

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
PENNSYLVANIA PIPELINE PROJECT- BECKERSVILLE STATION
BRECKNOCK TOWNSHIP, BERKS COUNTY
PENNSYLVANIA
NOVEMBER 2016

SUNOCO PIPELINE L.P. ACKNOWLEDGES THAT ANY REVISION TO THE APPROVED DRAINAGE PLAN MUST BE APPROVED BY THE TOWNSHIP AND THE BERKS CO. CONSERVATION DISTRICT

SUNOCO PIPELINE L.P. DATE

I, TIMOTHY J. CONNOLLY JR.,P.E., CERTIFY THAT THE PROPOSED DETENTION BASIN IS NOT UNDERLAIN BY CARBONATE GEOLOGY.

Signature of Timothy J. Connolly Jr., P.E.
11/21/2016
TIMOTHY J. CONNOLLY JR.,P.E. DATE

I, TIMOTHY J. CONNOLLY JR.,P.E., ON THIS DATE HEREBY CERTIFIES THAT THE DRAINAGE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE BRECKNOCK TOWNSHIP STORMWATER MANAGEMENT ORDINANCE

Signature of Timothy J. Connolly Jr., P.E.
11/21/2016
TIMOTHY J. CONNOLLY JR.,P.E. DATE

I, TIMOTHY J. CONNOLLY JR.,P.E., HEREBY CERTIFY THAT THE PLAN FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS, STANDARDS AND SPECIFICATIONS OF THE COUNTY CONSERVATION DISTRICT.

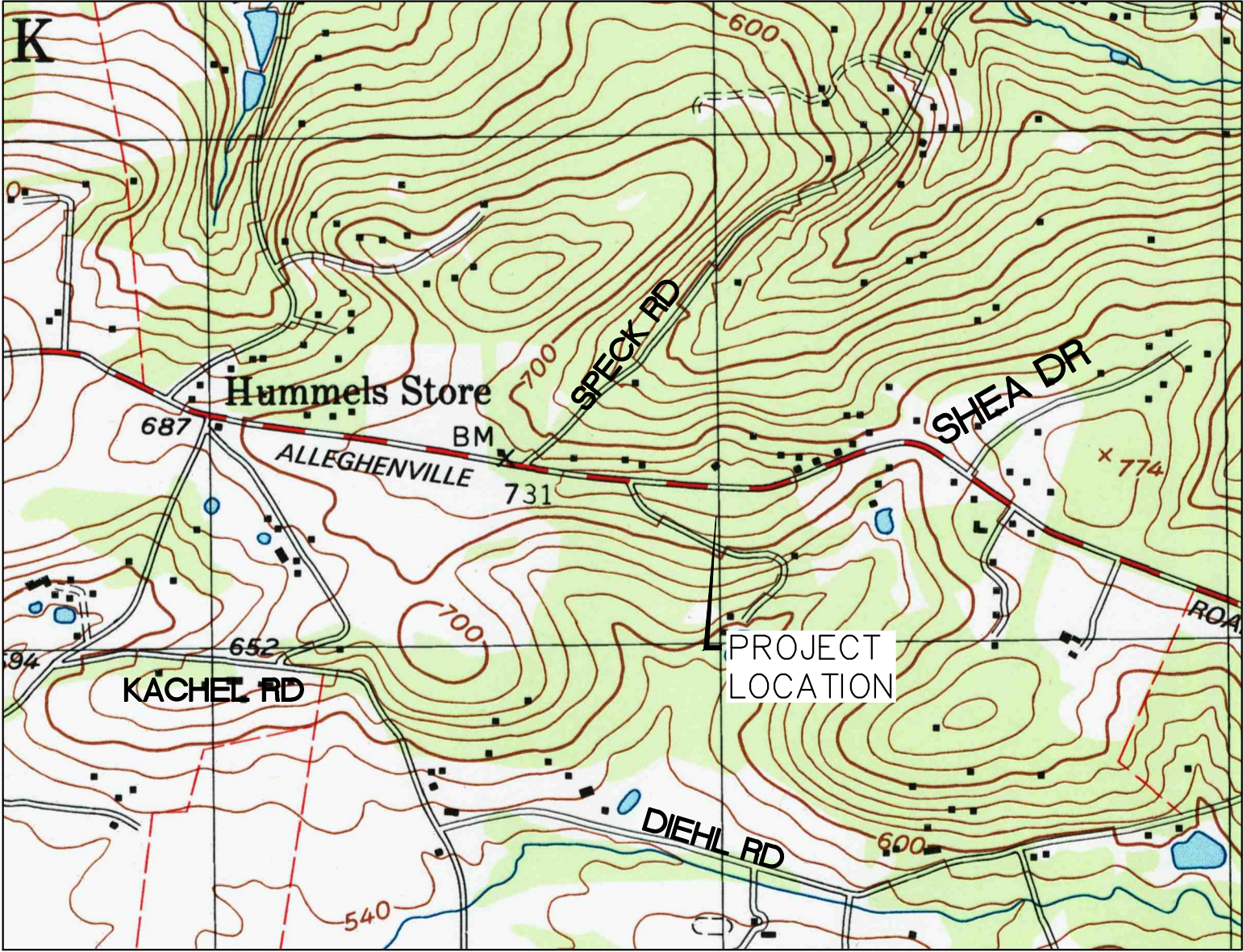
Signature of Timothy J. Connolly Jr., P.E.
11/21/2016
TIMOTHY J. CONNOLLY JR.,P.E. DATE

TETRA TECH
www.tetratech.com

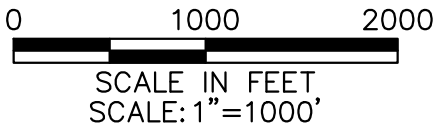
1134 TWIN STACKS DRIVE
DALLAS, PA 18612
T: (570) 674-8648 | F: (570) 674-8651
DATE: NOVEMBER 21, 2016
COVER SHEET 1 OF 11
REVISION #1 - 4.22.16
REVISION #2 - 5.13.16
REVISION #3 - 7.01.16
REVISION #4 - 10.18.16

DRAWING INDEX table with 2 columns: SHEET No. and DRAWING TITLE. Rows include COVER SHEET AND NOTES, OVERALL SITE PLAN, PROPOSED CONDITIONS PLAN, PRE-POST DEVELOPED D.A. PLAN, CONSTRUCTION DETAILS, BASIN #1 CONSTRUCTION DETAILS, CONSTRUCTION DETAILS, and CONSTRUCTION DETAI.

PREPARED FOR:
SUNOCO PIPELINE L.P.
525 FRITZTOWN ROAD
SINKING SPRING, PENNSYLVANIA 19608
610-670-3200



LOCATION MAP
BECKERSVILLE STATION
MORGANTOWN QUADRANGLE
BRECKNOCK TOWNSHIP, BERKS COUNTY,
PENNSYLVANIA



- GENERAL NOTES
- DEVELOPER/ OWNER: SUNOCO PIPELINE, LP, 525 FRITZTOWN ROAD, SINKING SPRING, PA. 19608, 610-670-3200
 - CURRENT TAX IDENTIFICATION #: 34-5302-02-56-2952, INSTRUMENT #2014027505, RECORDED 8-25-2014, TOTAL PARCEL SIZE = 17.45 AC
 - PUBLIC SEWER AND WATER WILL NOT BE PROVIDED. THE FACILITY IS UNMANNED.
 - EXISTING CONTOURS AND FEATURES COMPILED FROM WWW.PASDA.PSU.EDU. EXISTING CONTOURS ARE BASED ON NAVD 88 DATUM.
 - NO PORTION OF THE SITE LIES WITHIN ANY 100 YEAR FLOOD ZONES, AS PER F.E.M.A. MAPPING, FIRM PANEL 629 OF 700, MAP #42011C0629G, EFFECTIVE DATE IS 06/03/2012.
 - THERE ARE NO WETLANDS WITHIN THE DISTURBED AREA OF THE SITE.
 - THE ASSOCIATED STORM WATER MANAGEMENT REPORT FOR THIS PROJECT IS TITLED: EROSION AND SEDIMENTATION CONTROL PLAN, PENNSYLVANIA PIPELINE PROJECT, BECKERSVILLE STATION EXPANSION ACTIVITIES, BRECKNOCK TOWNSHIP, BERKS COUNTY, PA, MARCH, 2016
 - THE SITE LIES WITHIN A 50% RELEASE RATE DISTRICT OF THE CONESTOGA RIVER ACT 167 STORMWATER MANAGEMENT PLAN.
 - UN-NAMED TRIBUTARY TO MUDDY CREEK IS LISTED AS "HQ-TSF" UNDER CHAPTER 93.
 - THE PADOT DRIVEWAY HOP NO. 05048641 WAS ISSUED ON 7/17/2014.
 - SUNOCO LOGISTICS PARTNERS, LP WILL BE RESPONSIBLE FOR PERMANENT INSPECTION AND MAINTENANCE OF ALL STORMWATER MANAGEMENT FACILITIES.
 - BRECKNOCK TOWNSHIP AND ITS AUTHORIZED AGENTS HAVE THE RIGHT, BUT NOT THE DUTY TO ENTER THE PROPERTY TO PERFORM INSPECTIONS OF STORMWATER FACILITIES. ACCESS AND INSPECTIONS WITHIN THE SECURED AREA CAN ONLY BE COMPLETED WITH AUTHORIZED REPRESENTATIVES OF THE PROPERTY OWNER.
 - THE EXISTING WELL AND SEPTIC SYSTEM ON THE PARCEL WILL BE ABANDONED IN ACCORDANCE WITH DEP AND TOWNSHIP REGULATIONS, IF THE BUILDING IS DEMOLISHED.
 - SITE LIGHTING WILL BE ACCOMPLISHED WITH POLE MOUNTED FIXTURES. LIGHTS WILL REMAIN IN THE "OFF" POSITION UNLESS NIGHTTIME WORK IS ANTICIPATED.
 - THERE ARE NO ADVERTISING SIGNS PROPOSED FOR THIS SITE.
 - IT IS REQUIRED BY BRECKNOCK TOWNSHIP THAT ALL SITE LIGHTING SHALL REMAIN IN THE OFF MODE DURING ALL NIGHT TIME HOURS. THE SITE LIGHTING SHALL BE DESIGNED TO BE MANUALLY OPERATED BY SUNOCO PERSONNEL ONLY WHEN NECESSARY DURING NIGHT TIME HOURS OF OPERATION WHEN SUNOCO PERSONNEL ARE ON-SITE.
 - LADDER RUNGS SHALL BE PROVIDED FOR ALL STORM SEWER INLETS AND MANHOLES WITH A DEPTH OF 4 FEET OR GREATER.
 - ALL STORM MANHOLES SHALL HAVE THE WORD "STORM" CAST ON THE TOP MANHOLE COVER.

ENGINEER CERTIFICATION

I, TIMOTHY J. CONNOLLY JR.,P.E., A LICENSED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA, DOES HEREBY CERTIFY THAT THE ACCOMPANYING APPLICATION, PLANS AND SUPPORTING DOCUMENTATION ARE TRUE AND ACCURATE, TO THE BEST OF MY KNOWLEDGE.

Signature of Timothy J. Connolly Jr., P.E.
11/21/2016
TIMOTHY J. CONNOLLY JR.,P.E. DATE
PE-39066-E
1134 TWIN STACKS DRIVE, DALLAS, PA. 18612

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

LEGEND

- EXISTING R/W
- PROPERTY LINE
- SOIL BOUNDARY
- SETBACK LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- Tc FLOW PATH
- PRE-DEV DA BOUNDARY
- POST-DEV DA BOUNDARY
- LOD-LOD-LOD-LOD LOD/ESCGP-2 BOUNDARY = 5.985 AC
- PADOT TYPE M PRECAST INLET
- 4' DIA. PADOT PRECAST STORM MH
- STORM PIPE W/ FES
- RIPRAP APRON
- 8' HEIGHT "SIMTEK" FENCE
- EXISTING LIGHT POLE, LITHONIA STSH 30 6-4B
- SQUARE TAPERED STEEL HINGED LIGHT POLE
- (6.41"x 3.08" RECT. x 30' TALL) FROM ME-1
- PHASE. NO LIGHTS PROPOSED IN PPP PHASE.

SOIL LIMITATION RESOLUTIONS

All soils within the site are suitable for the intended use. Any topsoil needed in the area can be imported from off-site areas. All soil groups are within acceptable limits of pH reaction. All soils within this project have a slight erosion hazard. However, erosion control blankets (S-150) will be placed on all slopes at 3:1 or steeper. None of the soils on site are susceptible to sinkholes. All storm pipes are backfilled with select material, and all proposed storm pipes will have watertight connections. All pipe to inlet connections will also be grouted to remain watertight. Embankments for the detention basin will be compacted to 95% density.

TOPSOIL SPECIFICATIONS: All topsoil to be imported to the site shall meet the requirements of Section 802 of PADOT Form 408 specifications. The material shall meet the following grading requirements:

Sieve	Min. % passing
2 in.	100 %
No. 4	75 %
No. 10	60 %

Sand, silt and clay material passing the No. 10 sieve, as defined by PTM No. 103, and within the following ranges:

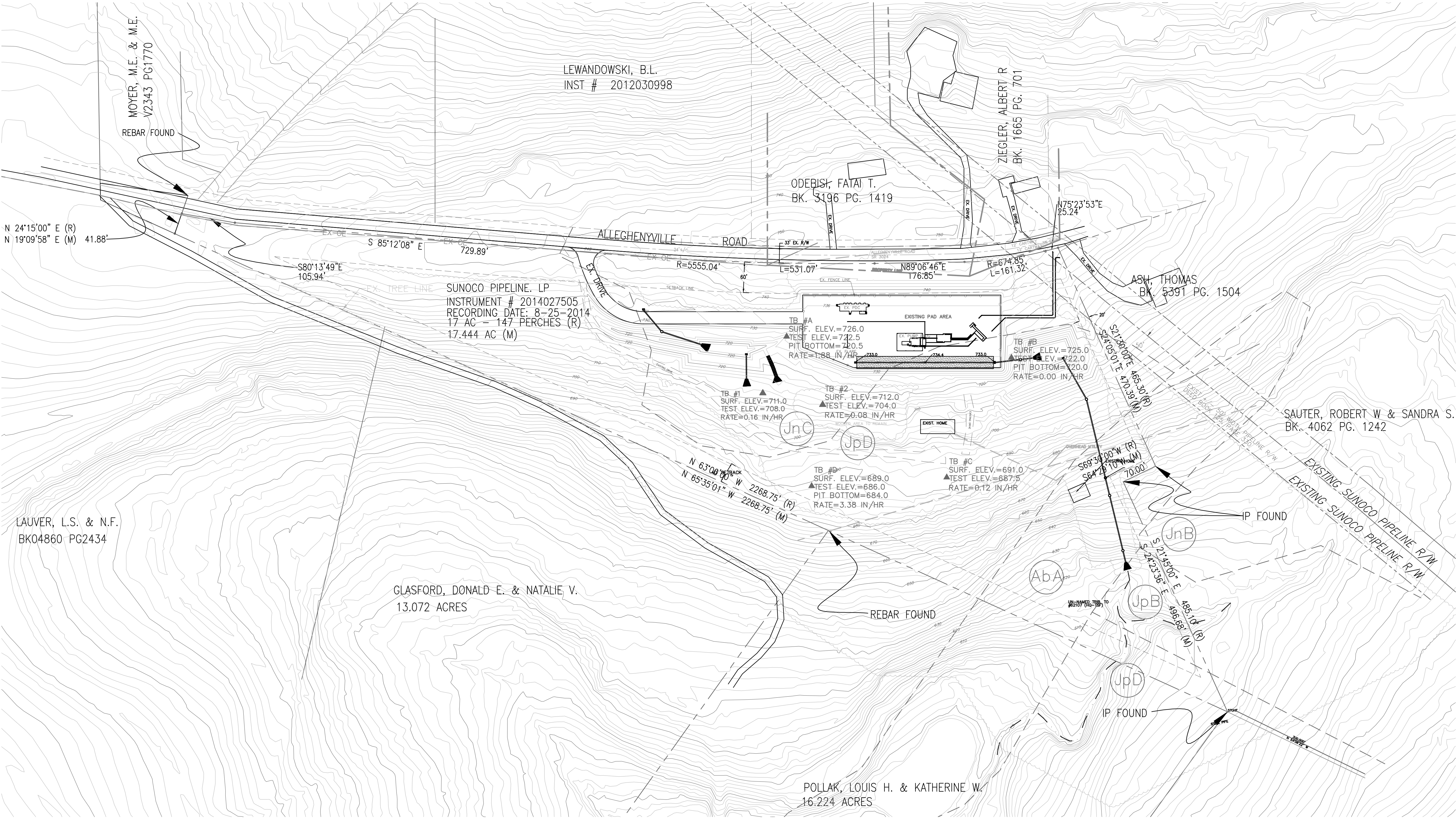
Min. %	Max %
Sand	5
Silt	10
Clay	5

SOILS ANALYSIS

Existing soils on site include the following:
JpD - Joanna loam, 8-25%, Depth to Bedrock = 72-100 inches
Erosion Hazard = Slight
JnC - Joanna loam, 8-15%, Depth to Bedrock = 72-100 inches
Erosion Hazard = Slight
AbA - Abbottstown silt loam, 0-3%, Depth to Bedrock = 40-60 inches
Erosion Hazard = Slight

SOILS LIMITATIONS

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




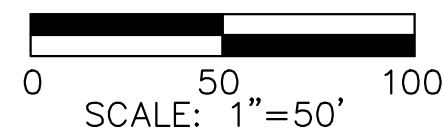
PROPERTY BOUNDARY LINES AS PER ALTA SURVEY COMPLETED BY TRICO SURVEYING, 441 W. GOURLEY PIKE, BLOOMINGTON, IN 47404

LEGEND

- EXISTING R/W
- PROPERTY LINE
- SOIL BOUNDARY
- SETBACK LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- Tc FLOW PATH
- PRE-DEV DA BOUNDARY
- POST-DEV DA BOUNDARY
- LOD/ESCGP-2 BOUNDARY = 5.985 AC
- PADOT TYPE M PRECAST INLET
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- STORM PIPE W/ FES
- RIPRAP APRON
- 8' HEIGHT "SIMTEK" FENCE



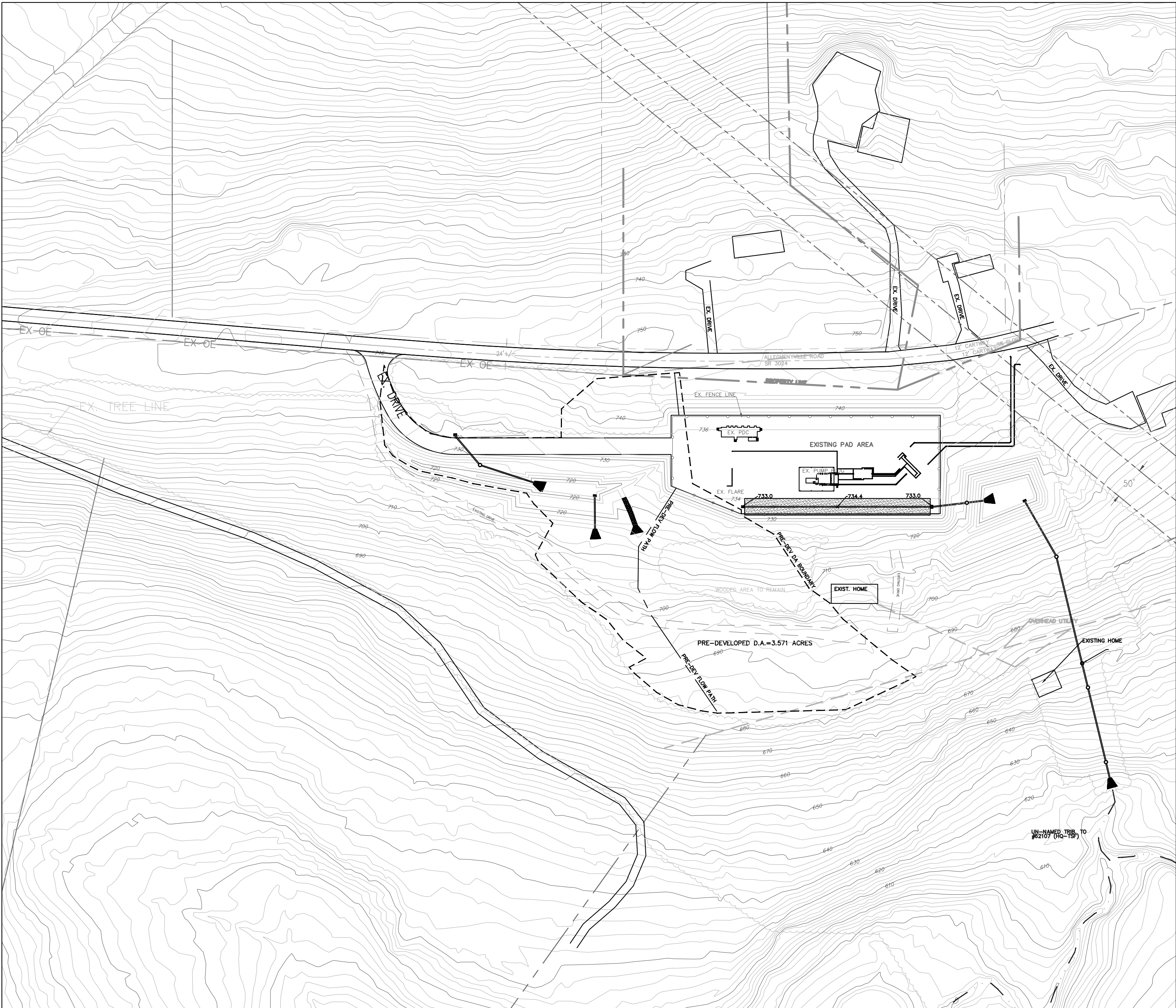
2 OF 8	 www.tetrattech.com 1134 TWIN STACKS DRIVE DALLAS, PA 18612 T: (570) 674-8648 F: (570) 674-8651	MARK	DATE	DESCRIPTION	BY	PPP – BECKERSVILLE PUMP STATION BRECKNOCK TOWNSHIP, BERKS COUNTY	PCSM PLAN – OVERALL SITE	DATE: 03/11/16 PROJECT NO.: 2121C-PB-00136 DRAWN BY: GZ CHECKED BY: TC SCALE: 1"=100' FILE: BASEPLAN NAME: OVERALL_2 COPYRIGHT TETRA TECH INC.
		1	4/22/16	REVISED PER EXISTING SURVEY	GZ			
		2	5/13/16	REVISED PER LTL LETTER (4/20/16)	GZ			
		3	7/01/16	REVISED PER LTL LETTER (6/7/16)	GZ			
		4	10/18/16	REVISED PER PA DEP REVIEW	GZ			



8

DATE: 03/11/16
PROJECT NO.: 212IC-PB-00136
DRAWN BY: GZ
CHECKED BY: TC
SCALE: 1"=50'
FILE: BASEPLAN
NAME: PROP 3
COPYRIGHT TETRA TECH INC.

ALL INLETS ARE PADOT TYPE M PRECAST CONCRETE.
ALL MANHOLES ARE 4' DIAMETER PRECAST CONCRETE.
ALL STORM INLETS AND MANHOLES MUST HAVE LADDER RUNGS.
ALL MANHOLES SHALL HAVE THE WORD "STORM" ON COVER.
ALL STORM PIPE IS SLOPP, ADS-N12 OR APPROVED EQUAL.
ALL INLETS SHALL CONTAIN A PAINTED MARKER THAT STATES,
"NO DUMPING, DISCHARGES TO STREAMS".
FOR PIPE P-6, USE RCCP.



PRE-DEVELOPED D.A. MAP - ME2 STATION
SCALE: 1"=100'



POST-DEVELOPED D.A. MAP - ME2 STATION
SCALE: 1"=100'

LEGEND

- EXISTING R/W
- PROPERTY LINE
- SOIL BOUNDARY
- SETBACK LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- Tc FLOW PATH
- PRE-DEV DA BOUNDARY
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0 100 200
SCALE: 1"=100'

4
OF
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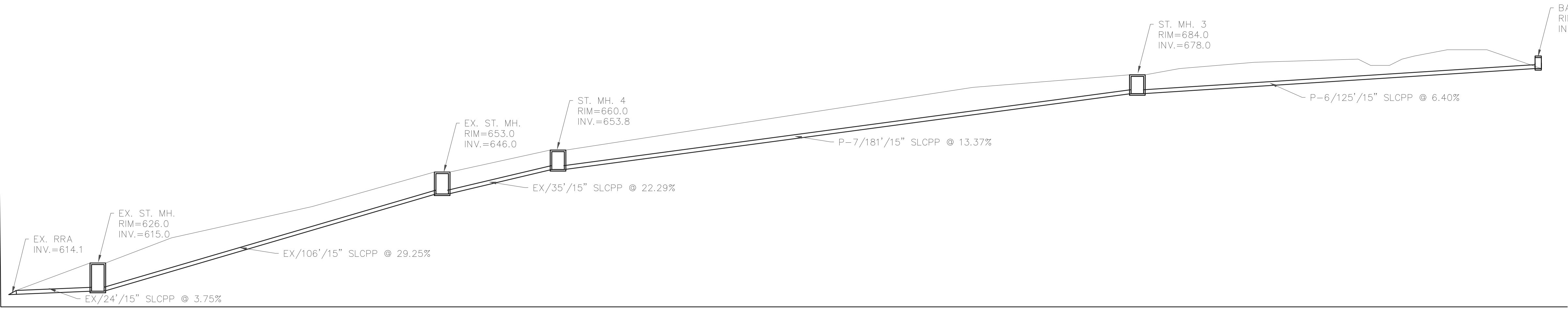
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4	10/18/16	REVISED PER PA DEP REVIEW	GZ

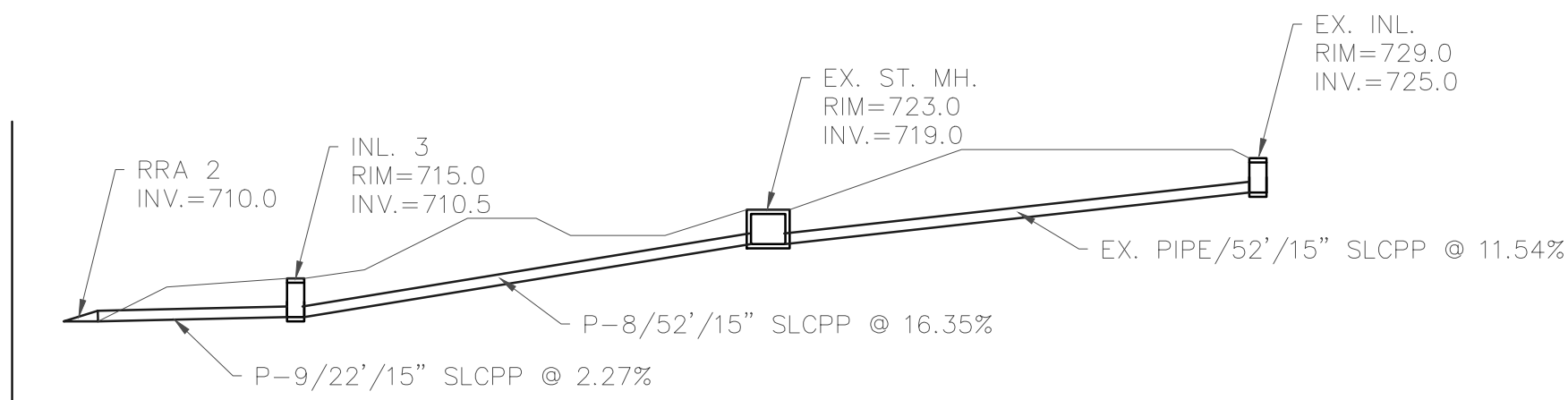
PPP - BECKERSVILLE PUMP STATION
BRECKNOCK TOWNSHIP, BERKS COUNTY

PCSM PLAN - PRE-POST DEVELOPED D.A.

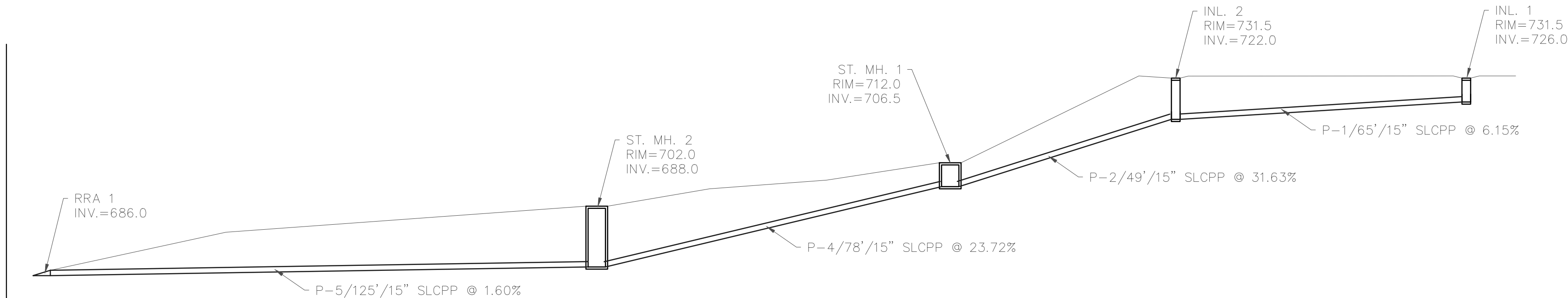
DATE: 03/11/16
PROJECT NO.: 212IC-PB-00136
DRAWN BY: GZ
CHECKED BY: TC
SCALE: 1"=100'
FILE: BASEPLAN
NAME: DA 5
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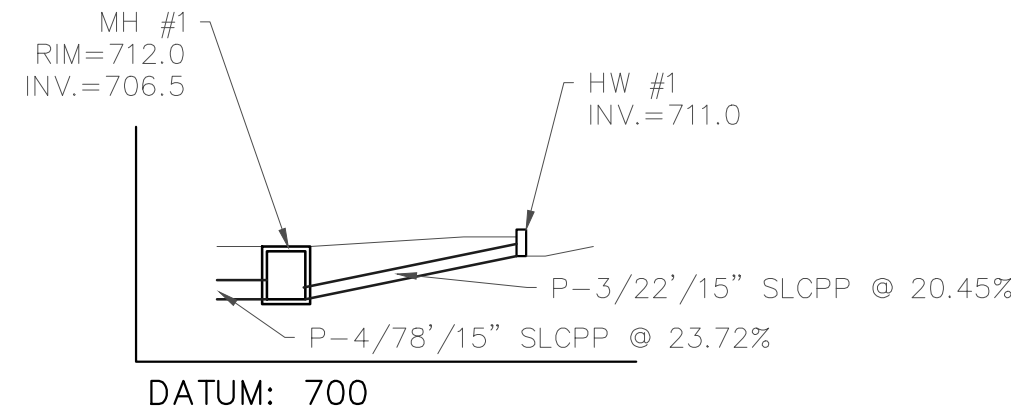
DATUM: 610



DATUM: 700

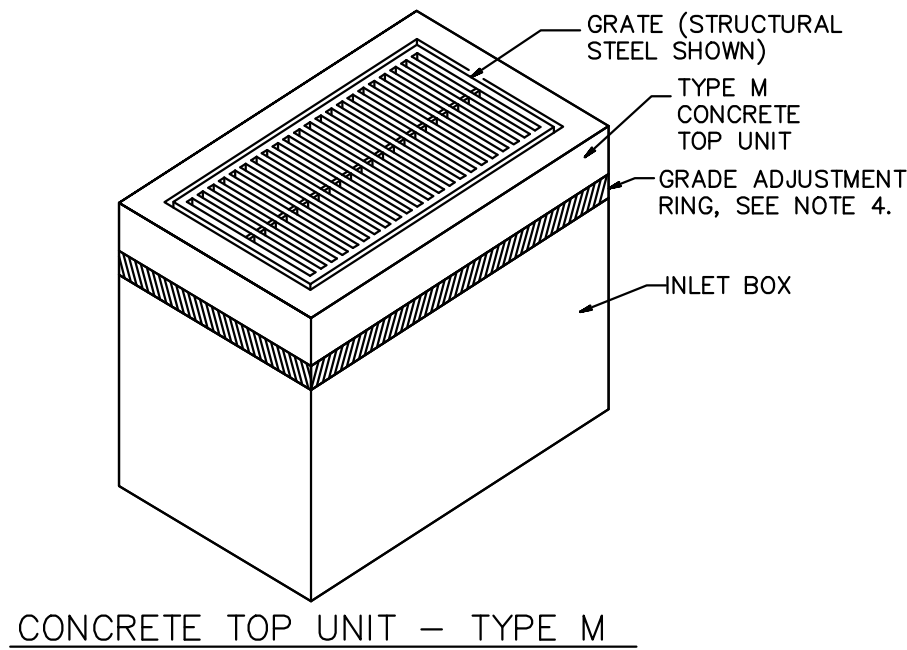


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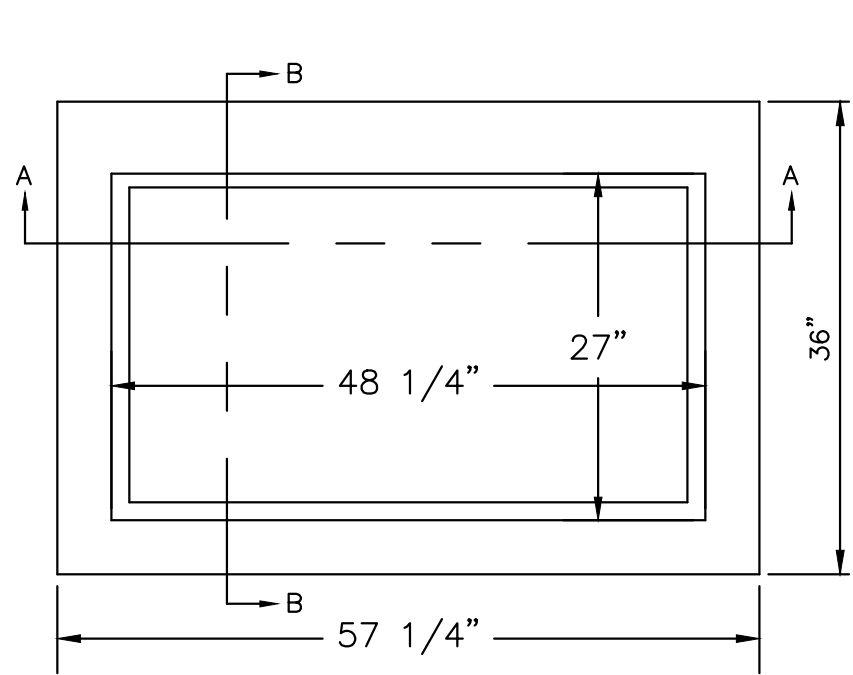


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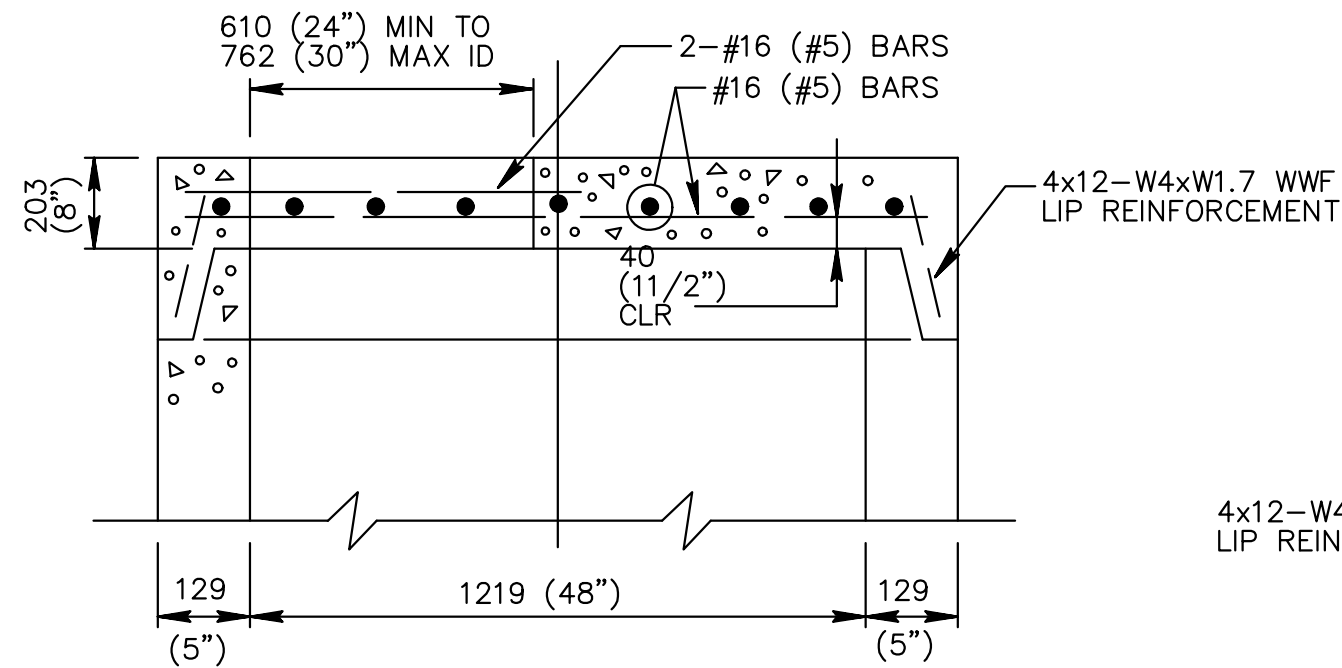
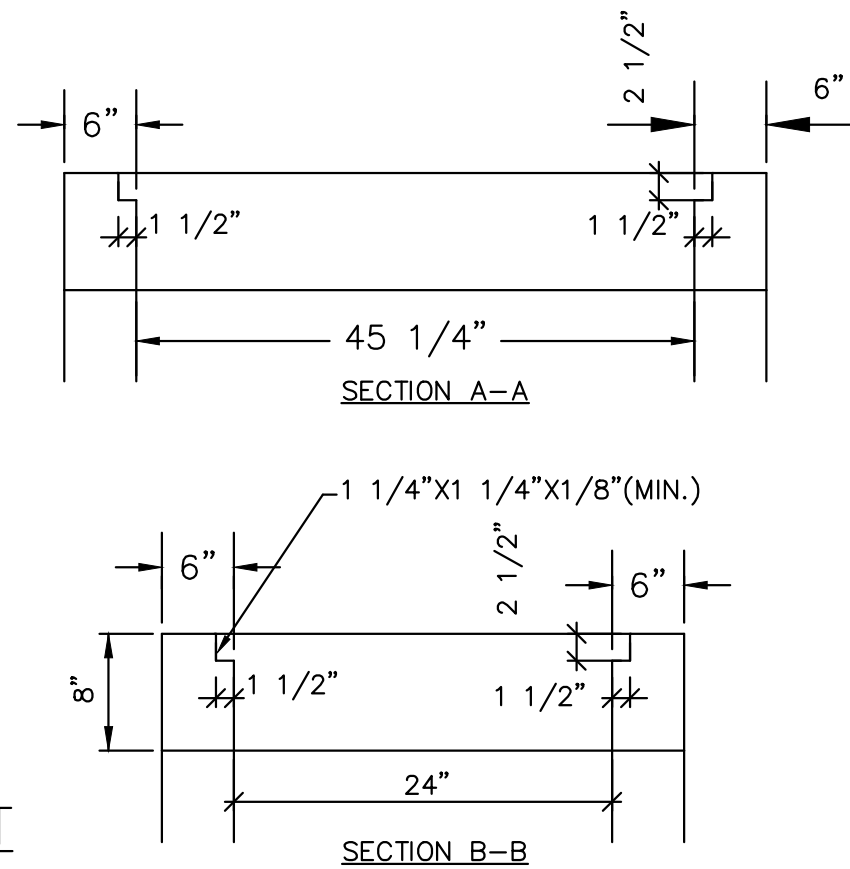
STORM PROFILE
SCALE: HORIZ., 1"=20'
VERT: 1"=20'



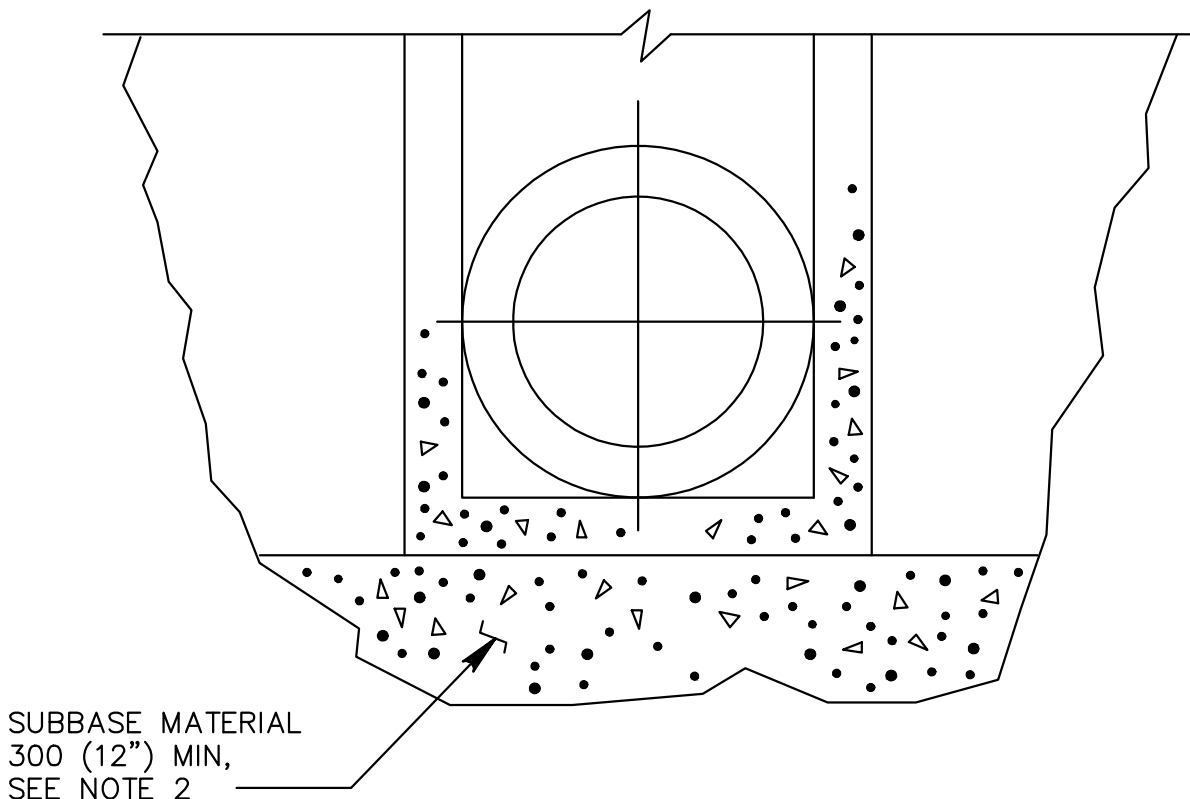
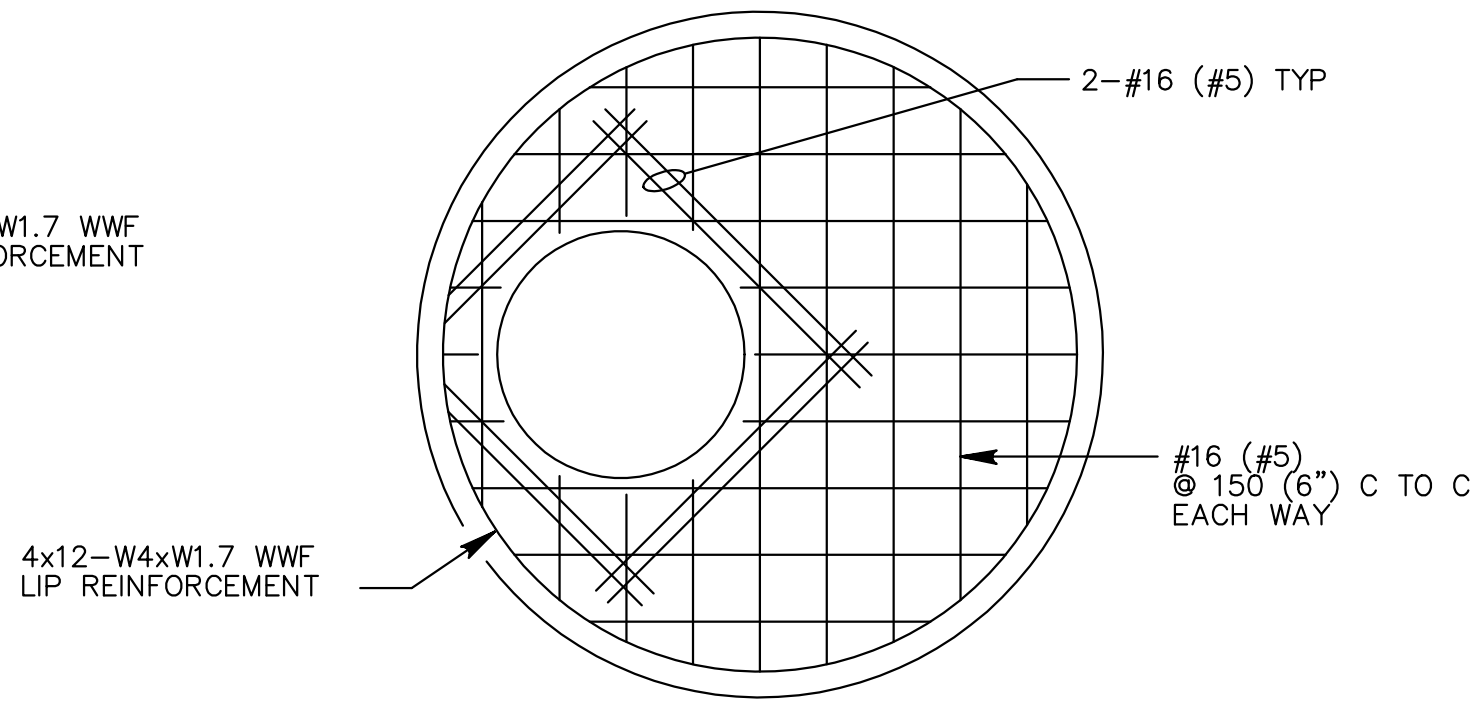
CONCRETE TOP UNIT - TYPE M



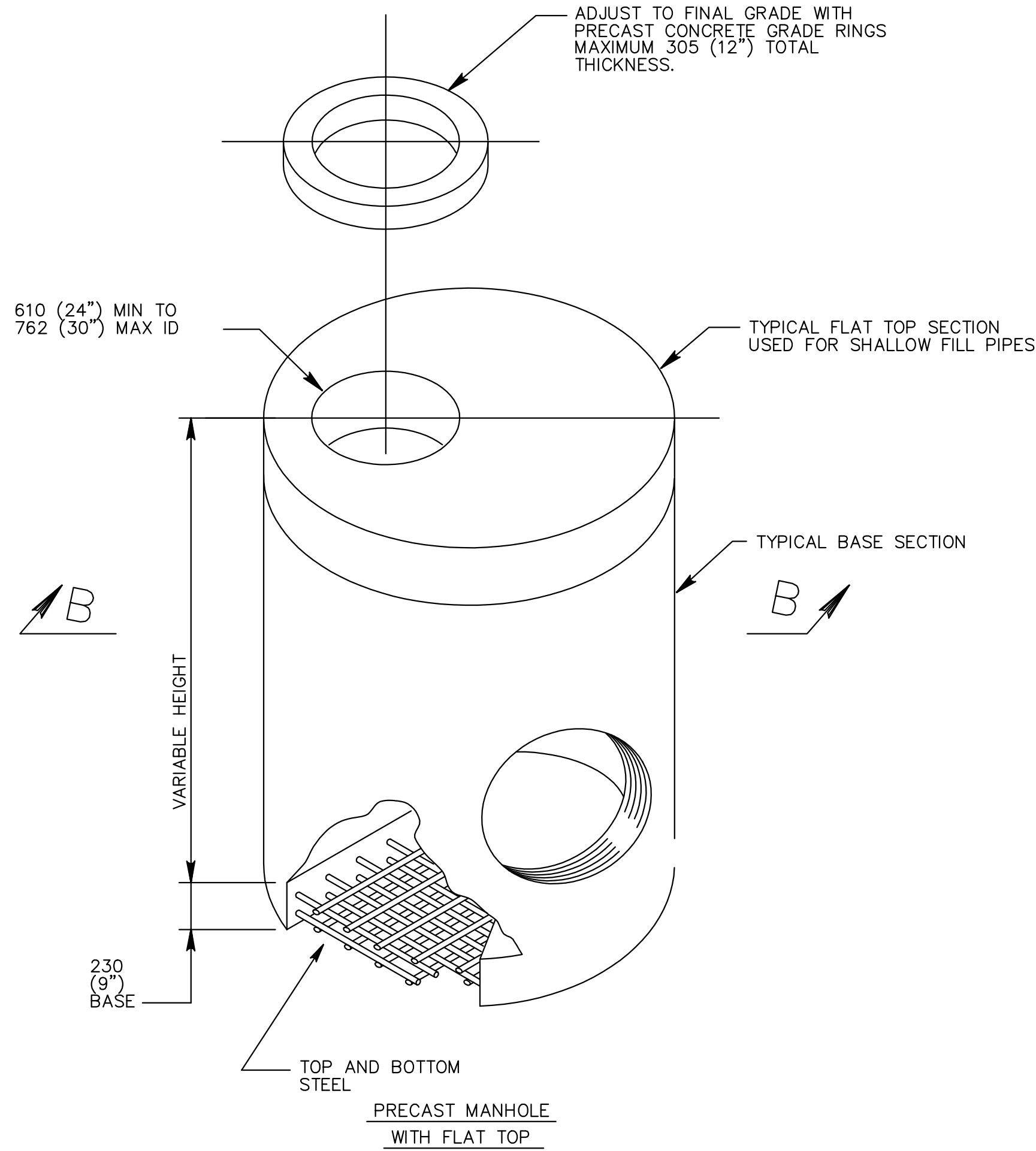
TYPE M INLET
NOT TO SCALE



SECTION B-B



PRECAST MANHOLE
BASE PREPARATION



NOTES

1. PRECAST MANHOLES MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 714, MAY BE SUBSTITUTED FOR THE STANDARD CAST-IN-PLACE MANHOLE. FOR DEVIATION OR MODIFICATION OF THE STANDARDS, SUBMIT SHOP DRAWINGS FOR APPROVAL.
2. PLACE SUBBASE MATERIAL MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 350.2, IN LAYERS 100 (4") THICK, COMPACTED TO A DENSITY SATISFACTORY TO THE ENGINEER AND INCIDENTAL TO THE MANHOLE PAY ITEM.

5
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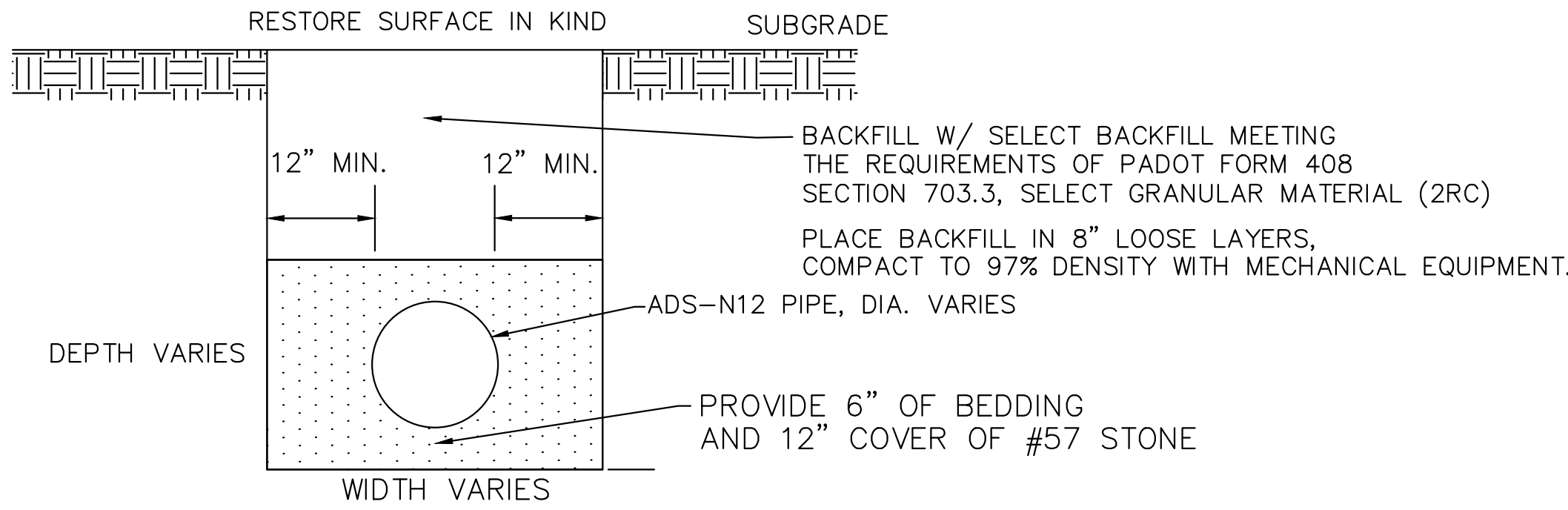
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4	10/18/16	REVISED PER PA DEP REVIEW	GZ

PPP - BECKERSVILLE PUMP STATION
BRECKNOCK TOWNSHIP, BERKS COUNTY

PCSM PLAN - PIPE PROFILES

DATE: 03/11/16
PROJECT NO.: 212IC-PB-00136
DRAWN BY: GZ
CHECKED BY: TC
SCALE: AS NOTED
FILE: BASEPLAN
NAME: CONSTDET5
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TYPICAL STORM SEWER TRENCH (ON PRIVATE PROPERTY) NO SCALE

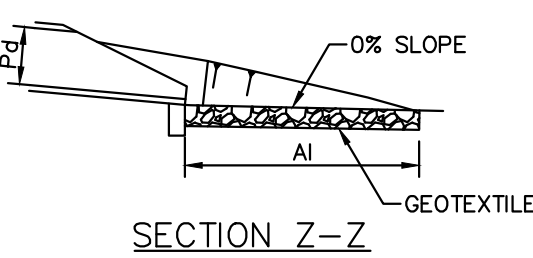
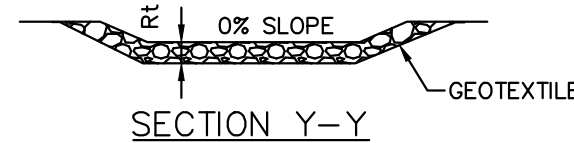
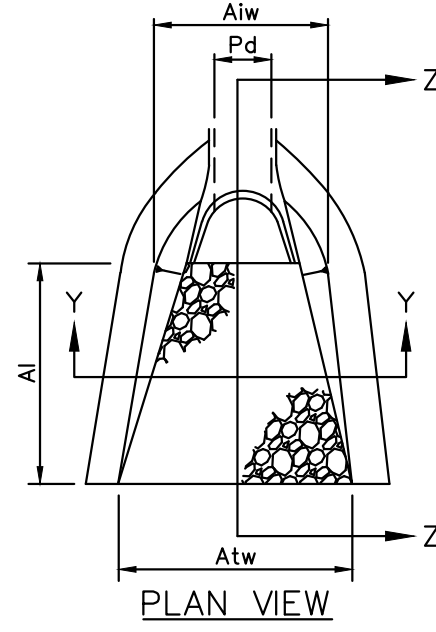
OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE R--	THICK. Rt (IN)	LENGTH Lt (FT)	INITIAL WIDTH Atw (FT)	TERMINAL WIDTH Atw (FT)
RRA-1	15	R-4	18	11	4	15
RRA-2	15	R-4	18	11	4	15
EX. RRA-4	15	R-4	18	8	4	12

NOTES:

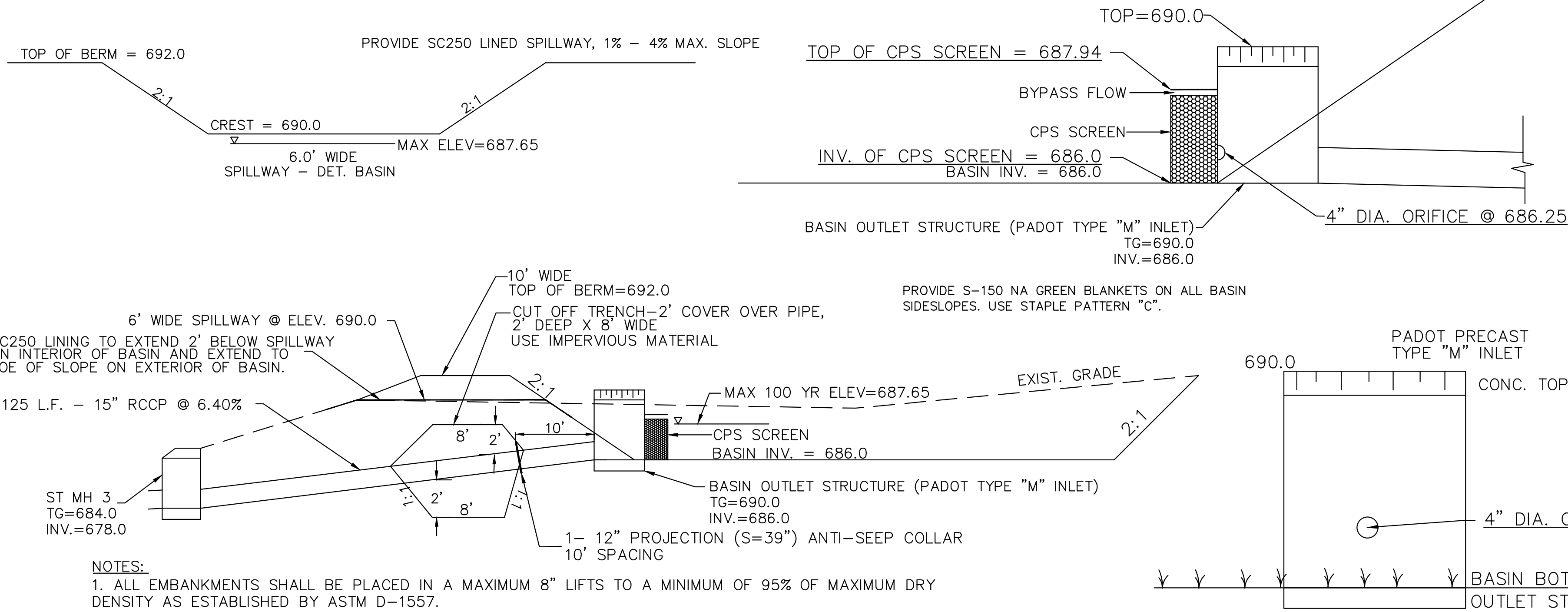
ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

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

PLACE CLASS 2 TYPE B GEOTEXTILE UNDER ALL RIPRAP APRONS.



STANDARD CONSTRUCTION DETAIL #9-1 RIPRAP APRON AT PIPE OUTLET WITH FLARED END SECTION OR ENDWALL NOT TO SCALE



BASIN OUTLET STRUCTURE NO SCALE

- Catch Basins and Inlets (upgradient of basin) should be inspected and cleaned at least two times per year and after major runoff events.
- Vehicles should not be parked or driven on a Basin, and care should be taken to avoid excessive compaction by mowers.
- Inspect the basin after runoff events and make sure that runoff drains down within 72 hours. Mosquito's should not be a problem if the water drains in 72 hours. Mosquitoes require a considerably long breeding period with relatively static water levels.
- Also inspect for accumulation of sediment, damage to outlet control structures, erosion control measures, signs of water contamination/spills, and slope stability in the berms.
- Mow only as appropriate for vegetative cover species.
- Remove accumulated sediment from basin as required. Properly dispose of sediment.

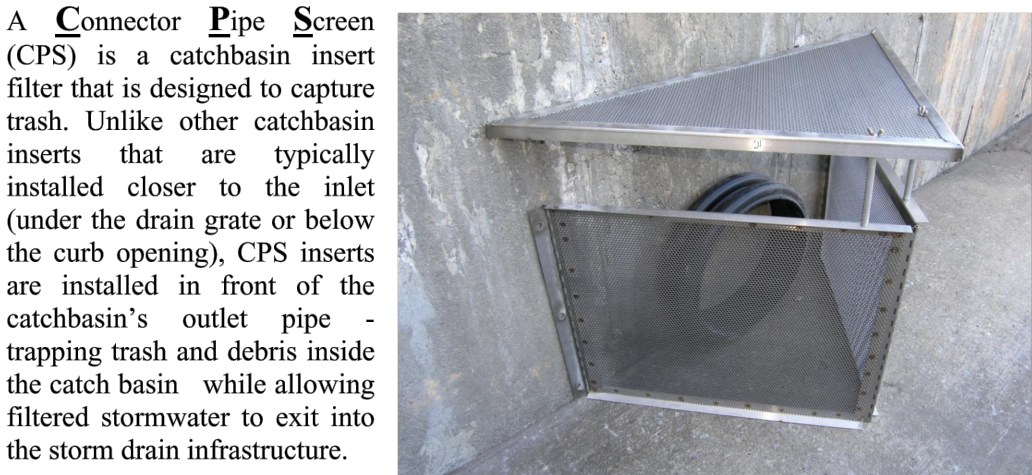
SECTION THRU DETENTION/INFILTRATION BASIN #2 NO SCALE

6	OF	8
www.tetratech.com 1134 TWIN STACKS DRIVE DALLAS, PA 18612 T: (570) 674-8648 F: (570) 674-8651		

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4	10/18/16	REVISED PER PA DEP REVIEW	GZ



Connector Pipe Screen Stormwater filtering technology



CPS insert features:

- Manufactured from perforated, 14 gauge, 304 - Stainless Steel sheets
- Perforations have a 5 millimeter diameter - screen has an open area greater than 50%
- CPS net open area (when converted to an equivalent pipe diameter) exceeds the actual diameter of the outlet pipe leaving the catchbasin - CPS can pass more volume than the outlet pipe it covers
- Overflow / bypass prevents flooding if screen becomes blocked or covered

The CPS is manufactured to cover a specific pipe diameter - its size does not depend on the size of the catchbasin drain. The CPS is a compact, affordable product that is easy to install and adaptable over a wide range of catchbasin sizes and styles. The design utilizes very little space, maximizes the trash storage capacity within the catchbasin and allows for easy maintenance.

Fabco Industries, Inc - 66 Central Ave, Farmingdale, NY 11735 - T: 631-393-6024 - www.fabco-industries.com

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NOTES:

- WEIGHT: 35-LBS

2. MATERIAL:

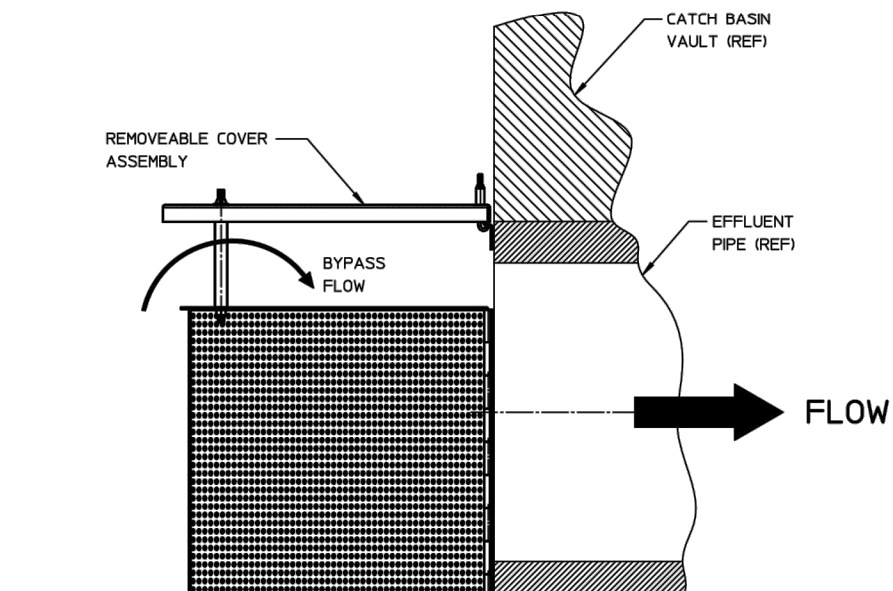
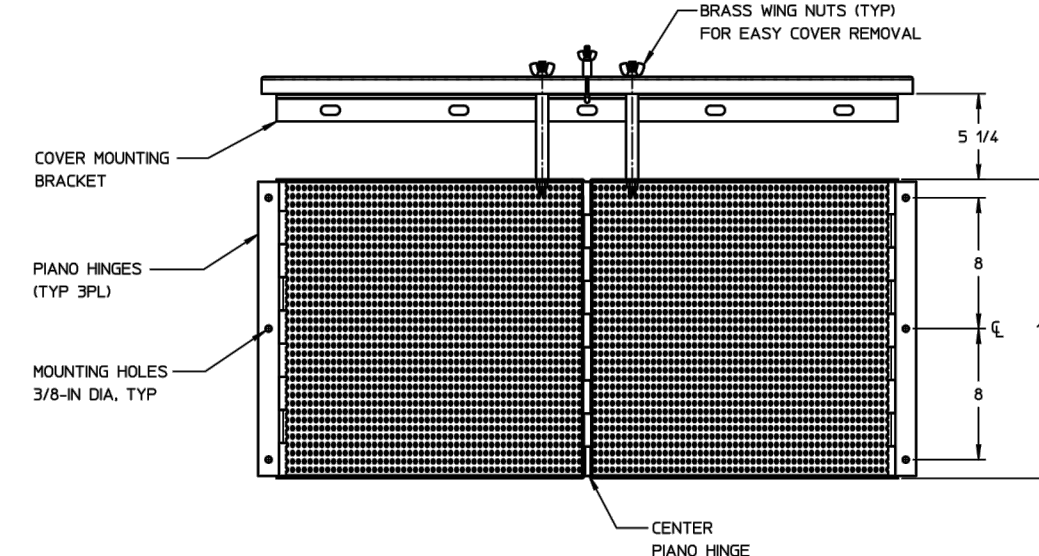
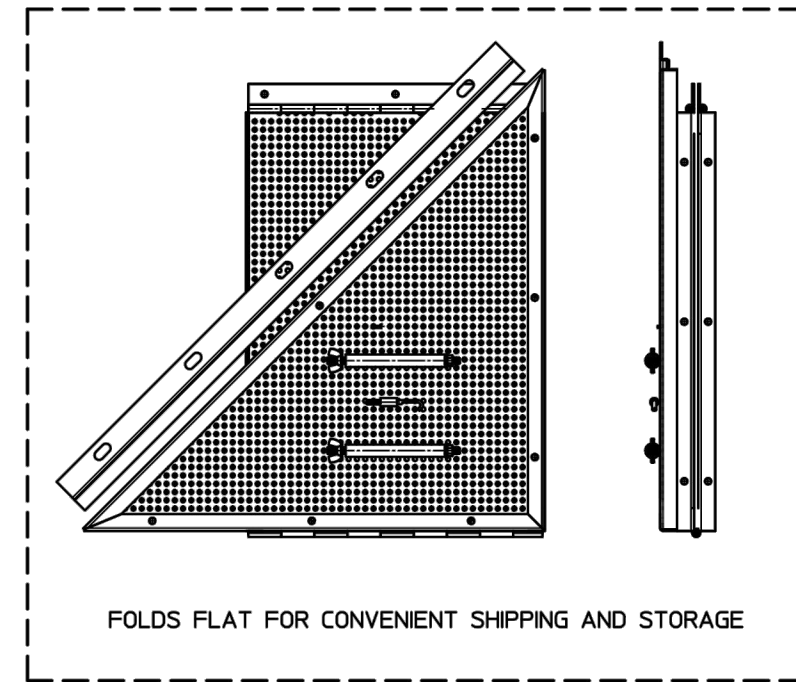
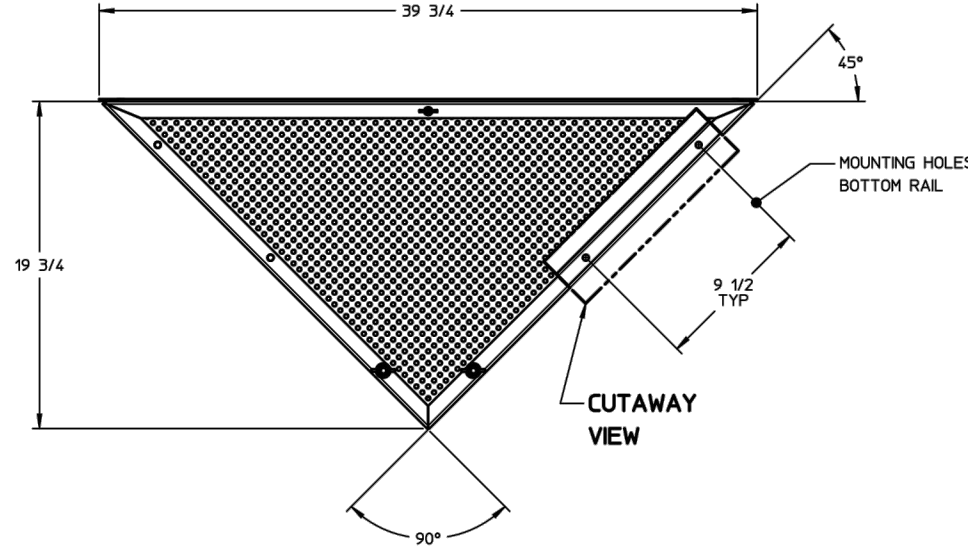
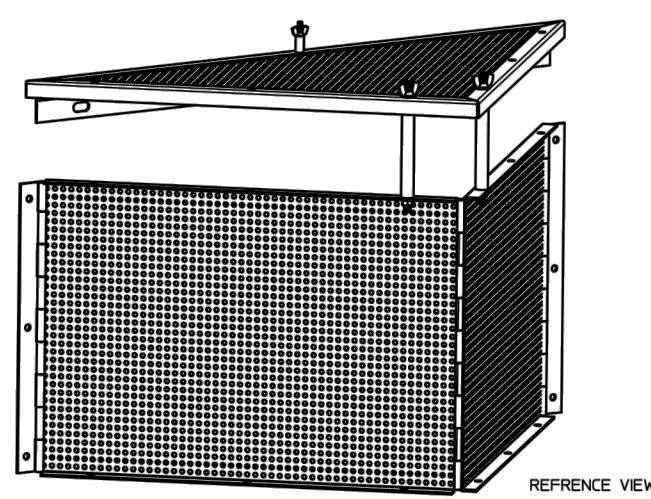
- 14-GA STAINLESS STEEL 5mm HOLES
- STAGGERED CONFIGURATION, 50% OPEN AREA
- FRAME ASSEMBLY WELDED
- 300 SERIES STAINLESS STEEL
- HINGES: 300 SERIES STAINLESS STEEL PLANO HINGE WELDED TO FRAME AND PLATE
- HARDWARE: COVER SUPPORT: 3/8-16 THREADED ROD W/ BRASS WING NUTS AND WING SPACERS CONCRETE STRIKE ANCHORS, ZINC PLATED CRS

3. PERFORMANCE CHARACTERISTICS:

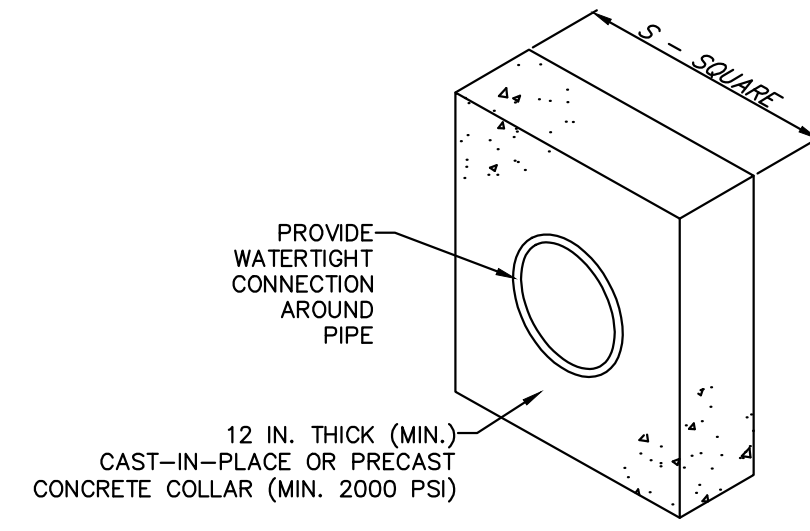
- FLOW RATE PERFORATED PLATES: 5520 GPM (12.3 CFS)
- BYPASS FLOW RATE: 300 GPM (4.0 CFS)
- PARTICLE SIZE RETENTION: <0.075-IN (45-micron)

- INSTALLATION: LOCATE AND MOUNT THE CPS BASE SCREEN TO THE CATCH BASIN WALL AND FLOOR JUST IN FRONT OF THE EFFLUENT PIPE USING THE CONCRETE STRIKE ANCHORS PROVIDED. THE THREE (3) PLANO HINGES ALLOW GREATER FLEXIBILITY FOR IRREGULAR CATCH BASIN SURFACES. ATTACH THE COVER MOUNTING BRACKET ABOVE THE BASE SCREEN AS SHOWN. THEN USING THE SPACER HARDWARE, CONNECT THE REMOVABLE COVER ASSEMBLY.

- CPS CONFIGURATIONS FOR LARGER, SMALLER, CORNER AND RAISED EFFLUENT PIPES ARE ALSO AVAILABLE.



NO.	DATE	PART NUMBER	DESCRIPTION	REVISIONS
1	03/11/16	00020-3	CPS DEVICE ASSEMBLY, 18"	
2	03/11/16	00020-3	00020-3	
3	03/11/16	00020-3	00020-3	
4	03/11/16	00020-3	00020-3	
5	03/11/16	00020-3	00020-3	
6	03/11/16	00020-3	00020-3	
7	03/11/16	00020-3	00020-3	
8	03/11/16	00020-3	00020-3	
9	03/11/16	00020-3	00020-3	
10	03/11/16	00020-3	00020-3	
11	03/11/16	00020-3	00020-3	
12	03/11/16	00020-3	00020-3	
13	03/11/16	00020-3	00020-3	
14	03/11/16	00020-3	00020-3	
15	03/11/16	00020-3	00020-3	
16	03/11/16	00020-3	00020-3	
17	03/11/16	00020-3	00020-3	
18	03/11/16	00020-3	00020-3	
19	03/11/16	00020-3	00020-3	
20	03/11/16	00020-3	00020-3	

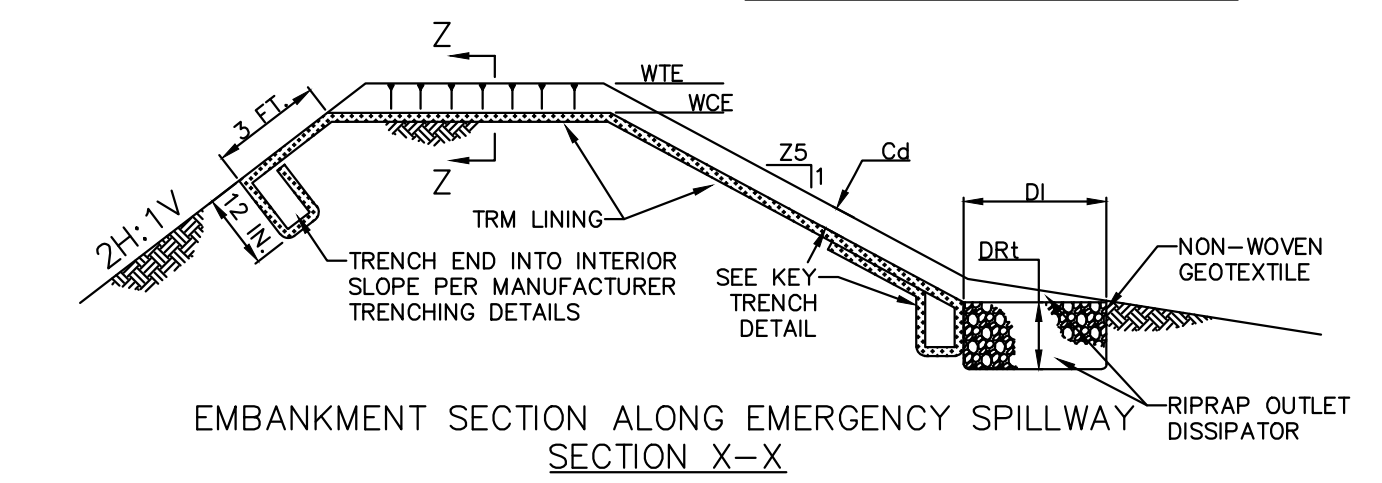
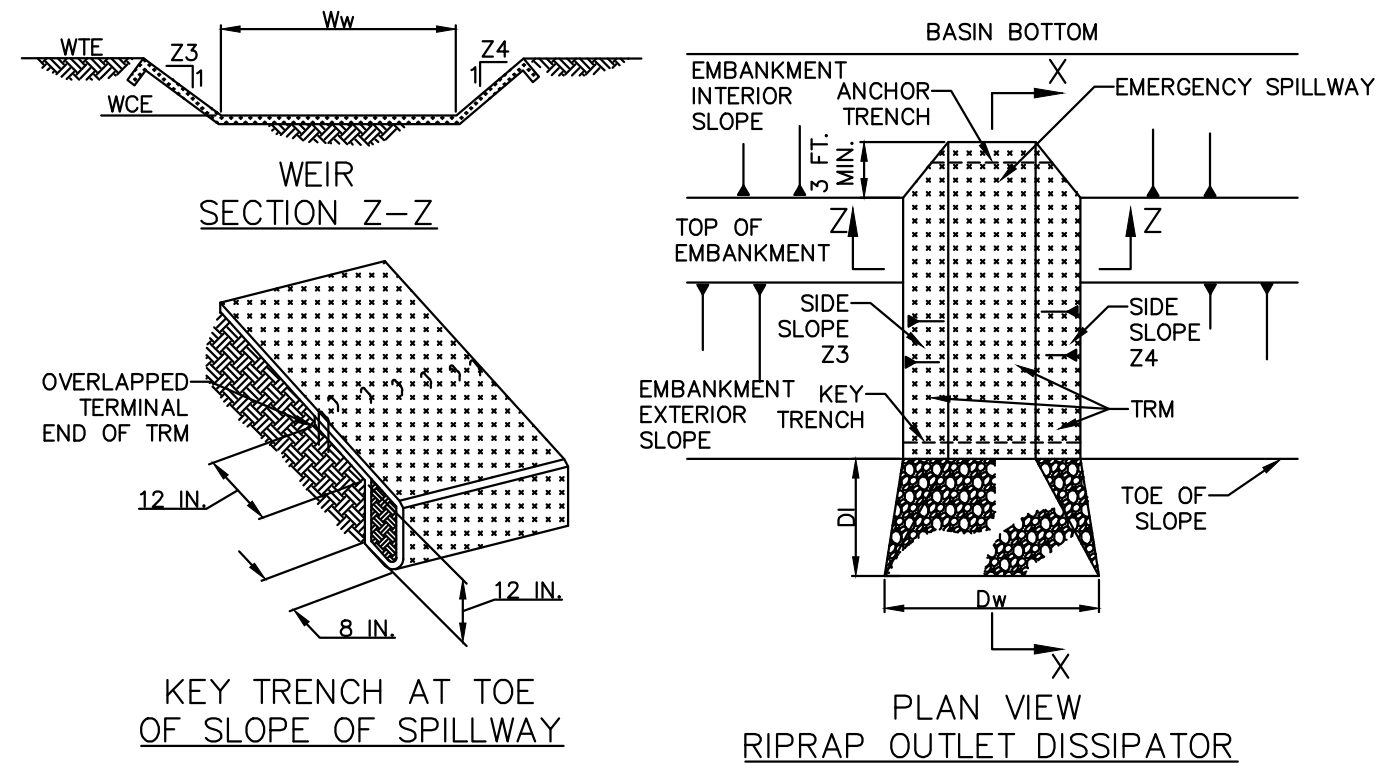


BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	RISER TO FIRST COLLAR (FT)	COLLAR SPACING (FT)
1	15	39	1	10	N/A

NOTES:

- ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATER TIGHT.
- COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.
- DO NOT CONSTRUCT WITH 2' OF A PIPE JOINT.

STANDARD CONSTRUCTION DETAIL #7-16 CONCRETE ANTI-SEEP COLLAR FOR PERMANENT BASINS OR TRAPS NOT TO SCALE



BASIN NO.	WEIR					LINING		CHANNEL		DISSIPATOR			
	Z3 (FT)	Z4 (FT)	TOP ELEV WTE (FT)	CREST ELEV WCE (FT)	WIDTH Ww (FT)	TRM TYPE	STAPLE PATTERN	Z5 (FT)	DEPTH Cd (FT)	LENGTH Lt (FT)	WIDTH Dw (FT)	RIPRAP SIZE (R-)	RIPRAP THICK. DRL (IN)
2	2	2	692.0	690.0	6.0	SC250	"E"	12	2.0	8	12	R-4	18

NOTES:

- HEAVY EQUIPMENT SHALL NOT CROSS OVER SPILLWAY WITHOUT PRECAUTIONS TAKEN TO PROTECT TRM LINING.
- DISPLACED LINER WITHIN THE SPILLWAY AND/OR OUTLET CHANNEL SHALL BE REPLACED IMMEDIATELY.
- RIPRAP AT TOE OF EMBANKMENT SHALL BE EXTENDED A SUFFICIENT LENGTH IN BOTH DIRECTIONS TO PREVENT SCOUR.
- THE USE OF BAFFLES THAT REQUIRE SUPPORT POSTS ARE RESTRICTED FROM USE IN BASINS REQUIRING IMPERVIOUS LINERS.

STANDARD CONSTRUCTION DETAIL #7-13 BASIN EMERGENCY SPILLWAY WITH TRM LINING NOT TO SCALE

PPP - BECKERSVILLE PUMP STATION
BRECKNOCK TOWNSHIP, BERKS COUNTY

PCSM PLAN - CONSTRUCTION DETAILS

DATE: 03/11/16
PROJECT NO.: 2121C-PB-00136
DRAWN BY: GZ
CHECKED BY: TC
SCALE: AS NOTED
FILE: BASEPLAN
NAME: CONSTDET6
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Construction Sequence:

1. Install all temporary erosion and sedimentation controls.
- a. The area immediately adjacent to the basin must be stabilized in accordance with the PADEP's Erosion and Sediment Pollution Control Program Manual (2000 or latest edition) prior to basin construction.
2. Prepare site for excavation and/or embankment construction.
- a. All existing vegetation should remain if feasible and should only be removed if necessary for construction.
- b. Care should be taken to prevent compaction of the basin bottom.
- c. If excavation is required, clear the area to be excavated of all vegetation. Remove all tree roots, rocks, and boulders only in excavation area.
3. Excavate bottom of basin to desired elevation (if necessary).
4. **PROFESSIONAL OVERSIGHT REQUIRED:** Install cutoff trench, basin outlet pipe, anti-seep collar. Backfill of outlet pipe is critical to basin function as an impounding structure. Compact surrounding embankments and inlet and outlet control structures.
5. Grade subsoil in bottom of basin, taking care to prevent compaction. Compact surrounding embankment areas and around inlet and outlet structures.
6. Apply and grade planting soil.
7. Apply geo-textiles and other erosion-control measures. Install CPS screen on outlet structure.
8. Seed, plant and mulch according to Planting Plan
9. Install any anti-grazing measures, if necessary.

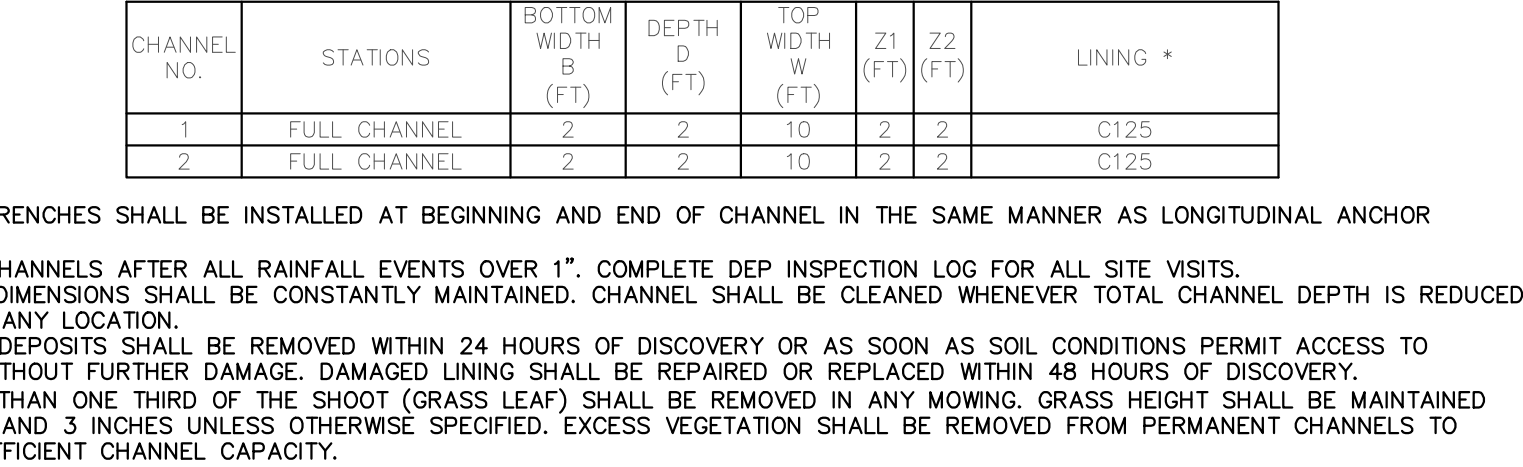
Maintenance is necessary to ensure proper functionality of the basin and should take place on a quarterly basis. A basin maintenance plan should be developed which includes the following measures:

- All basin structures expected to receive and/or trap debris and sediment should be inspected for clogging and excessive debris and sediment accumulation at least four times per year, as well as after every storm greater than 1 inch.
- Structures include basin bottoms, trash racks, outlets structures, riprap or gabion structures, CPS screen and inlets.
- Sediment removal should be conducted when the basin is completely dry. Sediment should be disposed of properly and once sediment is removed, disturbed areas need to be immediately stabilized and revegetated.
- Mowing and/or trimming of vegetation should be performed as necessary to sustain the system, but all detritus should be removed from the basin.
- Vegetated areas should be inspected annually for erosion.
- Vegetated areas should be inspected annually for unwanted growth of exotic/invasive species.
- Vegetative cover should be maintained at a minimum of 95 percent. If vegetative cover has been reduced by 10%, vegetation should be reestablished.

The following specifications are provided for information purposes only. These specifications include information on acceptable materials for typical applications, but are by no means exclusive or limiting.

- a. All excavation areas, embankments, and where structures are to be installed shall be cleared and grubbed as necessary, but trees and existing vegetation should be retained and incorporated within the basin area where possible.
- b. Where feasible, trees and other native vegetation should be protected. A minimum 10-foot radius around the inlet and outlet structures can be cleared to allow construction.
- c. Any cleared material should be used as mulch for erosion control or soil stabilization.
- d. Care should be taken to prevent compaction of the bottom of the basin. If compaction should occur, soils should be restored and amended.
2. Earth Fill Material & Placement
 - a. The fill material should be taken from approved designated excavation areas. It should be free of roots, stumps, wood, rubbish, stones greater than 6 inches, or other objectionable materials. Materials on the outer surface of the embankment must have the capability to support vegetation.
 - b. Areas where fill is to be placed should be scarified prior to placement. Fill materials for the embankment should be placed in maximum 8-inch lifts. The principal spillway should be installed concurrently with fill placement and not excavated into the embankment.
 - c. The movement of the hauling and spreading equipment over the site should be controlled. For the embankment, each lift should be compacted to 95% of the standard proctor. Fill material should contain sufficient moisture so that if formed in to a ball it will not crumble, yet not be so wet that water can be squeezed out.
3. Embankment Core
 - a. The core should be parallel to the centerline of the embankment as shown on the plans. The top width of the core should be at least four feet. The height should extend up to at least the 10-year water elevation or as shown on the plans. The side slopes should be 1 to 1 or flatter. The core should be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. The core should be placed concurrently with the outer shell of the embankment.
4. Structure Backfill
 - a. Backfill adjacent to pipes and structures should be of the type and quality conforming to that specified for the adjoining fill material. The fill should be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material should fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation should driven equipment be allowed to operate closer than four feet to any part of the structure. Equipment should not be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24 inches or greater over the structure or pipe.
 - b. Structure backfill may be flowable fill meeting the requirements of the PADOT Standard Specifications for Construction. Material should be placed so that a minimum of 6 inches of flowable fill should be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill material should be 7 inches to assure flowability of the mixture. Adequate measures should be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill all metal pipe should be bituminous coated. Adjoining soil fill should be placed in horizontal layers not to exceed 4 inches in thickness and compacted by hand tampers or other manually directed compaction equipment.
- c. Refer to Chapter 220 Of PennDot Pub. 408 (2000).
5. Rock Riprap
 - a. Rock riprap should meet the requirements of Pennsylvania Department of Transportation Standard Specifications.
6. Stabilization
 - a. All borrow areas should be graded to provide proper drainage and left in good condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms should be stabilized by seeding, planting and mulching.

1. Inspect basins and riprap aprons every quarter and after all rainfall events over 1".
2. After 1" rainfalls, note on the inspection log the approximate depth of water in the basin and if any flow was evident through the outlet structure. Note the time needed for complete dewatering of the basin.
3. If complete dewatering of the BASIN in 72 hours is not achieved for several 1" rainstorms, complete tilling of the bottom of the basin. Scarify the bottom of the basin to a depth of 12".
4. If the basin continues to have standing water after 72 hours, consult with the original design Engineer to determine a reasonable repair, which may include installation of a perforated underdrain in the basin bottom.
5. All washouts on slopes shall be repaired immediately.
6. All sediment shall be removed from the basin or outlet structure and disposed of in a proper manner.
7. Cut vegetation on a regular basis. Do not travel on basin bottom.
8. The basin outlet pipe shall be inspected quarterly for noticeable sediment in the pipe and to insure that the pipe remains tightly sealed to the basin outlet structure.
9. The emergency spillway will be kept clear of debris and tree growth.
10. The likelihood of basin replacement is slim; however, if the total reconstruction of the basin is necessary, the original design engineer should be notified to investigate the cause of the basin failure, so that steps can be taken to avoid a repeat.
11. If riprap aprons continue to wash out and stone becomes dislodged on several occasions, remove old stone and place the next greater size riprap (R-5) in its place. Increase the size of the thickness of the stone to accommodate the increased size stone.
12. The Owner must prepare a written report for every on-site inspection. Use DEP Form 3150-FM-BWEW0083, dated 2/2012. (Visual Site Inspection Report)



C

2"-5" (5-12.5cm)

4' (1.2m)

2' (0.6m)

1.6' (0.5m)

3.3' (1m)

1.7 Staples per SQ.YD.

D

2"-5" (5-12.5cm)

4' (1.2m)

2' (0.6m)

20" (0.5m)

3.3' (1m)

3.4 Staples per SQ.YD.

E

2"-5" (5-12.5cm)

4' (1.2m)

2' (0.6m)

20" (0.5m)

10" (25cm)

3.3' (1m)

3.75 Staples per SQ.YD.

24'

AGGREGATE SURFACE, SEE DETAIL

2%

2

1

FILL SLOPE

COMPACTED SUBGRADE

24' WIDE AGGREGATE ACCESS ROAD DETAIL

NOT TO SCALE

4" 2A STONE (PADOT)

8 OZ./SQ. YD. WOVEN SEPARATION FABRIC

6" AASHTO #1 STONE

COMPACTED SUBGRADE

AGGREGATE SURFACE FOR PUMP STA. PAD & ACCESS ROAD

NOT TO SCALE

1. The Contractor shall notify the Berks County Conservation District at least 3 days prior to the start of earthwork.
2. (610-372-4657) ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE. At least 7 days before starting any earth disturbance activities, the operator shall invite all contractors involved in those activities, the landowner, all appropriate municipal officials, the E & S Plan Preparer and the Conservation District to an on-site meeting. Upon the installation or stabilization of all perimeter sediment control BMP's and at least 3 days prior to proceeding with the bulk earth disturbance activities, the permittee or co-permittee shall provide notification to the Department or authorized Conservation District.
3. 2. Field Mark Disturbance. Waters of the Commonwealth, which include wetlands, streams, spring seeps and all areas shown as Protected Areas on the Existing Conditions Plan, Field mark compost filter sock placement.
3. Install 24" and 32" compost filter sock as indicated on plan.
4. Install stabilized construction entrance.
5. Complete clearing and grubbing of slope, pad area, detention basin and outlet pipe.
6. Any materials removed from the site, and not taken to a permitted landfill, will require a separate Erosion Control Plan submittal. Complete all cut and fill of onsite material. Stabilize all slopes immediately. As grass areas reach final grade, seed and mulch, install S-1500 erosion control blankets on all slopes steeper than 3H:1V.
7. Install diversion pipe and riprap apron. Install proposed inlets, headwall and storm pipes. Place "Siltsocks" in all type "M" inlets.
8. Complete detention/ infiltration basin, outlet pipe and riprap aprons. Stabilize all disturbed areas immediately. PROFESSIONAL OVSIGHT REQUIRED DURING INFILTRATION BASIN CONSTRUCTION, INCLUDING ANTI-SEEP COLLAR AND BASIN OUTLET STRUCTURE/PIPE.
9. Complete pump station NGL piping.
10. Complete topsoil seeding and mulching of remaining disturbed areas.
11. An area shall be considered to have achieved final stabilization when it has a MINIMUM uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding and other movement. After site reaches 70% stabilization, remove and dispose of any remaining compost filter socks in a legal manner. "Siltsocks" can be removed and reused on future phases/ projects. Bags shall be removed and cleaned or replaced when the bag is 1/2 full.
12. All controls must be installed prior to beginning any grading or excavation work on the project. The Permittee/Co-Permittee will be responsible to insure that the controls are installed and functioning as per plan.
13. As soon as the pad area and piping are complete and the site reaches 70% stabilization, install "StormBasin" permanent water quality filters in both inlets #1 and #2.

1. Place compost filter sock as indicated.
2. Material imported to the site will be stockpiled in designated areas and surrounded by 12" high compost filter sock.
3. Sediment removed from control facilities will be stockpiled in designated areas, surrounded by compost filter sock and temporarily seeded. Sediment will be reused for future landscaping.
4. Upon temporary cessation of an earth disturbance or any stage or phase of an activity where a cessation of earth disturbance activities exceed 4 days, the site shall be immediately seeded, mulched or otherwise protected from accelerated erosion and sedimentation pending future earth disturbance activities.
5. Future grass areas should be scarified or otherwise loosened to a depth of 3 inches to 5 inches prior to topsoil placement to permit bonding of the topsoil. Topsoil shall be placed at a minimum of 6" thickness.
6. A stabilized construction entrance will be placed as shown and maintained until the project is complete.
7. Place Siltsocks in all inlets for temporary sediment removal and capture during construction.
8. Place stone subbase over pad and driveway as soon as possible after grading is completed.
9. The total length of excavated trench open at any one time should not be greater than the total length of pipeline/utility line that can be placed in the trench and back-filled in one working day. No more than 50 L.F. of open trench should exist when pipeline/utility line installation ceases at the end of the workday. Complete soil supplements, seeding and mulching within 7 days after the pipeline/utility line is installed.
10. North American Green S-150 erosion control blankets will be placed ON ALL DISTURBED AREA SLOPES AT 3H:1V OR STEEPER.

1. Permanent seeding and mulching specifications are described on plans.
2. Complete seeding and mulching as soon as areas are at grade.
3. Permanent water quality filters (StormBasin) will be installed in both inlets #1 and #2.

1. All BMP's are to be inspected AT LEAST ONCE WEEKLY AND AFTER ALL RUNOFF EVENTS.

2. Retained sediment will be utilized for landscaping.

3. All control facilities will remain in place until final stabilization is complete, SUBJECT TO THE FINAL INSPECTION AND APPROVAL OF THE CONSERVATION DISTRICT. Maintenance must include inspections of all erosion and sedimentation control facilities after each runoff event and on a weekly basis. All preventative and remedial work, including cleanout, repair, replacement, regrading, reseeding, remulching and renetting, must be performed immediately. Any sediment removed from BMP's shall be disposed of in landscaped areas outside of steep slopes, wetlands, floodplains or drainage swales and immediately stabilized or placed in topsoil stockpiles.

4. The Permittee/Co-Permittee will be responsible for inspection and maintenance of facilities during construction. The Permittee (Sunoco Logistics Partners, LP) will be responsible for permanent inspection and maintenance after stabilization is complete. All controls must be installed prior to beginning any grading or excavation work on the project. The Permittee will be responsible to insure that the controls are installed as per plan. BMP'S WILL BE OWNED AND MAINTAINED BY THE PERMITTEE. Maintenance of BMP's will include the following:

- a. Inspect BMP's at least once per month or after any rainfall event over ONE INCH. Remove accumulated sediment and/or garbage that remain in the inlets or basin outlet structures.
- b. Any accumulated sediment within the detention basin will be removed and stockpiled in designated areas, or removed from the site and deposited in an approved landfill or dump area. The StormBasin filters shall be replaced annually or as recommended by the manufacturer.
- c. Inspect BMP's after any rainfall event over ONE INCH. Immediately repair and stabilize any washouts within swales or slope areas. Any gullies that form on surfaces must be immediately repaired with topsoil material, soil supplements, seed and mulch. Do not direct runoff to swales or BMP's until all upstream areas are stable and free from sediment-laden runoff.

5. The permittee and co-permittee(s) must ensure that visual site inspections are conducted weekly, and within 24 hours after each measurable rainfall event throughout the duration of construction and until receipt and acknowledgment of the Notice of Termination by the Department or authorized Conservation District. The visual site inspections and reports shall be completed in a format provided by the Department, and conducted by qualified personnel, trained and experienced in erosion and sediment control, to ascertain that E & S BMP's and PCSM BMP's are properly constructed and maintained to effectively minimize pollution to the waters of the Commonwealth.

6. Project construction wastes and demolition waste shall be disposed of in a legal manner. Individuals responsible for earth disturbance activities must ensure that proper mechanisms are in place to control waste materials. Building and demolition waste (i.e. drywall, wood, masonry blocks, metal, cardboard, pallets) will be transported to either a landfill or licensed recycling facility. Construction wastes include, but are not limited to, excess soil material, building materials, concrete wash water, sanitary wastes, etc., that could adversely impact water quality. Any soil or rock not needed for construction purposes will be stockpiled in designated on-site areas and immediately seeded and mulched. Wherever possible, the use of excess materials is preferred over off-site disposal. Any soil or rock waste or soil borrow areas created off-site will require a separate Erosion Control Plan submission to the appropriate Conservation District.

6. Until the site is stabilized, all erosion and sediment control BMP's must be maintained properly. Maintenance must include inspections of all erosion and sediment control BMP's after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching and renetting must be performed immediately. If erosion and sediment control BMP's fail to perform as expected, replacement BMP's, or modifications of those installed will be required.

7. All excavated material will remain on site, to be used for embankment areas. There will be no removal of soil to other off-site areas unless Form FP-001 is completed for each waste area.

ENVIRONMENTAL DUE DILIGENCE: DEFINITION

Investigative techniques, including but not limited to, visual property inspections, electronic data base searches, review of property ownership, review of property use history, Sanborn Maps, environmental questionnaires, transaction screens, and analytical testing.

Analytical testing is not a required part of due diligence unless visual inspection and/or review of the past land use of the property indicates that the fill may have been subjected to a spill or release of regulated substance. If the fill may have been affected by a spill or release of a regulated substance, it must be tested to determine if it qualifies as a clean fill. Testing should be performed in accordance with Appendix A of the Department's policy "Management of Fill". Fill Material that does not qualify as clean fill is regulated fill. Regulated fill is waste and must be managed in accordance with the Department's municipal or residual waste regulations based on 25 Pa. Code Chapters 287 Residual Waste Management or 217 Municipal Waste Management, whichever is applicable.

DEFINITION: CLEAN FILL IS DESCRIBED AS: Uncontaminated, non-water soluble, non-decomposable, inert, solid material, used asphalt, and brick, block or concrete from construction or demolition activities that is separate from other waste and is recognizable as such. The term does not include materials placed in or on the waters of the Commonwealth unless otherwise authorized. (The term 'used asphalt' does not include milled asphalt or asphalt that has been processed for re-use.)

IMPACT TO DOWNSTREAM WATERCOURSES
The impact to downstream watercourses is minimal. All runoff from the project is directed to an existing unnamed tributary to Muddy Creek, within the Sunoco parcel.

7

OF

8

Tt

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1134 TWIN STACKS DRIVE
DALLAS, PA 18612
T: (570) 674-8648 | F: (570) 674-8651

MARK	DATE	DESCRIPTION	BY
1	4/22/16	REVISED PER EXISTING SURVEY	GZ
2	5/13/16	REVISED PER LTL LETTER (4/20/16)	GZ
3	7/01/16	REVISED PER LTL LETTER (6/7/16)	GZ
4	10/18/16	REVISED PER PA DEP REVIEW	GZ

PPP – BECKERSVILLE PUMP STATION
BRECKNOCK TOWNSHIP, BERKS COUNTY

PCSM PLAN – CONSTRUCTION DETAILS

DATE: 03/11/16
PROJECT NO.: 2121C-PB-00136
DRAWN BY: GZ
CHECKED BY: TC
SCALE: AS NOTED
FILE: BASEPLAN
NAME: CONSTDET7
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