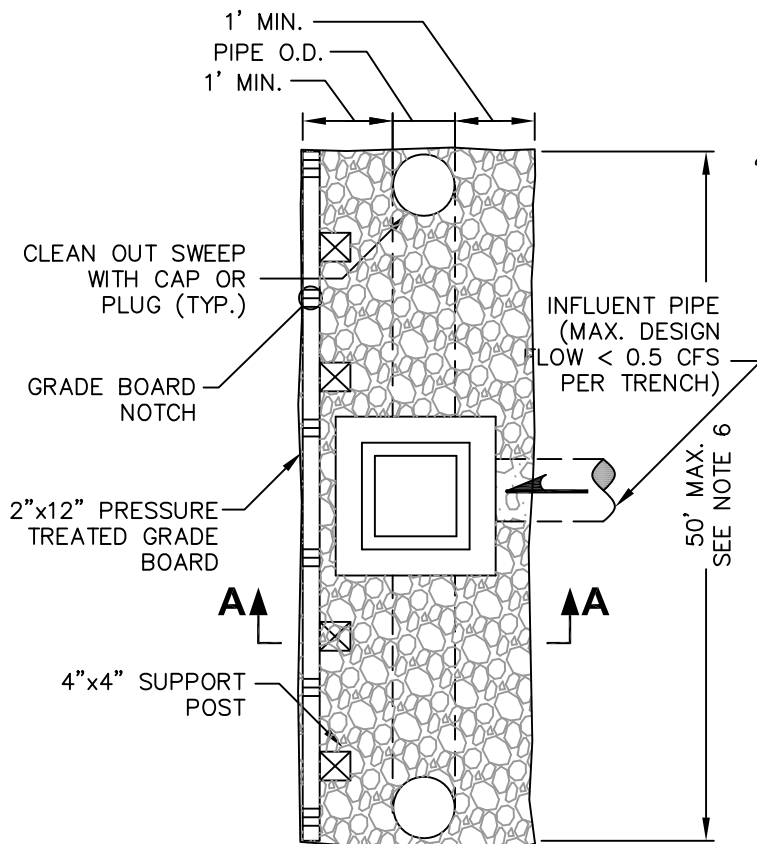


SECTION A

QUANTITY DESIGN DETAILS

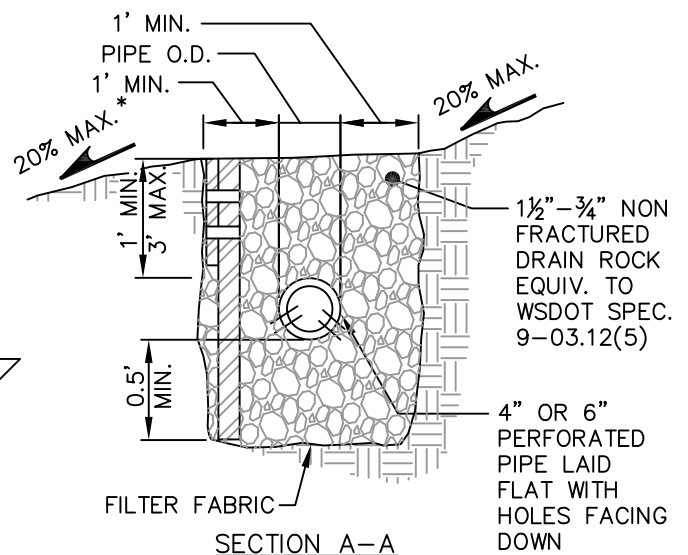
<u>DETAIL</u>	<u>HEADING</u>
1.0	Flow Dispersion Trench
2.0	Grass Buffer Infiltration Trench Schematic
3.0	Stormwater Infiltration Trench Section
4.0	Parking Lot Perimeter Trench Schematic
5.0	Infiltration Pond Schematic
5.1	Detention Pond Schematic
6.0	Quarry Spall and Gravel Filter Window
7.0	Emergency 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

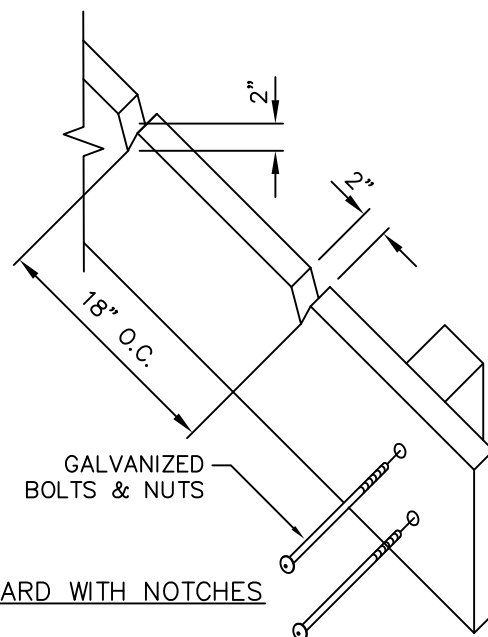


TYPE 1 CB W/ SOLID COVER (LOCKING)
PLAN

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



SECTION A-A



GRADE BOARD WITH NOTCHES

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

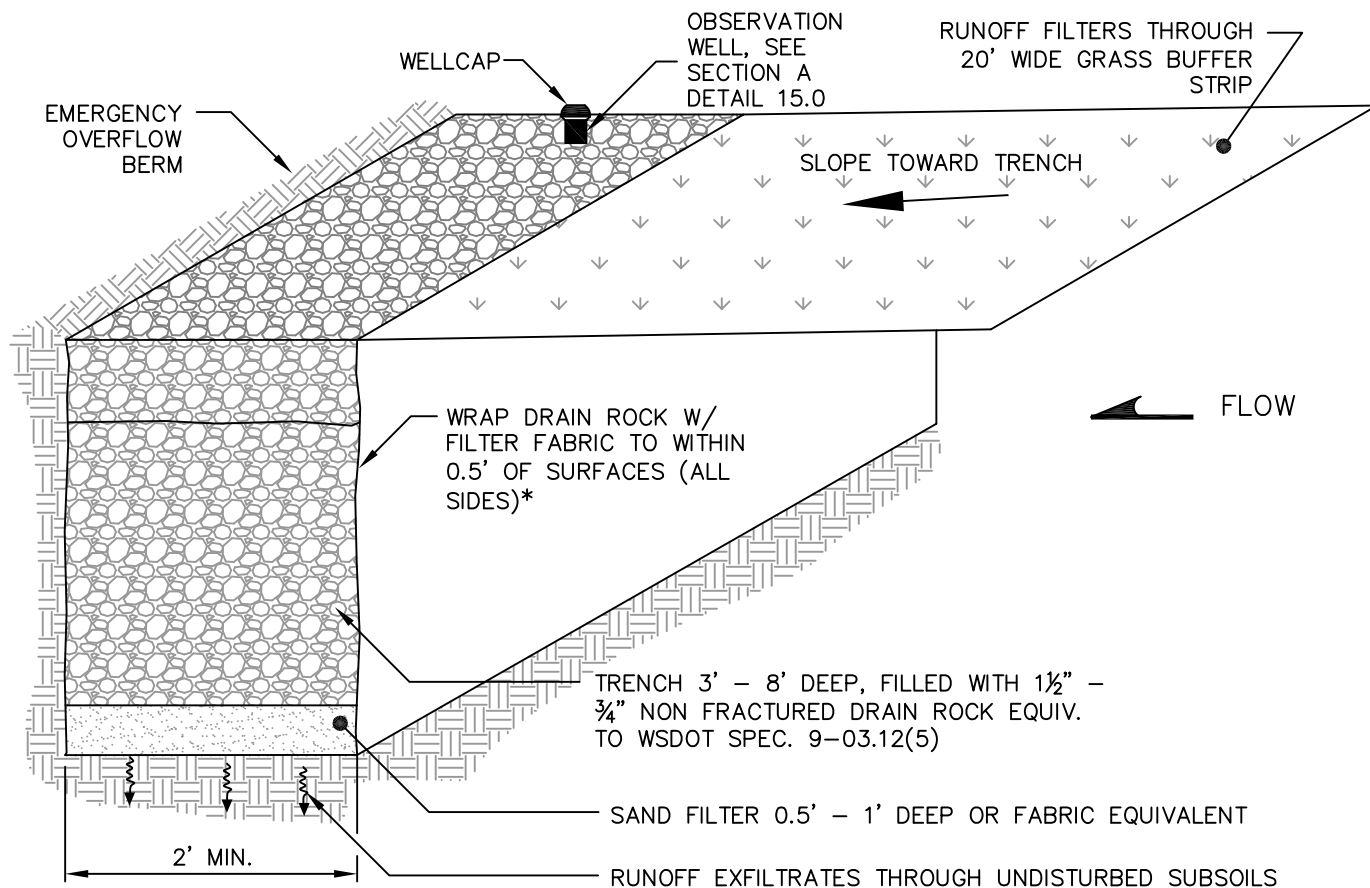
SECTION A
DETAIL N.T.S.

1.0

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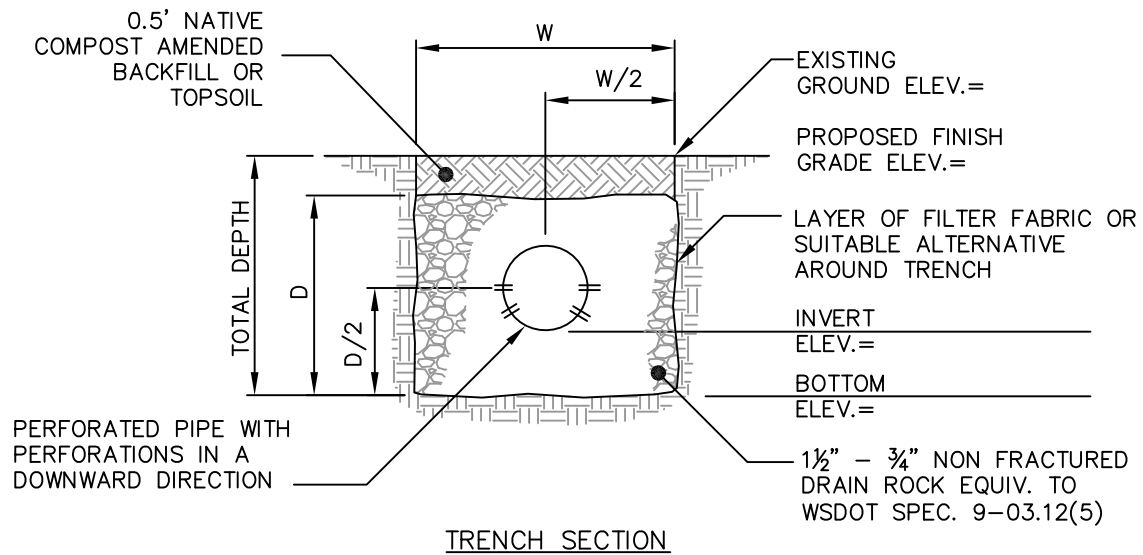
DATE 3/28/23



***NOTE:**

FILTER FABRIC NOT REQUIRED ON
BOTTOM IF 0.5' - 1' OF SAND IS USED.

	ENGINEERING DIVISION	
	GRASS BUFFER INFILTRATION TRENCH SCHEMATIC	
		SECTION A DETAIL N.T.S. 2.0
APPROVED BY 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.



ENGINEERING DIVISION

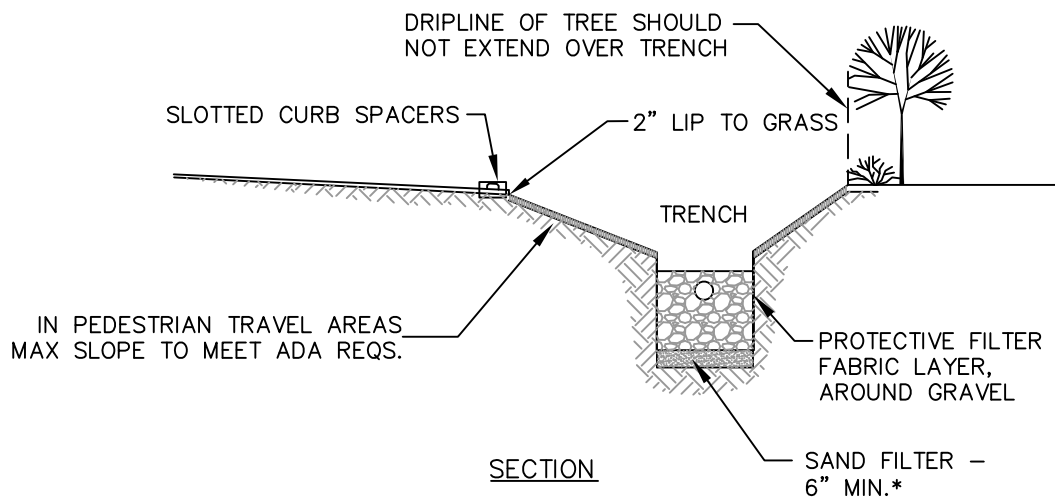
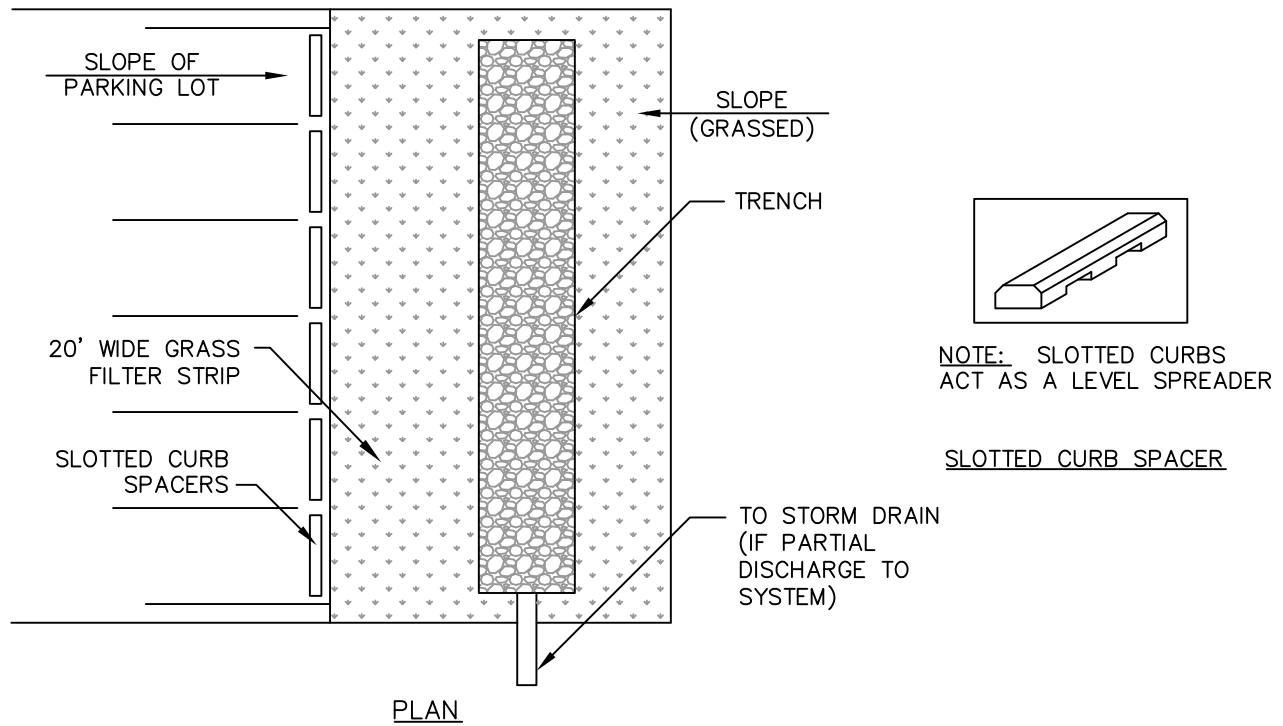
**STORMWATER
INFILTRATION TRENCH
SECTION**

SECTION A
DETAIL N.T.S.

3.0

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CITY ENGINEER

DATE **3/28/23**



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



ENGINEERING DIVISION

PARKING LOT PERIMETER TRENCH SCHEMATIC

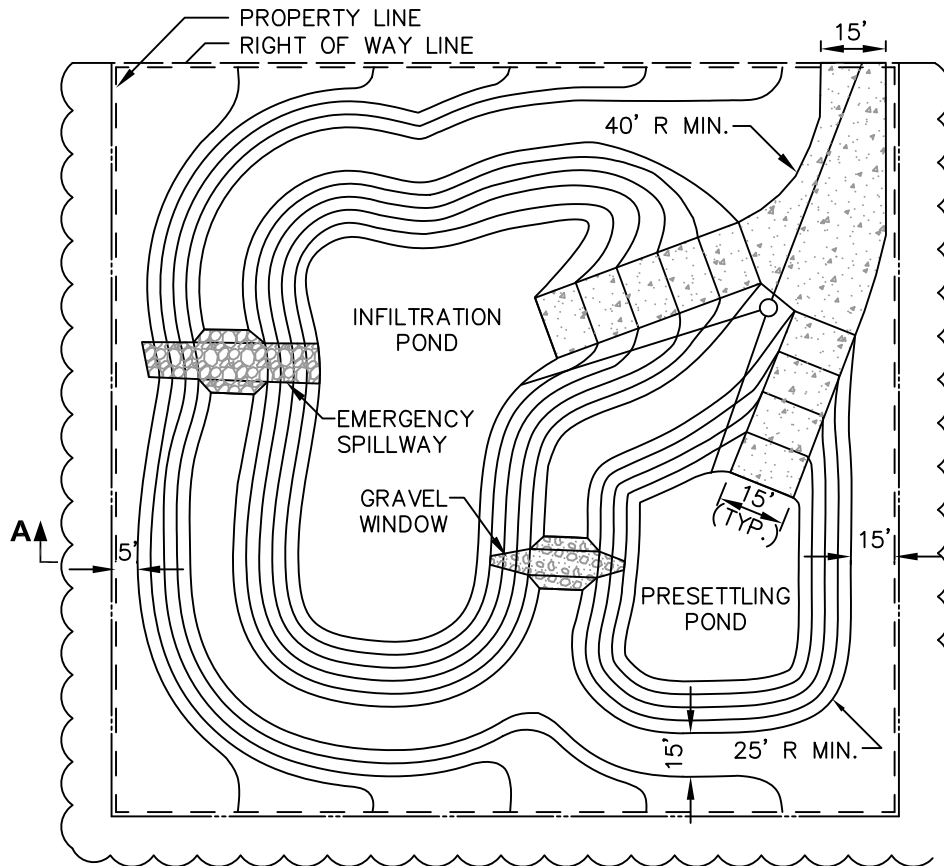
SECTION A
DETAIL N.T.S

4.0

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DATE 3/28/23

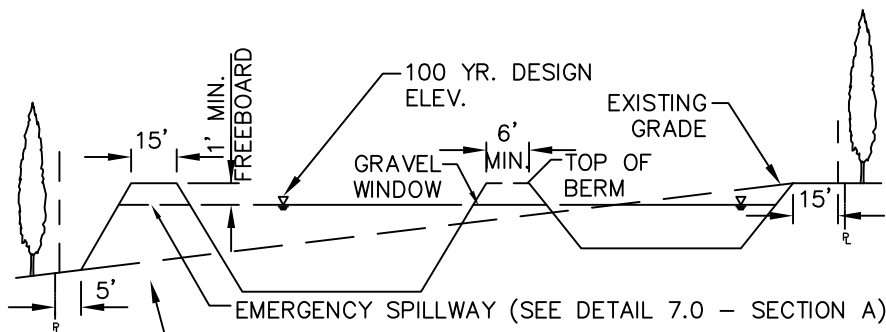


NOTES:

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

PRIVATE VEGETATED
BUFFER PER TITLE
18J

PLAN



SECTION A-A

SEE NOTE 8



ENGINEERING DIVISION

**INFILTRATION POND
SCHEMATIC**

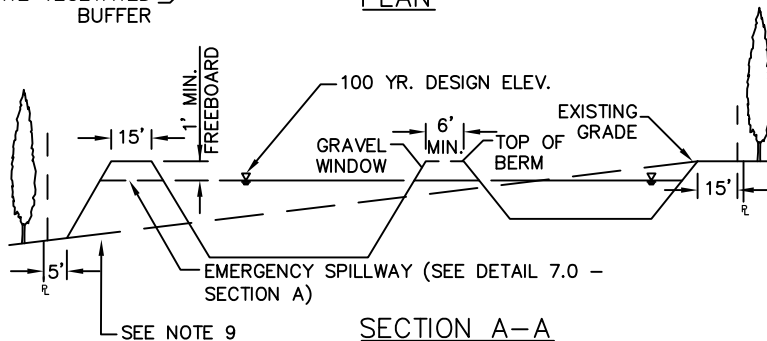
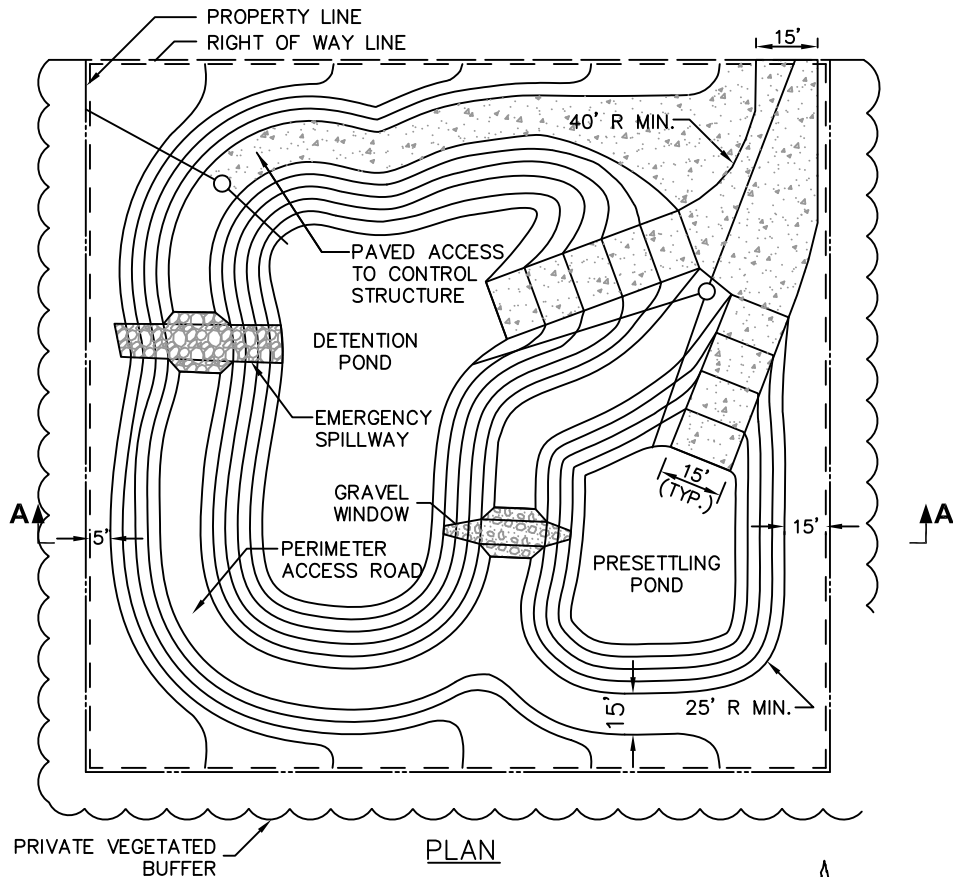
SECTION A
DETAIL N.T.S.

5.0

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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.
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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.



ENGINEERING DIVISION

DETENTION POND SCHEMATIC

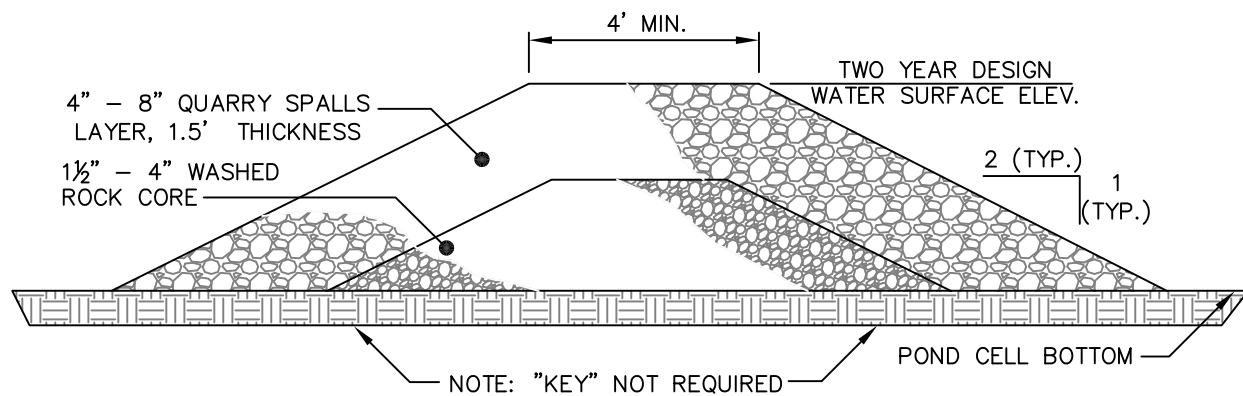
SECTION A
DETAIL N.T.S.

5.1

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DATE 3/28/23



ENGINEERING DIVISION

QUARRY SPALL AND GRAVEL FILTER WINDOW

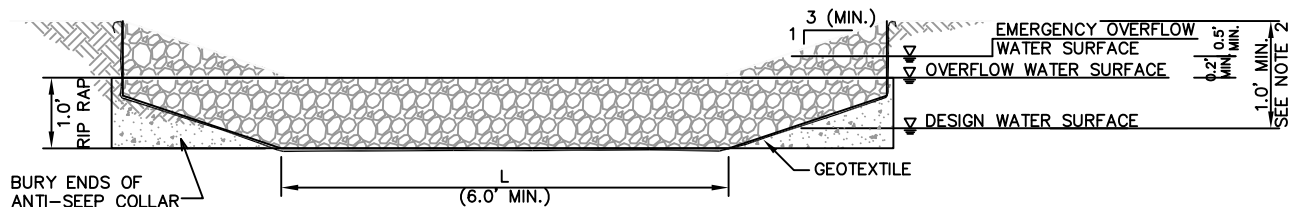
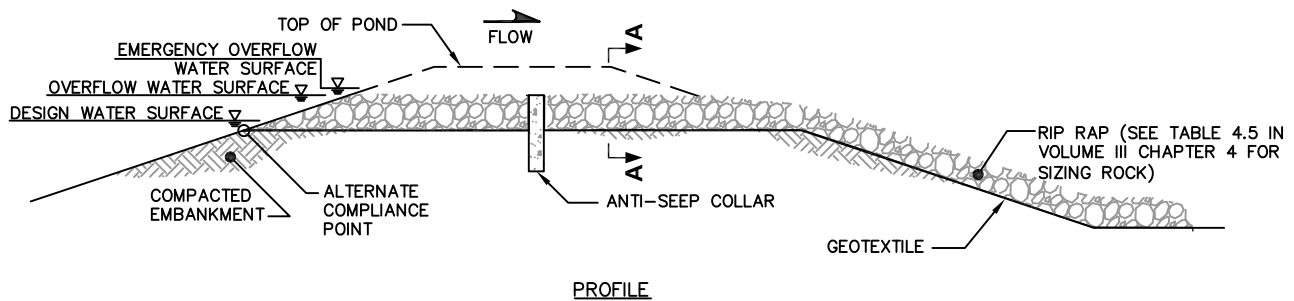
SECTION A
DETAIL N.T.S.

6.0

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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 OCCURED.
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.



ENGINEERING DIVISION

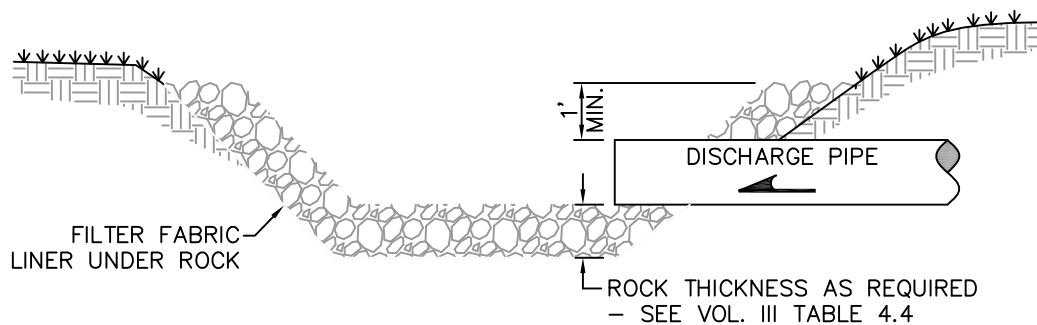
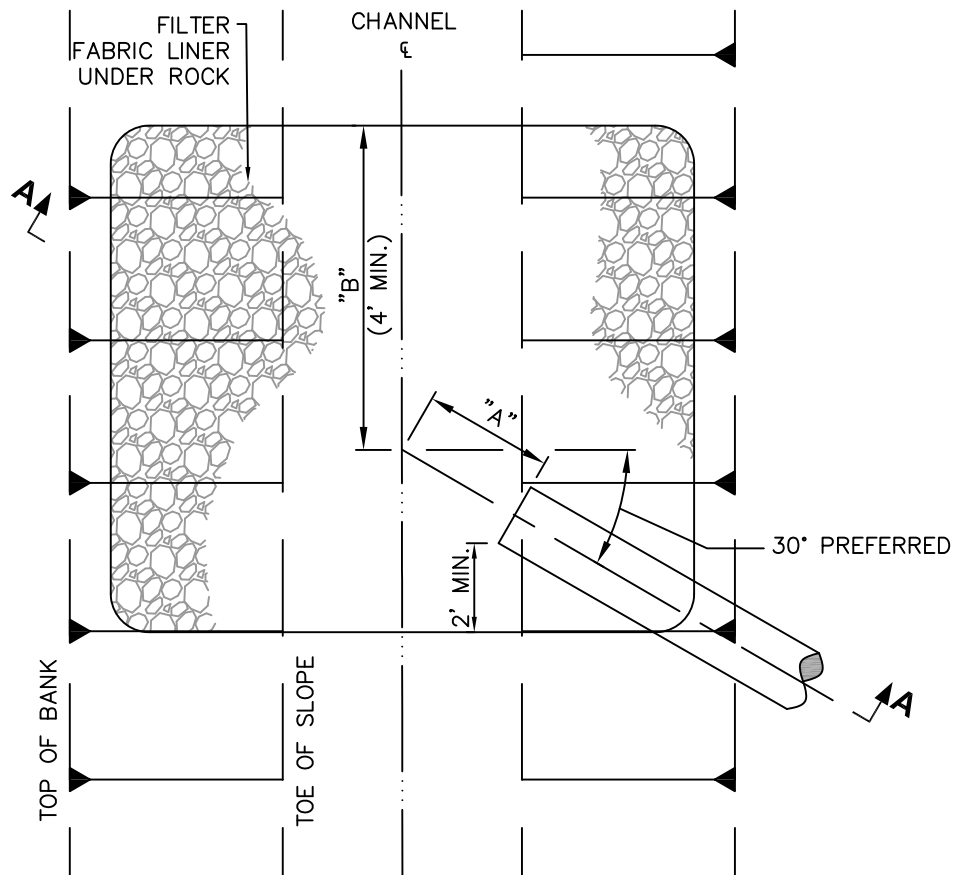
**EMERGENCY OVERFLOW
SPILLWAY**

SECTION A
DETAIL N.T.S.

7.0



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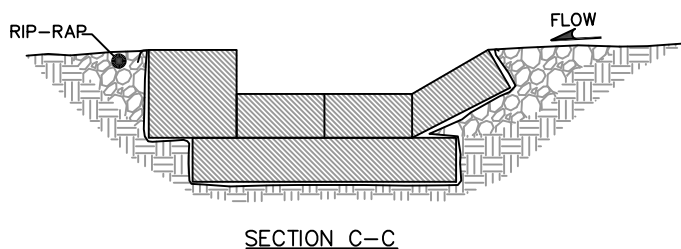
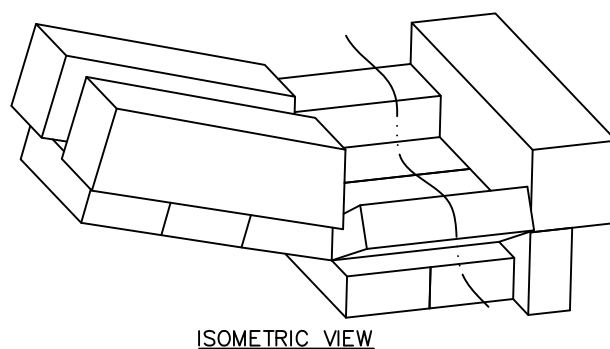
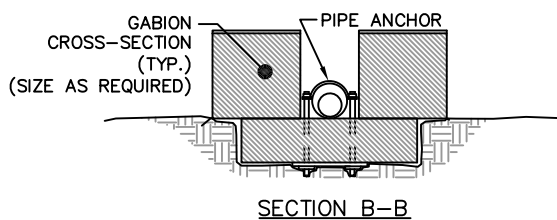
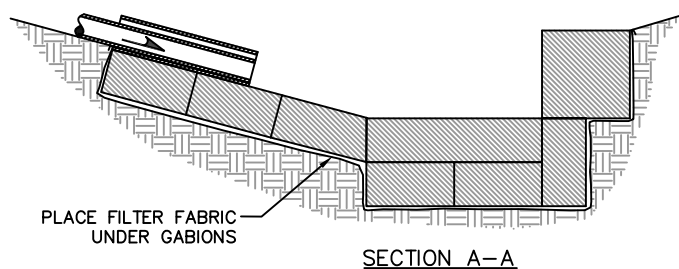
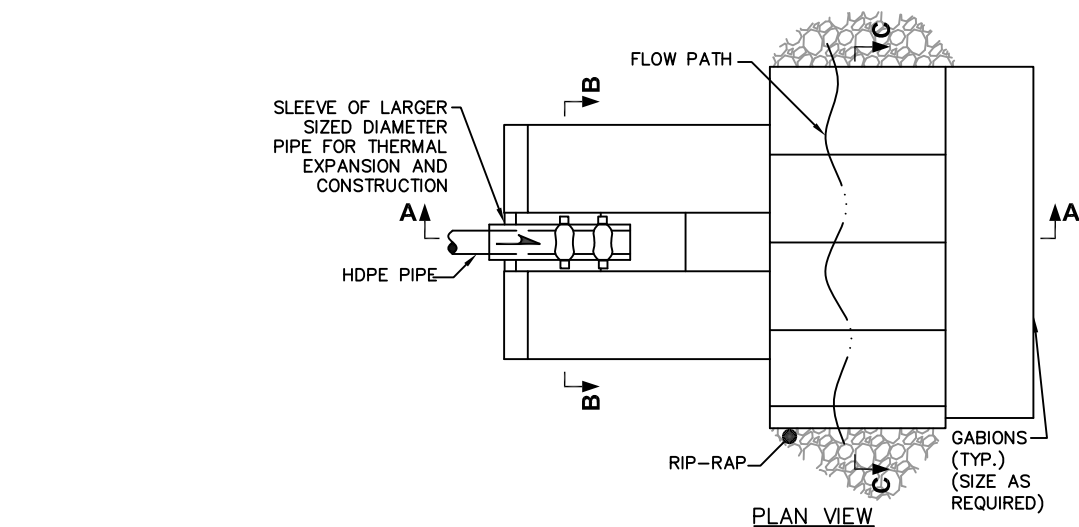
DATE **3/28/23**



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.

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



ENGINEERING DIVISION

GABION OUTFALL

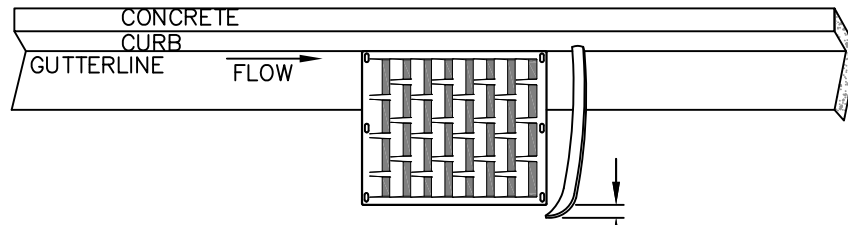
SECTION A
DETAIL N.T.S.

9.0

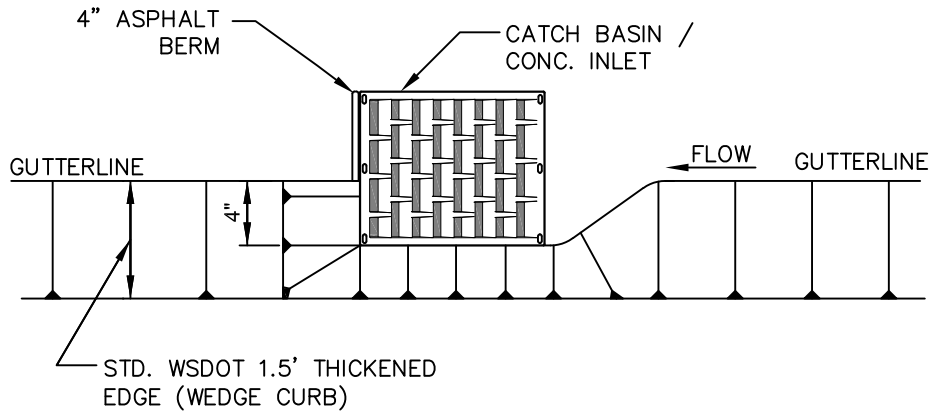
APPROVED BY
CITY ENGINEER

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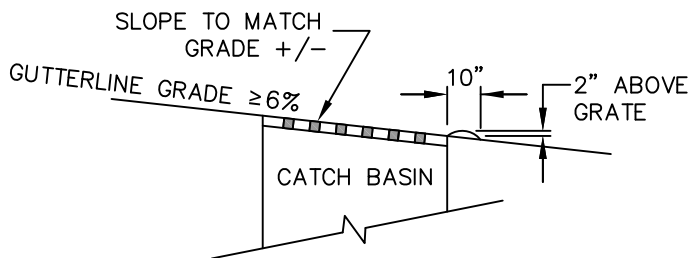
DATE 3/28/23



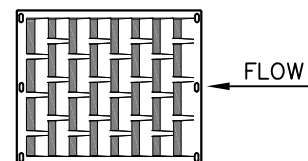
EXTEND 6" BEYOND GRATE ASPHALT
TAPER TO MATCH ROAD GRADE



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



ENGINEERING DIVISION

**GRATE DETAIL
FOR
STEEP SLOPES**

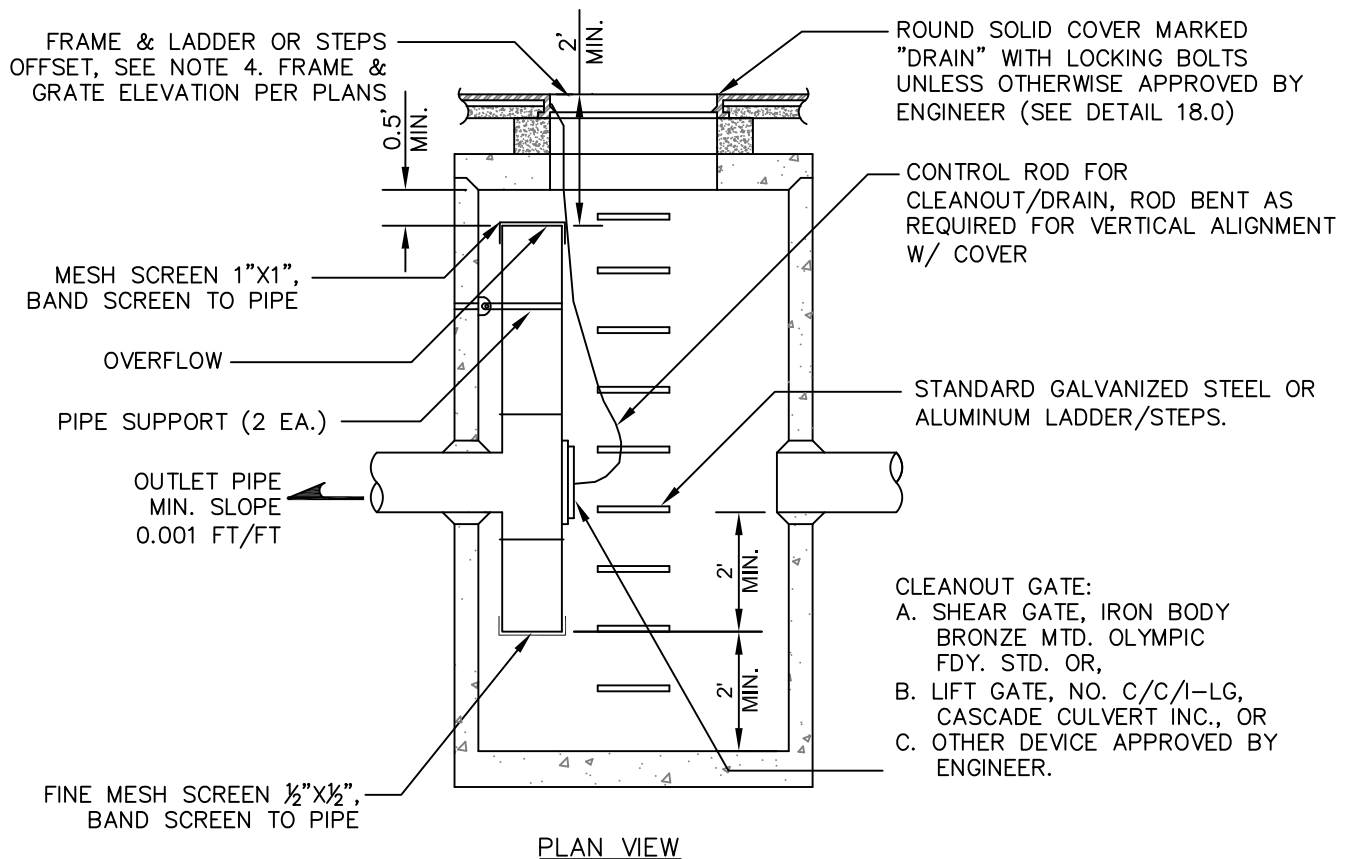
SECTION A
DETAIL N.T.S.

10.0

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[Signature]



DATE 3/28/23

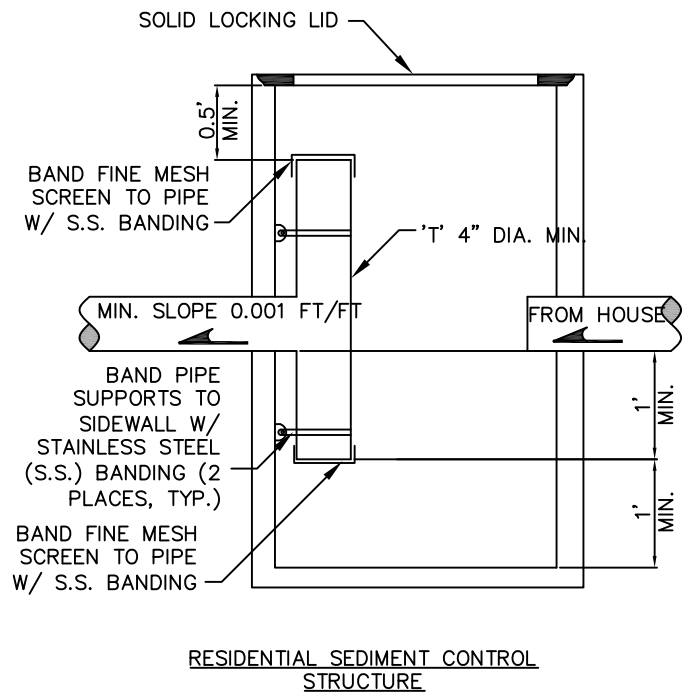
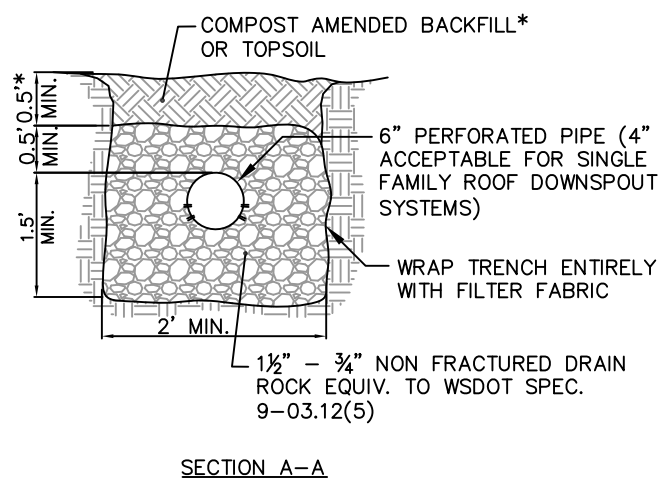
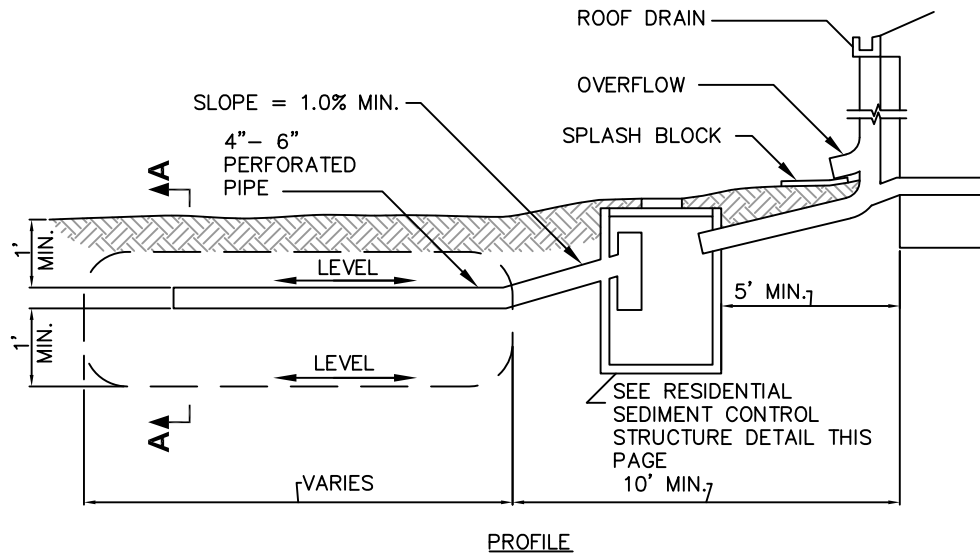


NOTES:

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 GHMSDM



COMMERCIAL SEDIMENT CONTROL STRUCTURE – PRIOR TO DISCHARGE TO INFILTRATION TRENCH

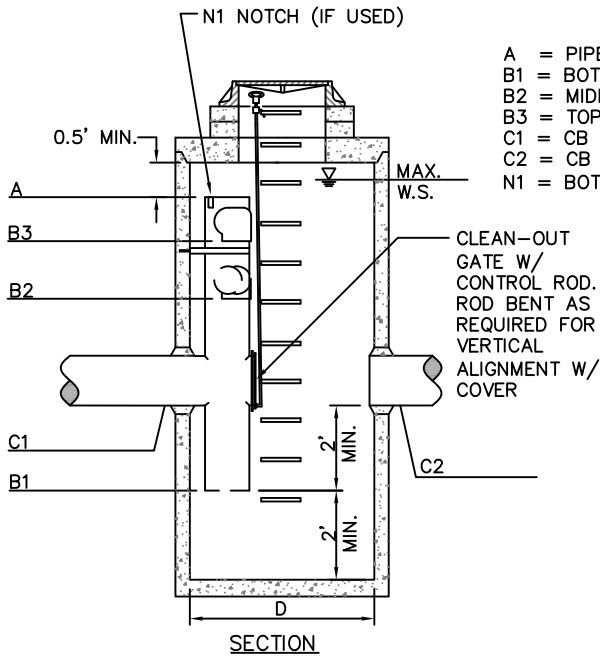
	ENGINEERING DIVISION	SECTION A DETAIL N.T.S.
	INFILTRATION TRENCH SUMP STRUCTURE (COMMERCIAL)	11.0
APPROVED BY  DATE 3/28/23		



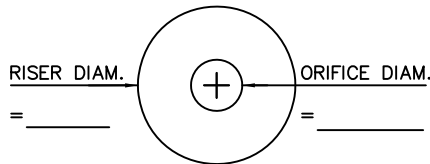
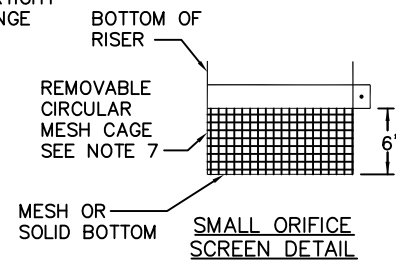
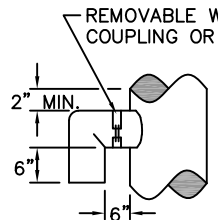
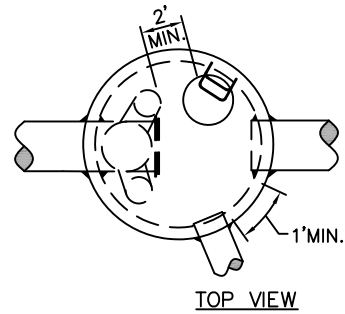
NOTE:

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

		ENGINEERING DIVISION	
RESIDENTIAL ROOF DOWNSPOUT SYSTEM		SECTION A DETAIL N.T.S.	
		11.1	
APPROVED BY 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'



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 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.)	MAX. WS ELEV. NOTE 4	EMEROVER FLOW NOTE 3
ELEV.	WIDTH	ELEV.	DIAM.	ELEV.	DIAM.			



ENGINEERING DIVISION

CONTROL STRUCTURE

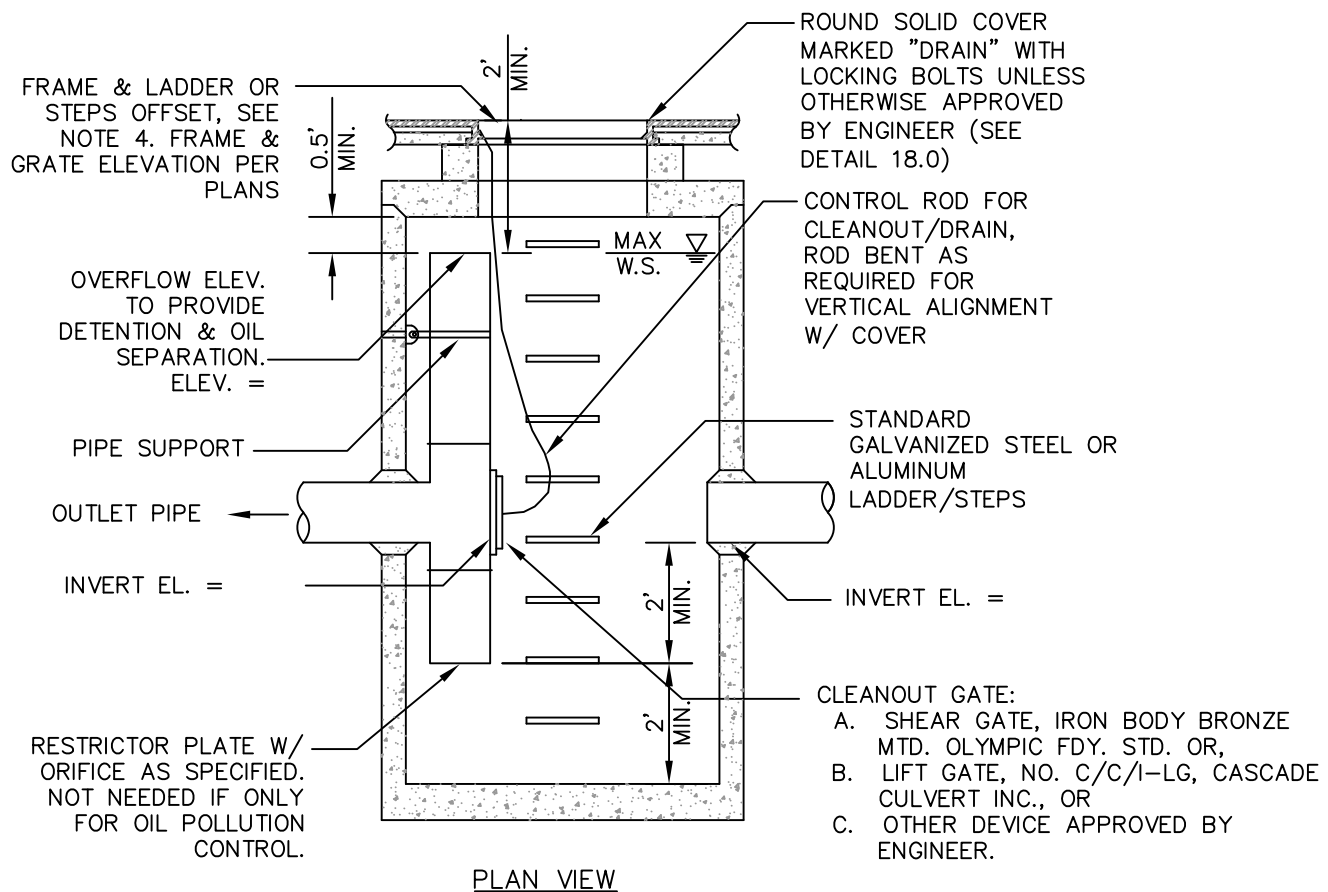
SECTION A
 DETAIL N.T.S.

12.0

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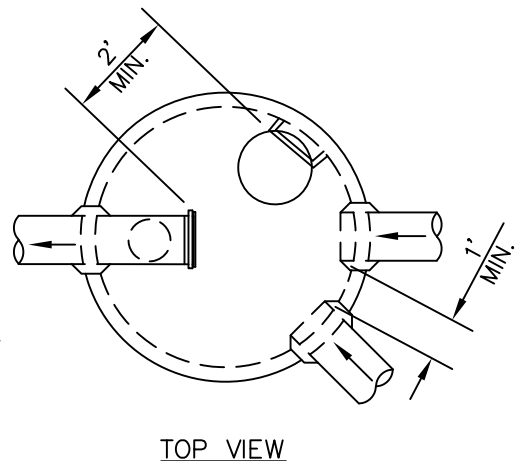
[Signature]

DATE 3/28/23



NOTES:

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



ENGINEERING DIVISION

OIL POLLUTION CONTROL DEVICE

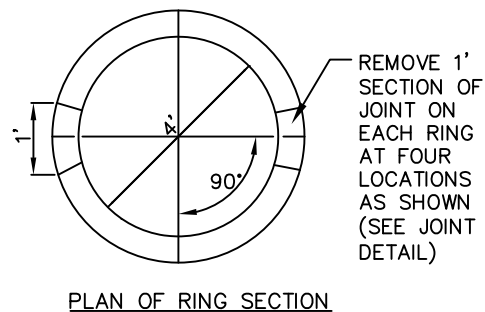
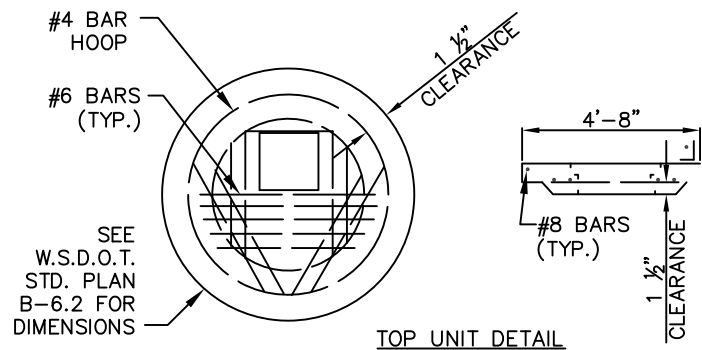
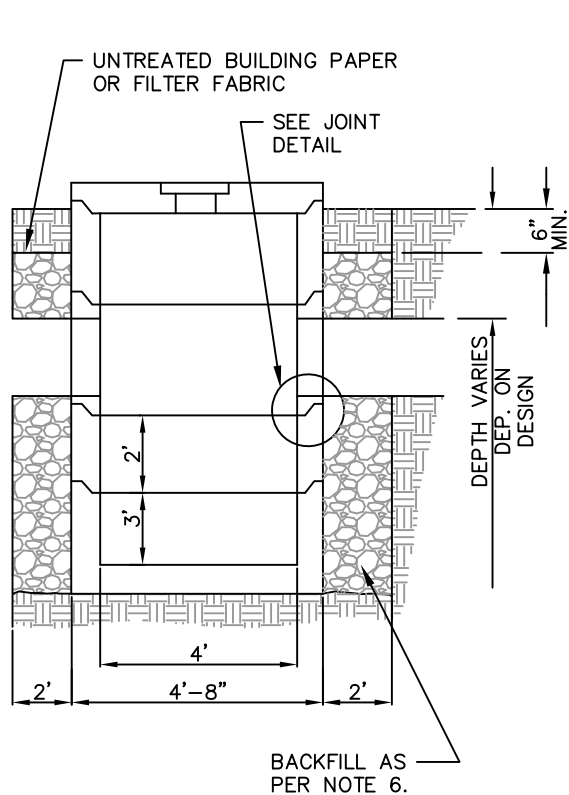
SECTION A
DETAIL N.T.S.

12.1

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[Signature]

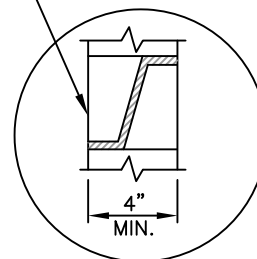
DATE 3/28/23



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.

REMOVE BELL & LIP FOR 1' @ 4 LOCATIONS TO PROVIDE FOR SEEPAGE AT EACH JOINT SECTION



JOINT DETAIL



ENGINEERING DIVISION

DRYWELL

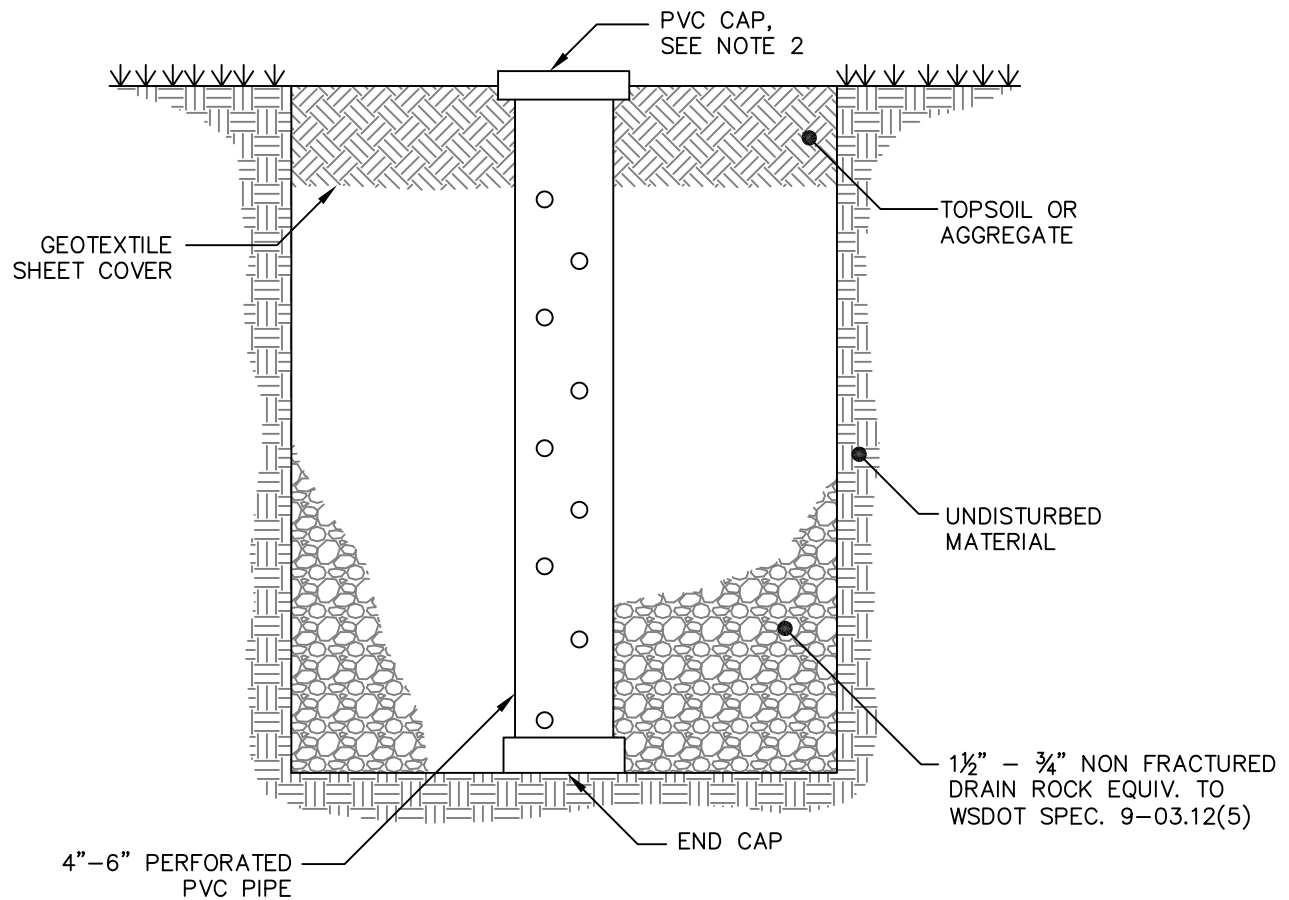
SECTION A
DETAIL N.T.S.

14.0

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DATE 3/28/23



NOTES:

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



ENGINEERING DIVISION

**OBSERVATION
MONITORING PORTS**

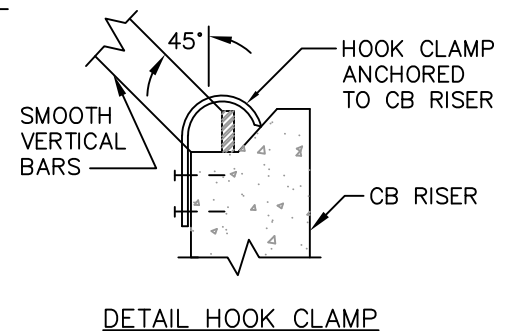
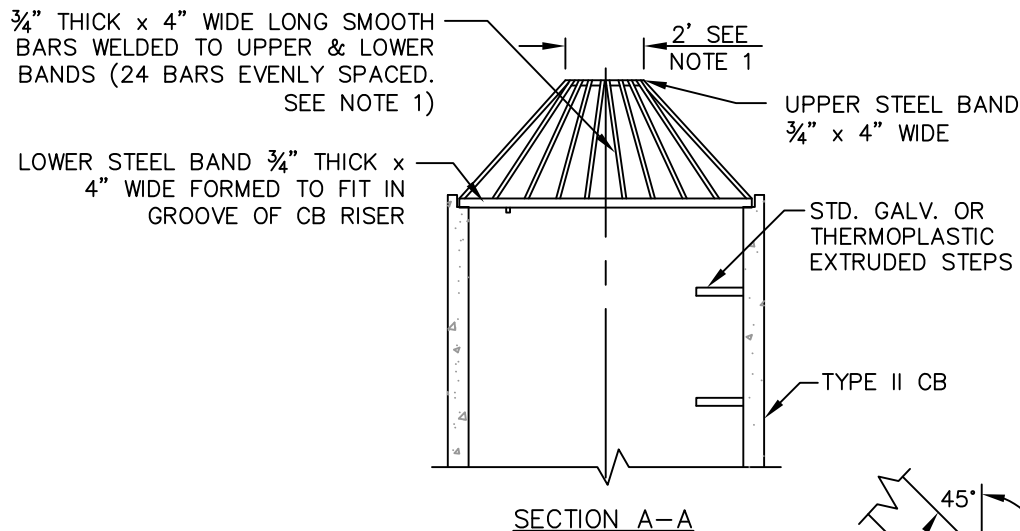
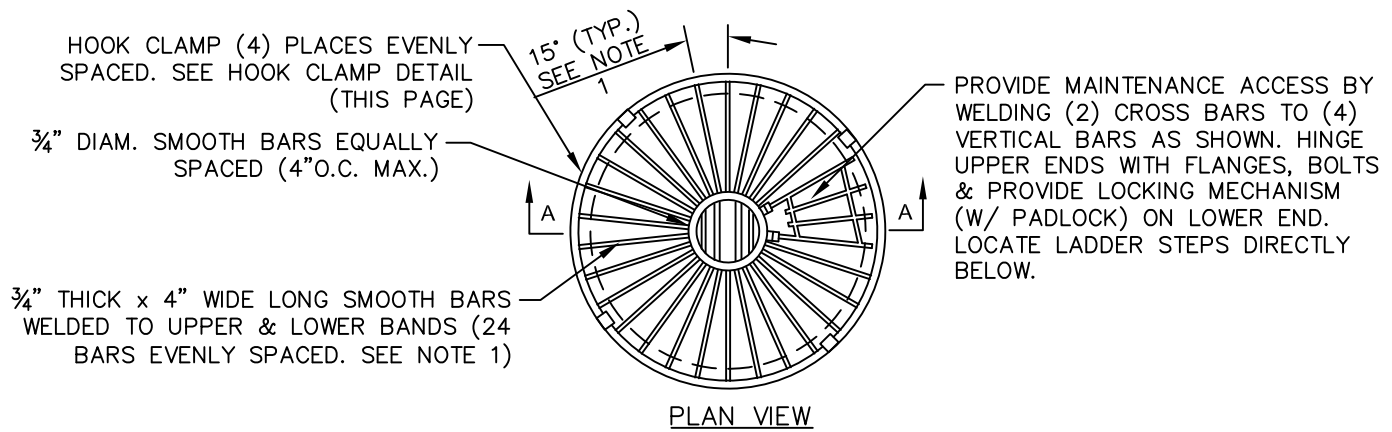
SECTION A
DETAIL N.T.S.

15.0

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CITY ENGINEER



[Signature]

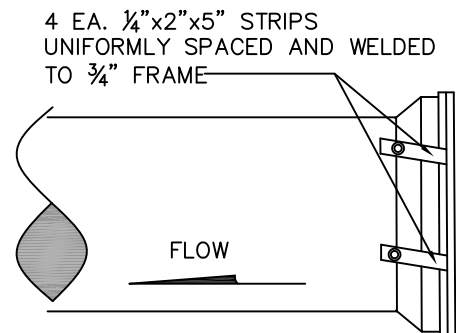
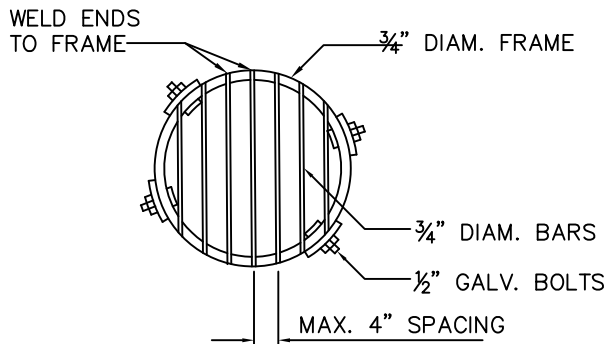
DATE **3/28/23**



NOTES:

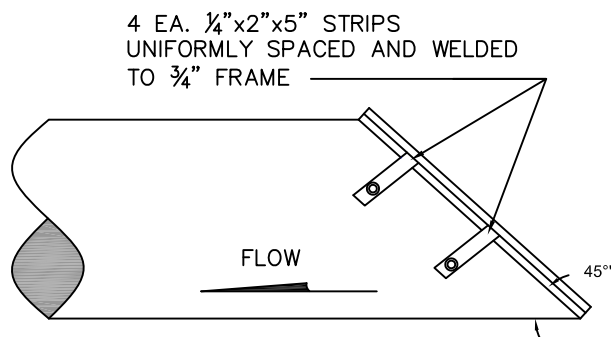
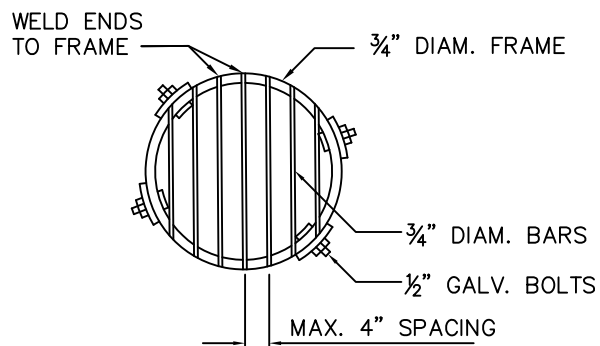
1. DIMENSIONS ARE FOR INSTALLATION ON 54" DIAM. CB. FOR DIFFERENT DIAM. CB'S ADJUST DIMENSIONS TO MAINTAIN 45° ANGLE ON "VERTICAL" BARS & 4" O.C. MAX. SPACING OF BARS AROUND LOWER STEEL BAND. WHEN VERTICAL BAR SPACING EXCEEDS 4" O.C., PROVIDE HORIZONTAL RINGS 4" O.C.
2. METAL PARTS: CORROSION RESISTANT (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).

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



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

DEBRIS BARRIER 1 (90°)



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

DEBRIS BARRIER 2 (45°)



ENGINEERING DIVISION

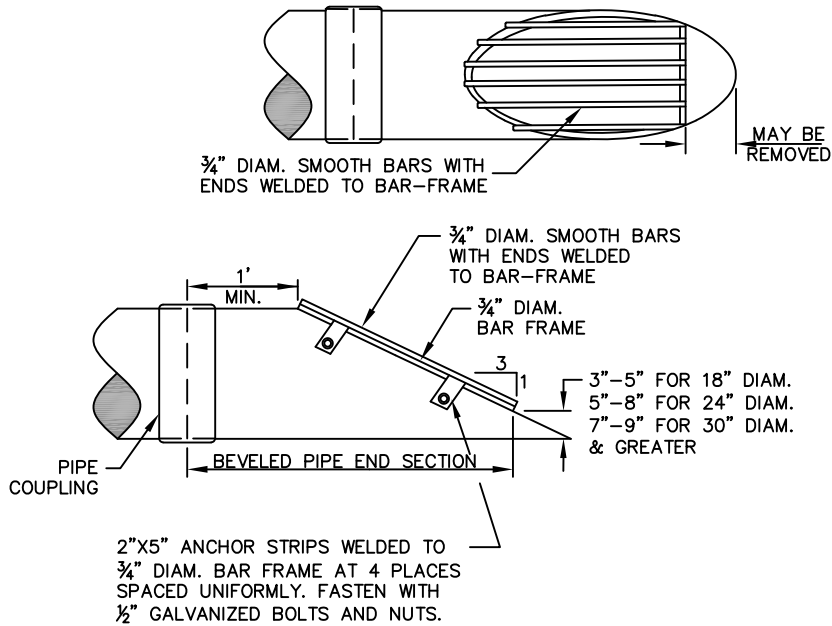
DEBRIS BARRIER 1 & 2

SECTION A
DETAIL N.T.S.

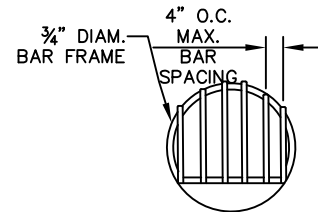
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APPROVED BY
CITY ENGINEER

DATE 3/28/23

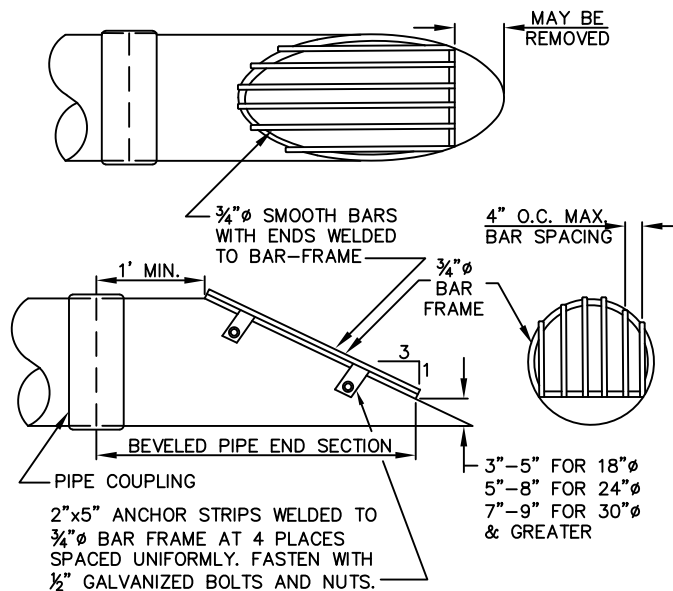


NOTE: END-SECTION SHOWN



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).



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).



ENGINEERING DIVISION

DEBRIS BARRIER 3

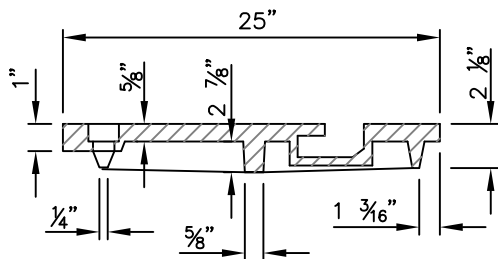
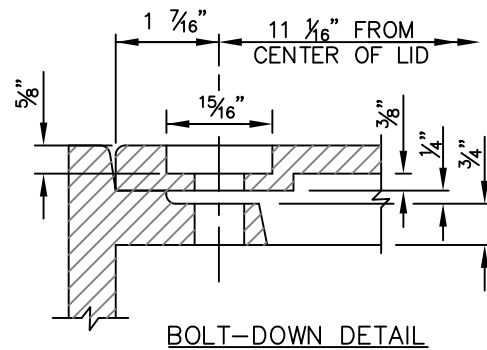
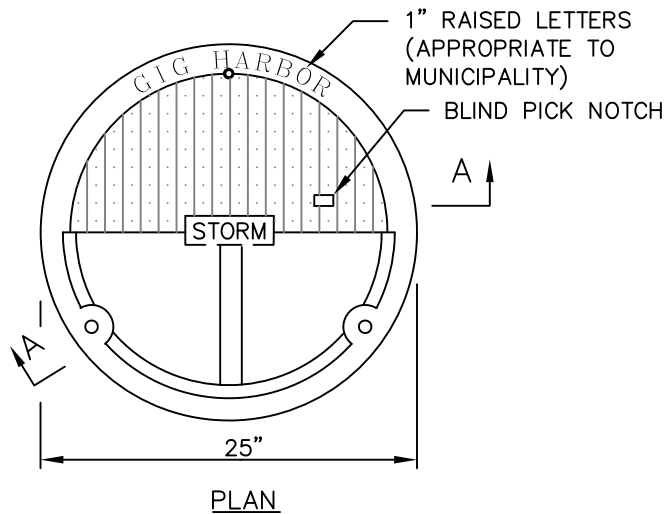
SECTION A
DETAIL N.T.S.

17.1

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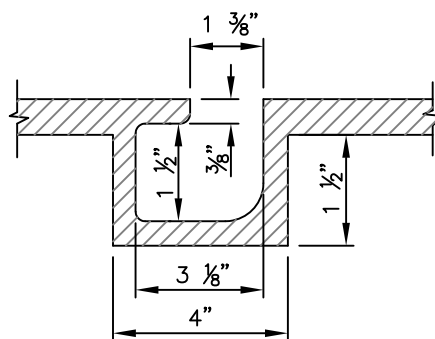
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DATE 3/28/23

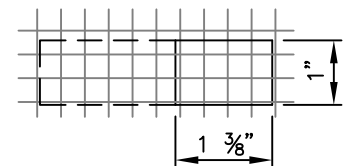


NOTE: DIMENSIONS BASED
FROM TOP OF SKID DESIGN

SECTION A-A



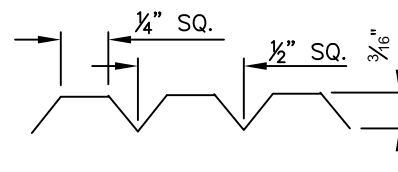
SECTION



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 $120^\circ @ 11 \frac{1}{16}$ " RADIUS
2. MATERIAL IS DUCTILE IRON ASTM A 536 GRADE 80-55-06.



ENGINEERING DIVISION

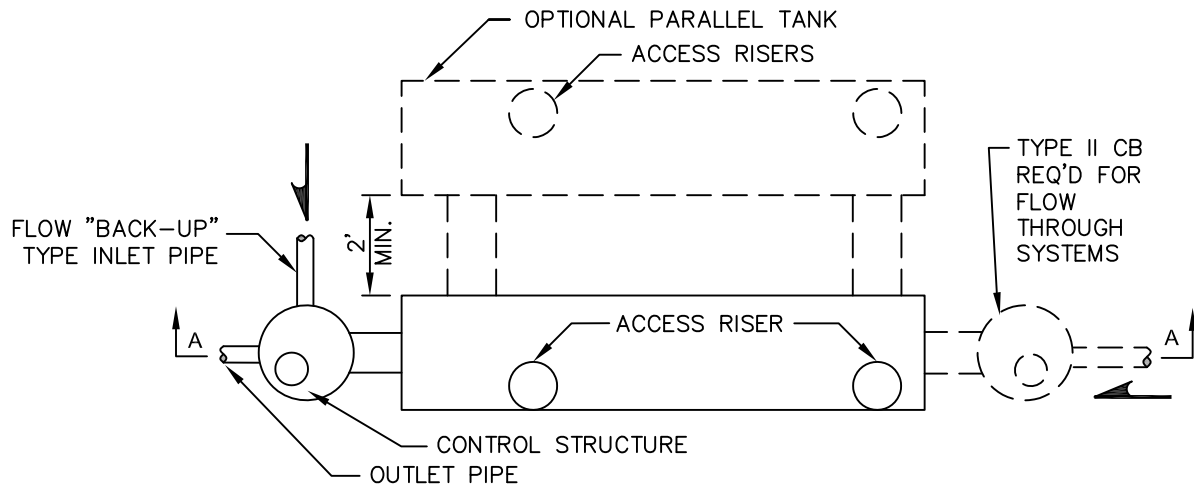
CATCH BASIN TYPE 2
SOLID LOCKING LID

SECTION A
DETAIL N.T.S.
18.0

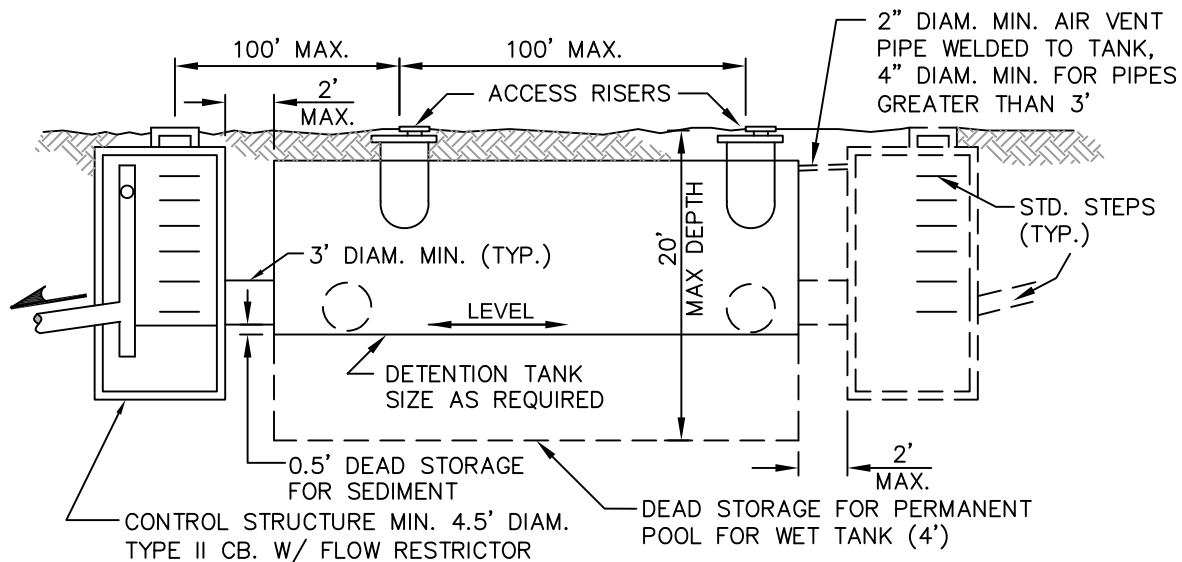
APPROVED BY
CITY ENGINEER

[Signature]

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

DETENTION TANK
(DRY/WET)
TYPICAL

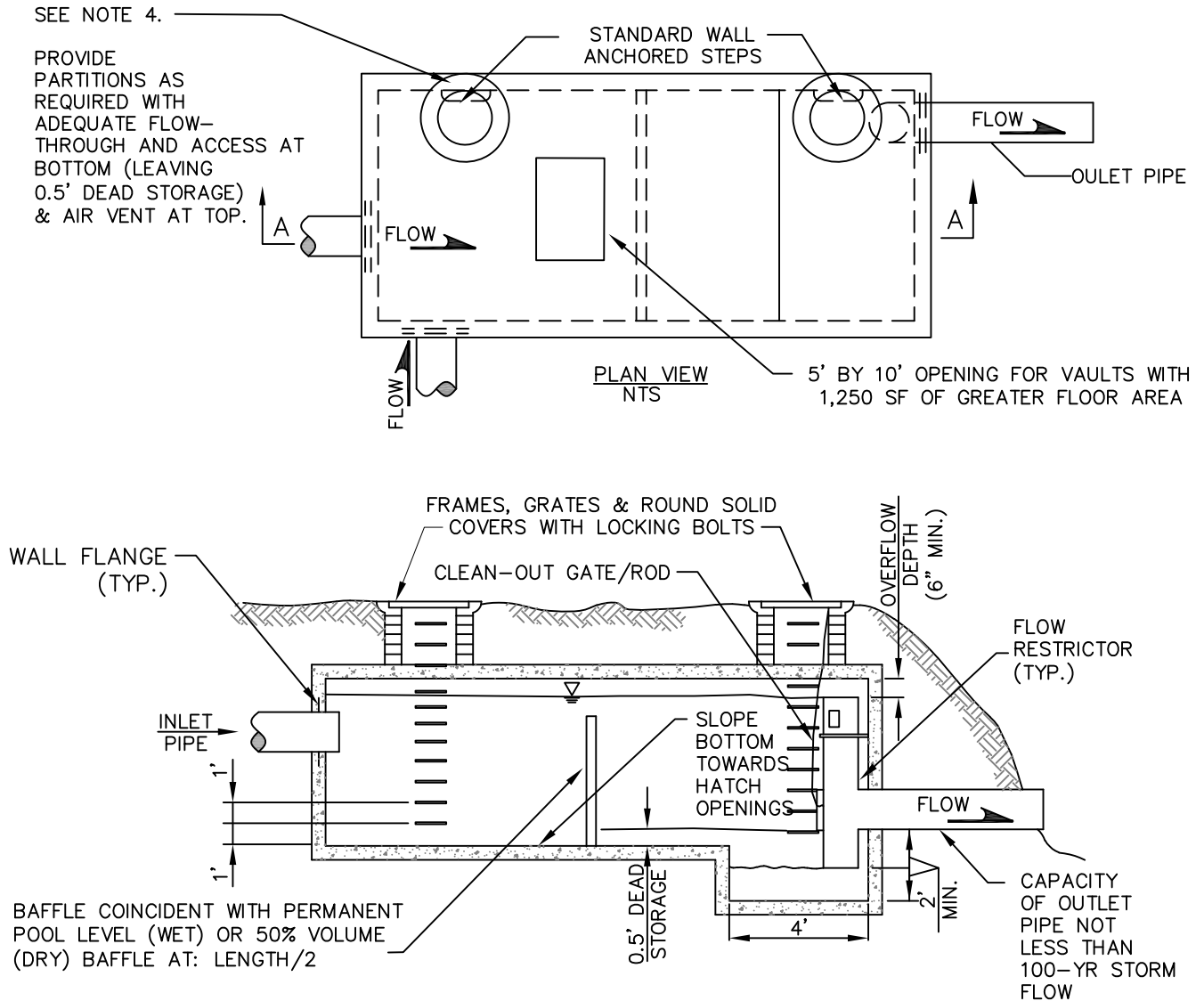
SECTION A
DETAIL N.T.S.

19.0

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CITY ENGINEER

[Signature]

DATE 3/28/23



NOTES:

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

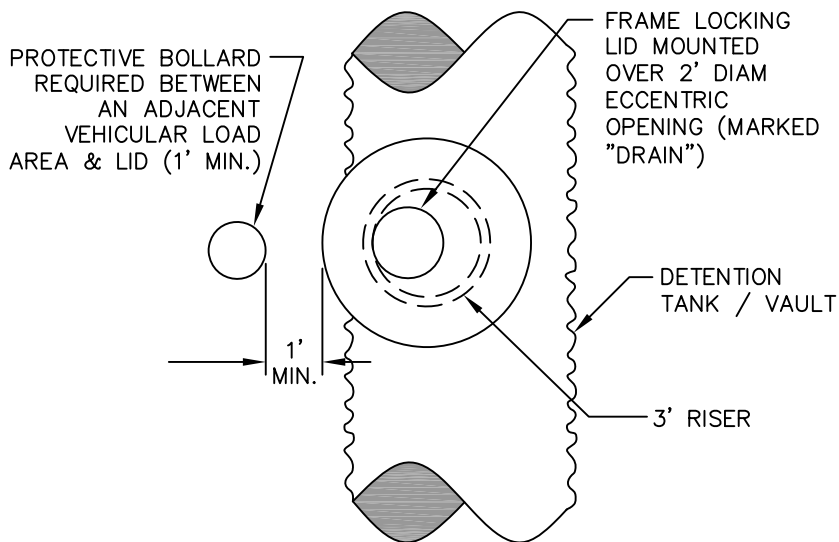
APPROVED BY
CITY ENGINEER

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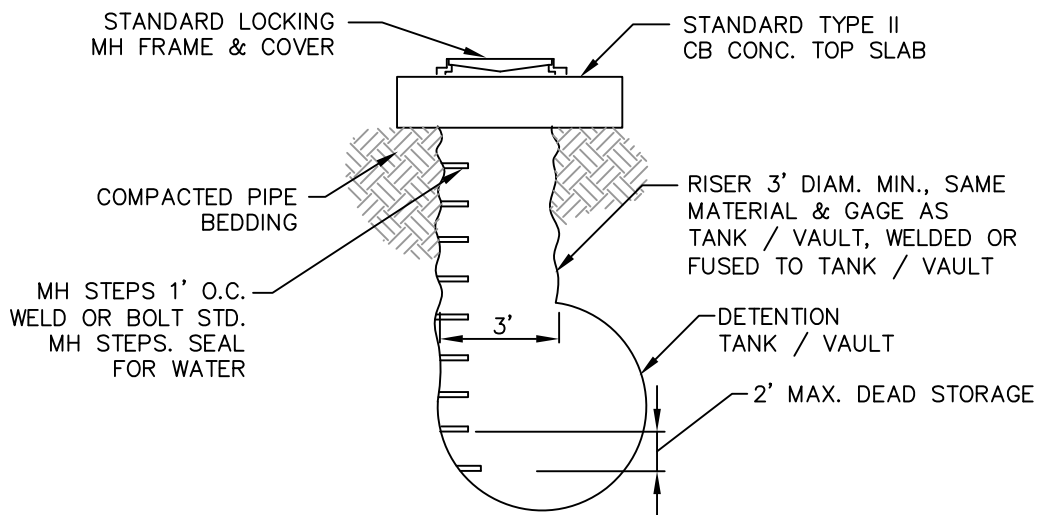
DATE 3/28/23

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



SECTION

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.



ENGINEERING DIVISION

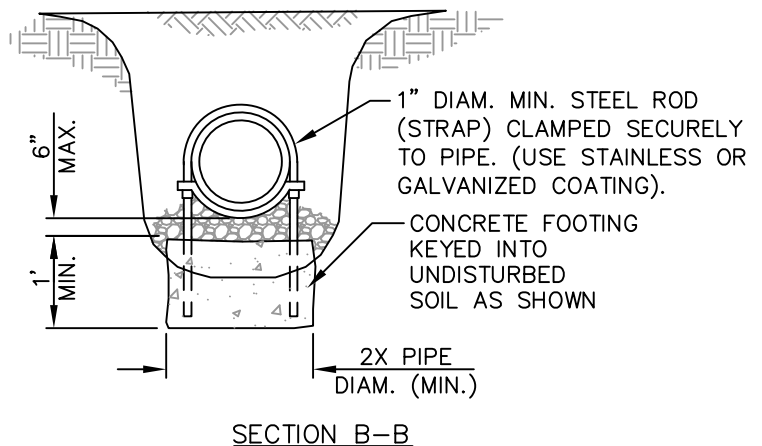
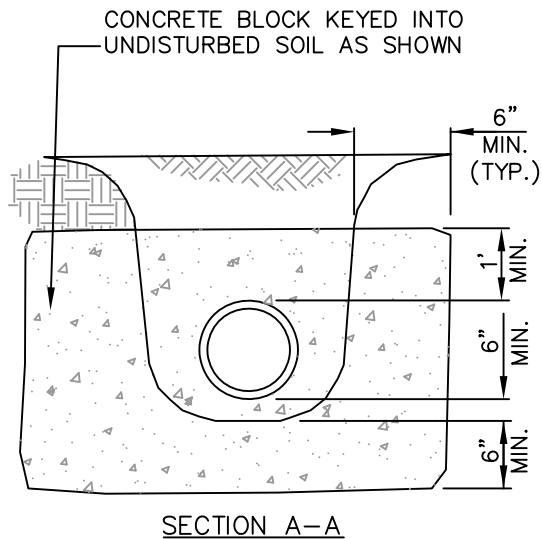
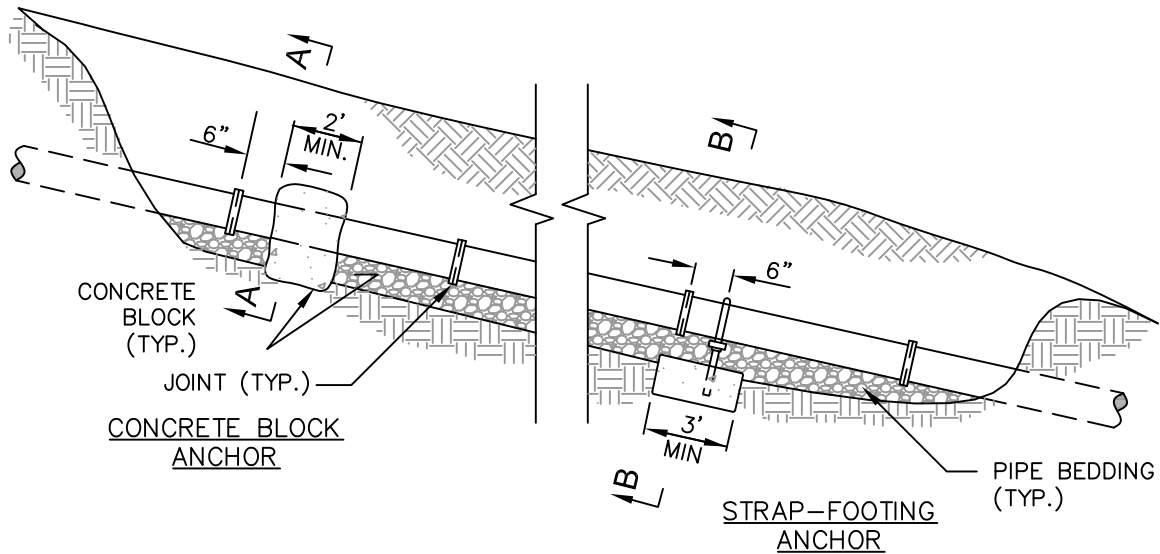
**DETENTION
TANK/VAULT
ACCESS DETAILS**

SECTION A
DETAIL N.T.S.

19.2

APPROVED BY
CITY ENGINEER

DATE 4/10/23



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

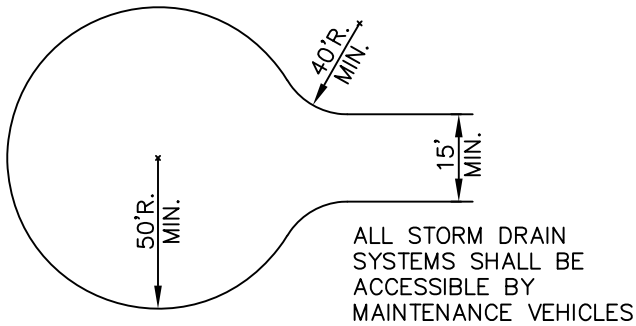
SECTION A
DETAIL N.T.S.

20.0

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CITY ENGINEER

[Signature]

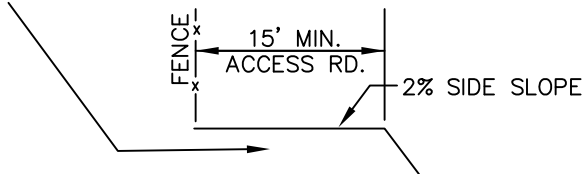
DATE 3/28/23



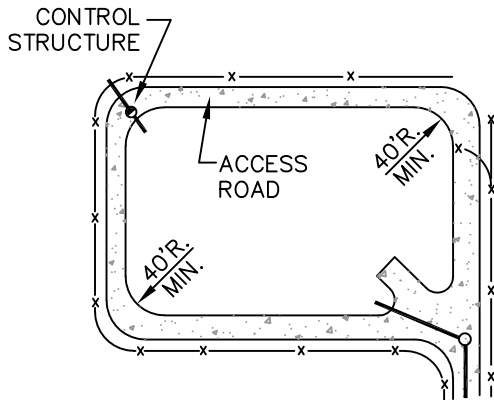
BULB TURN-AROUND

TO BE USED WHEN ACCESS ROAD LENGTH EXCEEDS 75'

ROAD SECTION TO SUPPORT VEHICLES IT IS DESIGNED FOR

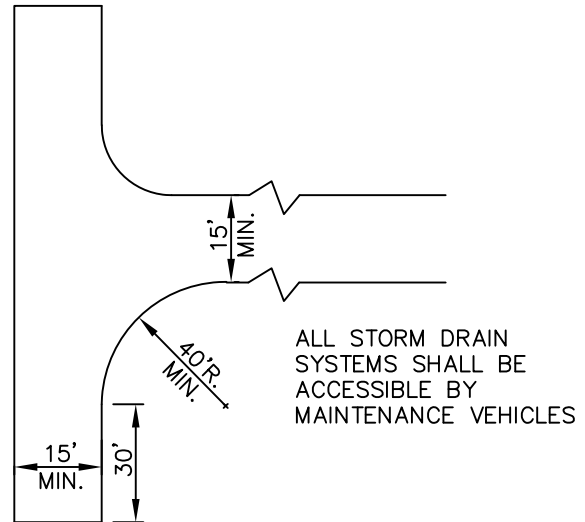


ACCESS ROAD DETAIL



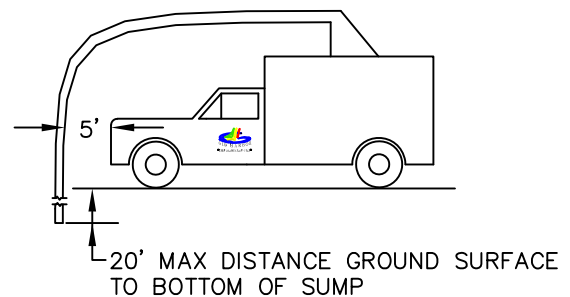
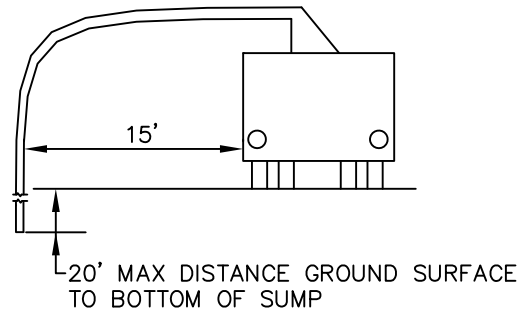
FULL POND ACCESS

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 ACCESSSES

SECTION A
DETAIL N.T.S.

21.0

APPROVED BY
CITY ENGINEER

[Signature]

DATE 3/28/23



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



ENGINEERING DIVISION

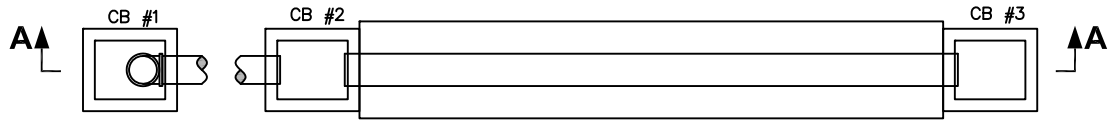
**CATCH BASIN
MARKER**

SECTION A
DETAIL N.T.S.

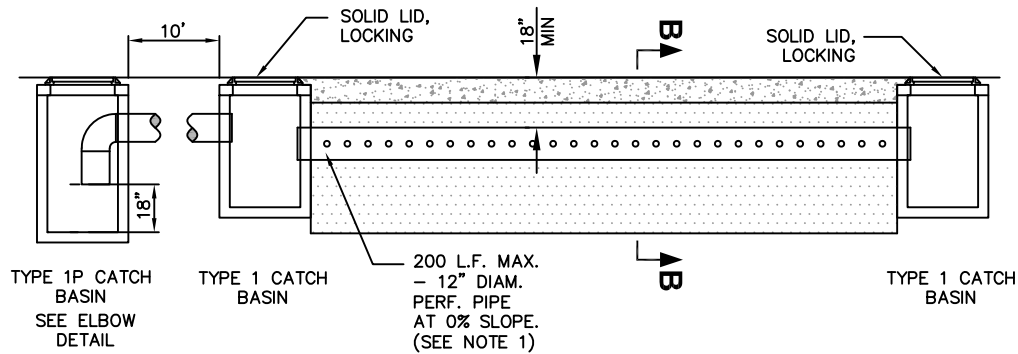
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APPROVED BY
CITY ENGINEER

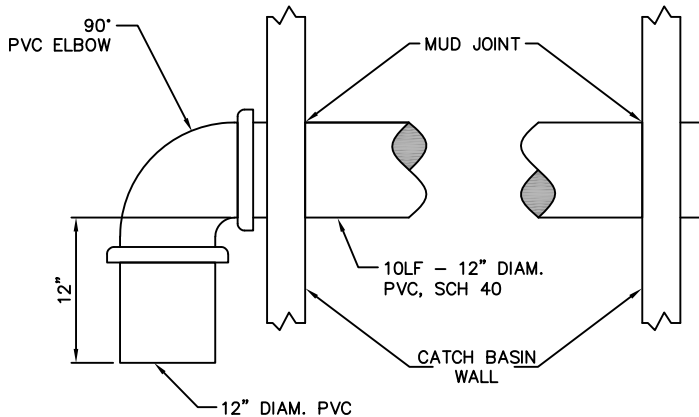
DATE **3/28/23**



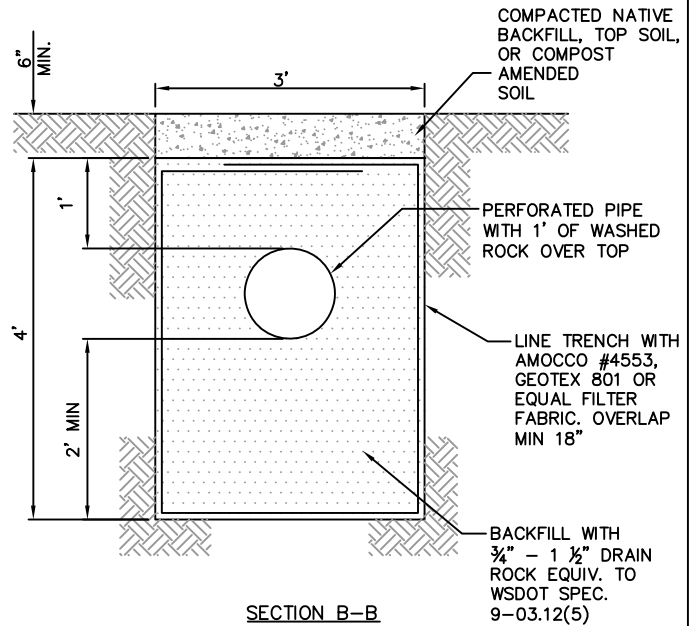
PLAN



SECTION A-A
TYPICAL STANDARD DRYWELL
DETAIL



ELBOW DETAIL



SECTION B-B
TRENCH 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

[Signature]

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%.



ENGINEERING DIVISION

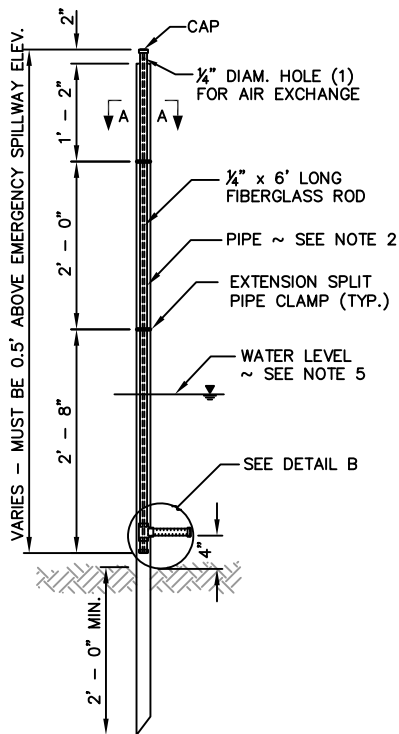
**CHAIN LINK FENCE
TYPE 1
(MODIFIED)**

SECTION A
DETAIL N.T.S.

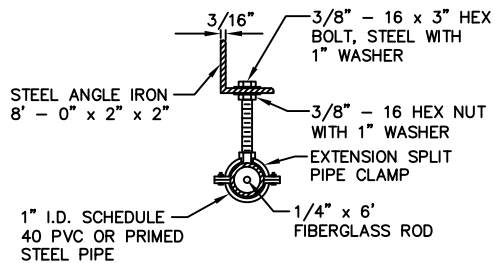
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APPROVED BY
CITY ENGINEER

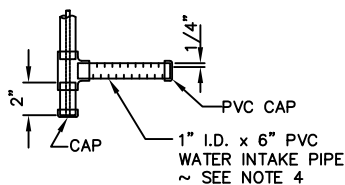
DATE 3/28/23



CREST GAGE

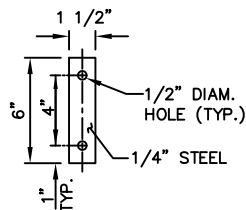


SECTION (A)

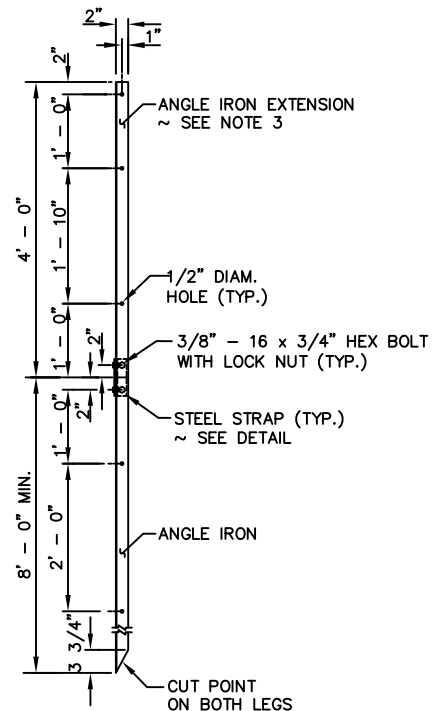


WATER INTAKE AND CLEANOUT ASSEMBLY

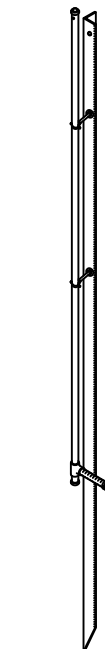
DETAIL (B)



STEEL STRAP



ANGLE IRON DETAIL (SHOWN WITH EXTENSION)



ISOMETRIC VIEW

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 1/4" DEEP, 1/2" WIDE (WIDTH OF SAW BLADE). EVERY 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.



ENGINEERING DIVISION

CREST GAGE

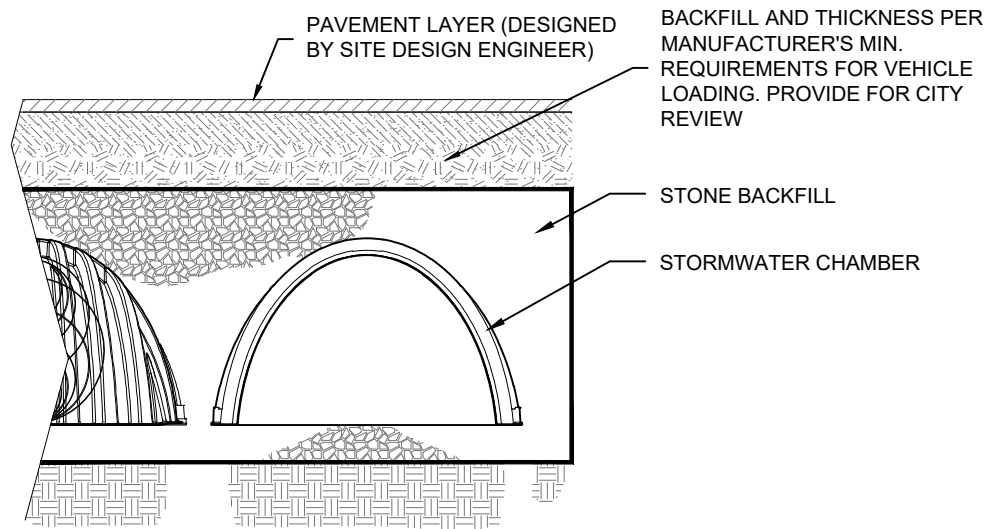
SECTION A
DETAIL N.T.S.

25.0



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CITY ENGINEER

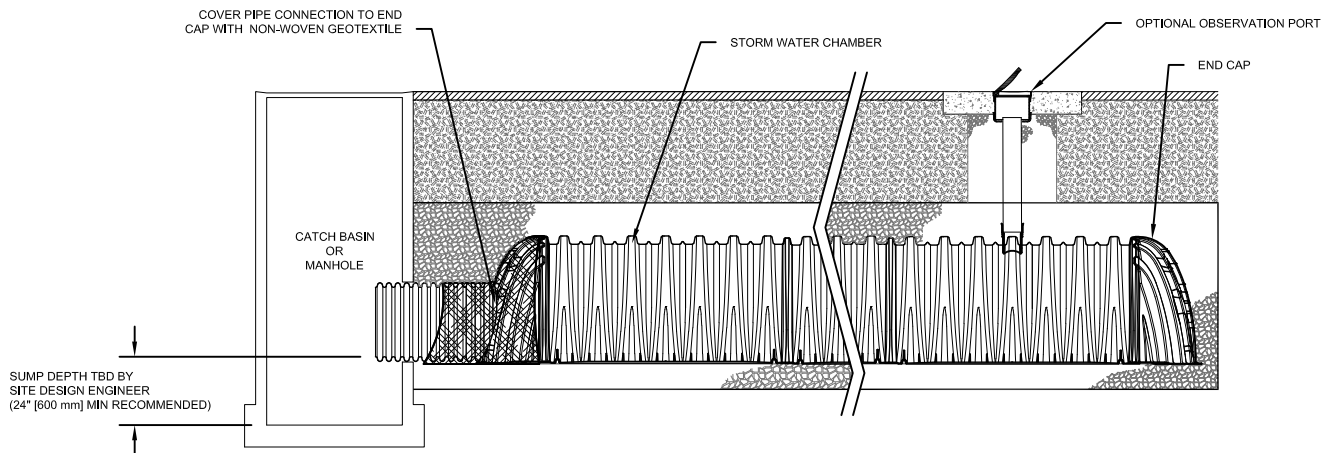
[Signature]

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.

		CITY OF GIG HARBOR ENGINEERING DIVISION	
STORMWATER CHAMBERS			DETAIL NO. 26.0
ISSUED BY CITY ENGINEER 		DATE 3/28/23	



MAINTENANCE ROW DETAIL
NTS

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.



CITY OF GIG HARBOR
ENGINEERING DIVISION

STORMWATER MAINTENANCE CHAMBER

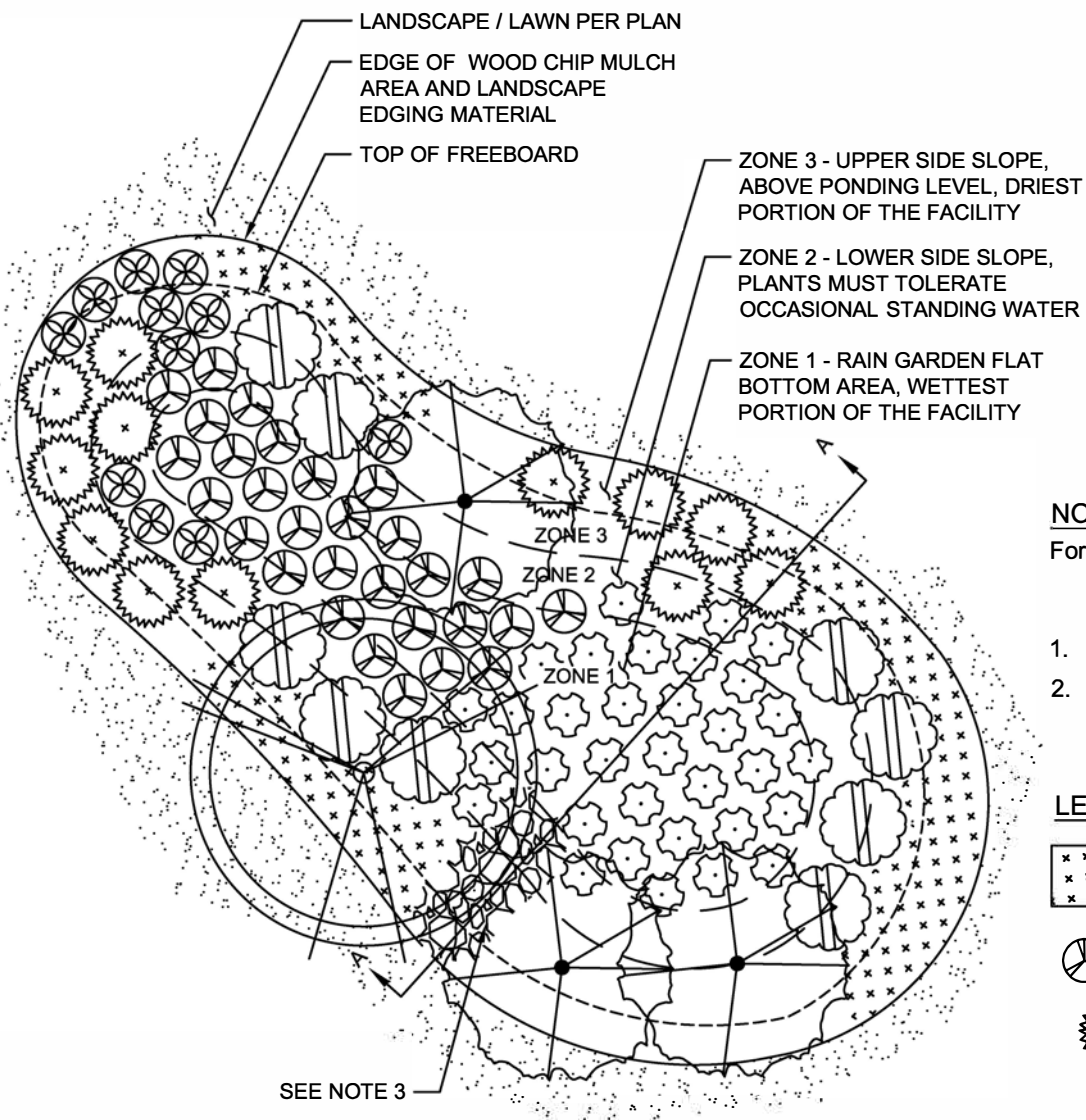
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27.0

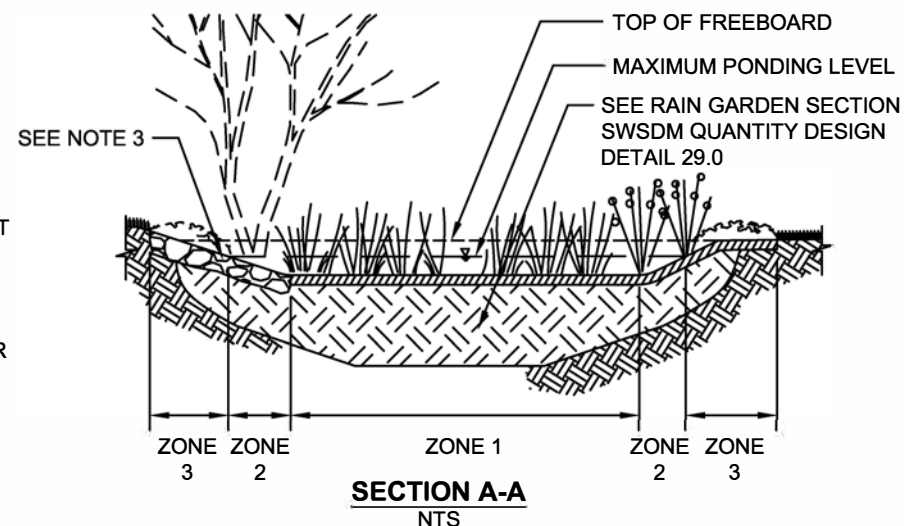
ISSUED BY
CITY ENGINEER

[Signature]

DATE 3/28/23



PLAN
NTS

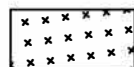


NOTES:

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:



LOW PERENNIALS /
GROUND COVERS



EMERGENTS



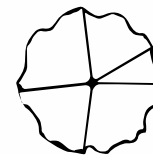
HERBACEOUS
PERENNIALS



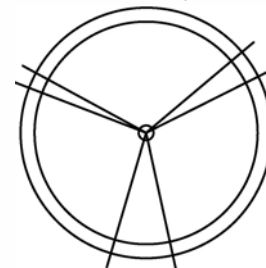
FERNS



HERBACEOUS
PERENNIALS /
SMALL SHRUBS



SHRUBS



LARGE SHRUBS /
DECIDUOUS TREES

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.



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

RAIN GARDEN - PLANTING ZONES

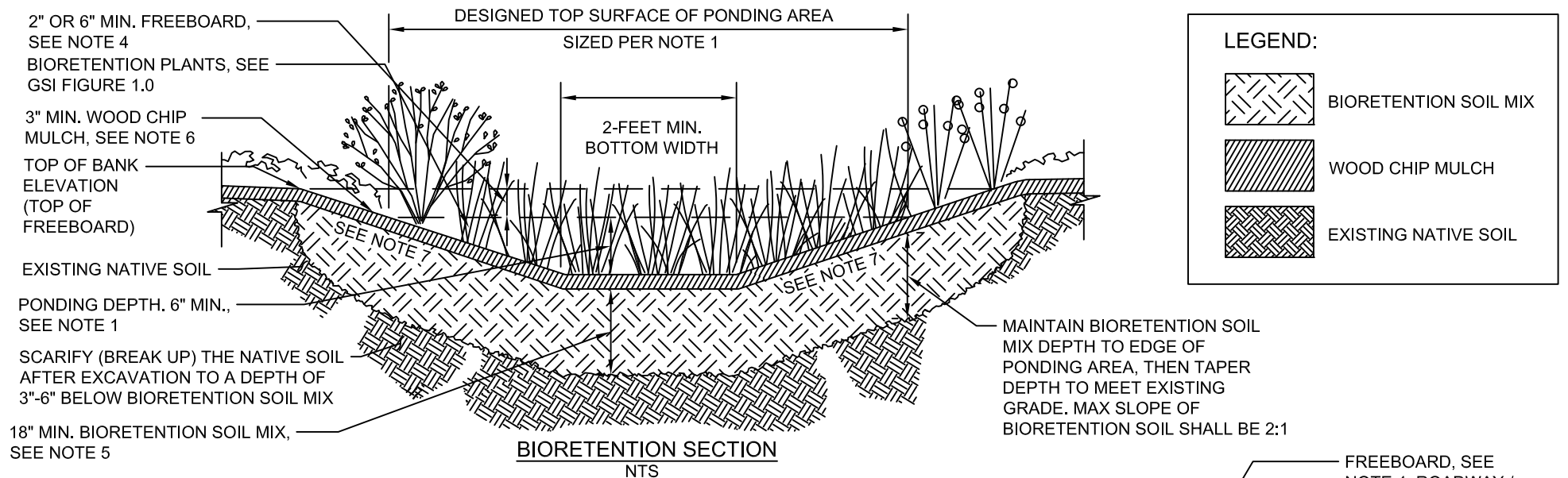
DETAIL NO.

28.0

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CITY ENGINEER

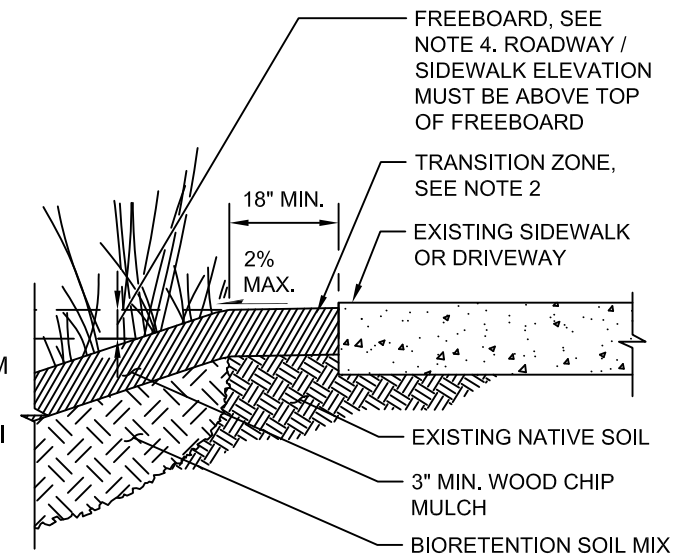
[Signature]

DATE 3/28/23



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-regis/>. 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 SWSM.
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.



BIORETENTION ADJACENT TO SIDEWALK OR DRIVEWAY

NTS



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

BIORETENTION SECTION

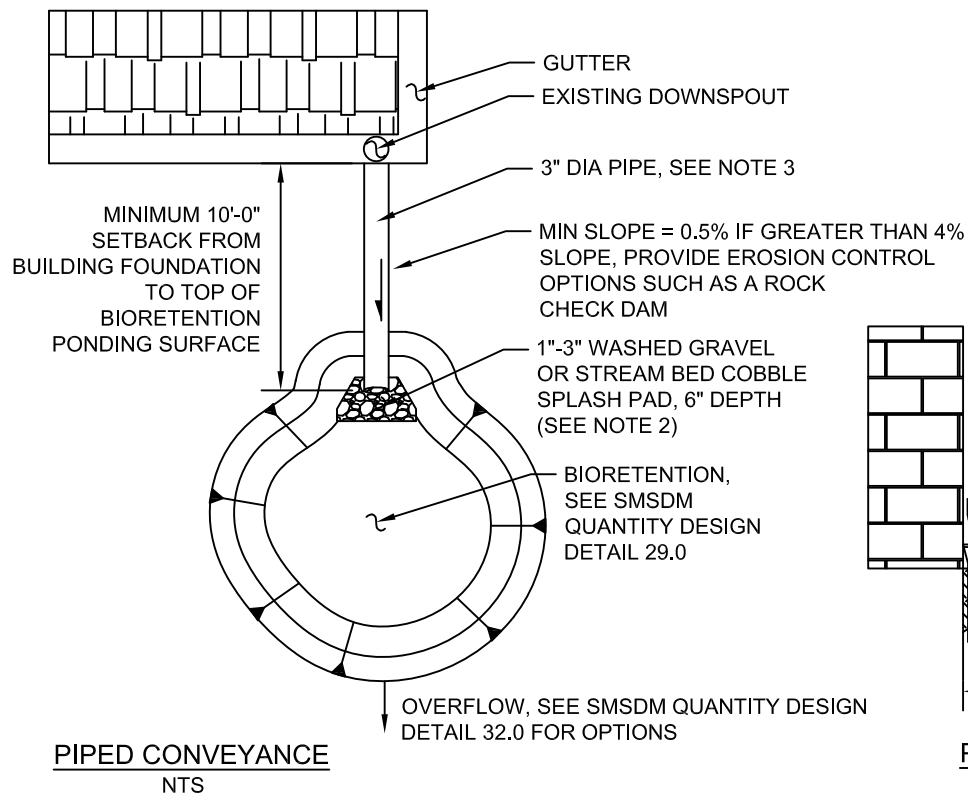
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29.0

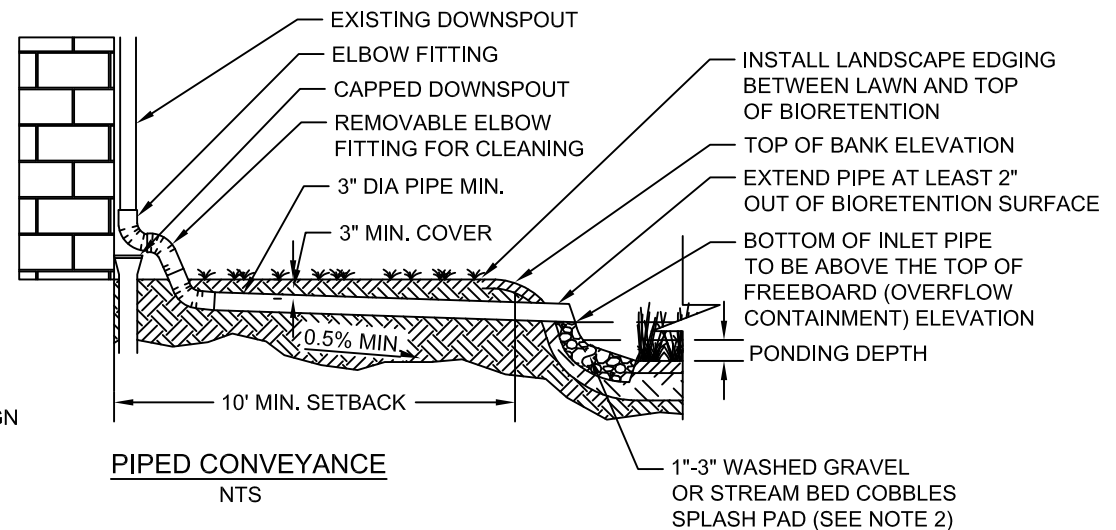
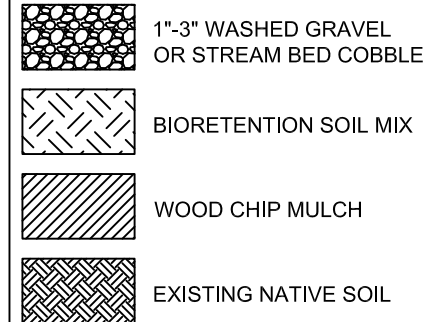
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CITY ENGINEER

[Signature]

DATE **3/28/23**



LEGEND:



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

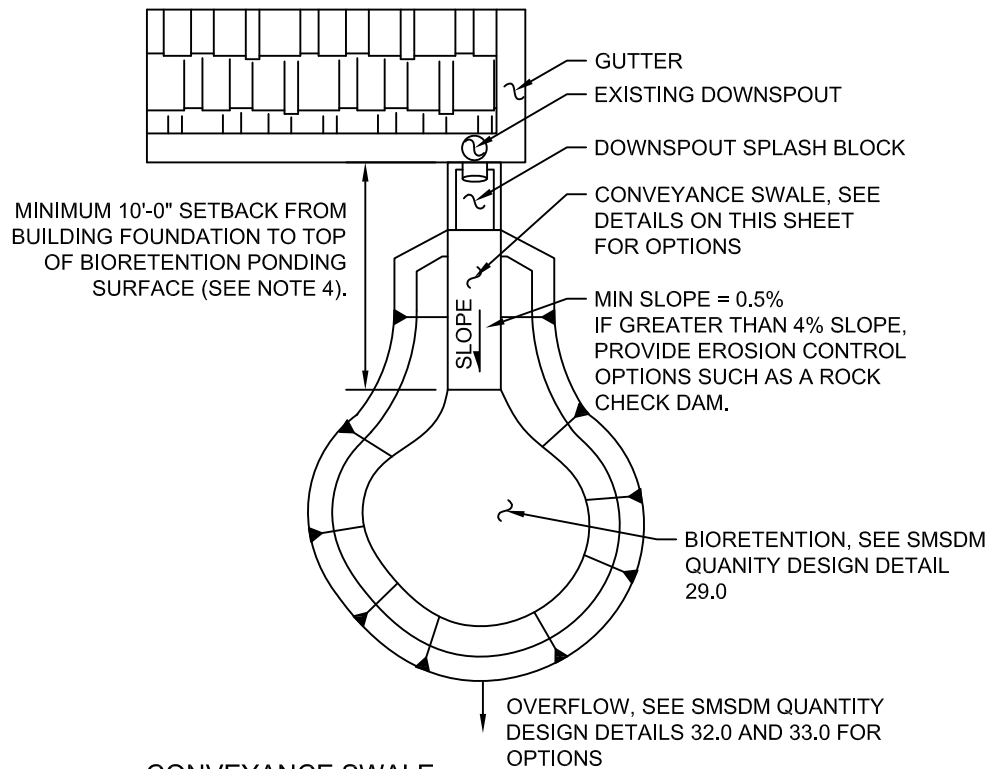
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30.0

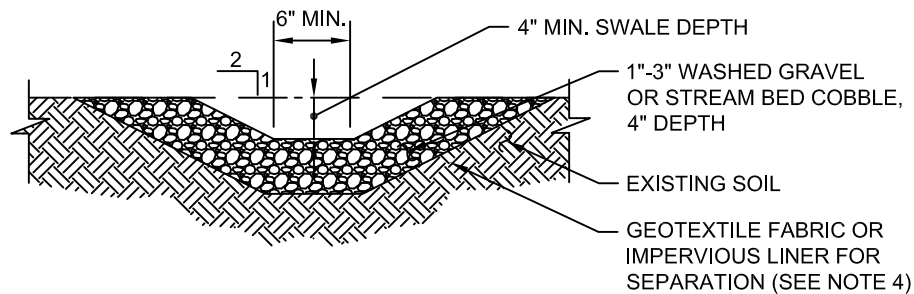
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CITY ENGINEER

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DATE **3/28/23**

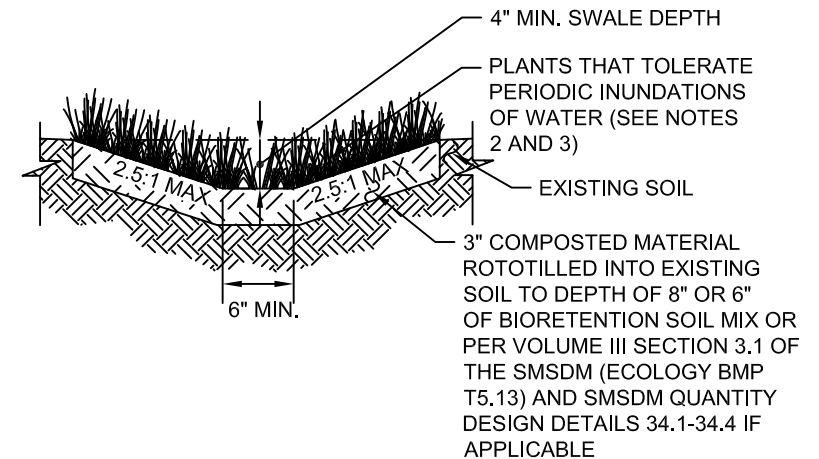
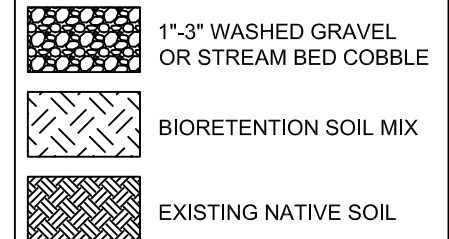


CONVEYANCE SWALE
NTS



ROCK-LINED CONVEYANCE SWALE
NTS



LEGEND:

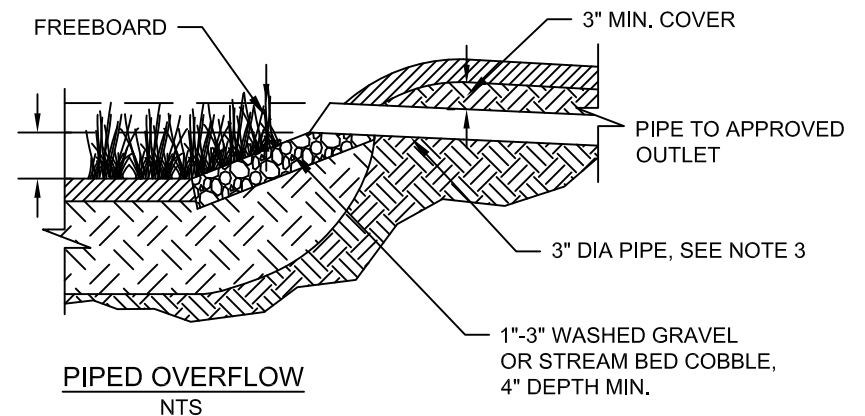
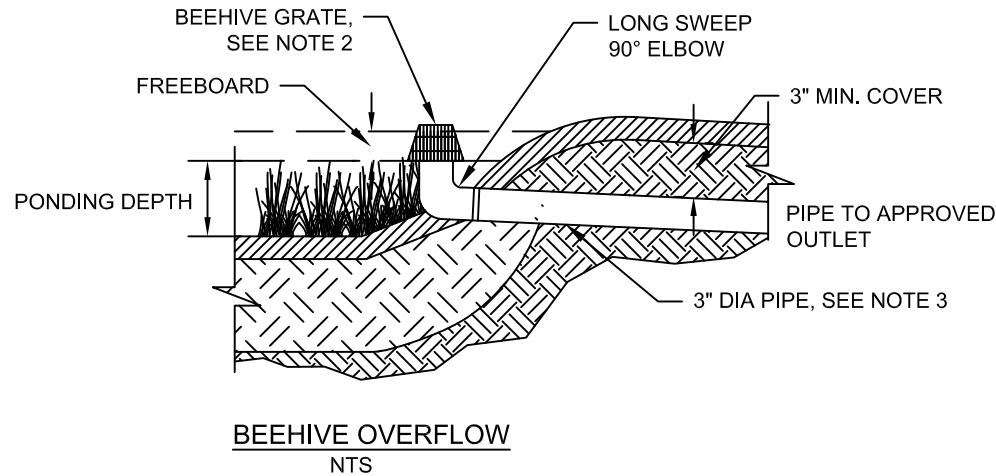


VEGETATED CONVEYANCE SWALE
NTS

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
APPROVED FOR PUBLICATION CITY ENGINEER 	
DATE: 3/28/23	



LEGEND:	
	WOOD CHIP MULCH AND/OR PLANTED AREA
	BIORETENTION SOIL MIX
	EXISTING NATIVE SOIL

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

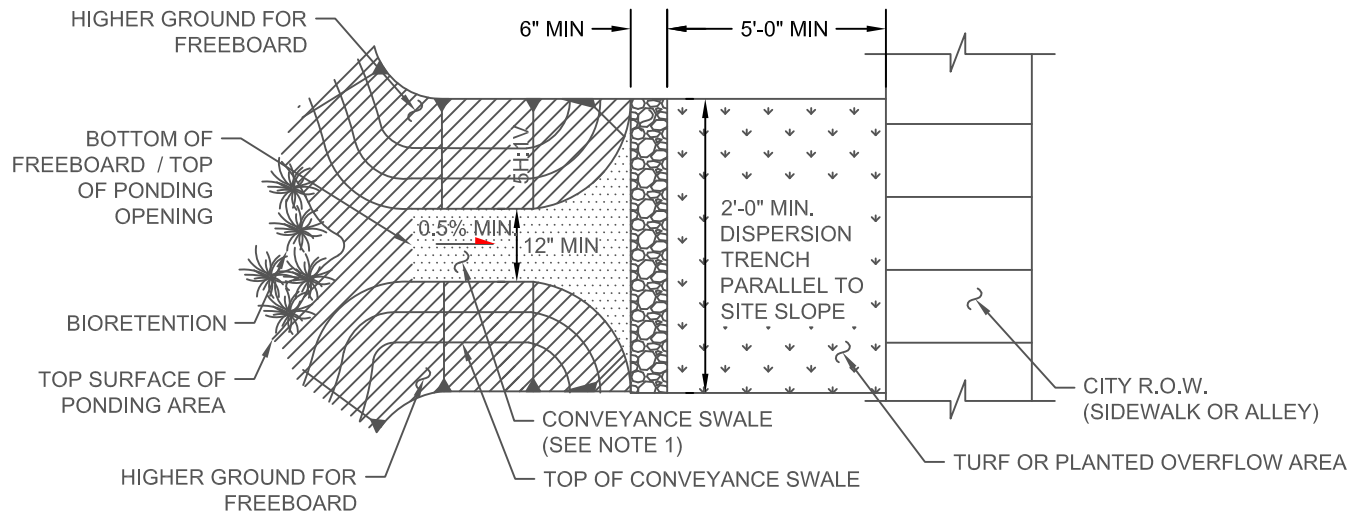
DETAIL NO.

32.0

APPROVED FOR PUBLICATION
CITY ENGINEER _____

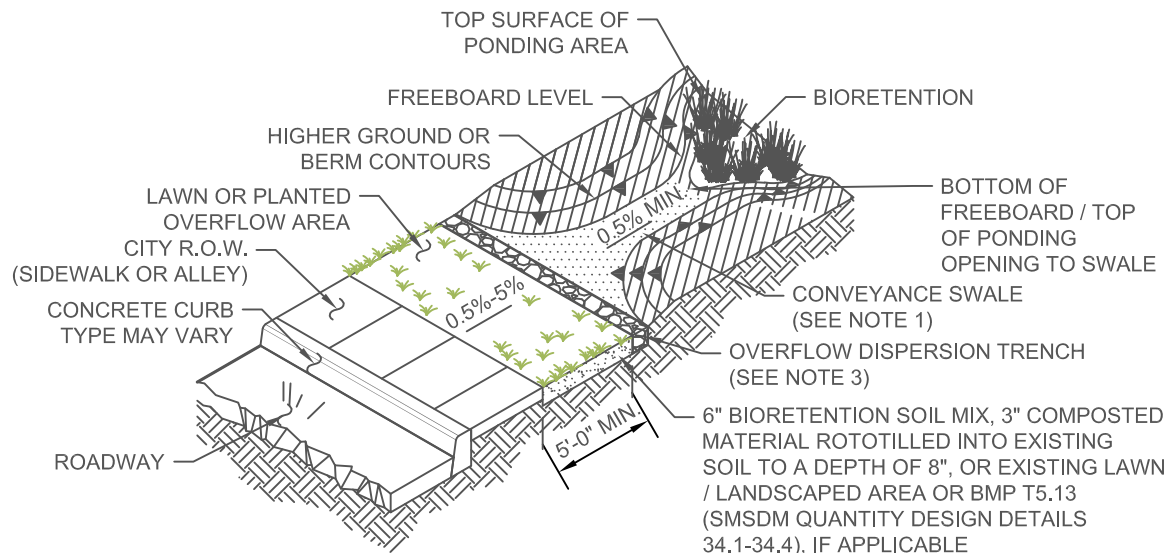
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DATE **3/28/23**



OVERFLOW THROUGH CONVEYANCE SWALE TO R.O.W.

NTS



OVERFLOW THROUGH CONVEYANCE SWALE TO R.O.W.

NTS

LEGEND:

	BIORETENTION SOIL MIX
	WOOD CHIP MULCH AND/OR PLANTED AREA
	EXISTING NATIVE SOIL
	LAWN OR PLANTED OVERFLOW AREA
	CONVEYANCE SWALE (SEE NOTE 1)

NOTES:

1. See SMSDM 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**

DETAIL NO.

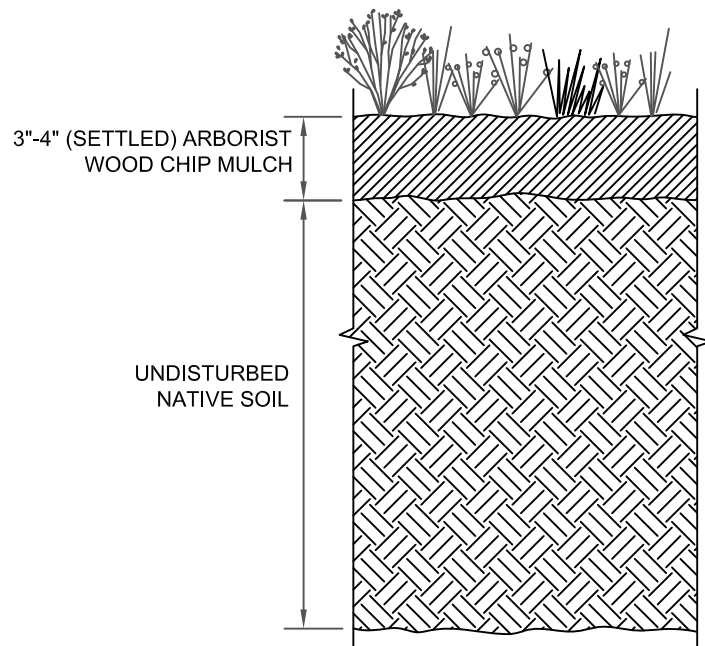
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CITY ENGINEER

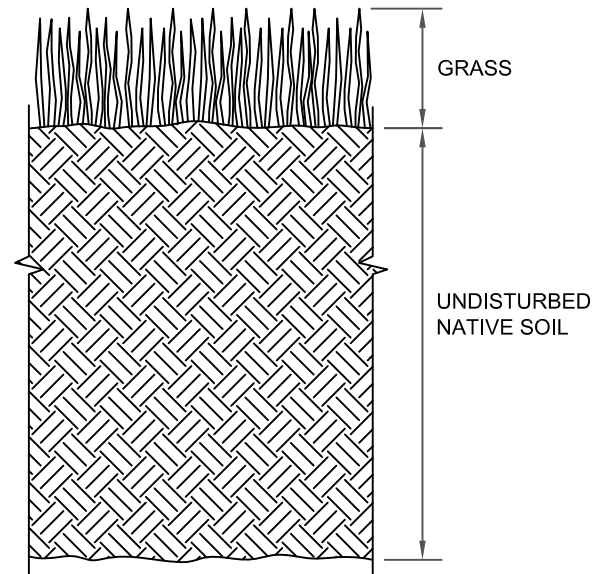
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DATE 3/28/23

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**

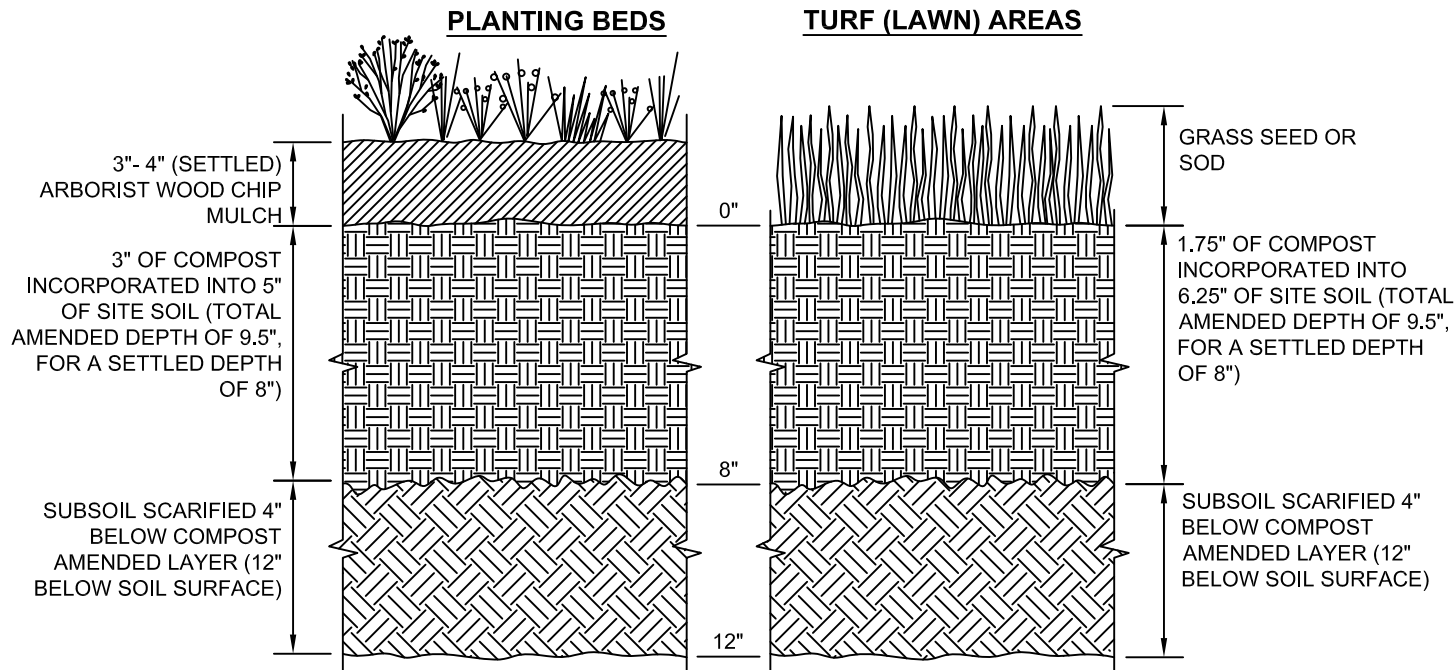
DETAIL NO.

34.1

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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. PREAPPROVED RATE: 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. PREAPPROVED RATE: 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. CALCULATED RATE: 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. CALCULATED RATE: 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

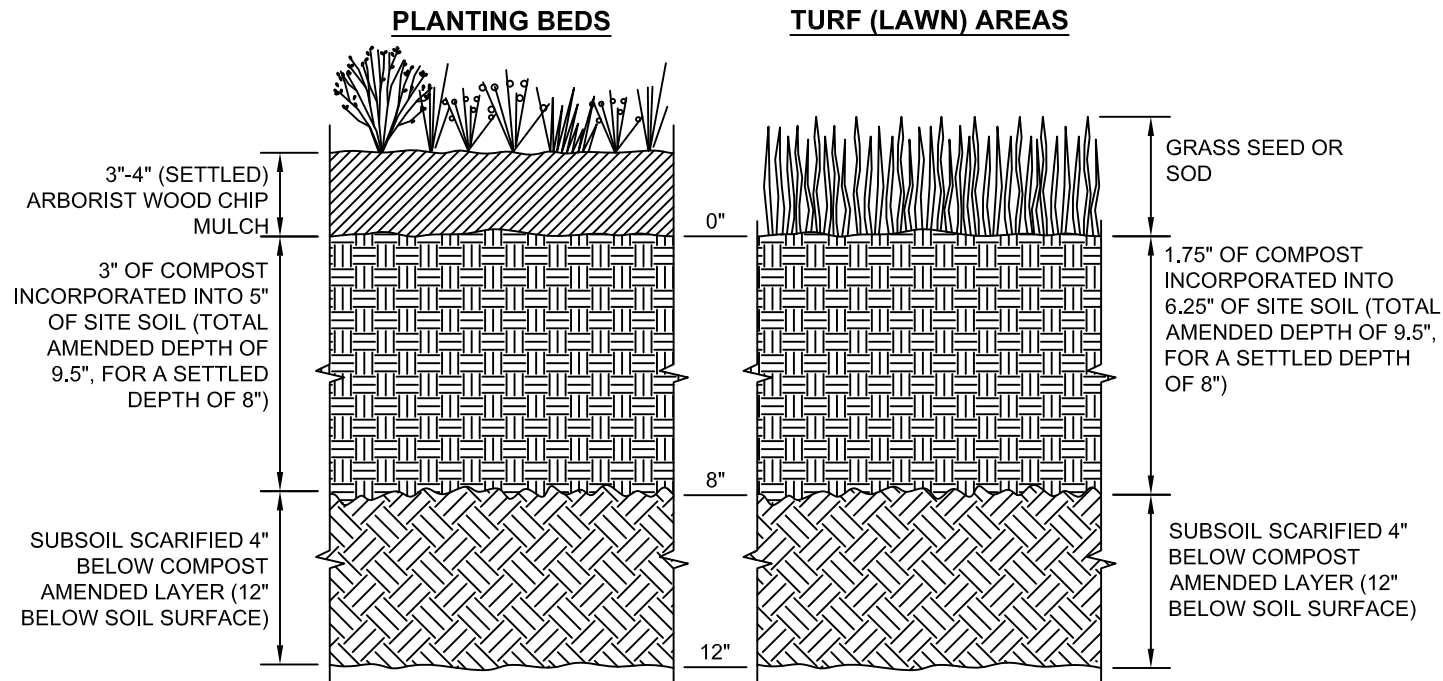
**BMP T5.13 OPTION 2 -
AMEND IN PLACE**

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	B. Turf (Lawn) Areas
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).	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 10% organic content.	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.
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 more information.



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

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

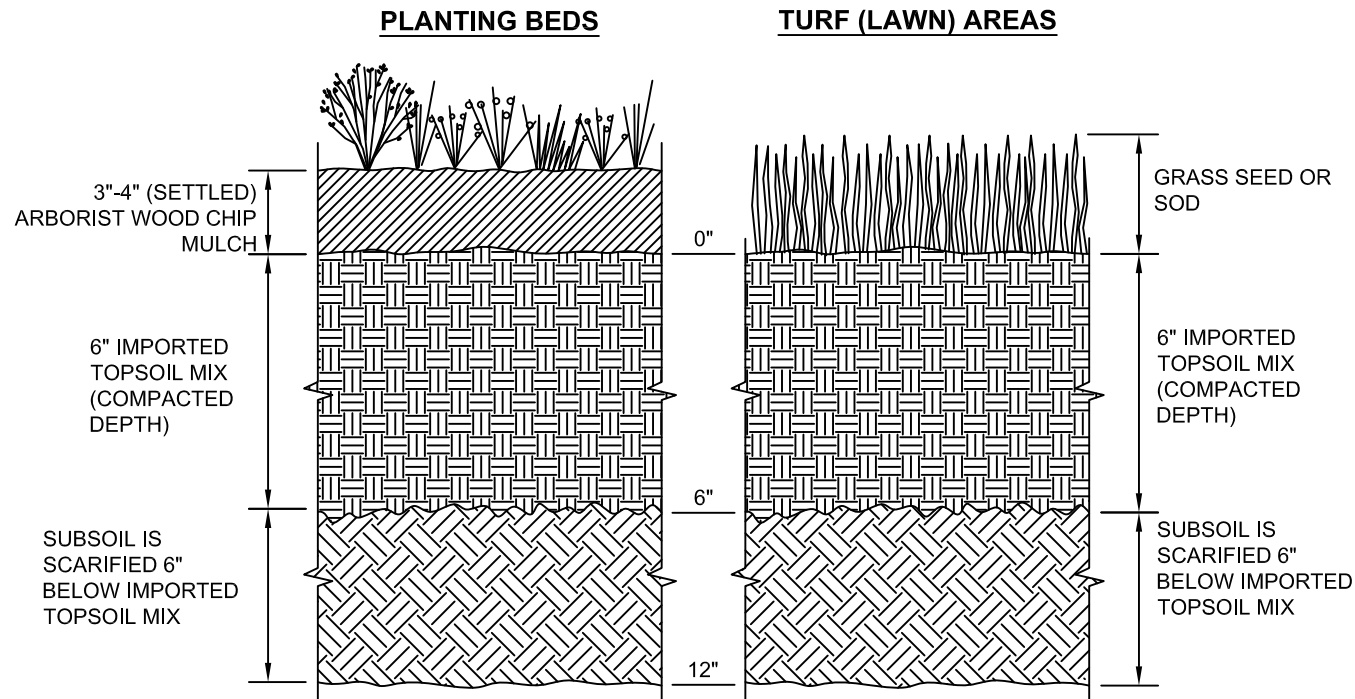
DETAIL NO.

34.3

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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**

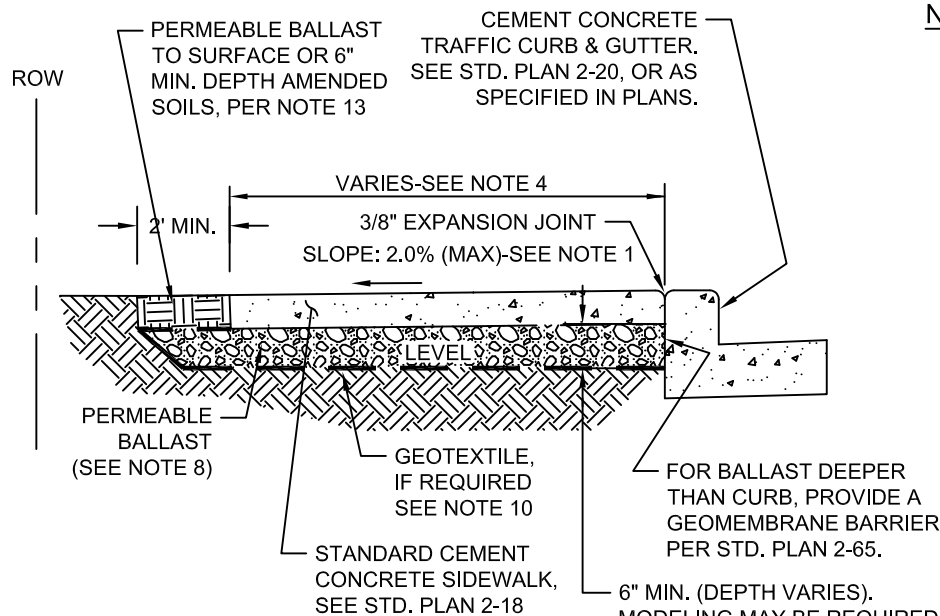
DETAIL NO.

34.4

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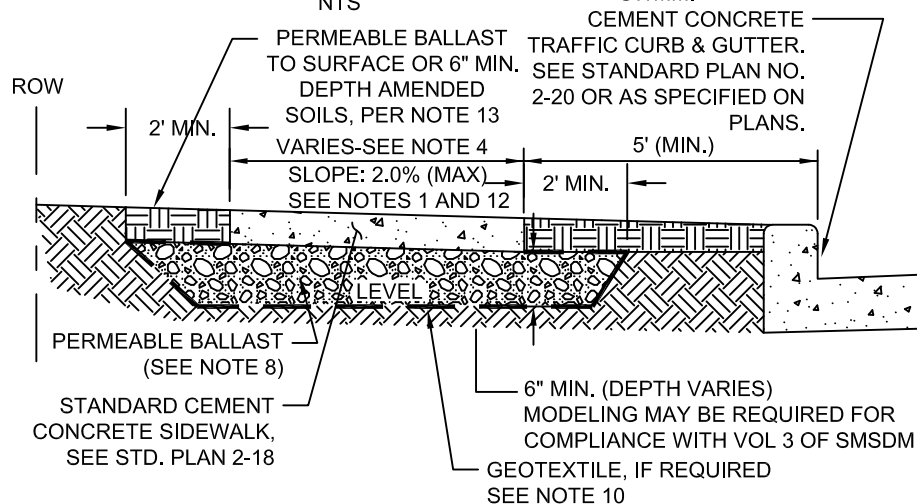
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DATE **3/28/23**



COMBINATION WALK SECTION

NTS



SIDEWALK WITH PLANTER STRIP SECTION

NTS

NOTES:

- 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).
- 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.
- Staking is required where no curb is present.
- 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.
- All expansion joints shall be full depth with 3/8" premolded joint filler.
- All joints shall be cleaned and edged. External edges shall be 1/2" radius. Internal joints shall be 1/4" radius.
- Subgrade preparation shall meet APWA GSP 2-06.3(3) Subgrade for Permeable Pavements.
- Permeable ballast shall meet WSDOT STD SPEC. 4-04.2 Gravel Base and 9-03.9(2).Opt1 Pavement Ballast.
- 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.
- 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.
- For plan view refer to City of Gig Harbor Standard Plan 2-18.
- Sidewalk with planter strip may slope in either direction.
- Planting strip soils shall be per Volume III Section 3.1 of the GHMSDM (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.
- All disturbed areas not covered with hard surfaces shall be stabilized by planting or mulching.
- Where needed, adjust ballast in planting strip to accommodate plants. Keep permeable ballast a minimum 2 feet from trunk of trees.
- 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.
- Refer to PW Std. Plan 2-52 for subgrade terracing, as applicable.



CITY OF GIG HARBOR ENGINEERING DIVISION

DETAIL NAME

**CEMENT CONCRETE SIDEWALK
INFILTRATION GALLERY**

DETAIL NO.

35.0

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DATE: 3/28/23