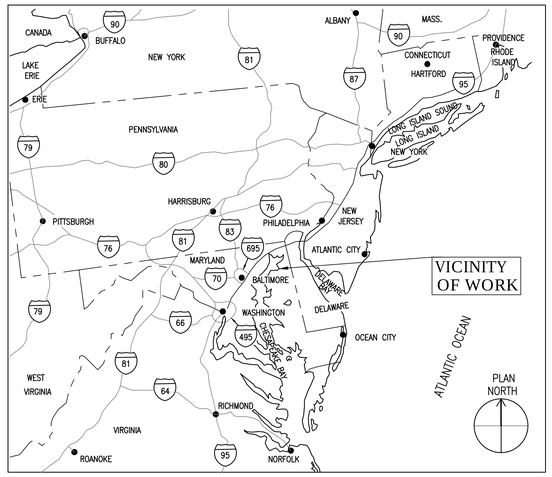
PEARCE CREEK CONFINED DISPOSAL FACILITY MODIFICATIONS

DELAWARE RIVER TO CHESAPEAKE BAY DELAWARE AND MARYLAND

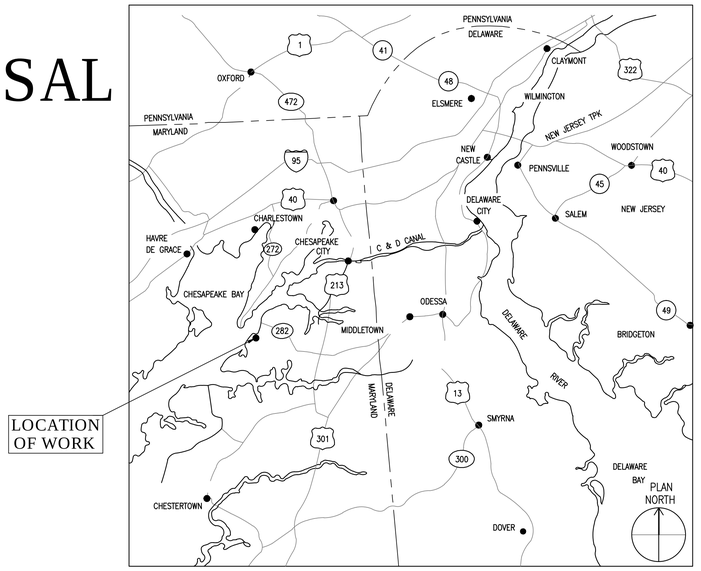
IFB W912BU-1X-XXXX



VICINITY MAP

0 25 50 100

SCALE IN MILES



LOCATION MAP

5 0 5 10 20

SCALE IN MILES

DRAWING INDEX	
SHEET NUMBER	DESCRIPTION
GENERAL	
CS-100	COVER SHEET
C-001	GENERAL INFORMATION SHEET
CIVIL	
C-100	GENERAL PLAN
C-101	DEMOLITION PLAN
C-102	PEARCE CREEK CONFINED DISPOSAL FACILITY PLAN
C-103	GRADING PLAN
C-104	OUTFLOW PIPES PLAN AND PROFILE
C-200	DETAILS
C-201	DETAILS
C-202	DETAILS
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EROSION CONTROL	
CE-500	SOIL EROSION CONTROL PLAN
CE-501	SOIL EROSION CONTROL PLAN NOTES
CE-502	SOIL EROSION CONTROL PLAN NOTES
CE-503	SOIL EROSION CONTROL PLAN DETAILS
CE-504	SOIL EROSION CONTROL PLAN DETAILS

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SUBMITTED:

JOSE R. ALVAREZ, P.E.
CHIEF, ENGINEERING BRANCH

APPROVED:

PETER M. TRANCHIK, P.E.
CHIEF, ENGINEERING AND CONSTRUCTION DIVISION

US Army Corps of Engineers
Philadelphia District

NUMBER	ACTION	BY	DATE	DESCRIPTION
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

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PHILADELPHIA, PA 19107-3390
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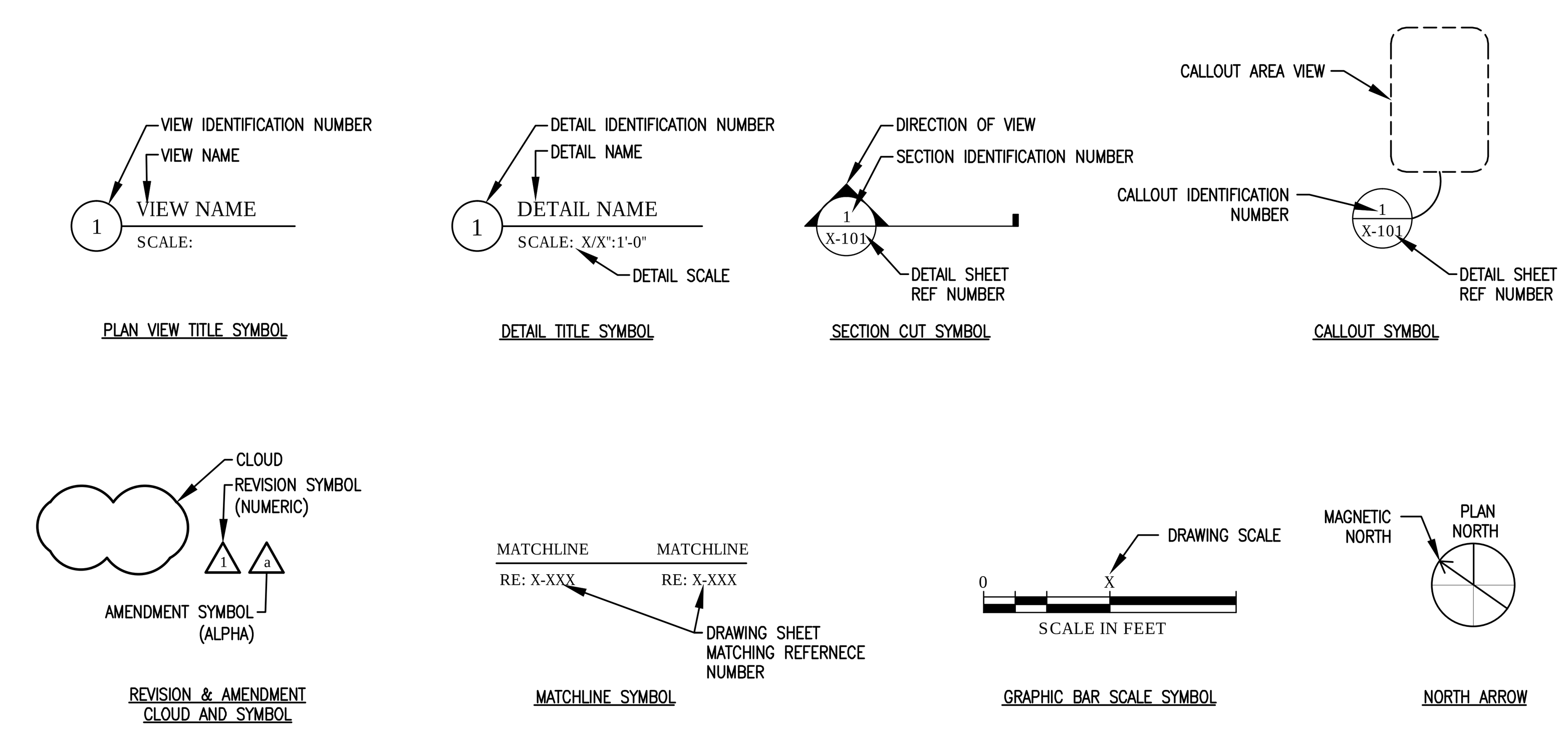
DWN BY: SJP
CKD BY: DAA
DESIGNED BY: EMF / SJP
REVIEWED BY: COL TSH
ISSUE/RELEASE DATE: 30% 30 JUN 14
PROJ. NUMBER:
SOLICITATION NUMBER: IFB W912BU-1X-XXXX
CONTRACT NUMBER:
DWG. SCALE: SEE PLANS
DWG. SIZE: 30"x42" ANSI D
FILE NAME: CS-100.DWG

DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS
COVER SHEET

SHEET NUMBER
CS-100

SYMBOLS, ABBREVIATIONS AND GENERAL NOTES

DRAWING SHEET SYMBOLS



ABBREVIATIONS					
ABBRV	DESCRIPTION	ABBRV	DESCRIPTION	ABBRV	DESCRIPTION
AD	AREA DRAIN	FF	FINISHED FLOOR	PSF	POUNDS PER SQUARE FOOT
ADDL	ADDITIONAL	FIN	FINISH	PSI	POUNDS PER SQUARE INCH
AFF	ABOVE FINISHED FLOOR	FL	FLOOR	PVI	
BD	BOARD	FM	FORCE MAIN	RAD	RADIUS
BIT	BITUMINOUS	FT	FOOT, FEET	REINF	REINFORCEMENT
BL	BASE LINE	FTG	FOOTING	REM	REMOVABLE
BLDG	BUILDING	G	GROUND	ROW	RIGHT OF WAY
BM	BEAM	GOVT	GOVERNMENT	S	SOUTH
BMP	BEST MANAGEMENT PRACTICE	GR	GRADE	SCH	SCHEDULE
BOT	BOTTOM	HORIZ	HORIZONTAL	SECT	SECTION
BVCE	BEGINNING OF VERTICAL CURVE ELEVATION	HS	HIGH STRENGTH	SPEC	SPECIFICATION
BVCS	BEGINNING OF VERTICAL CURVE STATION	HT	HEIGHT	SPRT	SUPPORT
CMU	CONCRETE MASONRY UNIT	HVY	HEAVY	SQ	SQUARE
CO	CLEAN OUT	IN	INCH	SST	STAINLESS STEEL
COL	COLUMN	INSUL	INSULATION, INSULATED	STA	STATION
CONC	CONCRETE	IINT	INTERIOR	STD	STANDARD
CONSTR	CONSTRUCTION	INV	INVERT	STRUCT	STRUCTURAL
CONT	CONTINUOUS	LL	LIVE LOAD	SUSP	SUSPENDED
CTRL	CONTROL	LLDPE	LINEAR LOW DENSITY POLYETHYLENE	SYS	SYSTEM
CWL	CONTRACTOR WORK LIMITS	LP	LOW POINT	TEMP	TEMPORARY
DET	DETAIL	LT		TD	TRENCH DRAIN
DGA	DENSE GRADED AGGREGATE	LVC	LENGTH OF VERTICAL CURVE	TDO	TRENCH DRAIN OUTLET PIPE
DIA	DIAMETER	JCT	JUNCTION	TELE	TELEPHONE
DIM	DIMENSION	MATL	MATERIAL	TOPO	TOPOGRAPHY
DL	DEAD LOAD	MAX	MAXIMUM	TYP	TYPICAL
DWG	DRAWING	MIN	MINIMUM	UD	UNDERDRAIN
E	EAST	MISC	MISCELLANEOUS	UDO	UNDERDRAIN OUTLET PIPE
EA	EACH	N	NORTH	UE	UNDERGROUND ELECTRIC
ECM	EROSION CONTROL MAT	NLT	NOT LESS THAN	UGND	UNDERGROUND
EJ	EXPANSION JOINT	NTS	NOT TO SCALE	UNO	UNLESS NOTED OTHERWISE
EL	ELEVATION	OC	ORIGINAL CONSTRUCTION	UOP	UNDERDRAIN OUTLET PIPE
ELEC	ELECTRIC	OD	OUTSIDE DIAMETER	UXO	UNEXPLODED ORDINANCE
EOP	EDGE OF PAVEMENT	OH	OVERHEAD	VB	VINYL BASE
EOS	EDGE OF SHOULDER	OPG	OPENING	VC	VERTICAL CURVE
EQ	EQUAL	OPP	OPPOSITE	VCT	VINYL COMPOSITION TILE
EQUIP	EQUIPMENT	PC	POINT OF CURVE	VOL	VOLUME
EXH	EXHAUST	PD	PAVEMENT DRAIN	VERT	VERTICAL
EXIST	EXISTING	PI	POINT OF INFLECTION	VTR	VENT THROUGH ROOF
EXP	EXPANSION, EXPOSED	PI	POINT OF INFLECTION	W/	WITH
EXP JT	EXPANSION JOINT	PIV	POINT OF VERTICAL INFLECTION	W	WEST
EXT	EXTERIOR	POT	POINT OF TANGENT	WL	WATER LEVEL
FIG	FIGURE SINGLE	PMP	PROBABLE MAXIMUM PRECIPITATION	WS	WATER SURFACE
FDTN	FOUNDATION	PNL	PANEL	W/O	WITHOUT

GENERAL NOTES:

1. TOPO SHOWN WAS DEVELOPED USING LIDAR DATA FROM 2014.
2. HORIZONTAL CONTROL IS REFERENCED TO NORTH AMERICAN DATUM (NAD) 1983, MARYLAND STATE PLANE, U.S. FOOT.
3. VERTICAL CONTROL IS REFERENCED TO NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.

CIVIL AND SITEWORK LEGEND

- EXISTING MAJOR CONTOUR — 35
- EXISTING MINOR CONTOUR
- MINOR CONTOUR
- MAJOR CONTOUR W/ ELEVATION — 35
- EXISTING ACCESS ROAD
- ACCESS ROAD
- EXISTING GROUND
- BAFFLE DIKE TO BE CONSTRUCTED
- 4" PERFORATED GAS VENTING PIPE
- LIMIT OF DISTURBANCE — LOD
- CONTRACTOR STAGING AND STORAGE AREA
- SILT FENCE — SF
- SUPER SILT FENCE — SSF

PLAN SYMBOLS LEGEND

- COORDINATE MARKER
- EXISTING MONITORING WELL (ABANDONED BY OTHERS) — CSW-2
- EXISTING MONITORING WELL — CSW-6
- EXISTING BORING, DATED 1988 — CSB-1 - 28
- EXISTING BORING, DATED 1998 — TB-5
- EXISTING BORING, DATED 2013 — CSB-29 - 37
- EXISTING DILATOMETER SOUNDINGS — DMT-6
- EXISTING BUILDING
- MONITORING WELL (BY OTHERS) — CSW-30
- METHANE VENT PIPE RISER WITH NUMBER
- DEMOLITION
- EROSION PROTECTION/RIPRAP
- SETTLEMENT PLATE
- PROTECTIVE FILL
- DREDGED MATERIAL
- CONCRETE
- OPEN-GRADED AGGREGATE
- #57 STONE
- STABILIZED CONSTRUCTION ENTRANCE WITH WASH RACK

US Army Corps of Engineers
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MARK	ACTION	DATE	BY
-	-	-	-

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CKD BY: DAN	REVIEWED BY: DCL / TEH	PROJ. NUMBER: -
		SOLICITATION NUMBER: IFB W912BU-1X-XXXX
DWG SCALE: NTS		CONTRACT NUMBER: -
DWG. SIZE: 30"x42" Arch E1	FILE NAME: C-001.dwg	

DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS

GENERAL INFORMATION SHEET

SHEET NUMBER
C-001

1 GENERAL PLAN
SCALE: AS SHOWN

0 1750 3500 7000
SCALE IN FEET

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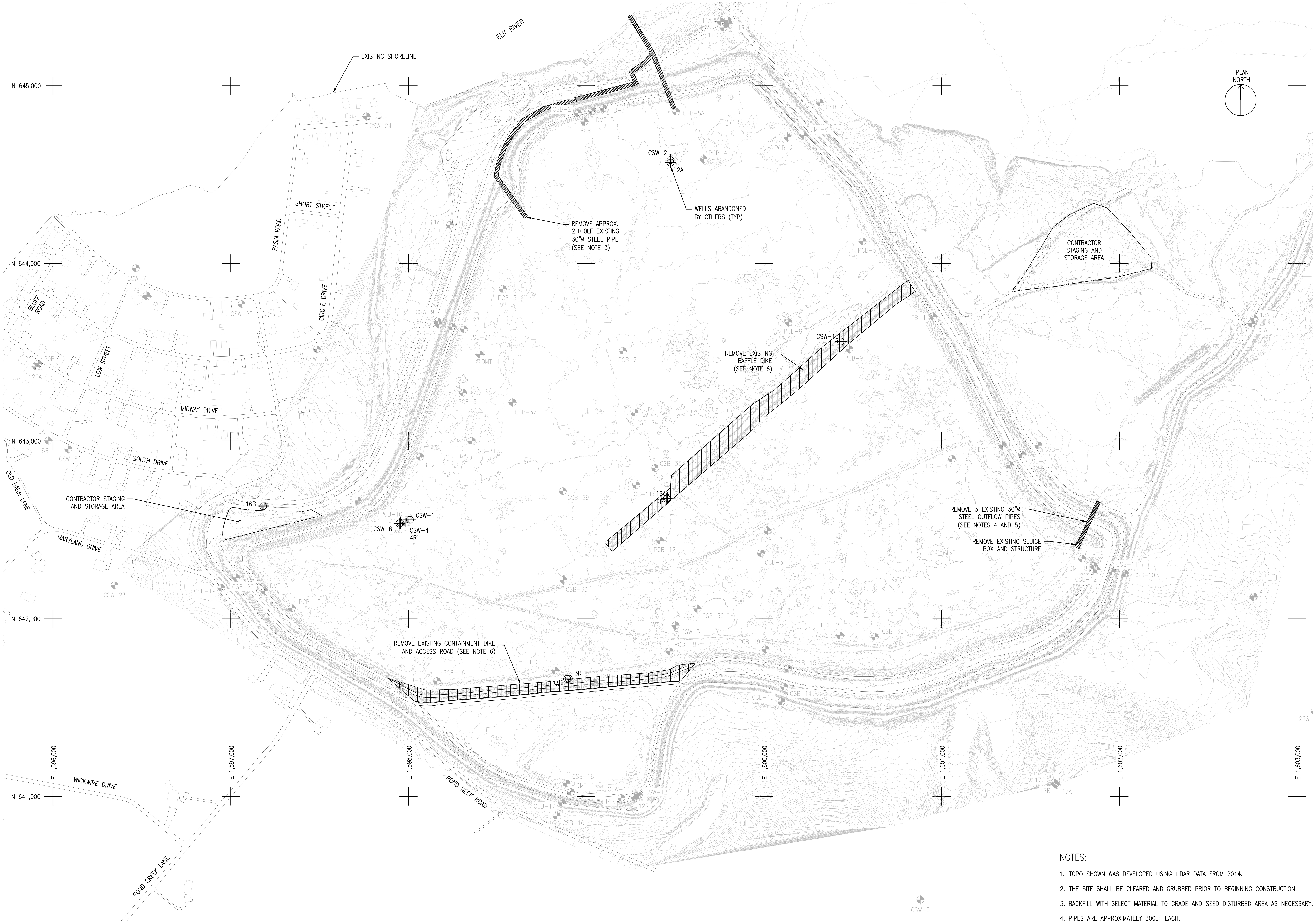
CKD BY: DAN	REVIEWED BY: DCL / TEH	PROJ. NUMBER: -
		SOLICITATION NUMBER: IFB W912BU-1X-XXXX
DWG SCALE: 1"=3500'		CONTRACT NUMBER: -
DWG. SIZE: 30"x42" Arch E1	FILE NAME: C-100 GENERAL PLAN.dwg	

DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS
GENERAL PLAN

SHEET NUMBER
C-100



1 PLAN - DEMOLITION
SCALE: AS SHOWN

0 100 200 400
SCALE IN FEET

NOTES:

1. TOPO SHOWN WAS DEVELOPED USING LIDAR DATA FROM 2014.
2. THE SITE SHALL BE CLEARED AND GRUBBED PRIOR TO BEGINNING CONSTRUCTION.
3. BACKFILL WITH SELECT MATERIAL TO GRADE AND SEED DISTURBED AREA AS NECESSARY.
4. PIPES ARE APPROXIMATELY 300LF EACH.
5. BEFORE LINER PLACEMENT, BACKFILL THE EXCAVATED AREA WITH COMPACTED DREDGED MATERIAL TO MATCH THE GROUND ELEVATIONS THAT EXISTED PRIOR TO REMOVAL.
6. RE-USE EXISTING MATERIAL FOR DIKE CONSTRUCTION AND/OR PROTECTIVE FILL FOR LINER.
7. WELLS CSW-1, CSW-2, CSW-2A, CSW-4R, 3A, 3R, CSW-6, CSW-15, 16B, 19A, AND 19B WILL BE ABANDONED BY OTHERS.

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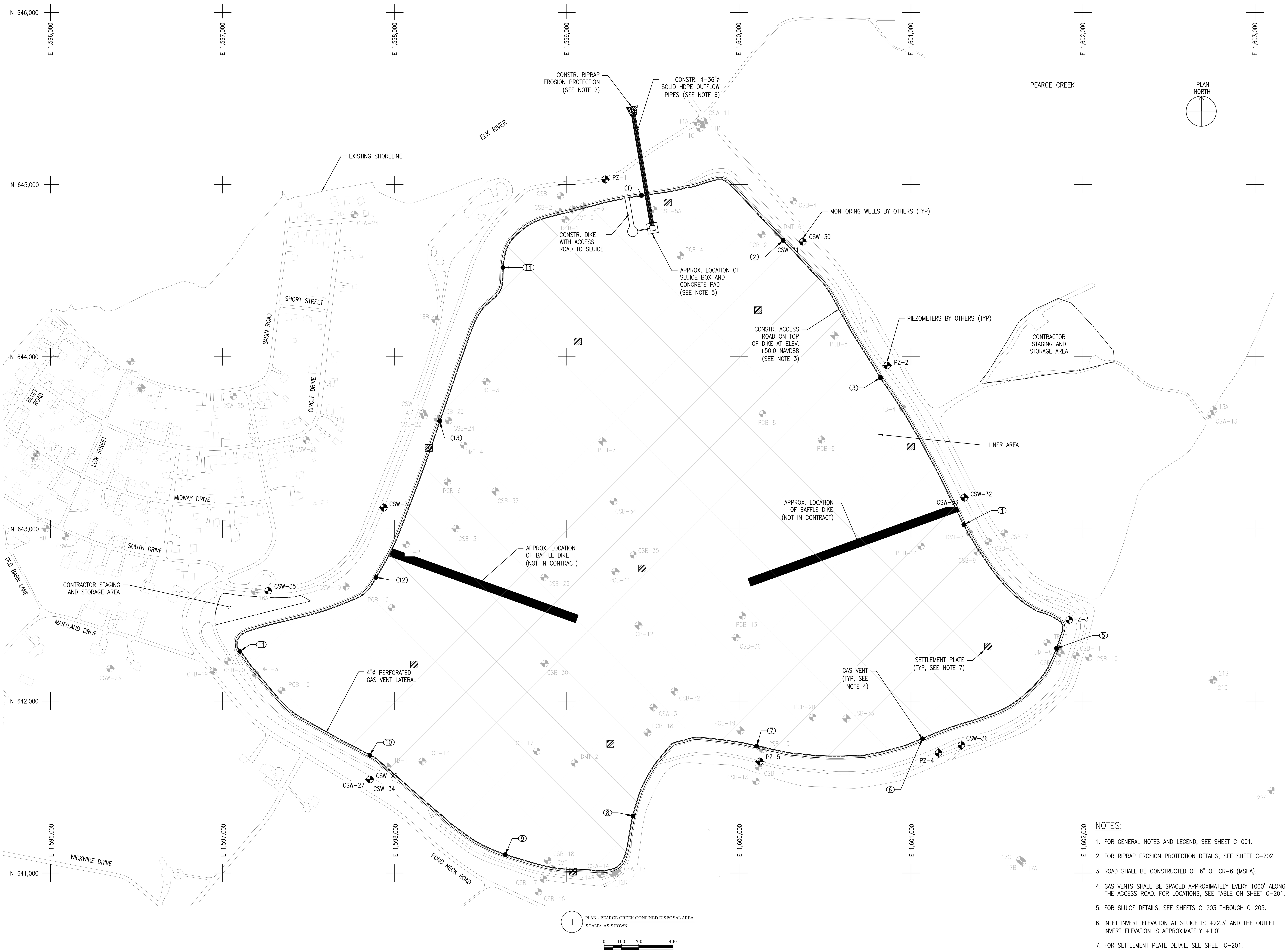
CKD BY: DAN	REVIEWED BY: DCL / TEH	PROJ. NUMBER: -
DWG SCALE: 1"=200'		SOLICITATION NUMBER: IFB W912BU-1X-XXXX
		CONTRACT NUMBER: -
DWG. SIZE: 30"x42" Arch E1	FILE NAME: C-101 DEMOLITION PLAN.dwg	

DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS
DEMOLITION PLAN

SHEET NUMBER
C-101



1 PLAN - PEARCE CREEK CONFINED DISPOSAL AREA
SCALE: AS SHOWN

NOTES:

1. FOR GENERAL NOTES AND LEGEND, SEE SHEET C–001.
2. FOR RIPRAP EROSION PROTECTION DETAILS, SEE SHEET C–202.
3. ROAD SHALL BE CONSTRUCTED OF 6" OF CR–6 (MSHA).
4. GAS VENTS SHALL BE SPACED APPROXIMATELY EVERY 1000' ALONG THE ACCESS ROAD. FOR LOCATIONS, SEE TABLE ON SHEET C–201.
5. FOR SLUICE DETAILS, SEE SHEETS C–203 THROUGH C–205.
6. INLET INVERT ELEVATION AT SLUICE IS +22.3' AND THE OUTLET INVERT ELEVATION IS APPROXIMATELY +1.0'
7. FOR SETTLEMENT PLATE DETAIL, SEE SHEET C–201.

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		SOLICITATION NUMBER: IFB W912BU-1X-XXXX
DWG SCALE: 1"=200'		CONTRACT NUMBER: -
DWG. SIZE: 30"x42" Arch E1	FILE NAME: C-102 PEARCE CREEK CONFINED DISPOSAL FACILITY PLAN.dwg	

DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY MODIFICATIONS

PEARCE CREEK CONFINED DISPOSAL FACILITY PLAN

SHEET NUMBER
C-102

1 PLAN - GRADING
SCALE: 1"=200'

0 100 200 400
SCALE IN FEET

NOTES:

1. FOR GENERAL NOTES AND LEGEND, SEE SHEET C-001.

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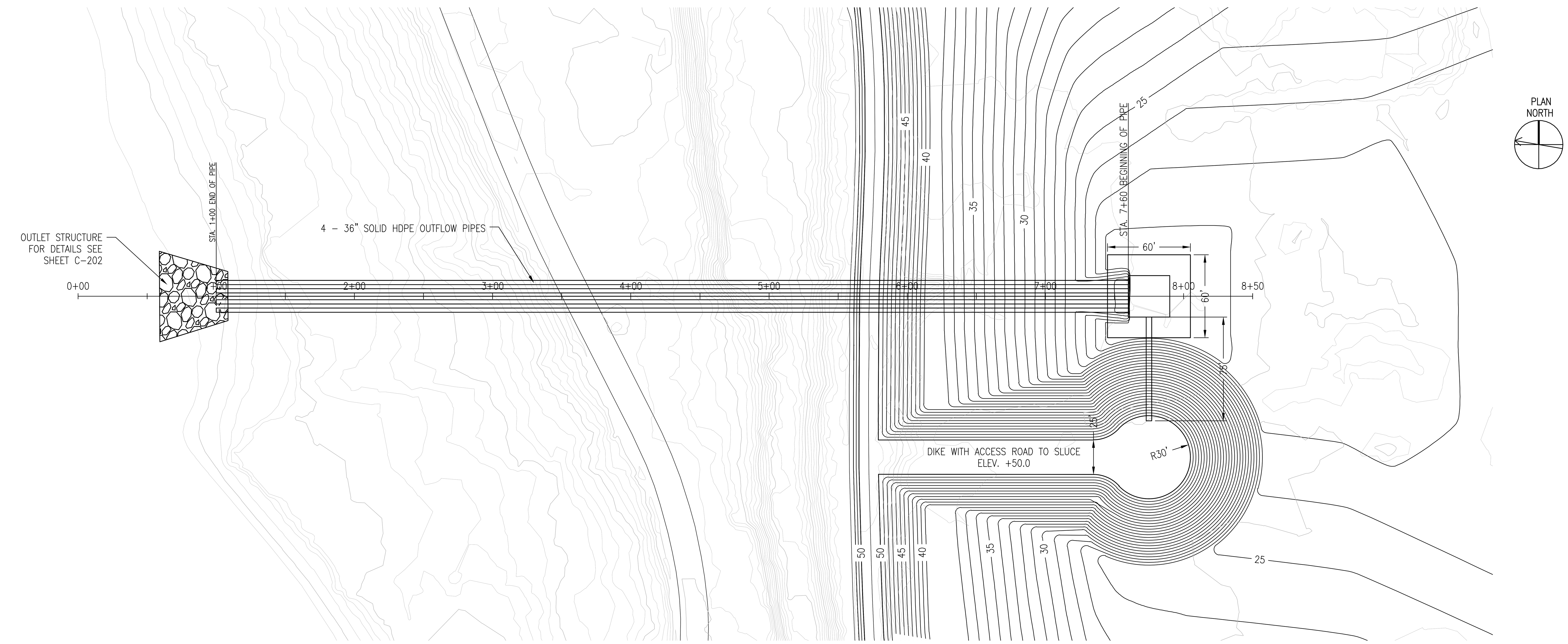
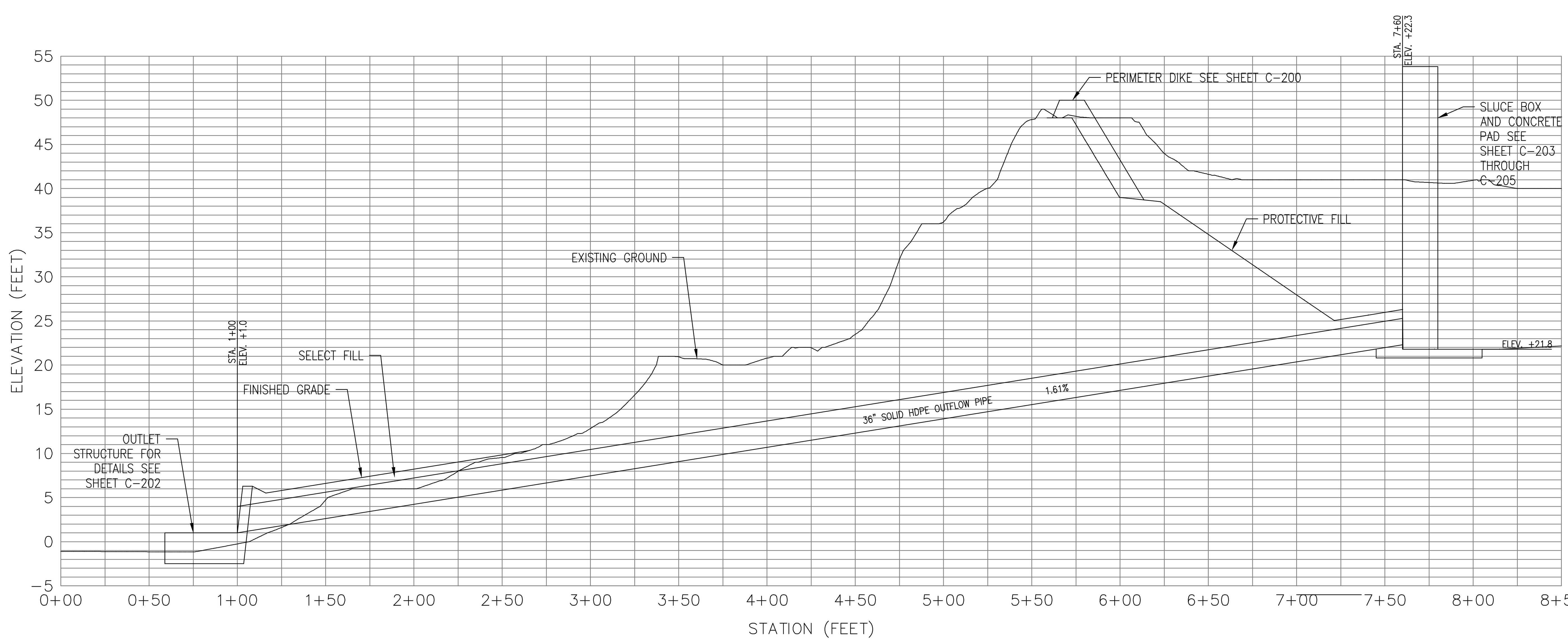
DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS
GRADING PLAN

SHEET NUMBER
C-103



1 PLAN - OUTFLOW PIPES
SCALE= 1" = 40'

0 20 40 80
SCALE IN FEET



2 PROFILE - OUTFALL PIPES
SCALE= 1" = 40'

0 20 40 80
SCALE IN FEET

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PROJ. NUMBER:	-
SOLICITATION NUMBER:	IFB W912BU-1X-XXXX
CONTRACT NUMBER:	-
DWG SCALE:	1"=40'
DWG. SIZE:	30"x42" Arch E1
FILE NAME:	C-104 OUTFLOW PIPES PLAN AND PROFILE.dwg

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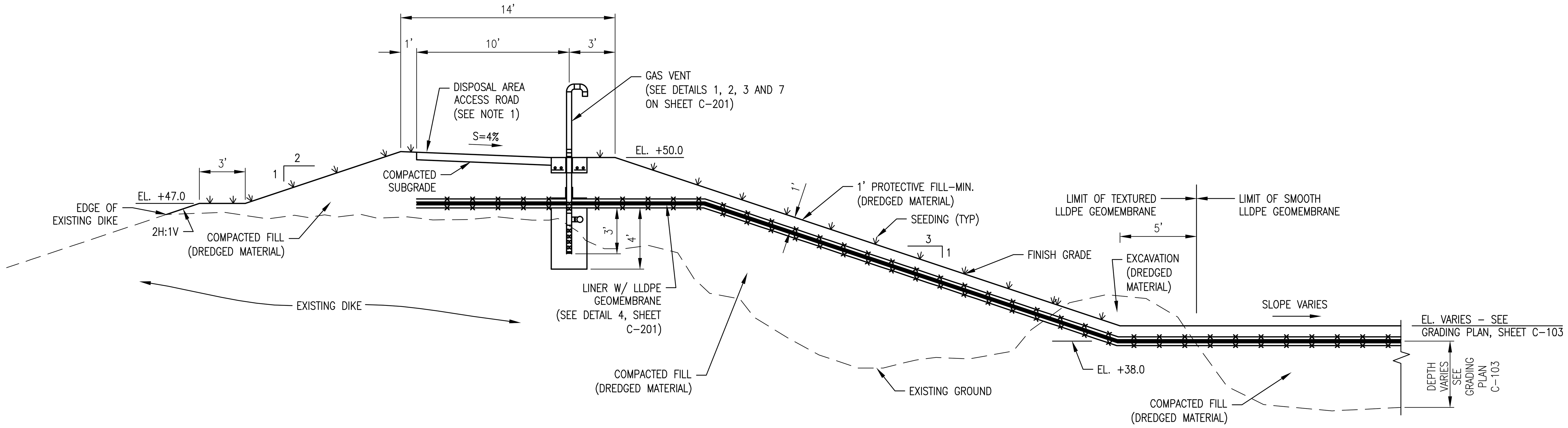
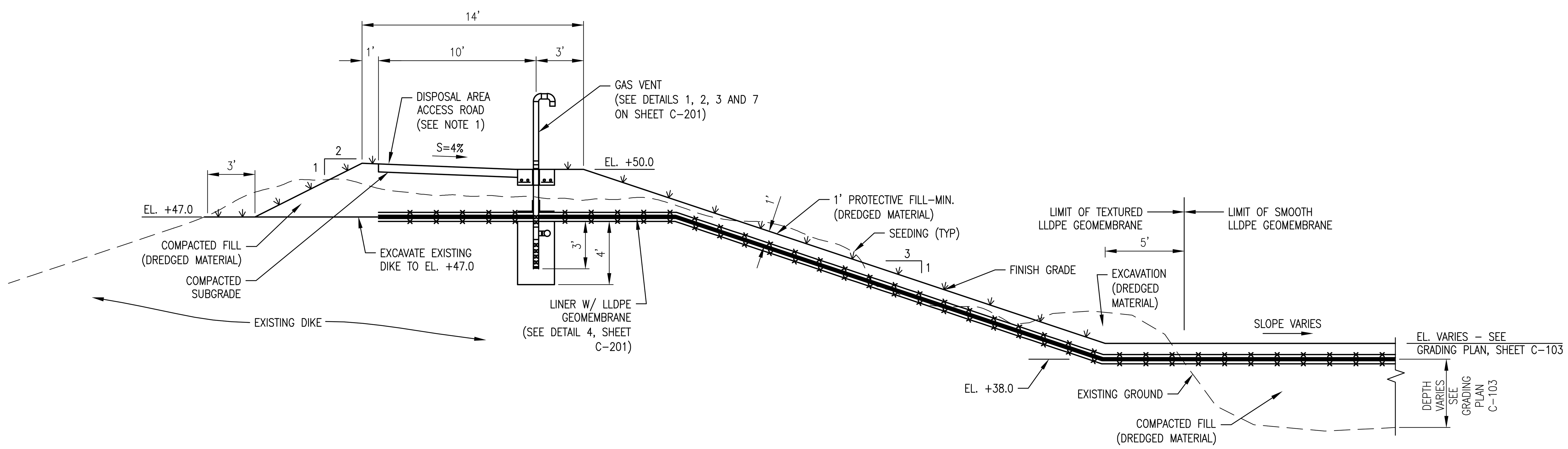
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY MODIFICATIONS
OUTFLOW PIPES PLAN AND PROFILE

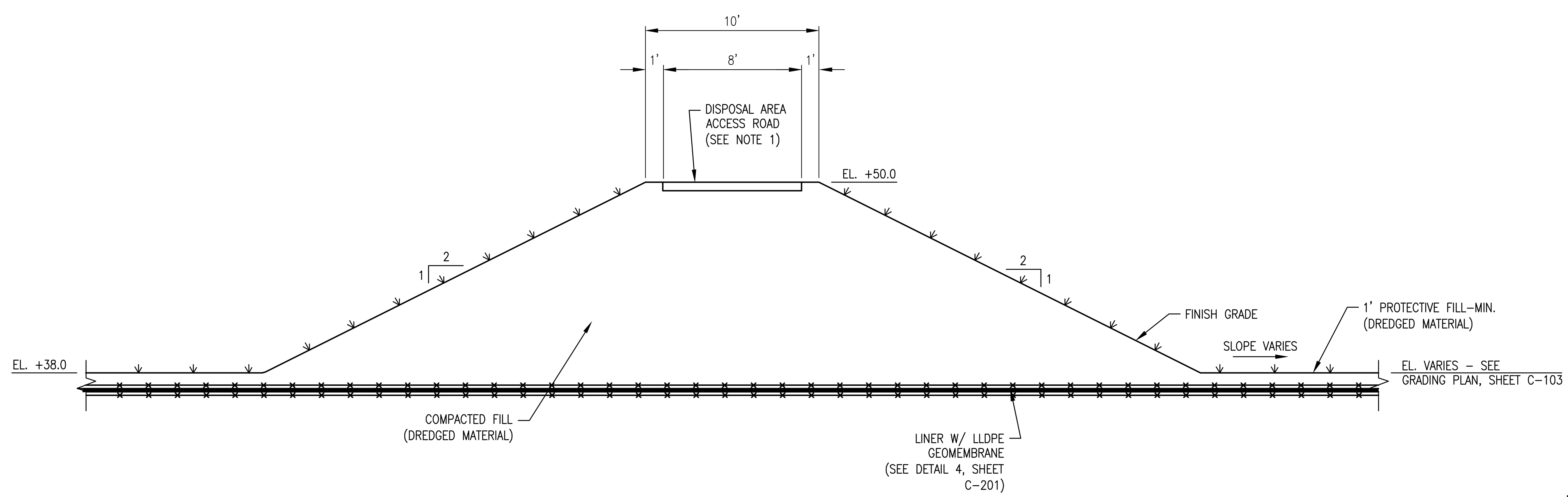
SHEET NUMBER
C-104



1 DETAIL - TYPICAL PERIMETER DIKE SECTION WITH TOP OF EXISTING DIKE BELOW EL. +47.0
SCALE: AS SHOWN



2 DETAIL - TYPICAL PERIMETER DIKE SECTION WITH TOP OF EXISTING DIKE ABOVE EL. +47.0
SCALE: AS SHOWN



3 DETAIL - TYPICAL BAFFLE DIKE SECTION
SCALE: AS SHOWN

0 2 4 8
SCALE IN FEET

NOTES:

1. ROAD SHALL BE CONSTRUCTED 6" OF CRUSHER RUN AGGREGATE CR-6 (MSHA).
2. GEOTEXTILE OFFSET FROM LLDPE MEMBRANE FOR CLARITY.
3. EXCAVATED MATERIAL SHALL BE USED AS BACKFILL.

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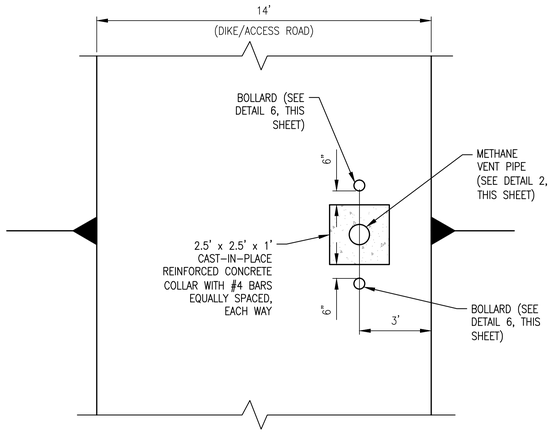
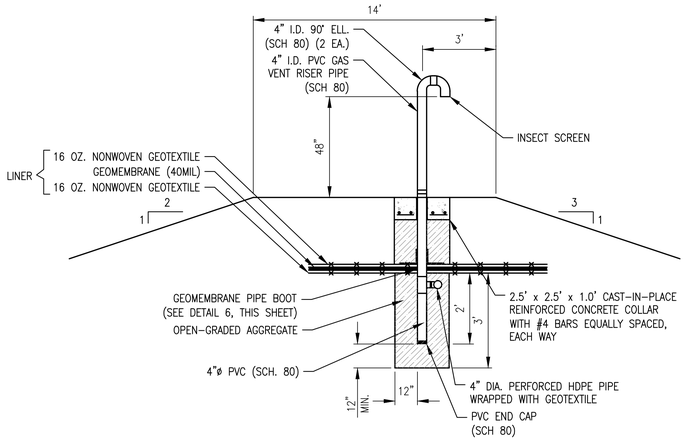
DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS
DETAILS

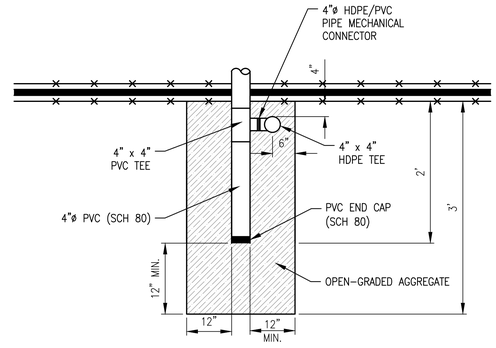
SHEET NUMBER
C-200



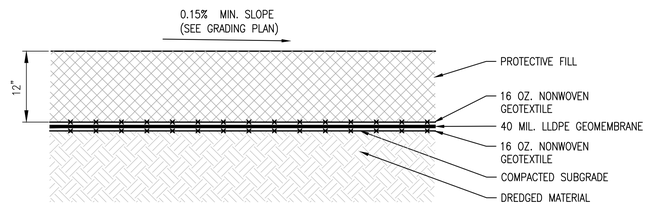
1 PLAN - METHANE VENT PIPE WITH BOLLARDS
SCALE: NTS



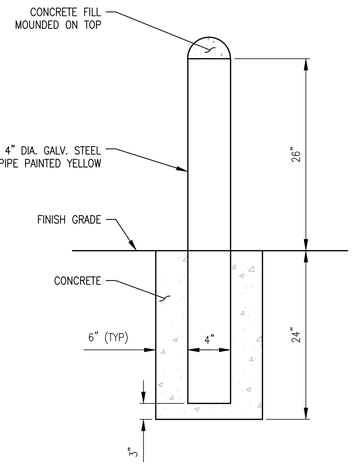
2 DETAIL - TYPICAL GAS VENT
SCALE: NTS



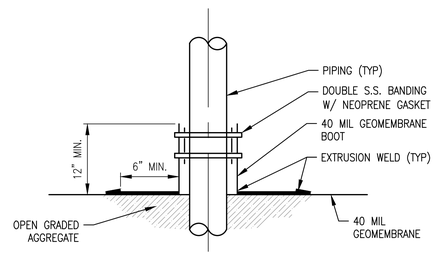
3 DETAIL - HDPE LATERAL TO PVC PIPE CONNECTION
SCALE: NTS



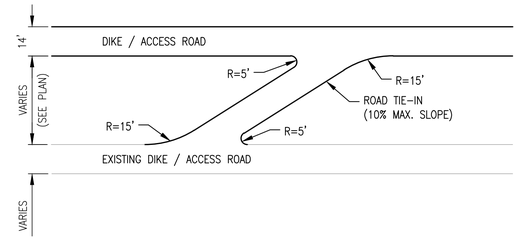
4 DETAIL - TYPICAL LINER SECTION
SCALE: NTS



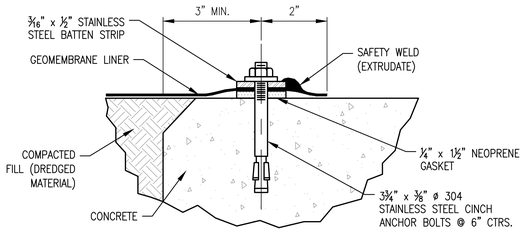
5 DETAIL - BOLLARD
SCALE: NTS



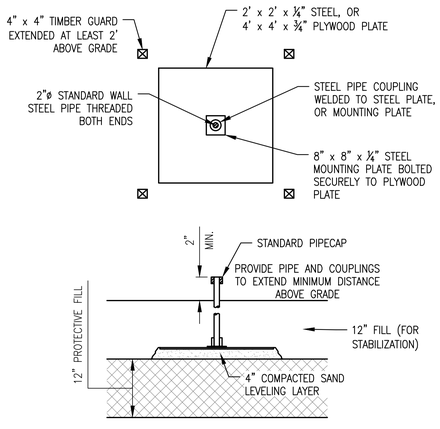
6 DETAIL - TYPICAL GEOMEMBRANE PENETRATION BOOT
SCALE: NTS



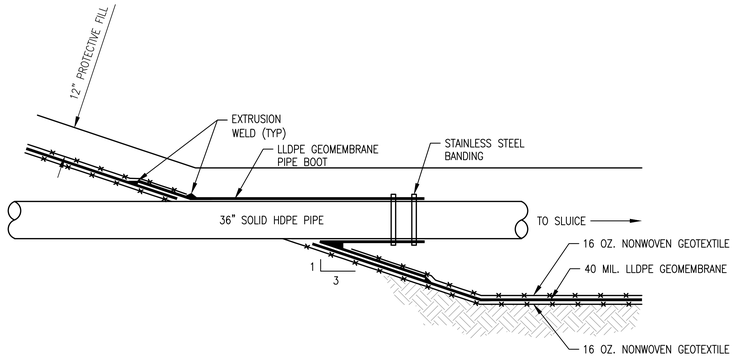
7 DETAIL - ROAD TIE-IN
SCALE: NTS



8 DETAIL - MECHAINICAL SEALING
SCALE: NTS



9 DETAIL - SETTLEMENT PLATE
SCALE: NTS



10 DETAIL - TYPICAL PIPE PENETRATION
SCALE: NTS

APPROXIMATE GAS VENT LOCATIONS

POINT #	NORTHING	EASTING
1	644937.3	1599434.0
2	644676.3	1600257.5
3	643878.6	1600823.3
4	643024.5	1601307.9
5	642305.9	1601846.7
6	641780.7	1601066.9
7	641738.0	1600103.5
8	641332.6	1599385.1
9	641106.9	1598642.4
10	641684.9	1597855.5
11	642288.7	1597100.2
12	642718.4	1597891.3
13	643627.2	1598261.4
14	644518.5	1598628.8

11 TABLE - GAS VENT LOCATIONS
SCALE: NTS

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MARK	ACTION	DATE	BY

DESCRIPTION

DESCRIPTION

DESCRIPTION

DESIGNED BY: EMF / SJP
DRAWN BY: PSS
CHKD BY: DAR
RECOMMENDED BY:
ACCEPTED BY:
ISSUE/RELEASE DATE: 30LSEP14
PROJ. NUMBER:
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CONTRACT NUMBER:
DWG SCALE: AS SHOWN
DWG. SIZE: 30"X42" ANSI D
FILE NAME: C-201 SHT 14.dwg

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DELAWARE RIVER TO CHESAPEAKE BAY
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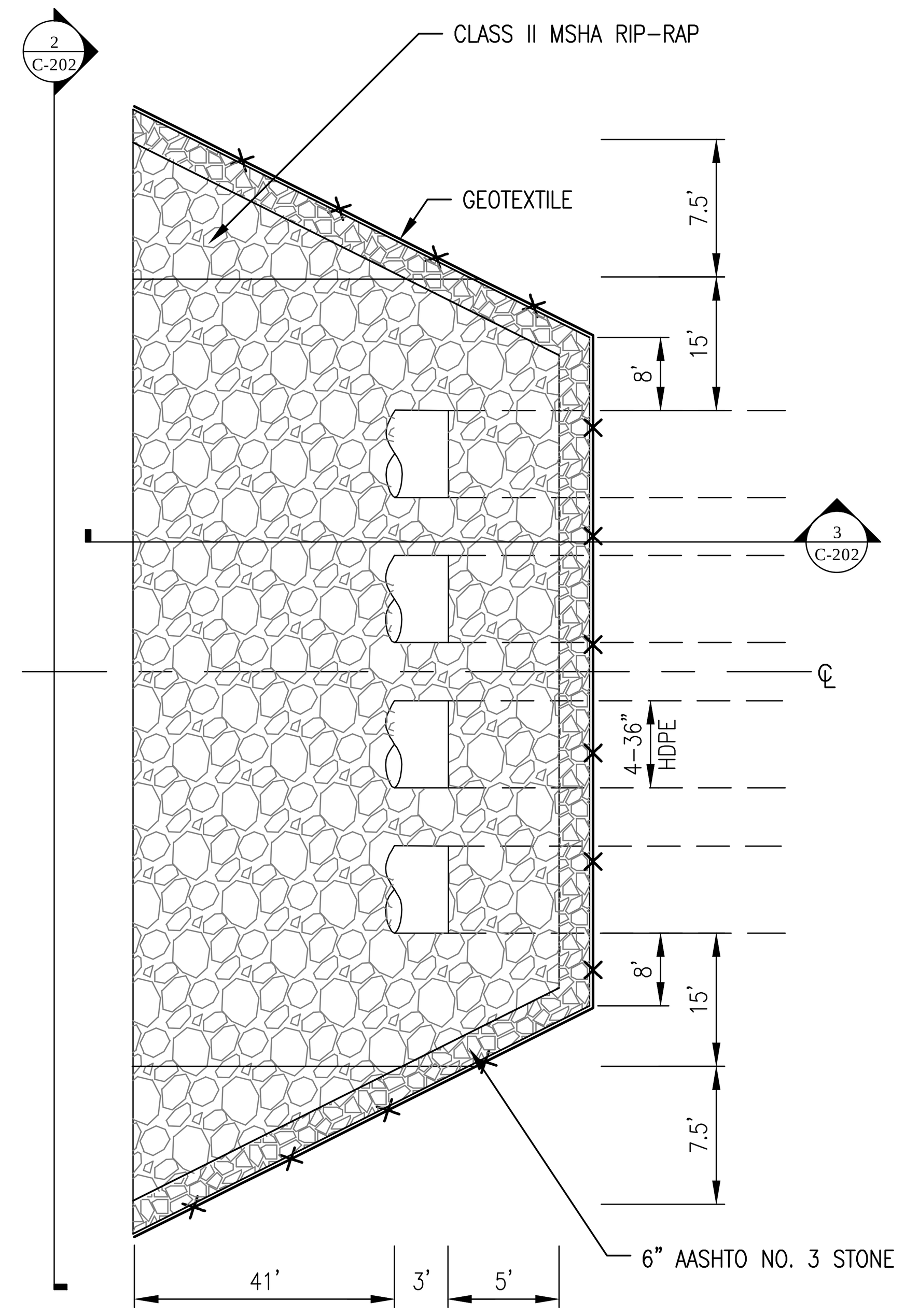
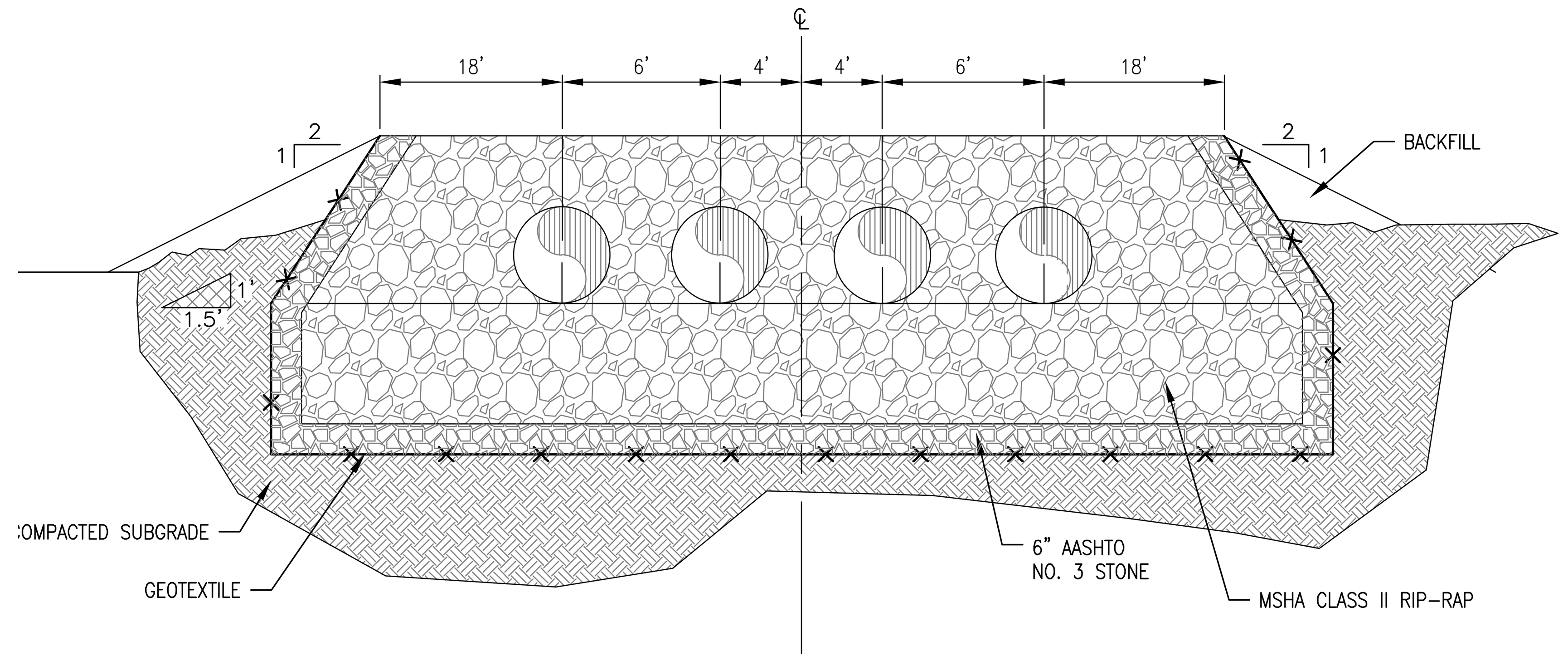
MODIFICATIONS
DETAILS

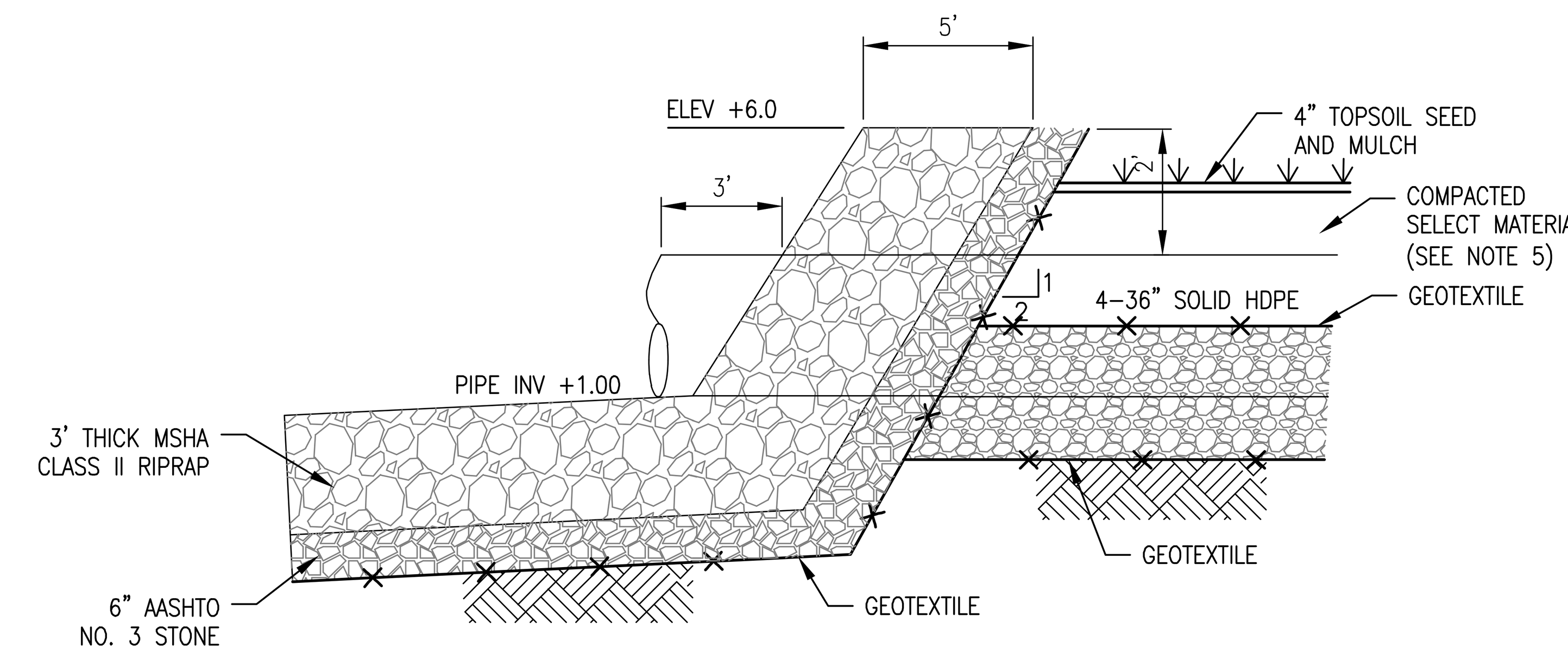
SHEET NUMBER
C-201



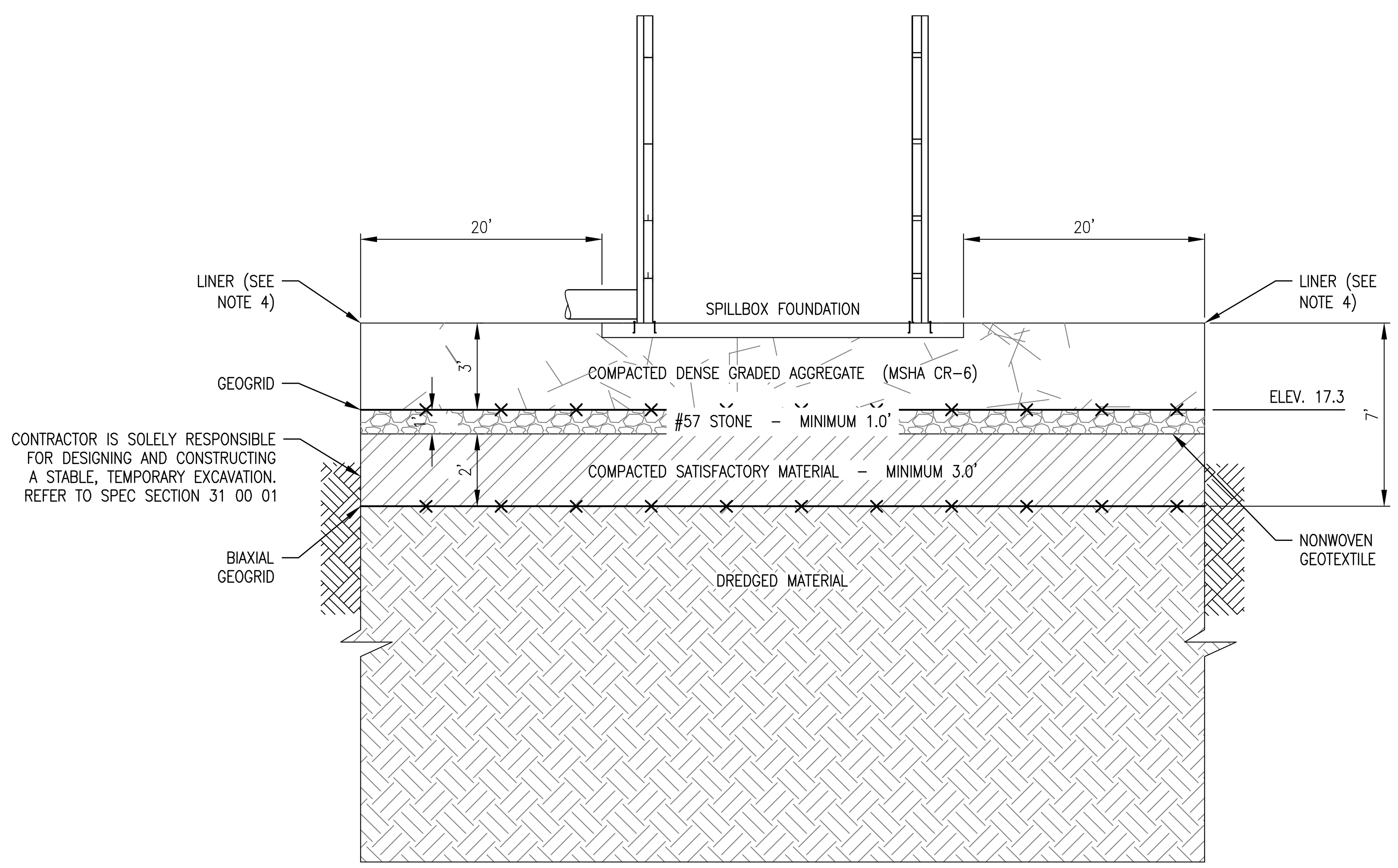
1 PLAN - OUTLET STRUCTURE
SCALE: NTS



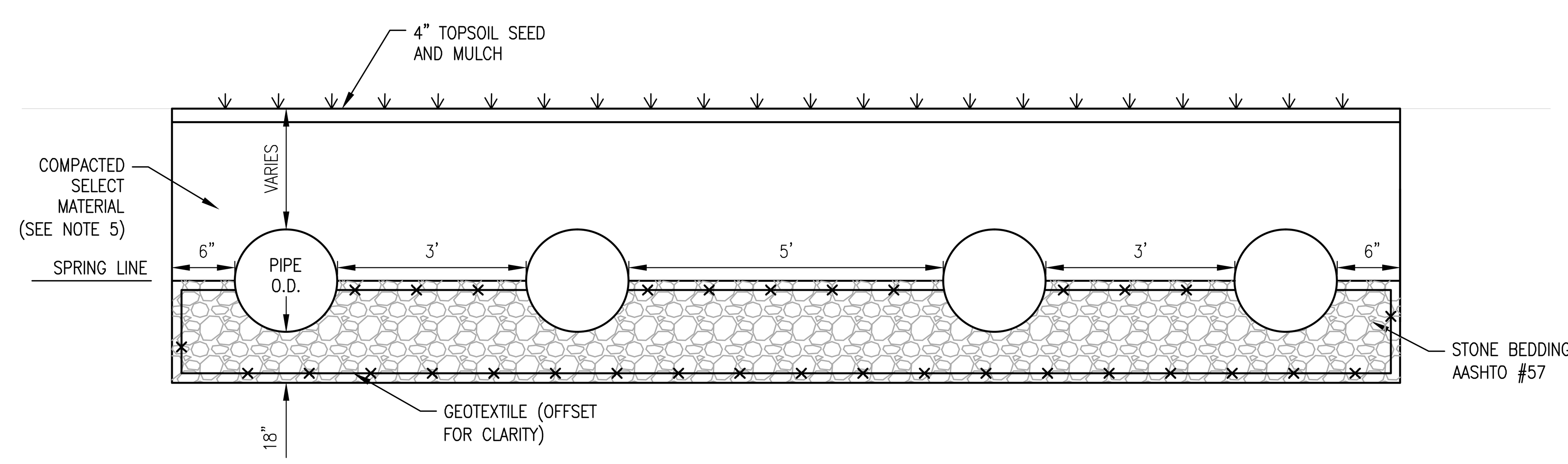
2 SECTION - OUTLET STRUCTURE
SCALE: NTS



3 SECTION
SCALE: NTS



4 DETAIL - COMPACTED FILL BENEATH SPILLBOX FOUNDATION
SCALE: NTS



5 DETAIL - OUTLET PIPE TRENCH
SCALE: NTS

NOTES:

1. THE PIPE SHALL BE SOLID HDPE.
2. RIPRAP WORK SHALL BE IN ACCORDANCE WITH MSHA SPECS.
3. DIMENSIONS SHOWN ARE MINIMUM. ACTUAL MEASUREMENTS MAY VARY WITH MANUFACTURERS TOLERANCES.
4. FOR LINER CONNECTION TO CONCRETE PAD, SEE DETAIL 8, SHEET C-201. FOR LINER TYPICAL SECTION, SEE DETAIL 4, SHEET C-201.
5. COMPACTED BACKFILL FOR TRENCH LOCATED ON THE INSIDE OF AND UNDERNEATH THE EXISTING DIKE SHALL BE DREDGED MATERIAL.

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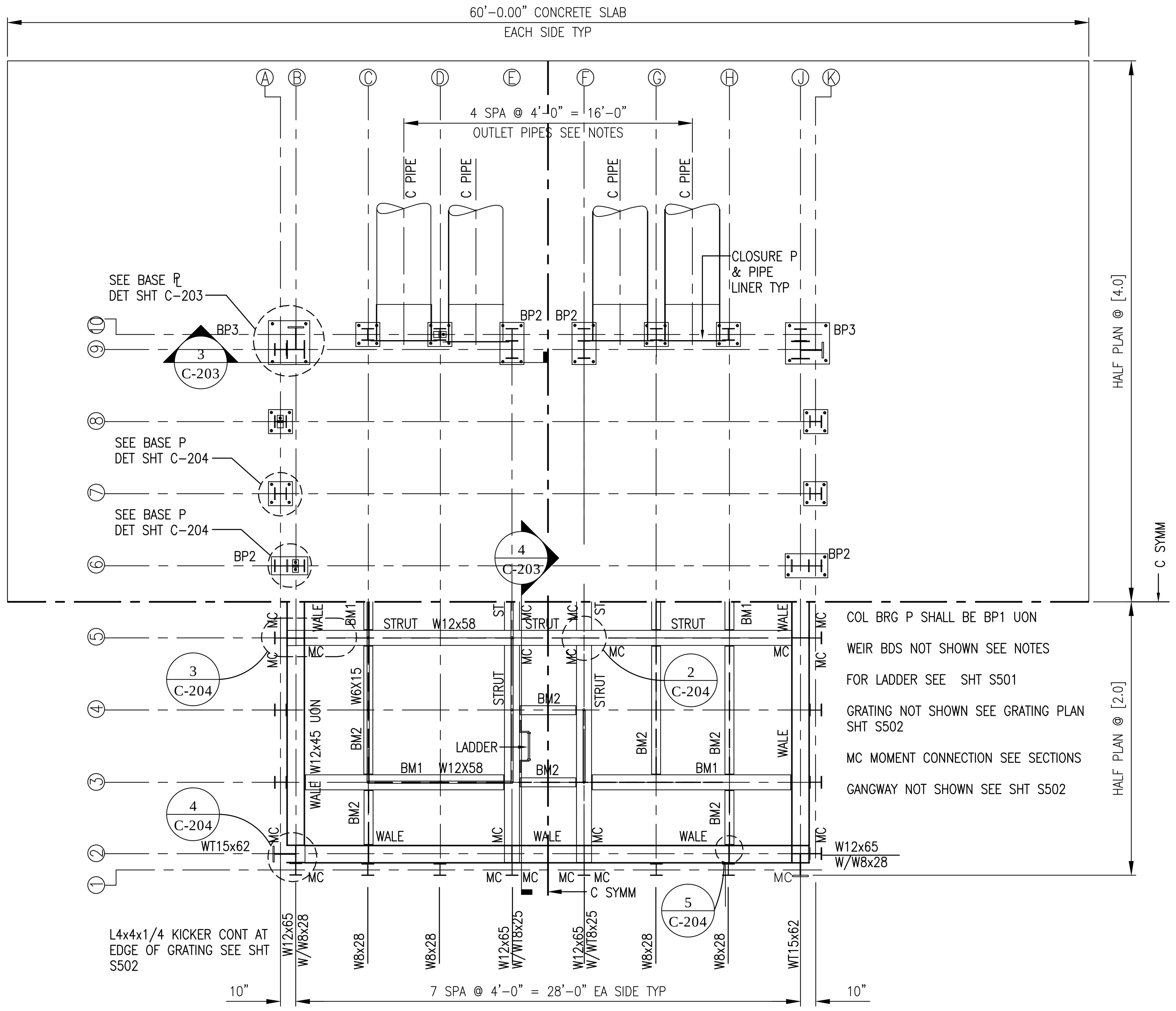
CKD BY: DAN	REVIEWED BY: DCL / TEH	PROJ. NUMBER: -
		SOLICITATION NUMBER: IFB W912BU-1X-XXXX
DWG SCALE: AS SHOWN		CONTRACT NUMBER: -
DWG. SIZE: 30"x42" Arch E1	FILE NAME: C-202 DETAILS.dwg	

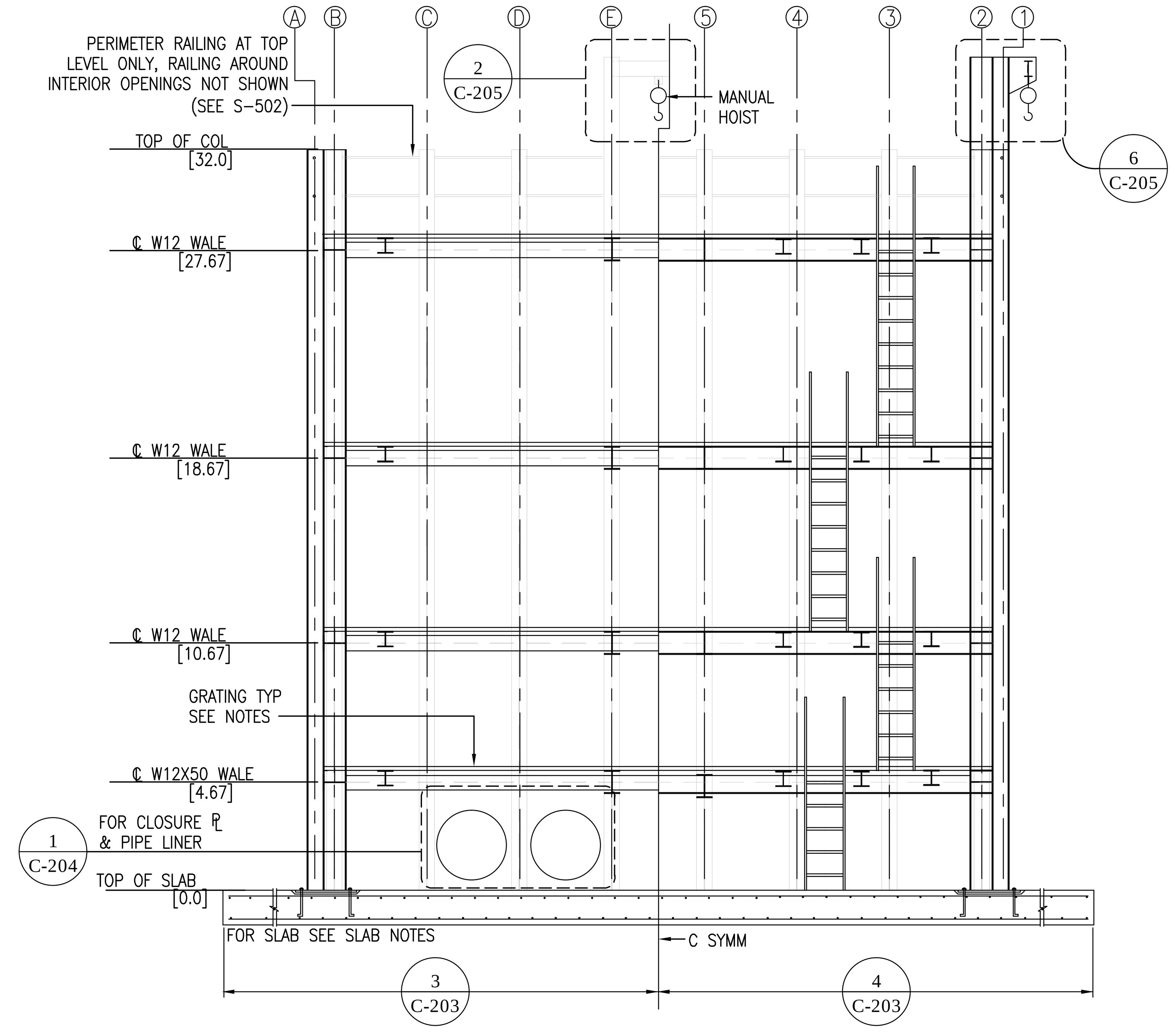
DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS

DETAILS

SHEET NUMBER
C-202



1 PLAN - SPILLBOX
SCALE: AS SHOWN
0 25 50 100
SCALE IN FEET



2 SECTION - SPILLBOX
SCALE: AS SHOWN
0 25 50 100
SCALE IN FEET

STRUCTURAL NOTES

1. ALL STRUCTURAL STEEL WORK SHALL CONFORM WITH AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL OF STEEL CONSTRUCTION, LOAD AND RESISTANCE FACTOR DESIGN, LATEST EDITION AND ALL REFERENCES THEREIN.
2. ALL WIDE FLANGE SECTIONS TO BE IN ACCORDANCE WITH ASTM A992. ALL OTHER STEEL SHAPES AND PLATES TO BE IN ACCORDANCE WITH ASTM A36 UON.
3. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60. ALL REINFORCEMENT SHALL BE EPOXY COATED AFTER FABRICATION IN ACCORDANCE WITH ASTM A934.
4. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI. CONCRETE MAY HAVE A ROUGH FORM FINISH. FOR EXPOSED HORIZONTAL SURFACES, PROVIDE A LIGHT BROOM FINISH UON. CLEAR COVER SHALL BE 3" UON.
5. ALL WELDING SHALL BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY D1.1 LATEST EDITION. ELECTRODES SHALL BE E70XX.
6. ALL STEEL SHALL BE SHOP COATED WITH BLACK COAL TAR EPOXY IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL PAINTING SYSTEM SPECIFICATION 11.01 UON. PROVIDE TWO COATS MINIMUM, UON. TOUCH UP PAINTING AFTER INSTALLATION SHALL INCLUDE EXPOSED AREAS OF BOLTS.
7. PROVIDE STEEL GRATING AT EACH LANDINGS. STEEL GRATING SHALL BE SHOP FABRICATED AND GALVANIZED. NO CUTTING, WELDING, OR FABRICATION SHALL BE PERFORMED IN THE FIELD. GRATING SHALL SUPPORT A MINIMUM DISTRIBUTED LOAD OF 250 PSF AND A POINT LOAD OF 300 LB. GRATING SHALL BE ATTACHED TO BEAMS WITH A CLAMP SYSTEM DESIGNED AND INTENDED FOR THE ATTACHMENT OF GRATINGS. ATTACHMENT SHALL NOT BE FIELD DRILLED INTO BEAMS. DIRECTION OF SPAN OF PRIMARY BARS OF GRATING SHALL BE AS INDICATED ON GRATING PLAN, S-502. ALL ENDS OF PRIMARY BARS SHALL BE SUPPORTED DIRECTLY BY STRUCTURAL STEEL MEMBERS. NO PRIMARY GRATING BAR SHALL CANTILEVER OVER 6" BEYOND ITS SUPPORT. STEEL GRATING SHOP DRAWINGS SHALL BE SUBMITTED FOR GOVERNMENT APPROVAL PRIOR TO FABRICATION.
8. LADDER ASSEMBLIES SHALL BE SHOP FABRICATED AND GALVANIZED. LADDER SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION.
9. GALVANIZED MATERIALS SHALL BE HOT DIPPED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 OR ASTM A153.
10. LADDER RAILS & POSTS SHALL BE A53 STEEL PIPE, SCHEDULE 40, GALVANIZED, UON. CONNECTIONS MAY CONSIST OF A MANUFACTURED HANDRAIL SYSTEM OR BE FULLY WELDED. ATTACHMENT TO BEAMS SHALL BE TYPE 304 STAINLESS STEEL BOLTS WITH MATCHING NUTS AND WASHERS. BOLTHOLES SHALL BE SHOP DRILLED BEFORE EPOXY COATING. ATTACHMENT BY FIELD WELDING IS PROHIBITED. HANDRAIL SYSTEM SHALL SUPPORT A MINIMUM 200LB HORIZONTAL OR VERTICAL LOAD APPLIED AT ANY POINT AND IN ANY DIRECTION. HANDRAIL SYSTEM SHOP DRAWINGS, INCLUDING DETAILS OF MANUFACTURE AND PLANS SHOWING INSTALLATION LOCATIONS, SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION.
11. TOP RAILS & POSTS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
12. WEIR BOARDS SHALL BE GOVERNMENT FURNISHED CONTRACTOR INSTALLED. WEIR BOARDS SHALL BE INSTALLED PRIOR TO REMOVAL OF PUMPS AND EQUIPMENT. WEIR BOARDS SHALL BE INSTALLED BETWEEN COLUMNS FROM GRID LINES 1 TO 21 TO A HEIGHT OF 3'-0" MAX.
13. REFERENCE DATUM IS [0.0] AT THE TOP OF THE SLAP. THE TOP OF SLAB IS LOCATED AT ELEVATION +21.81 NAVD88.
14. ELEVATIONS ABOVE DATUM INDICATED AS [XX.X] FEET ON DRAWINGS.
15. PIPES SHALL BE 36 INCH SOLID HDPE.

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DWN BY: PGS
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DESIGNED BY: EMF / SJP
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SOLICITATION NUMBER: IFB W912BU-1X-XXXX
CONTRACT NUMBER: -
DWG SCALE: AS SHOWN
DWG. SIZE: 30"x42" Arch E1
FILE NAME: C-203 DETAILS.dwg

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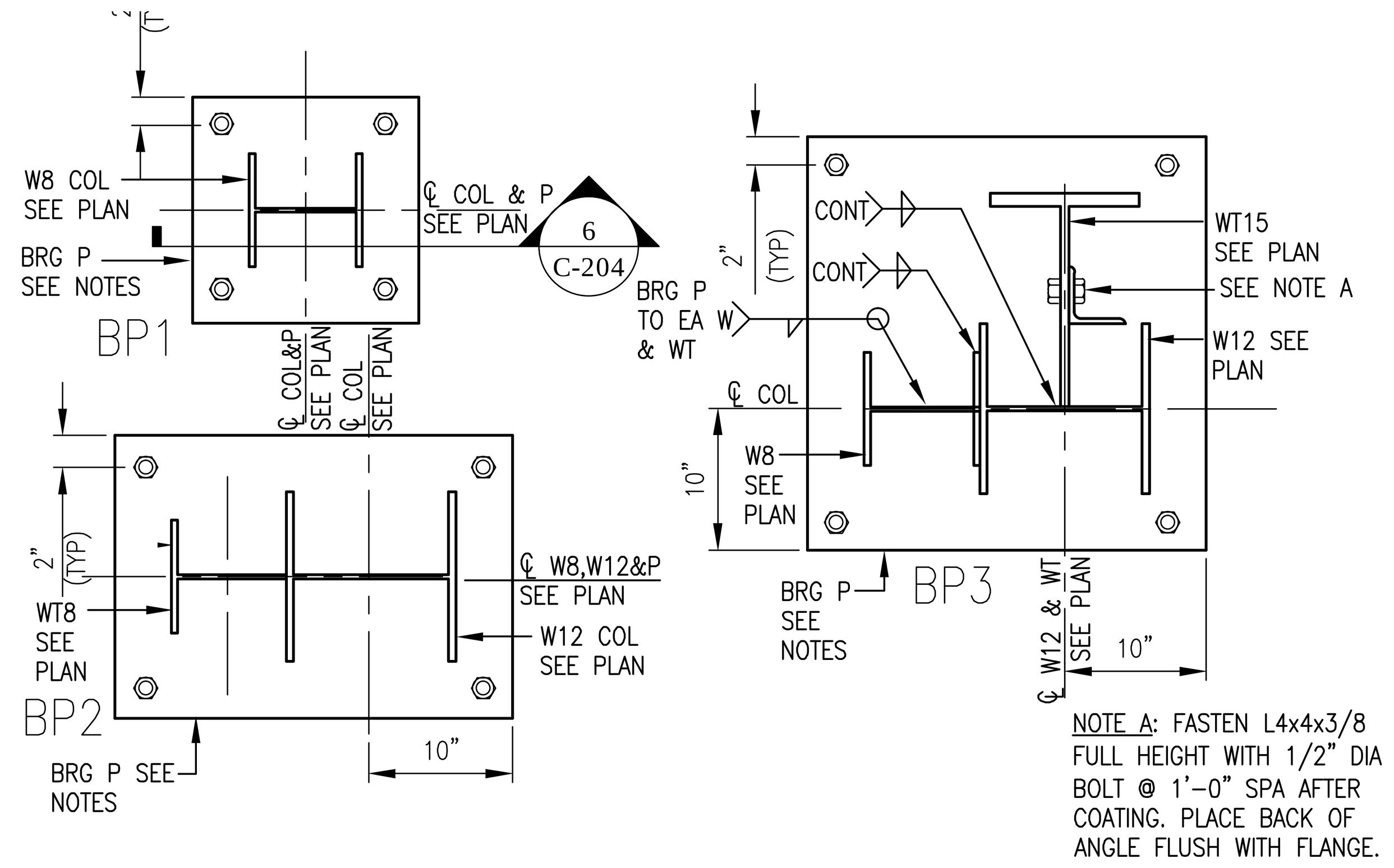
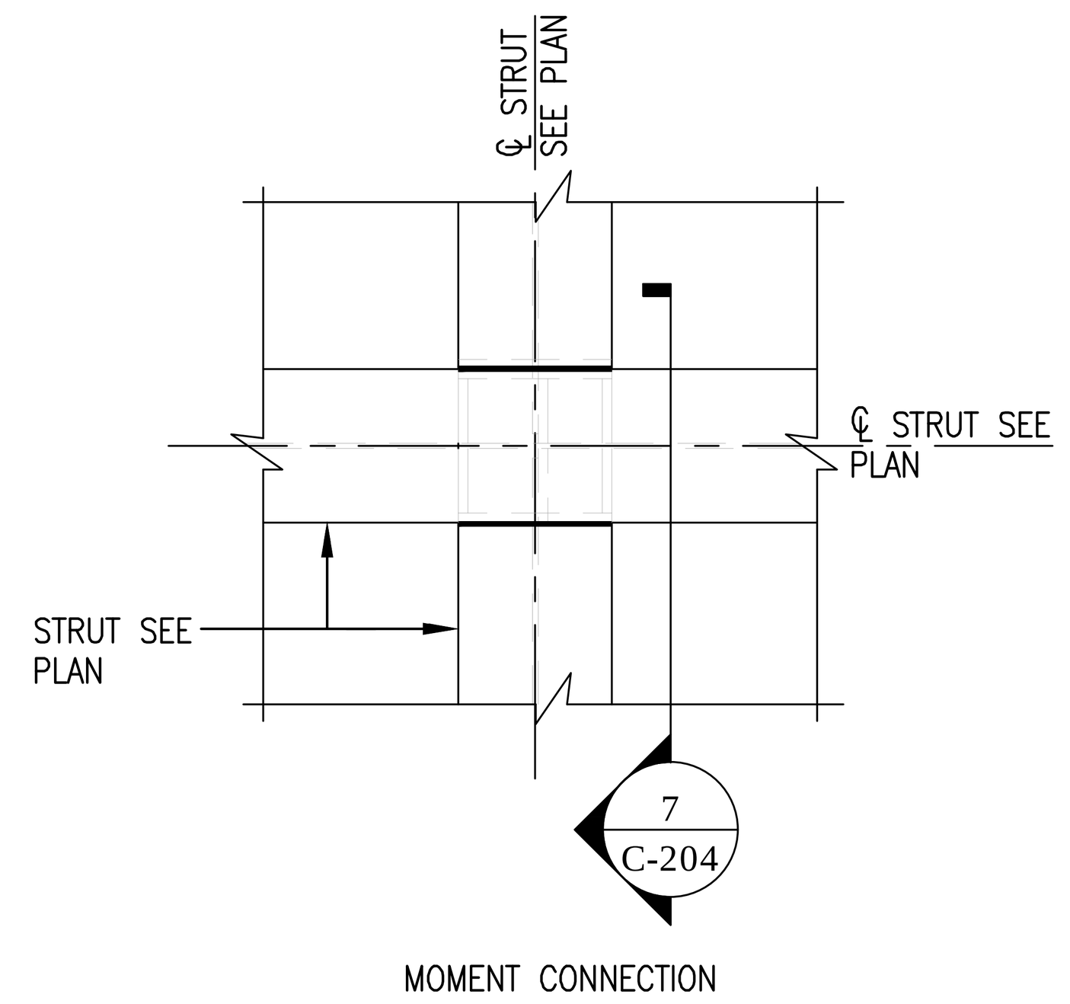
DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS

DETAILS

SHEET NUMBER
C-203



1 DETAIL - BASE PLATE
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET



2 DETAIL
SCALE: AS SHOWN
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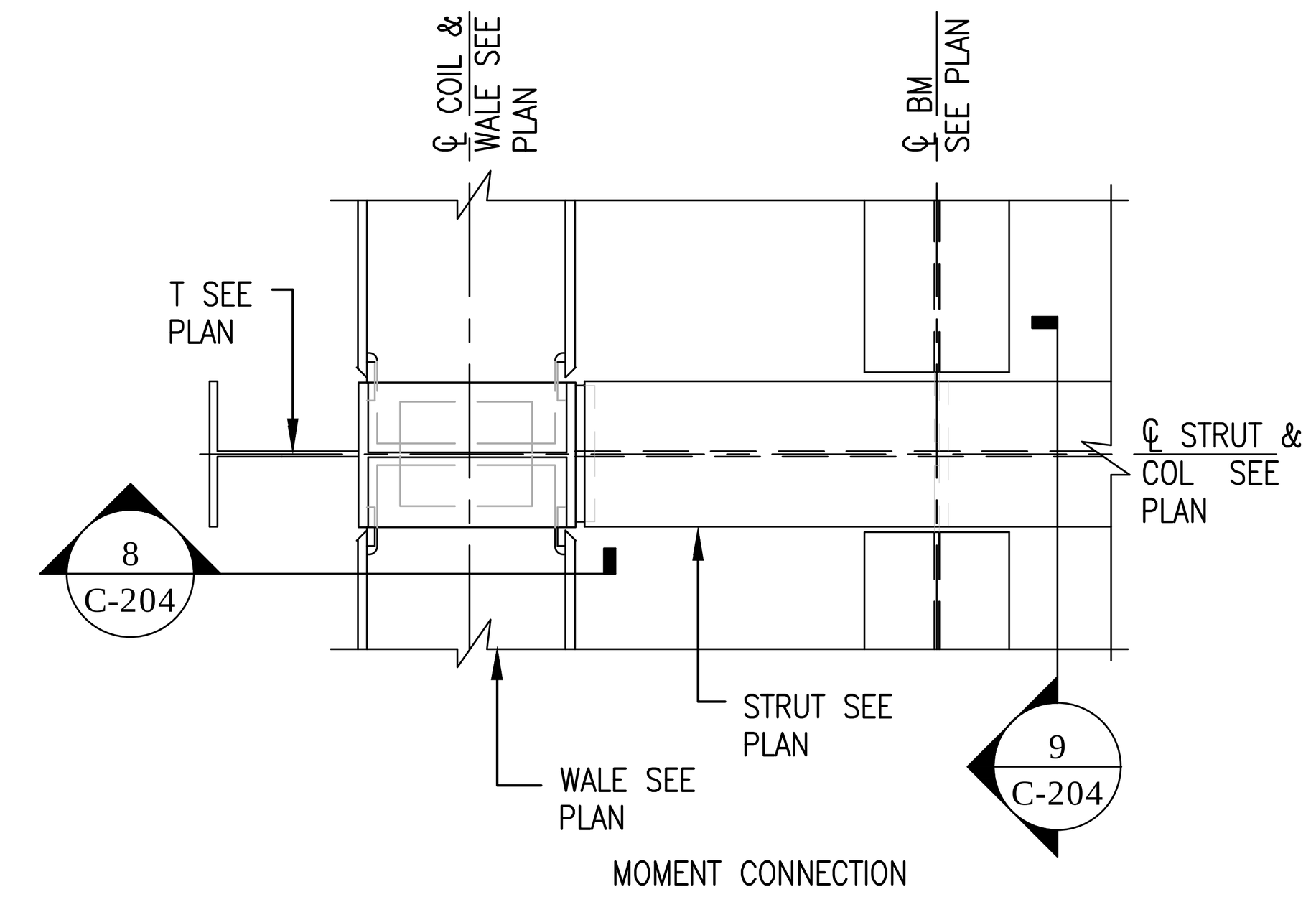
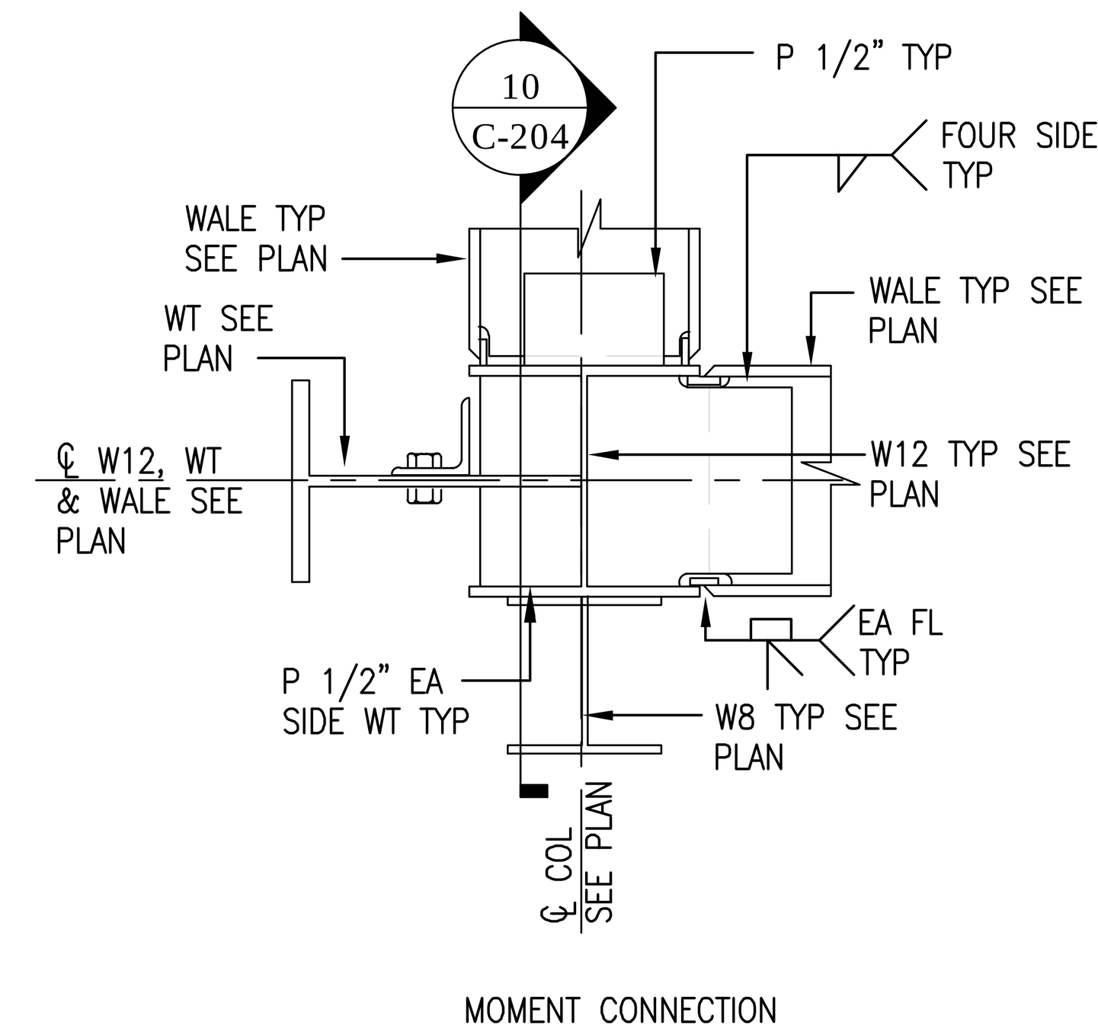
SCALE IN FEET



3 DETAIL
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET



4 DETAIL
SCALE: AS SHOWN
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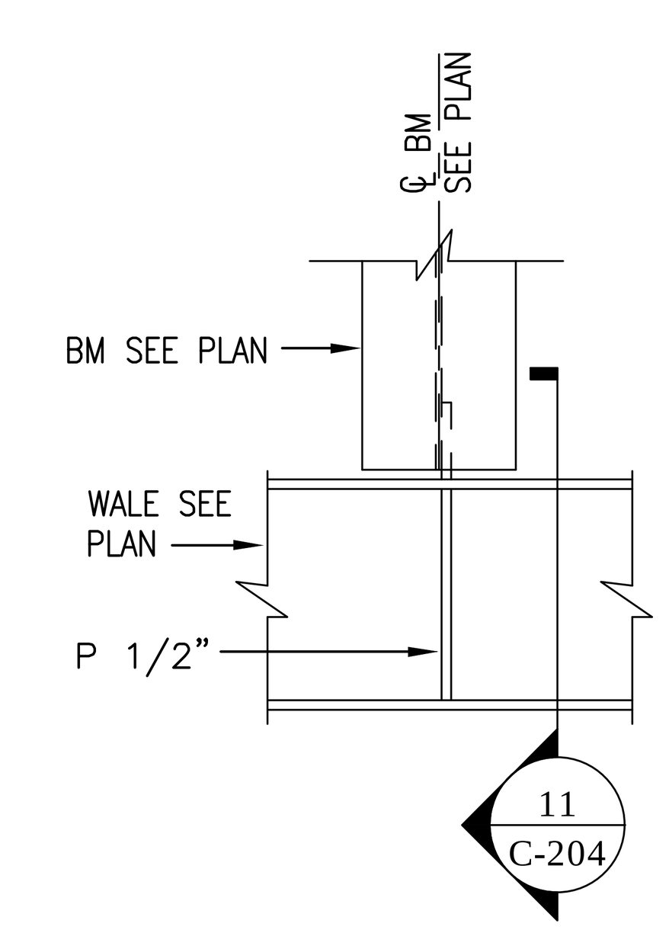
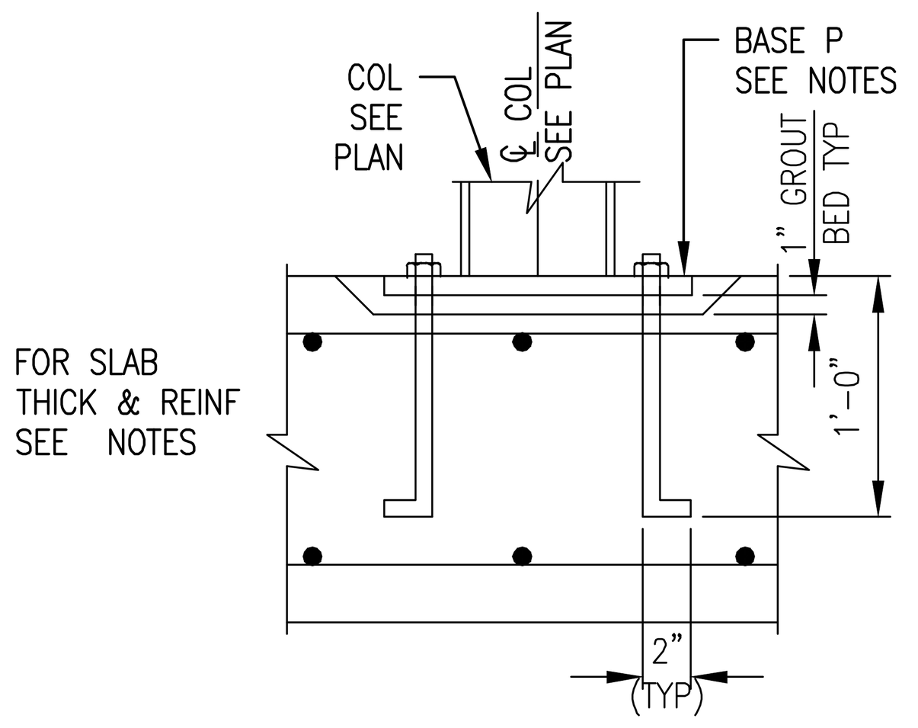
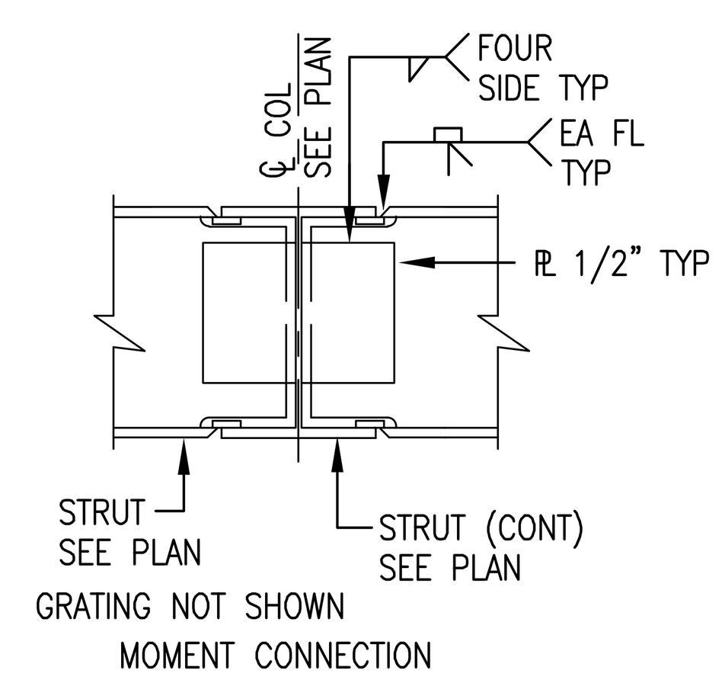
SCALE IN FEET



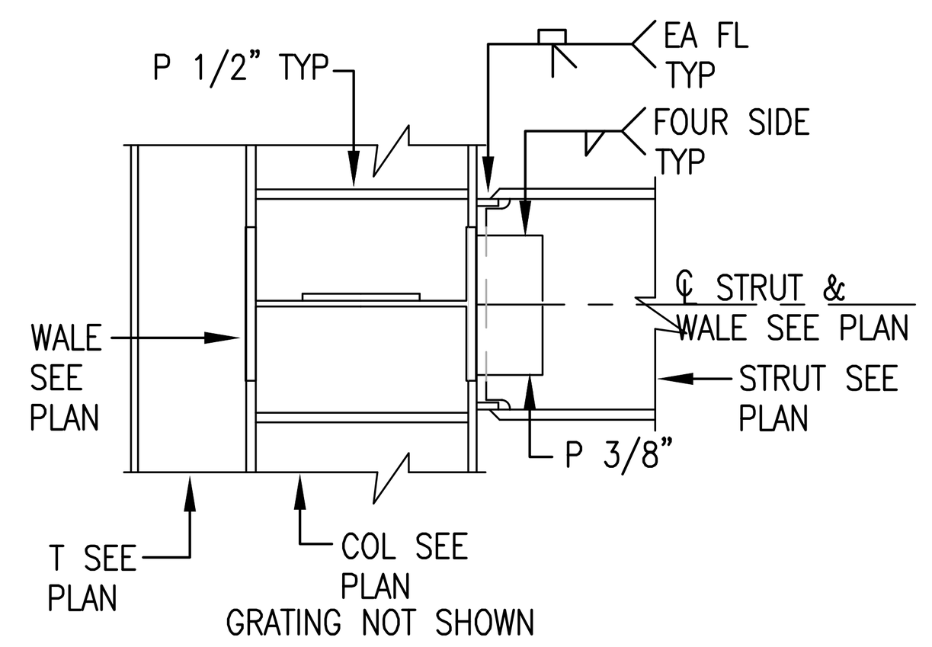
5 DETAIL
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET



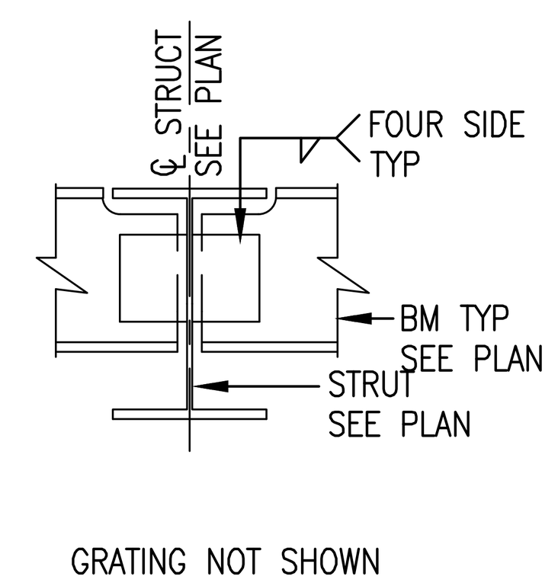
6 SECTION
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET



7 SECTION
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET



8 SECTION
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET



9 SECTION
SCALE: AS SHOWN
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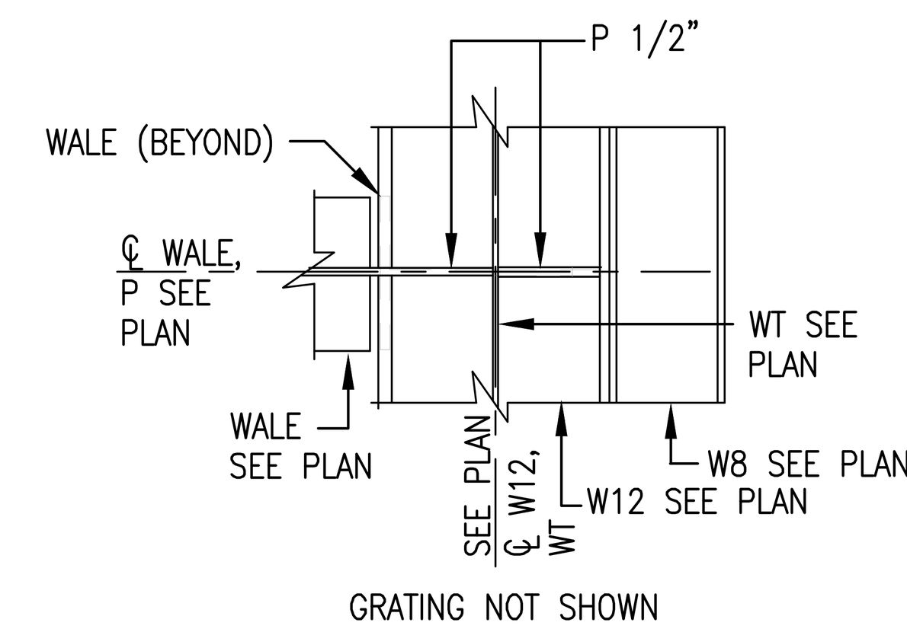
SCALE IN FEET



10 SECTION
SCALE: AS SHOWN
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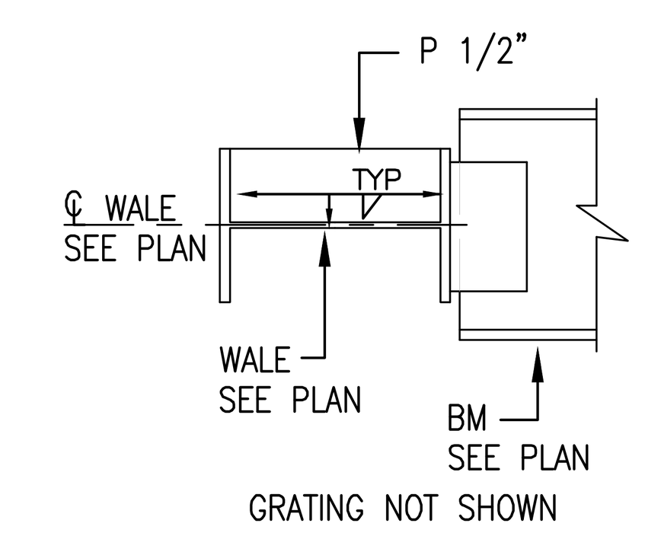
SCALE IN FEET



11 SECTION
SCALE: AS SHOWN
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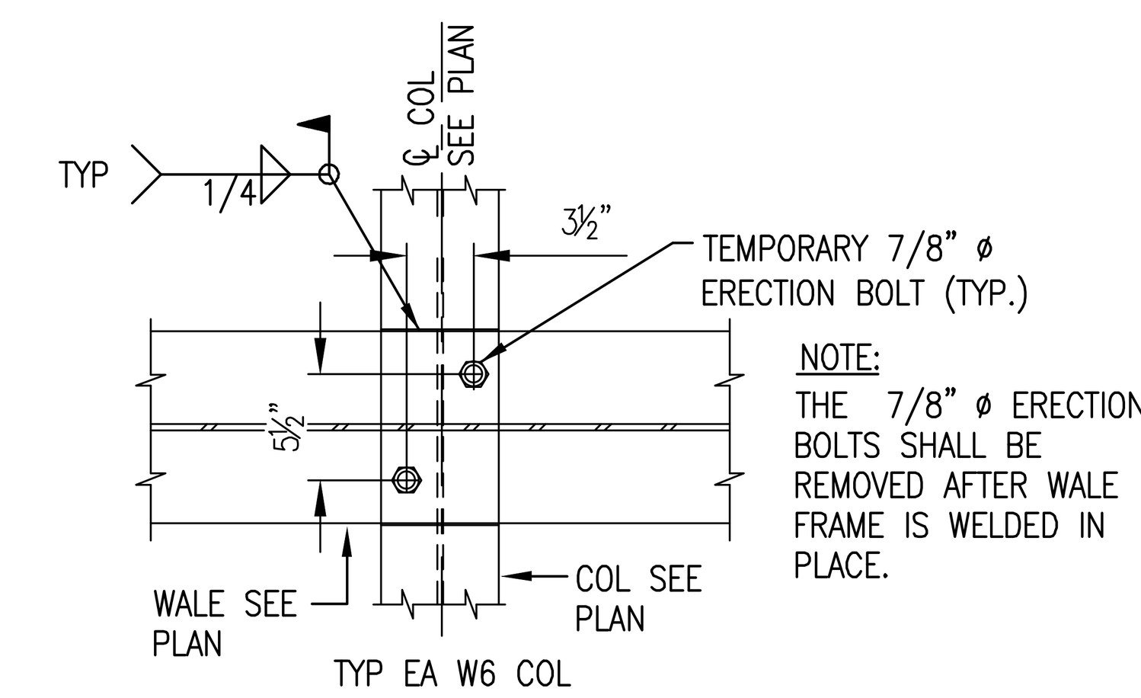
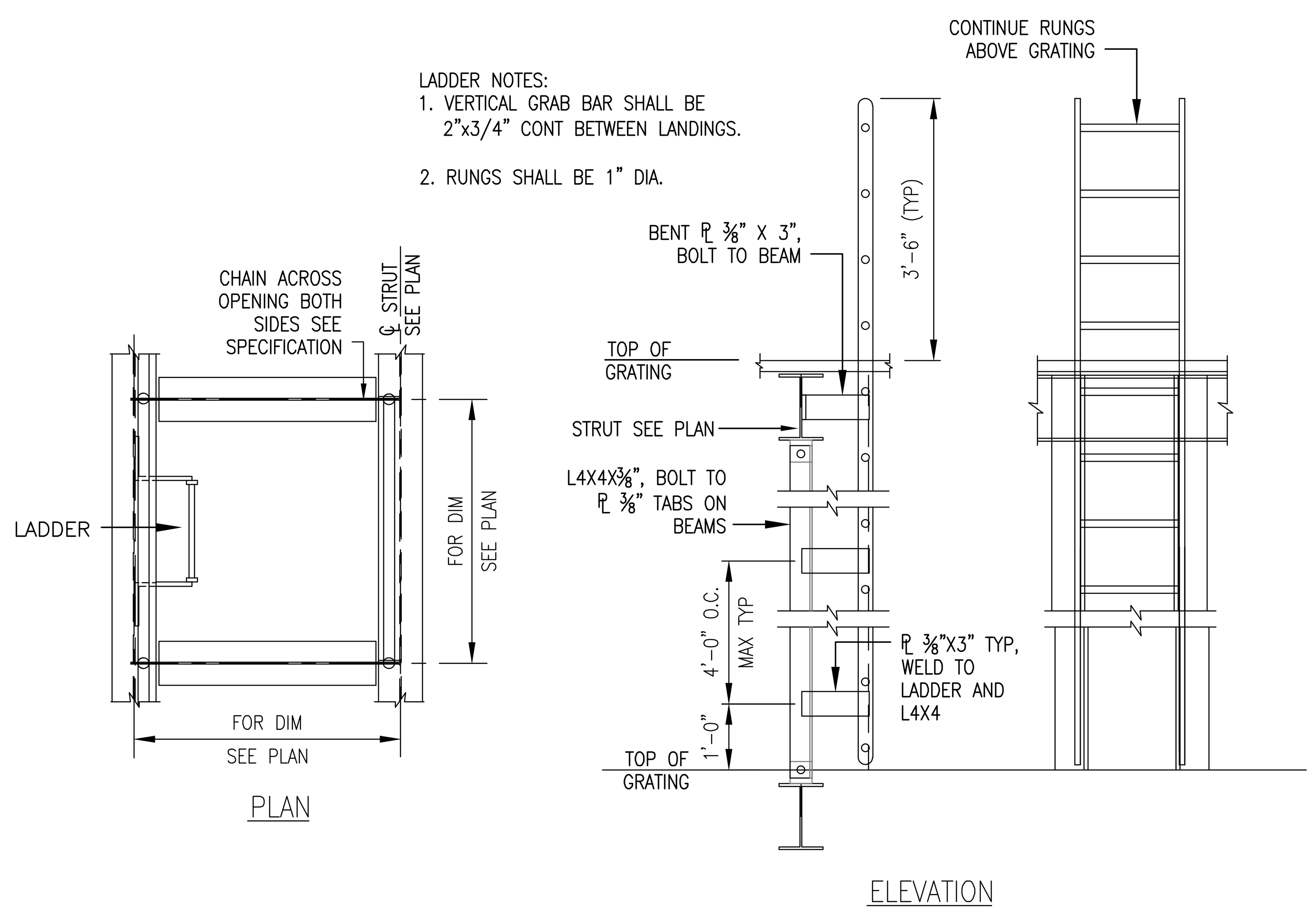
SCALE IN FEET



12 WALE - W6 COL CONNECTION
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET

LADDER NOTES:
1. VERTICAL GRAB BAR SHALL BE 2"x3/4" CONT BETWEEN LANDINGS.
2. RUNGS SHALL BE 1" DIA.



13 DETAIL - LADDER
SCALE: AS SHOWN
0 10 20 40
SCALE IN FEET

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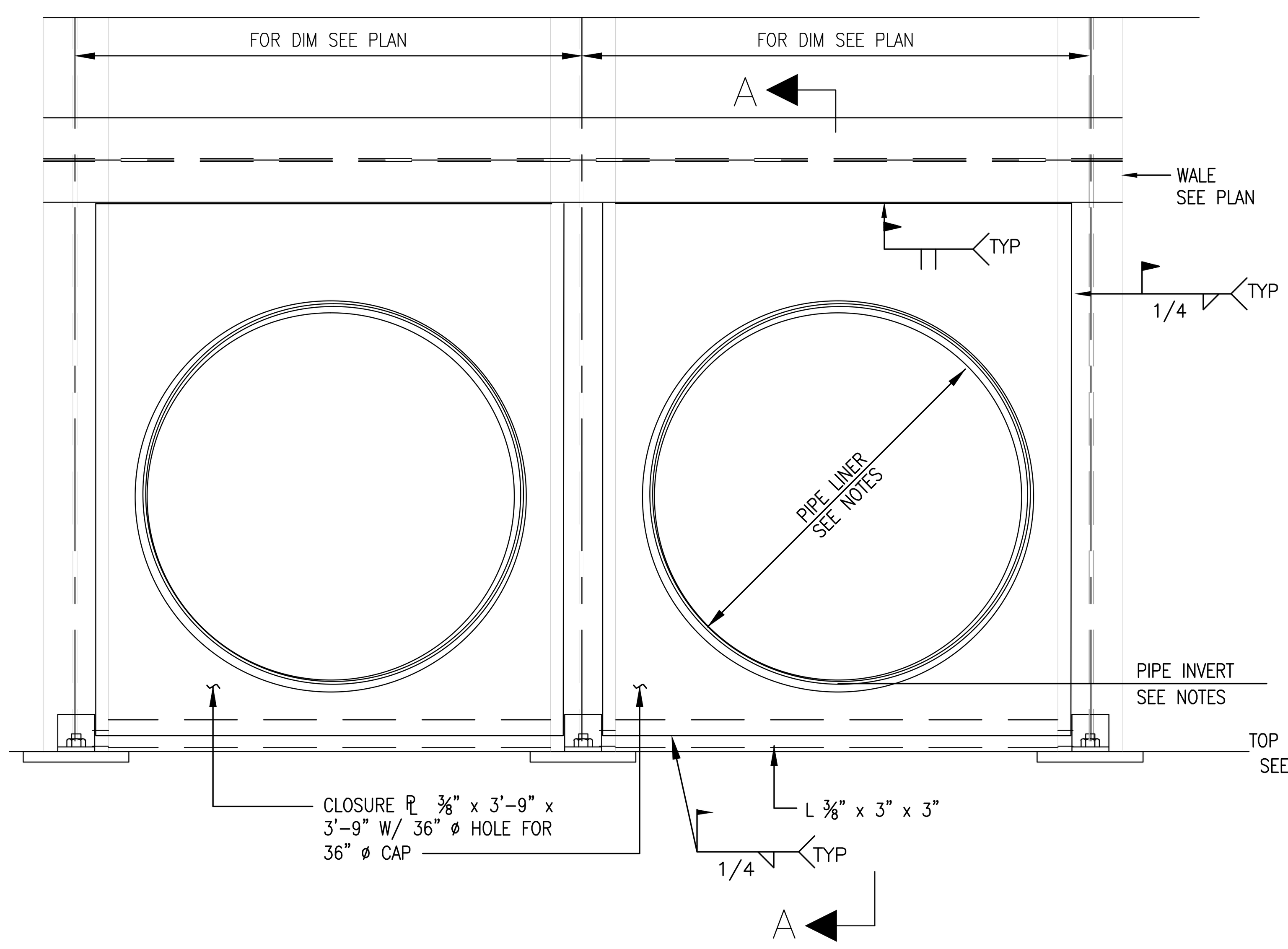
		SOLICITATION NUMBER: IFB W912BU-1X-XXXX
DWG SCALE: AS SHOWN		CONTRACT NUMBER: -
DWG. SIZE: 30"x42" Arch E1	FILE NAME: C-204 DETAILS.dwg	

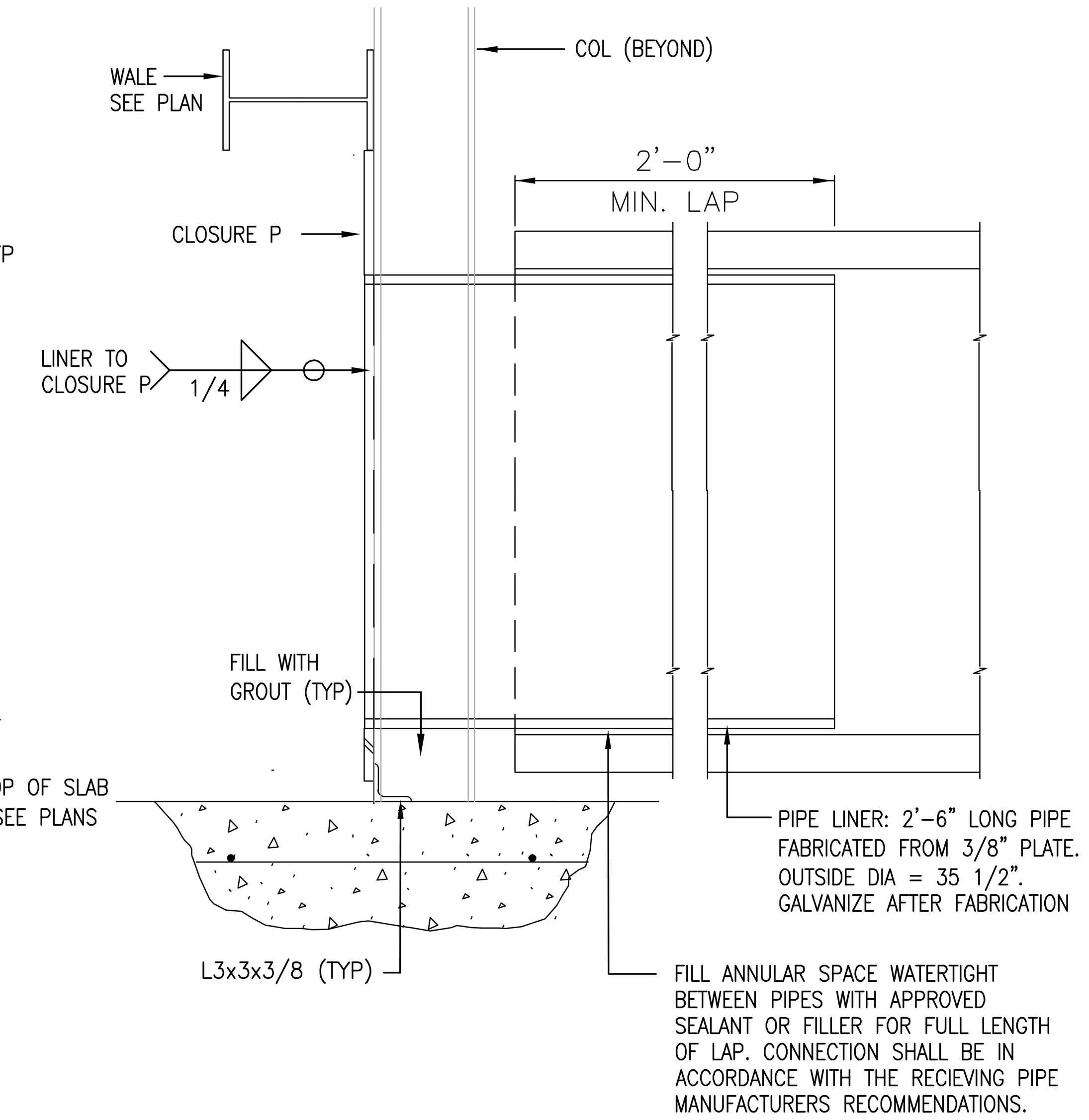
DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS

DETAILS

SHEET NUMBER
C-204

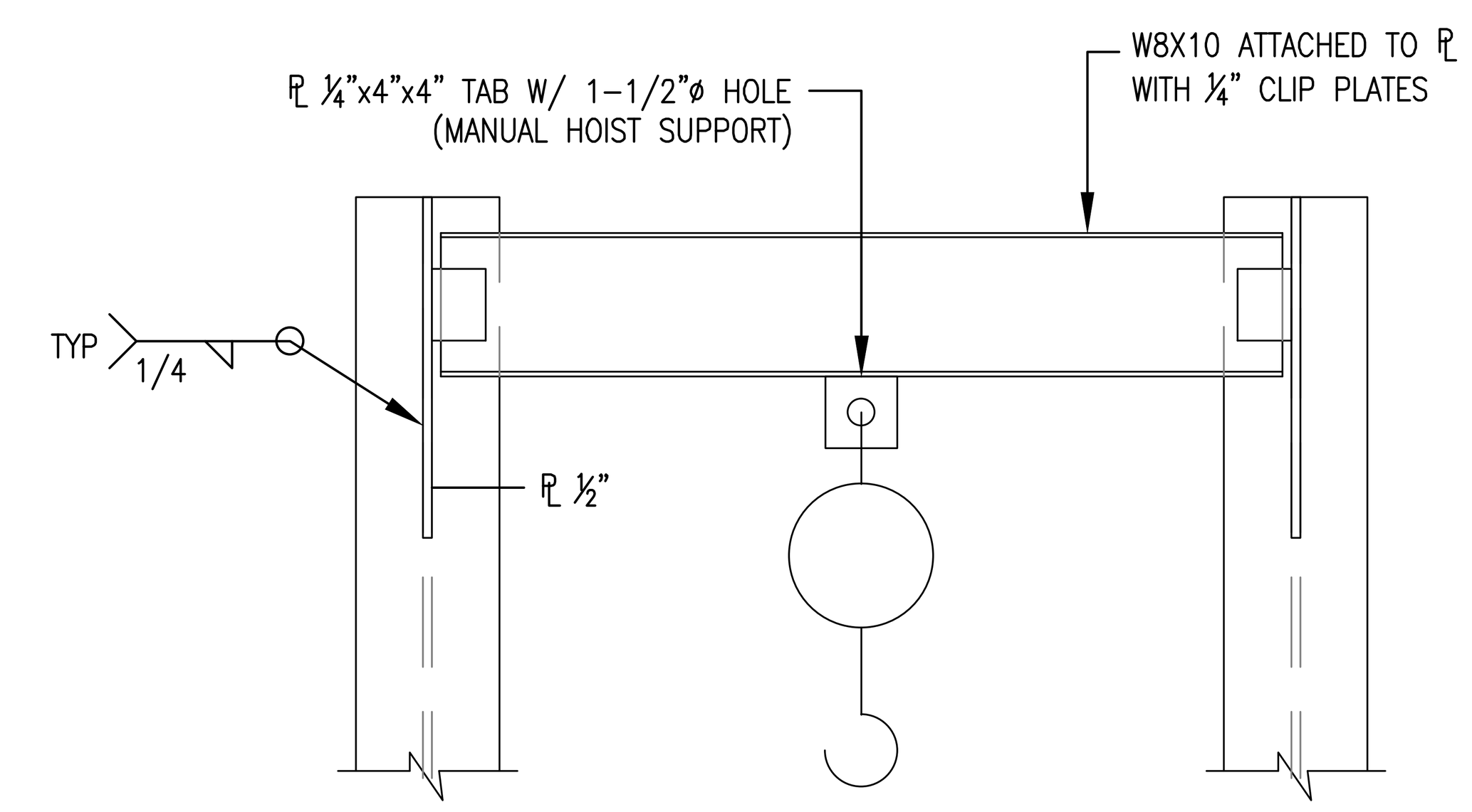


ELEVATION

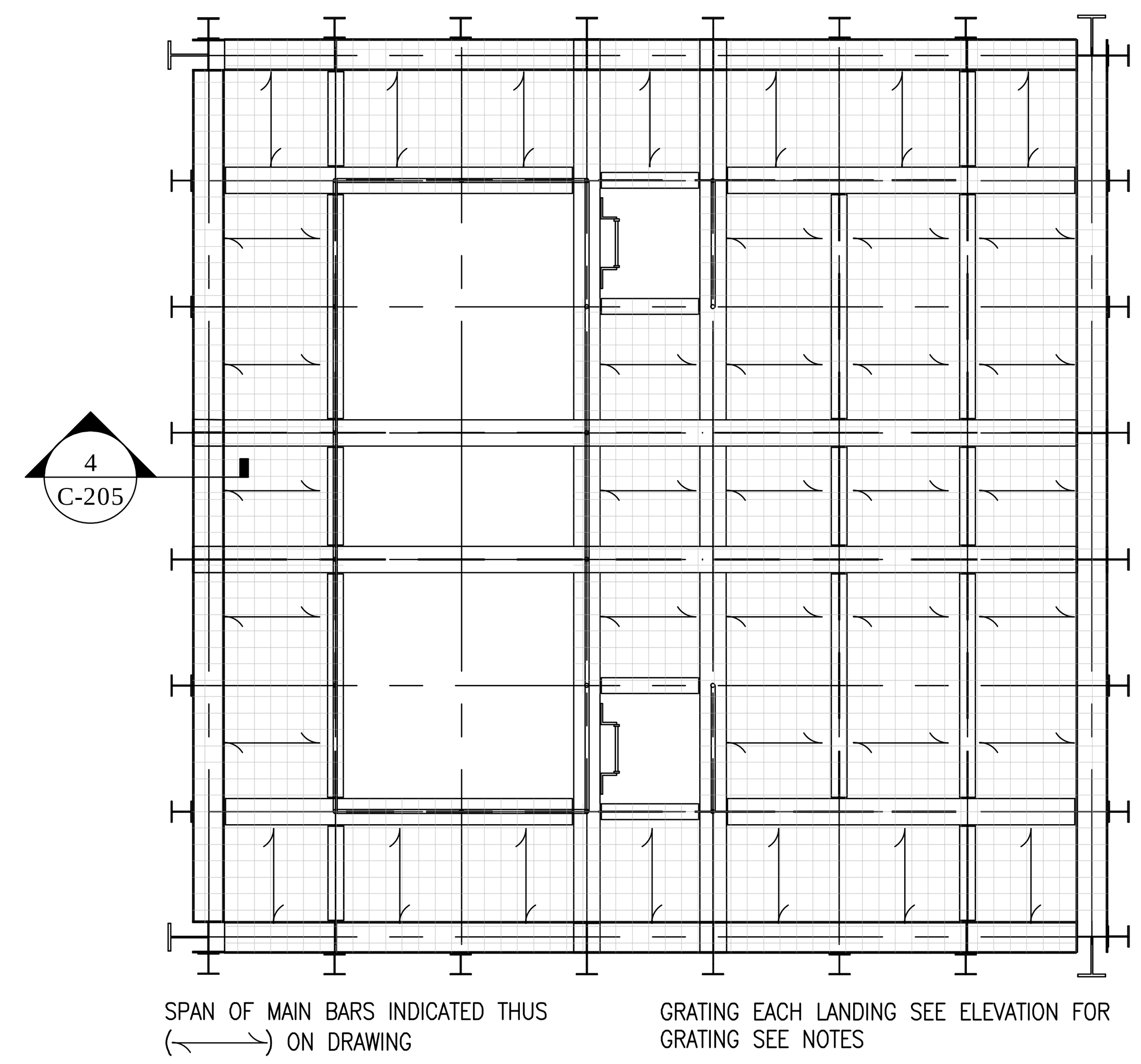


SECTION A–A

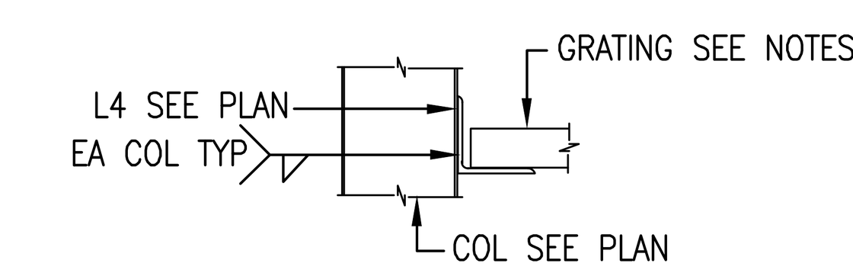
1 DETAIL
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET



2 DETAIL - HOIST BM
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET



3 PLAN - GRATING
SCALE: NTS



4 DETAIL
SCALE: AS SHOWN
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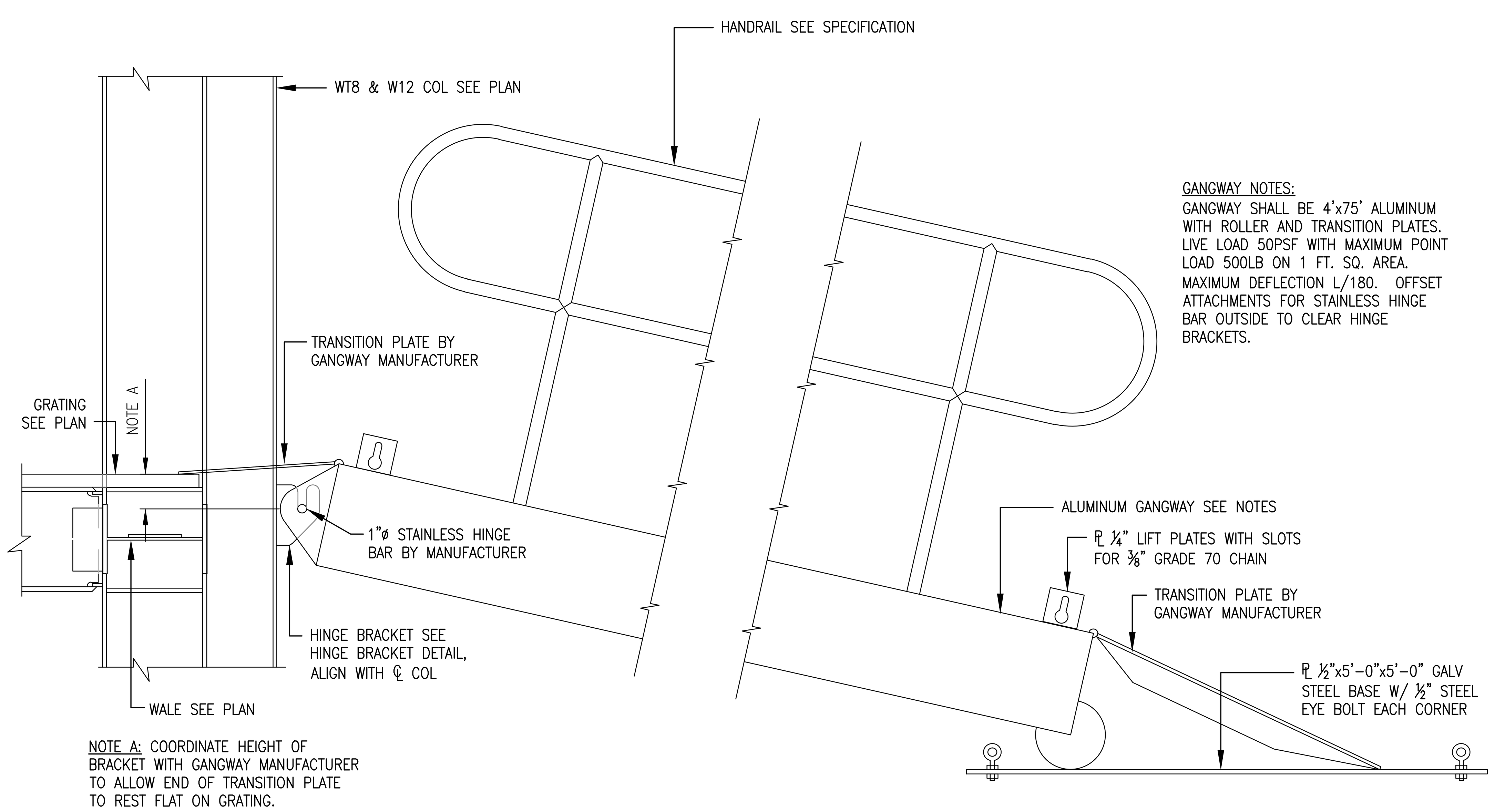
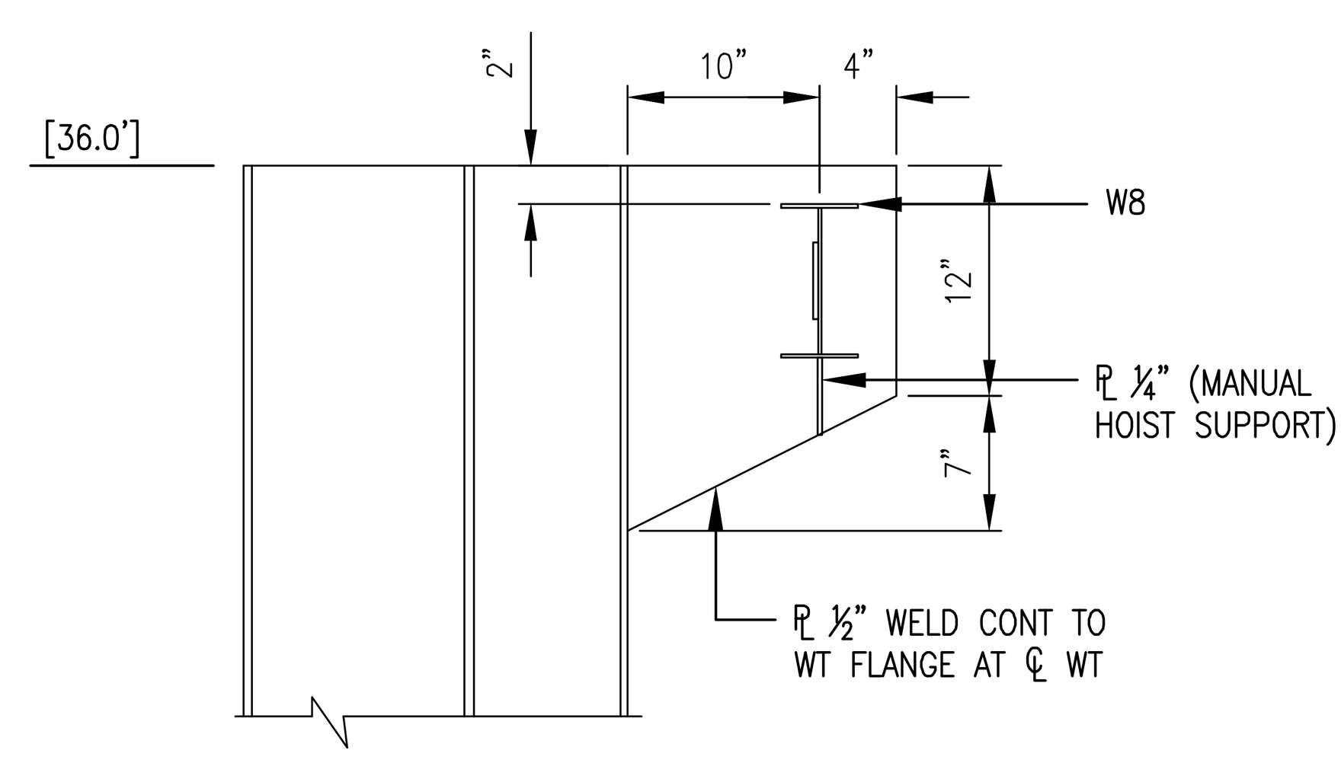
SCALE IN FEET



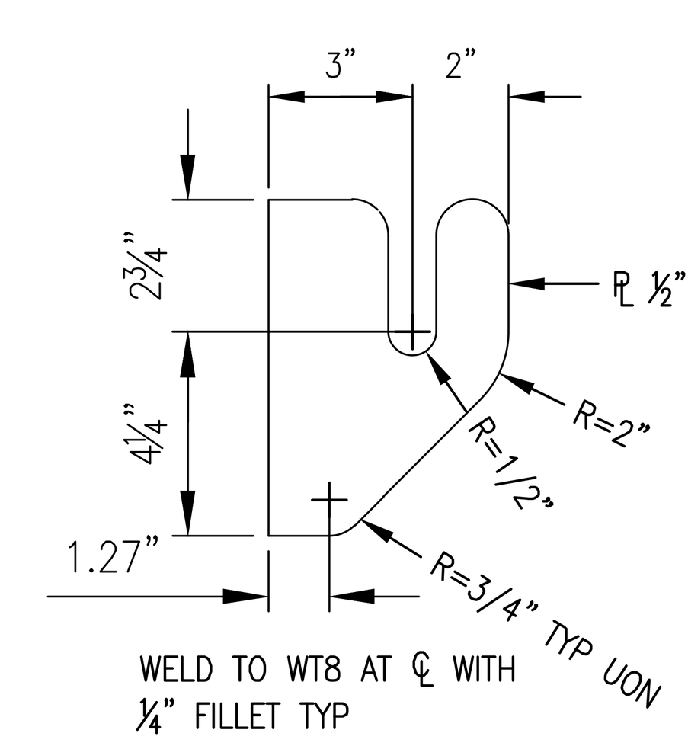
GANGWAY NOTES:
GANGWAY SHALL BE 4'x75' ALUMINUM WITH ROLLER AND TRANSITION PLATES. LIVE LOAD 50PSF WITH MAXIMUM POINT LOAD 500LB ON 1 FT. SQ. AREA. MAXIMUM DEFLECTION L/180. OFFSET ATTACHMENTS FOR STAINLESS HINGE BAR OUTSIDE TO CLEAR HINGE BRACKETS.

NOTE A: COORDINATE HEIGHT OF BRACKET WITH GANGWAY MANUFACTURER TO ALLOW END OF TRANSITION PLATE TO REST FLAT ON GRATING.

5 DETAIL - GANGWAY
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET



6 DETAIL - HOSIT BM
SCALE: AS SHOWN
0 5 10 20
SCALE IN FEET



7 DETAIL - HINGE BRACKET
SCALE: AS SHOWN
0 2 4 8
SCALE IN FEET

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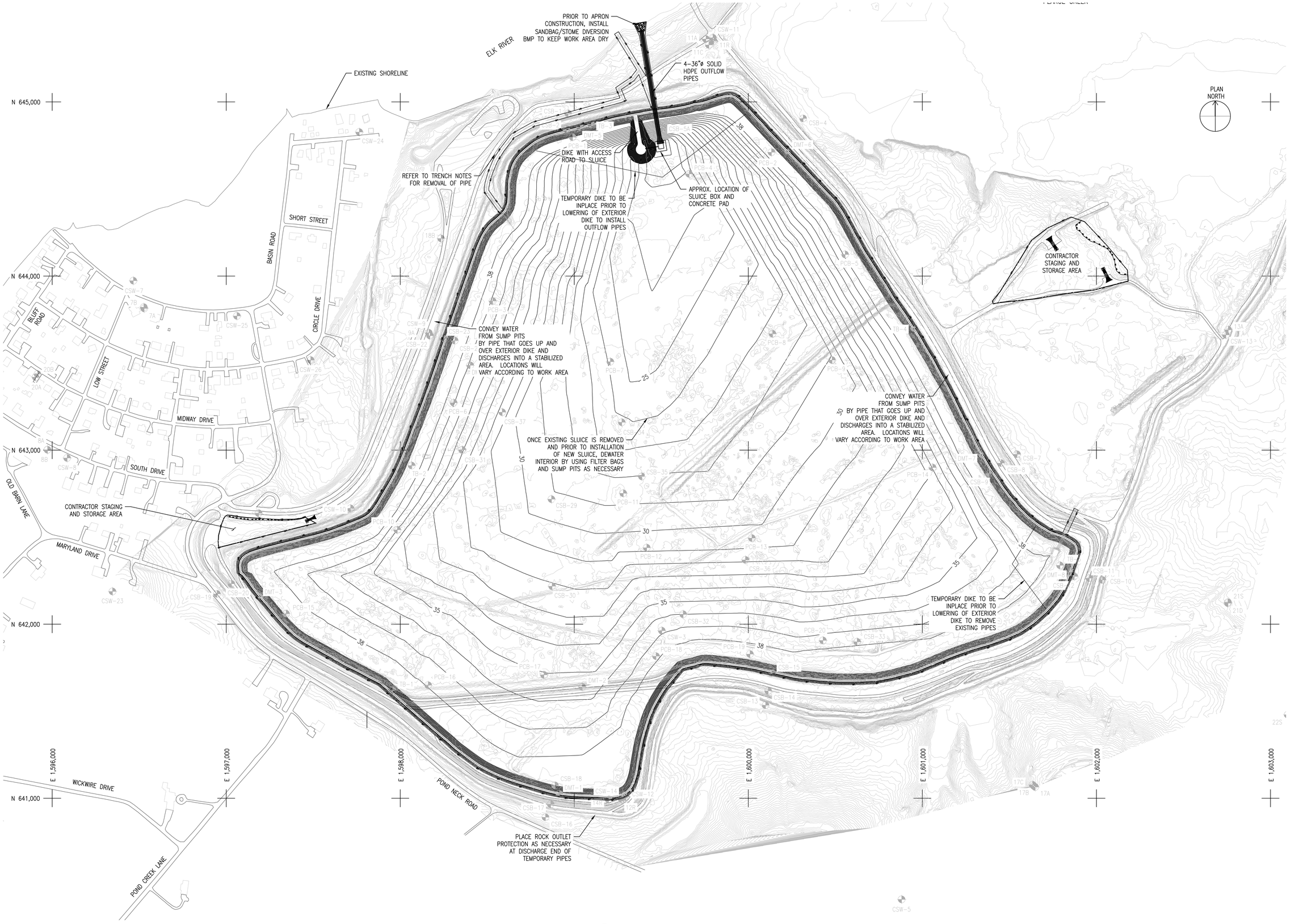
DWG SCALE: AS SHOWN		CONTRACT NUMBER: -
DWG. SIZE: 30"x42" Arch E1	FILE NAME: C-205 DETAILS.dwg	

DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS

DETAILS

SHEET NUMBER
C-205



1 PLAN - EROSION CONTROL
SCALE = 1" = 200'

0 100 200 400
SCALE IN FEET

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DESIGNED BY: RAL	ISSUE/RELEASE DATE: 90% 30 JUN 14
DRAWN BY: SJP	CHECKED BY: RICHTER
CAD BY: SJP	PROJ. NUMBER:
	SOLICITATION NUMBER: W912BV-15-X-XXXX
	CONTRACT NUMBER:
DWG. SCALE: 1"=200'	FILE NAME: DE500_EROSION CONTROL PLAN.dwg
DWG. SIZE: 22"X34" ARCH E	

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DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS
SOIL EROSION CONTROL PLAN

SHEET NUMBER
CE-500

STANDARD EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR SHALL NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) SEDIMENT CONTROL INSPECTOR AT 410-901-4020 AT LEAST 48 HOURS PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES AND, UNLESS WAIVED BY THE SEDIMENT CONTROL INSPECTOR, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING AT THE PROJECT SITE. THE CONTRACTOR MUST PROVIDE THE NAME OF THE PERSON ON THE SITE WHO IS RESPONSIBLE FOR INSPECTION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES AND A COPY OF THEIR GREEN CARD TO THE SEDIMENT CONTROL INSPECTOR.

2. ALL PROJECTS WITH CONSTRUCTION ACTIVITIES DISTURBING 1 ACRE OR MORE ARE REQUIRED TO SUBMIT A GENERAL PERMIT (NOI) TO MDE TO COMPLY WITH THE GENERAL PERMIT FOR CONSTRUCTION ACTIVITY FOR STORMWATER DISCHARGES. THE GENERAL PERMIT (NOI) MUST BE APPROVED PRIOR TO DISTURBANCE ACTIVITIES. TO OBTAIN A GENERAL PERMIT (NOI) FORM, CONTACT THE PERMITS COORDINATOR AT THE MDE COMPLIANCE PROGRAM AT 410-537-3510.

3. THE LIMIT OF DISTURBANCE SHALL BE CLEARLY DELINEATED IN THE FIELD PRIOR TO THE PRE-CONSTRUCTION MEETING AND ANY GRADING ACTIVITIES TO ENSURE COMPLIANCE WITH THE APPROVED PLAN.

4. THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE KEPT AT THE PROJECT SITE.

5. THE MDE RESERVES THE RIGHT TO MODIFY THE EROSION AND SEDIMENT CONTROL PLANS.

6. THE MDE MAY REVOKE THE APPROVAL OF THE EROSION AND SEDIMENT CONTROL PLAN IF WORK PERFORMED AT THE PROJECT SITE DOES NOT CONFORM TO THE PROVISIONS OF THE GRADING PERMIT, TO THE APPROVED PLAN OR TO ANY WRITTEN INSTRUCTIONS FROM MDE.

7. THE CONTRACTOR MUST REQUEST THAT THE SEDIMENT CONTROL INSPECTOR APPROVE WORK COMPLETED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN, AT THE FOLLOWING POINTS OF PROJECT DEVELOPMENT:

   A. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL MEASURES BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY MDE IS MADE.

   B. PRIOR TO REMOVAL OR MODIFICATION OF ANY SEDIMENT CONTROL STRUCTURE(S).

   C. UPON FINAL STABILIZATION OF THE SITE AND PRIOR TO THE REMOVAL OF ANY SEDIMENT CONTROL MEASURES.

8. THE CONTRACTOR SHALL CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES PER THE APPROVED PLAN AND CONSTRUCTION SEQUENCE AND SHALL HAVE THEM INSPECTED AND APPROVED BY THE SEDIMENT CONTROL INSPECTOR PRIOR TO BEGINNING ANY OTHER LAND DISTURBANCES.

9. THE CONTRACTOR SHALL ENSURE THAT ALL RUNOFF FROM DISTURBED AREAS IS DIRECTED TO THE SEDIMENT CONTROL DEVICES AND SHALL NOT REMOVE ANY EROSION OR SEDIMENT CONTROL MEASURE WITHOUT PRIOR PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR.

10. THE FOLLOWING MINOR PLAN MODIFICATIONS MAY BE APPROVED BY THE SEDIMENT CONTROL INSPECTOR IN THE FIELD:

    A. SEDIMENT CONTROL STRUCTURES (EXCEPT BASINS AND TRAPS) MAY BE MOVED TO MEET THE EXISTING CONTOURS AND FIELD CONDITIONS, WHEN MOVING THESE STRUCTURES WOULD HAVE NO IMPACT ON THEIR FUNCTION OR DESIGN CRITERIA.

    B. SUBSTITUTION OF PERIMETER CONTROL MEASURES MAY BE MADE PROVIDED THE MEASURE SUBSTITUTED IS EQUIVALENT (I.E., SILT FENCE FOR STRAW BALES) OR IS AN UPGRADE OF THE ORIGINAL MEASURE (I.E., SILT FENCE TO A PERIMETER BERM WITH PROPERLY SIZED OUTLET).

    C. ADDITION AND EXTENSION OF PERIMETER CONTROLS (INCLUDING STONE CONSTRUCTION ENTRANCES) MAY BE MADE TO MEET FIELD CONDITIONS. ANY MODIFICATIONS TO THE PLAN WHICH ARE NOT LISTED ABOVE REQUIRE THE PLAN TO BE SUBMITTED TO THE MDE FOR REVIEW AND APPROVAL.

11. THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT THE DEPOSITION OF MATERIALS ONTO PUBLIC ROADS. ALL MATERIALS DEPOSITED ONTO PUBLIC ROADS SHALL BE REMOVED IMMEDIATELY.

12. ON-SITE TEMPORARY STOCKPILE AREAS MUST BE PLACED AS SHOWN ON THE APPROVED PLAN. IF THE CONSTRUCTION SCHEDULE IS TO EXCEED 3 DAYS, THE STOCKPILE AREAS MUST BE STABILIZED. STOCKPILE AREAS SHOULD NOT EXCEED FIFTEEN FEET IN HEIGHT. IF A STOCKPILE IS TO EXCEED FIFTEEN FEET IN HEIGHT, IT MUST BE SHOWN ON THE PLAN TO BE TERRACED WITH PIPE SLOPE DRAINS INSTALLED AND APPROVED BY MDE. UPON THE COMPLETION OF THE USE OF THE STOCKPILE AREA, EXISTING GROUND SURFACES SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS AND PERMANENTLY STABILIZED.

13. VARIOUS STEPS IN THE SEQUENCE OF CONSTRUCTION MAY REQUIRE THE CONTRACTOR TO REMOVE EXCESS EXCAVATED MATERIAL TO AN APPROVED LOCATION OR TO IMPORT MATERIAL FROM AN APPROVED LOCATION. FOR PURPOSES OF THIS PLAN, AN APPROVED LOCATION SHALL BE ONE WHICH IS OPERATING UNDER AN APPROVED EROSION AND SEDIMENT CONTROL PLAN AND AN ACTIVE GRADING PERMIT AT THE TIME OF CONSTRUCTION.

14. THE CONTRACTOR SHALL INSPECT DAILY AND MAINTAIN CONTINUOUSLY IN AN EFFECTIVE OPERATING CONDITION ALL EROSION AND SEDIMENT CONTROL MEASURES UNTIL SUCH TIME AS THEY ARE REMOVED WITH PRIOR PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR.

15. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:

    A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES EQUAL TO OR GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1), AND

    B. SEVEN (7) DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

    THE ABOVE REQUIREMENTS DO NOT APPLY TO THOSE AREAS WHICH ARE SHOWN ON THE PLAN AND ARE CURRENTLY BEING USED FOR MATERIAL STORAGE OR FOR THOSE AREAS ON WHICH ACTUAL CONSTRUCTION ACTIVITIES ARE CURRENTLY BEING PERFORMED OR TO INTERIOR AREAS OF A SURFACE MINE SITE WHERE THE STABILIZATION MATERIAL WOULD CONTAMINATE THE RECOVERABLE RESOURCE. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE THAT THE STABILIZED AREAS CONTINUOUSLY MEET THE APPROPRIATE REQUIREMENTS OF THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

16. SEDIMENT CONTROL PRACTICES WILL BE MAINTAINED UNTIL THE ENTIRE CONTRIBUTING AREA TO THE PRACTICE HAS BEEN PERMANENTLY STABILIZED AND MEETS THE SATISFACTION OF THE SEDIMENT CONTROL INSPECTOR. SEDIMENT CONTROLS MAY ONLY BE REMOVED WITH THE AUTHORIZATION OF THE SEDIMENT CONTROL INSPECTOR.

17. ALL AREAS DISTURBED BY THE REMOVAL OF SEDIMENT CONTROL DEVICES MUST BE IMMEDIATELY STABILIZED.

18. SURFACE DRAINAGE FLOWS OVER UNSTABILIZED CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER PREVENTING DRAINAGE FLOWS FROM TRAVERSING THE SLOPES OR BY INSTALLING PROTECTIVE DEVICES TO CONVEY THE WATER DOWNSLOPE WITHOUT CAUSING EROSION. DIKES SHALL BE INSTALLED AND MAINTAINED AT THE TOP OF CUT OR FILL SLOPES UNTIL THE SLOPE AND DRAINAGE AREA TO IT ARE FULLY STABILIZED, AT WHICH TIME THE DIKES MUST BE REMOVED AND FINAL GRADING DONE TO PROMOTE SHEET FLOW DRAINAGE. EROSION CONTROL MEASURES MUST BE IMPLEMENTED AT POINTS OF CONCENTRATED FLOW WHERE EROSION IS LIKELY TO OCCUR.

19. NO PERMANENT CUT OR FILL SLOPE WITH A GRADIENT STEEPER THAN 3:1 WILL BE PERMITTED IN LAWN MAINTENANCE AREAS. A SLOPE GRADIENT OF UP TO 2:1 WILL BE PERMITTED IN NON-MAINTENANCE AREAS PROVIDED THAT THOSE AREAS ARE INDICATED ON THE EROSION AND SEDIMENT CONTROL PLANS WITH A LOW-MAINTENANCE GROUND COVER SPECIFIED FOR PERMANENT STABILIZATION. SLOPE GRADIENT STEEPER THAN 2:1 WILL NOT BE PERMITTED WITH VEGETATION STABILIZATION.

20. ALL FLOW LINES ARE TO BE STABILIZED WITH SOD OR SEED WITH EROSION CONTROL MATTING TO A DEPTH OF FLOW OF 1 FOOT.

21. SEDIMENT TRAPS OR BASINS ARE NOT PERMITTED WITHIN 20 FEET OF A FOUNDATION WHICH IS EXISTING OR UNDER CONSTRUCTION. NO STRUCTURE MAY BE CONSTRUCTED WITHIN 20 FEET OF AN ACTIVE SEDIMENT TRAP OR BASIN.

22. TEMPORARY SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE CLEANED OUT AND RESTORED TO THE ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO ONE HALF (1/2) THE WET STORAGE DEPTH OF THE TRAP OR BASIN.

23. SEDIMENT REMOVED FROM TRAPS (AND BASINS) SHALL BE PLACED AND STABILIZED IN APPROVED AREAS, BUT NOT WITHIN A FLOODPLAIN, WETLAND OR FOREST RETENTION AREA. WHEN PUMPING SEDIMENT LADEN WATER, THE DISCHARGE MUST BE DIRECTED TO A SEDIMENT TRAPPING DEVICE PRIOR TO RELEASE FROM THE SITE.

24. FOR APPROVED DEWATERING STRATEGIES FOR TRAPS AND BASINS, SEE SECTION F OF THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. PUMPING SEDIMENT LADEN WATER INTO THE WATERS OF THE STATE WITHOUT FILTRATION IS STRICTLY FORBIDDEN.

25. SEDIMENT CONTROL DEVICES PLACED IN INFILTRATION AREAS MUST HAVE BOTTOM ELEVATIONS AT LEAST TWO (2) FEET HIGHER THAN THE FINISHED GRADE ELEVATION OF THE INFILTRATION PRACTICE. WHEN CONVERTING A SEDIMENT TRAP TO AN INFILTRATION DEVICE, ALL ACCUMULATED SEDIMENT MUST BE REMOVED AND DISPOSED OF PRIOR TO FINAL GRADING OF INFILTRATION DEVICE.

26. THE DEVELOPER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITIES. FURTHER, THE ISSUANCE OF A GRADING PERMIT DOES NOT RELIEVE THE DEVELOPER OF THE RESPONSIBILITY TO OBTAIN ANY ADDITIONAL LOCAL, STATE OR FEDERAL PERMITS.

27. SITE INFORMATION:
A. TOTAL AREA OF FACILITY: 260 ACRES
B. TOTAL AREA OF PROJECT SITE: 267 ACRES
C. AREA DISTURBED: 267 ACRES
D. AREA TO BE ROOFED OR PAVED: 0 ACRES
E. TOTAL CUT: 1,400,000 CUBIC YARDS
F. TOTAL FILL: 1,400,000 CUBIC YARDS
G. OFF-SITE WASTE / BORROW AREA LOCATION: N/A

MDE STANDARD SEDIMENT AND EROSION CONTROL STABILIZATION NOTES

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION

1.A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

1.B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

1.C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

2. PERMANENT STABILIZATION

2.A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:

2.A.1. SOIL PH BETWEEN 6.0 AND 7.0.

2.A.2. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).

2.A.3. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.

2.A.4. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.

2.A.5. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

2.B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.

2.C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.

2.D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.

2.E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING

1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.

3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:

3.A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.

3.B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.

3.C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

3.D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.

5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:

5.A. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.

5.B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

5.C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

6. TOPSOIL APPLICATION

6.A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.

6.B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

6.C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.

2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.

3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.

4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

A. SEEDING

1. SPECIFICATIONS

1.A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.

1.B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.

1.C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

1.D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

2. APPLICATION

2.A. A DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.

2.A.1. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.

2.A.2. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

2.B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

2.B.1. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

2.B.2. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

2.C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).

2.C.1. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (POTASSIUM), 200 POUNDS PER ACRE.

2.C.2. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

2.C.3. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.

2.C.4. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)

1.A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

1.B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

1.B.1. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

1.B.2. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

1.B.3. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

1.B.4. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.

1.B.5. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

2. APPLICATION

2.A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

2.B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.

2.C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

3. ANCHORING

3.A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:

3.A.1. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.

3.A.2. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

3.A.3. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.

3.A.4. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

US Army Corps of Engineers
Philadelphia District

U.S. ARMY CORPS OF ENGINEERS
PHILADELPHIA DISTRICT
PHILADELPHIA, PA 19107-3390
www.nap.usace.army.mil

MARK	ACTION	DESCRIPTION	DATE	BY
-	-	-	-	-

DWN BY: SJP	DESIGNED BY: RAL
CKD BY: DAN	REVIEWED BY: DCL / TEH
DWG SCALE: NTS	
DWG. SIZE: 30"x42" Arch E1	FILE NAME: CE-501 SOIL EROSION CONTROL PLAN NOTES.dwg
ISSUE/RELEASE DATE: 90% 30 JUN 14	PROJ. NUMBER: -
SOLICITATION NUMBER: IFB W912BU-1X-XXXX	CONTRACT NUMBER: -

DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS
SOIL EROSION CONTROL PLAN NOTES

SHEET NUMBER
CE-501

B-4-5 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

A. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS

1.A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.

1.B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF ¾ INCH, PLUS OR MINUS ¼ INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

1.C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.

1.D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

1.E. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION

2.A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.

2.B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.

2.C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

2.D. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.

3. SOD MAINTENANCE

3.A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.

3.B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

3.C. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN ⅓ OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

SEQUENCE OF CONSTRUCTION

1. CONTRACTOR SHALL OBTAIN "NOTICE TO PROCEED".
2. AT LEAST 7 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE CONTRACTOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, ALL APPROPRIATE MUNICIPAL AND STATE OFFICIALS, THE CONTRACTING OFFICER, TO AN ON-SITE MEETING.
3. CONTRACTOR SHALL NOTIFY THE MDE INSPECTOR 48 HOURS PRIOR TO ANY LAND DISTURBING ACTIVITY.
4. MOBILIZE STAGING AND PROVIDE CONSTRUCTION ENTRANCE(S).
5. CLEAR AND GRUB IN THOSE AREAS NECESSARY FOR INSTALLATION OF PERIMETER CONTROLS. ESTABLISH PERIMETER CONTROLS USING SEDIMENT BARRIERS AS SHOWN IN PLANS.
6. CLEAR AND GRUB WITHIN THE CONFINED DISPOSAL AREA AS NEEDED FOR CONSTRUCTION OPERATIONS.
7. INSTALL A TEMPORARY DIKE WITHIN THE CDF AS SHOWN IN THE PLANS AROUND THE EXISTING SLUICE PRIOR TO LOWERING THE PERIMETER DIKE FOR EXISTING PIPE REMOVAL.
8. THE EXISTING SLUICE STRUCTURE AND OUTLET PIPES SHALL BE REMOVED AND THE DIKE SHALL BE REGRADED TO +47 FT. NAVD88.
9. ACHIEVE PROPOSED GRADES WITHIN THE CONFINED DISPOSAL AREA AS SHOWN AND INSTALL LINER AT ELEVATION +47 FT. NAVD88 ONLY ALONG THE PERIMETER DIKES.
10. RAISE DIKES TO FINAL ELEVATION OF +50 FT. NAVD88.
11. DURING GRADING WORK, SEDIMENT SHALL BE RETAINED FROM RUNOFF WITHIN THE CONFINED DISPOSAL AREA BY UTILIZING APPROVED DEWATERING BMPS SUCH AS FILTER BAGS AND SUMP PITS. CLEAR WATER SHALL BE DISCHARGED BY UTILIZING PUMPS AND SLOPE PIPES UP AND OVER THE EXTERNAL DIKE. THE PIPES SHALL DISCHARGE TO STABILIZED AREAS.
12. APPROVED BMPS SUCH AS TEMPORARY DIKES AND SWALES SHALL BE USED AS NECESSARY TO CONVEY WATER FROM THE WORK AREA TO THE DEWATERING BMPS.
13. INSTALL THE NEW SLUICE INLET STRUCTURE.
14. INSTALL A TEMPORARY DIKE WITHIN THE CDF AROUND THE NEW SLUICE OPENING AS SHOWN ON THE PLANS PRIOR TO LOWERING THE PERIMETER DIKE FOR PIPE INSTALLATION.
15. INSTALL A SANDBAG/STONE DIVERSION BMP TO KEEP WORK AREA DRY PRIOR TO CONSTRUCTION OF THE ROCK APRON FOR THE SLUICE BOX OUTLET PIPES WITHIN THE ELK RIVER.
16. THE NEW SLUICE OUTLET STRUCTURE AND PIPING THROUGH AND OUTSIDE THE PERIMETER DIKE SHALL BE COMPLETED. UPON COMPLETION OF THE PIPING WITHIN THE FOOTPRINT OF THE PERIMETER DIKE, RAISE THE DIKE.
17. COMPLETE PROJECT ELEMENTS INCLUDING SITE GRADING AND DRAINAGE, AND NEW SLUICE BOX.
18. WHEN FINAL GRADES ARE ACHIEVED, STABILIZE THE SIDE SLOPES AND TOP OF THE EXTERIOR DIKE WITH PERMANENT STABILIZATION.
19. WHEN STABILIZATION IS ACHIEVED, AND WITH THE PERMISSION OF MDE AND THE CONTRACTING OFFICER, REMOVE ALL TEMPORARY SEDIMENT AND EROSION CONTROLS. REPAIR ANY EROSION DAMAGE THAT MAY HAVE OCCURRED DURING CONSTRUCTION. REPAIR AND RESTORE STAGING AREAS TO PRE-PROJECT CONDITIONS.

TEMPORARY SEEDING SUMMARY

SEED MIXTURE (FOR HARDINESS ZONE 7A)					Fertilizer Rate (10-10-10)	Lime Rate
No.	SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS		
1	RYE	140	2/1 – 4/30 8/15 – 11/30	1"	600 lb/ac (15 lb/ 1000 sf)	2 tons/ac (100 lbs/ 1000 sf)
2	BARLEY PLUS FOXTAIL MILLET (MSHA TEMPORARY SEEDING MIX)	150	2/1 – 10/15	1"		
	RYE PLUS FOXTAIL MILLET (MSHA TEMPORARY SEEDING MIX)	150	2/1 – 11/30	1"		
3	ANNUAL RYEGRASS	50	2/1 – 4/30 8/15 – 11/01	¼"–½"		

PERMANENT SEEDING SUMMARY

SEED MIXTURE (HARDINESS ZONE 7A) (FROM TABLE 25)					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATE	SEEDING DEPTHS	N	P205	K20	
3	TALL FESCUE (85%)	125 lbs/ac 2.9 lbs/1000 sf	3/1 – 5/15 8/15 – 11/15	1"	90 lbs/ac. (2.0 LB/ 1000 sf)	175 lbs/ac. (4 LB/ 1000 sf)	175 lbs/ac. (4 LB/ 1000 sf)	2 tons/ac (100 LB/ 1000 sf)
	PERENNIAL RYEGRASS (10%)	15 lbs/ac .34 lbs/1000 sf		1"				
	KENTUCKY BLUEGRASS (5%)	10 lbs/ac .23 lbs/1000 sf		1"				

NOTE: FOR STANDARD AND SPECIFICATION FOR VEGETATIVE STABILIZATION, SEE SECTION G – "VEGETATIVE PRACTICES IN THE "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL".

STANDARD NOTES FOR TRENCHING

1. ONLY ENOUGH TRENCH SHOULD BE EXCAVATED WHICH CAN BE BACKFILLED DAILY.
2. EXCAVATED TRENCH MATERIALS SHOULD BE PLACED ON THE HIGH SIDE OF THE TRENCH.
3. IMMEDIATELY FOLLOWING PIPE INSTALLATION, THE TRENCH SHALL BE BACKFILLED, COMPACTED AND STABILIZED AT THE END OF EACH WORKING DAY. NO MORE TRENCH SHALL BE OPENED THAN CAN BE COMPLETED IN THE SAME DAY.
4. FULL TRENCH COMPACTION IS REQUIRED.
5. MULCHING TO MDE SCD SPECIFICATIONS OF ALL DISTURBED AREAS AND DAILY ON BACKFILL WILL BE REQUIRED.
6. ANY SEDIMENT CONTROL PRACTICES WHICH ARE DISTURBED DURING TRENCHING SHALL BE REPAIRED OR REPLACED AT THE END OF EACH WORKING DAY.
7. ANY DITCHES OR DRAINAGE WAYS DISTURBED DURING CONSTRUCTION WILL BE RESTORED TO ORIGINAL CONDITION.

ADDITIONAL CERTIFICATION

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland,

License No. ______________________ Expiration Date: ____________________

DESIGN CERTIFICATION

I hereby certify that this plan has been designed in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control, the 2000 Maryland Stormwater Design Manual, Volumes I & II and the Maryland Department of the Environment erosion and sediment control and stormwater management regulations.

______________________________ Date

______________________________ Designer's Signature

Md. Registration No. _______________ ______________________________

P.E., R.L.S., RLA, or R.A. (circle one) Printed Name

OWNER'S / DEVELOPER'S CERTIFICATION

I / We hereby certify thall all clearing, grading, construction, and/or development will be done pursuant to this plan and that any responsible personnel involved in the construction project will have a certificate of attendance at a Maryland Department of the Environment approved training program for the control of erosion and sediment before beginning the project. I hereby authorize the right of entry for periodic, on-site evaluation by State of Maryland, Department of the Environment, Compliance Inspectors.

______________________________ Date

______________________________ Owner / Developer Signature

______________________________ Card No.

______________________________ Printed Name and Title

US Army Corps of Engineers ® Philadelphia District

U.S. ARMY CORPS OF ENGINEERS
PHILADELPHIA DISTRICT
PHILADELPHIA, PA 19107-3390
www.nap.usace.army.mil

DWN BY: SJP | DESIGNED BY: RAL | ISSUE/RELEASE DATE: 90% 30 JUN 14
CKD BY: DAN | REVIEWED BY: DCL / TEH | PROJ. NUMBER: -
SOLICITATION NUMBER: IFB W912BU-1X-XXXX
DWG SCALE: NTS | CONTRACT NUMBER: -
DWG. SIZE: 30"x42" Arch E1 | FILE NAME: CE-502 SOIL EROSION CONTROL PLAN NOTES.dwg

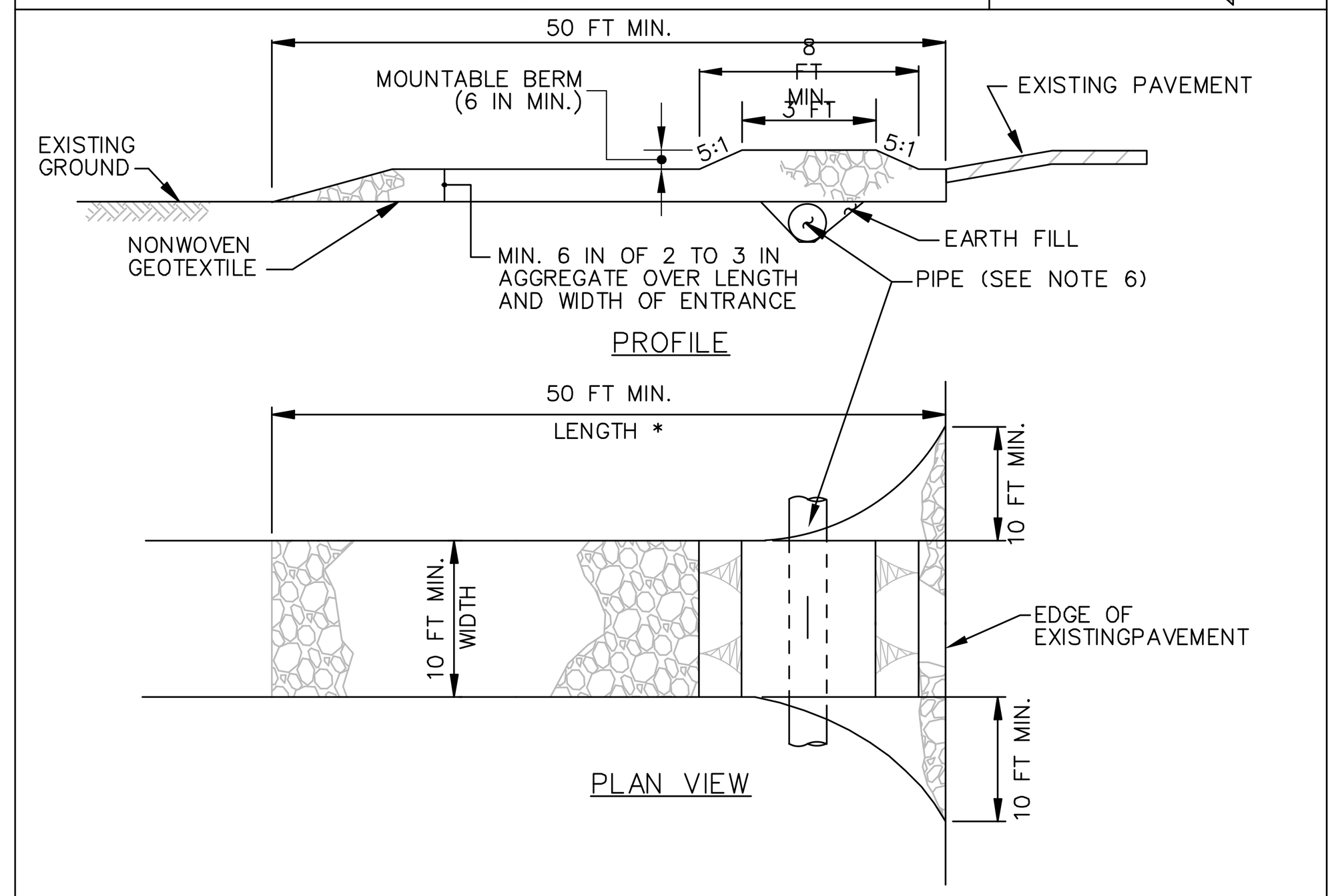
DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY
MODIFICATIONS
SOIL EROSION CONTROL PLAN NOTES

SHEET NUMBER
CE-502

1 2 3 4 5

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

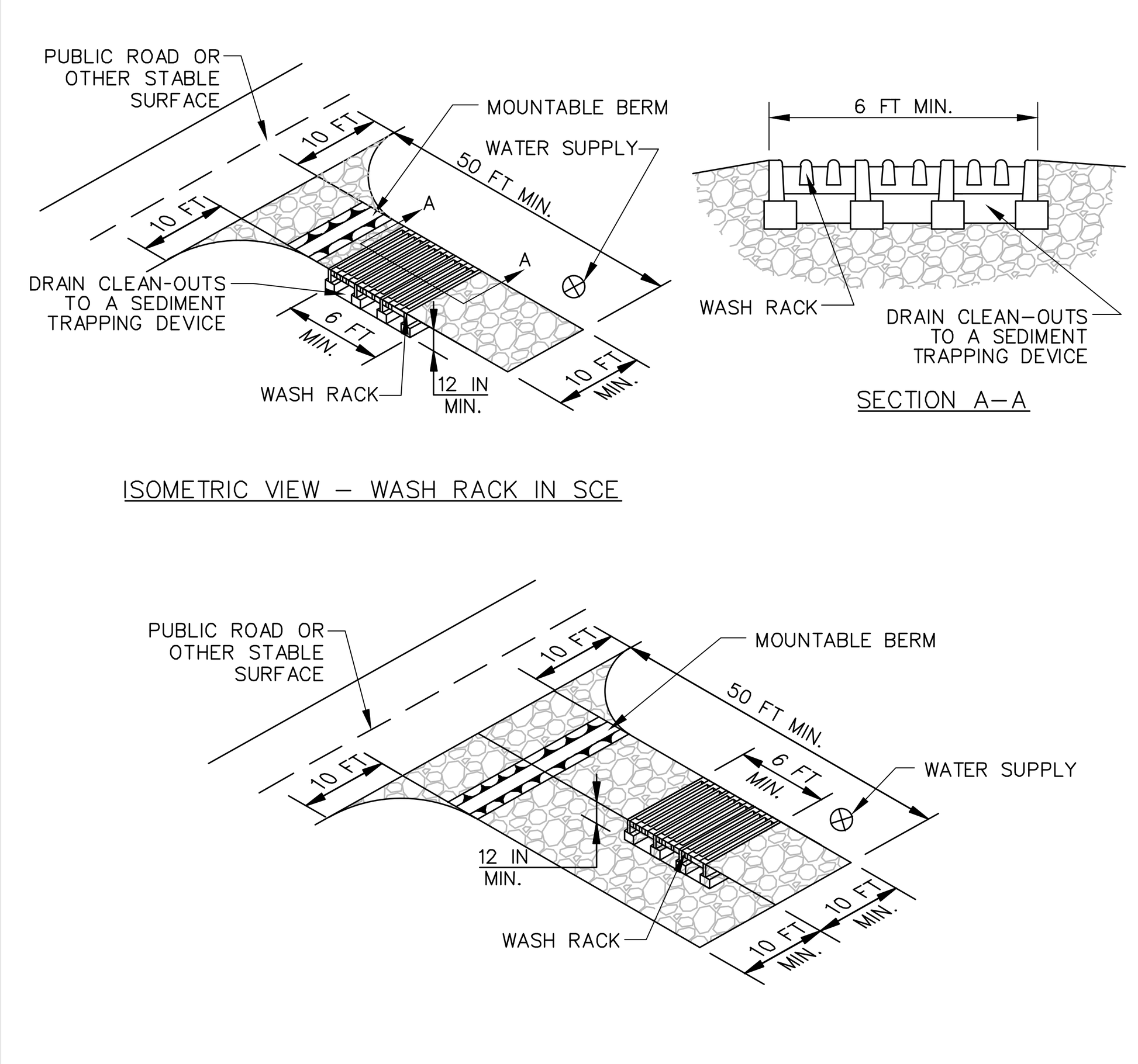
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-2 WASH RACK OPTION

STANDARD SYMBOL: WR



CONSTRUCTION SPECIFICATIONS

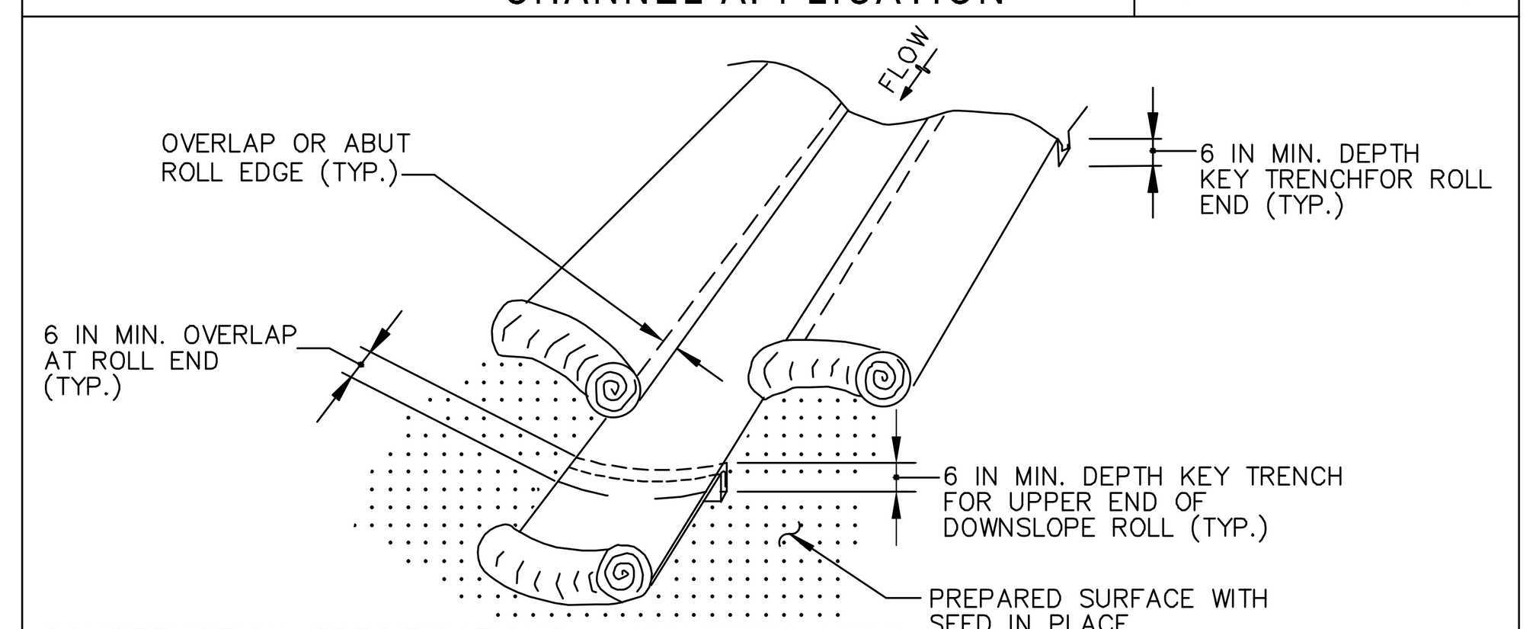
1. USE A WASH RACK DESIGNED AND CONSTRUCTED/MANUFACTURED FOR THE ANTICIPATED TRAFFIC LOADS. CONCRETE, STEEL, OR OTHER MATERIALS ARE ACCEPTABLE. PRE-FABRICATED UNITS SUCH AS CATTLE GUARDS ARE ACCEPTABLE. USE MINIMUM DIMENSION OF 6 FEET x 10 FEET. ORIENT DIRECTION OF RIBS AS SHOWN ON THE DETAIL.
2. INSTALL PRIOR TO, ALONG SIDE OF, OR AS PART OF THE SCE.
3. DIRECT WASH WATER TO AN APPROVED SEDIMENT TRAPPING DEVICE.
4. KEEP AREA UNDER WASH RACK FREE OF ACCUMULATED SEDIMENT. IF DAMAGED, REPAIR OR REPLACE WASH RACK.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: TSSMC – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

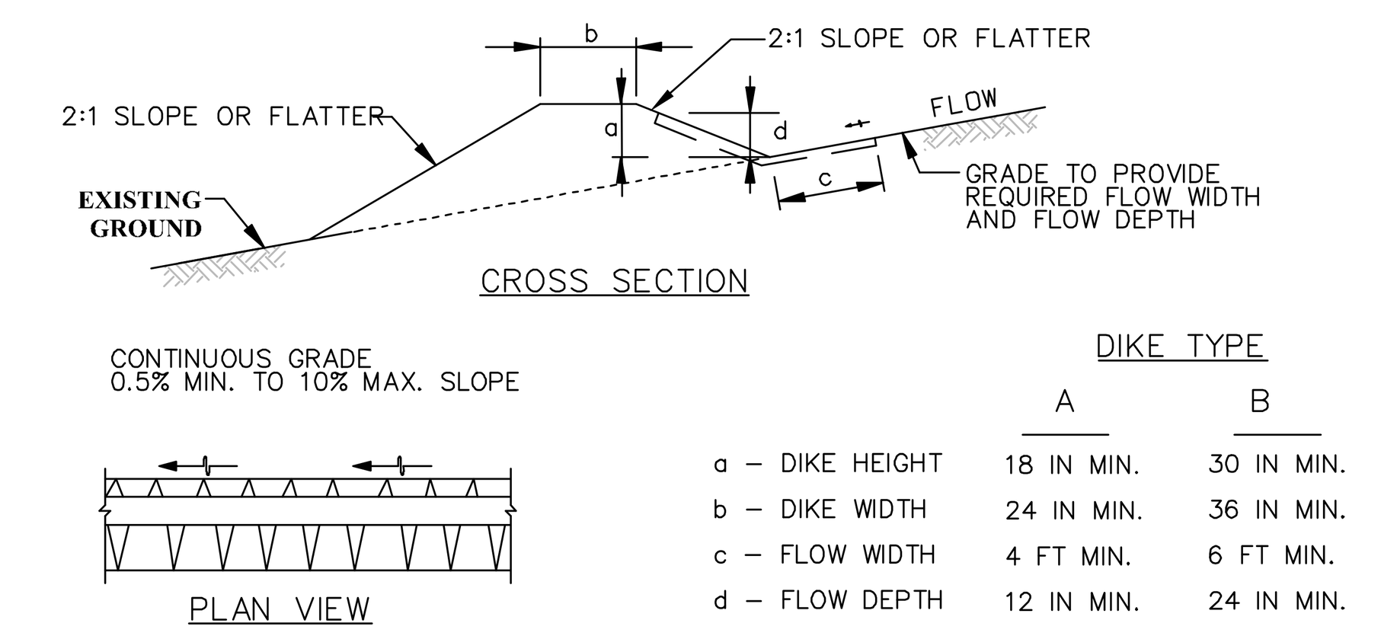
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
7. OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-1 EARTH DIKE

STANDARD SYMBOL: A-1 (PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIKE.)



DIKE TYPE

	A	B
a – DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b – DIKE WIDTH	24 IN MIN.	36 IN MIN.
c – FLOW WIDTH	4 FT MIN.	6 FT MIN.
d – FLOW DEPTH	12 IN MIN.	24 IN MIN.

FLOW CHANNEL STABILIZATION

A–1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)

A–2/B–2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.

A–3/B–3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

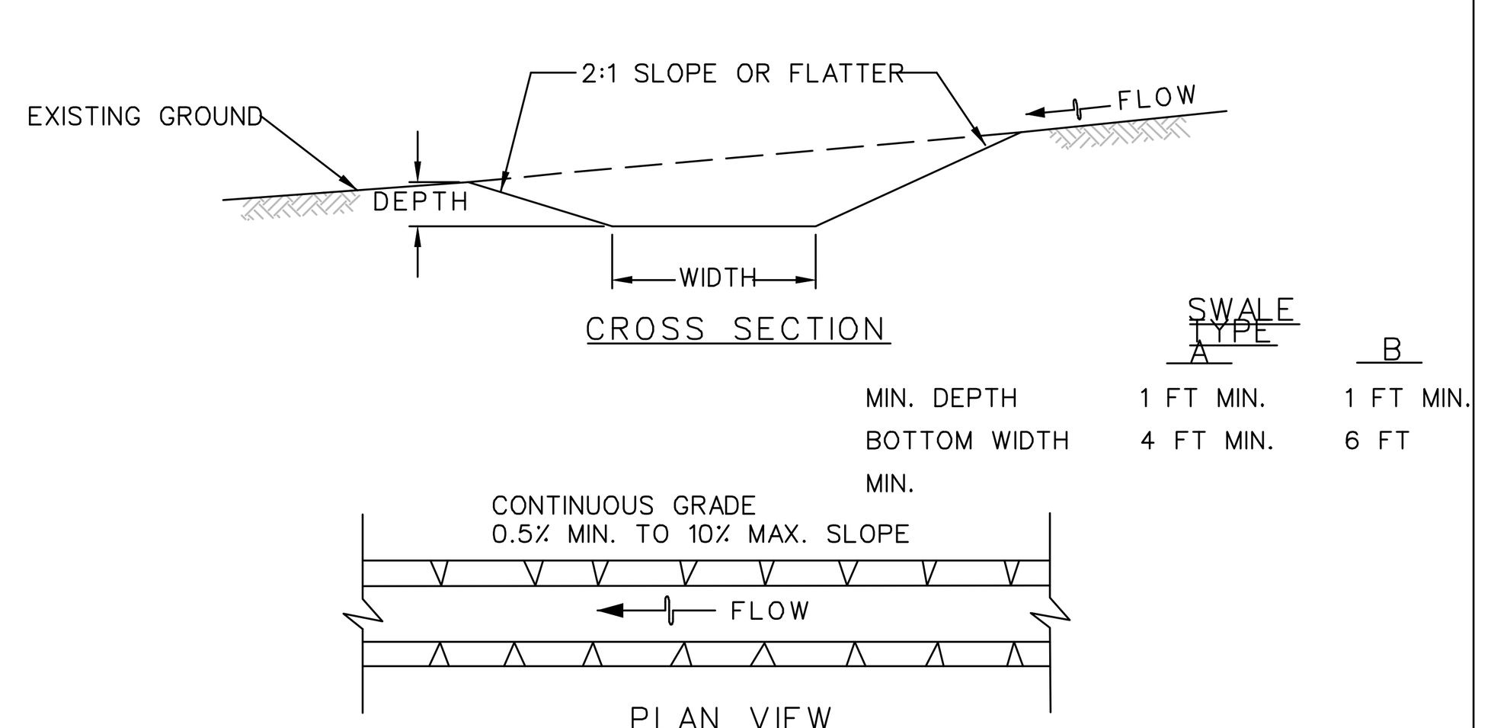
1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-2 TEMPORARY SWALE

STANDARD SYMBOL: A-1



SWALE TYPE

	A	B
MIN. DEPTH	1 FT MIN.	1 FT MIN.
BOTTOM WIDTH MIN.	4 FT MIN.	6 FT

FLOW CHANNEL STABILIZATION

A-1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)

A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.

A-3/B-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

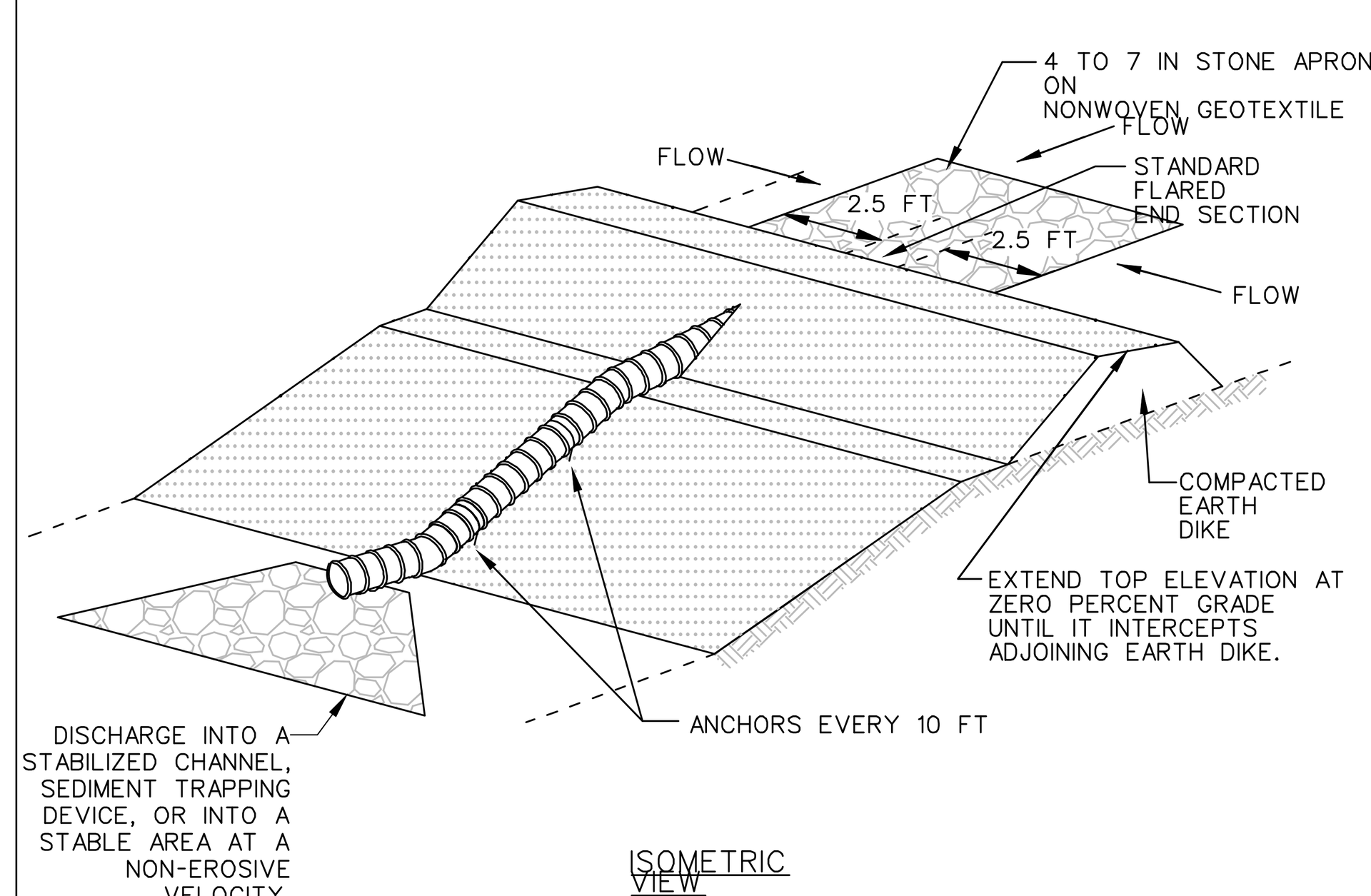
1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF TEMPORARY SWALE.
2. EXCAVATE OR SHAPE TEMPORARY SWALE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. STABILIZE TEMPORARY SWALE WITHIN THREE DAYS OF INSTALLATION. STABILIZE SWALES USED FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP TEMPORARY SWALE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
7. UPON REMOVAL OF TEMPORARY SWALE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

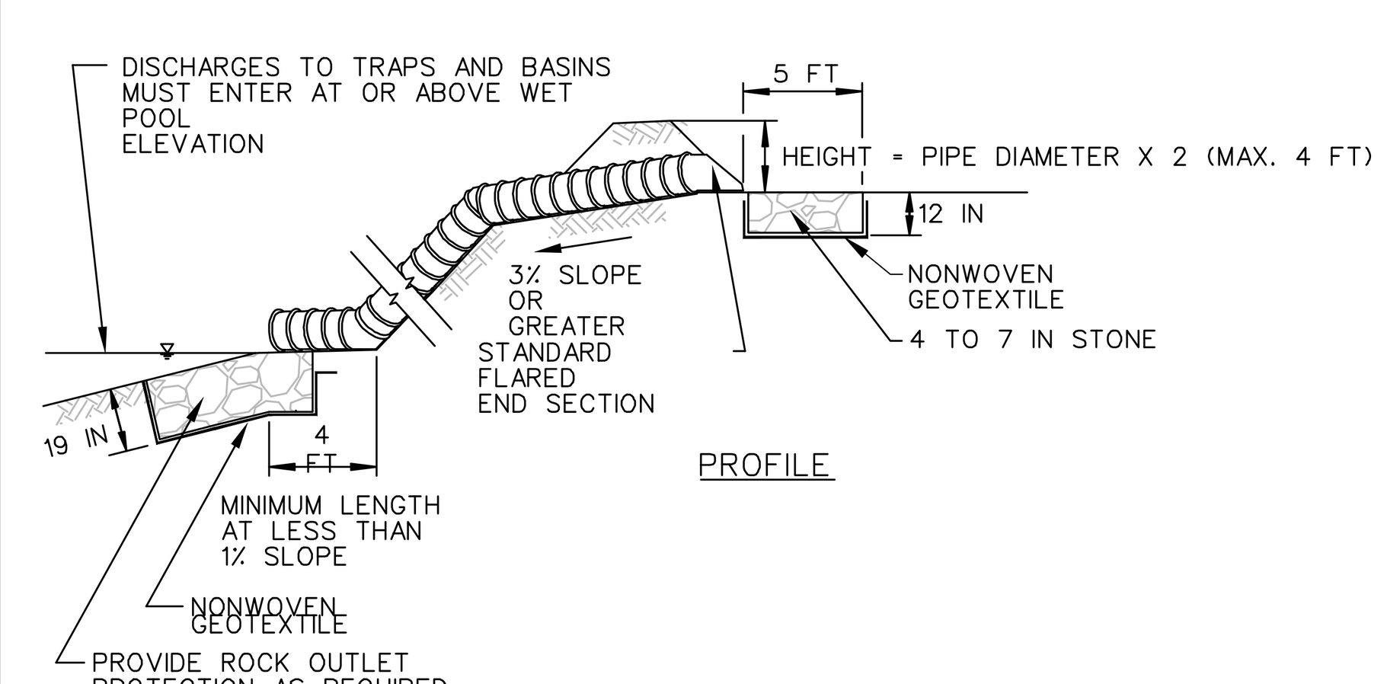
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-1 PIPE SLOPE DRAIN

STANDARD SYMBOL: PSD - 12 (DESIGNATION PSD–12 REFERS TO 12 IN PIPE SLOPE DRAIN.)





1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-1 PIPE SLOPE DRAIN

STANDARD SYMBOL: PSD - 12 (DESIGNATION PSD–12 REFERS TO 12 IN PIPE SLOPE DRAIN.)

CONSTRUCTION SPECIFICATIONS

1. THE HEIGHT OF THE EARTH DIKE MUST BE AT LEAST 2 TIMES THE PIPE DIAMETER MEASURED FROM THE INVERT OF THE PIPE. EXTEND THE TOP ELEVATION OF DIKE AT ZERO PERCENT GRADE UNTIL IT INTERCEPTS THE TOP OF THE ADJOINING EARTH DIKE.
2. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. ALL CONNECTIONS MUST BE WATERTIGHT.
3. ATTACH A FLARED END SECTION TO THE INLET END OF PIPE WITH A WATERTIGHT CONNECTION. AT THE INLET OF THE PIPE SLOPE DRAIN, INSTALL 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PLACED 12 INCHES IN DEPTH ON NONWOVEN GEOTEXTILE AND EXTEND OUT 5 FEET FROM THE INLET IN ALL DIRECTIONS.
4. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
5. SECURELY ANCHOR THE PIPE SLOPE DRAIN (PSD) TO THE SLOPE. SPACE THE ANCHORS EVERY 10 FEET.
6. HAND TAMP THE SOIL AROUND AND UNDER THE PIPE AND END SECTION IN 4 INCH LIFTS TO THE TOP OF THE EARTH DIKE.
7. UPON COMPLETING INSTALLATION OF THE PSD, STABILIZE ASSOCIATED DISTURBANCES WITH SEED, MULCH, AND TACK.
8. INSTALL OUTLET PROTECTION AS SPECIFIED ON APPROVED PLAN.
9. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REMOVE ACCUMULATED SEDIMENT AND DEBRIS.

2 OF 2

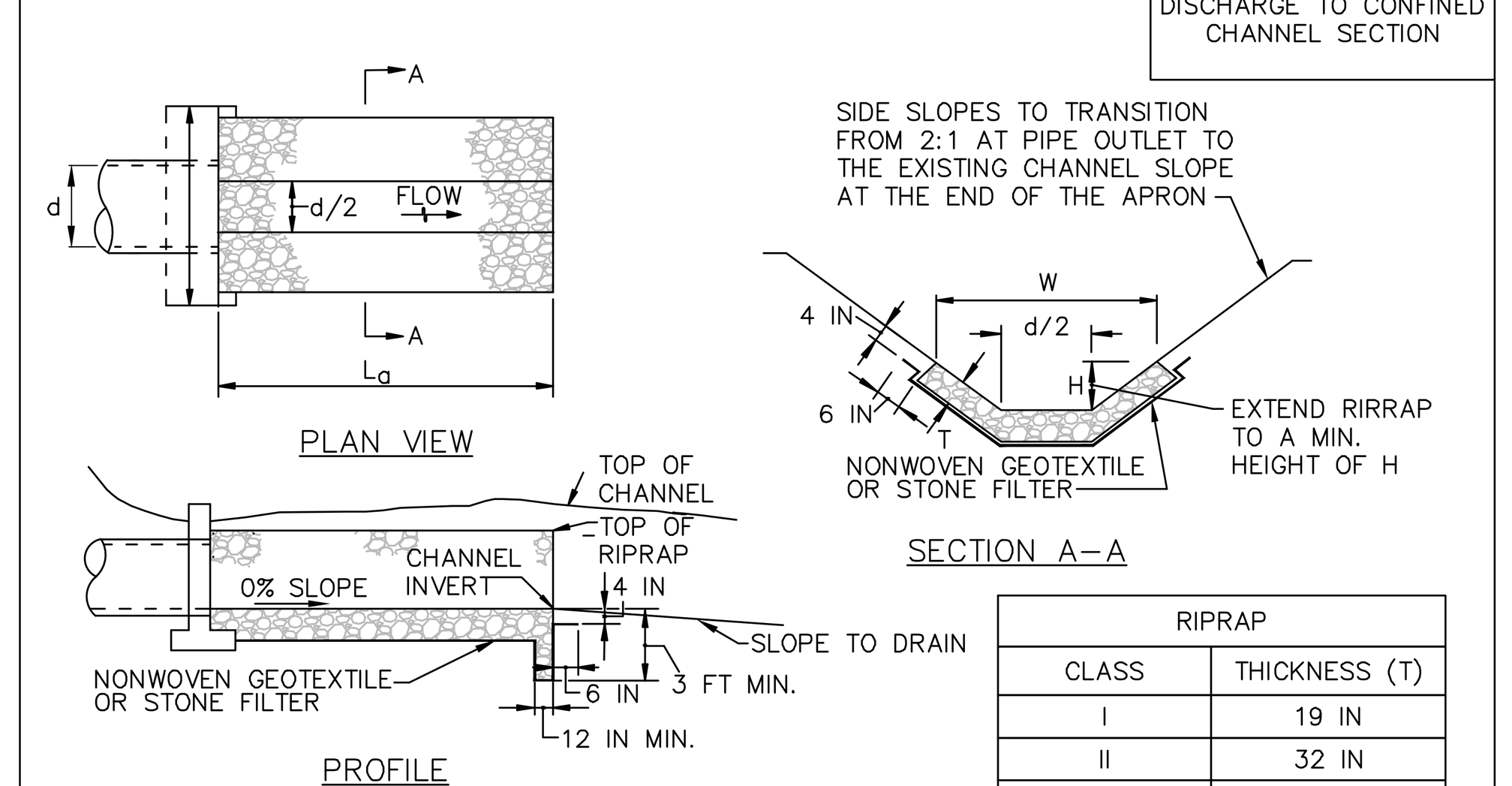
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-1-B ROCK OUTLET PROTECTION II

STANDARD SYMBOL: ROPII

DISCHARGE TO CONFINED CHANNEL SECTION



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

US Army Corps of Engineers® Philadelphia District

MARK	ACTION	DATE	BY	DESCRIPTION

DWN BY: SJP	DESIGNED BY: RAL	ISSUE/RELEASE DATE: 90% 30 JUN 14
CKD BY: DAN	REVIEWED BY: DCL / TEH	PROJ. NUMBER: .
		SOLICITATION NUMBER: IFB W912BU-1X-XXXX
DWG SCALE: NTS		CONTRACT NUMBER: .
DWG. SIZE: 30"x42" Arch E1	FILE NAME: CE-503 SOIL EROSION CONTROL PLAN DETAILS.dwg	

U.S. ARMY CORPS OF ENGINEERS
PHILADELPHIA DISTRICT
PHILADELPHIA, PA 19107-3390
www.nap.usace.army.mil

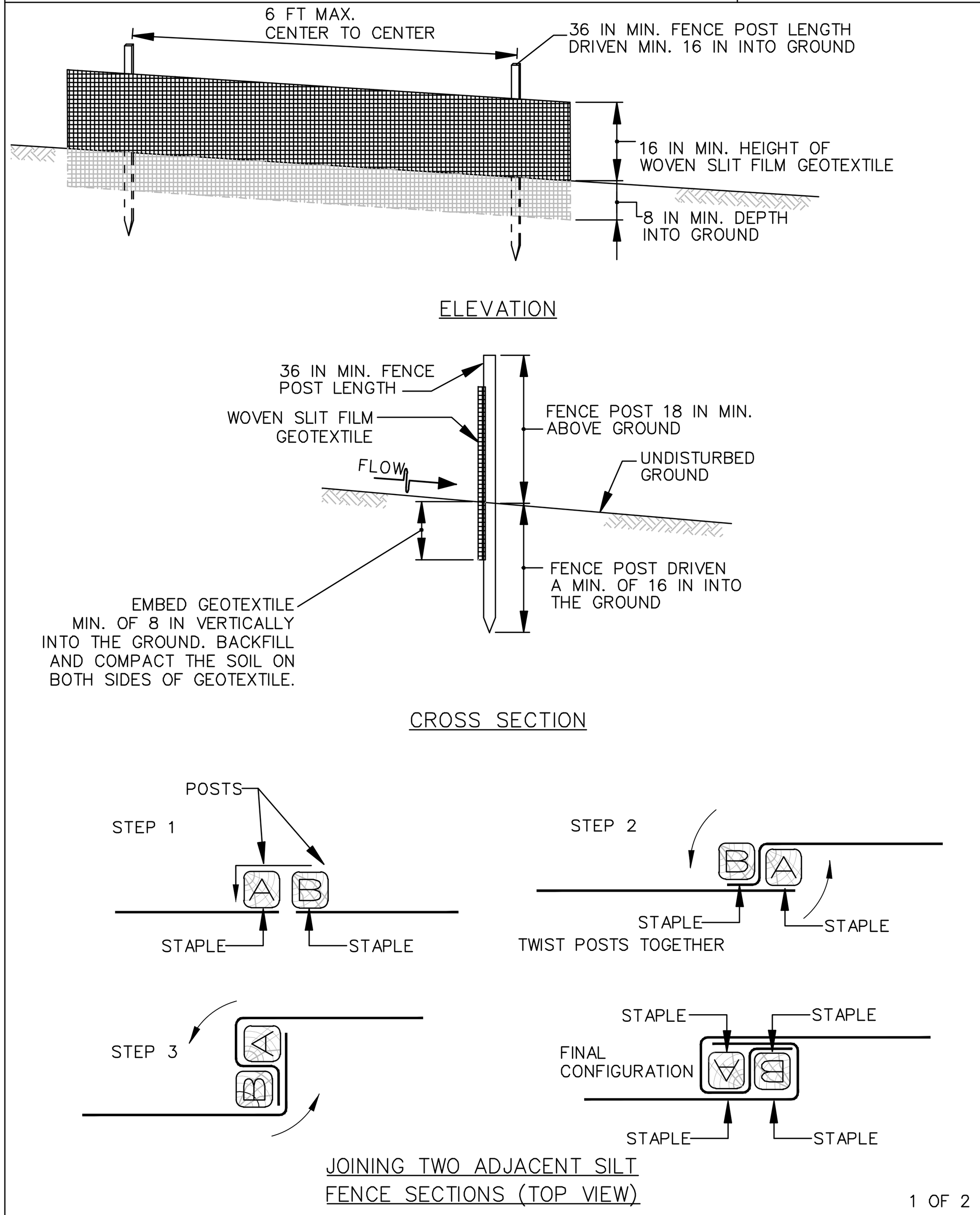
DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY MODIFICATIONS
SOIL EROSION CONTROL PLAN DETAILS

SHEET NUMBER
CE-503

1 2 3 4 5

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: ⊢—SF—⊣



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: ⊢—SF—⊣

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± 1/16 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

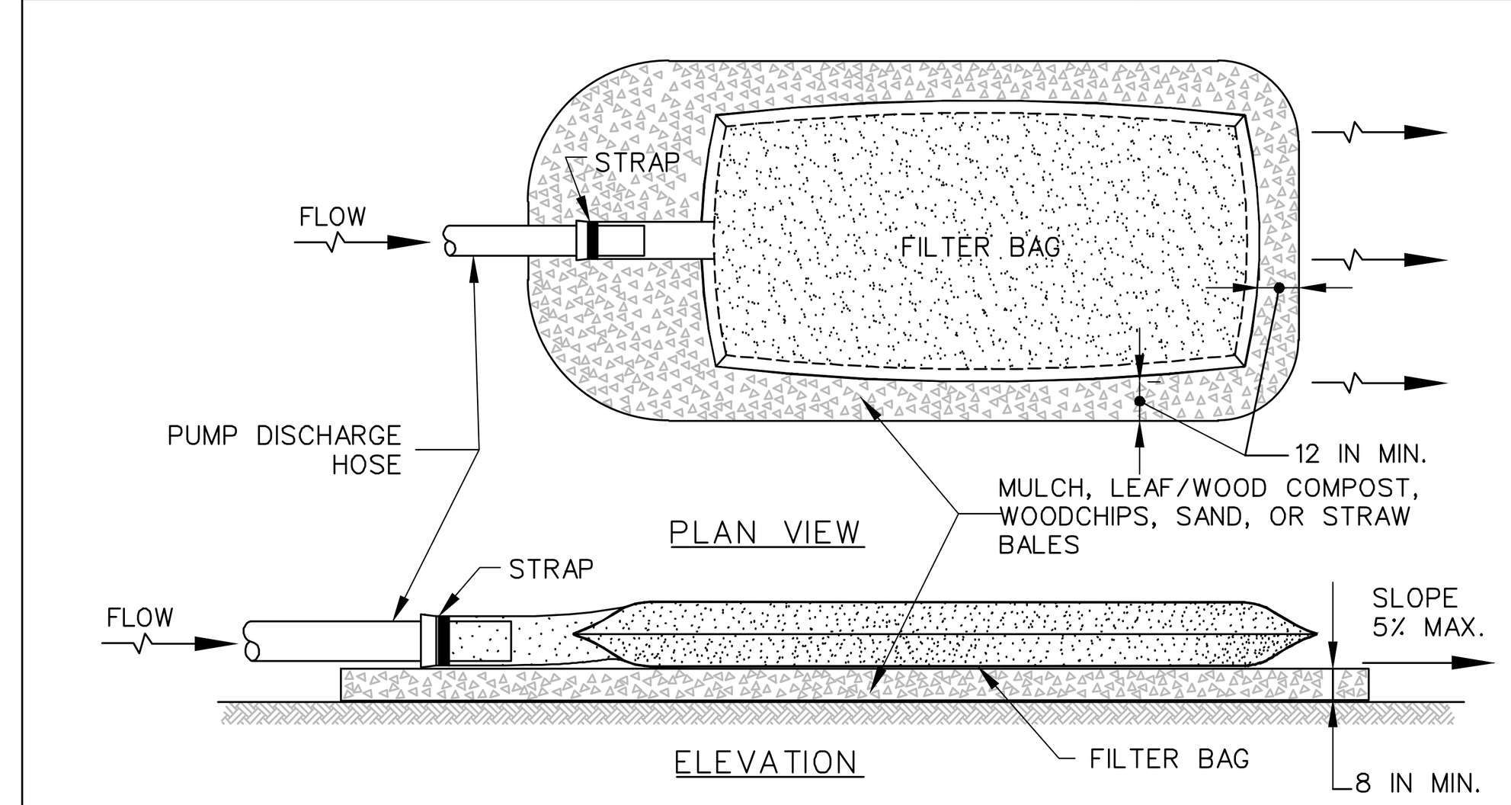
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: ⊠FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT^2	ASTM D-4491
PERMITTIVITY (SEC^{-1})	1.2 SEC^{-1}	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15-0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

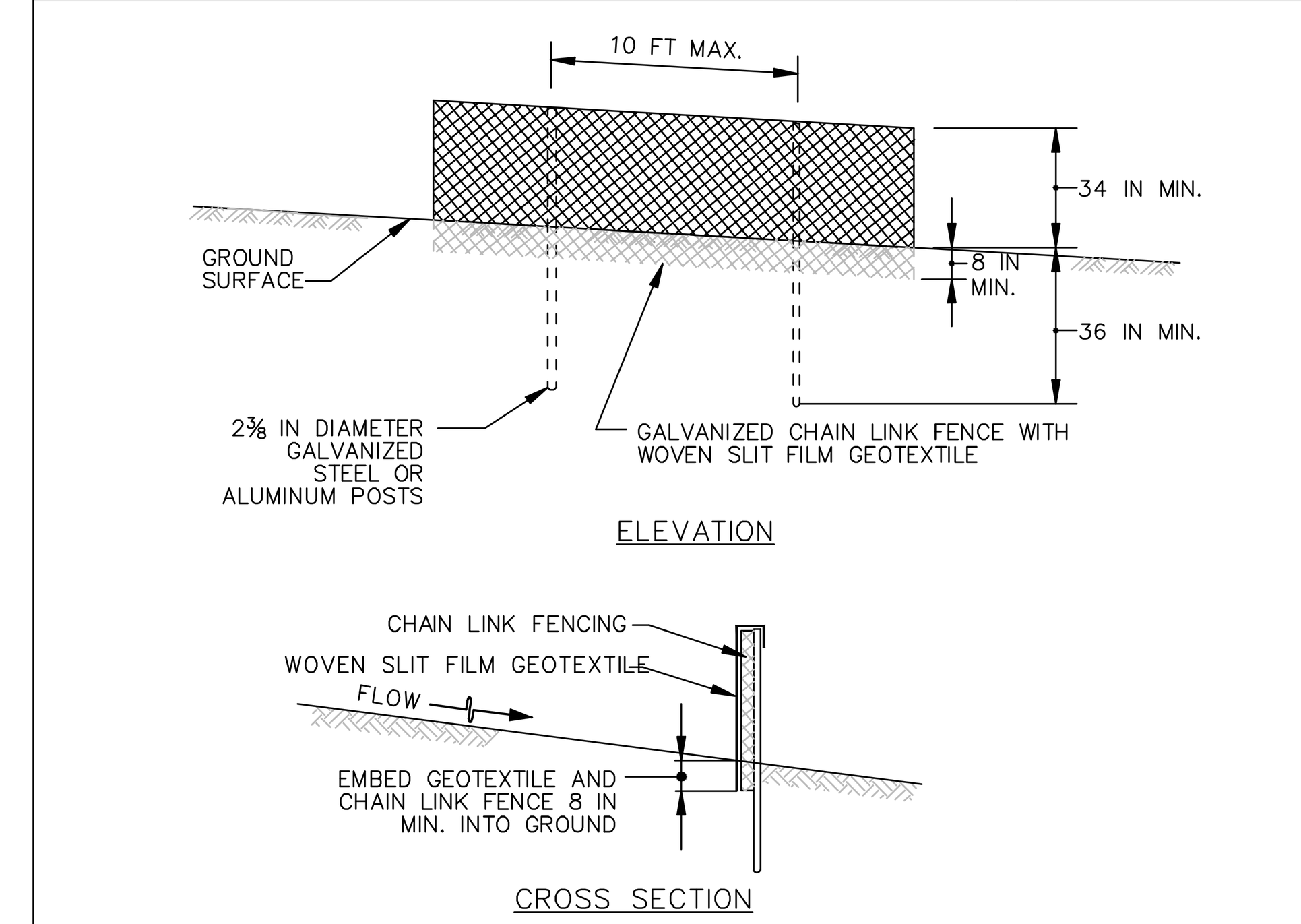
6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: ⊢—SSF—⊣



CONSTRUCTION SPECIFICATIONS

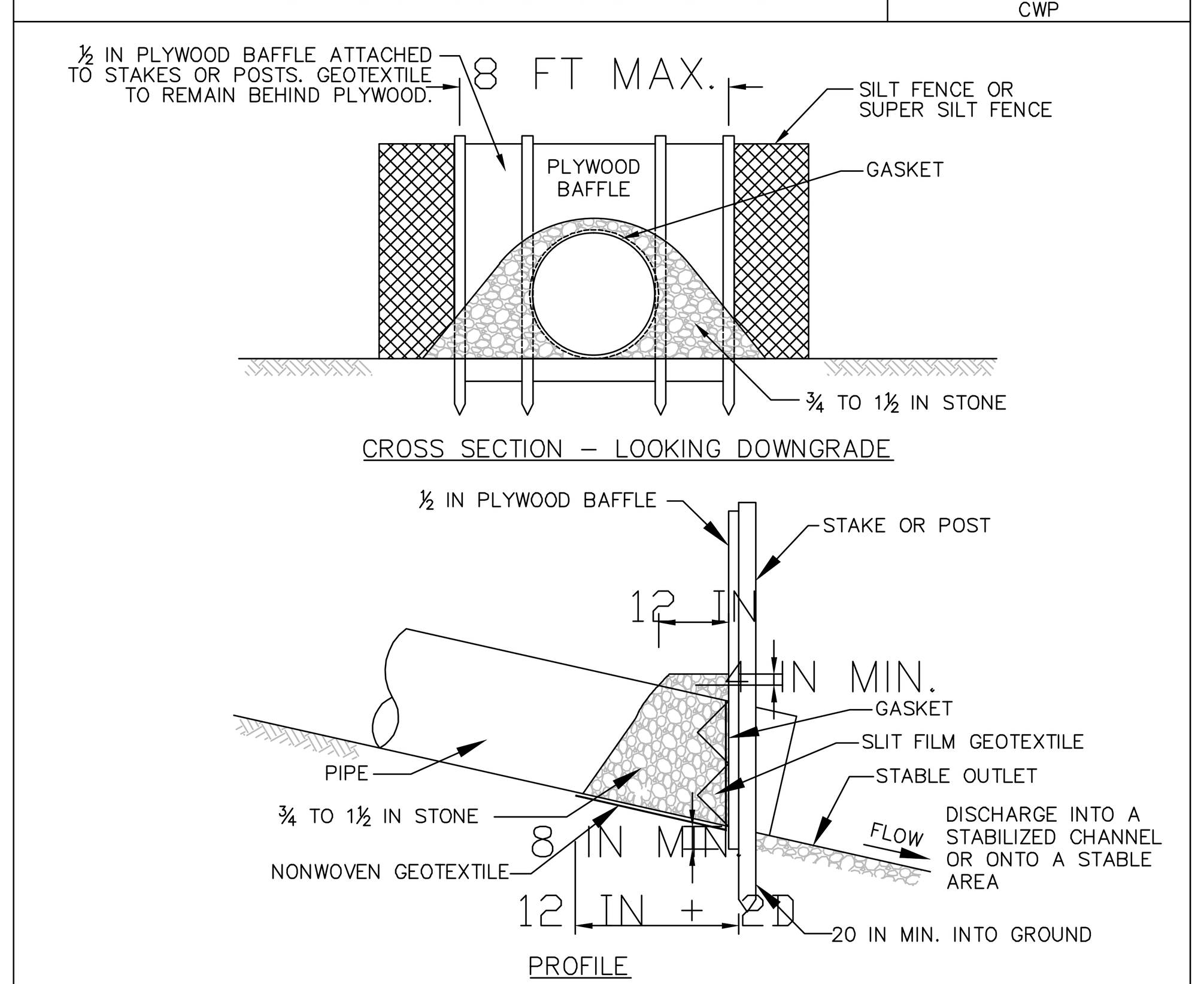
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-4 CLEAR WATER PIPE THROUGH SILT FENCE OR SUPER SILT FENCE

STANDARD SYMBOL: CWP



CONSTRUCTION SPECIFICATIONS

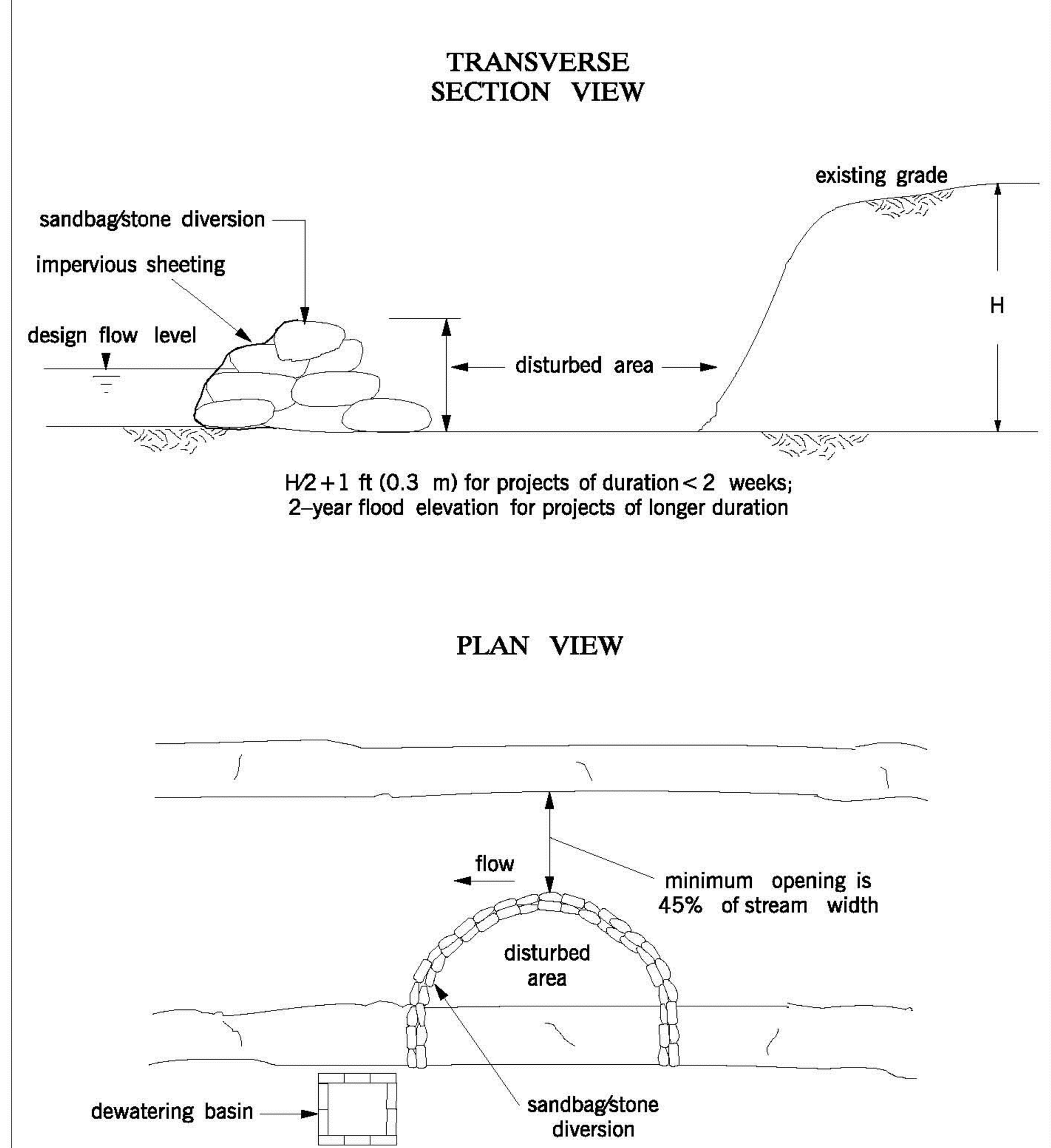
1. INSTALL SILT FENCE OR SUPER SILT FENCE IN ACCORDANCE WITH DETAIL E-1 OR DETAIL E-2.
2. AT THE PIPE LOCATION, CUT AND PULL BACK THE WOVEN SLIT FILM GEOTEXTILE AND CHAIN LINK FENCING. SECURE GEOTEXTILE TO PIPE WITH GASKET. INSTALL ADDITIONAL STAKES OR POSTS IF NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE BAFFLE BOARD.
3. ENTRENCH ½ INCH PLYWOOD BAFFLE A MINIMUM OF 8 INCHES AND SECURE TO THE UPGRADE SIDE OF THE FENCE STAKES OR POSTS. BAFFLE SHOULD BE AT LEAST THE HEIGHT OF THE FENCE.
4. PLACE ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE BEHIND THE PLYWOOD BAFFLE ON NONWOVEN GEOTEXTILE AND EXTEND 12 INCH MIN. ALONG TOP OF PIPE AND TO A HEIGHT OF 4 INCHES ABOVE THE TOP OF PIPE.
5. USE NONWOVEN AND WOVEN SLIT FILM GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
6. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN SEDIMENT REACHES 6 INCHES IN HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL BAFFLE, CHAIN LINK, AND GEOTEXTILE. REPLACE STONE IF DISPLACED. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction

DETAIL 1.5: SANDBAG/STONE DIVERSION



TEMPORARY INSTREAM CONSTRUCTION MEASURES	REVISED NOVEMBER 2000 PAGE 1.5 - 3	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

US Army Corps of Engineers® Philadelphia District

MARK	ACTION	DATE	BY	DESCRIPTION

U.S. ARMY CORPS OF ENGINEERS
PHILADELPHIA DISTRICT
PHILADELPHIA, PA 19107-3390
www.nap.usace.army.mil

DWN BY: SJP	DESIGNED BY: RAL	ISSUE/RELEASE DATE: 90% 30 JUN 14
CKD BY: DAN	REVIEWED BY: DCL / TEH	PROJ. NUMBER: -
		SOLICITATION NUMBER: IFB W912BU-1X-XXXX
DWG SCALE: NTS		CONTRACT NUMBER: -
DWG. SIZE: 30"x42" Arch E1	FILE NAME: CE-504 SOIL EROSION CONTROL PLAN DETAILS.dwg	

DELAWARE RIVER TO CHESAPEAKE BAY
DELAWARE AND MARYLAND
PEARCE CREEK CONFINED DISPOSAL FACILITY MODIFICATIONS

SOIL EROSION CONTROL PLAN DETAILS

SHEET NUMBER

CE-504