2,291	0.053
Proposed Dwelling & Covered Porch	1,632	0.037
Proposed Driveway (including portion of extg stone driveway to be paved)	3,367	0.077
Proposed Walkways & Steps	77	0.002
Future Impervious	181	0.004
Total Proposed Impervious	7,548	0.117
Change in Impervious Coverage	4,995	0.083

LOT AREA CALCULATIONS		
	S.F.	Acres
Gross Lot Area	48,564	1.115
Street Right-of-Way	0	0.000
Lot Area	48,564	1.115
Utility Easements	4,133	0.095
Restrictive Covenants or Conservation Easements	0	0.000
Base Site Area	44,431	1.020
Proposed Street Ultimate Right-of-Way	0	0.000
Proposed Utility Right-of-Way or Easements	0	0.000
100% Protected Natural Resources	0	0.000
Ratio Base Site Area	44,431	0.000
IMPERVIOUS COVERAGE CALCULATIONS		
Proposed Dwelling & Covered Porch	1,632	0.037
Proposed On-Lot Driveway	1,029	0.024
Proposed Patios	0	0.000
Proposed Walkways & Steps	77	0.002
Future Impervious	181	0.004
Total Proposed Impervious	2,919	0.063
Proposed Building Coverage	3.7%	
Proposed Impervious Coverage	6.6%	

Volume Control – Simplified Method	
(regulated activities less than or equal to one acre)	
New Impervious Area (SF) =	4,995
1) Stormwater facilities shall capture the runoff volume from at least the first two inches of runoff from all new impervious surfaces.	
Volume (CF) = (2" Runoff / 12 inches) * New Impervious Area (SF)	
Required Volume (CF) =	833
Provided Structural Volume (CF) =	834
2) At least the first one inch of runoff volume from the new impervious surfaces shall be permanently removed from the runoff flow, i.e., it shall not be released into the surface waters of the commonwealth. The calculated volume shall be either reused, evapotranspired or infiltrated through structural or nonstructural means.	
Volume (CF) = (1" Runoff / 12 IN) * Impervious Area (SF)	
Required Volume (CF) =	416
Provided Volume (CF) =	834
3) Infiltration facilities should be designed to accommodate the first 0.5" of the permanently removed runoff.	
Volume (CF) = (0.5" Runoff / 12 IN) * Impervious Area (SF)	
Required Volume (CF) =	208
Provided Volume (CF) =	834
4) No more than one inch of runoff volume from impervious surfaces shall be released from the site. Release time must be over 24 to 72 hrs.	
Volume (CF) = (1" Runoff / 12 IN) * Impervious Area (SF)	
Required Volume (CF) =	416
Provided Volume (CF) =	834
5) Release Time Calculations	
Release Time = Volume (CF) / (Inf. Area (SF) x Inf. Rate (in/hr) / 12 (in/ft))	
Maximum Storage Volume (CF) =	834
Infiltration Area (SF) =	570
Design Infiltration Rate (in/hr) =	0.44
Release Time (HR) =	40
6) Rain Garden Sizing Calculations	
Planted shallow depression capturing runoff from a downspout or paved surface. Maximum side slope 3:1; Depth 6-8 inches; Drain within 72 hours; Minimum 10-20 feet from building foundation; 25 feet from septic system.	
Area = Impervious Area x 2" runoff / Depth	
New Impervious Area Draining to BMP (SF) =	4,995
Set Depth (IN) =	12
Area (SF) =	575
Provided Storage Volume (CF) =	575
Soil Storage Volume with 30% Voids = Depth x Length x Width	
Set Depth (FT) =	1.5
Provided Soil Storage Volume (CF) =	259

LEGEND

- PROPERTY LINE
- EXISTING CONTOUR
- EXISTING FENCE
- EXISTING UTILITY POLE
- EXISTING WELL
- TEST PIT LOCATION
- SOIL UNIT SYMBOL
- SOIL UNIT LIMIT
- LIMIT OF DISTURBANCE
- PROPOSED CONTOUR
- PROPOSED ELECTRIC
- PROPOSED SEWER SERVICE
- PROPOSED HOUSE
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- AREA OF EXISTING IMPERVIOUS WITHIN DRIVEWAY
- COMPOST FILTER SOCK
- TREE PROTECTION FENCE
- CONSTRUCTION FENCE
- CONSTRUCTION ENTRANCE
- INFILTRATION BMP SOIL/ ERNMX-180 RAIN GARDEN SEED MIX

Zoning Table			
Zone: RR - Residential District			
ITEM	REQUIRED/ PERMITTED	PROPOSED	ORDINANCE SECTION
Permitted Uses	B-1 Single Family Detached Dwelling	B-1 Single Family Detached Dwelling	27-901.a
B-1 Single Family Detached Dwelling Requirements			
Max. Building Height	35 FT	<35 FT	27-902.a; 2110
Min. Lot Area	1 AC	1.02 AC	27-902.b
Min. Lot Width At Setbacks	150 FT	190.5 FT	27-902.b
Min. Lot Depth	180 FT	196.4 FT	27-902.b
Min. Front Yard Setback	50 FT	53.9 FT	27-902.b
Min. Side Yard Setback	25 FT	62.3 FT	27-902.b
Min. Rear Yard Setback	75 FT	79.6 FT	27-902.b
Max. Building Coverage	15%	3.7%	27-902.b
Max. Site Impervious Surface Coverage	20%	6.6%	27-902.b
Max. Lot Impervious Surface Coverage	25%	6.6%	27-902.b
General Requirements			
Min. Driveway Clear Sight Triangle	50 FT	50 FT	27-2111.b
Min. Off Street Parking	3 Spaces/DU	3/DU	27-2901B
Min. Building Envelope in RR District	5,000 SF (B-1 Use)	5,000 SF	27-2401.b

RESOURCE PROTECTION CALCULATIONS				
	Protection Ratio	Acres of Land in Resources	Resource Protection Land	Protected Area
Watercourses	100%	0.00	0.00	0.00
Floodplain	100%	0.00	0.00	0.00
Floodplain (Alluvial) Soils	100%	0.00	0.00	0.00
Wetlands	100%	0.00	0.00	0.00
Lakes and Ponds	100%	0.00	0.00	0.00
Riparian Buffer (75 FT)	100%	0.00	0.00	0.00
Wetlands Margins (25 FT to wetland)	80%	0.00	0.00	0.00
Woodlands (CR,WS,SR-1,SR-2,RR)	80%	1.11	0.89	0.89
Steep Slopes 8-15%	60%	0.00	0.00	0.00
Steep Slopes 15-25%	70%	0.00	0.00	0.00
Steep Slopes 25%+	85%	0.00	0.00	0.00

SOIL TYPES						
SYM	UNIT NAME	HYDRIC (Y/N)	DEPTH TO BEDROCK (IN.)	DEPTH TO WATER TABLE (IN.)	HSG	FARMLAND CLASSIFICATION
ReB	Readington silt loam, 3 to 8 slopes	N	40-60	18-36	C	Statewide Importance
UgB	Urban land-Abbottstown complex, 0 to 8 percent slopes	N	40-60	6-18	D	Not Prime Farmland

LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTHMOVING

SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE\STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
Readington	X	C/S		X		X	X	X	X	X	X	X				X
Urbana						X						X				

RESOLUTIONS TO LIMITATIONS:
Cutbanks Cave; Provide shoring during excavation
Corrosive to Steel/Concrete; Provide cathodic protection for concrete and steel
Easily Erodible; Provide an erosion control blanket on steep slopes and maintain existing vegative cover in non-disturbed areas
Depth to Saturated Zone/Seasonal High Water Table; Provide pumped water filter bags where a saturated zone or SHWT is encountered
Hydric/Hydric Inclusions; Strip existing topsoil to indicating depth, import suitable fill for construction, and provide adequate site grading
Low Strength/Landslide Prone; Import suitable fill for topsoil stockpile and provide shoring during excavation
Slow Percolation; Replace soil with suitable fill for better percolation results
Piping; Provide cathodic protection for pipes
Poor Source of Topsoil; Import suitable fill for topsoil
Frost Action; Provide capillary flow path breaks in soils
Wetness; Minimize soil compaction for increased infiltration of water into the soil and provide adequate site grading

Holmes Cunningham LLC
409 E. Butler Ave,
Unit 5
Doylestown, PA 18901
(215) 586-3330
www.hcengineering.net
holmes cunningham ENGINEERING

REVISIONS	
Date	Description
6/11/2020	New Britain Township Comments
6/1/2021	New House Revisions
7/8/2021	Driveway Revisions
9/14/2021	New Britain Township Comments

CALL BEFORE YOU DIG !! PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE -- STOP & CALL --
Pennsylvania One Call System, Inc. 1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITY COMPANIES PRIOR TO ANY EXCAVATION. (SERIAL#201831149)

BENNER PROPERTY
T.M.P.# 26-008-157
VALLEY DRIVE
NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PA

PERMIT PLAN

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
KRISTIN RANDI HOLMES
PE 073604

[illegible]

KRISTIN R. HOLMES, P.E.
PA Lic. No. PE073604

File No.
1551_C1.0_PERMIT.DWG

Date	6/3/2021
Scale	1"=20'
HCE Job	1551A
Designed	KH
Sheet	1 of 3

Drawing No.
C1.0

EROSION / SEDIMENT CONTROL PLAN STANDARD NOTES

STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET; STOCKPILE SLOPES MUST NOT EXCEED 2L:1V.

THE OPERATOR/RESPONSIBLE PERSON (O/RP) ON SITE SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.

IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE O/RP SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMPS) TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

THE O/RP SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE BUCKS COUNTY CONSERVATION DISTRICT AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS REGARDLESS OF THEIR LOCATIONS.

ALL PUMPING OF SEDIMENT-LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER UNDISTURBED AREAS.

A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES.

EROSION AND SEDIMENT BMPS MUST BE CONSTRUCTED, STABILIZED AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPS.

AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING THE REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.

AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITY, THE O/RP SHALL INVITE ALL CONTRACTORS INVOLVED IN THAT ACTIVITY, THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN DESIGNER AND THE BUCKS COUNTY CONSERVATION DISTRICT TO A PRE-CONSTRUCTION MEETING. ALSO, AT LEAST THREE DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITY, ALL CONTRACTORS INVOLVED IN THAT ACTIVITY SHALL NOTIFY THE PENNSYLVANIA ONE-CALL SYSTEM INC. AT 1-800-242-1776 TO DETERMINE ANY UNDERGROUND UTILITIES LOCATIONS.

IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITY CEASES, THE O/RP SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITY. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT SPECIFIED RATES. DISTURBED AREAS THAT ARE NOT AT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS.

DISTURBED AREAS THAT ARE AT FINISHED GRADE OR WHICH WILL NOT BE RE-DISTURBED WITHIN ONE YEAR MUST BE STABILIZED IN ACCORDANCE WITH PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.

AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% (PERCENT) VEGETATIVE OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

UPON THE INSTALLATION OF TEMPORARY SEDIMENT BASIN RISER(S), A QUALIFIED SITE REPRESENTATIVE SHALL CONDUCT AN IMMEDIATE INSPECTION OF THE RISER(S), WHEREUPON THE BUCKS COUNTY CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING THAT THE RISER IS SEALED (WATERTIGHT).

AT STREAM CROSSINGS, A 50-FOOT BUFFER SHALL BE MAINTAINED. ON BUFFERS, CLEARINGS, SOD DISTURBANCES AND EXCAVATIONS, EQUIPMENT TRAFFIC SHOULD BE MINIMIZED. ACTIVITY SUCH AS STACKING LOGS, BURNING CLEARED BRUSH, DISCHARGING RAINWATER FROM TRENCHES, WELDING PIPE SECTIONS, REFUELING AND MAINTAINING EQUIPMENT SHOULD BE AVOIDED WITHIN BUFFER ZONES.

UNTIL A SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEANOUT, REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING AND RE-NETTING 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.

SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF ON-SITE IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED OR PLACED IN SOIL STOCKPILES AND STABILIZED.

ALL BUILDING MATERIAL AND WASTES MUST BE REMOVED FROM THE SITE AND RECYCLED IN ACCORDANCE WITH DEP'S SOLID WASTE REGULATIONS (25 PA CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ.), AND/OR ANY ADDITIONAL LOCAL, STATE OR FEDERAL REGULATIONS. NO BUILDING MATERIALS (USED OR UNUSED) OR WASTE MATERIALS SHALL BE BURNED, BURIED, DUMPED OR DISCHARGED AT THE SITE.

BMP MAINTENANCE

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROPER CONSTRUCTION STABILIZATION, AND MAINTENANCE OF ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AND RELATED ITEMS INCLUDED WITHIN THIS PLAN. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR THE PROPER CONSTRUCTION AND STABILIZATION OF PERMANENT CONTROL MEASURES AND RELATED ITEMS INCLUDED WITHIN THIS PLAN.

DURING CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING INSPECTIONS OF THE BMPS AFTER EACH RUNOFF EVENT AS WELL AS ON A WEEKLY BASIS. THE CONTRACTOR SHALL KEEP A LOG OF ALL INPECTIONS AND MAINTENANCE PERFORMED ON THE BMPS

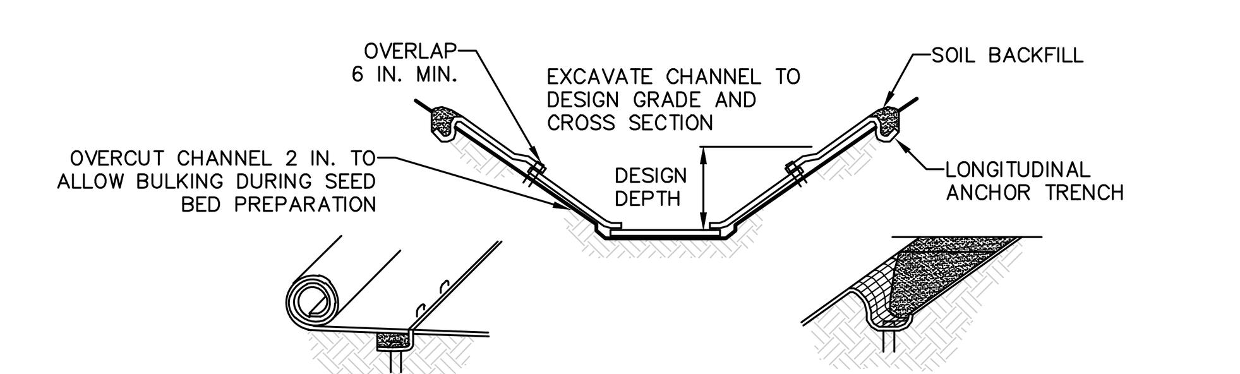
THE OWNER WILL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL PERMANENT CONTROL MEASURES.

SOIL SEDIMENT REMOVED FROM ANY TEMPORARY CONTROL MEASURE DURING REGULAR MAINTENANCE WILL BE INCORPORATED BACK INTO THE EARTHWORK AS FILL ON THE SITE. SOIL SEDIMENT MATERIAL SHALL BE DISTRIBUTED ON-SITE WITHOUT CHANGING DRAINAGE PATTERNS DURING A SPECIFIC CONSTRUCTION STAGE.

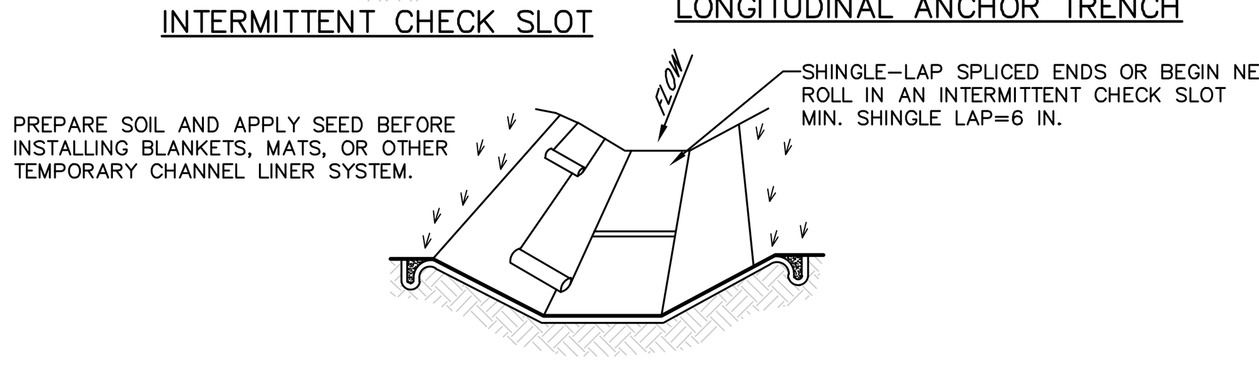
COMPOST FILTER SOCK WILL BE INSPECTED ONCE A WEEK OR AFTER EVERY STORM EVENT, WHICHEVER COMES FIRST. ANY NECESSARY REPAIRS WILL BE MADE IMMEDIATELY. ACCUMULATED SEDIMENTS WILL BE REMOVED AS REQUIRED TO KEEP THE SOCK FUNCTIONAL. DEPOSITS WILL BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK. UNDERCUTTING OR EROSION OF THE TOE ANCHOR OF THE COMPOST FILTER SOCK WILL BE REPLACED IMMEDIATELY WITH ROCK FILTER OUTLETS. ANY MANUFACTURER'S RECOMMENDATIONS WILL BE ADHERED TO FOR REPLACING COMPOST FILTER SOCK DUE TO WEATHERING.

THE CONSTRUCTION ENTRANCE WILL BE INSPECTED AT THE END OF EACH WORK DAY. THE THICKNESS WILL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSION BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL WILL BE MAINTAINED ON THE SITE FOR THIS PURPOSE.

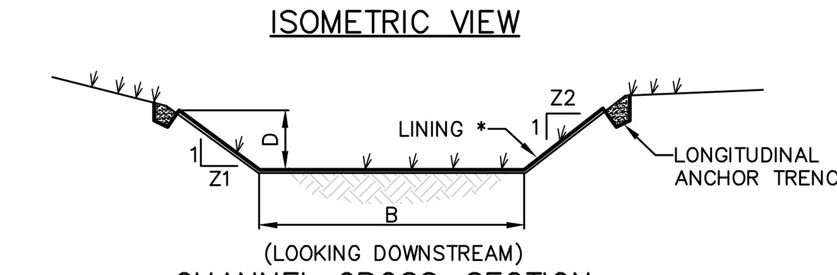
AT THE END OF EACH CONSTRUCTION DAY, ANY SEDIMENT DEPOSITED ON PUBLIC ROADWAYS, WILL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE. WASHING OF THE ROADWAY WITH WATER WILL NOT BE PERMITTED.



INTERMITTENT CHECK SLOT　　LONGITUDINAL ANCHOR TRENCH



ISOMETRIC VIEW



CHANNEL CROSS-SECTION

* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING *
C-1	FULL CHANNEL	1	1	7	3	3	ERONET P300

NOTES:

ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION.
SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

STANDARD CONSTRUCTION DETAIL #6-1
VEGETATED CHANNEL

SEEDING NOTES:

TEMPORARY SEEDING :

1. TEMPORARY SEEDING SHALL BE DONE IN AREAS WHERE NO ACTIVITY WORK WILL BE PERFORMED. ANY DISTURBED AREA ON WHICH ACTIVITY HAS CEASED MUST BE SEEDED AND MULCHED IMMEDIATELY.
2. DURING NON-GERMINATING PERIODS, ONLY MULCH MUST BE APPLIED AT THE RECOMMENDED RATES. AREAS MULCHED DURING THE NON-GERMINATING PERIODS, MUST BE LIMED, FERTILIZED, SEEDED, AND MULCHED IMMEDIATELY FOLLOWING THE END OF THE NON-GERMINATING PERIODS.
3. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN ONE (1) YEAR MAY BE SEEDED AND MULCHED WITH A QUICK GROWING TEMPORARY SEED MIXTURE.
4. DISTURBED AREAS WHICH ARE AT EITHER FINISHED GRADE OR WILL NOT BE DISTURBED AGAIN WITHIN ONE (1) YEAR MUST BE SEEDED WITH A PERMANENT SEED MIXTURE AND MULCHED.
5. TEMPORARY SEEDING STEPS:
   A. APPLY AGRICULTURAL LIMESTONE AT A RATE OF ONE (1) TON PER ACRE. (5 POUNDS PER, 1000 SQUARE FEET)
   B. APPLY FERTILIZER AT THE RATE OF 50-50-50 PER ACRE.
   C. WORK THE LIMESTONE AND FERTILIZER INTO THE SOIL.
   D. UTILIZING THE FOLLOWING SEEDING TYPES, RATES AND TIME SCHEDULE :

TEMPORARY SEEDING

SEASON	RATE	TYPE
MARCH 1 TO JUNE 15	1 LB./1000 SF	ANNUAL RYEGRASS
MAY 15 TO SEPT 15	1 LB./1000 SF	SUDAN GRASS
SEPT 15 TO OCT 15	168 LB./AC	WINTER RYE

   E. APPLY HAY OR STRAW MULCH (IN ACCORDANCE WITH SECTION NO. 4) AT A RATE OF THREE (3) TONS PER ACRE.
6. ALL SEED SHALL BE LABELED, DATED AND QUALITY CONSISTENT WITH SECTION NO. 2

PERMANENT SEEDING:

1. DISTURBED AREAS WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE DISTURBED AGAIN WITHIN ONE (1) YEAR MUST BE SEEDED WITH A PERMANENT SEED MIXTURE AND MULCHED.
2. SEEDING SHALL BE DONE DURING PERIODS FROM APRIL 15TH TO OCTOBER PT, UNLESS OTHERWISE DIRECTED. IF SEEDING IS DONE AFTER OCTOBER 1", DORMANT SEED MUST BE USED AND DISTURBED AREAS MUST BE MULCHED.
3. DISTURBED FINAL GRADED AREAS AND DRAINAGE SWALES WILL BE PERMANENTLY SEEDED AS FOLLOWS:
   A. MINIMUM OF 4" OF TOPSOIL SHALL BE SPREAD OVER ALL AREAS TO BE SEEDED. TOPSOIL SHALL BE FREE OF STONES, STICKS, WASTE MATERIAL AND SIMILAR DEBRIS. FROZEN GROUND SHALL NOT BE SPREAD AS TOPSOIL AND TOPSOIL SHALL NOT BE SPREAD OVER FROZEN GROUND.
   B. A SOIL ANALYSIS IS RECOMMENDED, HOWEVER, IN LIEU OF AN ANALYSIS APPLY AGRICULTURAL LIMESTONE AND FERTILIZER AT RATES RECOMMENDED BELOW (OR AS SUGGESTED BY THE SOIL TEST RESULTS (ONE (1) TEST PER 25 ACRES)).
   C. THE LIMESTONE AND FERTILIZER SHALL BE WORKED INTO THE SOIL TO DEPTHS OF 3 TO 4 INCHES. D. GRASS SHALL NOT BE PLANTED AFTER HEAVY RAIN OR WATERING.
   D. ALL SEED USED SHALL BE LABELED IN ACCORDANCE WITH THE U.S. DEPARTMENT OF AGRICULTURE RULES AND REGULATIONS UNDER THE FEDERAL SEED ACT IN EFFECT AT THE TIME OF PURCHASE. INERT MATTER SHALL NOT EXCEED 15% AND BLUE TAG CERTIFIED SEED SHALL BE SUPPLIED WHEREVER POSSIBLE.
   E. SMOOTH AND FIRM SEED BED WITH CULTIPACKER OR SIMILAR EQUIPMENT PRIOR TO SEEDING. APPLY SEED UNIFORMLY BY BROADCASTING, DRILLING OR HYDRO SEEDING. COVER SEEDS WITH 1/2" OF SOIL WITH SUITABLE EQUIPMENT.
   F. APPLY HAY OR STRAW MULCH (IN ACCORDANCE WITH SECTION NO. 4) AT A RATE OF THREE (3) TONS PER ACRE.

PERMANENT SEEDING FOR NORMAL MOWED LAWN AREAS:

SEASON	RATE	TYPE
MARCH 1 TO JUNE 1 & AUG 15 TO OCT 1	2 LBS./1000 SF	KY31 TALL FESCUE AND RED TOP 12%
OCT 1 TO MARCH 1 & JUNE 1 TO AUG 1	2 LBS./1000 SF	RED TOP*

((*) USE DORMANT SEED, UNIFORMLY APPLIED, WORKING INTO A DEPTH OF 1/4 INCH. THE USE OF MULCH IS REQUIRED. THE USE OF NETTING OR EROSION CONTROL MATS MAY BE REQUIRED.)

PERMANENT SEEDING FOR SPECIAL AREAS
(SWALES, POND EMBANKMENTS, LEVEES, DIVERSION CHANNELS, ETC):

SEASON	RATE	TYPE
MARCH 1 TO JUNE 1 & AUG 15 TO OCT 1	2 LBS./1000 SF	KY31 TALL FESCUE 80% AND RYEGRASS 20%

NOTE : SEEDING PERIODS AND SPECIFICATIONS MAY VARY DUE TO SITE CONDITIONS AND VARIANCES FROM THE TIME THIS REPORT IS WRITTEN AND APPROVED. IT MAY BE NECESSARY TO ADAPT SEED SPECIFICATION, VARIETIES, AND QUALITIES. FOR SPECIAL CONDITIONS CONSULT "GUIDELINE FOR RECLAMATION OF SEVERELY DISTURBED AREAS", PENNSYLVANIA STATE UNIVERSITY.

4. FERTILIZER : A SOIL ANALYSIS IS RECOMMENDED BUT IN LIEU OF AN ANALYSIS APPLY AGRICULTURAL LIMESTONE AT A RATE OF FOUR (4) TONS/ACRE AND 10-20-20 FERTILIZED AT A RATE OF 50 LBS. PER 1000 SF. THESE MATERIALS WILL BE UNIFORMLY APPLIED AND WORKED INTO THE TOPSOIL TO A DEPTH OF 3 TO 4 INCHES. IMMEDIATELY BEFORE SEEDING, A 1 0- 1 0- 10 FERTILIZER WILL BE WORKED INTO THE SURFACE AT A RATE OF 10 LBS. PER 1000 SF.
5. HYDRO SEEDING: LIME AND SEED SHALL BE AS SPECIFIED ABOVE, AND FERTILIZER SHALL BE APPLIED AT A RATE OF 40-80. CROWN VETCH SHALL BE INOCULATED AT FOUR TIMES THE MANUFACTURER'S RATE. SHOULD FERTILIZER BE APPLIED WITH THE INOCULANT, THE MIXTURE SHALL NOT REMAIN IN A SLURRY FOR MORE THAN ONE HOUR. WOOD CELLULOSE FIBER, APPLIED AT A RATE OF 35 LBS. PER 1000 SF, MAY BE APPLIED AS PART OF THE SLURRY IN LIEU OF MULCHING. SYNTHETIC MULCH BINDER, SUCH AS CURASOL, DCA-70, TERRE-TACK OR AN APPROVED EQUAL SHALL BE USED PER THE MANUFACTURER'S INSTRUCTIONS TO ANCHOR THE MULCH.
6. MULCHING: MULCHING SHALL BE APPLIED AS FOLLOWS:
   A. STRAW - SHALL BE ALL DRIED AND FREE FROM UNDESIRABLE SEEDS AND COURSE MATERIAL, APPLY AT A RATE OF 115 TO 150 LBS. PER 1000 SF OR 3 TONS PER ACRE. MULCHED AREAS SHALL BE CHECKED PERIODICALLY AND IMMEDIATELY AFTER STORMS AND WIND. DAMAGED OR MISSING MULCH SHALL BE REPLACED. A TACKIFIER APPLIED AFTER STRAW IS RECOMMENDED. TACKIFIER MAY BE ASPHALT OR POLYMER SPRAY. APPLY AT A RATE RECOMMENDED BY THE MANUFACTURER WITH SUITABLE EQUIPMENT. IN LIEU OF MANUFACTURERS RECOMMENDATIONS APPLY AT A RATE OF .04 TO .06 GALLONS PER SQUARE YARD.
   B. NETTING / EROSION CONTROL BLANKETS - THE USE AND INSTALLATION OF EROSION CONTROL BLANKETS OR NETTING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION AND SHALL BE SELECTED FOR THE PROPER APPLICATION AND CONDITIONS.

UTILITY TRENCHING GUIDELINES:

1. CONSTRUCTION REQUIREMENTS -
   A. LIMIT ADVANCE 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. LIMIT DAILY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT, PLUG INSTALLATION AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.
   D. WATER WHICH ACCUMULATES IN THE OPEN TRENCH WILL BE COMPLETELY REMOVED BY PUMPING AS REQUIRED, TO A FACILITY FOR REMOVAL OF SEDIMENTS IN ACCORDANCE WITH PADEP GUIDELINES
   E. ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND APPROPRIATE TEMPORARY EROSION AND SEDIMENT POLLUTION CONTROL MEASURES/FACILITIES WILL BE INSTALLED. SEEDING AND MULCHING OF ALL DISTURBED AREAS WILL BE DONE AT THE END OF EACH WEEK.
2. EXCEPTIONS - IN CERTAIN CASES TRENCHES CANNOT BE BACKFILLED UNTIL THE PIPE IS HYDROSTATICALLY TESTED, OR ANCHORS AND OTHER PERMANENT FEATURES ARE INSTALLED IN THESE CASES, ALL OF THE REQUIREMENTS LISTED UNDER ITEM 1 WILL REMAIN IN EFFECT WITH THE FOLLOWING EXCEPTIONS:
   A. DAILY BACKFILLING OF THE TRENCH MAY BE DELAYED FOR SIX DAYS. ALL PRESSURE TESTING AND THE COMPLETE BACKFILLING OF THE OPEN TRENCH MUST BE COMPLETED BY THE SEVENTH WORKING DAY.
   B. IF DAILY BACKFILLING IS DELAYED, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS, APPROPRIATE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES/FACILITIES WILL BE INSTALLED, AND THE AREAS SEEDED AND MULCHED WITHIN THE NEXT TWO CALENDAR DAYS.

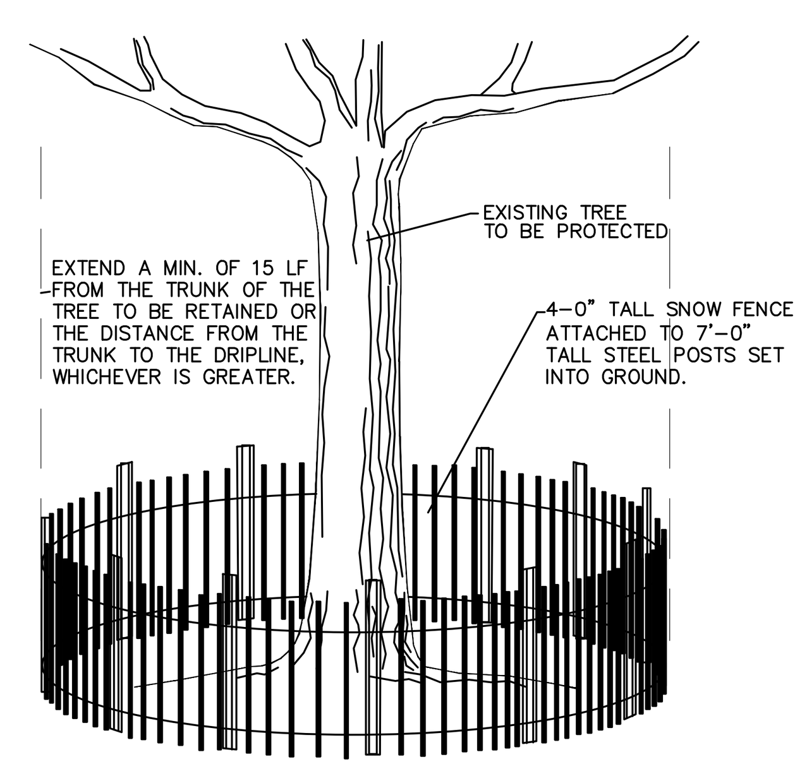
TREE PROTECTION NOTES

A. PRIOR TO ANY SITE WORK, CLEARING, TREE REMOVAL, GRADING, OR CONSTRUCTION, THE TREE PROTECTION AREA SHALL BE DELINEATED BY THE FOLLOWING METHODS:
1. THE TREE PROTECTION AREA THAT IS DELINEATED ON THE SITE PRIOR TO CONSTRUCTION SHALL CONFORM TO THE APPROVED DEVELOPMENT PLANS.
2. FORTY-EIGHT INCH HIGH ORANGE SNOW FENCE OR OTHER SUITABLE FENCE, SUCH AS SUPER SILT FENCE, MOUNTED ON STEEL POSTS LOCATED 8 FEET ON CENTER, SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION AREA.
3. TREES BEING REMOVED SHALL NOT BE FELLED, PUSHED OR PULLED INTO A TREE PROTECTION AREA OR INTO TREES THAT ARE TO BE PRESERVED.
4. GRADE CHANGES AND EXCAVATIONS SHALL NOT ENCROACH UPON THE TREE PROTECTION AREA.
5. NO TOXIC MATERIALS, INCLUDING PETROLEUM PRODUCTS SHALL BE STORED LESS THAN 100 FEET FROM A TREE PROTECTION AREA OR A WATERCOURSE. IF FIELD CONDITIONS WARRANT, A GREATER DISTANCE MAY BE REQUIRED.
6. THE AREA WITHIN THE TREE PROTECTION AREA SHALL NOT BE BUILT UPON NOR SHALL ANY MATERIALS BE STORED THERE EITHER TEMPORARILY OR PERMANENTLY. VEHICLES AND EQUIPMENT SHALL NOT BE PARKED IN THE TREE PROTECTION AREA.
7. WHEN TREE STUMPS ARE LOCATED WITHIN 10 FEET OF THE TREE PROTECTION AREA, THE STUMPS SHALL BE REMOVED BY MEANS OF A STUMP GRINDER TO MINIMIZE THE EFFECT ON SURROUNDING ROOT SYSTEMS.
8. TREE ROOTS WHICH MUST BE SEVERED SHALL BE CUT BY A BACKHOE OR SIMILAR EQUIPMENT ALIGNED RADIALLY TO THE TREE. THIS METHOD REDUCES THE LATERAL MOVEMENT OF THE ROOTS DURING EXCAVATION, WHICH IF DONE BY OTHER METHODS COULD DAMAGE THE INTERTWINED ROOTS OF ADJACENT TREES.
9. WITHIN 4 HOURS OF ANY SEVERANCE OF ROOTS, ALL TREE ROOTS THAT HAVE BEEN EXPOSED AND/OR DAMAGED SHALL BE TRIMMED CLEANLY AND COVERED TEMPORARILY WITH MOIST PEAT MOSS, BURLAP, OR OTHER BIODEGRADABLE MATERIAL TO KEEP THEM FROM DRYING OUT UNTIL PERMANENT COVER CAN BE INSTALLED.
10. SEDIMENT, RETENTION, AND DETENTION BASINS SHALL NOT DISCHARGE INTO THE TREE PROTECTION AREA.
11. SEDIMENT, RETENTION, AND DETENTION BASINS SHALL NOT BE LOCATED WITHIN THE TREE PROTECTION AREA.
12. TREES SHALL NOT BE USED FOR ROPING, CABLES, SIGNS, OR FENCING. NAILS AND SPIKES SHALL NOT BE DRIVEN INTO TREES.

B. PROTECTION FROM GRADE CHANGE.
1. WHEN THE ORIGINAL GRADE CANNOT BE RETAINED AT THE TREE PROTECTION AREA LINE, A RETAINING WALL SHALL BE CONSTRUCTED OUTSIDE THE TREE PROTECTION AREA.
2. APPROPRIATE DETAILS OF THE RETAINING WALL DESIGN SHALL BE PROVIDED.
3. TO ENSURE THE SURVIVAL OF TREES, THE FOLLOWING METHODS SHALL BE USED.
3.a. THE TOP OF THE WALL SHALL BE FOUR INCHES ABOVE THE FINISHED GRADE LEVEL.
3.b. THE WALL SHALL BE CONSTRUCTED OF LARGE STONES, BRICKS, BUILDING TILES, CONCRETE BLOCKS, OR TREATED WOOD BEAMS NOT LESS THAN 6 INCHES BY 6 INCHES. A MEANS FOR DRAINAGE THROUGH THE WALL SHALL BE PROVIDED SO WATER WILL NOT ACCUMULATE ON EITHER SIDE OF THE WALL. WEEP HOLES SHALL BE REQUIRED WITHIN ANY WALL.
3.c. ANY SEVERED ROOTS AS A RESULT OF EXCAVATION SHALL BE TRIMMED SO THAT THEIR EDGES ARE SMOOTH AND ARE CUT BACK TO A LATERAL ROOT IF EXPOSED.

C. TREES DAMAGED DURING CONSTRUCTION. TREE TRUNKS AND EXPOSED ROOTS DAMAGED DURING CONSTRUCTION SHALL BE PROTECTED FROM FURTHER DAMAGE. DAMAGED BRANCHES SHALL BE PRUNED ACCORDING TO NATIONAL ARBORIST ASSOCIATION STANDARDS. ALL CUTS SHALL BE MADE SUFFICIENTLY CLOSE TO THE TRUNK OR PARENT LIMB WITHOUT CUTTING INTO THE BRANCH COLLAR OR LEAVING A PROTRUDING STUB. ALL NECESSARY PRUNING CUTS MUST BE MADE TO PREVENT BARK FROM BEING TORN FROM THE TREE AND TO FACILITATE RAPID HEALING.

D. TREE REPLACEMENT. IN THE EVENT THAT TREES THAT ARE TO BE PROTECTED ARE REMOVED OR DAMAGED BY ACCIDENT OR BY VIOLATION OF THE TREE PROTECTION REQUIREMENTS, TREES SHALL BE REPLACED ON AN INCH FOR INCH BASIS.



NOTES:
1) FENCE TO BE INSTALLED BEFORE WORK BEGINS. FENCE MUST REMAIN AND BE MAINTAINED THROUGH DURATION OF CONSTRUCTION.
2) ORANGE CONSTRUCTION FENCE MAY BE SUBSTITUTED FOR SNOW FENCE.
3) THE TREE PROTECTION ZONE THAT IS DELINEATED ON THE SITE PRIOR TO CONSTRUCTION SHALL CONFORM TO THE APPROVED DEVELOPMENT PLANS.
4) ALL TREES SCHEDULED TO REMAIN SHALL BE MARKED; WHERE GROUPS OF TREES EXIST, ONLY THE TREES ON THE EDGE NEED TO BE MARKED.
5) A FORTY-EIGHT-INCH-HIGH WOODEN SNOW FENCE MOUNTED ON STEEL POSTS, LOCATED EIGHT FEET ON CENTER, OR OTHER DELINEATION APPROVED BY THE TOWNSHIP, SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE.
6) WHEN THE TREE PROTECTION FENCE HAS BEEN INSTALLED, IT SHALL BE INSPECTED AND APPROVED BY THE TOWNSHIP PRIOR TO CLEARING AND FURTHER CONSTRUCTION.
7) FENCING ALONG THE TREE PROTECTION ZONE SHALL BE MAINTAINED UNTIL ALL WORK/CONSTRUCTION HAS BEEN COMPLETED; ANY DAMAGED PROTECTIVE FENCE SHALL BE REPLACED AND REPAIRED IMMEDIATELY.
8) TREES BEING REMOVED SHALL NOT BE FELLED, PUSHED, OR PULLED INTO A TREE PROTECTION ZONE OR INTO TREES THAT ARE TO BE RETAINED.

TREE PROTECTION FENCING DETAIL

RAIN GARDEN CONSTRUCTION SEQUENCE
1. IF ANY UNFAVORABLE CONDITIONS ARE ENCOUNTERED DURING THE INSTALLATION OF THE RAIN GARDENS (I.E. GROUNDWATER AND/OR BEDROCK PINNACLES OF CARBONATE BEDROCK, ETC.), THE OWNER/ENGINEER SHOULD BE NOTIFIED IMMEDIATELY SINCE THE PROPOSED RAIN GARDEN MAY NEED TO BE RELOCATED TO A MORE SUITABLE LOCATION ON THE PROPERTY.
2. INSTALL TEMPORARY SEDIMENT CONTROL BMPS AS SHOWN ON THE PLANS.
3. RAIN GARDEN AND ALL PROPOSED BMPS SHALL BE INSTALLED PRIOR TO THE INSTALLATION OF ANY IMPERVIOUS IMPROVEMENTS.
4. EXISTING SUB-GRADE IN BIOINFILTRATION AREAS SHALL NOT BE COMPACTED OR SUBJECTED TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC.
5. INITIAL EXCAVATION CAN BE PERFORMED DURING ROUGH SITE GRADING BUT SHALL NOT BE CARRIED TO WITHIN ONE FEET OF THE FINAL BOTTOM ELEVATION. FINAL EXCAVATION SHOULD NOT TAKE PLACE UNTIL ALL DISTURBED AREAS IN THE DRAINAGE AREA HAVE BEEN STABILIZED. RAIN GARDEN BED AREAS MAY BE USED AS TEMPORARY SEDIMENT FACILITIES PROVIDED THAT THE PROPOSED FINISH ELEVATION OF THE BED IS 12 INCHES LOWER THAN THE BOTTOM ELEVATION OF THE SEDIMENT TRAP. IF SEDIMENT FACILITIES ARE LOCATED WITHIN 12 INCHES OF BMP ELEVATION, CONTRACTOR SHALL EXCAVATE MATERIAL TO A DEPTH 36 INCHES BELOW FINAL GRADE AND REPLACE WILL 12 INCHES OF CLEAN, LIGHTLY COMPACTED SOIL PRIOR TO PLACING PLANTING SOIL.
6. WHERE EROSION OF SUB-GRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING IN THE GRADED BOTTOM, THIS MATERIAL SHALL BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE OR EQUIVALENT BY LIGHT TRACTOR.
7. BRING SUBGRADE OF BIOINFILTRATION AREA TO LINE, GRADE AND ELEVATIONS INDICATED. FILL AND LIGHTLY REGRADE ANY AREAS DAMAGED BY EROSION, PONDING OR TRAFFIC.
8. UPON COMPLETION OF THE SUBGRADE WORK, THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT AT THE ENGINEER'S DISCRETION BEFORE PROCEEDING WITH INSTALLATION.
9. PLANTING SOIL SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE. ANY ACCUMULATION OF DEBRIS OR SEDIMENT THAT TAKES PLACE AFTER APPROVAL OF SUBGRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF PLANTING SOIL AT NO EXTRA COST TO THE OWNER.
10. INSTALL PLANTING SOIL IN 18 INCH MAXIMUM LIFTS AND LIGHTLY COMPACT (TAMP WITH BACKHOE OR BY HAND). KEEP EQUIPMENT MOVING TO A MINIMUM. DO NOT OVER COMPACT. INSTALL PLANTING SOIL TO GRADES SHOWN ON PLANS.
11. SEED RAIN GARDEN ACCORDING TO RAIN GARDEN SEEDING SPECIFICATIONS.
12. PROTECT RAIN GARDENS FROM SEDIMENT AT ALL TIMES. SILK SOCKS, DIVERSION BERMS AND/OR OTHER APPROPRIATE MEASURES SHALL BE USED AT THE TOE OF THE SLOPES THAT ARE ADJACENT TO THE RAIN GARDENS TO PREVENT SEDIMENT FROM WASHING INTO THESE AREAS DURING SITE DEVELOPMENT.
13. WHEN SITE IS FULLY VEGETATED AND THE SOIL MANTLE IS STABILIZED THE PLAN DESIGNER SHALL BE NOTIFIED AND SHALL INSPECT THE RAIN GARDEN DRAINAGE AREA AT THE ENGINEER'S DISCRETION BEFORE THE AREA IS BROUGHT ONLINE AND SEDIMENT CONTROL DEVICES REMOVED.
14. CONTINUOUS MOISTURE FOR 4-6 WEEKS MUST BE INSURED TO ALLOW PROPER GERMINATION, IF RAIN DOES NOT OCCUR CONTRACTOR SHALL PROVIDE SUPPLEMENTAL IRRIGATION TO NEWLY SEEDED AREAS PER INSTRUCTIONS INCLUDED IN SEEDING SPECIFICATION.

RAIN GARDEN FLOOR SEEDING

SEED IN ERNST SEED MIX (ERNMX-180); RAIN GARDEN AREA MIX
SEEDING RATE IS 20 LBS. PER ACRE WITH 30 LBS. PER ACRE GRAIN RYE (COVER CROP)

ERNMX-180 RAIN GARDEN AREA MIX
26% River Oats, PA/VA Ecotype blend (Chasmanthium latifolium (Uniola latifolia), PA/VA Ecotype blend)
17% Virginia Wildrye, PA Ecotype (Elymus virginicus, PA Ecotype)
15% Fowl Bluegrass (Poa palustris)
10% Fox Sedge, PA Ecotype (Carex vulpinoidea, PA Ecotype)
6% Purple Coneflower (Echinacea purpurea)
4% Blackeyed Susan, Coastal Plain NC Ecotype (Rudbeckia hirta, Coastal Plain NC Ecotype)
3% Zigzag Aster, PA Ecotype (Aster prenanthoides (Symphyotrichum p.), PA Ecotype)
3% Blue False Indigo, Southern WV Ecotype (Baptisia australis, Southern WV Ecotype)
3% Ohio Spiderwort, PA Ecotype (Tradescantia ohiensis, PA Ecotype)
2% Lanceleaf Coreopsis, Coastal Plain NC Ecotype (Coreopsis lanceolata, Coastal Plain NC Ecotype)
2% Wild Bergamot, PA Ecotype (Monarda fistulosa, PA Ecotype)
2% Wild Senna, VA & WV Ecotype (Senna hebecarpa (Cassia h.), VA & WV Ecotype)
2% Autumn Bentgrass, PA Ecotype (Agrostis perennans, PA Ecotype)
2% Marsh (Dense) Blazing Star (Spiked Gayfeather), PA Ecotype (Liatris spicata, PA Ecotype)
1% Early Goldenrod, PA Ecotype (Solidago juncea, PA Ecotype)
1% Oxeye Sunflower, PA Ecotype (Heliopsis helianthoides, PA Ecotype)
1% Swamp Milkweed, PA Ecotype (Asclepias incarnata, PA Ecotype)

RAIN GARDEN LANDSCAPE MAINTENANCE

THIS RAIN GARDEN IS DESIGNED TO BECOME NATURALIZED OVER TIME AND WILL REQUIRE LESS MAINTENANCE AS TIME GOES ON.

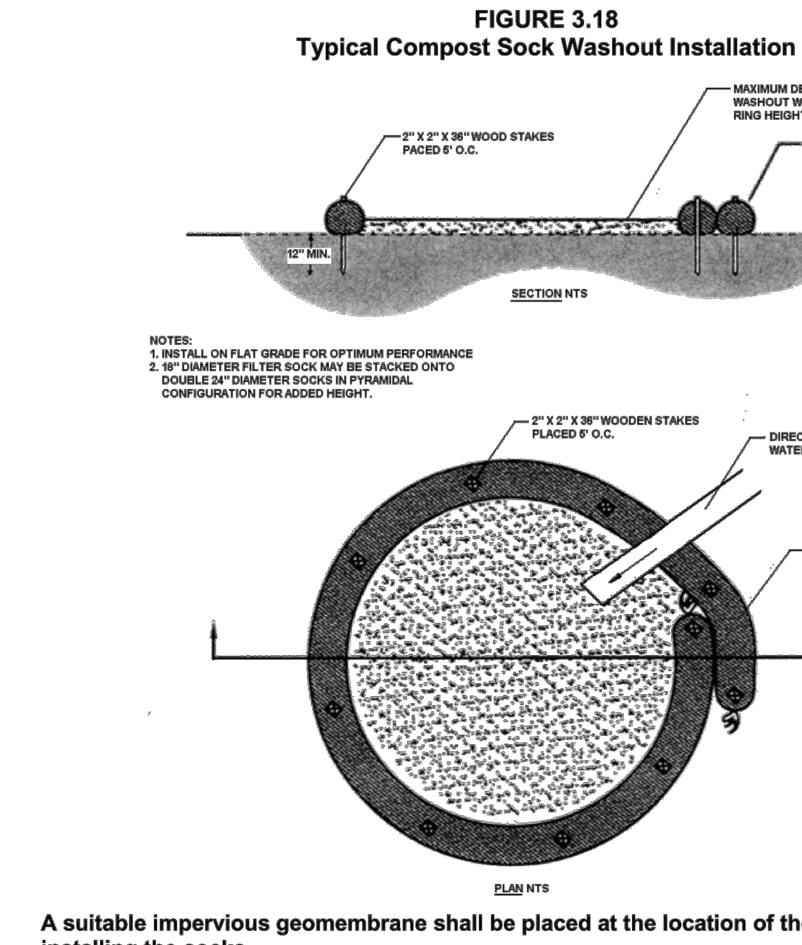
MOWING - ESTABLISH AND MAINTAIN A NO-MOW ZONE THAT ENCOMPASSES THE FLOOR AND SIDE SLOPES. MOW THE NO-MOW ZONE 1X/YEAR TO A MINIMUM HEIGHT OF 6". (ANNUALLY IN LATE APRIL/ EARLY MAY). RAKE MOWN MATERIAL AND COMPOST OR DISPOSE OF OFF SITE.

INSPECTIONS - INSPECT RAIN GARDEN AND NO-MOW ZONES FOR INVASIVE SPECIES SUCH AS PURPLE LOOSESTRIFE, PHRAGMITES, HONEYSUCKLE, ETC. (ANNUALLY IN JULY). IF INVASIVE SPECIES ARE FOUND REMOVE PER RECOMMENDED STANDARDS FOR SPECIFIC SPECIES FOLLOWING GUIDELINES BY PA DCNR (DEPT OF CONSERVATION & NATURAL RESOURCES).

CLEANING - REMOVE TRASH AND DEBRIS (JANUARY & APRIL)

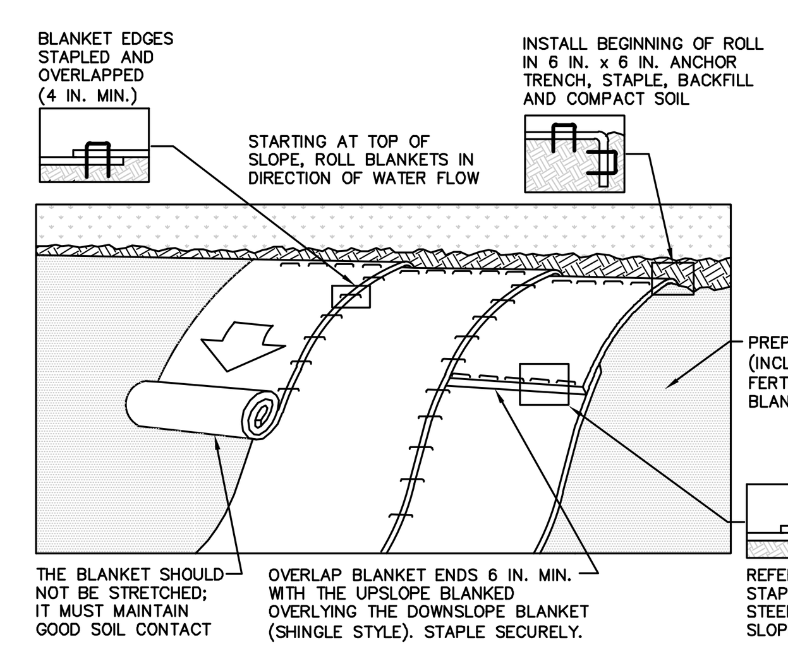
RAIN GARDEN PLANTING NOTES

FIGURE 3.18
Typical Compost Sock Washout Installation



A suitable impervious geomembrane shall be placed at the location of the washout prior to installing the socks.
Adapted from Filtrexx

CONCRETE WASHOUT DETAIL



NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

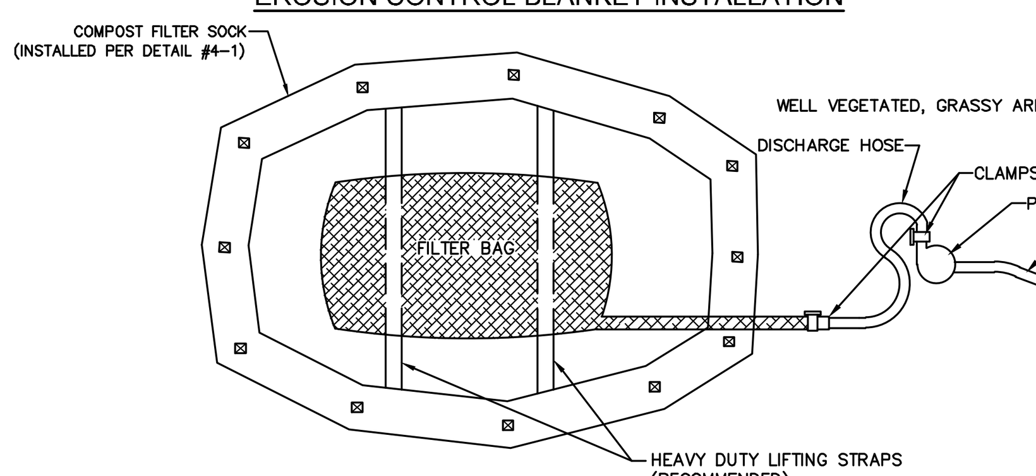
SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

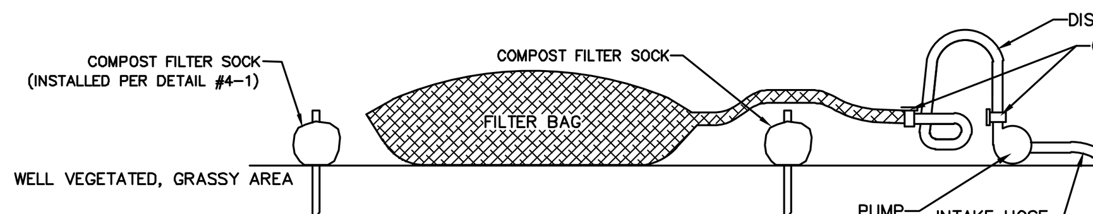
THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

STANDARD CONSTRUCTION DETAIL #11-1
EROSION CONTROL BLANKET INSTALLATION



PLAN VIEW



ELEVATION VIEW

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.

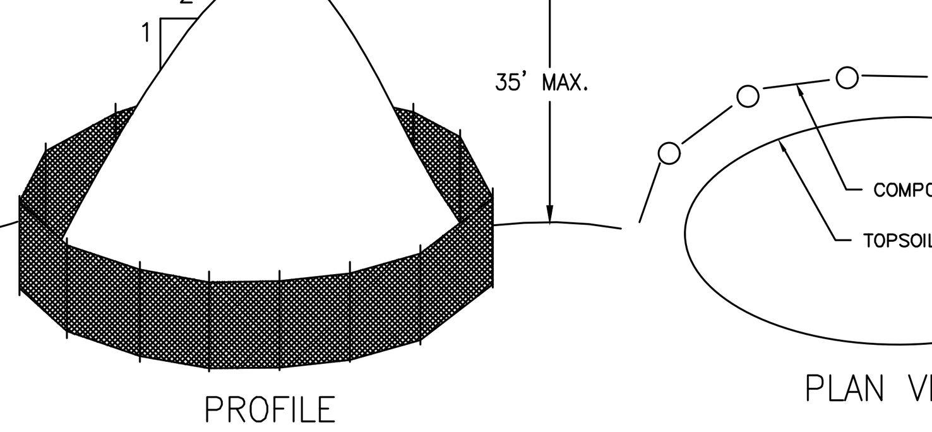
NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

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.

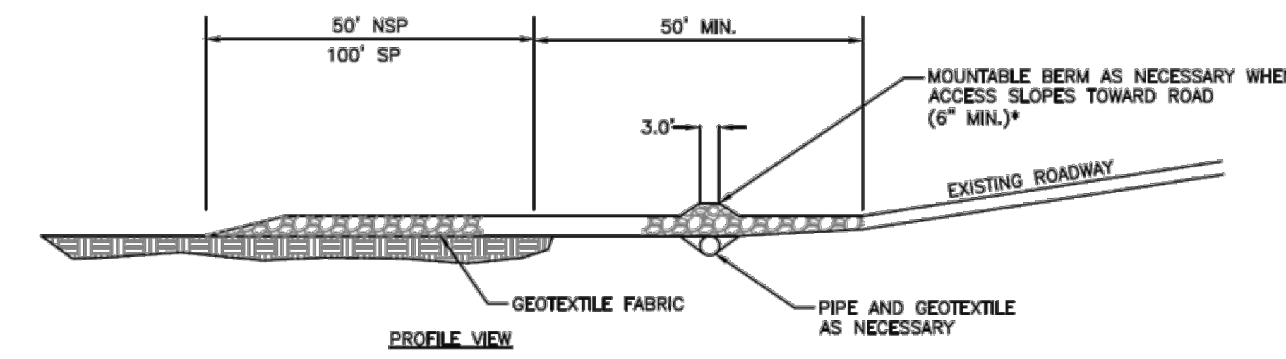
FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

STANDARD CONSTRUCTION DETAIL #3-16
PUMPED WATER FILTER BAG
WITH COMPOST FILTER SOCK

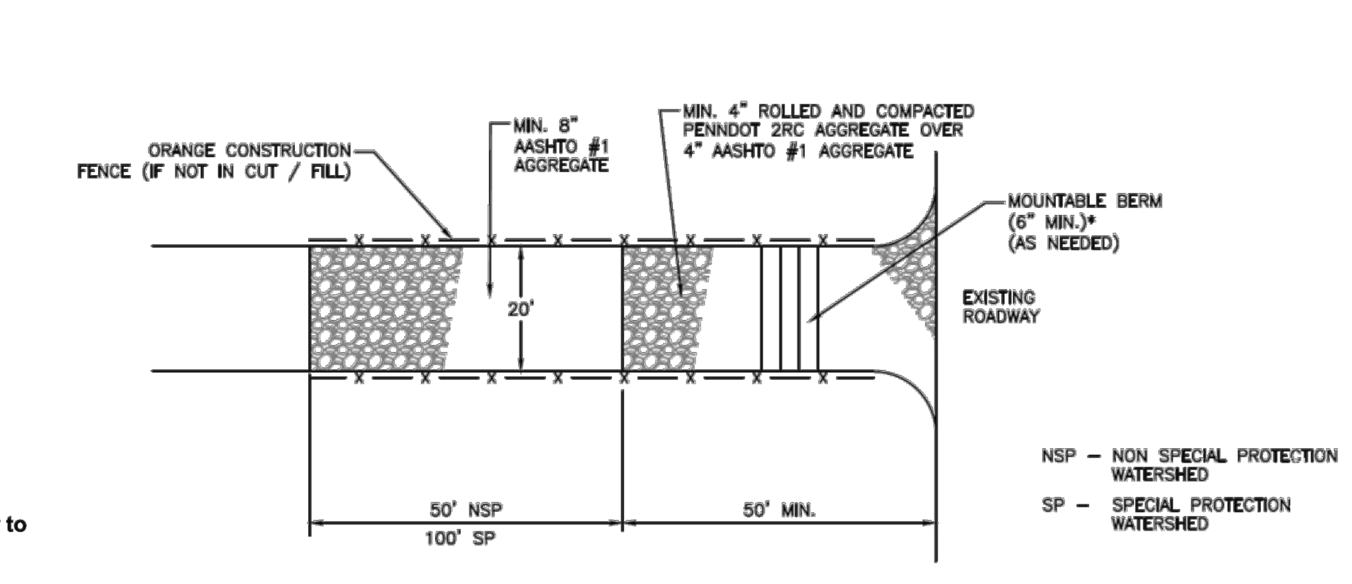


COMPOST FILTER SOCK MUST BE PLACED DOWNSLOPE OF ALL STOCKPILES. IMMEDIATELY APPLY TEMPORARY SEEDING TO ALL STOCKPILES WHICH WILL REMAIN IN PLACE 20 DAYS OR MORE.

STOCKPILE AREA DETAIL



PROFILE VIEW



PLAN VIEW

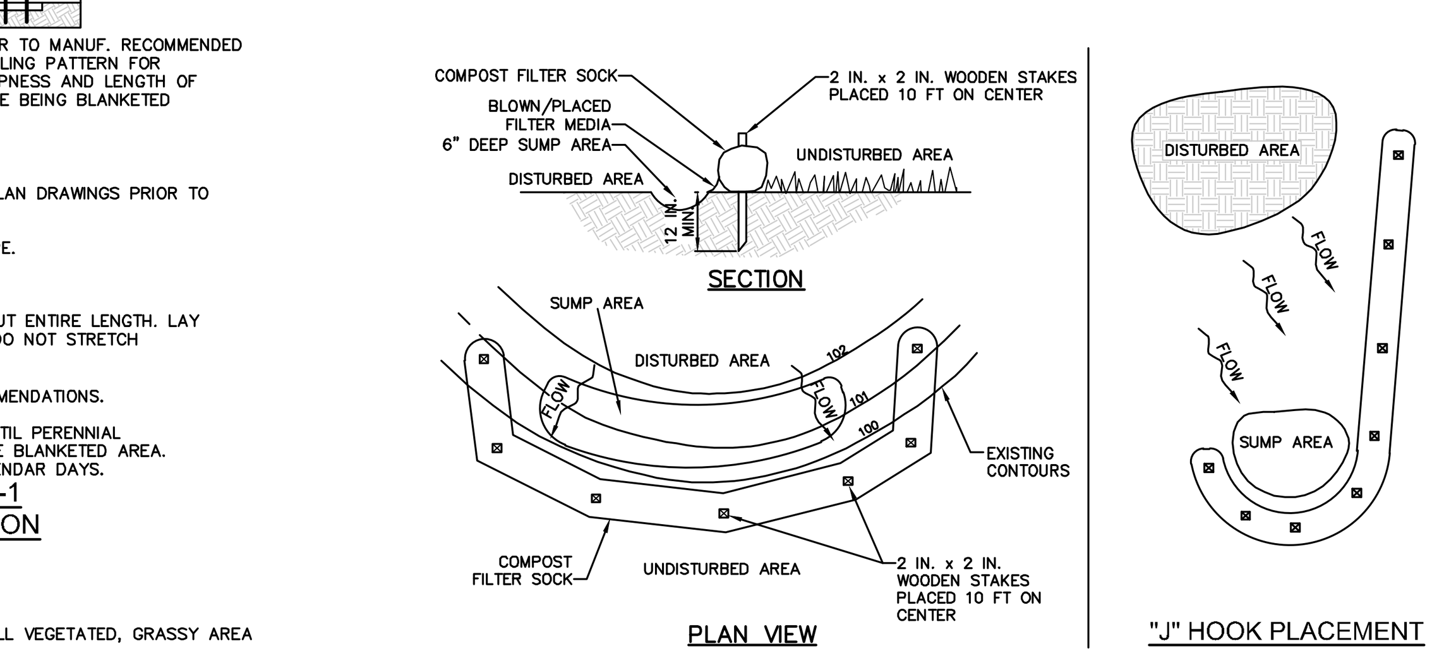
REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

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.

ALTERNATIVE ROCK CONSTRUCTION ENTRANCE



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.

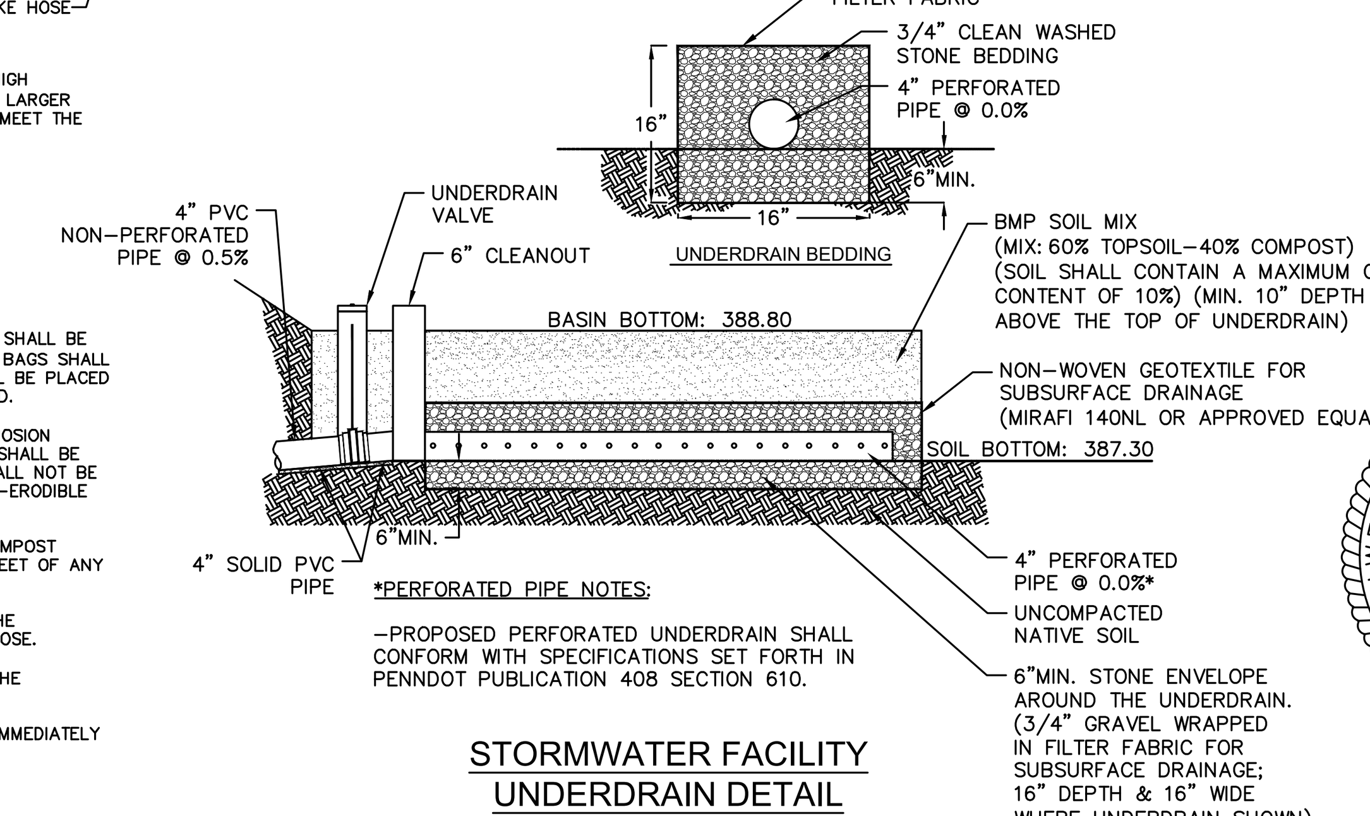
ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

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.

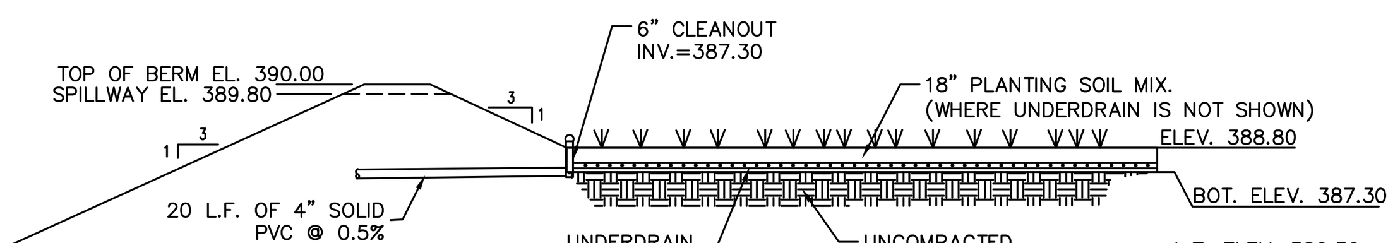
STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK
NOT TO SCALE



*PERFORATED PIPE NOTES:

-PROPOSED PERFORATED UNDERDRAIN SHALL CONFORM WITH SPECIFICATIONS SET FORTH IN PENNDOT PUBLICATION 408 SECTION 610.

STORMWATER FACILITY
UNDERDRAIN DETAIL



OPERATION AND MAINTENANCE:
1.) GRASS SHALL BE MOWED PERIODICALLY.
2.) HOMEOWNER TO INSPECT THE FILTER INLET(S) SEMI-ANUALLY, AND CLEAN AS NECESSARY TO PRESERVE ITS FUNCTIONALITY.

GENERAL NOTES:
1.) NO DRAINAGE STRUCTURES (SURFACE OR FOUNDATION) SHALL BE CONNECTED TO THE RAIN GARDEN OTHER THAN AS SHOWN ON THE PLAN.
2.) PLANTING SOIL MIX TO BE 5-80% COMPOST AND 20-95% SOIL.

RAIN GARDEN PROFILE DETAIL
N.T.S.

Holmes Cunningham LLC
409 E. Butler Ave,
Unit 5
Doylestown, PA 18901
(215) 586-3330
www.hcengineering.net
holmes cunningham ENGINEERING

REVISIONS

Date	Description
6/11/2020	New Britain Township Comments
6/1/2021	New House Revisions
7/8/2021	Driveway Revisions
9/14/2021	New Britain Township Comments

CALL BEFORE YOU DIG !! PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE -- STOP & CALL --
Pennsylvania One Call System, Inc. 1-800-242-1776

UTILITY LOCATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR, PER PA. ACT 187 TO CONTACT UTILITY COMPANIES PRIOR TO ANY EXCAVATION. (SERIAL #20181311149)

BENNER PROPERTY
T.M.P.# 26-008-157
VALLEY DRIVE
NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PA

CONSTRUCTION DETAILS

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER KRISTIN RANDI HOLMES PE073604
KRISTIN R. HOLMES, P.E.
PA Lic. No. PE073604

File No.
1551_C1.0_PERMIT.DWG

Date	6/3/2021
Scale	N.T.S.
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Designed	KH
Sheet	2 of 3

Drawing No.
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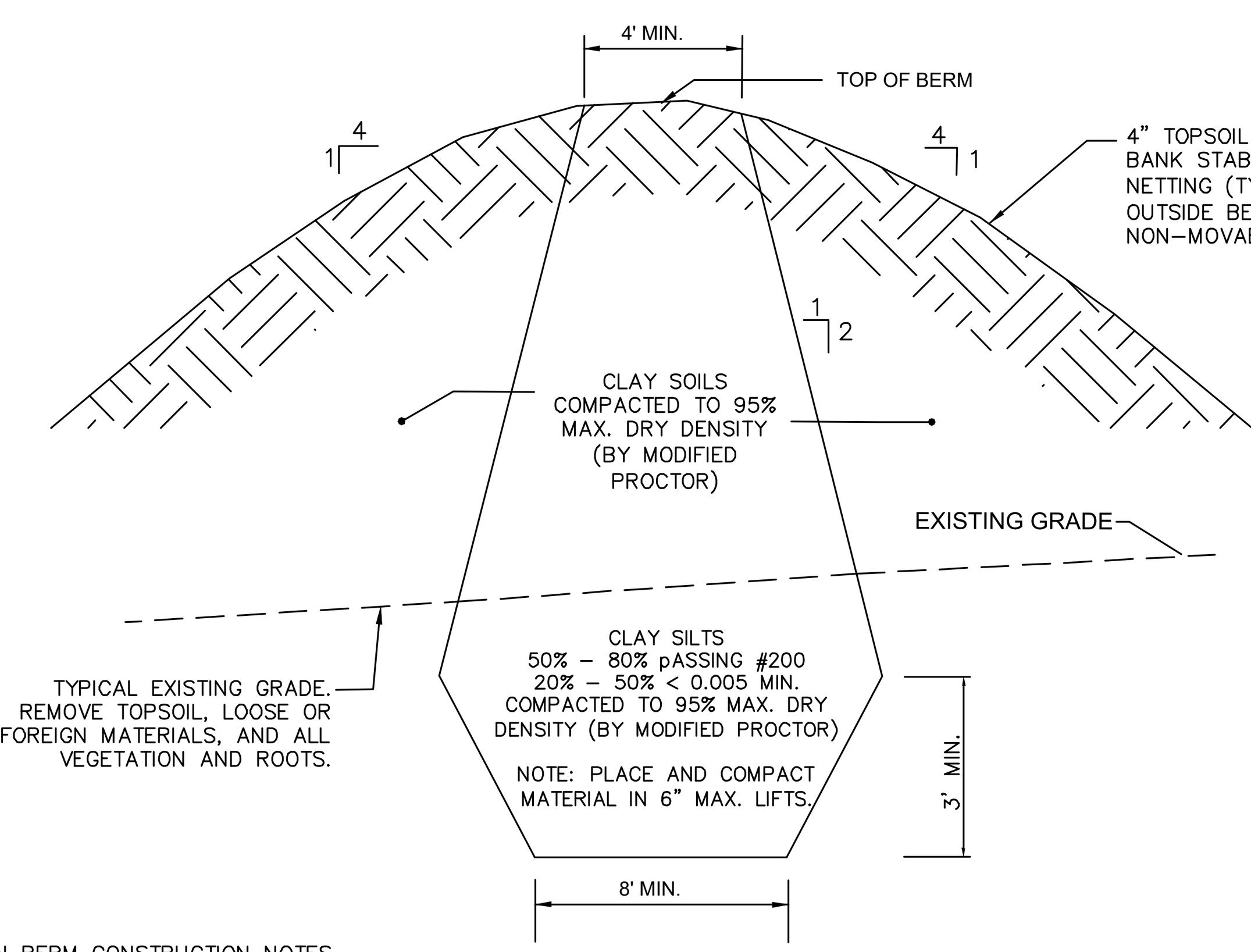
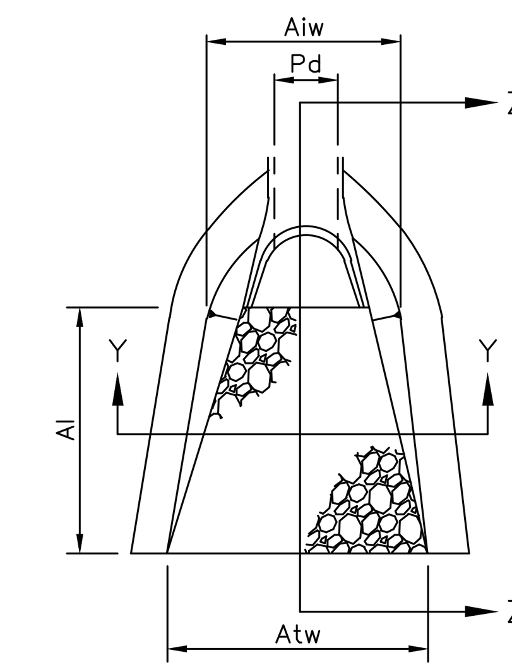


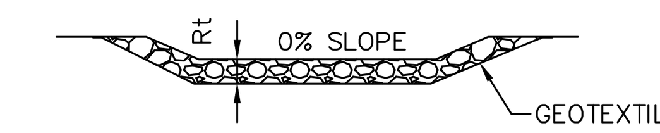
STANDARD BASIN BERM CONSTRUCTION NOTES

1. SITE PREPARATION – AREAS UNDER THE EMBANKMENT AND ANY STRUCTURES SHALL BE CLEARED, GRUBBED AND THE TOPSOIL STRIPPED TO REMOVE TREES. VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. IN ORDER TO FACILITATE CLEAN–OUT AND RESTORATION, THE POOL AREA WILL BE CLEARED OF ALL BRUSH AND EXCESS TREES.
2. CUT OFF TRENCH – A CUT–OFF TRENCH WILL BE EXCAVATED ALONG THE BERM CENTERLINE BENEATH EARTH FILL EMBANKMENTS. THE MINIMUM DEPTH SHALL BE 3 FEET. THE CUT–OFF TRENCH SHALL EXTEND TO THE RISER CREST ELEVATION. THE MINIMUM BOTTOM WIDTH SHALL BE 8 FEET BUT WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT. THE SIDE SLOPES SHALL BE NO STEEPER THEN 1:1. COMPACTION REQUIREMENTS SHALL BE THE SOME AS THOSE FOR EMBANKMENTS. THE TRENCH SHALL BE KEPT FREE OF STANDING WATER DURING THE BACKFILLING OPERATIONS.
3. EMBANKMENT – THE FILL MATERIAL SHALL BE TAKEN FROM SELECTED BORROW AREAS. IT SHALL BE FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES ROCKS OR OTHER OBJECTIONABLE MOTERIAL. AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. THE FILL MATERIAL SHOULD CONTAIN SUFFICIENT MOISTURE SO THAT IT CAN BE FORMED BY HAND INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE– BALL, IT IS TOO WET FOR PROPER COMPACTION. FILL MATERIAL MUST BE PLACED IN 6 TO 8 INCH LAYERS AND SHALL BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. COMPACTION MUST BE OBTAINED BY MECHANICAL SHEEP FOOT ROLLERS. THE EMBANKMENT SHALL BE CONSTRUCTED TO AN ELEVATION OF 5% HIGHER THAN THE DESIGN HEIGHT TO ALLOW FOR SETTLEMENT.

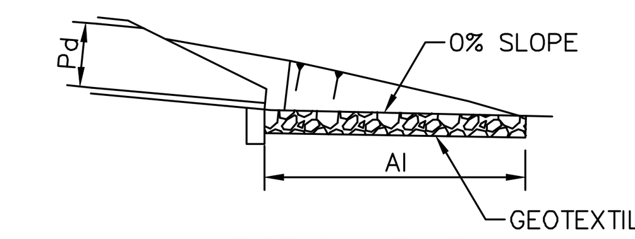
BASIN BERM DETAIL



PLAN VIEW



SECTION Y–Y



SECTION Z–Z

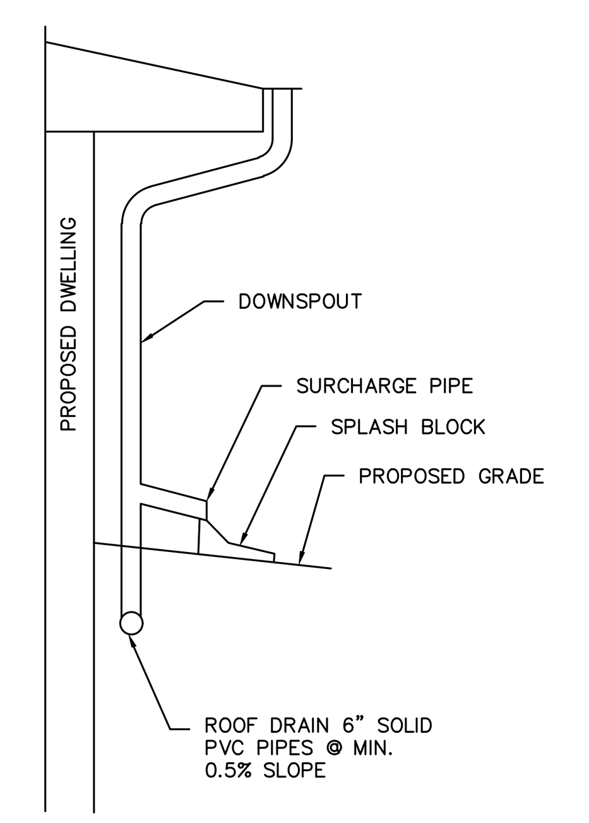
OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP		APRON		
		SIZE R–_	THICK. Rt (IN)	LENGTH Al (FT)	INITIAL WIDTH Aiw (FT)	TERMINAL WIDTH Atw (FT)
RRA–1	6	3	9	6	1.5	7.5
RRA–2	4	3	9	6	1.0	7.0

NOTES:

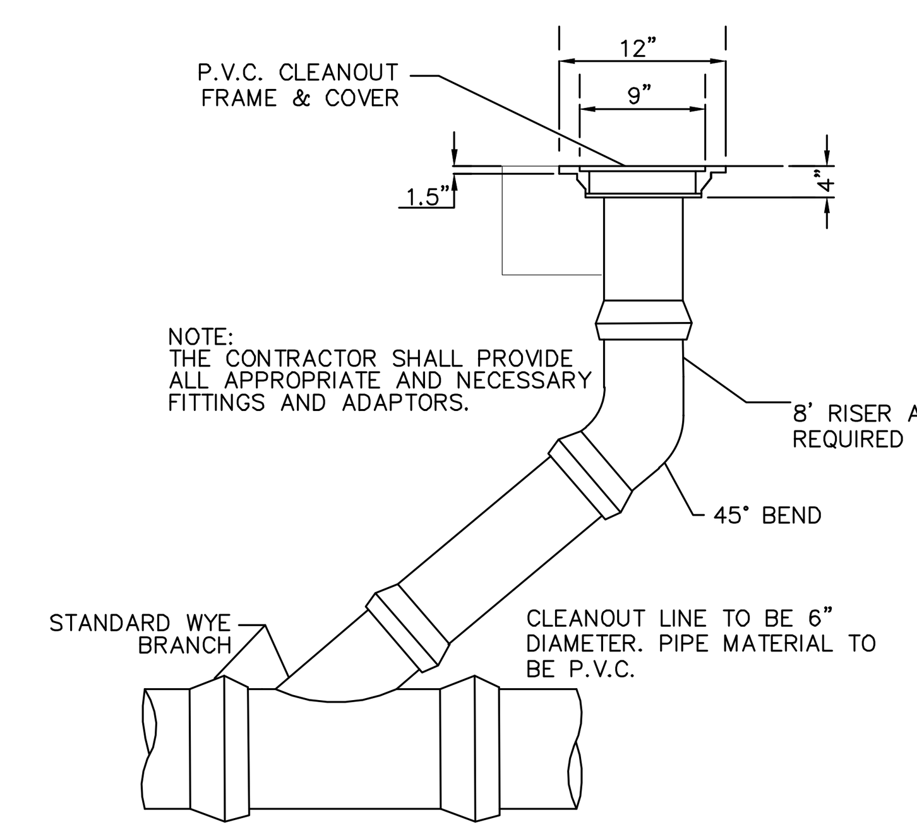
ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

STANDARD CONSTRUCTION DETAIL #9-1
RIPRAP APRON AT PIPE OUTLET
WITH FLARED END SECTION OR ENDWALL



ROOF DRAIN DETAIL



ROOF DRAIN CLEANOUT

Holmes Cunningham LLC
409 E. Butler Ave,
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holmes cunningham
ENGINEERING

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BENNER PROPERTY
T.M.P.# 26-008-157
VALLEY DRIVE
NEW BRITAIN TOWNSHIP, BUCKS COUNTY, PA

CONSTRUCTION DETAILS

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
KRISTIN RANDI HOLMES
PE 073604

[illegible]

KRISTIN R. HOLMES, P.E.
PA Lic. No. PE073604

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