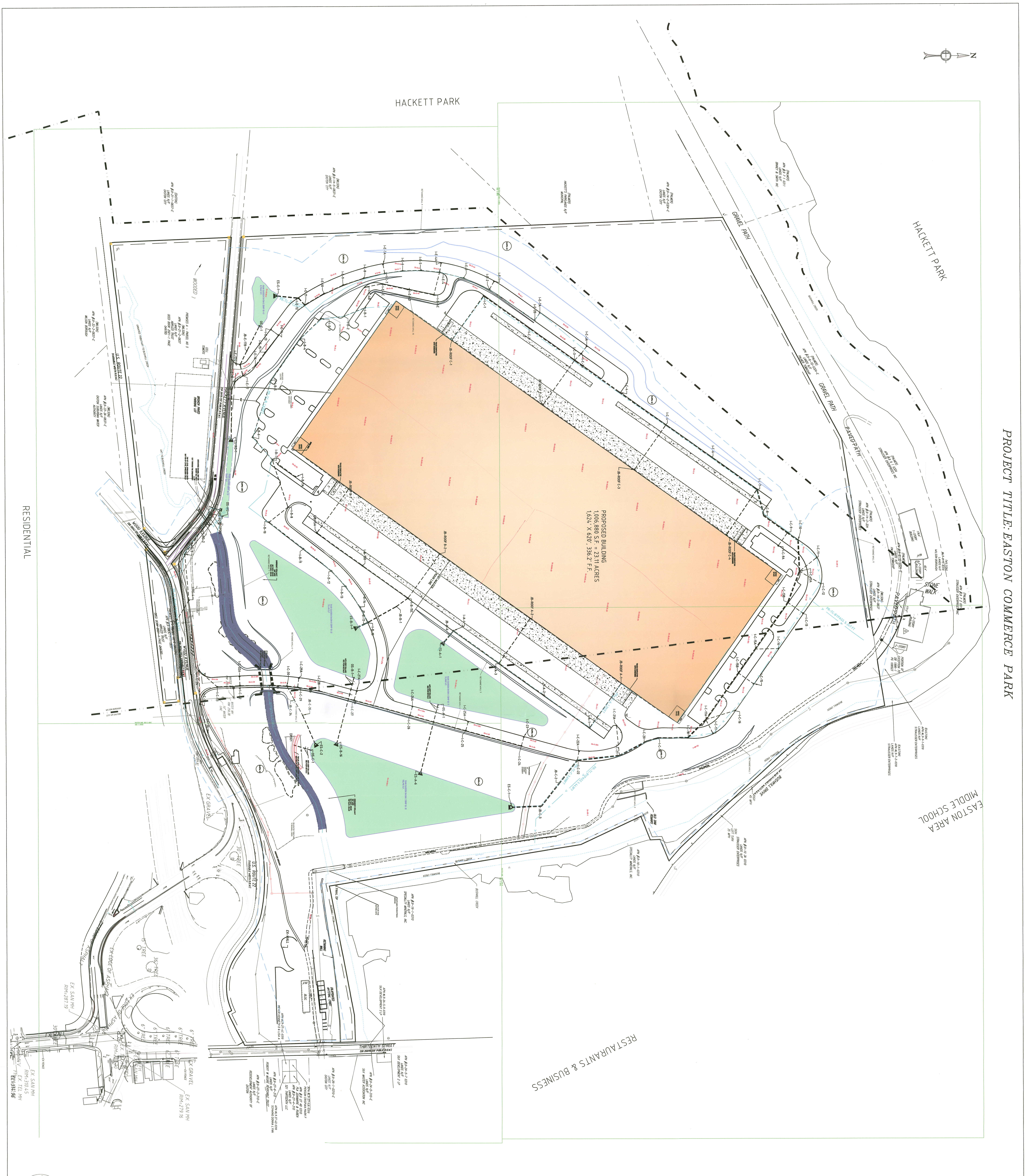

PROJECT TITLE: EASTON COMMERCE PARK
HACKETT PARK
HACKETT PARK
RESIDENTIAL
EASTON AREA MIDDLE SCHOOL
RESTAURANTS & BUSINESS
PROPOSED BUILDING
1,006,880 S.F. = 23.11 ACRES
1,624' X 620', 336.2' F.F.
GRAVEL PATH
PAVED PATH
STONE WALK
BUSHKILL DRIVE
THIRTEENTH STREET
U.S. ROUTE 22
WOODED
EX GRAVEL
EX SAN MH
RIM=279.16
RIM=287.19
EX EDGE OF ASPHALT
N

PROPOSED FEATURES LEGEND:

- PROPOSED BUILDING
- PROPOSED SIDEWALK
- PROPOSED PARKING SPACES
- PROPOSED CONTOUR
- PROPOSED ELECTRIC LINE
- PROPOSED WATER MAIN
- PROPOSED SEWER MAIN AND MANHOLE
- PROPOSED GAS MAIN
- PROPOSED LIGHT DUTY PAVING AREA
- PROPOSED SIGN
- PROPOSED CONCRETE PAVING AREA
- LIMIT OF DISTURBANCE (85.00 ACRES)
- PROPOSED CONCRETE MONUMENTS
- PROPOSED DRAINAGE EASEMENT
- PROPOSED STORM PIPE AND INLET
- PROPOSED END SECTION AND RIP RAP
- PROPOSED BASIN UNDER DRAIN AND CLEAN OUT

IF THE PIPE IS OVER 10%, PIPE TO BE PROVIDED WITH ANCHORS ON SLOPE

EXISTING FEATURES LEGEND:

- EXISTING BOUNDARY WITH CORNER
- PENNDOT LEGAL RIGHT-OF-WAY
- EXISTING ADJOINING BOUNDARY LINE
- EXISTING SETBACK
- EXISTING BUILDING
- EXISTING CONCRETE FEATURE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING CURB
- EXISTING EDGE OF ASPHALT
- EXISTING FENCE LINE
- EXISTING PAVEMENT MARKING WITH LABEL
- EXISTING SIGN
- EXISTING TREE LINE
- EXISTING EASEMENT
- EXISTING RIGHT OF WAY
- EXISTING SANITARY SEWER
- EXISTING ELECTRIC LINE
- EXISTING STORM PIPE
- EXISTING STREAM
- EXISTING GUARDRAIL
- EXISTING SOILS
- EXISTING GRAVEL
- EXISTING TIME OF CONCENTRATION
- EXISTING DRAINAGE AREA
- EXISTING LIMIT OF DISTURBANCE (85.00 ACRES)
- EXISTING CABLE TELEPHONE LINE
- EXISTING GAS LINE
- EXISTING MUNICIPAL BOUNDARY
- EXISTING SANITARY SEWER MANHOLE
- EXISTING UTILITY POLE

GRAPHIC SCALE

200' 100' 0 100' 200'

1" = 100'

PENNSYLVANIA ONE CALL SYSTEM, INC.
1-800-242-1776
STOP - CALL BEFORE YOU DIG!

Before You Dig Anywhere in PENNSYLVANIA
STOP! CALL 1-800-242-1776 TOLL FREE

NOTE:
The location of underground utilities shown on this plan are based on pavement markings by utility owners and surface facilities, and are approximate only. It shall be the contractors' responsibility to verify the exact location and depth of utilities prior to any earthmoving activities.
The Pennsylvania One-Call serial numbers for this project are 20230511306,20230511307,20230511308 20230511309

EASTON WOOD AVE PropCO.LLC
8801RIVER CROSSING Blvd
INDIANAPOLIS, IN 46240
JOB:EASTON COMMERCE PARK
Wilson Borough
Palmer Twp & City of Easton
NORTHAMPTON County, PA

PIN:	CHECK SHEET C-100
CHECKED BY:	DH
DRAWN BY:	CF
DATE:	11/01/2024
SCALE:	1:100
DRAWING:	C-107
PROJECT:	2022-528
SHEET:	26 OF 53

BOGIA ENGINEERING INC.

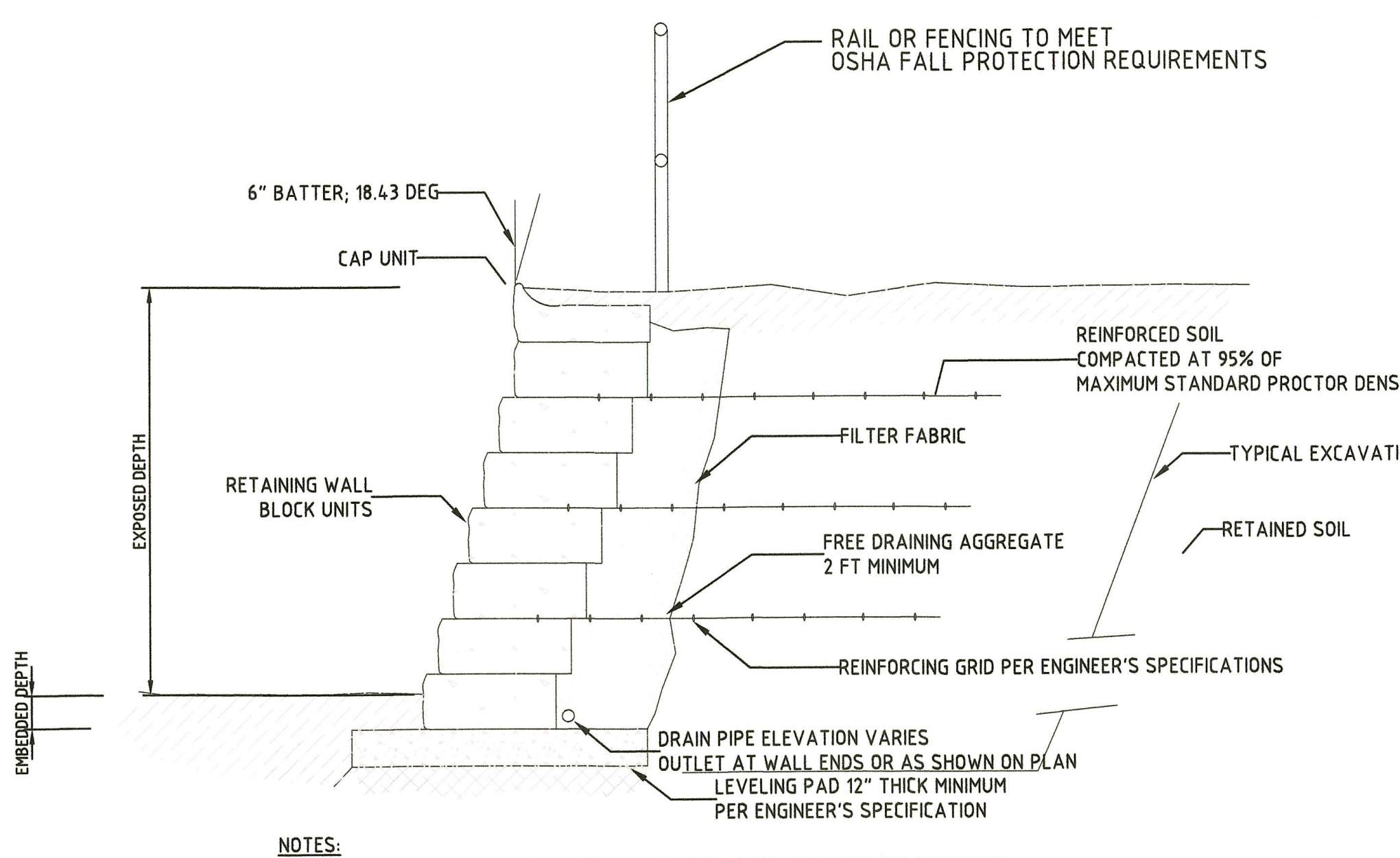
1340 PENN AVE WYOMISSING, PA 19610
PHONE: 610-678-3071 - FAX: 610-678-3517
WWW.BOGIAENG.COM

PRELIMINARY & FINAL
EASTON COMMERCE PARK
PIPE NETWORK PLAN OVERAL

BEI

DATE	REVISION
---	---
---	---
---	---
---	---
---	---
---	---
2024-10-28	PER DEP COMMENTS & BOROUGH LETTER
2024-08-09	PER BORUGH COMMENTS
2024-07-15	PER LVPC, BOROUGH, & CITY COMMENTS

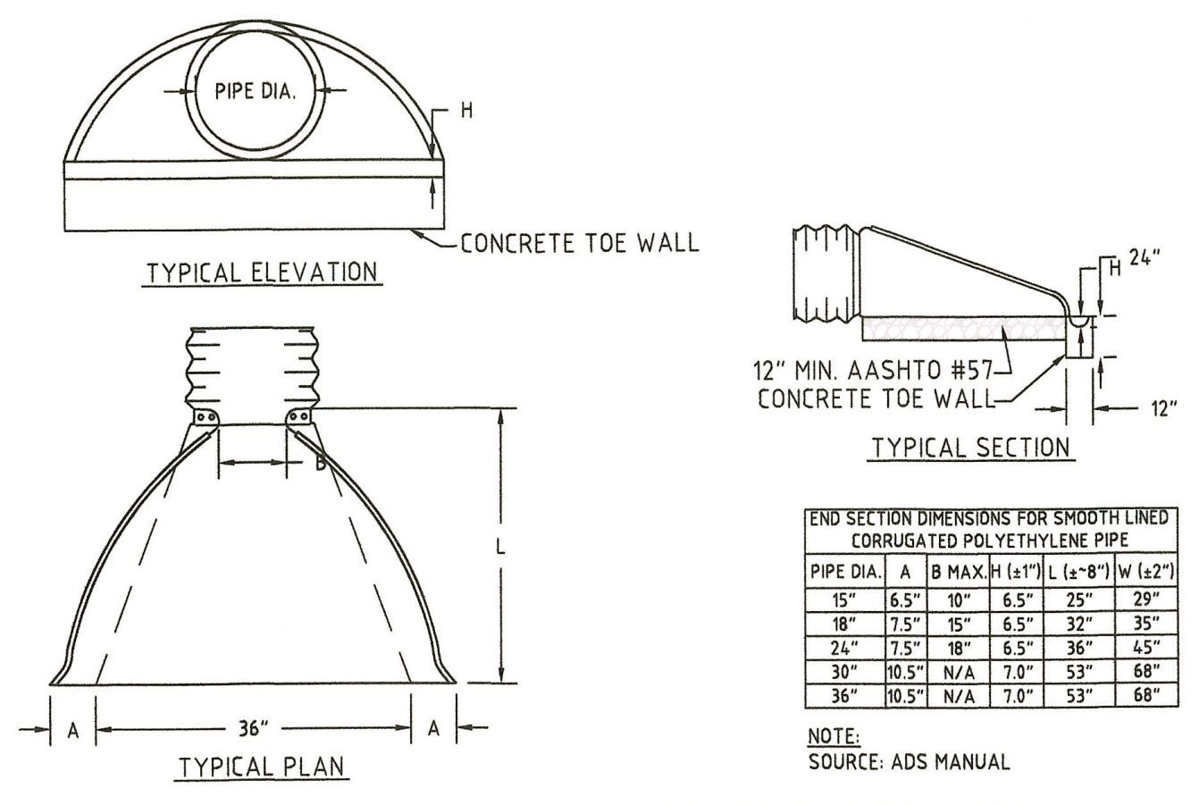
PROJECT TITLE: EASTON COMMERCE PARK


RAIL OR FENCING TO MEET
OSHA FALL PROTECTION REQUIREMENTS
6" BATTER, 18.43 DEG
CAP UNIT
REINFORCED SOIL
COMPACTED AT 95% OF
MAXIMUM STANDARD PROCTOR DENSITY
FILTER FABRIC
TYPICAL EXCAVATION LINE
RETAINING WALL
BLOCK UNITS
RETAINED SOIL
FREE DRAINING AGGREGATE
2 FT MINIMUM
REINFORCING GRID PER ENGINEER'S SPECIFICATIONS
EXPOSED DEPTH
EMBEDDED DEPTH
DRAIN PIPE ELEVATION VARIES
OUTLET AT WALL ENDS OR AS SHOWN ON PLAN
LEVELING PAD 12" THICK MINIMUM
PER ENGINEER'S SPECIFICATION

NOTES:
1. SURFACE MATERIAL AND COLOR TREATMENT TO BE APPROVED BY ARCHITECT.
2. PROVIDE RAILING OR FENCING ALONG TOP EDGE OF WALL FOR SAFETY.
3. THE DESIGN OF WALLS MUST BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF PENNSYLVANIA.
4. PEDESTRIAN BARRIER SHALL BE PROVIDED ALONG THE TOP OF ALL WALLS.
5. WALL TO BE DESIGNED TO "BRIDGE" ACROSS ALL STORM SEWER PIPES SO ADDITIONAL LOAD FROM WALL OR FILL IT RETAINS IS NOT IMPOSED ON THE PIPES.
6. WILSON BOROUGH AND CITY OF EASTON APPROVAL OF DESIGN DETAILS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF PENNSYLVANIA IS REQUIRED PRIOR TO CONSTRUCTION.
7. WALL IS TYPICAL SECTION, ADDITIONAL INFORMATION MAY BE NECESSARY FOR CONSTRUCTION OR DIFFERENT WALL DESIGN PROVIDED DEPENDING ON SITE CONDITIONS.

SEGMENTAL BLOCK RETAINING WALL

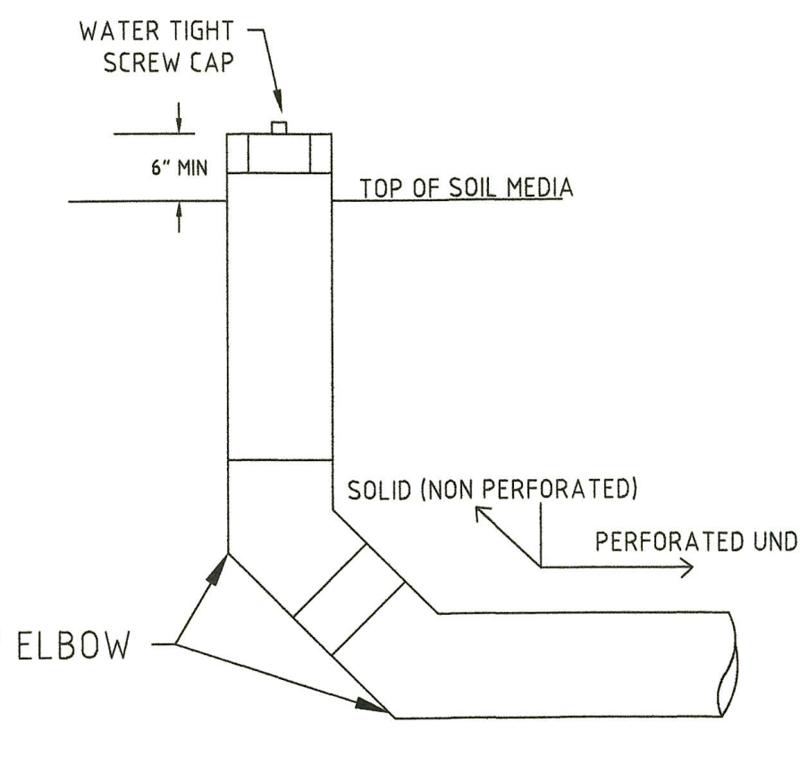
(PROVIDED AS EXAMPLE, SEE NOTE 7)


PIPE DIA.
H
CONCRETE TOE WALL
TYPICAL ELEVATION
24"
12" MIN. AASHTO #57
CONCRETE TOE WALL
12"
TYPICAL SECTION
L
A
36"
TYPICAL PLAN

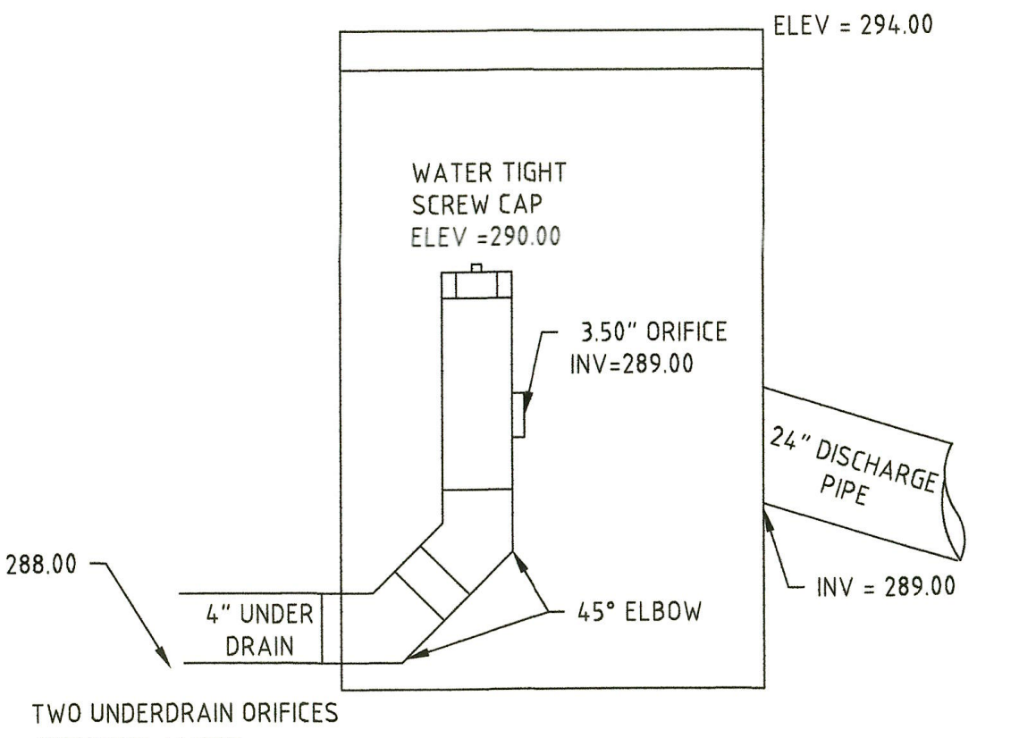
END SECTION DIMENSIONS FOR SMOOTH LINED CORRUGATED POLYETHYLENE PIPE					
PIPE DIA.	A	B MAX.	H (±1")	L (±~8")	W (±2")
15"	6.5"	10"	6.5"	25"	29"
18"	7.5"	15"	6.5"	32"	35"
24"	7.5"	18"	6.5"	36"	45"
30"	10.5"	N/A	7.0"	53"	68"
36"	10.5"	N/A	7.0"	53"	68"

NOTE:
SOURCE: ADS MANUAL

TYPICAL SLCPP END SECTION

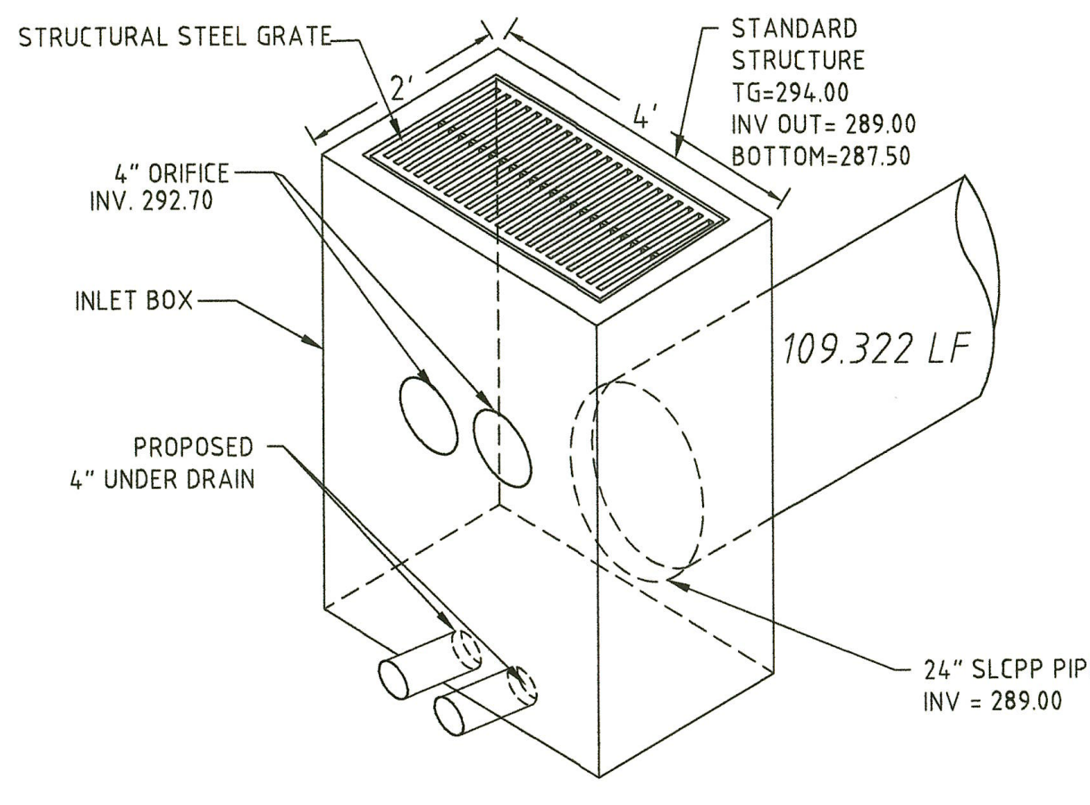

WATER TIGHT
SCREW CAP
6" MIN
TOP OF SOIL MEDIA
SOLID (NON PERFORATED)
PERFORATED UNDER DRAIN
45° ELBOW

CLEANOUT DETAIL

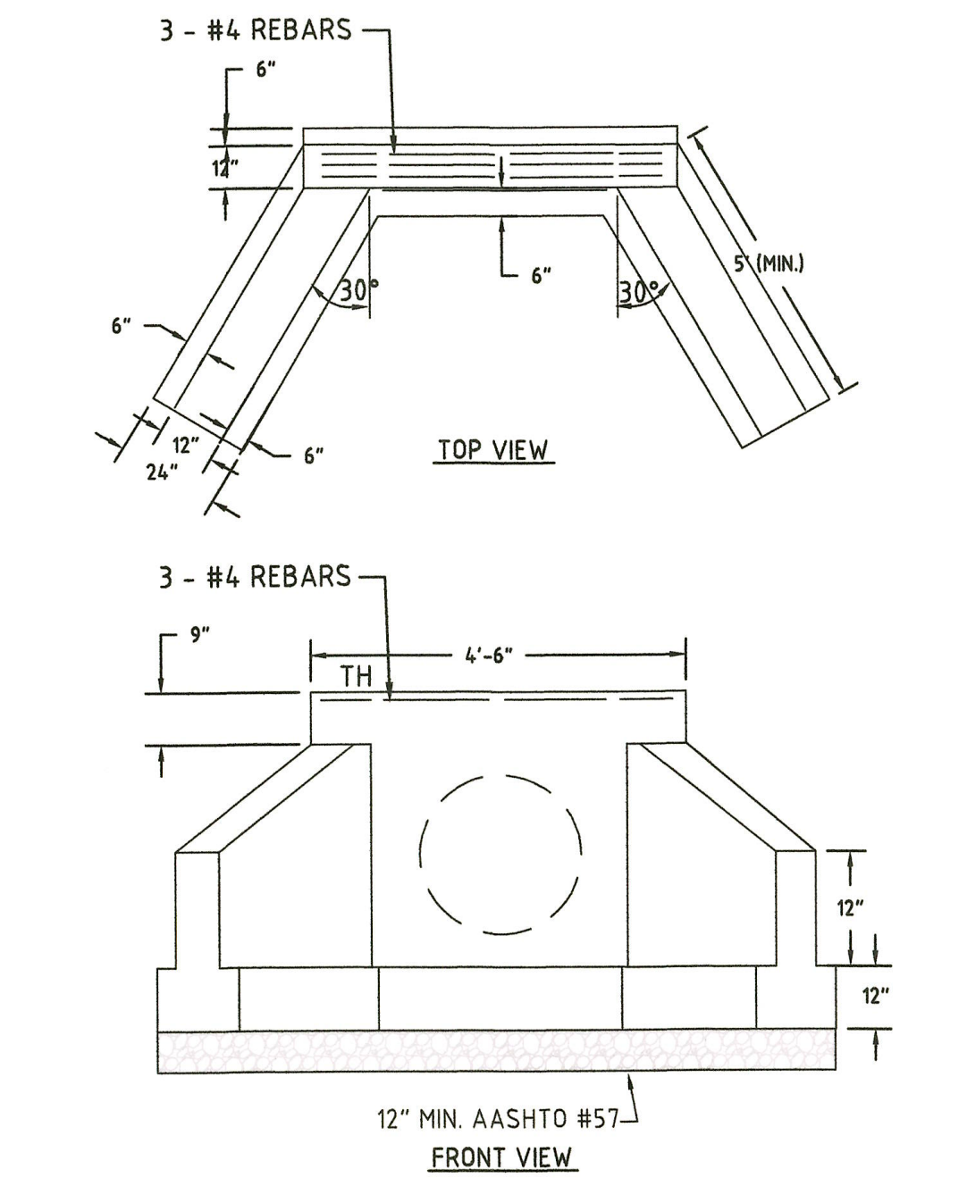

ELEV = 294.00
WATER TIGHT
SCREW CAP
ELEV =290.00
3.50" ORIFICE
INV=289.00
24" DISCHARGE PIPE
INV = 288.00
4" UNDER DRAIN
45° ELBOW
INV = 289.00
TWO UNDERDRAIN ORIFICES
THROUGH 4' SIDE

BASIN A UNDER DRAIN

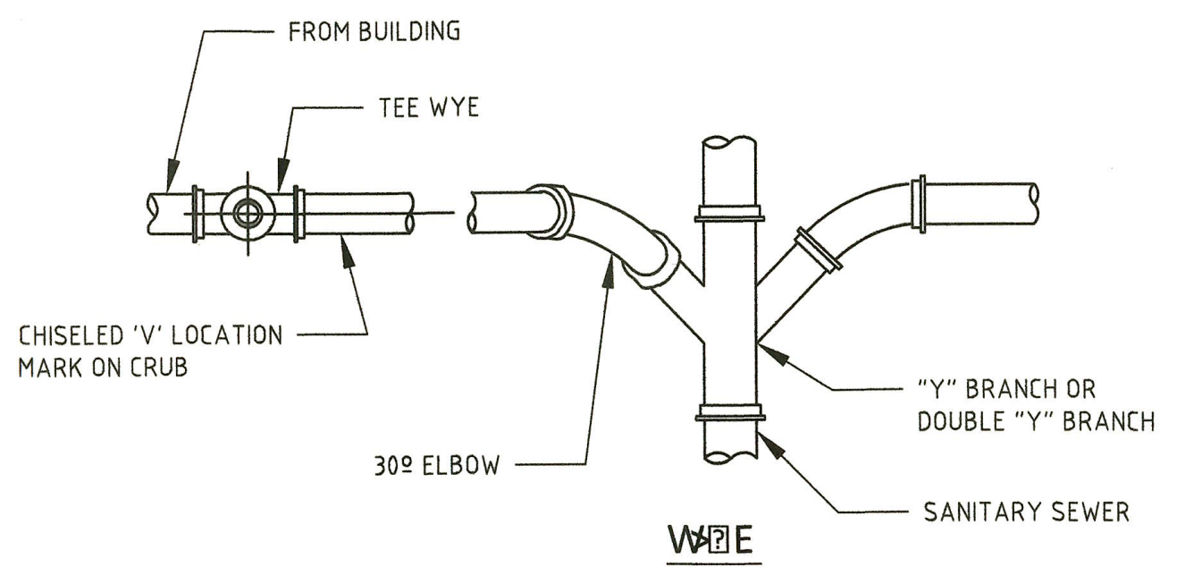
NOTES:
1. ALL BENDS TO BE WITH 45° ELBOWS MAX
2. UNDER DRAIN TO BE AT BOTTOM OF SOIL MEDIA.
3. ORIFICE TO BE CUT WITH EDGES CLEAN SMOOTH AND SANDED WITH NO BURS OR IRREGULARITIES PRESENT AND GROUND SO THAT FLOW THROUGH IS SMOOTH.

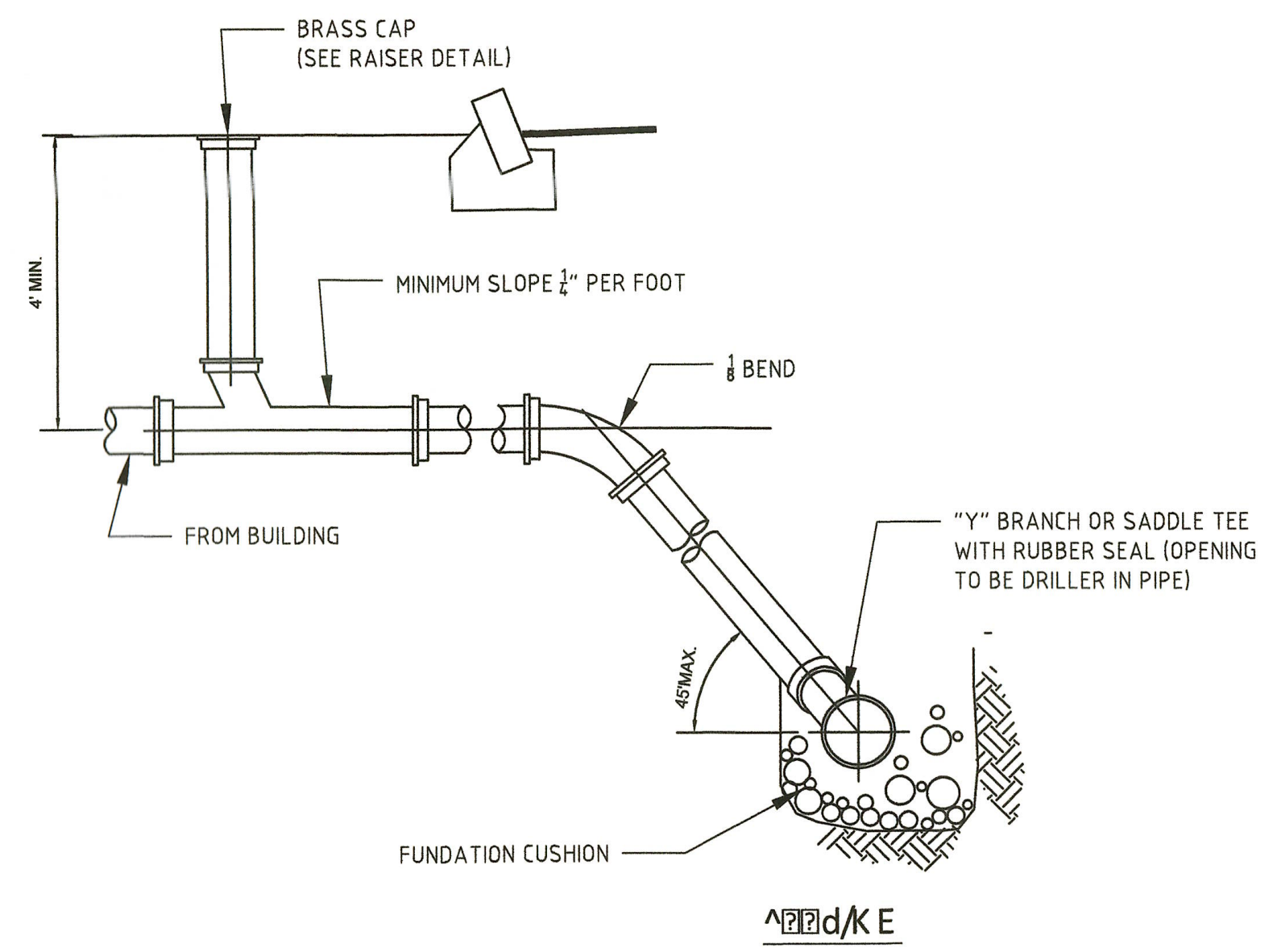

STRUCTURAL STEEL GRATE
2'
4'
STANDARD
STRUCTURE
TG=294.00
INV OUT= 289.00
BOTTOM=287.50
4" ORIFICE
INV. 292.70
INLET BOX
109.322 LF
PROPOSED
4" UNDER DRAIN
24" SLCPP PIPE
INV = 289.00

BASIN A OUTLET STRUCTURE


3 - #4 REBARS
6"
30°
TOP VIEW
3 - #4 REBARS
TH
4'-6"
12"
12" MIN. AASHTO #57
FRONT VIEW

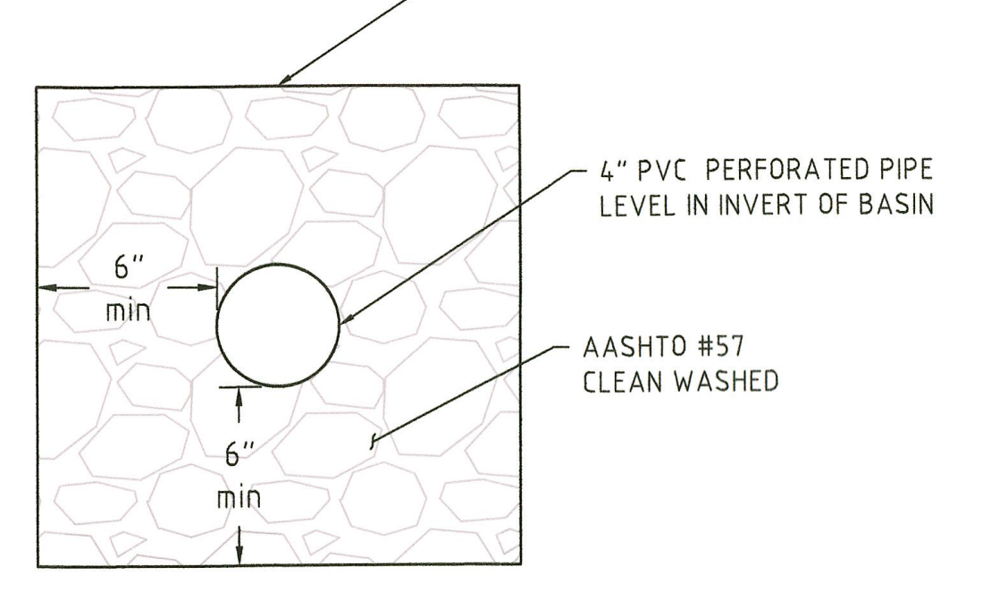
ENDWALL (TYPE DW)


FROM BUILDING
TEE WYE
CHISELED 'V' LOCATION
MARK ON CRUB
309 ELBOW
"Y" BRANCH OR
DOUBLE "Y" BRANCH
SANITARY SEWER


BRASS CAP
(SEE RAISER DETAIL)
MINIMUM SLOPE 1/4" PER FOOT
1/8 BEND
FROM BUILDING
"Y" BRANCH OR SADDLE TEE
WITH RUBBER SEAL (OPENING
TO BE DRILLER IN PIPE)
45°MAX.
FUNDATION CUSHION

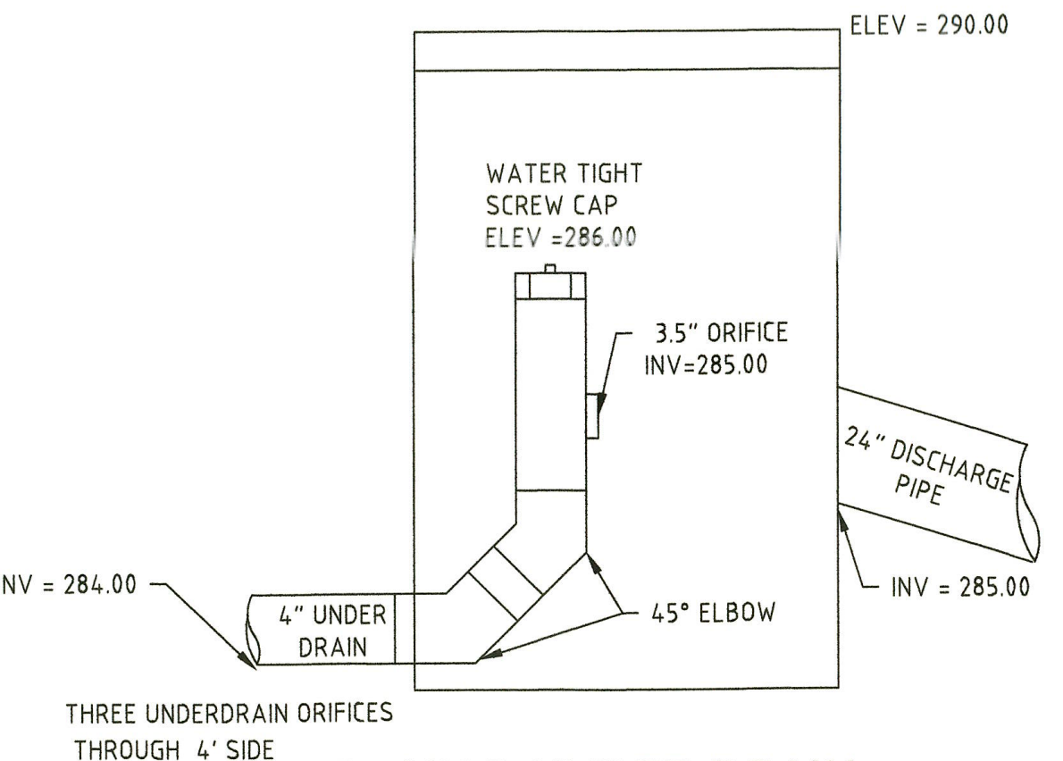
NOTE:
1. REFER TO UTILITY PLAN FOR PIPES SIZES, VERIFY WITH ARCHITECTURAL PLANS.
2. CONTACT ENGINEER WITH ANY CONFLICTS PRIOR TO ANY SEWER CONNECTION WORK.

STANDARD CONNECTION DETAIL
PER WILSON BOROUGH AND CITY OF EASTON


GEOTEXTILE
WRAP
4" PVC PERFORATED PIPE
LEVEL IN INVERT OF BASIN
6" min
AASHTO #57
CLEAN WASHED
6" min

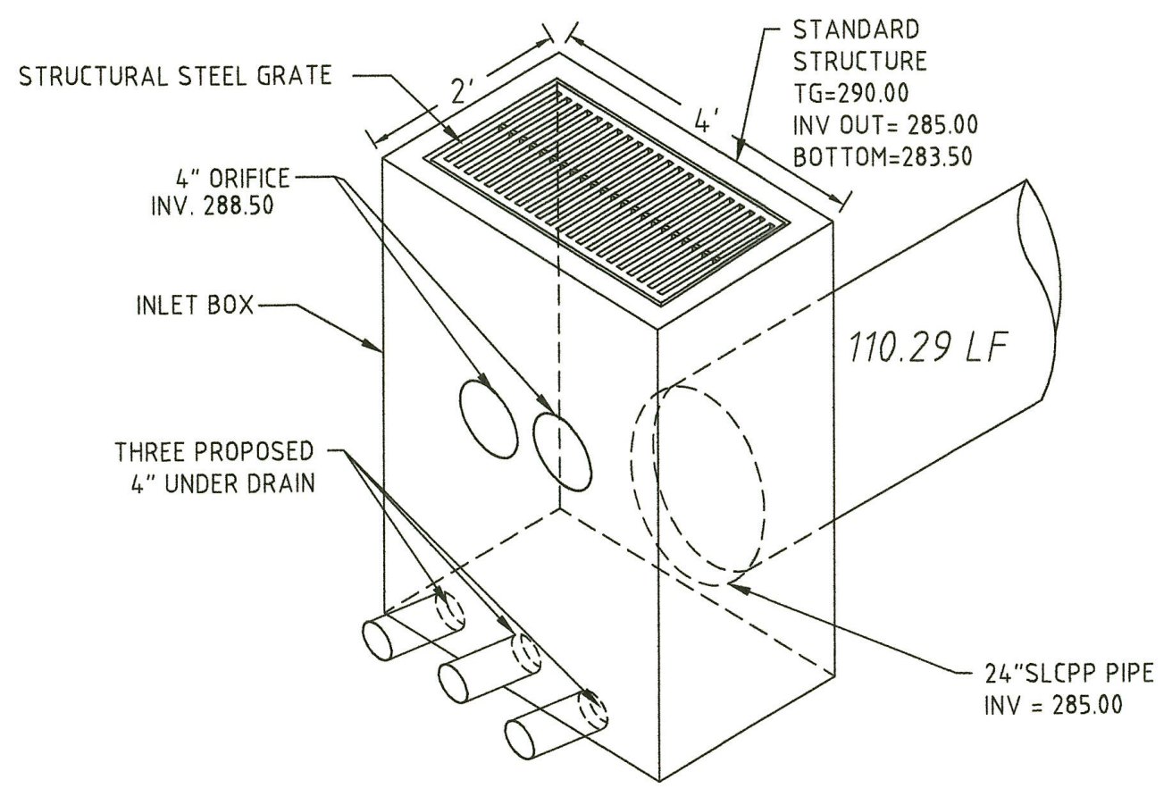
NOTES:
1. ALL CONNECTIONS IN MANIFOLD, AT CLEANOUTS AND AT OUTLET TO BE WITH 45° ELBOWS.
2. INVERT OF PERFORATED PIPE TO BE AT INVERT OF BASIN AT THE BOTTOM OF THE BIO-RETENTION MEDIA.
3. SOLVENT WELD ALL JOINTS.

PVC UNDERDRAIN DETAIL

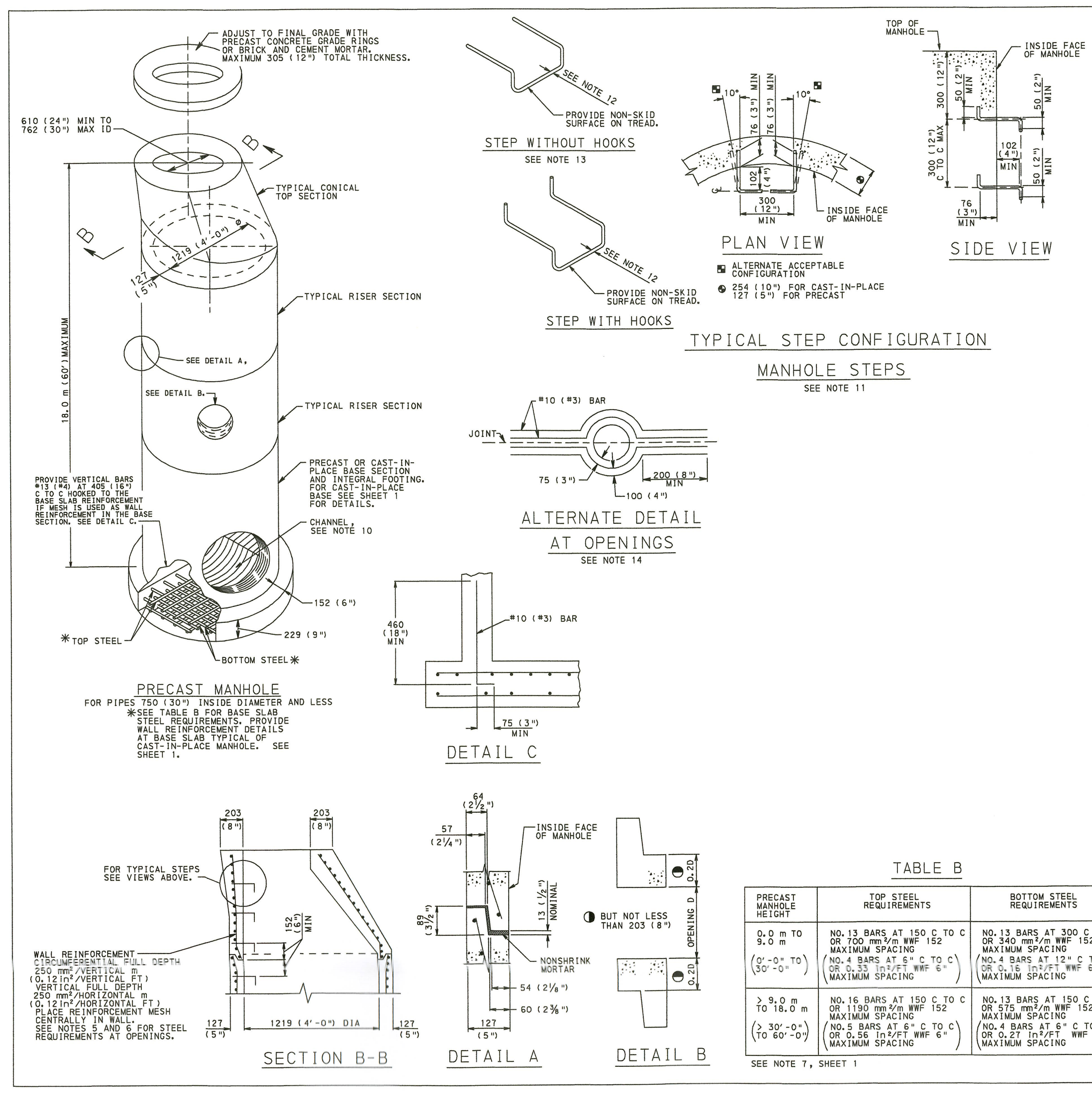

ELEV = 290.00
WATER TIGHT
SCREW CAP
ELEV =286.00
3.5" ORIFICE
INV=285.00
24" DISCHARGE PIPE
INV = 284.00
4" UNDER DRAIN
45° ELBOW
INV = 285.00
THREE UNDERDRAIN ORIFICES
THROUGH 4' SIDE

BASIN B UNDER DRAIN

NOTES:
1. ALL BENDS TO BE WITH 45° ELBOWS MAX
2. UNDER DRAIN TO BE AT BOTTOM OF SOIL MEDIA.
3. ORIFICE TO BE CUT WITH EDGES CLEAN SMOOTH AND SANDED WITH NO BURS OR IRREGULARITIES PRESENT AND GROUND SO THAT FLOW THROUGH IS SMOOTH.


STRUCTURAL STEEL GRATE
2'
4'
STANDARD
STRUCTURE
TG=290.00
INV OUT= 285.00
BOTTOM=283.50
4" ORIFICE
INV. 288.50
INLET BOX
110.29 LF
THREE PROPOSED
4" UNDER DRAIN
24"SLCPP PIPE
INV = 285.00

BASIN B OUTLET STRUCTURE


ADJUST TO FINAL GRADE WITH
PRECAST CONCRETE GRADE RINGS
OR BRICK AND CEMENT MORTAR,
MAXIMUM 305 (12") TOTAL THICKNESS.
610 (24") MIN TO
762 (30") MAX ID
TYPICAL CONICAL
TOP SECTION
TYPICAL RISER SECTION
SEE DETAIL A
SEE DETAIL B
TYPICAL RISER SECTION
18.0 m (60') MAXIMUM
PROVIDE VERTICAL BARS
OR EQUAL WELDED WIRE
REINFORCEMENT DETAILS
PRECAST OR CAST-IN-PLACE BASE SECTION
CHANNEL
SEE NOTE 10
152 (6")
229 (9")
TOP STEEL
BOTTOM STEEL
PRECAST MANHOLE
FOR PIPES 750 (30") INSIDE DIAMETER AND LESS
STEP WITHOUT HOOKS
SEE NOTE 13
STEP WITH HOOKS
PROVIDE NON-SKID
SURFACE ON TREAD.
PLAN VIEW
ALTERNATE ACCEPTABLE
CONFIGURATION
254 (10") FOR CAST-IN-PLACE
127 (5") FOR PRECAST
INSIDE FACE
OF MANHOLE
SIDE VIEW
TOP OF
MANHOLE
TYPICAL STEP CONFIGURATION
MANHOLE STEPS
SEE NOTE 11
#10 (#3) BAR
JOINT
75 (3")
100 (4")
ALTERNATE DETAIL
AT OPENINGS
SEE NOTE 14
DETAIL C
FOR TYPICAL STEPS
SEE VIEWS ABOVE.
WALL REINFORCEMENT
1219 (4'-0") DIA
SECTION B-B
INSIDE FACE
OF MANHOLE
NONSHRINK
MORTAR
DETAIL A
BUT NOT LESS
THAN 203 (8")
OPENING D
0.2D
DETAIL B

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. FOR CONSTRUCTION REQUIREMENTS SEE NOTE 1, SHEET 1. FOR DESIGN REQUIREMENTS SEE NOTE 1, SHEET 5.
3. FOR PERMISSIBLE LOCATION OF PIPES SEE PLAN VIEW AND NOTE 3, SHEET 1.
4. FOR RISERS OR BASE SECTIONS WITH OPENINGS, PROVIDE A MINIMUM HEIGHT OF SECTION SO AS TO PROVIDE AN UNCUT WALL EQUAL TO 20% OF THE OPENING, BUT NO LESS THAN 203 (8"), BETWEEN THE OPENING AND THE CLOSEST JOINT BETWEEN RISERS - SEE DETAIL B.
5. FOR PRECAST RISER OR BASE SECTIONS WITH ONE OPENING LOCATED AT DEPTHS TO 18.0 m (60'), PROVIDE CIRCUMFERENTIAL REINFORCEMENT IN ACCORDANCE WITH SECTION B-B. FOR SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTH OF 3.0 m (10') AND LESS, PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 340 mm²/VERTICAL m (0.16 in²/VERTICAL FT.) FOR THE HEIGHT OF RISER OR BASE SECTION.
6. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT A DEPTH GREATER THAN 3.0 m (10'), BUT LESS THAN OR EQUAL TO 7.6 m (25'), PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 930 mm²/VERTICAL m (0.44 in²/VERTICAL FT.) FOR THE HEIGHT OF THE RISER OR BASE SECTION.
7. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTHS GREATER THAN 7.6 m (25'), USE A 254 (10") THICK WALL RISER OR BASE SECTION WITH CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 470 mm²/VERTICAL m (0.22 in²/VERTICAL FT.) EACH FACE.
8. MARK RISERS OR BASE SECTIONS WITH HOLES CLEARLY WITH MAXIMUM ALLOWABLE DEPTH.
9. PROVIDE ADDITIONAL REINFORCEMENT BARS AROUND OPENINGS AS SHOWN ON REINFORCEMENT DETAILS AT OPENINGS SHEET 1.
10. FOR CHANNEL DETAILS IN PRECAST MANHOLE SEE CAST-IN-PLACE MANHOLE SHEET 1.
11. PROVIDE MANHOLE STEPS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 605.2(c). ALTERNATE CONFIGURATIONS AND DIMENSIONS, AS APPROVED BY THE ENGINEER, MAY BE USED.
12. PROVIDE MINIMUM 25 (1") SECTION DIMENSION FOR METAL STEPS. PROVIDE MINIMUM 19 (3/4") SECTION DIMENSION FOR NON-DETERIORATING MATERIAL STEPS.
13. MECHANICAL ANCHOR REQUIRED FOR INSTALLATION OF STEPS WITHOUT HOOKS.
14. THE ALTERNATE OPENING REINFORCEMENT DETAIL IS NOT DESIRABLE BY DESIGN. USE IT TO MEET EXISTING PIPE ELEVATIONS.

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

TABLE B

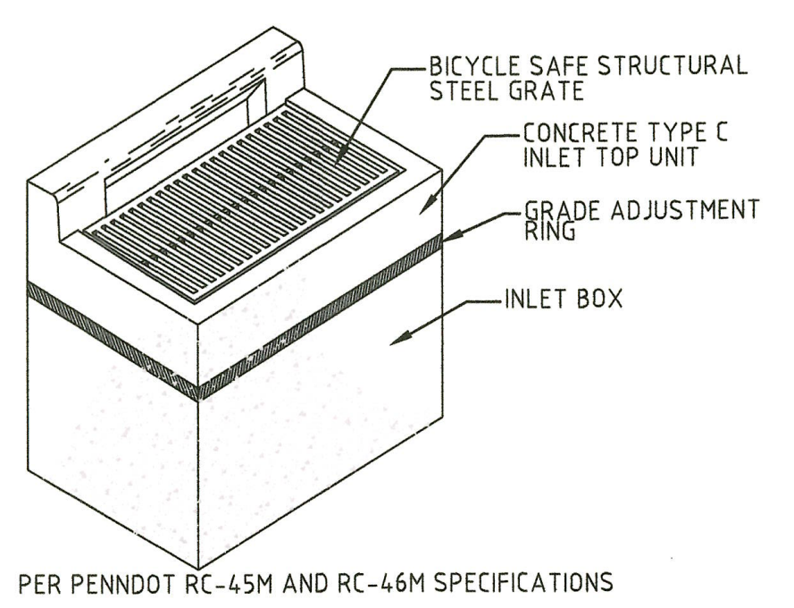
PRECAST MANHOLE HEIGHT	TOP STEEL REQUIREMENTS	BOTTOM STEEL REQUIREMENTS
0.0 m TO 9.0 m (0'-0" TO 30'-0")	NO. 13 BARS AT 150 C TO C OR 700 mm²/m WWF 152 MAXIMUM SPACING (NO. 4 BARS AT 6" C TO C OR 0.33 in²/FT WWF 6" MAXIMUM SPACING)	NO. 13 BARS AT 300 C TO C OR 340 mm²/m WWF 152 MAXIMUM SPACING (NO. 4 BARS AT 12" C TO C OR 0.16 in²/FT WWF 6" MAXIMUM SPACING)
> 9.0 m TO 18.0 m (> 30'-0" TO 60'-0")	NO. 16 BARS AT 150 C TO C OR 1190 mm²/m WWF 152 MAXIMUM SPACING (NO. 5 BARS AT 6" C TO C OR 0.56 in²/FT WWF 6" MAXIMUM SPACING)	NO. 13 BARS AT 150 C TO C OR 575 mm²/m WWF 152 MAXIMUM SPACING (NO. 4 BARS AT 6" C TO C OR 0.27 in²/FT WWF 6" MAXIMUM SPACING)

SEE NOTE 7, SHEET 1

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

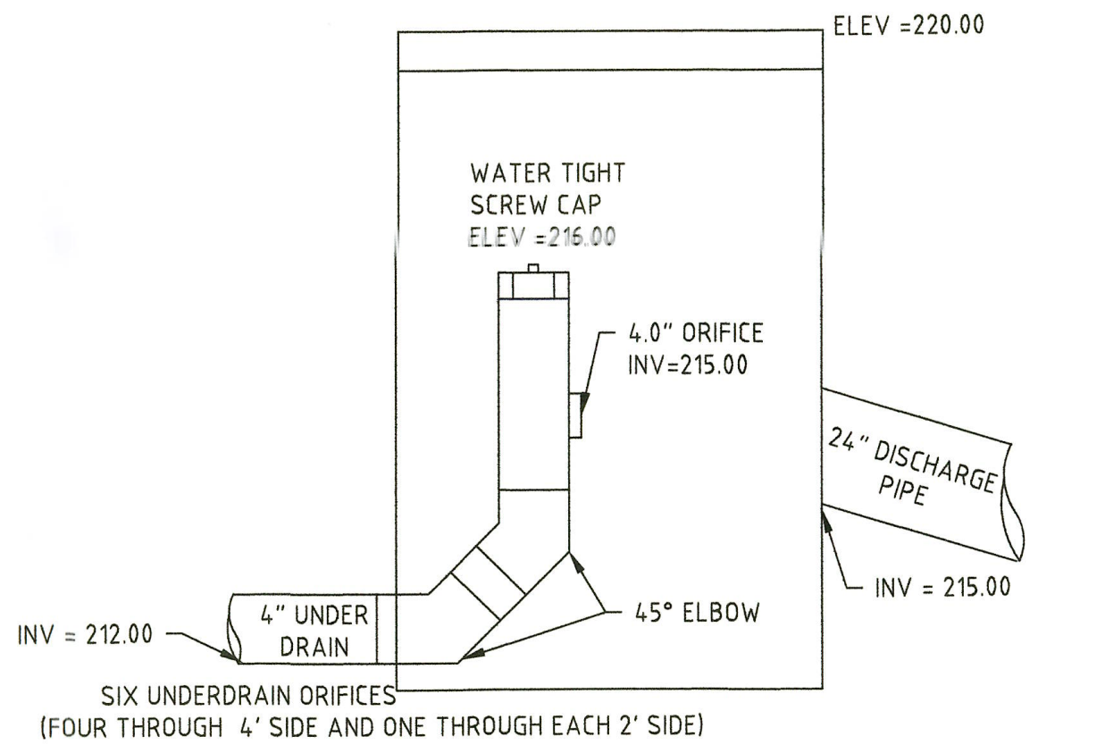
STANDARD MANHOLES
PRECAST MANHOLES &
MANHOLE STEPS

RECOMMENDED APR. 15, 2004	RECOMMENDED APR. 15, 2004	SHT 3 OF 6
DIRECTOR, BUREAU OF DESIGN	CHIEF ENGINEER	RC-39M


BICYCLE SAFE STRUCTURAL
STEEL GRATE
CONCRETE TYPE C
INLET TOP UNIT
GRADE ADJUSTMENT
RING
INLET BOX

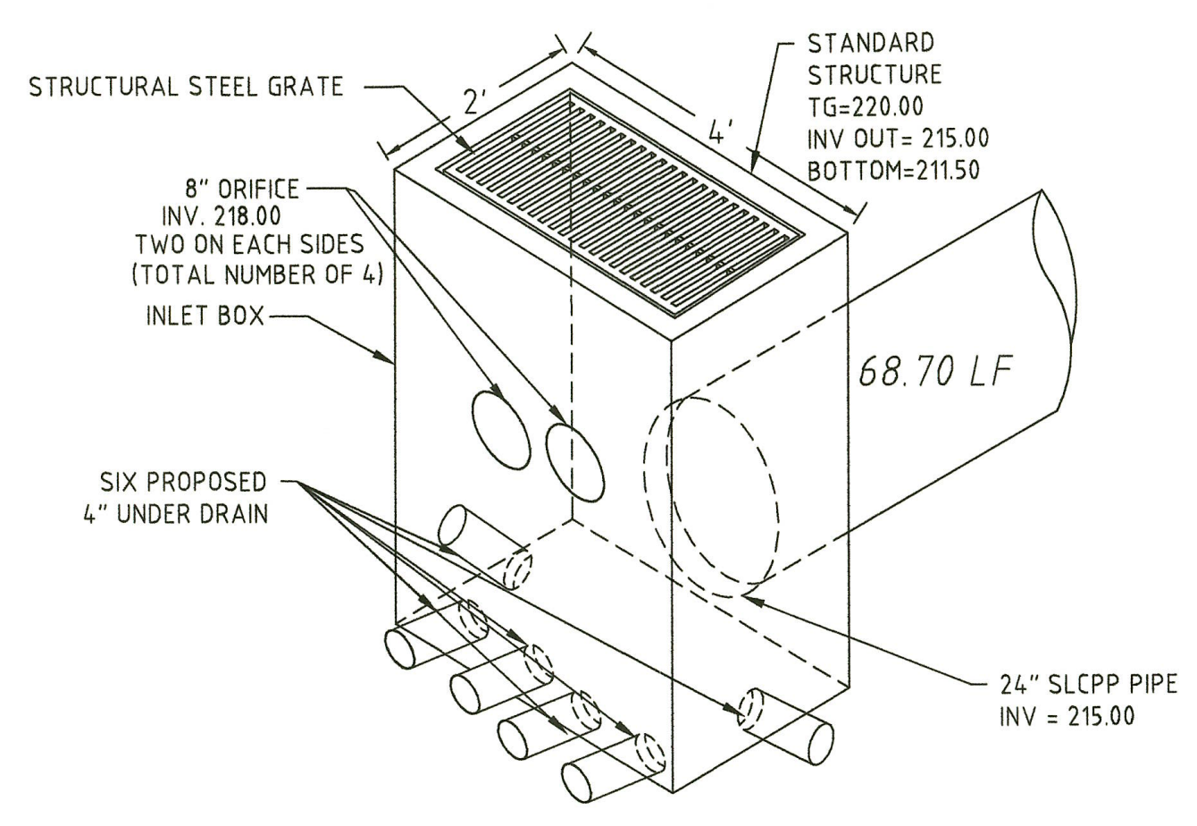
PER PENNDOT RC-45M AND RC-46M SPECIFICATIONS

TYPE C INLET

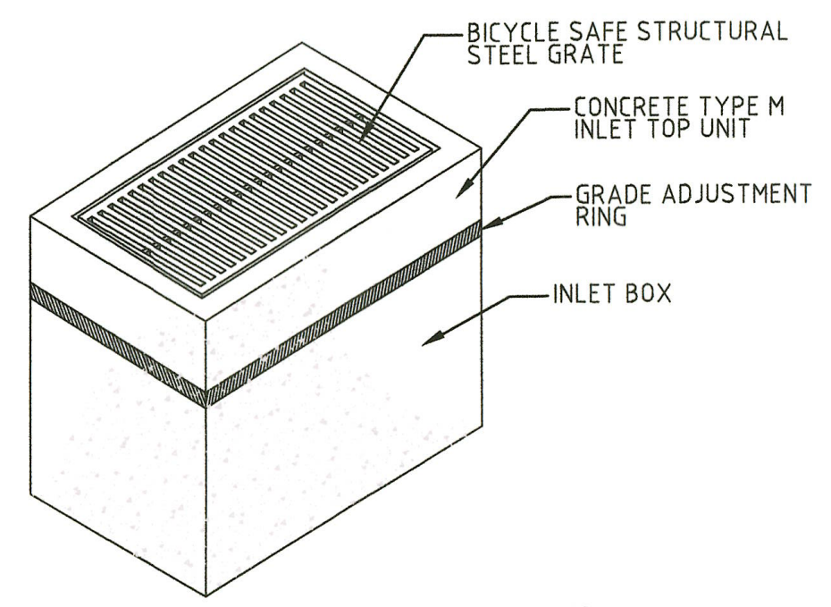

ELEV =220.00
WATER TIGHT
SCREW CAP
ELEV =216.00
4.0" ORIFICE
INV=215.00
24" DISCHARGE PIPE
INV = 212.00
4" UNDER DRAIN
45° ELBOW
INV = 215.00
SIX UNDERDRAIN ORIFICES
(FOUR THROUGH 4' SIDE AND ONE THROUGH EACH 2' SIDE)

MRC BASIN C UNDER DRAIN

NOTES:
1. ALL BENDS TO BE WITH 45° ELBOWS MAX
2. UNDER DRAIN TO BE AT BOTTOM OF SOIL MEDIA.
3. ORIFICE TO BE CUT WITH EDGES CLEAN SMOOTH AND SANDED WITH NO BURS OR IRREGULARITIES PRESENT AND GROUND SO THAT FLOW THROUGH IS SMOOTH.

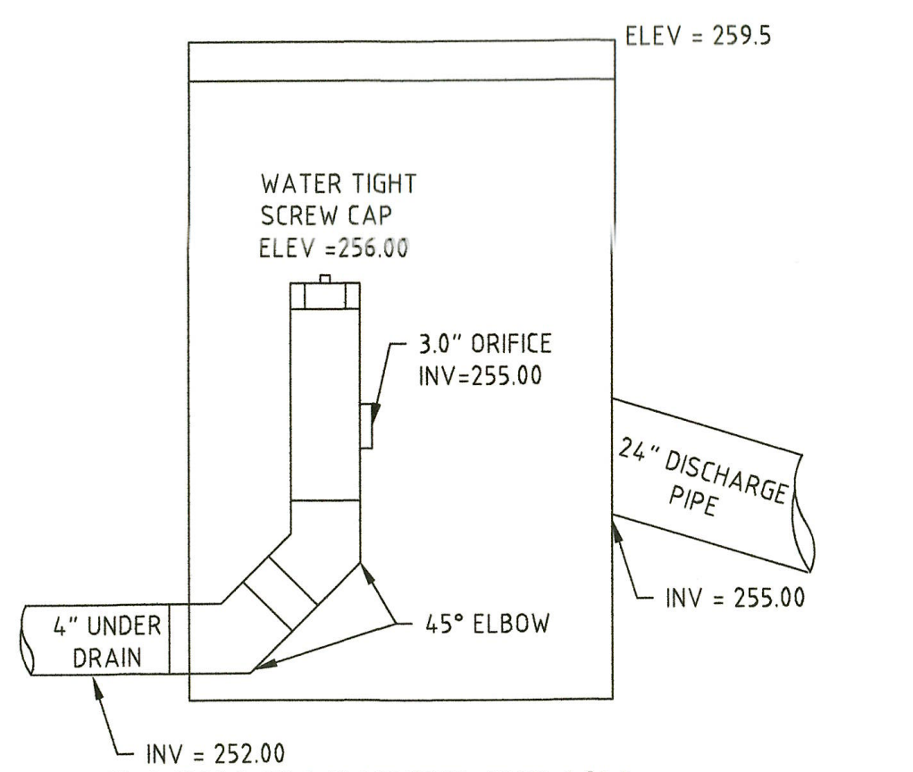

STRUCTURAL STEEL GRATE
STANDARD
STRUCTURE
TG=220.00
INV OUT= 215.00
BOTTOM=211.50
8" ORIFICE
INV. 218.00
TWO ON EACH SIDES
(TOTAL NUMBER 4)
INLET BOX
68.70 LF
SIX PROPOSED
4" UNDER DRAIN
24" SLCPP PIPE
INV = 215.00

MRC BASIN C OUTLET STRUCTURE


BICYCLE SAFE STRUCTURAL
STEEL GRATE
CONCRETE TYPE M
INLET TOP UNIT
GRADE ADJUSTMENT
RING
INLET BOX

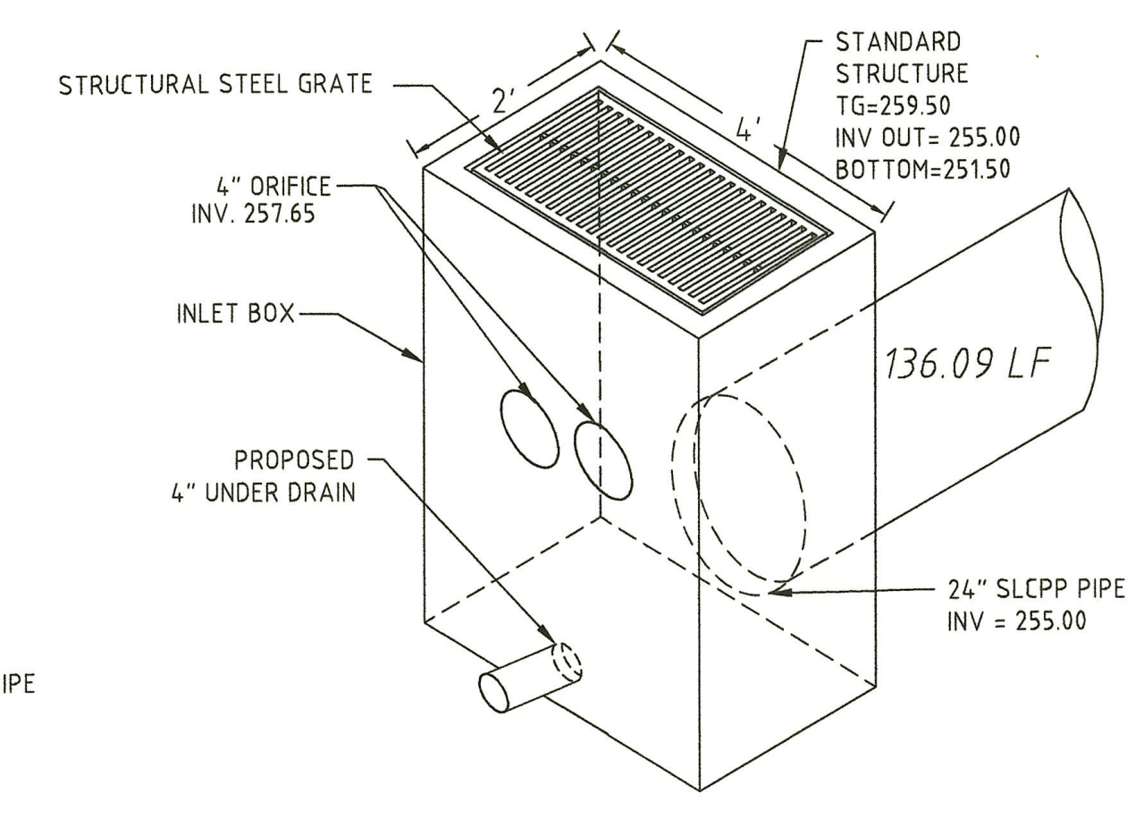
PER PENNDOT RC-45M AND RC-46M SPECIFICATIONS

TYPE M INLET

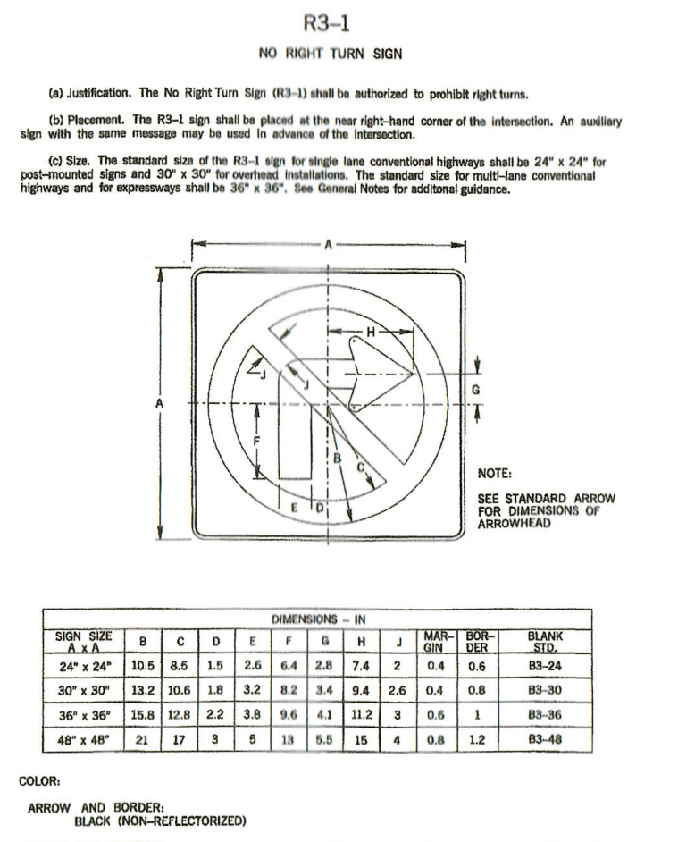

ELEV = 259.5
WATER TIGHT
SCREW CAP
ELEV =256.00
3.0" ORIFICE
INV=255.00
24" DISCHARGE PIPE
4" UNDER DRAIN
45° ELBOW
INV = 255.00
INV = 252.00

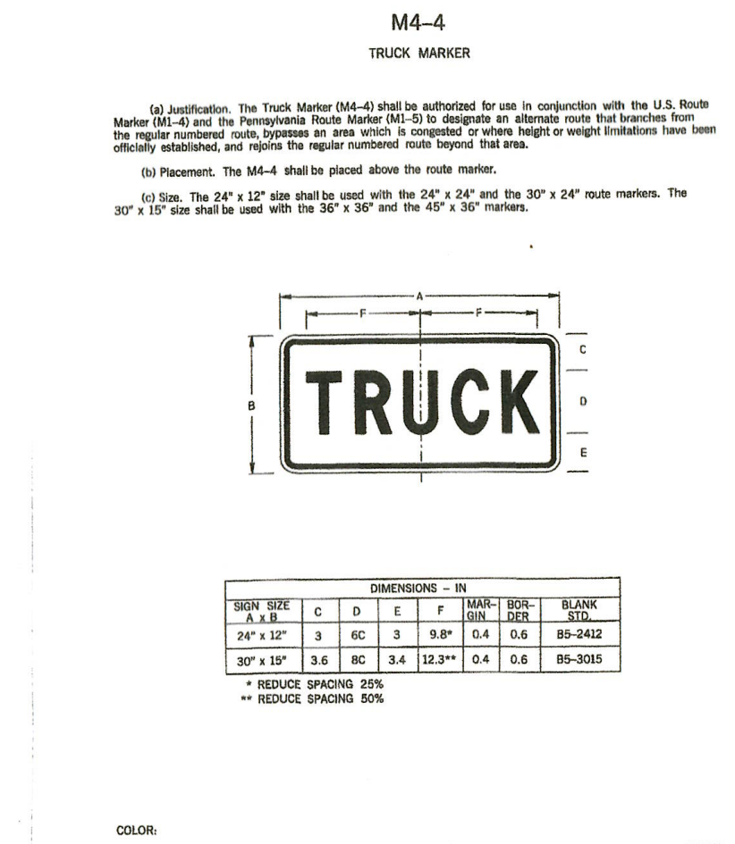
BASIN E UNDER DRAIN

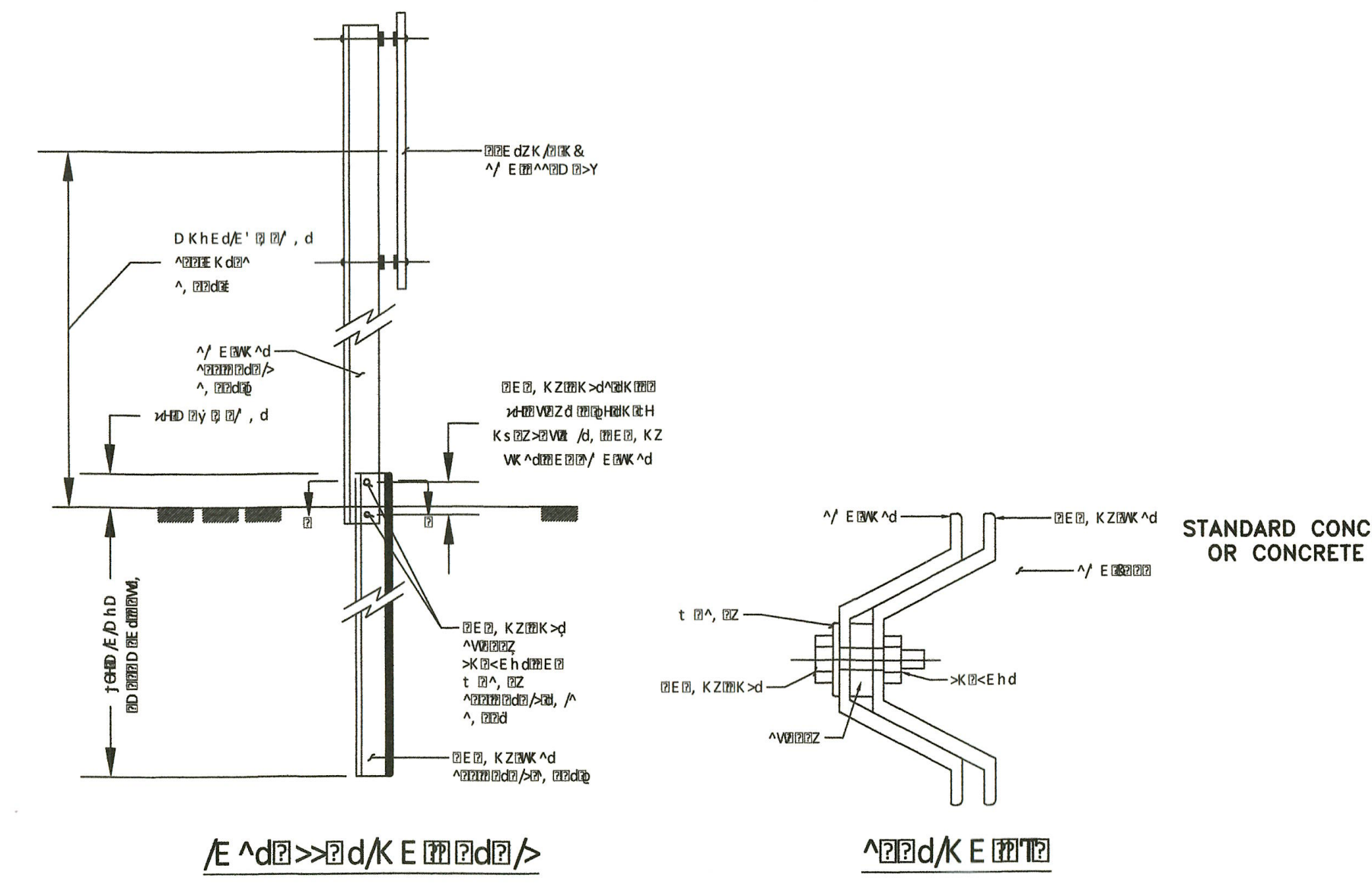
NOTES:
1. ALL BENDS TO BE WITH 45° ELBOWS MAX
2. UNDER DRAIN TO BE AT BOTTOM OF SOIL MEDIA.
3. ORIFICE TO BE CUT WITH EDGES CLEAN SMOOTH AND SANDED WITH NO BURS OR IRREGULARITIES PRESENT AND GROUND SO THAT FLOW THROUGH IS SMOOTH.


STRUCTURAL STEEL GRATE
STANDARD
STRUCTURE
TG=259.50
INV OUT= 255.00
BOTTOM=251.50
4" ORIFICE
INV. 257.65
INLET BOX
136.09 LF
PROPOSED
4" UNDER DRAIN
24" SLCPP PIPE
INV = 255.00

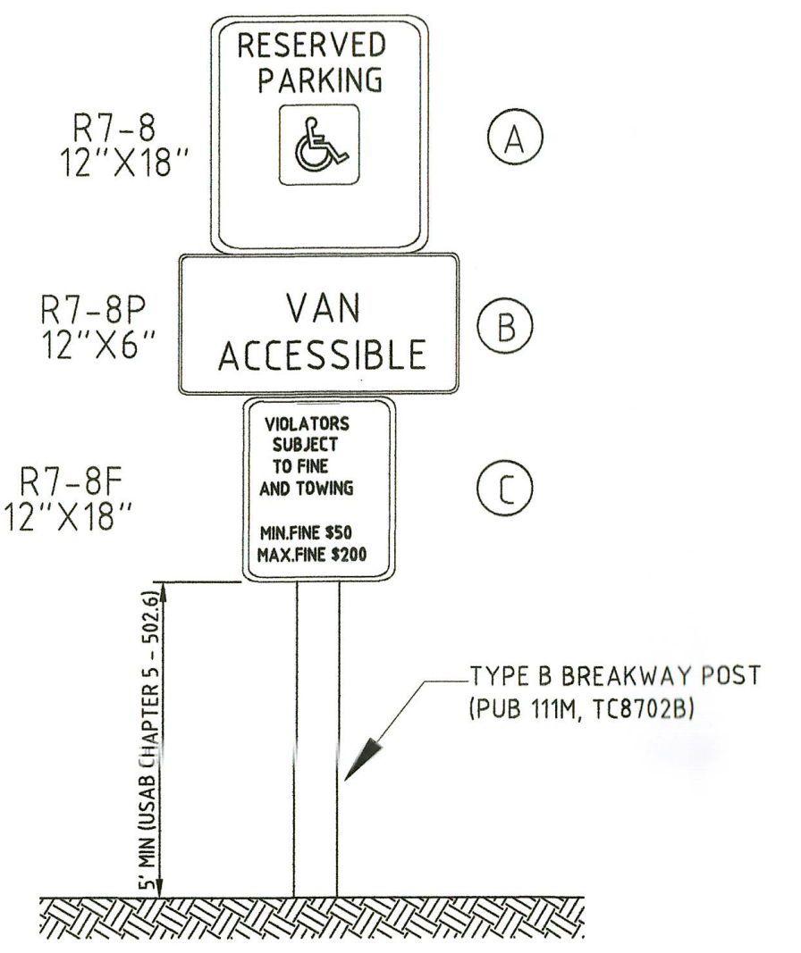
BASIN E OUTLET STRUCTURE



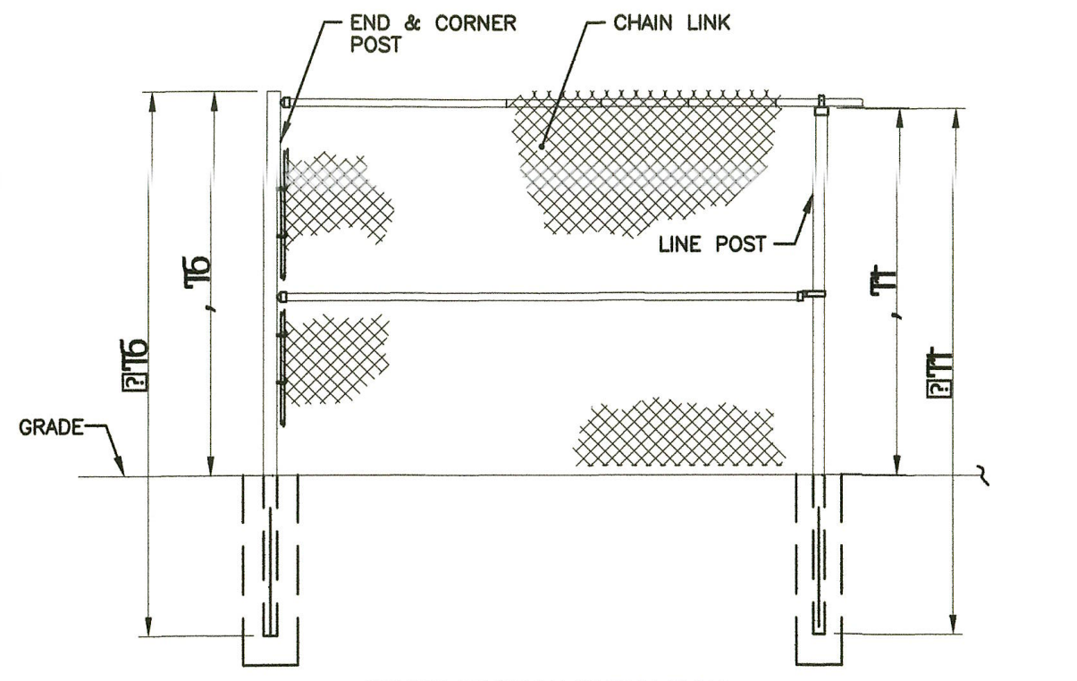

M4-4
TRUCK MARKER
TRUCK



SIGN POST DETAIL


RESERVED PARKING
Ⓐ
R7-8
12"X18"
VAN ACCESSIBLE
Ⓑ
R7-8P
12"X6"
VIOLATORS SUBJECT TO FINE AND TOWING
Ⓒ
R7-8F
12"X18"
TYPE B BREAKWAY POST
(PUB 111M, TC87028)

TYPICAL ADA SIGN DETAIL

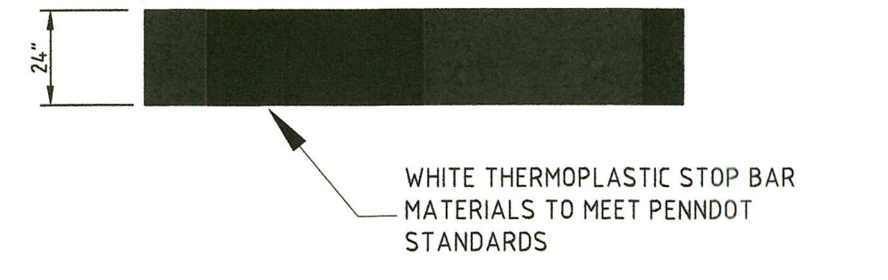

END & CORNER
POST
CHAIN LINK
LINE POST
GRADE

FENCE SECTION ELEVATION

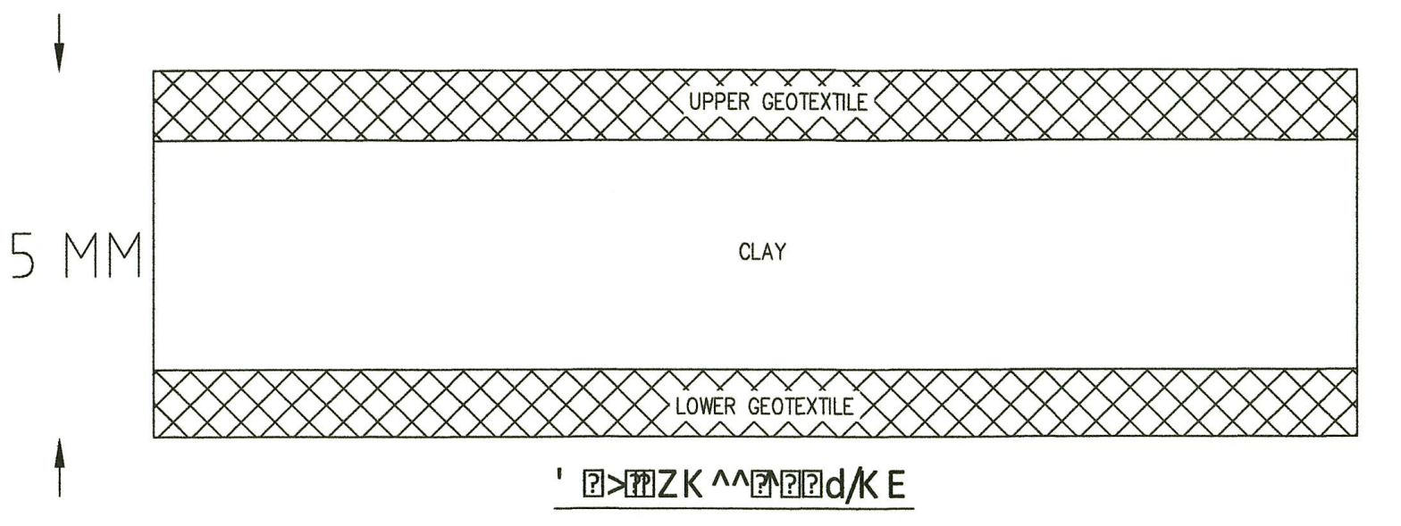
FENCE HEIGHT	END & CORNER POSTS		LINE POSTS	
NOMINAL HEIGHT	B-1 BAR LENGTH	H-1 HEIGHT ABOVE GRADE	B-2 BAR LENGTH	H-2 HEIGHT ABOVE GRADE
7'-0" [2134MM]	10'-0" [3048MM]	7'-0 5/8" [2150MM]	9'-8" [2946MM]	6'-8 7/8" [2054MM]

NOTES:
1. CHAINLINK FENCE TO INCLUDE POLYETHYLENE THERMOPLASTIC PRIVACY SLATS TO PROVIDE A VISUAL SCREEN ALONG REFUSE COLLECTION AREAS. NO PRIVACY SLATS FOR PERIMETER FENCING REQUIRED UNLESS SPECIFIED BY OWNER. ARCHITECT TO SPECIFY COLOR.
2. AS MANUFACTURED BY MASTER HALCO (WWW.FENCEONLINE.COM) OR APPROVED EQUAL.
3. PERIMETER FENCING IS PROHIBITED FROM HAVING BARBED WIRE PER ZONING ORDINANCE SECTION 209-37(A).

FENCE DETAIL


16'
24"
WHITE THERMOPLASTIC STOP BAR
MATERIALS TO MEET PENNDOT
STANDARDS

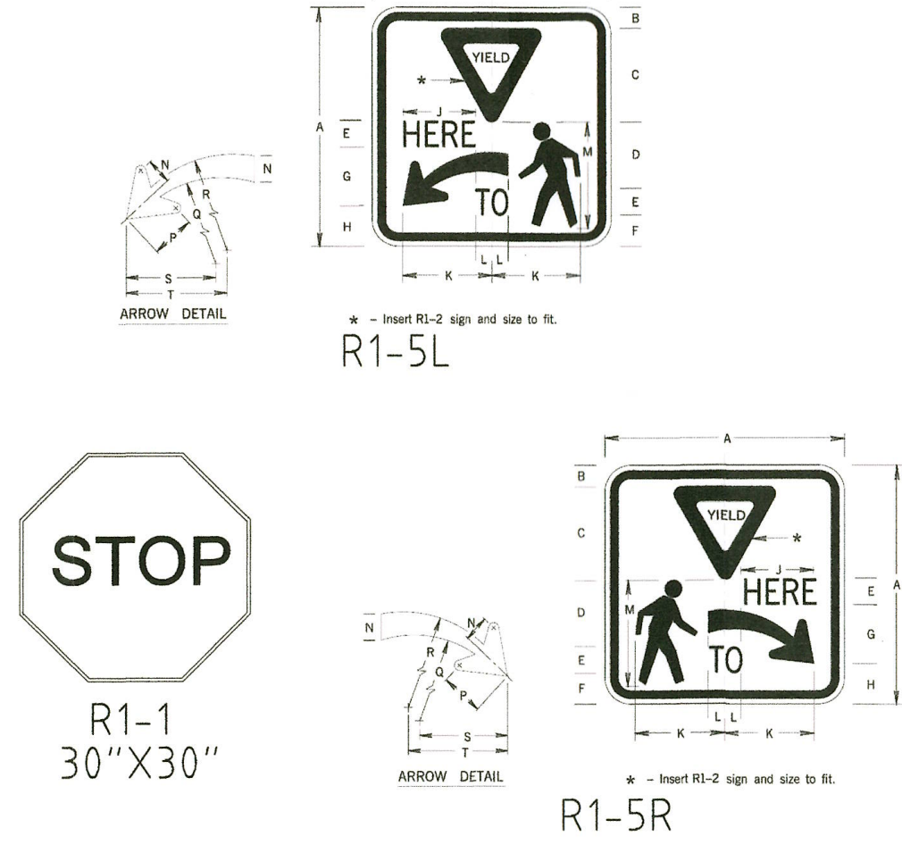
STOP BAR DETAIL


~5 MM
UPPER GEOTEXTILE
CLAY
LOWER GEOTEXTILE

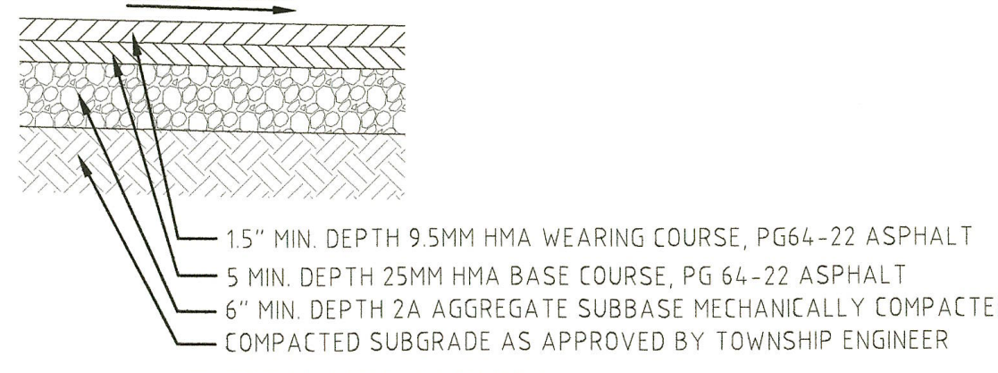
NOTES:
1. GCL MAY BE CLAY BOUND WITH ADHESIVE TO UPPER AND LOWER GEOTEXTILES, CLAY STITCHBONDED BETWEEN UPPER AND LOWER GEOTEXTILES, OR CLAY NEEDLEPUNCHED THROUGH UPPER AND LOWER GEOTEXTILES.
2. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

GEOSYNTHETIC CLAY LINER (GCL)

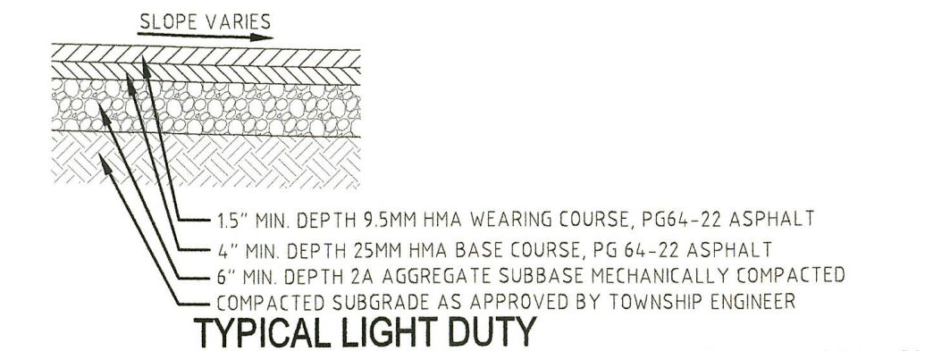
N.T.S.


R1-5L
STOP
R1-1
30"X30"
R1-5R

SIGNAGE DETAILS

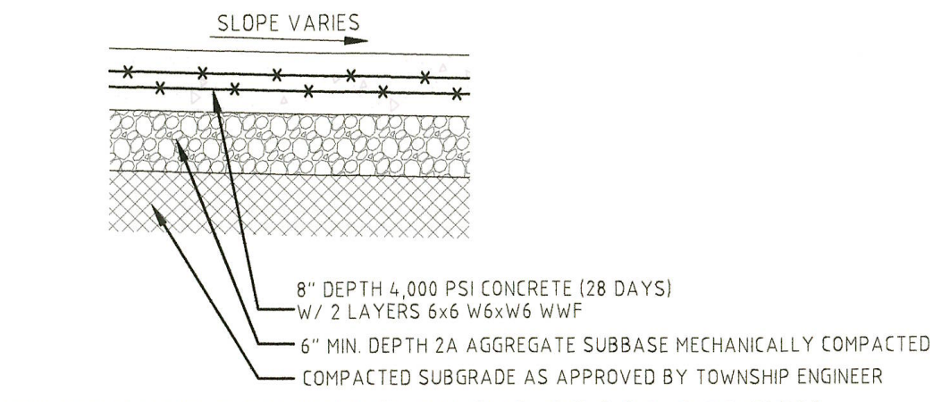

SLOPE VARIES
1.5" MIN. DEPTH 9.5MM HMA WEARING COURSE, PG64-22 ASPHALT
5 MIN. DEPTH 25MM HMA BASE COURSE, PG 64-22 ASPHALT
6" MIN. DEPTH 2A AGGREGATE SUBBASE MECHANICALLY COMPACTED
COMPACTED SUBGRADE AS APPROVED BY TOWNSHIP ENGINEER

TYPICAL HEAVY DUTY PAVING CROSS-SECTION (TRUCK AREAS AND INTERNAL DRIVEWAYS)


SLOPE VARIES
1.5" MIN. DEPTH 9.5MM HMA WEARING COURSE, PG64-22 ASPHALT
4" MIN. DEPTH 25MM HMA BASE COURSE, PG 64-22 ASPHALT
6" MIN. DEPTH 2A AGGREGATE SUBBASE MECHANICALLY COMPACTED
COMPACTED SUBGRADE AS APPROVED BY TOWNSHIP ENGINEER

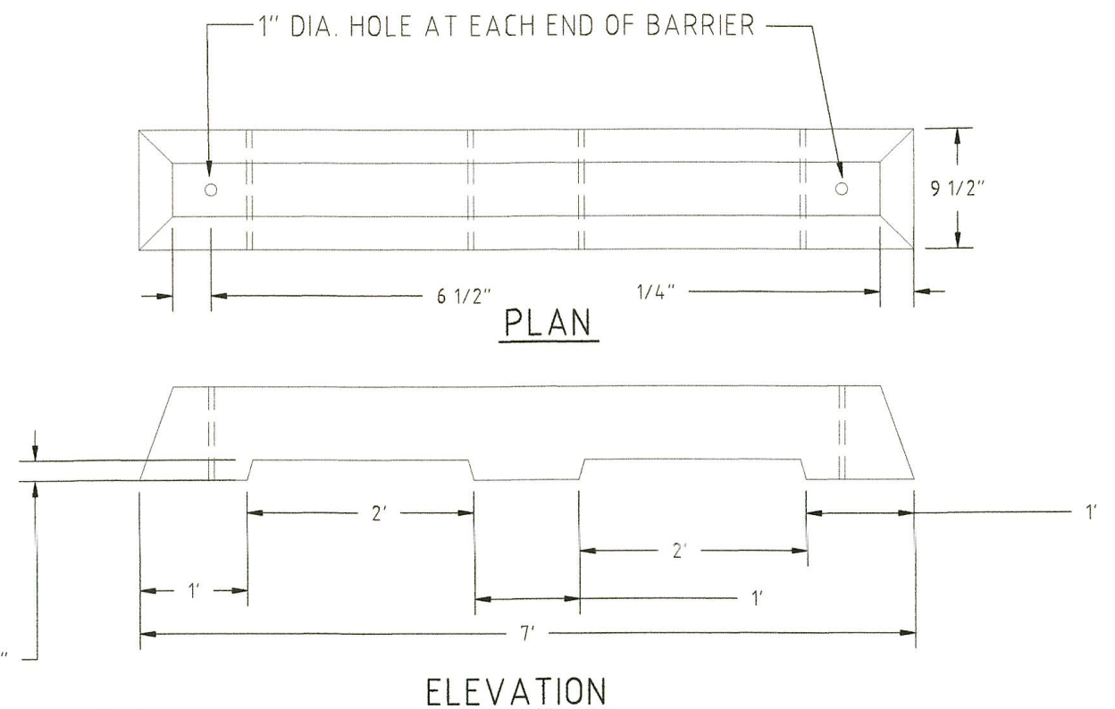
TYPICAL LIGHT DUTY PAVING CROSS-SECTION (PARKING SPACES AND PARKING AISLES)

PAVING NOTE:
SUBGRADE SHALL BE COMPACTED IN ACCORDANCE WITH SPECIFICATIONS OF PADOT PUBLICATION 408, LATEST EDITION. WHERE PARKING AREA(S) ARE TO BE USED FOR INFILTRATION PRACTICES, SUBGRADE SHALL NOT BE COMPACTED AND IT SHALL BE PROTECTED FROM COMPACTION FROM CONSTRUCTION EQUIPMENT, TRAFFIC, STORAGE OF MATERIALS, ETC. TO PRESERVE INFILTRATION CAPACITY OF SUBGRADE SOILS.


SLOPE VARIES
8" DEPTH 4,000 PSI CONCRETE (28 DAYS)
W/ 2 LAYERS 6x6 W6xW6 WWF
6" MIN. DEPTH 2A AGGREGATE SUBBASE MECHANICALLY COMPACTED
COMPACTED SUBGRADE AS APPROVED BY TOWNSHIP ENGINEER

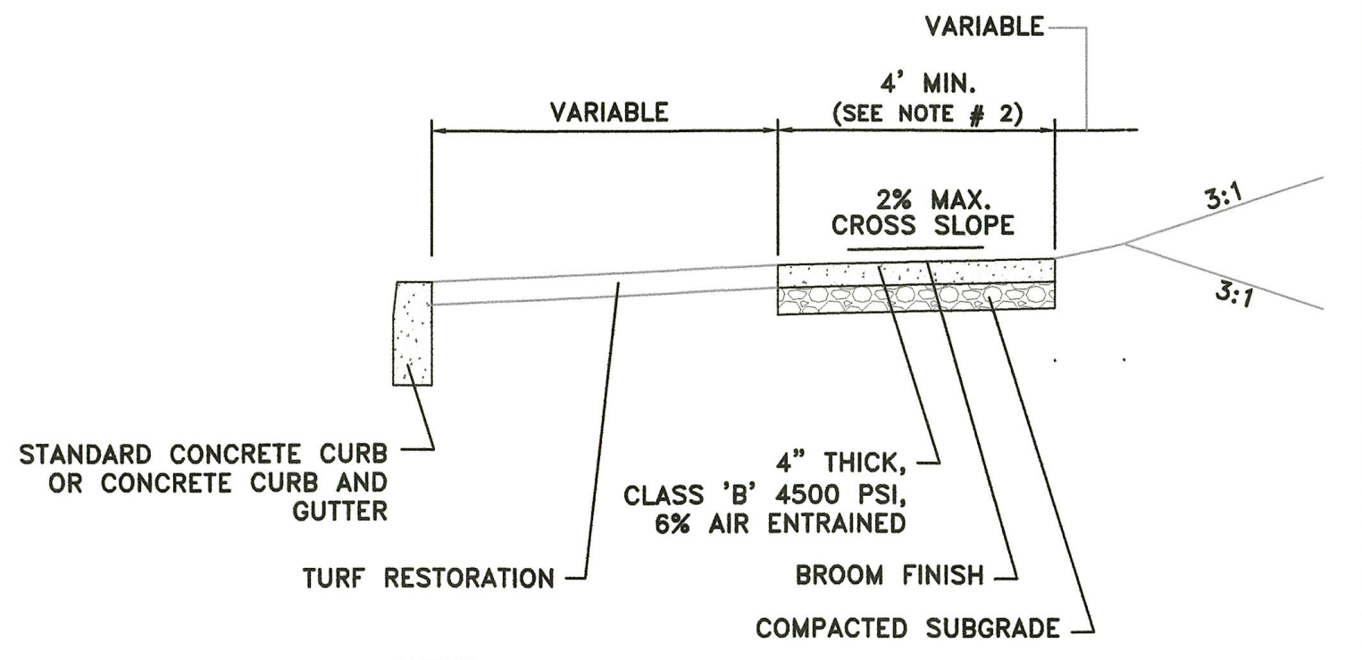
REINFORCED CONCRETE PAVING CROSS-SECTION

PAVING NOTE:
ROAD TO BE CONSTRUCTED FOLLOW PENNDOT SPECIFICATIONS FOR CONCRETE PAVING, INCLUDING BUT NOT LIMITED TO PUB. 72M, RC-20M AND RC-21M AS WELL AS PUB. 408.


1" DIA. HOLE AT EACH END OF BARRIER
9 1/2"
6 1/2"
1/4"
PLAN
2'
1'
2'
1'
1'
7'
1 1/2"
ELEVATION

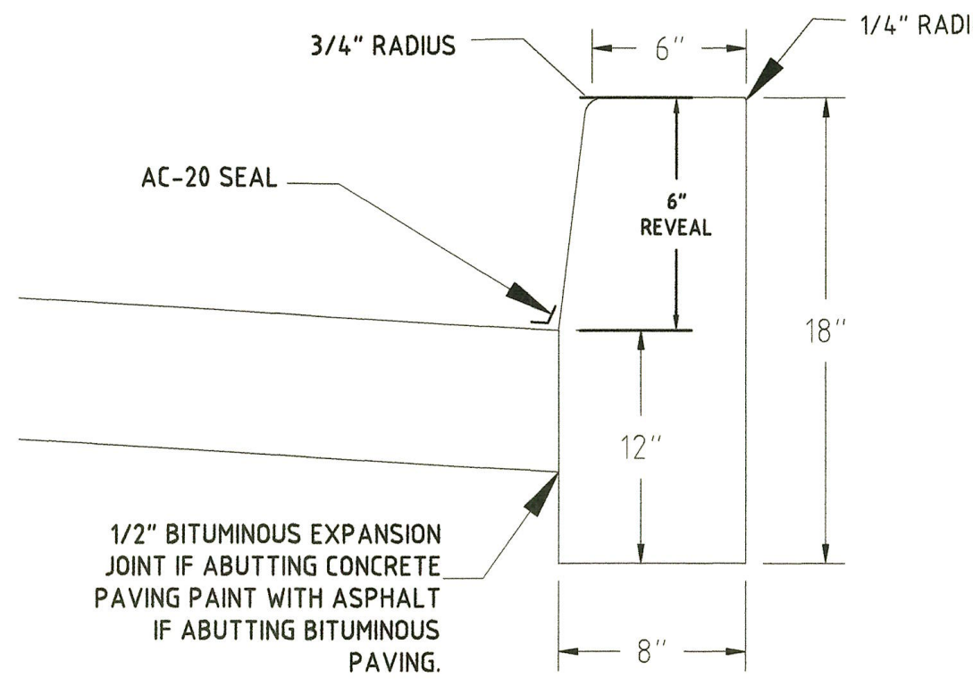
NOTES:
1. DIMENSIONS SHOWN ARE APPROXIMATE.
2. USE WHEEL STOPS AS MANUFACTURED BY READING PRECAST OR APPROVED EQUAL.
3. SECURE WHEEL STOP WITH 18" #5 REBAR DRIVEN FLUSH WITH TOP OF WHEEL STOP.
4. PLACE WHEEL STOP WITH THE NEARST EDGE 2' FROM EDGE OF PAVING OR CURB.
5. WHEEL STOPS TO BE PLACED AT ENDS OF ALL PARKING SPACES NOT ABUTTING CURB.

CONCRETE WHEEL STOP


VARIABLE
4' MIN.
(SEE NOTE # 2)
VARIABLE
2% MAX.
CROSS SLOPE
3:1
3:1
STANDARD CONCRETE CURB
OR CONCRETE CURB AND
GUTTER
4" THICK,
CLASS 'B' 4500 PSI,
6% AIR ENTRAINED
TURF RESTORATION
BROOM FINISH
COMPACTED SUBGRADE

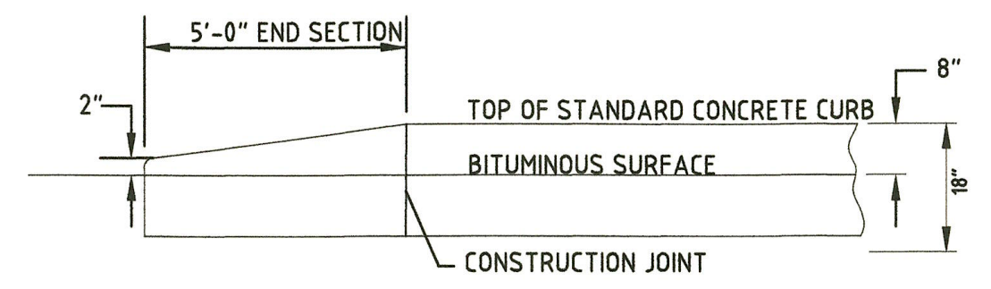
NOTES:
1. TURF RESTORATION TO CONSIST OF A MINIMUM OF 4" OF SELECT TOPSOIL, FERTILIZER AND SEED AS PER SPECIFICATIONS.
2. IF SUBGRADE MATERIAL IS UNSUITABLE, CONTRACTOR TO REMOVE PER COUNTY ENGINEER'S DISCRETION AND REPLACE WITH SELECT FILL AT NO EXTRA COST TO THE COUNTY.
3. SIDEWALK WIDTH SHALL BE 4'-0" MINIMUM UNLESS OTHERWISE NOTED ON THE APPROVED PLANS.
4. CONCRETE SHALL BE CLASS B WITH 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI 6% ±1.5% AIR ENTRAINMENT.

STANDARD CONCRETE SIDEWALK

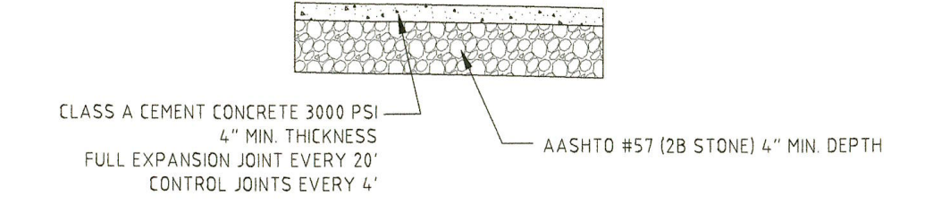

3/4" RADIUS
6"
1/4" RADIUS
AC-20 SEAL
6" REVEAL
18"
12"
1/2" BITUMINOUS EXPANSION
JOINT IF ABUTTING CONCRETE
PAVING PAINT WITH ASPHALT
IF ABUTTING BITUMINOUS
PAVING.
8"

NOTES:
1. PENNDOT PUBLICATION 408, CLASS A CEMENT CONCRETE IS REQUIRED.
2. APPROVED 3/8" PREMOLDED EXPANSION JOINTS TO BE SPACED EVERY 20 FEET MAX.
3. CONTRACTION JOINTS ARE TO BE SPACED EVERY 10 FEET.

6" CONCRETE CURB


5'-0" END SECTION
2"
8"
TOP OF STANDARD CONCRETE CURB
BITUMINOUS SURFACE
18"
CONSTRUCTION JOINT

CURB TRANSITION FOR STANDARD CURBING


WIDTH VARIES - SEE PLAN
2% MAX.
CLASS A CEMENT CONCRETE 3000 PSI
4" MIN. THICKNESS
FULL EXPANSION JOINT EVERY 20'
CONTROL JOINTS EVERY 4'
AASHTO #57 (2B STONE) 4" MIN. DEPTH

SIDEWALK CROSS-SECTION

NOTE:
- ALL CONSTRUCTION DETAILS ARE TO BE IN ACCORDANCE WITH THE WILSON BOROUGH AND CITY OF EASTON DESIGN DETAILS AND PRACTICES, SUBDIVISION AND LAND DEVELOPMENT ORDINANCE. ALL CONSTRUCTION DETAILS ARE TO ALSO REFERENCE LATEST VERSION OF PENNDOT PUBLICATION 408.
- ALL SIGNAGE SHALL COMPLY WITH THE REQUIREMENTS OF THE WILSON BOROUGH AND CITY OF EASTON ZONING ORDINANCE.

2024-10-28	PER DEP COMMENTS & BOROUGH LETTER	
2024-08-09	PER BOROUGH COMMENTS	
2024-07-15	PER LVPC, BOROUGH, & CITY COMMENTS	
DATE	REVISION	

BEI

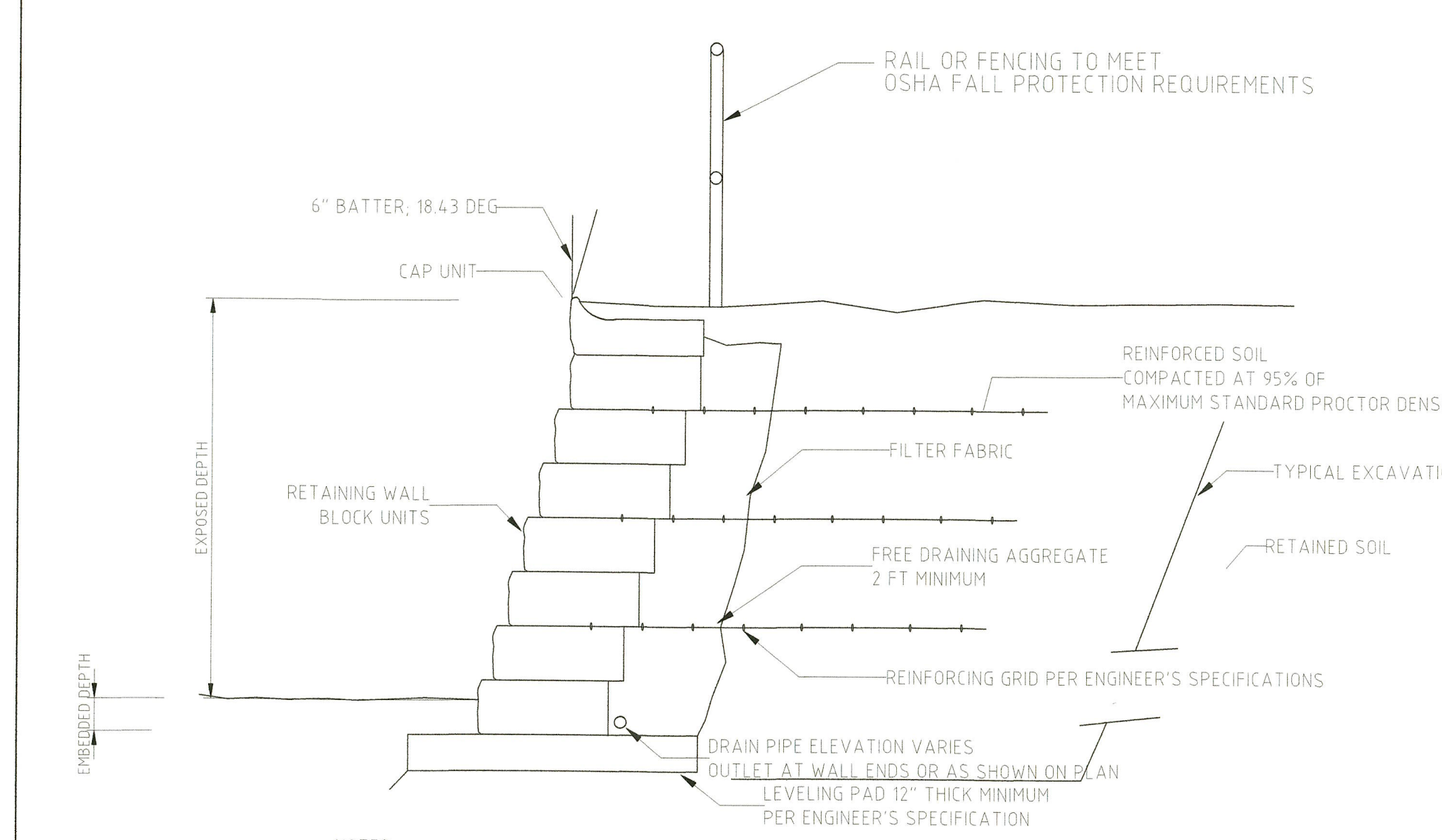
BOGIA ENGINEERING INC.
1340 PENN AVE WYOMISSING, PA 19610
PHONE: 610-678-3071 - FAX: 610-678-3517
WWW.BOGIAENG.COM

PRELIMINARY & FINAL
EASTON COMMERCE PARK
CONSTRUCTION DETAILS A

EASTON WOOD AVE PropCO.LLC
8801RIVER CROSSING Blvd
INDIANAPOLIS, IN 46240
JOB:EASTON COMMERCE PARK
Wilson Borough
Palmer Twp & City of Easton
NORTHAMPTON County, PA

PIN:	CHECK SHEET C-100
CHECKED BY:	DH
DRAWN BY:	CF
DATE:	11/01/2024
SCALE:	N.T.S.
DRAWING:	C-110 A
PROJECT:	2022-528
SHEET:	46 OF 53

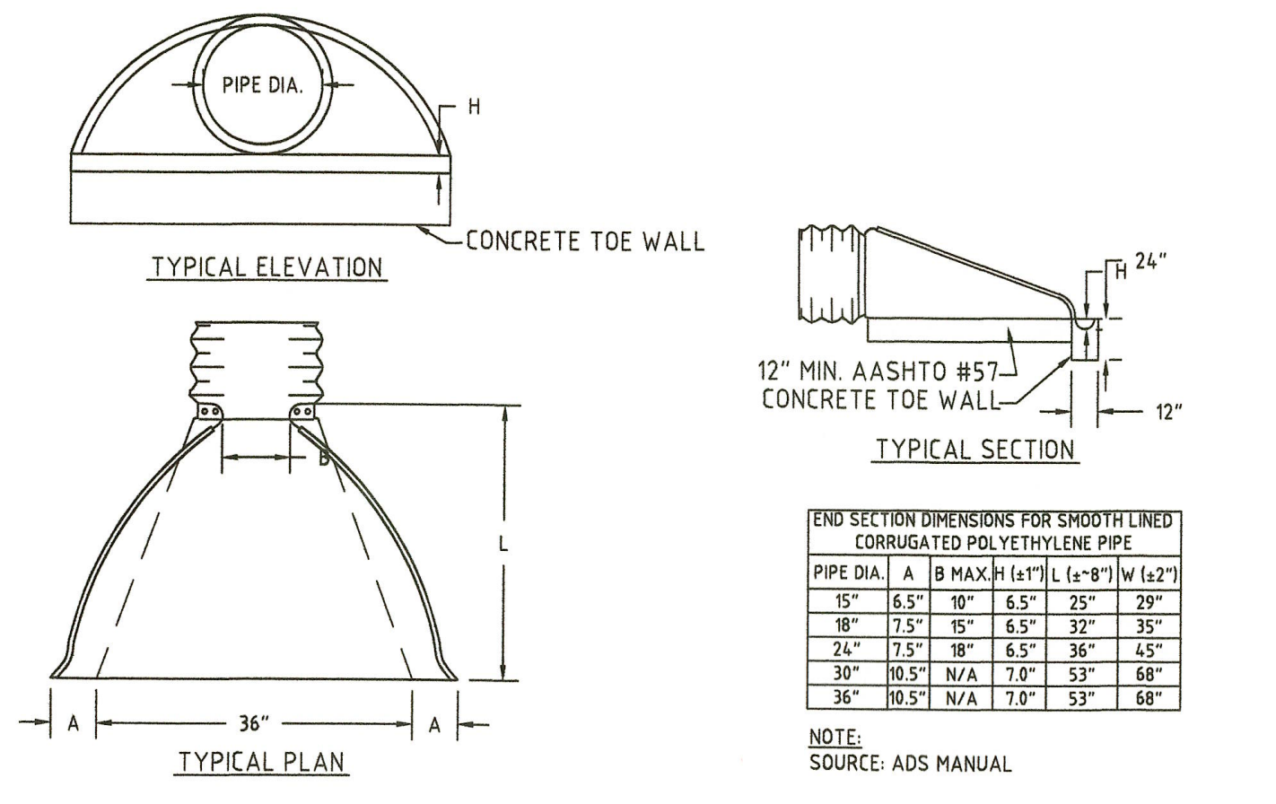
PROJECT TITLE: EASTON COMMERCE PARK


RAIL OR FENCING TO MEET OSHA FALL PROTECTION REQUIREMENTS
6" BATTER, W.43 DEG.
CAP UNIT
REINFORCED SOIL COMPACTED AT 95% OF MAXIMUM STANDARD PROCTOR DENSITY
FILTER FABRIC
TYPICAL EXCAVATION LINE
RETAINING WALL BLOCK UNITS
FREE DRAINING AGGREGATE 2 FT MINIMUM
RETAINED SOIL
REINFORCING GRID PER ENGINEER'S SPECIFICATIONS
DRAIN PIPE ELEVATION VARIES OUTLET AT WALL ENDS OR AS SHOWN ON PLAN
LEVELING PAD 12" THICK MINIMUM PER ENGINEER'S SPECIFICATION

NOTES:
1. SURFACE MATERIAL AND COLOR TREATMENT TO BE APPROVED BY ARCHITECT.
2. PROVIDE RAILING OR FENCING ALONG TOP EDGE OF WALL FOR SAFETY.
3. THE DESIGN OF WALLS MUST BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF PENNSYLVANIA.
4. PEDESTRIAN BARRIER SHALL BE PROVIDED ALONG THE TOP OF ALL WALLS.
5. WALL TO BE DESIGNED TO "BRIDGE" ACROSS ALL STORM SEWER PIPES SO ADDITIONAL LOAD FROM WALL OR FILL IT RETAINS IS NOT IMPOSED ON THE PIPES.
6. WILSON BOROUGH AND CITY OF EASTON APPROVAL OF DESIGN DETAILS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF PENNSYLVANIA IS REQUIRED PRIOR TO CONSTRUCTION.
7. WALL IS TYPICAL SECTION, ADDITIONAL INFORMATION MAY BE NECESSARY FOR CONSTRUCTION OR DIFFERENT WALL DESIGN PROVIDED DEPENDING ON SITE CONDITIONS.

SEGMENTAL BLOCK RETAINING WALL

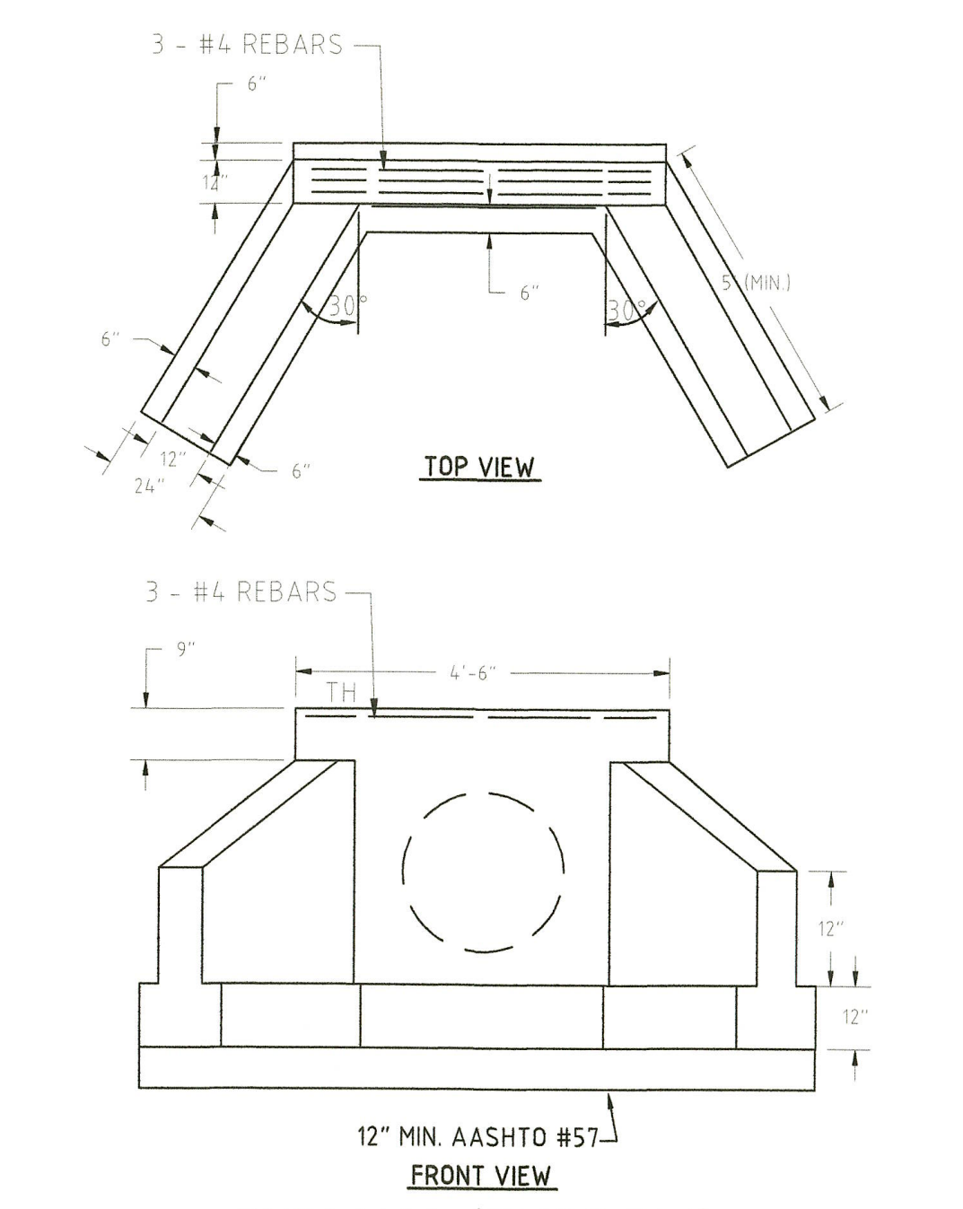
(PROVIDED AS EXAMPLE, SEE NOTE 7)


PIPE DIA.
H
CONCRETE TOE WALL
TYPICAL ELEVATION
12" MIN. AASHTO #57 CONCRETE TOE WALL
24"
12"
TYPICAL SECTION
A
36"
L
TYPICAL PLAN

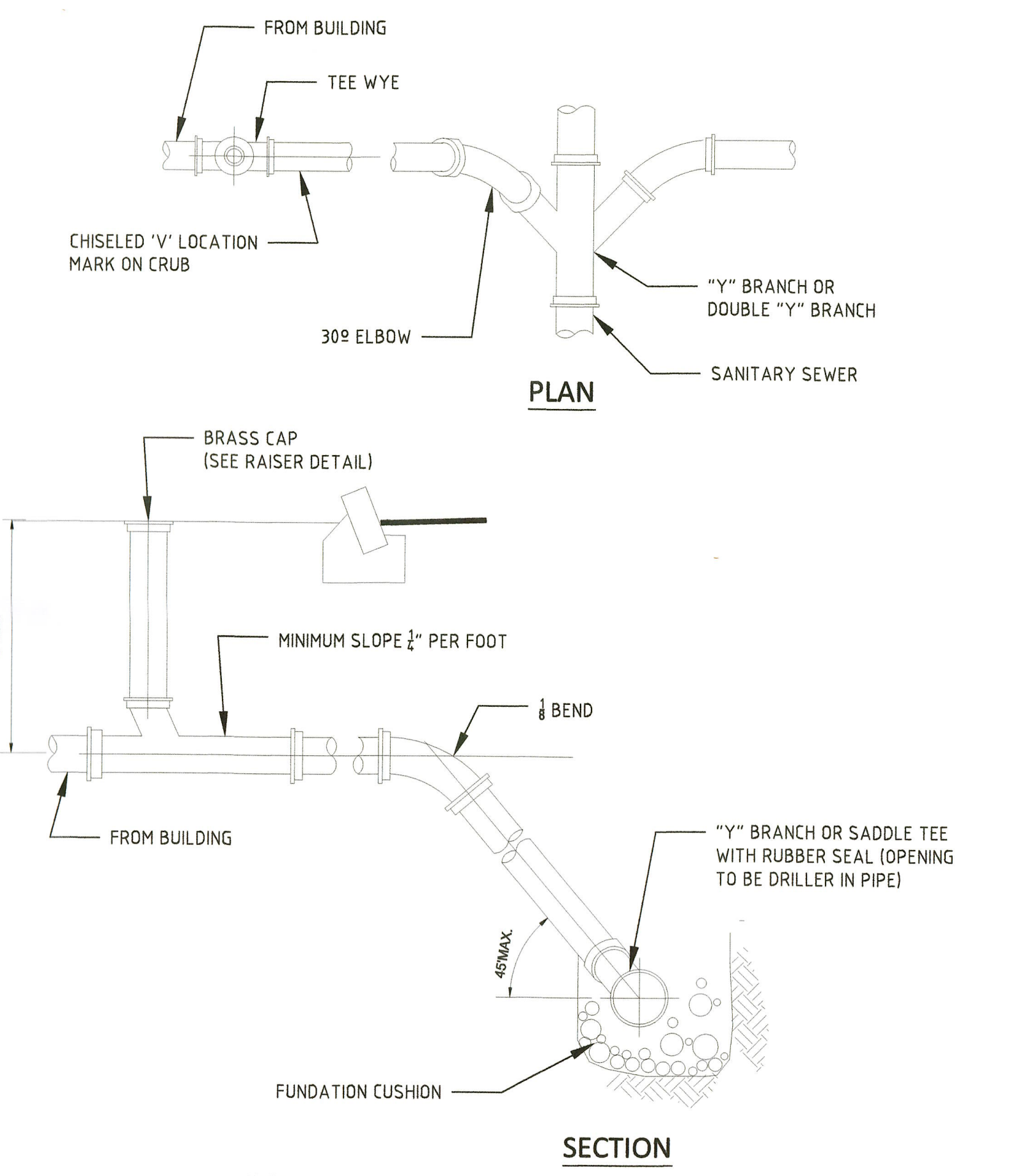
END SECTION DIMENSIONS FOR SMOOTH LINED CORRUGATED POLYETHYLENE PIPE					
PIPE DIA.	A	B MAX.	H (±1")	L (±~8")	W (±2")
15"	6.5"	10"	6.5"	25"	29"
18"	7.5"	15"	6.5"	32"	35"
24"	7.5"	18"	6.5"	36"	45"
30"	10.5"	N/A	7.0"	53"	68"
36"	10.5"	N/A	7.0"	53"	68"

NOTE:
SOURCE: ADS MANUAL

TYPICAL SLCPP END SECTION

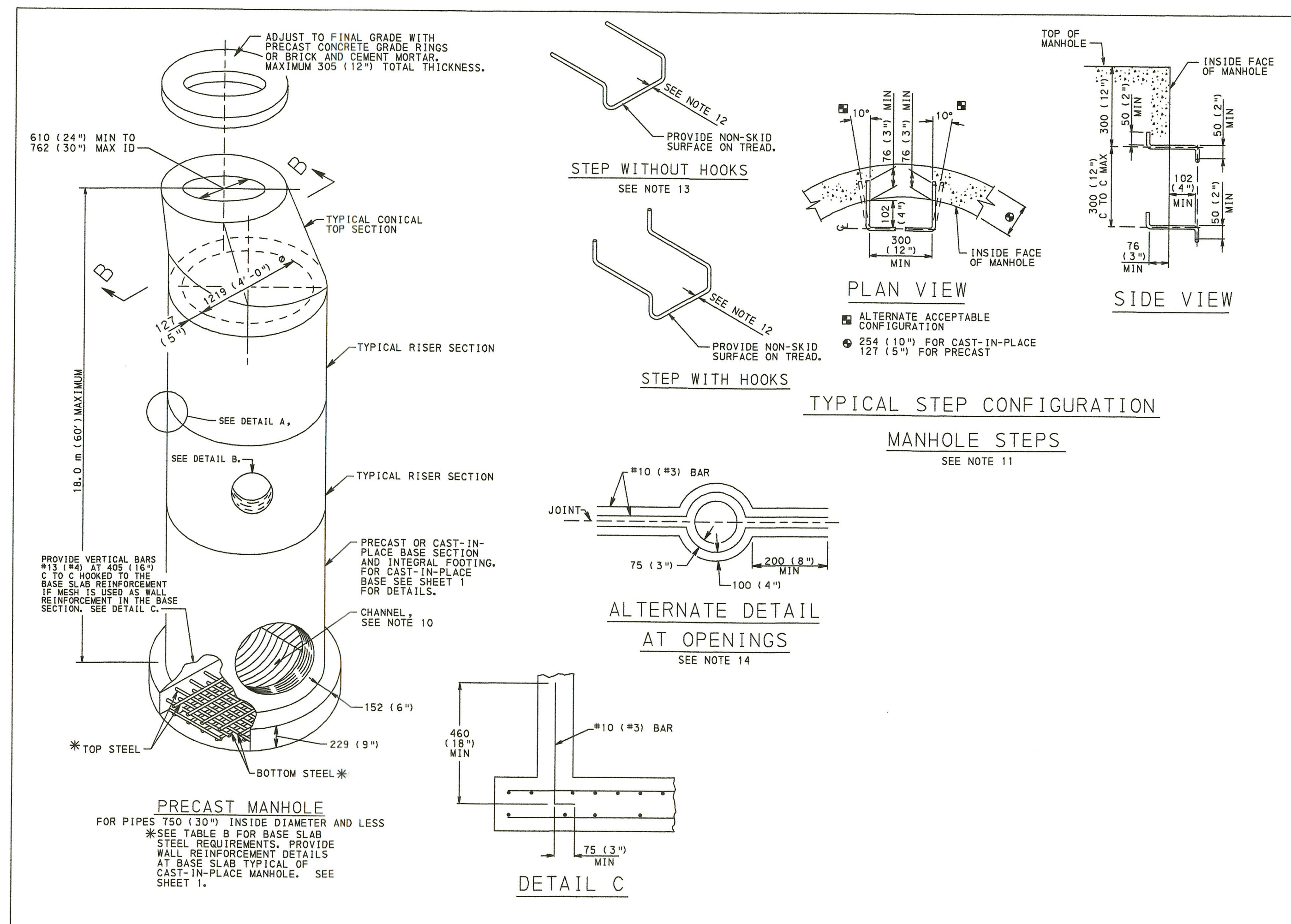
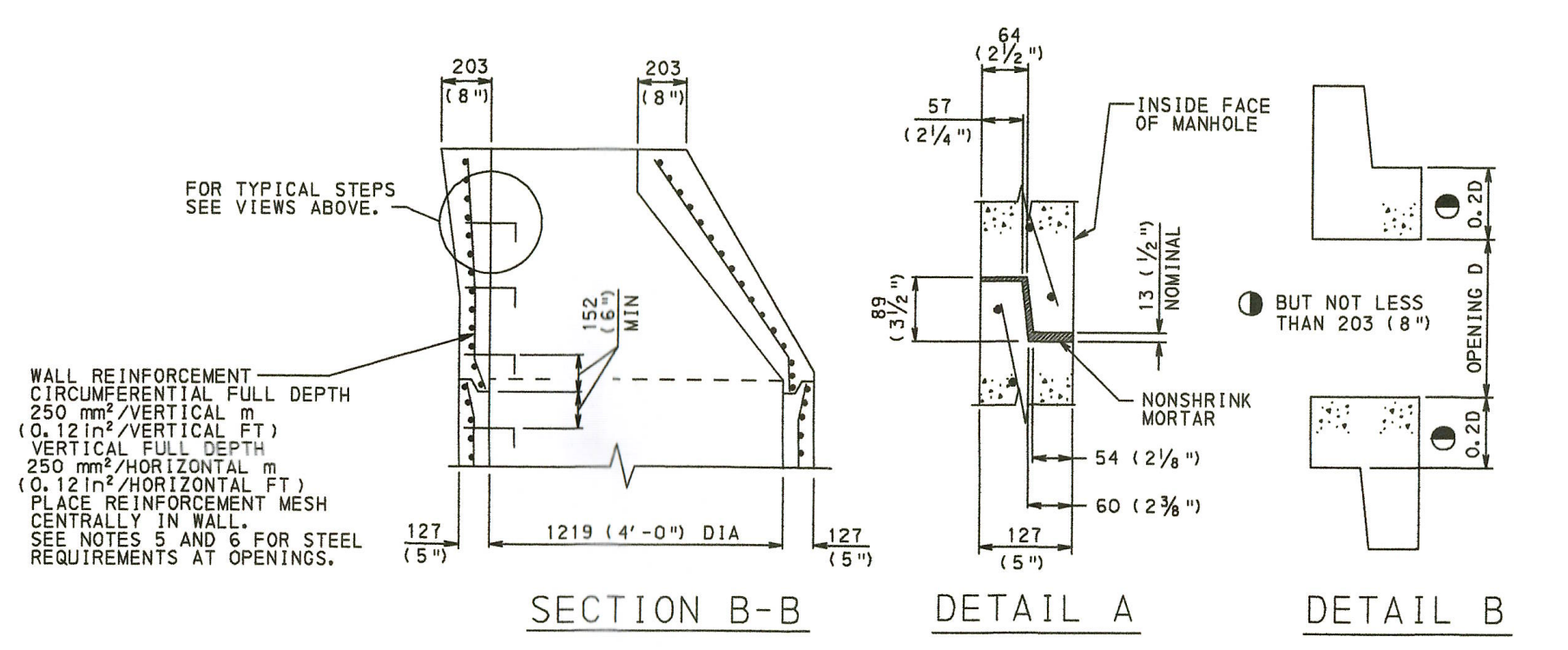

3 - #4 REBARS
TOP VIEW
3 - #4 REBARS
12" MIN. AASHTO #57
FRONT VIEW

ENDWALL (TYPE DW)


FROM BUILDING
TEE WYE
CHISELED "V" LOCATION MARK ON CRUB
30º ELBOW
"Y" BRANCH OR DOUBLE "Y" BRANCH
SANITARY SEWER
PLAN
BRASS CAP (SEE RAISER DETAIL)
4' MIN.
MINIMUM SLOPE ¼" PER FOOT
⅛ BEND
FROM BUILDING
"Y" BRANCH OR SADDLE TEE WITH RUBBER SEAL (OPENING TO BE DRILLER IN PIPE)
45°MAX.
FUNDATION CUSHION
SECTION

NOTE:
1. REFER TO UTILITY PLAN FOR PIPES SIZES, VERIFY WITH ARCHITECTURAL PLANS.
2. CONTACT ENGINEER WITH ANY CONFLICTS PRIOR TO ANY SEWER CONNECTION WORK.

STANDARD CONNECTION DETAIL PER WILSON BOROUGH AND CITY OF EASTON

PRECAST MANHOLE

FOR PIPES 750 (30") INSIDE DIAMETER AND LESS

STEP WITHOUT HOOKS

STEP WITH HOOKS

PLAN VIEW

SIDE VIEW

TYPICAL STEP CONFIGURATION

MANHOLE STEPS

SEE NOTE 11

ALTERNATE DETAIL AT OPENINGS

SEE NOTE 14

DETAIL C

SECTION B-B

DETAIL A

DETAIL B

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. FOR CONSTRUCTION REQUIREMENTS SEE NOTE 1, SHEET 1. FOR DESIGN REQUIREMENTS SEE NOTE 1, SHEET 5.
3. FOR PERMISSIBLE LOCATION OF PIPES SEE PLAN VIEW AND NOTE 3, SHEET 1.
4. FOR RISERS OR BASE SECTIONS WITH OPENINGS, PROVIDE A MINIMUM HEIGHT OF SECTION SO AS TO PROVIDE AN UNCUT WALL EQUAL TO 20% OF THE OPENING, BUT NO LESS THAN 203 (8"), BETWEEN THE OPENING AND THE CLOSEST JOINT BETWEEN RISERS - SEE DETAIL B.
5. FOR PRECAST RISER OR BASE SECTIONS WITH ONE OPENING LOCATED AT DEPTHS TO 18.0 m (60'), PROVIDE CIRCUMFERENTIAL REINFORCEMENT IN ACCORDANCE WITH SECTION B-B. FOR SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTH OF 3.0 m (10') AND LESS, PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 340 mm²/VERTICAL m (0.16 In²/VERTICAL FT.) FOR THE HEIGHT OF RISER OR BASE SECTION.
6. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT A DEPTH GREATER THAN 3.0 m (10'), BUT LESS THAN OR EQUAL TO 7.6 m (25'), PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 930 mm²/VERTICAL m (0.44 In²/VERTICAL FT.) FOR THE HEIGHT OF THE RISER OR BASE SECTION.
7. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTHS GREATER THAN 7.6 m (25'), USE A 254 (10") THICK WALL RISER OR BASE SECTION WITH CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 470 mm²/VERTICAL m (0.22 In²/VERTICAL FT.) EACH FACE.
8. MARK RISERS OR BASE SECTIONS WITH HOLES CLEARLY WITH MAXIMUM ALLOWABLE DEPTH.
9. PROVIDE ADDITIONAL REINFORCEMENT BARS AROUND OPENINGS AS SHOWN ON REINFORCEMENT DETAILS AT OPENINGS SHEET 1.
10. FOR CHANNEL DETAILS IN PRECAST MANHOLE SEE CAST-IN-PLACE MANHOLE SHEET 1.
11. PROVIDE MANHOLE STEPS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 605.2(c). ALTERNATE CONFIGURATIONS AND DIMENSIONS, AS APPROVED BY THE ENGINEER, MAY BE USED.
12. PROVIDE MINIMUM 25 (1") SECTION DIMENSION FOR METAL STEPS. PROVIDE MINIMUM 19 (¾") SECTION DIMENSION FOR NON-DETERIORATING MATERIAL STEPS.
13. MECHANICAL ANCHOR REQUIRED FOR INSTALLATION OF STEPS WITHOUT HOOKS.
14. THE ALTERNATE OPENING REINFORCEMENT DETAIL IS NOT DESIRABLE BY DESIGN. USE IT TO MEET EXISTING PIPE ELEVATIONS.

TABLE B

PRECAST MANHOLE HEIGHT	TOP STEEL REQUIREMENTS	BOTTOM STEEL REQUIREMENTS
0.0 m TO 9.0 m (0'-0" TO 30'-0")	NO. 13 BARS AT 150 C TO C OR 700 mm²/m WWF 152 MAXIMUM SPACING (NO. 4 BARS AT 6" C TO C OR 0.33 In²/FT WWF 6" MAXIMUM SPACING)	NO. 13 BARS AT 300 C TO C OR 340 mm²/m WWF 152 MAXIMUM SPACING (NO. 4 BARS AT 12" C TO C OR 0.16 In²/FT WWF 6" MAXIMUM SPACING)
> 9.0 m TO 18.0 m (> 30'-0" TO 60'-0")	NO. 16 BARS AT 150 C TO C OR 1190 mm²/m WWF 152 MAXIMUM SPACING (NO. 5 BARS AT 6" C TO C OR 0.56 In²/FT WWF 6" MAXIMUM SPACING)	NO. 13 BARS AT 150 C TO C OR 575 mm²/m WWF 152 MAXIMUM SPACING (NO. 4 BARS AT 6" C TO C OR 0.27 In²/FT WWF 6" MAXIMUM SPACING)

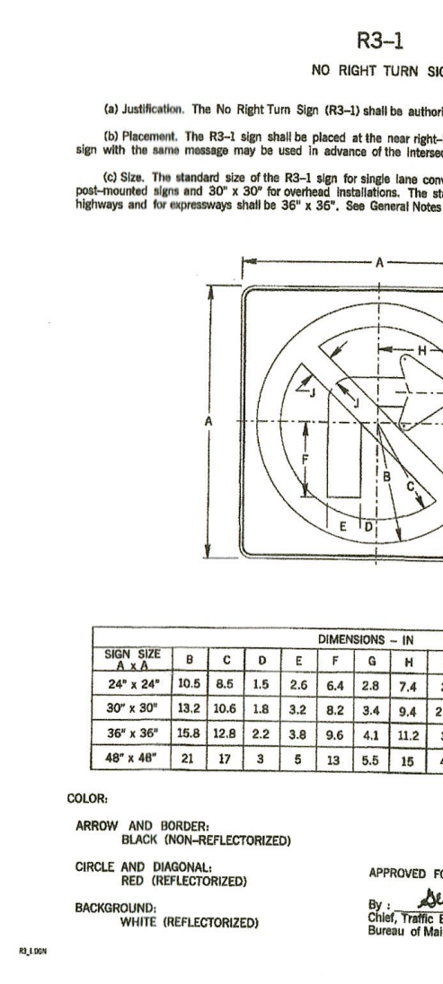
SEE NOTE 7, SHEET 1

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

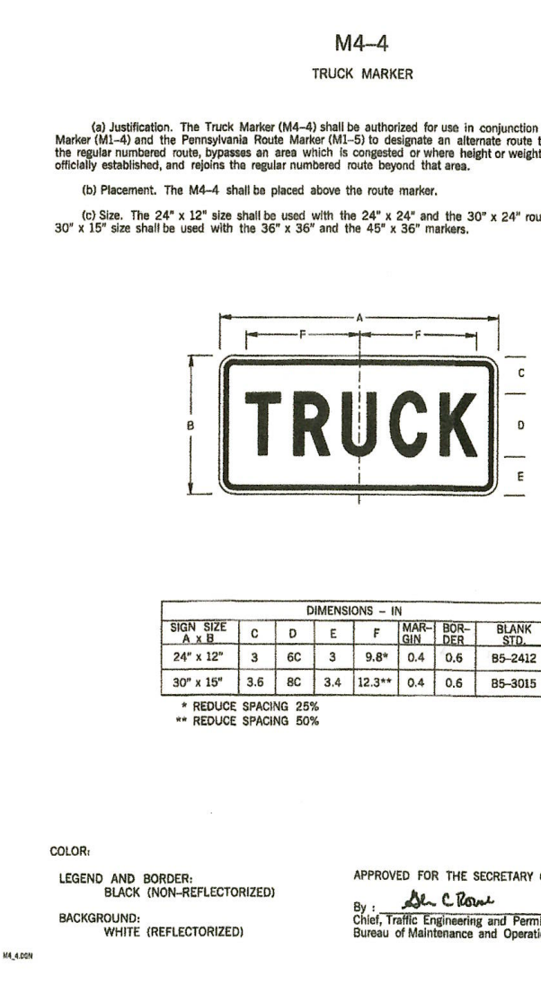
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

STANDARD MANHOLES
PRECAST MANHOLES &
MANHOLE STEPS

RECOMMENDED APR. 15, 2004	RECOMMENDED APR. 15, 2004	SHT 3 OF 6
Dean A. Schreiber DIRECTOR, BUREAU OF DESIGN	M. Patel CHIEF ENGINEER	RC-39M


R3-1

NO RIGHT TURN SIGN

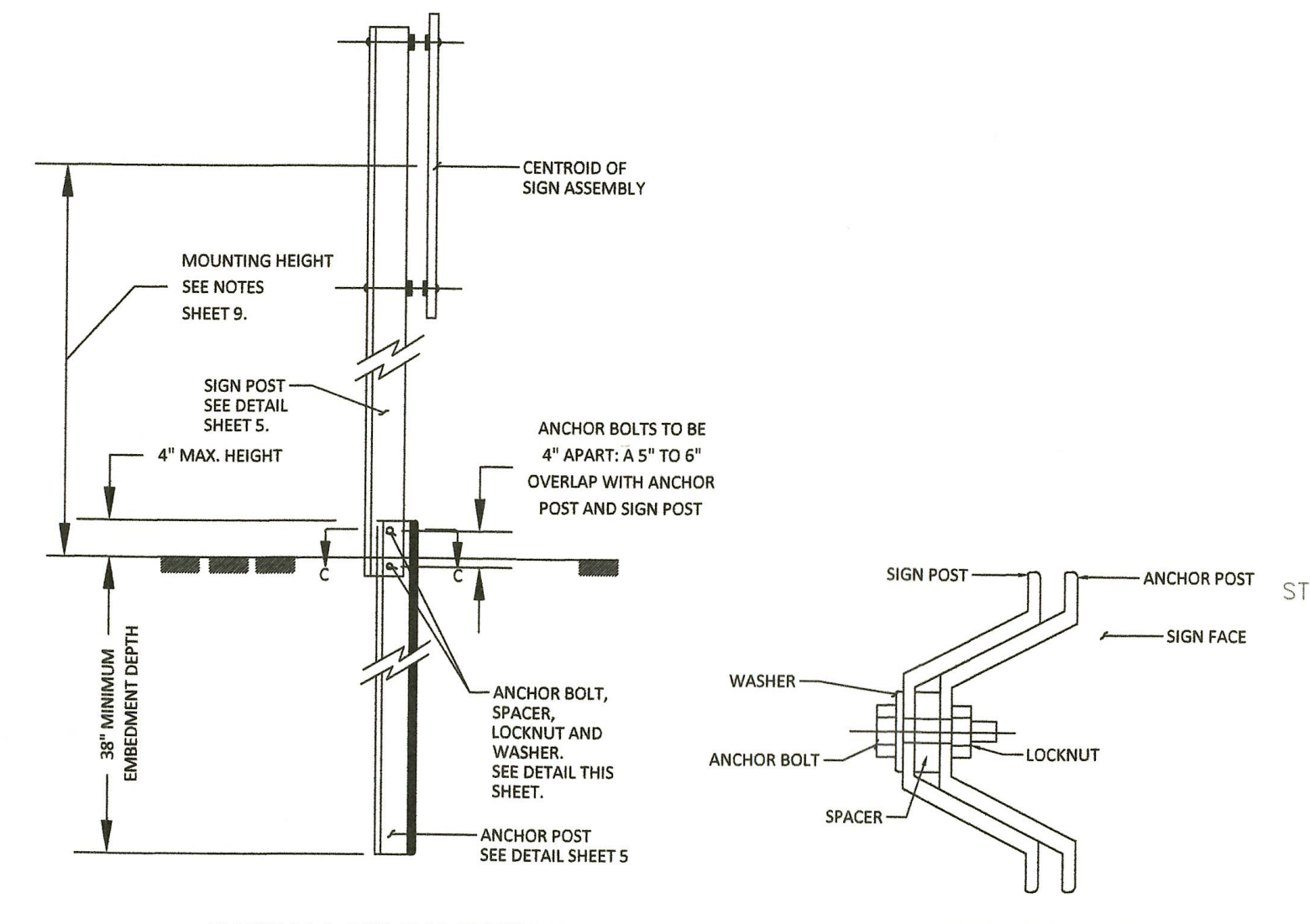


M4-4

TRUCK MARKER

The Truck Marker (M4-4) shall be authorized for use in conjunction with the U.S. Route or the Pennsylvania Route Marker (M1-5) to designate an alternate route that branches from a route, bypasses an area which is congested or where height or weight limitations have been and rejoins the regular numbered route beyond that area.

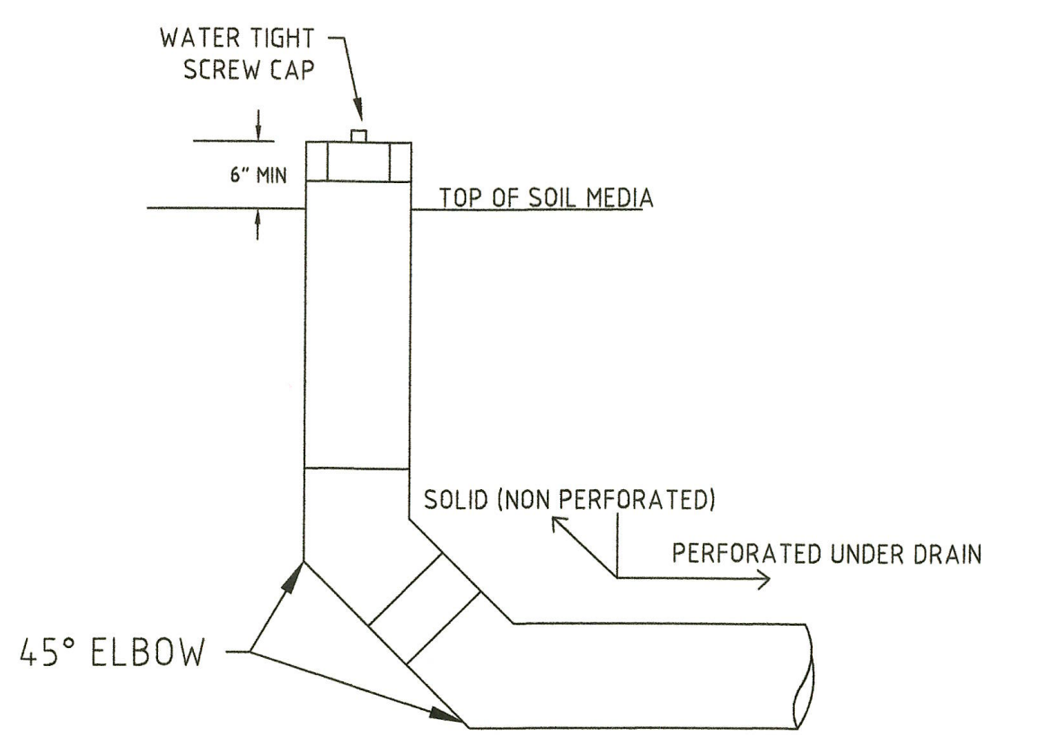
The M4-4 shall be placed above the route marker.


CENTROID OF SIGN ASSEMBLY
MOUNTING HEIGHT SEE NOTES SHEET 9.
SIGN POST SEE DETAIL SHEET 5.
4" MAX. HEIGHT
ANCHOR BOLTS TO BE 4" APART. A 5" TO 6" OVERLAP WITH ANCHOR POST AND SIGN POST
ANCHOR BOLT, SPACER, LOCKNUT AND WASHER. SEE DETAIL THIS SHEET.
ANCHOR POST SEE DETAIL SHEET 5
SIGN POST
ANCHOR POST
SIGN FACE
WASHER
LOCKNUT
ANCHOR BOLT
SPACER

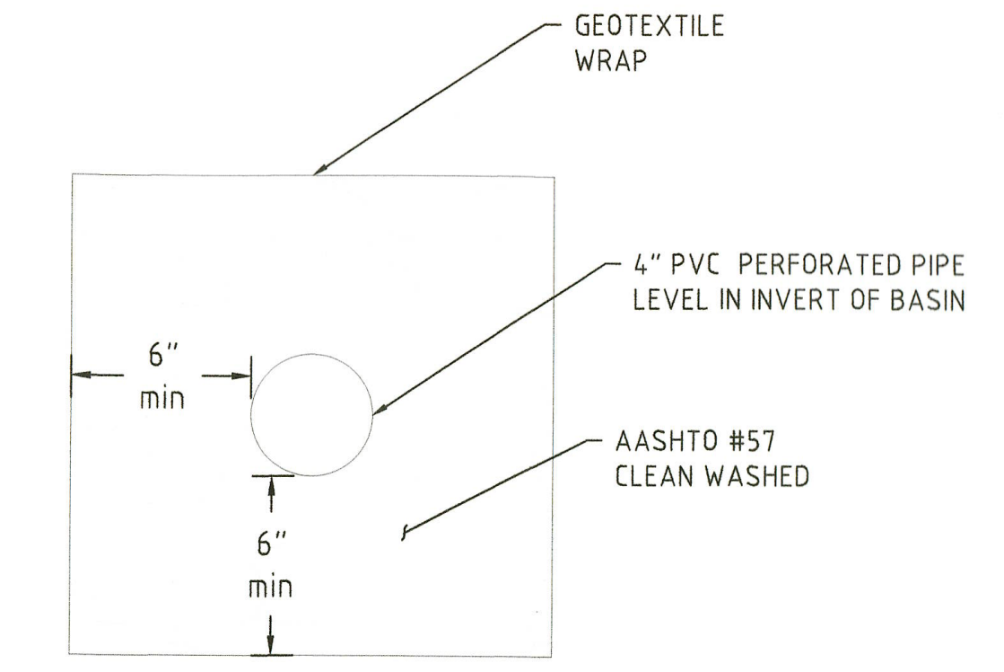
INSTALLATION DETAIL

SECTION C-C

SIGN POST DETAIL

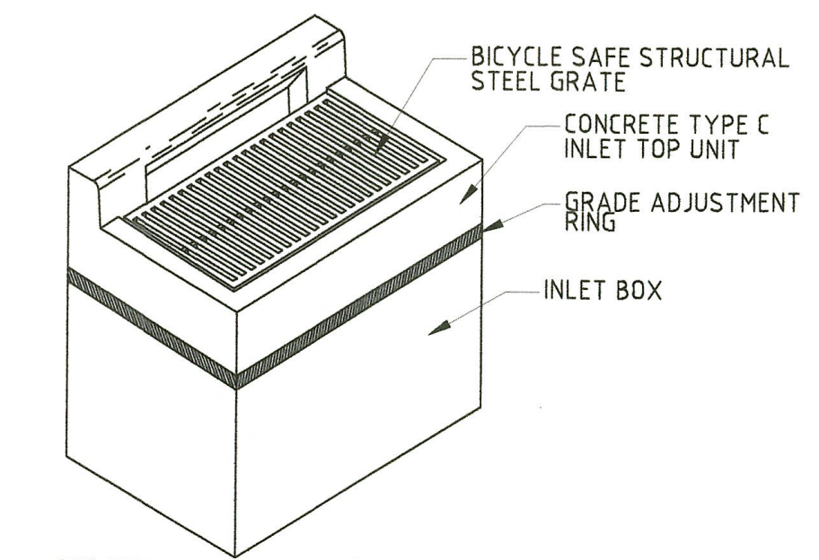

WATER TIGHT SCREW CAP
6" MIN
TOP OF SOIL MEDIA
SOLID (NON PERFORATED)
PERFORATED UNDER DRAIN
45° ELBOW

CLEANOUT DETAIL


GEOTEXTILE WRAP
4" PVC PERFORATED PIPE LEVEL IN INVERT OF BASIN
6" min
AASHTO #57 CLEAN WASHED
6" min

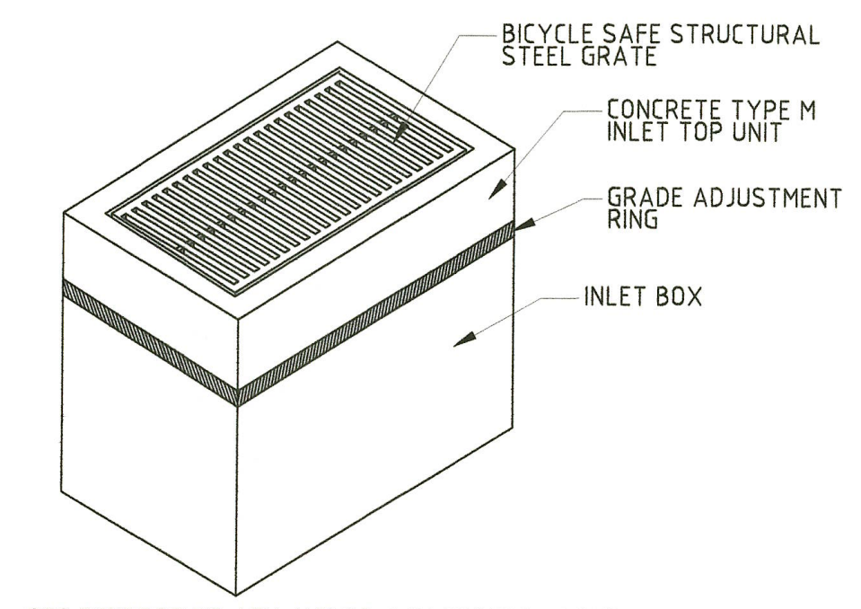
NOTES:
1. ALL CONNECTIONS IN MANIFOLD, AT CLEANOUTS AND AT OUTLET TO BE WITH 45° ELBOWS.
2. INVERT OF PERFORATED PIPE TO BE AT INVERT OF BASIN AT THE BOTTOM OF THE BIO-RETENTION MEDIA.
3. SOLVENT WELD ALL JOINTS.

PVC UNDERDRAIN DETAIL


BICYCLE SAFE STRUCTURAL STEEL GRATE
CONCRETE TYPE C INLET TOP UNIT
GRADE ADJUSTMENT RING
INLET BOX

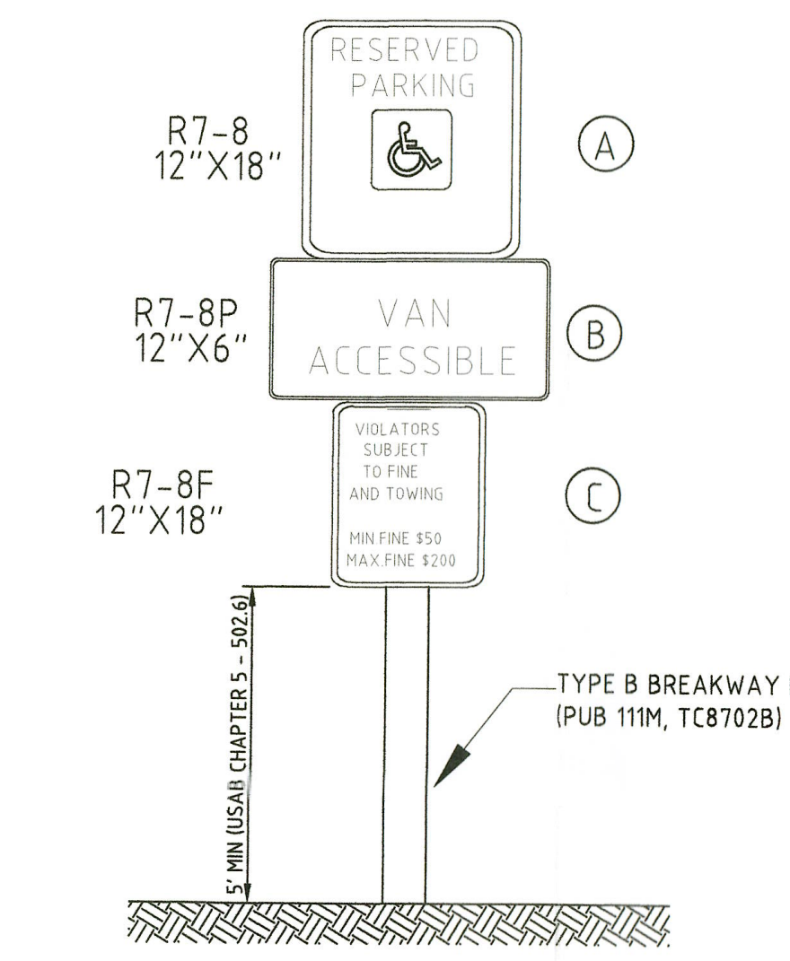
PER PENNDOT RC-45M AND RC-46M SPECIFICATIONS

TYPE C INLET

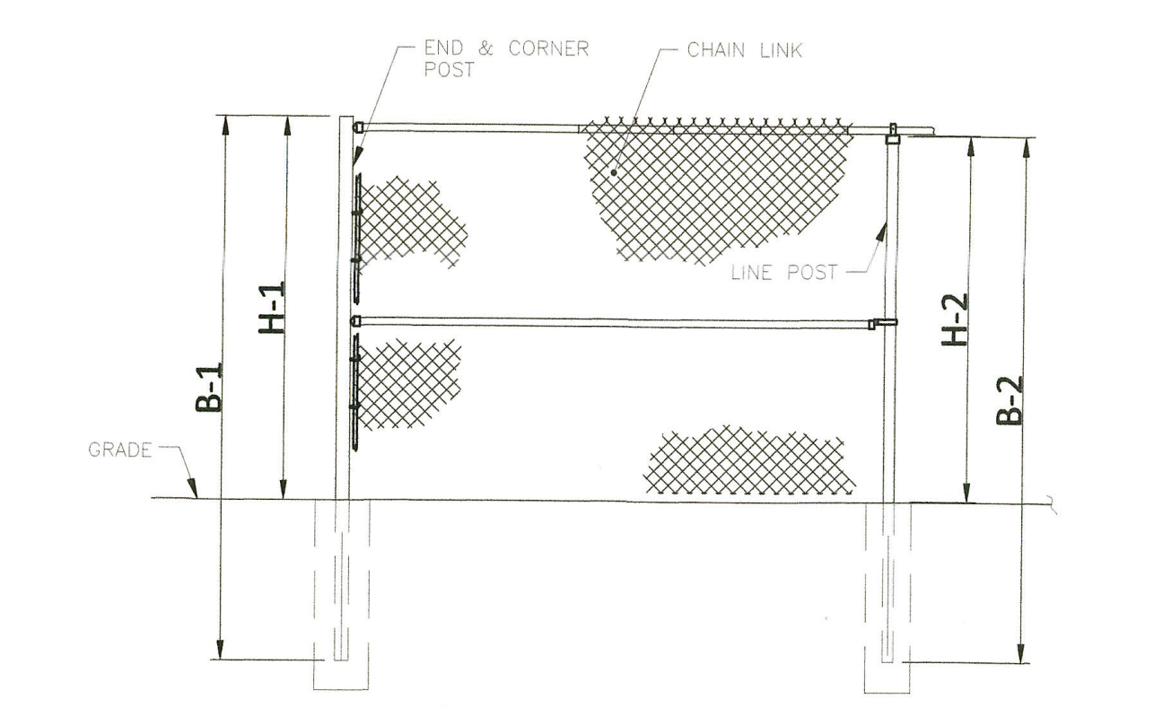

BICYCLE SAFE STRUCTURAL STEEL GRATE
CONCRETE TYPE M INLET TOP UNIT
GRADE ADJUSTMENT RING
INLET BOX

PER PENNDOT RC-45M AND RC-46M SPECIFICATIONS

TYPE M INLET


RESERVED PARKING
A
R7-8 12"X18"
VAN ACCESSIBLE
B
R7-8P 12"X6"
C
R7-8F 12"X18"
TYPE B BREAKAWAY POST (PUB 111M, TC8702B)

TYPICAL ADA SIGN DETAIL

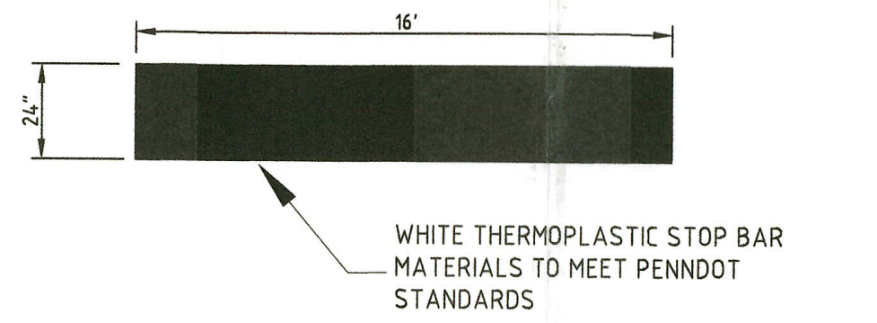

END & CORNER POST
CHAIN LINK
LINE POST
GRADE
B-1
H-1
H-2
B-2

FENCE SECTION ELEVATION

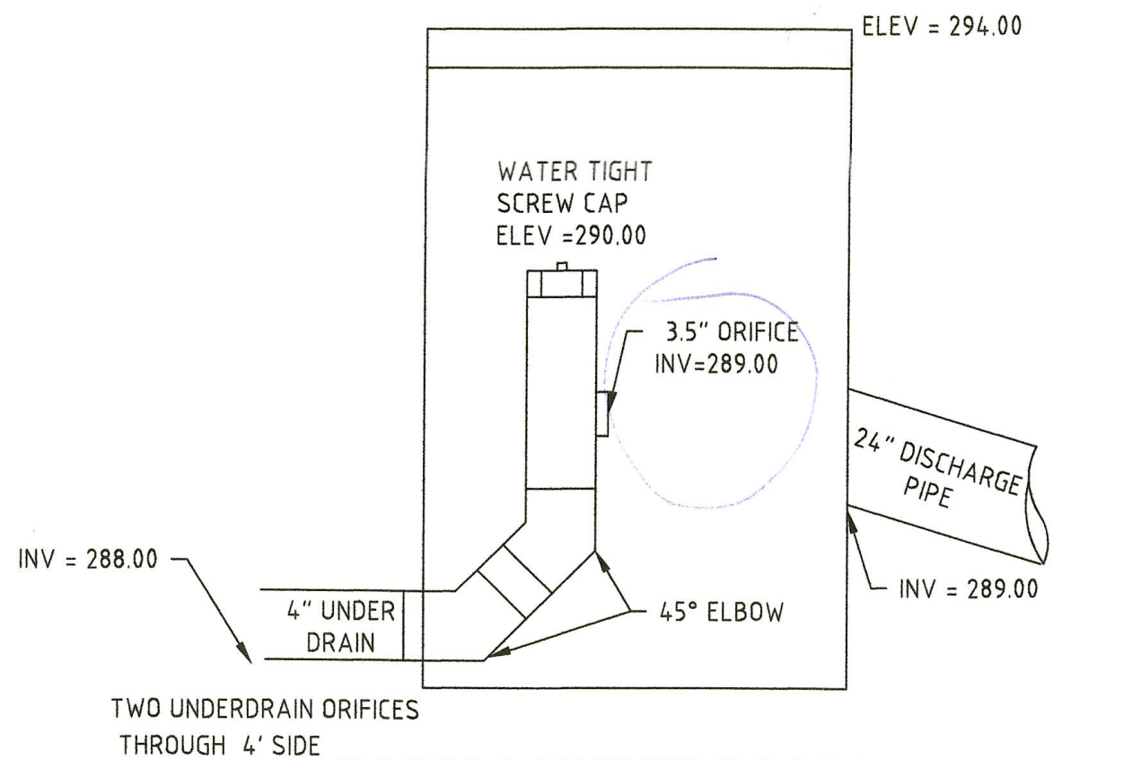
FENCE HEIGHT	END & CORNER POSTS		LINE POSTS	
NOMINAL HEIGHT	B-1 BAR LENGTH	H-1 HEIGHT ABOVE GRADE	B-2 BAR LENGTH	H-2 HEIGHT ABOVE GRADE
7'-0" [2134MM]	10'-0" [3048MM]	7'-0 5/8" [2150MM]	9'-8" [2946MM]	6'-8 7/8" [2054MM]

NOTES:
1. CHAINLINK FENCE TO INCLUDE POLYETHYLENE THERMOPLASTIC PRIVACY SLATS TO PROVIDE A VISUAL SCREEN ALONG REFUSE COLLECTION AREAS. NO PRIVACY SLATS FOR PERIMETER FENCING REQUIRED UNLESS SPECIFIED BY OWNER. ARCHITECT TO SPECIFY COLOR.
2. AS MANUFACTURED BY MASTER HALCO (WWW.FENCEONLINE.COM) OR APPROVED EQUAL.
3. PERIMETER FENCING IS PROHIBITED FROM HAVING BARBED WIRE PER ZONING ORDINANCE SECTION 209-37(A).

FENCE DETAIL

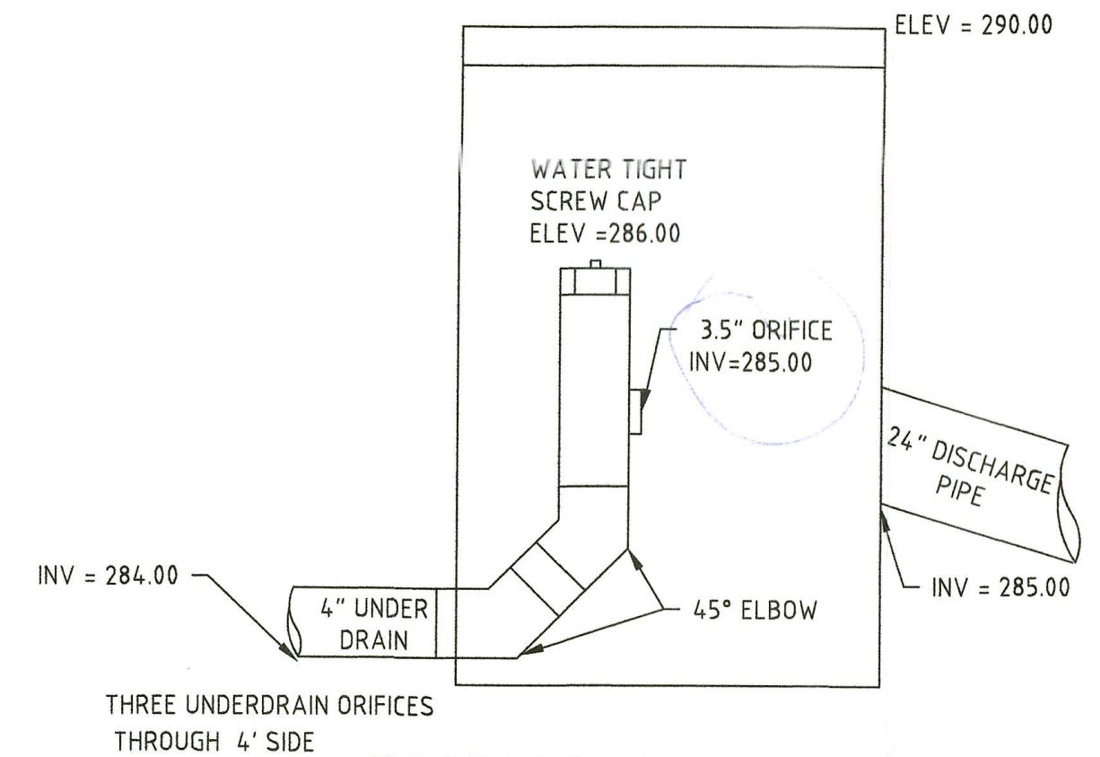

16'
24"
WHITE THERMOPLASTIC STOP BAR MATERIALS TO MEET PENNDOT STANDARDS

STOP BAR DETAIL


ELEV = 294.00
WATER TIGHT SCREW CAP ELEV = 290.00
3.5" ORIFICE INV=289.00
24" DISCHARGE PIPE
INV = 289.00
INV = 288.00
4" UNDER DRAIN
45° ELBOW
TWO UNDERDRAIN ORIFICES THROUGH 4' SIDE

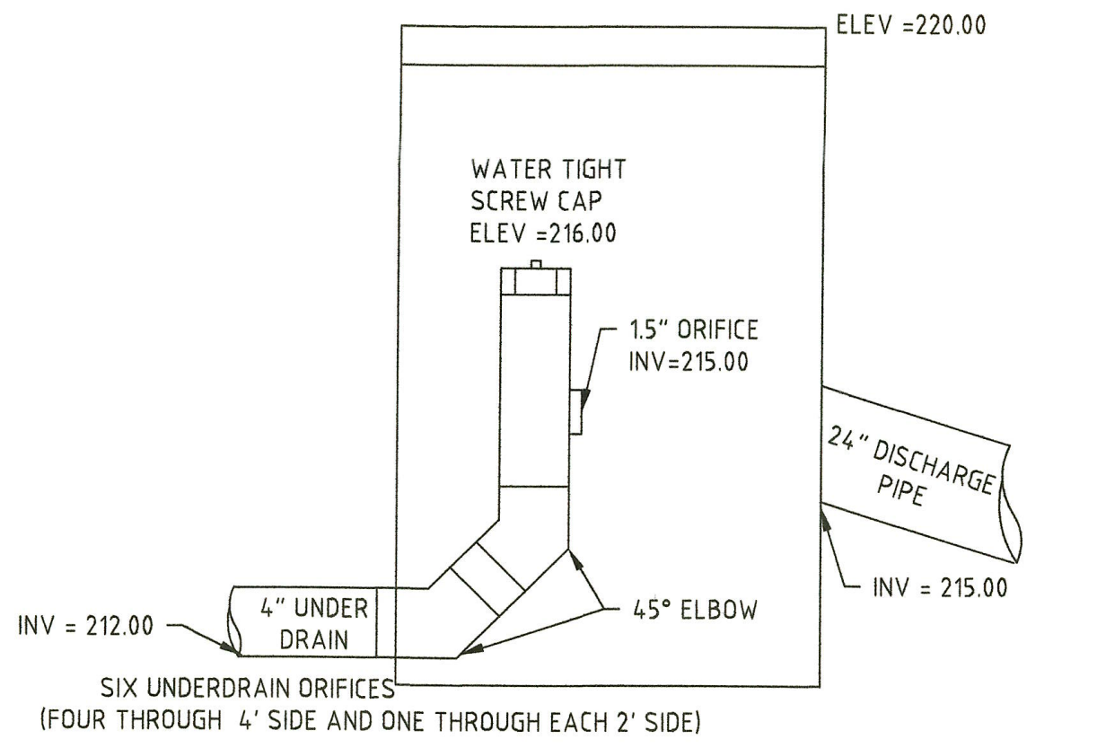
BASIN A UNDER DRAIN

NOTES:
1. ALL BENDS TO BE WITH 45° ELBOWS MAX
2. UNDER DRAIN TO BE AT BOTTOM OF SOIL MEDIA.
3. ORIFICE TO BE CUT WITH EDGES CLEAN SMOOTH AND SANDED WITH NO BURS OR IRREGULARITIES PRESENT AND GROUND SO THAT FLOW THROUGH IS SMOOTH.


ELEV = 290.00
WATER TIGHT SCREW CAP ELEV = 286.00
3.5" ORIFICE INV=285.00
24" DISCHARGE PIPE
INV = 285.00
INV = 284.00
4" UNDER DRAIN
45° ELBOW
THREE UNDERDRAIN ORIFICES THROUGH 4' SIDE

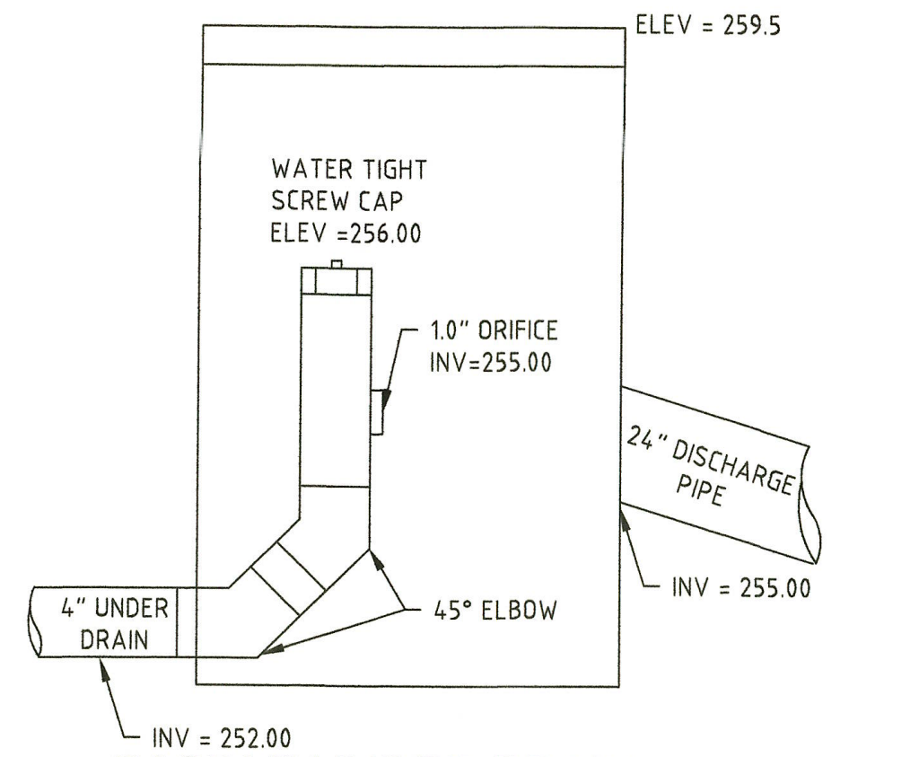
BASIN B UNDER DRAIN

NOTES:
1. ALL BENDS TO BE WITH 45° ELBOWS MAX
2. UNDER DRAIN TO BE AT BOTTOM OF SOIL MEDIA.
3. ORIFICE TO BE CUT WITH EDGES CLEAN SMOOTH AND SANDED WITH NO BURS OR IRREGULARITIES PRESENT AND GROUND SO THAT FLOW THROUGH IS SMOOTH.


ELEV =220.00
WATER TIGHT SCREW CAP ELEV =216.00
1.5" ORIFICE INV=215.00
24" DISCHARGE PIPE
INV = 215.00
INV = 212.00
4" UNDER DRAIN
45° ELBOW
SIX UNDERDRAIN ORIFICES (FOUR THROUGH 4' SIDE AND ONE THROUGH EACH 2' SIDE)

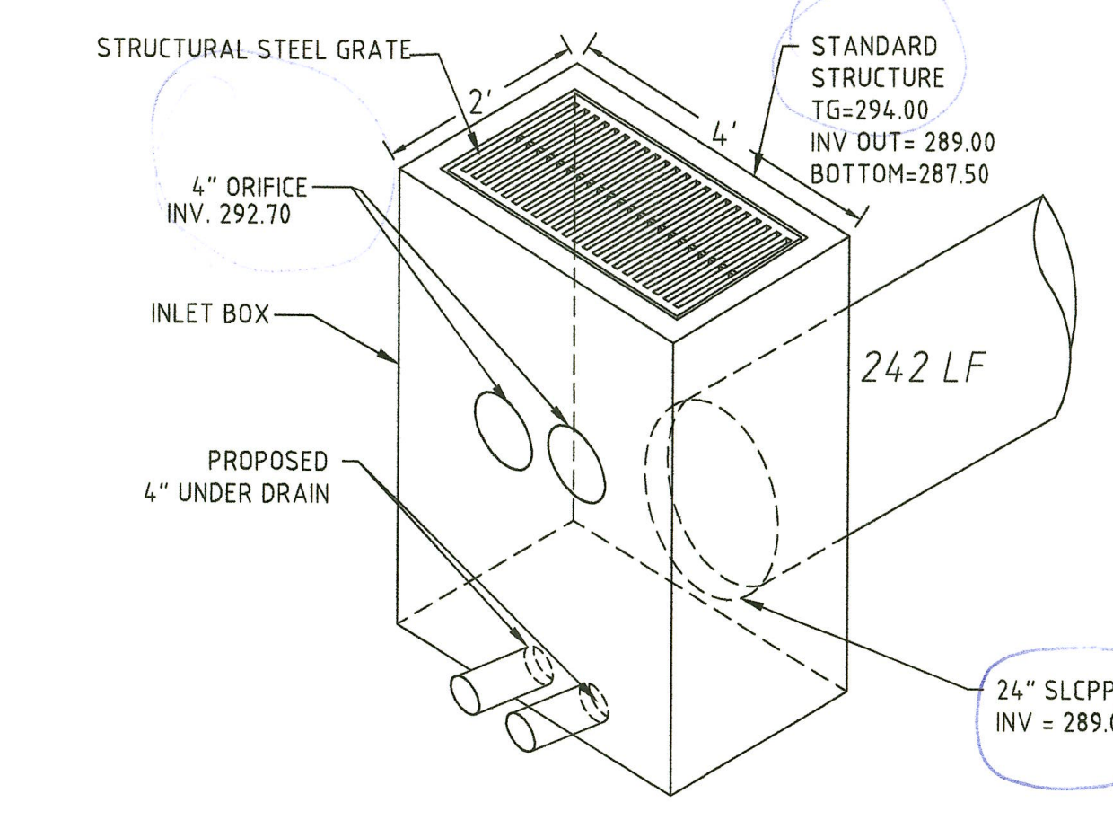
MRC BASIN C UNDER DRAIN

NOTES:
1. ALL BENDS TO BE WITH 45° ELBOWS MAX
2. UNDER DRAIN TO BE AT BOTTOM OF SOIL MEDIA.
3. ORIFICE TO BE CUT WITH EDGES CLEAN SMOOTH AND SANDED WITH NO BURS OR IRREGULARITIES PRESENT AND GROUND SO THAT FLOW THROUGH IS SMOOTH.

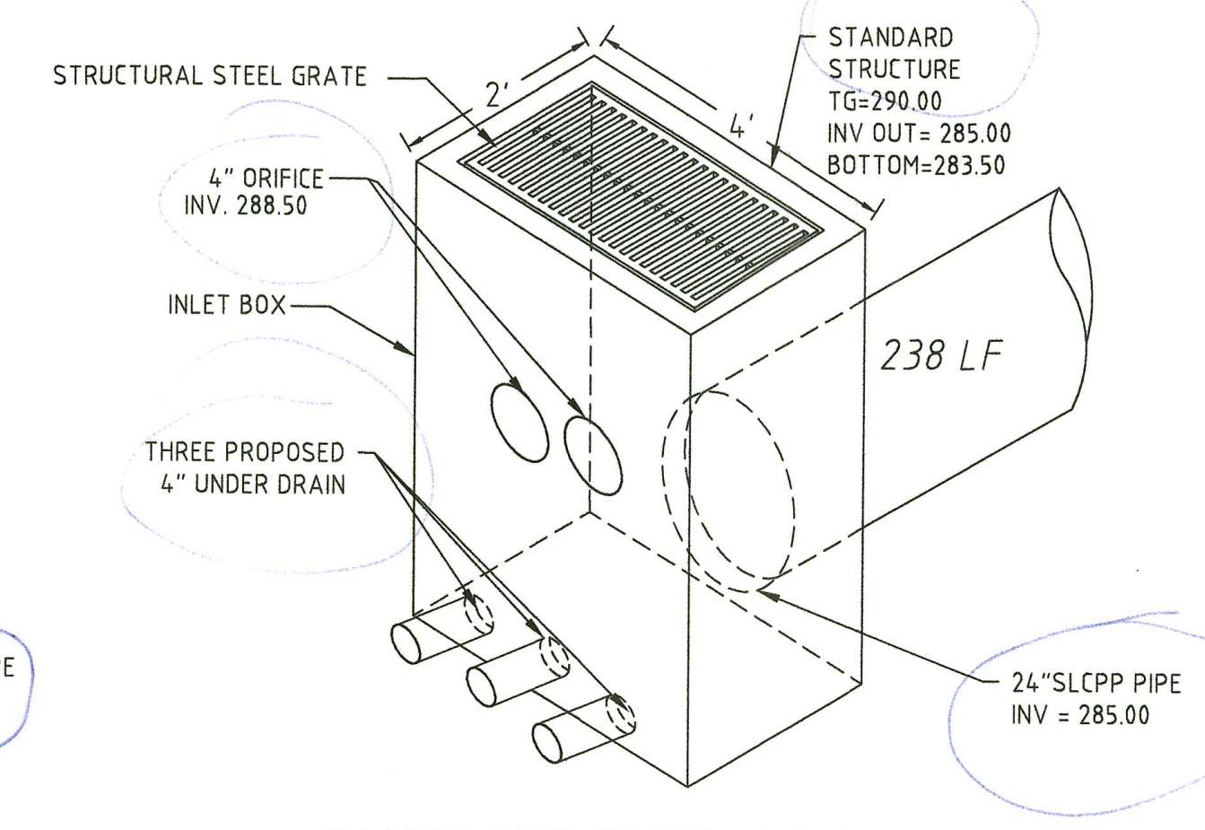

ELEV = 259.5
WATER TIGHT SCREW CAP ELEV =256.00
1.0" ORIFICE INV=255.00
24" DISCHARGE PIPE
INV = 255.00
4" UNDER DRAIN
45° ELBOW
INV = 252.00

BASIN E UNDER DRAIN

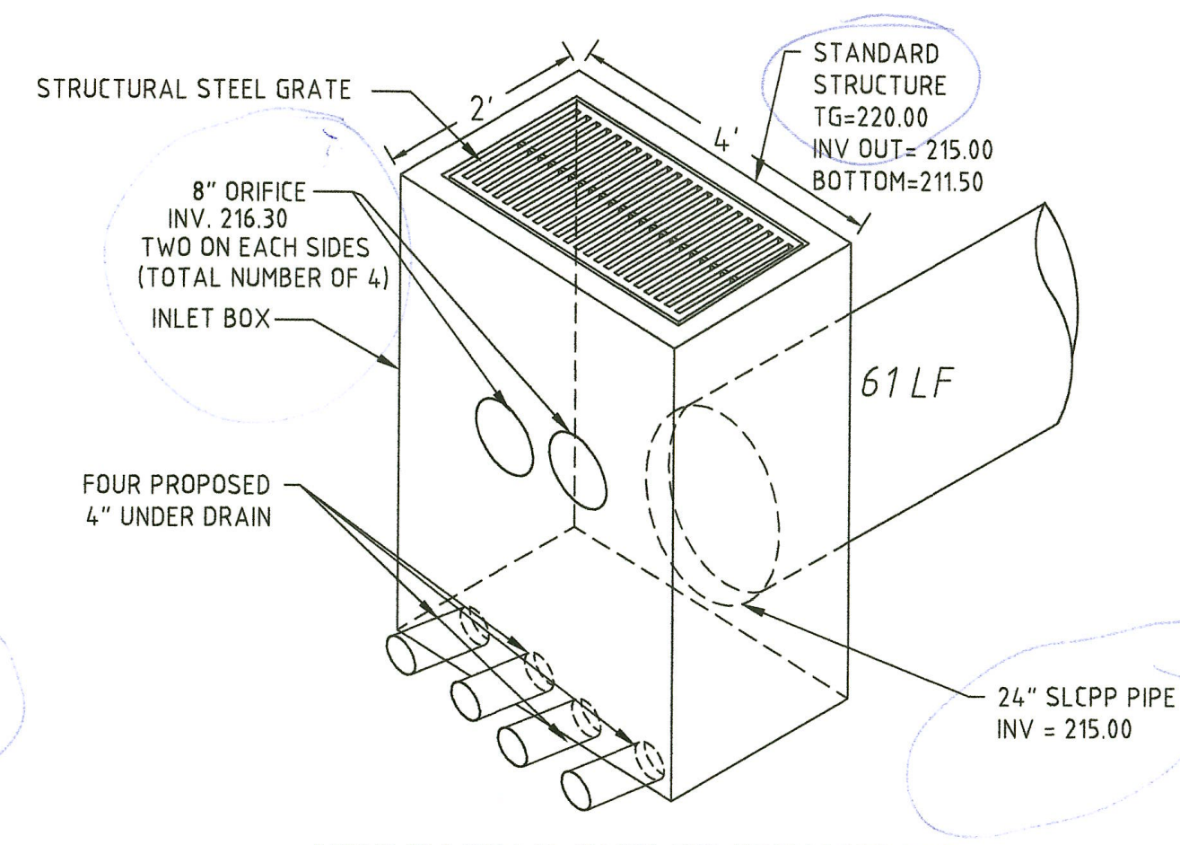
NOTES:
1. ALL BENDS TO BE WITH 45° ELBOWS MAX
2. UNDER DRAIN TO BE AT BOTTOM OF SOIL MEDIA.
3. ORIFICE TO BE CUT WITH EDGES CLEAN SMOOTH AND SANDED WITH NO BURS OR IRREGULARITIES PRESENT AND GROUND SO THAT FLOW THROUGH IS SMOOTH.


STRUCTURAL STEEL GRATE
2'
4'
STANDARD STRUCTURE TG=294.00 INV OUT= 289.00 BOTTOM=287.50
4" ORIFICE INV. 292.70
INLET BOX
PROPOSED 4" UNDER DRAIN
242 LF
24" SLCPP PIPE INV = 289.00

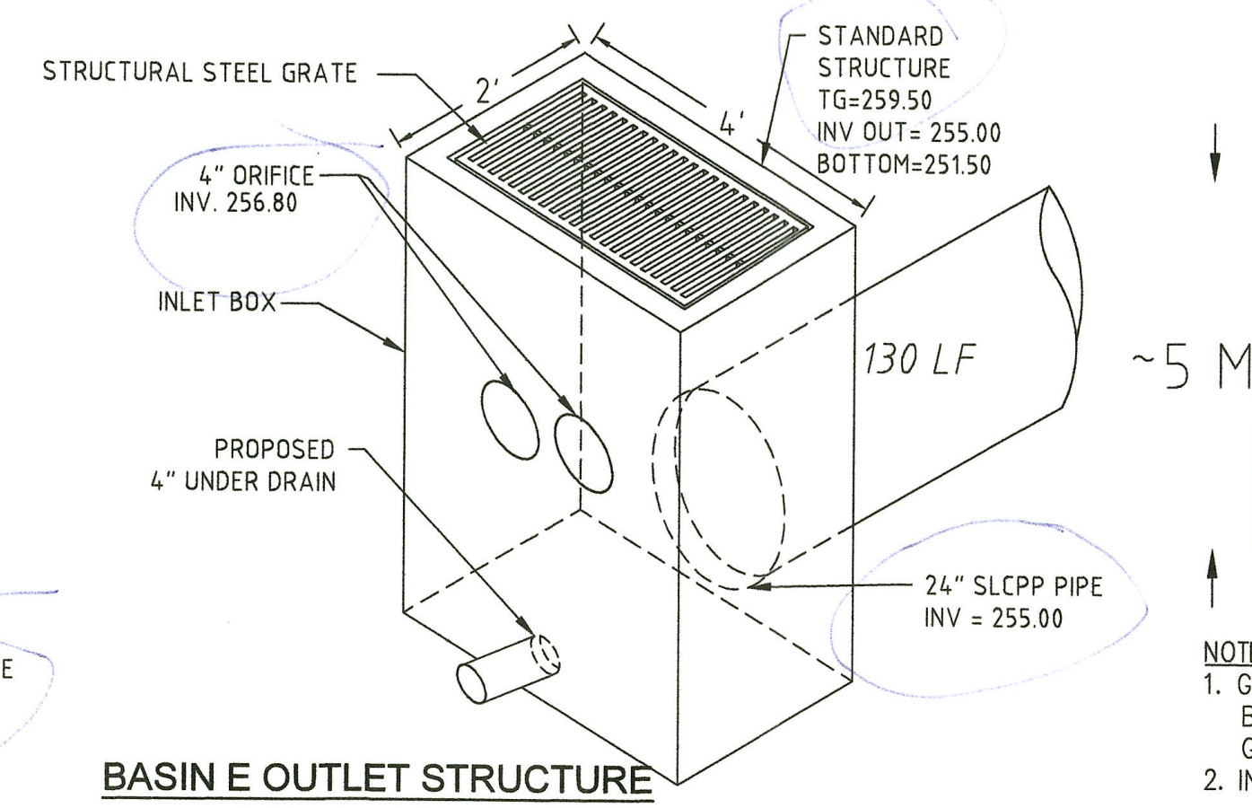
BASIN A OUTLET STRUCTURE


STRUCTURAL STEEL GRATE
2'
4'
STANDARD STRUCTURE TG=290.00 INV OUT= 285.00 BOTTOM=283.50
4" ORIFICE INV. 288.50
INLET BOX
THREE PROPOSED 4" UNDER DRAIN
238 LF
24"SLCPP PIPE INV = 285.00

BASIN B OUTLET STRUCTURE

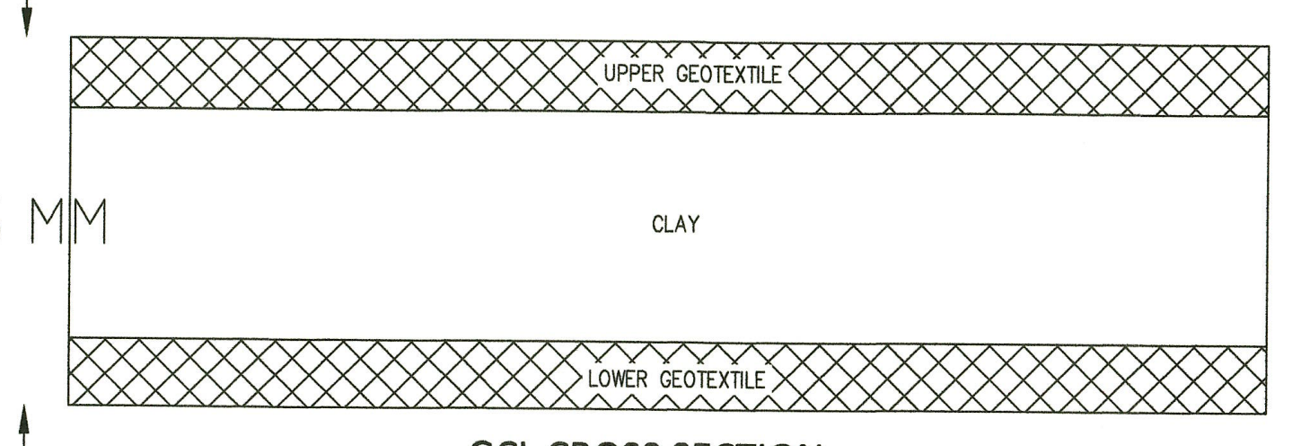

STRUCTURAL STEEL GRATE
2'
4'
STANDARD STRUCTURE TG=220.00 INV OUT= 215.00 BOTTOM=211.50
8" ORIFICE INV. 216.30 TWO ON EACH SIDES (TOTAL NUMBER OF 4)
INLET BOX
FOUR PROPOSED 4" UNDER DRAIN
61 LF
24" SLCPP PIPE INV = 215.00

MRC BASIN C OUTLET STRUCTURE


STRUCTURAL STEEL GRATE
2'
4'
STANDARD STRUCTURE TG=259.50 INV OUT= 255.00 BOTTOM=251.50
4" ORIFICE INV. 256.80
INLET BOX
PROPOSED 4" UNDER DRAIN
130 LF
24" SLCPP PIPE INV = 255.00

BASIN E OUTLET STRUCTURE

BASIN E OUTLET STRUCTURE

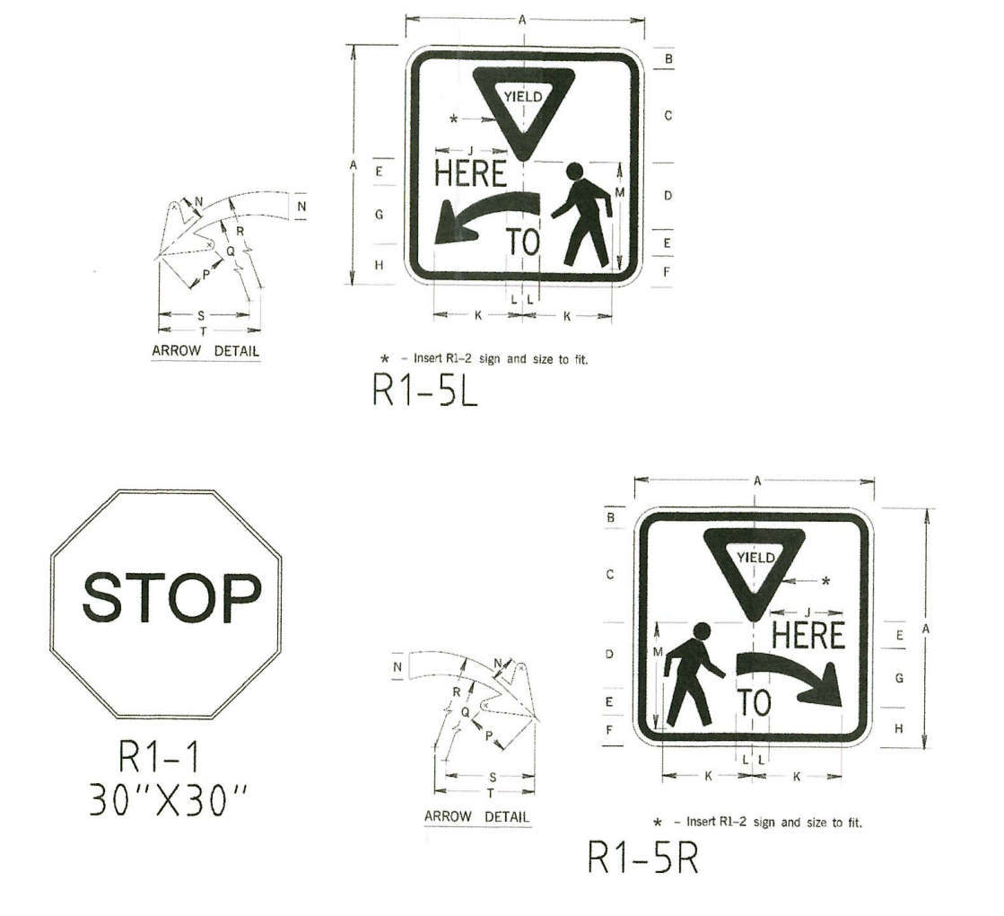

UPPER GEOTEXTILE
~5 MM
CLAY
LOWER GEOTEXTILE

GCL CROSS SECTION

NOTES:
1. GCL MAY BE CLAY BOUND WITH ADHESIVE TO UPPER AND LOWER GEOTEXTILES, CLAY STITCHBONDED BETWEEN UPPER AND LOWER GEOTEXTILES, OR CLAY NEEDLEPUNCHED THROUGH UPPER AND LOWER GEOTEXTILES.
2. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

GEOSYNTHETIC CLAY LINER (GCL)

N.T.S.

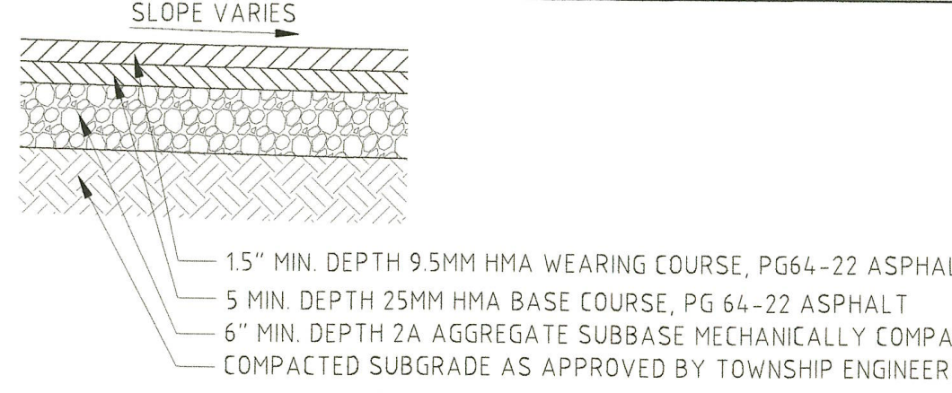

HERE TO
STOP
HERE TO

R1-5L

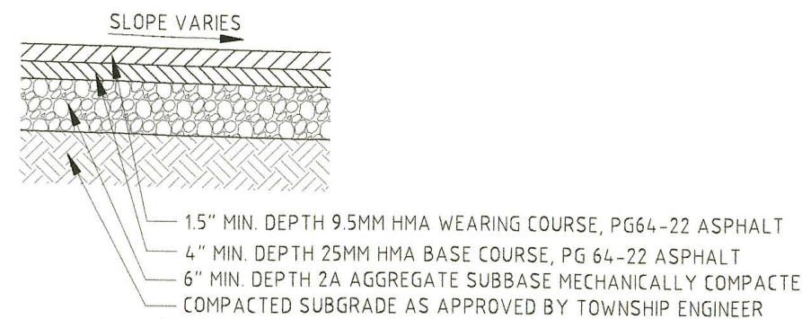
R1-1
30"X30"

R1-5R

SIGNAGE DETAILS

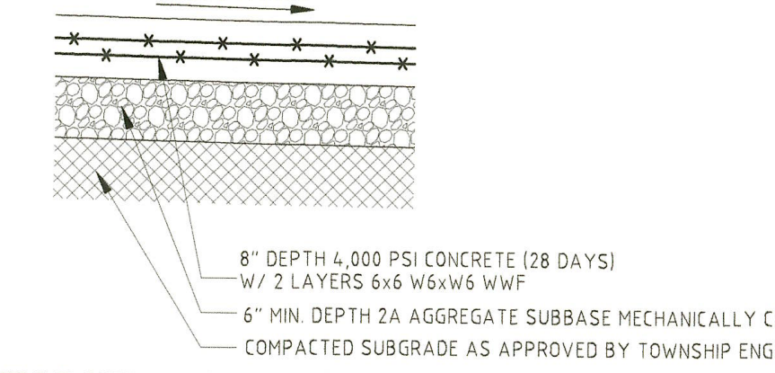

SLOPE VARIES
1.5" MIN. DEPTH 9.5MM HMA WEARING COURSE, PG64-22 ASPHALT
5 MIN. DEPTH 25MM HMA BASE COURSE, PG 64-22 ASPHALT
6" MIN. DEPTH 2A AGGREGATE SUBBASE MECHANICALLY COMPACTED
COMPACTED SUBGRADE AS APPROVED BY TOWNSHIP ENGINEER

TYPICAL HEAVY DUTY PAVING CROSS-SECTION (TRUCK AREAS AND INTERNAL DRIVEWAYS)


SLOPE VARIES
1.5" MIN. DEPTH 9.5MM HMA WEARING COURSE, PG64-22 ASPHALT
4" MIN. DEPTH 25MM HMA BASE COURSE, PG 64-22 ASPHALT
6" MIN. DEPTH 2A AGGREGATE SUBBASE MECHANICALLY COMPACTED
COMPACTED SUBGRADE AS APPROVED BY TOWNSHIP ENGINEER

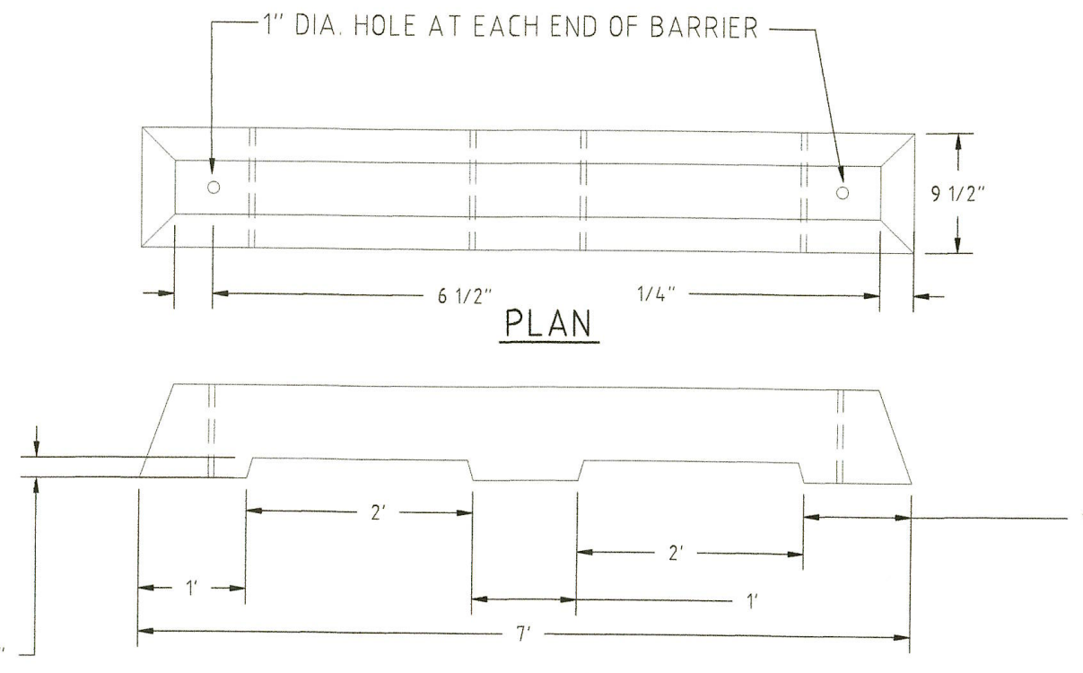
TYPICAL LIGHT DUTY PAVING CROSS-SECTION (PARKING SPACES AND PARKING AISLES)

PAVING NOTE:
SUBGRADE SHALL BE COMPACTED IN ACCORDANCE WITH SPECIFICATIONS OF PADOT PUBLICATION 408, LATEST EDITION. WHERE PARKING AREA(S) ARE TO BE USED FOR INFILTRATION PRACTICES, SUBGRADE SHALL NOT BE COMPACTED AND IT SHALL BE PROTECTED FROM COMPACTION FROM CONSTRUCTION EQUIPMENT, TRAFFIC, STORAGE OF MATERIALS, ETC. TO PRESERVE INFILTRATION CAPACITY OF SUBGRADE SOILS.


SLOPE VARIES
8" DEPTH 4,000 PSI CONCRETE (28 DAYS) W/ 2 LAYERS 6x6 W6xW6 WWF
6" MIN. DEPTH 2A AGGREGATE SUBBASE MECHANICALLY COMPACTED
COMPACTED SUBGRADE AS APPROVED BY TOWNSHIP ENGINEER

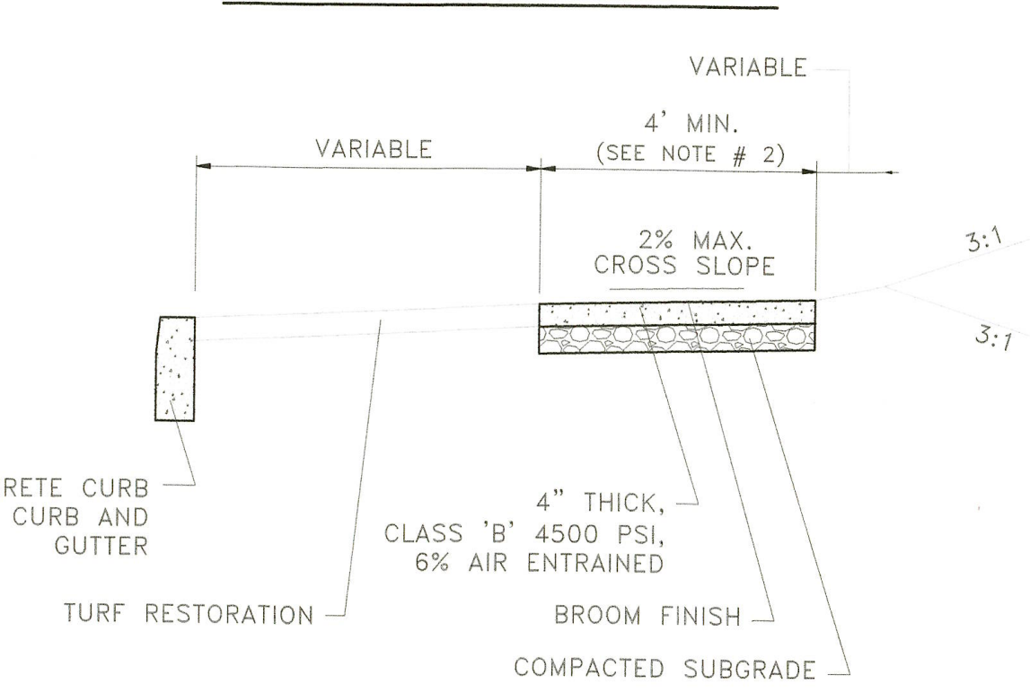
REINFORCED CONCRETE PAVING CROSS-SECTION

PAVING NOTE:
ROAD TO BE CONSTRUCTED FOLLOW PENNDOT SPECIFICATIONS FOR CONCRETE PAVING, INCLUDING BUT NOT LIMITED TO PUB. 72M, RC-20M AND RC-21M AS WELL AS PUB. 408.


1" DIA. HOLE AT EACH END OF BARRIER
9 1/2"
6 1/2"
1/4"
PLAN
2'
1'
7'
1 1/2"
ELEVATION

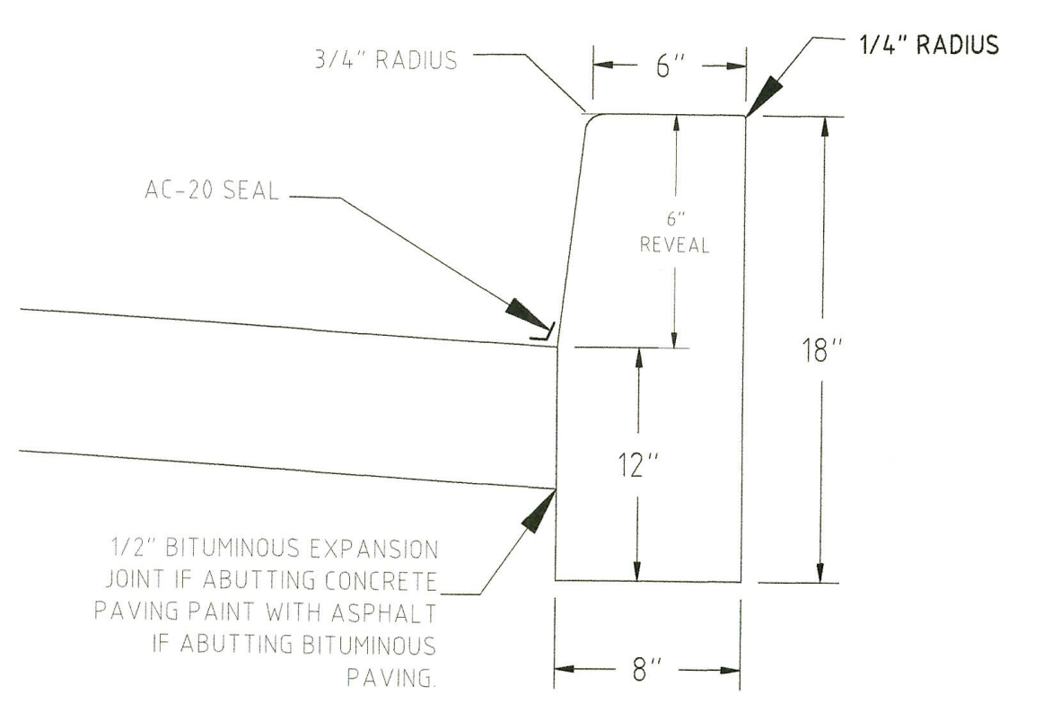
NOTES:
1. DIMENSIONS SHOWN ARE APPROXIMATE.
2. USE WHEEL STOPS AS MANUFACTURED BY READING PRECAST OR APPROVED EQUAL.
3. SECURE WHEEL STOP WITH 18" #5 REBAR DRIVEN FLUSH WITH TOP OF WHEEL STOP.
4. PLACE WHEEL STOP WITH THE NEAREST EDGE 2' FROM EDGE OF PAVING OR CURB.
5. WHEEL STOPS TO BE PLACED AT ENDS OF ALL PARKING SPACES NOT ABUTTING CURB.

CONCRETE WHEEL STOP


VARIABLE
4' MIN. (SEE NOTE # 2)
VARIABLE
2% MAX. CROSS SLOPE
3:1
3:1
STANDARD CONCRETE CURB OR CONCRETE CURB AND GUTTER
4" THICK, CLASS 'B' 4500 PSI, 6% AIR ENTRAINED
TURF RESTORATION
BROOM FINISH
COMPACTED SUBGRADE

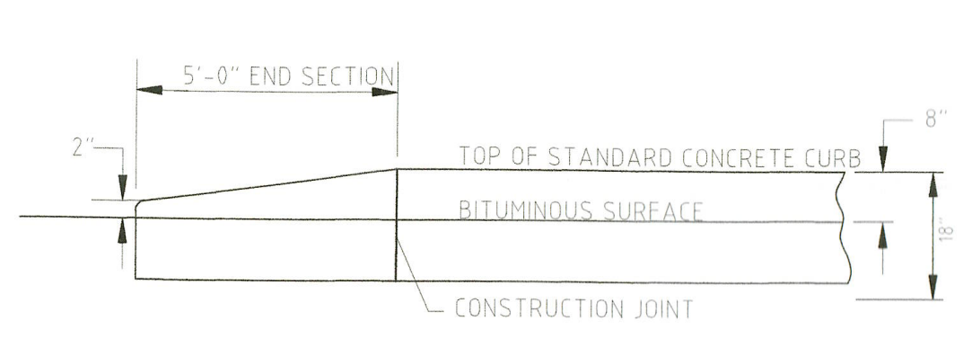
NOTES:
1. TURF RESTORATION TO CONSIST OF A MINIMUM OF 4" OF SELECT TOPSOIL, FERTILIZER AND SEED AS PER SPECIFICATIONS.
2. IF SUBGRADE MATERIAL IS UNSUITABLE, CONTRACTOR TO REMOVE PER COUNTY ENGINEER'S DISCRETION AND REPLACE WITH SELECT FILL AT NO EXTRA COST TO THE COUNTY.
3. SIDEWALK WIDTH SHALL BE 4'-0" MINIMUM UNLESS OTHERWISE NOTED ON THE APPROVED PLANS.
4. CONCRETE SHALL BE CLASS B WITH 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI 6% ±1.5% AIR ENTRAINMENT.

STANDARD CONCRETE SIDEWALK

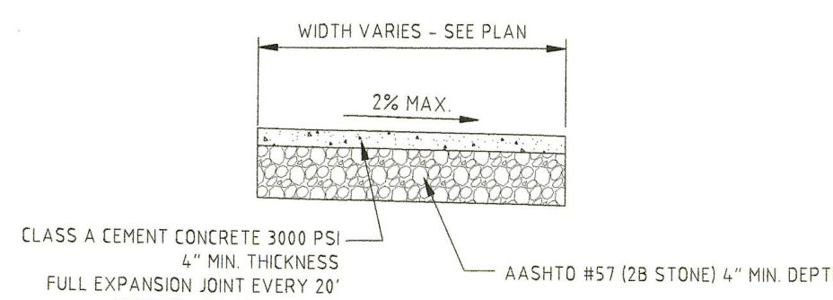

3/4" RADIUS
6"
1/4" RADIUS
AC-20 SEAL
6" REVEAL
18"
12"
1/2" BITUMINOUS EXPANSION JOINT IF ABUTTING CONCRETE PAVING PAINT WITH ASPHALT IF ABUTTING BITUMINOUS PAVING.
8"

NOTES:
1. PENNDOT PUBLICATION 408, CLASS A CEMENT CONCRETE IS REQUIRED.
2. APPROVED ⅜" PREMOLDED EXPANSION JOINTS TO BE SPACED EVERY 20 FEET MAX.
3. CONTRACTION JOINTS ARE TO BE SPACED EVERY 10 FEET.

6" CONCRETE CURB


5'-0" END SECTION
2"
8"
TOP OF STANDARD CONCRETE CURB
BITUMINOUS SURFACE
18"
CONSTRUCTION JOINT

CURB TRANSITION FOR STANDARD CURBING


WIDTH VARIES - SEE PLAN
2% MAX.
CLASS A CEMENT CONCRETE 3000 PSI 4" MIN. THICKNESS FULL EXPANSION JOINT EVERY 20' CONTROL JOINTS EVERY 4'
AASHTO #57 (2B STONE) 4" MIN. DEPTH

SIDEWALK CROSS-SECTION

NOTE:
- ALL CONSTRUCTION DETAILS ARE TO BE IN ACCORDANCE WITH THE WILSON BOROUGH AND CITY OF EASTON DESIGN DETAILS AND PRACTICES, SUBDIVISION AND LAND DEVELOPMENT ORDINANCE. ALL CONSTRUCTION DETAILS ARE TO ALSO REFERENCE LATEST VERSION OF PENNDOT PUBLICATION 408.
- ALL SIGNAGE SHALL COMPLY WITH THE REQUIREMENTS OF THE WILSON BOROUGH AND CITY OF EASTON ZONING ORDINANCE.

DATE	REVISION
2024-07-15	PER LVPC, BOROUGH, & CITY COMMENTS
2024-08-09	PER BOROUGH COMMENTS
2024-10-28	PER DEP COMMENTS & BOROUGH LETTER
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BEI

DONALD A. HAAS

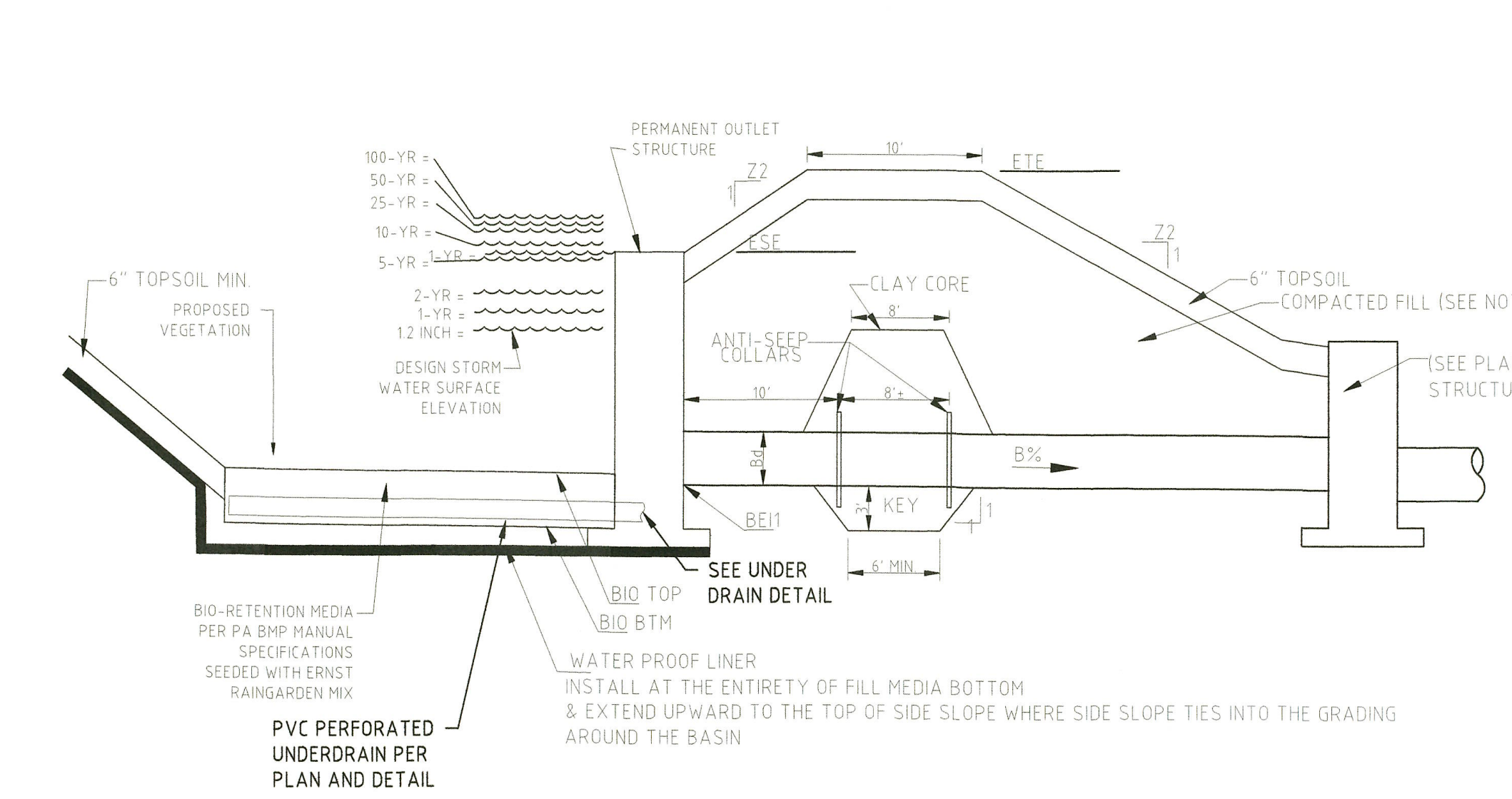
BOGIA ENGINEERING INC.
1340 PENN AVE WYOMISSING, PA 19610
PHONE: 610-678-3071 - FAX: 610-678-3517
WWW.BOGIAENG.COM

PRELIMINARY & FINAL
EASTON COMMERCE PARK
CONSTRUCTION DETAILS A

EASTON WOOD AVE PropCO.LLC
8801RIVER CROSSING Blvd
INDIANAPOLIS, IN 46240
JOB:EASTON COMMERCE PARK
Wilson Borough
Palmer Twp & City of Easton
NORTHAMPTON County, PA
PIN: CHECK SHEET C-100

CHECKED BY:	DH
DRAWN BY:	CF
DATE:	11/01/2024
SCALE:	N.T.S.
DRAWING:	C-110 A
PROJECT:	2022-528
SHEET:	46 OF 53

PROJECT TITLE: EASTON COMMERCE PARK


PERMANENT OUTLET STRUCTURE
100-YR
50-YR
25-YR
10-YR
5-YR
2-YR
1-YR
12 INCH
DESIGN STORM WATER SURFACE ELEVATION
4" TOPSOIL MIN
PROPOSED VEGETATION
CLAY CORE
ANTI-SEEP COLLARS
6" TOPSOIL
COMPACTED FILL (SEE NOTE 1)
SEE PLAN FOR STRUCTURE
KEY
6' MIN
BEI1
SEE UNDER DRAIN DETAIL
BIO TOP
BIO BTM
BIO-RETENTION MEDIA PER PA BMP MANUAL SPECIFICATIONS SEEDED WITH ERNST RAINGARDEN MIX
WATER PROOF LINER
INSTALL AT THE ENTIRETY OF FILL MEDIA BOTTOM & EXTEND UPWARD TO THE TOP OF SIDE SLOPE WHERE SIDE SLOPE TIES INTO THE GRADING AROUND THE BASIN
PVC PERFORATED UNDERDRAIN PER PLAN AND DETAIL

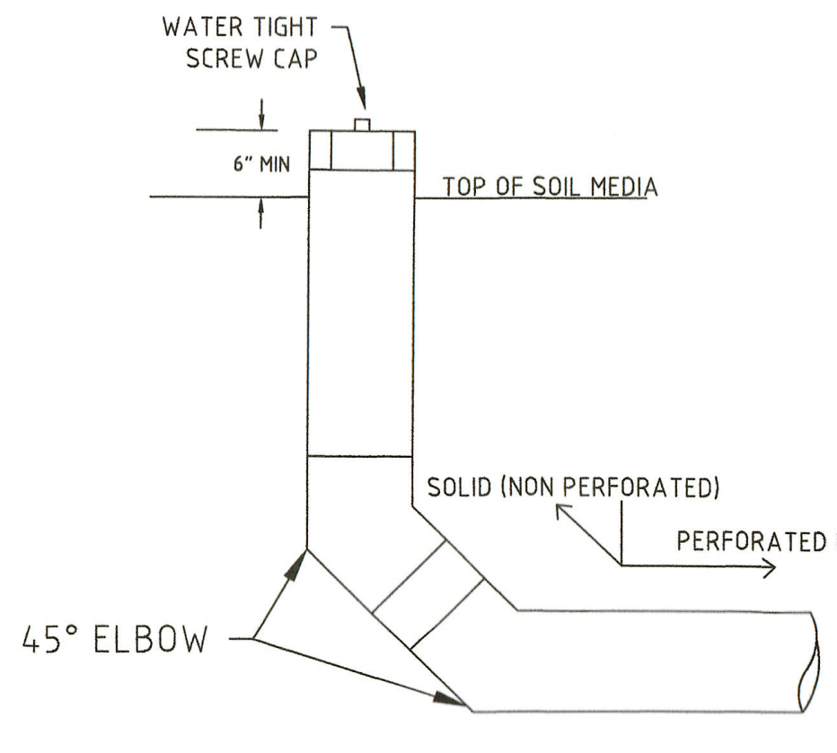
			BERM		PERM. STRUCTURE			BARREL					BIO RETENTION		STORM WATER SURFACE ELEV							
BASIN	Z1	Z2	ETE TOP ELEV. (FT.)	ESE SPILL-ELEV. (FT.)	CREST ELEV.	HORIZONTAL LENGTH	HORIZONTAL WIDTH	DIA. Bd (IN)	INLET ELEV. BIE1 (FT)	MAT'L	SLOPE B% (FT./FT)	OUTLET ELEV. BOE (FT.)	BIO TOP ELEV. (FT.)	BIO BTM ELEV. (FT.)	1YR	2YR	5YR	10 YR	25 YR	50 YR	100 YR	1.2 INCH
A	3	3	296.00	-	294.00	2	4	24	289.00	SLCPP	30.0 %	-	290.00	288.00	290.31	290.55	290.80	291.19	291.60	292.01	292.39	-
B	3	3	292.00	290.50	290.00	2	4	24	285.00	SLCPP	29.0%	-	286.00	284.00	286.50	286.79	287.09	287.58	288.07	288.52	288.92	-
MRC C	3	3	224.00	222.00	220.00	2	4	24	215.00	SLCPP	3.26%	-	216.00	212.00	216.71	216.85	217.08	217.62	218.21	218.80	219.40	216.30
E	3	3	264.00	-	259.50	2	4	24	255.00	SLCPP	5.42%	-	256.00	252.00	256.99	257.38	258.03	259.09	259.69	259.95	260.27	-
Hacket RG	3	3	234.00	-	233.00	2	4	18	228.13	SLCPP	3.30%	-	231.30	228.00	232.64	232.74	232.84	233.01	233.12	233.29	233.53	-

LINED RAIN GARDEN/BIORETENTION BASIN

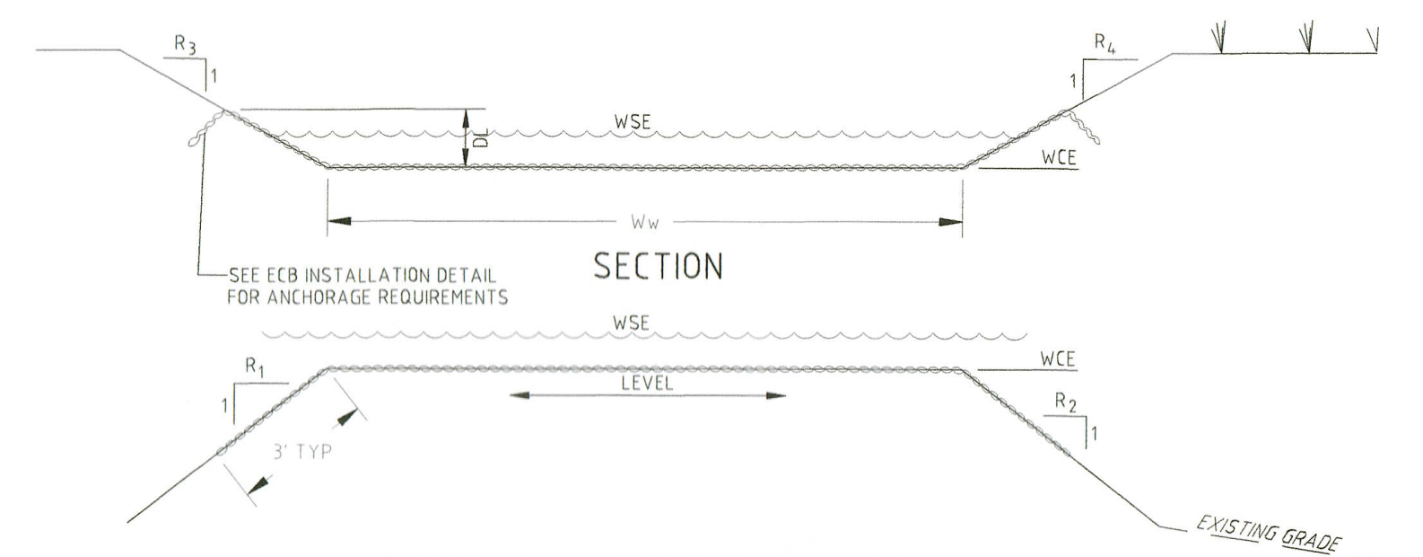
The basin bottom will be comprised of 70-80% quality topsoil combined with 20-30% compost. Quality topsoil shall consist of friable surface soil reasonably free of grass, roots, weeds, sticks, stones, or other foreign materials. The topsoil shall consist of sandy loam, with soil particles within the following percentages: clay; 0-25; silt; 25-50; sand; 50-70; decomposed organic matter; 5-10."

NOTES FOR RAIN GARDEN/BIORETENTION BASIN CONSTRUCTION:

1. EMBANKMENT MATERIAL SHALL CONSIST OF SUITABLE MATERIAL FREE OF ALL ROOTS, SOD, FROZEN SOIL, ROCKS LARGER THAN 4" IN DIAMETER AND ANY OTHER MATERIAL NOT APPROVED BY THE ENGINEER. FILL SHALL BE COMPACTED IN 8" LOOSE LIFTS TO 90% OF MAXIMUM DRY DENSITY AS PER ASTM D-1557 (MODIFIED PROCTOR). PRIOR TO PLACEMENT OF LIFT, THE SURFACE OF EXISTING MATERIAL SHALL BE SCARIFIED TO PROVIDE BONDING OF LIFTS.
2. COMPACTED FILL SHALL BE PLACED BEYOND THE FINAL LIMITS OF THE EMBANKMENT AND THEN TRIMMED TO THE FINAL DESIGN SHAPE (ALLOWING FOR TOPSOIL PLACEMENT).
3. AFTER SITE IS PERMANENTLY STABILIZED, REMOVE SEDIMENT, REPAIR LINER IF NECESSARY, INSTALL UNDERDRAINS AND FILL WITH BIO RETENTION MEDIA AND PERMANENTLY STABILIZE PER SEEDING AND MULCHING SPECIFICATIONS.
4. OUTLET PIPE SHALL MEET SPECIFICATIONS IN THE STORM SEWER NOTES ON THE GRADING & UTILITY PLAN. DO NOT PROVIDE STONE BEDDING FOR OUTLET PIPING.
5. CONSTRUCT THE EMBANKMENT 6" HIGHER THAN SHOWN ON THE DRAWINGS TO ALLOW FOR SETTLEMENT.
6. THE KEY TRENCH MATERIAL SHALL BE COMPACTED, RELATIVELY IMPERVIOUS MATERIAL (UNIFIED SOIL CLASSIFICATION CL OR ML)
7. THE CORE AND KEY TRENCH ARE TO BE COMPACTED TO 95% MODIFIED PROCTOR COMPACTION REQUIREMENTS.
8. THE ONSITE GEOTECHNICAL ENGINEER SHALL IDENTIFY SUITABLE MATERIAL FOR USE IN BERM, CORE, AND KEY TRENCH.
9. SUBGRADE MATERIALS SHOULD NOT CONTAIN SHARP, ANGULAR STONES OR ANY OBJECTS THAT COULD DAMAGE THE LINER OR ADVERSELY IMPACT ITS FUNCTION.
10. LINER MATERIAL IS GEOSYNTHETIC CLAY WITH A MINIMUM OF 0.75 LBS./SQUARE FOOT STRENGTH.
11. GEOSYNTHETIC CLAY LINER (GCL) SHALL MEET THE CRITERIA IN NRCS, PART 642, CHAPTER 3, "MATERIAL SPECIFICATION 595-GEOSYNTHETIC CLAY LINER."


WATER TIGHT SCREW CAP
6" MIN
TOP OF SOIL MEDIA
SOLID (NON PERFORATED)
PERFORATED UNDER DRAIN
45° ELBOW

CLEANOUT DETAIL


WSE
WCE
Ww
SEE ECB INSTALLATION DETAIL FOR ANCHORAGE REQUIREMENTS
SECTION
R1
R2
LEVEL
3' TYP
EXISTING GRADE

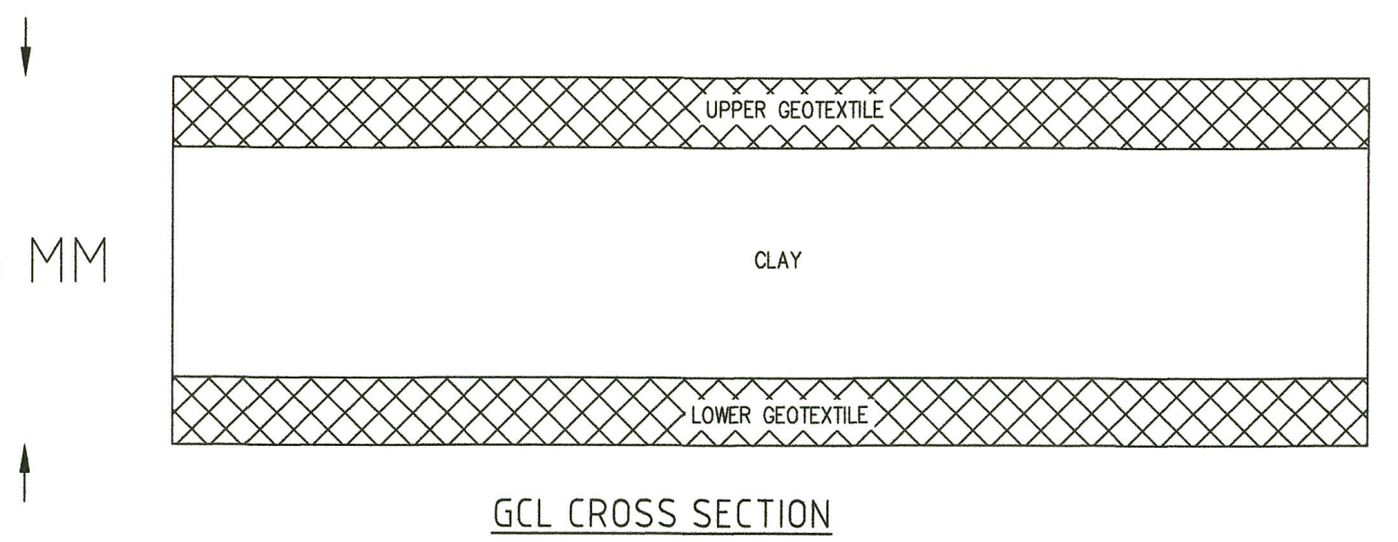
LONGITUDINAL SECTION FOR EMERGENCY SPILLWAY

	WEIR					ECB LINING				
BASIN	R_3	R_4	100-YR SURFACE ELEV WSE (FT)	CREST ELEV WCE (FT)	WIDTH Ww (FT)	MAT'L & STAPLE PATTERN	LINING DEPTH DL (FT)	R_1	R_2	TOP OF BERM ELEV
B	3	3	286.91	290.50	300'	S75/D	0.2	3	3	292.00
C	3	3	217.88	222.00	100'	S75/D	0.2	3	3	224.00

TYPICAL EMERGENCY SPILLWAY

NOTES:

- BASIN A DOES NOT HAVE BERM AROUND I , THEREFORE, NO EMEREGENCY SPILLWAY WAS REQUIRED.
- BASIN E EMERGENCY SPILLWAY IS TAKEN AS THE OUTLET STRUCTURE TOP OF THE GRATE. IT WAS SHOWN (IN THE PCSM REPORT) THAT THE OUTLET PIPE FROM THE STRUCTURE HAD THE SUFFICIENT CAPACITY TO SAFELY CONVEY THE 100-YR INFLOW TO THE BASIN.


UPPER GEOTEXTILE
CLAY
~5 MM
LOWER GEOTEXTILE

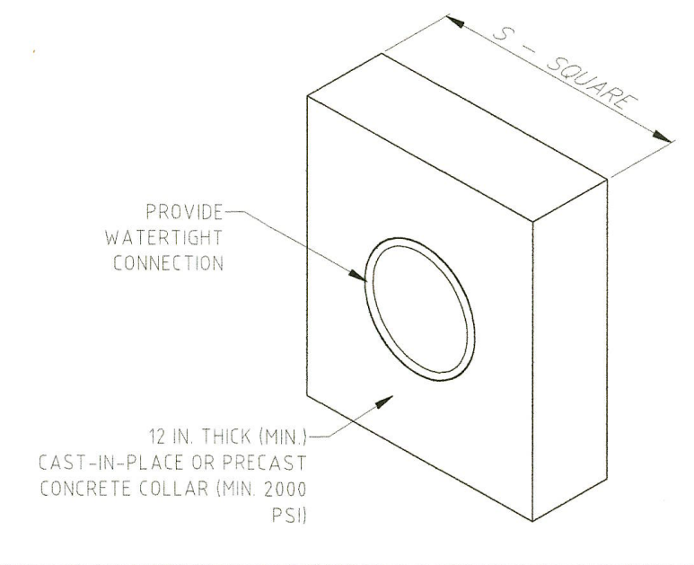
GCL CROSS SECTION

NOTES:

1. GCL MAY BE CLAY BOUND WITH ADHESIVE TO UPPER AND LOWER GEOTEXTILES, CLAY STITCHBONDED BETWEEN UPPER AND LOWER GEOTEXTILES, OR CLAY NEEDLEPUNCHED THROUGH UPPER AND LOWER GEOTEXTILES.
2. INSTALL PER MANUFACTURER'S INSTRUCTIONS. AT THE ENTIRETY OF THE FILL MEDIA BOTTOM AND THEN EXTEND TO THE TOP OF THE SIDE SLOPE, WHERE SIDE SLOPE TIES INTO THE GRADING AROUND THE BASIN.

GEOSYNTHETIC CLAY LINER (GCL)

N.T.S.


PROVIDE WATERTIGHT CONNECTION
12 IN. THICK (MIN.) CAST-IN-PLACE OR PRECAST CONCRETE COLLAR (MIN. 2000 PSI)

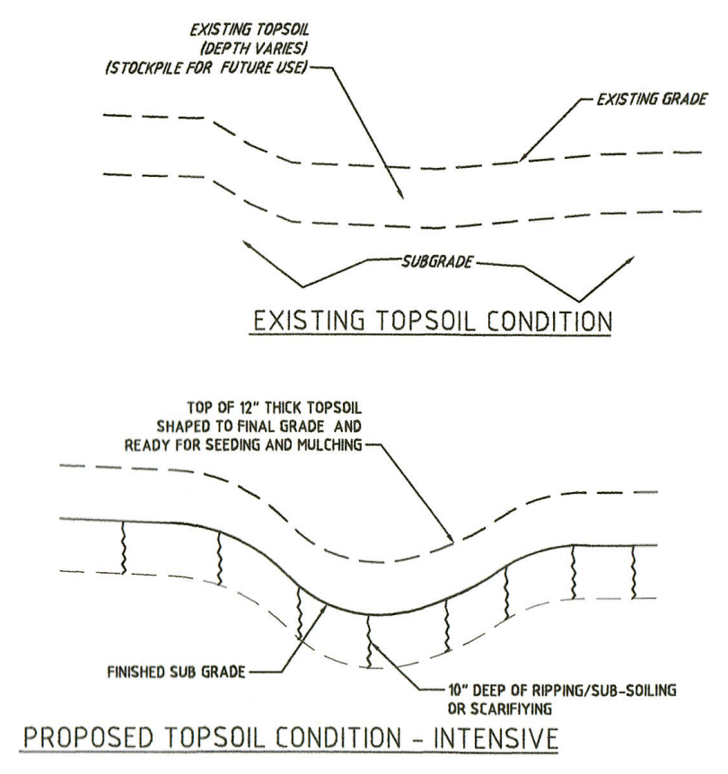
Basin	Embankment Invert	Riser Crest	y (Ft)	z	Pipe Slope	L_s (Ft)	# of collars	Collar Projection* (Ft)	Barrel O.D. (Ft.)	Collar Size (Square)
A	290.00	294.00	4.00	3	0.0240	31.0	2	1.2	2.00	4' - 2"
B	284.00	290.00	6.00	3	0.0400	50.0	2	1.9	2.00	5' - 11"
C	214.00	220.00	6.00	3	0.0500	52.5	2	2	2.00	6' - 0"
E	255.00	259.50	4.50	3	0.0540	40.2	2	1.5	2.00	5' - 6"

NOTES:

- ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.
- COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.

STANDARD CONSTRUCTION DETAIL #7-16
CONCRETE ANTI-SEEP COLLAR FOR PERMANENT BASINS OR TRAPS

N.T.S.


EXISTING TOPSOIL (DEPTH VARIES) (STOCKPILE FOR FUTURE USE)
EXISTING GRADE
SUBGRADE
EXISTING TOPSOIL CONDITION
TOP OF 12" THICK TOPSOIL SHAPED TO FINAL GRADE AND READY FOR SEEDING AND MULCHING
FINISHED SUB GRADE
10" DEPTH OF RIPPING/SUB-SOILING OR SCARIFYING
PROPOSED TOPSOIL CONDITION - INTENSIVE

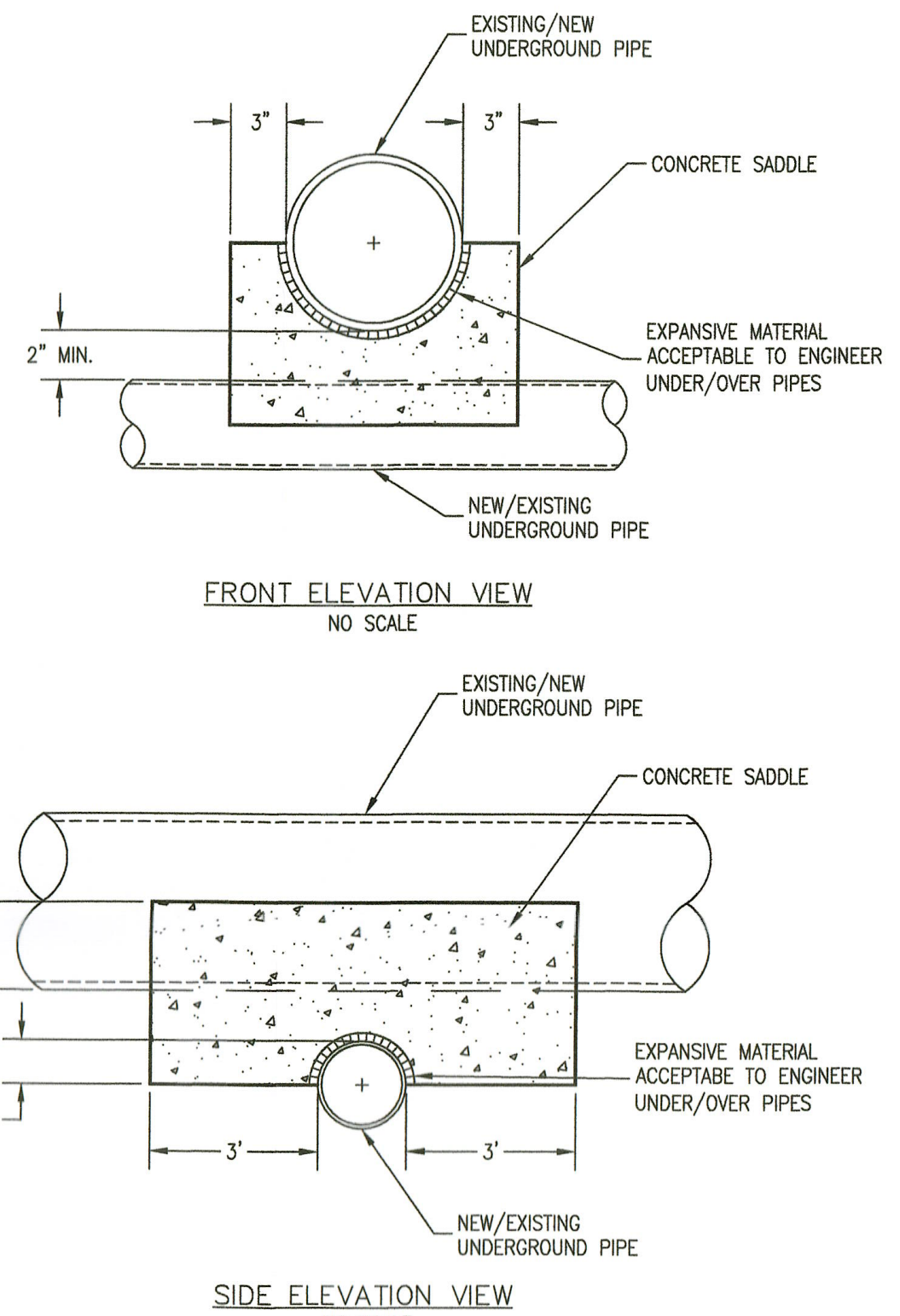
SOIL AMENDMENT DETAILS

FOR AREAS CLASSIFIED AS SOIL AMENDMENT AREAS:

1. PRIOR TO TOPSOILING, SCARIFY OR RIP SOIL TO A DEPTH OF 10". RIPPING OR SCARIFICATION METHOD SHALL BE A SOLID SHANK RIPPER USING MULTIPLE PASSES TO ACHIEVE THE SPECIFIED DEPTH FOR RELIEF OF SOIL COMPACTION.
2. SOIL AMENDMENT MIXTURE AS FOLLOWS:
   - 50% SITE TOPSOIL
   - 40% COMPOST *
   - 10% SAND PASSING #8 SIEVE
3. PLACE SOIL AMENDMENT MIXTURE TO A DEPTH OF 8" FOR STANDARD SOIL AMENDMENT AREAS, PLACE 12" SOIL AMENDMENT MIXTURE IN INTENSIVE SOIL AMENDMENT AREAS.
4. USE OF HEAVY MACHINERY IS PROHIBITED DURING SOIL AMENDMENT PHASE OF CONSTRUCTION.
5. SOIL AMENDMENTS TO BE PERFORMED AFTER CONSTRUCTION IS COMPLETED AND HEAVY MACHINERY WILL NOT TRAVERSE THE SOIL AMENDMENT AREAS.

* COMPOST REQUIREMENTS:

A. COMPOST PRODUCTS SPECIFIED FOR USE IN THIS APPLICATION ARE DESCRIBED IN TABLE 1 BELOW. THE PRODUCT'S PARAMETERS WILL VARY BASED ON WHETHER VEGETATION WILL BE ESTABLISHED ON THE TREATED SLOPE.
B. ONLY COMPOST PRODUCTS THAT MEET ALL APPLICABLE STATE AND FEDERAL REGULATIONS PERTAINING TO ITS PRODUCTION AND DISTRIBUTION MAY BE USED IN THIS APPLICATION. APPROVED COMPOST PRODUCTS MUST MEET RELATED STATE AND FEDERAL CHEMICAL CONTAMINANT (E.G., HEAVY METALS, PESTICIDES, ETC.) AND PATHOGEN LIMIT STANDARDS PERTAINING TO THE FEEDSTOCKS (SOURCE MATERIALS) IN WHICH IT IS DERIVED. C.
C. VERY COARSE COMPOST SHOULD BE AVOIDED FOR SOIL AMENDMENT AS IT WILL MAKE PLANTING AND CROP ESTABLISHMENT MORE DIFFICULT.
D. THE USE OF COMPOST PRODUCTS THAT ARE CERTIFIED BY THE U.S. COMPOSTING COUNCIL'S SEAL OF TESTING (STA) PROGRAM (WWW.COMPOSTINGCOUNCIL.ORG) ARE REQUIRED.


EXISTING/NEW UNDERGROUND PIPE
CONCRETE SADDLE
EXPANSIVE MATERIAL ACCEPTABE TO ENGINEER UNDER/OVER PIPES
NEW/EXISTING UNDERGROUND PIPE
2" MIN.
3"
6" OR D/2 FOR PIPE WITH D<12"
3'

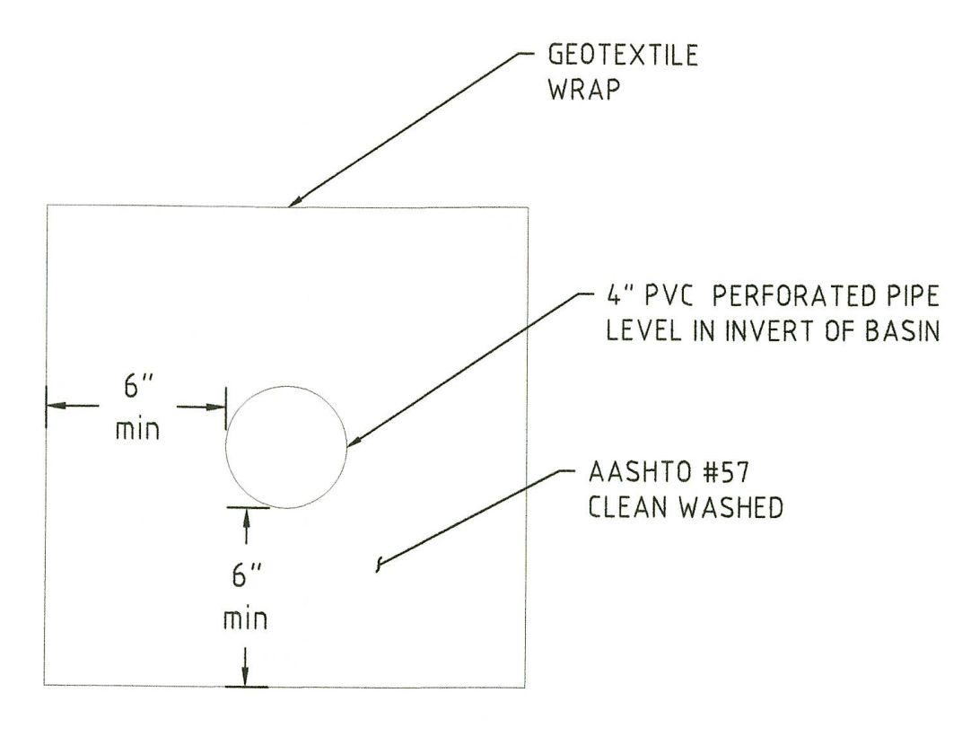
FRONT ELEVATION VIEW
NO SCALE

SIDE ELEVATION VIEW
NO SCALE

NOTES:

1. INSTALL CONCRETE SADDLE AT EACH LOCATION WHERE A NEW UNDERGROUND UTILITY CROSSES AN EXISTING UNDERGROUND UTILITY WITH LESS THAN 12" CLEARANCE.
2. MINIMUM ALLOWABLE CLEARANCE IS 2".
3. USE CLASS "A" (AKA CLASS I) CONCRETE.

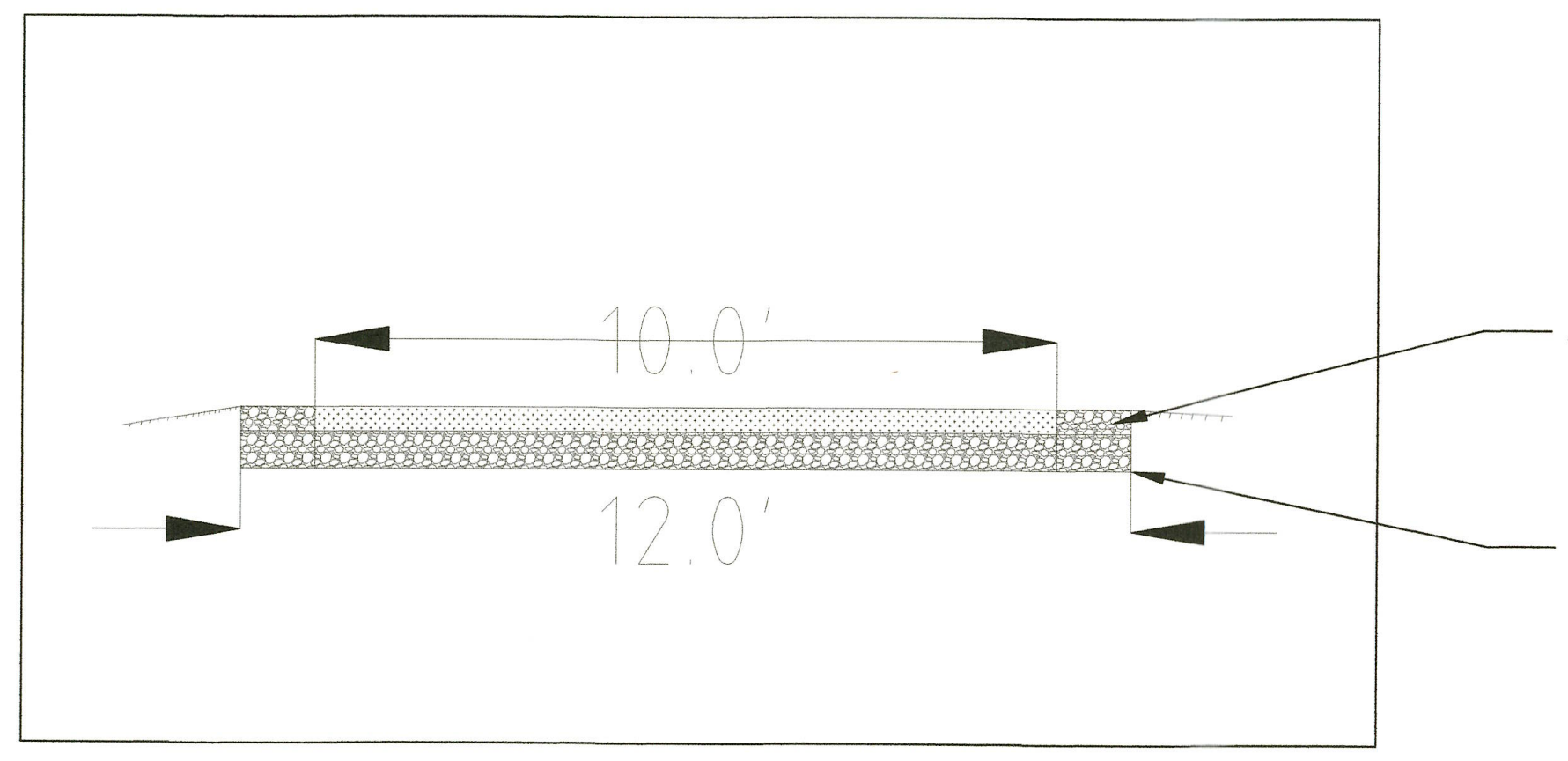
CONCRETE SADDLE DETAIL


GEOTEXTILE WRAP
4" PVC PERFORATED PIPE LEVEL IN INVERT OF BASIN
AASHTO #57 CLEAN WASHED
6" min
6" min

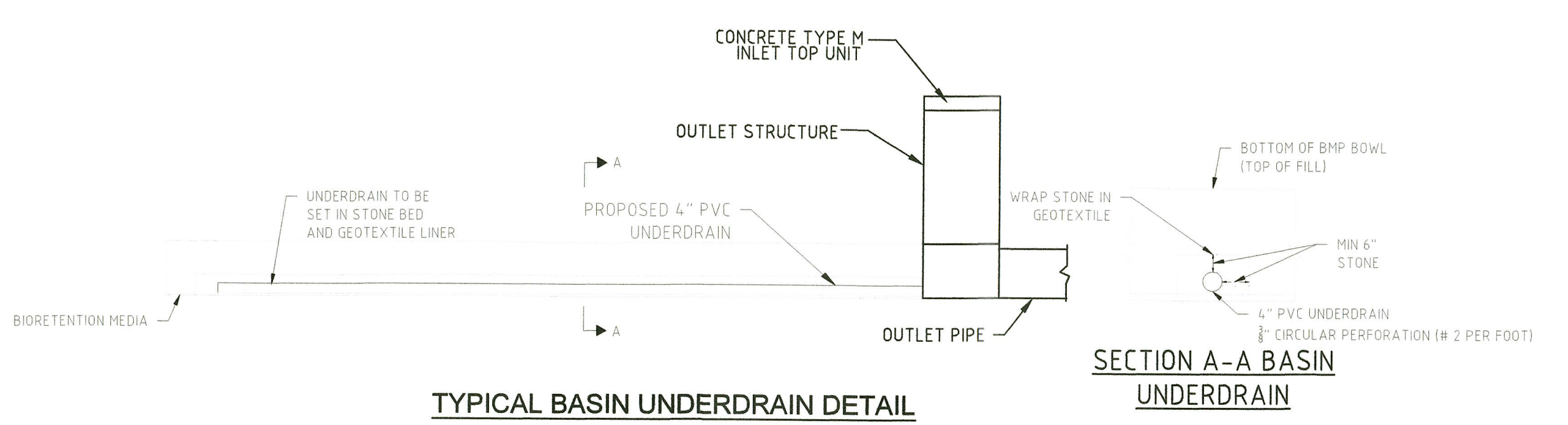
PVC UNDERDRAIN DETAIL

NOTES:

1. ALL CONNECTIONS IN MANIFOLD, AT CLEANOUTS AND AT OUTLET TO BE WITH 45° ELBOWS.
2. INVERT OF PERFORATED PIPE TO BE AT INVERT OF BASIN AT THE BOTTOM OF THE BIO-RETENTION MEDIA.
3. SOLVENT WELD ALL JOINTS.
4. ALL HORIZONTALLY INSTALLED PVC PIPES AT THE BOTTOM OF THE FILL MEDIA ARE PERFORATED WHILE THE VERTICAL SECTIONS, INCLUDING UPTURNED ELBOW WITHIN THE OUTLET BOX AND CLEANOUTS, SHOULD HAVE SOLID WALLS.


10.0'
12.0'
4" HMA
6" STONE BASE

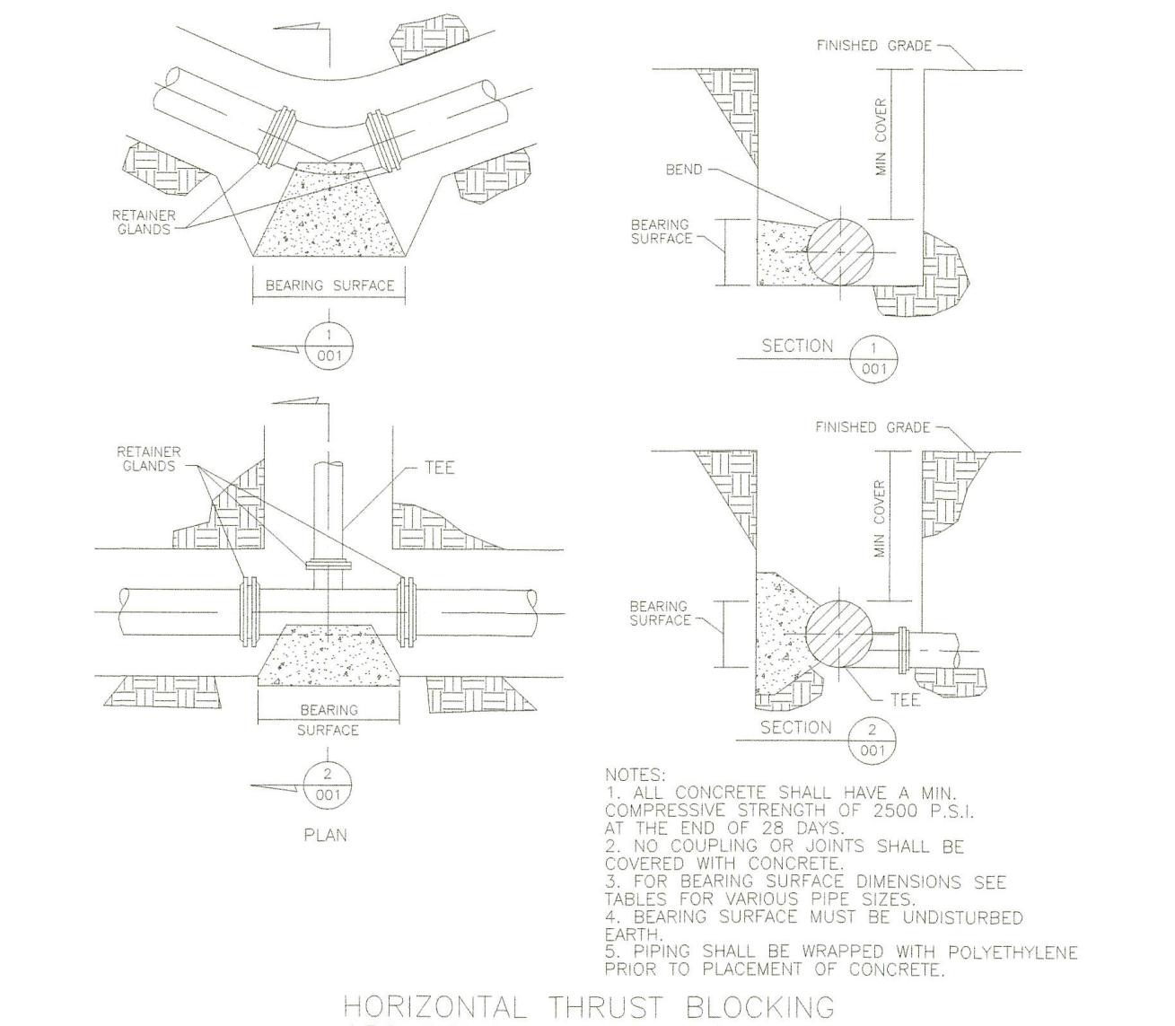
ASPHALT TRAIL CROSS-SECTION


CONCRETE TYPE M INLET TOP UNIT
OUTLET STRUCTURE
PROPOSED 4" PVC UNDERDRAIN
UNDERDRAIN TO BE SET IN STONE BED AND GEOTEXTILE LINER
BIORETENTION MEDIA
OUTLET PIPE
BOTTOM OF BMP BOWL (TOP OF FILL)
WRAP STONE IN GEOTEXTILE
MIN 6" STONE
4" PVC UNDERDRAIN
CIRCULAR PERFORATION (4 PER FOOT)

TYPICAL BASIN UNDERDRAIN DETAIL

N.T.S.

SECTION A-A BASIN UNDERDRAIN



NOTES:
1. ALL CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 2500 P.S.I. AT THE END OF 28 DAYS.
2. NO COUPLING OR JOINTS SHALL BE COVERED WITH CONCRETE.
3. FOR BEARING SURFACE DIMENSIONS SEE TABLES FOR VARIOUS PIPE SIZES.
4. BEARING SURFACE MUST BE UNDISTURBED EARTH.
5. PIPING SHALL BE WRAPPED WITH POLYETHYLENE PRIOR TO PLACEMENT OF CONCRETE.

HORIZONTAL THRUST BLOCKING
150 PSI WORKING PRESSURE

PIPE SIZES	6" AND 8"				10" AND 12"			
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS	DEGREE BEND OR DEFLECTION				DEGREE BEND OR DEFLECTION			
	11 1/4°	22 1/2°	45°	90°	11 1/4°	22 1/2°	45°	90°
SAND 1 TON/SQ.FT. SOFT CLAY 1 TON/SQ.FT.	1.50	3.00	6.00	12.00	3.00	6.00	12.00	24.50
SAND & GRAVEL 2 TON/SQ.FT.	1.00	1.50	3.00	6.00	1.50	3.00	6.00	12.00
CLAY 3 TON/SQ.FT.	1.00	1.00	2.00	4.00	1.00	2.00	4.00	8.00
SOFT ROCK 5 TON/SQ.FT.	1.00	1.00	1.00	2.50	1.00	1.00	2.50	5.00
ROCK 20 TON/SQ.FT.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

PIPE SIZES	14 AND 16"			
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS	DEGREE BEND OR DEFLECTION			
	11 1/4°	22 1/2°	45°	90°
SAND 1 TON/SQ.FT. SOFT CLAY 1 TON/SQ.FT.	5.50	11.00	21.50	43.00
SAND & GRAVEL 2 TON/SQ.FT.	2.50	5.50	11.00	21.50
CLAY 3 TON/SQ.FT.	2.00	3.50	7.00	14.00
SOFT ROCK 5 TON/SQ.FT.	1.00	2.00	4.50	8.50
ROCK 20 TON/SQ.FT.	1.00	1.00	1.00	2.00

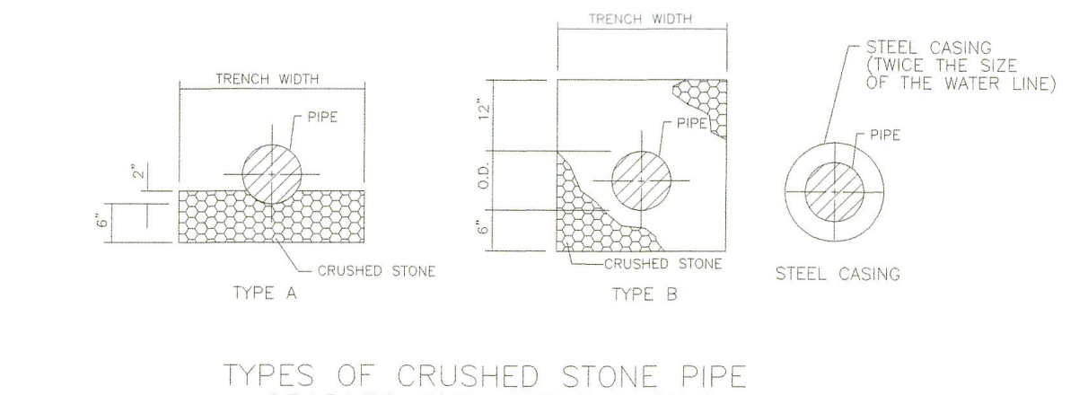
NOTE:
BEARING SURFACE AREAS SHOWN ARE MINIMUMS FOR THE VARIOUS PIPE SIZES.

HORIZONTAL THRUST BLOCKING AND VERTICAL THRUSTS DOWNWARD BEARING SURFACE AREA

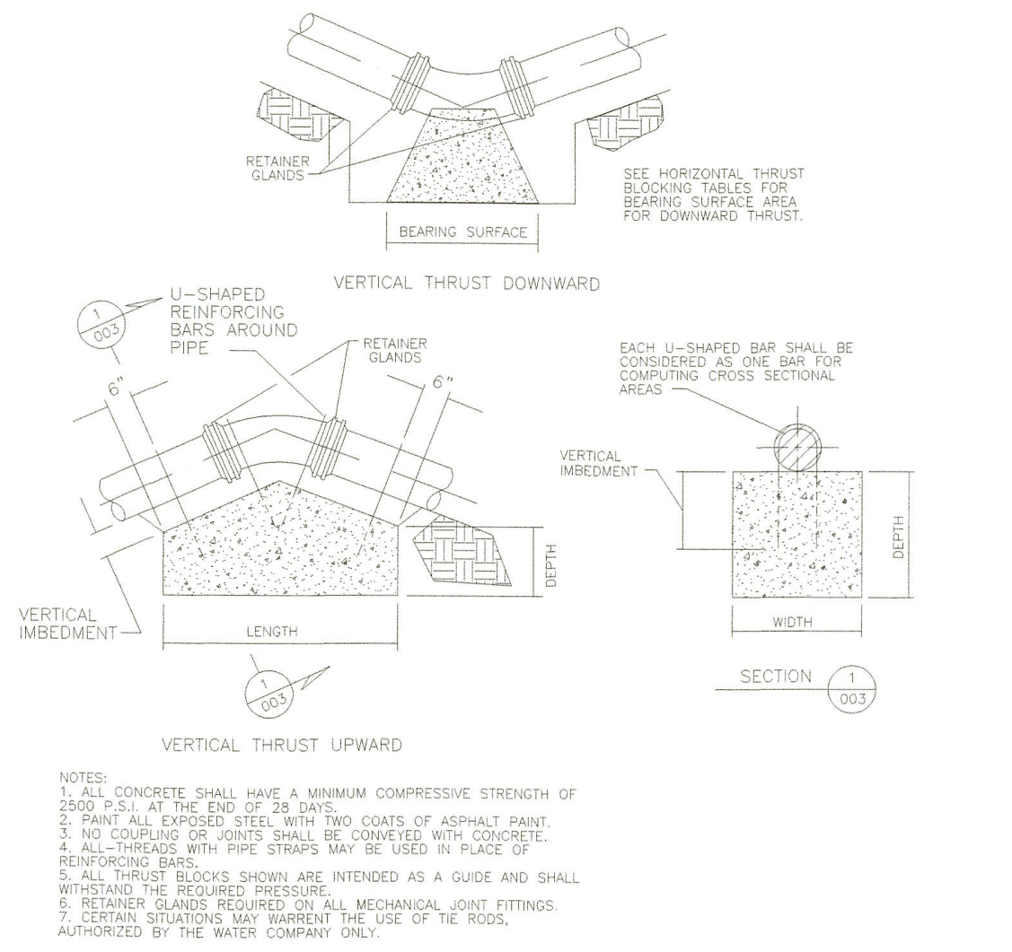
PIPE SIZE	6" AND 8"			10" AND 12"			14" AND 16"		
DEGREE BEND OR DEFLECTION	11 1/4°	22 1/2°	45°	11 1/4°	22 1/2°	45°	11 1/4°	22 1/2°	45°
LENGTH	3.00	4.00	6.00	4.50	6.00	8.00	6.00	8.00	11.00
WIDTH	3.00	3.00	3.00	3.00	3.00	4.00	3.50	3.50	5.00
DEPTH	2.00	3.00	4.00	3.00	4.50	5.00	3.50	5.00	5.00
SQ. IN. REINFORCING	0.17	0.33	0.65	0.37	0.74	1.46	0.66	1.32	2.60

BAR NO.	5	6	7	8	9	10	11
CROSS-SECTION IN.^{2} PER BAR	0.31	0.44	0.60	0.79	1.00	1.27	1.56
VERTICAL IMBEDMENT	15"	19"	26"	35"	44"	56"	68"

VERTICAL THRUST BLOCKING – UPWARD THRUSTS SCHEDULE OF DIMENSIONS 150 P.S.I. WORKING PRESSURE

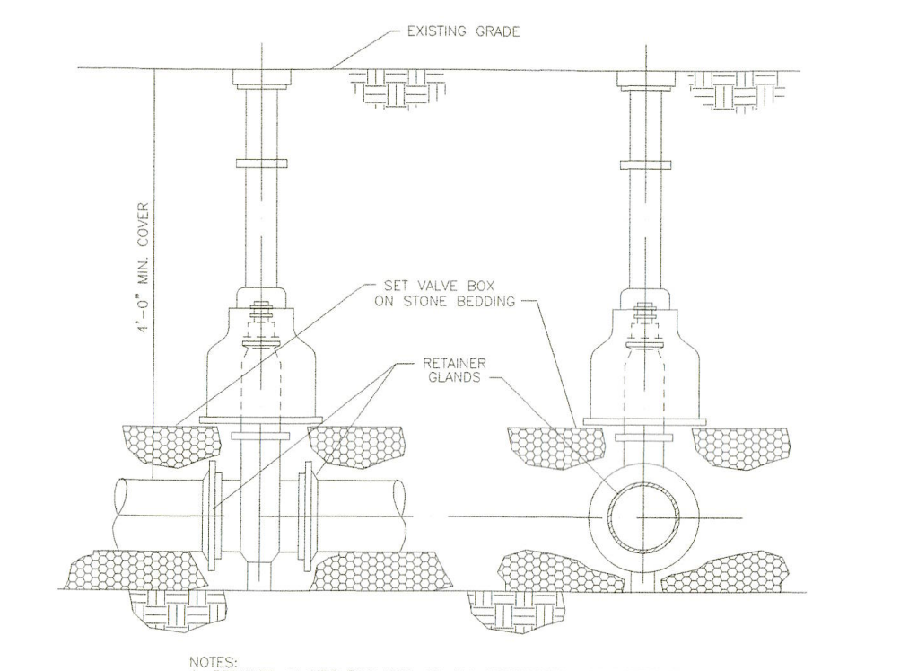

TRENCH WIDTH
PIPE
CRUSHED STONE
TYPE A
TYPE B
STEEL CASING (TWICE THE SIZE OF THE WATER LINE)
STEEL CASING

TYPES OF CRUSHED STONE PIPE CRADLES AND STEEL CASING


VERTICAL IMBEDMENT
LENGTH
DEPTH
WIDTH
SECTION
VERTICAL THRUST UPWARD

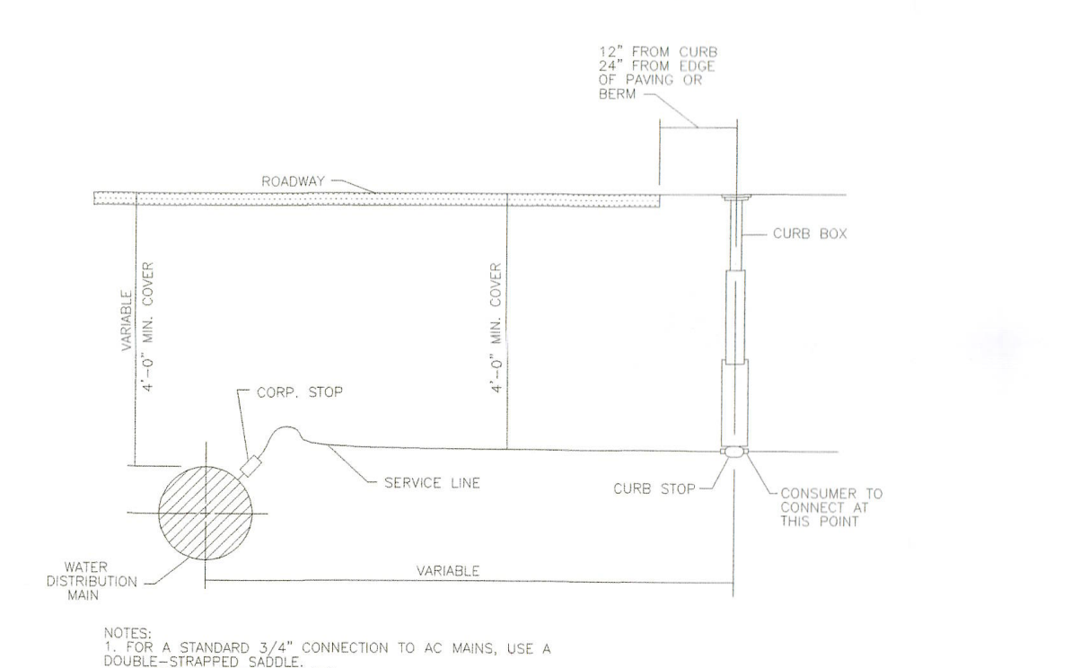
NOTES:
1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 P.S.I. AT THE END OF 28 DAYS.
2. PAINT ALL EXPOSED STEEL WITH TWO COATS OF ASPHALT PAINT.
3. NO COUPLING OR JOINTS SHALL BE CONVEYED WITH CONCRETE.
4. ALL-THREADS WITH PIPE STRAPS MAY BE USED IN PLACE OF REINFORCING BARS.
5. ALL THRUST BLOCKS SHOWN ARE INTENDED AS A GUIDE AND SHALL WITHSTAND THE REQUIRED PRESSURE.
6. RETAINER GLANDS REQUIRED ON ALL MECHANICAL JOINT FITTINGS.
7. CERTAIN SITUATIONS MAY WARRENT THE USE OF TIE RODS, AUTHORIZED BY THE WATER COMPANY ONLY.

VERTICAL THRUST BLOCKING


EXISTING GRADE
4'-0" MIN. COVER
SET VALVE BOX ON STONE BEDDING
RETAINER GLANDS

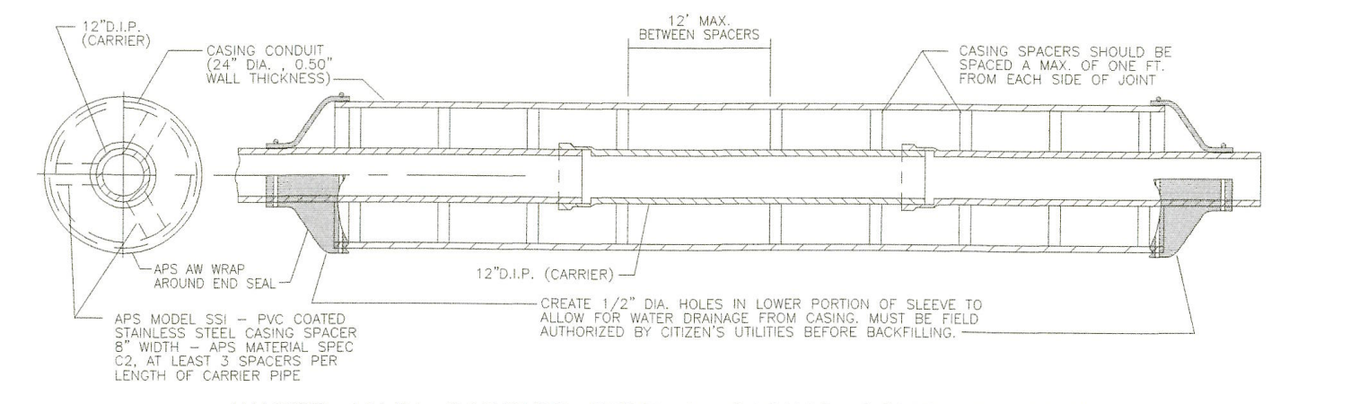
NOTES:
1. RETAINER GLANDS REQUIRED ON ALL MECHANICAL JOINT FITTINGS.
2. VALVE BOX SHALL BE 2 PIECE SCREW TYPE.

GATE VALVE INSTALLATION

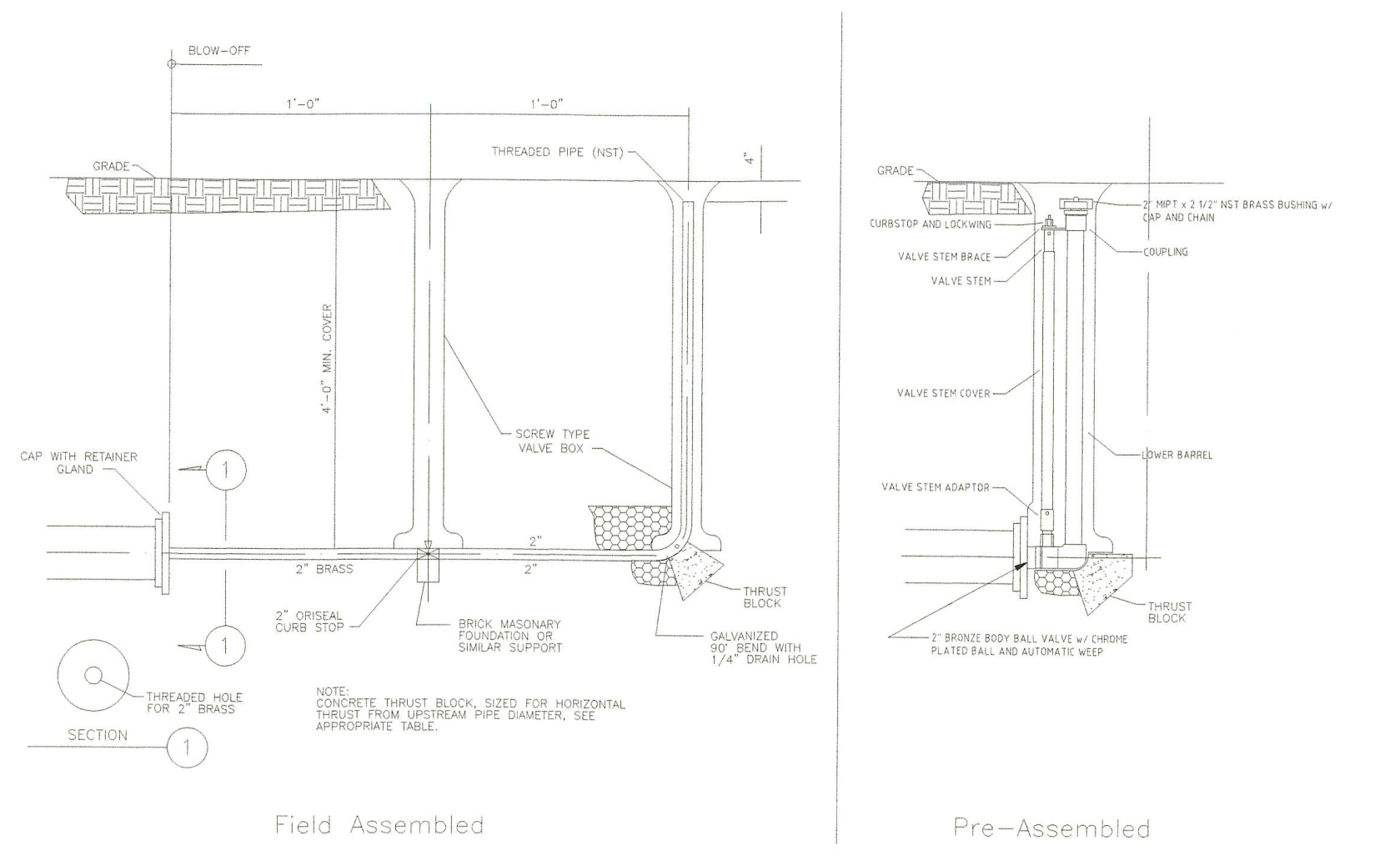

12" FROM CURB 24" FROM EDGE OF PAVING OR BERM
ROADWAY
CURB BOX
4'-0" MIN. COVER
VARIABLE
WATER DISTRIBUTION MAIN

NOTES:
1. FOR A STANDARD 3/4" CONNECTION TO AC MAINS, USE A DOUBLE-STRAPPED SADDLE.
2. COPPER SHALL BE TYPE "K".
3. COMPRESSION FITTINGS SHALL BE USED ON COPPER SERVICE.
4. COPPER SERVICE SHALL BE LAID LOOSELY HORIZONTALLY TO PREVENT DAMAGE UPON SETTING OF TRENCH.

WATER LINE SERVICE CONNECTION



WATER MAIN CARRIER PIPE & CASING CONDUIT DETAIL

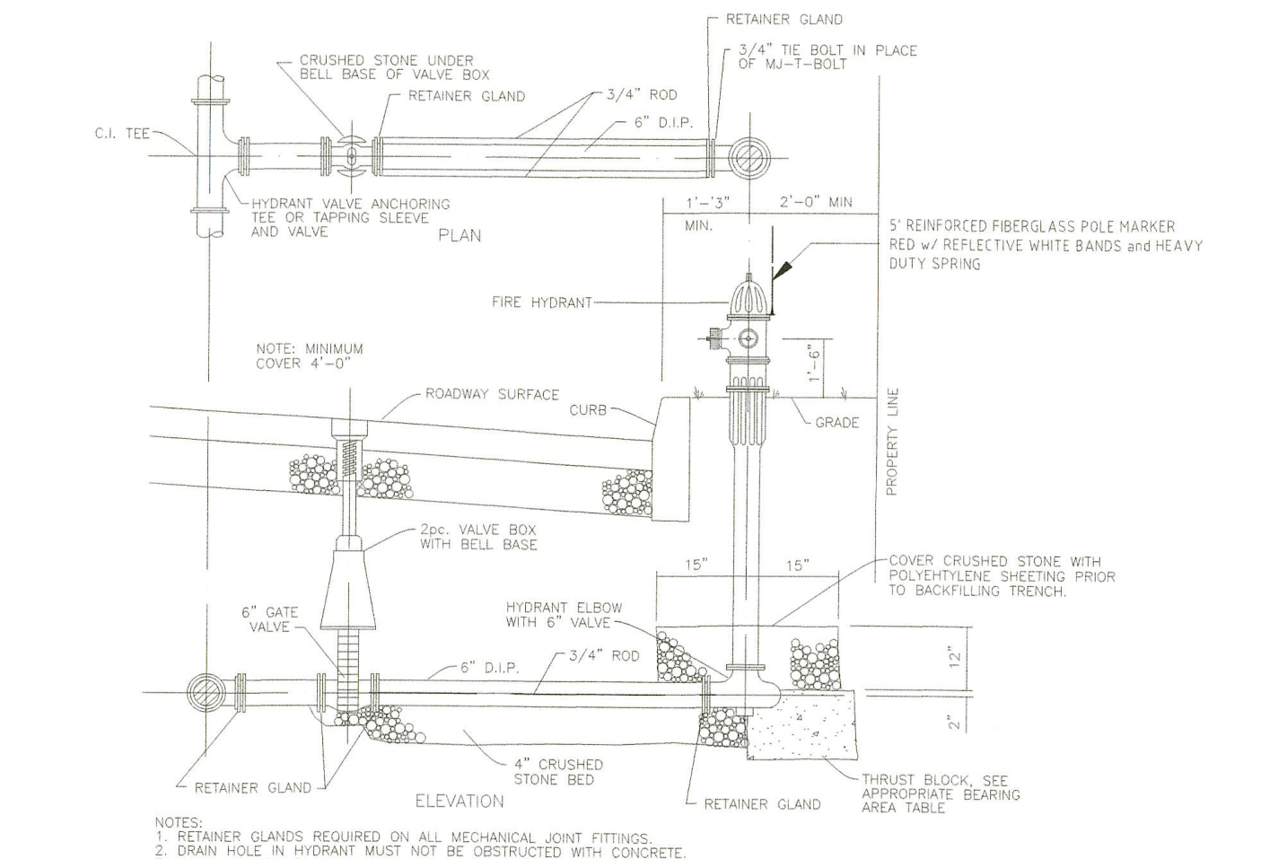

THREADED HOLE FOR 2" BRASS
SECTION
1/4" DRAIN HOLE

NOTE:
CONCRETE THRUST BLOCK, SIZED FOR HORIZONTAL THRUST FROM UPSTREAM PIPE DIAMETER, SEE APPROPRIATE TABLE.

Field Assembled

Pre-Assembled

2" BLOW-OFF ASSEMBLY

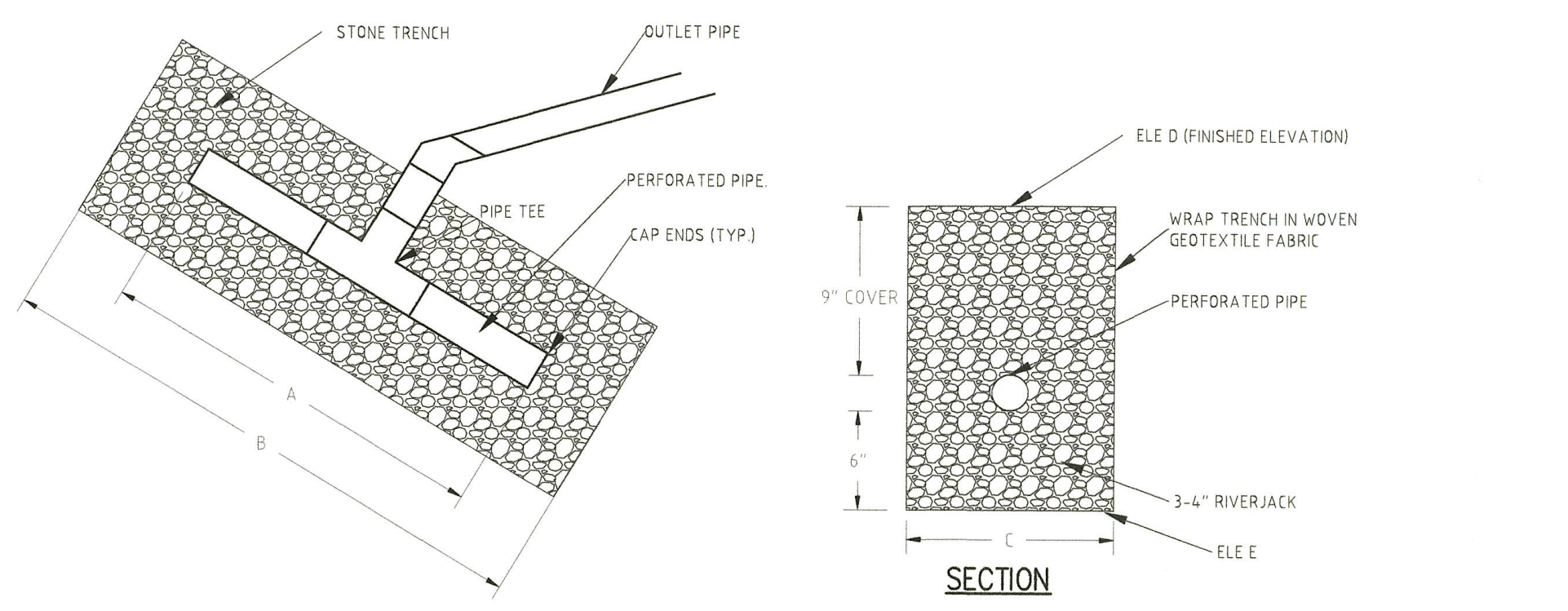

RETAINER GLAND
3/4" TIE BOLT IN PLACE OF MJ-T-BOLT
CRUSHED STONE UNDER BELL BASE OF VALVE BOX
3/4" ROD
6" D.I.P.
C.I. TEE
HYDRANT VALVE ANCHORING TEE OR TAPPING SLEEVE AND VALVE
PLAN
1'-3" MIN.
2'-0" MIN
5' REINFORCED FIBERGLASS POLE MARKER RED w/ REFLECTIVE WHITE BANDS and HEAVY DUTY SPRING
FIRE HYDRANT
NOTE: MINIMUM COVER 4'-0"
ROADWAY SURFACE
CURB
GRADE
PROPERTY LINE
1'-6"
2pc. VALVE BOX WITH BELL BASE
15"
COVER CRUSHED STONE WITH POLYEHTYLENE SHEETING PRIOR TO BACKFILLING TRENCH.
6" GATE VALVE
HYDRANT ELBOW WITH 6" VALVE
4" CRUSHED STONE BED
ELEVATION
THRUST BLOCK, SEE APPROPRIATE BEARING AREA TABLE
12"
2"

NOTES:
1. RETAINER GLANDS REQUIRED ON ALL MECHANICAL JOINT FITTINGS.
2. DRAIN HOLE IN HYDRANT MUST NOT BE OBSTRUCTED WITH CONCRETE.
3. ALL TIE BOLTS, RODS NUTS AND WASHERS SHALL BE COATED WITH BITUMASTIC AFTER INSTALLATION.

FIRE HYDRANT DETAIL

Soil Texture	Ideal Bulk densities	Bulk densities that may afffect root growth	Bulk densities that restrict root growth
	g/cm3	g/cm3	g/cm3
Sands, loamy sands	<1.60	1.69	1.8
Sandy loams, loams	<1.40	1.63	1.8
Sandy clay loams, loams, clay loams	<1.40	1.6	1.75
Slilt, silt loams	<1.30	1.6	1.75
Silt loams, silty clay loams	<1.10	1.55	1.65
Sandy clays, silty clays, some clay loams (35-45% clay)	<1.10	1.49	1.58
Clays (>45% clay)	<1.10	1.39	1.47
Source: Protecting Urban Soil Quality, USDA-NRCS			

TABLE 1

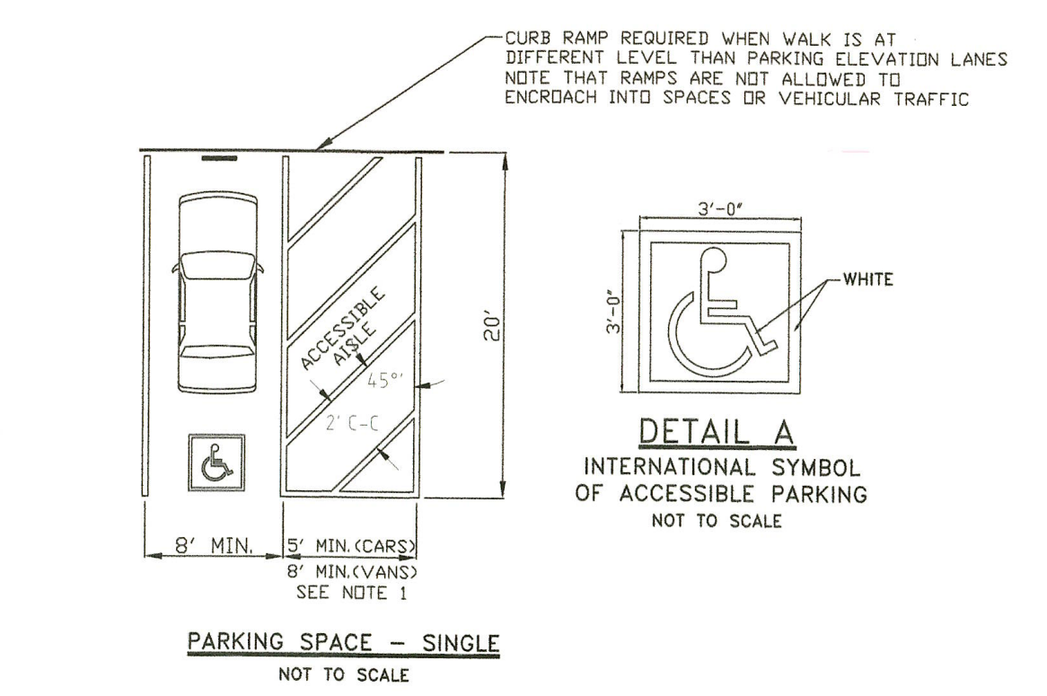

STONE TRENCH
OUTLET PIPE
PERFORATED PIPE
PIPE TEE
CAP ENDS (TYP.)
A
B
ELE D (FINISHED ELEVATION)
WRAP TRENCH IN WOVEN GEOTEXTILE FABRIC
9" COVER
6"
3-4" RIVERJACK
ELE E
C

SECTION

LEVEL SPREADER SPECIFICATIONS								
LEVEL SPREADER	PIPE SIZE (INCH)	PERFORATION SIZE (INCH)	# OF PERFORATION PER FOOT	A (FEET)	B (FEET)	C (INCH)	ELE D	ELE E
C	24	0.375	72	43	45	48	214	210.75
E	18	0.375	50	6.5	7.5	42	228	225.25

PERMANENT LEVEL SPREADER

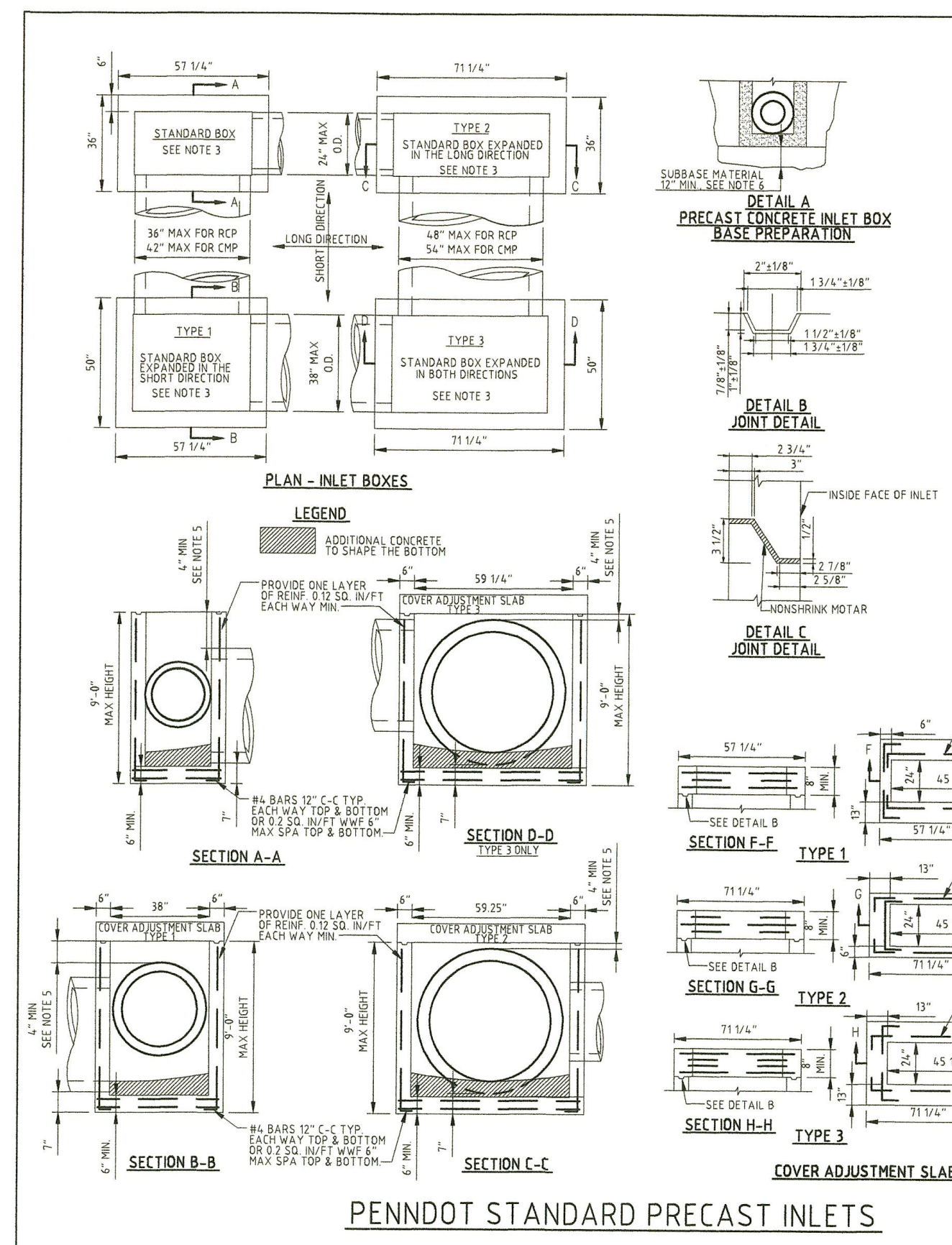
N.T.S.


CURB RAMP REQUIRED WHEN WALK IS AT DIFFERENT LEVEL THAN PARKING ELEVATION LANES. NOTE THAT RAMPS ARE NOT ALLOWED TO ENCROACH INTO SPACES OR VEHICULAR TRAFFIC
WHITE
8' MIN.
8' MIN.(CAR)
SEE NOTE 1
20'

DETAIL A
INTERNATIONAL SYMBOL OF ACCESSIBLE PARKING
NOT TO SCALE

PARKING SPACE – SINGLE
NOT TO SCALE

ADA STRIPING AND PAVEMENT MARKINGS


SUBBASE MATERIAL 12" MIN., SEE NOTE 6
DETAIL A PRECAST CONCRETE INLET BOX BASE PREPARATION
DETAIL B JOINT DETAIL
DETAIL C JOINT DETAIL
INSIDE FACE OF INLET
NONSHRINK MOTAR
PLAN - INLET BOXES
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION F-F
SECTION G-G
SECTION H-H
TYPE 1
TYPE 2
TYPE 3
#5 BARS
SEE DETAIL B
COVER ADJUSTMENT SLABS

NOTES:

1. CONSTRUCT INLET BOXES IN ACCORDANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SECTION 714.
2. PERMIT ONLY PRECAST INLET BOXES SUPPLIED BY A MANUFACTURE LISTED IN BULLETIN 15. USE CLASS AA CEMENT CONC. FOR PRECAST BOXES. FOR DEVIATIONS OR MODIFICATIONS OF THE STANDARDS, SUBMIT SHOP DRAWINGS FOR APPROVAL.
3. PROVIDE STANDARD INLET BOXES AND COVER ADJUSTMENT SLABS WITH A 24"X46" OPENING TO ACCOMMODATE STANDARD TOP COMPONENTS.
4. FOR INLETS THAT DEVIATE FROM THE STANDARD SUBMIT SPECIAL DETAILS AND DESIGN FOR THE INLET WALLS AND BASE TO THE BUREAU OF CONSTRUCTION FOR REVIEW AND APPROVAL. CONSTRUCT INLETS THAT EXCEED 5' IN HEIGHT WITH STEPS SIMILAR TO MANHOLES (RC-39M). FOR INLETS OTHER THAN AS SHOWN ON THE STANDARDS, PROVIDE REINFORCEMENT BASED ON PHL 93 (HS 25) LOADING AND IN ACCORDANCE WITH PUBLICATION 408.
5. LOCATE PIPE OR PIPES, AS INDICATED, WITH THE INLET BOTTOM SHAPED TO CHANNEL THE FLOW TOWARD THE OUTLET PIPE. WHEN PROJECT CONDITIONS REQUIRE PIPE BLOCKOUTS TO BE FORMED WITHIN 4" FROM THE TOP OF THE INLET BOX, PROVIDE AN ADDITIONAL #3 REINFORCEMENT BAR LOCATED 1⅝" FROM THE TOP OF THE INLET BASE, FULL WIDTH ALONG THE INLET FACE. REMOVE ANY VISIBLE PORTION OF THE BAR, IF REQUIRED DURING INSTALLATION AND PRIOR TO JOINING THE PIPE TO THE INLET. IF REINFORCED CONCRETE PIPE IS USED, THE PIPE BLOCKOUT MAY BE FORMED 'FLUSH' WITH THE INLET BASE. LIMIT PIPE BLOCKOUT OF WALL TO 1".
6. PLACE SUBBASE MATERIAL MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 350.2, IN LAYERS 4" THICK, COMPACTED TO A DENSITY SATISFACTORY TO THE ENGINEER AND INCIDENTAL TO THE INLET PAY ITEM.
7. FOR PIPE DIAMETERS LARGER THAN 48" RCP OR 54" CMP, USE A MODIFIED INLET BOX (PENNDOT RC-34M SHEET 9 OF 10)
8. PROVIDE CONSTRUCTION JOINTS AS REQUIRED FOR INLET BOXES THAT ARE NOT MONOLITHIC. SEE DETAILS B & C.
9. TAPERS MAY BE PROVIDED ON VERTICAL FACES OF PRECAST INLET BOX BASE UNITS TO FACILITATE FROM STRIPPING. TAPERS WILL RESULT IN INTERNAL BOTTOM DIMENSIONS THAT VARY TO A MAXIMUM OF 1".
10. PROVIDE SUITABLE LIFTING DEVICES FOR HANDLING AND INSTALLATION. GALVANIZE METAL DEVICES AS SPECIFIED IN PUB. 408 SECTION 1105. TAPERS MAY BE PROVIDED ON INSIDE VERTICAL FACES OF PRECAST INLET TOPS TO FACILITATE FORM STRIPPING. TAPERS WILL RESULT IN INTERNAL BOTTOM DIMENSIONS THAT VARY TO A MAXIMUM OF 1".

PENNDOT STANDARD PRECAST INLETS

DATE	REVISION
—	—
—	—
—	—
—	—
—	—
—	—
2024-10-28	PER DEP COMMENTS & BOROUGH LETTER
2024-08-09	PER BORUGH COMMENTS
2024-07-15	PER LVPC, BOROUGH, & CITY COMMENTS

BEI

DONALD A. HAAS

BOGIA ENGINEERING INC.
1340 PENN AVE WYOMISSING, PA 19610
PHONE: 610-678-3071 - FAX: 610-678-3517
WWW.BOGIAENG.COM

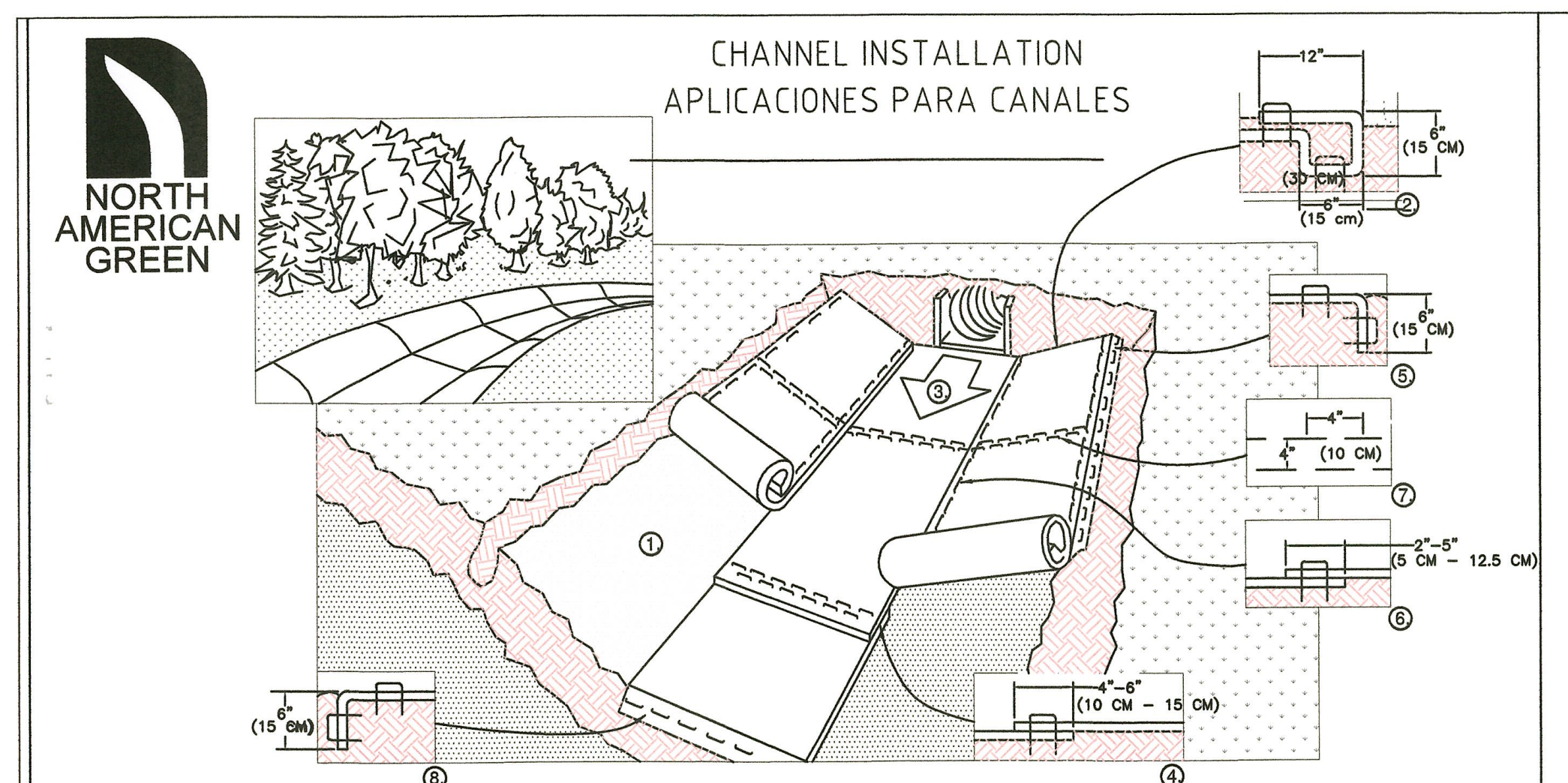
PRELIMINARY & FINAL
EASTON COMMERCE PARK

CONSTRUCTION DETAILS B

EASTON WOOD AVE PropCO.LLC
8801RIVER CROSSING Blvd
INDIANAPOLIS, IN 46240

JOB:EASTON COMMERCE PARK
Wilson Borough
Palmer Twp & City of Easton
NORTHAMPTON County, PA

PIN:	CHECK SHEET C-100
CHECKED BY:	DH
DRAWN BY:	CF
DATE:	11/01/2024
SCALE:	N.T.S.
DRAWING:	C-110 B
PROJECT:	2022-528
SHEET:	47 OF 53


NORTH AMERICAN GREEN
CHANNEL INSTALLATION
APLICACIONES PARA CANALES
2"–5" (5 CM – 12.5 CM)
4"–6" (10 CM – 15 CM)
6" (15 CM)

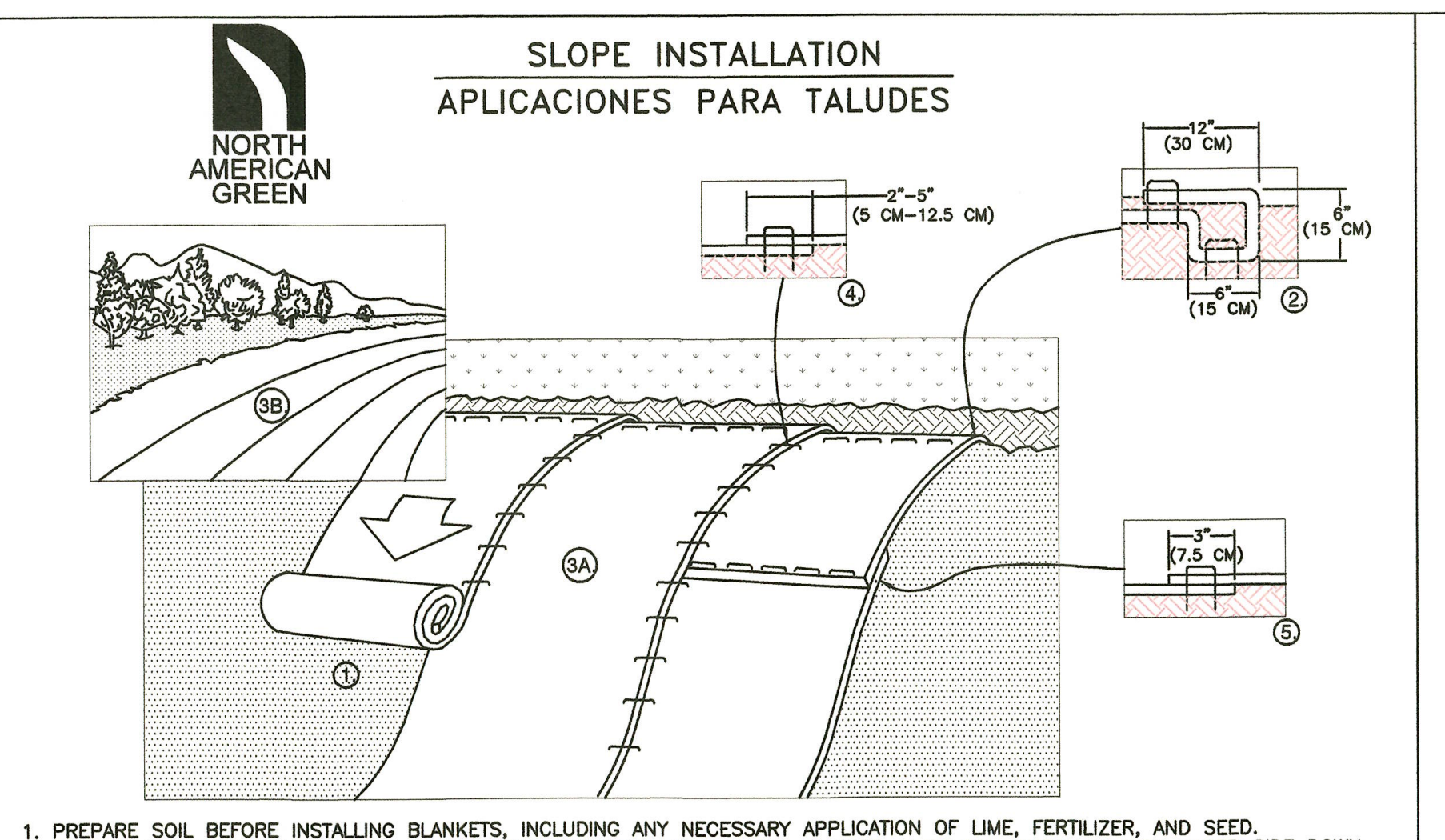
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMAPCT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4" - 6" (10 CM -15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (5 CM -12.5 CM) (DEPENDING ON BLANKET TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M - 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

NOTE:
× IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

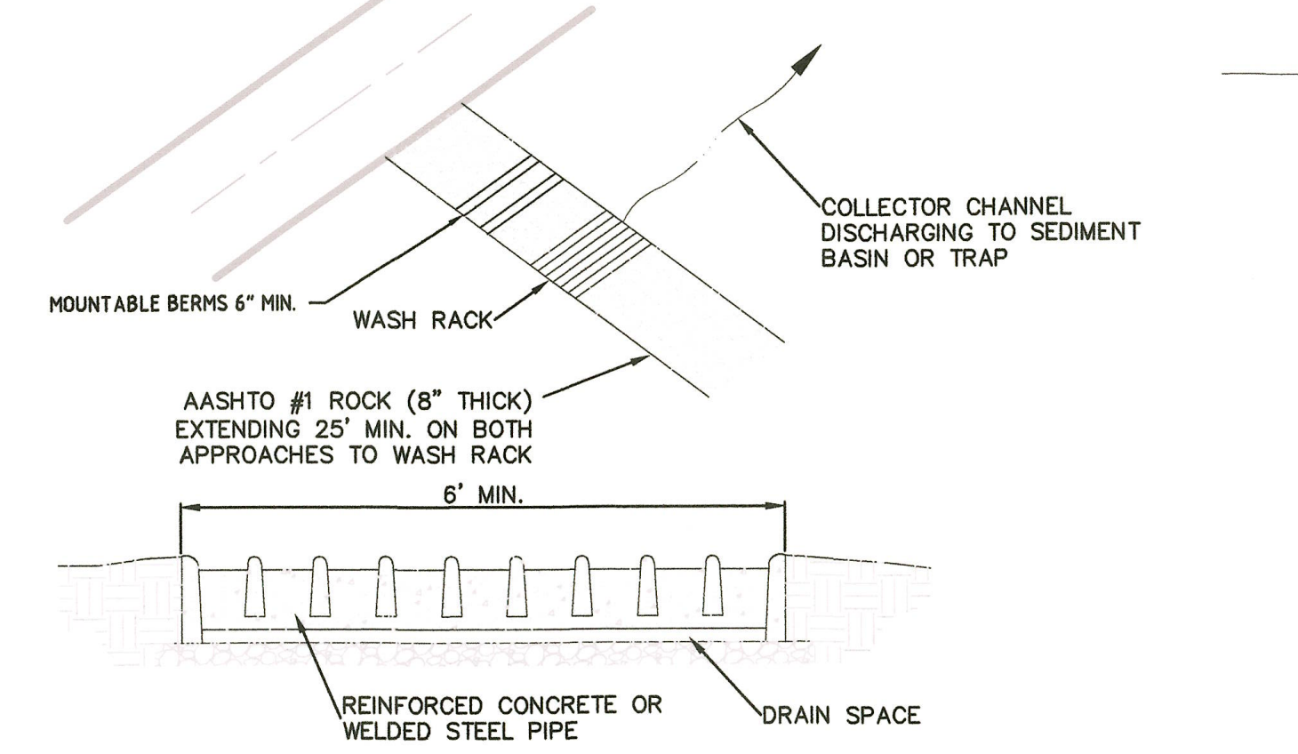
CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
× HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

×× IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.


NORTH AMERICAN GREEN
SLOPE INSTALLATION
APLICACIONES PARA TALUDES
3" (7.5 CM)
2"–5" (5 CM – 12.5 CM)

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) OVERLAP DEPENDING ON BLANKET TYPE.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE BLANKET WIDTH.
NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.


COLLECTOR CHANNEL DISCHARGING TO SEDIMENT BASIN OR TRAP
MOUNTABLE BERMS 6" MIN.
WASH RACK
AASHTO #1 ROCK (8" THICK) EXTENDING 25' MIN. ON BOTH APPROACHES TO WASH RACK
6' MIN.
REINFORCED CONCRETE OR WELDED STEEL PIPE
DRAIN SPACE

NOTES:

WASH RACK SHALL BE 20 FEET (MIN.) WIDE OR TOTAL WIDTH OF ACCESS.

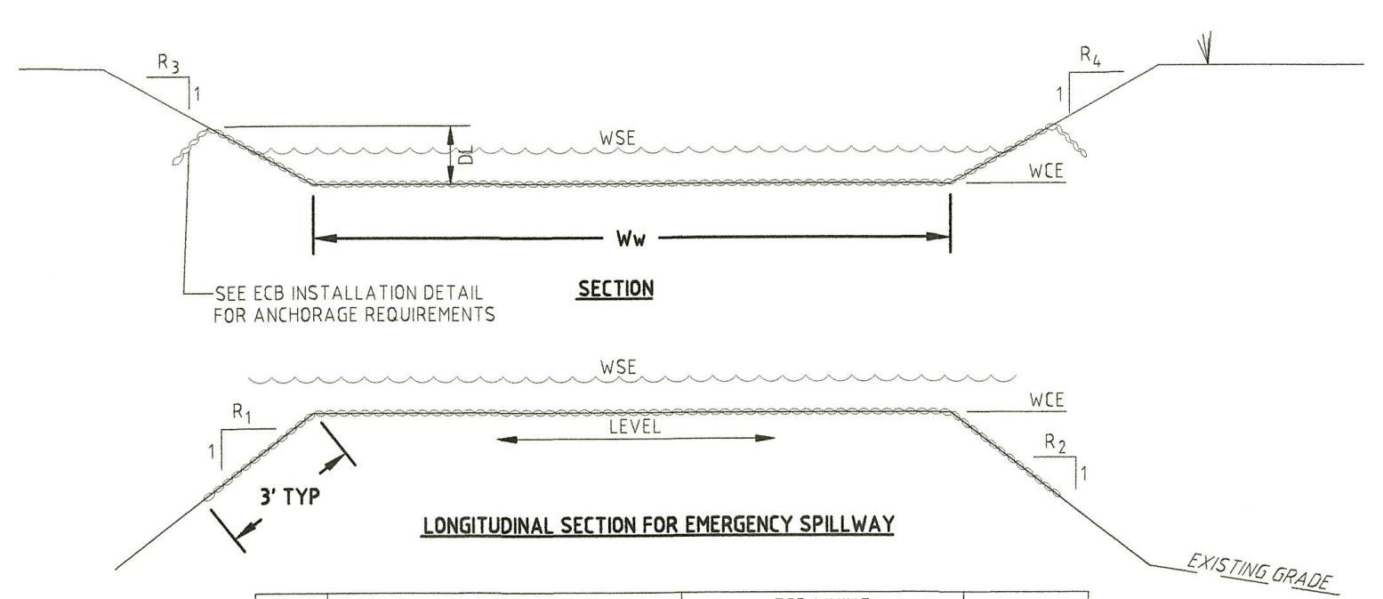
WASH RACK SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE ANTICIPATED CONSTRUCTION VEHICULAR TRAFFIC.

A WATER SUPPLY SHALL BE MADE AVAILABLE TO WASH THE WHEELS OF ALL VEHICLES EXITING THE SITE.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE RACK. ALL SEDIMENT DEPOSITED ON ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

STANDARD CONSTRUCTION DETAIL #3-2
ROCK CONSTRUCTION ACCESS WITH WASH RACK

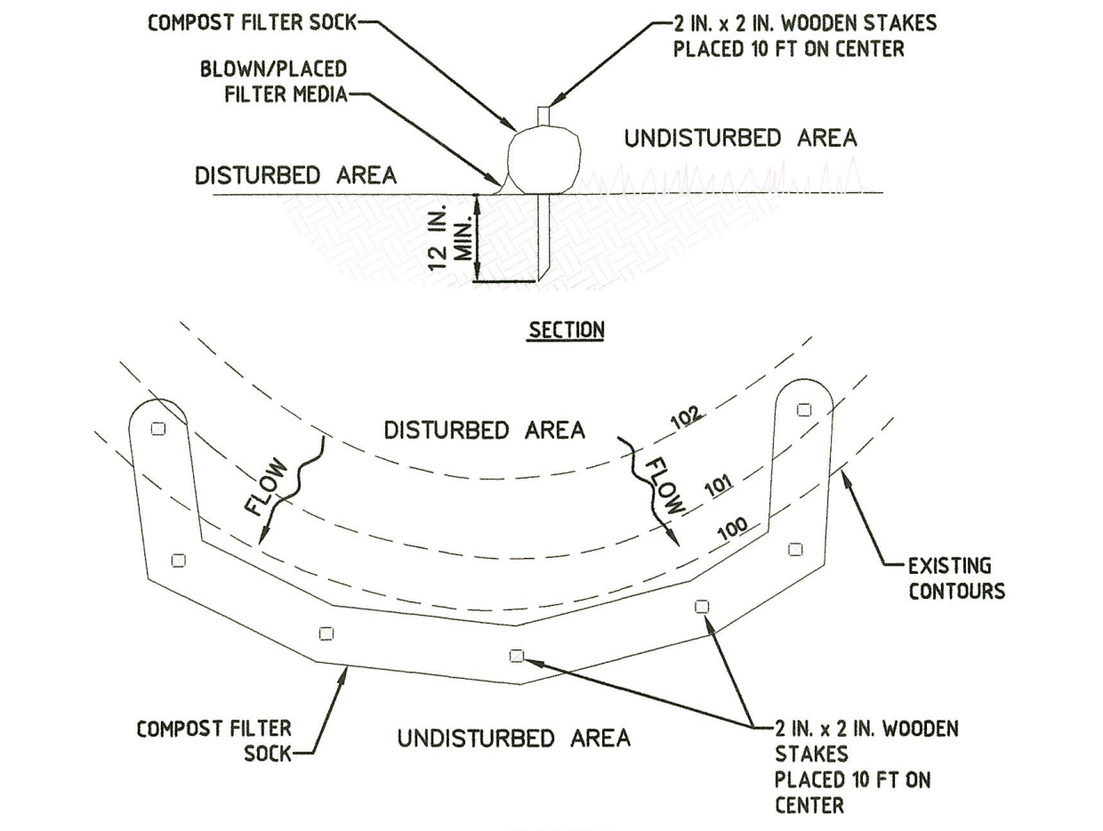
NOT TO SCALE


SEE ECB INSTALLATION DETAIL FOR ANCHORAGE REQUIREMENTS
SECTION
WSE
WCE
LEVEL
3' TYP
LONGITUDINAL SECTION FOR EMERGENCY SPILLWAY
EXISTING GRADE

	WEIR					ECB LINING				TOP OF BERM ELEV
BASIN	R_3	R_4	WSE (FT)	CREST ELEV WCE (FT)	WIDTH Ww (FT)	MAT'L & STAPLE PATTERN	LINING DEPTH DL (FT)	R_1	R_2	
B	3	3	286.91	290.50	300'	TRM	0.2	3	3	292.00
C	3	3	222.32	222.82	100'	TRM	0.2	3	3	224.00

NOTES:
- BASIN A DOES NOT HAVE BERM AROUND I, THEREFORE, NO EMEREGENCY SPILLWAY WAS REQUIRED.
- BASIN E EMERGENCY SPILLWAY IS TAKEN AS THE OUTLET STRUCTURE TOP OF THE GRATE. IT WAS SHOWN (IN THE PCSM REPORT) THAT THE OUTLET PIPE FROM THE STRUCTURE HAD THE SUFFICIENT CAPACITY TO SAFELY CONVEY THE 100-YR INFLOW TO THE BASIN.

TYPICAL EMERGENCY SPILLWAY


COMPOST FILTER SOCK
BLOWN/PLACED FILTER MEDIA
2 IN. x 2 IN. WOODEN STAKES PLACED 10 FT ON CENTER
DISTURBED AREA
UNDISTURBED AREA
12 IN. MIN.
SECTION
FLOW
EXISTING CONTOURS
PLAN VIEW

NOTES:

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

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

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

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

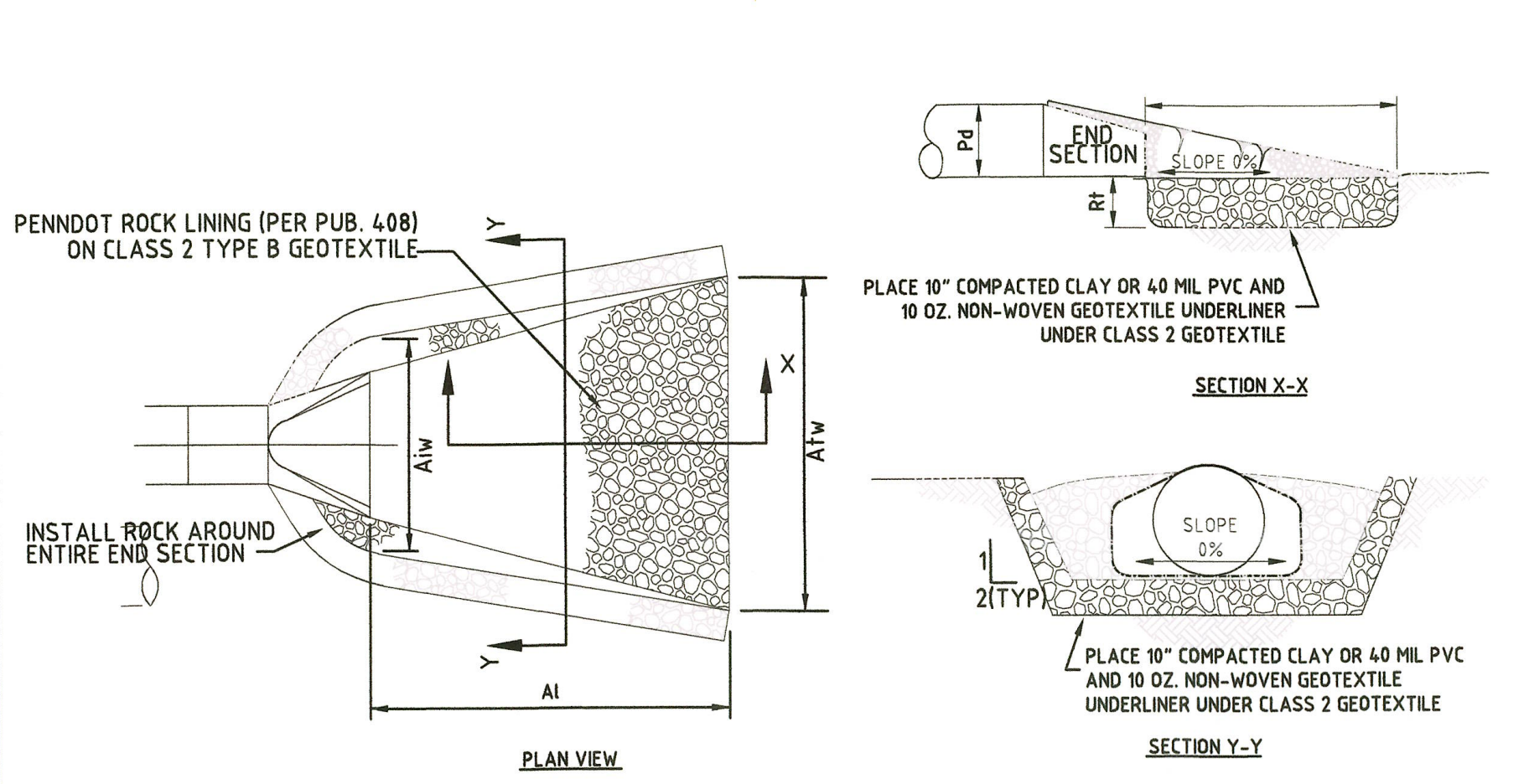
COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

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

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

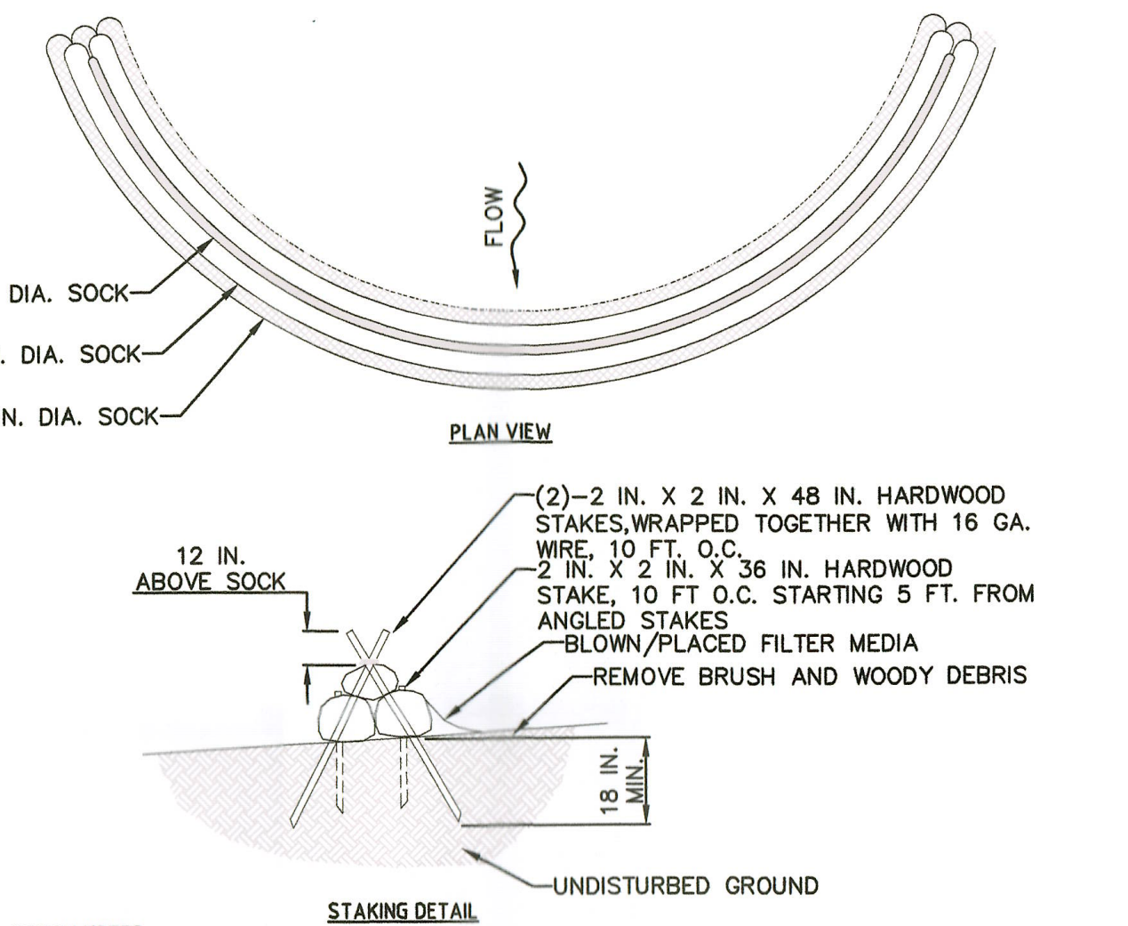
STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK

NOT TO SCALE


PENNDOT ROCK LINING (PER PUB. 408) ON CLASS 2 TYPE B GEOTEXTILE
END SECTION
SLOPE 0%
PLACE 10" COMPACTED CLAY OR 40 MIL PVC AND 10 OZ. NON-WOVEN GEOTEXTILE UNDERLINER UNDER CLASS 2 GEOTEXTILE
SECTION X-X
INSTALL ROCK AROUND ENTIRE END SECTION
PLAN VIEW
SECTION Y-Y

NO.	PIPE DIA. D_o (IN)	TAILWATER COND. (Max/Min)	MAN. "n" FOR PIPE	PIPE SLOPE (FT/FT)	Q (CFS)	V* (FPS)	RIPRAP SIZE	Rt (IN)	Al (FT)	Aiw (FT)	Atw (FT)
BMP A Outfall	24	Min.	0.012	0.0237	1.11	5.28	R-4	18	8	6	14.0
BMP B Outfall	24	Min.	0.012	0.0399	2.17	7.80	R-4	18	8	6	14.0
BMP C Outfall	SEE LEVEL SPREADER DESIGN AND DETAIL										
BMP RG Outfall	SEE LEVEL SPREADER DESIGN AND DETAIL										
ES-A-1	42	Min.	0.012	0.007	95.4	9.92	R-5	27	26	10.5	36.5
ES-B-1	48	Min.	0.012	0.0071	120.55	11.86	R-6	36	26	12	38.0
ES-C-1	48	Min.	0.012	0.014	196.9	15.66	R-7	36	40	12	52.0
ES-C-2	24	Min.	0.012	0.0104	14.87	8.32	R-4	18	11	6	17.0
ES-E-1	36	Min.	0.012	0.0053	50.6	8.47	R-4	18	20	9	29.0
ES-RG-1	24	Min.	0.012	0.0275	26.51	13.67	R-7	45	19	6	25.0
ES-RG-2	24	Min.	0.012	0.0051	11.17	5.94	R-4	18	11	6	17.0

TYPICAL END SECTION RIP RAP APRON

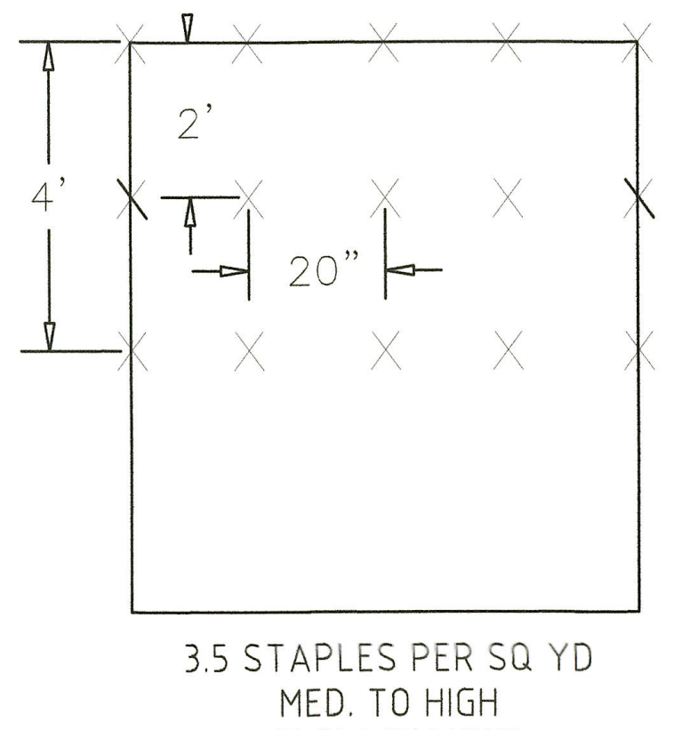

12 IN. DIA. SOCK
18 IN. DIA. SOCK
24 IN. DIA. SOCK
FLOW
PLAN VIEW
12 IN. ABOVE SOCK
(2)–2 IN. X 2 IN. X 48 IN. HARDWOOD STAKES, WRAPPED TOGETHER WITH 16 GA. WIRE, 10 FT. O.C.
2 IN. X 2 IN. X 36 IN. HARDWOOD STAKE, 10 FT O.C. STARTING 5 FT. FROM ANGLED STAKES
BLOWN/PLACED FILTER MEDIA
REMOVE BRUSH AND WOODY DEBRIS
18 IN. MIN.
UNDISTURBED GROUND
STAKING DETAIL

DESIGN NOTES:
1. COMPOST SOCK SEDIMENT TRAP SHALL BE SIZED TO PROVIDE 2000 CUBIC FEET OF STORAGE CAPACITY FOR EACH ACRE TRIBUTARY TO THE TRAP.
2. MINIMUM BASE WIDTH IS EQUAL TO THE HEIGHT.
3. SEDIMENT ACCUMULATION SHALL NOT EXCEED 1/3 THE TOTAL HEIGHT OF THE TRAP.
4. SOCKS SHALL BE OF LARGER DIAMETER AT THE BASE OF THE TRAP AND DECREASE IN DIAMETER FOR SUCCESSIVE LAYERS AS SHOWN ON THE PLAN VIEW.
5. ENDS OF THE TRAP SHALL BE A MINIMUM OF 1 FOOT HIGHER IN ELEVATION THAN THE MID-SECTION, WHICH SHALL BE LOCATED AT THE POINT OF DISCHARGE.

NOTES:
SOCK MATERIAL SHALL MEET THE STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.
COMPOST SOCK SEDIMENT TRAPS SHALL NOT EXCEED THREE SOCKS IN HEIGHT AND SHALL BE STACKED IN PYRAMIDAL FORM AS SHOWN ABOVE. MINIMUM TRAP HEIGHT IS ONE 24" DIAMETER SOCK. ADDITIONAL STORAGE MAY BE PROVIDED BY MEANS OF AN EXCAVATED SUMP 12" DEEP EXTENDING 1 TO 3 FEET UPSLOPE OF THE SOCKS ALONG THE LOWER SIDE OF THE TRAP.
COMPOST SOCK SEDIMENT TRAPS SHALL PROVIDE 2,000 CUBIC FEET STORAGE CAPACITY WITH 12" FREEBOARD FOR EACH TRIBUTARY DRAINAGE ACRE. (SEE MANUFACTURER FOR ANTICIPATED SETTLEMENT.)
THE MAXIMUM TRIBUTARY DRAINAGE AREA IS 5.0 ACRES. SINCE COMPOST SOCKS ARE "FLOW-THROUGH," NO SPILLWAY IS REQUIRED.
COMPOST SOCK SEDIMENT TRAPS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/3 THE HEIGHT OF THE SOCKS.
PHOTODEGRADABLE AND BIODEGRADABLE SOCKS SHALL NOT BE USED FOR MORE THAN 1 YEAR.

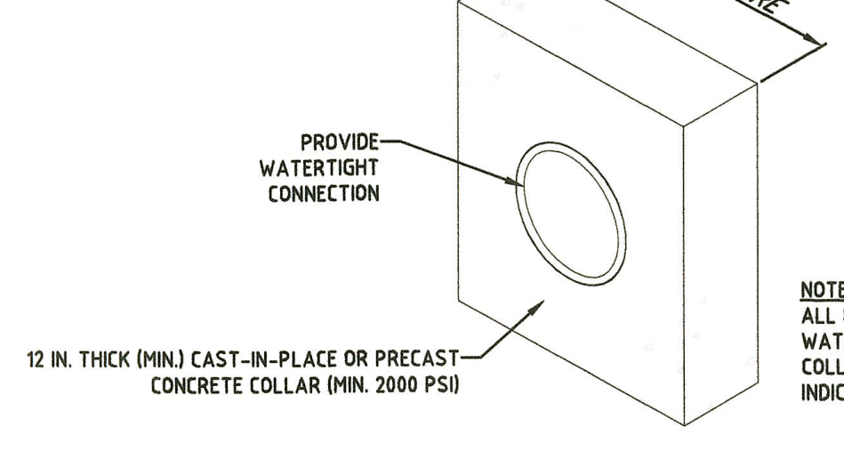
STANDARD CONSTRUCTION DETAIL #3-11
COMPOST SOCK SEDIMENT TRAP

NOT TO SCALE


2'
4'
20"
3.5 STAPLES PER SQ YD
MED. TO HIGH
FLOW CHANNEL
(PATTERN D)

EROSION CONTROL BLANKET
STAPLE PATTERNS

NOT TO SCALE


S – SQUARE
PROVIDE WATERTIGHT CONNECTION

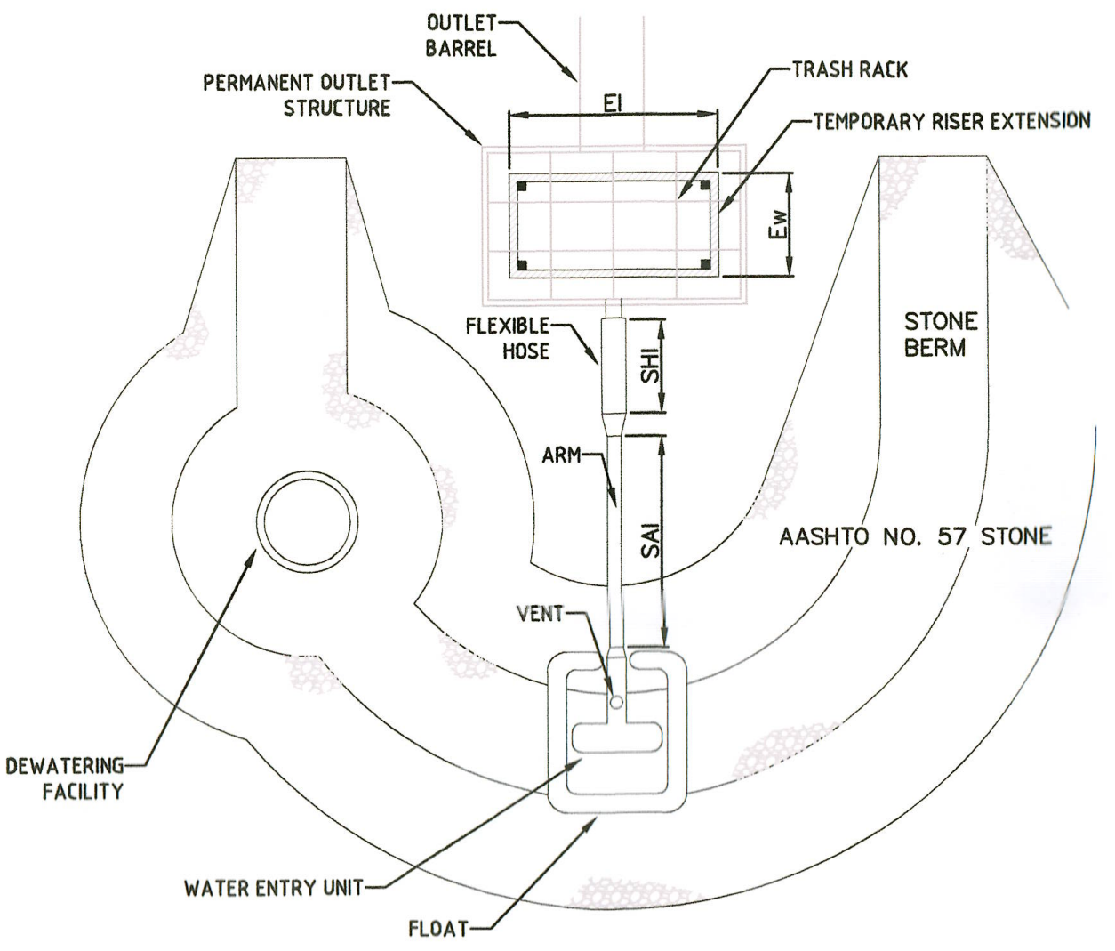
12 IN. THICK (MIN.) CAST-IN-PLACE OR PRECAST CONCRETE COLLAR (MIN. 3000 PSI)

NOTES:
ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.
COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.

Basin No.	Temp. or Perm.	Y	Z	Ls (FT)	Le (FT)	V (IN)	Barrel Dia. (IN)	Collar Size	# of collars	Collar spacing (FT)	Distance to 1st collar (FT)
A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
B	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
E	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
RG	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

STANDARD CONSTRUCTION DETAIL #7-16
CONCRETE ANTI-SEEP COLLAR FOR PERMANENT BASINS OR TRAPS

NOT TO SCALE


OUTLET BARREL
PERMANENT OUTLET STRUCTURE
TRASH RACK
TEMPORARY RISER EXTENSION
FLEXIBLE HOSE
ARM
STONE BERM
AASHTO NO. 57 STONE
VENT
DEWATERING FACILITY
WATER ENTRY UNIT
FLOAT
PLAN VIEW

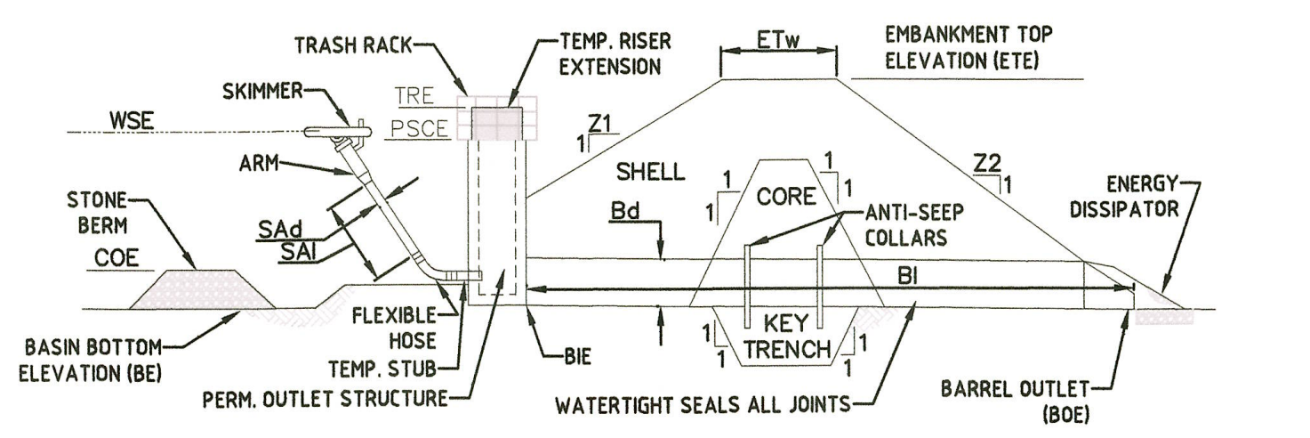
NOTES:

NO GUIDE RAILS SHALL BE REQUIRED FOR THIS INSTALLATION.

THIS DETAIL SHALL BE USED IN CONJUNCTION WITH STANDARD CONSTRUCTION DETAILS #7-2 AND #7-4.

STANDARD CONSTRUCTION DETAIL #7-3
SKIMMER WITH STONE LANDING BERM

NOT TO SCALE


TRASH RACK
TEMP. RISER EXTENSION
ETw
EMBANKMENT TOP ELEVATION (ETE)
SKIMMER
TRE
PSCE
WSE
Z1
SHELL
CORE
Z2
ENERGY DISSIPATOR
ARM
STONE BERM
COE
SAd
SAl
Bd
ANTI-SEEP COLLARS
Bl
BASIN BOTTOM ELEVATION (BE)
FLEXIBLE HOSE
TEMP. STUB
PERM. OUTLET STRUCTURE
BIE
KEY TRENCH
WATERTIGHT SEALS ALL JOINTS
BARREL OUTLET (BOE)

BASIN NO.	Z1 (FT)	Z2 (FT)	TEMP RISER EXT. ELEV TRE (FT)	EMBANKMENT TOP ELEV ETE (FT)	EMBANKMENT TOP WIDTH ETw (FT)	EMBANKMENT KEY TRENCH DEPTH (FT)	EMBANKMENT KEY TRENCH WIDTH (FT)	CLEAN OUT ELEV COE (FT)	BOTTOM ELEV BE (FT)
C	3	3	220	224.00	10	3	6	218.6	216.00

BASIN NO.	SKIMMER DIA SAd (IN)	SKIMMER LENGTH SAi (FT)	SKIMMER MAT'L	OUTLET BARREL DIA Bd (IN)	OUTLET BARREL INLET ELEV BIE (FT)	OUTLET BARREL MAT'L	OUTLET BARREL LENGTH Bl (FT)	OUTLET BARREL OUTLET ELEV BOE (FT)
C	6.0	8	PVC	24	216.00	SLCPP	68.70	212.75

NOTES:

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

AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO A DEPTH OF TWO FEET PRIOR TO ANY PLACEMENT AND COMPACTION OF EARTHEN FILL. IN ORDER TO FACILITATE MAINTENANCE AND RESTORATION, THE POOL AREA SHALL BE CLEARED OF ALL BRUSH, TREES, AND OBJECTIONABLE MATERIAL. FILL MATERIAL FOR THE EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN LAYERED LIFTS OF NOT MORE THAN 6 TO 9 IN. THE MAXIMUM ROCK SIZE SHALL BE NO GREATER THAN 2/3 THE LIFT THICKNESS.

UPON COMPLETION, THE EMBANKMENT SHALL BE SEEDED, MULCHED, BLANKETED OR OTHERWISE STABILIZED ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS. TREES SHALL NOT BE PLANTED ON THE EMBANKMENT.

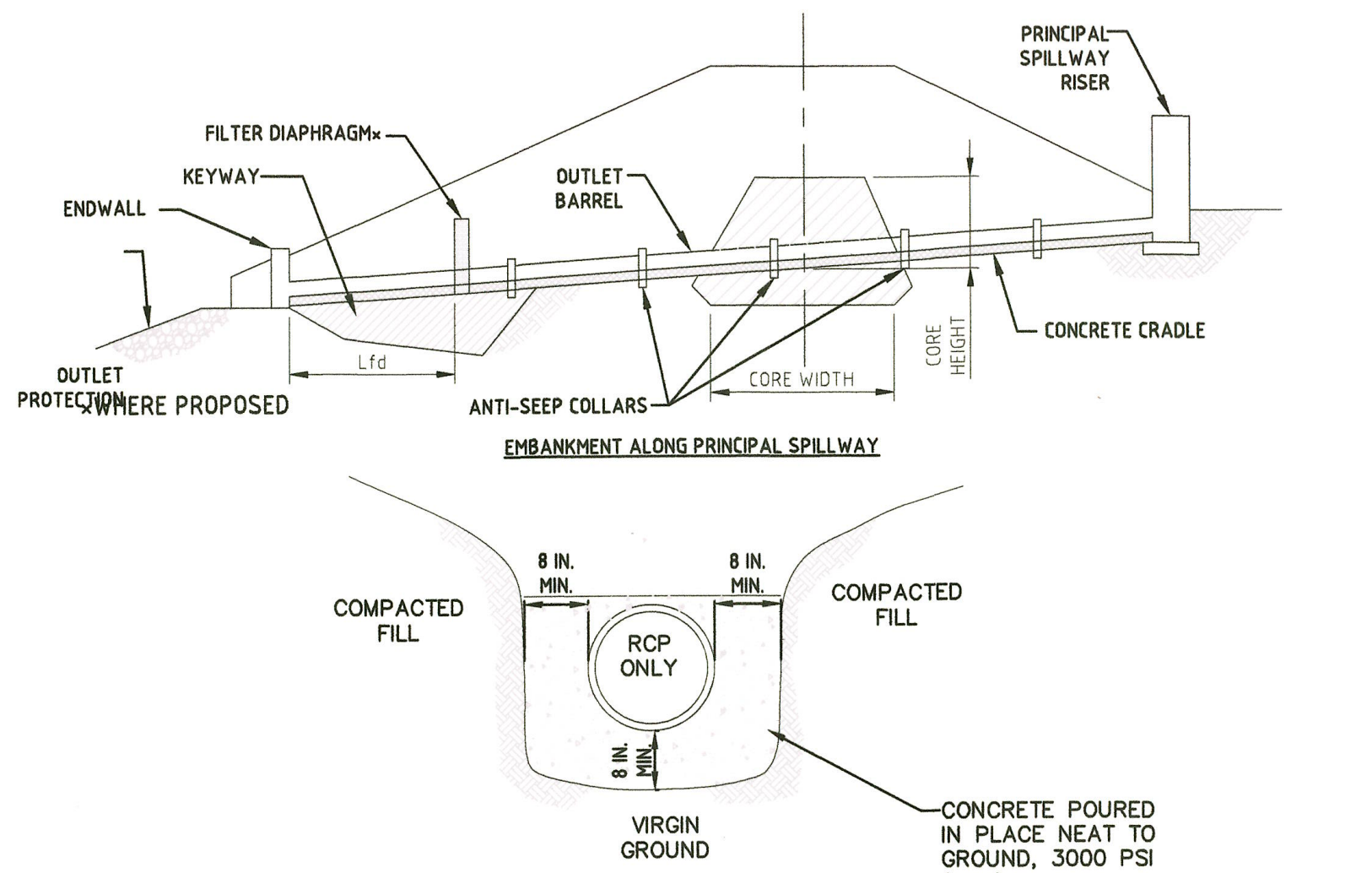
INSPECT ALL SEDIMENT BASINS ON AT LEAST A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. PROVIDE ACCESS FOR SEDIMENT REMOVAL AND OTHER REQUIRED MAINTENANCE ACTIVITIES. A CLEAN OUT STAKE SHALL BE PLACED NEAR THE CENTER OF EACH BASIN. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED THE CLEAN OUT ELEVATION ON THE STAKE AND THE BASIN RESTORED TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED IN THE E&S PLAN.

BASIN EMBANKMENTS, SPILLWAYS, AND OUTLETS SHALL BE INSPECTED FOR EROSION, PIPING AND SETTLEMENT. NECESSARY REPAIRS SHALL BE IMMEDIATELY. DISPLACED RIPRAP WITHIN THE OUTLET ENERGY DISSIPATER SHALL BE REPLACED IMMEDIATELY.

ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE STABILIZED INSIDE THE BASIN BEFORE CONVERSION TO A STORMWATER MANAGEMENT FACILITY. THE DEVICE SHOWN IN STANDARD CONSTRUCTION DETAIL #7-16 MAY BE USED TO DEWATER SATURATED SEDIMENT PRIOR TO ITS REMOVAL. ROCK FILTERS SHALL BE ADDED AS NECESSARY.

STANDARD CONSTRUCTION DETAIL #7-4
SEDIMENT BASIN EMBANKMENT AND SPILLWAY DETAILS - SKIMMER

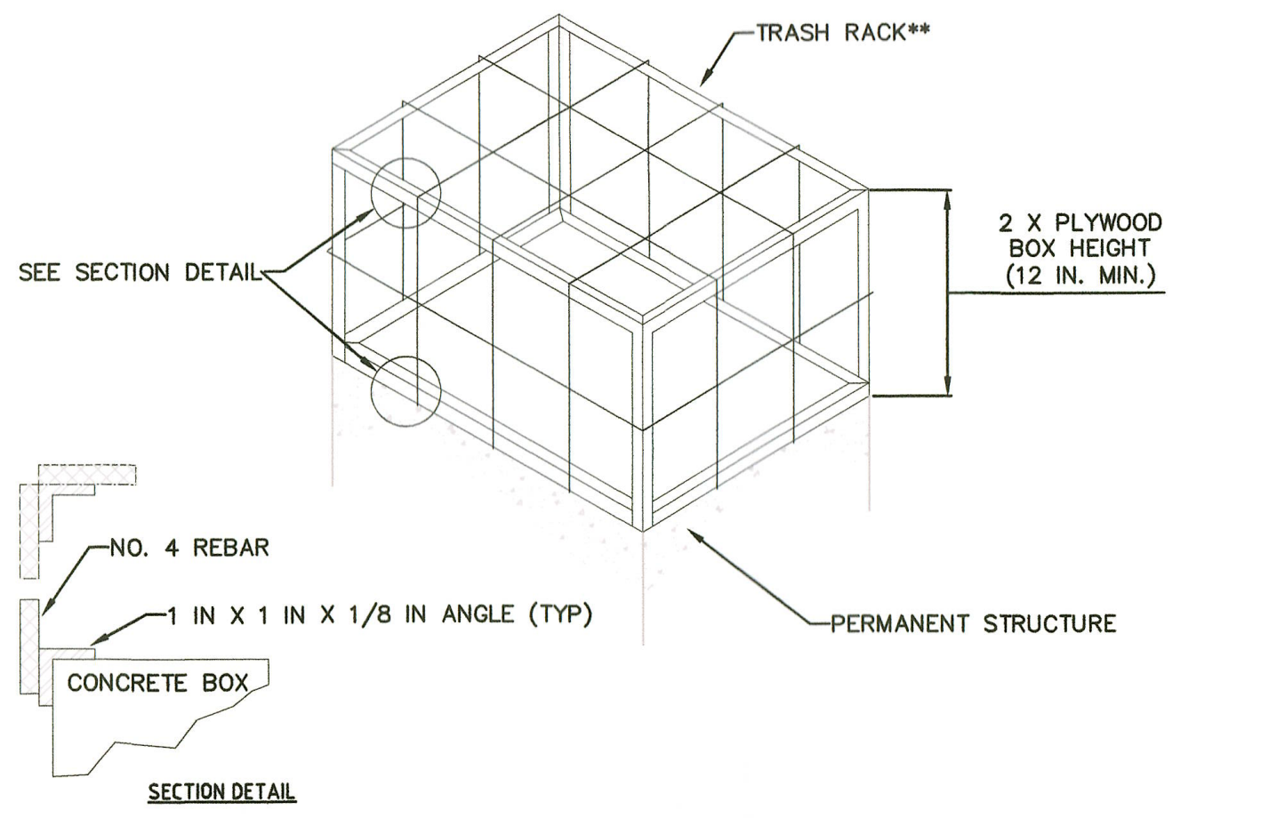
NOT TO SCALE


PRINCIPAL SPILLWAY RISER
FILTER DIAPHRAGM×
KEYWAY
ENDWALL
OUTLET BARREL
CONCRETE CRADLE
OUTLET PROTECTION WHERE PROPOSED
ANTI-SEEP COLLARS
EMBANKMENT ALONG PRINCIPAL SPILLWAY
COMPACTED FILL
8 IN. MIN.
RCP ONLY
VIRGIN GROUND
CONCRETE POURED IN PLACE NEAT TO GROUND, 3000 PSI (MIN.)
CROSS-SECTION AT OUTLET BARREL

NOTES:
A CONCRETE CRADLE MAY BE USED IN CONJUNCTION WITH ANTI-SEEP COLLARS AND/OR FILTER DIAPHRAGM.
ANTI-SEEP COLLAR NUMBER, SIZE AND SPACING SHALL BE AS SHOWN ELSEWHERE IN PLAN.
FILTER DIAPHRAGM LOCATION SHALL BE AS SHOWN IN FIGURE 7.8 OF THE PA DEP EROSION CONTROL MANUAL.

STANDARD CONSTRUCTION DETAIL #7-17
CONCRETE CRADLE FOR BASIN OR TRAP OUTLET BARREL

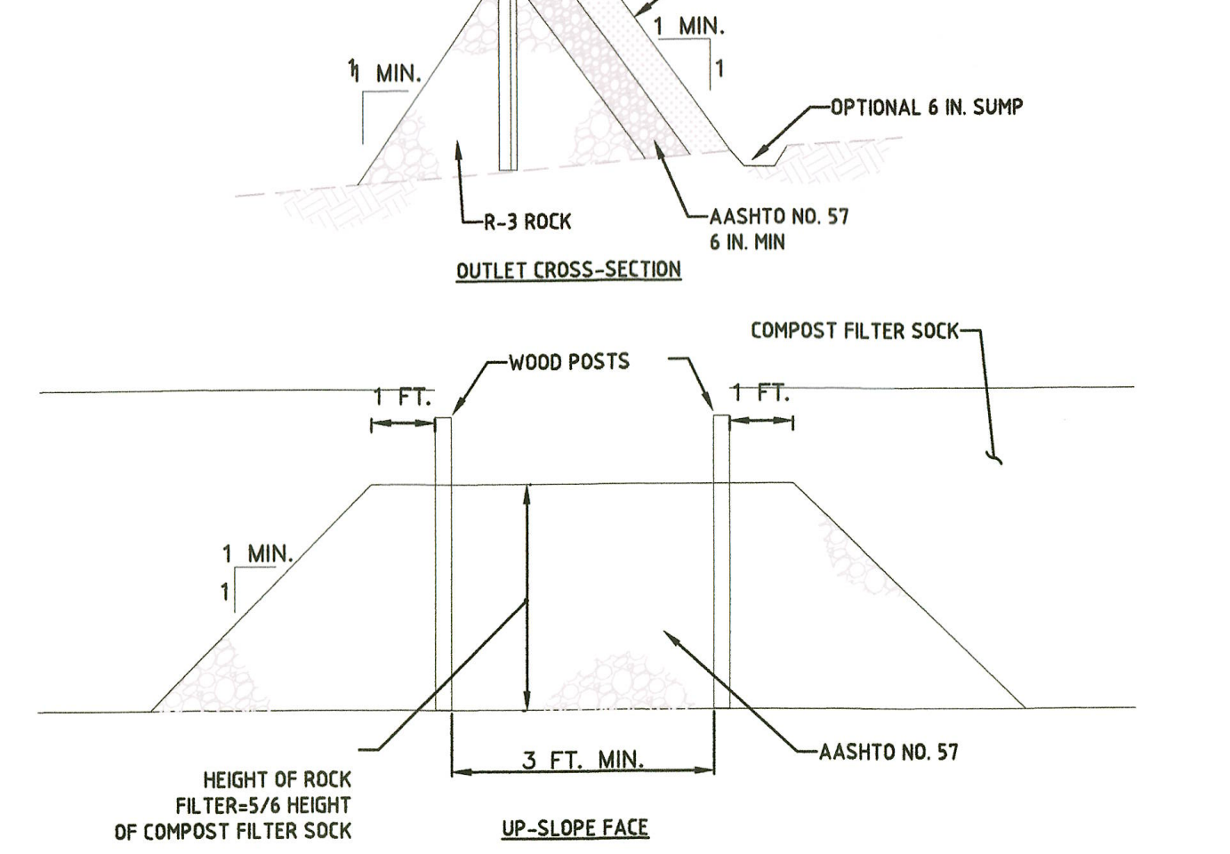
NOT TO SCALE


TRASH RACK**
2 X PLYWOOD BOX HEIGHT (12 IN. MIN.)
SEE SECTION DETAIL
PERMANENT STRUCTURE
NO. 4 REBAR
1 IN X 1 IN X 1/8 IN ANGLE (TYP)
CONCRETE BOX
SECTION DETAIL

NOTES:
BOX SHALL BE BOLTED, STRAPPED, OR OTHERWISE SECURED TO THE PERMANENT RISER.
ALL JOINTS SHALL BE WATER TIGHT.
CLOGGED OR DAMAGED SPILLWAYS SHALL BE REPAIRED IMMEDIATELY. TRASH AND OTHER DEBRIS SHALL BE REMOVED FROM THE BASIN AND RISER.

STANDARD CONSTRUCTION DETAIL #7-10
TEMPORARY RISER EXTENSION AND TRASH RACK FOR PERMANENT STRUCTURE

NOT TO SCALE


OPTIONAL 6 IN. COMPOST LAYER FIRMLY ANCHORED
OPTIONAL 6 IN. SUMP
1 MIN.
R-3 ROCK
AASHTO NO. 57
6 IN. MIN.
OUTLET CROSS-SECTION
COMPOST FILTER SOCK
WOOD POSTS
1 FT.
3 FT. MIN.
HEIGHT OF ROCK FILTER=5/6 HEIGHT OF COMPOST FILTER SOCK
UP-SLOPE FACE

NOTES:
A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A COMPOST FILTER SOCK HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UPSLOPE FACE IN HQ AND EV WATERSHEDS.
SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

STANDARD CONSTRUCTION DETAIL #4-6
ROCK FILTER OUTLET (FOR COMPOST FILTER SOCK)

NOT TO SCALE

The maximum slope length above a compost filter sock should not exceed those shown in Figure 4.2. **NOTE: Slope length is not addressed by use of multiple rows of compost socks.** The anticipated functional life of a biodegradable filter sock should be 6 months; for photodegradable socks it is 1 year. Some other types may last longer. Projects with disturbances anticipated to last longer than the functional life of a sock should plan to replace the socks periodically or use another type of BMP.

Upon stabilization of the tributary area, the filter sock may be left in place and vegetated or removed. In the latter case, the mesh is typically cut open and the mulch spread as a soil supplement. In either case, the stakes should be removed.

Filter socks using other fillers may be approved on a case-by-case basis if sufficient supporting information (including manufacturer's specs and independent test data) is provided. However, they might not qualify as ABACTs. Wherever compost socks are used, Table 4.1 should be placed on a detail sheet.

TABLE 4.1
Compost Sock Fabric Minimum Specifications

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years
	Two-ply systems				
Inner Containment Netting			HDPE biaxial net Continuously wound Fusion-welded junctures 3/4" X 3/4" Max. aperture size		
Outer Filtration Mesh			Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch) 3/16" Max. aperture size		
Sock fabrics composed of burlap may be used on projects lasting 6 months or less.					

PREFERRED SPEC.

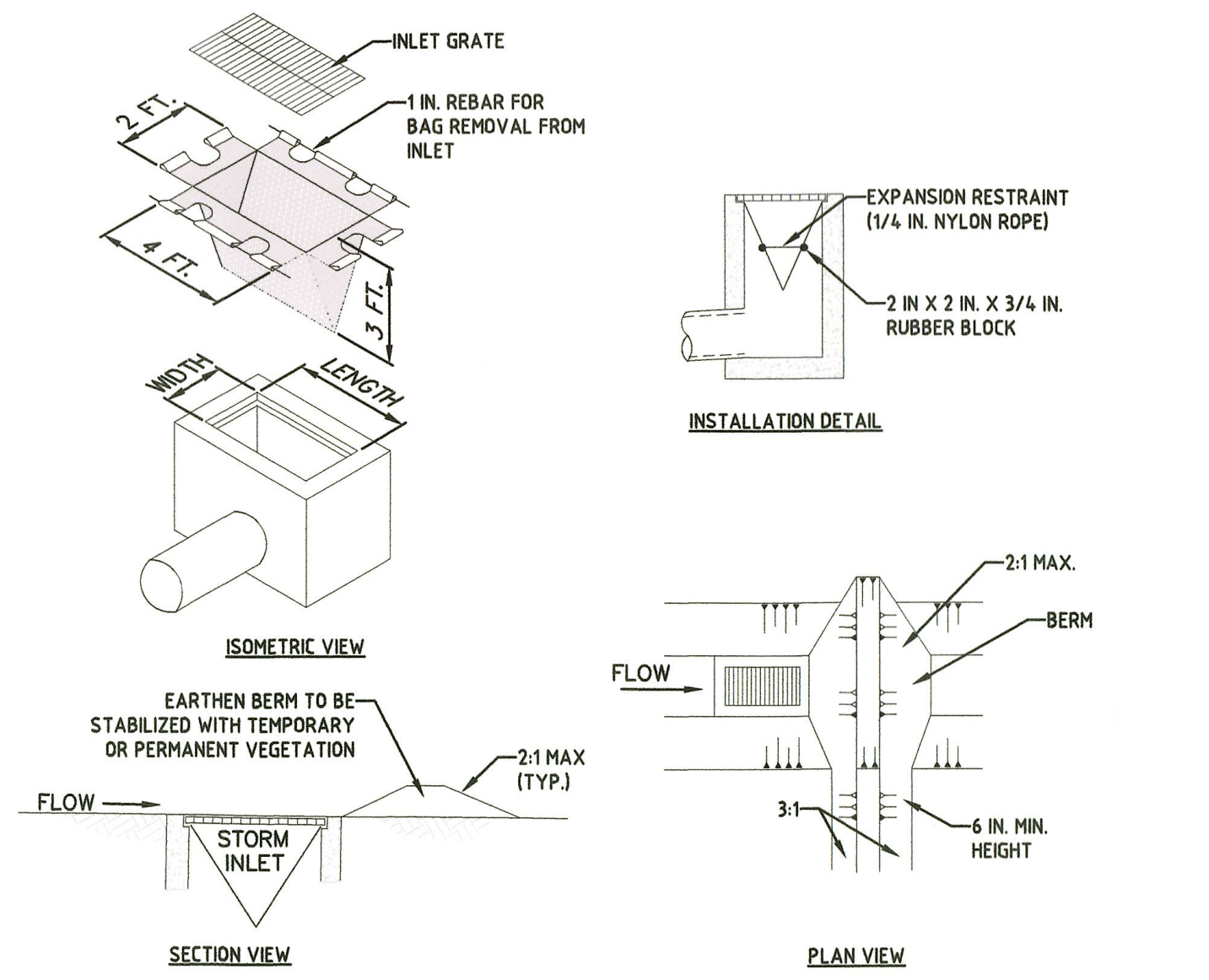
Filtrexx & JMD

Compost should be a well decomposed, weed-free organic matter derived from agriculture, food, stump grindings, and yard or wood/bark organic matter sources. The compost should be aerobically composted. The compost should possess no objectionable odors and should be reasonably free (<1%

TABLE 4.2
Compost Standards

Organic Matter Content	80% - 100% (dry weight basis)
Organic Portion	Fibrous and elongated
pH	5.5 - 8.0
Moisture Content	35% - 55%
Particle Size	98% pass through 1" screen
Soluble Salt Concentration	5.0 dS/m (mmhos/cm) Maximum

Filtrexx


INLET GRATE
1 IN. REBAR FOR BAG REMOVAL FROM INLET
EXPANSION RESTRAINT (1/4 IN. NYLON ROPE)
2 IN X 2 IN X 3/4 IN. RUBBER BLOCK
INSTALLATION DETAIL
ISOMETRIC VIEW
EARTHEN BERM TO BE STABILIZED WITH TEMPORARY OR PERMANENT VEGETATION
2:1 MAX (TYP.)
FLOW
STORM INLET
SECTION VIEW
BERM
3:1
6 IN. MIN. HEIGHT
PLAN VIEW

NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

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

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

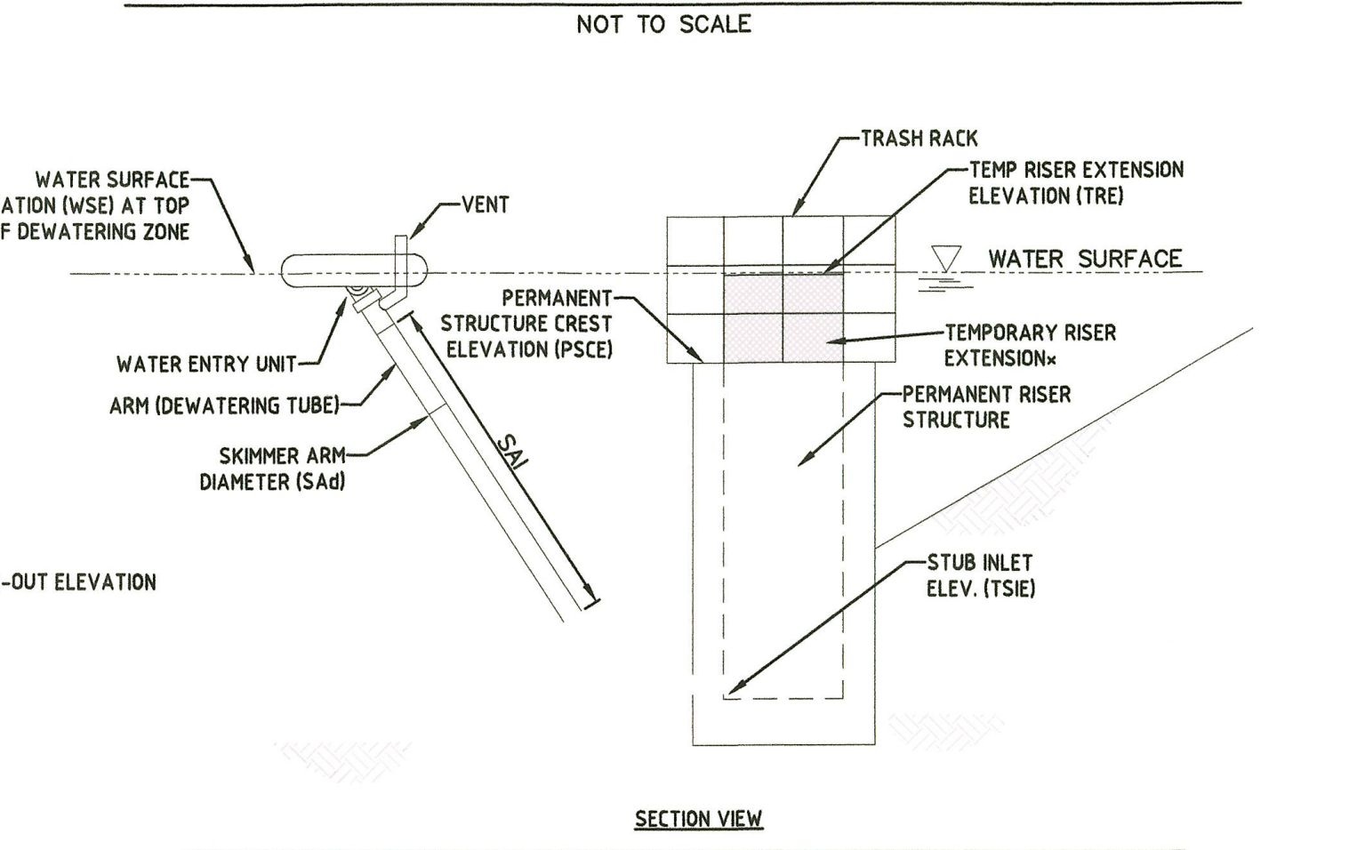
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

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

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

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

NOT TO SCALE


WATER SURFACE ELEVATION (WSE) AT TOP OF DEWATERING ZONE
VENT
WATER ENTRY UNIT
ARM (DEWATERING TUBE)
SKIMMER ARM DIAMETER (SAd)
TRASH RACK
TEMP RISER EXTENSION ELEVATION (TRE)
WATER SURFACE
PERMANENT STRUCTURE CREST ELEVATION (PSCE)
TEMPORARY RISER EXTENSION×
PERMANENT RISER STRUCTURE
CLEAN-OUT ELEVATION (COE)
STUB INLET ELEV. (TSIE)
SECTION VIEW

		SKIMMER							
		ORIFICE		ARM			FLEXIBLE HOSE		
BASIN NO.	WATER SURFACE ELEV. WSE (FT)	DIA. (IN)	HEAD (IN)	DIA. SAd (IN)	LENGTH SAL (FT)	MAT'L	DIA. (IN)	LENGTH (IN)	MAT'L
C	222.00	4.0	5.0	6.0	8.0	PVC	5	9	×

	TEMPORARY STUB			PERMANENT RISER			RISER EXTENSION			BARREL
					HORIZ OPENING			HORIZ OPENING		
BASIN NO.	INSIDE DIA (IN)	INVERT ELEV TSIE (FT)	MAT'L	CREST ELEV PSCE (FT)	LENGTH El (IN)	WIDTH Ew (IN)	CREST ELEV TRE (FT)	LENGTH (IN)	WIDTH (IN)	INLET ELEV BIE (FT)
C	6	217	PVC	218.15	4	2	218.15	N/A	N/A	216.00

NOTES:

ALL ORIFICES ON PERMANENT RISER BELOW TEMPORARY RISER EXTENSION SHALL HAVE WATER-TIGHT TEMPORARY SEALS PROVIDED. TEMPORARY STUB INVERT ELEVATION SHALL BE SET AT OR BELOW SEDIMENT CLEAN-OUT ELEVATION.
A ROPE SHALL BE ATTACHED TO THE SKIMMER ARM TO FACILITATE ACCESS TO THE SKIMMER ONCE INSTALLED.
SKIMMER SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT.
ANY MALFUNCTIONING SKIMMER SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION.
ICE OR SEDIMENT BUILDUP AROUND THE PRINCIPAL SPILLWAY SHALL BE REMOVED SO AS TO ALLOW THE SKIMMER TO RESPOND TO FLUCTUATING WATER ELEVATIONS.
SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHES THE LEVEL MARKED ON THE SEDIMENT CLEAN-OUT STAKE OR THE TOP OF THE STONE BERM. SEE STANDARD CONSTRUCTION DETAIL #7-3 FOR CONFIGURATION OF STONE BERM.
×PER MANUFACTURER'S REQUIREMENT. ENSURE UV STABLE MATERIAL.

STANDARD CONSTRUCTION DETAIL #7-2
SKIMMER ATTACHED TO PERMANENT RISER

NOT TO SCALE

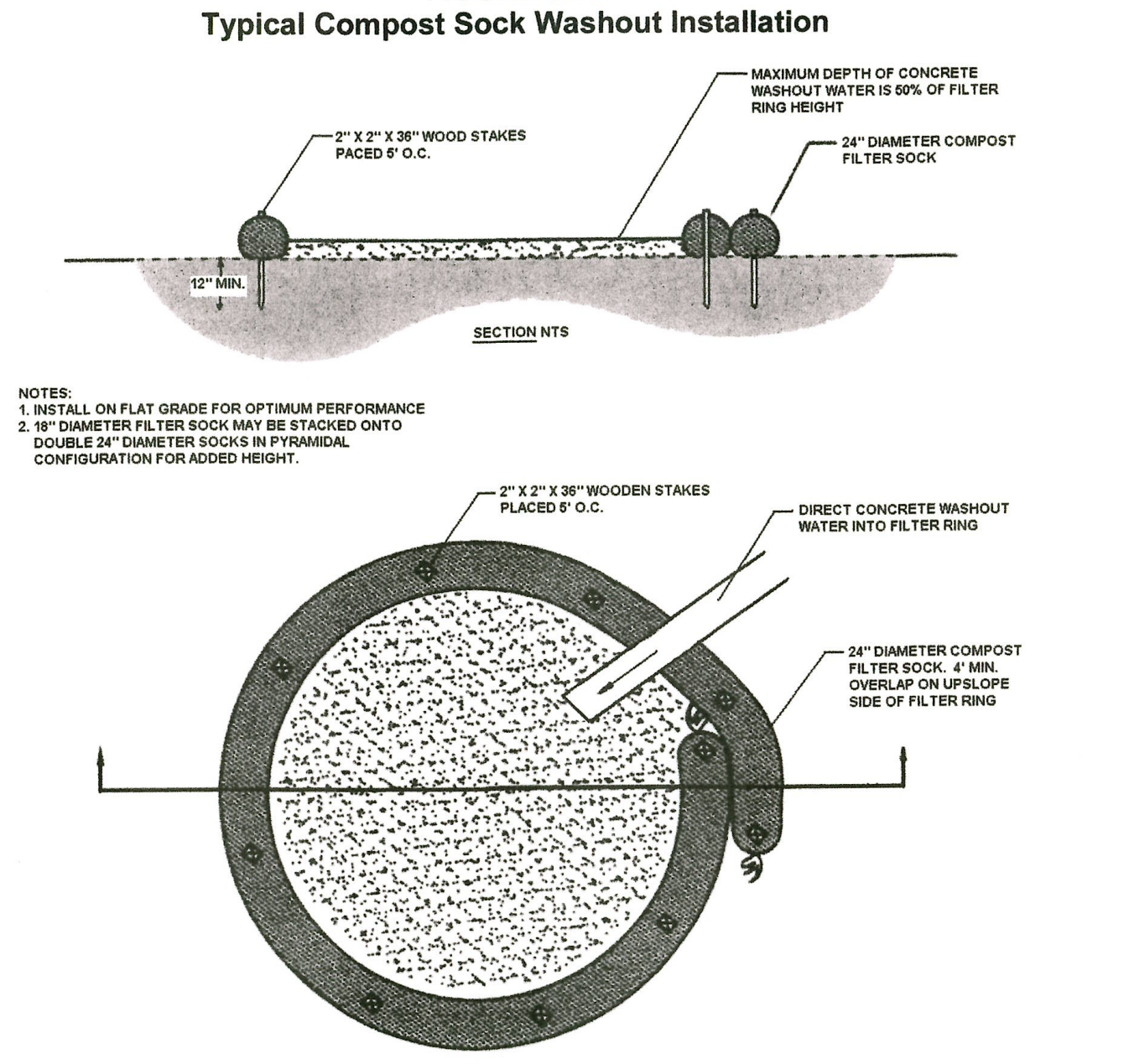

MAXIMUM DEPTH OF CONCRETE WASHOUT IS 50% OF FILTER RING HEIGHT
24" DIAMETER COMPOST FILTER SOCK
2" X 2" X 36" WOOD STAKES PLACED 8' O.C.
SECTION NTS
DIRECT CONCRETE WASHOUT WATER INTO FILTER RING
24" DIAMETER COMPOST FILTER SOCK. 4' MIN. OVERLAP ON UPSLOPE SIDE OF FILTER RING
PLAN NTS

FIGURE 3.18
Typical Compost Sock Washout Installation

NOTES:
1. FOR ANY PROJECT ON WHICH CONCRETE WILL BE POURED OR OTHERWISE FORMED ON SITE, A SUITABLE WASHOUT FACILITY MUST BE PROVIDED FOR THE CLEANING OF CHUTES, MIXERS, AND HOPPERS OF THE DELIVERY VEHICLES UNLESS SUCH A FACILITY WILL BE USED AT THE SOURCE OF THE CONCRETE. UNDER NO CIRCUMSTANCES MAY WASH WATER FROM THESE VEHICLES BE ALLOWED TO ENTER ANY SURFACE WATERS. MAKE SURE THAT PROPER SIGNAGE IS PROVIDED TO DRIVERS SO THAT THEY ARE AWARE OF THE PRESENCE OF WASHOUT FACILITIES.
2. WASHOUT FACILITIES SHOULD NOT BE PLACED WITHIN 50 FEET OF STORM DRAINS, OPEN DITCHES OR SURFACE WATERS. THEY SHOULD BE IN A CONVENIENT LOCATION FOR THE TRUCKS, PREFERABLY NEAR THE PLACE WHERE THE CONCRETE IS BEING POURED, BUT FAR ENOUGH FROM OTHER VEHICULAR TRAFFIC TO MINIMIZE THE POTENTIAL FOR ACCIDENTAL DAMAGE OR SPILLS. WHEREVER POSSIBLE, THEY SHOULD BE LOCATED ON SLOPES NOT EXCEEDING A 2% GRADE. ADDITIONAL INFORMATION ON WASHOUTS MAY BE OBTAINED FROM EPA'S STORMWATER WEBSITE

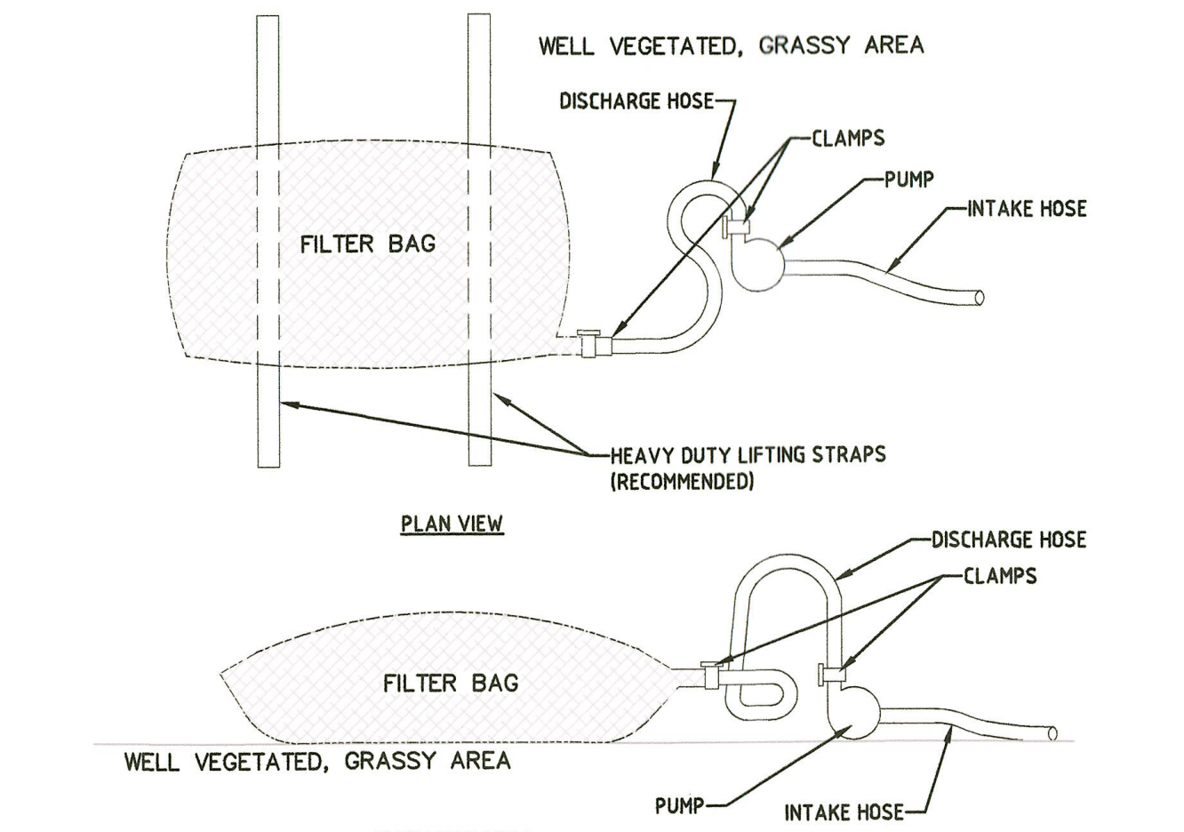
COMPOST SOCK WASHOUT:
WHEREVER COMPOST SOCK WASHOUTS ARE USED, A SUITABLE IMPERVIOUS GEOMEMBRANE SHOULD BE PLACED AT THE LOCATION OF THE WASHOUT. COMPOST SOCKS SHOULD BE STAKED IN THE MANNER RECOMMENDED BY THE MANUFACTURER AROUND PERIMETER OF THE GEOMEMBRANE SO AS TO FORM A RING WITH THE ENDS OF THE SOCK LOCATED AT THE UPSLOPE CORNER (FIGURE 3.18). CARE SHOULD BE TAKEN TO ENSURE CONTINUOUS CONTACT OF THE SOCK WITH THE GEOMEMBRANE AT ALL LOCATIONS. WHERE NECESSARY, SOCKS MAY BE STACKED AND STAKED SO AS TO FORM A TRIANGULAR CROSS-SECTION.

SELF-INSTALLED WASHOUTS:
1. THESE TYPES OF WASHOUTS SHOULD BE EXCAVATED BELOW GRADE TO PREVENT RUNOFF OF THE WASH WATER AND MINIMIZE THE POTENTIAL FOR BREACHING. THEY SHOULD BE SIZED TO HANDLE SOLIDS, WASH WATER, AND RAINFALL. A GOOD RULE OF THUMB IS THAT 7 GALLONS OF WASH WATER ARE REQUIRED TO WASH ONE TRUCK CHUTE AND 50 GALLONS FOR THE HOPPER OF A CONCRETE PUMP TRUCK.
2. FOR LARGER SITES, A BELOW-GRADE WASHOUT SHOULD BE A MINIMUM OF 10 FEET WIDE AND PROVIDE AT LEAST 12 INCHES OF FREEBOARD ABOVE THE LIQUID AND SOLID WASTE ANTICIPATED BETWEEN CLEANOUT INTERVALS. THE PIT SHOULD BE LINED WITH PLASTIC SHEETING OF AT LEAST 10-MIL THICKNESS (WITH NO HOLES OR TEARS) TO PREVENT LEACHING OF LIQUIDS INTO THE GROUND.

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

CONCRETE WASHOUT DISPOSAL FACILITY DETAIL

NOT TO SCALE


WELL VEGETATED, GRASSY AREA
DISCHARGE HOSE
CLAMPS
PUMP
INTAKE HOSE
FILTER BAG
HEAVY DUTY LIFTING STRAPS (RECOMMENDED)
PLAN VIEW
ELEVATION VIEW

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

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

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

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

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

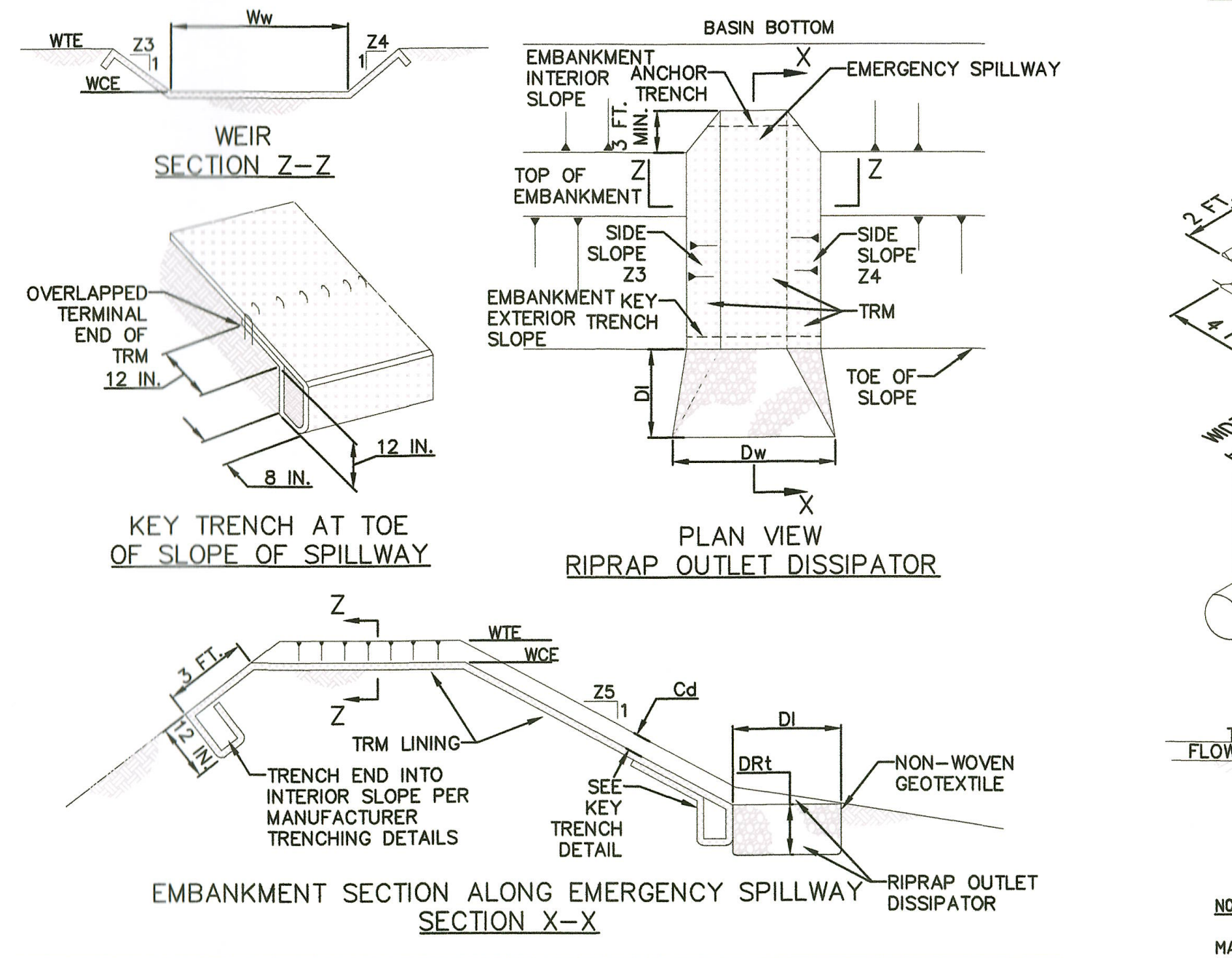
THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

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

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

STANDARD CONSTRUCTION DETAIL #3-16
PUMPED WATER FILTER BAG

NOT TO SCALE


WTE
WCE
Ww
Z3
Z4
WEIR SECTION Z–Z
OVERLAPPED TERMINAL END OF TRM 12 IN.
8 IN.
12 IN.
KEY TRENCH AT TOE OF SLOPE OF SPILLWAY
BASIN BOTTOM
EMBANKMENT INTERIOR SLOPE
ANCHOR TRENCH
EMERGENCY SPILLWAY
TOP OF EMBANKMENT
SIDE SLOPE
EMBANKMENT EXTERIOR SLOPE
KEY TRENCH
TOE OF SLOPE
PLAN VIEW RIPRAP OUTLET DISSIPATOR
3 FT.
12 IN.
TRM LINING
TRENCH END INTO INTERIOR SLOPE PER MANUFACTURER TRENCHING DETAILS
SEE KEY TRENCH DETAIL
Z5
Cd
Dl
DRt
NON-WOVEN GEOTEXTILE
RIPRAP OUTLET DISSIPATOR
EMBANKMENT SECTION ALONG EMERGENCY SPILLWAY
SECTION X–X

	WEIR					LINING		CHANNEL		DISSIPATOR			
BASIN NO.	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 Dl (FT)	WIDTH Dw (FT)	RIPRAP SIZE (R-_)	RIPRAP THICK. DRt (IN)
B	3	3	292	290.50	300	TMAX	TWIST PIN	3	0.6	14	20	R-4	18
C	3	3	224.00	222.82	100	TMAX	TWIST PIN	3	0.6	14	20	R-4	18

NOTES:

HEAVY EQUIPMENT SHALL NOT CROSS OVER SPILLWAY WITHOUT PRECAUTIONS TAKEN TO PROTECT TRM LINING.

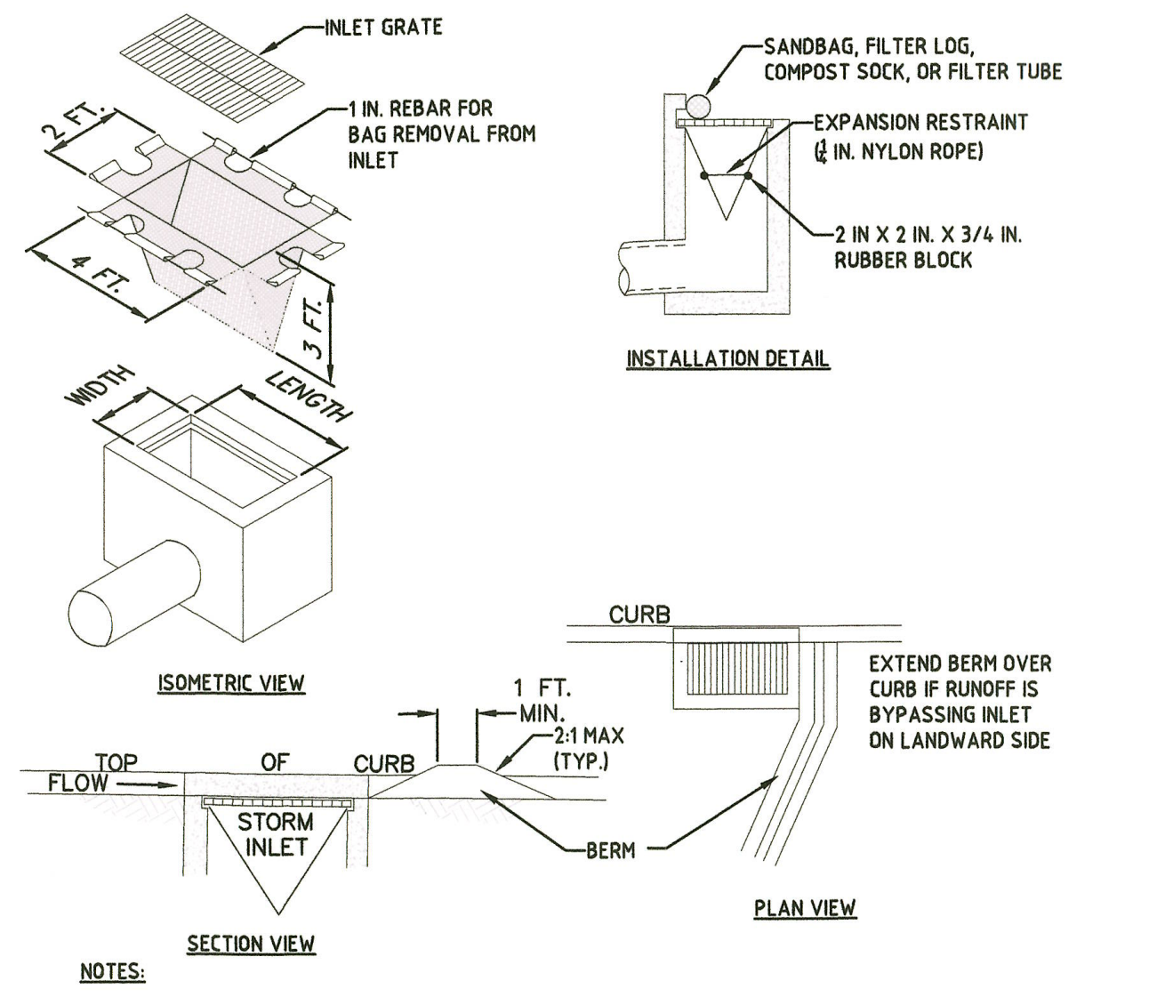
DISPLACED LINER WITHIN THE SPILLWAY AND/OR OUTLET CHANNEL SHALL BE REPLACED IMMEDIATELY.

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
SEDIMENT BASIN EMERGENCY SPILLWAY WITH TRM LINING

NOT TO SCALE


INLET GRATE
1 IN. REBAR FOR BAG REMOVAL FROM INLET
SANDBAG, FILTER LOG, COMPOST SOCK, OR FILTER TUBE
EXPANSION RESTRAINT (1/4 IN. NYLON ROPE)
2 IN X 2 IN. X 3/4 IN. RUBBER BLOCK
INSTALLATION DETAIL
ISOMETRIC VIEW
CURB
1 FT. MIN.
2:1 MAX (TYP.)
TOP OF CURB
FLOW
STORM INLET
BERM
SECTION VIEW
EXTEND BERM OVER CURB IF RUNOFF IS BYPASSING INLET ON LANDWARD SIDE
PLAN VIEW

NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

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

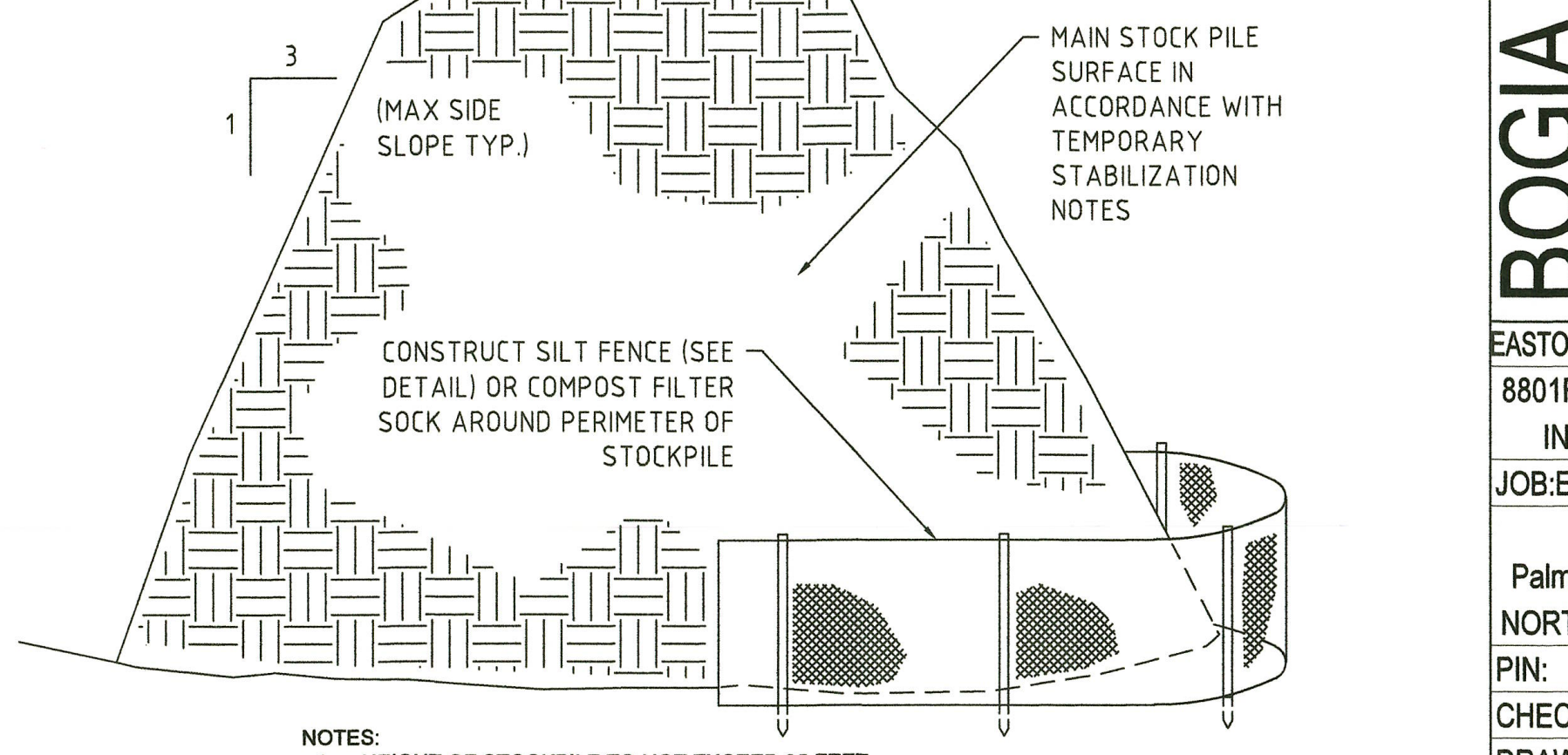
ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

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

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

STANDARD CONSTRUCTION DETAIL #4-15
FILTER BAG INLET PROTECTION - TYPE C INLET

NOT TO SCALE


3
1
(MAX SIDE SLOPE TYP.)
MAIN STOCK PILE SURFACE IN ACCORDANCE WITH TEMPORARY STABILIZATION NOTES
CONSTRUCT SILT FENCE (SEE DETAIL) OR COMPOST FILTER SOCK AROUND PERIMETER OF STOCKPILE

NOTES:
1. HEIGHT OF STOCKPILE TO NOT EXCEED 35 FEET.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1 OR FLATTER.
3. STABILIZE AFTER 4 DAY OF INACTIVITY (OR IMMEDIATELY IF RECEIVING WATER CLASSIFICATION IS EITHER HIGH QUALITY (HQ) OR EXCEPTIONAL VALUE (EV).

TEMPORARY STOCKPILE DETAIL

NOT TO SCALE

DATE	REVISION
—	—
—	—
—	—
—	—
—	—
—	—
2024-10-28	PER DEP COMMENTS & BOROUGH LETTER
2024-08-09	PER BORUGH COMMENTS
2024-07-15	PER LVPC, BOROUGH, & CITY COMMENTS

BEI

BOGIA ENGINEERING INC.
1340 PENN AVE WYOMISSING, PA 19610
PHONE: 610-678-3071 - FAX: 610-678-3517
WWW.BOGIAENG.COM

PRELIMINARY & FINAL
EASTON COMMERCE PARK
CONSTRUCTION DETAILS C

EASTON WOOD AVE PropCO.LLC
8801RIVER CROSSING Blvd
INDIANAPOLIS, IN 46240
JOB:EASTON COMMERCE PARK
Wilson Borough
Palmer Twp & City of Easton
NORTHAMPTON County, PA

PIN:	CHECK SHEET C-100
CHECKED BY:	DH
DRAWN BY:	CF
DATE:	11/01/2024
SCALE:	----
DRAWING:	C-110 C
PROJECT:	2022-528
SHEET:	48 OF 53