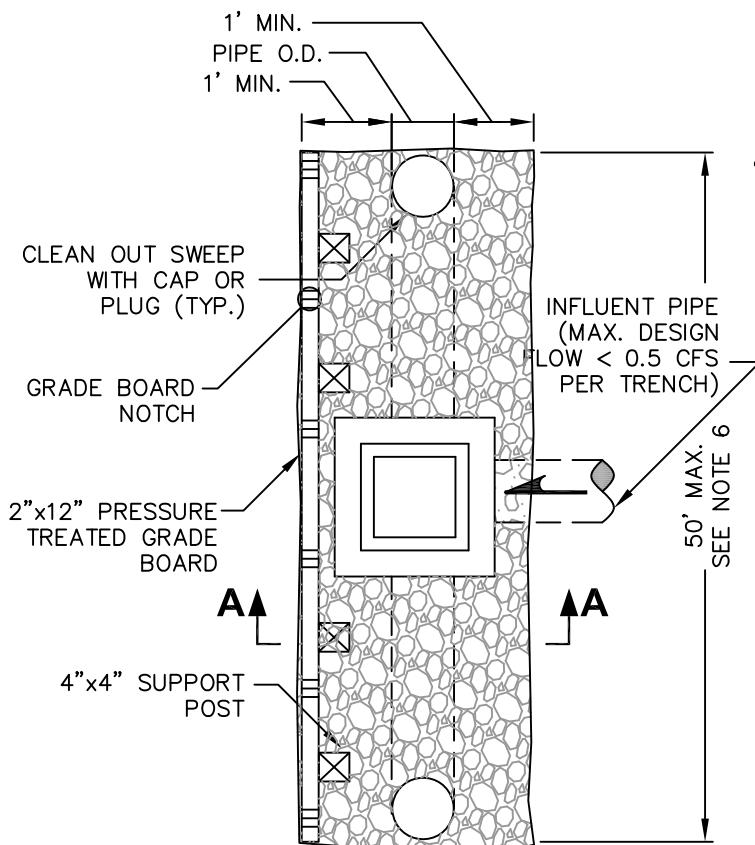


# SECTION A

## QUANTITY DESIGN DETAILS

<u>DETAIL</u>	<u>HEADING</u>
1.0	Flow Dispersion Trench
2.0	Grass Buffer Infiltration Trench Schematic
3.0	Stormwater Infiltration Trench Section
4.0	Parking Lot Perimeter Trench Schematic
5.0	Infiltration Pond Schematic
5.1	Detention Pond Schematic
6.0	Quarry Spall and Gravel Filter Window
7.0	Emergency Overflow Spillway
8.0	Rock Outfall (Culvert Discharge Protection)
9.0	Gabion Outfall
10.0	Grate Detail for Steep Slopes
11.0	Infiltration Trench Sump Structure (Commercial)
11.1	Residential Roof Downspout System
12.0	Control Structure
12.1	Oil Pollution Control Device
13.0	<i>Reserved for Future Use</i>
14.0	Standard Drywell Detail
15.0	Observation Well – Monitoring Ports
16.0	Overflow Structure with Debris Cage
17.0	Debris Barrier 1 & 2
17.1	Debris Barrier 3
18.0	Catch Basin Type 2 – Solid Locking Lid
19.0	Typical Detention Tank (dry/wet)
19.1	Typical Detention Vault (dry/wet)
19.2	Detention Tank/Vault Access Details
20.0	Pipe Anchor Details
21.0	Detention Pond Accesses Schematic
22.0	Catch Basin Stencil/Marker
23.0	Drywell and Trench Details
24.0	Chain Link Fence Type 1 (modified)
25.0	Crest Gage
26.0	Stormwater Chambers
27.0	Stormwater Maintenance Chamber
28.0	Rain Garden Planting Zones
29.0	Bioretention Section
30.0	Bioretention Piped Inlet
31.0	Bioretention Inlet Swale
32.0	Bioretention Piped Overflow
33.0	Bioretention Swale with Overflow
34.1	BMP T5.13 Option 1- No Soil Disturbance

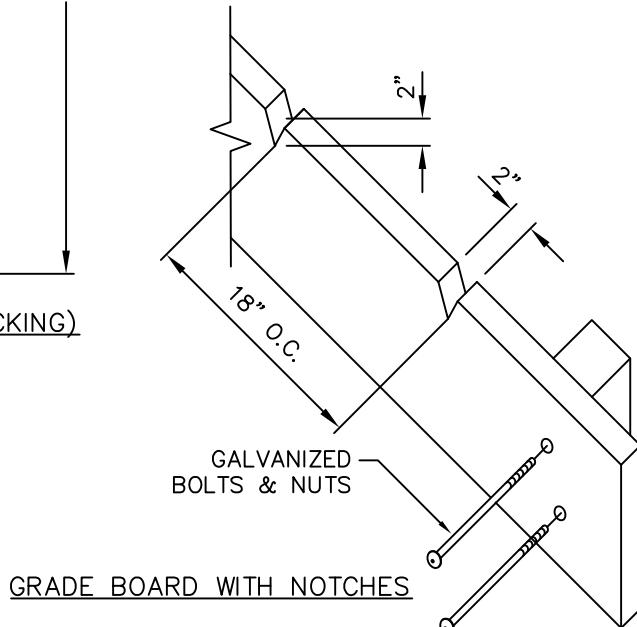
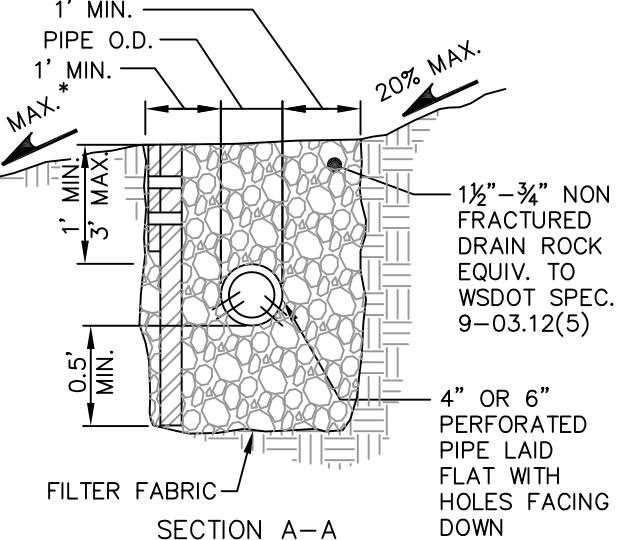
- 34.2      BMP T5.13 Option 2- Amend Soils in Place
- 34.3      BMP T5.13 Option 3- Stockpile and Amend
- 34.4      BMP T5.13 Option 4- Imported Topsoil
- 35.0      Concrete Sidewalk Infiltration Gallery



TYPE 1 CB W/ SOLID COVER (LOCKING)

PLAN

\* 15% MAX. FOR FLOW CONTROL / WATER QUALITY TREATMENT



NOTES:

1. THIS TRENCH SHALL BE CONSTRUCTED SO AS TO PREVENT POINT DISCHARGE AND/OR EROSION.
2. TRENCHES MAY BE PLACED NO CLOSER THAN 50 FEET TO ONE ANOTHER. (100 FEET ALONG FLOW LINE.)
3. TRENCH AND GRADE BOARD MUST BE LEVEL. ALIGN TO FOLLOW CONTOURS OF SITE.
4. GRADE BOARD SUPPORT POST SPACING AS REQUIRED BY SOIL CONDITIONS.
5. THE END OF EACH PIPE RUN SHALL HAVE AN ACCESSABLE CLEAN OUT SWEEP. PIPE END SHOULD BE VISIBLE OR THE LOCATION STAKED.
6. TRENCH LENGTH IS 10 FEET PER EACH 0.10 CFS.



ENGINEERING DIVISION

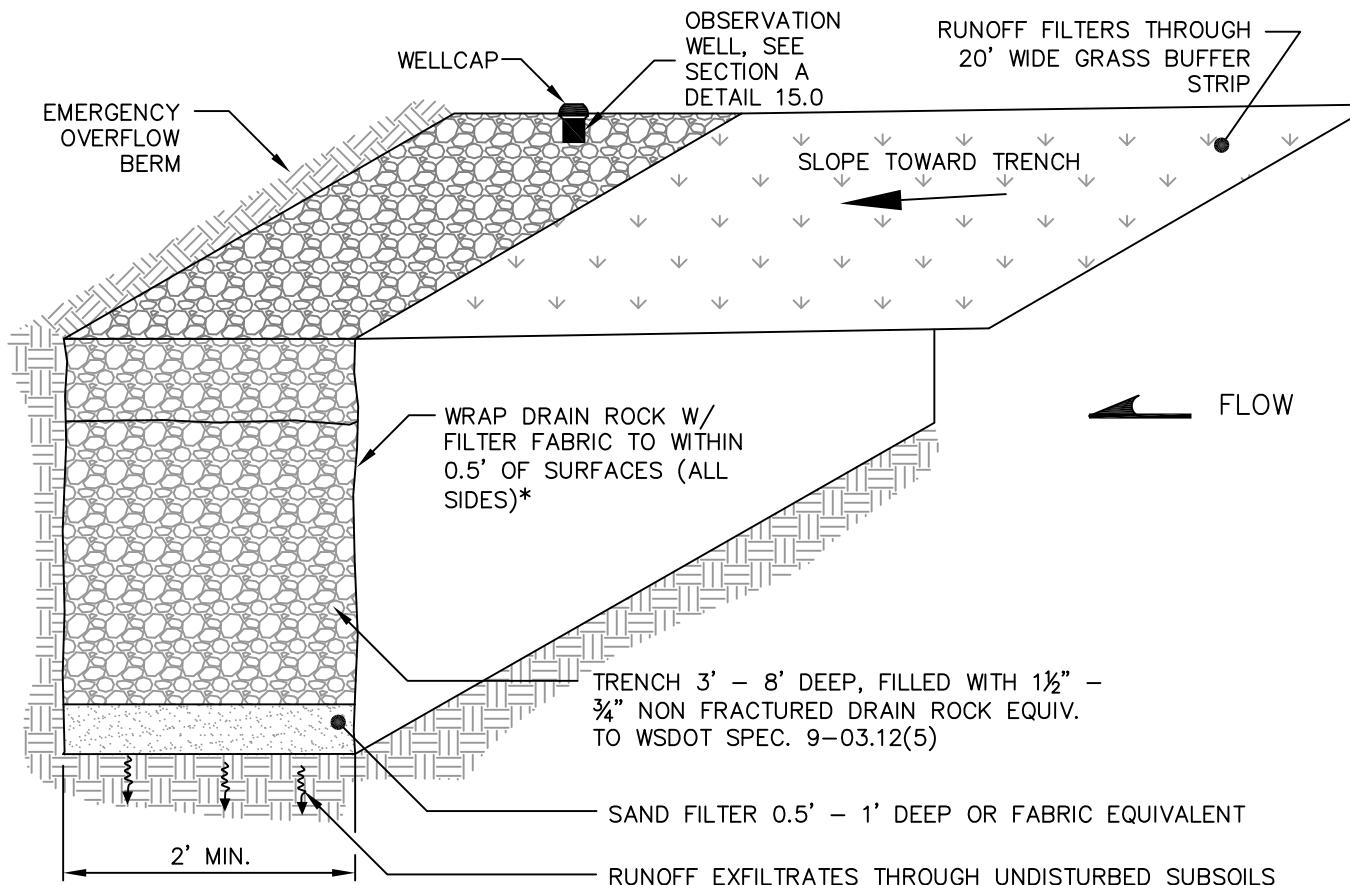
**FLOW DISPERSION  
TRENCH**

SECTION A  
DETAIL N.T.S.

1.0

APPROVED BY  
CITY ENGINEER

DATE 3/28/23



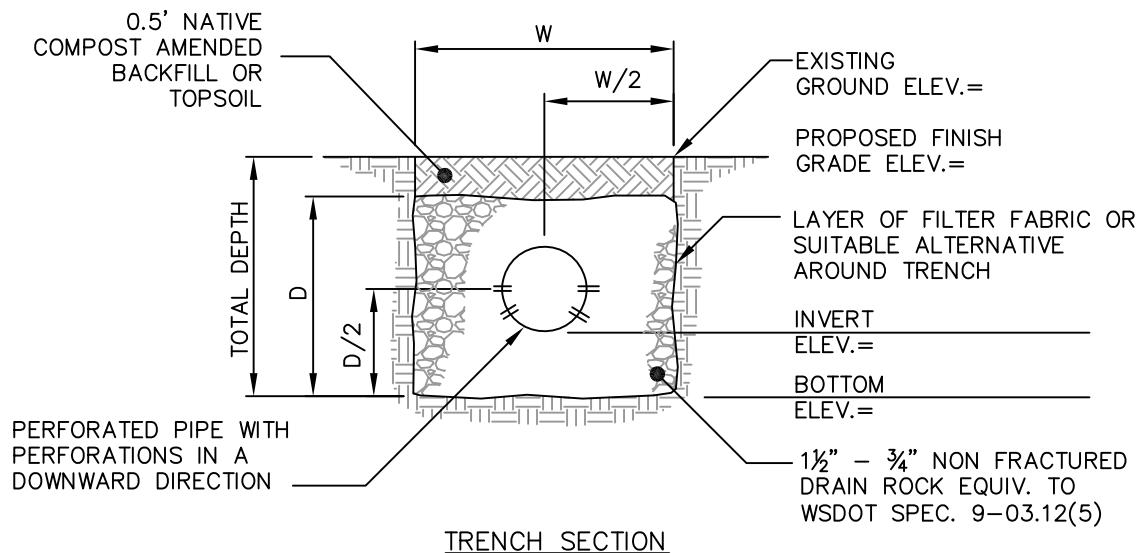
ENGINEERING DIVISION

**GRASS BUFFER  
INFILTRATION TRENCH  
SCHEMATIC**

SECTION A  
DETAIL N.T.S.  
2.0

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CITY ENGINEER

DATE 3/28/23

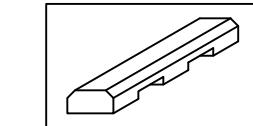
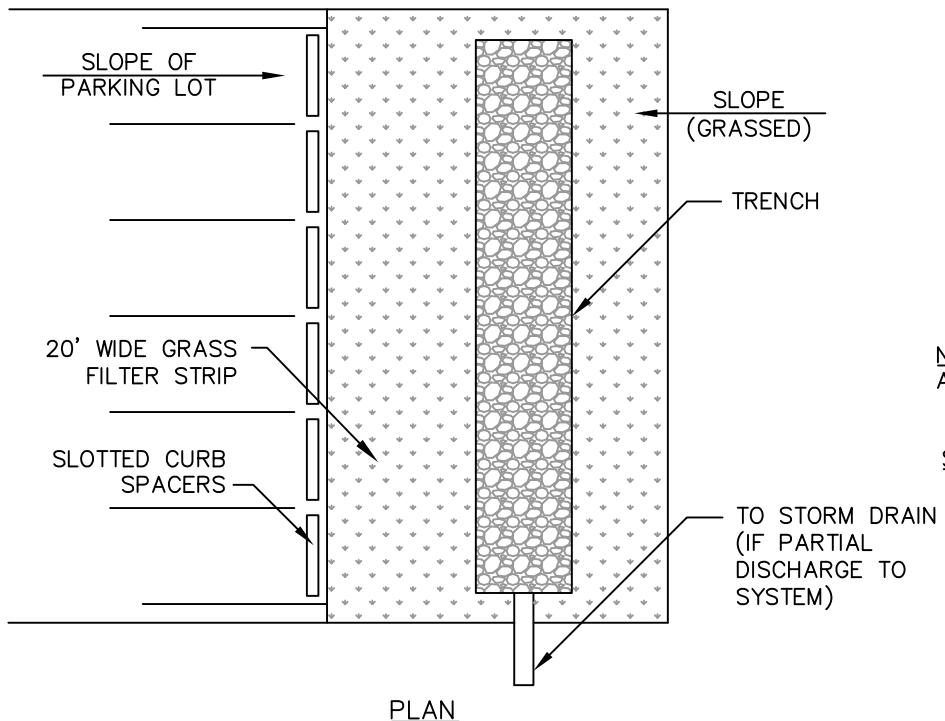


NOTE:

PERFORATED PIPE MEETING WSDOT STD.  
SPECIFICATIONS 7-01.2 OR APPROVED EQUAL

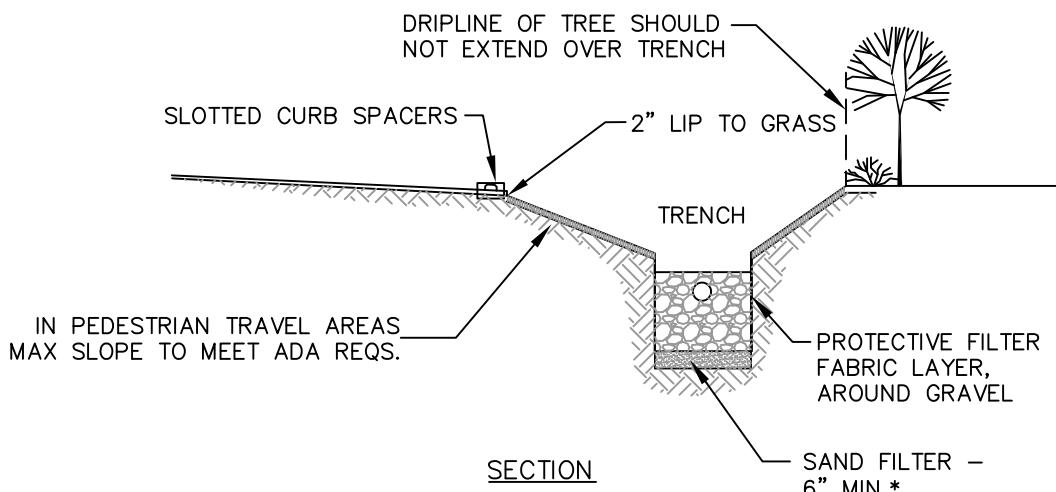
1. THE PERFORATIONS SHALL BE CIRCULAR AND A  
MINIMUM OF  $\frac{1}{2}$ " DIAMETER.

 <b>ENGINEERING DIVISION</b>	
<b>STORMWATER INFILTRATION TRENCH SECTION</b>	
APPROVED BY CITY ENGINEER	
SECTION A DETAIL N.T.S.	
3.0	
DATE 3/28/23	



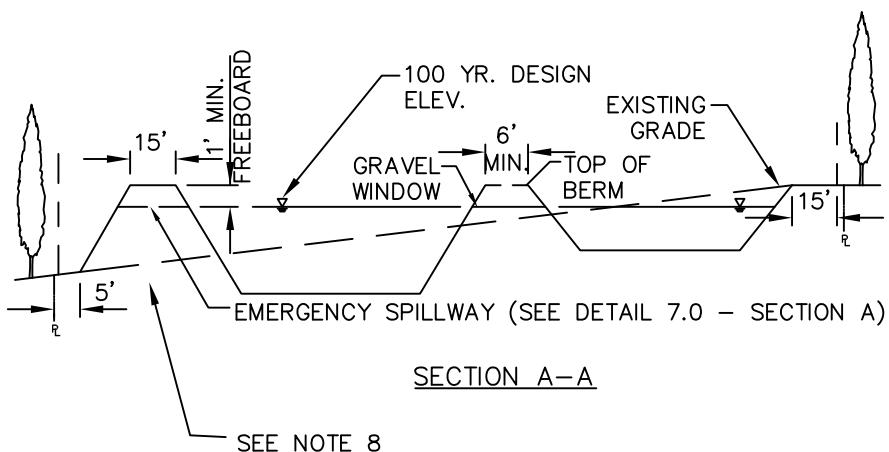
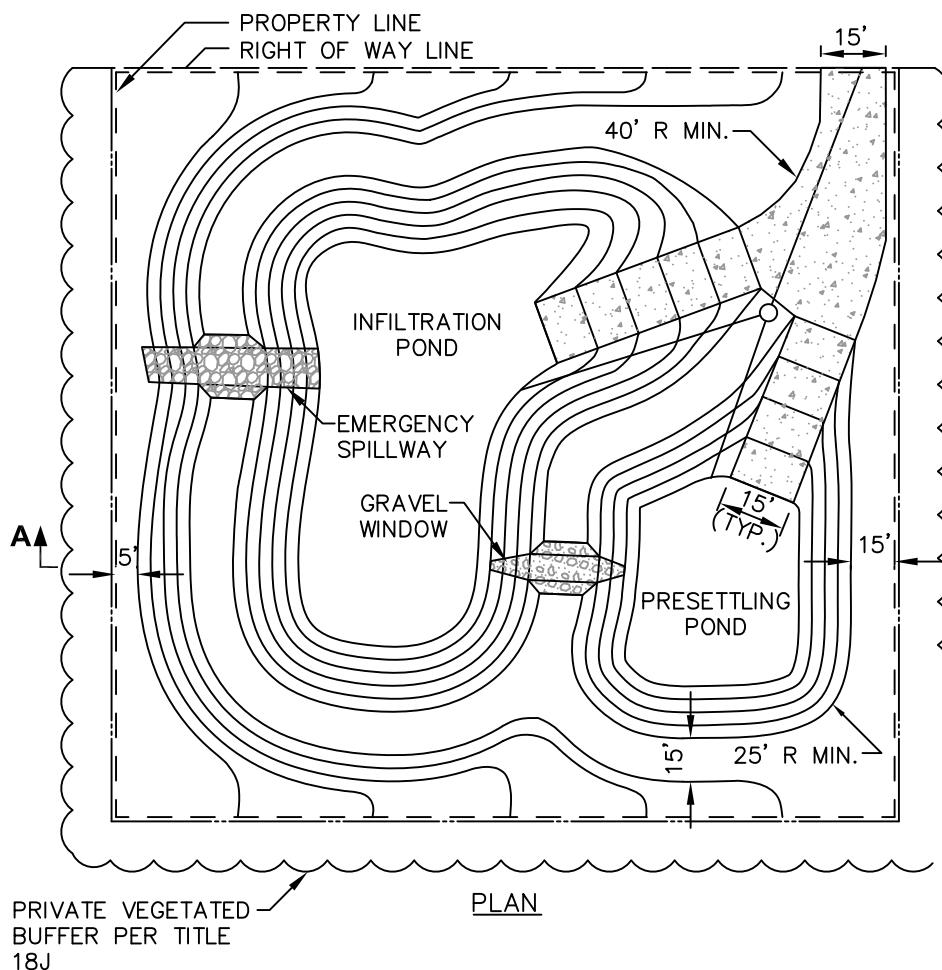
NOTE: SLOTTED CURBS  
ACT AS A LEVEL SPREADER

SLOTTED CURB SPACER



\*NOTE: SAND MAY BE USED IN-LIEU  
OF FILTER FABRIC ON BOTTOM.

 <b>ENGINEERING DIVISION</b>	
<b>PARKING LOT PERIMETER TRENCH SCHEMATIC</b>	
APPROVED BY CITY ENGINEER 	SECTION A DETAIL N.T.S <b>4.0</b>  DATE <u>3/28/23</u>



NOTES:

1. ALL ACCESS ROADS TO PONDS, CONTROL STRUCTURES, AND CATCH BASINS SHALL BE 15' MIN. WIDTH WITH 40' MIN. RADIUS TURNS. THE ACCESS RAMPS SHALL EITHER BE PAVED WITH A 15% MAX. GRADE OR GRAVEL WITH A 12% MAX. GRADE.
2. ACCESS AROUND PONDS (NOT SERVICING A RAMP, CATCH BASIN, OR CONTROL STRUCTURE) SHALL BE 15' MIN. WIDTH WITH 25' MIN. RADIUS TURNS.
3. PROPERTY SHALL BE FENCED 1' INSIDE OF PROPERTY/TRACT LINES.
4. PRIVATE VEGETATED BUFFER SHALL BE PLANTED OUTSIDE OF PROPERTY LINES.
5. POND BOTTOMS MAY BE VEGETATED.
6. EMERGENCY OVERFLOW SHALL FLOW TO A DEFINED WATER COURSE OR APPROVED LOCATION.
7. DETAIL IS A SCHEMATIC REPRESENTATION ONLY. ACTUAL CONFIGURATION WILL VARY DEPENDING ON SPECIFIC SITE CONSTRAINTS AND APPLICABLE DESIGN CRITERIA, OTHER TYPES OF PRETREATMENT BMP'S MAY BE ACCEPTABLE.
8. BERMS THAT IMPOUND WATER HIGHER THAN EX. GRADE SHALL BE KEYED PER VOL. 3 SECTION 3.12.1



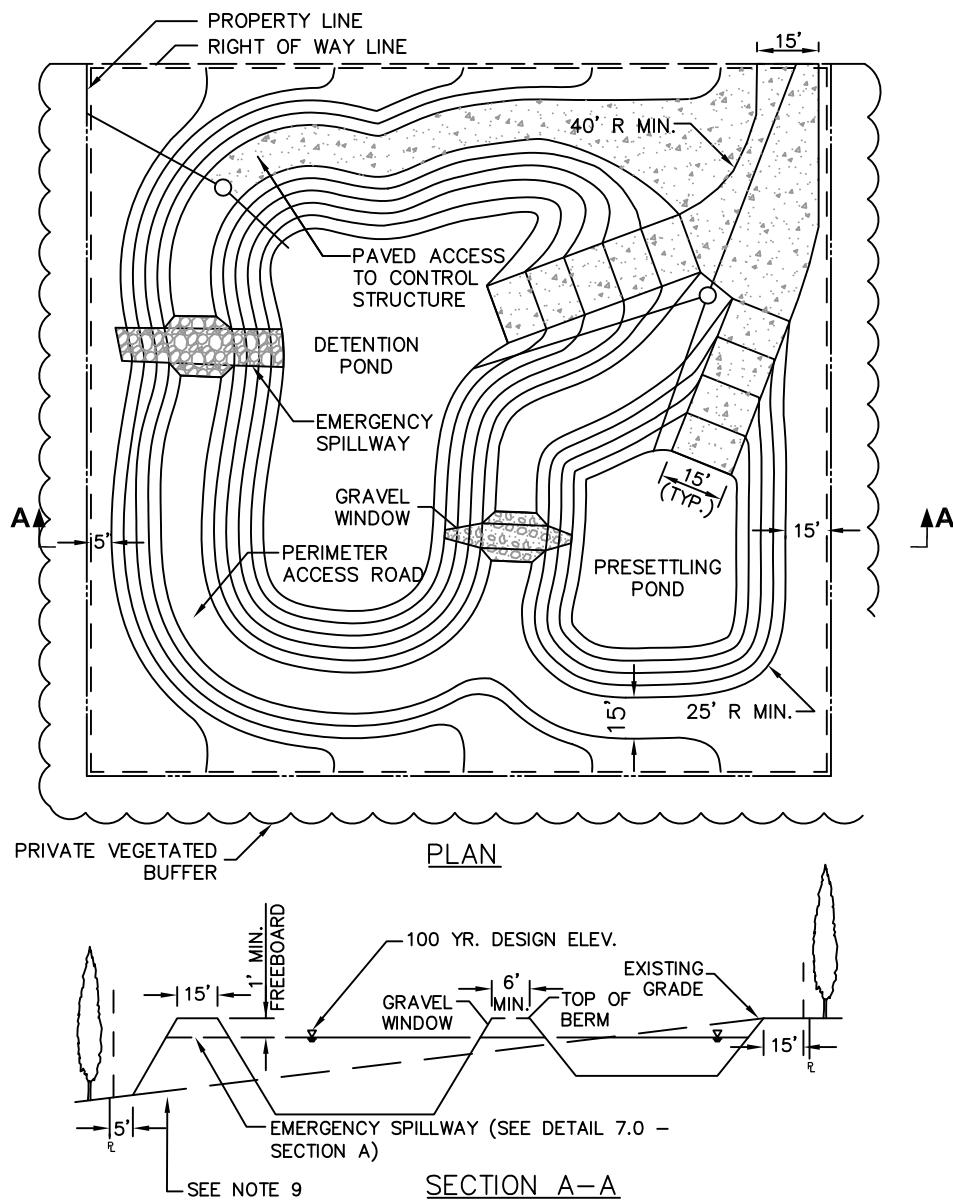
ENGINEERING DIVISION

INFILTRATION POND SCHEMATIC

SECTION A  
DETAIL N.T.S.  
5.0

APPROVED BY  
CITY ENGINEER

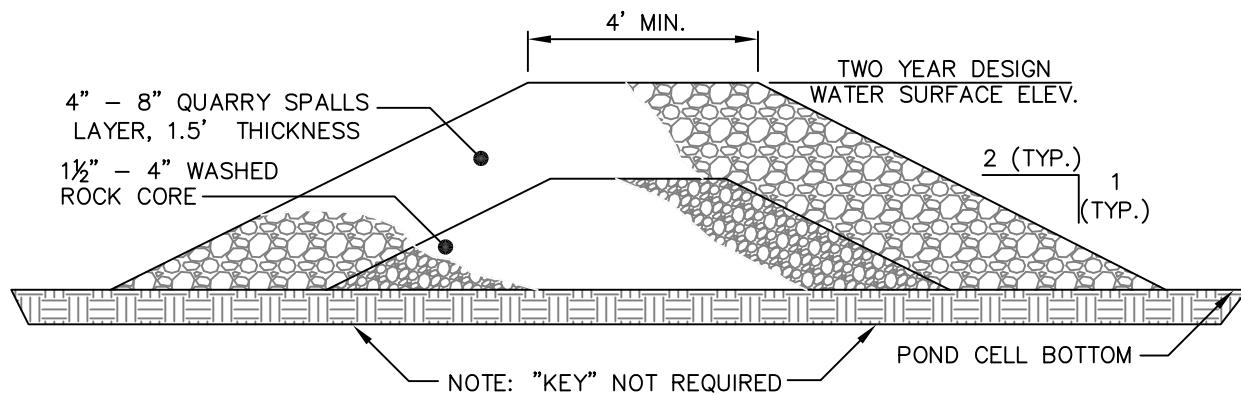
DATE 3/28/23



**NOTES:**

1. ALL ACCESS ROADS TO PONDS, CONTROL STRUCTURES, AND CATCH BASINS SHALL BE 15' MIN. PAVED WIDTH WITH 40' MIN. RADIUS TURNS. THE ACCESS RAMPS SHALL EITHER BE PAVED WITH A 15% MAX. GRADE OR GRAVEL WITH A 12% MAX. GRADE.
2. ACCESS AROUND PONDS (NOT SERVICING A RAMP, CONTROL STRUCTURE, OR CATCH BASIN) SHALL BE 15' MIN. WIDTH WITH 25' MIN. RADIUS TURNS.
3. PROPERTY SHALL BE FENCED 1' INSIDE OF PROPERTY/TRACT LINES.
4. PRIVATE VEGETATED BUFFER SHALL BE PLANTED OUTSIDE OF PROPERTY LINES.
5. POND BOTTOMS MAY BE VEGETATED.
6. EMERGENCY OVERFLOW SHALL FLOW TO A DEFINED WATER COURSE OR APPROVED LOCATION.
7. DETAIL IS A SCHEMATIC REPRESENTATION ONLY. ACTUAL CONFIGURATION WILL VARY DEPENDING ON SPECIFIC SITE CONSTRAINTS AND APPLICABLE DESIGN CRITERIA, OTHER TYPES OF PRETREATMENT BMP'S MAY BE ACCEPTABLE.
8. WHERE ACCESS TO CONTROL STRUCTURE EXCEEDS 75 FEET A VEHICLE TURN AROUND MUST BE PROVIDED OR CONTINUOUS PAVED LOOP AROUND PERIMETER ACCESS ROAD.
9. BERMS THAT IMPOUND WATER HIGHER THAN EX. GRADE SHALL BE KEYED PER VOL. 3 SECTION 3.12.1 OF THE CURRENT STORMWATER MANAGEMENT AND SITE DEVELOPMENT MANUAL.

<b>ENGINEERING DIVISION</b>	
<b>DETENTION POND SCHEMATIC</b>	
SECTION A DETAIL N.T.S. <b>5.1</b>	
APPROVED BY <i>[Signature]</i> DATE <b>3/28/23</b>	



ENGINEERING DIVISION

**QUARRY SPALL  
AND  
GRAVEL FILTER WINDOW**

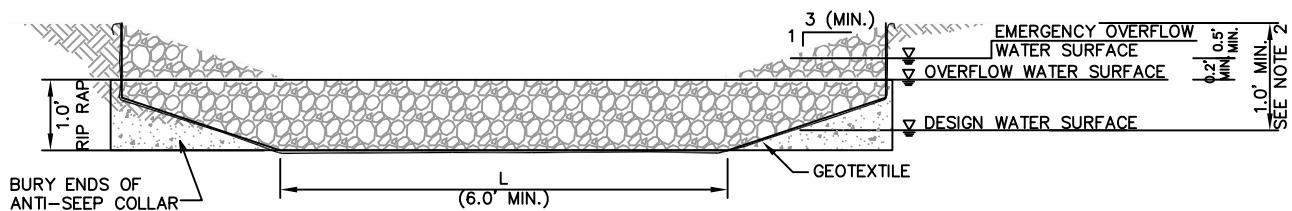
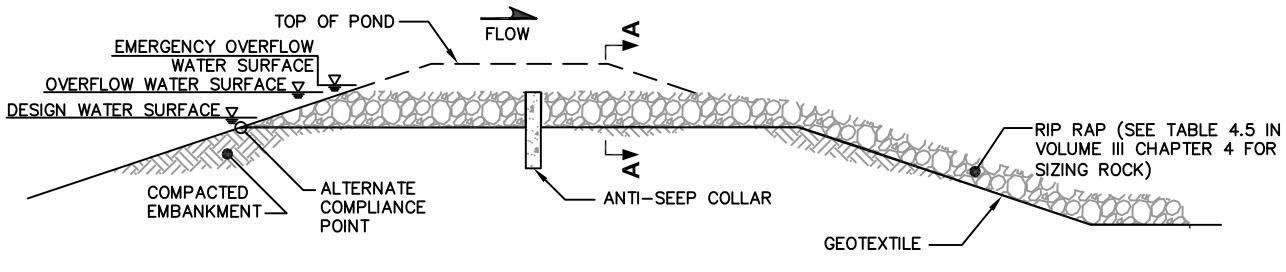
SECTION A  
DETAIL N.T.S.

6.0

APPROVED BY  
CITY ENGINEER

A handwritten signature of the City Engineer.

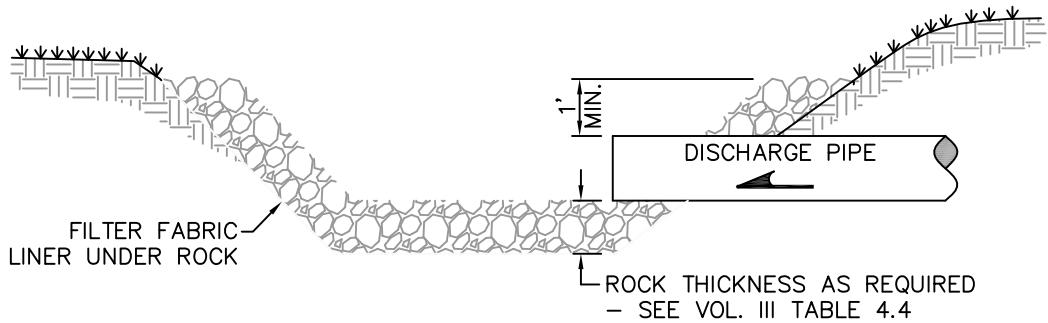
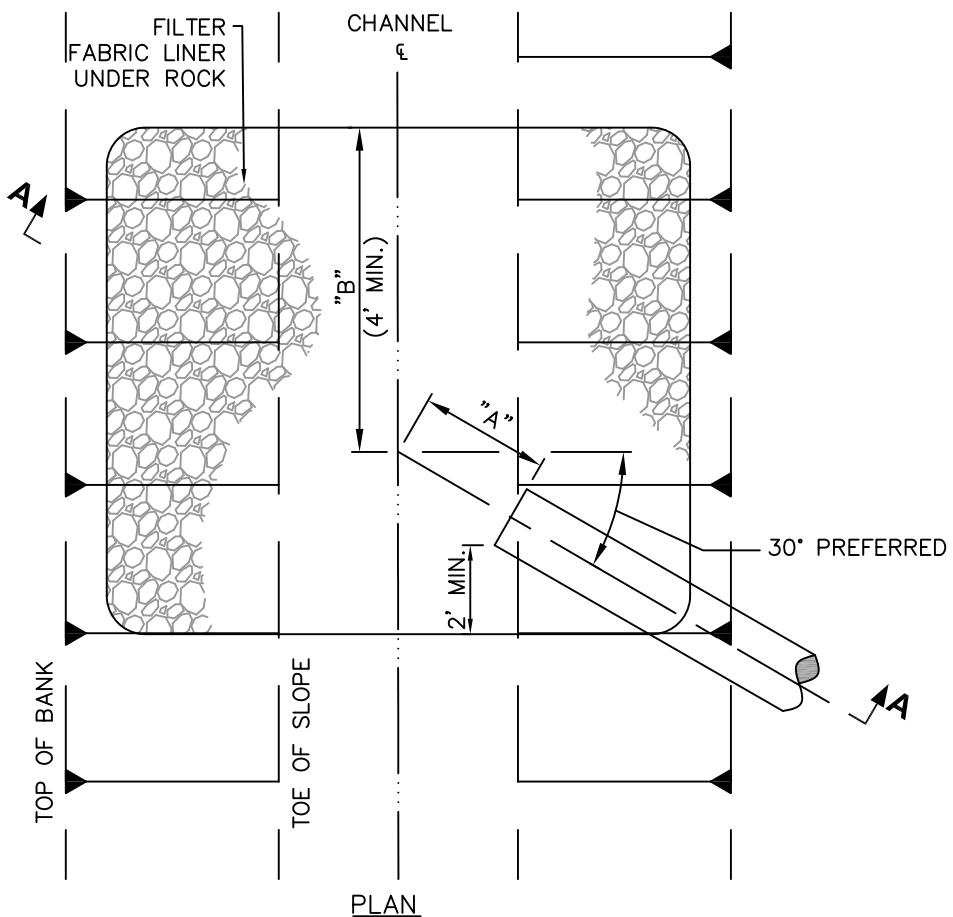
DATE 3/28/23



NOTES:

1. THE EMERGENCY OVERFLOW SPILLWAY SHALL BE DESIGNED TO PASS THE 100-YEAR, DESIGN STORM EVENT FOR DEVELOPED CONDITIONS SEE EQUATION AT VOLUME III CHAPTER 3. SPILLWAY SHOULD ONLY HAVE FLOW WHEN A COMPONENT OF THE CONTROL STRUCTURE HAS FAILED OR A STORM GREATER THAN THE DESIGN STORM HAS OCCURRED.
2. SPILLWAY SHALL HAVE AN ANTI-SEEP COLLAR TO HOLD OVERFLOW WATER SURFACE ELEVATION OR THE OVERFLOW WATER SURFACE ELEVATION SHALL BE BELOW THE ALTERNATE COMPLIANCE POINT. ENGINEER WILL DESIGN THE ANTI-SEEP COLLAR AND WILL DEMONSTRATE ITS EFFECTIVENESS. ANTI-SEEP COLLAR SHALL BE PRESSURE TREATED LUMBER AND INSTALLED LEVEL.
3. A CONCRETE LINED SPILLWAY IS AN ACCEPTABLE ALTERNATIVE TO AN ANTI-SEEP COLLAR.
4. IF MULTIPLE BOARDS REQUIRED FOR ANTI-SEEP COLLAR, BOARDS SHALL BE BOLTED TOGETHER WITH STAINLESS OR GALVANIZED HARDWARE AND FASTENERS.

 <b>ENGINEERING DIVISION</b>	
<b>EMERGENCY OVERFLOW SPILLWAY</b>	
SECTION A DETAIL N.T.S. <b>7.0</b>	
APPROVED BY  CITY ENGINEER  DATE <b>3/28/23</b>	

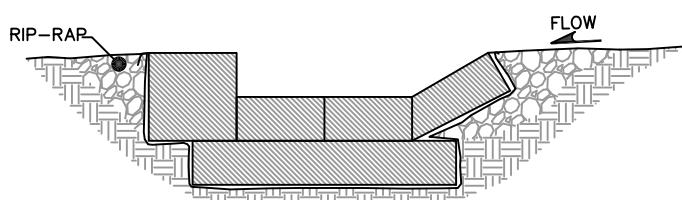
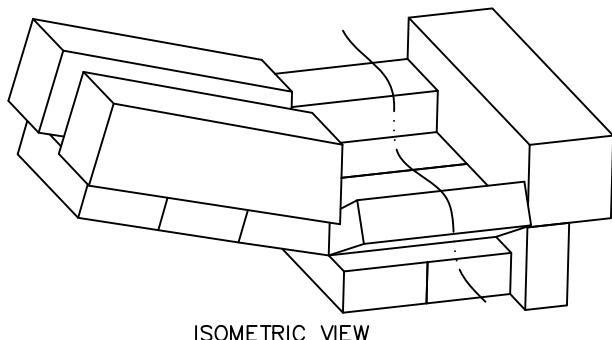
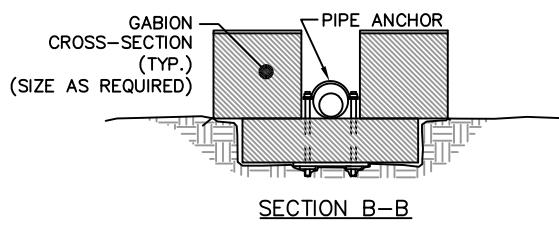
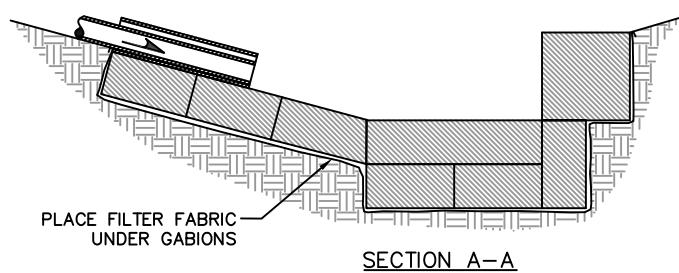
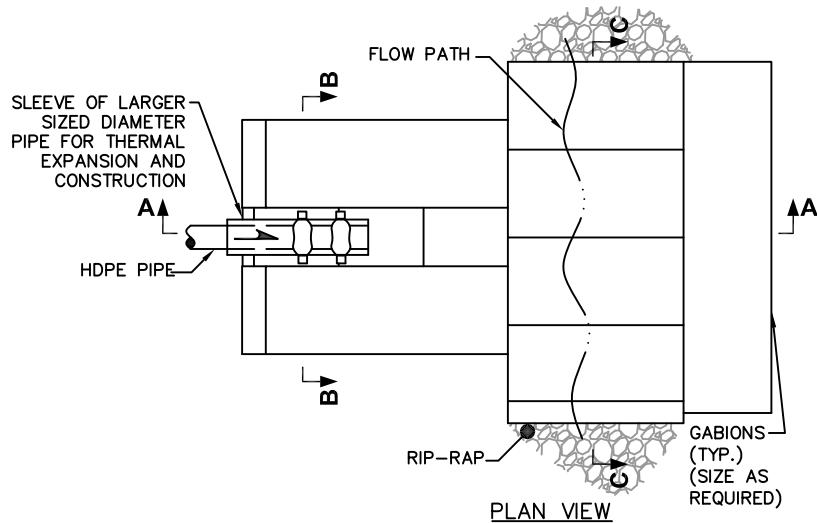


SECTION A-A

NOTES:

1. BASED ON DISCHARGE VELOCITIES FROM VOL. V TABLE 4.4. DIMENSIONS "A+B" WILL BE A MIN. OF 8' FOR ROCK LINING AND A MIN. OF 12' FOR RIP RAP.
2. IF DISTANCE "A" IS GREATER THAN 8' FOR ROCK LINING AND 12' FOR RIP RAP THEN ARMORING IS REQUIRED ONLY ON THE DISCHARGE SIDE OF THE CHANNEL.

 <b>ENGINEERING DIVISION</b>	
<b>ROCK OUTFALL (CULVERT DISCHARGE PROTECTION)</b>	
SECTION A DETAIL N.T.S. 8.0	
APPROVED BY _____ CITY ENGINEER  DATE 3/28/23	



ENGINEERING DIVISION

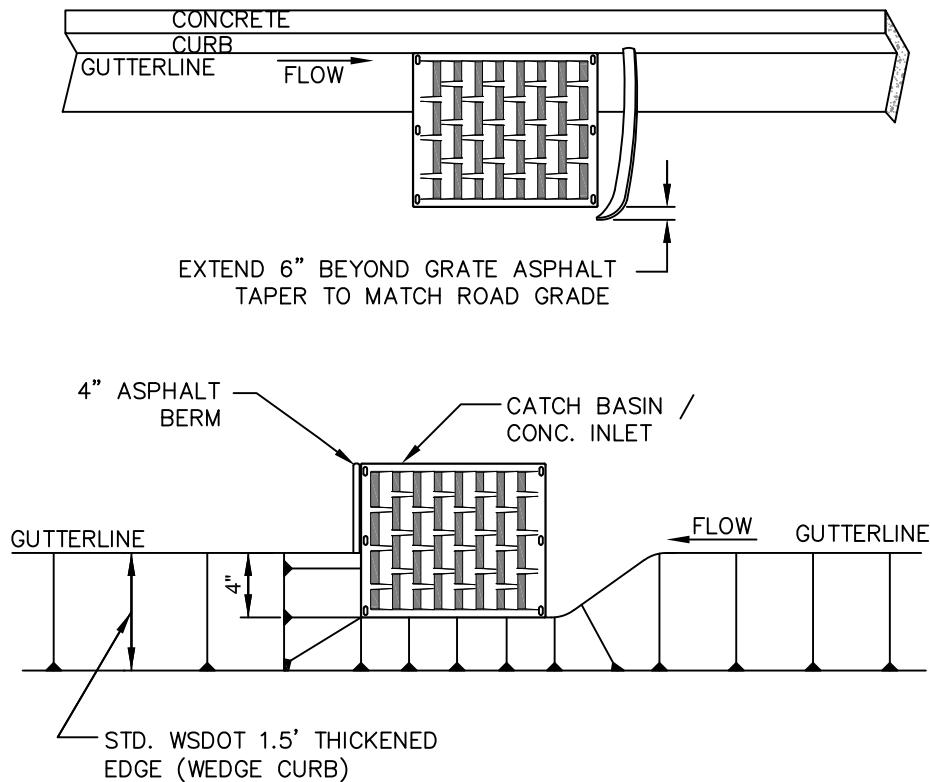
**GABION OUTFALL**

SECTION A  
DETAIL N.T.S.

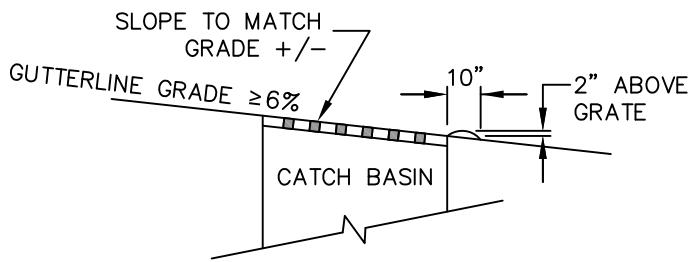
9.0

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CITY ENGINEER

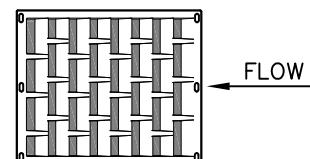
DATE 3/28/23



ALPHALT CURB CATCH BASIN INLET DETAIL



CONCRETE CURB CATCH BASIN INLET DETAIL



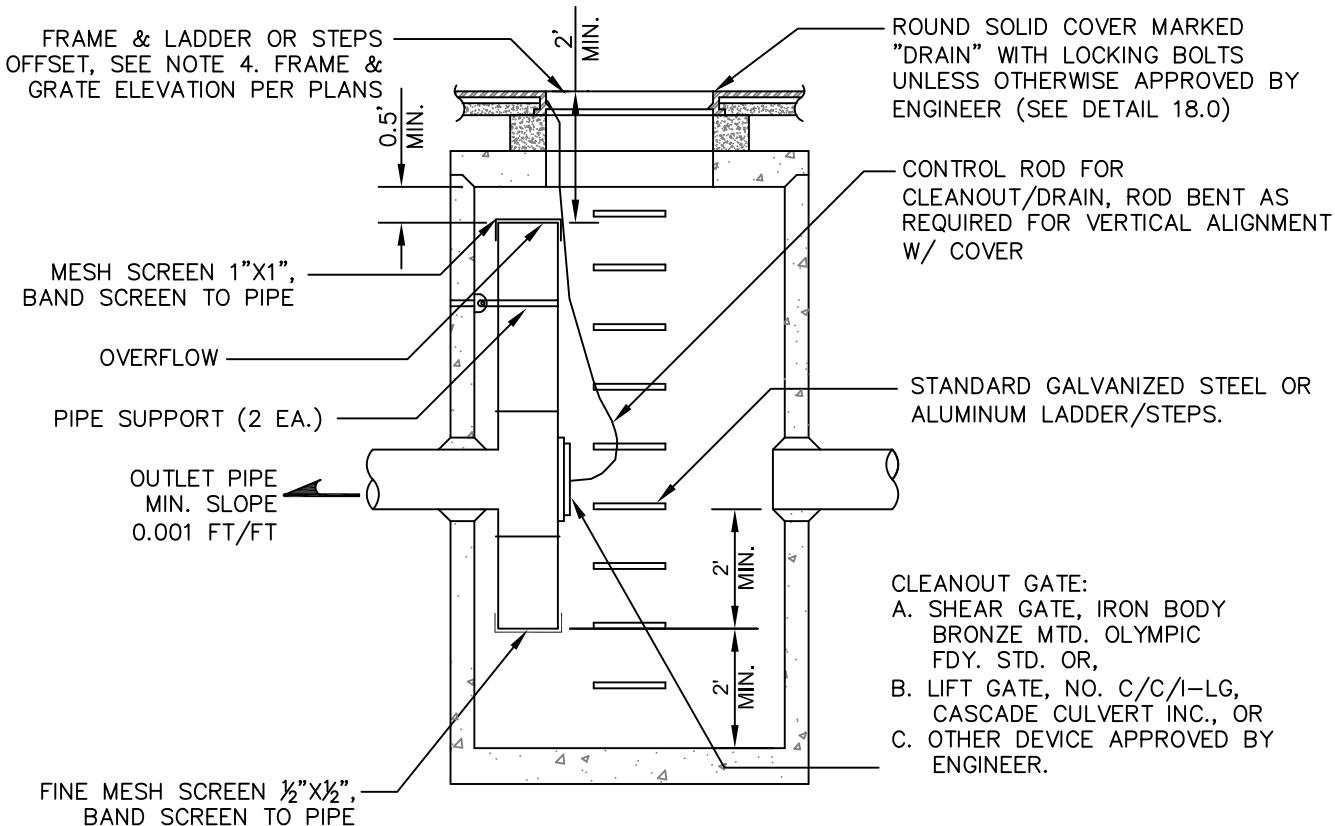
VANED GRATE

NOTES:

VANED GRATES SHALL BE PROVIDED FOR ALL CATCH BASINS WHEN PROFILE GRADE EQUALS OR EXCEEDS 6%.

VANED GRATES SHALL BE PROVIDED FOR ALL CATCH BASINS IN BICYCLE TRAVEL LANES

 <p>Engineering Division</p>	
<p><b>GRATE DETAIL FOR STEEP SLOPES</b></p>	
<p>SECTION A DETAIL N.T.S.</p>	
<p>10.0</p>	
APPROVED BY CITY ENGINEER	
<p>DATE 3/28/23</p>	



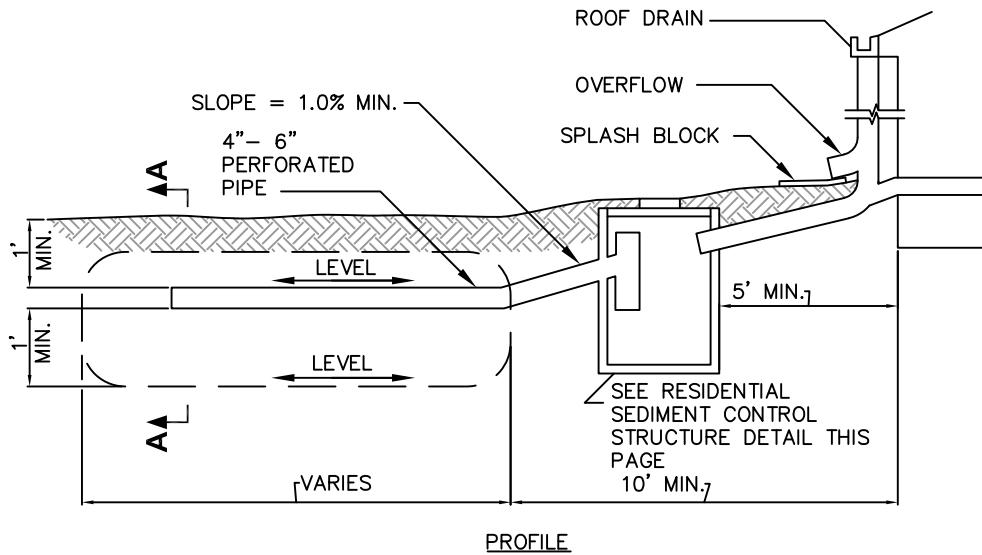
PLAN VIEW

NOTES:

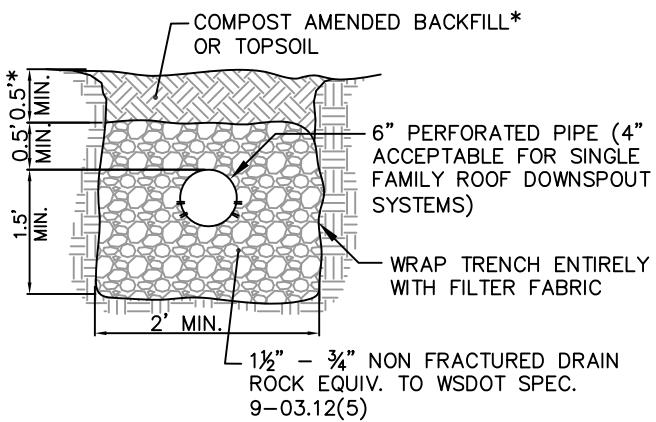
1. PIPE SIZED & SLOPES, PER PLANS.
2. OUTLET CAPACITY NOT LESS THAN COMBINED INLETS.
3. METAL PARTS:
  - A. CORROSION RESISTANT OR GALVANIZED OR ALLUMINUM TYPE 2.
  - B. IF GALVANIZED STEEL PIPE, HAVE ASPHALT TREATMENT 1.
4. FRAME & LADDER OR STEPS OFFSET SO:
  - A. CLEANOUT GATE IS VISIBLE FROM TOP.
  - B. CLIMB DOWN SPACE IS CLEAR OF RISER & CLEANOUT GATE.
  - C. FRAME IS CLEAR OF CURB.
5. STRUCTURE SHALL BE A TYPE 2 CATCH BASIN 4.5 DIAM. MIN.
6. THIS STRUCTURE DOES NOT MEET PRE-TREATMENT REQUIREMENTS PER VOL. 3 AND 5 OF THE CURRENT GHSMSDM

COMMERCIAL SEDIMENT CONTROL STRUCTURE – PRIOR  
TO DISCHARGE TO INFILTRATION TRENCH

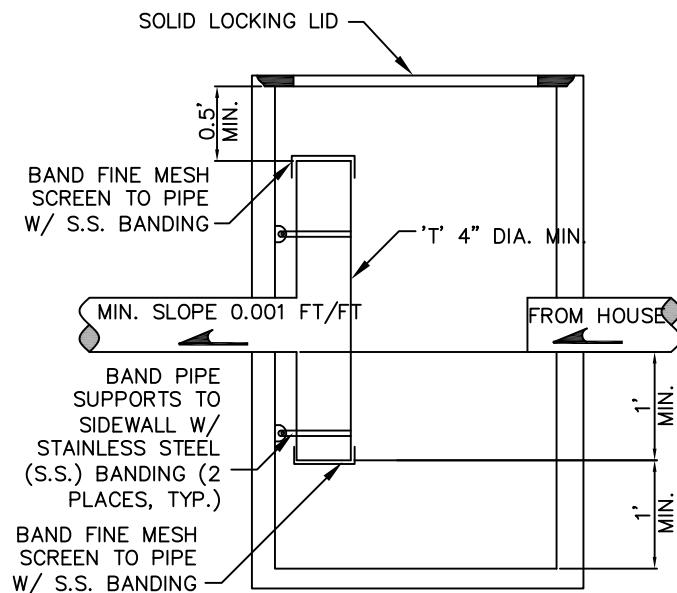
		ENGINEERING DIVISION
<b>INFILTRATION TRENCH SUMP STRUCTURE (COMMERCIAL)</b>		SECTION A DETAIL N.T.S.
		11.0
APPROVED BY CITY ENGINEER  DATE 3/28/23		



PROFILE



SECTION A-A



RESIDENTIAL SEDIMENT CONTROL STRUCTURE

NOTE:

SEE TABLE A.2 IN VOLUME I FOR TRENCH LENGTH.



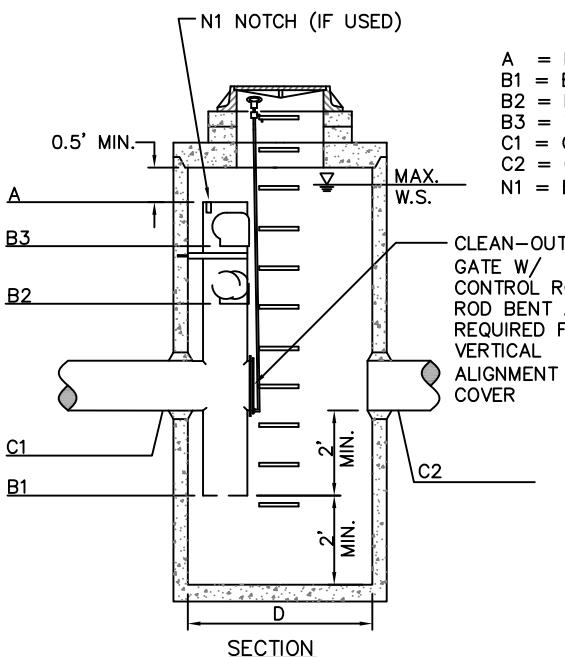
ENGINEERING DIVISION

**RESIDENTIAL ROOF DOWNSPOUT SYSTEM**

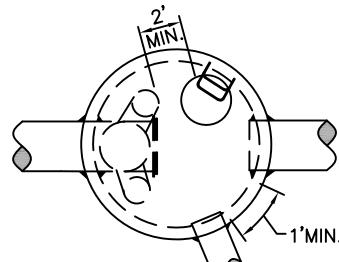
SECTION A DETAIL N.T.S.  
11.1

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CITY ENGINEER

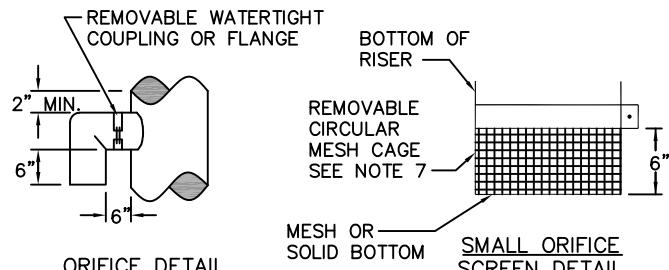
DATE 4/10/23



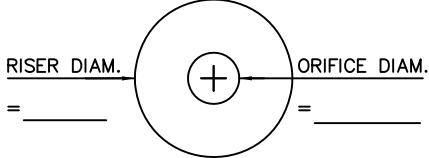
A = PIPE DIAM.  
 B1 = BOTTOM ORIFICE  
 B2 = MIDDLE ORIFICE  
 B3 = TOP ORIFICE  
 C1 = CB OUTLET I.E.  
 C2 = CB INLET I.E.  
 N1 = BOTTOM OF EL'



TOP VIEW



ORIFICES – TEE RISER  
N.T.S.



RESTRICTOR PLATE (B1) DETAIL

NOTES:

1. CATCH BASIN TYPE 2 WITH FLOW RESTRICTOR AND OIL POLLUTION CONTROL DEVICE.
2. PROVIDE ACCESS TO BOTTOM WITH LADDER AND CLEARANCE.
3. THE EMERGENCY OVERFLOW SPILLWAY ELEVATION SHALL BE EQUAL OR HIGHER THAN MAX W.S. ELEV. SEE EMERGENCY OVERFLOW SPILLWAY DETAIL 7.0.
4. MAX W.S. ELEV. SHALL EQUAL 100 YEAR DESIGN FLOW.
5. LADDER / STEPS SHALL BE GALVANIZED STEEL OR THERMO PLASTIC EXTRUDED.
6. ORIFICE DIAMETER 0.5" MIN. MIN. NOTCH WIDTH = 1.0"
7. PROVIDE MESH CAGE PROTECTION FOR ORIFICE IF LESS THAN 1.0" DIAMETER. BOLT REMOVABLE MESH CAGE TO RISER WITH ATTACHED BOLT-ON BANDED COUPLING. CAGE TO BE MADE WITH  $\frac{1}{4}$ " MESH SCREEN IN ALUMINUM OR STAINLESS STEEL.

CONTROL STRUCTURE DETAIL TABLE

LOCATION	A OVERFLOW		B1		B2		B3	
	ELEV.	DIAM.	ELEV.	DIAM.	ELEV.	DIAM.	ELEV.	DIAM.
N1			C1		C2		D (IN.)	
ELEV.	WIDTH	ELEV.	DIAM.	ELEV.	DIAM.		MAX. WS ELEV. NOTE 4	EMEROVER FLOW NOTE 3



ENGINEERING DIVISION

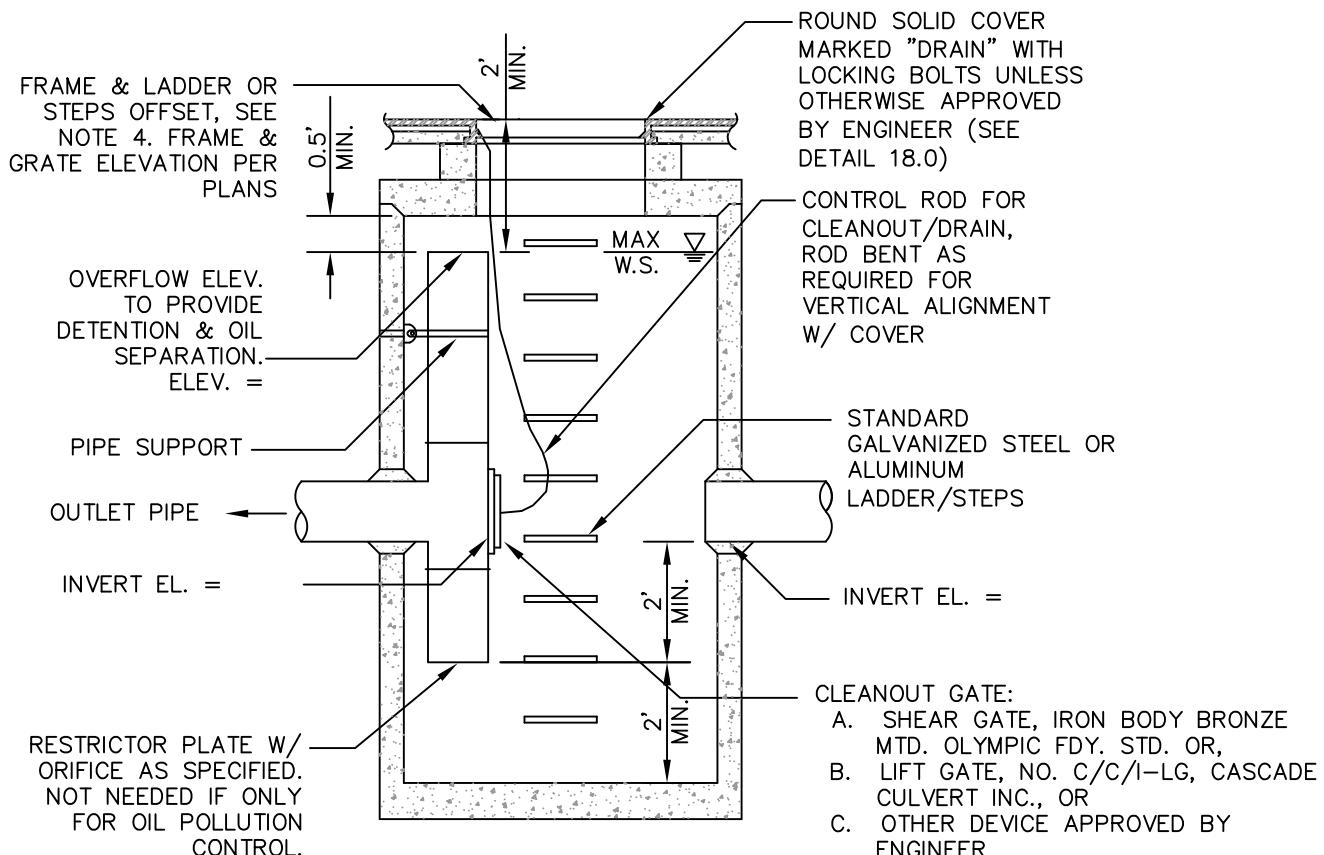
CONTROL STRUCTURE

SECTION A  
DETAIL N.T.S.

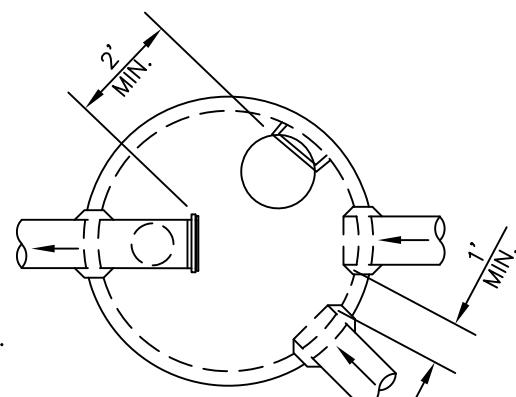
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APPROVED BY  
CITY ENGINEER

DATE 3/28/23



PLAN VIEW

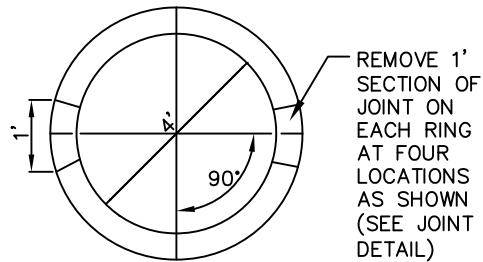
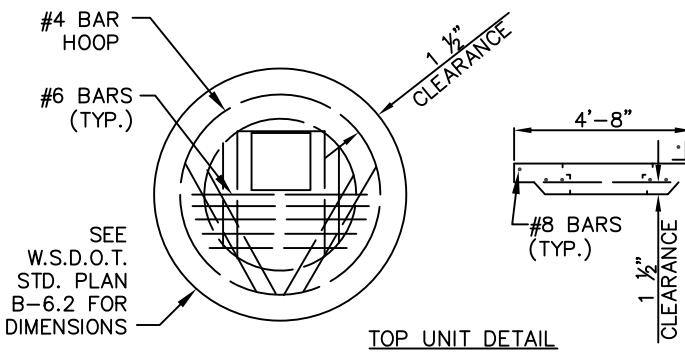
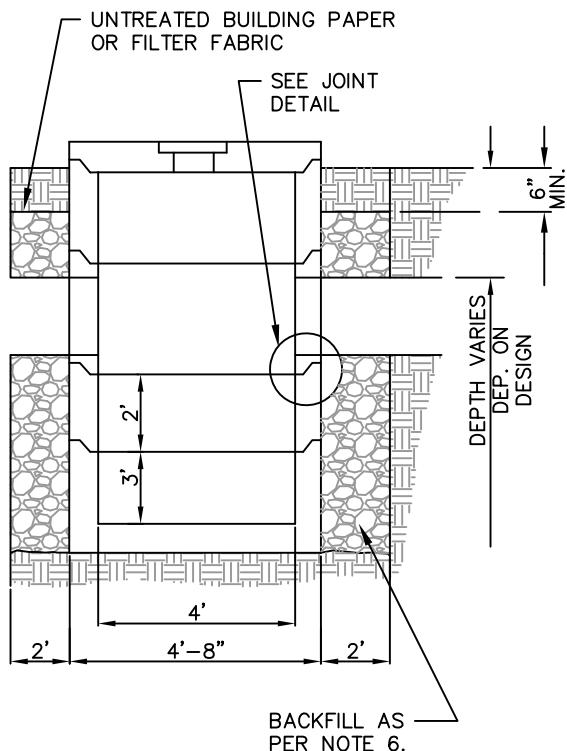


TOP VIEW

NOTES:

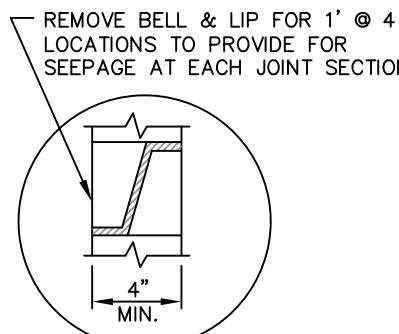
1. PIPE SIZES & SLOPES, PER PLAN
2. OUTLET CAPACITY NOT LESS THAN COMBINED INLETS.
3. METALS PARTS:
  - A. CORROSION RESISTANT OR GALVANIZED OR ALLUMINUM TYPE 2.
  - B. IF GALVANIZED STEEL PIPE, HAVE ASPHALT TREATMENT 1.
4. FRAME & LADDER OR STEPS OFFSET SO:
  - A. CLEANOUT GATE IS VISIBLE FROM TOP.
  - B. CLIMB DOWN SPACE IS CLEAR OF RISER & CLEANOUT GATE.
  - C. FRAME IS CLEAR OF CURB.
5. STRUCTURE SHALL BE A TYPE 2 CATCH BASIN 54" MINIMUM DIAMETER.
6. THIS STRUCTURE DOES NOT MEET REQUIREMENTS FOR AN OIL CONTROL BMP PER VOL. V OF THE CURRENT GHMSDM

 <b>ENGINEERING DIVISION</b>	
<b>OIL POLLUTION CONTROL DEVICE</b>	
SECTION A DETAIL N.T.S. <b>12.1</b>	
APPROVED BY CITY ENGINEER  DATE <b>3/28/23</b>	

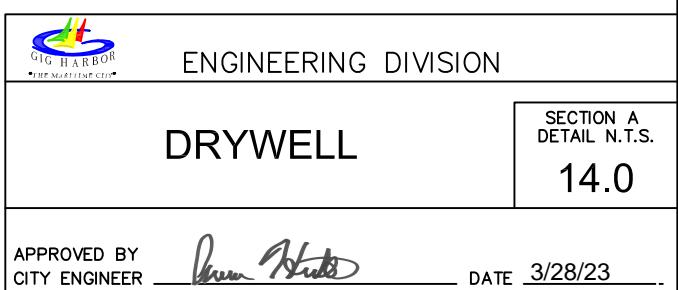


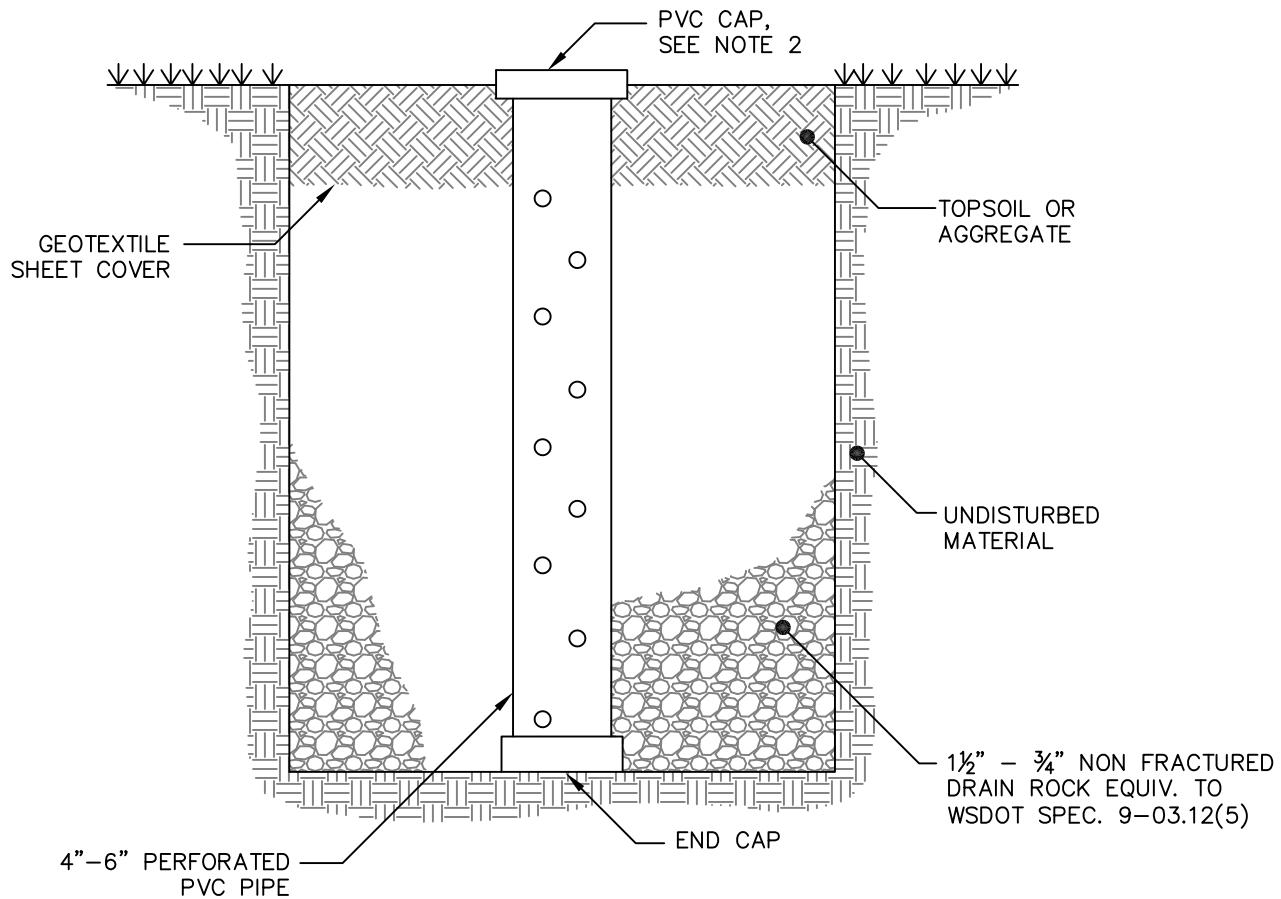
## NOTES:

1. DRYWELL IS A TYPE II CATCH BASIN & MODIFIED AS SHOWN.
2. DRYWELL TO BE BUILT IN 1' OR 2' SECTIONS ONLY. EXCEPT FOR BASE WHICH SHALL BE A 3' SECTION.
3. BASE SECTION TO BE PLACED ON STABLE GROUND.
4. EACH DRYWELL SYSTEM SHALL HAVE AN OVERFLOW SYSTEM. SIZE TO BE DEPENDENT ON DESIGN CALCULATIONS.
5. TOP UNIT SHALL MEET W.S.D.O.T. SPEC. FOR A TYPE 2 CATCH BASIN.
6. BACKFILL SHALL BE  $\frac{3}{4}$ " - 2  $\frac{1}{2}$ " WASHED GRAVEL. MATERIAL PASSING THE #40 SIEVE SHALL NOT EXCEED 2% BY WEIGHT.
7. IF DRYWELL SYSTEM USES PIPES, SEE DETAIL 3.0.
8. AN UIC WELL PERMIT MAY BE REQUIRED, SEE VOL. 1 AND APPENDIX 1C OF 2023 STORMWATER MANUAL.. CONTACT DEPARTMENT OF ECOLOGY



### JOINT DETAIL

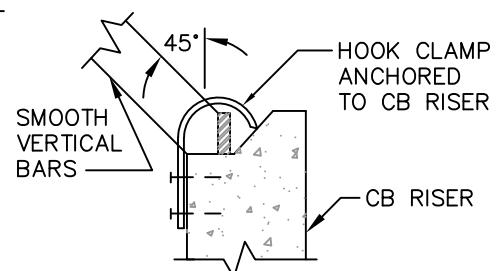
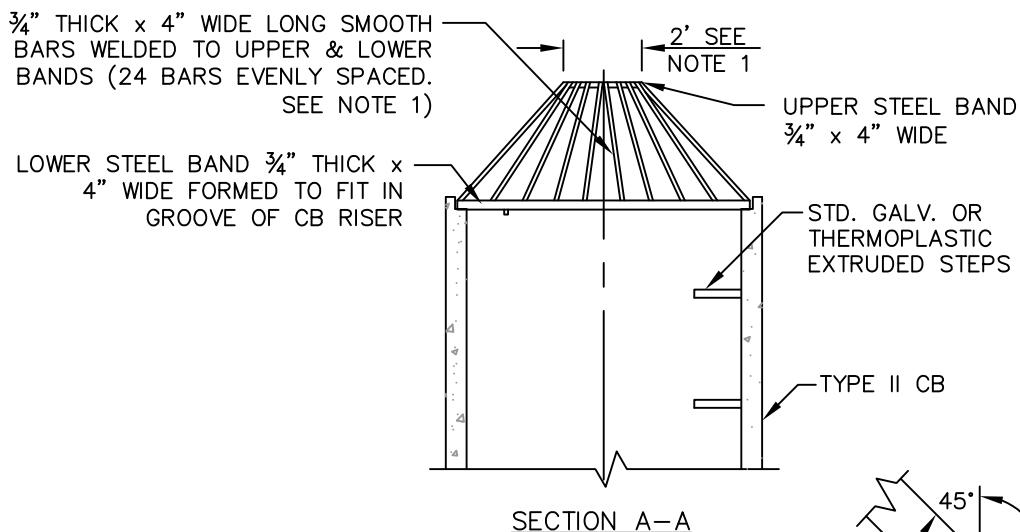
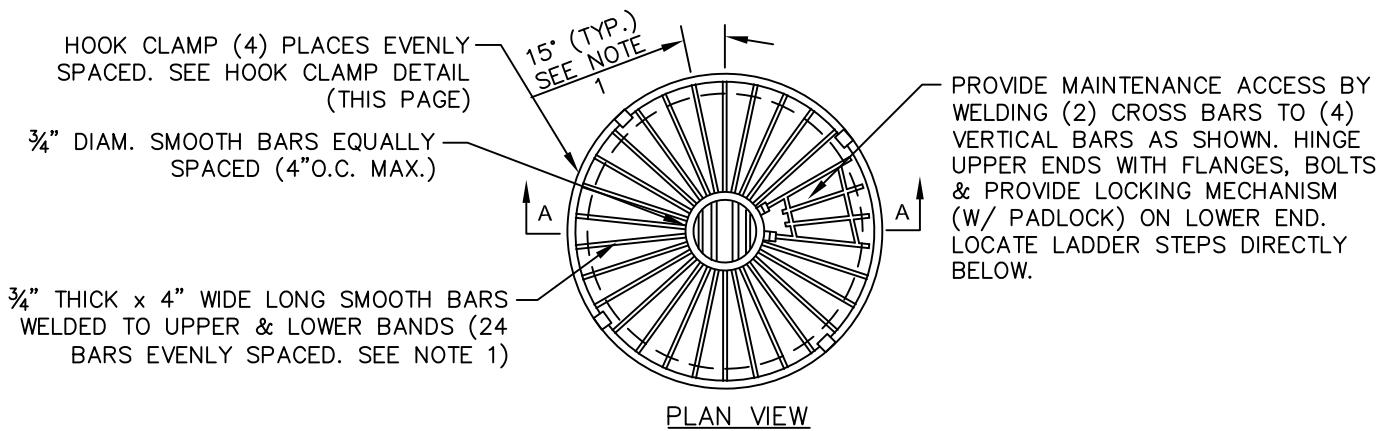




NOTES:

1. TRACE WIRE WILL BE PLACED UNDER CAP FOR LOCATION PURPOSES.
2. OBSERVATION PORTS IN TRAFFIC AREAS SHALL HAVE TRAFFIC RATED COVERS.

 <b>ENGINEERING DIVISION</b> <small>*The Charter City*</small>	
<b>OBSERVATION MONITORING PORTS</b>	
APPROVED BY CITY ENGINEER	SECTION A DETAIL N.T.S. <b>15.0</b>
DATE <u>3/28/23</u>	

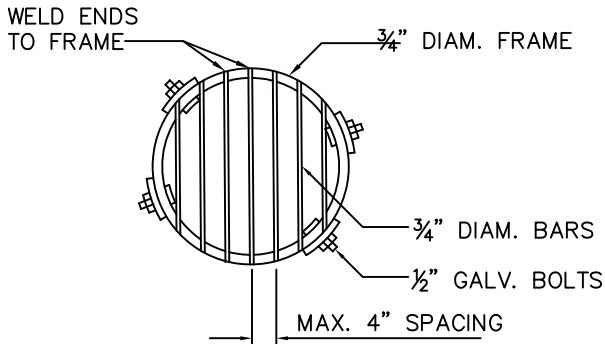


DETAIL HOOK CLAMP

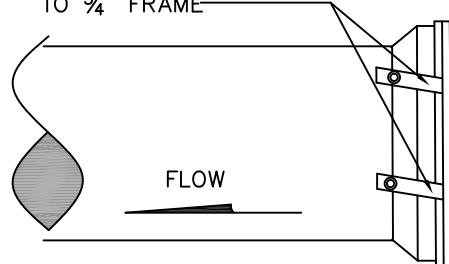
NOTES:

1. DIMENSIONS ARE FOR INSTALLATION ON 54" DIAM. CB. FOR DIFFERENT DIAM. CB'S ADJUST DIMENSIONS TO MAINTAIN 45° ANGLE ON "VERTICAL" BARS & 4" O.C. MAX. SPACING OF BARS AROUND LOWER STEEL BAND. WHEN VERTICAL BAR SPACING EXCEEDS 4" O.C., PROVIDE HORIZONTAL RINGS 4" O.C.
2. METAL PARTS: CORROSION RESISTANT (STEEL PARTS GALVANIZED OR STAINLESS STEEL).
3. THIS DEBRIS BARRIER IS ALSO RECOMMENDED FOR USE ON THE INLET TO ROADWAY CROSS-CULVERTS WITH HIGH POTENTIAL FOR DEBRIS COLLECTION (EXCEPT ON CLASS 2 STREAMS).

<b>ENGINEERING DIVISION</b>	
<b>OVERFLOW STRUCTURE WITH DEBRIS CAGE</b>	
SECTION A DETAIL N.T.S.	16.0
APPROVED BY CITY ENGINEER	
DATE 3/28/23	

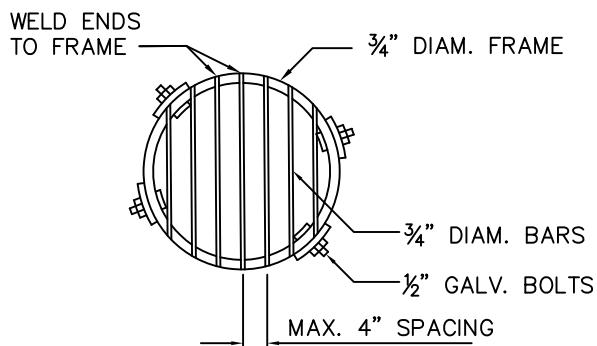


4 EA.  $\frac{1}{4}$ "x2"x5" STRIPS  
UNIFORMLY SPACED AND WELDED  
TO  $\frac{3}{4}$ " FRAME

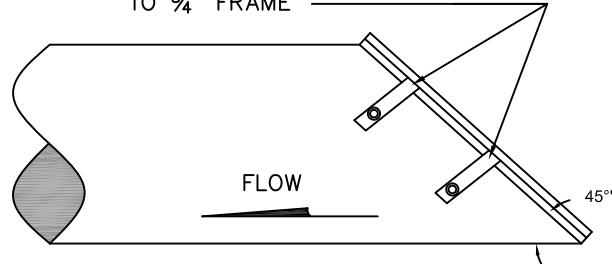


NOTE: ALL STEEL PARTS TO BE GALVANIZED AND  
ASPHALT COATED (TREATMENT 1 OR BETTER).

#### DEBRIS BARRIER 1 (90°)



4 EA.  $\frac{1}{4}$ "x2"x5" STRIPS  
UNIFORMLY SPACED AND WELDED  
TO  $\frac{3}{4}$ " FRAME



NOTE: ALL STEEL PARTS TO BE GALVANIZED AND  
ASPHALT COATED (TREATMENT 1 OR BETTER).

#### DEBRIS BARRIER 2 (45°)



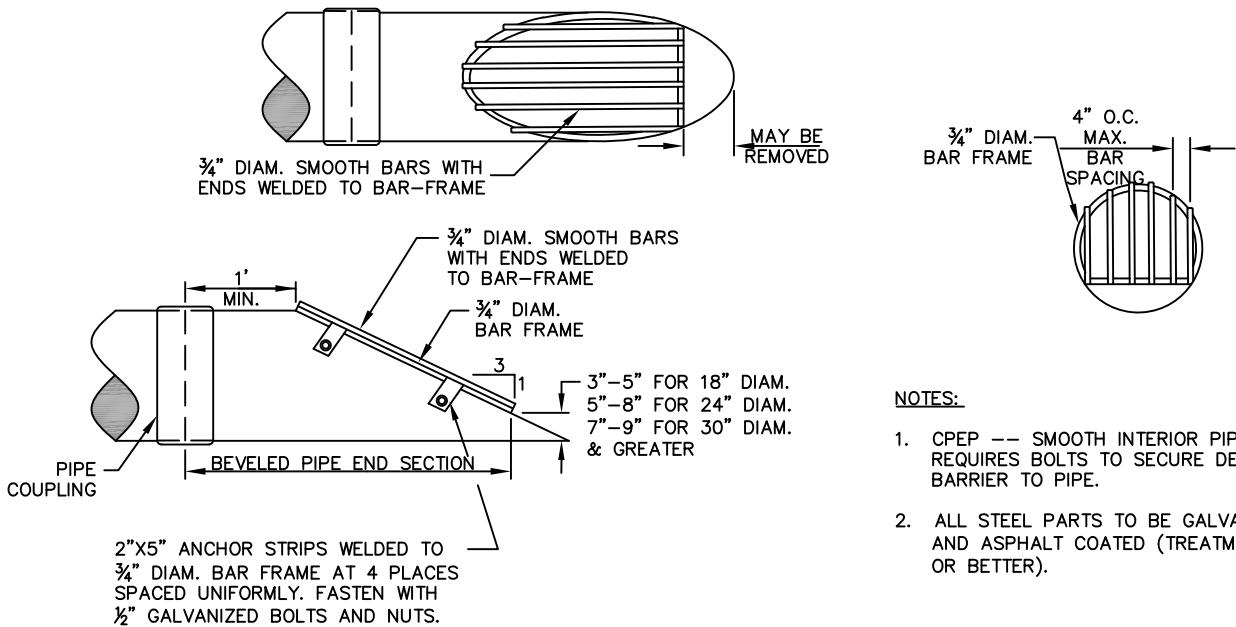
ENGINEERING DIVISION

DEBRIS BARRIER  
1 & 2

SECTION A  
DETAIL N.T.S.  
17.0

APPROVED BY  
CITY ENGINEER

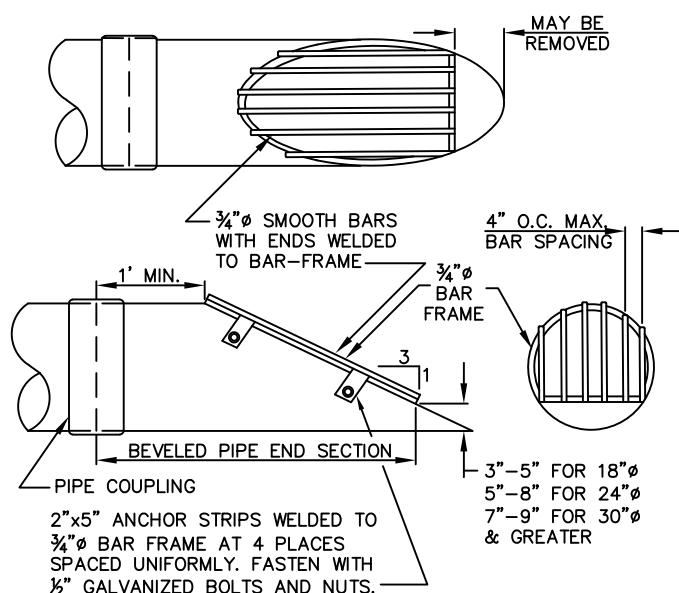
DATE 3/28/23



**NOTES:**

1. CPEP -- SMOOTH INTERIOR PIPE REQUIRES BOLTS TO SECURE DEBRIS BARRIER TO PIPE.
2. ALL STEEL PARTS TO BE GALVANIZED AND ASPHALT COATED (TREATMENT 1 OR BETTER).

**NOTE: END-SECTION SHOWN**

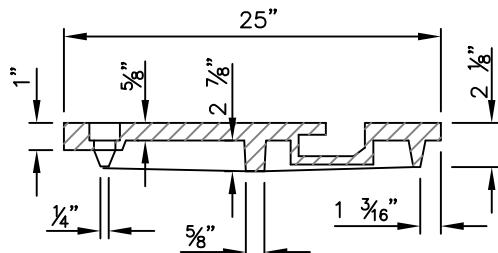
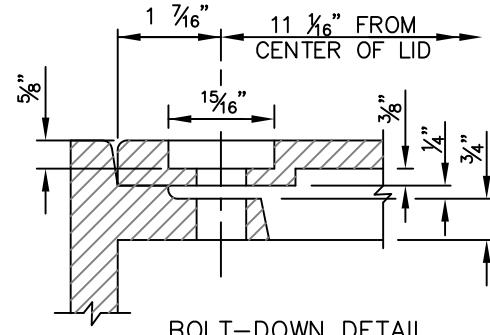
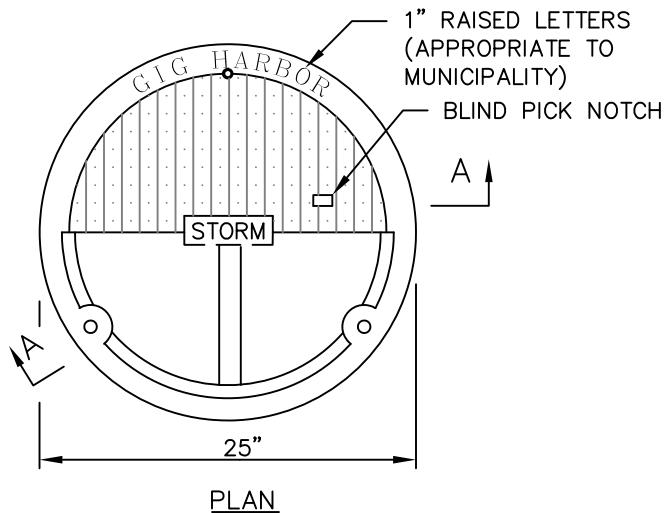


**NOTE: END-SECTION SHOWN**

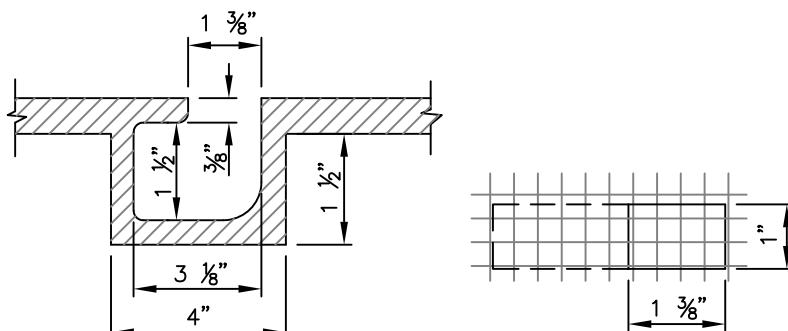
**NOTES:**

1. CPEP-SMOOTH INTERIOR PIPE REQUIRES BOLTS TO SECURE DEBRIS BARRIER TO PIPE.
2. ALL STEEL PARTS TO BE GALVANIZED AND ASPHALT COATED (TREATMENT 1 OR BETTER).

 <b>ENGINEERING DIVISION</b>	
<b>DEBRIS BARRIER 3</b>	
<b>SECTION A DETAIL N.T.S.</b>	
<b>17.1</b>	
APPROVED BY <i>[Signature]</i> DATE <u>3/28/23</u> CITY ENGINEER	



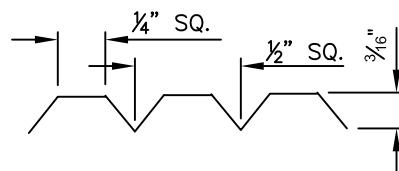
NOTE: DIMENSIONS BASED FROM TOP OF SKID DESIGN



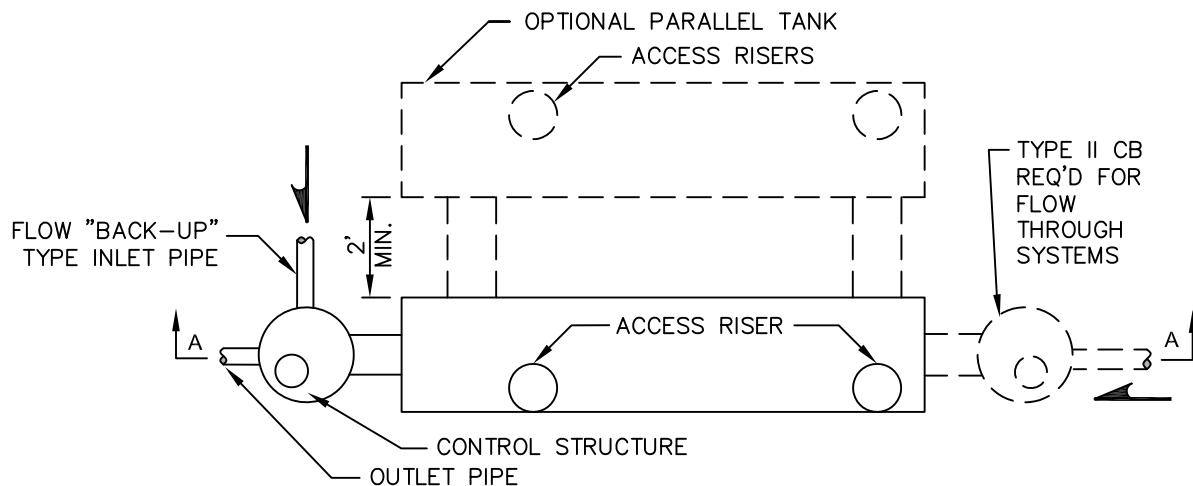
TOP VIEW  
BLIND PICK NOTCH DETAIL

NOTES:

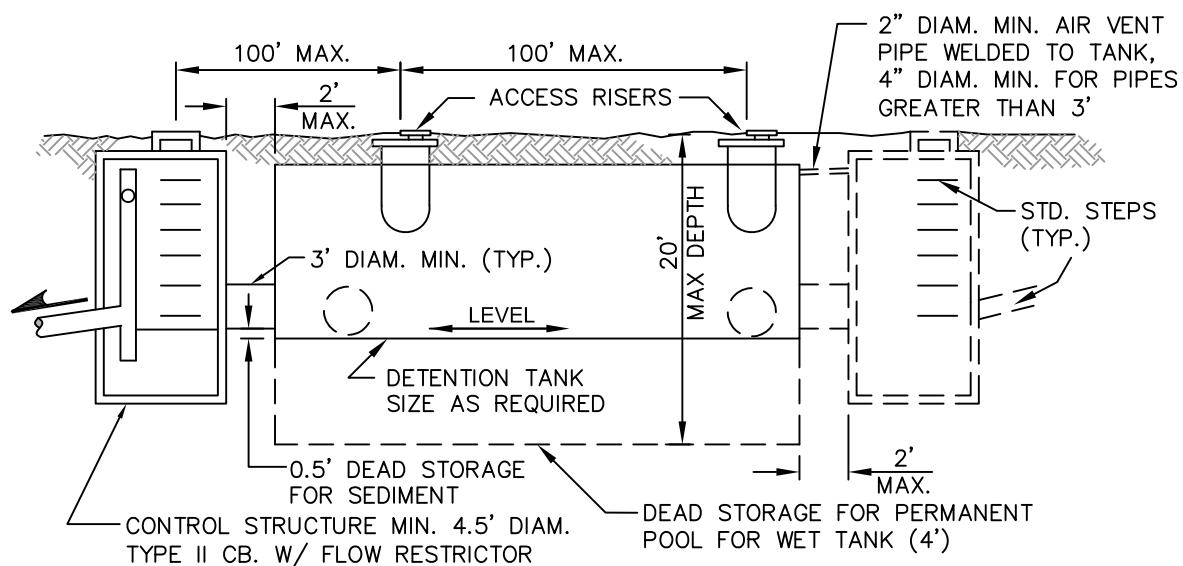
1. USE WITH THREE LOCKING BOLTS  $\frac{3}{8}$ " - 11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2" LONG. DRILL HOLES SPACED 120°@  $11\frac{1}{16}$ " RADIUS
2. MATERIAL IS DUCTILE IRON ASTM A 536 GRADE 80-55-06.



 <b>CATCH BASIN TYPE 2 SOLID LOCKING LID</b>		ENGINEERING DIVISION	
		SECTION A DETAIL N.T.S.	18.0
APPROVED BY CITY ENGINEER			
		DATE 3/28/23	



PLAN VIEW



SECTION A-A

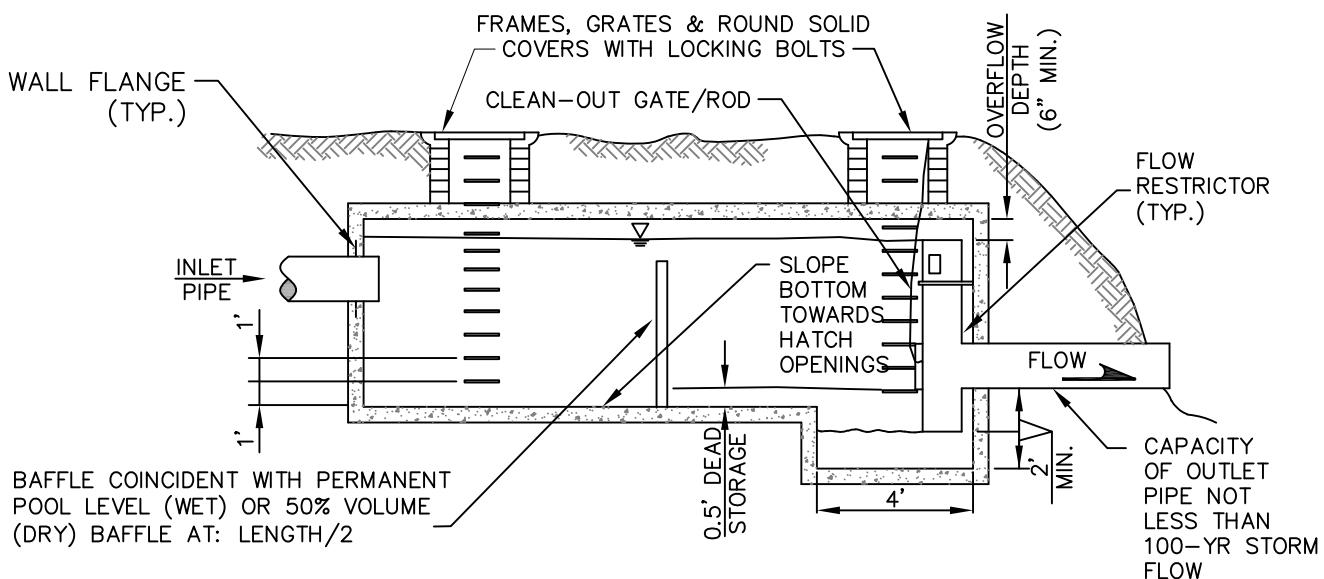
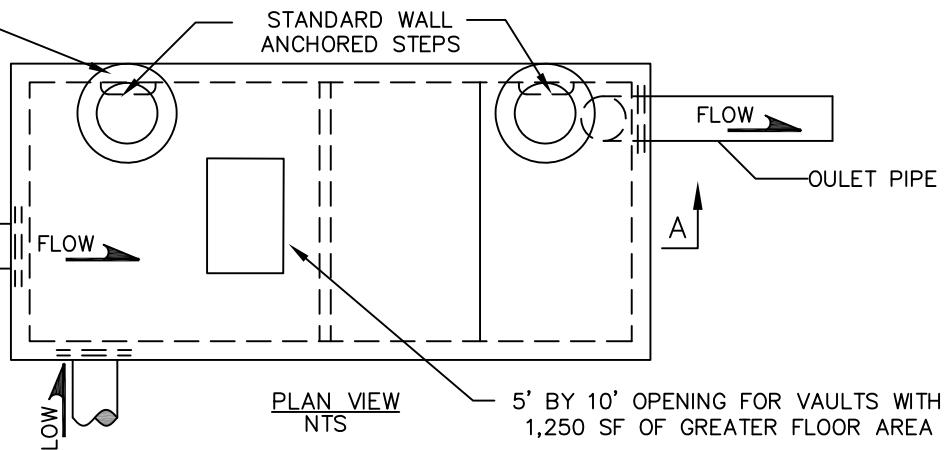
NOTES:

1. ALL METAL PARTS CORROSION RESISTANT. STEEL PART GALV. & ASPH. COATED. (TREATMENT 1 OR BETTER)
2. TANK MUST MEET H-20 LOADING AND ALL APPLICABLE OSHA REQUIREMENTS FOR ACCESS
3. LOOPED DETENTION SYSTEMS WITH MANUFACTURER FITTINGS ARE ACCEPTED WITH SHOP DRAWINGS

		ENGINEERING DIVISION
<b>DETENTION TANK (DRY/WET) TYPICAL</b>		SECTION A DETAIL N.T.S.
<b>19.0</b>		
APPROVED BY _____ CITY ENGINEER  DATE <u>3/28/23</u>		

SEE NOTE 4.

PROVIDE PARTITIONS AS REQUIRED WITH ADEQUATE FLOW-THROUGH AND ACCESS AT BOTTOM (LEAVING 0.5' DEAD STORAGE) & AIR VENT AT TOP.



NOTES:

SECTION A-A  
NTS

1. PLANS MUST BE DESIGNED & STAMPED BY A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER.
2. ALL METAL PARTS SHALL BE CORROSION RESISTANT OR ASPHALT COATED (TREATMENT 1 OR BETTER).
3. PROVIDE WATER STOP AT ALL CAST-IN-PLACE CONSTRUCTION JOINTS. PRECAST VAULTS SHALL HAVE APPROVED RUBBER GASKET SYSTEM.
4. VAULT TO MEET ALL OSHA REQUIREMENTS FOR CONFINED SPACE ENTRY.
5. CONTROL STRUCTURE CAN BE SEPARATE STRUCTURE.



ENGINEERING DIVISION

**DETENTION VAULT  
(DRY/WET)  
TYPICAL**

SECTION A  
DETAIL N.T.S.

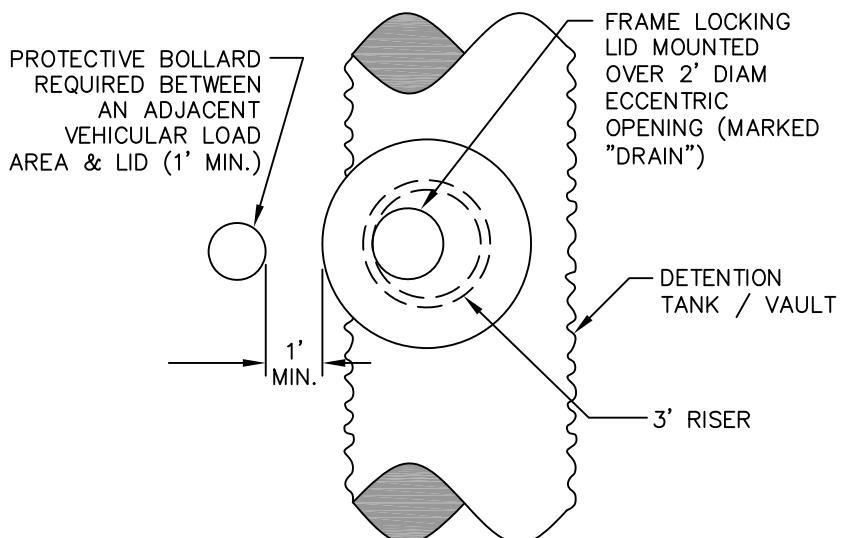
19.1

APPROVED BY  
CITY ENGINEER

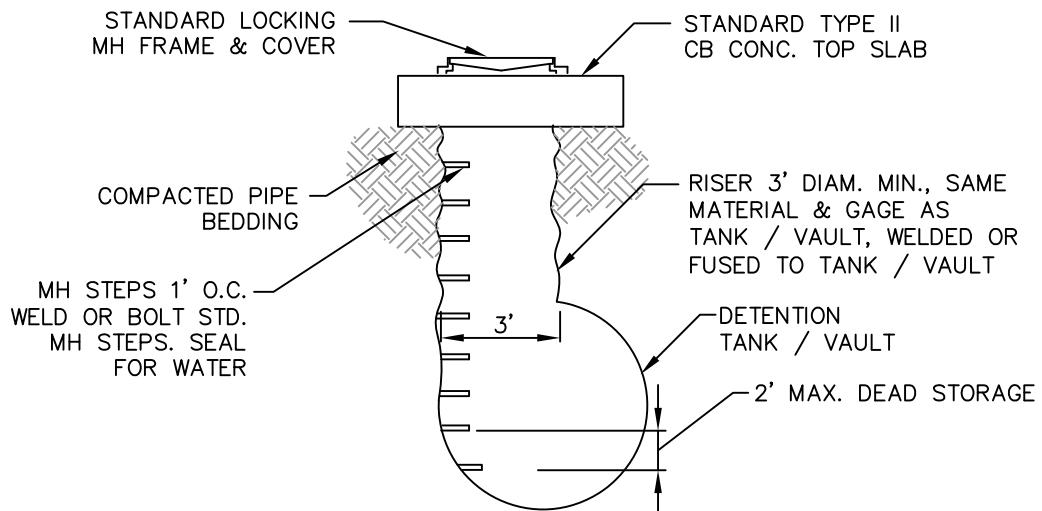
DATE 3/28/23

RESTRICTIONS FOR APPLICATION:

USE ONLY FOR ACCESS TO DETENTION TANKS / VAULTS. NOT ALLOWED FOR USE IN ROADWAYS, DRIVEWAYS, PARKING STALLS OR WHERE VEHICULAR LOADS WOULD OCCUR.



PLAN VIEW

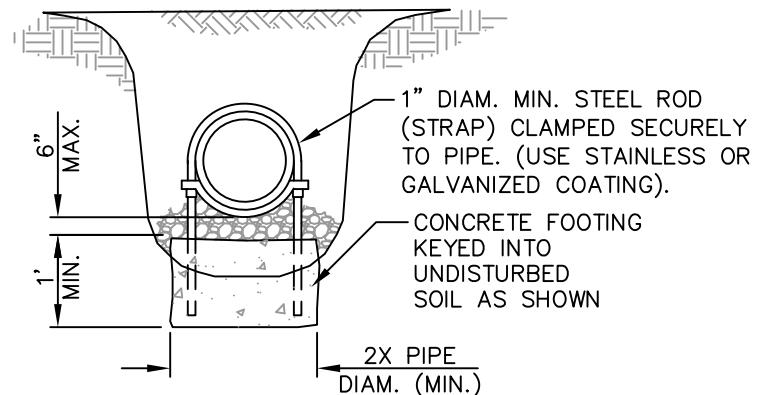
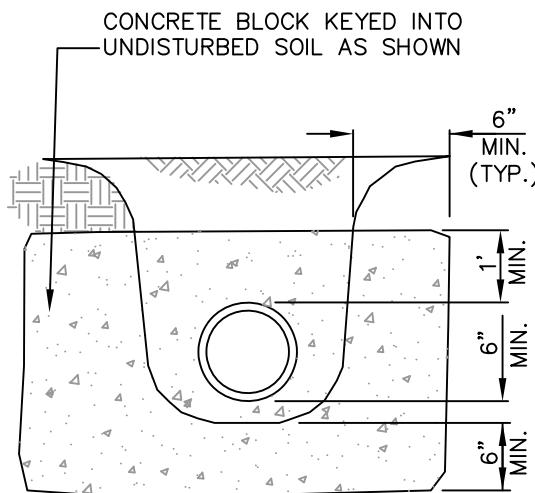
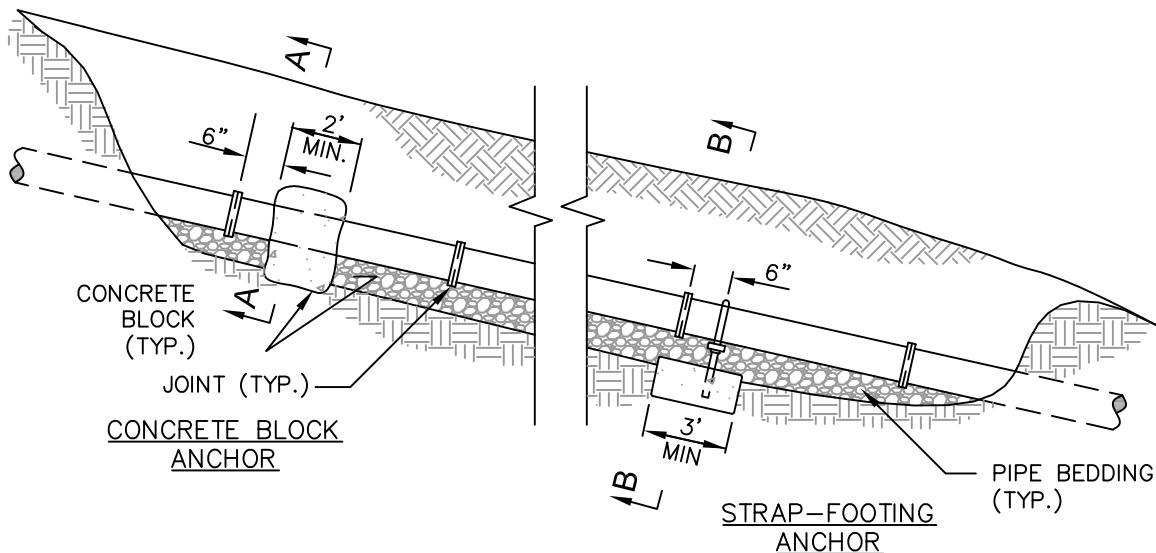


NOTES:

1. USE ADJUSTING BLOCKS AS REQUIRED TO BRING FRAME TO GRADE.
2. ALL METAL PARTS SHALL BE CORROSION RESISTANT. STEEL PARTS GALVANIZED AND ASPHALT COATED. (TREATMENT 1 OR BETTER).
3. MUST BE CONVENIENTLY LOCATED FOR MAINTENANCE VEHICLE ACCESS.

SECTION

 ENGINEERING DIVISION	
DETENTION TANK/VAULT ACCESS DETAILS	
SECTION A DETAIL N.T.S.	19.2
APPROVED BY CITY ENGINEER 	4/10/23
DATE	



SECTION A-A

SECTION B-B

NOTES:

1. SPACING FOR PIPE ANCHORS TO BE @ MAX. 20' INTERVALS.
2. IF USING HDPE PIPES, ADDITIONAL BANDS MAY BE NEEDED. BANDS SHALL BE WELDED HDPE OR MECHANICAL RESTRAINT FITTINGS.
3. FOR HDPE PIPE, PROVIDE AN ANCHOR WITHIN 5' OF MH OR STRUCTURE, OR SLEEVE PIPE INTO THE STRUCTURE TO ALLOW FOR PIPE EXPANSION/CONTRACTION.



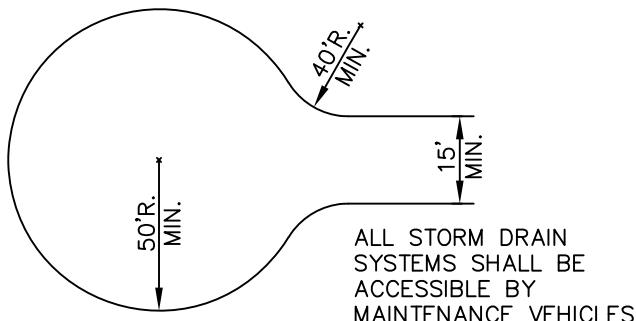
ENGINEERING DIVISION

PIPE ANCHOR DETAILS -  
EXAMPLE

SECTION A  
DETAIL N.T.S.  
20.0

APPROVED BY  
CITY ENGINEER

DATE 3/28/23



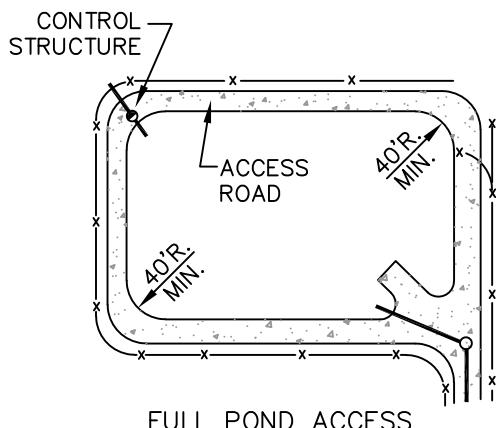
#### BULB TURN-AROUND

TO BE USED WHEN ACCESS ROAD  
LENGTH EXCEEDS 75'

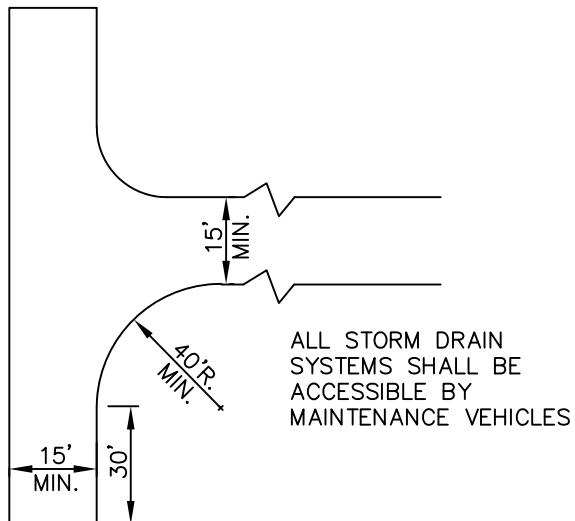
ROAD SECTION TO SUPPORT  
VEHICLES IT IS DESIGNED FOR



#### ACCESS ROAD DETAIL

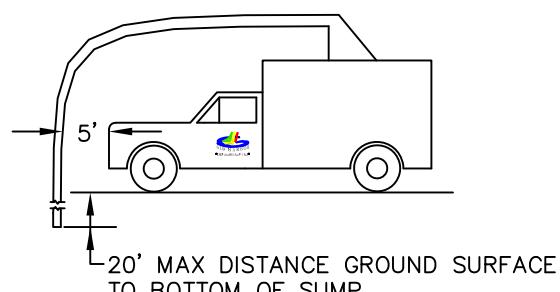
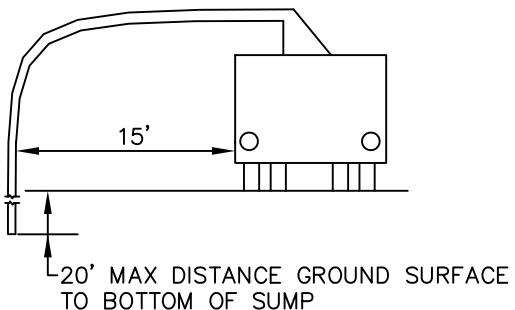


NOTE:  
THIS VEHICLE ACCESS DETAIL IS FOR  
STORMWATER MAINTENANCE VEHICLES  
ONLY. SEE BUILDING CODE(S) AND  
PUBLIC WORKS STREET STD DETAILS FOR  
EMERGENCY VEHICLE ACCESS REQS.



#### HAMMERHEAD TURN-AROUND

TO BE USED WHEN ACCESS ROAD  
LENGTH EXCEEDS 75'



#### CITY OF GIG HARBOR MAINTENANCE EQUIPMENT ACCESS CAPABILITIES



ENGINEERING DIVISION

#### DETENTION POND ACCESSES

SECTION A  
DETAIL N.T.S.  
21.0

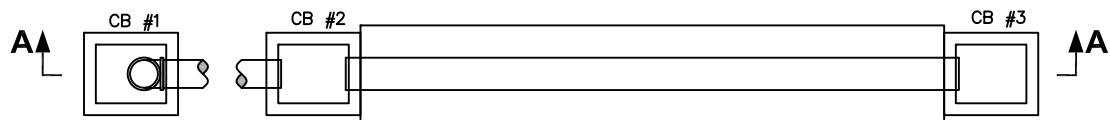
APPROVED BY  
CITY ENGINEER

DATE 3/28/23

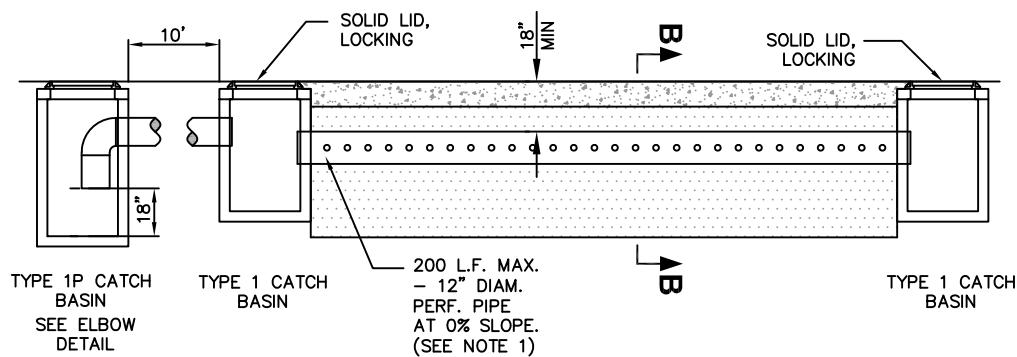


NOTE:  
CONTRACTOR TO OBTAIN CATCH  
BASIN MARKERS FROM THE CITY  
OF GIG HARBOR AND INSTALL PRIOR  
TO FINAL INSPECTION.

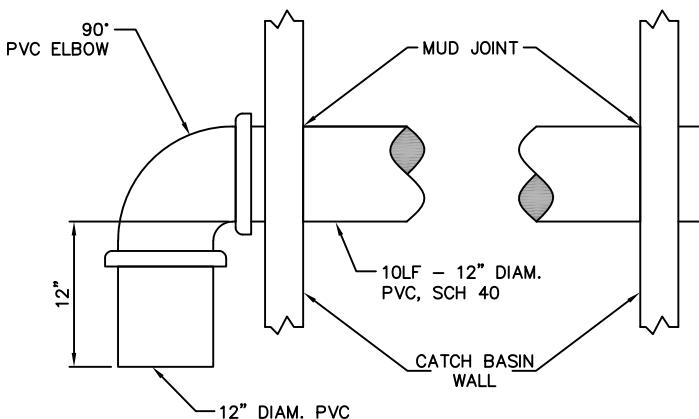
 <b>ENGINEERING DIVISION</b>	
<b>CATCH BASIN MARKER</b>	SECTION A DETAIL N.T.S. <b>22.0</b>
APPROVED BY CITY ENGINEER 	DATE <b>3/28/23</b>



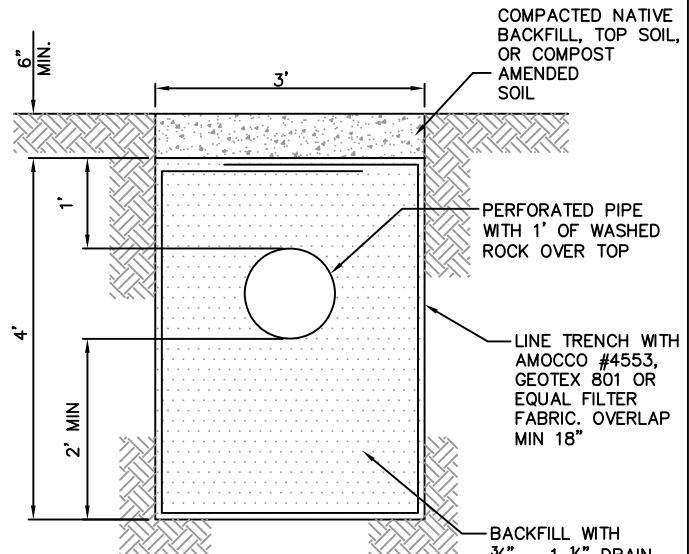
PLAN



SECTION A-A  
TYPICAL STANDARD DRYWELL  
DETAIL



ELBOW DETAIL



NOTES:

1. APPROVED PERF. PIPE MATERIAL SHALL BE: HDPE, CPSSP, OR APPROVED EQUAL.
2. PERFORATIONS MUST BE DOWNWARD FACING.
3. IF SYSTEM IS WHOLLY LOCATED WITHIN RIGHT-OF-WAY AND THE PERF. PIPE LENGTH IS LESS THAN 100 L.F., THEN CB #3 (END OF DRAIN FIELD) MAY BE REPLACED WITH AN END CAP.
4. IF CATCH BASIN RIMS ARE LOCATED WITHIN A VEHICLE TRAVEL SURFACE, THEN THE RIM ELEVATION SHALL BE SAME ELEVATION AS FINISH GRADE, OTHERWISE RIM ELEVATION SHALL BE 0.33' HIGHER THAN FINISH GRADE.
5. UIC WELL PERMIT MAY BE REQUIRED WITH THE DEPARTMENT OF ECOLOGY, SEE VOL. I AND APPENDIX 1C OF CURRENT STORMWATER MANUAL.



ENGINEERING DIVISION

DRYWELL & TRENCH DETAILS

SECTION A  
DETAIL N.T.S.  
23.0

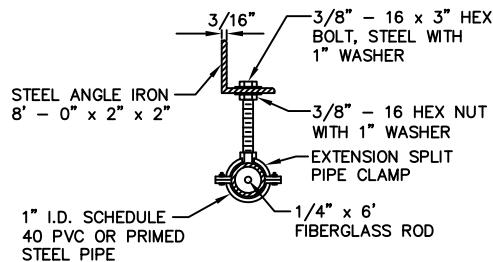
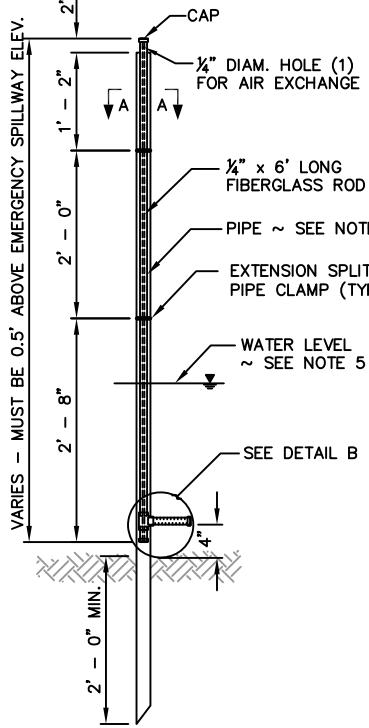
APPROVED BY  
CITY ENGINEER

DATE 3/28/23

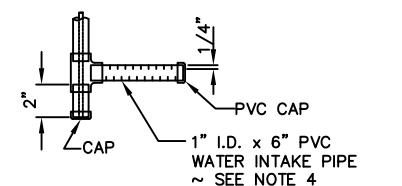
NOTES:

- 1) USE WSDOT STANDARD PLAN L-20.10-03. CURRENT VERSION.
- 2) ALL POSTS SHALL BE SPACED AT 10' MAX. INTERVALS UNLESS APPROVED BY CITY ENGINEER.
- 3) OTHER FENCE DETAILS REQUIRE APPROVAL OF CITY ENGINEER.
- 4) ALL POSTS ARE ROUND.
- 5) ALL POSTS ARE MIN. 8' - 8" IN LENGTH.
- 6) 9 GAUGE FABRIC VINYL COATED GREEN / BLACK.
- 7) TOLERANCE FOR WALL THICKNESS IS 12.5%.

 <b>ENGINEERING DIVISION</b>	
<b>CHAIN LINK FENCE</b> <b>TYPE 1</b> <b>(MODIFIED)</b>	
APPROVED BY CITY ENGINEER	SECTION A DETAIL N.T.S.  24.0
DATE <u>3/28/23</u>	

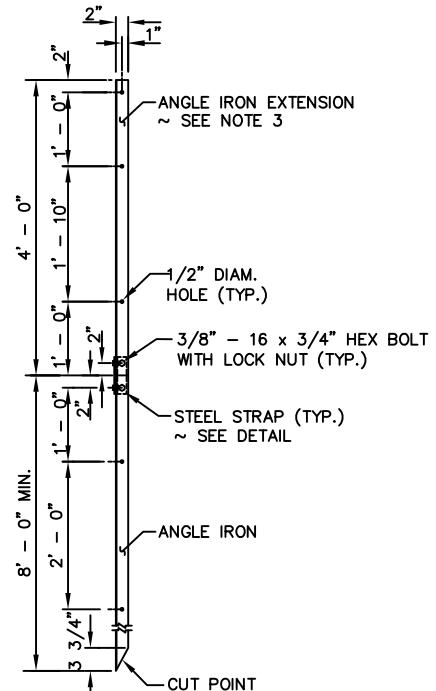


SECTION A

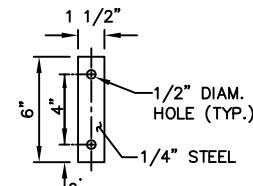


WATER INTAKE AND CLEANOUT ASSEMBLY

DETAIL B



ANGLE IRON DETAIL  
(SHOWN WITH EXTENSION)



STEEL STRAP

NOTES:

1. ALL ANGLE IRONS AND STEEL STRAPS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232.
2. PIPE, CAPS, AND T-ADAPTER SHALL BE 1" I.D. WHITE PVC, OR PRIMED STEEL, EXCEPT THE WATER INTAKE PIPE SHALL BE SCH. 40. ALL PIPE JOINTS SHALL BE THREADED.
3. GAGE ASSEMBLY PIPE, FIBERGLASS ROD, AND ANGLE IRON CAN BE EXTENDED AS NEEDED TO FIT SITE REQUIREMENTS. EXTRA PIPE CLAMPS SHALL BE ADDED FOR SECURITY.
4. SCORE THE WATER INTAKE PIPE  $\frac{1}{4}$ " DEEP,  $\frac{1}{32}$ " WIDE (WIDTH OF SAW BLADE). EVERY  $\frac{1}{2}$ ", ALTERNATING CUTS ON TOP AND BOTTOM FOR DRAINAGE. PLACE AT LOWEST WATER LEVEL.
5. WATER LEVEL MAY VARY, DEPENDING ON SEASON.
6. POUR IN APPROXIMATELY 1 TABLESPOON OF CORK DUST AT INSTALLATION, AND AFTER EACH READING.
7. ALTERNATE ANCHORING METHODS FOR VAULTS AND TANKS MAY BE APPROVED BY THE CITY.



ISOMETRIC VIEW



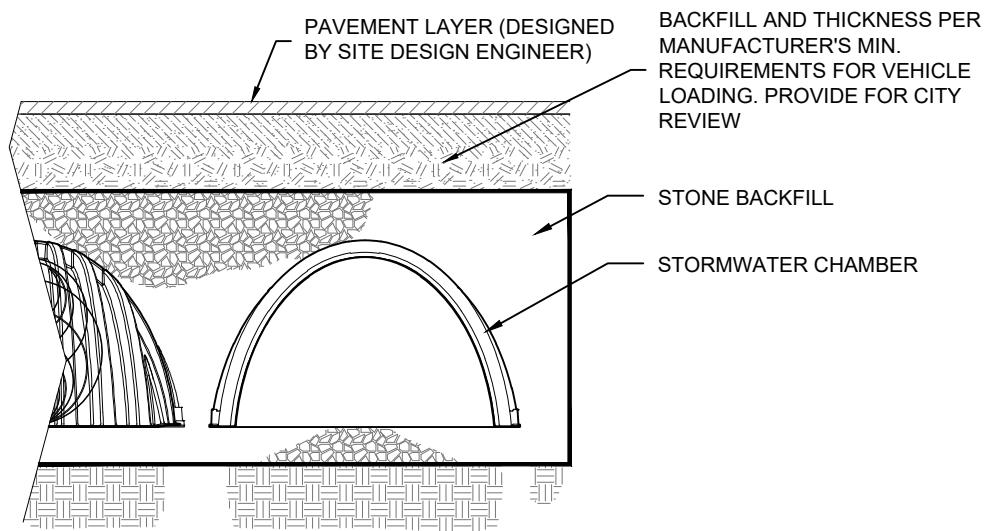
ENGINEERING DIVISION

CREST GAGE

SECTION A  
DETAIL N.T.S.  
25.0

APPROVED BY  
CITY ENGINEER

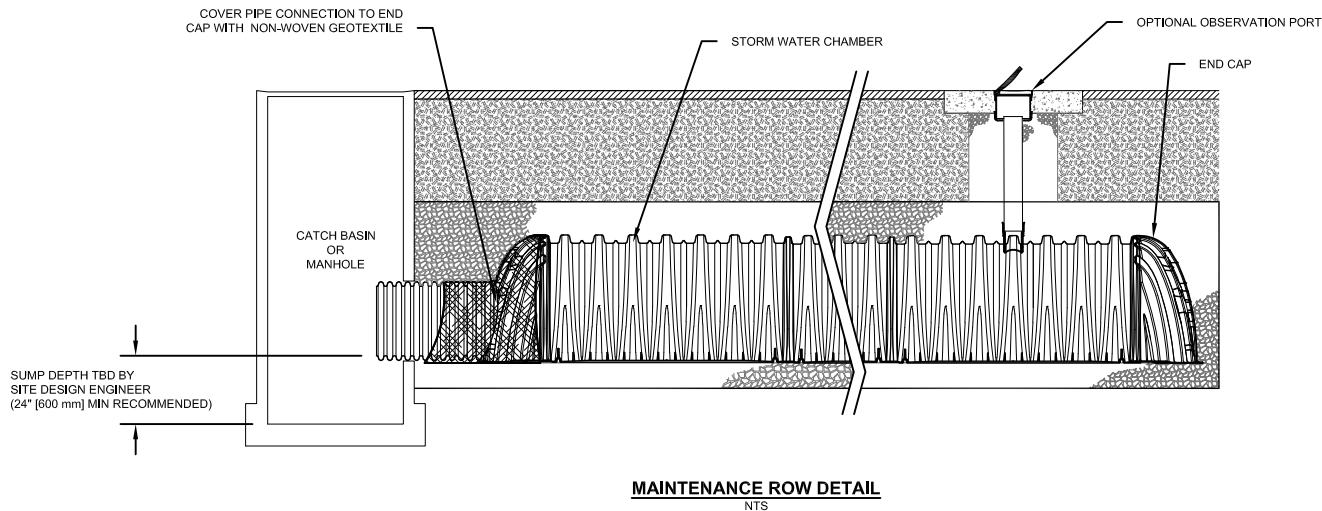
DATE 3/28/23



1. CHAMBER DESIGN SHALL BE IN ACCORDANCE WITH ASTM F2418 AND F2787.
2. CHAMBER FOOT MUST BE DESIGNED TO DEVELOP A STRUCTURAL STONE COLUMN BETWEEN ROWS
3. CHAMBER INSTALLATION PER MANUFACTURER'S SPECIFICATIONS.
4. CHAMBER REPRESENTATIVE TO MONITOR THE CHAMBER SYSTEM INSTALLATION AND PROVIDE A LETTER OF ACCEPTANCE.
5. PROVIDE TRACER WIRE UNDER INSPECTION PORT CAP FOR DETECTION PURPOSES IN UNPAVED AREAS.
6. PROVIDE A TRAFFIC RATED INSPECTION PORT CAP IN PAVED AREAS.

 <b>CITY OF GIG HARBOR</b> Engineering Division	
<b>STORMWATER CHAMBERS</b>	DETAIL NO. <b>26.0</b>
ISSUED BY CITY ENGINEER	

DATE 3/28/23



## INSPECTION & MAINTENANCE

STEP 1) INSPECT MAINTENANCE ROW FOR SEDIMENT

- A. OBSERVATION PORT (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON INLINE DRAIN
  - A.2. REMOVE AND CLEAN FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO MAINTENANCE ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL MAINTENANCE ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF MAINTENANCE ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE MAINTENANCE ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT MAINTENANCE ROW USING THE JETVAC PROCESS

- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

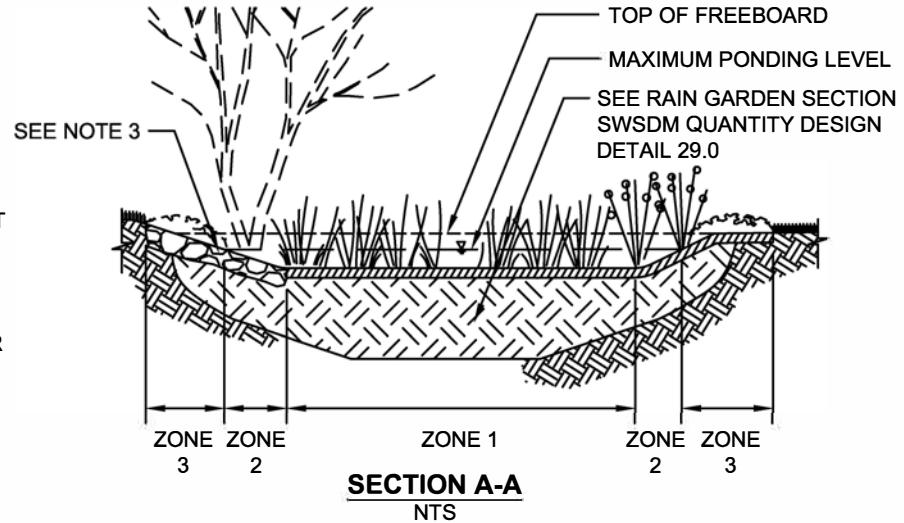
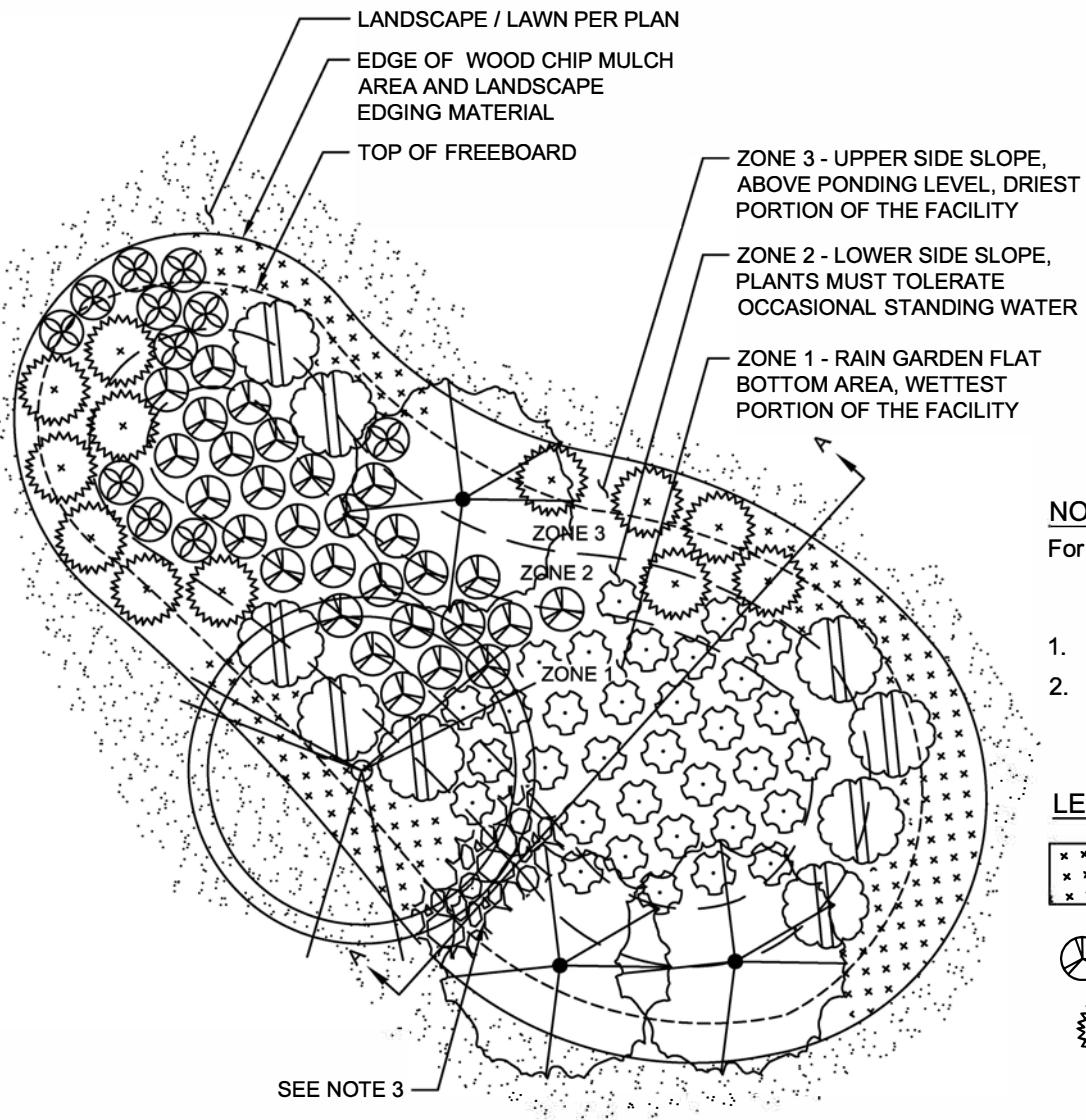
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE SYSTEM.

## NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY, OR WHEN FACILITY SHOWS SIGNS OF PLUGGING, OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

 <b>CITY OF GIG HARBOR</b> <b>ENGINEERING DIVISION</b>	
<b>STORMWATER</b> <b>MAINTENANCE CHAMBER</b>	
<small>ISSUED BY</small> <small>CITY ENGINEER</small> 	<small>DETAIL NO.</small> <b>27.0</b>
<small>DATE</small> <b>3/28/23</b>	

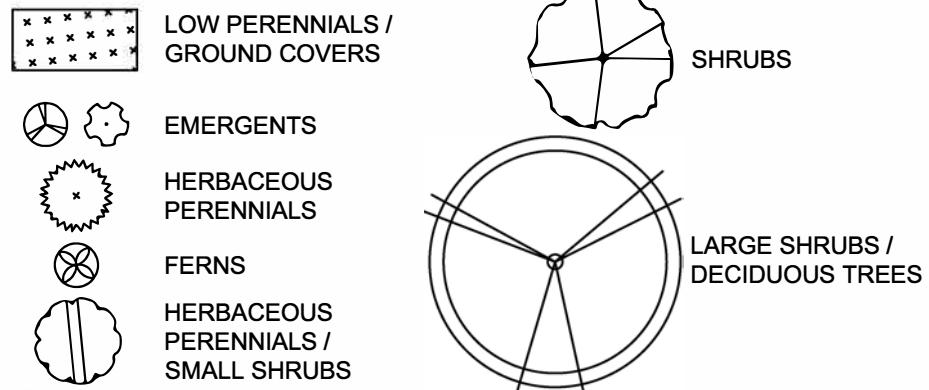


NOTES:

For guidance on plants for each zone and for example planting plans see the 2013 Rain Garden Handbook for Western Washington, available at <https://fortress.wa.gov/ecy/publications/documents/1310027.pdf>

1. Choose a minimum 50% evergreen plants.
2. Keep plants clear of inlet, outlet and/or overflows.

LEGEND:



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

RAIN GARDEN - PLANTING ZONES

DETAIL NO.

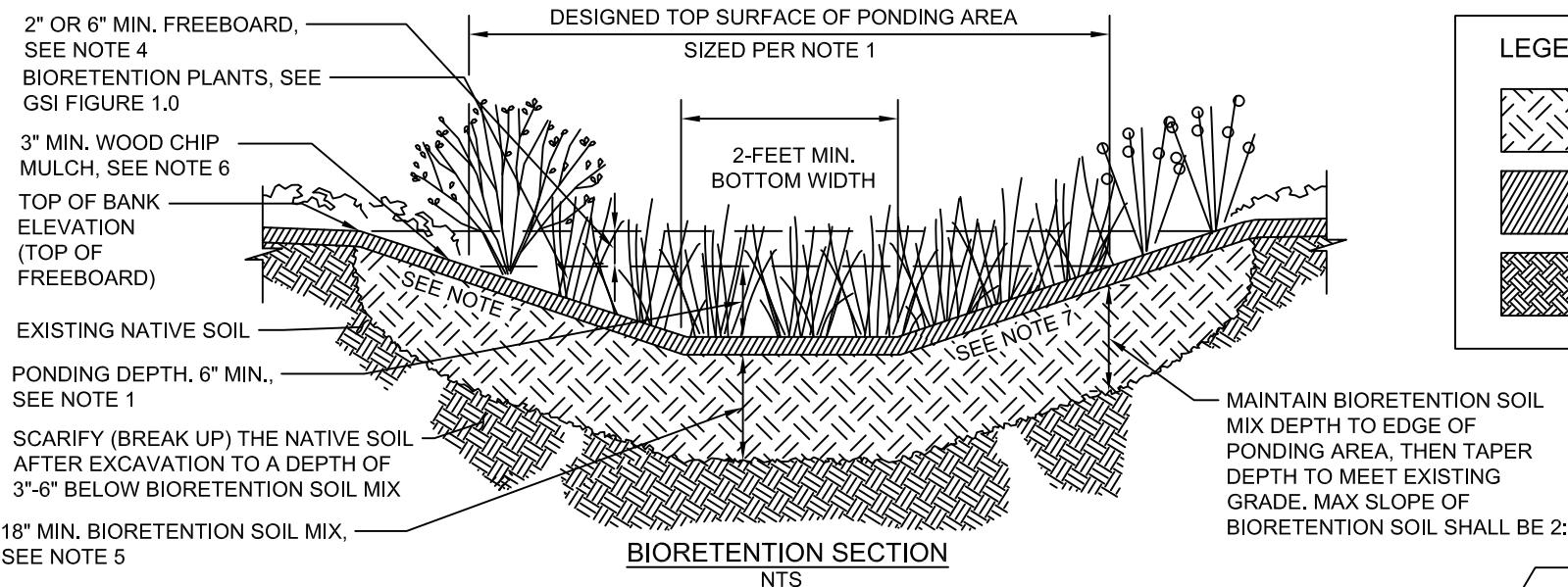
28.0

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CITY ENGINEER

DATE 3/28/23

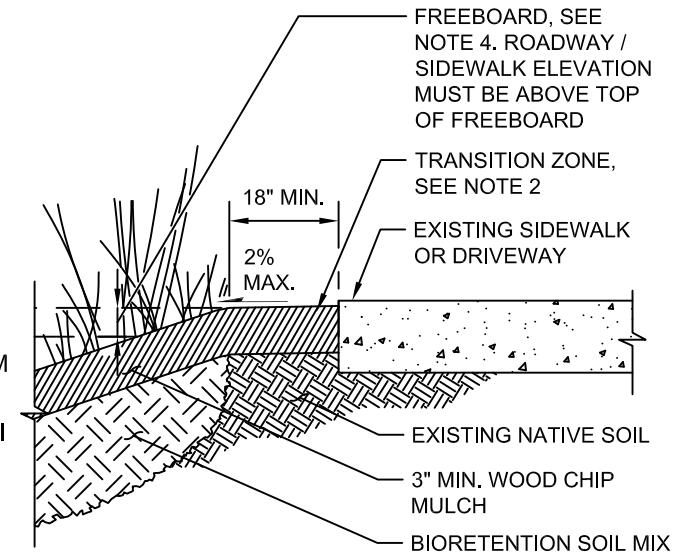
NOTES:

1. RAIN GARDENS ARE NOT APPROVED UNDER THE CURRENT STORMWATER MANUAL AS A BMP FOR MEETING MINIMUM REQUIREMENTS 5, 6, AND 7. SEE VOLUME 3 AND VOLUME 5 OF THE CURRENT GIG HARBOR STORMWATER AND SITE DEVELOPMENT MANUAL.



#### NOTES:

1. Bioretention sized for compliance with MR #5, #6, and #7 shall be in accordance with Volume III Section 3.3 of the SMSDM (Ecology BMP T5.14A), available at <http://www.cityofgigharbor.net/city-codes-regs/>. Rain gardens not required to comply with SMSDM can be sized per the *Rain Garden Handbook for Western Washington*, available at <https://fortress.wa.gov/ecy/publications/documents/1310027.pdf> - where sizing is based upon depth of either 6-inches or 12-inches of ponding.
2. Transition zone
  - a. 1-inch grade change from edge of sidewalk, curb and/or other hard surface.
  - b. 2% max. slope.
  - c. Transition shall be amended soils per Volume III Section 3.1 of the SMSDM (Ecology BMP T5.13) and SMSDM Quantity Design Details 34.1-34.4 if applicable or per note 3.
3. Scarify or till subgrade to 3-inch depth. Place 3-inches of topsoil on surface and till into 5-inches of site soil. Install 3-inches woodchip mulch or as specified on plans.
4. Freeboard shall be a minimum of 2-inches for contributing areas under 1,000 square feet, or 6-inches for contributing areas 1,000 square feet or greater per SWSDM.
5. Do not compact the bioretention soil mix.
  - a. Do not operate heavy equipment within the bioretention facility.
  - b. Do not place or amend bioretention soil when the ground is frozen or when the soil is excessively wet.
6. Continue mulch for a minimum of 2-feet past the top of bank elevation or install landscape edging if bioretention is adjacent to turf.
7. Maximum side slope (2:1 or 3:1) varies with size of contributing area. See Volume III Section 3.8 of the current SMSDM (Ecology BMP T5.14A) or the Rain Garden Handbook for Western Washington, as applicable.



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

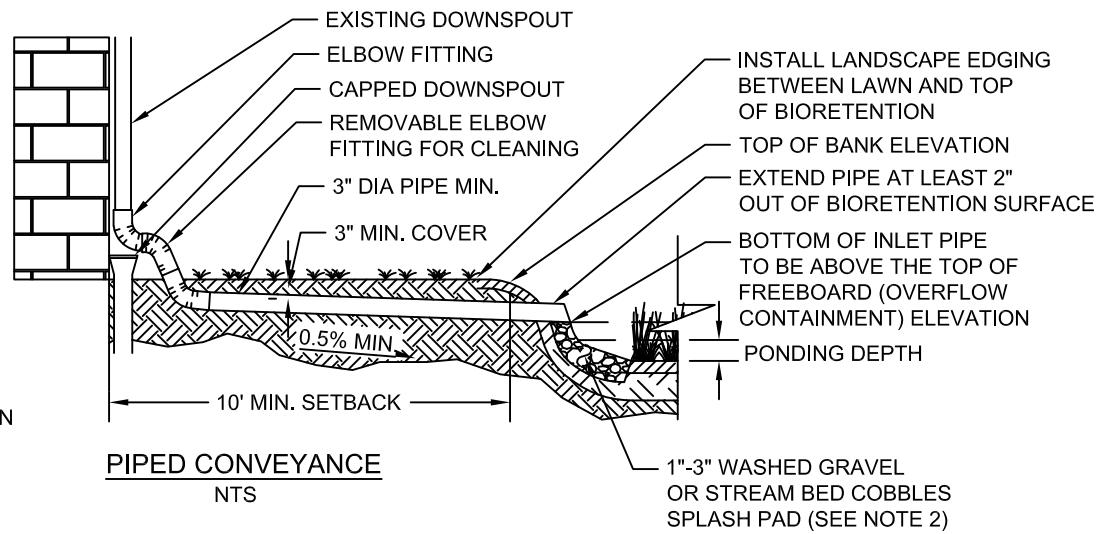
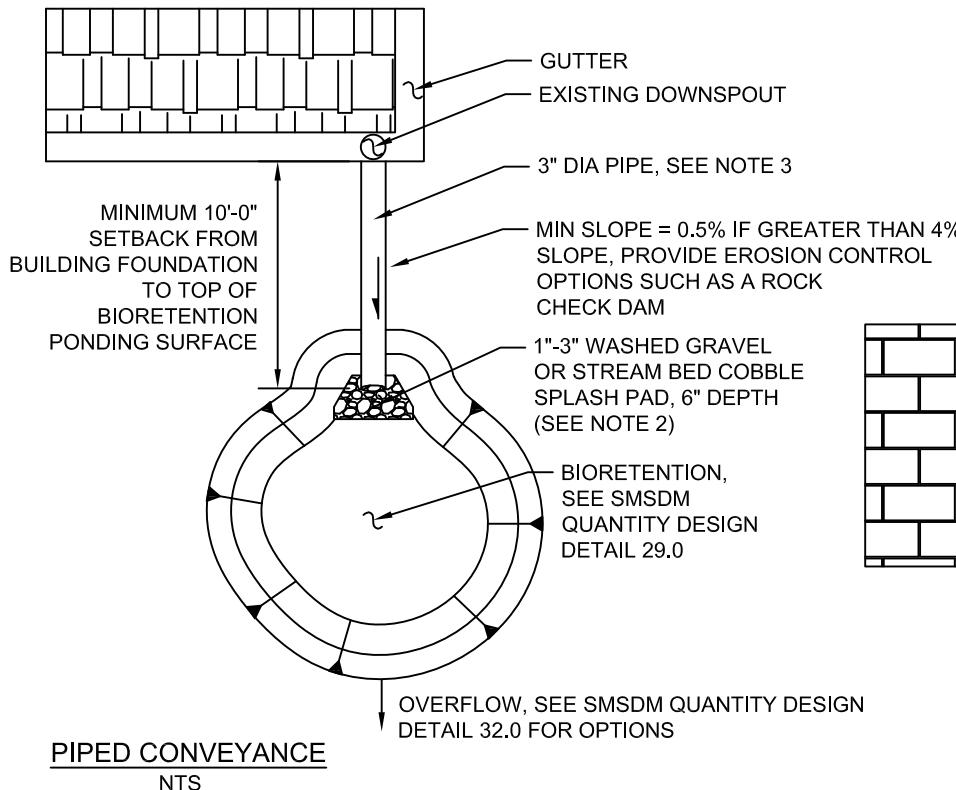
**BIORETENTION SECTION**

DETAIL NO.

**29.0**

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*[Signature]*  
DATE 3/28/23



NOTES:

1. This detail is for Single Family Residences (SFR) only. Not in the ROW.
2. Gravel or stream bed cobbles splash pad minimum depth of 6 inches. Rock splash pad shall be minimum of 1 foot wide and extend beyond the pipe outlet by a minimum of 1 foot.
3. Pipe shall be per Gig Harbor SMSDM or Public Works Standards, current editions.



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

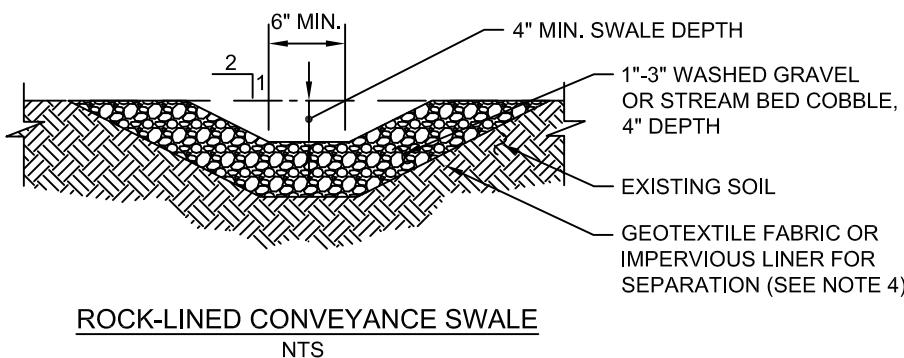
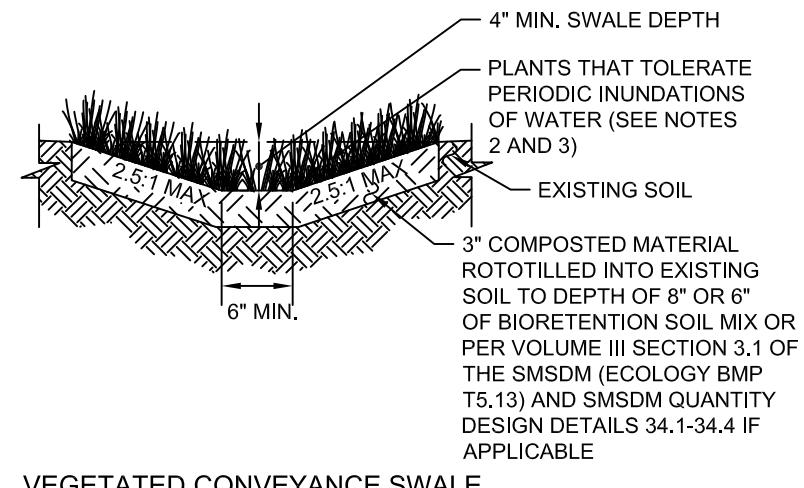
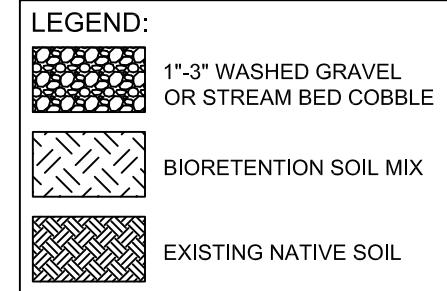
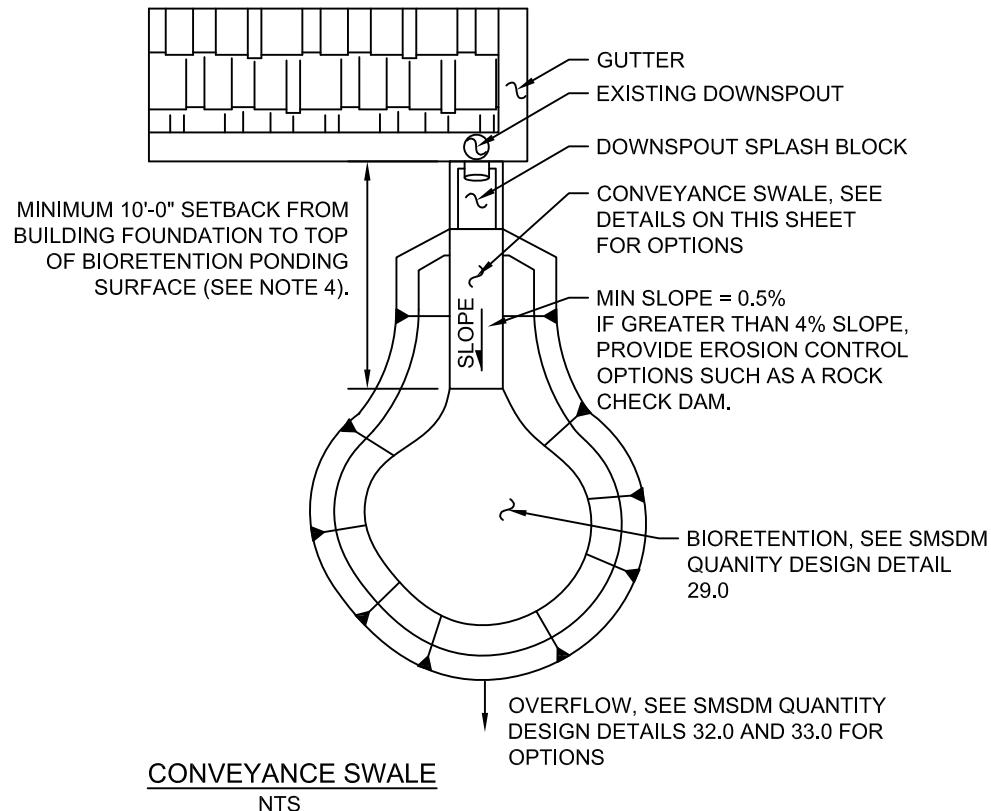
**BIORETENTION PIPED INLET**

DETAIL NO.

**30.0**

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DATE 3/28/23



#### NOTES:

1. This detail is for Single Family Residences (SFR) only. Not in the ROW.
2. Do not place plants that will restrict or concentrate the flow of water in the bottom of the swale.
3. Choose well rooted plants suitable for Zone 2 per 2013 Rain Garden Handbook for Western Washington, available at <https://fortress.wa.gov/ecy/publications/documents/1310027.pdf>.
4. Use impervious liner instead of geotextile fabric if you have observed flooding issues in your basement or near your building foundation.



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

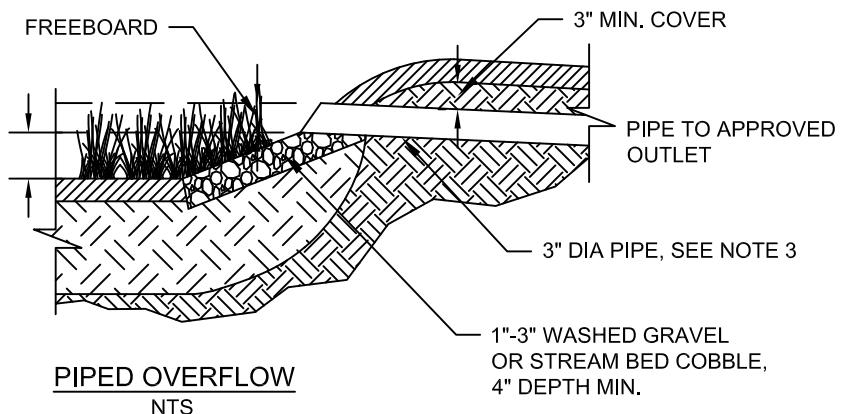
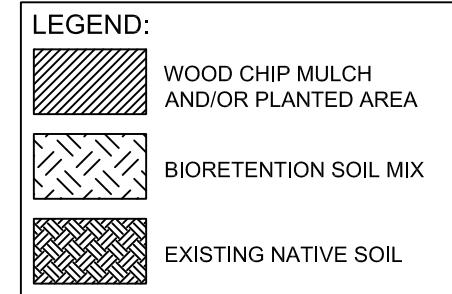
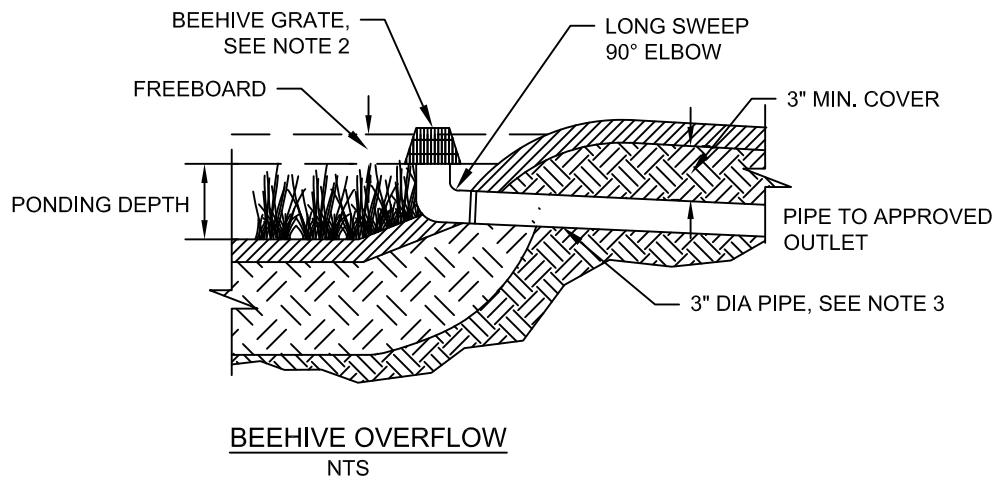
**BIORETENTION INLET SWALE**

DETAIL NO.

**31.0**

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CITY ENGINEER

DATE: 3/28/23



NOTES:

1. This detail is for Single Family Residences (SFR) only. Not in the ROW.
2. Beehive grate must be made of UV stabilized material.
3. Pipe per the City of Gig Harbor SMSDM or Public Works Standards, current edition 2% min. slope.



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

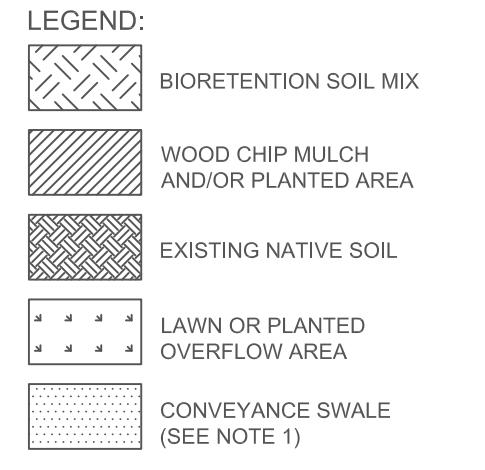
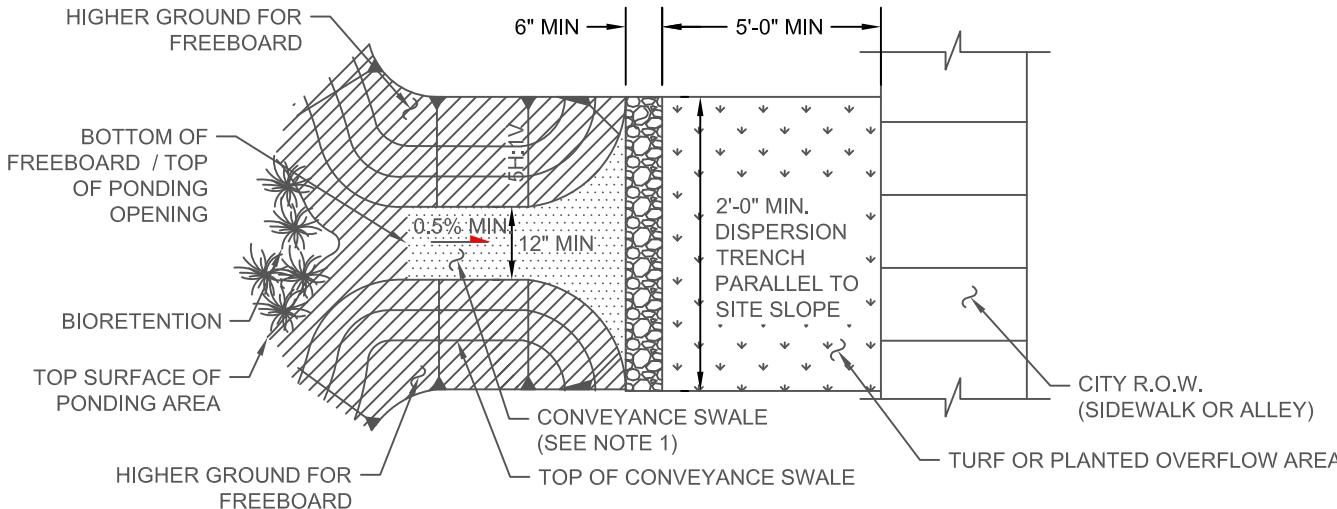
**BIORETENTION PIPED OVERFLOW**

DETAIL NO.

**32.0**

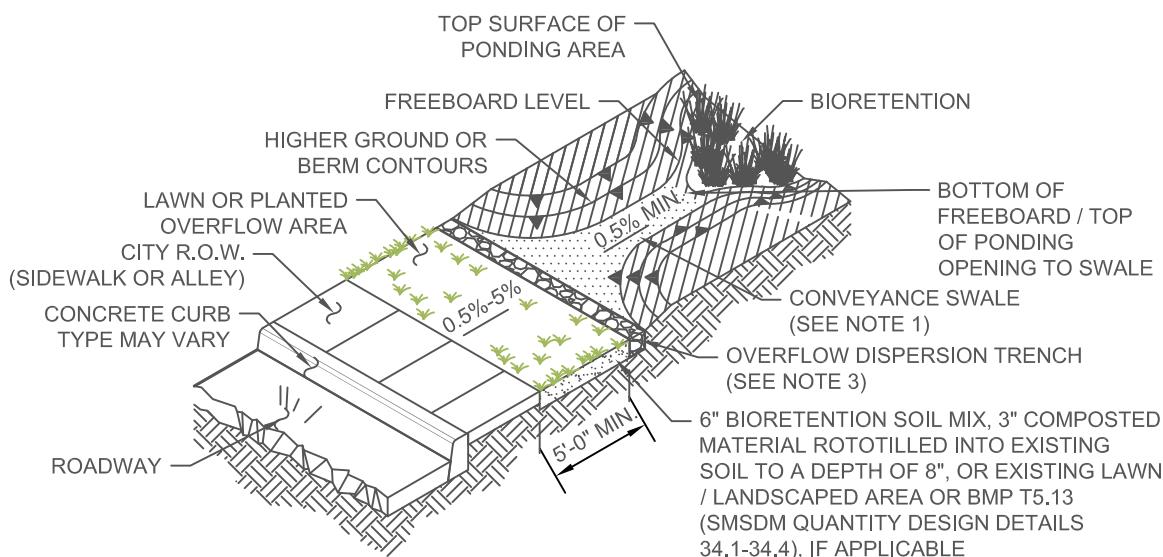
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CITY ENGINEER

DATE 3/28/23



### OVERFLOW THROUGH CONVEYANCE SWALE TO R.O.W.

NTS



### OVERFLOW THROUGH CONVEYANCE SWALE TO R.O.W.

NTS

#### NOTES:

1. See SMSMD Quantity Design Detail 5.0 for conveyance swale detail.
2. Minimum slope = 0.5%. If greater than 0.4% slope, provide erosion control options such as a rock check dam.
3. Overflow dispersion trench consists of a minimum 6" wide by 6" deep by 24" long drain rock layer lined with geotextile fabric on the sides and bottom for separation.



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

**BIORETENTION SWALE WITH SWALE OVERFLOW**

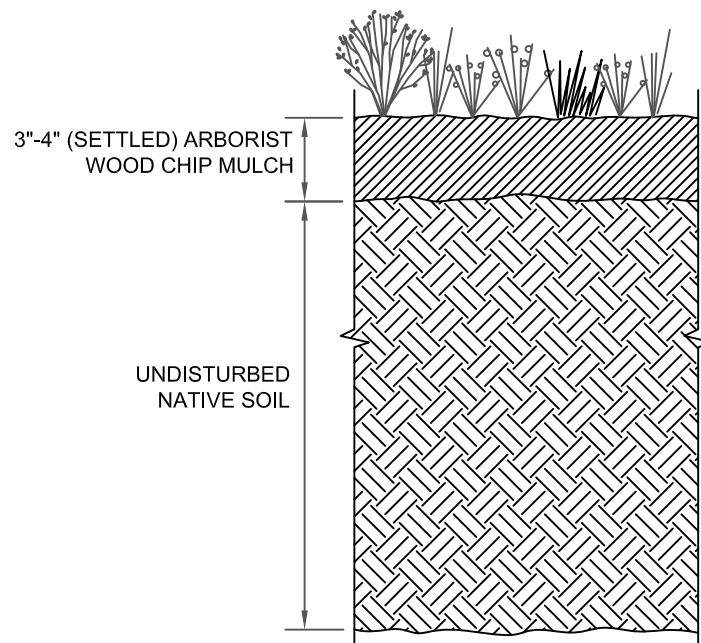
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CITY ENGINEER \_\_\_\_\_

DETAIL NO.

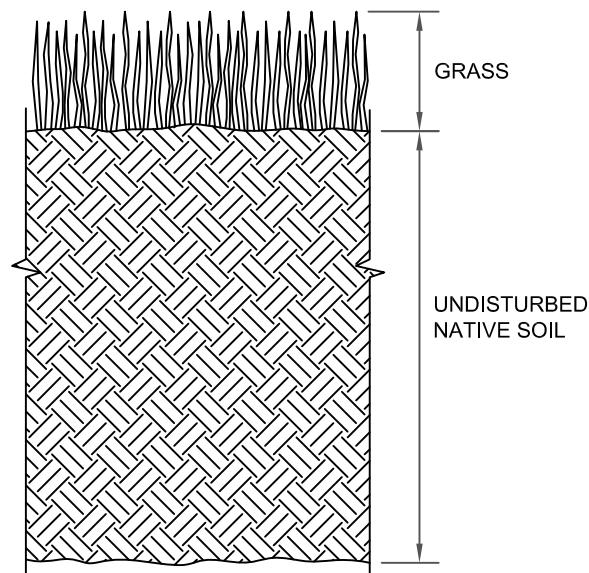
**33.0**

DATE 3/28/23

### PLANTING BEDS



### TURF (LAWN) AREAS



**OPTION 1:** Leave native vegetation and soil undisturbed, and protect from compaction during construction. Identify areas of the site that will not be stripped, logged, graded or driven on, and fence off those areas to prevent impacts during construction. If neither soils nor vegetation are disturbed, these areas do not require amendment.

See Volume II Section 3.1 and Volume VI Section 2.8 of the SMSDM (Ecology BMP T5.13) for additional information.



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

**BMP T5.13 OPTION 1 -  
NO DISTURBANCE**

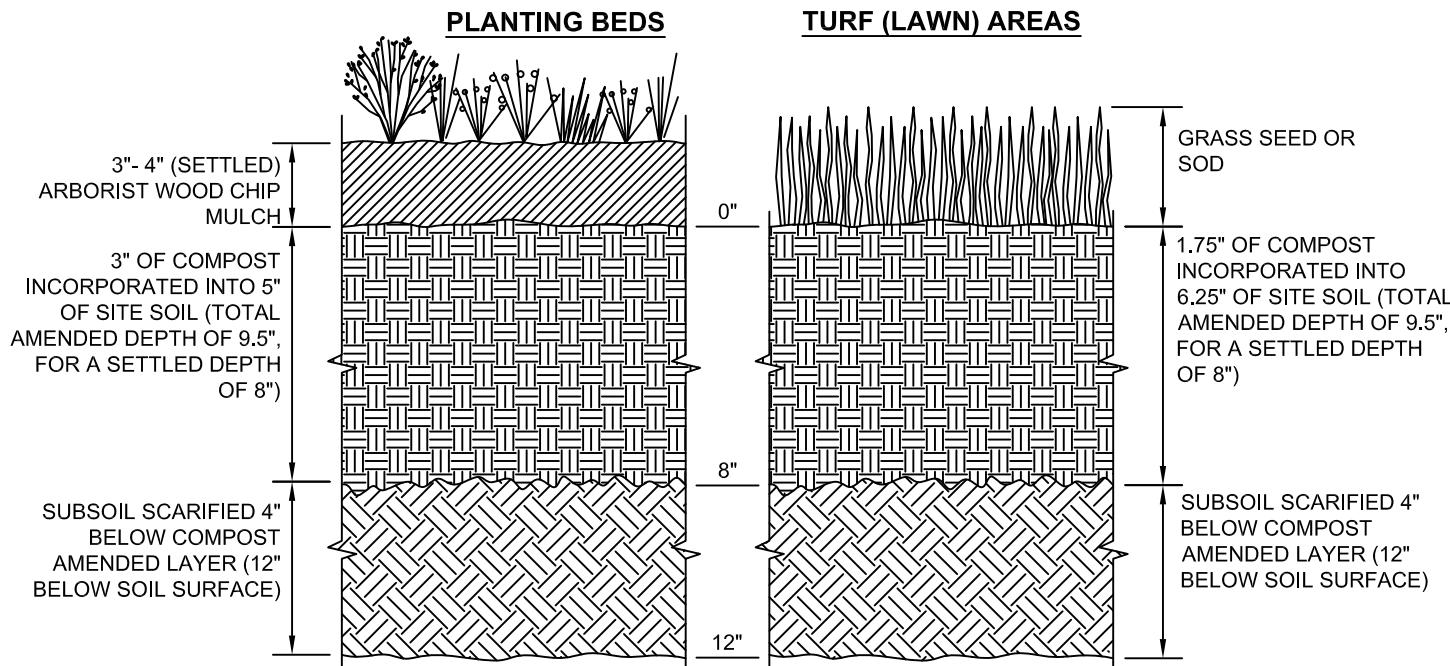
DETAIL NO.

**34.1**

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A handwritten signature in blue ink, appearing to read 'Daren H. Stiles'.

DATE 3/28/23



**OPTION 2:** Amend existing site topsoil, or subsoil, either at preapproved rate or at calculated rate based on tests of the soil and amendments. All soil areas disturbed or compacted during construction, and not covered by buildings or pavement, shall be amended with compost as described below.

**Scarification:** Scarify or till subgrade to 8 inches depth (or to depth needed to achieve a total depth of 12 inches of uncompacted soil after calculated amount of amendment is added). Entire surface should be disturbed by scarification. Do not scarify within drip line of existing trees to be retained or where scarification would damage tree roots or as determined by the engineer.

A. Planting Beds	B. Turf (Lawn) Areas
1. <b>PREAPPROVED RATE:</b> Place 3 inches of composted material and rototill into 5 inches of existing site soils (a total amended depth of about 9.5 inches, for a settled depth of 8 inches).	1. <b>PREAPPROVED RATE:</b> Place 1.75 inches of composted material and rototill into 6.25 inches of existing site soils (a total amended depth of about 9.5 inches, for a settled depth of 8 inches).
2. <b>CALCULATED RATE:</b> Place calculated amount of composted material or approved organic material and rototill into depth of soil needed to achieve 8 inches of settled soil at 10% organic content.	2. <b>CALCULATED RATE:</b> Place calculated amount of composted material or approved organic material and rototill into depth of soil needed to achieve 8 inches of settled soil at 5% organic content.
Rake beds to smooth and remove surface rocks larger than 2 inches diameter. Mulch planting beds with 3" - 4" of organic mulch or stockpiled duff.	Water or roll to compact to 85% of maximum dry density. Rake to level and remove surface rocks larger than 1 inch diameter.

**Setbacks:** to prevent uneven settling, do not compost-amend soils within 3 feet on center of utility infrastructure (poles, vaults, meters etc.). Within one foot of pavement edge, curbs and sidewalks; soil should be compacted to approximately 90% max. modified proctor density (ASTM D1557) to ensure a firm surface. Do not compact within the tree protection zone.

See Volume III Section 3.1 of the SMSDM (Ecology BMP T5.13) for additional information.



**CITY OF GIG HARBOR ENGINEERING DIVISION**

DETAIL NAME

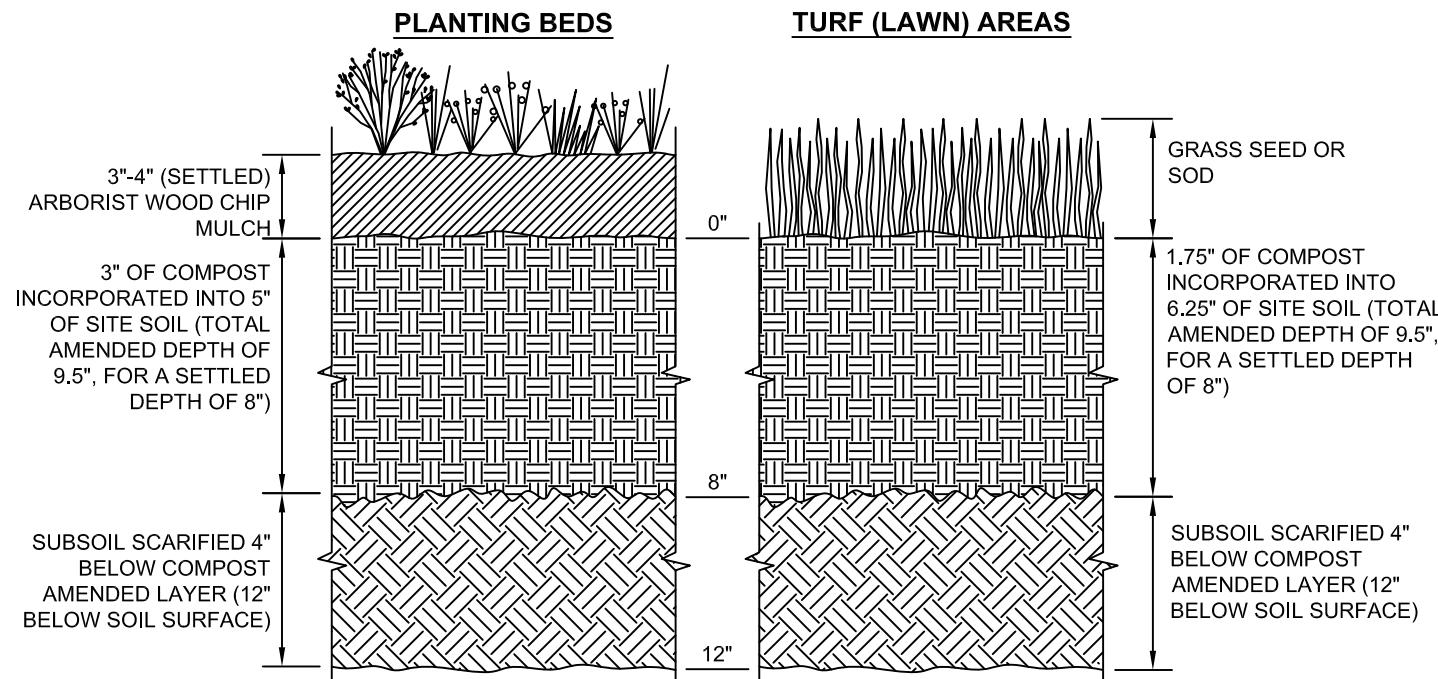
**BMP T5.13 OPTION 2 -  
AMEND IN PLACE**

DETAIL NO.

**34.2**

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CITY ENGINEER \_\_\_\_\_

DATE 3/28/23



**OPTION 3:** Stockpile existing topsoil during grading. Stockpile and cover soil with weed barrier material that sheds moisture yet allows air transmission, in approved location, prior to grading. Replace stockpiled topsoil prior to planting. Stockpiled topsoil shall be tested and amended if needed to meet the organic matter or depth requirements either at preapproved rate or calculated rate. All soil areas disturbed or compacted during construction, and not covered by buildings or pavement, shall be amended with compost as described below.

**Scarification:** If placed topsoil plus compost or other organic material will amount to less than 12 inches, scarify or till subgrade to depth needed to achieve 12 inches of loosened soil after topsoil and amendment are placed. Entire surface should be disturbed by scarification. Do not scarify within drip line of existing trees to be retained.

**A. Planting Beds**

1. **PREAPPROVED RATE:** Place 3 inches of composted material and rototill into 5 inches of replaced soil (a total amended depth of about 9.5 inches, for a settled depth of 8 inches).

2. **CALCULATED RATE:** Place calculated amount of composted material or approved organic material and rototill into depth of replaced soil needed to achieve 8 inches of settled soil at 10% organic content.

Rake beds to smooth and remove surface rocks larger than 2 inches diameter. Mulch planting beds with 3" - 4" of organic mulch or stockpiled duff.

**B. Turf (Lawn) Areas**

1. **PREAPPROVED RATE:** Place 1.75 inches of composted material and rototill into 6.25 inches of replaced soil (a total amended depth of about 9.5 inches, for a settled depth of 8 inches).

2. **CALCULATED RATE:** Place calculated amount of composted material or approved organic material and rototill into depth of replaced soil needed to achieve 8 inches of settled soil at 5% organic content.

Water or roll to compact to 85% of maximum dry density. Rake to level and remove surface rocks larger than 1 inch diameter.

**Setbacks:** to prevent uneven settling, do not compost-amend soils within 3 feet on center of utility infrastructure (poles, vaults, meters etc.). Within one foot of pavement edge, curbs and sidewalks; soil should be compacted to approximately 90% max. modified proctor density (ASTM D1557) to ensure a firm surface. Do not compact within the tree protection zone.

See Volume III Section 3.1 of the SMSDM (Ecology BMP T5.13) for more information.



**CITY OF GIG HARBOR ENGINEERING DIVISION**

DETAIL NAME

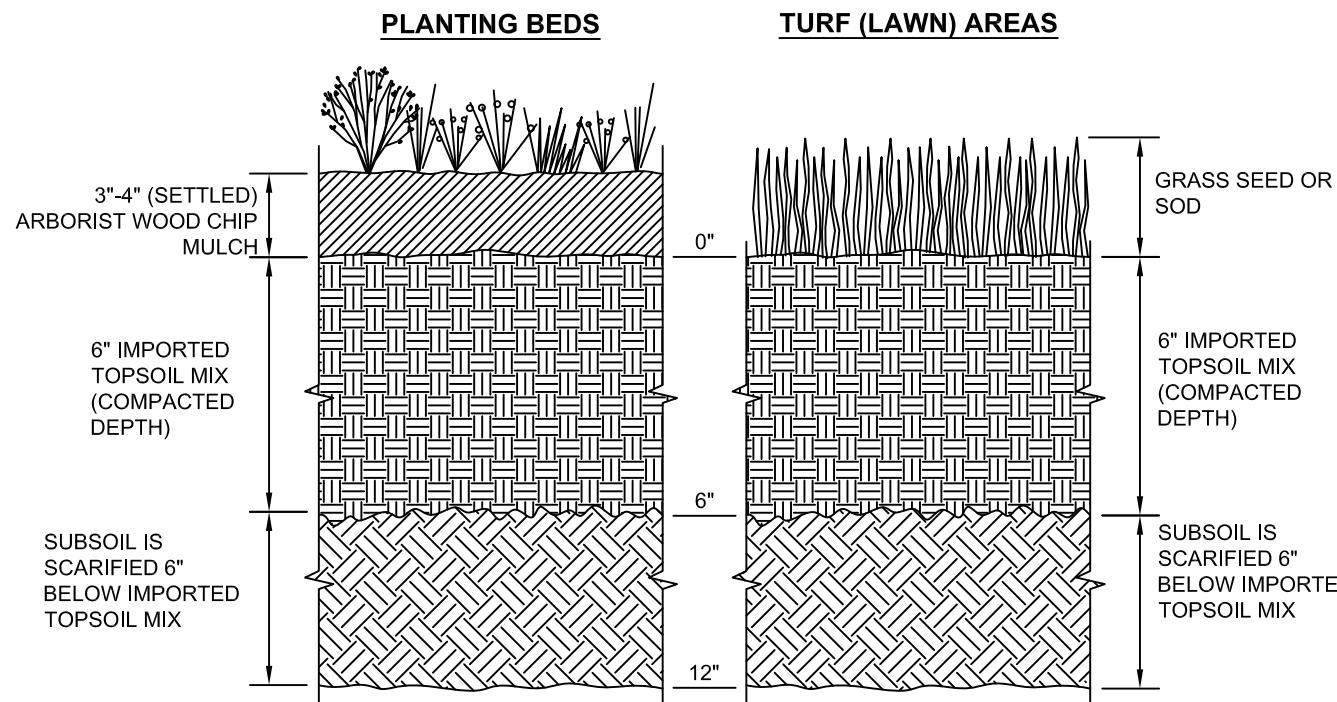
**BMP T5.13 OPTION 3 -  
STOCKPILE AND AMEND**

DETAIL NO.

**34.3**

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CITY ENGINEER \_\_\_\_\_

DATE 3/28/23



**OPTION 4:** Import topsoil mix of sufficient organic content and depth to meet the requirements. All soil areas disturbed or compacted during construction, and not covered by buildings or pavement, shall be restored as described below.

Scarification: scarify or till subgrade in two direction to 6 inches depth. Entire surface shall be disturbed by scarification. Do not scarify within drip line of existing trees to be retained.

A. Planting Beds	B. Turf (Lawn) Areas
Use imported topsoil mix containing 10% organic matter (typically around 40% compost). Soil portion must be sand or sandy loam as defined by the USDA. Place 3 inches of imported topsoil mix on surface and till into 2 inches of soil. Place 3 inches of imported topsoil mix on surface and till into 2 inches of soil. Place second lift of 3 inches topsoil mix on surface.	Use imported topsoil mix containing 5% organic matter (typically around 25% compost). Soil portion must be sand or sandy loam as defined by the USDA. Place 3 inches of imported topsoil mix on surface and till into 2 inches of soil. Place second lift of 3 inches topsoil mix on surface.
Rake beds to smooth and remove surface rocks larger than 2 inches diameter. Mulch planting beds with 3" - 4" of organic mulch or stockpiled duff.	Water or roll to compact to 85% of maximum dry density. Rake to level and remove surface rocks larger than 1 inch diameter.
Setbacks: to prevent uneven settling, do not compost-amend soils within 3 feet on center of utility infrastructure (poles, vaults, meters etc.). Within one foot of pavement edge, curbs and sidewalks; soil should be compacted to approximately 90% max. modified proctor density (ASTM D1557) to ensure a firm surface. Do not compact within tree protection zone.	
See Volume III Section 3.1 of the SMSDM (Ecology BMP T5.13) for additional information.	



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

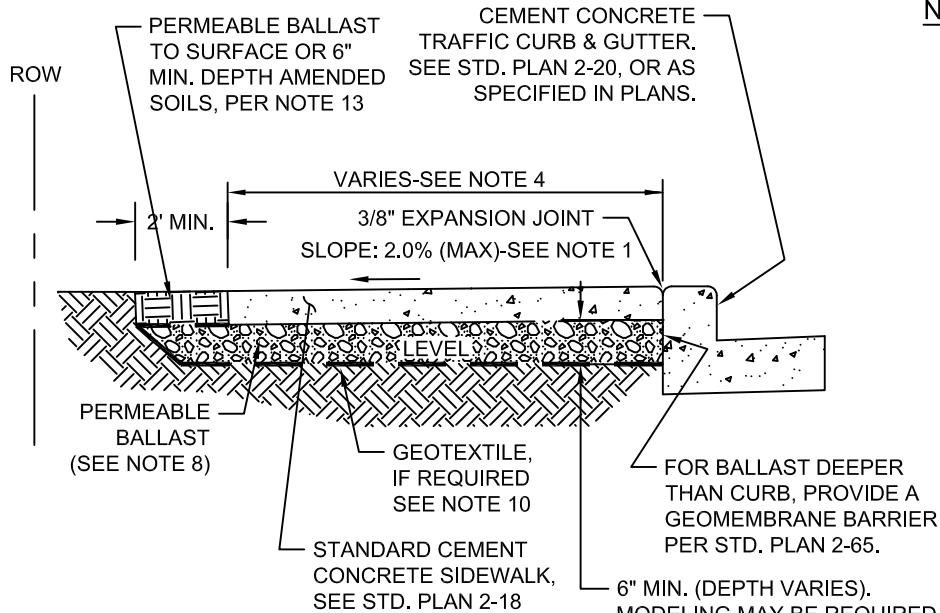
**BMP T5.13 OPTION 4 -  
IMPORTED TOPSOIL**

DETAIL NO.

**34.4**

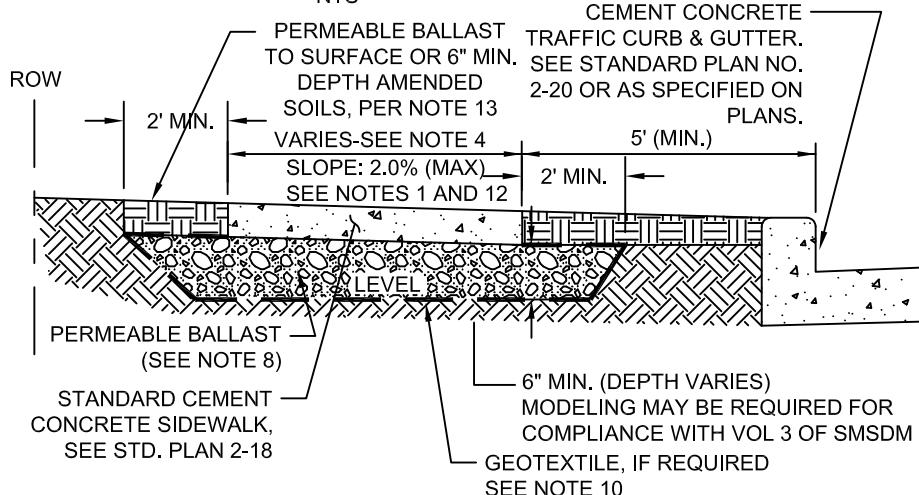
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DATE 3/28/23



### COMBINATION WALK SECTION

NTS



### SIDEWALK WITH PLANTER STRIP SECTION

NTS

### NOTES:

1. Sidewalks shall be designed and constructed in accordance with ADA standards for accessible design, 28 CFR, Part 35 and as supplemented by the public right of way accessibility guidelines (PROWAG).
2. When placing walk adjacent to existing curb and gutter, curb and gutter will be repaired as necessary before placing concrete forms for walk per City of Gig Harbor Public Works standards.
3. Staking is required where no curb is present.
4. Combination walk shall be 7' min. on all commercial sites and arterial streets. Combination walk shall be a minimum of 5' on non arterial streets. Dimensions are from back of curb to back of walk. See contract plans for width and placement of sidewalk.
5. All expansion joints shall be full depth with 3/8" premolded joint filler.
6. All joints shall be cleaned and edged. External edges shall be 1/2" radius. Internal joints shall be 1/4" radius.
7. Subgrade preparation shall meet APWA GSP 2-06.3(3) Subgrade for Permeable Pavements.
8. Permeable ballast shall meet WSDOT STD SPEC. 4-04.2 Gravel Base and 9-03.9(2).Opt1 Pavement Ballast.
9. All soft and yielding foundation material shall be removed and replaced with ballast per WSDOT STD SPEC. 4-04.2 Gravel Base and 9-03.9(2).Opt1 Permeable Ballast.
10. Geotextile fabric may be required between native soils or amended soils and permeable ballast per the recommendation of the geotechnical professional. Geotextile shall be per WSDOT STD. SPEC. 9.33.2(1), Tables 1 and 2, nonwoven, moderate survivability.
11. For plan view refer to City of Gig Harbor Standard Plan 2-18.
12. Sidewalk with planter strip may slope in either direction.
13. Planting strip soils shall be per Volume III Section 3.1 of the GHSMSDM (Ecology BMP T5.13) see Section A Design Details 34.1-34.4, if applicable; or scarify or till subgrade to 3 inch depth. Place 3-inches of topsoil on surface and till into 5-inches of site soil. Install 3-inches of arborist wood chip mulch or as specified on plans. Topsoil layer with a minimum organic matter content of 10% dry weight in planting beds, and 5% in turf areas, and a pH from 6.0 to 8.0 or matching the pH of the original undisturbed soil.
14. All disturbed areas not covered with hard surfaces shall be stabilized by planting or mulching.
15. Where needed, adjust ballast in planting strip to accommodate plants. Keep permeable ballast a minimum 2 feet from trunk of trees.
16. Where ballasted sidewalk is installed adjacent to permeable roadway, the permeable ballast may extend from the sidewalk to the roadway section. See Std. Plan 2-51b.
17. Refer to PW Std. Plan 2-52 for subgrade terracing, as applicable.



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME	DETAIL NO.
CEMENT CONCRETE SIDEWALK INFILTRATION GALLERY	35.0
APPROVED FOR PUBLICATION CITY ENGINEER	DATE: 3/28/23