

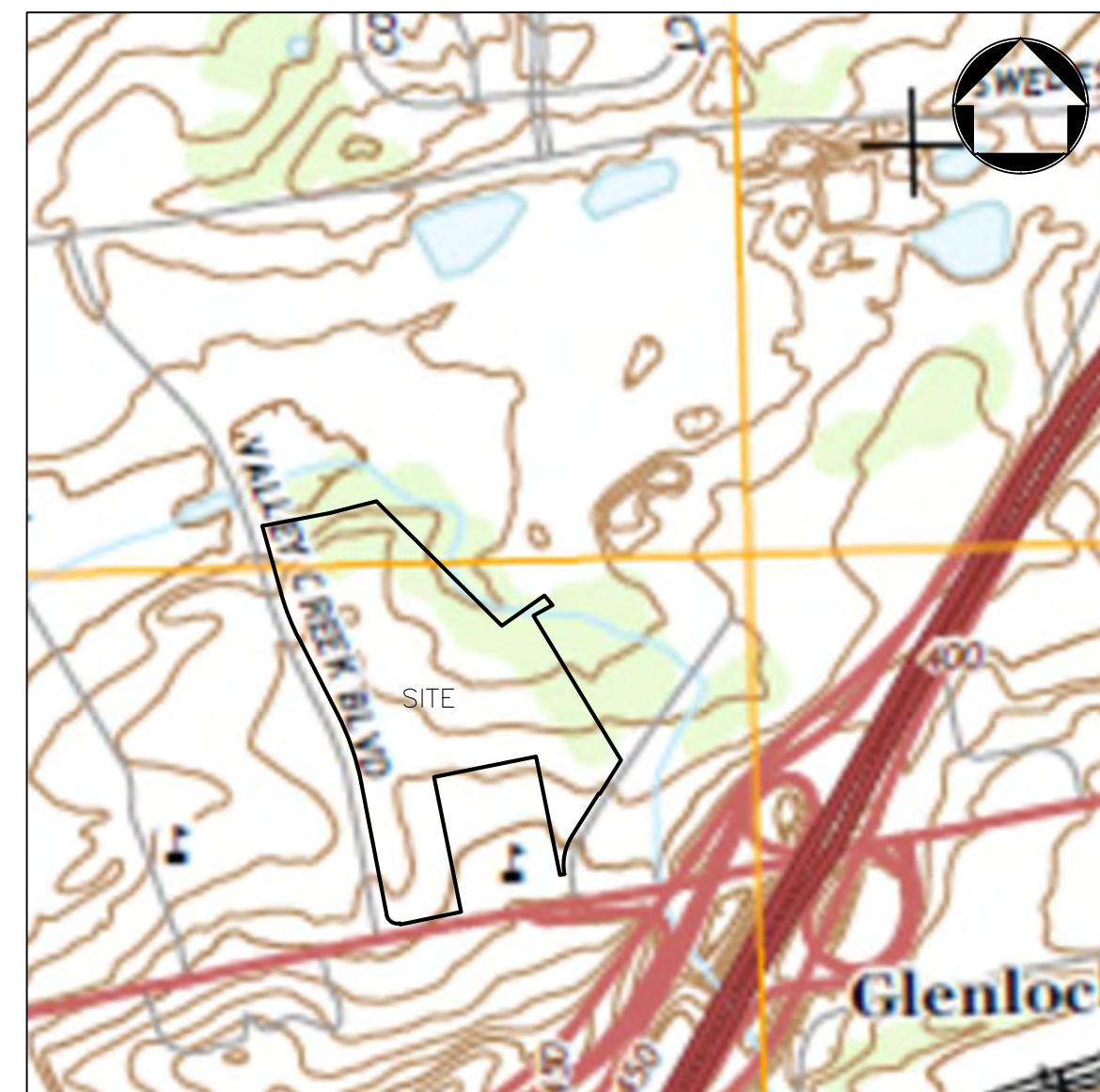
# PRELIMINARY/FINAL LAND DEVELOPMENT PLAN

## FOR

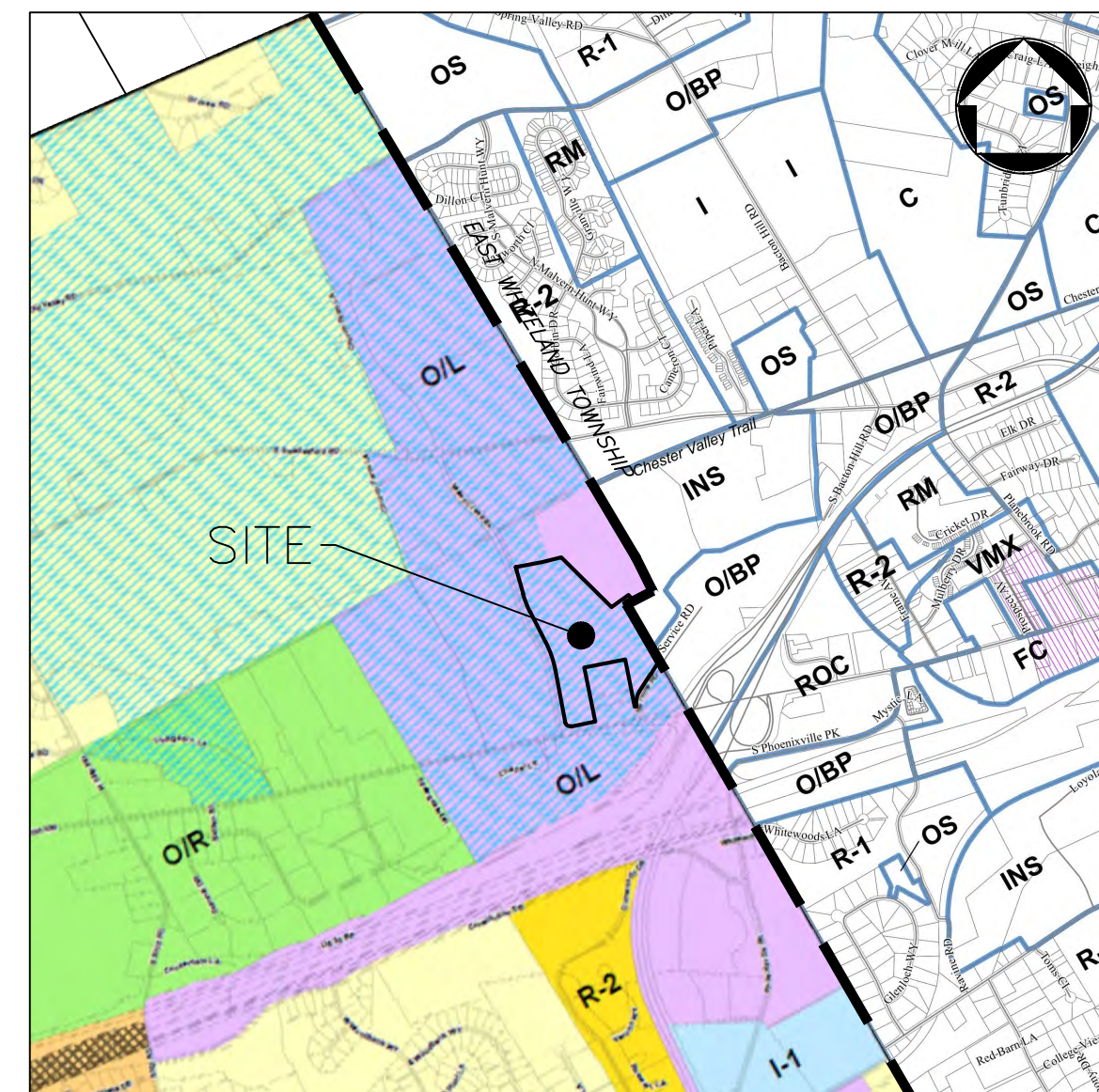
# WEST WHITELAND TOWNSHIP

## PUBLIC WORKS

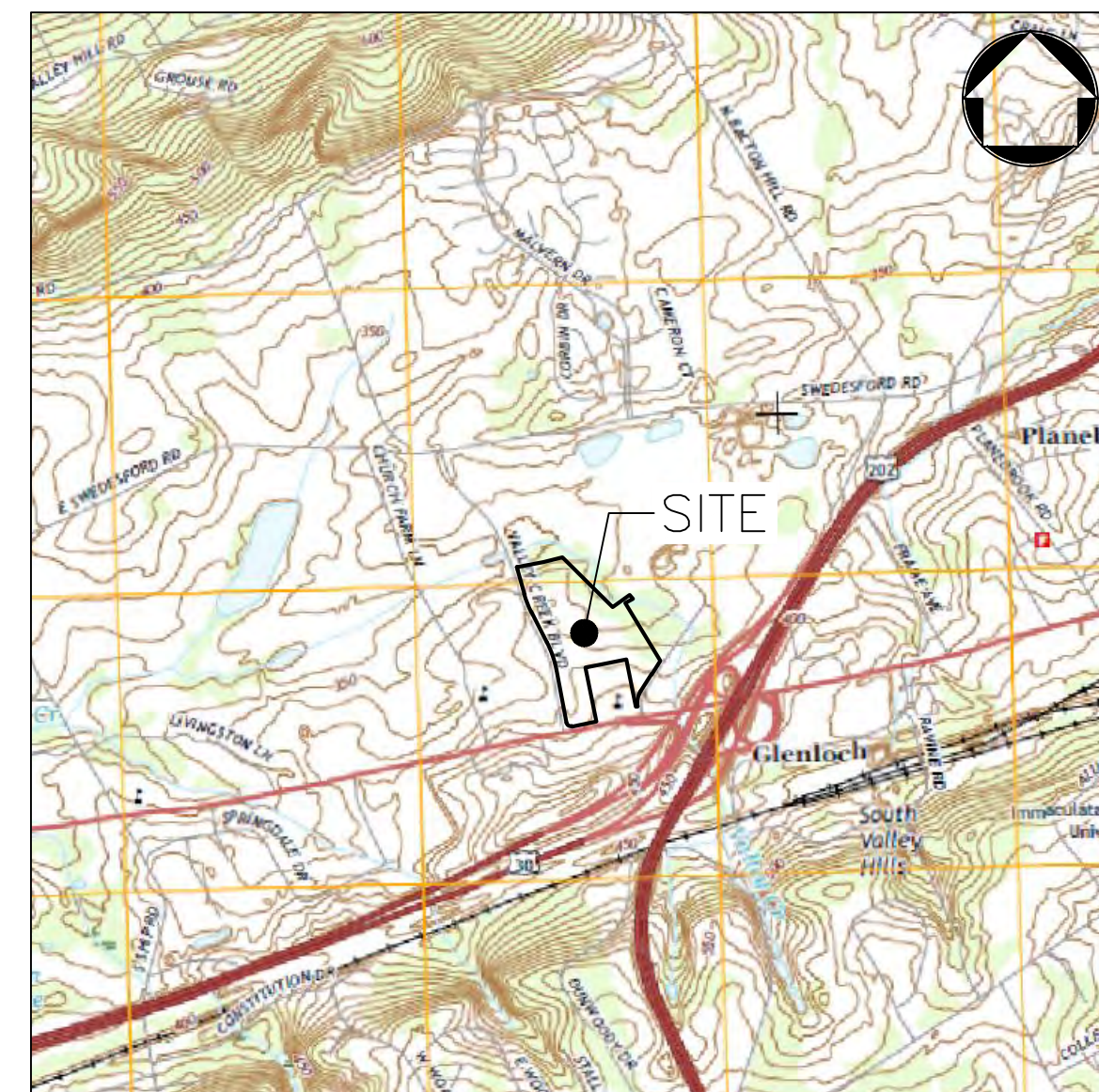
TAX MAP U.P.I. NUMBER: 41-3-8.9  
 O/L OFFICE/LABORATORY USE ZONING DISTRICT  
 121 VALLEY CREEK BOULEVARD ~ WEST WHITELAND TOWNSHIP  
 CHESTER COUNTY ~ STATE OF PENNSYLVANIA



**LOCATION MAP** SCALE: 1" = 800'  
 WEST WHITELAND TOWNSHIP - CHESTER COUNTY - PENNSYLVANIA  
 QUADRANGLE: MALVERN



**ZONING MAP** SCALE: 1" = 2,000'  
 WEST WHITELAND TOWNSHIP - CHESTER COUNTY - PENNSYLVANIA  
 COURTESY: WEST WHITELAND TOWNSHIP



**USGS MAP** SCALE: 1" = 2,000'  
 WEST WHITELAND TOWNSHIP - CHESTER COUNTY - PENNSYLVANIA  
 QUADRANGLE: MALVERN



**AERIAL MAP** SCALE: 1" = 1,000'  
 WEST WHITELAND TOWNSHIP - CHESTER COUNTY - PENNSYLVANIA  
 COURTESY: PENNSYLVANIA SPATIAL DATA ACCESS (PASDA)

**APPLICANT**  
 WEST WHITELAND TOWNSHIP  
 c/o: JUSTIN SMILEY  
 (610) 363-9525  
 101 COMMERCE DRIVE  
 EXTON, PA 19341

PERMIT	ACTIVITY	AGENCY	STATUS
1. NPDES EARTH	DISTURBANCE	CCCD & PA DEP	PENDING
2. SEWAGE PLANNING MODULE EXEMPTION	SEWER PERMIT	PADEP & SEWER AUTHORITY	PENDING
3. PUBLIC WATER SUPPLY	SITE APPROVAL	AQUA PA	PENDING
4. WEST WHITELAND TOWNSHIP FIRE MARSHALL	SITE APPROVAL	WEST WHITELAND TOWNSHIP	PENDING

SHEET INDEX	
S-1	COVER SHEET
S-2	SITE PLAN
S-3	EX. CONDITIONS, CONSERVATION & DEMOLITION PLAN
S-4	GRADING PLAN
S-5	UTILITIES PLAN
S-6	PCSM PLAN
S-7	E&S CONTROL PLAN
S-8	LIGHTING PLAN
S-9	PROFILES
S-10	CONST. REQUIREMENTS NEAR GAS PIPELINES
S-11	TRUCK TURNING TEMPLATES
S-12	GRADING DETAIL AREA
S-13	CONSTRUCTION DETAILS
S-14	PCSM DETAILS
S-15	E&S CONTROL DETAILS
S-16	E&S CONTROL DETAILS

**SWM AND E&S REPORT NOTE**  
 THESE PLANS HAVE BEEN PREPARED IN CONJUNCTION WITH THE "PCSM NARRATIVE AND REPORT" PREPARED BY JMR ENGINEERING, LLC DATED DECEMBER 19, 2022, AS AMENDED.  
 THESE PLANS HAVE BEEN PREPARED IN CONJUNCTION WITH THE "E&S NARRATIVE AND REPORT" PREPARED BY JMR ENGINEERING, LLC DATED DECEMBER 19, 2022, AS AMENDED.

**DESIGNER CERTIFICATION**  
 I, JOHN M. ROBINSON, P.E., HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA AND THAT THESE PLANS ARE IN CONFORMITY WITH ENGINEERING, ZONING, SUBDIVISION, BUILDING, SANITARIUM AND OTHER APPLICABLE TOWNSHIP ORDINANCES AND REGULATIONS, EXCEPT AS NOTED.  
 Signature: John M. Robinson DATE: 12/19/2022

**COMMONWEALTH OF PENNSYLVANIA COUNTY OF CHESTER**  
 ON THIS THE \_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_, BEFORE ME, THE UNDERSIGNED OFFICER, PERSONALLY APPEARED \_\_\_\_\_ RESPONSIBLE OFFICIAL FROM WEST WHITELAND TOWNSHIP WHO BEING DULY SWORN ACCORDING TO LAW, DEPOSES AND SAYS THAT THEY ARE THE OWNERS OF THE PROPERTY SHOWN ON THIS PLAN, THAT THE PLAN THEREOF WAS MADE AT THEIR DIRECTION, THAT THEY ACKNOWLEDGE THE SAME TO BE RECORDED, AND THAT ALL STREETS AND OTHER PROPERTY IDENTIFIED AS PROPOSED PUBLIC PROPERTY (EXCEPTING THOSE AREAS LABELED "NOT FOR DEDICATION") WILL BE OFFERED FOR DEDICATION.  
 \_\_\_\_\_ (WEST WHITELAND TOWNSHIP OFFICIAL)  
 SWORN TO AND SUBSCRIBED BEFORE ME THIS \_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.  
 \_\_\_\_\_ (NOTARY PUBLIC)

**APPROVALS**  
**BOARD OF SUPERVISORS**  
 APPROVED BY THE BOARD OF SUPERVISORS OF WEST WHITELAND TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA, THIS \_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.

**WEST WHITELAND PLANNING COMMISSION**  
 APPROVED BY THE PLANNING COMMISSION OF WEST WHITELAND TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA, THIS \_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.

**CHESTER COUNTY PLANNING COMMISSION**  
 THIS PLAN WAS REVIEWED BY THE CHESTER COUNTY PLANNING COMMISSION ON THIS \_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.  
 \_\_\_\_\_ (CCPC FILE NUMBER)  
 \_\_\_\_\_ (PLANNING COMMISSION SECRETARY)

**CHESTER COUNTY RECORDER OF DEEDS**  
 RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS OF CHESTER COUNTY AT WEST CHESTER, PENNSYLVANIA, IN PLAN BOOK \_\_\_\_\_, PAGE \_\_\_\_\_ ON THIS \_\_\_\_ DAY OF \_\_\_\_\_, 20\_\_\_\_.  
 \_\_\_\_\_ (DEPUTY RECORDER OF DEEDS)

**JMR ENGINEERING, LLC**  
 PROFESSIONAL CIVIL ENGINEERING • LAND PLANNING SERVICES  
 106 SCHUBERT DRIVE ~ DOWNTOWN, PA 19335  
 VOICE: (484) 880-7342  
 EMAIL: ADMIN@JMRENGINEERING.COM  
 WEBSITE: WWW.JMRENGINEERING.COM  
This plan is a reproduction of an original prepared by JMR Engineering, LLC. It is not to be used for any other project without the written consent of JMR Engineering, LLC. The original is on file at the office of JMR Engineering, LLC, 106 Schubert Drive, Downtown, PA 19335. All other reproductions are unauthorized and void.

**JOHN M. ROBINSON**  
 PROFESSIONAL ENGINEER  
 PENNSYLVANIA LICENSE NO. PE058271

**UTILITY USERS LIST**  
 USERS: \_\_\_\_\_ RESPONSES: \_\_\_\_\_

**CALL BEFORE YOU DIG!**  
 PENNSYLVANIA LAW REQUIRES THE CONTRACTOR TO NOTIFY UNDERGROUND UTILITY USERS AT LEAST 3 DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND ENGINEERING, LLC HAS OBTAINED THE NECESSARY PERMISSIONS FOR THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES PRIOR TO STARTING WORK.  
 1-800-242-1776  
 POC'S SERIAL NUMBER: \_\_\_\_\_

**PLAN REVISIONS**

REV. DATE	DESCRIPTION OF CHANGES

**PROJECT: PRELIMINARY/FINAL LAND DEVELOPMENT PLAN FOR WEST WHITELAND TOWNSHIP PUBLIC WORKS**  
 LOCATION:  
 121 VALLEY CREEK BLVD.  
 EXTON, PA 19341  
 WEST WHITELAND TOWNSHIP  
 CHESTER COUNTY, PA  
 PARCELS:  
 41-3-8.9  
 CLIENT:  
 WEST WHITELAND TOWNSHIP  
 101 COMMERCE DRIVE  
 EXTON, PA 19341

PROJECT No.: 1662  
 SURVEY REF.: 1301-B(DSS)  
 DRAWN BY: S.E.D.  
 CHECKED BY: J.M.R.  
 PLAN DATE: DECEMBER 19, 2022  
 PLAN SCALE: AS SHOWN

SHEET TITLE:  
**COVER SHEET**  
 SHEET NUMBER:  
**1 OF 16**  
PLOT DATE: Dec 19, 2022  
 JMR FILENAME: 1 COVER.DWG



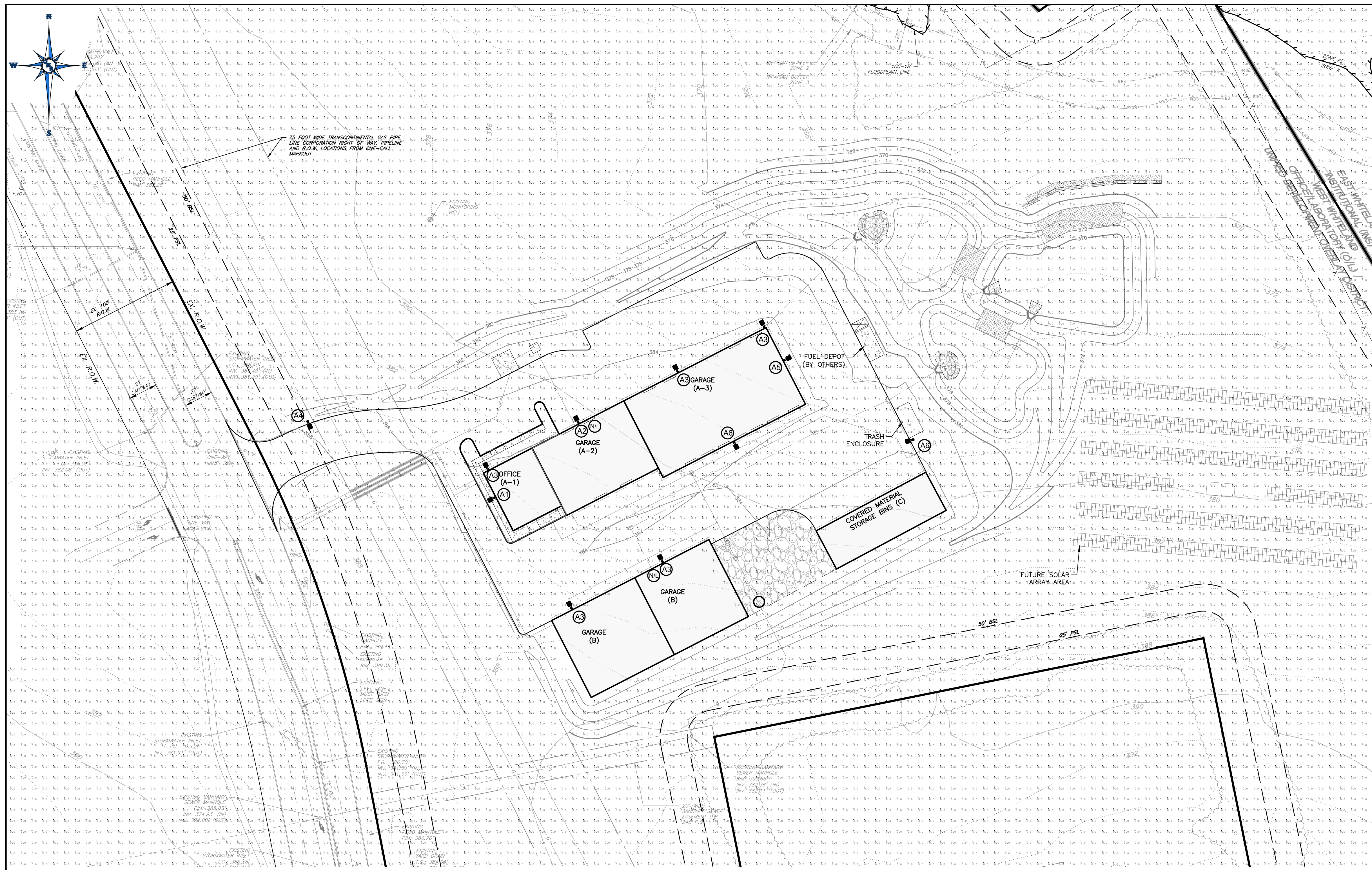








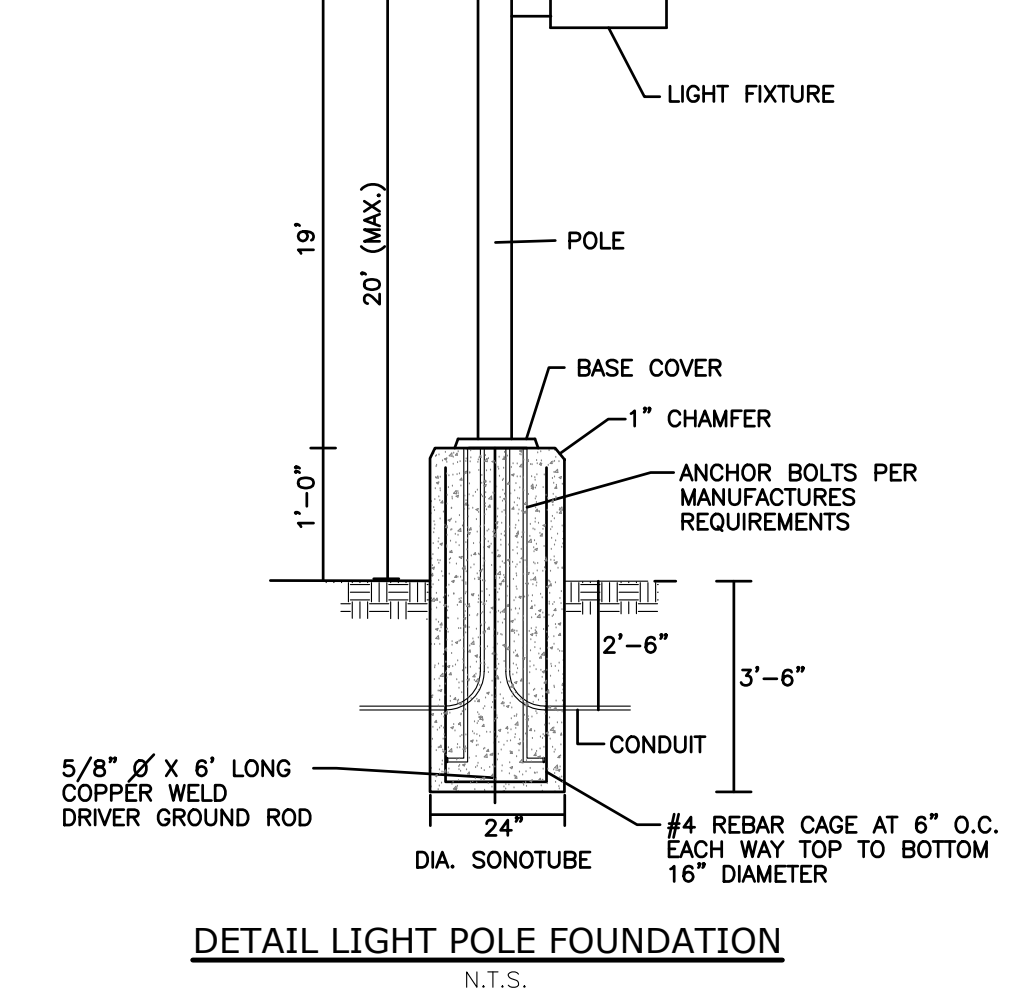
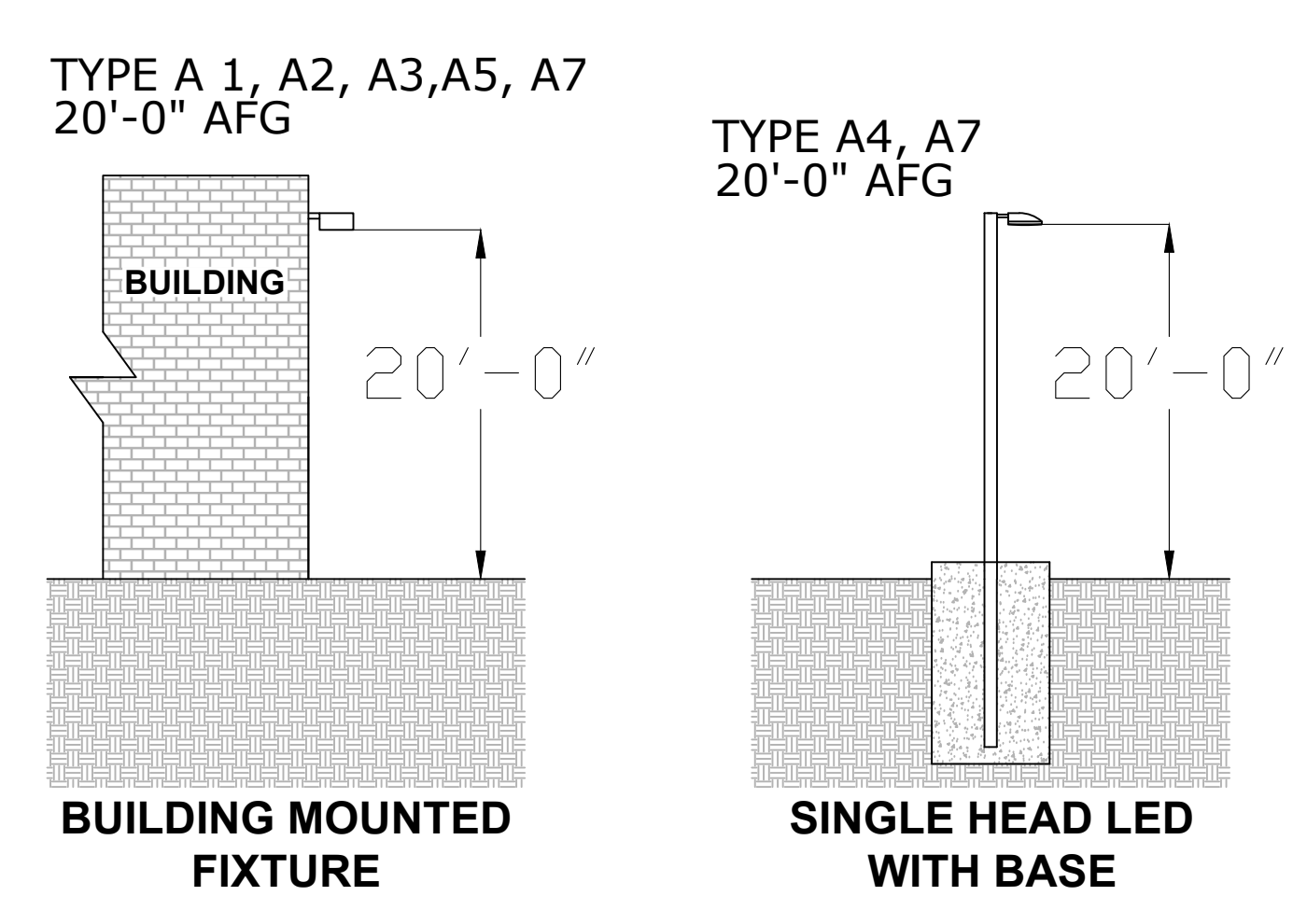
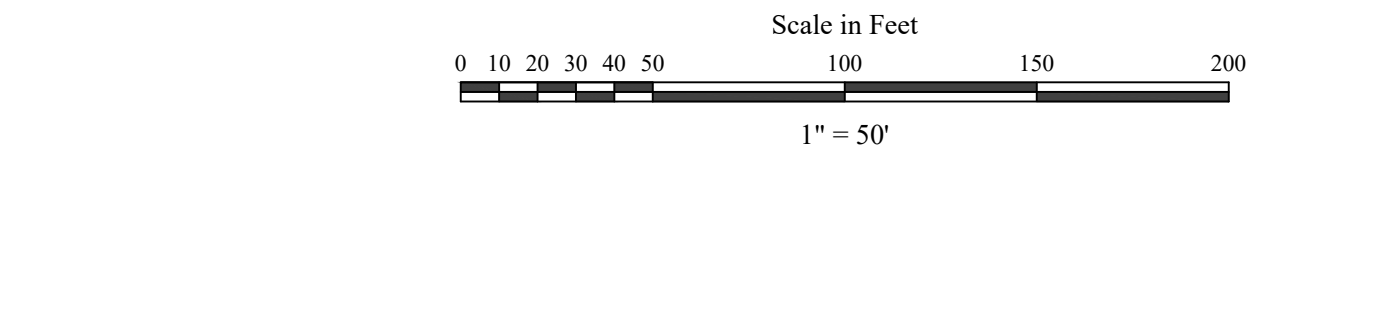




TYPE	IES File	Catalog No.	Test Number	Initial Lumens	Light Loss Factor	Fixture Watts	Total Number Of Luminaires
TYPE A1 (Building Mount)	GLEON-SA1C-730-U-T2-HSS	GLEON-SA1C-730-U-T2-HSS	P321885	4798	0.9	59	1
TYPE A2 (Building Mount)	GLEON-SA2C-730-U-T4FT-HSS	GLEON-SA2C-730-U-T4FT-HSS	P322526	19359	0.9	113	1
TYPE A3 (Building Mount)	GLEON-SA3C-730-U-T4FT-HSS	GLEON-SA3C-730-U-T4FT-HSS	P322527	22863	0.9	279	1
TYPE A4 (Pole Mount)	GLEON-SA4C-730-U-T3-HSS	GLEON-SA4C-730-U-T3-HSS	P322208	27350	0.9	225	1
TYPE A5 (Building Mount)	GLEON-SA5C-730-U-T4FT-HSS	GLEON-SA5C-730-U-T4FT-HSS	P322529	22863	0.9	279	1
TYPE A6 (Pole Mount)	GLEON-SA6C-730-U-T4FT-HSS	GLEON-SA6C-730-U-T4FT-HSS	P322530	27350	0.9	333	1
TYPE A7 (Building Mount)	GLEON-SA6C-730-U-T4FT-HSS	GLEON-SA6C-730-U-T4FT-HSS	P322530	27350	0.9	333	1

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Parking Calcs	ILLUMINANCE	Fc	1.78	8.5	0.3	5.93	28.33

Symbol	Tag	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
A1	1	1	GLEON-SA1C-730-U-T2-HSS	SINGLE	N.A.	0.9	20'-00" AFG BUILDING MOUNTED LIGHT
A2	1	1	GLEON-SA2C-730-U-T4FT-HSS	SINGLE	N.A.	0.9	20'-00" AFG BUILDING MOUNTED LIGHT
A3	5	5	GLEON-SA3C-730-U-T4FT-HSS	SINGLE	N.A.	0.9	20'-00" AFG BUILDING MOUNTED LIGHT
A4	1	1	GLEON-SA4C-730-U-T3-HSS	SINGLE	N.A.	0.9	20'-00" AFG POLE MOUNTED LIGHT
A5	1	1	GLEON-SA5C-730-U-T4FT-HSS	SINGLE	N.A.	0.9	20'-00" AFG BUILDING MOUNTED LIGHT
A6	1	1	GLEON-SA6C-730-U-T4FT-HSS	SINGLE	N.A.	0.9	20'-00" AFG POLE MOUNTED LIGHT
A7	1	1	GLEON-SA6C-730-U-T4FT-HSS	SINGLE	N.A.	0.9	20'-00" AFG BUILDING MOUNTED LIGHT



**McGraw-Edison**  
GLEON Galleon  
Area / Site Luminaire

**Product Features**

- Interactive Menu
- Ordering Information
- Mounting Details
- Optical Data
- Product Specifications
- Compliance Data
- Connect Options

**Product Certifications**

**Quick Facts**

- Lumen packages range from 4,200 - 80,000 (D4W - 440W)
- Efficiency up to 156 lumens per watt
- Options to meet Buy American and other domestic preference requirements

**Dimensional Details**

Model	Height	Width	Depth	Weight
14	14.00"	7.00"	10.00"	10.00"
16	16.00"	7.00"	10.00"	10.00"
18	18.00"	7.00"	10.00"	10.00"
20	20.00"	7.00"	10.00"	10.00"

**Connected Systems**

- Enlight

- GENERAL LIGHTING NOTES:**
- ALL EXTERIOR LIGHTING, WHETHER FREE-STANDING OR MOUNTED ON A STRUCTURE, SHALL BE FULL-CUTOFF.
  - THE TOWNSHIP RESERVES THE RIGHT TO CONDUCT A POST-INSTALLATION NIGHTTIME INSPECTION TO VERIFY COMPLIANCE WITH THE TOWNSHIP LIGHTING STANDARDS. IF SAID INSPECTION REVEALS A VIOLATION OF SAID STANDARDS, THE TOWNSHIP SHALL DIRECT CORRECTIVE ACTION, WHICH SHALL BE EXECUTED BY THE PROPERTY OWNER AT NO EXPENSE TO THE TOWNSHIP.
  - POST-APPROVAL ALTERATIONS TO THE LIGHTING PLANS OR INTENDED SUBSTITUTIONS FOR APPROVED LIGHTING EQUIPMENT SHALL BE SUBMITTED TO THE TOWNSHIP FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
  - ALL OUTDOOR LIGHTING SHALL BE AIMED, LOCATED, DESIGNED, FITTED AND MAINTAINED SO AS NOT TO PRESENT A HAZARD TO DRIVERS OR PEDESTRIANS BY IMPAIRING THEIR ABILITY TO SAFELY TRAVERSE (DISABLING GLARE), AND SO AS NOT TO CREATE A NUISANCE BY PROJECTING OR REFLECTING OBSTACULABLE LIGHT ONTO A NEIGHBORING USE OR PROPERTY (LIGHT TRESPASS AND NUISANCE GLARE).
  - FLOODLIGHTS OR SPOTLIGHTS, WHEN PERMITTED, SHALL BE SO INSTALLED AND AIMED THAT THEY DO NOT PROJECT THEIR OUTPUT INTO THE WINDOW OF A NEIGHBORING RESIDENCE, AN ADJACENT USE, SKYWARD OR ONTO A ROADWAY.
  - UNLESS OTHERWISE PERMITTED BY THE BOARD OF SUPERVISORS, LIGHTING SHALL BE CONTROLLED BY A PROGRAMMABLE CONTROLLER WITH BATTERY BACKUP AND AUTOMATIC ADJUSTMENT FOR ANNUAL TIME CHANGES, TO EXTINGUISH OFFENDING SOURCES BETWEEN 11:00 P.M. OR ONE HOUR FOLLOWING CLOSE OF BUSINESS, WHICHEVER COMES FIRST, AND DAWN TO MITIGATE GLARE AND SKY-LIGHTING CONSEQUENCES. LIGHT FIXTURES LABELED AS "SECURITY" SHALL REMAIN ON THROUGHOUT THE NIGHT. ALL OTHER SITE LIGHTING SHALL BE EXTINGUISHED.
  - VEGETATION SCREENS SHALL NOT BE EMPLOYED TO SERVE AS THE PRIMARY MEANS FOR CONTROLLING GLARE. RATHER, GLARE CONTROL SHALL BE ACHIEVED PRIMARILY THROUGH THE USE OF SUCH MEANS AS FULL-CUTOFF FIXTURES, SHIELDS AND Baffles, AND APPROPRIATE APPLICATION OF MOUNTING HEIGHT, WATTAGE, AIMING ANGLE, FIXTURE PLACEMENT, ETC.
  - THE AMOUNT OF ILLUMINATION PROJECTED ONTO ANY NONRESIDENTIAL PROPERTY LINE FROM ANOTHER PROPERTY SHALL NOT EXCEED 1.0 VERTICAL FOOTCANDLE MEASURED LINE-OF-SIGHT FROM ANY POINT ON THE PROPERTY.
  - LIGHTING FIXTURES USED TO LIGHT THE AREA UNDER OUTDOOR CANOPIES, INCLUDING BUT NOT LIMITED TO THOSE USED AT AUTOMOTIVE FUEL-DISPENSING FACILITIES, BANK DRIVE-THRU LANS, MARQUEES AND BUILDING ENTRANCES, SHALL HAVE FLAT LENSES WHICH HAVE NO LIGHT EMITTED FROM THE SIDE OF THE FIXTURE. THE AVERAGE MAINTAINED ILLUMINATION IN THE AREA DIRECTLY BELOW THE CANOPY SHALL NOT EXCEED 20 INITIAL FOOTCANDLES, WITH NO VALUE EXCEEDING 30 FOOTCANDLES.
  - THE CORRELATED COLOR TEMPERATURE OF LED SOURCES SHALL NOT EXCEED 2,700K IN RESIDENTIAL AREAS AND 3,000K IN ALL OTHER AREAS.
  - LUMINAIRE, BACKLIGHT, UPLIGHT, AND GLARE ZONE LIGHT DISTRIBUTION RATINGS: BACK VERY HIGH (BVH) AND FORWARD VERY HIGH (FVH) ZONAL OUTPUT SHALL NOT EXCEED 240 LUMENS IN RESIDENTIAL AREAS OR 375 LUMENS IN ALL OTHER AREAS.
  - THE TOWNSHIP MAY REQUIRE THAT GRADE-LEVEL WINDOWS BE INTERNALLY OR EXTERNALLY ILLUMINATED DURING HOURS OF DARKNESS TO FACILITATE POLICE DETERMINATION IF A BREAK-IN HAS OCCURRED.
  - FIXTURES MEETING FULL-CUTOFF CRITERIA SHALL NOT BE MOUNTED IN EXCESS OF 20 FEET ABOVE THE FINISHED GRADE ("AFG") OF THE SURFACE BEING ILLUMINATED, EXCEPT THAT THE TOWNSHIP MAY APPROVE UPON REQUEST A FIXTURE HEIGHT OF NOT MORE THAN 25 FEET AFG FOR NONRESIDENTIAL PARKING LOTS WITH 100 OR MORE PARKING SPACES. FIXTURES NOT MEETING FULL-CUTOFF CRITERIA, WHEN THEIR USE IS PERMITTED BY THE BOARD OF SUPERVISORS, SHALL NOT BE MOUNTED IN EXCESS OF 15 FEET AFG.
  - FIXTURES USED FOR GENERAL AREA LIGHTING SHALL BE AIMED TO PROJECT THEIR OUTPUT STRAIGHT DOWN, UNLESS OTHERWISE APPROVED.
  - ELECTRICAL FEEDS TO LIGHTING STANDARDS SHALL BE UNDERGROUND.
  - LIGHTING STANDARDS DIRECTLY BEHIND PARKING SPACES SHALL BE PLACED A MINIMUM OF FIVE FEET BEHIND THE CURB FACE OR TIRE STOPS, OR PLACED ON CONCRETE PRECASTS AT LEAST 30 INCHES HIGH ABOVE THE PAVEMENT, OR SUITABLY PROTECTED BY OTHER APPROVED MEANS.
  - FIXTURES USED FOR ARCHITECTURAL LIGHTING, E.G., FACADE, FEATURE AND LANDSCAPE LIGHTING, SHALL BE AIMED SO AS NOT TO PROJECT THEIR OUTPUT BEYOND THE OBJECTS INTENDED TO BE ILLUMINATED AND SHALL BE EXTINGUISHED BETWEEN THE HOURS OF 11:00 P.M. AND DAWN.
  - MAINTENANCE: LIGHTING FIXTURES SHALL BE MAINTAINED TO MEET THE REQUIREMENTS OF THIS SECTION AT ALL TIMES.

**JMR ENGINEERING, LLC**

PROFESSIONAL CIVIL ENGINEERING • LAND PLANNING SERVICES  
106 SCHUBERT DRIVE • DOWNTOWN, PA 19335  
VOICE: (484) 880-7342  
EMAIL: ADMIN@JMRENGINEERING.COM  
WEBSITE: WWW.JMRENGINEERING.COM

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**JOHN M. ROBINSON**  
PROFESSIONAL ENGINEER  
PENNSYLVANIA LICENSE NO. PE058271

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**UTILITY USERS LIST**

USERS	RESPONSES

---

**CALL BEFORE YOU DIG!**

UNIVERSITY CITY OF CHESTER  
800-422-1776  
POCS SERIAL NUMBER:  

---

**PLAN REVISIONS**

REV	DATE	DESCRIPTION OF CHANGES

---

PROJECT: **PRELIMINARY / FINAL LAND DEVELOPMENT PLAN FOR WEST WHITELAND TOWNSHIP PUBLIC WORKS**

LOCATION: **121 VALLEY CREEK BLVD. EXTON, PA 19341 WEST WHITELAND TOWNSHIP CHESTER COUNTY, PA**

PARCELS: **41-3-89**

CLIENT: **WEST WHITELAND TOWNSHIP 101 COMMERCE DRIVE EXTON, PA 19341**

---

PROJECT No.: 1662  
SURVEY REF.: 1301-B(DSS)  
DRAWN BY: S.E.D.  
CHECKED BY: J.M.R.  
PLAN DATE: DECEMBER 19, 2022  
PLAN SCALE: 1" = 50'

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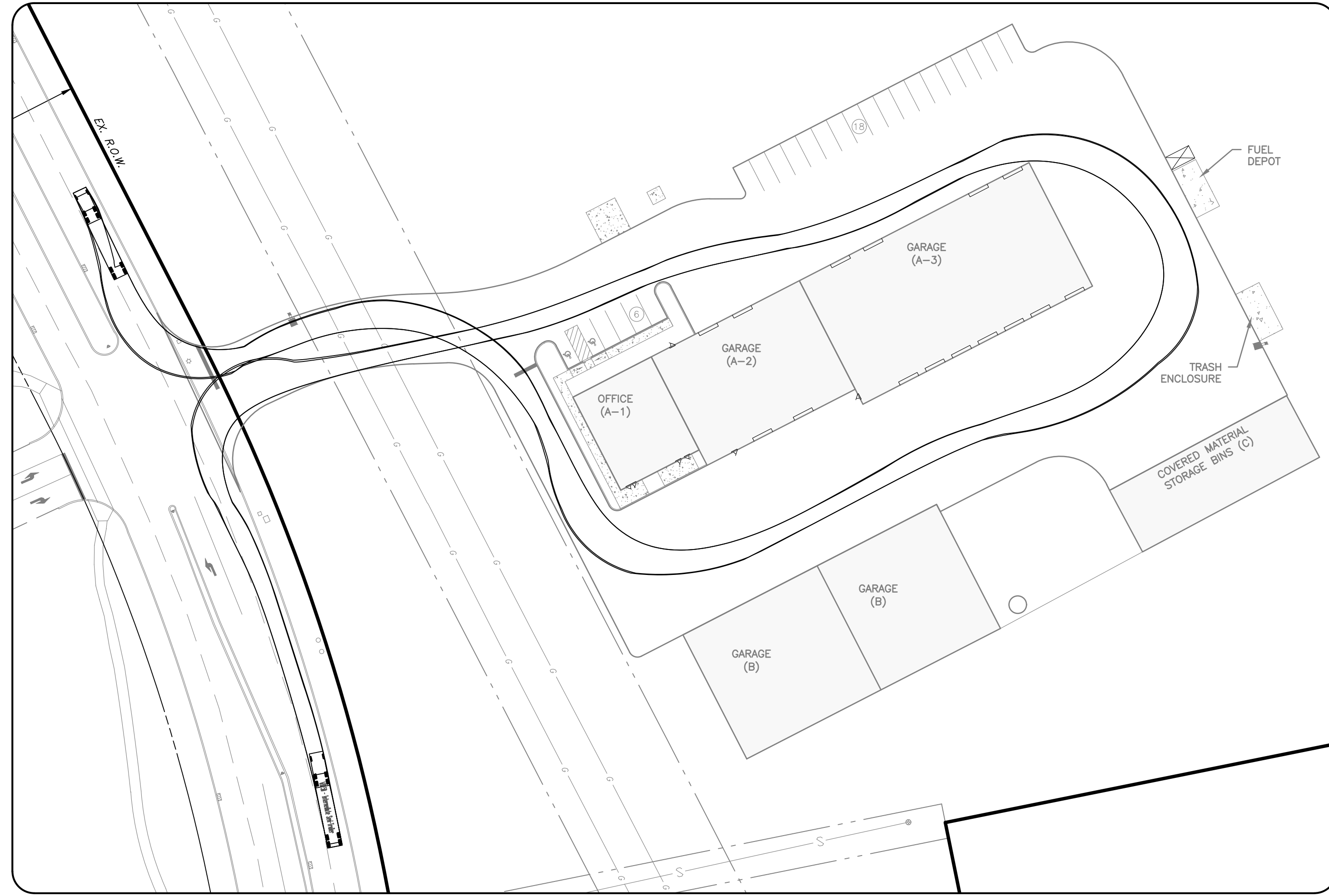
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SHEET NUMBER: **8 OF 16**

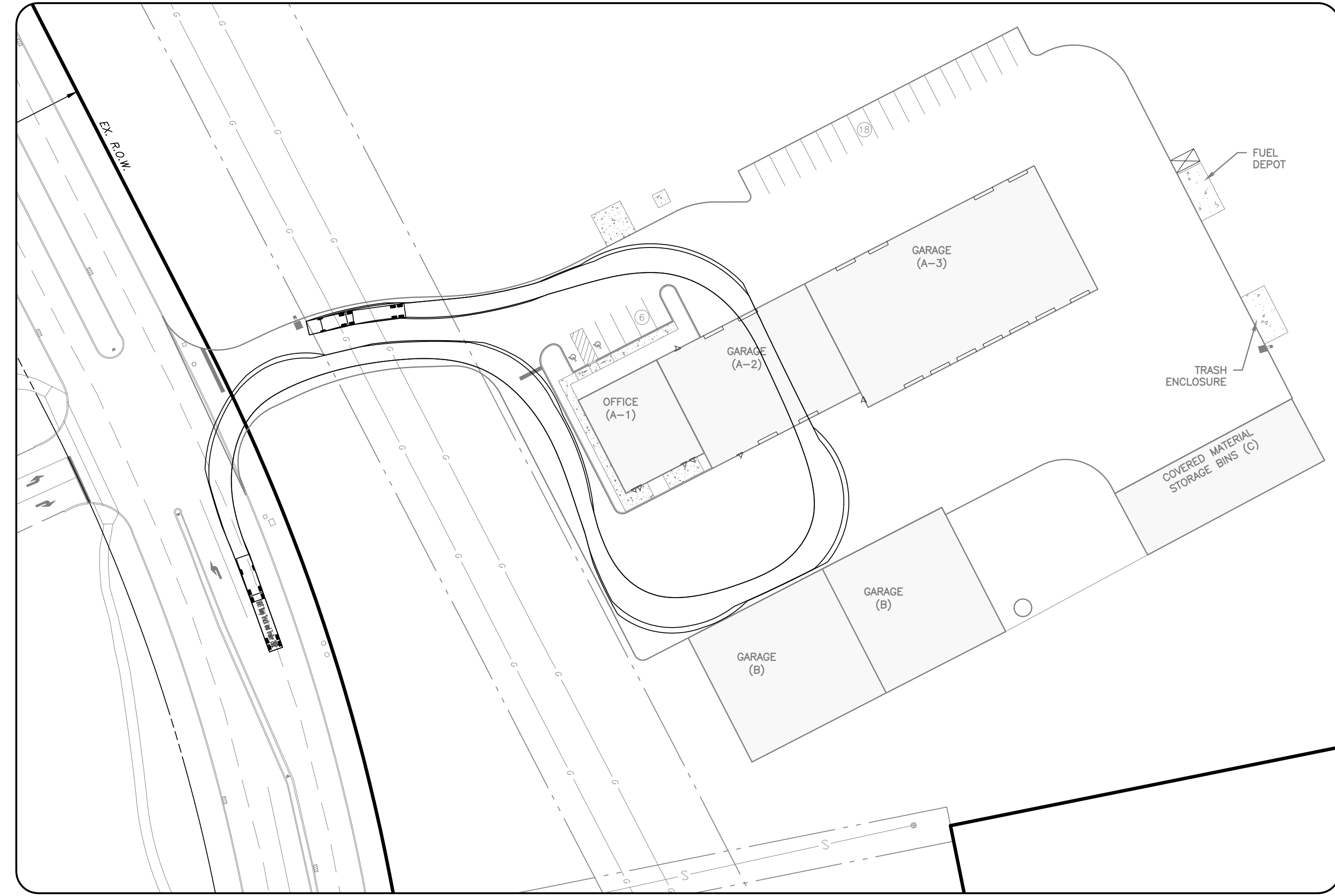
PLOT DATE: Dec 19, 2022  
JMR FILENAME: 8 LIGHTING.DWG



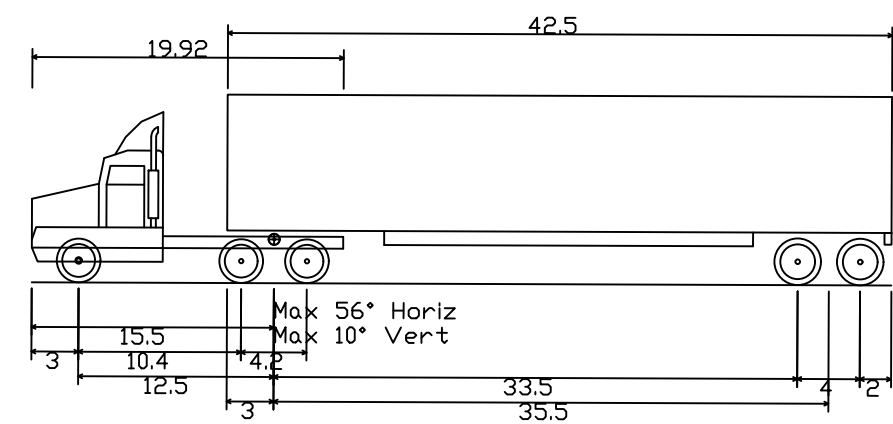
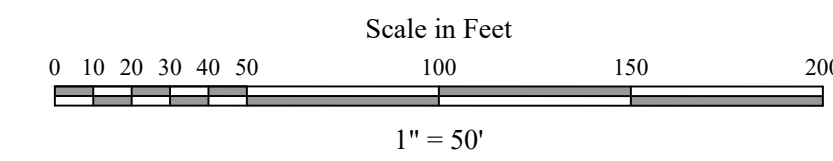




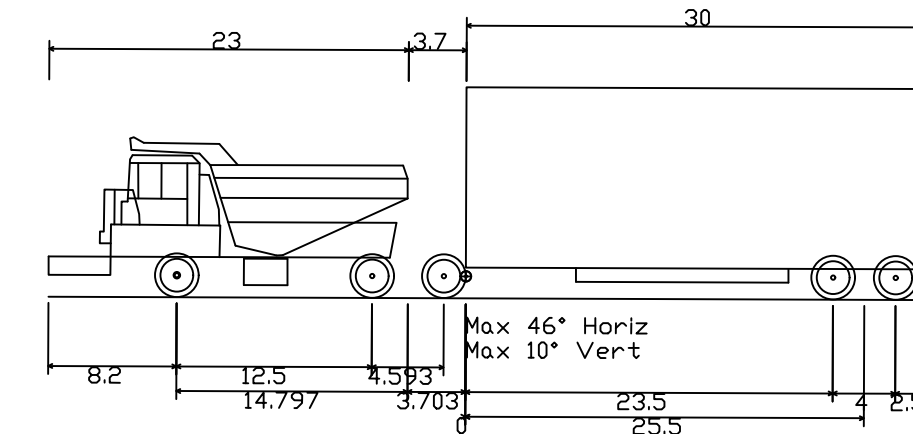
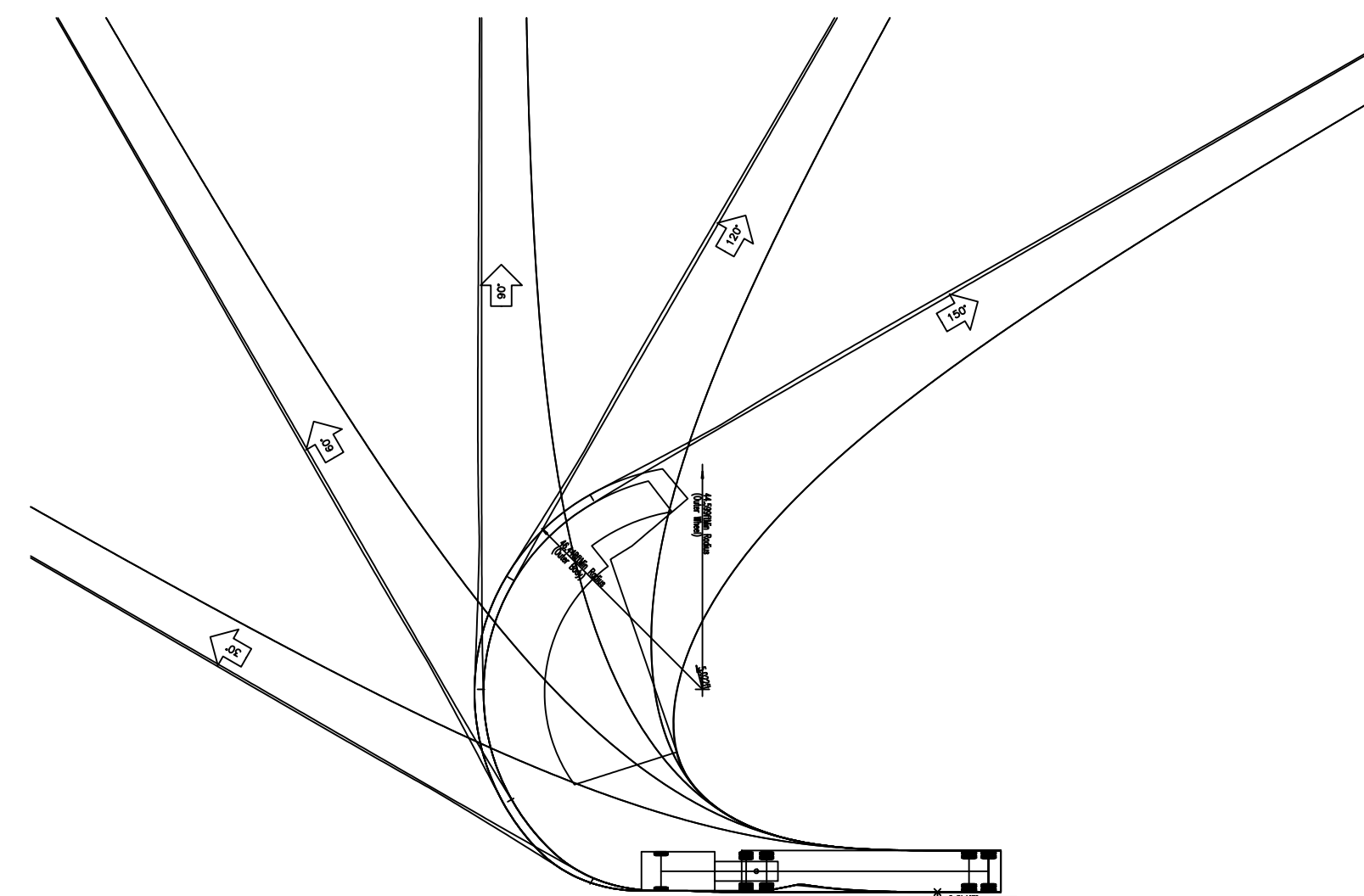
**WB-67 TRUCK TURNING**  
SCALE: 1" = 50'



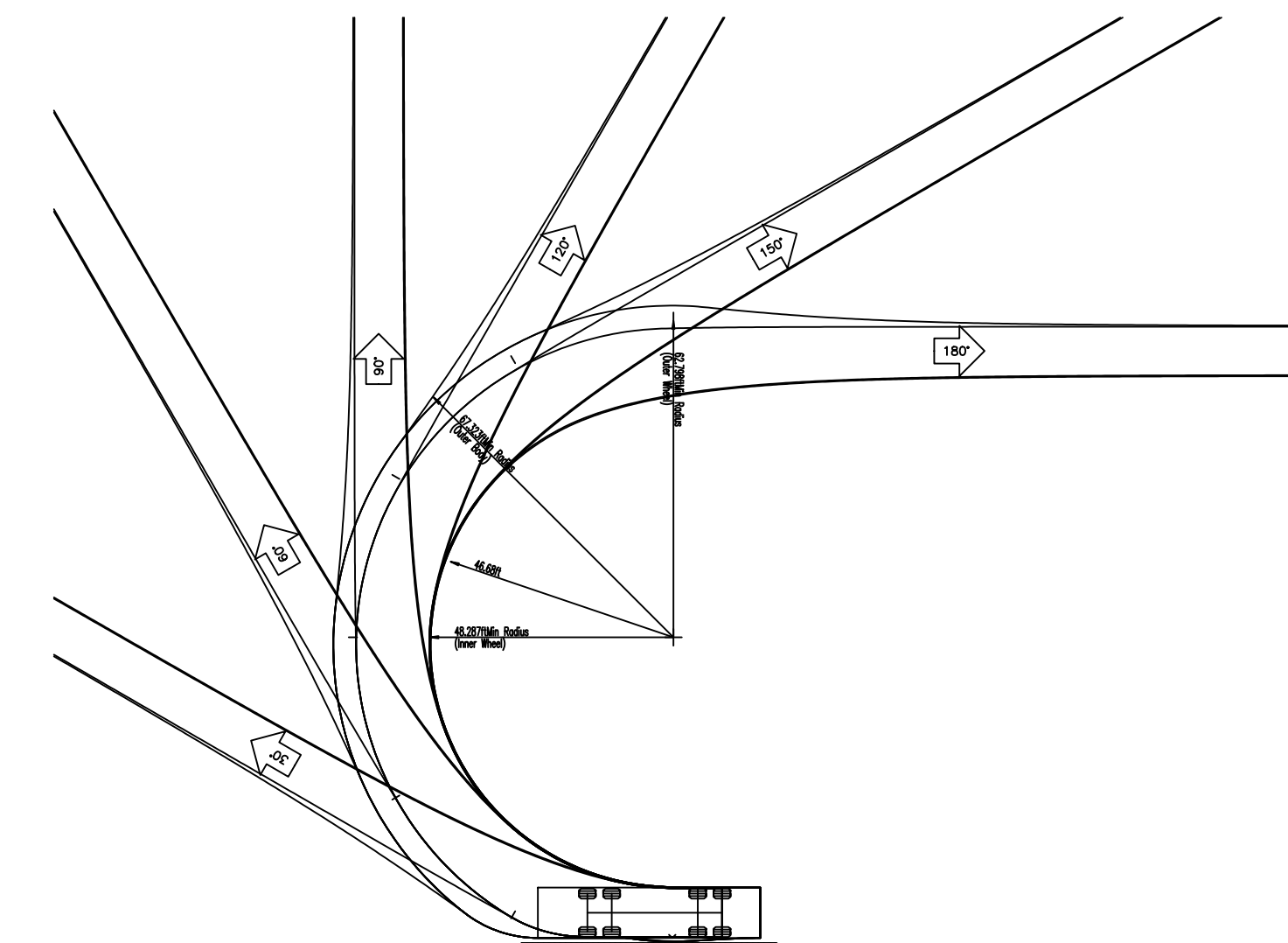
**DUMP TRUCK W/ 30' TRAILER TRUCK TURNING**  
SCALE: 1" = 50'



WB-50 - Intermediate Semi-Trailer  
 Overall Length 55.000ft  
 Overall Width 8.500ft  
 Overall Body Height 12.052ft  
 Min Body Ground Clearance 1.334ft  
 Max Track Width 8.500ft  
 Lock-to-lock time 6.00s  
 Max Steering Angle (Virtual) 17.90°

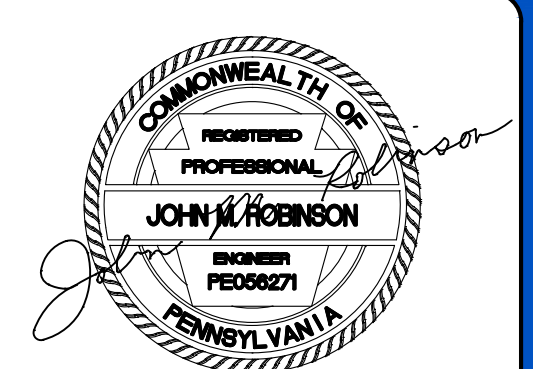


WWT Dump Truck and Trailer\_2022  
 Overall Length 56.699ft  
 Overall Width 8.000ft  
 Overall Body Height 13.500ft  
 Min Body Ground Clearance 0.789ft  
 Track Width 8.000ft  
 Lock-to-lock time 4.00s  
 Max Steering Angle (Virtual) 20.30°



**APPLICANT**  
 WEST WHITELAND TOWNSHIP  
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 PENNSYLVANIA LICENSE NO. PE056271

**UTILITY USERS LIST**

USERS	RESPONSES

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 1-800-242-1776  
 POC'S SERIAL NUMBER:

**PLAN REVISIONS**

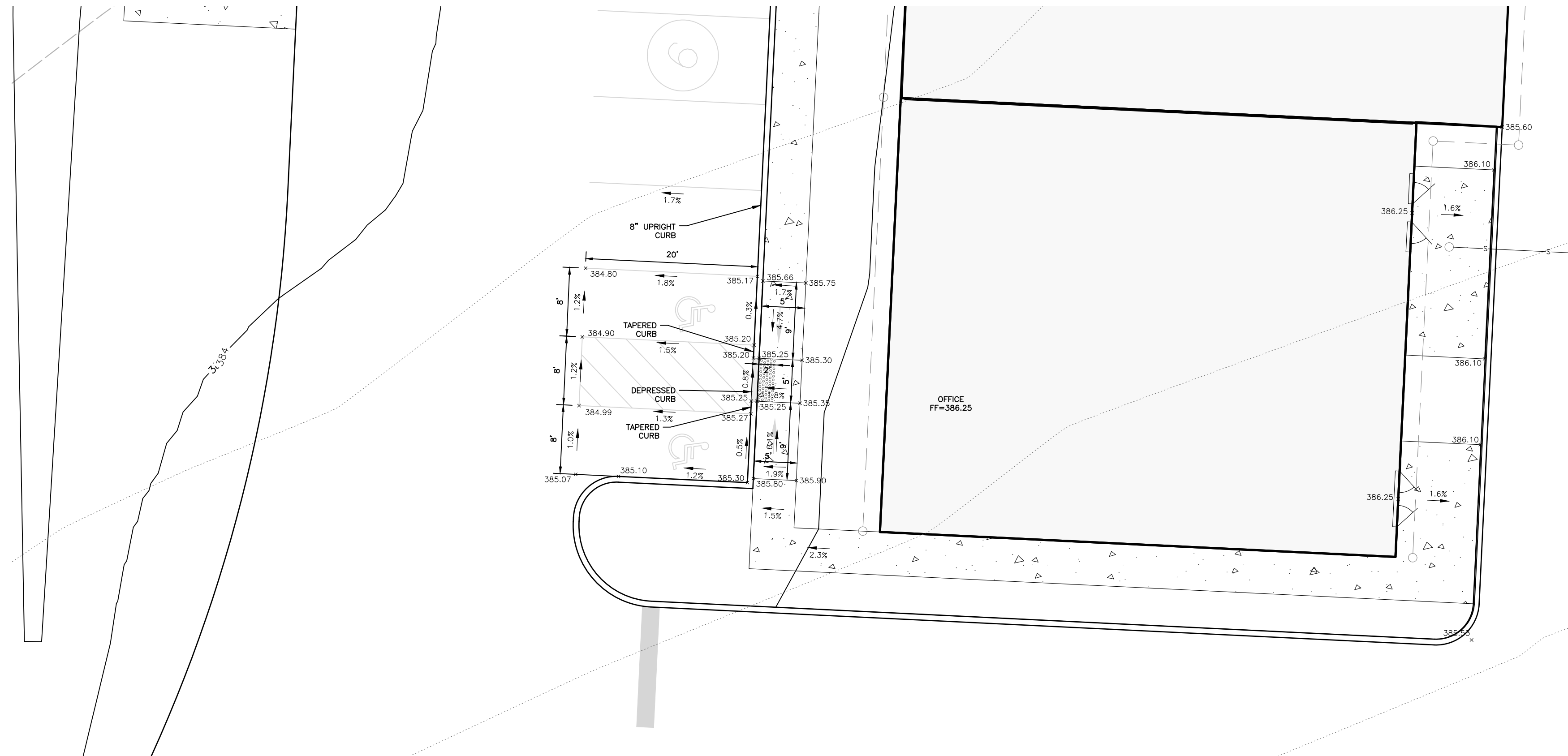
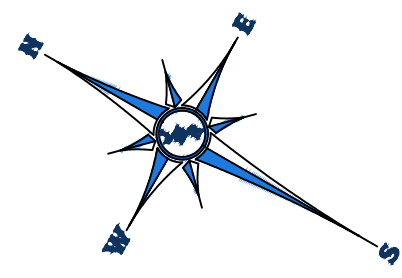
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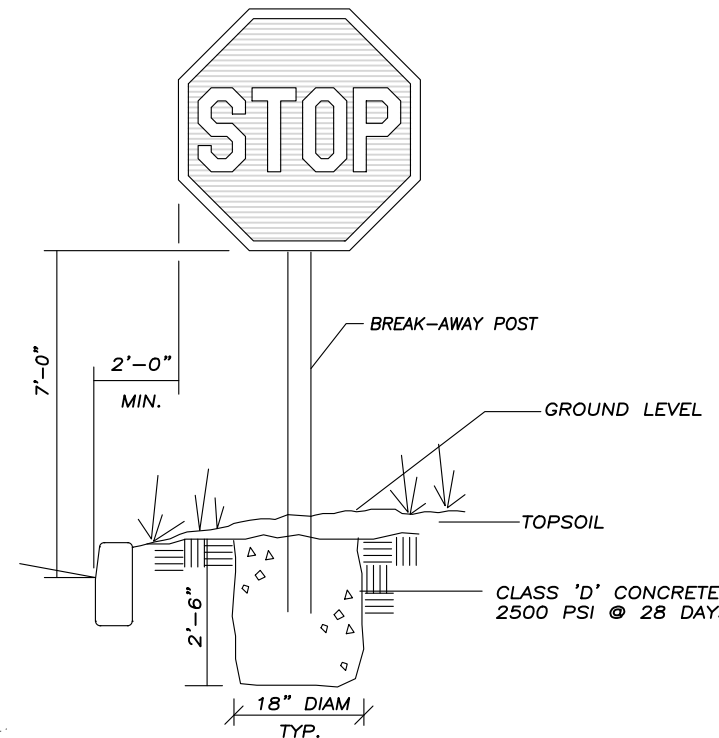
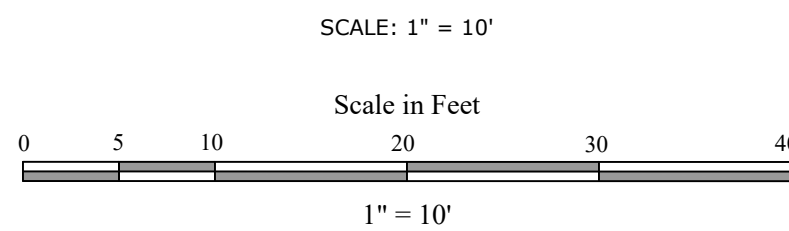
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 DRAWN BY: S.E.D.  
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 PLAN DATE: DECEMBER 19, 2022  
 PLAN SCALE: AS SHOWN

**TRUCK TURNING TEMPLATES**

SHEET NUMBER:  
**11 OF 16**

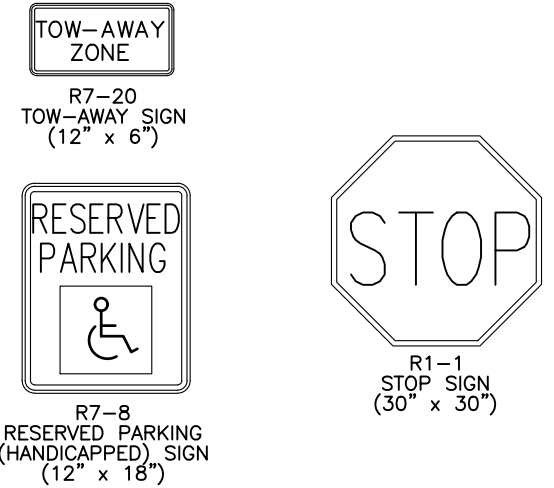


**OFFICE PARKING LOT AND HANDICAP DETAIL**

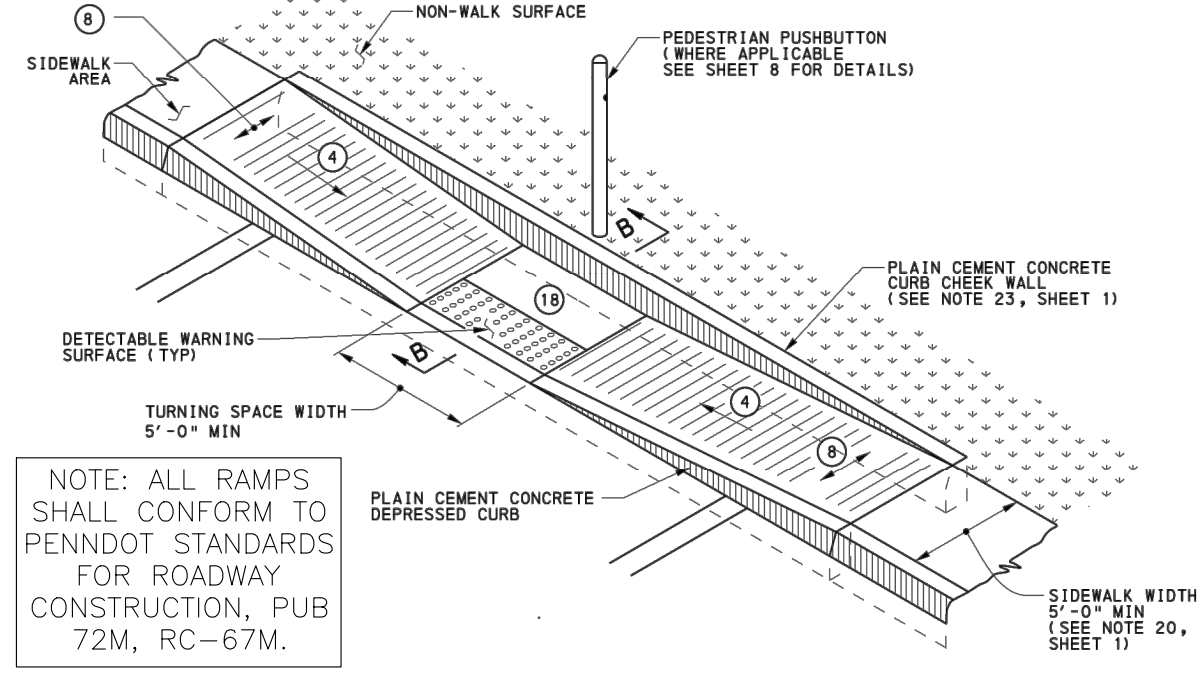
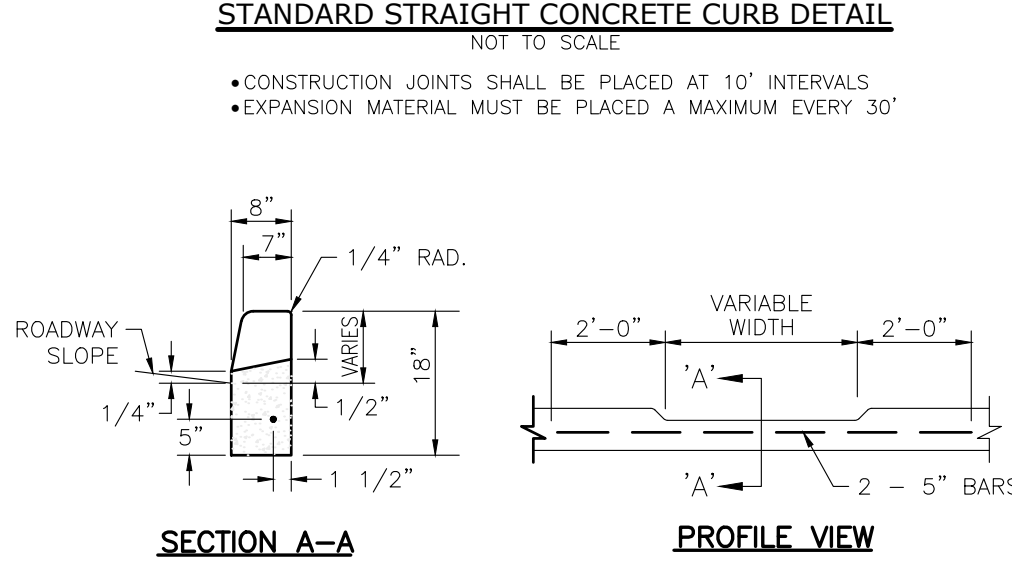
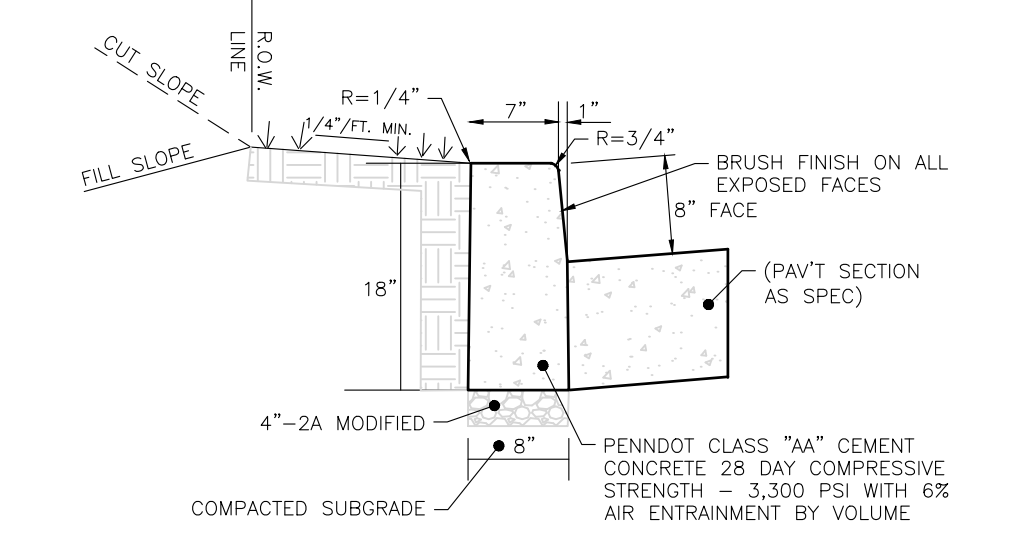
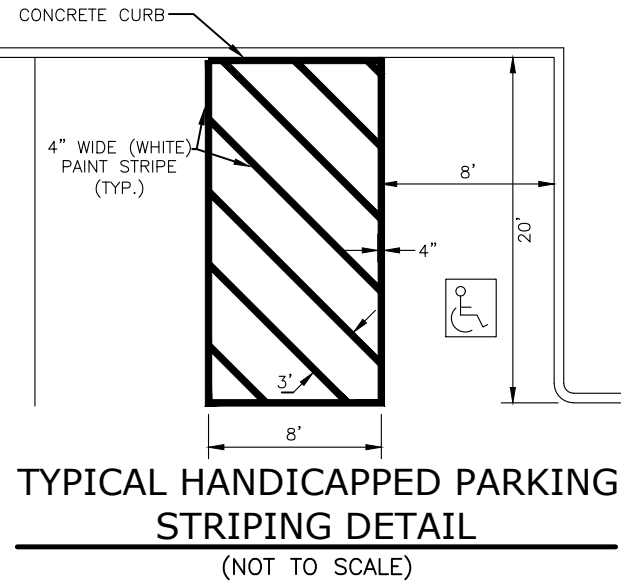
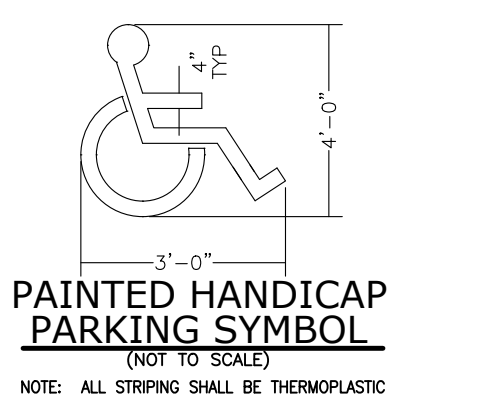


**TRAFFIC SIGN INSTALLATION DETAIL**  
(NOT TO SCALE)

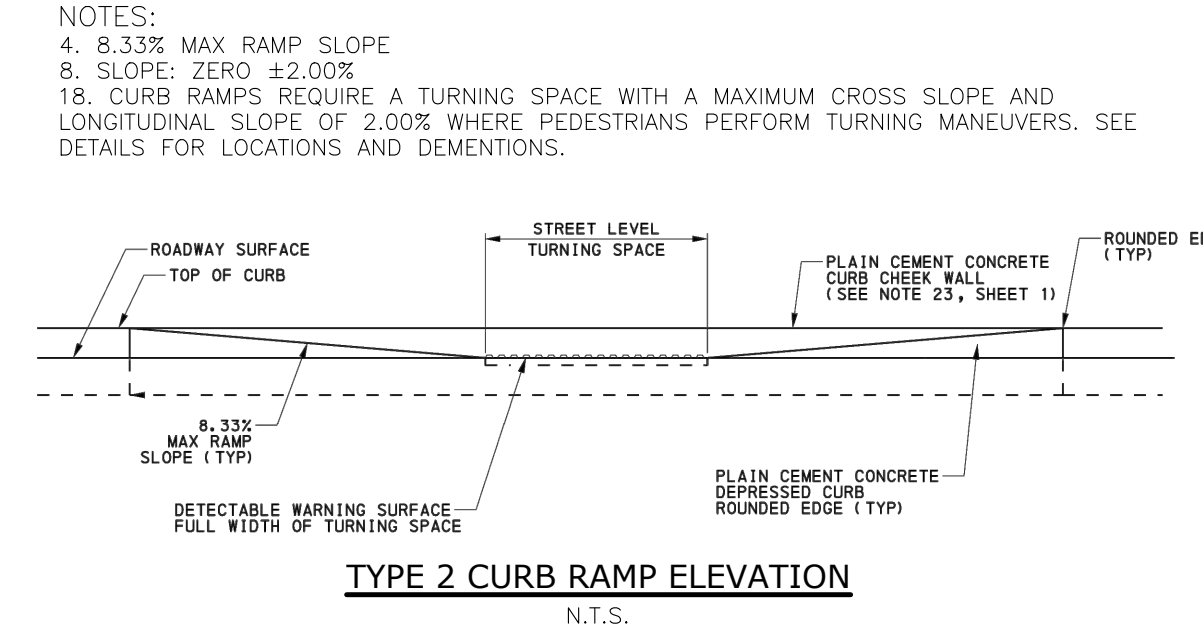
NOTES:  
1. TRAFFIC CONTROL SIGNS MUST BE POSTED ON PENNDOT APPROVED BREAKAWAY POSTS IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE 10-8700 SERIES IN PENNDOT PUBLICATION 111M.



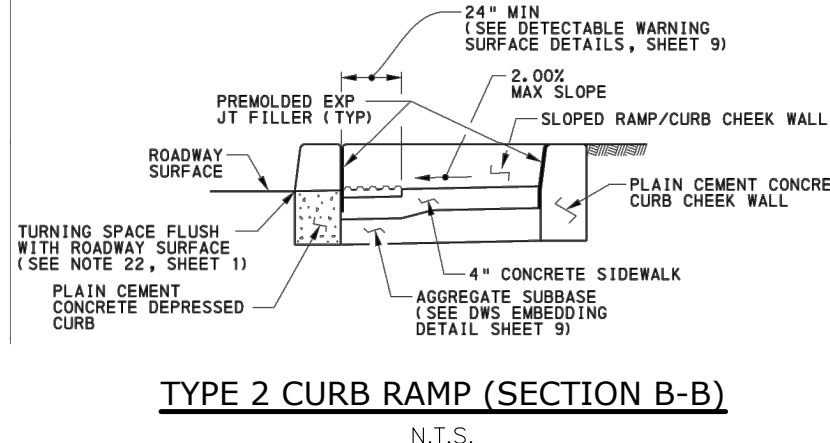
**SIGN DETAILS**  
(NOT TO SCALE)



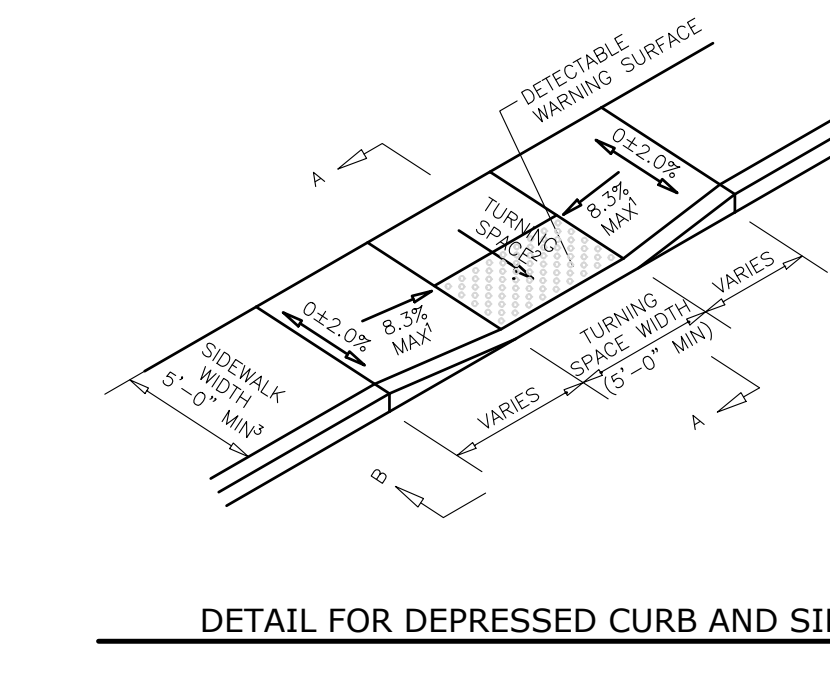
**TYPE 2 CURB RAMP ELEVATION**  
(NOT TO SCALE)



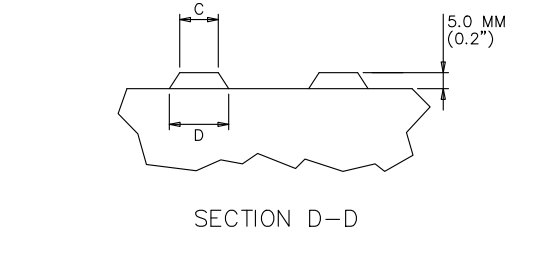
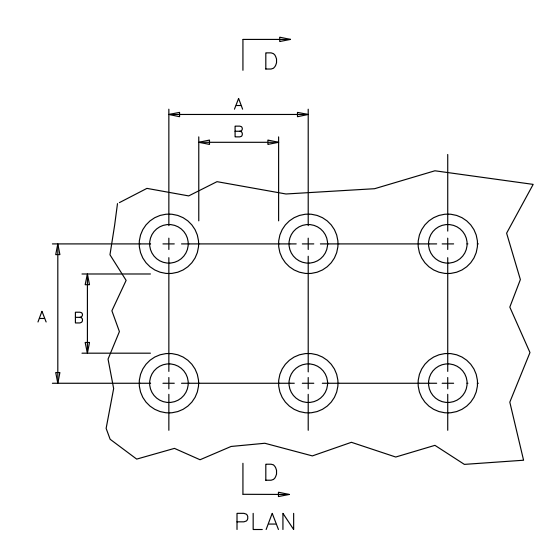
**TYPE 2 CURB RAMP DETAIL**  
(NOT TO SCALE)



**TYPE 2 CURB RAMP (SECTION B-B)**  
(NOT TO SCALE)



**DETAIL FOR DEPRESSED CURB AND SIDEWALK RAMP FOR HANDICAPPED PERSONS**  
(NOT TO SCALE)

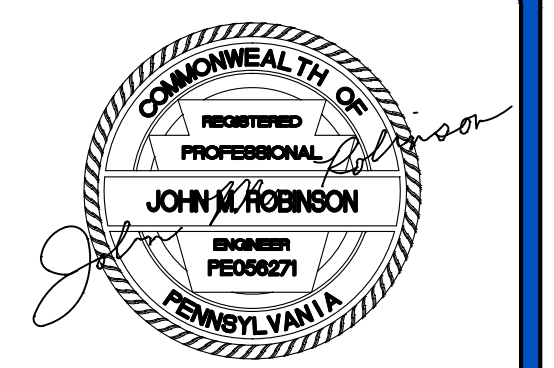


TRUNCATED DOME DIMENSIONS		
DIM	MIN	MAX
A	41 (1.6")	61 (2.4")
B	17 (0.65")	37 (1.45")
C	0	0
D	23 (0.9")	36 (1.4")

**DETECTABLE WARNING SURFACE (DWS) TRUNCATED DOME DETAILS**  
(NOT TO SCALE)

**APPLICANT**  
WEST WHITELAND TOWNSHIP  
c/o: JUSTIN SMILEY  
(610) 363-9525  
101 COMMERCE DRIVE  
EXTON, PA 19341

**JMR ENGINEERING, LLC**  
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**JOHN M. ROBINSON**  
PROFESSIONAL ENGINEER  
PENNSYLVANIA LICENSE NO. PE056271

**UTILITY USERS LIST**

USERS	RESPONSES

**CALL BEFORE YOU DIG!**  
PENNSYLVANIA LAW REQUIRES THE CONTRACTOR TO NOTIFY UNDERGROUND UTILITY USERS AT LEAST 3 DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ANY CONTRACTOR WHO FAILS TO NOTIFY THE UTILITY USERS OR WHO FAILS TO OBTAIN THE NECESSARY PERMISSIONS FROM THE UTILITY USERS SHALL BE SUBJECT TO PENALTIES. PENNSYLVANIA LAW REQUIRES THE CONTRACTOR TO OBTAIN THE NECESSARY PERMISSIONS FROM THE UTILITY USERS PRIOR TO STARTING WORK.  
1-800-242-1776  
POCS SERIAL NUMBER:

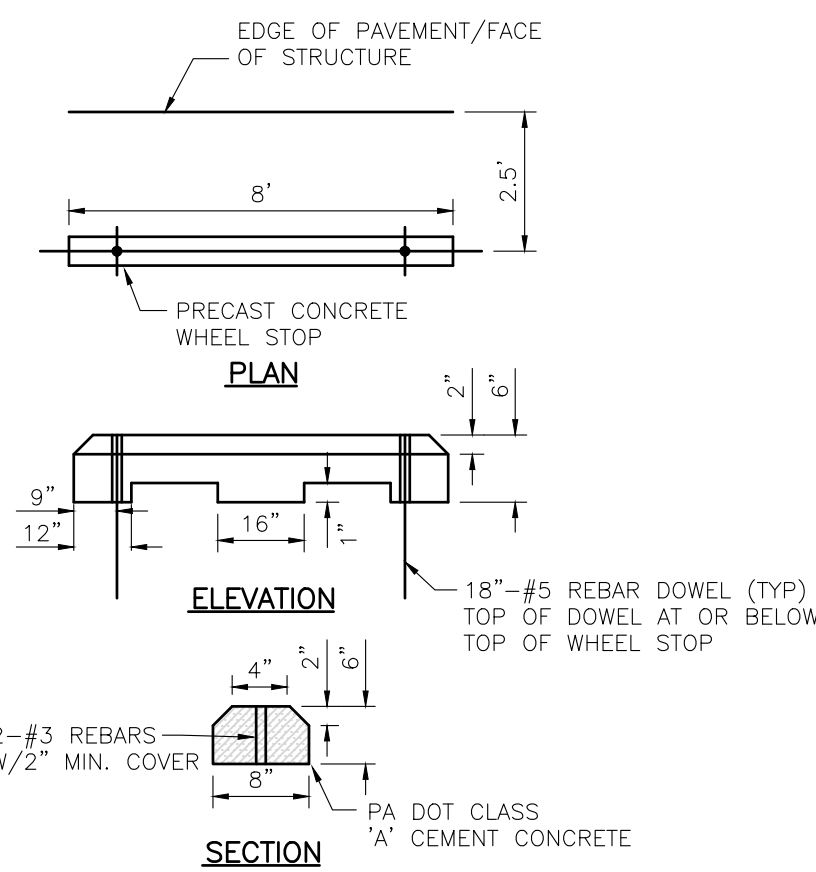
**PLAN REVISIONS**

REV	DATE	DESCRIPTION OF CHANGES

PROJECT: **PRELIMINARY / FINAL LAND DEVELOPMENT PLAN FOR WEST WHITELAND TOWNSHIP PUBLIC WORKS**  
LOCATION: **121 VALLEY CREEK BLVD. EXTON, PA 19341 WEST WHITELAND TOWNSHIP CHESTER COUNTY, PA**  
PARCELS: **41-3-8-9**  
CLIENT: **WEST WHITELAND TOWNSHIP 101 COMMERCE DRIVE EXTON, PA 19341**

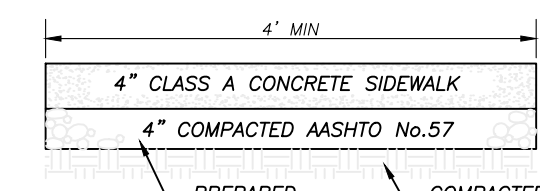
PROJECT No.: 1662  
SURVEY REF.: 1301-B(DSS)  
DRAWN BY: S.E.D.  
CHECKED BY: J.M.R.  
PLAN DATE: DECEMBER 19, 2022  
PLAN SCALE: AS SHOWN

SHEET TITLE: **GRADING DETAIL AREA**  
SHEET NUMBER: **12 OF 16**  
PLOT DATE: Dec 19, 2022  
JMR FILENAME: 12 CONST DETAILS.DWG



**CONCRETE WHEEL STOP**  
N.T.S.

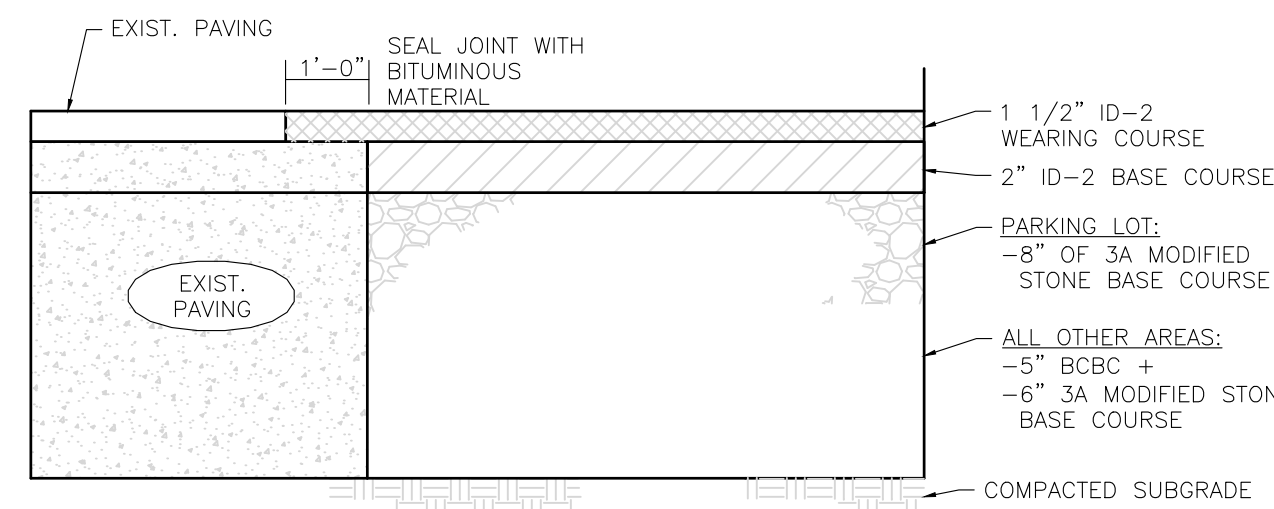
**NOTE:**  
CENTER IN PARKING SPACE  
U.N.O.



**CONCRETE SIDEWALK DETAIL**  
(NOT TO SCALE)

**SIDEWALK CONSTRUCTION NOTE:**

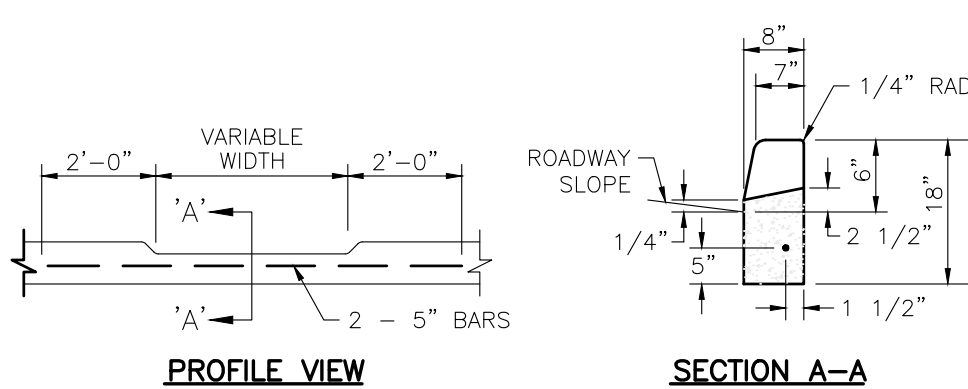
1. ALL ROADWAY CONSTRUCTION SHALL CONFORM TO §281-31 OF THE WEST WHITELAND TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE
2. ALL SIDEWALKS SHALL BE CLASS A CONCRETE WITH A MIN. 28-DAY COMPRESSIVE STRENGTH OF 3,300 PSI
3. ALL CONCRETE SHALL CONTAIN 6% AIR-ENTRAINMENT BY VOLUME
4. ALL SIDEWALKS SHALL HAVE A MIN. 1% AND MAX 2% CROSS SLOPE TO PREVENT PONDING



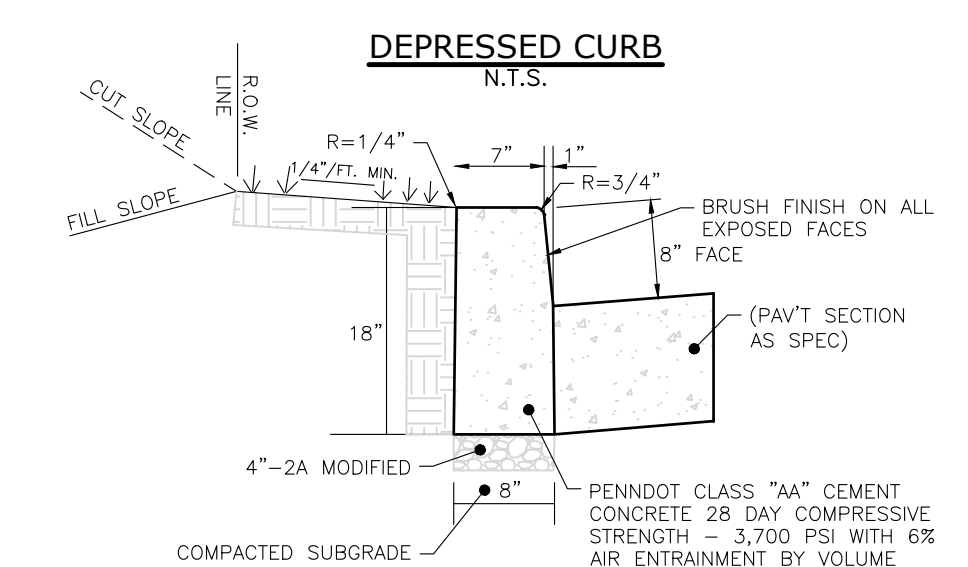
**PAVING DETAIL**  
NOT TO SCALE

**ROADWAY CONSTRUCTION NOTE:**

ALL ROADWAY CONSTRUCTION SHALL CONFORM TO §281-30 OF THE WEST WHITELAND TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE



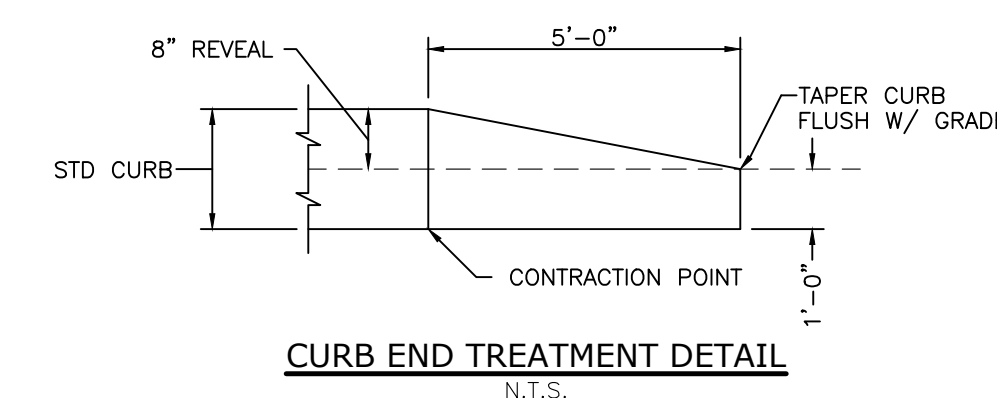
**PROFILE VIEW**  
**DEPRESSED CURB**  
N.T.S.



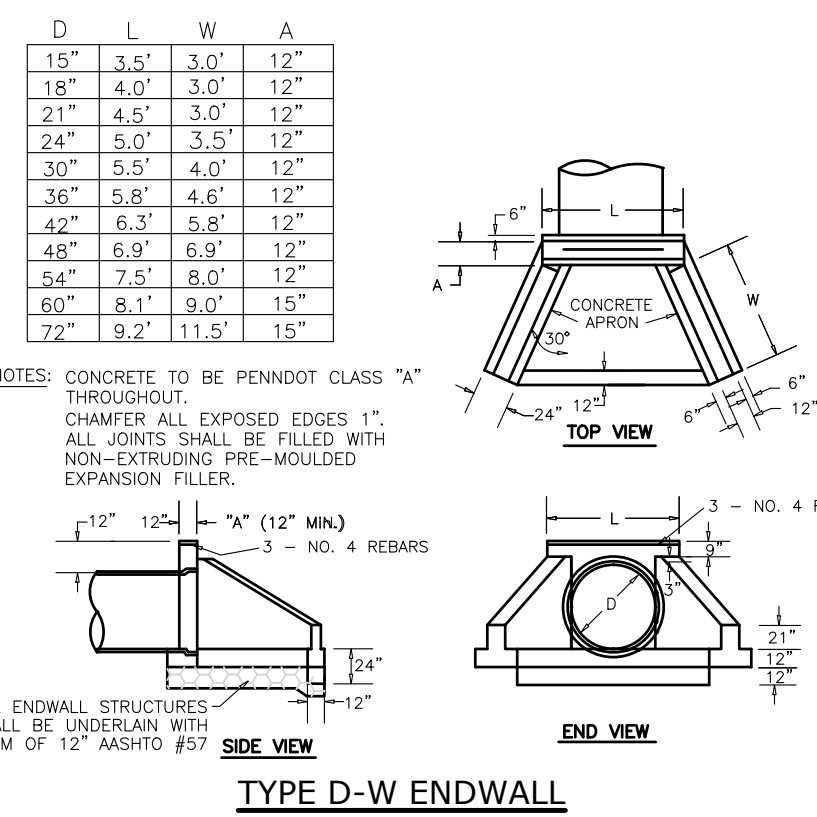
**STANDARD STRAIGHT CONCRETE CURB DETAIL**  
NOT TO SCALE

**ROADWAY CONSTRUCTION NOTE:**

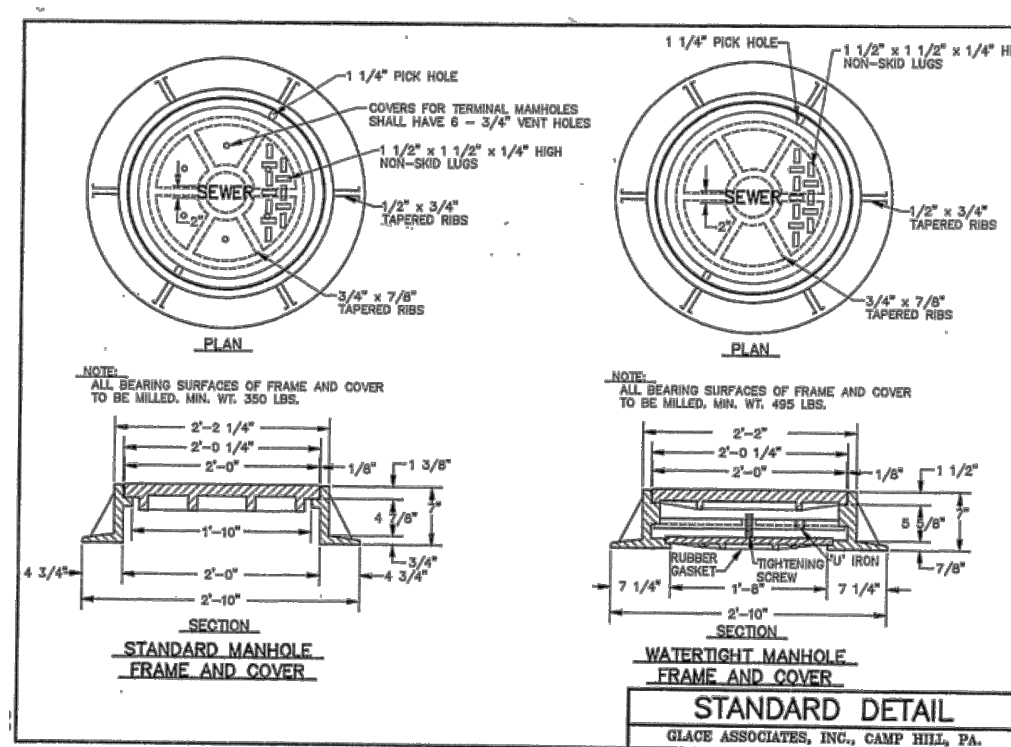
ALL CURB CONSTRUCTION SHALL CONFORM TO §281-32 OF THE WEST WHITELAND TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE



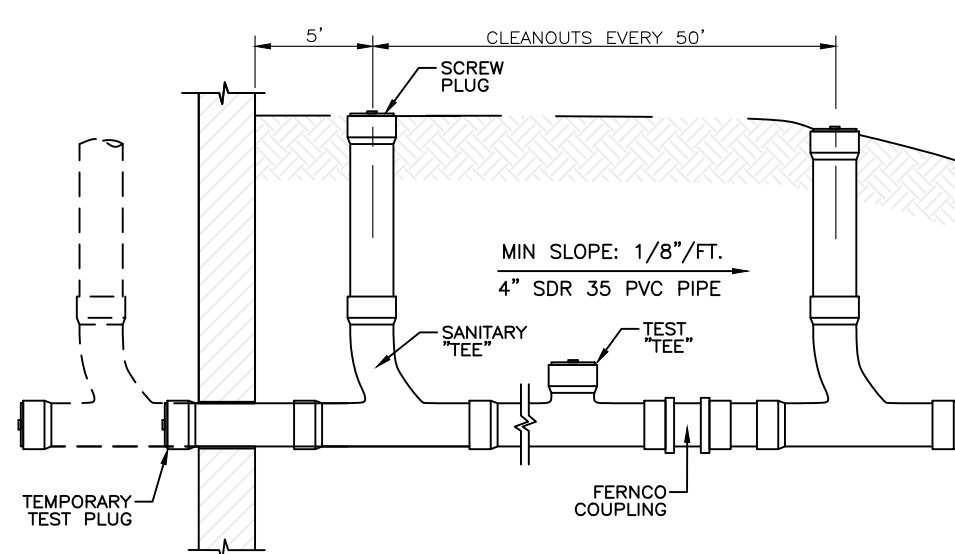
**CURB END TREATMENT DETAIL**  
N.T.S.



**TYPE D-W ENDWALL**  
NOT TO SCALE

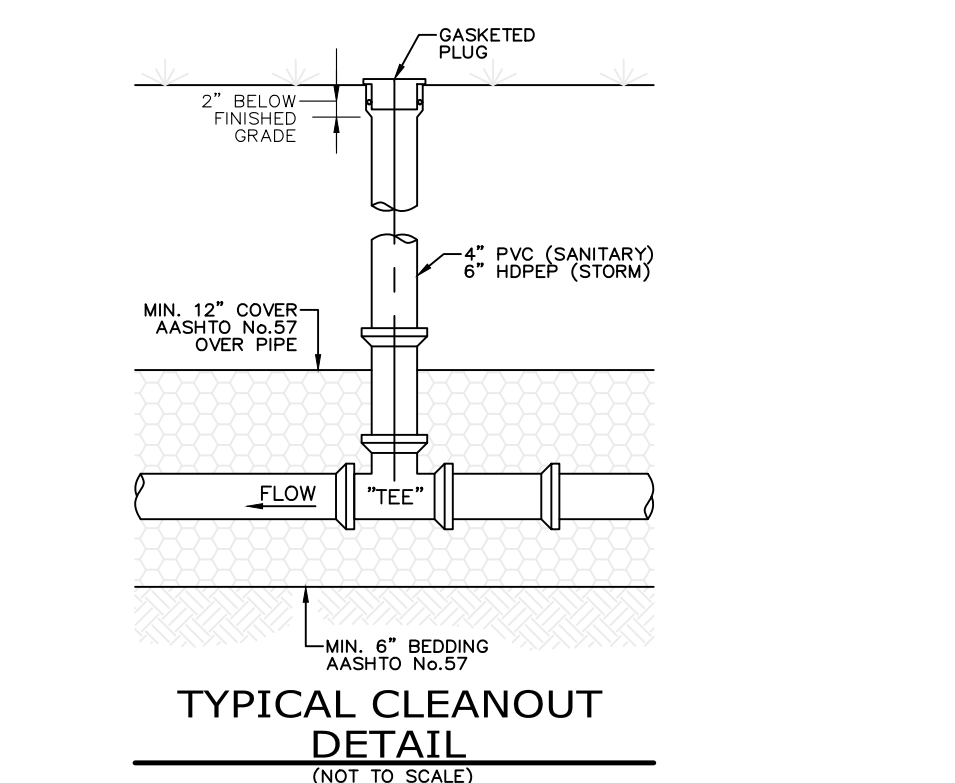


**STANDARD MANHOLE FRAME AND COVER**  
NOTE: MANHOLE FRAME AND COVERS SHALL BE EAST JORDAN IRON WORK (E.J.) MODEL 1835.

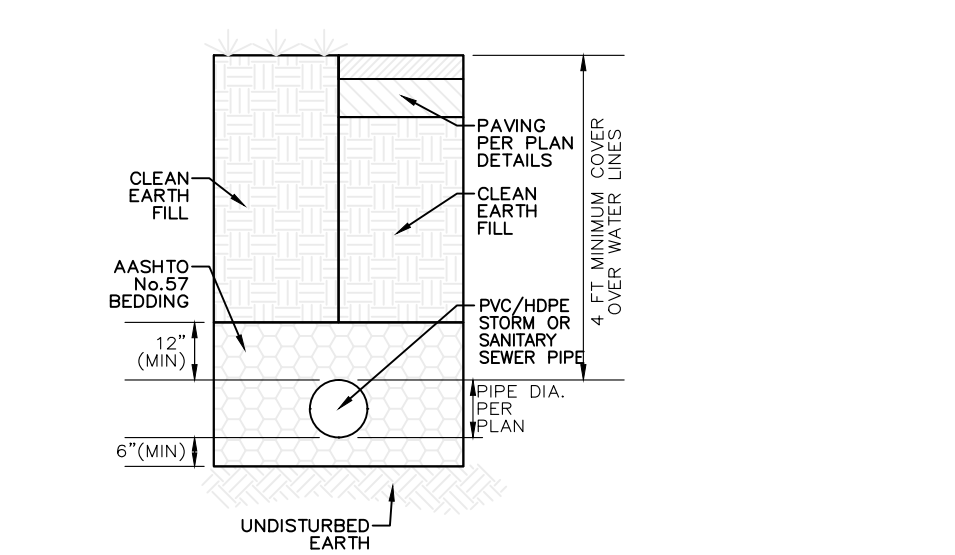


**BUILDING SANITARY SEWER DETAIL**  
(NOT TO SCALE)

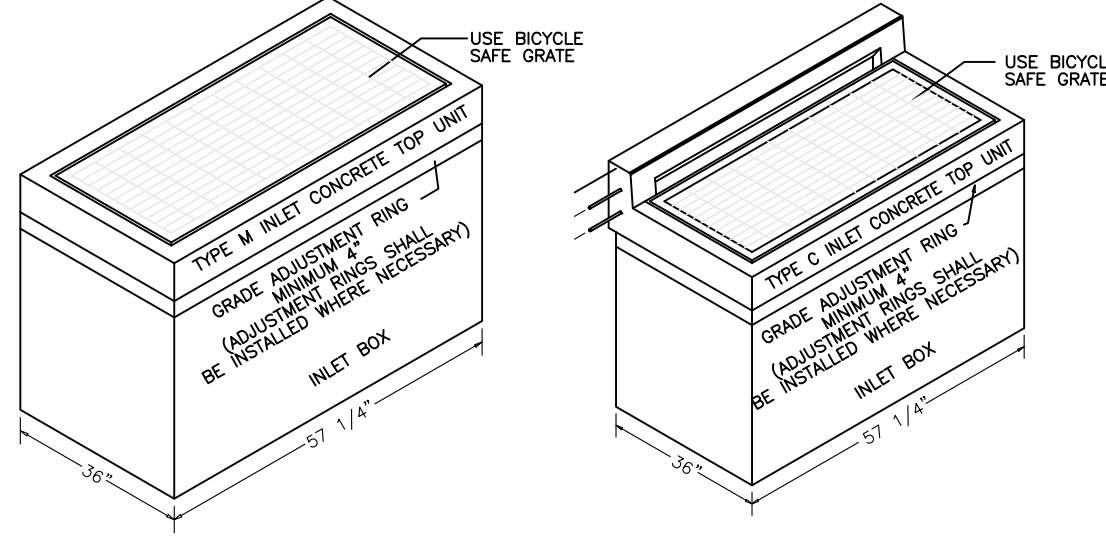
- NOTES:**
1. INSTALL PIPE ACCORDING TO TYPICAL TRENCH DETAIL.
  2. PIPE PROTECTION MEASURES SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE EAST BRADFORD TOWNSHIP REQUIREMENTS.



**TYPICAL CLEANOUT DETAIL**  
(NOT TO SCALE)

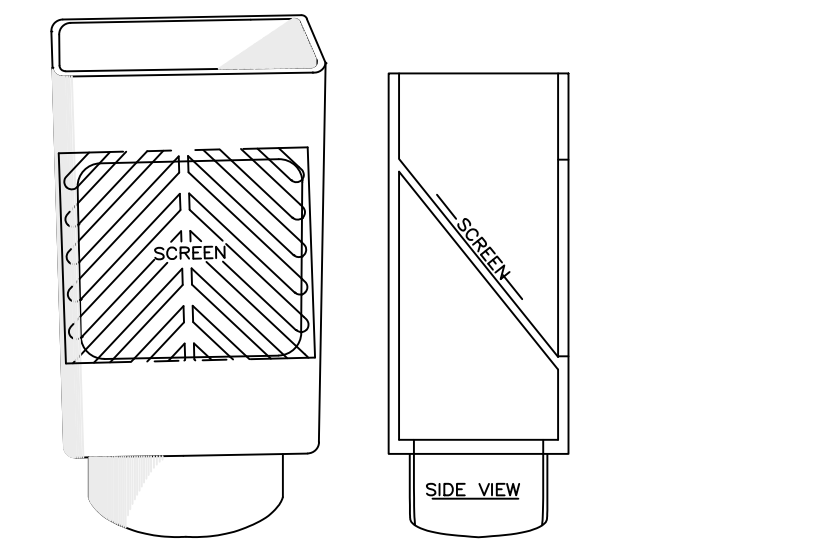


**SANITARY & STORM SEWER TRENCH DETAIL**  
(NOT TO SCALE)



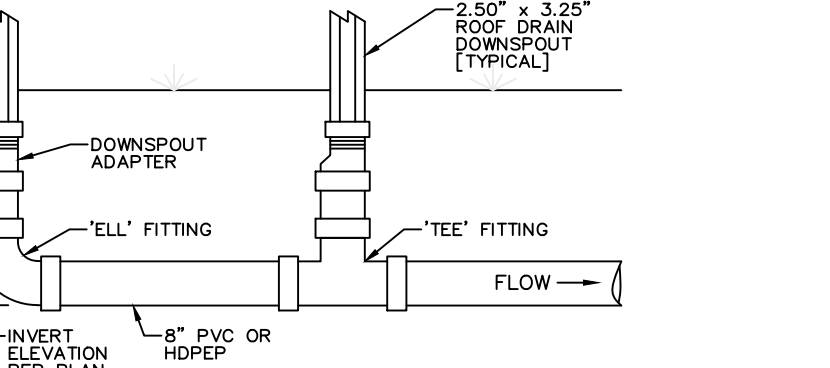
**TYPE 'M' INLET DETAIL** (NOT TO SCALE) **TYPE 'C' INLET DETAIL** (NOT TO SCALE)

- NOTES:**
1. CONSTRUCT INLETS USING BICYCLE SAFE GRATE AS PER PADOT STANDARDS FOR ROADWAY CONSTRUCTION (PUB #72M) AND SPECIFICATIONS PUB.408, SEC.605.
  2. MODIFIED INLET BOXES MAY BE REQUIRED IN SOME LOCATIONS. ALL BOXES SHALL BE CONSTRUCTED PER PADOT STANDARDS FOR ROADWAY CONSTRUCTION (PUB #72M) AND SPECIFICATIONS PUB.408, SEC.605.
  3. INSTALL BINDER COURSE FLUSH WITH THE TOP-OF-GRATE. WHEN INSTALLING WEARING COURSE, TAPER TOP-OF-GRATE.
  4. ALL RISERS SHALL BE SOLID CONCRETE AND NO INLET SHALL BE BACKFILLED WITHOUT THE APPROVAL OF THE TOWNSHIP ENGINEER.



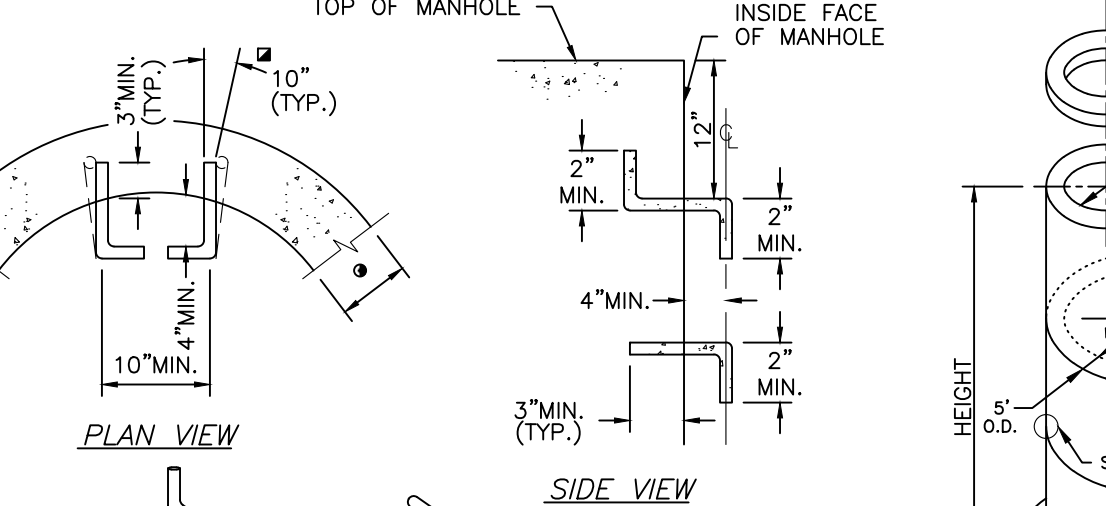
**'INVISAFLOW FLEX GRATE' DOWNSPOUT FILTER**  
(NOT TO SCALE)

- NOTE:**  
'INVISAFLOW FLEX GRATE' DOWNSPOUT FILTERS (OR A SIMILAR ALTERNATE DEVICE APPROVED BY THE TOWNSHIP ENGINEER) SHALL BE UTILIZED ON ALL DOWNSPOUTS.



**ROOF DRAIN COLLECTION SYSTEM**  
(NOT TO SCALE)

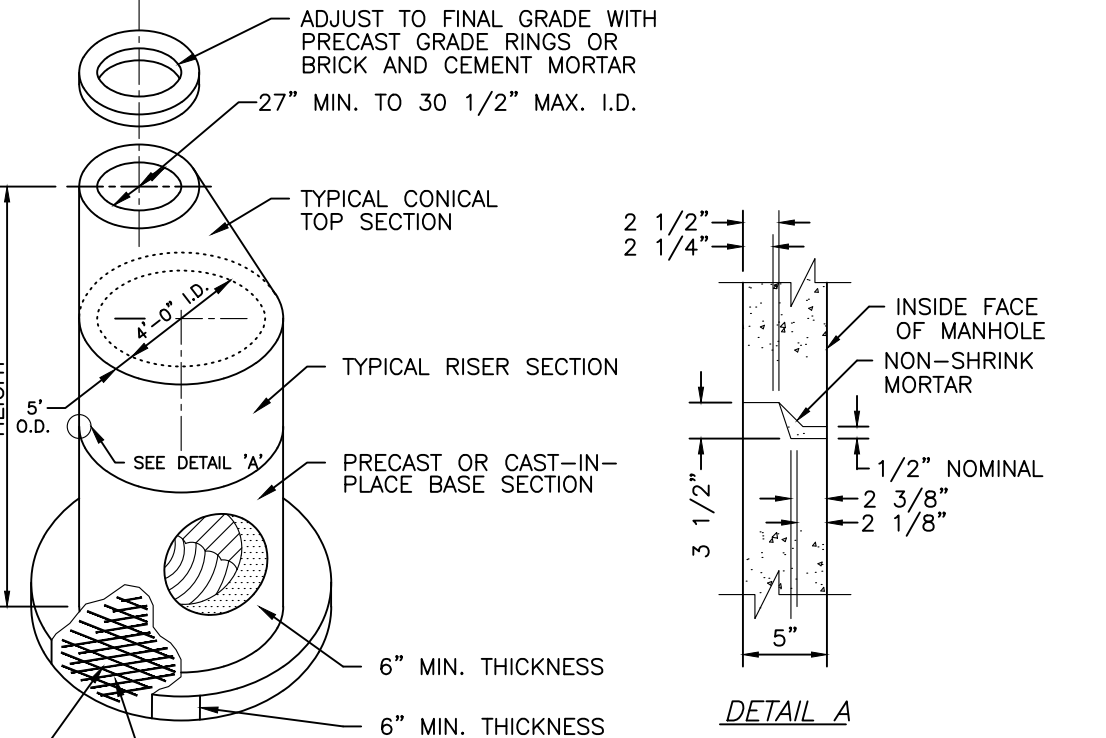
- NOTES:**
1. ALL ROOF LEADERS SHALL BE A MINIMUM OF 8" DIAMETER HDPEP.
  2. ALL ROOF LEADERS SHALL HAVE A MINIMUM SLOPE OF 0.75%.
  3. ALL ROOF LEADERS SHALL HAVE A MINIMUM 18" OF COVER.
  4. CLEANOUTS SHALL BE PROVIDED AT ALL HORIZONTAL & VERTICAL CHANGES OF DIRECTION.
  5. ALL ROOF LEADERS SHALL CONNECT TO INLETS WITHIN THE INFILTRATION BEDS.



**MANHOLE STEPS**  
N.T.S.

Precast Manhole Height	Top Steel Requirements	Bottom Steel Requirements
< 30'-0"	#5 Bars @ 12" C. To C. or 0.18 lr² / Ft. WWF	#4 Bars @ 12" C. To C. or 0.28 lr² / Ft. WWF *
> 30'-0" To 60'-0"	#6 Bars @ 12" C. To C. or 0.15 lr² / Ft. WWF *	#4 Bars @ 6" C. To C. or 0.24 lr² / Ft. WWF *

\* Provide Welded Wire Fabric Meeting the Requirements of Publication 408 Specifications, Section 709.3.



**PRECAST MANHOLE**  
N.T.S.

- NOTES:**
1. Precast manholes meeting the requirements of publication 408 specifications, section 605.2(C), may be substituted for type 'A' and 'B' manholes.
  2. Provide manhole steps meeting the requirements of publication 408 specifications, section 605.2(C). Alternate configurations and dimensions, as approved by the engineer, may be used.

**JMR ENGINEERING, LLC**  
PROFESSIONAL CIVIL ENGINEERING • LAND PLANNING SERVICES  
106 SCHUBERT DRIVE • DOWNTOWN, PA 19335  
VOICE: (484) 880-7342  
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WEBSITE: WWW.JMRENGINEERING.COM

**JOHN M. ROBINSON**  
REGISTERED PROFESSIONAL ENGINEER  
PENNSYLVANIA LICENSE NO. PE056271

**UTILITY USERS LIST**  
USERS RESPONSES

**CALL BEFORE YOU DIG!**  
PENNSYLVANIA LAW REQUIRES THE CONTRACTOR TO NOTIFY PENNSYLVANIA ONE CALL PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. PENNSYLVANIA ONE CALL WILL GUARANTEE THE ACCURACY OF THE DATA ON THE PLAN OF THE UTILITY AND REPAIR WORK. THE CONTRACTOR SHALL NOTIFY THE OFFICE OF ALL SUBURBAN UTILITIES PRIOR TO STARTING WORK.  
1-800-242-1776  
POCS SERIAL NUMBER:

**PLAN REVISIONS**

REV	DATE	DESCRIPTION OF CHANGES

**PRELIMINARY / FINAL LAND DEVELOPMENT PLAN FOR WEST WHITELAND TOWNSHIP PUBLIC WORKS**  
CLIENT: WEST WHITELAND TOWNSHIP  
101 COMMERCE DRIVE  
EXTON, PA 19341

PROJECT No.: 1662  
SURVEY REF.: 1301-B(DSS)  
DRAWN BY: S.E.D.  
CHECKED BY: J.M.R.  
PLAN DATE: DECEMBER 19, 2022  
PLAN SCALE: AS SHOWN

**CONSTRUCTION DETAILS**  
SHEET NUMBER: 13 OF 16  
PLOT DATE: Dec 19, 2022  
JMR FILENAME: 13 CONST DETAILS.DWG

**APPLICANT**  
WEST WHITELAND TOWNSHIP  
c/o: JUSTIN SMILEY  
(610) 363-9525  
101 COMMERCE DRIVE  
EXTON, PA 19341

**BMP 6.4.5 MRC RAIN GARDEN SEQUENCE OF CONSTRUCTION**

1. NOTIFY THE TOWNSHIP ENGINEER, IN WRITING, A MINIMUM OF 48 HOURS PRIOR TO STARTING CONSTRUCTION OF THE PROPOSED BMP'S.
2. THE PROPOSED MRC RAIN GARDENS HAVE BEEN DESIGNED UTILIZING AN IMPERVIOUS LINER TO PREVENT WATER TRANSFER TO THE UNDERLYING KARST GEOLOGIC FORMATION; THEREFORE, THERE IS NO REQUIREMENT TO PROTECT OR PREVENT THE EXISTING SUB-GRADE FROM BEING COMPACTED OR SUBJECTED TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC.
3. THE FACILITIES WILL BE INSTALLED DURING INITIAL GRADING ACTIVITIES AS SEDIMENT TRAPS AND WILL THEN BE CONVERTED TO FINAL CONDITION IN THE FINAL PHASES OF SITE CONSTRUCTION TO PREVENT SEDIMENTATION AND/OR DAMAGE FROM CONSTRUCTION ACTIVITY. AFTER THE INSTALLATION HAS BEEN COMPLETED, THE CONTRACTOR SHALL SURROUND THE BMP WITH SILT SOCK OR SILT FENCE TO PREVENT SEDIMENT ANY SEDIMENT FROM ENTERING THE SOIL MEDIA AND BMP FOOTPRINT.
4. REMOVE THE STONE BERM AND FAIRCLOTH SKIMMER DEVICE AND EXCAVATE THE SEDIMENT TRAP AREA TO THE PROPOSED MEDIA AND UNDERDRAIN ELEVATION REQUIRED BY THIS PLAN. SPECIAL CARE SHOULD BE TAKEN NOT TO PENETRATE THE IMPERMEABLE LINERS.
5. CRITICAL STAGE: INSTALL THE PROPOSED UNDERDRAIN IN ACCORDANCE WITH THE TYPICAL MRC RAIN GARDEN DETAIL.
6. CRITICAL STAGE: BACKFILL THE FACILITY WITH SOIL MEDIA AS SPECIFIED ON THIS PLAN. THE PLACEMENT OF MEDIA SHALL BE COMPLETED FROM OUTSIDE THE LIMITS OF THE FACILITY. THE MEDIA IN THIS FACILITY HAS BEEN DESIGNED TO ALLOW WATER TO DRAIN THROUGH IT REMOVING CONTAMINANTS; ALTHOUGH IT IS NOT A REQUIREMENT TO PREVENT THE COMPACTION OF THE SUBGRADE, THE SOIL MEDIA SHALL BE INSTALLED UTILIZING A METHOD TO PREVENT COMPACTION. AT NO TIME SHALL EQUIPMENT ENTER THE BMP FOOTPRINT ONCE MEDIA IS INSTALLED. WHEN PLACING MEDIA, AN ADDITIONAL 3" OF MATERIAL SHALL BE PLACED ABOVE DESIGN GRADE IN ORDER TO ACCOUNT FOR FUTURE SETTLEMENT.
7. AFTER INSTALLATION OF THE SOIL MEDIA, PREVENT ANY SEDIMENT FROM ENTERING THE BMP BY SURROUNDING THE BMP WITH SILT SOCK OR SILT FENCE. IMMEDIATELY STABILIZE ANY DISTURBED AREAS WITH THE SPECIFIED EROSION CONTROL BLANKETS AND PERMANENT SEED MIXTURE, MULCH AT 3 TONS/ACRE, AND LIME AS PRESCRIBED.
8. SEED BOTTOM OF RAIN GARDEN AREA WITH THE SEED MIXTURE SPECIFIED; IF THE SEED DOES NOT GERMINATE DUE TO THE WET ENVIRONMENT, THEN THE SEED SHALL BE PLACED UTILIZING DRILL SEEDING. CARE SHOULD BE TAKEN NOT TO COMPACT THE SOIL MEDIA AT ALL TIMES.
9. IN ACCORDANCE WITH §270-29(A)(7) PERMANENT GRASSES OR STABILIZATION MEASURES SHALL BE ESTABLISHED ON THE SIDES OF ALL EARTHEN BASINS BY HYDROSEEDING WITHIN 5 DAYS OF INITIAL CONSTRUCTION.

**BMP 6.4.5 MRC RAIN GARDEN MAINTENANCE NOTES:**

1. THE MRC (MANAGED RELEASE CONCEPT) RAIN GARDEN IS DESIGNED TO PROVIDE WATER QUALITY FOR STORM EVENTS UP TO THE 2-YR/24 HOUR STORM BY IMPOUNDING WATER AND UTILIZING SOIL MEDIA TO PROVIDE FILTERING OF STORMWATER PRIOR TO BEING DISCHARGED THROUGH A VERY SMALL ORIFICE. IT IS IMPERATIVE TO ENSURE THAT MAINTENANCE IS PERFORMED, AS REQUIRED BY THIS PLAN, SO THE FACILITIES CONTINUE TO FUNCTIONING PROPERLY. THE GOAL OF THE INSPECTION AND MAINTENANCE CRITERIA IS TO ENSURE THE STORMWATER MANAGEMENT FACILITY FUNCTIONS AS INTENDED OVER ITS LIFETIME.
  - 1.1. ENSURE THAT THE OUTLET STRUCTURES/TRASH RACKS ARE FREE OF FLOATABLES AND DEBRIS THAT COULD BLOCK THE OUTFALL AND CAUSE THE BASIN TO PREMATURELY OVERFLOW.
  - 1.2. THE FACILITY SHOULD BE INSPECTED AFTER ALL STORM EVENTS TO ENSURE THE MRC ORIFICES ARE NOT CLOGGED AND FUNCTIONING PROPERLY. THE REDUCED ORIFICE SIZES ASSOCIATED WITH THE MRC CAN EASILY CLOG LEADING TO PREMATURE BASIN OVERFLOW.
  - 1.3. VERIFY THAT NO EROSION HAS OCCURRED WITHIN THE RAIN GARDEN. ALL EROSION AND RILLS SHALL BE REPAIRED IMMEDIATELY AND STABILIZED. IF RILLS OR EROSION CONTINUES, CONTACT THE DESIGN ENGINEER.
  - 1.4. IT IS IMPORTANT TO ENSURE THAT THE PROPOSED BASIN PLANTINGS AND SHRUBS ARE MONITORED AND REPLACED AS NEEDED.
2. WHILE VEGETATION IS BEING ESTABLISHED, PRUNING AND WEEDING MAY BE REQUIRED. DETRITUS MAY ALSO NEED TO BE REMOVED EVERY YEAR. PERENNIAL PLANTINGS MAY BE CUT DOWN AT THE END OF THE GROWING SEASON.
3. CARE SHOULD BE TAKEN TO AVOID EXCESS COMPACTION BY MOWERS. MOW ONLY AS APPROPRIATE FOR VEGETATIVE SPECIES.
4. THE RAIN GARDEN AREA SHOULD BE INSPECTED AT LEAST TWO TIMES PER YEAR FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS AND SIGNS OF WATER CONTAMINATION. LEAF LITTER SHOULD BE REMOVED ANNUALLY.
5. AS NEEDED, REMOVE ACCUMULATED SEDIMENT AS REQUIRED TO MAINTAIN INFILTRATION THROUGHOUT THE FACILITIES SOIL MEDIA TO MAINTAIN WATER QUALITY FUNCTIONALITY. RESTORE ORIGINAL CROSS-SECTION.
6. DURING PERIODS OF EXTENDED DROUGHT, THE RAIN GARDEN AREA MAY REQUIRE WATERING.
7. THE PROPOSED FACILITIES RECEIVE A SIGNIFICANT AMOUNT OF RUNOFF FROM IMPERVIOUS SURFACES. THE MEDIA SHALL BE INSPECTED AND MONITORED AT LEAST TWO TIMES A YEAR TO ENSURE THAT THE TOP LAYER HAS NOT BEEN SILTED IN. THE TOP 12" OF MEDIA SHALL BE REMOVED AND REPLACED WITH NEW MEDIA AS NEEDED TO ENSURE THAT NO SEDIMENT BLOCKS THE SURFACE WATER FROM REACHING THE UNDERDRAIN AND MRC ORIFICE.
8. AFTER REPLACING THE MEDIA, THE TOP LAYER SHALL BE PLANTED WITH ERNWX-180 SEED MIX, AS SPECIFIED ON THIS PLAN AND SHALL BE REPLANTED IN ACCORDANCE WITH THE LANDSCAPING PLAN (BY OTHERS)

**DRY DETENTION POND SEQUENCE OF CONSTRUCTION**

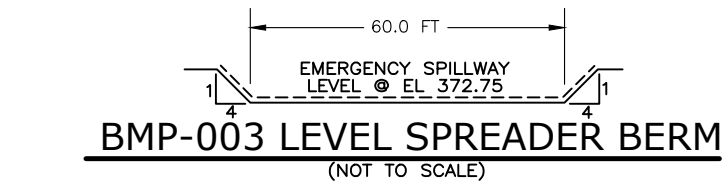
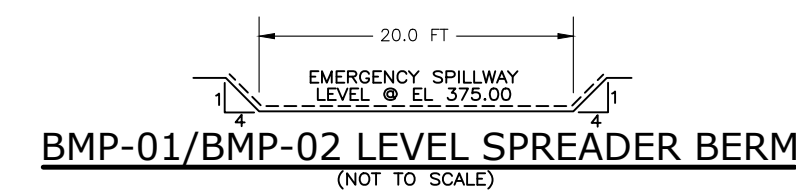
1. NOTIFY THE TOWNSHIP ENGINEER, IN WRITING, A MINIMUM OF 48 HOURS PRIOR TO STARTING CONSTRUCTION OF THE PROPOSED BMP.
2. THE PROPOSED BMP HAS BEEN DESIGNED UTILIZING AN IMPERVIOUS LINER TO PREVENT WATER TRANSFER TO THE UNDERLYING KARST GEOLOGIC FORMATION; THEREFOR, THERE IS NO REQUIREMENT TO PROTECT OR PREVENT THE EXISTING SUB-GRADE FROM BEING COMPACTED OR SUBJECTED TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC.
3. THE FACILITY WILL BE INSTALLED DURING INITIAL GRADING ACTIVITIES A SEDIMENT TRAP AND WILL THEN BE CONVERTED TO FINAL CONDITION IN THE FINAL PHASES OF SITE CONSTRUCTION TO PREVENT SEDIMENTATION AND/OR DAMAGE FROM CONSTRUCTION ACTIVITY. AFTER THE INSTALLATION HAS BEEN COMPLETED, THE CONTRACTOR SHALL SURROUND THE BMP WITH SILT SOCK OR SILT FENCE TO PREVENT SEDIMENT ANY SEDIMENT FROM ENTERING THE SOIL MEDIA AND BMP FOOTPRINT.
4. REMOVE THE STONE BERM AND FAIRCLOTH SKIMMER DEVICE.
5. GRADE THE BASIN BOTTOM TO THE ELEVATIONS DETAILED ON THE PLAN AND IMMEDIATELY STABILIZE THE DISTURBED AREAS WITH THE PERMANENT SEED MIXTURE, MULCH AT 3 TONS ACRE, AND LIME AS PRESCRIBED.
6. IN ACCORDANCE WITH §270-29(A)(7) PERMANENT GRASSES OR STABILIZATION MEASURES SHALL BE ESTABLISHED ON THE SIDES OF ALL EARTHEN BASINS BY HYDROSEEDING WITHIN 3 DAYS OF INITIAL CONSTRUCTION.

**DRY DETENTION POND MAINTENANCE NOTES:**

1. THE DETENTION POND HAS BEEN DESIGNED TO RECEIVE OVERFLOW FROM THE THREE (3) MRC FACILITIES LOCATED UP GRADIENT OF THE BASIN TO CONTROL THE RATE OF STORMWATER LEAVING THE SITE AND ENTERING THE SURFACE WATERS. THE FACILITY SHALL BE INSPECTED AFTER ALL STORM EVENTS TO ENSURE IT IS FUNCTIONING PROPERLY. THE GOAL OF THE INSPECTION AND MAINTENANCE CRITERIA IS TO ENSURE THE STORMWATER MANAGEMENT FACILITY FUNCTIONS AS INTENDED OVER ITS LIFETIME.
  - 1.1. ENSURE THAT THE OUTLET STRUCTURES/TRASH RACKS ARE FREE OF FLOATABLES AND DEBRIS THAT COULD BLOCK THE OUTFALL AND CAUSE THE DETENTION POND TO PREMATURELY OVERFLOW.
  - 1.2. ENSURE THAT CB-1 AND CB-2 ARE FREE OF FLOATABLES AND DEBRIS THAT COULD BLOCK THE OUTFALL AND CAUSE THE BASIN TO PREMATURELY OVERFLOW.
  - 1.3. VERIFY THAT THE TRASH RACK IS FREE OF DEBRIS
  - 1.4. VERIFY THAT THE 6" ORIFICE IS FREE OF DEBRIS
  - 1.5. VERIFY THAT THE LEVEL SPREADER IS SILTED IN AND THAT THERE IS NO EROSION AT THE DOWNSTREAM END.
  - 1.6. VERIFY THAT NO EROSION HAS OCCURRED WITHIN THE RAIN GARDEN. ALL EROSION AND RILLS SHALL BE REPAIRED IMMEDIATELY AND STABILIZED. IF RILLS OR EROSION CONTINUES, CONTACT THE DESIGN ENGINEER.
2. WHILE VEGETATION IS BEING ESTABLISHED, PRUNING AND WEEDING MAY BE REQUIRED. DETRITUS MAY ALSO NEED TO BE REMOVED EVERY YEAR. PERENNIAL PLANTINGS MAY BE CUT DOWN AT THE END OF THE GROWING SEASON.
3. THE VEGETATION (FOR THE BMP AND CONTRIBUTING DRAINAGE AREA) SHOULD BE MAINTAINED IN GOOD CONDITION, ANY BARE SPOTS SHALL BE REVEGETATED.
4. THE DETENTION POND SHOULD BE INSPECTED AT LEAST TWO TIMES PER YEAR FOR SEDIMENT BUILDUP, EROSION AND VEGETATIVE CONDITIONS. LEAF LITTER SHOULD BE REMOVED ANNUALLY.
5. AFTER SEDIMENT REMOVAL, THE BASIN BOTTOM SHALL BE RE-PLANTED WITH ERNWX-180 SEED MIX, AS SPECIFIED ON THIS PLAN.

**CUT-OFF TRENCH SPECIFICATION**

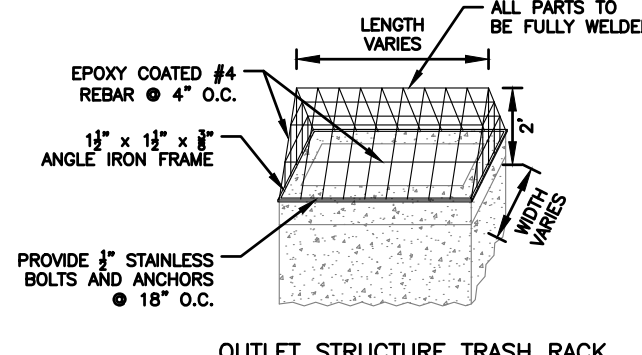
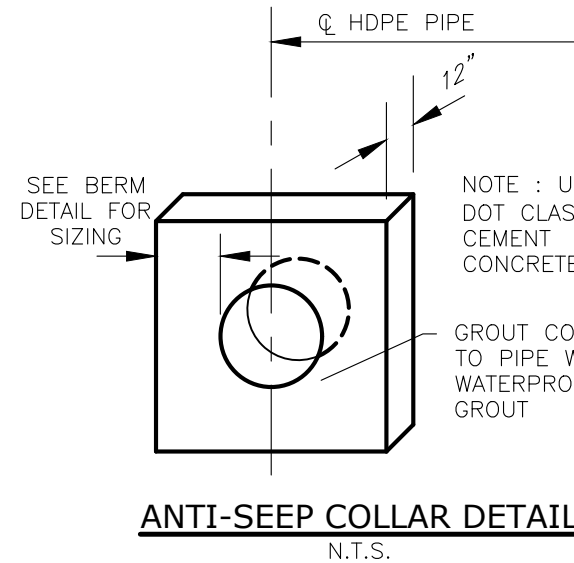
EXCAVATE THE CUT-OFF TRENCH AS SHOWN ALONG THE LONGITUDINAL CENTERLINE OF THE BERM. THE MAXIMUM DEPTH OF THE CUT-OFF TRENCH SHALL BE THREE FEET (3'). THE CUT-OFF TRENCH SHALL EXTEND UP BOTH SIDES OF THE EMBANKMENT TO THE EMERGENCY SPILLWAY ELEVATION. THE MINIMUM BOTTOM WIDTH SHALL BE FOUR FEET (4'), BUT WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT. THE SIDE SLOPES SHALL BE NO STEEPER THAN 1H:1V. COMPACTION REQUIREMENTS SHALL BE THE SAME AS THOSE FOR EMBANKMENTS - 95% OF THE MATERIALS MAXIMUM DRY DENSITY ACCORDING TO ASTM D698. STANDARD PROCTOR. THE TRENCH SHALL BE KEPT FREE OF STANDING WATER DURING THE BACKFILLING OPERATION. THE CUT-OFF TRENCH SHALL BE CONSTRUCTED USING UNIFIED SOILS CLASSIFICATION CL-ML OR CL MATERIAL.



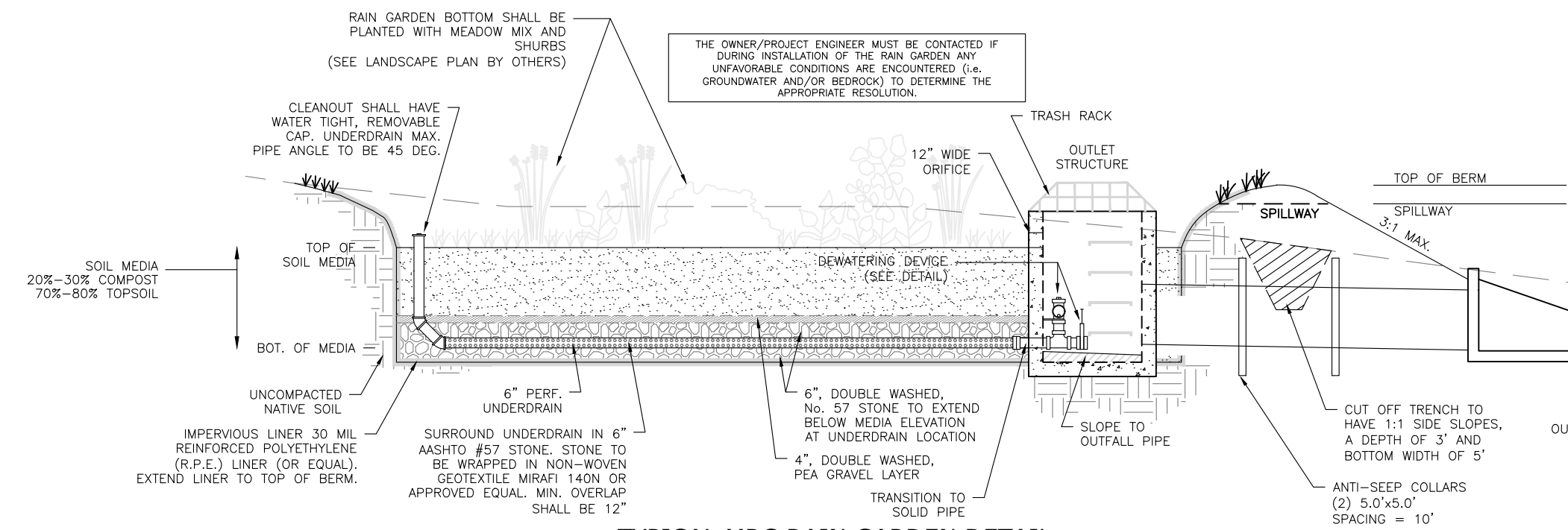
**APPLICANT**  
WEST WHITELAND TOWNSHIP  
c/o: JUSTIN SMILEY  
(610) 363-9525  
101 COMMERCE DRIVE  
EXTON, PA 19341

**POST CONSTRUCTION STORMWATER MANAGEMENT LONG TERM OPERATIONS AND MAINTENANCE REQUIREMENTS**

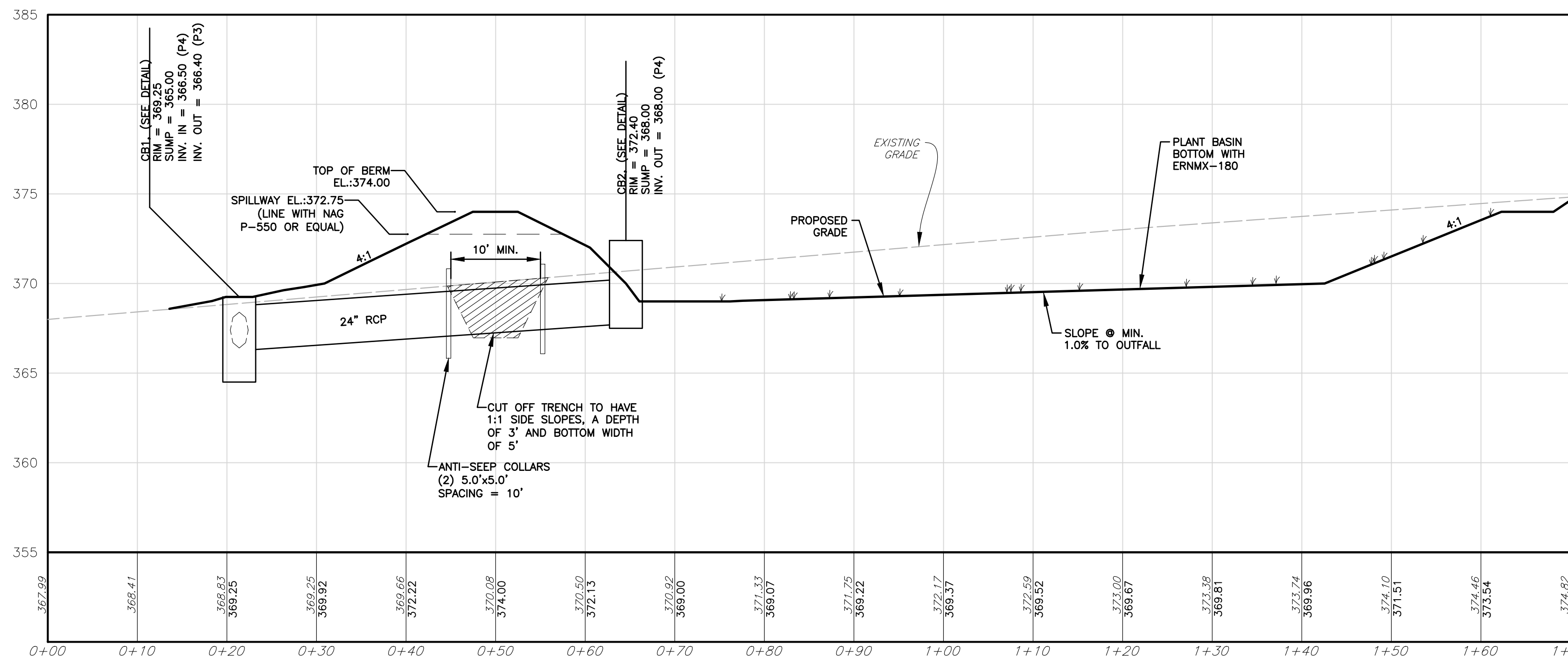
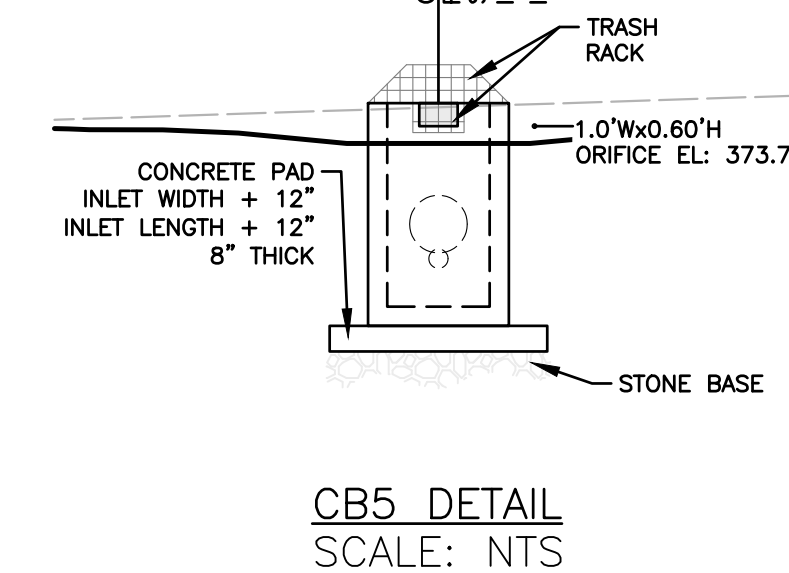
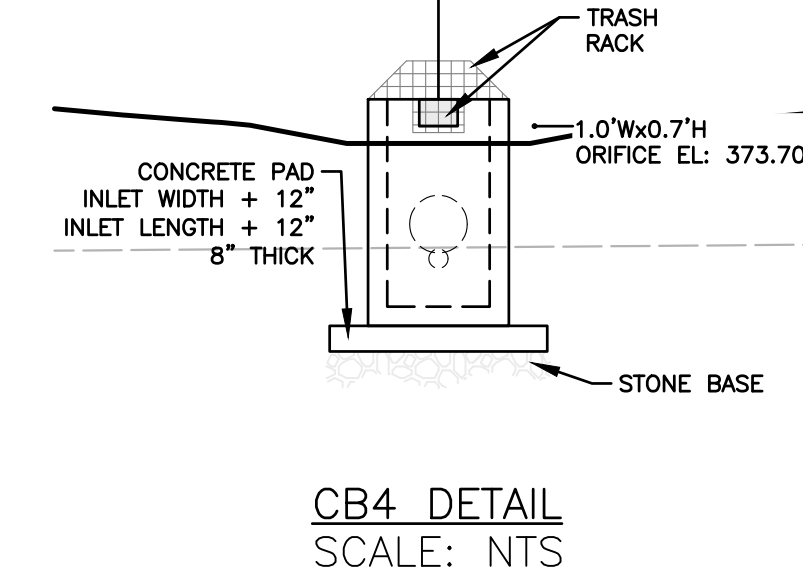
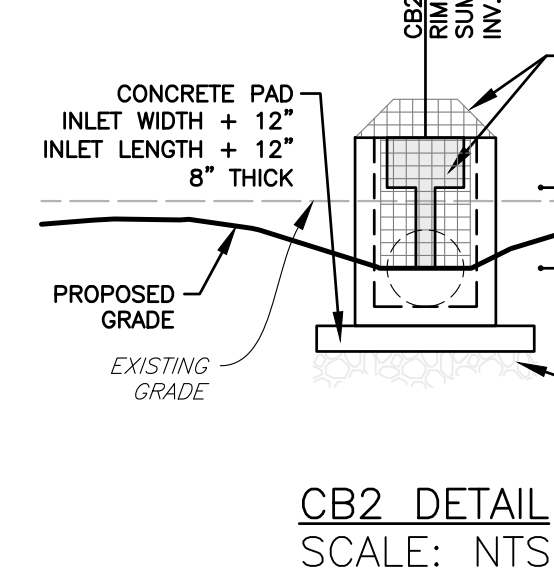
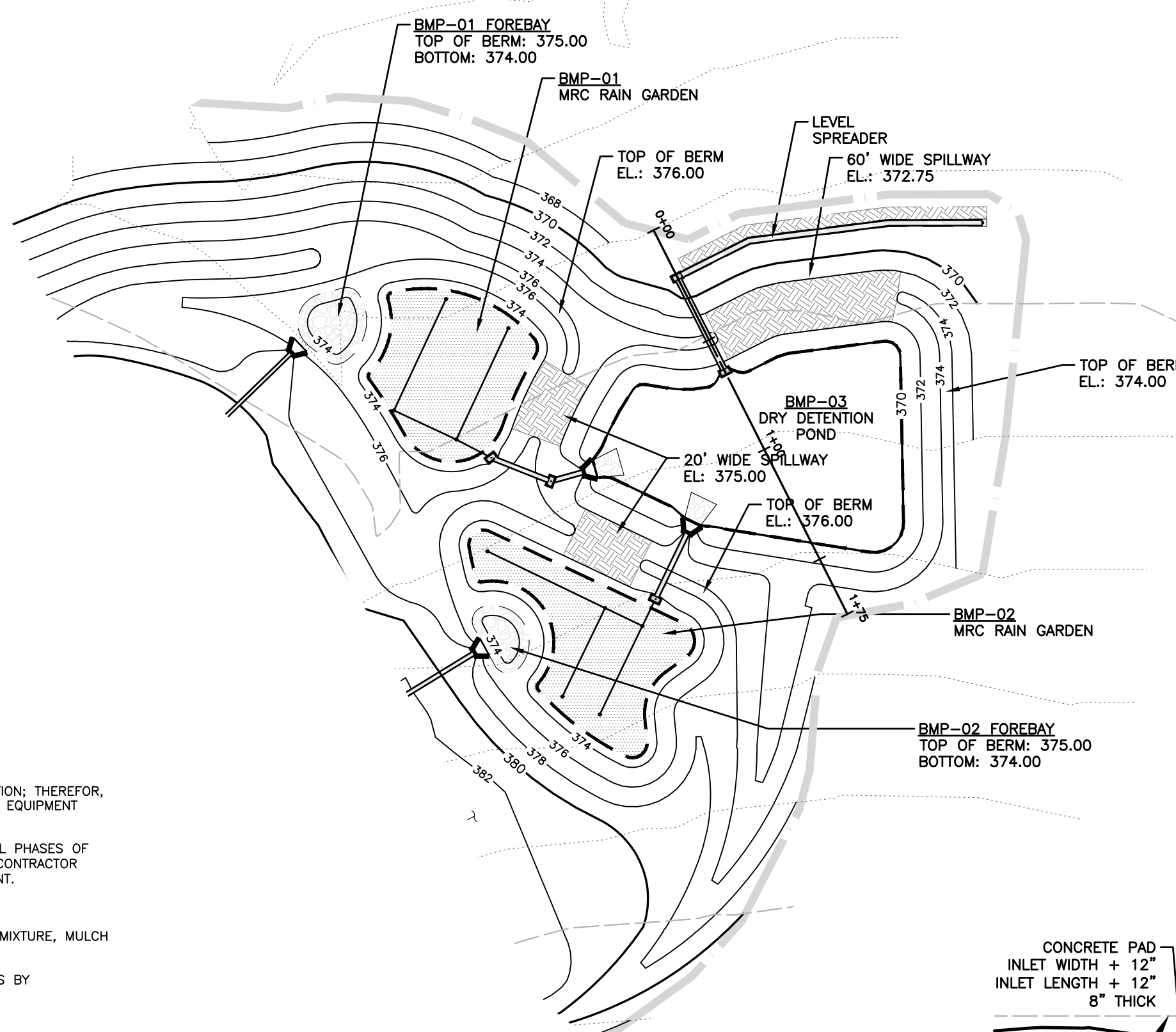
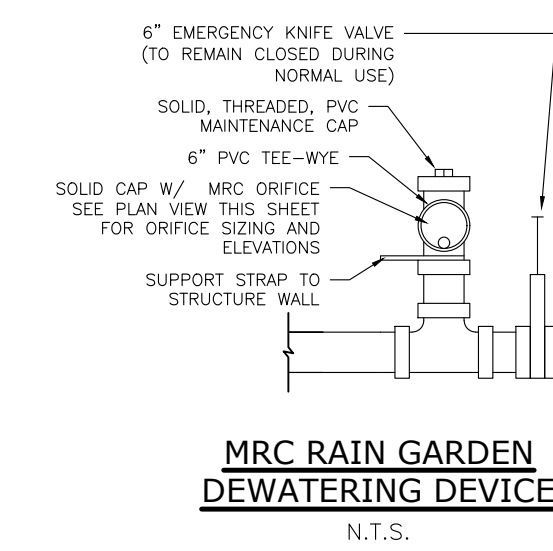
1. UNTIL THE PERMITTEE OR CO-PERMITTEE HAS RECEIVED WRITTEN APPROVAL OF A NOTICE OF TERMINATION, THE PERMITTEE OR CO-PERMITTEE WILL REMAIN RESPONSIBLE FOR COMPLIANCE WITH THE PERMIT TERMS AND CONDITIONS INCLUDING LONG-TERM OPERATION AND MAINTENANCE OF ALL PCSM BMPs ON THE PROJECTS SITE AND IS RESPONSIBLE FOR VIOLATIONS OCCURRING ON THE PROJECT SITE.
2. 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.
3. 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 GRANTEE, AND PROVIDE PROOF OF FILING WITH THE NOTICE OF TERMINATION UNDER PA CODE SECTION 102.7(d)(5) (PERMIT TERMINATION).
4. THE TOWNSHIP RESERVES THE RIGHT, BUT NOT THE RESPONSIBILITY, TO CONDUCT SUCH INSPECTIONS AS WELL AS TO EXECUTE SUCH ACTIONS AS MAY BE NECESSARY TO ELIMINATE ANY IMMEDIATE THREAT TO THE PUBLIC HEALTH, SAFETY, OR WELFARE WITHOUT PRIOR NOTICE TO THE PROPERTY OWNER. THE TOWNSHIP FURTHER RESERVES THE RIGHT TO CHARGE THE PROPERTY OWNER FOR SUCH INSPECTIONS AND ACTIONS IN ACCORDANCE WITH THE DAILY QUOTED FEE SCHEDULE.
5. THE PROFESSIONAL ENGINEER CONDUCTING THE INSPECTION SHALL BE REQUIRED TO SUBMIT A WRITTEN REPORT TO THE TOWNSHIP AND CONSERVATION DISTRICT WITHIN ONE MONTH OF THE COMPLETION OF THE INSPECTION. THE REPORT WILL PRESENT DOCUMENTATION AND INCLUDE PICTURES REGARDING THE CONDITION OF THE FACILITY AND RECOMMEND NECESSARY REPAIRS, IF ANY ARE NEEDED. ANY SUCH REPAIRS SHALL BE COMPLETED BY THE OWNER WITHIN ONE MONTH OF THE DATE OF THE ISSUE OF THE REPORT. THE REPORT SHALL ALSO DOCUMENT ALL PREVIOUS INSPECTIONS AND ALL PREVIOUS BMP REPAIR AND MAINTENANCE ACTIVITIES.
6. THE PERSON RESPONSIBLE FOR PERFORMING LONG-TERM OPERATION AND MAINTENANCE MAY ENTER INTO AN AGREEMENT WITH ANOTHER PERSON INCLUDING A CONSERVATION OR OTHER NONPROFIT ORGANIZATION, MUNICIPALITY, AUTHORITY, PRIVATE CORPORATION OR LIMITED LIABILITY COMPANY TO TRANSFER THE RESPONSIBILITY FOR PCSM BMPs TO PERFORM LONG-TERM OPERATION AND MAINTENANCE AND PROVIDE NOTICE THEREOF TO THE TOWNSHIP DEPARTMENT.
7. STORMWATER MANAGEMENT BMP AREAS SHALL BE INSPECTED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE COMMONWEALTH OF PENNSYLVANIA ON BEHALF OF THE APPLICANT OR RESPONSIBLE ENTITY, INCLUDING THE TOWNSHIP ENGINEER FOR DEDICATED FACILITIES ON THE FOLLOWING BASIS:
  - A. ANNUALLY FOR THE FIRST FIVE (5) YEARS.
  - B. ONCE EVERY THREE (3) YEARS THEREAFTER.
8. ANY EROSION CAUSED BY DISCHARGES FROM THE BMP SHALL BE IMMEDIATELY REPAIRED AND STABILIZED.



- NOTES:**
1. PROVIDE HINGED LOCKING ACCESS OPENING (36" SQUARE MIN.) FOR MAINTENANCE.
  2. PROVIDE STEPS WITHIN OUTLET STRUCTURES.
  3. CONTRACTOR SHALL PROVIDE BUOYANCY CALCULATIONS FOR ALL OUTLET STRUCTURES.
  4. ALL WELDS TO BE REPAIRED WITH CORROSION RESISTANT PAINT (COLOR TO MATCH REBAR)



STORMWATER	SOIL MEDIA AREA (S.F.)	AMENDED SOIL ELEVATIONS		TOP OF SPILLWAY BERM ELEV.	UNDERDRAIN ELEV.	MRC ORIFICE ELEV.	MRC ORIFICE DIA. (IN)
		TOP	BOTTOM				
BMP-01	3,360	373.00	370.00	376.00	375.00	371.00	3/4"
BMP-02	3,500	373.00	370.00	376.00	375.00	371.00	3/4"



**BMP-03 SECTION**  
HORIZ. 1" = 10'  
VERT. 1" = 5'

**JMR ENGINEERING, LLC**  
PROFESSIONAL CIVIL ENGINEERING • LAND PLANNING SERVICES  
106 SCHUBERT DRIVE • DOWNTOWN, PA 19335  
VOICE: (484) 880-7342  
EMAIL: ADMIN@JMRENGINEERING.COM  
WEBSITE: WWW.JMRENGINEERING.COM

**JOHN M. ROBINSON**  
PROFESSIONAL ENGINEER  
PENNSYLVANIA LICENSE NO. PE056271

**UTILITY USERS LIST**

USERS	RESPONSES

**PLAN REVISIONS**

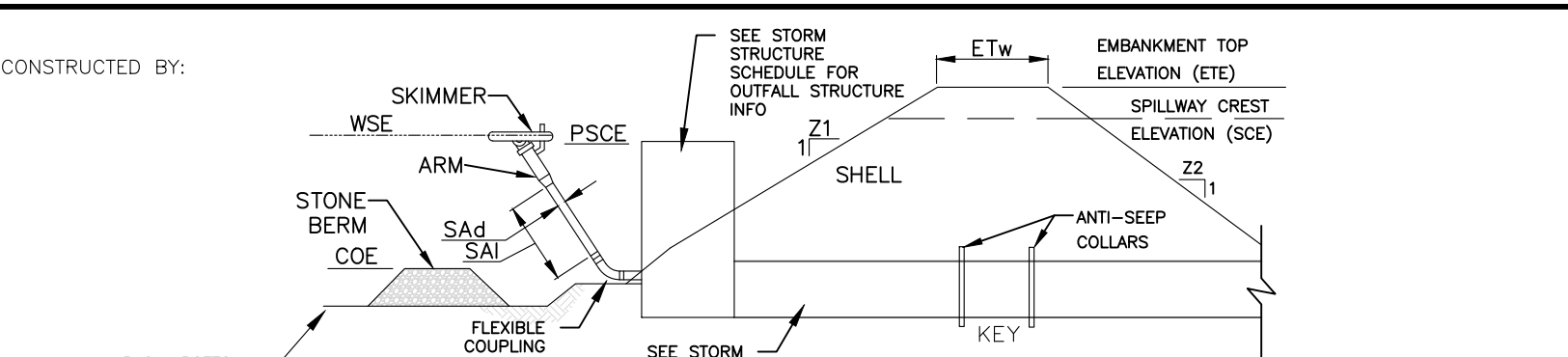
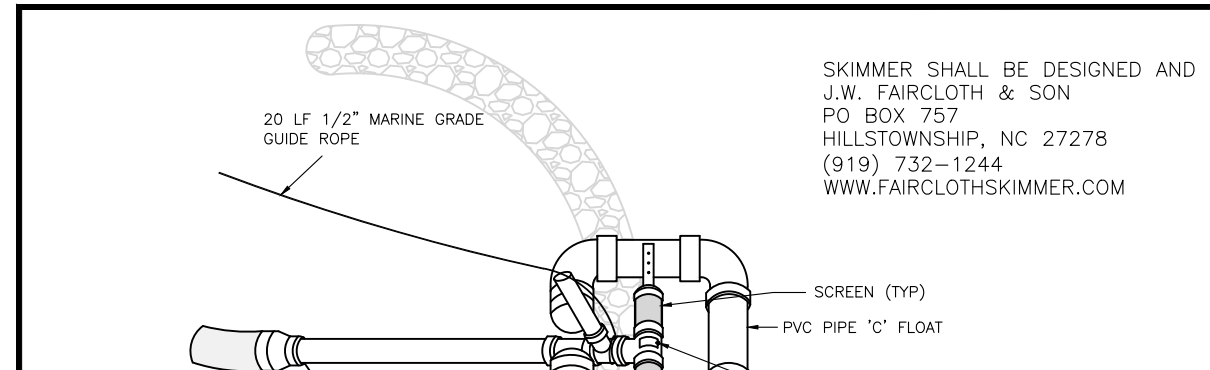
REV. DATE	DESCRIPTION OF CHANGES

**PRELIMINARY / FINAL LAND DEVELOPMENT PLAN FOR WEST WHITELAND TOWNSHIP PUBLIC WORKS**

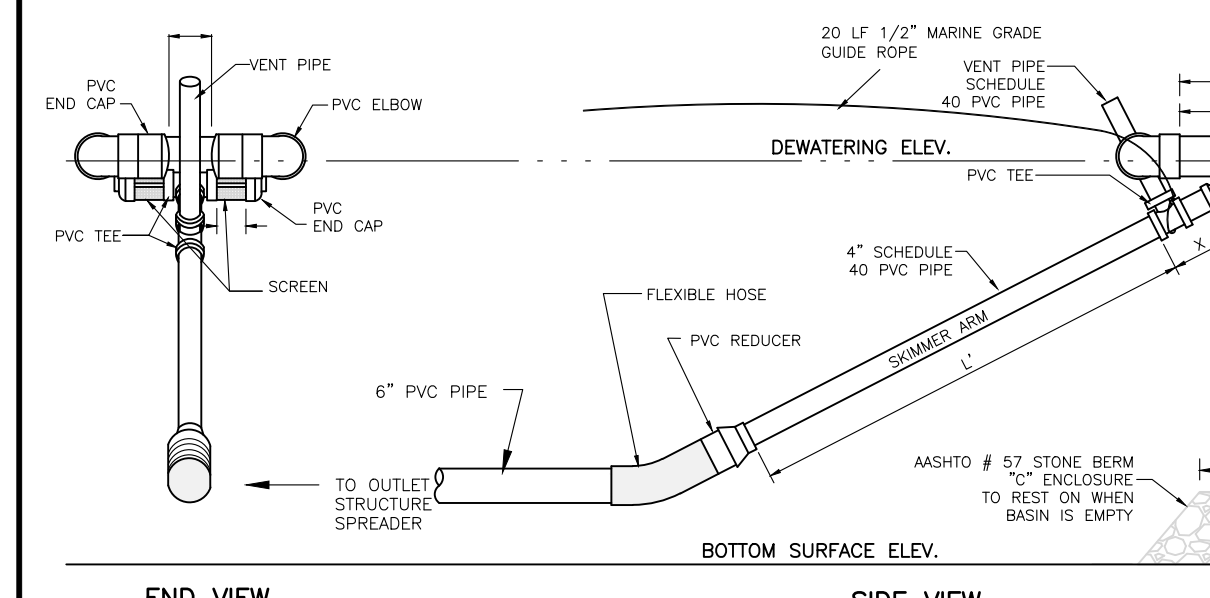
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121 VALLEY CREEK BLVD.  
EXTON, PA 19341  
WEST WHITELAND TOWNSHIP  
CHESTER COUNTY, PA  
PARCELS:  
413-89  
CLIENT:  
WEST WHITELAND TOWNSHIP  
101 COMMERCE DRIVE  
EXTON, PA 19341

PROJECT No.: 1662  
SURVEY REF.: 1301-B(D)SS  
DRAWN BY: S.E.D.  
CHECKED BY: J.M.R.  
PLAN DATE: DECEMBER 19, 2022  
PLAN SCALE: AS SHOWN

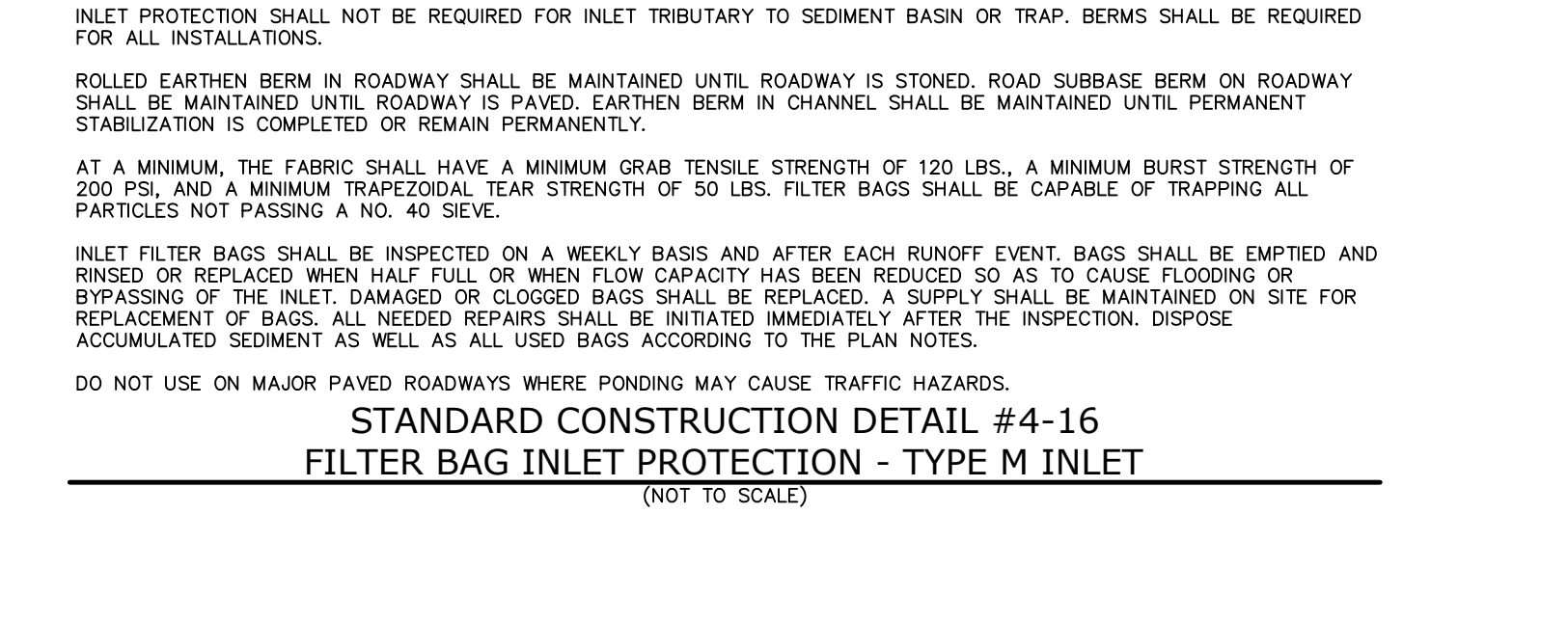
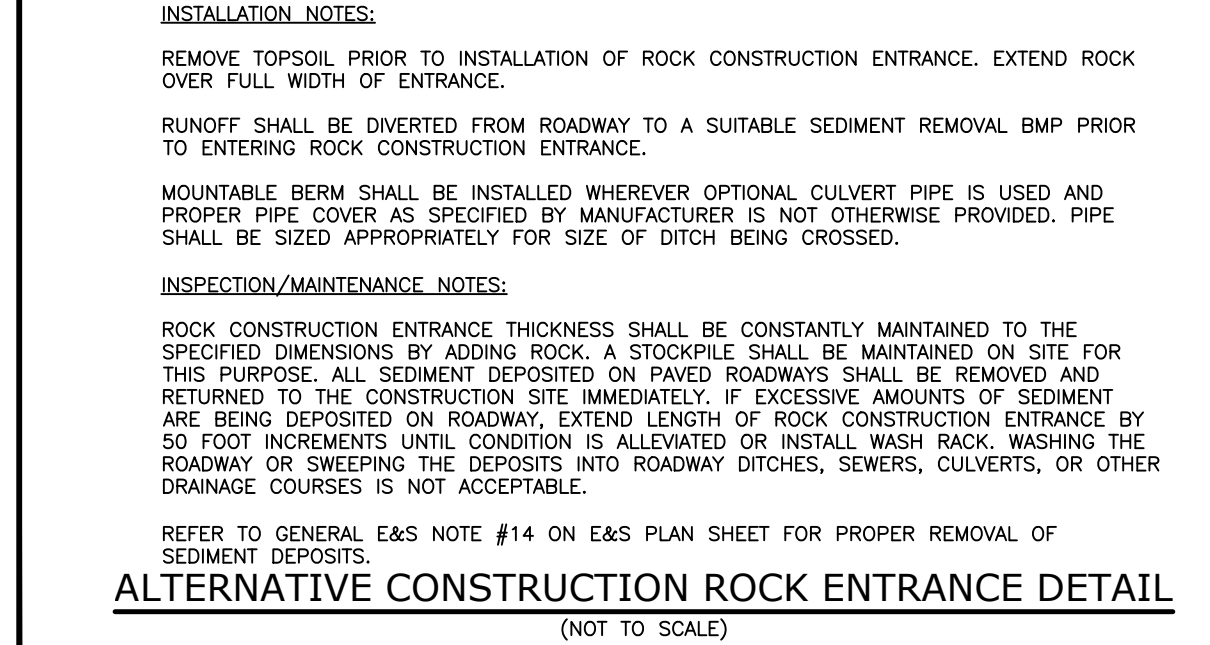
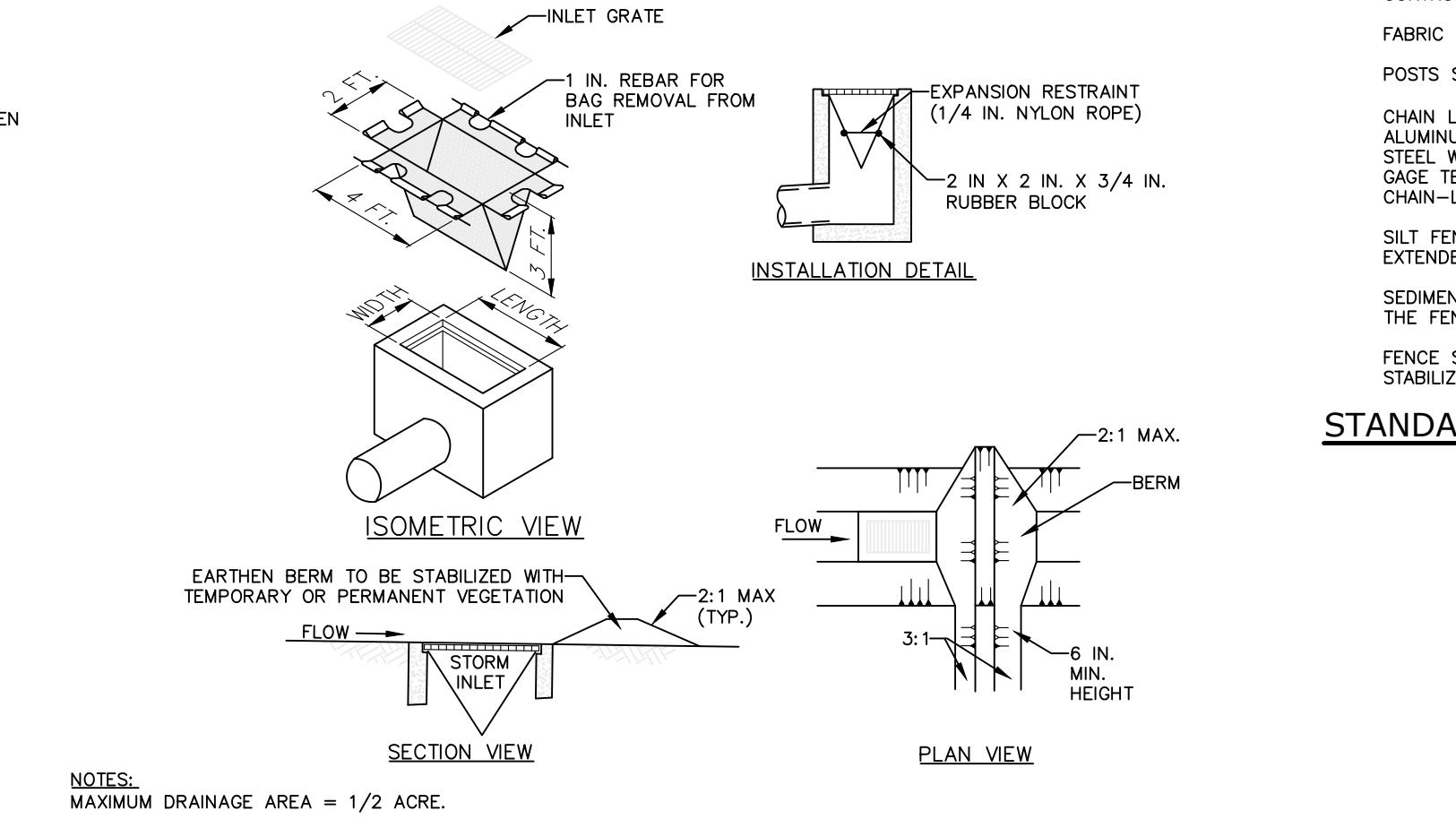
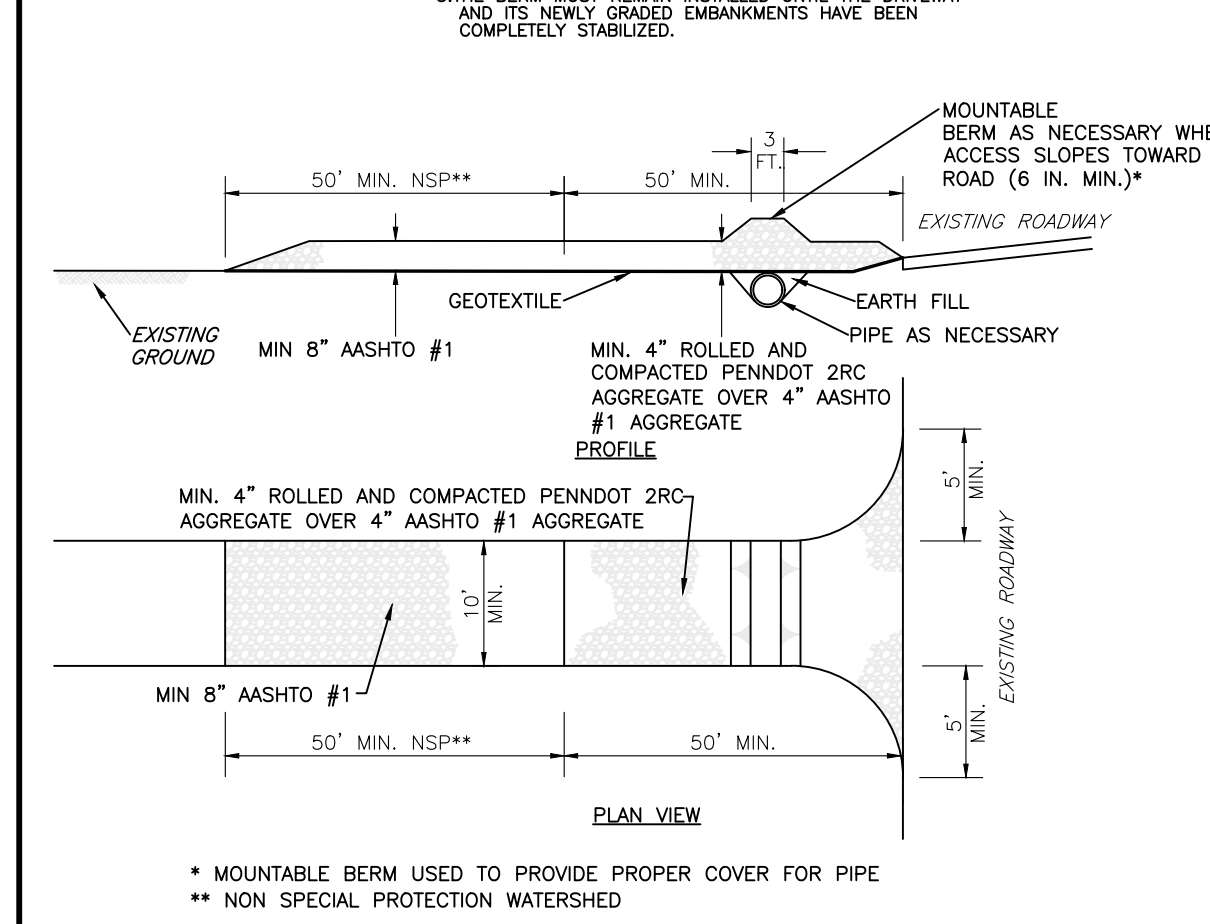
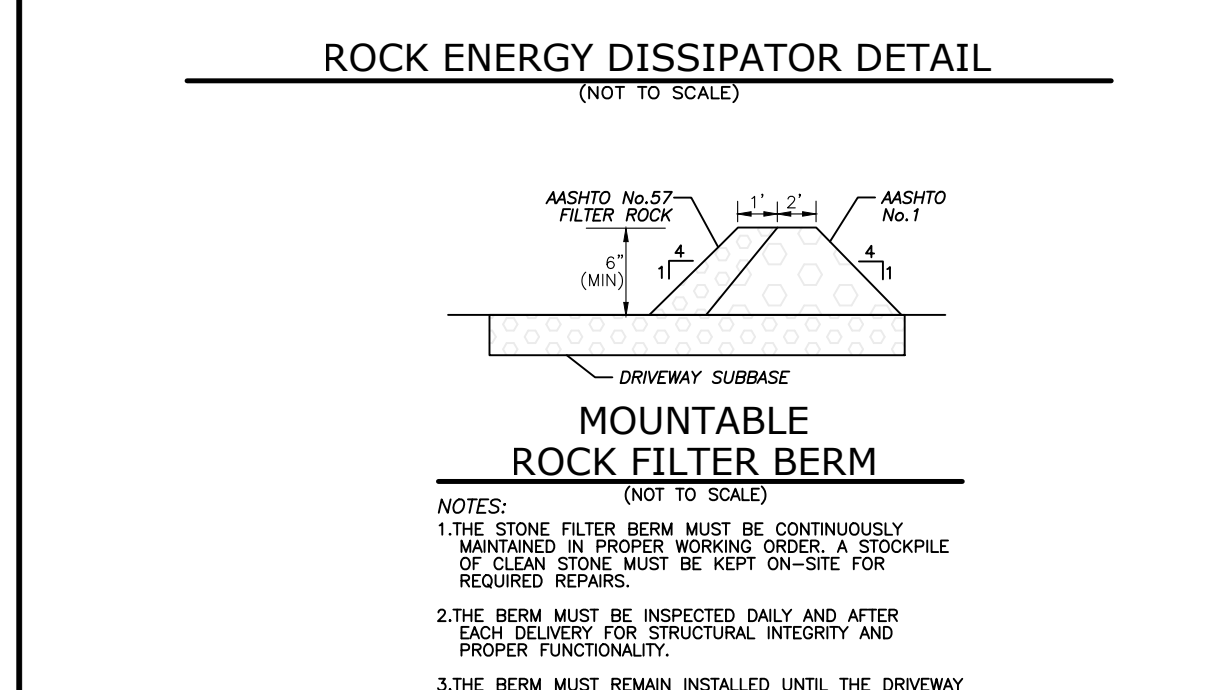
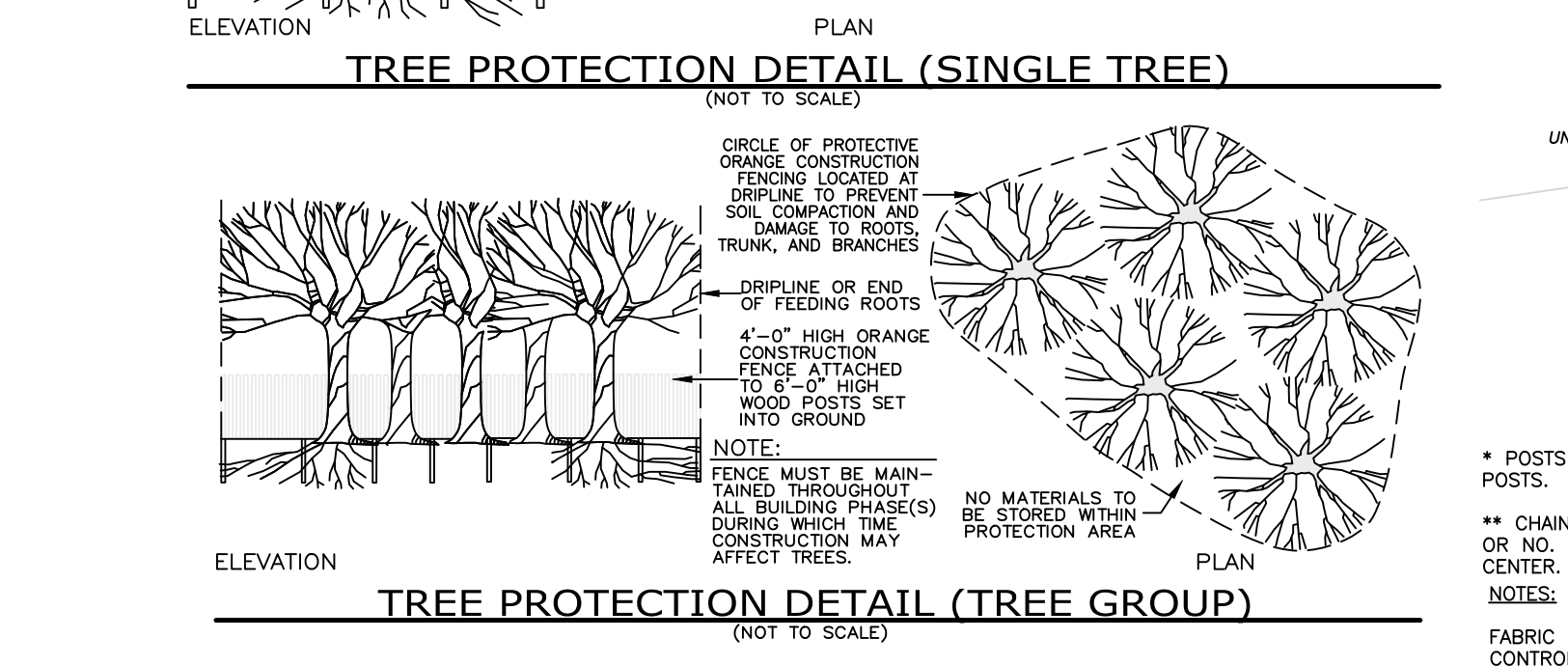
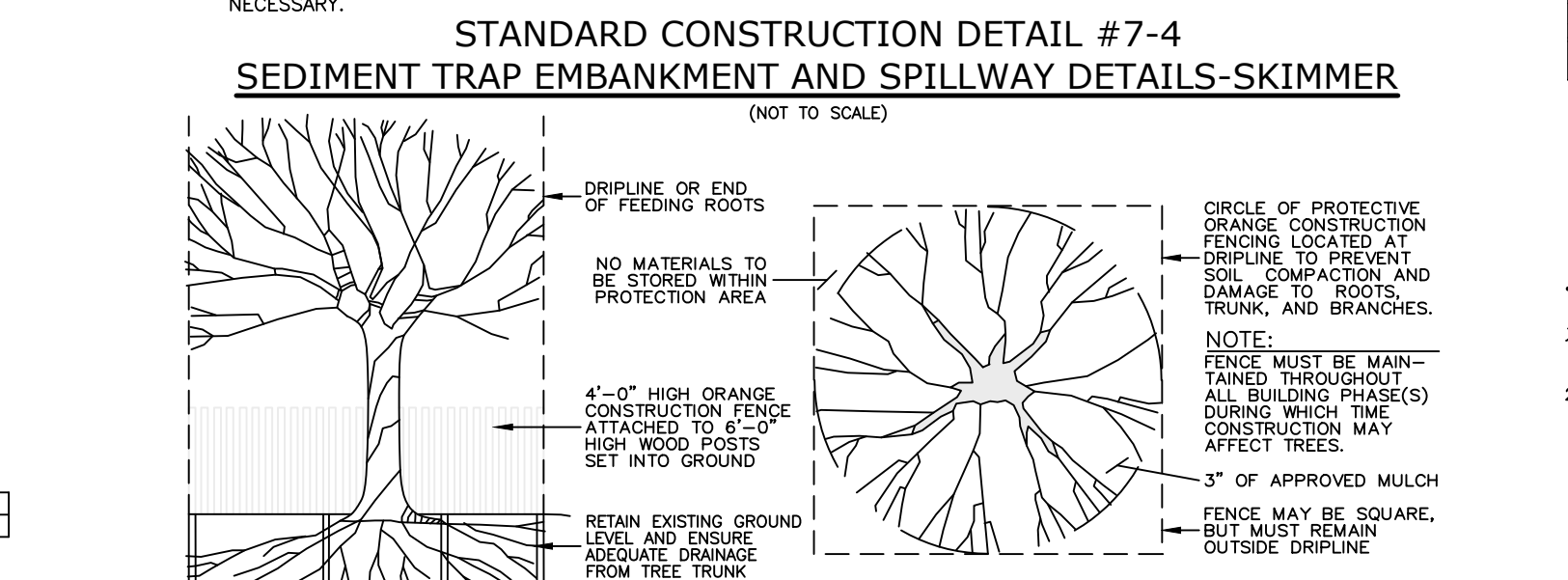
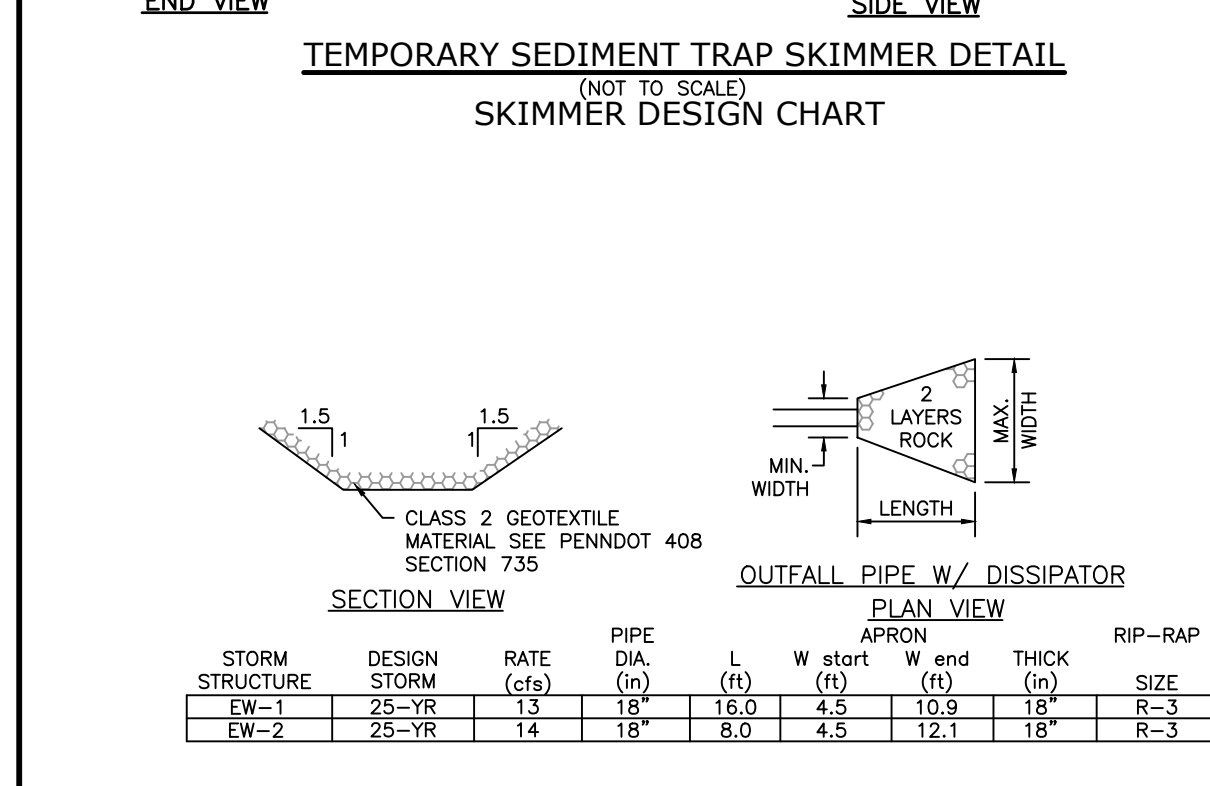
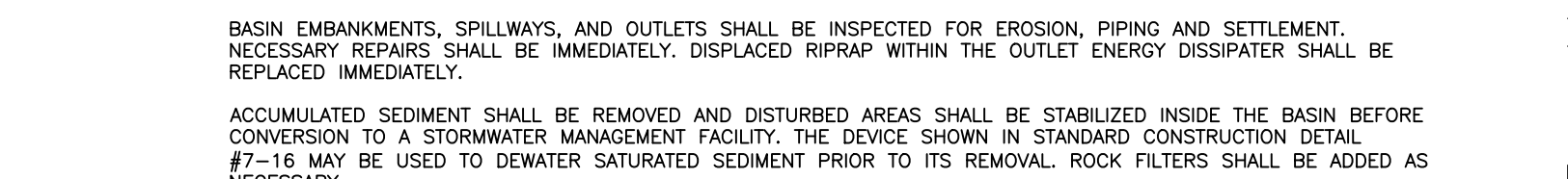
**PCSM DETAILS**  
SHEET NUMBER:  
**14 OF 16**  
PLOT DATE: Dec 19, 2022  
JMR FILENAME: 14 PCSM DETAILS.DWG



TRAP NO.	Z1 (FT)	Z2 (FT)	PERM. RISER ELEV. PSCE (FT)	EMBANKMENT				CLEAN OUT ELEV. COE (FT)	BOTTOM ELEV. EIE (FT)	SPILLWAY CREST ELEV. SCE (FT)	SPILLWAY LENGTH (FT)	SKIMMER		
				TOP ELEV. ETE (FT)	TOP WIDTH ETw (FT)	KEY TRENCH DEPTH (FT)	KEY TRENCH WIDTH (FT)					DIA Sd (IN)	LENGTH SAI (FT)	MAT'L
1	3	3	SEE STORM STRUCTURE SCHEDULE	SEE PSCM DETAIL SHEET	5	SEE PSCM DETAIL SHEET	SEE PSCM DETAIL SHEET	370.00	369.00	SEE PSCM DETAIL SHEET	SEE PSCM DETAIL SHEET	4	27	PVC



**NOTES:**  
SEDIMENT TRAP, 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 COMPACTATION OF EARTH FILL IN ORDER TO FACILITATE MAINTENANCE AND RESTORATION. THE POOL AREA SHALL BE CLEARED OF ALL BRUSH, TRIPS, AND OBJECTIONABLE MATERIAL. 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 SEED, MULCHED, BLANKETED OR OTHERWISE STABILIZED ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS. TREES SHALL NOT BE PLANTED ON THE EMBANKMENT.  
INSPECT ALL SEDIMENT TRAP ON AT LEAST A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. PROVIDE ACCESS 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 THE BASIN RESTORED TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED IN THE E&S PLAN.  
BASIN EMBANKMENTS, SPILLWAYS, AND OUTLETS SHALL BE INSPECTED FOR EROSION, PIPING AND SETTLEMENT. NECESSARY REPAIRS SHALL BE IMMEDIATELY DISPLACED RIPRAP WITHIN THE OUTLET ENERGY DISSIPATOR SHALL BE REPLACED IMMEDIATELY.  
ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE STABILIZED INSIDE THE BASIN BEFORE CONSTRUCTION TO A STORMWATER MANAGEMENT FACILITY. THE DEVICE SHOWN IN STANDARD CONSTRUCTION DETAIL #1-16 MAY BE USED TO DETAHER SATURATED SEDIMENT PRIOR TO ITS REMOVAL. ROCK FILTERS SHALL BE ADDED AS NECESSARY.

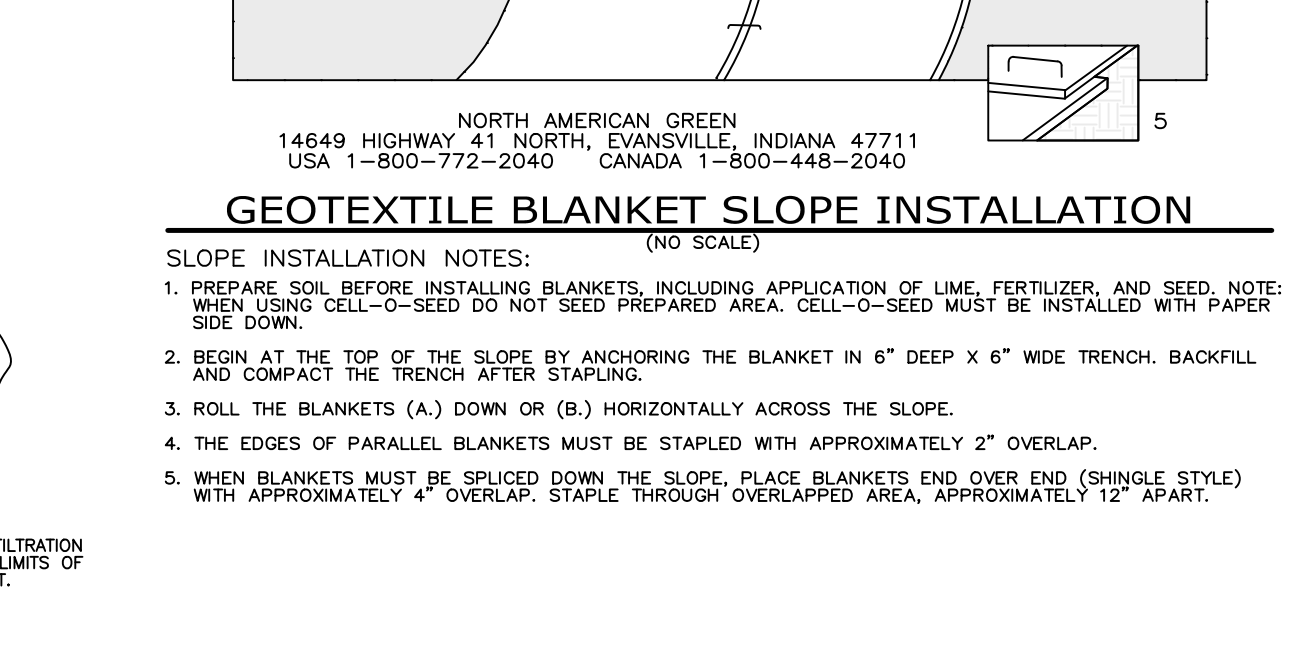
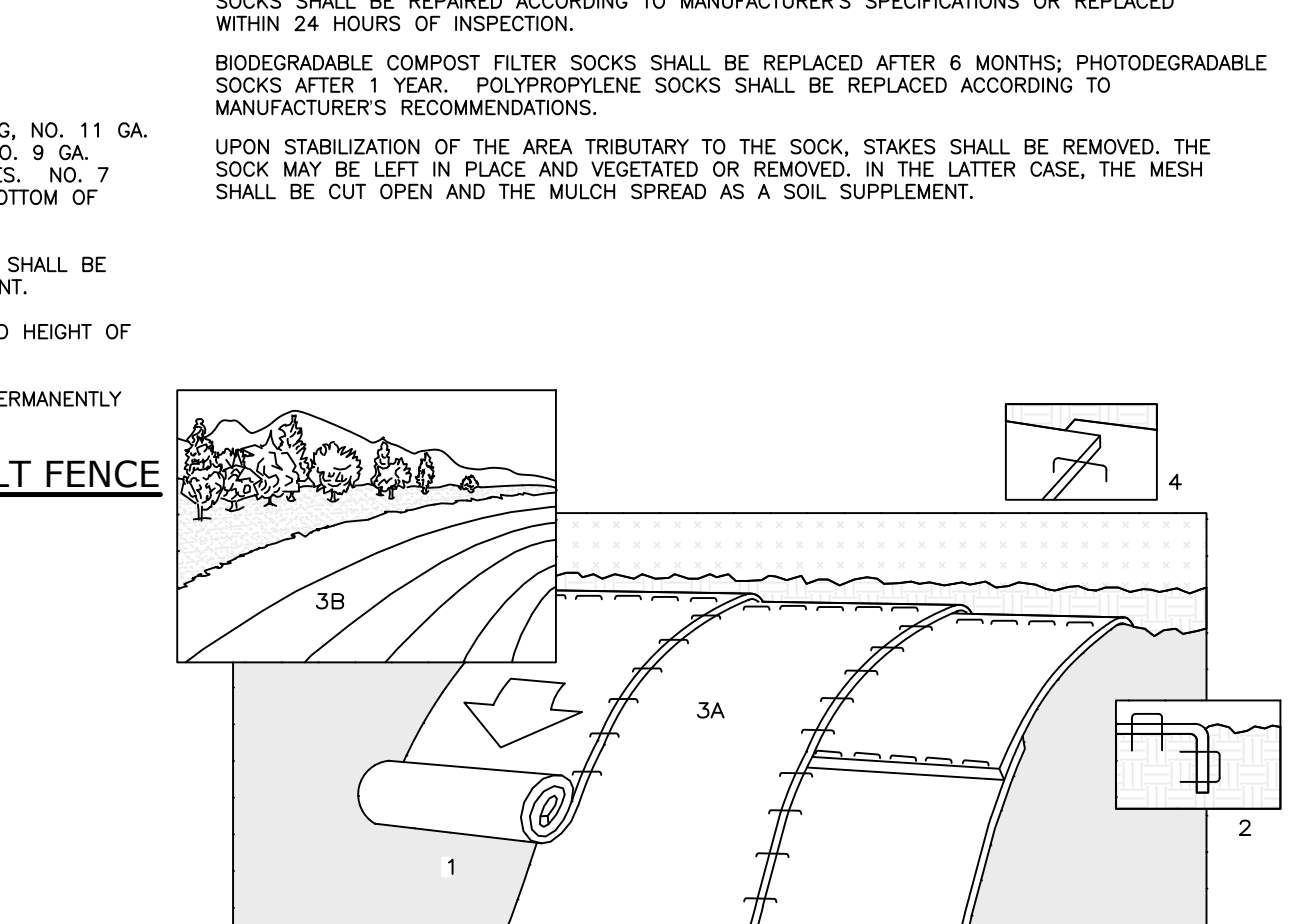
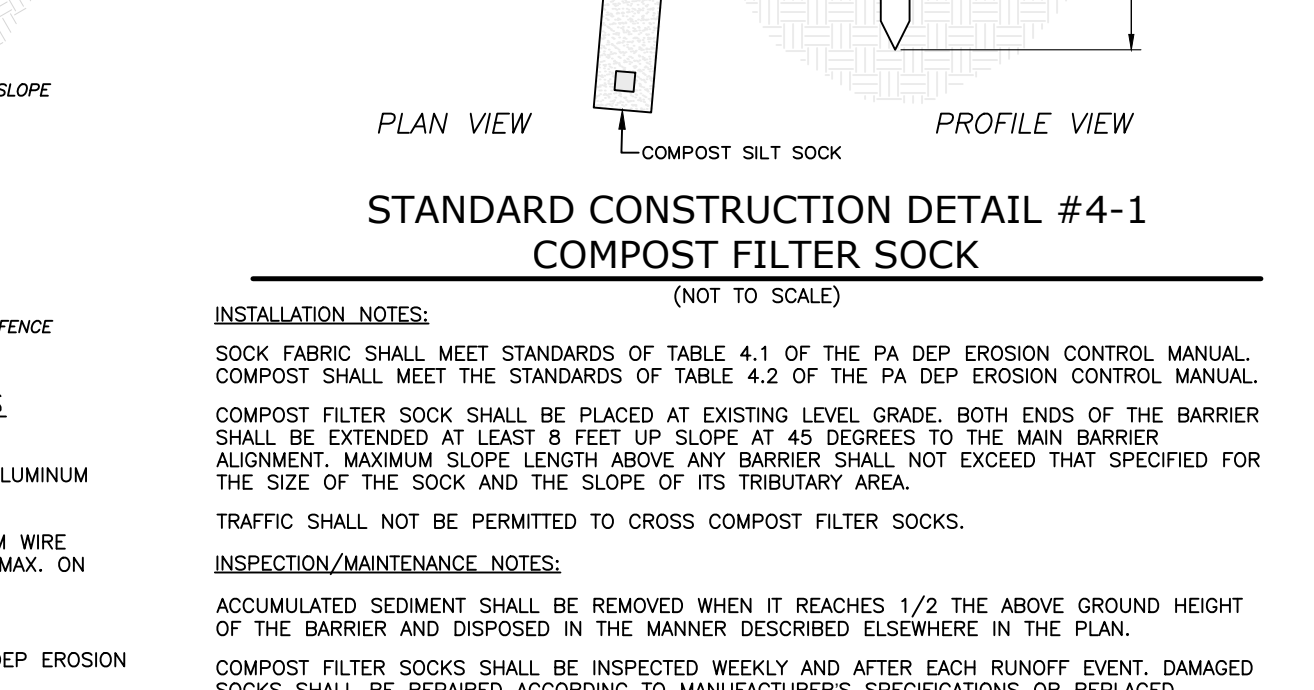
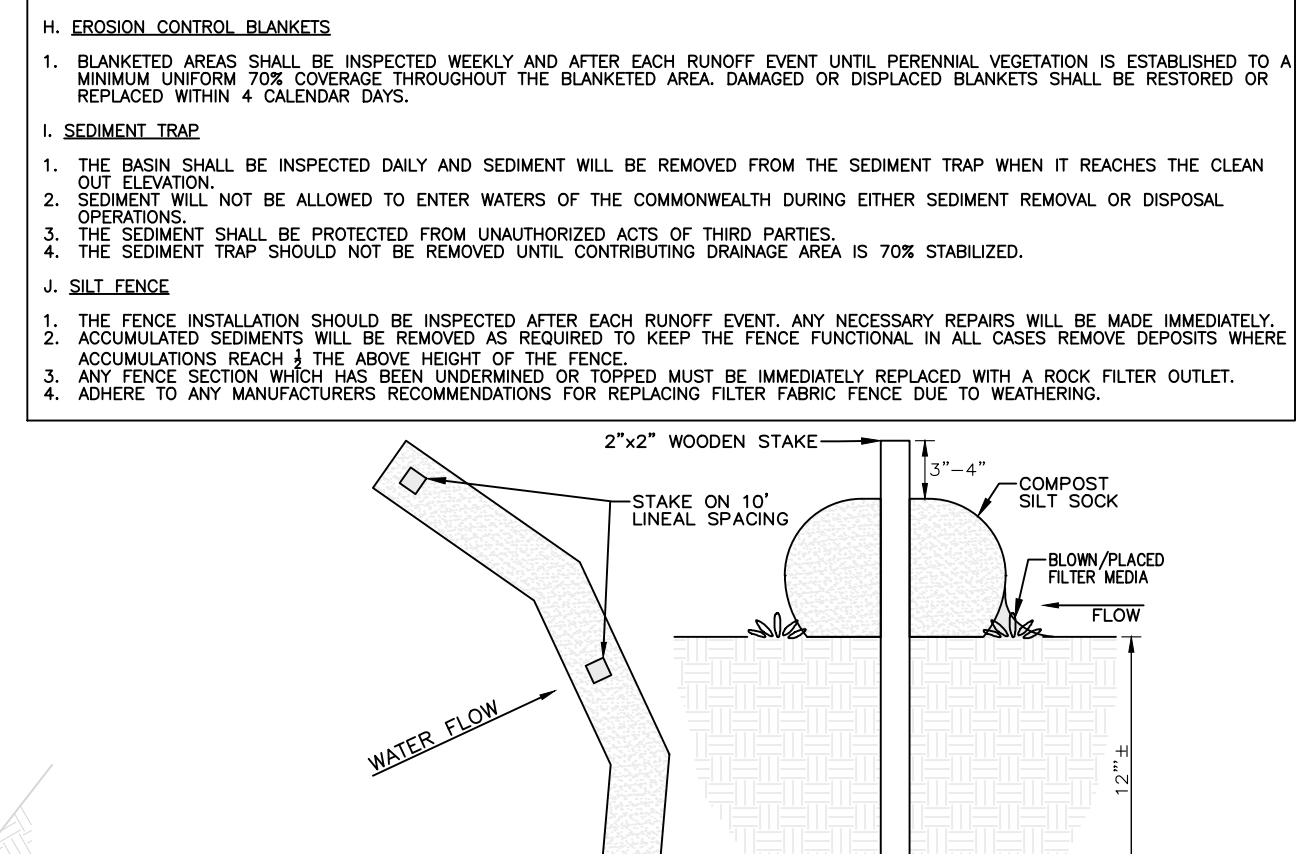
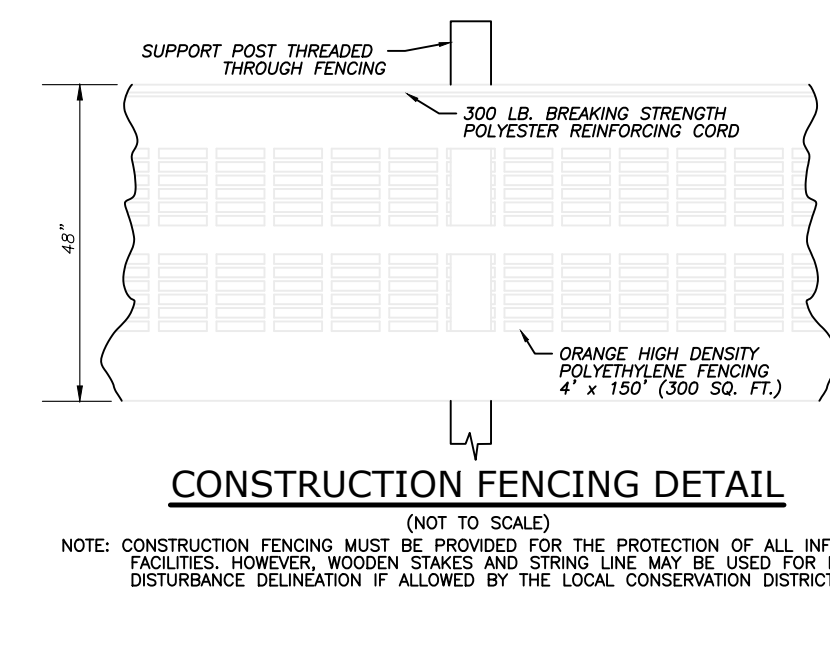
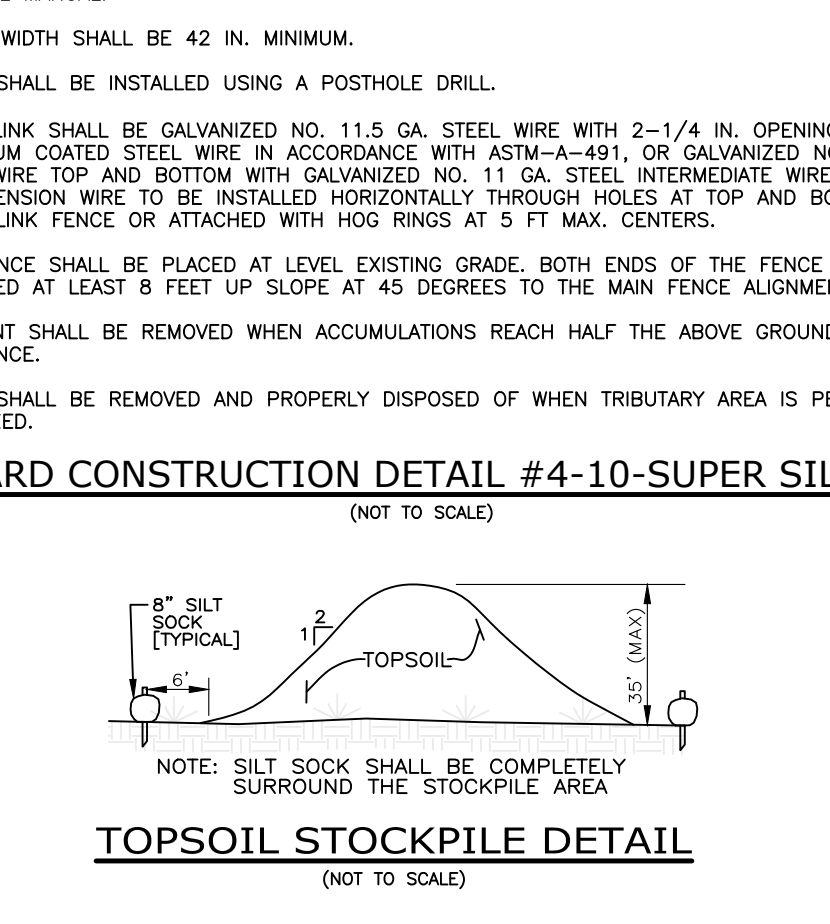
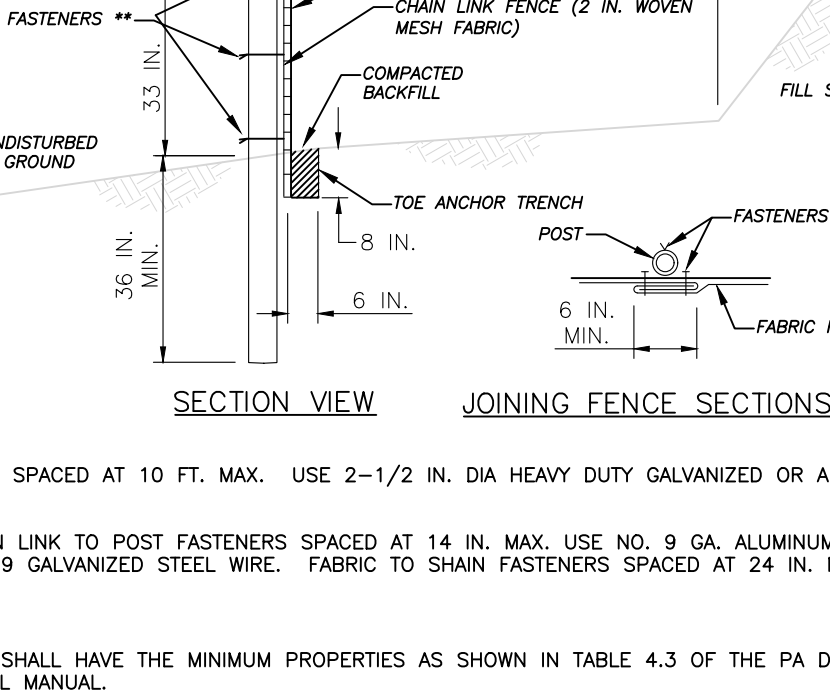
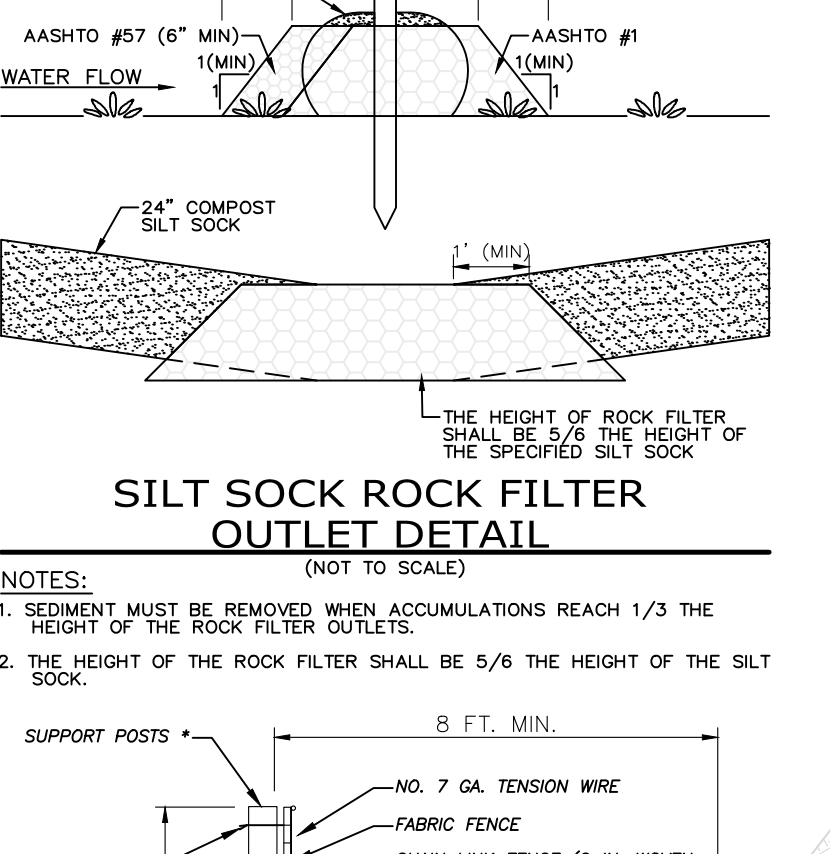
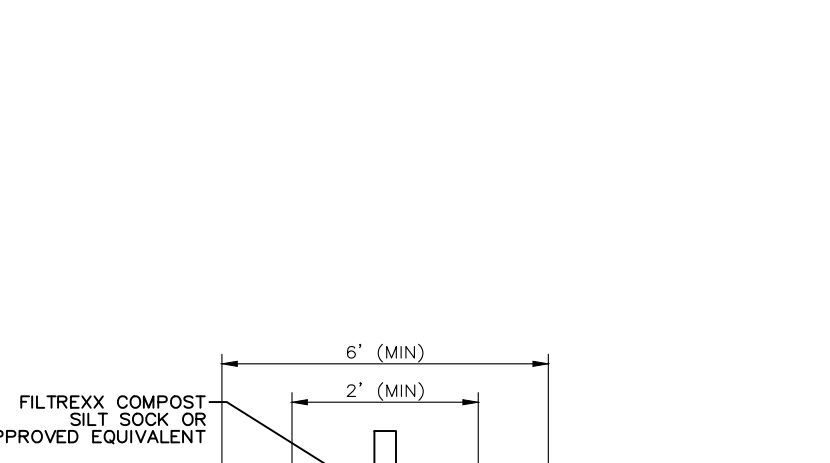


**SEDIMENT TRAP SEQUENCE OF CONSTRUCTION**

- NOTIFY THE TOWNSHIP ENGINEER, IN WRITING, A MINIMUM OF 48 HOURS PRIOR TO STARTING CONSTRUCTION OF THE PROPOSED BMP'S.
- CRITICAL STAGE: EXCAVATE SUB-GRADE OF FACILITY BEFORE THE FINAL BERM ELEVATION, AS SPECIFIED ON THIS PLAN, AND INSTALL THE IMPERMEABLE LINER. THE LINER SHALL EXTEND TO THE TOP OF THE BERM ELEVATION IN EACH FACILITY AND SHALL BE PLACED DEEP ENOUGH NOT TO HARM THE LINER ONCE THE BASIN IS CONVERTED TO FINAL CONDITION (I.E. THE SOIL MEDIA AND UNDERDRAIN ARE INSTALLED). EXTRA CARE SHOULD BE TAKEN NOT TO DAMAGE OR PENETRATE THE LINER ONCE IT HAS BEEN INSTALLED. HALF EXCAVATION AND NOTIFY THE ENGINEER IMMEDIATELY IF ANY EVIDENCE OF SINKHOLE ACTIVITY OR PINNACLES OF CARBONATE BEDROCK ARE ENCOUNTERED.
- UPON PLACEMENT OF THE LINER, PLACE FILL TO BRING THE PROPOSED FACILITY TO ELEVATION AND GRADE IN ACCORDANCE WITH THE E&S PLAN AND DETAILS. INSTALL THE PROPOSED OUTLET STRUCTURES AND IMMEDIATELY STABILIZE THE DISTURBED AREAS WITH THE SPECIFIED EROSION CONTROL BLANKETS AND TEMPORARY SEED MIXTURE, MULCH AT 3 TONS/ACRE, AND LIME AS PRESCRIBED.
- GRADE THE EMERGENCY SPILLWAY AND IMMEDIATELY STABILIZE WITH THE SPECIFIED MATING.
- INSTALL THE PROPOSED STONE BERM AND FAIRCLOTH SKIMMER DEVICE AS DETAILED ON THE E&S PLAN.
- MAINTAIN THE SEDIMENT TRAPS IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN, DETAILS AND NOTES.

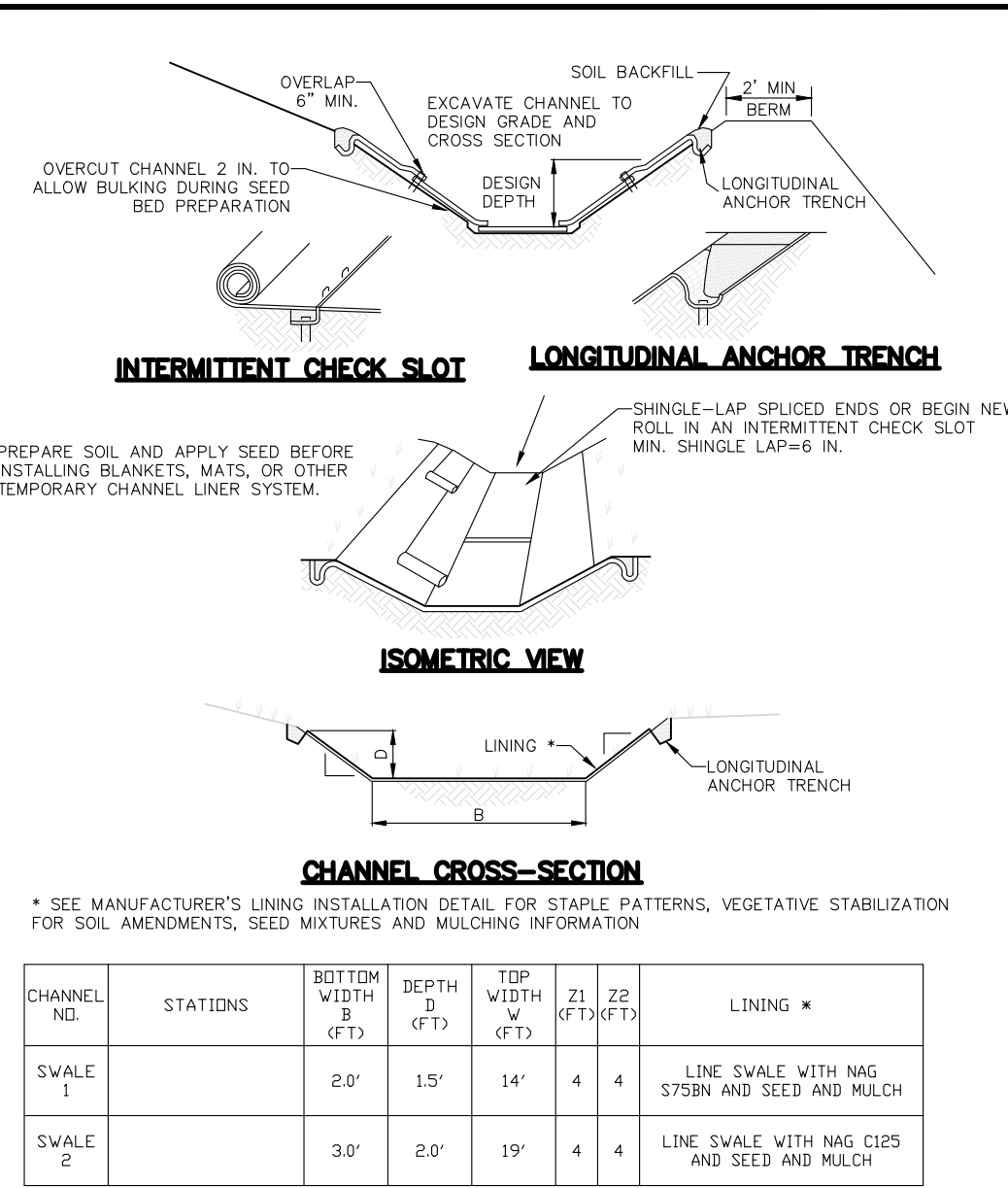
**BMP INSPECTION & MAINTENANCE NOTES**

- UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION BMP'S MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION BMP'S AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL SITE INSPECTIONS SHALL BE DOCUMENTED IN AN INSPECTION LOG (FORM 3180-1M-BW00048 DATED 2/2012), KEPT FOR THIS PURPOSE. THE INSPECTION LOG WILL BE KEPT ON SITE AND MADE AVAILABLE TO THE DISTRICT UPON REQUEST.
- ALL PREVENTATIVE AND MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENTATION BMP'S FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMP'S OR MODIFICATIONS OF INSTALLED WILL BE NEEDED.
- WHERE BMP'S ARE FOUND TO FAIL TO ALLEVATE EROSION OR SEDIMENT POLLUTION THE PERMITEE OR CO-PERMITEE SHALL INCLUDE THE FOLLOWING INFORMATION:
- THE LOCATION AND SEVERITY OF THE BMP'S FAILURE AND ANY POLLUTION EVENTS.
  - ALL STEPS TAKEN TO REDUCE, ELIMINATE AND PREVENT THE REOCCURRENCE OF THE NON-COMPLIANCE.
  - THE TIME FRAME TO CORRECT THE NON-COMPLIANCE, INCLUDING THE EXACT DATES WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE.
- AFTER FINAL STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP'S MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF BMP'S MUST BE STABILIZED IMMEDIATELY.
- B. CONSTRUCTION ENTRANCE**
- THE STRUCTURES 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, ALL SEDIMENT ACCUMULATED ON PUBLIC ROADWAYS WILL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE. WASHING THE ROADWAY WITH WATER IS NOT PERMITTED.
  - COMPOST FILTER SOCKS
  - 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 OR SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.
  - BIODEGRADABLE 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.
- D. INLET PROTECTION & ASPHALT DEFLECTION BERM**
- ROLLED EARTHEN BERM SHALL BE PROVIDED AND MAINTAINED IMMEDIATELY DOWN GRADIENT OF THE PROTECTED INLET UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. A 6" MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.
  - SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE STONE. DAMAGED OR CLOSED INSTALLATIONS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.
- E. ROCK FILTERS**
- ROCK FILTERS WILL BE REMOVED WHEN CLOGGED WITH SEDIMENTS. MATERIALS MUST BE WASHED COMPLETELY FREE OF ALL FOREIGN MATERIALS OR NEW ROCK USED TO REBUILD THE FILTER.
  - CONCRETE WASHOUT AREA
  - CHECK WASHOUT FACILITIES DAILY TO DETERMINE IF IT HAS BEEN FILLED TO 75% CAPACITY. CHECK TO MAKE SURE LININGS ARE INTACT AND HAVE NOT BEEN DAMAGED.
  - IF WASHOUT IS NEARLY CAPACITY, VACUUM AND DISPOSE OF THE WASTE MATERIAL IN AN APPROVED MANNER. DO NOT DISCHARGE LIQUIDS TO WATERWAYS, STORM DRAINS, DIRECTLY ONTO GROUND, OR SANITARY SEWER.
  - REMOVE LOGS OR OTHER DEBRIS FROM THE STRIPPING PROCESS TO PREVENT OVERFLOWS.
  - AFTER REMOVAL OF MATERIALS, INSPECT FOR EROSION, SOIL WASHING OR DAMAGE. REBUILD STRUCTURE OR MAKE NECESSARY REPAIRS AND INSTALL NEW PLASTIC LINING FOR EACH CLEANING.
- G. PUMPED WATER FILTER BAG**
- THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP RATES SHALL BE FLOATED AND SCHEDULED.
  - FILTER BAGS SHALL BE REPLACED ONLY IF ANY CLOGGING IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.
- H. EROSION CONTROL BLANKETS**
- 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 A CALENDAR DAY.



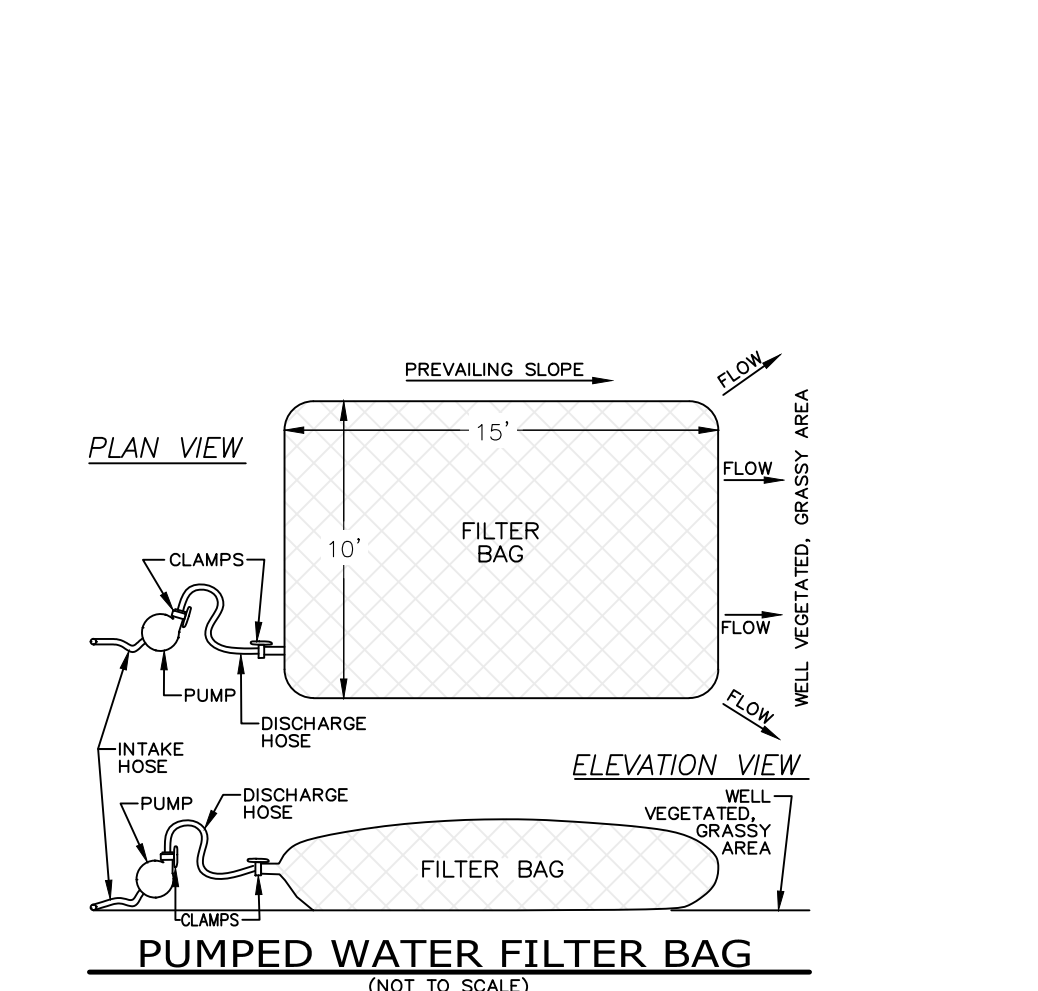
**GENERAL EROSION & SEDIMENTATION POLLUTION CONTROL MEASURES:**

- ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE CONDUCTED 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 ALL TIMES. THE PERMITEE SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
- AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL NOTIFY ALL CONTRACTORS, LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PSCM PLAN PREPARER & THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT TO AN ON-SITE RECONSTRUCTION MEETING.
- AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM, SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THE SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL MUNICIPAL AUTHORITY PRIOR TO IMPLEMENTATION.
- AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.
- 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 BMP'S SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
- AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF RESTRICTION BOUNDARIES SHOWN ON THE PLAN MAPS.
- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS. 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.
- IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL NOTIFY APPROPRIATE MUNICIPAL OFFICIALS TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL MUNICIPAL AUTHORITY.
- ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR REUSED IN ACCORDANCE WITH THE E&S PLAN. WASTE MANAGEMENT AND WASTE MANAGEMENT REGULATIONS AT 25 PA CODE 260.1, ETO, 271.1, AND 287.1 ET. SEQ. NO BUILDING OR DISPOSED UNLAWFULLY. UNLAWFULLY DISPOSED MATERIALS SHALL BE BURIED, BURNED, DUMPED, OR DISCHARGED AT THE SITE.
- ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL MUNICIPAL AUTHORITY PRIOR TO BEING ACTIVATED.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS PROPERLY STORED AND NOT SUBJECT TO EROSION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY POLLUTION AFFECTED BY A SPILL OR RELEASE OF A REGULATED MATERIAL BUT QUALIFYING AS CLEAN FILL. FILL DUE TO ANALYTICAL TESTING.
- ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROVISIONS DESCRIBED IN THIS PLAN, OVER UNDISTURBED AREAS.
- UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMP'S SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMP'S AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL SITE INSPECTIONS SHALL BE DOCUMENTED IN AN INSPECTION LOG (FORM 3180-1M-BW00048 DATED 2/2012), KEPT FOR THIS PURPOSE. THE INSPECTION LOG WILL BE KEPT ON SITE AND MADE AVAILABLE TO THE DISTRICT UPON REQUEST.
- REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENTATION BMP'S FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMP'S, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
- LOG SHOWING DATES THAT E&S BMP'S WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND HOW THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
- SEDIMENT TRACKED ON ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND THROUGHOUT THE DAY AS NECESSARY. SEDIMENT ON PUBLIC ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE. WASHING THE ROADWAY WITH WATER IS NOT PERMITTED.
- SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE STAKE AND THE BASIN RESTORED TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED IN THE E&S PLAN.
- SEDIMENT REMOVED FROM BMP'S SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
- 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.
- FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. ALL RELATED PROBLEMS SHALL BE CORRECTED PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
- EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS, NOT TO EXCEED 9 INCHES IN THICKNESS.
- FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOIL, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILL.
- FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.
- FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
- SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
- ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPLETE BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE PERMANENTLY STABILIZED ACCORDING TO THE E&S PLAN.
- 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. 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.
- E&S BMP'S 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 MUNICIPAL AUTHORITY.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL MUNICIPAL AUTHORITY FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE BMP'S.
- AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMP'S MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMP'S. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMP'S 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.
- UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL MUNICIPAL AUTHORITY TO SCHEDULE A FINAL INSPECTION.
- FAILURE TO CORRECTLY INSTALL E&S BMP'S, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMP'S MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 802 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.
- CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS.
- ALL CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.
- UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE CHANNEL SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONNECTED FAST TO THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
- SEDIMENT TRAP AND/OR TRAPS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO CLOG THE TRAP OUTLET STRUCTURES AND/OR POLLUTE THE SURFACE WATERS.
- SEDIMENT TRAP SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES.
- DAMAGE THAT OCCURS IN WHOLE OR IN PART AS A RESULT OF BASIN OR TRAP DISCHARGE SHALL BE IMMEDIATELY REPAIRED BY THE PERMITEE IN A PERMANENT MANNER SATISFACTORY TO MUNICIPALITY, LOCAL CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED PROPERTY.
- EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER WITHIN 50 FEET OF A SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
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- SEDIMENT TRAP AND/OR TRAPS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO CLOG THE TRAP OUTLET STRUCTURES AND/OR POLLUTE THE SURFACE WATERS.
- SEDIMENT TRAP SHALL BE PROTECTED FROM UNAUTHORIZED ACTS BY THIRD PARTIES.
- DAMAGE THAT OCCURS IN WHOLE OR IN PART AS A RESULT OF BASIN OR TRAP DISCHARGE SHALL BE IMMEDIATELY REPAIRED BY THE PERMITEE IN A PERMANENT MANNER SATISFACTORY TO MUNICIPALITY, LOCAL CONSERVATION DISTRICT, AND THE OWNER OF THE DAMAGED PROPERTY.
- EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER WITHIN 50 FEET OF A SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
- CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS.
- ALL CHANNELS SHALL BE KEPT FREE OF OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO FILL, ROCKS, LEAVES, WOODY DEBRIS, ACCUMULATED SEDIMENT, EXCESS VEGETATION, AND CONSTRUCTION MATERIAL/WASTES.
- UNDERGROUND UTILITIES CUTTING THROUGH ANY ACTIVE CHANNEL SHALL BE IMMEDIATELY BACKFILLED AND THE CHANNEL RESTORED TO ITS ORIGINAL CROSS-SECTION AND PROTECTIVE LINING. ANY BASE FLOW WITHIN THE CHANNEL SHALL BE CONNECTED FAST TO THE WORK AREA IN THE MANNER DESCRIBED IN THIS PLAN UNTIL SUCH RESTORATION IS COMPLETE.
- SEDIMENT TRAP AND/OR TRAPS SHALL BE KEPT FREE OF ALL CONSTRUCTION WASTE, WASH WATER, AND OTHER DEBRIS HAVING POTENTIAL TO



**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  
TEMPORARY/PERMANENT VEGETATED CHANNEL**



**INSTALLATION SEQUENCE:**  
1. PREPARE SURFACE BY REMOVING ANY DEBRIS AND ENSURING A SMOOTH CONSISTENT SURFACE IS PROVIDED.  
2. INSTALL PVC GEOMEMBRANE IN WASHOUT AREA.  
3. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL OVERLAP TO FORM A CIRCLE AS SHOWN.  
4. UPON REMOVAL OF THE WASHOUT AREA, 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.  
5. ALL CONCRETE AND THE GEOMEMBRANE MUST BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED DEP FACILITY.

**MAINTENANCE NOTES:**  
WASHOUT AREA SHALL BE INSPECTED DAILY. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

**INSPECTIONS:**  
INSPECTIONS MUST BE PERFORMED ON A WEEKLY BASIS. ALL SITE INSPECTIONS WILL BE DOCUMENTED IN AN INSPECTION LOG KEPT FOR THIS PURPOSE. THE COMPLIANCE ACTIONS AND THE DATE, TIME AND NAME OF THE PERSON CONDUCTING THE INSPECTION LOG WILL BE KEPT ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE DISTRICT UPON REQUEST.

**CONCRETE WASHOUT AREA DETAIL**  
(NOT TO SCALE)

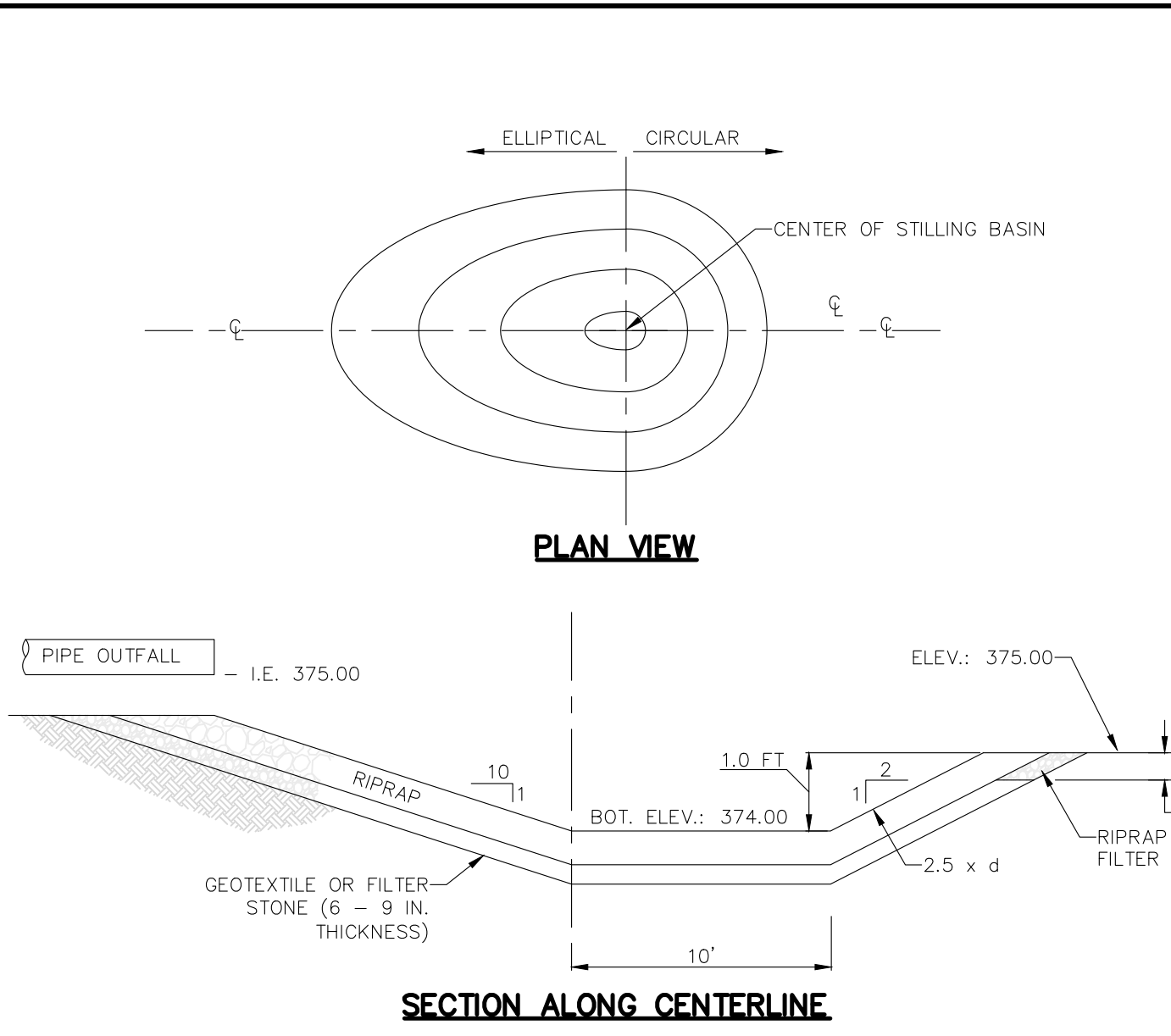
**AS-BUILT PLAN REQUIREMENTS:**  
AS-BUILT PLANS OF THE STORMWATER BMPs FOR EACH PROJECT PHASE SHALL BE PROVIDED WITHIN SIX MONTHS FOLLOWING THE COMPLETION OF EACH PHASE. THE AS-BUILT PLANS SHALL BE SIGNED & SEALED BY A PA REGISTERED PROFESSIONAL ENGINEER.

**NOTICE OF TERMINATION REQUIREMENTS:**  
A NOTICE OF TERMINATION (NOT) WILL BE REQUIRED TO BE SUBMITTED FOLLOWING APPROVAL OF THE FINAL AS-BUILT PLANS. PRIOR TO ESTABLISHING THE NOT, THE DEPARTMENT AND/OR CONSERVATION DISTRICT STAFF WILL PERFORM A FINAL INSPECTION TO ENSURE SITE STABILIZATION AND VERIFY ADEQUATE INSTALLATION AND FUNCTION OF STORMWATER BMPs.

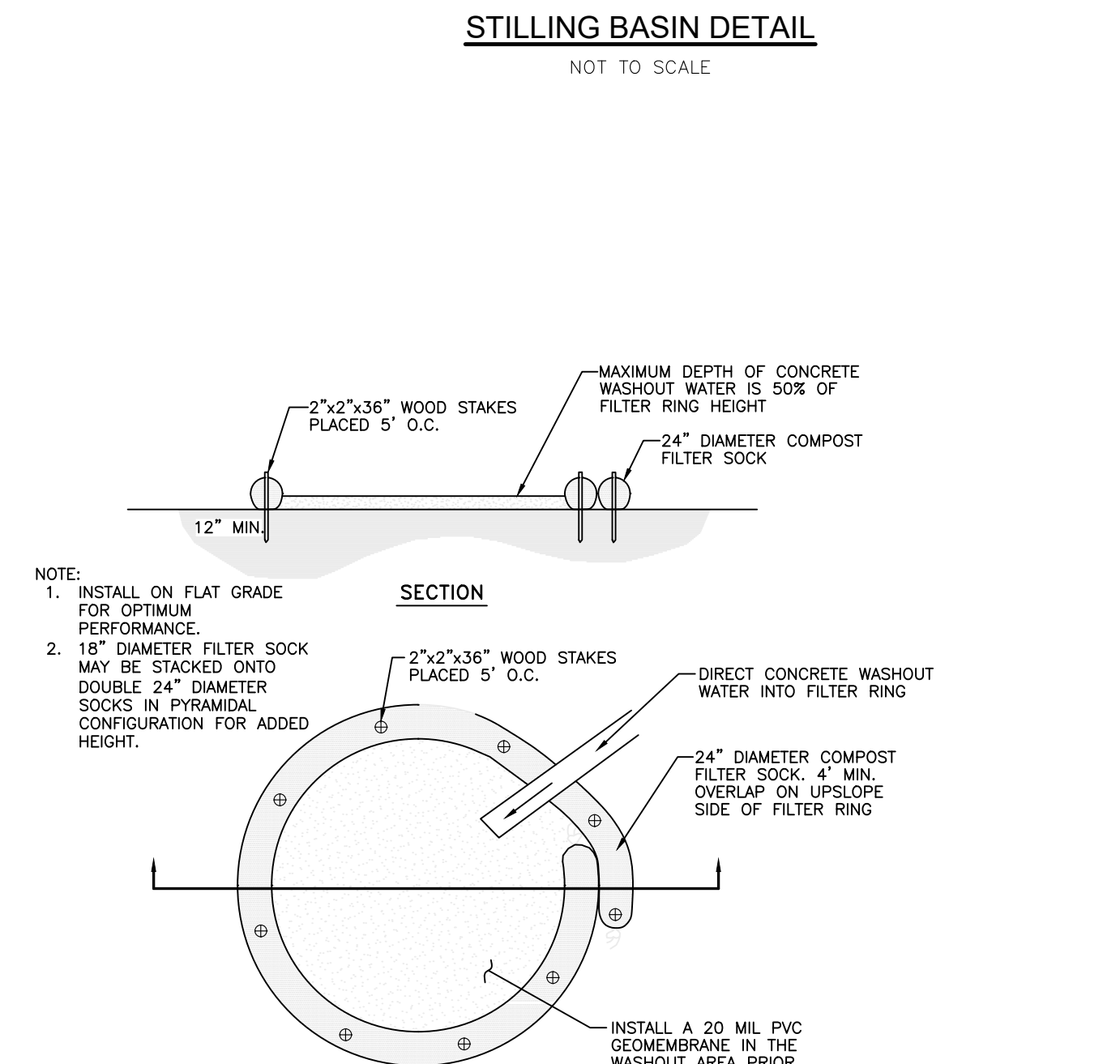
**EROSION CONTROL PLAN REVISION NOTICE:**  
BEFORE INITIATING ANY REVISION TO THE APPROVED EROSION & SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED EAS CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE CHESTER COUNTY CONSERVATION DISTRICT. THE OPERATOR SHALL ASSURE 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 OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

**UTILITY LINE TRENCH EXCAVATION NOTES:**  
1. 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.  
2. WORK CRUSERS 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.  
3. ALL SOIL EXCAVATED FROM THE TRENCH WILL BE PLACED ON THE UPWIND SIDE OF THE TRENCH.  
4. LIMIT ONLY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.  
5. WATER THAT 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.  
6. ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND IMMEDIATELY STABILIZED.

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



**STANDARD CONSTRUCTION DETAIL #6-2  
TEMPORARY/PERMANENT VEGETATED CHANNEL**



**INSTALLATION SEQUENCE:**  
1. PREPARE SURFACE BY REMOVING ANY DEBRIS AND ENSURING A SMOOTH CONSISTENT SURFACE IS PROVIDED.  
2. INSTALL PVC GEOMEMBRANE IN WASHOUT AREA.  
3. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL OVERLAP TO FORM A CIRCLE AS SHOWN.  
4. UPON REMOVAL OF THE WASHOUT AREA, 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.  
5. ALL CONCRETE AND THE GEOMEMBRANE MUST BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED DEP FACILITY.

**MAINTENANCE NOTES:**  
WASHOUT AREA SHALL BE INSPECTED DAILY. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

**INSPECTIONS:**  
INSPECTIONS MUST BE PERFORMED ON A WEEKLY BASIS. ALL SITE INSPECTIONS WILL BE DOCUMENTED IN AN INSPECTION LOG KEPT FOR THIS PURPOSE. THE COMPLIANCE ACTIONS AND THE DATE, TIME AND NAME OF THE PERSON CONDUCTING THE INSPECTION LOG WILL BE KEPT ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE DISTRICT UPON REQUEST.

**CONCRETE WASHOUT AREA DETAIL**  
(NOT TO SCALE)

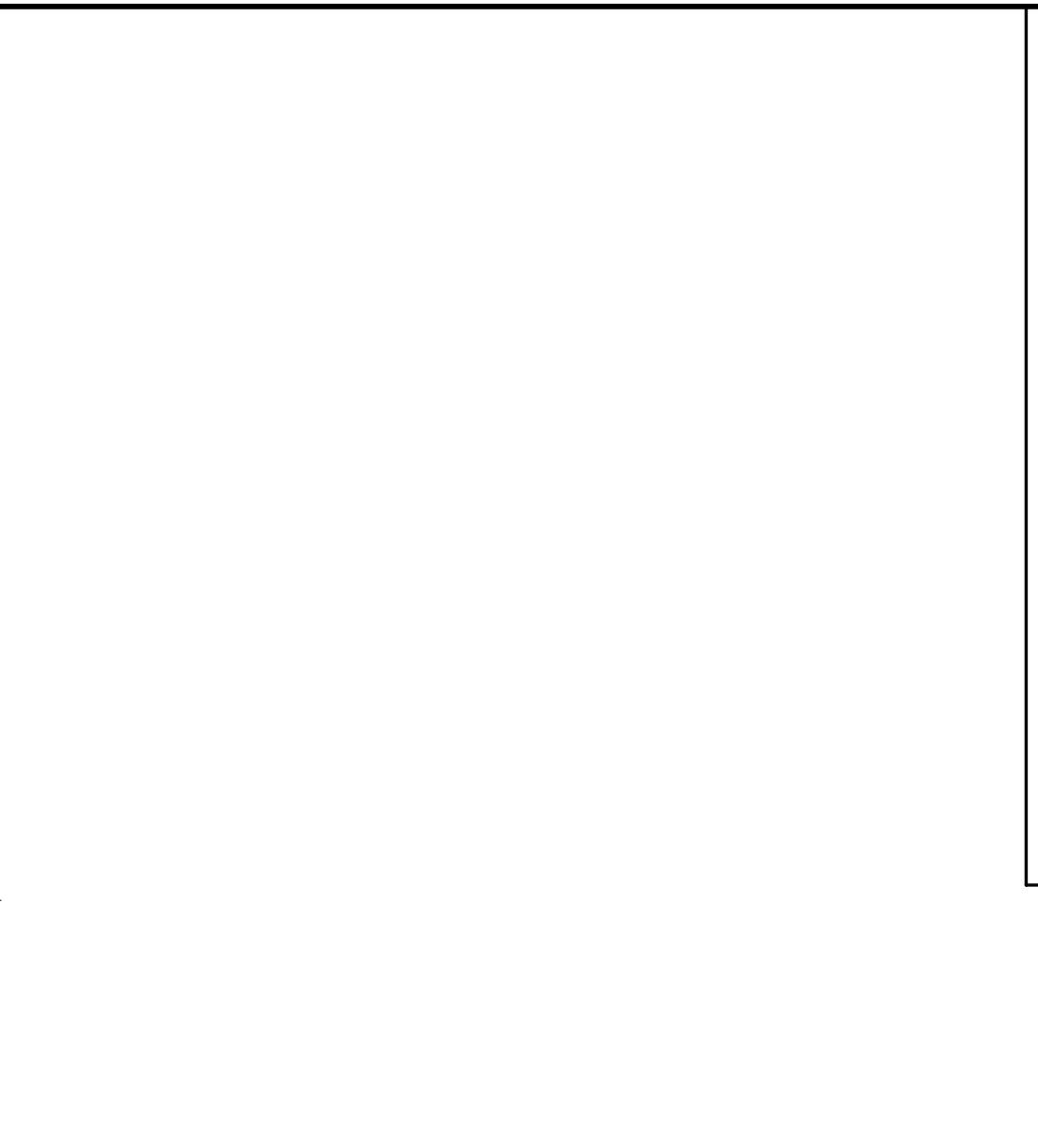
**AS-BUILT PLAN REQUIREMENTS:**  
AS-BUILT PLANS OF THE STORMWATER BMPs FOR EACH PROJECT PHASE SHALL BE PROVIDED WITHIN SIX MONTHS FOLLOWING THE COMPLETION OF EACH PHASE. THE AS-BUILT PLANS SHALL BE SIGNED & SEALED BY A PA REGISTERED PROFESSIONAL ENGINEER.

**NOTICE OF TERMINATION REQUIREMENTS:**  
A NOTICE OF TERMINATION (NOT) WILL BE REQUIRED TO BE SUBMITTED FOLLOWING APPROVAL OF THE FINAL AS-BUILT PLANS. PRIOR TO ESTABLISHING THE NOT, THE DEPARTMENT AND/OR CONSERVATION DISTRICT STAFF WILL PERFORM A FINAL INSPECTION TO ENSURE SITE STABILIZATION AND VERIFY ADEQUATE INSTALLATION AND FUNCTION OF STORMWATER BMPs.

**EROSION CONTROL PLAN REVISION NOTICE:**  
BEFORE INITIATING ANY REVISION TO THE APPROVED EROSION & SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED EAS CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE CHESTER COUNTY CONSERVATION DISTRICT. THE OPERATOR SHALL ASSURE 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 OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

**UTILITY LINE TRENCH EXCAVATION NOTES:**  
1. 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.  
2. WORK CRUSERS 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.  
3. ALL SOIL EXCAVATED FROM THE TRENCH WILL BE PLACED ON THE UPWIND SIDE OF THE TRENCH.  
4. LIMIT ONLY TRENCH EXCAVATION TO THE LENGTH OF PIPE PLACEMENT AND BACKFILLING THAT CAN BE COMPLETED THE SAME DAY.  
5. WATER THAT 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.  
6. ON THE DAY FOLLOWING PIPE PLACEMENT AND TRENCH BACKFILLING, THE DISTURBED AREA WILL BE GRADED TO FINAL CONTOURS AND IMMEDIATELY STABILIZED.

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

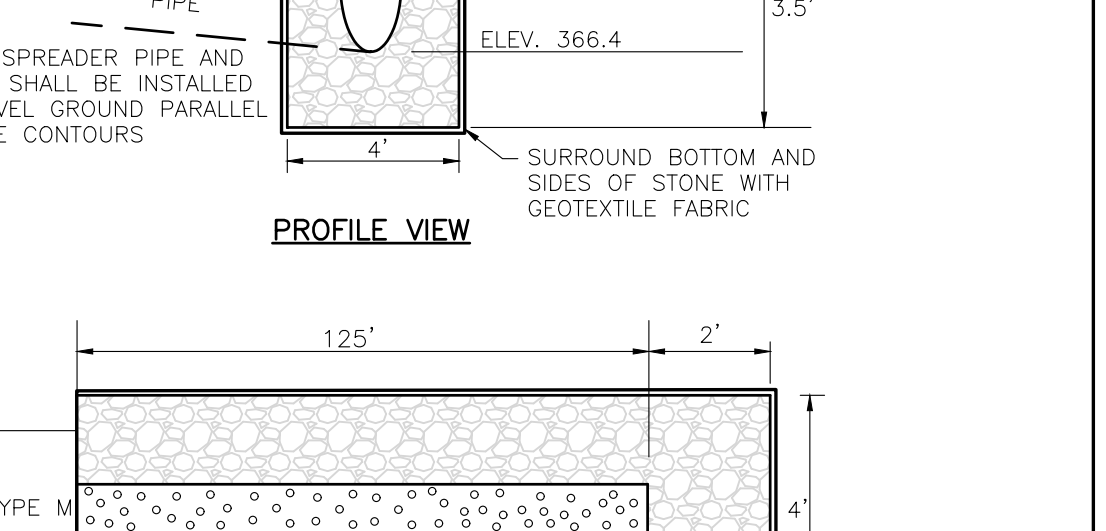
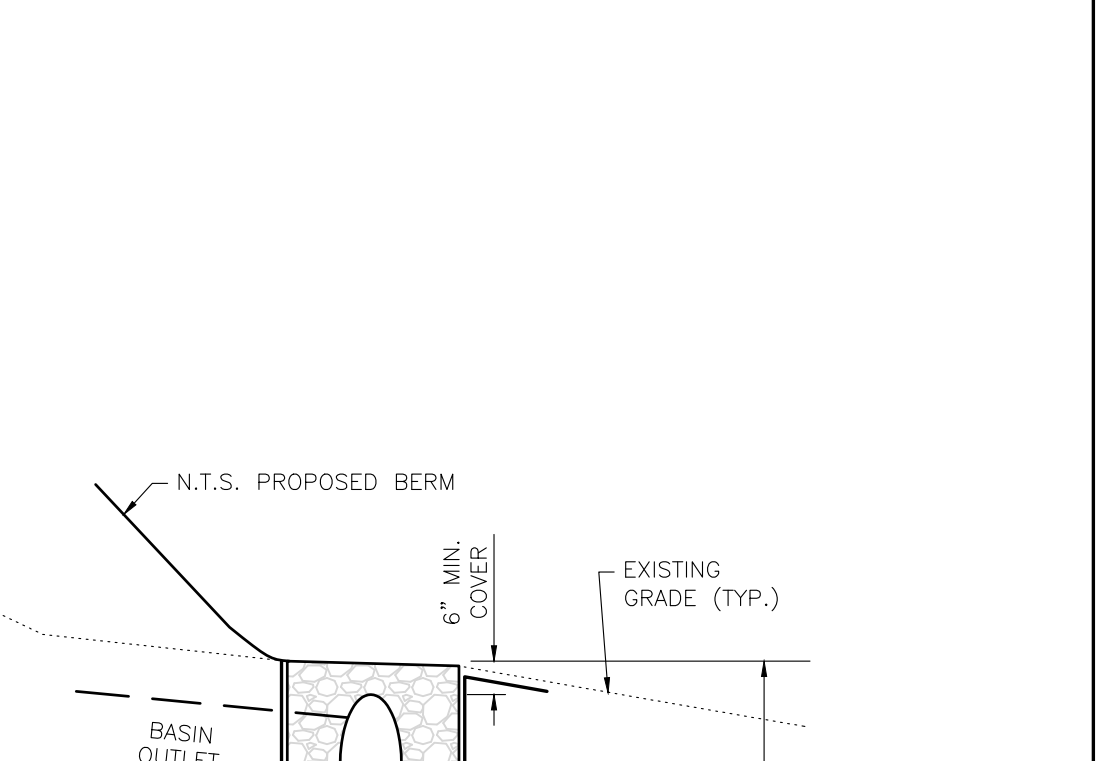


**FIGURE 17.2  
Sinkhole Repair with a Pervious Cover**

GEOTEXTILE BETWEEN R-3 ROCK & AASHTO #57 STONE. 6" TO 12" TOPSOIL. 1/4 D FILTER MATERIAL (ASHTO#57 STONE). 1/4 D FILTER MATERIAL (ASHTO#57 STONE). 3/4 D FILTER MATERIAL (R-3 ROCK). STONES 1/4 TO 1/2 VOID DIA.

SECTION NOT TO SCALE

Adapted from USDA NRCS  
Loose material shall be excavated from the sinkhole and expose solution void(s) if possible. Enlarge sinkhole if necessary to allow for installation of filter materials. OSHA regulations must be followed at all times during excavation.  
Stones used for the "bridge" and filters shall have a moderately hard rock strength and be resistant to abrasion and degradation. Shale and similar soft and/or non-durable rock are not acceptable.



**PROCEDURES FOR REDUCING THE RISK OF SINKHOLE FORMATION AND FOR SINKHOLE REMEDIATION**

**GENERAL**  
1. THE SITE IS UNDERLAIN BY LIMESTONE AT DEPTH, AS SUCH, THERE IS AN INHERENT RISK OF SINKHOLE FORMATION WHICH CAN BE CONTROLLED, BUT NOT ELIMINATED. THE PROCEDURES OUTLINED HEREIN ARE INTENDED TO REDUCE THE RISK FOR SINKHOLE FORMATION AT THE SITE DURING AND AFTER CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR THE IMPLEMENTATION OF THESE PROCEDURES, WHICH ARE INCIDENTAL TO THE CONTRACT. IN ADDITION, SPECIFICATIONS FOR THE REMEDIATION OF SINKHOLES, IF NECESSARY, ARE INCORPORATED.

**PROCEDURES FOR SINKHOLE RISK REDUCTION**  
1. PRIOR TO BEGINNING OTHER EARTHWORK ACTIVITIES, CONSTRUCT PERMANENT AND/OR TEMPORARY DRAINAGE FACILITIES AS SHOWN ON THE PLANS, INCLUDING THE STORMWATER BASIN AND OUTLET CONTROL STRUCTURE. CONSTRUCT THE REQUIRED EROSION AND SEDIMENTATION CONTROLS AS SHOWN ON THE PLANS.  
2. CONFINE EARTH DISTURBANCE ACTIVITIES TO THE AREA REQUIRED FOR EACH DAY'S WORK.  
3. LIMIT THE EXTENT OF UTILITY AND FOUNDATION EXCAVATIONS TO THAT WHICH CAN BE BACKFILLED EACH DAY. FOR THOSE EXCAVATIONS WHICH ARE LEFT OPEN OVERNIGHT (PARTICULARLY WHEN RAIN OR SNOW IS FORECASTED), AND BEFORE EACH WEEKEND, CONSTRUCT DIVERSION DICES OR BERMS AROUND THESE OPENINGS TO LIMIT THE AMOUNT OF RUNOFF WHICH CAN COLLECT IN THEM. AFTER A PRECIPITATION EVENT, IMMEDIATELY REMOVE ANY STANDING WATER FROM SUCH EXCAVATIONS.  
4. AT THE END OF EACH DAY (PARTICULARLY WHEN RAIN OR SNOW IS FORECASTED), AND BEFORE EACH WEEKEND, GRADE THE DISTURBED AREAS OF THE SITE TO DRAIN TOWARDS THE PREVIOUSLY CONSTRUCTED DRAINAGE FACILITIES, AND SEAL-ROLL THE DISTURBED SOIL USING A SMOOTH-DRUM ROLLER. AFTER A PRECIPITATION EVENT, IMMEDIATELY DISPERSIVE OR REMOVE ANY PONDGED WATER.

**REMEDICATION OF SINKHOLES**  
THE FOLLOWING PROCEDURES ARE RECOMMENDED FOR THE REMEDIATION OF SINKHOLES WHICH OCCUR DURING CONSTRUCTION. THIS WORK SHALL BE PERFORMED UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER.  
1. CAREFULLY REMOVE ANY LOOSE OR DISTURBED SOIL AND ROCK FROM THE SINKHOLE OPENING IN AN ATTEMPT TO EXPOSE THE THROAT.  
2. IF THE THROAT REMAINS OPEN, FILL AND SEAL THE OPENING USING CONVENTIONAL LOW-STRENGTH CONCRETE (2,500 PSI, 6" SLUMP). PROVIDE SUFFICIENT CONCRETE TO ALLOW IT SETTLE INTO THE VOID. AFTER THE CONCRETE HAS CURED, BACKFILL THE REMAINING OPENING WITH COMPACTED LIFTS OF NATIVE SOIL IN ACCORDANCE WITH THE EARTHWORK SPECIFICATIONS.  
3. IF THE THROAT COLLAPSES OR DISAPPEARS, COMPACT THE BOTTOM OF THE EXCAVATION AND BACKFILL THE EXCAVATION WITH NATIVE SOIL IN ACCORDANCE WITH THE EARTHWORK SPECIFICATIONS.  
4. FOR DEEP SINKHOLES (I.E. DEEPER THAN 8"), EACH LIFT OF BACKFILL SHOULD BE BENCHED A MINIMUM OF TWELVE INCHES (12") INTO THE SURROUNDING SOIL.  
5. FOR SINKHOLES WHICH OCCUR WITHIN THE BUILDING AREA OR BENEATH THE BUILDING FOUNDATIONS, MORE SUBSTANTIAL MEASURES MAY BE REQUIRED, SUCH AS COMPACTION GROUTING OR ALTERNATIVE SUPPORT SYSTEMS. IF REQUIRED, THESE PROCEDURES WILL BE SPECIFIED IN MORE DETAIL BY THE GEOTECHNICAL ENGINEER.  
6. FOR PERSISTENT SINKHOLE ZONES WITHIN THE PAVED AREAS OF THE SITE, THE GEOTECHNICAL ENGINEER MAY RECOMMEND AND PROVIDE DETAILS AND SPECIFICATIONS FOR THE USE OF GEOSYNTHETICS TO SUPPORT THE PAVEMENT SUBGRADE OVER THIS AREA.

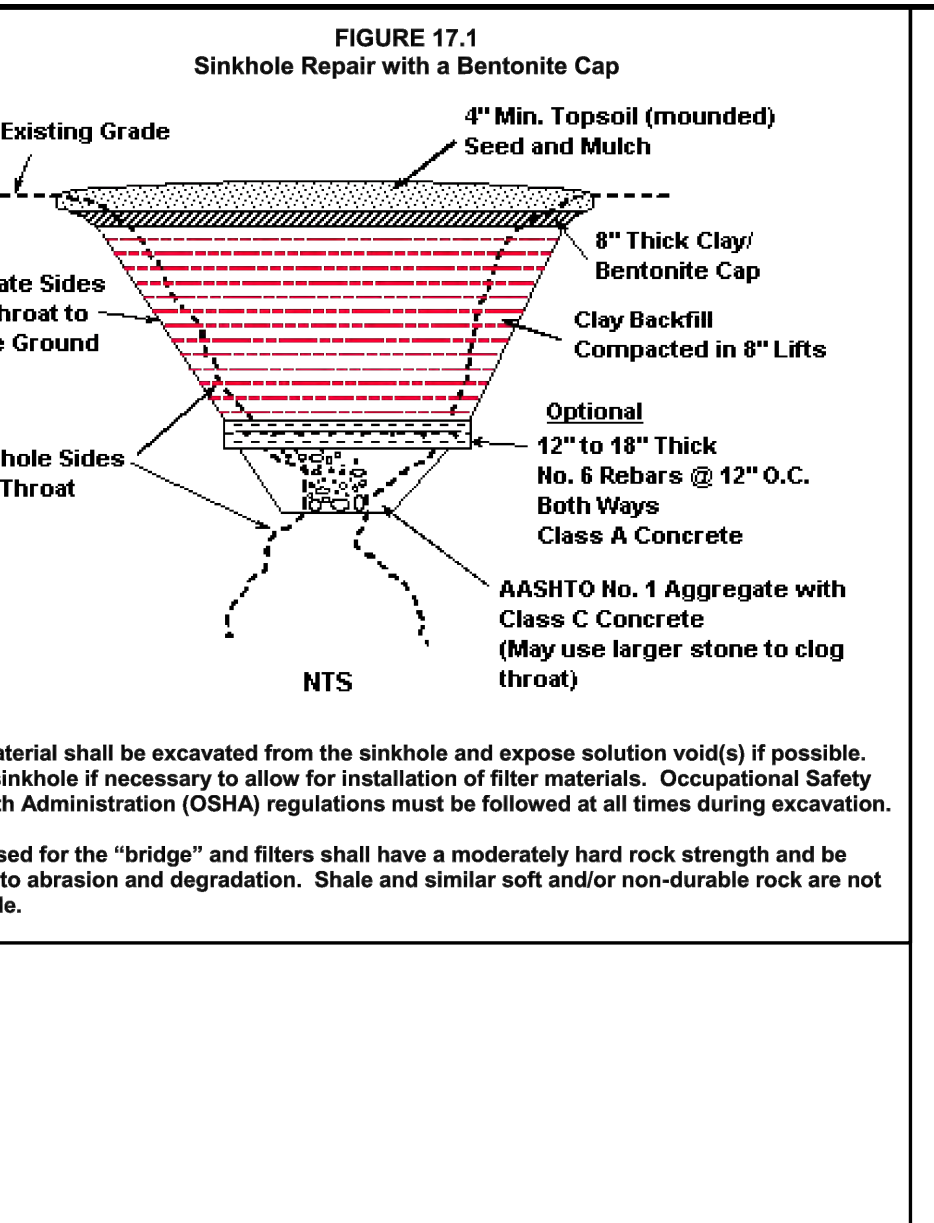
**ANTICIPATED CONSTRUCTION WASTES:**  
A. TREES:  
1. TREES SHALL BE CHIPPED AND REMOVED OFFSITE FOR USE AS MULCH.  
B. BUILDING MATERIALS:  
1. BUILDING MATERIALS SHALL BE REMOVED, RECYCLED AND DISPOSED OF PER THE "CONSTRUCTION WASTE DISPOSAL" NOTE BELOW.  
C. ROCK WASTE:  
1. ALL ROCKS SUITABLE FOR LANDSCAPING USES SHALL BE USED ON-SITE OR AT ANOTHER FACILITY.  
D. SOIL & SEDIMENT WASTE:  
1. ALL EXCAVATED SOIL SHALL BE USED ON-SITE AS FILL MATERIAL WHERE POSSIBLE, ANY EXCESS MATERIAL NOT USED ON-SITE MAY ONLY BE DISPOSED AT A FACILITY WITH A VALID EARTH DISTURBANCE AND NPDES PERMIT APPROVED AND WHERE ALL BMPs ARE PROPERLY INSTALLED.  
2. ALL SEDIMENT REMOVED DURING MAINTENANCE AND CLEANING OF EROSION AND SEDIMENTATION CONTROL DEVICES WILL BE INCORPORATED INTO THE FINE GRADING UPSTREAM FROM A SEDIMENT CONTROL DEVICE. EXCESS MATERIAL REMOVED FROM EROSION AND SEDIMENTATION CONTROL MEASURES THAT CANNOT BE INCORPORATED INTO THE FINE GRADING SHALL BE REMOVED AND MAY ONLY BE DISPOSED AT A FACILITY WITH A VALID EARTH DISTURBANCE AND NPDES PERMIT APPROVED AND WHERE ALL BMPs ARE PROPERLY INSTALLED.

**CONSTRUCTION WASTE DISPOSAL NOTE:**  
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.

**SITE STABILIZATION REQUIREMENTS:**  
UPON COMPLETION OR TEMPORARY CESSATION OF EARTH DISTURBANCE ACTIVITY THAT WILL EXCEED 4 DAYS, OR ANY STAGE THEREOF, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION AND MAY OR MAY NOT BE COVERED WITH MULCH AT A RATE OF 3.0 TONS PER ACRE.

**PUMPED WATER FILTER BAG REQUIREMENTS:**  
ALL PUMPING OF SEDIMENT LADEN WATER OR POTENTIALLY SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS.

**CONSTRUCTION OVERSIGHT REQUIREMENTS:**  
THE PERMITTEE SHALL PROVIDE ENGINEERING CONSTRUCTION OVERSIGHT FOR THE PROPOSED STORMWATER BMPs. ADDITIONAL SOIL TESTING MAY BE REQUIRED PRIOR TO THE INSTALLATION OF INFILTRATION BMPs TO ENSURE PROPER LOCATION AND FUNCTION. A LICENSED PROFESSIONAL ENGINEER KNOWLEDGEABLE IN THE DESIGN AND CONSTRUCTION OF STORMWATER BMPs, PREFERABLY THE DESIGN ENGINEER, SHALL CONDUCT THE OVERSIGHT.

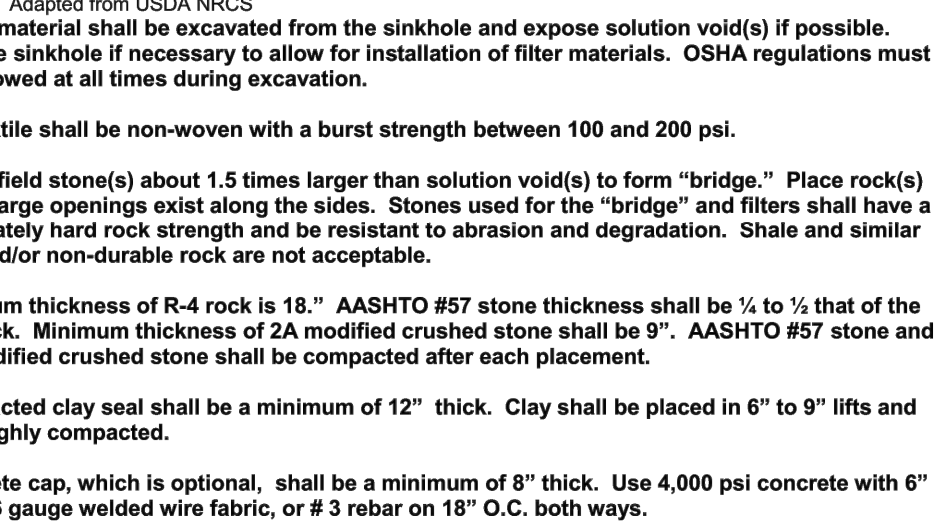
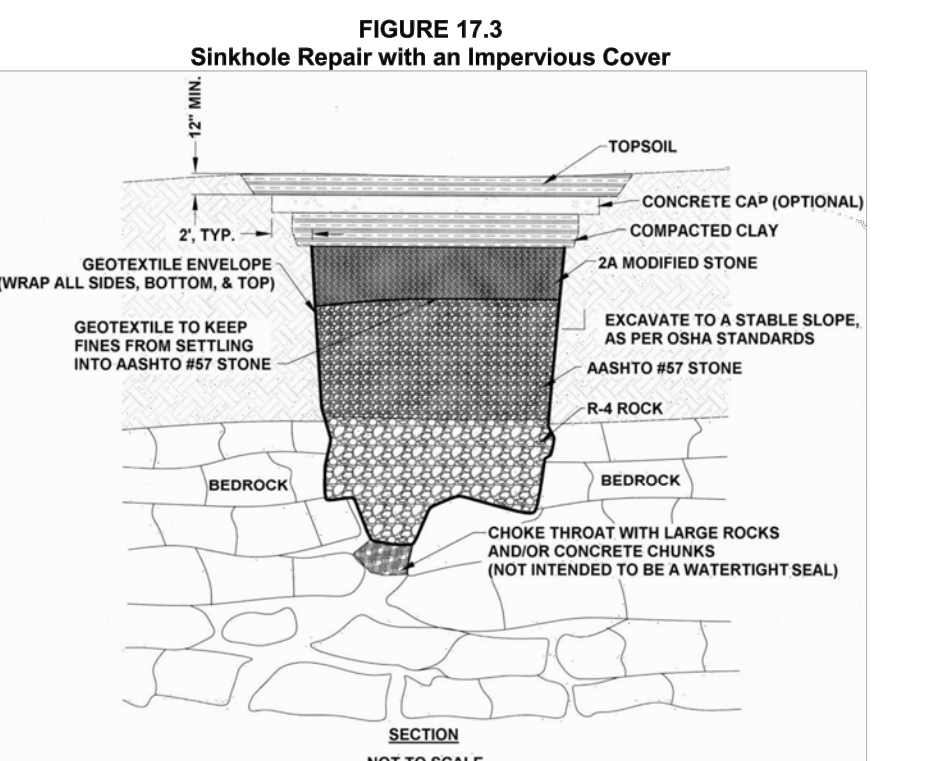


**FIGURE 17.2  
Sinkhole Repair with a Pervious Cover**

GEOTEXTILE BETWEEN R-3 ROCK & AASHTO #57 STONE. 6" TO 12" TOPSOIL. 1/4 D FILTER MATERIAL (ASHTO#57 STONE). 1/4 D FILTER MATERIAL (ASHTO#57 STONE). 3/4 D FILTER MATERIAL (R-3 ROCK). STONES 1/4 TO 1/2 VOID DIA.

SECTION NOT TO SCALE

Adapted from USDA NRCS  
Loose material shall be excavated from the sinkhole and expose solution void(s) if possible. Enlarge sinkhole if necessary to allow for installation of filter materials. OSHA regulations must be followed at all times during excavation.  
Stones used for the "bridge" and filters shall have a moderately hard rock strength and be resistant to abrasion and degradation. Shale and similar soft and/or non-durable rock are not acceptable.



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1. THE SITE IS UNDERLAIN BY LIMESTONE AT DEPTH, AS SUCH, THERE IS AN INHERENT RISK OF SINKHOLE FORMATION WHICH CAN BE CONTROLLED, BUT NOT ELIMINATED. THE PROCEDURES OUTLINED HEREIN ARE INTENDED TO REDUCE THE RISK FOR SINKHOLE FORMATION AT THE SITE DURING AND AFTER CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR THE IMPLEMENTATION OF THESE PROCEDURES, WHICH ARE INCIDENTAL TO THE CONTRACT. IN ADDITION, SPECIFICATIONS FOR THE REMEDIATION OF SINKHOLES, IF NECESSARY, ARE INCORPORATED.

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2. CONFINE EARTH DISTURBANCE ACTIVITIES TO THE AREA REQUIRED FOR EACH DAY'S WORK.  
3. LIMIT THE EXTENT OF UTILITY AND FOUNDATION EXCAVATIONS TO THAT WHICH CAN BE BACKFILLED EACH DAY. FOR THOSE EXCAVATIONS WHICH ARE LEFT OPEN OVERNIGHT (PARTICULARLY WHEN RAIN OR SNOW IS FORECASTED), AND BEFORE EACH WEEKEND, CONSTRUCT DIVERSION DICES OR BERMS AROUND THESE OPENINGS TO LIMIT THE AMOUNT OF RUNOFF WHICH CAN COLLECT IN THEM. AFTER A PRECIPITATION EVENT, IMMEDIATELY REMOVE ANY STANDING WATER FROM SUCH EXCAVATIONS.  
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3. IF THE THROAT COLLAPSES OR DISAPPEARS, COMPACT THE BOTTOM OF THE EXCAVATION AND BACKFILL THE EXCAVATION WITH NATIVE SOIL IN ACCORDANCE WITH THE EARTHWORK SPECIFICATIONS.  
4. FOR DEEP SINKHOLES (I.E. DEEPER THAN 8"), EACH LIFT OF BACKFILL SHOULD BE BENCHED A MINIMUM OF TWELVE INCHES (12") INTO THE SURROUNDING SOIL.  
5. FOR SINKHOLES WHICH OCCUR WITHIN THE BUILDING AREA OR BENEATH THE BUILDING FOUNDATIONS, MORE SUBSTANTIAL MEASURES MAY BE REQUIRED, SUCH AS COMPACTION GROUTING OR ALTERNATIVE SUPPORT SYSTEMS. IF REQUIRED, THESE PROCEDURES WILL BE SPECIFIED IN MORE DETAIL BY THE GEOTECHNICAL ENGINEER.  
6. FOR PERSISTENT SINKHOLE ZONES WITHIN THE PAVED AREAS OF THE SITE, THE GEOTECHNICAL ENGINEER MAY RECOMMEND AND PROVIDE DETAILS AND SPECIFICATIONS FOR THE USE OF GEOSYNTHETICS TO SUPPORT THE PAVEMENT SUBGRADE OVER THIS AREA.

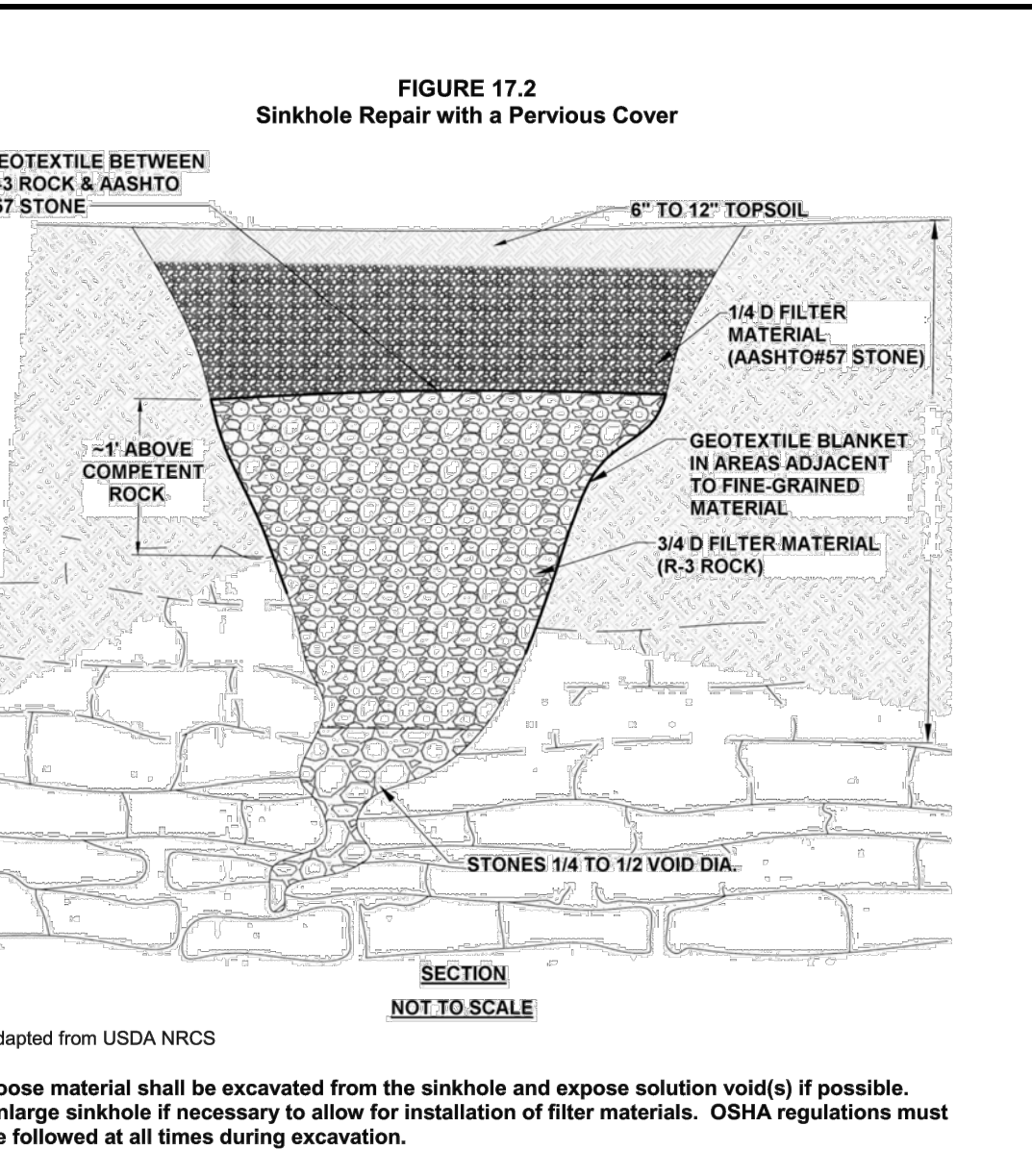
**ANTICIPATED CONSTRUCTION WASTES:**  
A. TREES:  
1. TREES SHALL BE CHIPPED AND REMOVED OFFSITE FOR USE AS MULCH.  
B. BUILDING MATERIALS:  
1. BUILDING MATERIALS SHALL BE REMOVED, RECYCLED AND DISPOSED OF PER THE "CONSTRUCTION WASTE DISPOSAL" NOTE BELOW.  
C. ROCK WASTE:  
1. ALL ROCKS SUITABLE FOR LANDSCAPING USES SHALL BE USED ON-SITE OR AT ANOTHER FACILITY.  
D. SOIL & SEDIMENT WASTE:  
1. ALL EXCAVATED SOIL SHALL BE USED ON-SITE AS FILL MATERIAL WHERE POSSIBLE, ANY EXCESS MATERIAL NOT USED ON-SITE MAY ONLY BE DISPOSED AT A FACILITY WITH A VALID EARTH DISTURBANCE AND NPDES PERMIT APPROVED AND WHERE ALL BMPs ARE PROPERLY INSTALLED.  
2. ALL SEDIMENT REMOVED DURING MAINTENANCE AND CLEANING OF EROSION AND SEDIMENTATION CONTROL DEVICES WILL BE INCORPORATED INTO THE FINE GRADING UPSTREAM FROM A SEDIMENT CONTROL DEVICE. EXCESS MATERIAL REMOVED FROM EROSION AND SEDIMENTATION CONTROL MEASURES THAT CANNOT BE INCORPORATED INTO THE FINE GRADING SHALL BE REMOVED AND MAY ONLY BE DISPOSED AT A FACILITY WITH A VALID EARTH DISTURBANCE AND NPDES PERMIT APPROVED AND WHERE ALL BMPs ARE PROPERLY INSTALLED.

**CONSTRUCTION WASTE DISPOSAL NOTE:**  
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.

**SITE STABILIZATION REQUIREMENTS:**  
UPON COMPLETION OR TEMPORARY CESSATION OF EARTH DISTURBANCE ACTIVITY THAT WILL EXCEED 4 DAYS, OR ANY STAGE THEREOF, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION AND MAY OR MAY NOT BE COVERED WITH MULCH AT A RATE OF 3.0 TONS PER ACRE.

**PUMPED WATER FILTER BAG REQUIREMENTS:**  
ALL PUMPING OF SEDIMENT LADEN WATER OR POTENTIALLY SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS.

**CONSTRUCTION OVERSIGHT REQUIREMENTS:**  
THE PERMITTEE SHALL PROVIDE ENGINEERING CONSTRUCTION OVERSIGHT FOR THE PROPOSED STORMWATER BMPs. ADDITIONAL SOIL TESTING MAY BE REQUIRED PRIOR TO THE INSTALLATION OF INFILTRATION BMPs TO ENSURE PROPER LOCATION AND FUNCTION. A LICENSED PROFESSIONAL ENGINEER KNOWLEDGEABLE IN THE DESIGN AND CONSTRUCTION OF STORMWATER BMPs, PREFERABLY THE DESIGN ENGINEER, SHALL CONDUCT THE OVERSIGHT.



**FIGURE 17.2  
Sinkhole Repair with a Pervious Cover**

GEOTEXTILE BETWEEN R-3 ROCK & AASHTO #57 STONE. 6" TO 12" TOPSOIL. 1/4 D FILTER MATERIAL (ASHTO#57 STONE). 1/4 D FILTER MATERIAL (ASHTO#57 STONE). 3/4 D FILTER MATERIAL (R-3 ROCK). STONES 1/4 TO 1/2 VOID DIA.

SECTION NOT TO SCALE

Adapted from USDA NRCS  
Loose material shall be excavated from the sinkhole and expose solution void(s) if possible.