J Typical Details for Sustainable Streets

Table J.1: Catalogue of Typical Details for Sustainable Streets

TOPIC	SHEET NO.	SHEET TITLE	ORIGINAL CREATOR OF DETAIL	LAST MODIFIED BY	APPLICABLE TO TYPICAL RIGHT-OF-WAY PROJECTS?	APPLICABILITY TO SUSTAINABLE STREET TYPOLOGY:			
						1 - CURB EXTENSIONS	2 - CONNECTIVITY IMPROVEMENTS	3 - STREETSCAPE PROJECTS	4 - FRONTAGE IMPROVEMENTS FOR NEW DEVELOPMENTS
GENERAL INFORMATION	GEN 0.1	USER GUIDE	SFPUC	SMC	YES	X	X	X	X
PERVIOUS PAVEMENT (PP)	PP 1.1	DESIGNER NOTES (1 OF 2)	SFPUC	SMC	YES		X	X	X
	PP 1.2	DESIGNER NOTES (2 OF 2)	SFPUC	SMC	YES		X	X	X
	PP 1.3	KEY MAP	SFPUC	SMC	YES		X	X	X
	PP 2.1	MATERIAL SECTIONS - PERMEABLE PAVERS	SFPUC	SMC	YES		X	X	X
	PP 3.1	MATERIAL SECTIONS - PERVIOUS CONCRETE	SFPUC	SMC	YES		X	X	X
	PP 4.1	MATERIAL SECTIONS - POROUS ASPHALT	SFPUC	SMC	YES		X	X	X
PERVIOUS PAVEMENT COMPONENTS (PC)	PC 1.1	EDGE TREATMENTS - DESIGNER NOTES	SFPUC	SMC	YES		X	X	X
	PC 1.2	EDGE TREATMENTS - KEY MAP	SFPUC	SMC	YES		X	X	X
	PC 1.3	EDGE TREATMENTS - VEHICULAR APPLICATIONS	SFPUC	SMC	YES		X	X	X
	PC 1.4	EDGE TREATMENTS - PEDESTRIAN APPLICATIONS (1 OF 2)	SFPUC	SMC	YES		X	X	X
	PC 1.5	EDGE TREATMENTS - PEDESTRIAN APPLICATIONS (2 OF 2)	SFPUC	SMC	YES		X	X	X
	PC 1.6	EDGE TREATMENTS - PAVER AT STRUCTURES	SFPUC	SMC	YES		X	X	X
	PC 2.1	SUBSURFACE CHECK DAMS - DESIGNER NOTES	SFPUC	SMC	YES		X	X	X
	PC 2.2	SUBSURFACE CHECK DAMS	SFPUC	SMC	YES		X	X	X
	PC 3.1	SUBSURFACE OVERFLOWS - DESIGNER NOTES	SFPUC	SMC	YES		X	X	X
	PC 3.2	SUBSURFACE OVERFLOW	SFPUC	SMC	YES		X	X	X
	PC 3.3	SUBSURFACE UNDERDRAIN	SFPUC	SMC	YES		X	X	X
	PC 3.4	UNDERDRAIN PIPE	SFPUC	SMC	YES		X	X	X
BIORETENTION PLANTER (BP)	BP 1.1	DESIGNER NOTES (1 OF 2)	SFPUC	SMC	YES	X	X	X	X
	BP 1.2	DESIGNER NOTES (2 OF 2)	SFPUC	SMC	YES	X	X	X	X
	BP 2.1	STORMWATER PLANTER WITH PARKING - PLAN	SFPUC	SMC	YES		X	X	X
	BP 2.2	STORMWATER PLANTER WITH PARKING - SECTIONS	SFPUC	SMC	YES		X	X	X
	BP 3.1	STORMWATER PLANTER WITHOUT PARKING - PLAN	SFPUC	SMC	YES		X	X	X
	BP 3.2	STORMWATER PLANTER WITHOUT PARKING - SECTIONS	SFPUC	SMC	YES		X	X	X
	BP 3.3	STORMWATER BARRIER PLANTER - CLASS 4 BIKEWAY - PLAN	MENLO PARK		YES		X	X	
	BP 3.4	STORMWATER BARRIER PLANTER - CLASS 4 BIKEWAY - SECTION	MENLO PARK		YES		X	X	
	BP 4.1	STORMWATER CURB EXTENSION - ALTERNATIVE 1	SFPUC	SMC	YES	X	X	X	X
	BP 4.2	STORMWATER CURB EXTENSION - ALTERNATIVE 2	SFPUC	SMC	YES	X	X	X	X
	BP 4.3	STORMWATER CURB EXTENSION - ALTERNATIVE 3	SFPUC	SMC	YES	X	X	X	X
	BP 4.4	STORMWATER CURB EXTENSION - ALTERNATIVE 4	SFPUC	SMC	YES	X	X	X	X
	BP 4.5	STORMWATER CURB EXTENSION - ALTERNATIVE 5	SFPUC	SMC	YES	X	X	X	X
	BP 4.6	STORMWATER CURB EXTENSION - ALTERNATIVE 6	SFPUC	SMC	YES	X	X	X	X
	BP 5.1	PARCEL PLANTER - DESIGNER NOTES (1 OF 2)	SFPUC	SMC	NO				
	BP 5.2	PARCEL PLANTER - DESIGNER NOTES (2 OF 2)	SFPUC	SMC	NO				
	BP 5.3	PARCEL PLANTER PLAN - ALTERNATIVE 1	SFPUC	SMC	NO				
	BP 5.4	PARCEL PLANTER PLAN - ALTERNATIVE 2	SFPUC	SMC	NO				
	BP 5.5	PARCEL PLANTER - RAISED PLANTER SECTION	SFPUC	SMC	NO				
	BP 5.6	PARCEL PLANTER - AT GRADE PLANTER SECTION	SFPUC	SMC	NO				
	BP 5.7	PARCEL PLANTER - PLANTER ON STRUCTURE SECTION	SFPUC	SMC	NO				
BIORETENTION BASIN (BB)	BB 1.1	DESIGNER NOTES	SFPUC	SMC	YES	X	X	X	X
	BB 2.1	ROADSIDE SECTION TYPE 1	SFPUC	SMC	YES	X	X	X	X
	BB 2.1.1	ROADSIDE SECTION TYPE 2	C/CAG	SMC	YES	X	X	X	X
	BB 2.2	PARCEL SECTION	SFPUC	SMC	NO				
	BB 2.3	ROADSIDE LAYOUT TYPE 3, STREET WITH VALLEY GUTTER	MENLO PARK	SMC	YES	X	X		X
	BB 2.4	ROADSIDE SECTION TYPE 3	MENLO PARK	SMC	YES	X	X		X
BIORETENTION COMPONENTS (BC)	BC 1.1	EDGE TREATMENTS - DESIGNER NOTES	SFPUC	SMC	YES	X	X	X	X
	BC 1.2	EDGE TREATMENTS - VEHICULAR APPLICATIONS (1 OF 2)	SFPUC	SMC	YES	X	X	X	X
	BC 1.2.1	EDGE TREATMENTS - VEHICULAR APPLICATIONS MODIFICATIONS (1 OF 2)	C/CAG	SMC	YES	X	X	X	X
	BC 1.3	EDGE TREATMENTS - VEHICULAR APPLICATIONS (2 OF 2)	SFPUC	SMC	YES	X	X	X	X
	BC 1.4	EDGE TREATMENTS - PEDESTRIAN APPLICATIONS (1 OF 2)	SFPUC	SMC	YES	X	X	X	X
	BC 1.5	EDGE TREATMENTS - PEDESTRIAN APPLICATIONS (2 OF 2)	SFPUC	SMC	YES	X	X	X	X
	BC 1.5.1	EDGE TREATMENTS - PEDESTRIAN APPLICATIONS (3 OF 4) - ROCK STABILIZED SLOPE	MENLO PARK		YES	X	X	X	X
	BC 1.5.2	EDGE TREATMENTS - PEDESTRIAN APPLICATIONS (4 OF 4) - COMPACTED SOIL BENCH	MENLO PARK		YES	X	X	X	X
	BC 1.6	EDGE TREATMENTS - LATERAL BRACING (1 OF 2)	SFPUC	SMC	YES	X	X	X	X
	BC 1.7	EDGE TREATMENTS - LATERAL BRACING (2 OF 2)	SFPUC	SMC	YES	X	X	X	X
	BC 1.8	EDGE TREATMENTS - METAL FENCING	SMC		YES	X	X	X	X
	BC 1.9	EDGE TREATMENTS - WOOD FENCING	SMC		YES	X	X		X
	BC 1.10	EDGE TREATMENTS - SEAT WALL	SMC		YES	X	X	X	X

TOPIC	SHEET NO.	SHEET TITLE	ORIGINAL CREATOR OF DETAIL	LAST MODIFIED BY	APPLICABLE TO TYPICAL RIGHT-OF-WAY PROJECTS?	APPLICABILITY TO SUSTAINABLE STREET TYPOLOGY:			
						1 - CURB EXTENSIONS	2 - CONNECTIVITY IMPROVEMENTS	3 - STREETSCAPE PROJECTS	4 - FRONTAGE IMPROVEMENTS FOR NEW DEVELOPMENTS
BIORETENTION COMPONENTS (BC)	BC 1.11	EDGE TREATMENTS - TIMBER FOOT BRIDGE - LAYOUT	SMC		YES	X	X	X	X
	BC 1.12	EDGE TREATMENTS - TIMBER FOOT BRIDGE - SECTION	SMC		YES	X	X	X	X
	BC 1.13	EDGE TREATMENTS - TIMBER FOOT BRIDGE - SECTION	SMC		YES	X	X	X	X
	BC 2.1	INLETS - DESIGNER NOTES	SFPUC	SMC	YES	X	X	X	X
	BC 2.2	INLETS - CURB CUT WITH GUTTER MODIFICATION	SFPUC	SMC	YES	X	X	X	X
	BC 2.2.1	INLETS - CURB CUT WITH METAL PLATE TOP	C/CAG	SMC	YES	X	X	X	X
	BC 2.3	INLETS - CURB CUT AT BULB OUT	SFPUC	SMC	YES	X	X	X	X
	BC 2.3.1	INLETS - CURB CUT AT BULB OUT - MODIFICATION WITH METAL PLATE TOP	C/CAG	SMC	YES	X	X	X	X
	BC 2.4	INLETS - CURB CUT WITH TRENCH DRAIN	SFPUC	SMC	YES	X	X	X	X
	BC 2.4.1	INLETS - CURB CUT WITH TRENCH DRAINS MODIFICATIONS	C/CAG	SMC	YES	X	X	X	X
	BC 2.5 (7.4)	INLETS - EMBEDDED ROCK ENERGY DISSIPATOR	C/CAG	SMC	YES	X	X	X	X
	BC 2.6 (2.5)	INLETS - TRASH CAPTURE, CURB CUT WITHIN TRENCH DRAIN	SAN MATEO	SMC	YES	X	X	X	X
	BC 3.1	OUTLETS - DESIGNER NOTES	SFPUC	SMC	YES	X	X	X	X
	BC 3.2	OUTLETS - CURB CUT	SFPUC	SMC	YES	X	X	X	X
	BC 3.3	OUTLETS - CURB CUT WITH TRENCH DRAIN	SFPUC	SMC	YES	X	X	X	X
	BC 3.3.1	OUTLETS - CURB CUT WITH TRENCH DRAIN - MODIFICATION AND METAL PLATE TOP OUTLET	C/CAG	SMC	YES	X	X	X	X
	BC 3.4	OUTLETS - OVERFLOW STRUCTURES	SFPUC	SMC	YES	X	X	X	X
	BC 3.5	BUBBLER HYDRAULIC CONNECTION - PLAN	NEW - SSMP		YES	X	X	X	X
	BC 3.6	BUBBLER HYDRAULIC CONNECTION - SECTION	NEW - SSMP		YES	X	X	X	X
	BC 4.1	SOIL AND AGGREGATE LAYERS	SFPUC	SMC	YES	X	X	X	X
	BC 5.1	UNDERDRAINS - DESIGNER NOTES	SFPUC	SMC	YES	X	X	X	X
	BC 5.2	UNDERDRAINS	SFPUC	SMC	YES	X	X	X	X
	BC 6.1	CHECK DAMS - DESIGNER NOTES	SFPUC	SMC	YES	X	X	X	X
	BC 6.2	CHECK DAMS	SFPUC	SMC	YES	X	X	X	X
SUBSURFACE INFILTRATION SYSTEMS (SI)	SI 1.1	DESIGNER NOTES (1 OF 2)	SFPUC	SMC	NO		X	X	X
	SI 1.2	DESIGNER NOTES (2 OF 2)	C/CAG	SMC	NO		X	X	X
	SI 2.1	INFILTRATION SYSTEM - LARGE SYSTEM - PLAN	SFPUC	SMC	NO				
	SI 2.2	INFILTRATION SYSTEM - LARGE SYSTEM - SECTION	C/CAG	SMC	NO				
	SI 3.1	SHALLOW DRY WELL - SMALL SYSTEM - PLAN	SFPUC	SMC	NO				
	SI 3.2	SHALLOW DRY WELL - SMALL SYSTEM - SECTION	SFPUC	SMC	NO				
	SI 4.1	DEEP DRY WELL - SMALL SYSTEM - PLAN & SECTION	C/CAG	SMC	NO		X	X	X
GENERAL COMPONENTS (GC)	GC 1.1	LINERS - DESIGNER NOTES	SFPUC	SMC	YES	X	X	X	X
	GC 1.2	LINERS - LINERS AND ATTACHMENTS	SFPUC	SMC	YES	X	X	X	X
	GC 2.1	UTILITY CROSSINGS - DESIGNER NOTES (1 OF 2)	SFPUC	SMC	YES	X	X	X	X
	GC 2.2	UTILITY CROSSINGS - DESIGNER NOTES (2 OF 2)	SFPUC	SMC	YES	X	X	X	X
	GC 2.3	UTILITY CROSSINGS - BIORETENTION	SFPUC	SMC	YES	X	X	X	X
	GC 2.4	UTILITY CROSSINGS - BIORETENTION SECTIONS (1 OF 2)	SFPUC	SMC	YES	X	X	X	X
	GC 2.5	UTILITY CROSSINGS - BIORETENTION SECTIONS (2 OF 2)	SFPUC	SMC	YES	X	X	X	X
	GC 2.6	UTILITY CROSSINGS - PERVIOUS PAVEMENT	SFPUC	SMC	YES		X	X	X
	GC 2.7	UTILITY CROSSINGS - PERVIOUS PAVEMENT SECTIONS (1 OF 2)	SFPUC	SMC	YES		X	X	X
	GC 2.8	UTILITY CROSSINGS - PERVIOUS PAVEMENT SECTIONS (2 OF 2)	SFPUC	SMC	YES		X	X	X
	GC 2.9	UTILITY CROSSINGS - LINER PENETRATIONS	SFPUC	SMC	YES	X	X	X	X
	GC 2.10	UTILITY CROSSINGS - WALL PENETRATIONS (1 OF 2)	SFPUC	SMC	YES	X	X	X	X
	GC 2.11	UTILITY CROSSINGS - WALL PENETRATIONS (2 OF 2)	SFPUC	SMC	YES	X	X	X	X
	GC 2.12	UTILITY CROSSINGS - UTILITY TRENCH DAM	SFPUC	SMC	YES	X	X	X	X
	GC 3.1	UTILITY CONFLICTS - DESIGNER NOTES	SFPUC	SMC	YES	X	X	X	X
	GC 3.2	UTILITY CONFLICTS - STREET/TRAFFIC LIGHT POLES	SFPUC	SMC	YES	X	X	X	X
	GC 3.3	UTILITY CONFLICTS - PARKING METERS	SFPUC	SMC	YES		X	X	X
	GC 4.1	OBSERVATION PORTS - DESIGNER NOTES	SFPUC	SMC	YES	X	X	X	X
	GC 4.2	OBSERATION PORTS - BIORETENTION	SFPUC	SMC	YES	X	X	X	X
	GC 4.3	OBSERVATION PORTS - PERVIOUS PAVEMENT	SFPUC	SMC	YES		X	X	X
	GC 5.1	CLEANOUTS	SFPUC	SMC	YES	X	X	X	X
TREE WELL (TW)	TW 1.1	TREE WELL FILTER - DESIGNER NOTES	MENLO PARK	SMC	YES	X	X	X	X
	TW 1.2	TREE WELL FILTER - CONNECTED TREE WELLS WITH PARKING - PLAN	MENLO PARK	SMC	YES	X	X	X	X
	TW 1.3	TREE WELL FILTER - CONNECTED TREE WELLS WITH PARKING - SECTION	MENLO PARK	SMC	YES	X	X	X	X

NOTES:

SMC = SAN MATEO COUNTY TYPICAL GI DETAILS, JUNE 2020 (INCLUDES MODIFIED SFPUC AND C/CAG DETAILS PLUS NEW DETAILS); COPY OF DETAILS ARE PROVIDED IN APPENDIX

SAN MATEO = CITY OF SAN MATEO GI PLAN, AUGUST 2019; COPY OF DETAILS ARE PROVIDED IN APPENDIX

SFPUC = SAN FRANCISCO PUBLIC UTILITIES COMMISSION GREEN INFRASTRUCTURE TYPICAL DETAILS, SEPTEMBER 2016, VERSION 2.0; DETAILS CAN BE DOWNLOADED HERE: https://sfwater.org/index.aspx?page=1007

C/CAG = CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY'S GI DESIGN GUIDE, APRIL 2019; DETAILS CAN BE DOWNLOADED HERE: https://www.flowstobay.org/cadfiles/

MENLO PARK = CITY OF MENLO PARK GI PLAN, JUNE 2019; COPY OF DETAILS ARE PROVIDED IN APPENDIX

USER GUIDE: HOW TO USE THESE GI TYPICAL DETAILS

THE DETAIL PROVIDED ARE BASED UPON THE SAN FRANCISCO PUBLIC UTILITIES COMMISSION'S (SFPUC's) GREEN INFRASTRUCTURE (GI) TYPICAL DETAILS, VERSION 2.0, DATED SEPTEMBER 2016. THE DETAILS HAVE BEEN MODIFIED TO ALIGN WITH COUNTY OF SAN MATEO (SMC) ROADWAY AND STORMWATER MANAGEMENT REQUIREMENTS, TYPICAL STREET SECTIONS, AND OTHER RELEVANT COUNTY DOCUMENTS.

THESE TYPICAL DETAILS AND SPECIFICATIONS WERE DEVELOPED TO BE REVISED AND CUSTOMIZED FOR EACH INDIVIDUAL PROJECT BY DESIGN PROFESSIONALS.

THEY SHOW **TYPICAL** CONFIGURATIONS, RATHER THAN A REQUIRED COUNTY **STANDARD** CONFIGURATION. THIS DISTINCTION IS DELIBERATE. WE RECOGNIZE THAT TO CREATE GI PROJECTS THAT ARE FUNCTIONAL, CONTEXTUAL, AND AESTHETIC, DESIGN PROFESSIONALS MUST USE THEIR PROFESSIONAL JUDGMENT AND CREATIVE THINKING TO BE RESPONSIVE TO EACH SITE-SPECIFIC CONDITION.

AUTOCAD (ACAD) DRAWINGS OF THESE TYPICAL DETAILS ARE PROVIDED SUCH THAT THE DESIGN PROFESSIONALS MUST MODIFY THE PLAN, SECTIONS, CALL-OUTS, AND/OR CONSTRUCTION NOTES TO ADDRESS THE PROJECTS SITE-SPECIFIC CONDITIONS.

CONTENT

THESE TYPICAL DETAILS ARE FORMATTED, ORGANIZED, AND DEVELOPED WITH THE NECESSARY INFORMATIONAL TOOLS TO GUIDE THE DESIGN PROFESSIONAL THROUGH THE PROPER SELECTION, LAYOUT, AND DESIGN OF **GI STORMWATER CONTROL MEASURE** AND THE SELECTION OF APPROPRIATE SITE-SPECIFIC **STORMWATER CONTROL MEASURE COMPONENT DETAILS** (I.E. INLETS, OUTLETS, AND EDGE TREATMENTS, ETC.). THESE TYPICAL DETAILS PROVIDE THE FOLLOWING ORGANIZATION:

PURPOSE: SUMMARY OF EACH FACILITY'S INTENDED PERFORMANCE AND FUNCTION.

DESIGNER NOTES & GUIDELINES: TECHNICAL DESIGN REQUIREMENTS AND/OR SIZING CRITERIA GUIDELINES ARE PROVIDED SUCH THAT EACH FACILITY IS DESIGNED AND APPROPRIATELY CUSTOMIZED BY THE DESIGN PROFESSIONAL.

LAYOUT REQUIREMENTS: TECHNICAL INFORMATION, DESIGN REQUIREMENTS, AND REFERENCE TO RELATED COUNTY REQUIREMENTS.

DESIGNER CHECKLIST: TECHNICAL DESIGN INFORMATION THAT **MUST** BE DETERMINED AND SHOWN IN THE CONSTRUCTION DOCUMENTS (CDs) TO ENSURE PROPER DESIGN AND CONSTRUCTABILITY.

STORMWATER CONTROL MEASURE PLANS: TYPICAL PLAN VIEW WITH GENERAL CONFIGURATION FOR PROPER FUNCTION. DIMENSIONAL LAYOUT AND EDGING MATERIALS SHOULD BE ADJUSTED BASED ON PROPOSED SITE DESIGN AND PROGRAMING. **[ADJUST ACAD DETAIL CALL-OUTS AND REFERENCES FOR USE IN CDs]**

STORMWATER CONTROL MEASURE SECTIONS AND PROFILES: A TYPICAL SECTION AND/OR PROFILE WITH GENERAL CONFIGURATION FOR PROPER FUNCTION. DIMENSIONAL LAYOUT AND EDGING MATERIALS SHOULD BE ADJUSTED BASED ON PROPOSED SITE DESIGN AND PROGRAMING. **[ADJUST ACAD DETAILS CALL-OUTS AND REFERENCES FOR USE IN CDs]**

CONSTRUCTION NOTES: CONSTRUCTION RELATED NOTES FOR USE BY THE CONTRACTOR. **[ADJUST ACAD NOTES FOR USE IN CDs]**

NAVIGATION

THE TYPICAL DETAILS HAVE BEEN DEVELOPED WITH A NAVIGATION SYSTEM AND KEY BAR TO ASSIST THE DESIGN PROFESSIONALS WITH LINKING THE SPECIFIC STORMWATER CONTROL MEASURE TO RELEVANT DESIGN NOTES AND POSSIBLE DETAIL COMPONENTS. EXAMPLE KEY BAR:

EDGE TREATMENTS							SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS					NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6		PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

USE ON CONSTRUCTION DOCUMENTS

DESIGN PROFESSIONALS USING THE AUTOCAD DRAWINGS **MUST REVIEW AND ADJUST THE DETAILS AND CONSTRUCTION NOTES TO ADDRESS THEIR SITE-SPECIFIC CONDITIONS**. TO ALLOW FOR SITE-SPECIFIC DESIGN ADJUSTMENTS THE TYPICAL DETAILS ARE DEVELOPED AS **"NOT FOR CONSTUCTION"** DRAWINGS. TITLE BLOCKS ARE PROVIDED FOR DOCUMENT ORGANIZATION AND REFERENCE ONLY.

- **DO NOT** INCLUDE THE NON-ADJUSTED DETAIL WITH TITLE BLOCK WITHIN THE CONSTRUCTION DOCUMENTS.
- **DO NOT** INCLUDE NON-ADJUSTED DETAIL PLANS, SECTIONS, OR CONSTRUCTION NOTES WITHIN THE CONSTRUCTION DOCUMENTS.
- **DO NOT** REFERENCE THE GI TYPICAL DETAIL SHEET NAME AND/OR NUMBER (I.E. **BP 2.1**) AS A STANDARD DETAIL CALL-OUT WITHIN THE CONSTRUCTION DOCUMENTS.
- **DO NOT** EXPECT CONTRACTORS TO CONDUCT CALCULATIONS OR BE RESPONSIBLE FOR MISSING DESIGN INFORMATION.

PURPOSE:

PERVIOUS PAVEMENT (PAVEMENT) CONTROLS PEAK FLOWS AND VOLUMES OF STORMWATER RUNOFF VIA INFILTRATION THROUGH THE PAVEMENT SURFACE, STORAGE IN THE PAVEMENT SECTION, INFILTRATION INTO NATIVE SOIL, AND OVERFLOW THROUGH OPTIONAL SUBSURFACE OUTLETS. RUNOFF IS TREATED AS IT INFILTRATES INTO UNDERLYING NATIVE SOIL.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT PLAN, SECTION DRAWINGS, AND CALCULATE DEPTH TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. ALL PAVEMENT SYSTEMS MUST BE DESIGNED BY A LICENSED ENGINEER IN ACCORDANCE WITH THE AASHTO GUIDE, INTERLOCKING CONCRETE PAVER INSTITUTE DESIGN MANUAL, OR CALTRANS DESIGN MANUAL FOR DESIGN OF PAVEMENT STRUCTURES BASED ON SITE-SPECIFIC CONDITIONS INCLUDING TRAFFIC LOADS AND SUBGRADE CONDITIONS. PAVEMENT SECTIONS SET FORTH IN THESE TYPICAL DETAILS ARE PROVIDED TO REPRESENT THE ANTICIPATED RANGE OF DESIGN REQUIREMENTS, BASED ON "GOOD" AND "POOR" SOIL CHARACTERIZATIONS NORMALLY ENCOUNTERED IN SAN MATEO COUNTY. **ACTUAL SECTION DEPTHS MUST BE DETERMINED AS DESCRIBED IN GUIDELINE #3, BELOW**. SEE TABLES BELOW FOR TRAFFIC LOADING AND EFFECTIVE ROADBED SOIL RESILIENT MODULUS ASSUMPTIONS USED IN DEVELOPING THESE TYPICAL SECTIONS.
3. TRAFFIC LOADING ASSUMPTIONS:

DESIGN ASSUMPTION	MODERATE VEHICULAR	LIGHT VEHICULAR	PEDESTRIAN
EQUIVALENT SINGLE AXLE LOADS*	2,000,000	40,000	800
TRAFFIC INDEX (TI)**	10	6.5	4
* SEE AASHTO GUIDE FOR DESIGN OF PAVEMENT STRUCTURES FOR DEFINITIONS			
** SEE CALTRANS HIGHWAY DESIGN MANUAL FOR DEFINITIONS			

SUBGRADE ASSUMPTIONS:

DESIGN ASSUMPTION	GOOD SOILS	POOR SOILS
EFFECTIVE ROADBED SOIL RESILIENT MODULUS, M_R (PSI)*	6,800	3,700
CALIFORNIA R-VALUE **	33.3	15.6
DRAINAGE COEFFICIENT, m_i*	1.15	0.75
LAYER COEFFICIENT, a_i* FOR OPEN GRADED AGGREGATE BASE	0.08	
* SEE AASHTO GUIDE FOR DESIGN OF PAVEMENT STRUCTURES FOR DEFINITIONS		
** SEE CALTRANS HIGHWAY DESIGN MANUAL FOR DEFINITIONS		

4. GEOTECHNICAL EVALUATION OF SUBGRADE SOILS TO VERIFY THEIR STRUCTURAL SUITABILITY FOR PERVIOUS PAVEMENT INSTALLATIONS IS REQUIRED.
5. THE PERVIOUS PAVEMENT FACILITY MUST BE DESIGNED TO PROVIDE SUFFICIENT SUBSURFACE STORAGE IN THE PAVEMENT SECTION TO MEET PROJECT HYDROLOGIC PERFORMANCE GOALS. THE SECTION THICKNESS WILL BE A FUNCTION OF THE SUBGRADE INFILTRATION RATE (DRAINAGE COEFFICIENT), SUBGRADE SLOPE, AND THE HEIGHT AND SPACING OF SUBSURFACE CHECK DAMS. SEE **PC 2.1** AND **PC 2.2**.
6. ENTIRE PAVEMENT BASE SECTION MAY BE USED TO MEET SUBSURFACE STORAGE REQUIREMENTS.
7. SUBSURFACE STORAGE DRAWDOWN TIME (I.E. TIME FOR MAXIMUM SUBSURFACE STORAGE VOLUME TO INFILTRATE INTO SUBGRADE AFTER THE END OF A STORM) SHOULD NOT EXCEED 48 HOURS. DRAWDOWN TIME IS CALCULATED AS THE MAXIMUM SUBSURFACE PONDING DEPTH DIVIDED BY THE NATIVE SOIL INFILRATION RATE.
8. THE DESIGNER MUST ENSURE THAT THE PAVEMENT EDGES ARE RESTRAINED AND THAT WATER IS CONTAINED IN THE PAVEMENT SECTION AS NEEDED TO PROTECT ADJACENT PAVEMENT SECTIONS OR STRUCTURES. SEE EDGE TREATMENTS (**PC 1.1** THROUGH **PC 1.6**) FOR GUIDANCE ON DESIGN OF THESE COMPONENTS.
9. THE DESIGNER MUST EVALUATE UTILITY SURVEYS FOR POTENTIAL UTILITY CROSSINGS OR CONFLICTS. REFER TO **GC 2.1** - **GC 2.12** FOR UTILITY CROSSING DETAILS AND **GC 1.4** - **GC 4.4** FOR UTILITY CROSSING CONFLICT DETAILS.
10. GEOTECHNICAL EVALUATION OF SEASONAL HIGH GROUNDWATER LEVEL IS REQUIRED TO VERIFY MINIMUM 5 FEET SEPARATION BETWEEN BASE OR RESERVOIR COURSE AND GROUNDWATER.
11. ALL PERVIOUS PAVEMENT DESIGN MUST COMPLY WITH MUNICIPAL STANDARD ACCESSIBILITY/ADA REQUIREMENTS.

RELATED COMPONENTS	
EDGE TREATMENTS:	PC 1.1 - PC 1.6
CHECK DAMS:	PC 2.1 - PC 2.2
OVERFLOWS:	PC 3.1 - PC 3.3
LINERS:	GC 1.1 - GC 1.2
UTILITY CROSSINGS:	GC 2.1 - GC 2.12
UTILITY CONFLICTS:	GC 3.1 - GC 3.3
OBSERVATION PORTS:	GC 4.1 - GC 4.4
CLEANOUTS:	GC 5.1

RELATED SPECIFICATIONS	CSI NO.
PERMEABLE/PERVIOUS PAVERS: - PERMEABLE/PERVIOUS PAVERS - JOINT FILLER AGGREGATE - PAVEMENT BASE - EDGE RESTRAINTS - GEOTEXTILE FOR SOIL SEPARATION	32 14 43
PERVIOUS CONCRETE PAVEMENT: - PERVIOUS CONCRETE - PAVEMENT BASE - GEOTEXTILE FOR SOIL SEPARATION	32 13 43
POROUS ASPHALT PAVEMENT: - POROUS ASPHALT - PAVEMENT BASE - GEOTEXTILE FOR SOIL SEPARATION	32 12 43

NOTES: PP 1.1, PP 1.2 | KEY MAP: PP 1.3 | SECTIONS: PP 2.1, PP 3.1, PP 4.1

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

PERVIOUS PAVEMENT

DESIGNER NOTES (1 OF 2)

FILE NO. PP 1.1

LAYOUT REQUIREMENTS:

1. ALL PERVIOUS PAVEMENT APPLICATIONS SHALL CONFORM TO THE CURRENT SMC PUBLIC WORKS POLICIES REGARDING PERVIOUS PAVEMENT. THE DESIGN MUST COMPLY WITH SMC PUBLIC WORKS STANDARD ACCESSIBILITY REQUIREMENTS.
2. THE ALLOWABLE CATCHMENT AREA CONTRIBUTING RUN-ON TO A PERVIOUS PAVEMENT FACILITY IS A MAXIMUM OF 2:1 RATIO OF AREA CONTRIBUTING RUN-ON TO PERVIOUS PAVEMENT AREA UNLESS A LOWER RATIO IS RECOMMENDED BY THE MANUFACTURER. THE DESIGNER SHOULD CONSIDER THE INCREASED MAINTENANCE REQUIREMENTS ASSOCIATED WITH HIGHER RUN-ON RATIOS WHEN DESIGNING THE FACILITY.
3. "PERVIOUS PAVERS" REFER TO PAVERS THAT ALLOW WATER TO FLOW THROUGH ACTUAL UNIT PAVER WHILE "PERMEABLE PAVERS" REFER TO PAVER SYSTEMS THAT ONLY ALLOW WATER TO PASS THROUGH JOINTS.
4. WHEN DESIGNED TO ACCEPT RUN-ON FROM OTHER CATCHMENT AREAS, PERVIOUS PAVEMENT AREAS MUST BE PROTECTED FROM SEDIMENTATION WHICH CAN CAUSE CLOGGING AND DIMINISHED FACILITY PERFORMANCE. THE FOLLOWING REQUIREMENTS APPLY FOR RUN-ON CONTRIBUTIONS:
   - RUN-ON FROM LAWN, LANDSCAPE OR OTHER ERODIBLE SURFACES IS DISCOURAGED. IF MINOR RUN-ON FROM LAWN OR LANDSCAPE AREAS IS UNAVOIDABLE, THOSE ERODIBLE AREAS MUST BE FULLY STABILIZED.
   - CONCENTRATED RUN-ON SHOULD BE DISPERSED PRIOR TO DISCHARGE TO A PERVIOUS PAVEMENT FACILITY.
5. WEARING COURSE SHALL BE SET FLUSH (± 3/16 INCH) WITH ADJACENT WALKING SURFACES.
6. WEARING COURSE SHALL HAVE A MINIMUM SURFACE SLOPE OF 0.5% TO ALLOW FOR SURFACE OVERFLOW AND A MAXIMUM SURFACE SLOPE AS LISTED BELOW:
   a. POROUS ASPHALT SURFACE: = 5 PERCENT SLOPE
   b. PERVIOUS CONCRETE SURFACE: = 10 PERCENT SLOPE
   c. PERMEABLE UNIT PAVERS: = 12 PERCENT SLOPE (PER MANUFACTURER'S RECOMMENDATION) SLOPES EXCEEDING 2% MAY REQUIRE SUBSURFACE CHECK DAMS (REFER TO PC2.1).
7. WHILE THERE IS NO MAXIMUM SLOPE FOR THE SUBGRADE UNDER THE PERVIOUS PAVEMENT COURSES, THERE MAY BE ENGINEERING CHALLENGES ASSOCIATED WITH SUBSURFACE CHECK DAM REQUIREMENTS ON SUBGRADE SLOPES EXCEEDING 5%. SEE SUBSURFACE CHECK DAMS (**PC 2.1** AND **PC 2.2**).
8. PERMEABLE GEOTEXTILES MAY BE USED ALONG BASE AND SIDES. IMPERMEABLE LINERS MAY BE USED ALONG THE SIDES BUT MAY NOT BE USED ALONG BASE.

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ PERVIOUS PAVEMENT SPECIFICATIONS AND/OR PAVER TYPE AND GAP WIDTH
- ☐ PERVIOUS PAVEMENT WIDTH AND LENGTH
- ☐ ELEVATIONS AND CONTROL POINTS AT EVERY CORNER OR POINT OF TANGENCY
- ☐ THICKNESS OF EACH LAYER IN THE PAVEMENT SECTION
- ☐ JOINT SPACING AND TYPE
- ☐ SUBGRADE SLOPE
- ☐ SUBSURFACE CHECK DAM SPACING, HEIGHT, AND TYPE
- ☐ ELEVATIONS OF EACH PIPE INLET AND OUTLET INVERT
- ☐ TYPE AND DESIGN OF PERVIOUS PAVEMENT COMPONENTS (E.G., EDGE TREATMENTS, OUTLETS, UNDERDRAINS, etc.)

NOTES		KEY MAP	SECTIONS		
PP 1.1	PP 1.2	PP 1.3	PP 2.1	PP 3.1	PP 4.1

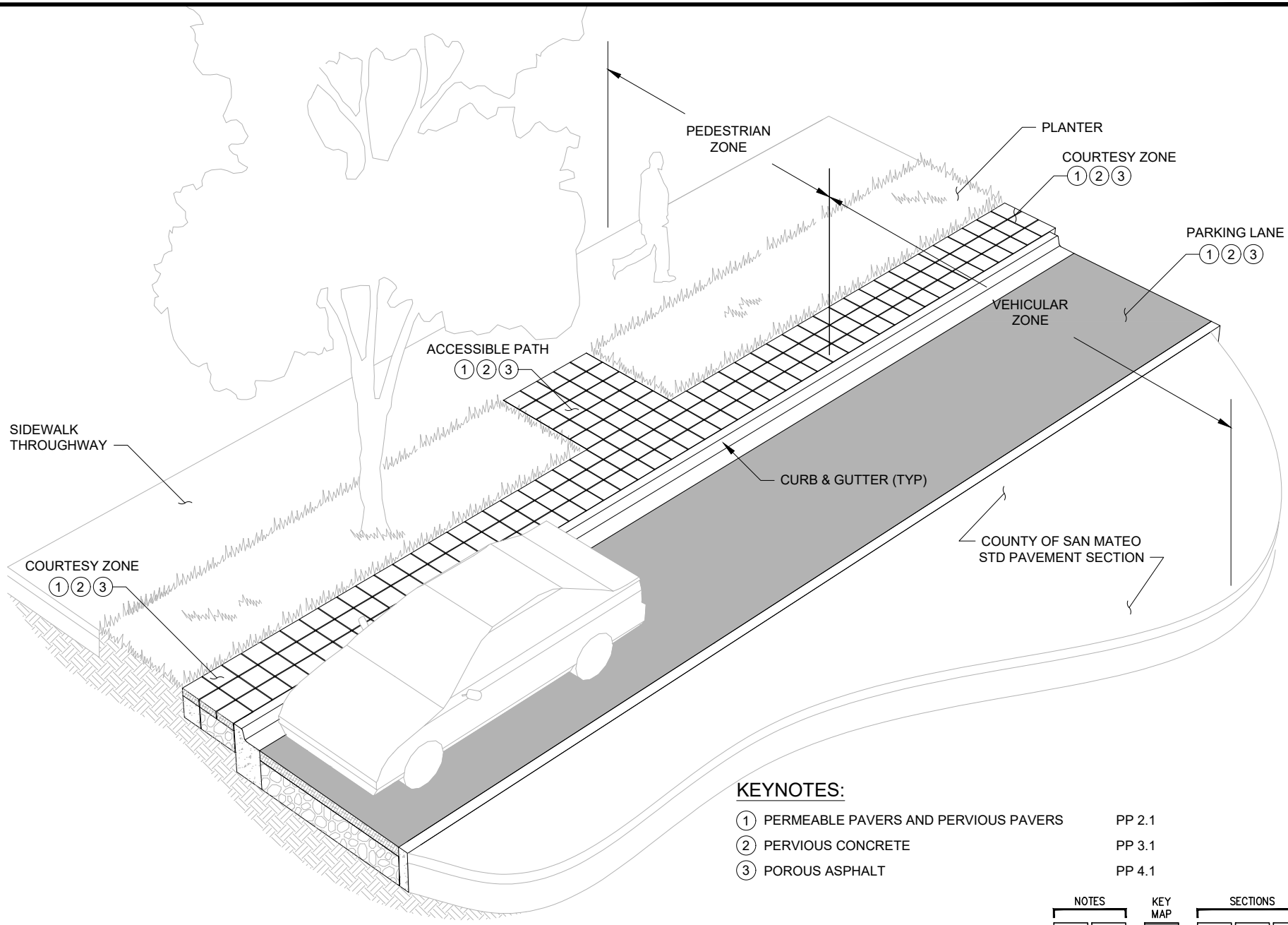
JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

PERVIOUS PAVEMENT
DESIGNER NOTES (2 OF 2)

FILE NO. PP 1.2



KEYNOTES:

1	PERMEABLE PAVERS AND PERVIOUS PAVERS	PP 2.1
2	PERVIOUS CONCRETE	PP 3.1
3	POROUS ASPHALT	PP 4.1

NOTES		KEY MAP	SECTIONS		
PP 1.1	PP 1.2	PP 1.3	PP 2.1	PP 3.1	PP 4.1

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

FILENAME: C:\USERS\USER\DESKTOP\LOTUS\SAN MATEO\PP 1.3_SMC.DWG

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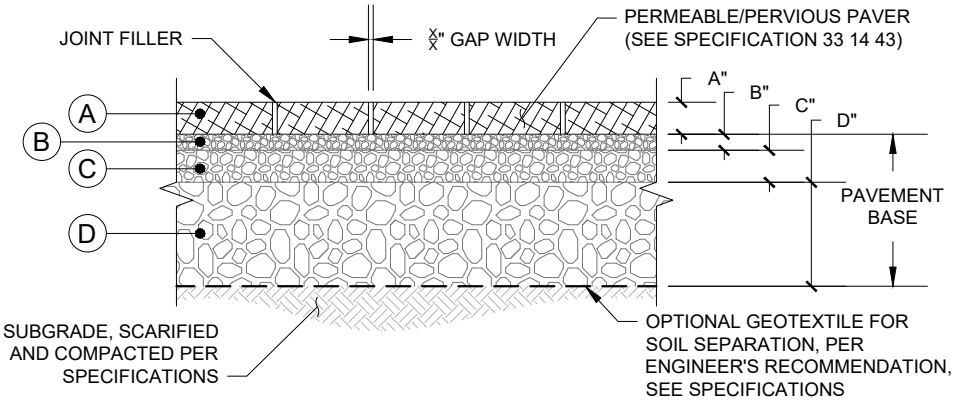
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

PERVIOUS PAVEMENT

KEY MAP

FILE NO. PP 1.3



PERMEABLE/PERVIOUS PAVERS (1)

MINIMUM MATERIAL THICKNESS (IN):

LAYER	MATERIAL TYPE*	MODERATE VEHICULAR		LIGHT VEHICULAR		PEDESTRIAN	
		GOOD SOILS**	POOR SOILS**	GOOD SOILS**	POOR SOILS**	GOOD SOILS**	POOR SOILS**
A	PERMEABLE/PERVIOUS PAVERS	3 1/8	3 1/8	3 1/8	3 1/8	3 1/8	3 1/8
B	LEVELING COURSE ASTM NO. 8	2	2	2	2	2	2
C	BASE COURSE ASTM NO. 57 OR CALTRANS CLASS 1 TYPE PERMEABLE	6	6	6	4	4	4
D	RESERVOIR COURSE ASTM NO. 2, 3, OR 57	22	28	-	10	-	-

* MATERIAL FINER THAN NO. 100 SIEVE SHALL NOT EXCEED 2 PERCENT FOR ANY AGGREGATE LAYER (LICENSED PROFESSIONAL TO SELECT AGGREGATE).

** "GOOD" AND "POOR" SOIL CLASSIFICATIONS BASED ON AASHTO GUIDE FOR DESIGN OF PAVEMENT STRUCTURES. SEE DESIGNER NOTES FOR SUBGRADE ASSUMPTIONS. (LICENSED PROFESSIONAL MUST CALCULATE REQUIRED DEPTH BASED ON SITE CONDITIONS).

TYPICAL JOINT FILLER AGGREGATE SIZE:

GAP WIDTH (IN)	JOINT FILLER AGGREGATE*
3/8 OR 1/2	ASTM NO. 8
1/4	ASTM NO. 9 OR 89
1/8	ASTM NO. 10 **

* PROVIDED FOR REFERENCE ONLY, FOLLOW MANUFACTURER'S RECOMMENDATIONS

** FOR PERVIOUS PAVERS ONLY, ASTM NO. 20 SAND NOT ALLOWED PER MANUFACTURERS RECOMMENDATIONS.

CONSTRUCTION NOTES:

1. SEE PERMEABLE/PERVIOUS PAVER SPECIFICATIONS FOR WEARING COURSE, PAVEMENT BASE, SUBGRADE, AND OTHER REQUIREMENTS FOR PERMEABLE PERVIOUS PAVER FACILITIES.
2. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS, AND/OR CHAPTER 3 OF SMCWPPP GI DESIGN GUIDE AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSINGS AND UTILITY CONFLICTS.

NOTES		KEY MAP	SECTIONS		
PP 1.1	PP 1.2	PP 1.3	PP 2.1	PP 3.1	PP 4.1

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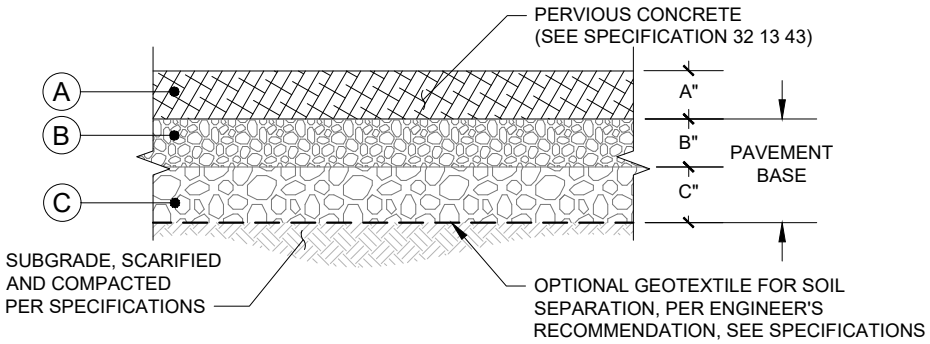
PERVIOUS PAVEMENT
MATERIAL SECTIONS
PERMEABLE PAVERS

FILE NO. PP 2.1



PERVIOUS CONCRETE (1)

MINIMUM MATERIAL THICKNESS (IN):

LAYER	MATERIAL TYPE*	MODERATE VEHICULAR		LIGHT VEHICULAR		PEDESTRIAN	
		GOOD SOILS**	POOR SOILS**	GOOD SOILS**	POOR SOILS**	GOOD SOILS**	POOR SOILS**
A	PERVIOUS CONCRETE	9	9.5	6.5	7	4.5	5
B	BASE COURSE ASTM NO. 3 OR 57 OR CALTRANS CLASS 1 TYPE PERMEABLE	6	6	6	6	6	6
C	OPTIONAL RESERVOIR COURSE ASTM NO. 2, 3, OR 57	-	-	-	-	-	-

* MATERIAL FINER THAN NO. 100 SIEVE SHALL NOT EXCEED 2 PERCENT FOR ANY AGGREGATE LAYER (LICENSED PROFESSIONAL TO SELECT AGGREGATE).

** "GOOD" AND "POOR" SOIL CLASSIFICATIONS BASED ON AASHTO GUIDE FOR DESIGN OF PAVEMENT STRUCTURES. SEE DESIGNER NOTES FOR SUBGRADE ASSUMPTIONS. (LICENSED PROFESSIONAL MUST CALCULATE REQUIRED DEPTH BASED ON SITE CONDITIONS).

CONSTRUCTION NOTES:

1. SEE PERVIOUS CONCRETE SPECIFICATIONS FOR WEARING COURSE, PAVEMENT BASE, SUBGRADE, AND OTHER REQUIREMENTS FOR PERVIOUS CONCRETE FACILITIES.
2. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS, AND/OR CHAPTER 3 OF SMCWPPP GI DESIGN GUIDE AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSINGS AND UTILITY CONFLICTS.
3. OPTIONAL RESERVOIR COURSE MAY BE NEEDED DEPENDING ON CALCULATED WATER QUALITY DESIGN VOLUME STORAGE REQUIREMENTS.

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

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NOTES		KEY MAP	SECTIONS		
PP 1.1	PP 1.2	PP 1.3	PP 2.1	PP 3.1	PP 4.1

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COUNTY OF SAN MATEO

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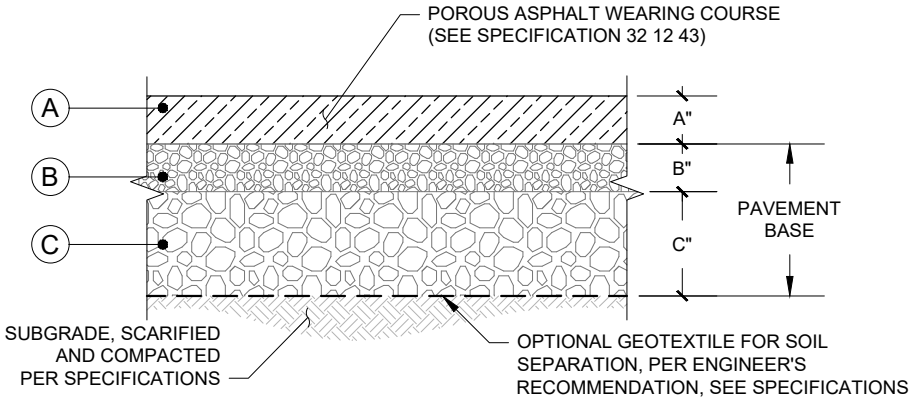
VERSION 01
REVISED N/A

PERVIOUS PAVEMENT

MATERIAL SECTIONS
PERVIOUS CONCRETE

FILE NO. PP 3.1



POROUS ASPHALT (1)

MINIMUM MATERIAL THICKNESS (IN):

LAYER	MATERIAL TYPE*	MODERATE VEHICULAR		LIGHT VEHICULAR		PEDESTRIAN	
		GOOD SOILS**	POOR SOILS**	GOOD SOILS**	POOR SOILS**	GOOD SOILS**	POOR SOILS**
(A)	POROUS ASPHALT	6	8	4	4	3	4
(B)	BASE COURSE ASTM NO. 57 OR CALTRANS CLASS 1 TYPE PERMEABLE	6	6	5	4	6	4
(C)	RESERVOIR COURSE ASTM NO. 2, 3, OR 57	10	19	-	11	-	8

* MATERIAL FINER THAN NO. 100 SIEVE SHALL NOT EXCEED 2 PERCENT FOR ANY AGGREGATE LAYER (LICENSED PROFESSIONAL TO SELECT AGGREGATE).

** "GOOD" AND "POOR" SOIL CLASSIFICATIONS BASED ON AASHTO GUIDE FOR DESIGN OF PAVEMENT STRUCTURES. SEE DESIGNER NOTES FOR SUBGRADE ASSUMPTIONS. (LICENSED PROFESSIONAL MUST CALCULATE REQUIRED DEPTH BASED ON SITE CONDITIONS).

CONSTRUCTION NOTES:

1. SEE POROUS ASPHALT SPECIFICATIONS FOR WEARING COURSE, PAVEMENT BASE, SUBGRADE, AND OTHER REQUIREMENTS FOR POROUS ASPHALT FACILITIES.
2. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS, AND/OR CHAPTER 3 OF SMCWPPP GI DESIGN GUIDE AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSINGS AND UTILITY CONFLICTS.

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

FILENAME: C:\USERS\USER\DESKTOP\LOTUS\SAN MATEO\PP 4.1_SMC.DWG

NOTES		KEY MAP	SECTIONS		
PP 1.1	PP 1.2	PP 1.3	PP 2.1	PP 3.1	PP 4.1

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

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PERVIOUS PAVEMENT

MATERIAL SECTIONS
POROUS ASPHALT

FILE NO. PP 4.1

PURPOSE:

EDGE TREATMENTS ARE USED TO STABILIZE THE EDGE OF THE PERVIOUS PAVEMENT AND CONTAIN WATER WITHIN THE PERVIOUS PAVEMENT SECTION.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT PLAN AND SECTION DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. ALL EDGE TREATMENT SYSTEMS MUST BE DESIGNED BY A LICENSED ENGINEER BASED ON SITE SPECIFIC CONDITIONS.
3. MINIMUM EDGE TREATMENT EMBEDMENT KEY DEPTHS ARE SPECIFIED TO PREVENT LATERAL SEEPAGE UNDER THE EDGE TREATMENT AND INTO ADJACENT PAVEMENT SECTIONS. DEEPER EMBEDMENT MAY BE REQUIRED UNDER SOME CONDITIONS.
4. FOR DEEP PAVEMENT SECTIONS, EDGE TREATMENT NOT REQUIRED TO EXTEND MORE THAN 12 INCHES BELOW WEARING COURSE PROVIDED REQUIREMENTS AT INTERFACE WITH IMPERMEABLE PAVEMENTS ARE SATISFIED.
5. USE THE EDGE TREATMENT KEY MAP ON **PC 1.2** TO IDENTIFY WHERE EACH TYPE OF EDGE TREATMENT IS REQUIRED OR ALLOWED.

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ EDGE TREATMENT TYPE AND MATERIAL
- ☐ EDGE TREATMENT WIDTH AND HEIGHT
- ☐ EMBEDMENT KEY DEPTH IF DIFFERENT THAN THE PROVIDED MINIMUMS

EDGE TREATMENTS						SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS				NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6	PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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GREEN INFRASTRUCTURE
TYPICAL DETAILS
COUNTY OF SAN MATEO

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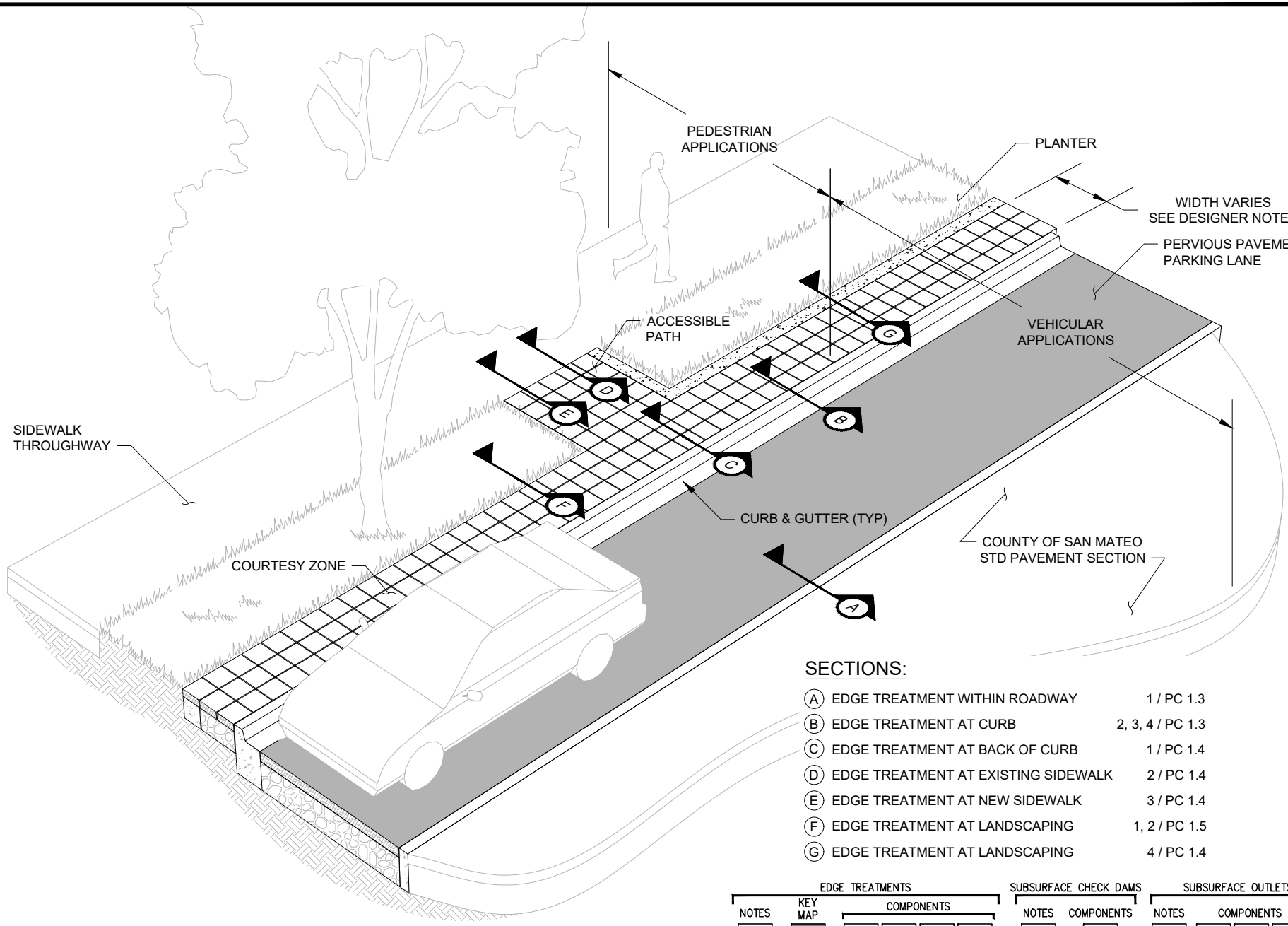
REVISED N/A

PAVEMENT COMPONENTS
EDGE TREATMENTS
DESIGNER NOTES

FILE NO. PC 1.1



SECTIONS:

(A)	EDGE TREATMENT WITHIN ROADWAY	1 / PC 1.3
(B)	EDGE TREATMENT AT CURB	2, 3, 4 / PC 1.3
(C)	EDGE TREATMENT AT BACK OF CURB	1 / PC 1.4
(D)	EDGE TREATMENT AT EXISTING SIDEWALK	2 / PC 1.4
(E)	EDGE TREATMENT AT NEW SIDEWALK	3 / PC 1.4
(F)	EDGE TREATMENT AT LANDSCAPING	1, 2 / PC 1.5
(G)	EDGE TREATMENT AT LANDSCAPING	4 / PC 1.4

EDGE TREATMENTS						SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS				NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6	PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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GREEN INFRASTRUCTURE TYPICAL DETAILS

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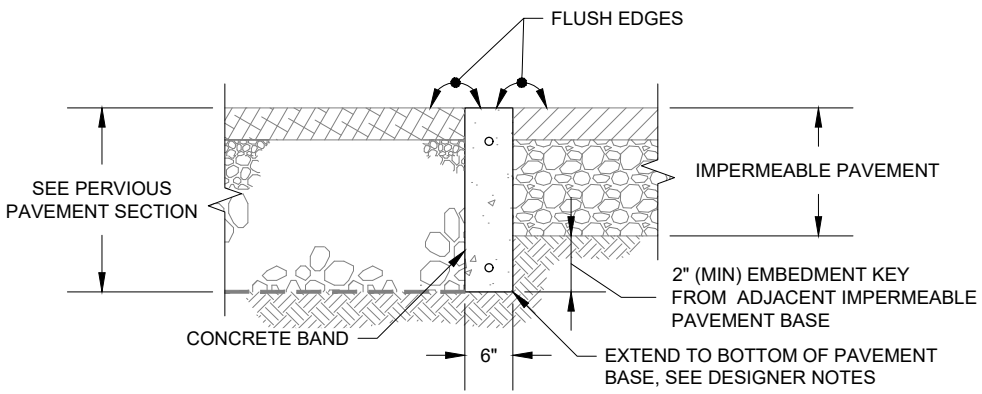
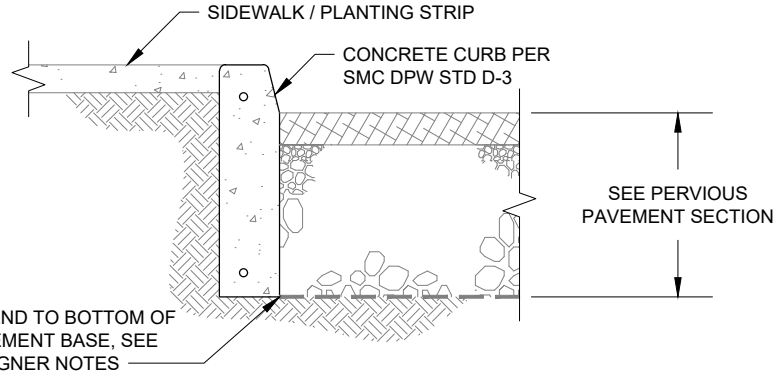
PAVEMENT COMPONENTS

EDGE TREATMENTS
KEY MAP

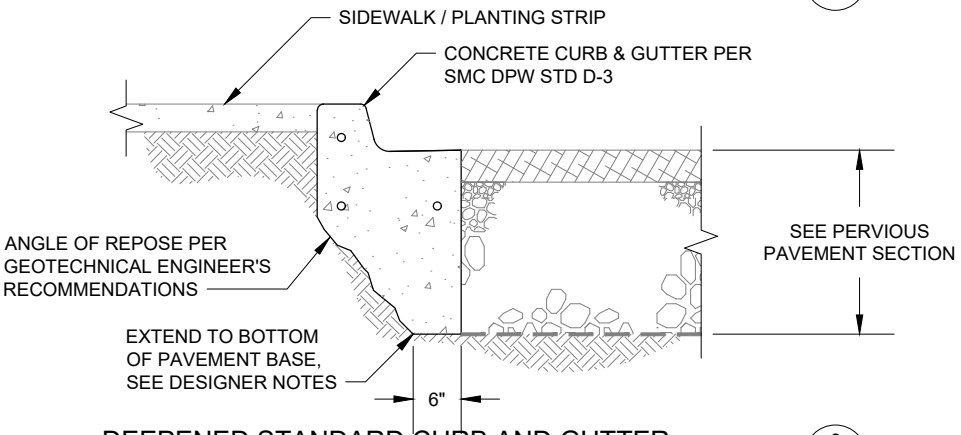
FILE NO. PC 1.2



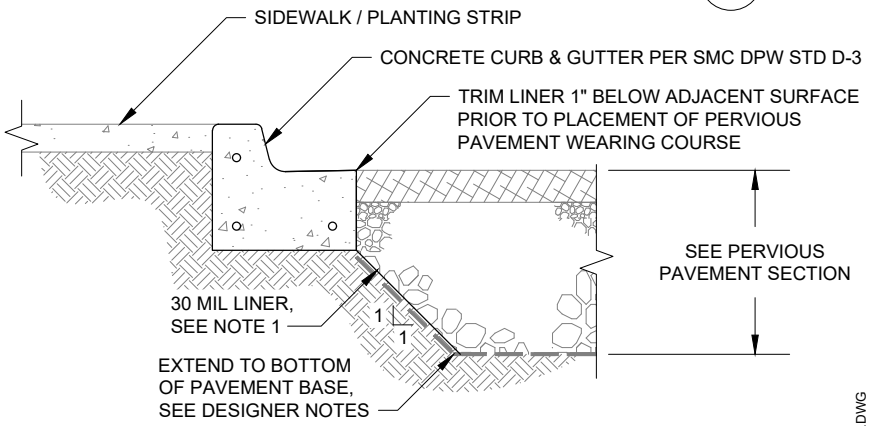
CONCRETE BAND WITHIN PAVED AREA 1



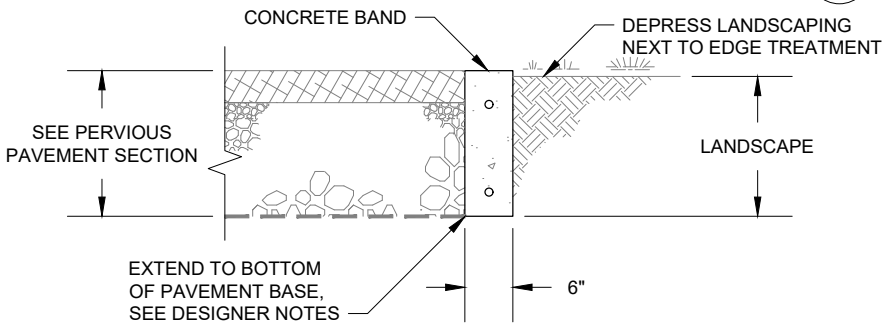
DEEPENED STANDARD CURB 2



DEEPENED STANDARD CURB AND GUTTER 3



IMPERMEABLE LINER AT STANDARD CURB AND GUTTER 4



CONCRETE BAND AT LANDSCAPE 5

CONSTRUCTION NOTES:

1. LINER SHALL BE HDPE CONFORMING TO GEOSYNTHETIC RESEARCH INSTITUTE (GRI) GM13 OR LLDPE CONFORMING TO GRI GM 17.

EDGE TREATMENTS						SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS				NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6	PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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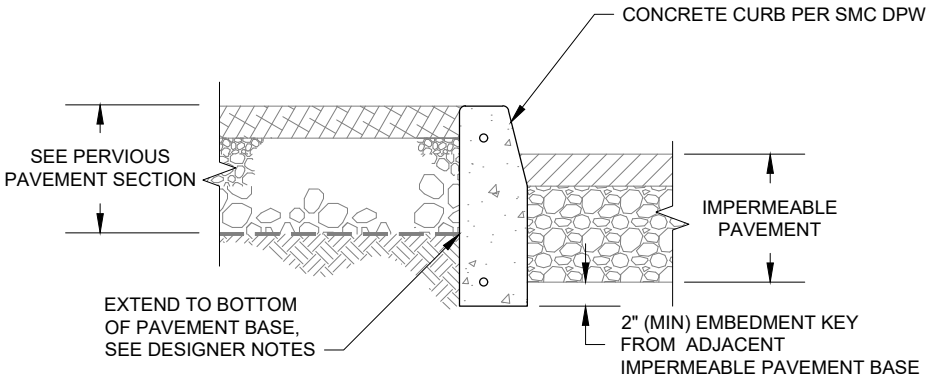
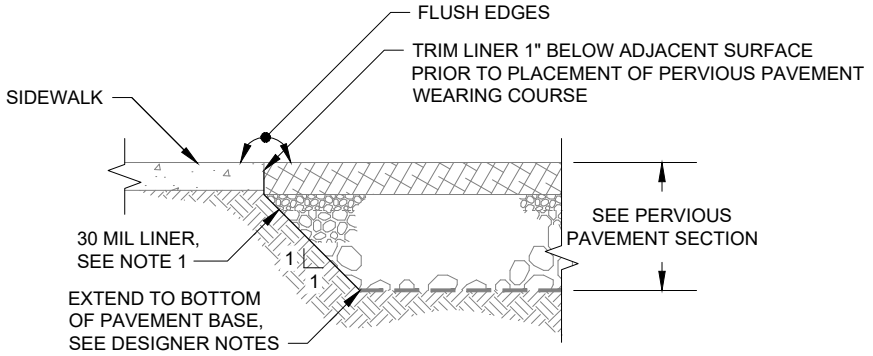
PAVEMENT COMPONENTS

EDGE TREATMENTS
VEHICULAR APPLICATIONS

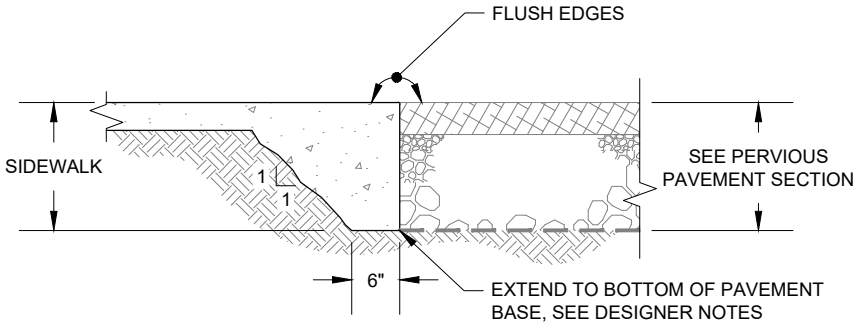
FILE NO. PC 1.3



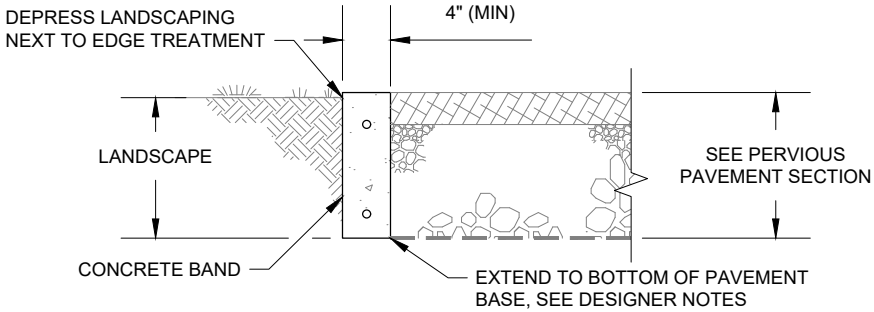
DEEPENED STANDARD CURB / CURB AND GUTTER 1



IMPERMEABLE LINER AT EXISTING SIDEWALK 2



THICKENED EDGE AT NEW SIDEWALK 3



CONCRETE BAND AT LANDSCAPE 4

CONSTRUCTION NOTES:

1. LINER SHALL BE HDPE CONFORMING TO GEOSYNTHETIC RESEARCH INSTITUTE (GRI) GM13 OR LLDPE CONFORMING TO GRI GM 17.

EDGE TREATMENTS						SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS				NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6	PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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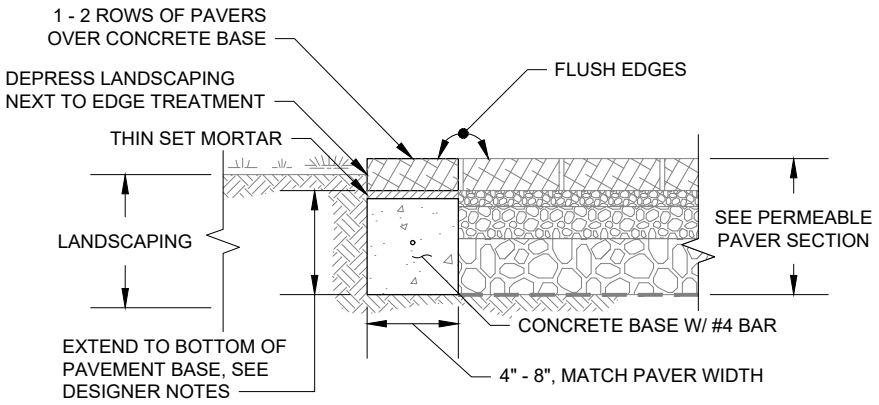
PAVEMENT COMPONENTS

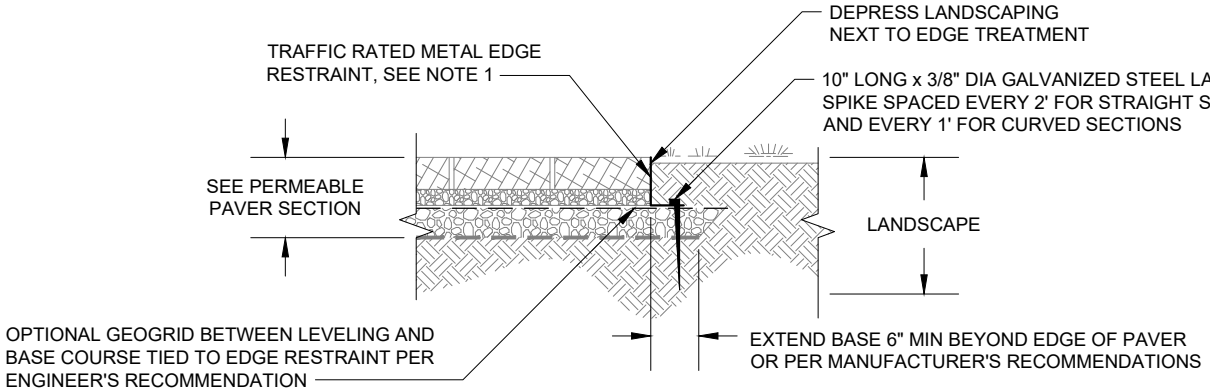
EDGE TREATMENTS

PEDESTRIAN APPLICATIONS (1 OF 2)

FILE NO. PC 1.4



MORTARED PAVER AT LANDSCAPING 1



METAL PAVER EDGE AT LANDSCAPING 2

CONSTRUCTION NOTES:

1. COORDINATE WITH SAN MATEO COUNTY DEPARTMENT OF PUBLIC WORKS IF STEEL IS REQUIRED IN RIGHT OF WAY.

EDGE TREATMENTS						SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS				NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6	PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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GREEN INFRASTRUCTURE TYPICAL DETAILS

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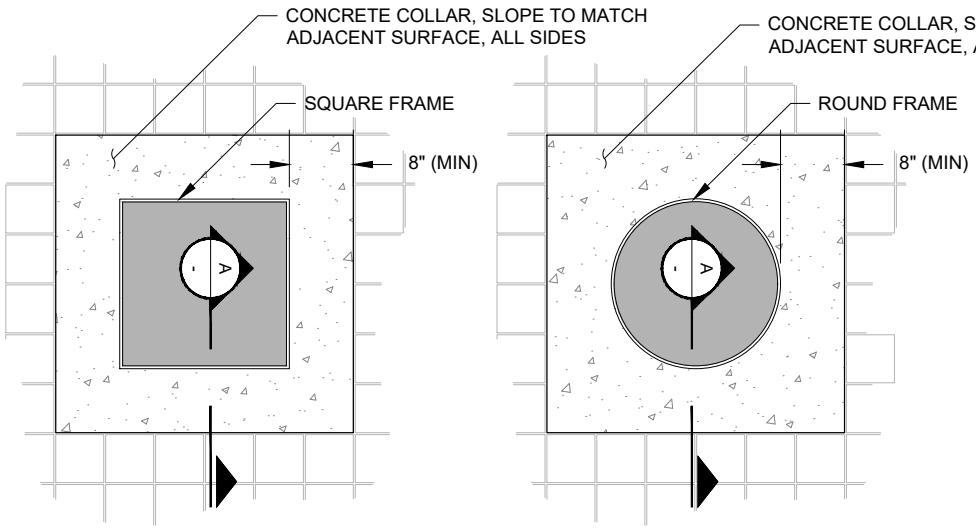
PAVEMENT COMPONENTS

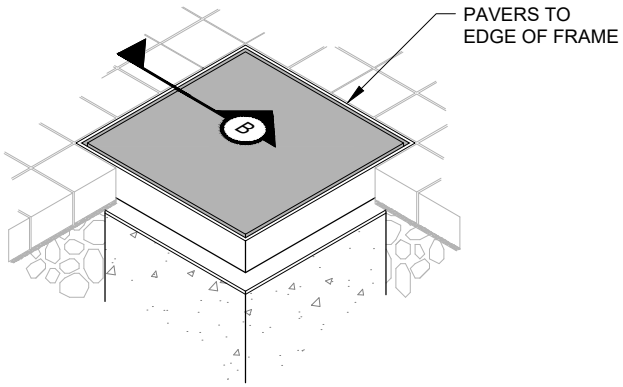
EDGE TREATMENTS
PEDESTRIAN APPLICATIONS (2 OF 2)

FILE NO. PC 1.5

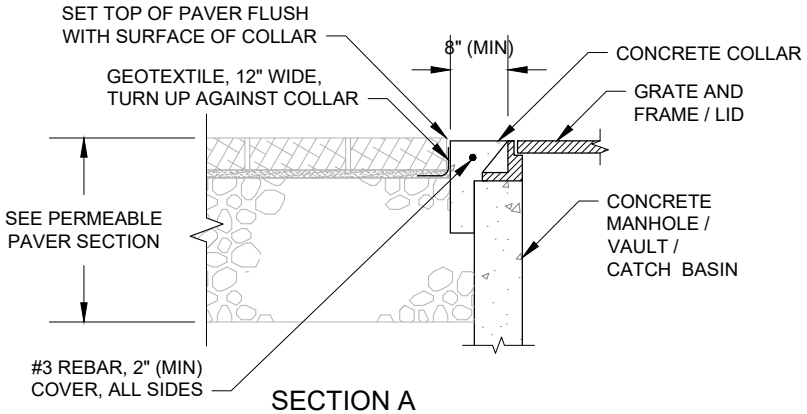


PLAN - SQUARE FRAME

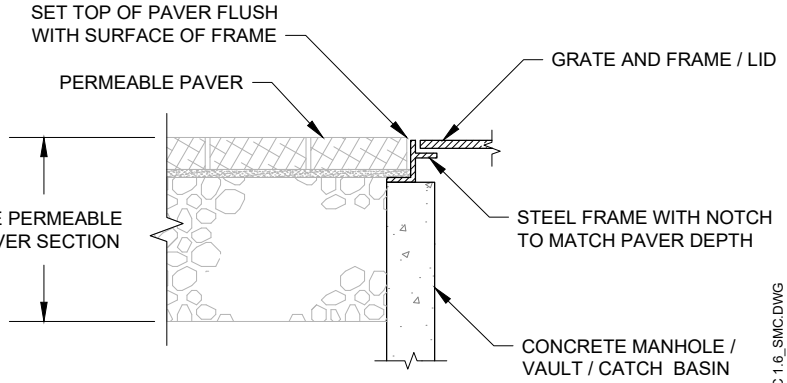
PLAN - ROUND FRAME



ISOMETRIC - SQUARE FRAME



SECTION A



SECTION B

PERMEABLE PAVER EDGE AT STRUCTURE - VEHICULAR APPLICATIONS (1)

PERMEABLE PAVER EDGE AT STRUCTURE - PEDESTRIAN APPLICATIONS (2)

EDGE TREATMENTS							SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS					NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6		PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
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PAVEMENT COMPONENTS

EDGE TREATMENTS
PAVER AT STRUCTURES

FILE NO. PC 1.6

PURPOSE:

PERVIOUS PAVEMENT FACILITIES MUST BE DESIGNED TO PROVIDE SUBSURFACE STORAGE OF STORMWATER TO ALLOW TIME FOR THE WATER TO INFILTRATE INTO THE UNDERLYING SOIL. SLOPED FACILITIES ON POOR SOILS HAVE AN INCREASED POTENTIAL FOR LATERAL FLOWS THROUGH THE STORAGE RESERVOIR COURSE ALONG THE TOP OF THE RELATIVELY IMPERMEABLE SUBGRADE SOIL. THIS REDUCES THE STORAGE AND INFILTRATION CAPACITY OF THE PAVEMENT SYSTEM. SUBSURFACE DETENTION STRUCTURES, OR CHECK DAMS, CAN BE INCORPORATED INTO THE SUBGRADE AND ALIGNED PERPENDICULAR TO THE LONGITUDINAL SUBGRADE SLOPE TO CREATE PONDING IN THE AGGREGATE STORAGE RESERVOIR COURSE TO DETAIN SUBSURFACE FLOW, INCREASE INFILTRATION, AND REDUCE STRUCTURAL PROBLEMS ASSOCIATED WITH SUBGRADE EROSION ON SLOPES.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT SECTION DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. WHILE THE DESIGNER MUST DETERMINE IF CHECK DAMS ARE NECESSARY BASED ON SITE-SPECIFIC CONDITIONS, SOME GENERAL GUIDELINES ARE PROVIDED BELOW:

SUBGRADE SOILS	SUBGRADE SLOPE	RUNON FROM OTHER AREAS	CHECK DAM REQUIRED
TYPE A/B	ANY	ALLOWED	NO
TYPE C/D	≤ 2%	NOT ALLOWED	NO
	≤ 2%	ALLOWED	NO*
	> 2%	ALLOWED	YES

* RECOMMENDED FOR SUBSURFACE FLOW PATHS OVER 50 FEET

3. THE DESIGNER MUST ESTABLISH THE HEIGHT AND SPACING OF THE CHECK DAMS BASED ON THE SUBGRADE SLOPE AND THE STORAGE DEPTH REQUIRED TO MEET PROJECT HYDROLOGIC PERFORMANCE GOALS. THE AVERAGE DEPTH OF SUBSURFACE STORAGE ACROSS THE FACILITY AREA MUST MEET THE REQUIRED STORAGE DEPTH. REFER TO CHECK DAM SPACING GUIDANCE ON THIS DRAWING FOR CHECK DAM SPACING CALCULATIONS.
4. MAXIMUM CHECK DAM HEIGHT IS GOVERNED BY 48 HOUR DRAWDOWN REQUIREMENT AND NATIVE SOIL INFILTRATION RATE. SEE **PP 1.1** FOR ADDITIONAL GUIDANCE.
5. THE AREA OF SUBBASE COVERED BY IMPERMEABLE CHECK DAM MATERIAL SHOULD BE EXCLUDED FROM HYDROLOGIC PERFORMANCE CALCULATIONS WHEN THE AREA IS SIGNIFICANT (GREATER THAN 10 PERCENT) RELATIVE TO THE PAVEMENT AREA.
6. THE DESIGNER MUST ENSURE THAT THE RESERVOIR COURSE DEPTH IS SUFFICIENT TO ACCOMMODATE THE HEIGHT OF THE CHECK DAMS WITH THE REQUIRED MINIMUM CLEARANCE.
7. CONVEYANCE CALCULATIONS ARE REQUIRED TO EVALUATE THE NEED FOR SUBSURFACE OUTLETS (E.G., PERFORATED UNDERDRAIN PIPES SET AT THE DESIGN SUBSURFACE PONDING DEPTH) AND DOWNSLOPE OVERFLOW SYSTEM. REFER TO **PC 3.1**.
8. LOCATE CHECK DAMS TO MINIMIZE IMPACT TO UTILITY ACCESS.
9. LOCATE PERVIOUS CONCRETE CONTROL JOINTS AT CHECK DAM LOCATIONS WHEN CHECK DAM EXTENDS INTO THE STRUCTURAL PAVEMENT SECTION.

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ CHECK DAM TYPE AND MATERIAL
- ☐ CHECK DAM ELEVATION, HEIGHT, AND WIDTH
- ☐ CHECK DAM SPACING
- ☐ CHECK DAM CLEARANCE (MEASURED FROM BOTTOM OF WEARING COURSE)

CHECK DAM SPACING GUIDANCE:

TYPICAL MAXIMUM SPACING, $L_{SPACING,\ MAX}$ (FEET) :

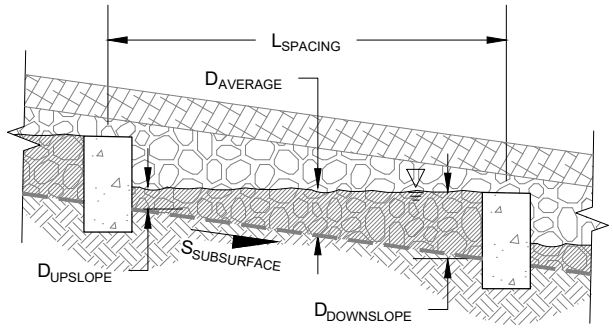
$$L_{SPACING,\ MAX} = D_{DOWNSLOPE} \div S_{SUBSURFACE}$$

$D_{DOWNSLOPE}$ = DOWNSLOPE STORAGE DEPTH (I.E. CHECK DAM HEIGHT) (FEET)
$S_{SUBSURFACE}$ = SUBSURFACE SLOPE (FT/FT)

SPACING, $L_{SPACING}$ (WHEN $L_{SPACING} \le L_{SPACING,\ MAX}$) :

$$L_{SPACING} = \frac{2\,(D_{AVERAGE} - D_{DOWNSLOPE})}{-\,S_{SUBSURFACE}}$$

$D_{AVERAGE}$ = AVERAGE STORAGE DEPTH (FEET)



EDGE TREATMENTS						SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS				NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6	PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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GREEN INFRASTRUCTURE
TYPICAL DETAILS
COUNTY OF SAN MATEO

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PAVEMENT COMPONENTS
SUBSURFACE CHECK DAMS
DESIGNER NOTES

FILE NO. PC 2.1

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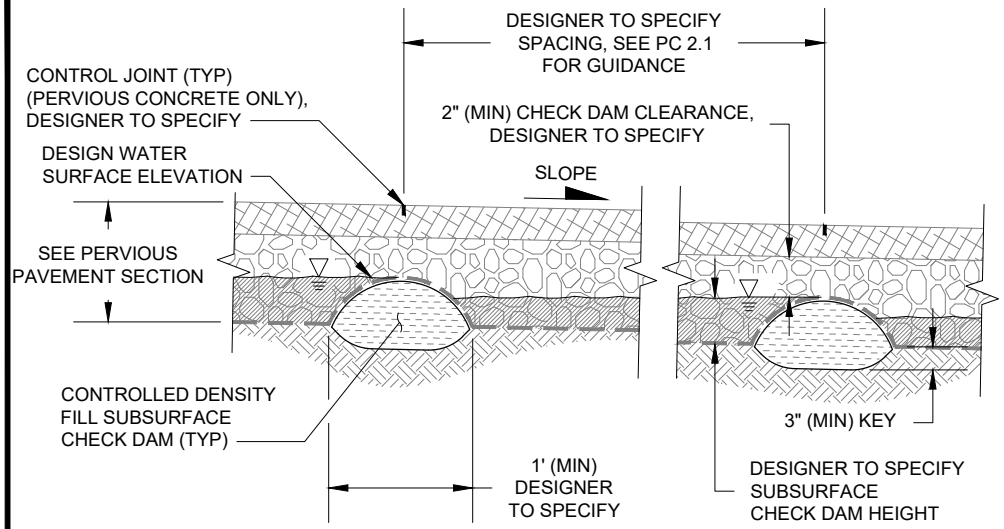
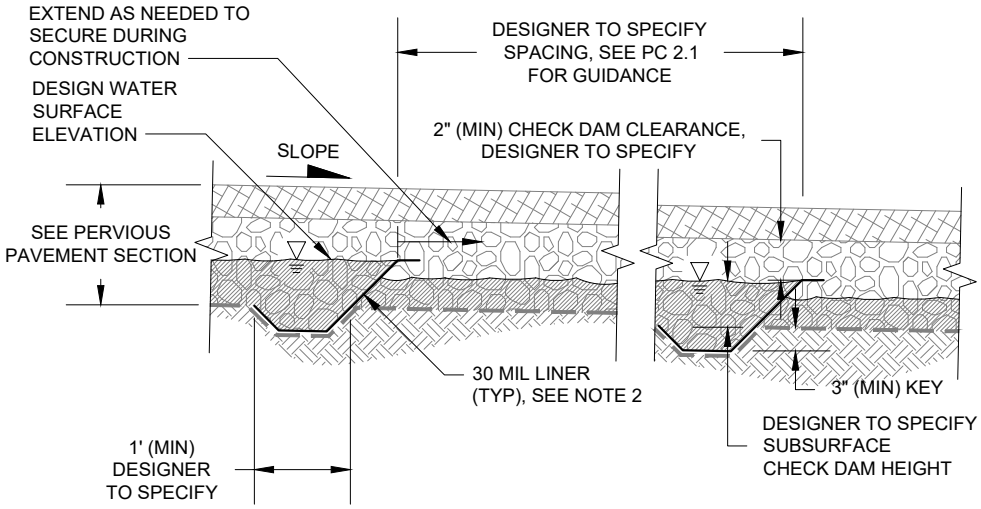
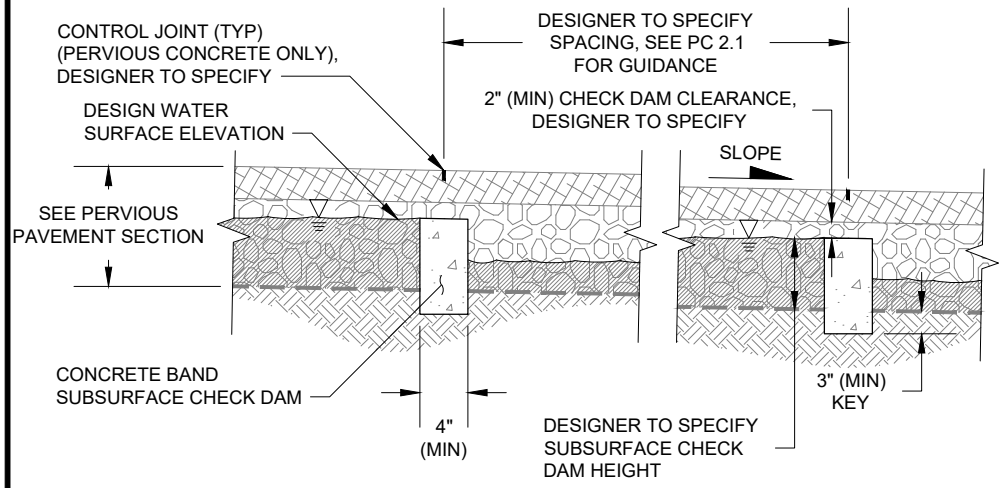


CONTROLLED DENSITY FILL SUBSURFACE CHECK DAM 1



IMPERMEABLE LINER SUBSURFACE CHECK DAM 2



CONCRETE BAND SUBSURFACE CHECK DAM 3

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR CHECK DAMS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. LINER SHALL BE HDPE CONFORMING TO GEOSYNTHETIC RESEARCH INSTITUTE (GRI) GM13 OR LLDPE CONFORMING TO GRI GM 17.

EDGE TREATMENTS							SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS					NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6		PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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PAVEMENT COMPONENTS

SUBSURFACE CHECK DAMS

FILE NO. PC 2.2

PURPOSE:

PERVIOUS PAVEMENT SUBSURFACE OVERFLOWS AND/OR UNDERDRAINS ARE DESIGNED TO CONVEY EXCESS FLOW TO AN APPROVED DISCHARGE POINT. FOR **SUBSURFACE OVERFLOW** CONFIGURATIONS, THE OVERFLOW RISER ELEVATION IS SET AT THE MAXIMUM DESIGN PONDING DEPTH IN THE PAVEMENT BASE. FOR **SUBSURFACE UNDERDRAIN** CONFIGURATIONS, THE CHECK DAM IS SET AT THE MAXIMUM DESIGN PONDING DEPTH IN THE PAVEMENT BASE, AND THE UNDERDRAIN IS LOCATED IN AN UNDERDRAIN TRENCH. WATER BELOW THE OVERFLOW RISER OR CHECK DAM ELEVATION IS TEMPORARILY STORED AND INFILTRATED INTO THE UNDERLYING SUBGRADE. UNDERDRAINS ARE ONLY RECOMMENDED WHEN AN AVAILABLE DAYLIGHT CONDITION EXISTS.

DESIGNER NOTES & GUIDELINES:

1. DESIGNERS MUST ADAPT DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. OVERFLOW / UNDERDRAIN PIPES MUST BE LOCATED AT AN ELEVATION HIGHER THAN THE STORM DRAIN MAIN HYDRAULIC GRADE LINE TO PREVENT BACK FLOW INTO THE PAVEMENT SECTION.
3. OVERFLOW IS TYPICALLY PROVIDED BY A SUBSURFACE SLOTTED OVERFLOW PIPE(S) WITH DOWNSTREAM OUTLET CONTROL OR UPSTREAM CHECK DAMS SET AT THE DESIGN PONDING ELEVATION.
4. EMERGENCY OVERFLOW FOR LARGE STORM EVENTS CAN BE PROVIDED BY SURFACE SHEET FLOW UPON INUNDATION OF THE PAVEMENT SECTION (REQUIRES SURFACE CONVEYANCE SYSTEM OR OTHER RUNOFF COLLECTION METHOD).
5. THE DESIGNER MUST CONSIDER THE FLOW PATH OF WATER WHEN THE PERVIOUS PAVEMENT SECTION IS FULLY SATURATED TO THE MAXIMUM DESIGN DEPTH TO CONFIRM THERE ARE NO UNANTICIPATED DISCHARGE LOCATIONS (E.G., INTERSECTING UTILITY TRENCHES) AND TO ENSURE THE DESIGN PROVIDES EMERGENCY OVERFLOW CONVEYANCE TO AN APPROVED DISCHARGE POINT.
6. CONVEYANCE CALCULATIONS ARE REQUIRED TO DESIGN THE OVERFLOW / UNDERDRAIN PIPE DIAMETER AND PIPE SPACING TO SATISFY SMC HYDRAULIC REQUIREMENTS.
7. IF SITE CONSTRAINTS NECESSITATE USE OF OVERFLOW PIPE IN AN AREA SUBJECT TO VEHICULAR TRAFFIC OR OTHER LOADING, APPROPRIATE COVER DEPTH AND PIPE MATERIAL MUST BE DESIGNED.
8. WEARING COURSE MAY BE USED TO FULFILL MINIMUM COVER REQUIREMENTS PROVIDED WEARING COURSE IS RIGID PAVEMENT.
9. OPTIONAL OBSERVATION PORTS CAN BE USED TO DETERMINE WHETHER AN OVERFLOW / UNDERDRAIN IS DEWATERING PROPERLY. REFER TO **GC 3.1- GC 3.3**.
10. OVERFLOW / UNDERDRAIN PIPES MUST BE EQUIPPED WITH CLEANOUTS. REFER TO **GC 5.2**.
11. INSTALL OVERFLOW PIPES AT DOWNGRADIENT END OF PAVEMENT. OVERFLOWS NOT REQUIRED AT EACH CHECK DAM LOCATION.
12. PIPE MATERIAL SHALL BE DESIGNED PER SAN MATEO COUNTY CODE (CHAPTER X, SECTION X).
13. AN OUTLET ORIFICE CONTROL DEVISE MAY BE INSTALLED TO FURTHER DETAIN OUTFLOW AND MAXIMIZE INFILTRATION. ENGINEER SHALL DESIGN, DETAIL, SPECIFY, AND CONDUCT SUPPLEMENTAL PERFORMANCE CALCULATIONS AS NEEDED.

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ OVERFLOW / UNDERDRAIN PIPE MATERIAL, DIAMETER, AND COVER DEPTH
- ☐ OVERFLOW / UNDERDRAIN PIPE INVERT ELEVATION AND SLOPE
- ☐ OVERFLOW / UNDERDRAIN PIPE ALIGNMENT AND DISCHARGE LOCATION

EDGE TREATMENTS						SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS				NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6	PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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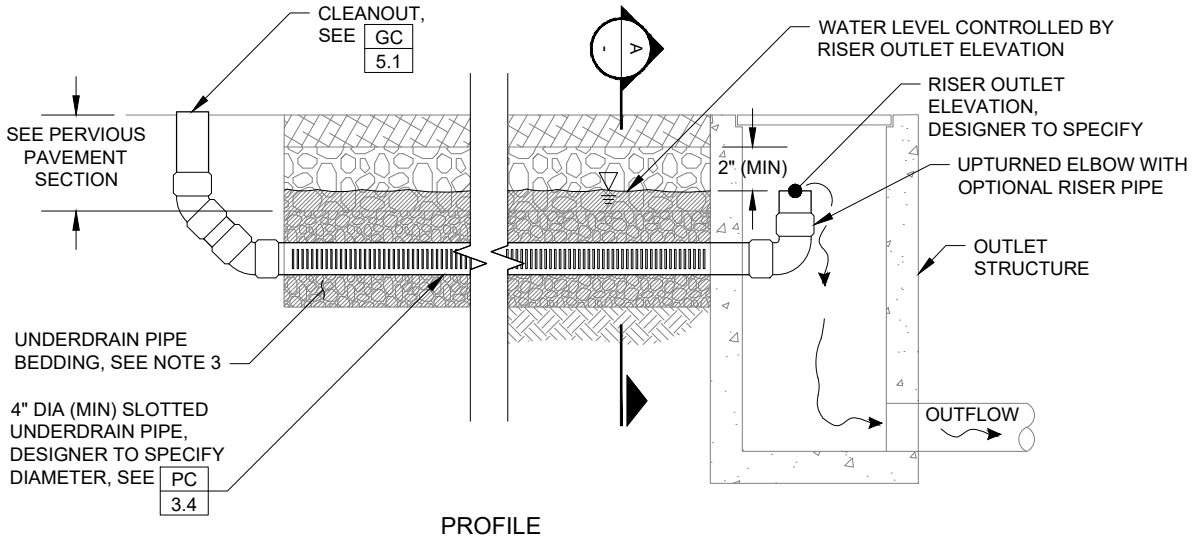
PAVEMENT COMPONENTS

SUBSURFACE OVERFLOWS
DESIGNER NOTES

FILE NO. PC 3.1

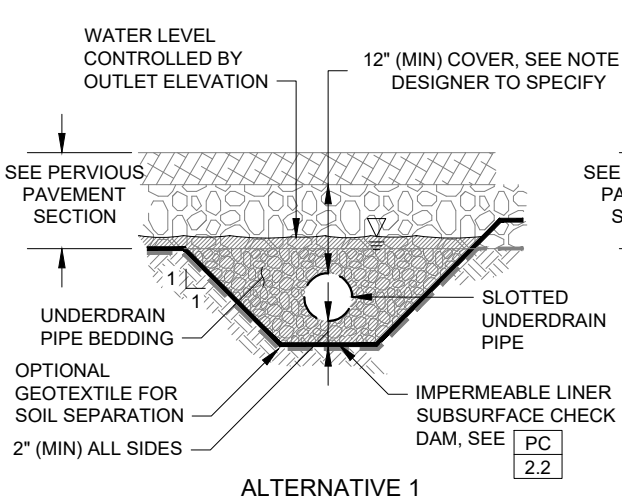


PROFILE

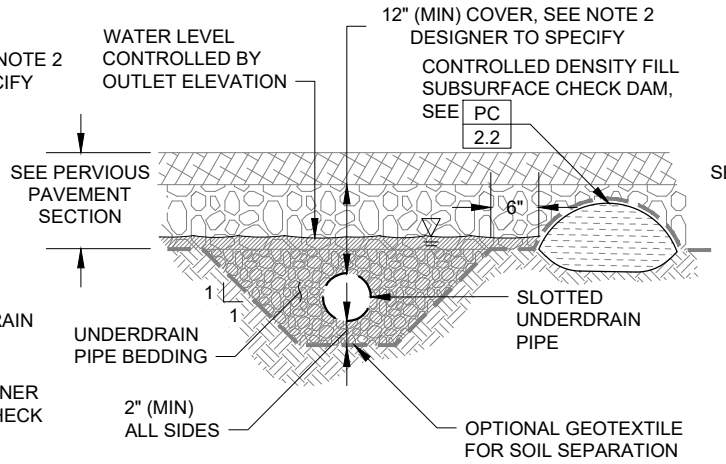
OVERFLOW CONTROL STRUCTURE WITH RISER (1)

CONSTRUCTION NOTES:

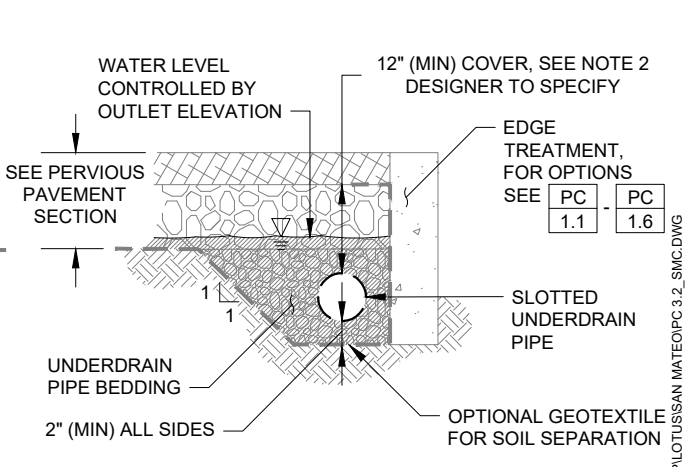
1. ALL MATERIAL AND WORKMANSHIP FOR UNDERDRAIN STRUCTURES SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. LOCATE UNDERDRAIN PIPE BELOW STRUCTURAL PAVEMENT BASE DEPTH.
3. UNDERDRAIN PIPE BEDDING SHALL BE ASTM NO. 57 CONFORMING TO THE REQUIREMENTS OF GRAVEL BASE MATERIAL FOR PAVEMENTS, UNLESS OTHERWISE SPECIFIED.



ALTERNATIVE 1



ALTERNATIVE 2



ALTERNATIVE 3

UNDERDRAIN PIPE TRENCH SECTION (A)

EDGE TREATMENTS						SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS				NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6	PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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DATE 06.2020
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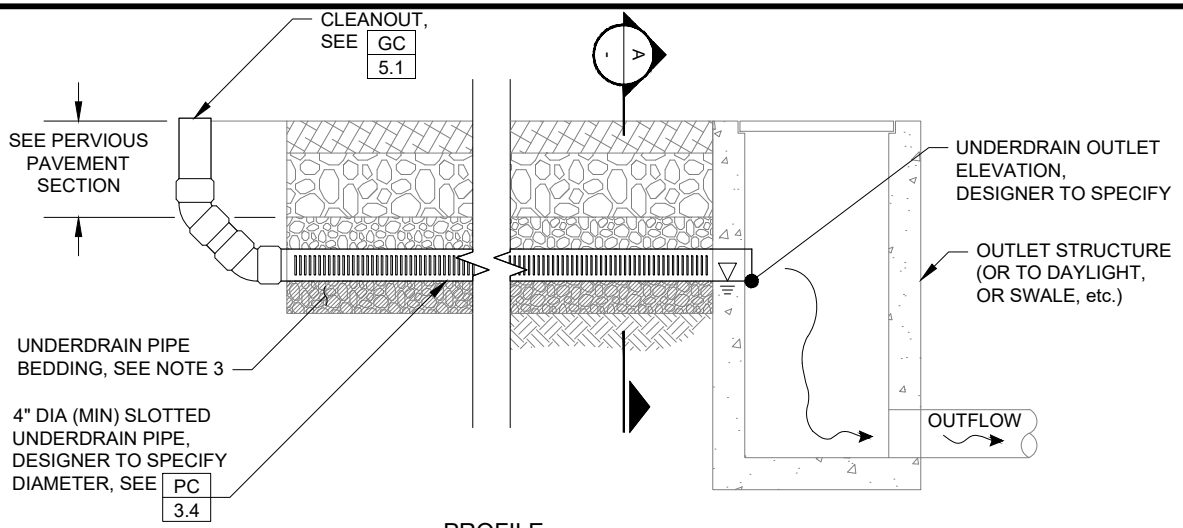
PAVEMENT COMPONENTS

SUBSURFACE OVERFLOW

FILE NO. PC 3.2

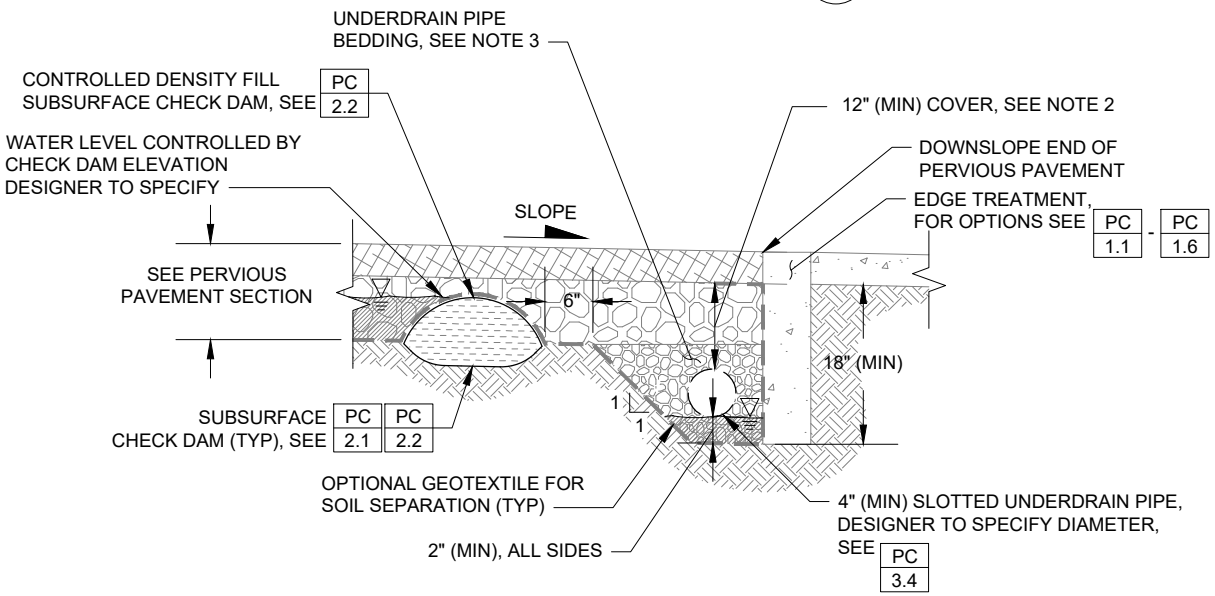


PROFILE

UNDERDRAIN TO DAYLIGHT (1)

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR OVERFLOW STRUCTURES SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. LOCATE UNDERDRAIN PIPE BELOW STRUCTURAL PAVEMENT BASE DEPTH.
3. UNDERDRAIN PIPE BEDDING SHALL BE ASTM NO. 57 CONFORMING TO THE REQUIREMENTS OF GRAVEL BASE MATERIAL FOR PAVEMENTS, UNLESS OTHERWISE SPECIFIED.



CHECK DAM-CONTROLLED WITH UNDERDRAIN (A)

EDGE TREATMENTS						SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS				NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6	PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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COUNTY OF SAN MATEO

DATE 06.2020
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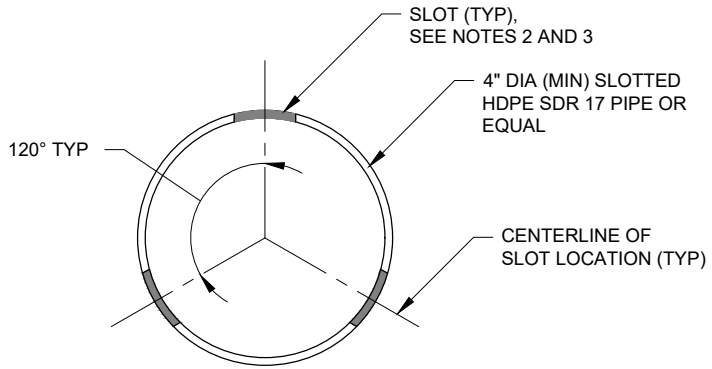
PAVEMENT COMPONENTS

SUBSURFACE UNDERDRAIN

FILE NO. PC 3.3



SLOTTED UNDERDRAIN PIPE 1

CONSTRUCTION NOTES:

1. UNDERDRAIN PIPE SHALL BE SLOTTED HDPE SDR 17 (PREFERRED), PERFORATED PIPE HDPE SDR 17, OR ACCEPTABLE SUBSTITUTE MATERIAL PER ENGINEERS SPECIFICATION. SINGLE WALL AND DUAL WALL CORRUGATED HDPE PIPE (AASHTO M252 AND M294 TYPES C, S, AND D) ARE NOT ACCEPTABLE.
2. ALL PERFORATIONS SHALL BE SLOTTED TYPE, MEASURING 0.032 INCH WIDE (MAX), SPACED AT 0.25 INCH (MIN), AND PROVIDING A MINIMUM INLET AREA OF 5.0 SQUARE INCH PER LINEAR FOOT OF PIPE.
3. PERFORATIONS SHALL BE ORIENTED PERPENDICULAR TO LONG AXIS OF PIPE, AND EVENLY SPACED AROUND CIRCUMFERENCE AND LENGTH OF PIPE.

EDGE TREATMENTS						SUBSURFACE CHECK DAMS		SUBSURFACE OUTLETS			
NOTES	KEY MAP	COMPONENTS				NOTES	COMPONENTS	NOTES	COMPONENTS		
PC 1.1	PC 1.2	PC 1.3	PC 1.4	PC 1.5	PC 1.6	PC 2.1	PC 2.2	PC 3.1	PC 3.2	PC 3.3	PC 3.4

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PAVEMENT COMPONENTS

UNDERDRAIN PIPE

FILE NO. PC 3.4

PURPOSE:

BIORETENTION PLANTERS CAPTURE AND TREAT STORMWATER RUNOFF VIA SURFACE AND SUBSURFACE STORAGE, FILTRATION THROUGH BIOTREATMENT SOIL, AND INFILTRATION INTO NATIVE SOIL WHERE FEASIBLE. BIORETENTION PLANTERS MAY ALSO BE REFERRED TO AS STORMWATER PLANTERS OR STORMWATER CURB EXTENSIONS AND INCLUDE 3 TYPES OF PLANTERS: BIOINFILTRATION (UNLINED, NO UNDERDRAIN), BIORETENTION (UNDER-DRAINED) AND FLOW-THROUGH (LINED WITH UNDERDRAIN). ALL TYPES TYPICALLY HAVE VERTICAL SIDE WALLS IN ORDER TO MAXIMIZE WATER STORAGE VOLUME IN CONSTRAINED SITES.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT PLAN AND SECTION DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. PLANTER AREA, PONDING DEPTH, BIOTREATMENT SOIL DEPTH, AND AGGREGATE STORAGE DEPTH MUST BE SIZED TO MEET PROJECT HYDROLOGIC PERFORMANCE GOALS.
3. FACILITY DRAWDOWN TIME (i.e., TIME FOR SURFACE PONDING TO DRAIN THROUGH THE ENTIRE SECTION INCLUDING AGGREGATE STORAGE AFTER THE END OF A STORM) REQUIREMENTS:
   - 48 HOUR (PREFERRED), 72 HOUR MAXIMUM FACILITY DRAWDOWN (i.e. ORIFICE CONTROLLED SYSTEM OR EXTENDED STORAGE DEPTH WITHIN INFILTRATION SYSTEM)
4. AN AGGREGATE COURSE IS REQUIRED UNDER THE BIOTREATMENT SOIL FOR BIORETENTION IN SEPARATE SEWER SYSTEM AREAS TO PROVIDE ADDITIONAL TREATMENT. SEE GUIDANCE ON **BC 4.1**.
5. THE PLANTER WALL SLOPE IS TYPICALLY DESIGNED TO MATCH THE LONGITUDINAL SLOPE OF THE ADJACENT ROADWAY/SIDEWALK. THE FACILITY SUBGRADE, HOWEVER, SHOULD BE FLAT. CHECK DAMS MAY BE USED TO TERRACE FACILITIES TO PROVIDE SUFFICIENT PONDING FOR HIGHER-SLOPED INSTALLATIONS. DESIGNER MUST SPECIFY CHECK DAM HEIGHT AND SPACING. REFER TO **BC 6.1** AND **BC 6.2** FOR GUIDANCE ON CHECK DAM DESIGN.
6. DEPENDING ON THE HEIGHT OF THE PROPOSED PLANTER WALL, ADDITIONAL STRUCTURAL CONSIDERATIONS MAY BE REQUIRED TO ADDRESS WALL LOADING. REFER TO **BC 1.1** THROUGH **BC 1.7** FOR GUIDANCE ON EDGE TREATMENTS.
7. WHEN FACILITY CONSTRUCTION IMPACTS EXISTING SIDEWALK, ALL SAW CUTS MUST ADHERE TO SMC DPW REQUIREMENTS. SAW CUTS SHOULD BE ALONG SCORE LINES AND ANY DISTURBED SIDEWALK FLAGS SHOULD BE REPLACED IN THEIR ENTIRETY.
8. PLANTERS IN PUBLIC RIGHT OF WAY SHALL BE DESIGNED WITH EMERGENCY OVERFLOW TO THE STREET IN THE EVENT THE PLANTER OUTLET IS OBSTRUCTED OR CLOGGED.
9. UP TO TWO PLANTERS MAY BE CONNECTED IN SERIES, IN LIEU OF MULTIPLE INLETS, PROVIDED THE CONNECTION IS A TRENCH DRAIN OR EQUAL SURFACE CONVEYANCE AND IS ADEQUATELY SIZED TO CONVEY FLOWS.
10. PLANTER VEGETATION MUST BE SPECIFIED BY DESIGN PROFESSIONAL PER C.3 TECHNICAL GUIDANCE MANUAL, APPENDIX A PLANT LIST, AND SMCWPPP GI DESIGN GUIDE CHAPTER 4.
11. THE DESIGNER MUST EVALUATE UTILITY SURVEYS FOR POTENTIAL UTILITY CROSSINGS OR CONFLICTS. REFER TO **GC 2.1** - **GC 2.12** FOR UTILITY CROSSING DETAILS AND **GC 1.4** - **GC 4.4** FOR UTILITY CROSSING CONFLICT DETAILS.
12. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT JURISDICTIONAL ASSET PROTECTION STANDARDS. IN THE ABSENCE OF THESE STANDARDS, THE DESIGNER SHALL REFER TO CHAPTER 3 OF SMCWPPP GI DESIGN GUIDE FOR BEST PRACTICES AND COORDINATE DIRECTLY WITH RELEVANT UTILITY PROVIDERS FOR REQUIREMENTS.
13. FREEBOARD REQUIREMENTS SHOWN SHOULD BE USED AS GUIDELINES BUT THE DESIGNER SHALL REFER TO THE C.3 TECHNICAL GUIDANCE MANUAL FOR ADDITIONAL FREEBOARD REQUIREMENTS, ESPECIALLY WHERE THE BIORETENTION PLANTER IS LOCATED IN A SUMP AND DEPENDS ON OUTFLOW THROUGH AN OVERFLOW STRUCTURE/CATCH BASIN.

RELATED COMPONENTS

EDGE TREATMENTS:	BC 1.1	BC 1.7
INLETS:	BC 2.1	BC 2.4
OUTLETS:	BC 3.1	BC 3.4
SOIL & AGGREGATE LAYERS:		BC 4.1
UNDERDRAINS:	BC 5.1	BC 5.2
CHECK DAMS:	BC 6.1	BC 6.2
LINERS:	GC 1.1	GC 1.2
UTILITY CROSSINGS:	GC 2.1	GC 2.12
UTILITY CONFLICTS:	GC 3.1	GC 3.3
OBSERVATION PORTS:	GC 4.1	GC 4.4
CLEANOUTS:		GC 5.2

RELATED SPECIFICATIONS

BIORETENTION:
BIOTREATMENT SOIL MIX PER BASMAA SPECIFICATIONS (SEE SMCWPPP C.3 REGULATED PROJECTS GUIDE APPENDIX K)

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN SECTIONS		PLAN SECTIONS		ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

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DATE 06.2020
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BIORETENTION PLANTER

DESIGNER NOTES (1of2)

FILE NO. BP 1.1

LAYOUT REQUIREMENTS:

1. REFER TO THE SMC STANDARD DRAWINGS, ROAD SECTIONS, AND CODES FOR COURTESY STRIP, THROUGHWAY, PARKING SPACE AND ACCESSIBLE PATH REQUIREMENTS.
2. LOCATE CURB CUTS AND GUTTER MODIFICATIONS TO AVOID CONFLICTS WITH ACCESSIBILITY REQUIREMENTS (E.G., LOCATE OUTSIDE OF CROSSWALKS).

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ PLANTER WIDTH AND LENGTH
- ☐ DEPTH OF PONDING
- ☐ DEPTH OF FREEBOARD
- ☐ DEPTH OF BIOTREATMENT SOIL
- ☐ DEPTH AND TYPE OF AGGREGATE STORAGE, IF ANY
- ☐ PLANTER SURFACE ELEVATION (TOP OF BIOTREATMENT SOIL) AT UPSLOPE AND DOWNSLOPE ENDS OF FACILITY
- ☐ CONTROL POINTS AT EVERY PLANTER WALL CORNER AND POINT OF TANGENCY
- ☐ DIMENSIONS AND DISTANCE TO EVERY INLET, OUTLET, CHECK DAM, SIDEWALK NOTCH, ETC.
- ☐ ELEVATIONS OF EVERY INLET, OUTLET, STRUCTURE RIM AND INVERT, CHECK DAM, PLANTER WALL CORNER, AND SIDEWALK NOTCH
- ☐ TYPE AND DESIGN OF PLANTER COMPONENTS (E.G., EDGE TREATMENTS, INLETS/GUTTER MODIFICATIONS, UTILITY CROSSINGS, LINER, AND PLANTING DETAILS)

SOIL TYPE GUIDANCE:

HYDROLOGIC SOIL GROUP	SOIL TYPE	CORRESPONDING UNIFIED SOIL CLASSIFICATION	DESCRIPTION
A	SAND, LOAMY SAND, OR SANDY LOAM	GW - WELL-GRADED GRAVELS, SANDY GRAVELS GP - GAP-GRADED OR UNIFORM GRAVELS, SANDY GRAVELS GM - SILTY GRAVELS, SILTY SANDY GRAVELS SW - WELL-GRADED, GRAVELLY SANDS SP - GAP-GRADED OR UNIFORM SANDS, GRAVELLY SANDS	LOW RUNOFF POTENTIAL. SOILS HAVING HIGH INFILTRATION RATES EVEN WHEN THOROUGHLY WETTED AND CONSISTING CHIEFLY OF DEEP, WELL TO EXCESSIVELY DRAINED SANDS OR GRAVELS.
B	SILT LOAM OR LOAM	SM - SILTY SANDS, SILTY GRAVELLY SANDS MH - MICACEOUS SILTS, DIATOMACEOUS SILTS, VOLCANIC ASH	SOILS HAVING MODERATE INFILTRATION RATES WHEN THOROUGHLY WETTED AND CONSISTING CHIEFLY OF MODERATELY DEEP TO DEEP, MODERATELY WELL TO WELL-DRAINED SOILS WITH MODERATELY FINE TO MODERATELY COARSE TEXTURES.
C	SANDY CLAY LOAM	ML - SILTS, VERY FINE SANDS, SILTY AND CLAYEY FINE SANDS	SOILS HAVING SLOW INFILTRATION RATES WHEN THOROUGHLY WETTED AND CONSISTING CHIEFLY OF SOILS WITH A LAYER THAT IMPEDES DOWNWARD MOVEMENT OF WATER, OR SOILS WITH MODERATELY FINE TO FINE TEXTURES.
D	CLAY LOAM, SANDY CLAY, SILTY CLAY, OR CLAY	GC - CLAYEY GRAVELS, CLAYEY SANDY GRAVELS SC - CLAYEY SANDS, CLAYEY GRAVELLY SANDS CL - LOW PLASTICITY CLAYS, SANDY OR SILTY CLAYS OL - ORGANIC SILTS AND CLAYS OF LOW PLASTICITY CH - HIGHLY PLASTIC LAYS AND SANDY CLAYS OH - ORGANIC SILTS AND CLAYS OF HIGH PLASTICITY	HIGH RUNOFF POTENTIAL. SOILS HAVING VERY SLOW INFILTRATION RATES WHEN THOROUGHLY WETTED AND CONSISTING CHIEFLY OF CLAY SOILS WITH A HIGH SWELLING POTENTIAL, SOILS WITH A PERMANENT HIGH WATER TABLE, AND SHALLOW SOILS OVER NEARLY IMPERVIOUS MATERIAL.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

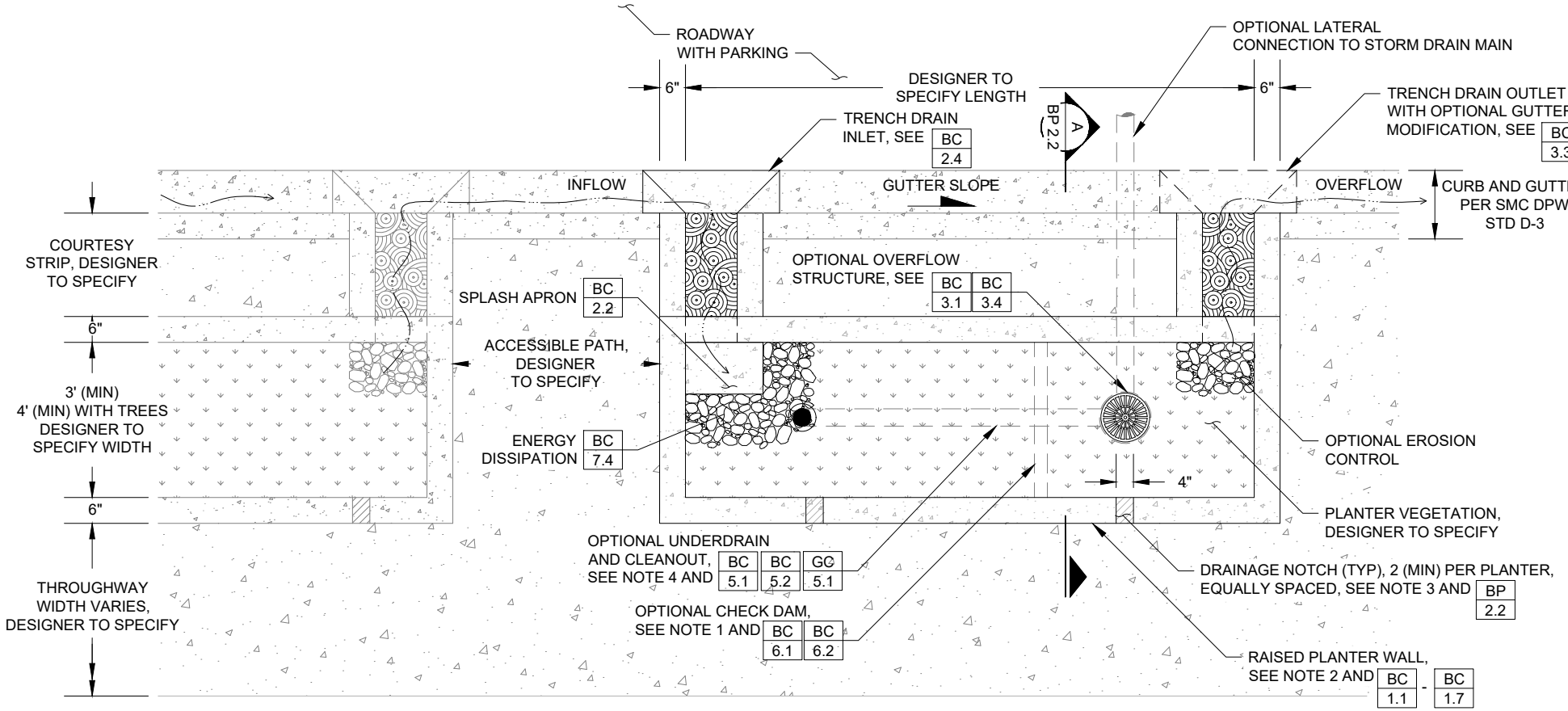
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION PLANTER

DESIGNER NOTES (2of2)

FILE NO. BP 1.2



CONSTRUCTION NOTES:

1. CHECK DAMS SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. SLOPE TOP OF PLANTER WALL TO MATCH LONGITUDINAL SLOPE OF ADJACENT SURFACE.
3. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN SECTIONS		PLAN SECTIONS		ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

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GREEN INFRASTRUCTURE TYPICAL DETAILS

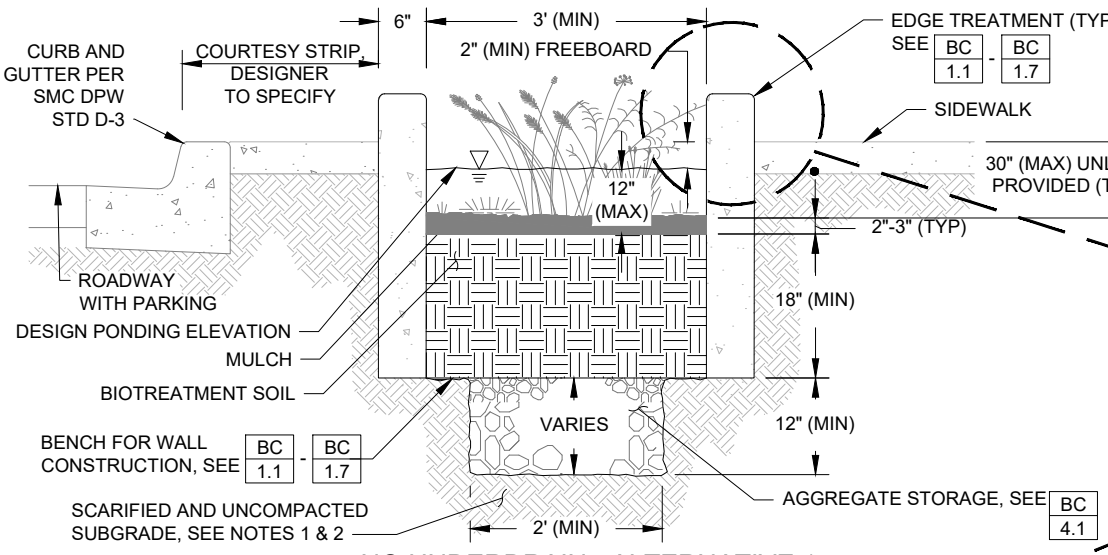
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

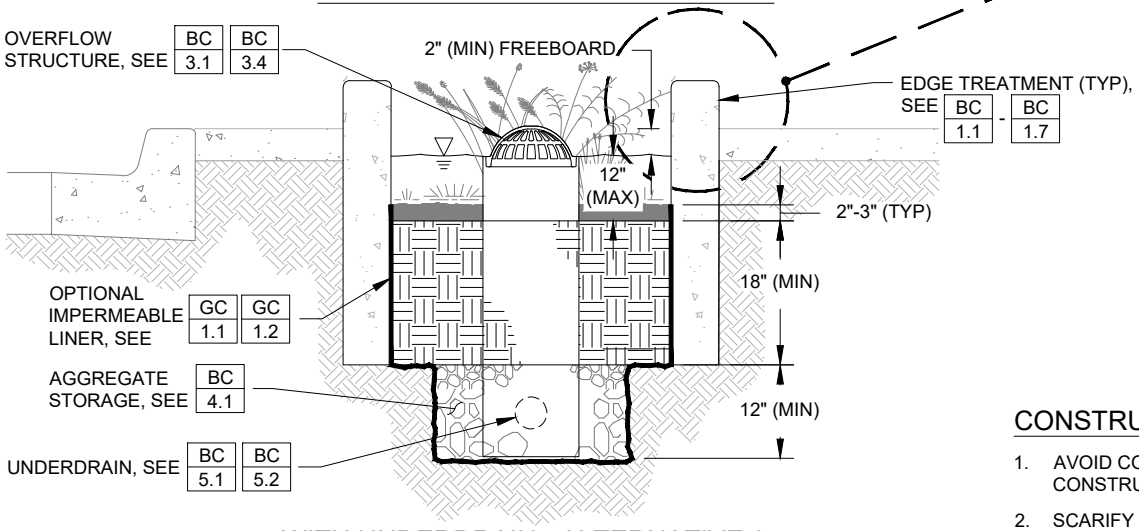
BIORETENTION PLANTER

STORMWATER PLANTER WITH PARKING PLAN

FILE NO. BP 2.1

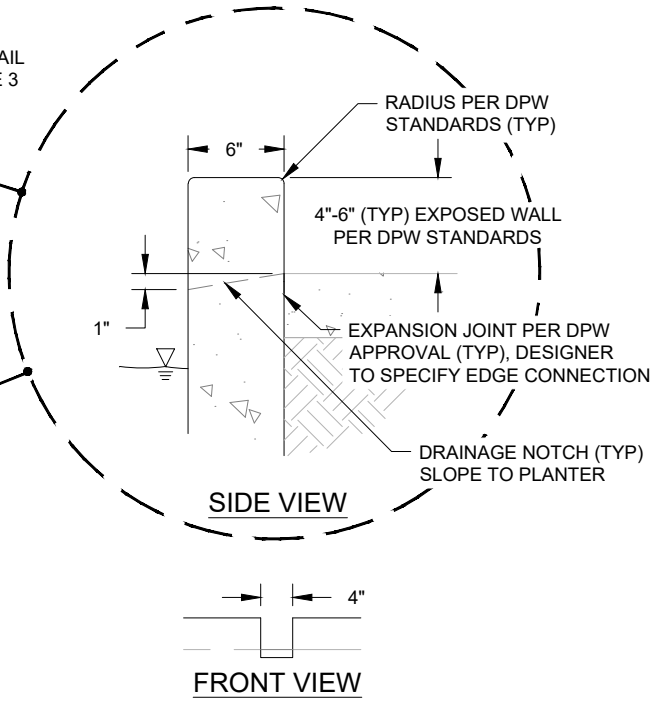


NO UNDERDRAIN - ALTERNATIVE 1



WITH UNDERDRAIN - ALTERNATIVE 2

BIORETENTION PLANTER WITH PARKING (A)



TYPICAL DRAINAGE NOTCH DETAIL

CONSTRUCTION NOTES:

1. AVOID COMPACTION OF EXISTING SUBGRADE BELOW PLANTER DURING CONSTRUCTION.
2. SCARIFY SUBGRADE TO A DEPTH OF 3 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF AGGREGATE STORAGE AND BIOTREATMENT SOIL MATERIAL.
3. MAXIMUM DROP FROM TOP OF SIDEWALK TO TOP OF BIOTREATMENT SOIL SHALL INCLUDE CONSIDERATIONS FOR BIOTREATMENT SOIL SETTLEMENT.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

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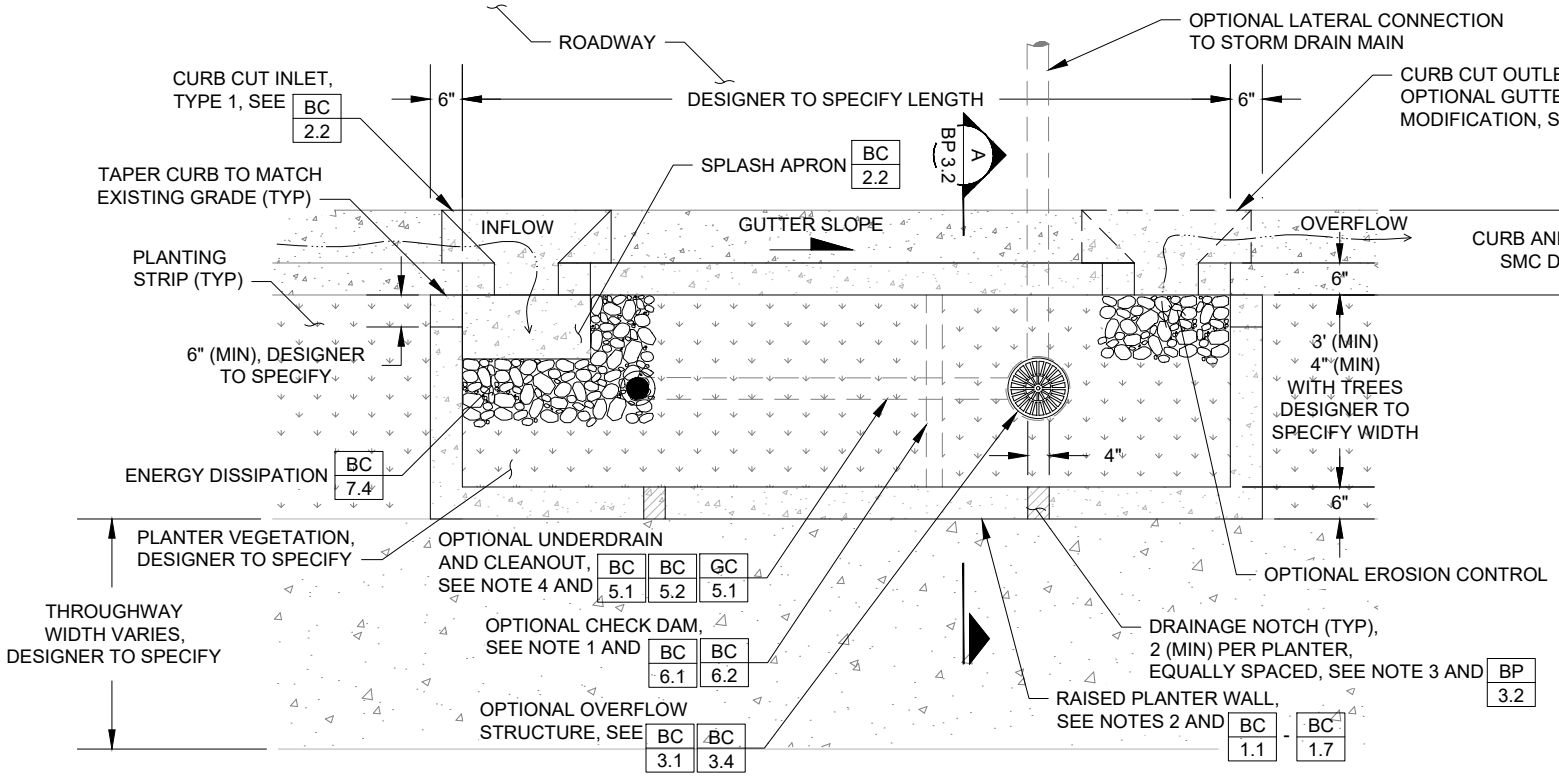
JAMES C. PORTER DIRECTOR OF PUBLIC WORKS	GREEN INFRASTRUCTURE TYPICAL DETAILS COUNTY OF SAN MATEO	DATE 06.2020 VERSION 01 REVISED N/A	BIORETENTION PLANTER STORMWATER PLANTER WITH PARKING SECTIONS	FILE NO. BP 2.2



CONSTRUCTION NOTES:

1. CHECK DAMS (IF NEEDED) SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. SLOPE TOP OF PLANTER WALL TO MATCH LONGITUDINAL SLOPE OF ADJACENT SURFACE.
3. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN SECTIONS		PLAN SECTIONS		ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020

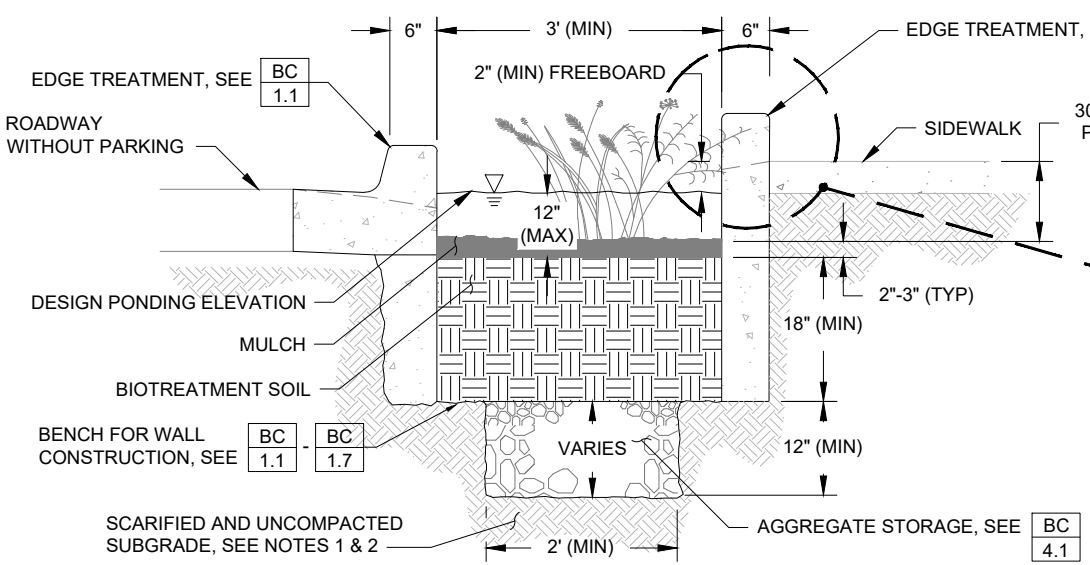
VERSION 01

REVISED N/A

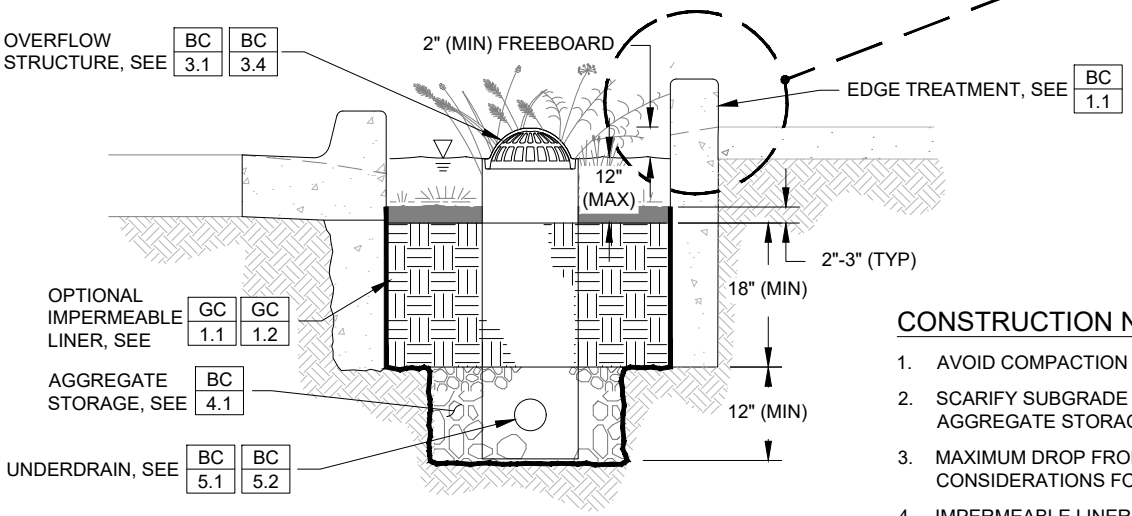
BIORETENTION PLANTER

STORMWATER PLANTER WITHOUT PARKING PLAN

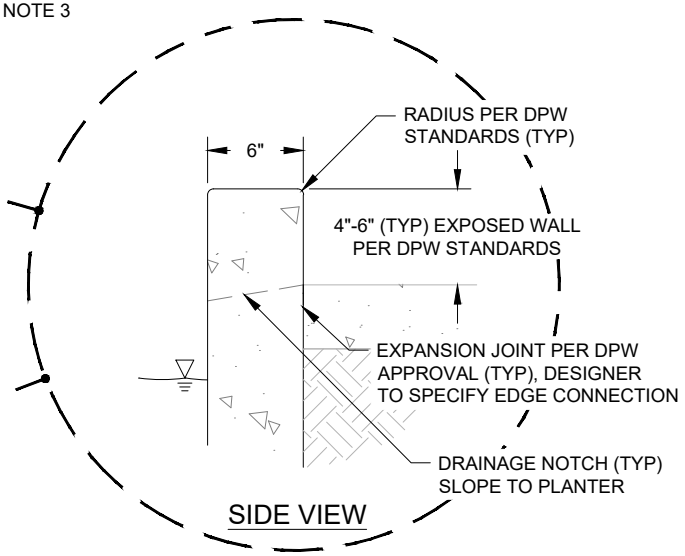
FILE NO. BP 3.1



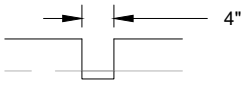
NO UNDERDRAIN - ALTERNATIVE 1



WITH UNDERDRAIN - ALTERNATIVE 2



SIDE VIEW



FRONT VIEW

TYPICAL DRAINAGE NOTCH DETAIL

BIORETENTION PLANTER WITHOUT PARKING (A)

CONSTRUCTION NOTES:

1. AVOID COMPACTION OF EXISTING SUBGRADE BELOW PLANTER DURING CONSTRUCTION.
2. SCARIFY SUBGRADE TO A DEPTH OF 3 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF AGGREGATE STORAGE AND BIOTREATMENT SOIL MATERIAL.
3. MAXIMUM DROP FROM TOP OF CURB TO TOP OF BIOTREATMENT SOIL SHALL INCLUDE CONSIDERATIONS FOR BIOTREATMENT SOIL SETTLEMENT.
4. IMPERMEABLE LINER SHALL ONLY BE USED WHEN SITE CONDITIONS REQUIRE USE.
5. INSTALL BIOTREATMENT SOIL MEDIA (BSM) IN EITHER TWO 10" LIFTS AND THEN WETTED TO ACCOMMODATE AN EXPECTED 2" OF SETTLING OR THREE 6" LIFTS THEN WETTED WITH ADDITIONAL BSM ADDED TO THE SURFACE AS NEEDED TO ACHIEVE A FINAL DEPTH OF 18".

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

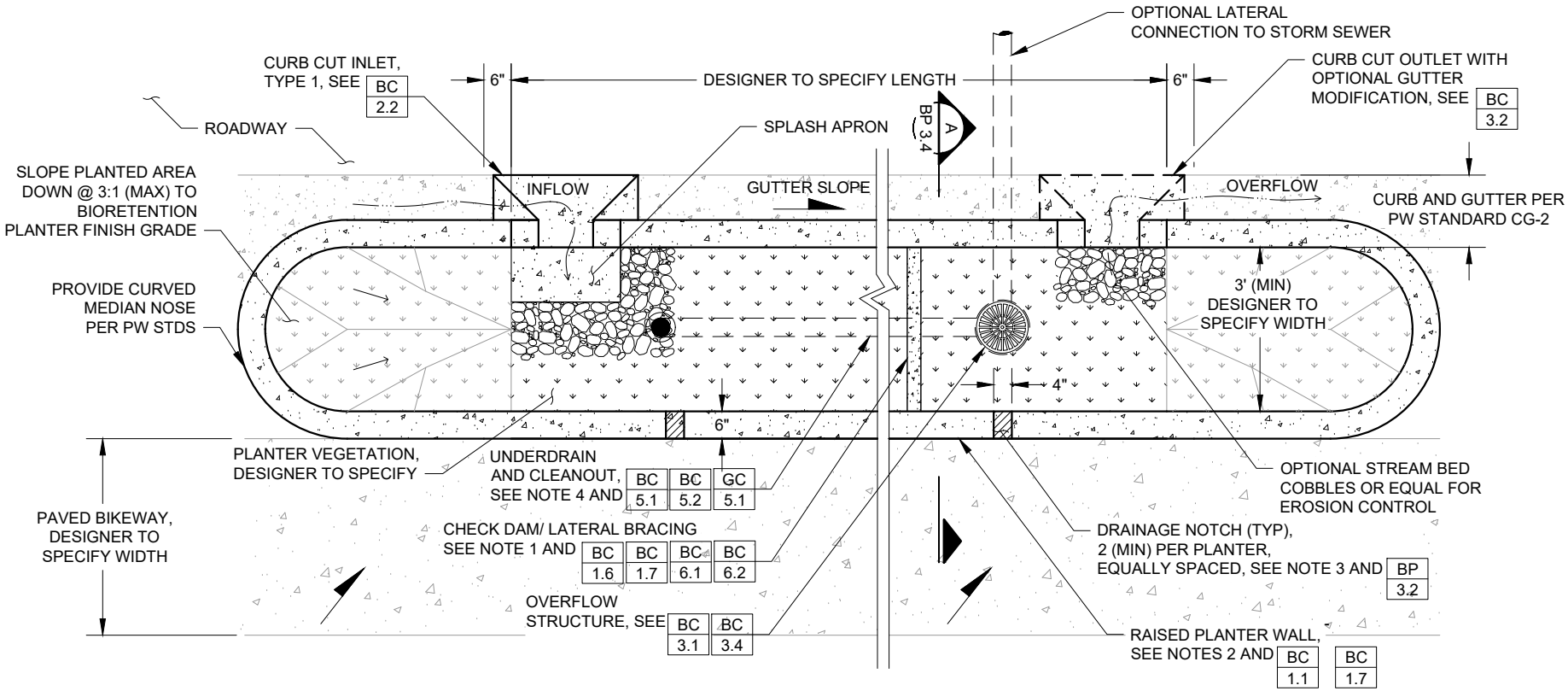
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION PLANTER

STORMWATER PLANTER WITHOUT PARKING SECTIONS

FILE NO. BP 3.2



NOTES:

1. CHECK DAMS SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. SLOPE TOP OF PLANTER WALL TO MATCH LONGITUDINAL SLOPE OF ADJACENT SURFACE.
3. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) AND NO LESS THAN ONE CLEANOUT FOR EVERY 100 LINEAR FEET OF PIPE FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT JURISDICTION'S UTILITY PROTECTION STANDARDS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

NOTES		W/PARKING		W/O PARKING		BIKEWAY BARRIER		BULBOUT						PARCEL APPLICATIONS					
		PLAN	SECTIONS	PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 3.3	BP 3.4	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

CITY OF MENLO PARK

GREEN INFRASTRUCTURE TYPICAL DETAILS

CITY OF MENLO PARK

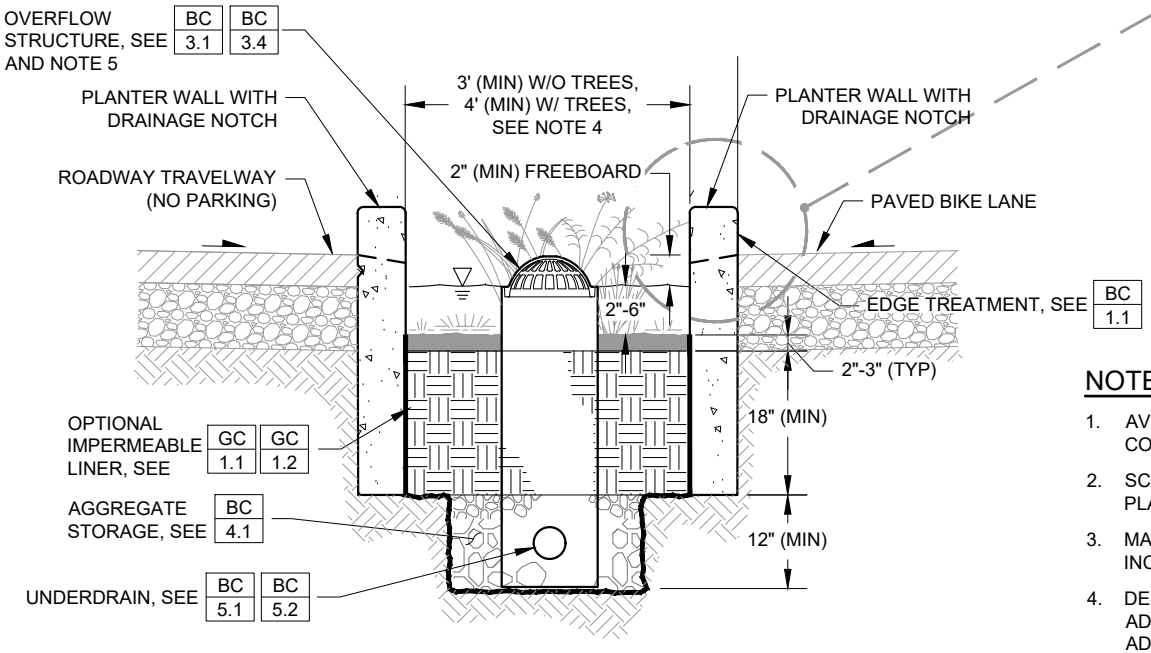
DATE: APRIL 2019
VERSION: 1.0
REVISED:

BIORETENTION PLANTER

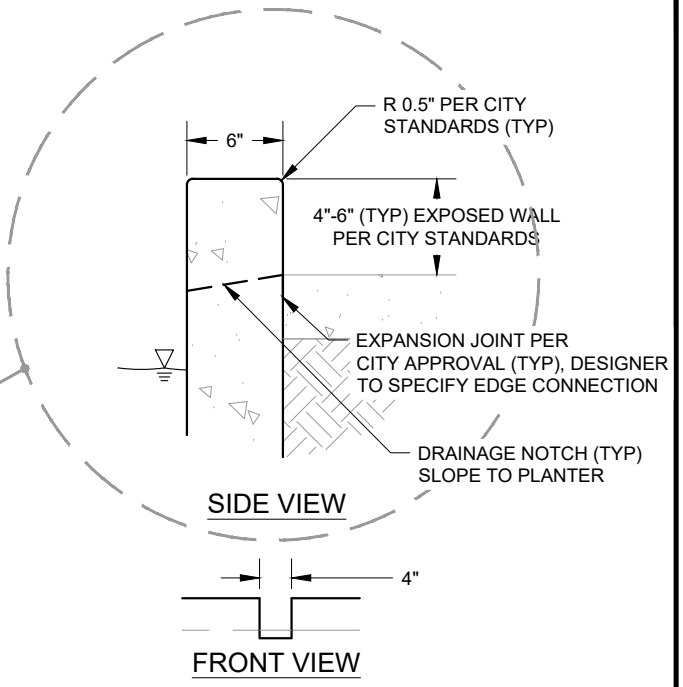
STORMWATER BARRIER PLANTER - CLASS 4 BIKEWAY - PLAN

DWG NO. **BP 3.3**

NOT FOR CONSTRUCTION - REFER TO USER GUIDE



STORMWATER BARRIER PLANTER FOR CLASS 4 BIKEWAY (A)



TYPICAL DRAINAGE NOTCH DETAIL

NOTES:

1. AVOID COMPACTION OF EXISTING SUBGRADE BELOW PLANTER DURING CONSTRUCTION.
2. SCARIFY SUBGRADE TO A DEPTH OF 3 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF AGGREGATE STORAGE AND BIORETENTION SOIL MATERIAL.
3. MAXIMUM DROP FROM TOP OF CURB TO TOP OF BIOTREATMENT SOIL SHALL INCLUDE CONSIDERATIONS FOR BIOTREATMENT SOIL SETTLEMENT.
4. DESIGNER TO SPECIFY PLANTER WIDTH AND IF TREES ARE DESIRED, PROVIDE ADDITIONAL TREE ROOT VOLUME USING STRUCTURAL SOIL OR SILVA CELLS UNDER ADJACENT BIKEWAY PAVEMENT.
5. OVERFLOW STRUCTURE TO HAVE SQUARE OR ATRIUM GRATE PER PROJECT DESIGN AND THE DISCRETION OF THE PUBLIC WORKS DEPARTMENT.

NOTES		W/PARKING		W/O PARKING		BIKEWAY BARRIER		BULBOUT						PARCEL APPLICATIONS					
		PLAN SECTIONS		PLAN SECTIONS		PLAN SECTIONS		ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 3.3	BP 3.4	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

CITY OF MENLO PARK

GREEN INFRASTRUCTURE TYPICAL DETAILS

CITY OF MENLO PARK

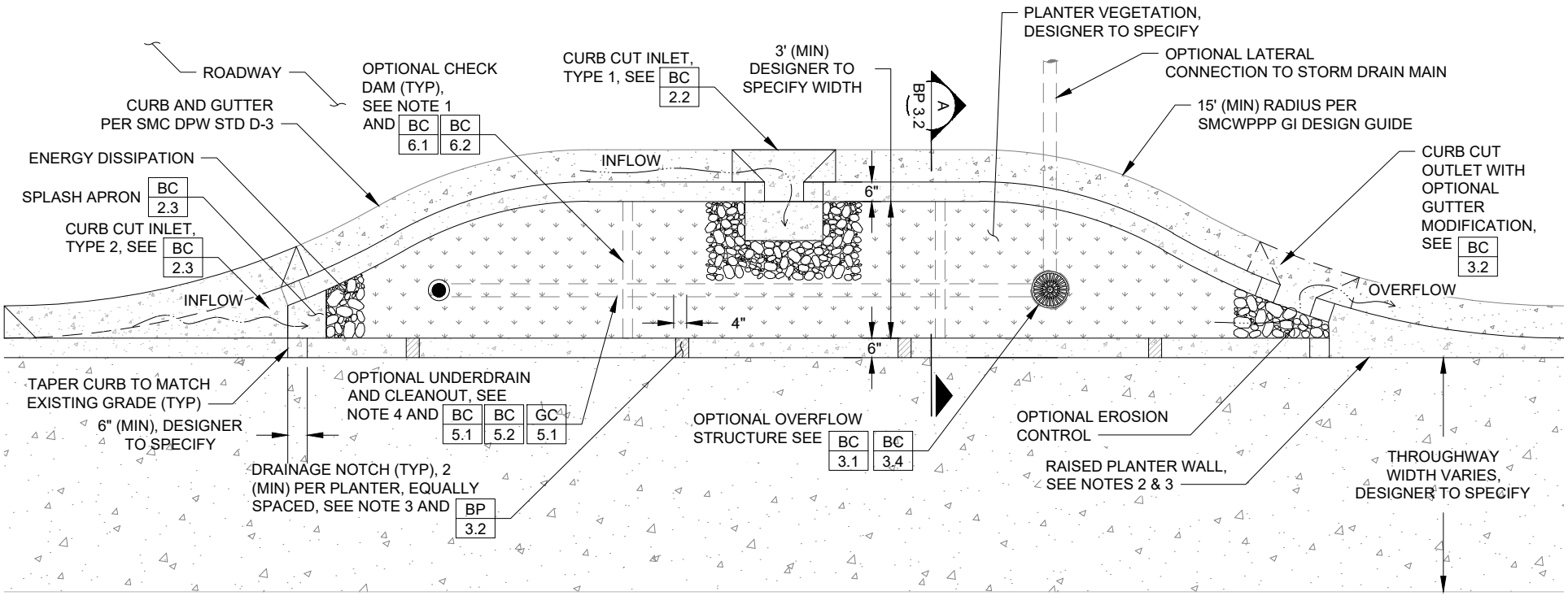
DATE: APRIL 2019
VERSION: 1.0
REVISED:

BIORETENTION PLANTER

STORMWATER BARRIER PLANTER CLASS 4 BIKEWAY - SECTION

DWG NO. **BP 3.4**

NOT FOR CONSTRUCTION - REFER TO USER GUIDE



CONSTRUCTION NOTES:

1. CHECK DAMS (IF NEEDED) SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. SLOPE TOP OF PLANTER WALL TO MATCH LONGITUDINAL SLOPE OF ADJACENT SURFACE.
3. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN SECTIONS		PLAN SECTIONS		ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

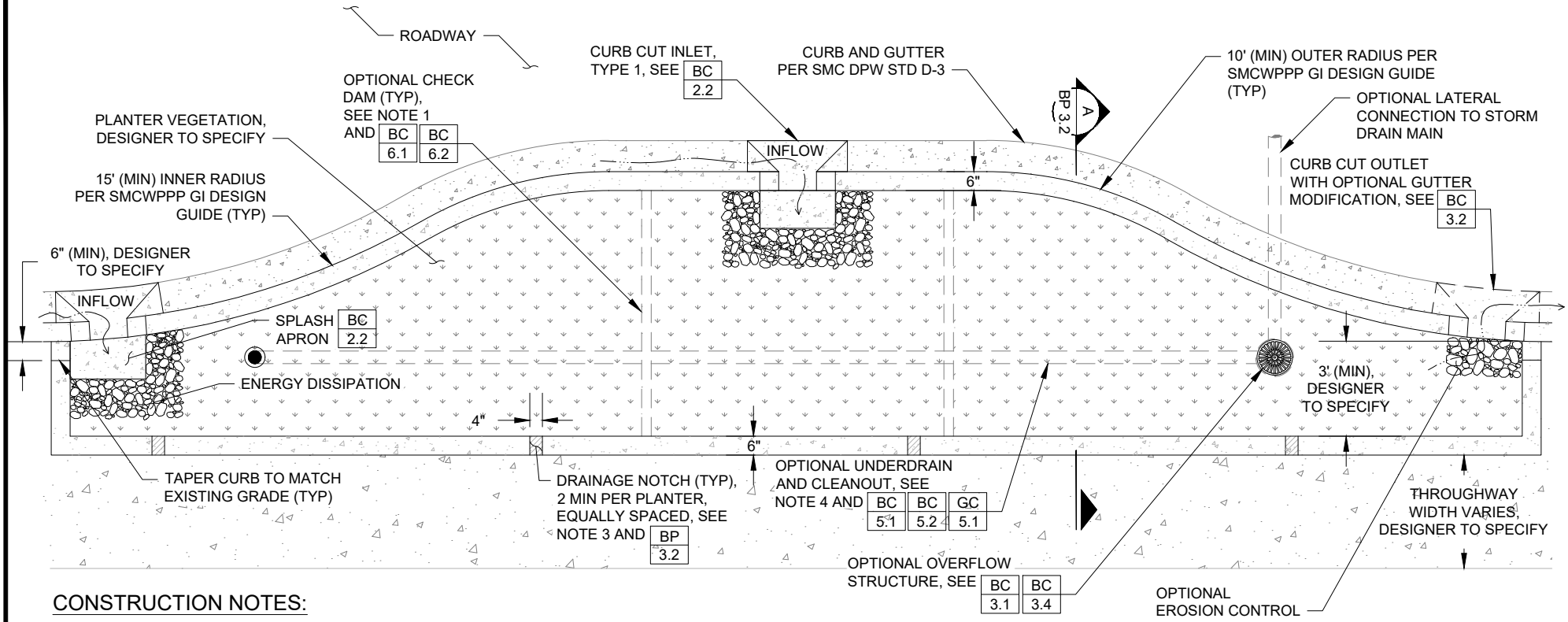
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION PLANTER

STORMWATER CURB EXTENSION ALTERNATIVE 1

FILE NO. BP 4.1



CONSTRUCTION NOTES:

1. CHECK DAMS (IF NEEDED) SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. SLOPE TOP OF PLANTER WALL TO MATCH LONGITUDINAL SLOPE OF ADJACENT SURFACE.
3. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

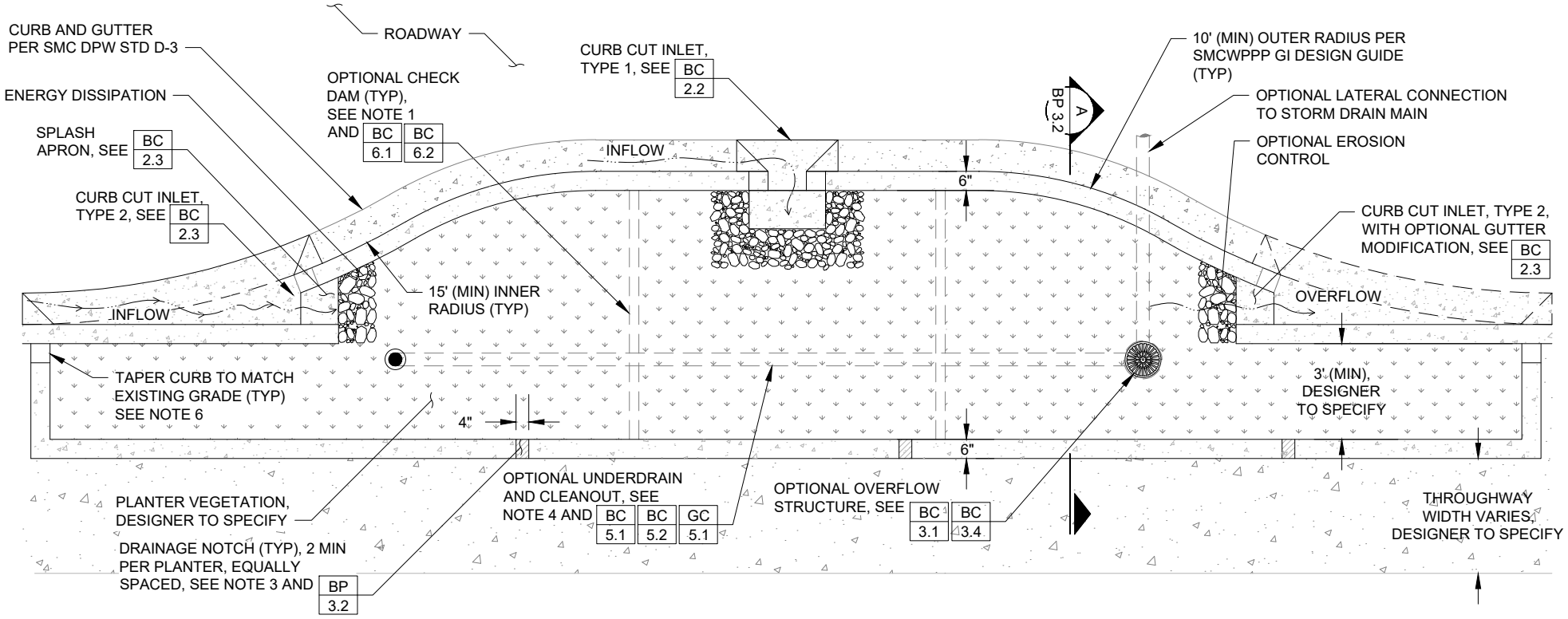
DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION PLANTER

STORMWATER CURB EXTENSION ALTERNATIVE 2

FILE NO. BP 4.2

NOT FOR CONSTRUCTION - REFER TO USER GUIDE



CONSTRUCTION NOTES:

1. CHECK DAMS (IF NEEDED) SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. SLOPE TOP OF PLANTER WALL TO MATCH LONGITUDINAL SLOPE OF ADJACENT SURFACE.
3. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.
6. IF STREET PARKING IS ALLOWED IMMEDIATELY ADJACENT TO THE CURB CUT INLET/OUTLET, THE PLANTER WALL TAPER SHOULD BE LOCATED 18" BEHIND THE FACE OF CURB. COORDINATE WITH SMC DPW.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

JAMES C. PORTER
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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

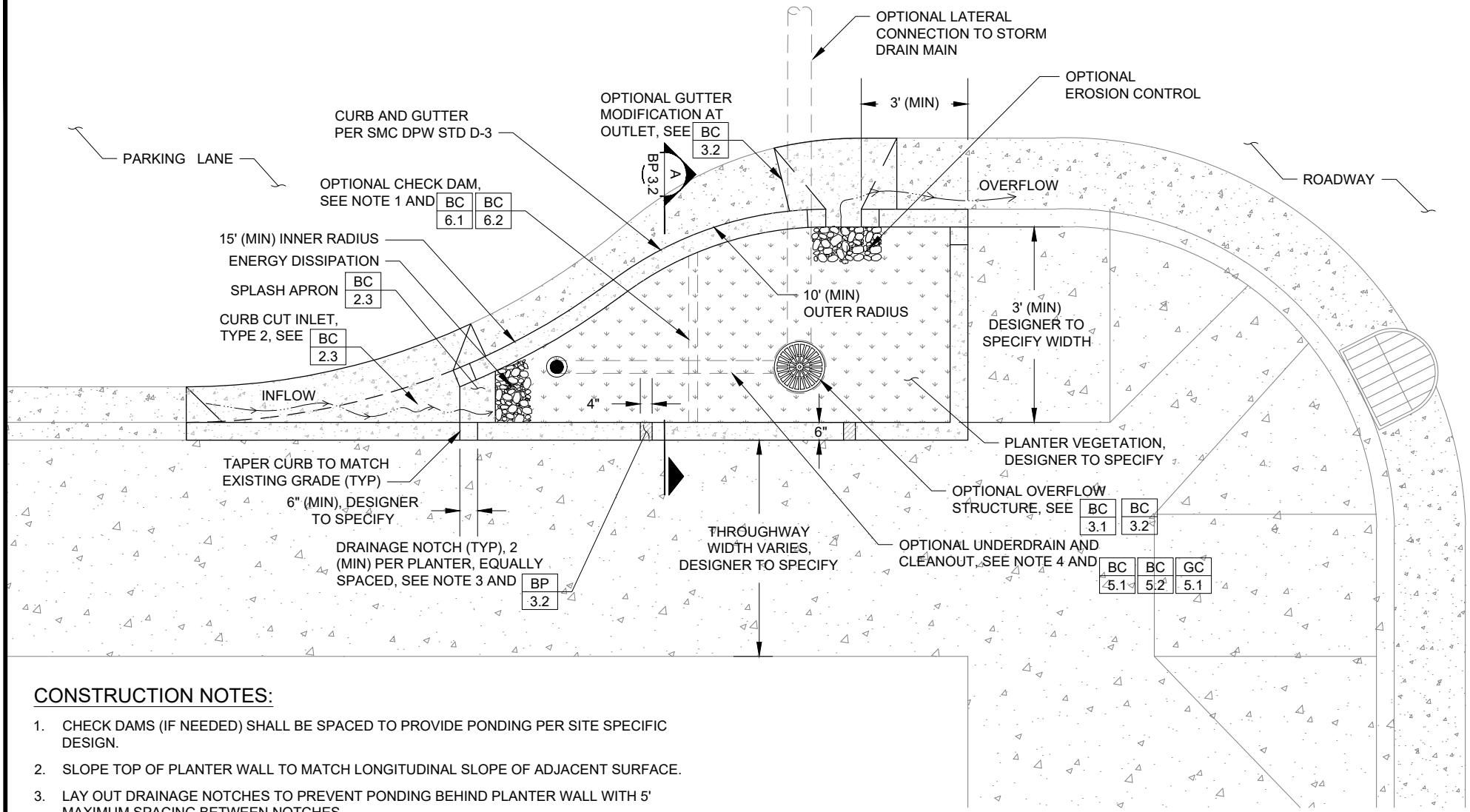
DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION PLANTER

STORMWATER CURB EXTENSION ALTERNATIVE 3

FILE NO. BP 4.3

NOT FOR CONSTRUCTION - REFER TO USER GUIDE



CONSTRUCTION NOTES:

1. CHECK DAMS (IF NEEDED) SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. SLOPE TOP OF PLANTER WALL TO MATCH LONGITUDINAL SLOPE OF ADJACENT SURFACE.
3. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

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VERSION 01
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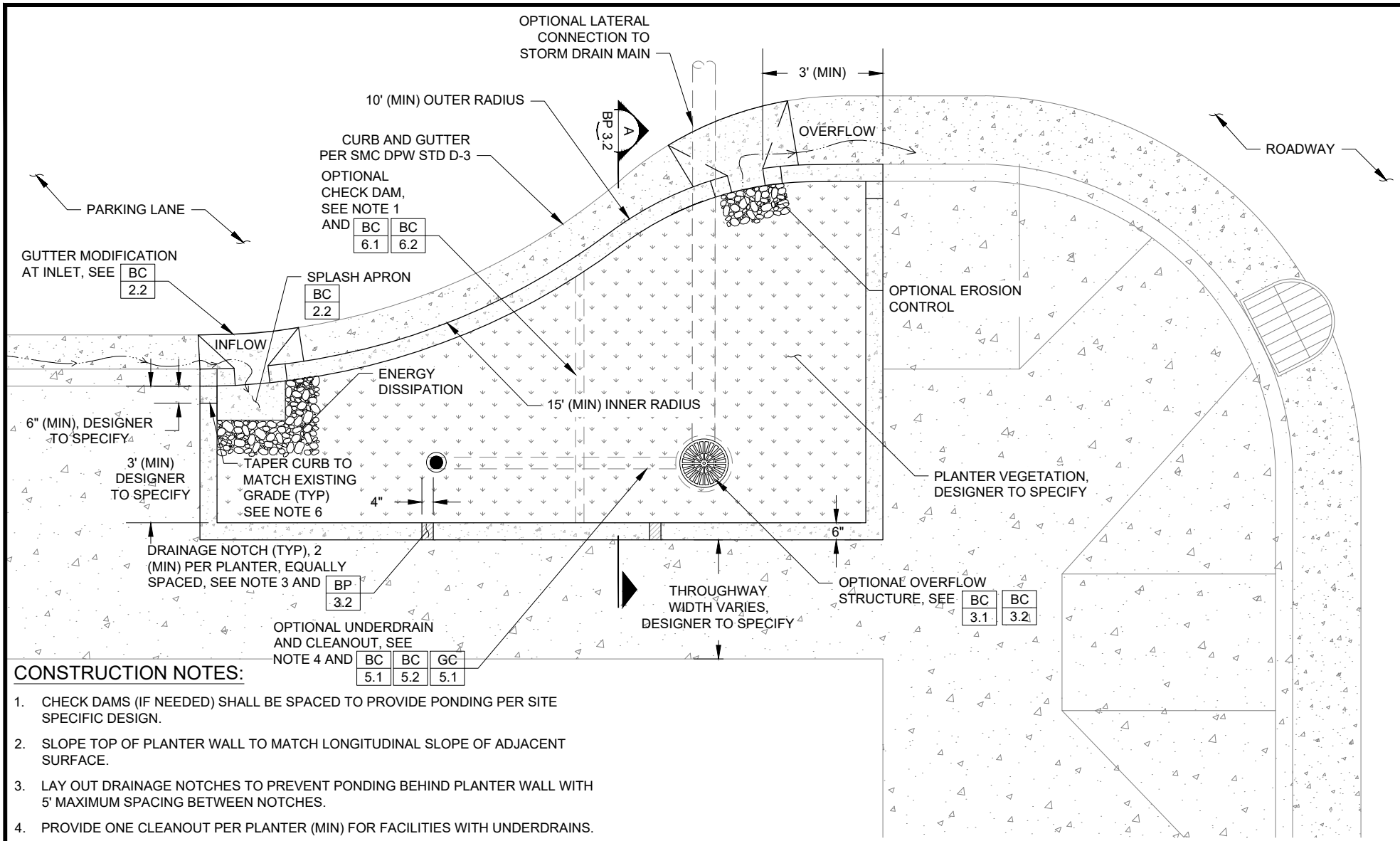
BIORETENTION PLANTER

STORMWATER CURB EXTENSION ALTERNATIVE 4

FILE NO. BP 4.4

NOT FOR CONSTRUCTION - REFER TO USER GUIDE



CONSTRUCTION NOTES:

1. CHECK DAMS (IF NEEDED) SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. SLOPE TOP OF PLANTER WALL TO MATCH LONGITUDINAL SLOPE OF ADJACENT SURFACE.
3. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.
6. IF STREET PARKING IS ALLOWED IMMEDIATELY ADJACENT TO THE CURB CUT INLET/OUTLET, THE PLANTER WALL TAPER SHOULD BE LOCATED 18" BEHIND THE FACE OF CURB. COORDINATE WITH SMC PUBLIC WORKS.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

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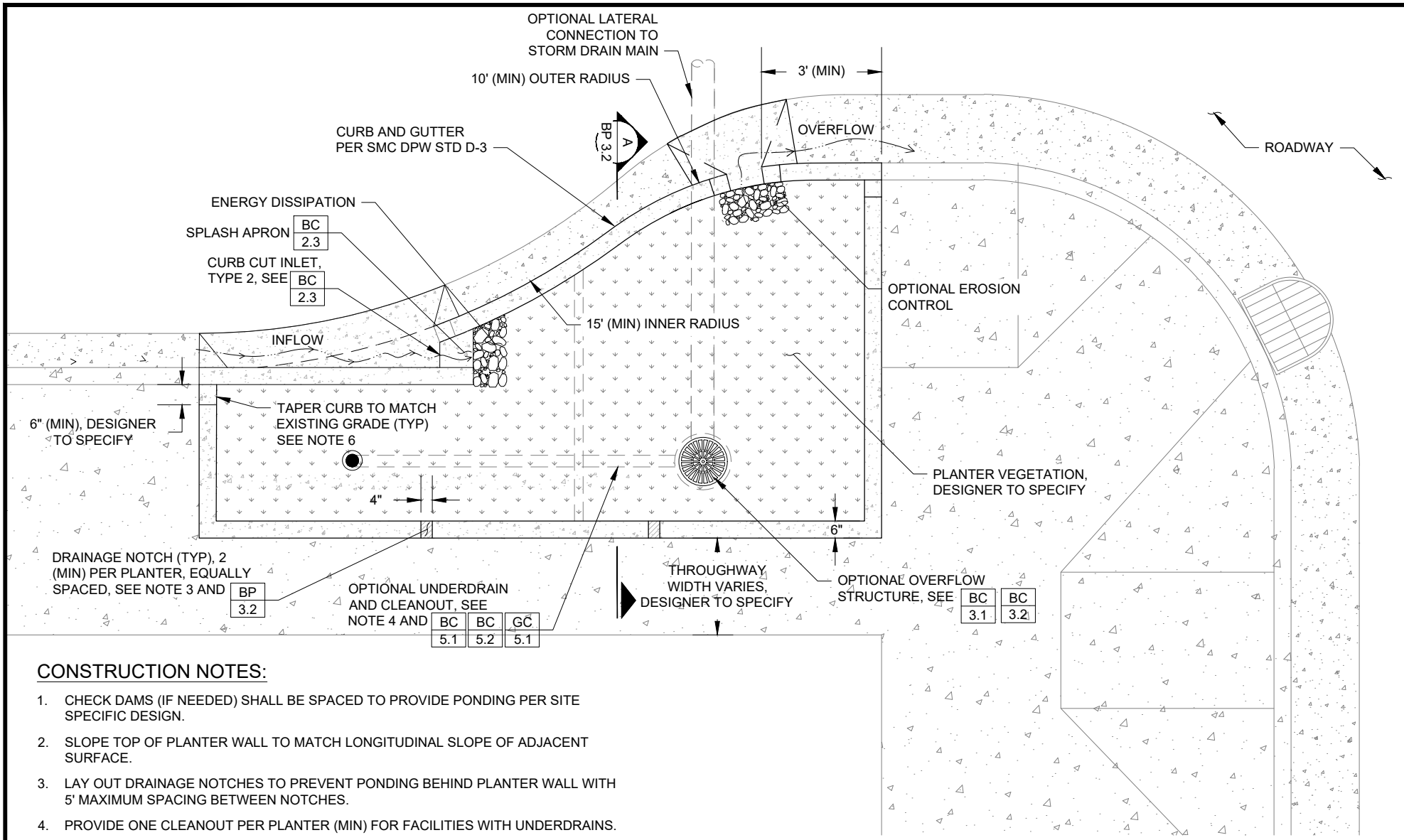
BIORETENTION PLANTER

STORMWATER CURB EXTENSION ALTERNATIVE 5

FILE NO. BP 4.5

NOT FOR CONSTRUCTION - REFER TO USER GUIDE



CONSTRUCTION NOTES:

1. CHECK DAMS (IF NEEDED) SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. SLOPE TOP OF PLANTER WALL TO MATCH LONGITUDINAL SLOPE OF ADJACENT SURFACE.
3. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.
6. IF STREET PARKING IS ALLOWED IMMEDIATELY ADJACENT TO THE CURB CUT INLET/OUTLET, THE PLANTER WALL TAPER SHOULD BE LOCATED 18" BEHIND THE FACE OF CURB. COORDINATE WITH SMC DPW.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

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BIORETENTION PLANTER

STORMWATER CURB EXTENSION ALTERNATIVE 6

FILE NO. BP 4.6

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

PURPOSE:

PARCEL BIORETENTION PLANTERS CONTROL PEAK FLOWS AND VOLUMES OF STORMWATER RUNOFF BY PROVIDING SURFACE, SUBSURFACE STORAGE AND INFILTRATION INTO NATIVE SOIL. WATER IS TREATED AS IT FILTERS THROUGH THE BIOTREATMENT SOIL. BIORETENTION PLANTERS MAY ALSO BE REFERRED TO AS STORMWATER PLANTERS AND INCLUDE 3 TYPES OF PLANTERS: BIOINFILTRATION (UNLINED, NO UNDERDRAIN), BIORETENTION (UNDER-DRAINED) AND FLOW-THROUGH (LINED WITH UNDERDRAIN). ALL TYPES TYPICALLY HAVE VERTICAL SIDE WALLS IN ORDER TO MAXIMIZE WATER STORAGE VOLUME IN CONSTRAINED SITES.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT PLAN AND SECTION DRAWINGS TO ADDRESS BUILDING- AND SITE-SPECIFIC CONDITIONS.
2. THE DESIGNER MUST COMPLY WITH ALL APPLICABLE SITE AND BUILDING CODE REQUIREMENTS FOR ON-SITE ACCESSIBILITY AND SAFETY INCLUDING, BUT NOT LIMITED TO, CURBS, PEDESTRIAN SURFACING, AND GUARDRAILS/FALL HEIGHTS.
3. PLANTER AREA, PONDING DEPTH, BIOTREATMENT SOIL DEPTH, AND AGGREGATE STORAGE DEPTH MUST BE SIZED TO MEET PROJECT-SPECIFIC PERFORMANCE GOALS.
4. FACILITY DRAWDOWN TIME (I.E., TIME FOR SURFACE PONDING TO DRAIN THROUGH THE ENTIRE SECTION INCLUDING AGGREGATE STORAGE AFTER THE END OF A STORM) REQUIREMENTS:
   - 48 HOUR (PREFERRED), 72 HOUR MAXIMUM FACILITY DRAWDOWN (i.e. ORIFICE CONTROLLED SYSTEM OR EXTENDED STORAGE DEPTH WITHIN INFILTRATION SYSTEM)
5. CHECK DAMS MAY BE USED TO TERRACE FACILITIES TO PROVIDE SUFFICIENT PONDING FOR HIGHER-SLOPED INSTALLATIONS. DESIGNER MUST SPECIFY CHECK DAM HEIGHT AND SPACING. REFER TO **BC 6.1** AND **BC 6.2** FOR GUIDANCE ON CHECK DAM DESIGN.
6. PLANTER OVERFLOW STRUCTURES SHALL BE DESIGNED TO CONVEY THE ANTICIPATED DESIGN FLOWS PER SMC REQUIREMENTS.
7. PLANTERS SHALL BE DESIGNED TO OVERFLOW TO THE STREET IN THE EVENT THE PLANTER OUTLET IS OBSTRUCTED OR CLOGGED.
8. MATERIALS FOR PLANTERS MAY VARY TO WORK WITH SITE AND ARCHITECTURAL PALETTE.
9. FACILITIES ADJACENT TO A BUILDING (WITHIN 10 FEET) SHOULD BE LINED TO AVOID NEGATIVE IMPACTS OF WATER AT FOUNDATION. LINER CAN BE OMITTED WITH LETTER FROM LICENSED DESIGN PROFESSIONAL(S) STATING THAT BUILDING WATERPROOFING, STRUCTURAL INTEGRITY, AND STORMWATER FUNCTION IS NOT IMPACTED.
10. FACILITIES MAY BE EXTENDED ABOVE GRADE FOR SEATWALL OR RAISED PLANTER CONFIGURATIONS, IF APPROPRIATE CONVEYANCE MEASURES ARE PROVIDED TO MEET DESIGN REQUIREMENTS.
11. CONVEYANCE CONNECTIONS MAY BE CONFIGURED TO ACCEPT RUNOFF VIA OVERHEAD CONVEYANCE (DOWNSPOUTS, OVERHEAD RUNNELS), SURFACE FLOW (CHANNELS), OR SUBSURFACE CONVEYANCE (PIPES, TRENCH DRAINS). REFER TO APPLICABLE SMC PLANNING AND BUILDING CODES FOR CONVEYANCE CONNECTION REQUIREMENTS.
12. CONVEYANCE CONNECTIONS (E.G. SCUPPER, CHANNEL, PIPE) SHALL BE SIZED TO ACCOMMODATE DRAINAGE FROM ROOF AREA WITH ADEQUATE FREEBOARD TO AVOID OVERFLOWING. REFER TO APPLICABLE SMC PLANNING AND BUILDING CODES FOR CONVEYANCE CONNECTION REQUIREMENTS.
13. UNDERDRAINS REQUIRED ON STRUCTURE TO DRAIN PLANTER AND AVOID ACCUMULATION OF WATER ON STRUCTURE WATERPROOFING SYSTEM.
14. OVERFLOW STRUCTURE (MATERIAL AND WORKMANSHIP) SHALL CONFORM TO APPLICABLE SMC PLANNING, BUILDING AND PUBLIC WORKS CODES AND REQUIREMENTS. SIZE AND MODEL OF ATRIUM GRATE AT OVERFLOW TO BE DETERMINED BY ENGINEER TO ENSURE CONVEYANCE OF PEAK FLOW.
15. THE DESIGNER MUST EVALUATE UTILITY SURVEYS FOR POTENTIAL UTILITY CROSSINGS OR CONFLICTS. REFER TO **GC 2.1** - **GC 2.12** FOR UTILITY CROSSING DETAILS AND **GC 1.4** - **GC 4.4** FOR UTILITY CROSSING CONFLICT DETAILS.
18. REFER TO SMC PLANNING AND BUILDING CODES FOR CURB AND/OR RAILING REQUIREMENTS.
19. FREEBOARD REQUIREMENTS SHOWN SHOULD BE USED AS GUIDELINES BUT THE DESIGNER SHALL REFER TO THE SMCWPPP C.3 TECHNICAL GUIDANCE MANUAL FOR ADDITIONAL FREEBOARD REQUIREMENTS, ESPECIALLY WHERE THE BIORETENTION PLANTER IS LOCATED IN A SUMP AND DEPENDS ON OUTFLOW THROUGH AN OVERFLOW STRUCTURE/CATCH BASIN.

NOTES		NOTES W/ PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS								
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN		SECTIONS				
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6	BP 5.7		

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GREEN INFRASTRUCTURE TYPICAL DETAILS
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BIORETENTION PLANTER
PARCEL PLANTER
DESIGNER NOTES (1of2)

FILE NO. BP 5.1

LAYOUT REQUIREMENTS:

THE DESIGNER MUST COMPLY WITH ALL STORMWATER, LAND USE, AND BUILDING CODE REQUIREMENTS:

1. ADHERE TO ALL CODES FOR ACCESSIBILITY REQUIRED FOR PARCEL LEVEL DEVELOPMENT
2. PARCEL PLANTERS SHOULD NOT INTERFERE WITH OTHER LAND USE REQUIREMENTS SUCH AS BUFFERING AND SCREENING, SETBACKS, SIGHT DISTANCE, AND MINIMUM SITE COVERAGE.
3. DESIGNER MUST COMPLY WITH ALL CURRENT LOCAL CODES, INCLUDING BUT NOT LIMITED TO:
   - COUNTY OF SAN MATEO STORMWATER AND DRAINAGE ORDINANCE
   - COUNTY OF SAN MATEO PLANNING ORDINANCE
   - CALIFORNIA BUILDING CODE
   - COUNTY OF SAN MATEO BUILDING CODE AMENDMENTS
   - ADA STANDARDS FOR ACCESSIBLE DESIGN

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ PLANTER WIDTH AND LENGTH
- ☐ DEPTH OF PONDING
- ☐ DEPTH OF FREEBOARD
- ☐ DEPTH OF BIOTREATMENT SOIL
- ☐ DEPTH AND TYPE OF GRAVEL STORAGE
- ☐ PLANTER SURFACE ELEVATION (TOP OF BIOTREATMENT SOIL) AT UPSLOPE AND DOWNSLOPE ENDS OF FACILITY
- ☐ CONTROL POINTS AT EVERY PLANTER WALL CORNER OR POINT OF TANGENCY
- ☐ DIMENSIONS AND DISTANCE TO EVERY INLET, OUTLET, CHECK DAM, SIDEWALK NOTCH, ETC.
- ☐ ELEVATIONS OF EVERY INLET, OUTLET, STRUCTURE RIM AND INVERT, CLEAN OUT, PLANTER WALL CORNER, AND SIDEWALK NOTCH
- ☐ TYPE AND DESIGN OF PLANTER COMPONENTS (E.G., EDGE TREATMENTS, INLETS/GUTTER MODIFICATIONS, UTILITY CROSSINGS, LINER, AND PLANTING DETAILS).
- ☐ OVERFLOW STRUCTURE AND ATRIUM GRATE SIZE AND MODEL NUMBER

RELATED COMPONENTS

EDGE TREATMENTS:	BC 1.1	BC 1.7
INLETS:	BC 2.1	BC 2.4
OUTLETS:	BC 3.1	BC 3.4
SOIL & AGGREGATE LAYERS:		BC 4.2
UNDERDRAINS:	BC 5.1	BC 5.2
CHECK DAMS:	BC 6.1	BC 6.2
LINERS:	GC 1.1	GC 1.2
UTILITY CROSSINGS:	GC 2.1	GC 2.12
UTILITY CONFLICTS:	GC 3.1	GC 3.3
OBSERVATION PORTS:	GC 4.1	GC 4.4
CLEANOUTS:		GC 5.2

RELATED SPECIFICATIONS

BIORETENTION:
BIOTREATMENT SOIL MIX PER BASMAA SPECIFICATIONS (SEE SMCWPPP C.3 REGULATED PROJECTS GUIDE APPENDIX K)

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN SECTIONS		PLAN SECTIONS		ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN	SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6

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COUNTY OF SAN MATEO

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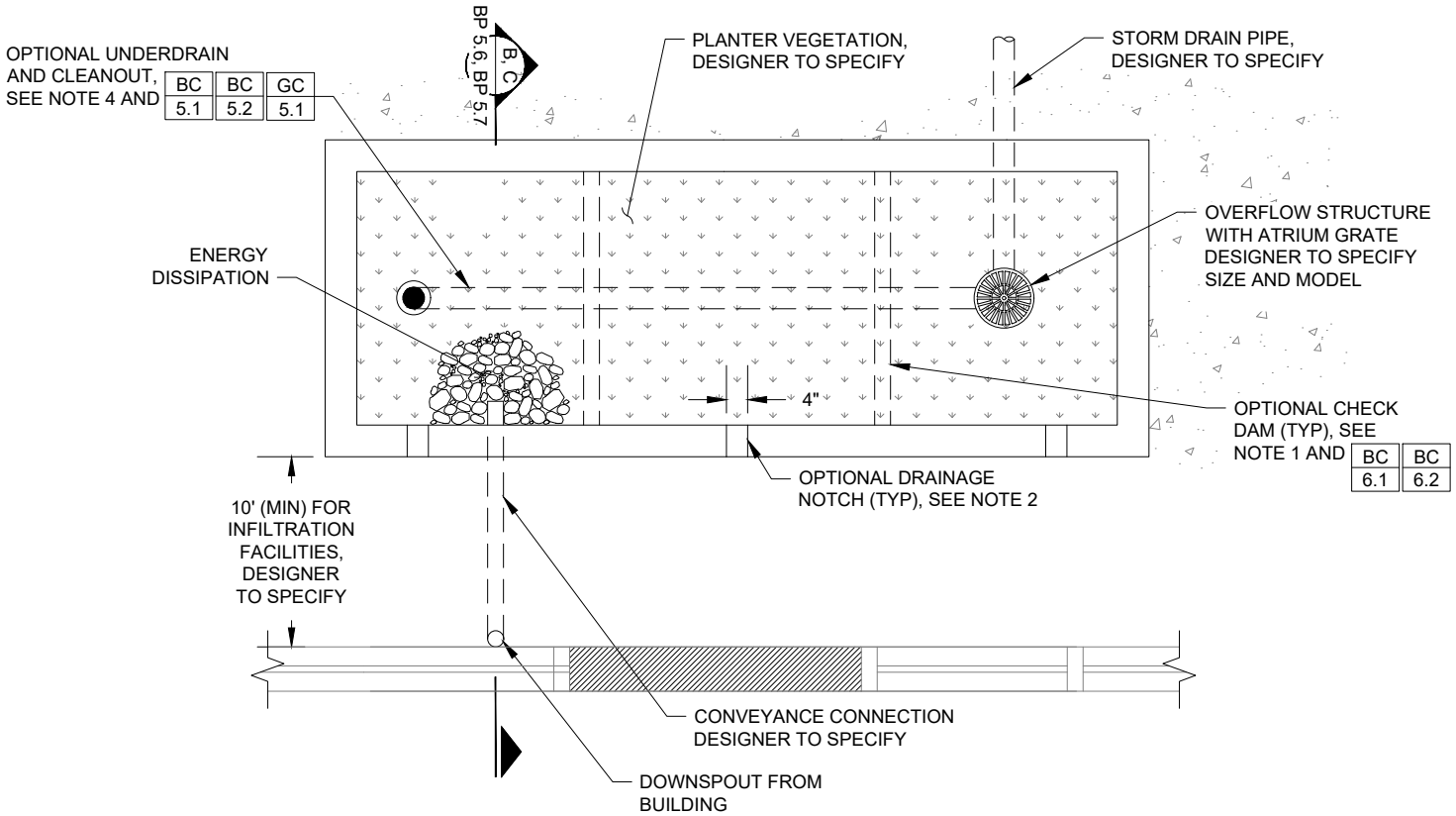
BIORETENTION PLANTER

PARCEL PLANTER
DESIGNER NOTES (2of2)

FILE NO.
BP 5.2



PLAN - ALTERNATIVE 1 (1)

CONSTRUCTION NOTES:

1. CHECK DAMS SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES .
3. COORDINATE WATERPROOFING AT BUILDINGS WITH ARCHITECT AND ENGINEER.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS							
		PLAN SECTIONS		PLAN SECTIONS		ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN		SECTIONS			
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6	BP 5.7	

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BIORETENTION PLANTER

PARCEL PLANTER PLAN
ALTERNATIVE 1

FILE NO. BP 5.3

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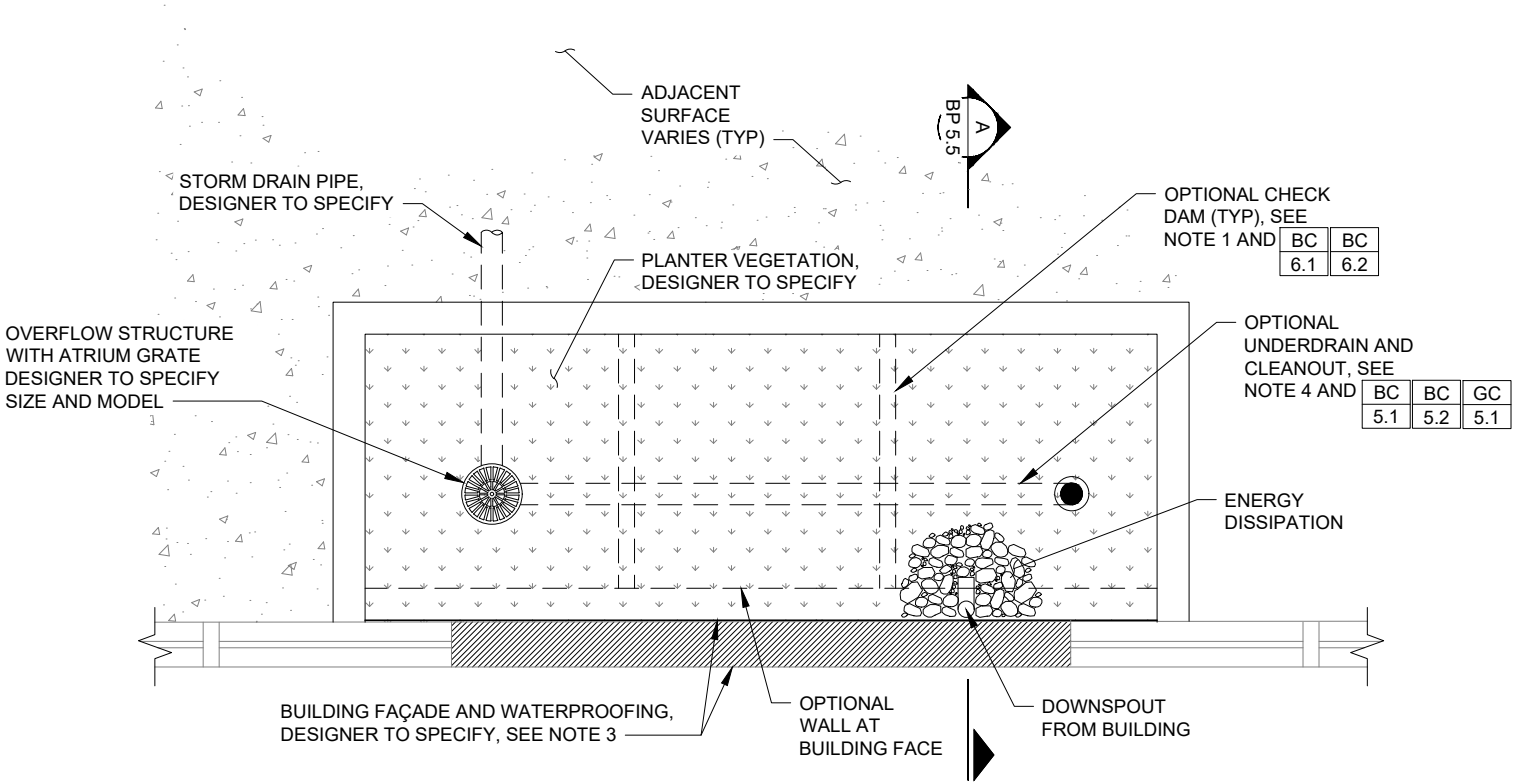

PLAN - ALTERNATIVE 2 (1)

CONSTRUCTION NOTES:

1. CHECK DAMS SHALL BE SPACED TO PROVIDE PONDING PER SITE SPECIFIC DESIGN.
2. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL WITH 5' MAXIMUM SPACING BETWEEN NOTCHES .
3. COORDINATE WATERPROOFING AT BUILDINGS WITH ARCHITECT AND ENGINEER.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS								
		PLAN SECTIONS		PLAN SECTIONS		ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN		SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6	BP 5.7

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BIORETENTION PLANTER

PARCEL PLANTER
PLAN ALTERNATIVE 2

FILE NO. BP 5.4

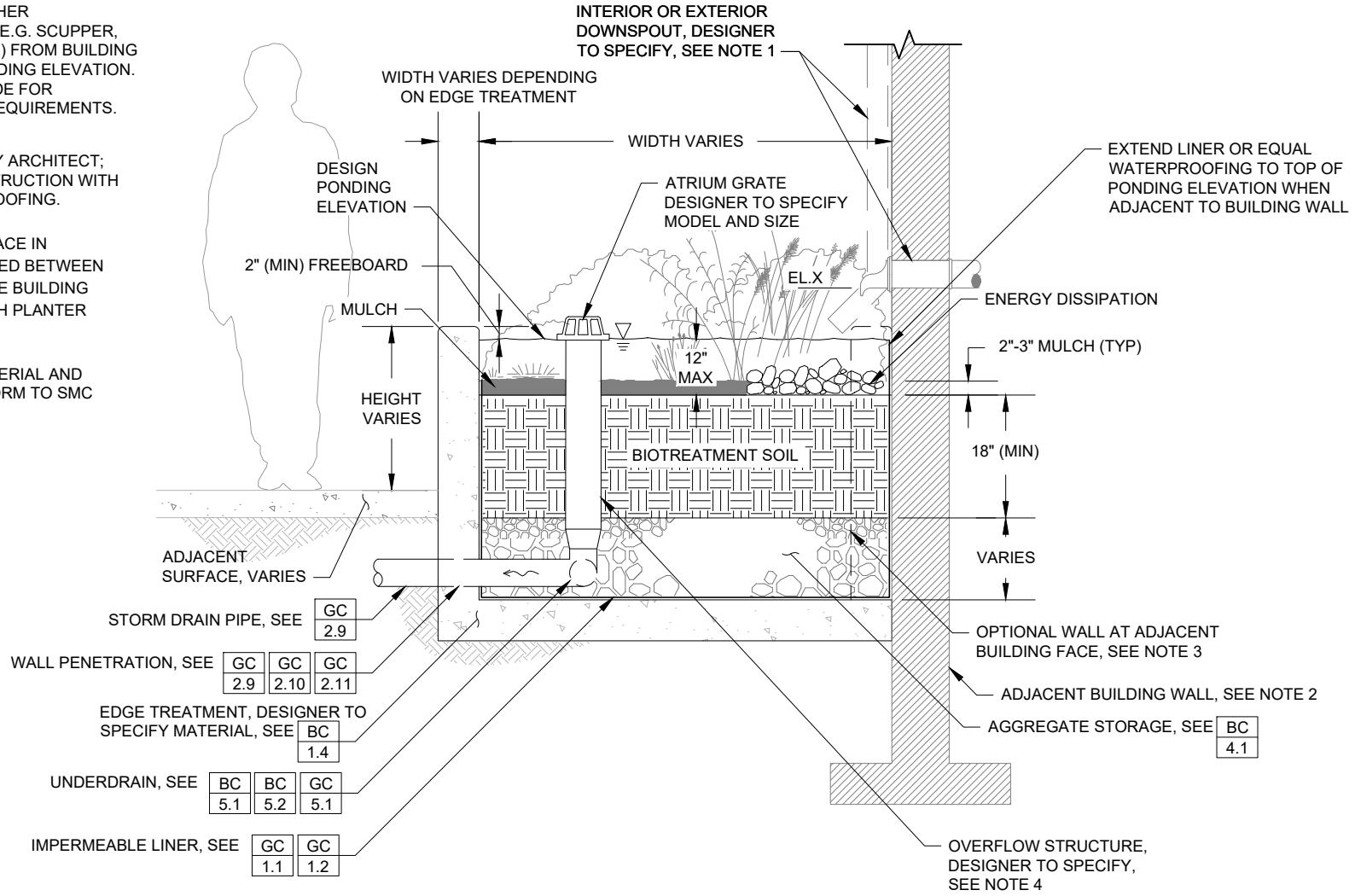
CONSTRUCTION NOTES:

1. INSTALL DOWNSPOUTS OR OTHER CONVEYANCE CONNECTIONS (E.G. SCUPPER, CHANNEL, OVERHEAD RUNNEL) FROM BUILDING TO DRAIN ABOVE DESIGN PONDING ELEVATION. REFER TO SMC PLUMBING CODE FOR CONVEYANCE CONNECTION REQUIREMENTS.

2. BUILDING WATERPROOFING BY ARCHITECT; COORDINATE PLANTER CONSTRUCTION WITH BUILDING FAÇADE / WATERPROOFING.

3. PROVIDE WALL AT BUILDING FACE IN CASES WHERE GAP IS REQUIRED BETWEEN WALL AND PLANTER OR WHERE BUILDING FAÇADE IS INCOMPATIBLE WITH PLANTER CONFIGURATION.

4. OVERFLOW STRUCTURE (MATERIAL AND WORKMANSHIP) SHALL CONFORM TO SMC PLUMBING CODE.



SECTION - RAILED BIORETENTION PLANTER (A)

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN		SECTIONS	
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6	BP 5.7

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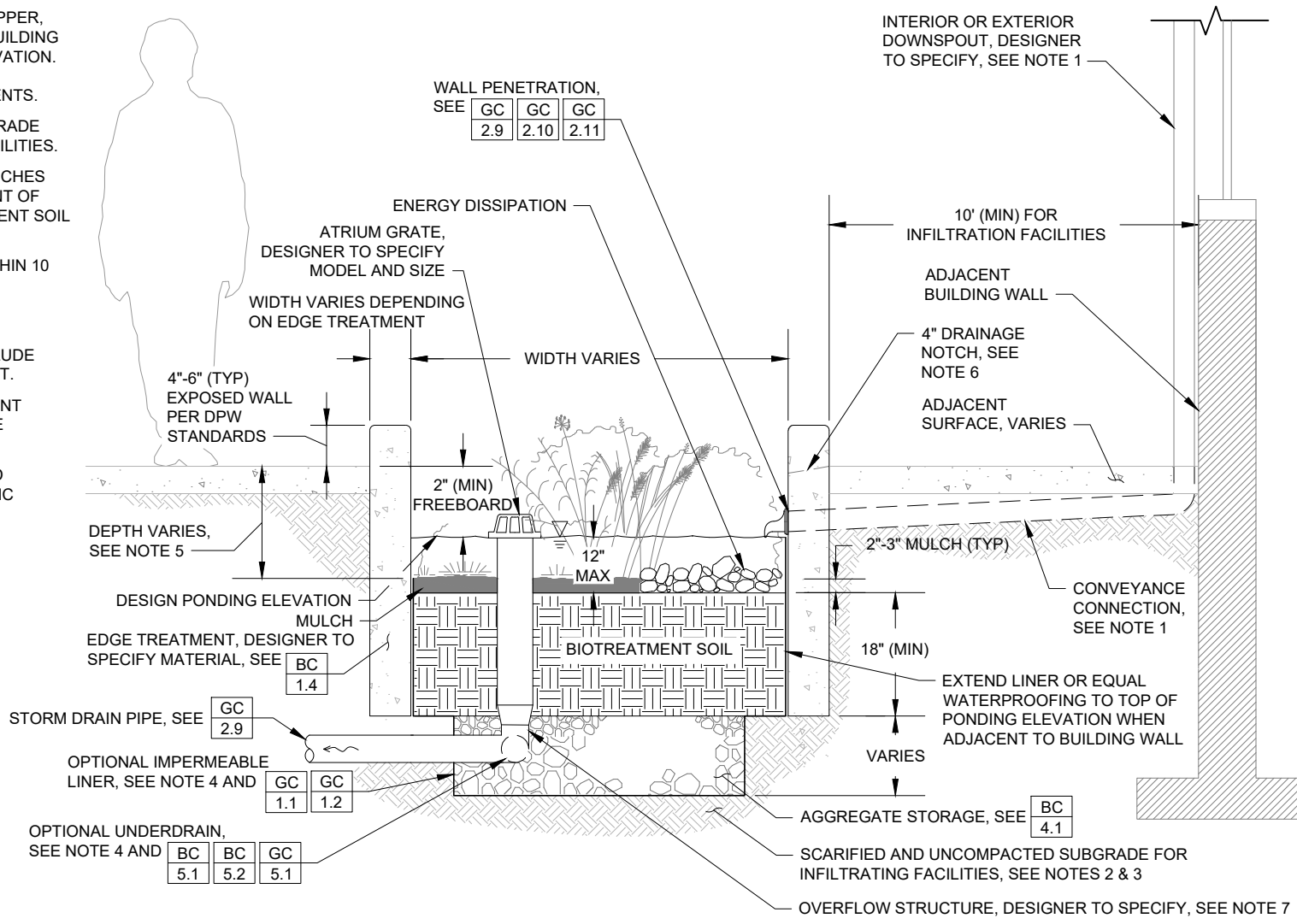
BIORETENTION PLANTER

PARCEL PLANTER
RAISED PLANTER SECTION

FILE NO.
BP 5.5

CONSTRUCTION NOTES:

1. INSTALL DOWNSPOUTS AND OTHER CONVEYANCE CONNECTIONS (E.G. SCUPPER, CHANNEL, OVERHEAD RUNNEL) FROM BUILDING TO DRAIN ABOVE DESIGN PONDING ELEVATION. REFER TO SMC PLUMBING CODE FOR CONVEYANCE CONNECTION REQUIREMENTS.
2. AVOID COMPACTION OF EXISTING SUBGRADE BELOW PLANTER FOR INFILTRATION FACILITIES.
3. SCARIFY SUBGRADE TO A DEPTH OF 3 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF AGGREGATE STORAGE AND BIOTREATMENT SOIL MATERIALS.
4. UNDERDRAIN AND LINER REQUIRED WITHIN 10 FEET OF BUILDING ENVELOPE UNLESS APPROVED PER DESIGNER.
5. MAXIMUM DROP FROM TOP OF WALKING SURFACE TO TOP OF MULCH SHALL INCLUDE CONSIDERATIONS FOR SOIL SETTLEMENT.
6. LAY OUT DRAINAGE NOTCHES TO PREVENT PONDING BEHIND PLANTER WALL. SLOPE NOTCHES TO DRAIN TO PLANTER.
7. OVERFLOW STRUCTURE (MATERIAL AND WORKMANSHIP) SHALL CONFORM TO SMC PLUMBING CODE.



SECTION - SURFACE BIORETENTION PLANTER (B)

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS								
		PLAN	SECTIONS	PLAN	SECTIONS	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN		SECTIONS		
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6	BP 5.7

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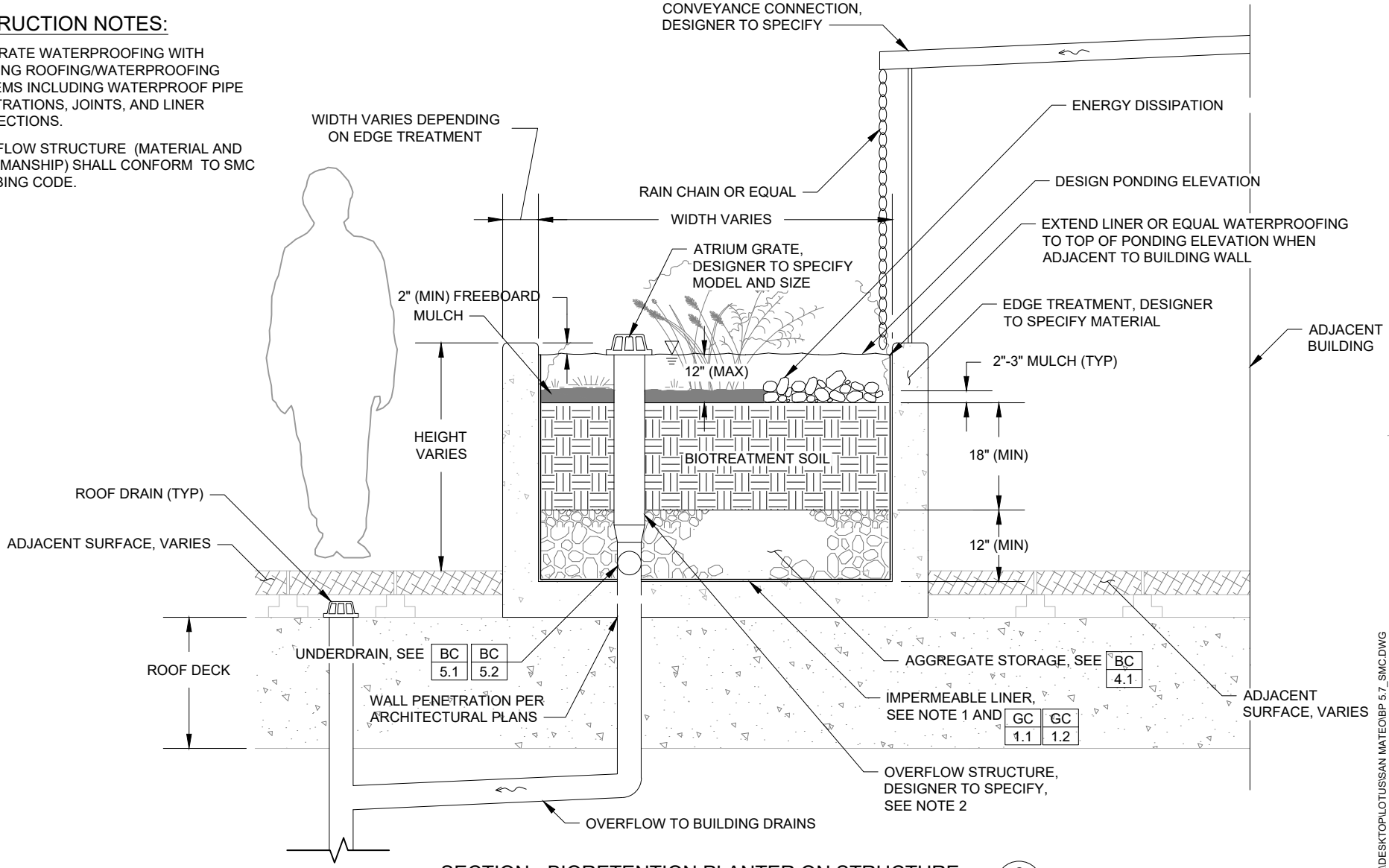
BIORETENTION PLANTER

PARCEL PLANTER
AT-GRADE PLANTER SECTION

FILE NO. BP 5.6

CONSTRUCTION NOTES:

1. INTEGRATE WATERPROOFING WITH BUILDING ROOFING/WATERPROOFING SYSTEMS INCLUDING WATERPROOF PIPE PENETRATIONS, JOINTS, AND LINER CONNECTIONS.
2. OVERFLOW STRUCTURE (MATERIAL AND WORKMANSHIP) SHALL CONFORM TO SMC PLUMBING CODE.



SECTION - BIORETENTION PLANTER ON STRUCTURE (C)

NOTES		W/PARKING		W/O PARKING		CURB EXTENSION						PARCEL APPLICATIONS					
		PLAN SECTIONS		PLAN SECTIONS		ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6	NOTES		PLAN		SECTIONS	
BP 1.1	BP 1.2	BP 2.1	BP 2.2	BP 3.1	BP 3.2	BP 4.1	BP 4.2	BP 4.3	BP 4.4	BP 4.5	BP 4.6	BP 5.1	BP 5.2	BP 5.3	BP 5.4	BP 5.5	BP 5.6	BP 5.7

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BIORETENTION PLANTER

PARCEL PLANTER
PLANTER ON STRUCTURE SECTION

FILE NO. BP 5.7

PURPOSE:

BIORETENTION BASINS CAPTURE AND TREAT STORMWATER RUNOFF VIA SURFACE AND SUBSURFACE STORAGE, FILTRATION THROUGH BIOTREATMENT SOIL, AND INFILTRATION INTO NATIVE SOIL WHERE FEASIBLE. BIORETENTION BASINS MAY ALSO BE REFERRED TO AS RAIN GARDENS AND INCLUDE 3 TYPES OF PLANTERS: INFILTRATION (NO UNDERDRAIN), BIORETENTION (UNDER-DRAINED) AND FLOW THROUGH (LINED WITH UNDERDRAIN).

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT PLAN AND SECTION DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. FACILITY AREA, PONDING DEPTH, BIOTREATMENT SOIL DEPTH, AND AGGREGATE STORAGE DEPTH MUST BE SIZED TO MEET PROJECT HYDROLOGIC PERFORMANCE GOALS.
3. FACILITY DRAWDOWN TIME (I.E., TIME FOR SURFACE PONDING TO DRAIN THROUGH THE ENTIRE SECTION INCLUDING AGGREGATE STORAGE AFTER THE END OF A STORM) REQUIREMENTS:
   - 48 HOUR (PREFERRED), 72 HOUR MAXIMUM FACILITY DRAWDOWN (i.e. ORIFICE CONTROLLED SYSTEM OR EXTENDED STORAGE DEPTH WITHIN INFILTRATION SYSTEM).
4. AN AGGREGATE COURSE IS REQUIRED UNDER THE BIOTREATMENT SOIL FOR BIORETENTION IN SEPARATE SEWER SYSTEM AREAS TO PROVIDE ADDITIONAL TREATMENT. SEE GUIDANCE ON BC 4.1.
5. CHECK DAMS MAY BE USED TO TERRACE FACILITIES TO PROVIDE SUFFICIENT PONDING FOR HIGHER-SLOPED INSTALLATIONS. DESIGNER MUST SPECIFY CHECK DAM HEIGHT AND SPACING. REFER TO **BC 6.1** AND **BC 6.2** FOR GUIDANCE ON CHECK DAM DESIGN.
6. THE FOLLOWING GUIDELINES APPLY TO RIGHT-OF-WAY APPLICATIONS:
   - BULBOUT CURB RADIUS SHALL BE 15' (MIN) PER SMCWPPP GI DESIGN GUIDE.
   - WHEN FACILITY CONSTRUCTION IMPACTS EXISTING SIDEWALK, ALL SAW CUTS MUST ADHERE TO SMC REQUIREMENTS. SAW CUTS SHOULD BE ALONG SCORE LINES AND ANY DISTURBED SIDEWALK FLAGS SHOULD BE REPLACED IN THEIR ENTIRETY.
   - DESIGNER TO SPECIFY TRANSITION OF PLANTER TO TOP OF CURB ELEVATION BETWEEN CURB CUTS OR CONTINUOUS 6 INCH REVEAL AT CURB EDGE.
7. UP TO TWO PLANTERS MAY BE CONNECTED IN SERIES, IN LIEU OF MULTIPLE INLETS, PROVIDED THE CONNECTION IS A TRENCH DRAIN OR EQUAL SURFACE CONVEYANCE AND IS ADEQUATELY SIZED TO CONVEY FLOWS.
8. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT JURISDICTIONAL ASSET PROTECTION STANDARDS. IN THE ABSENCE OF THESE STANDARDS, THE DESIGNER SHALL REFER TO CHAPTER 3 OF SMCWPPP GI DESIGN GUIDE FOR BEST PRACTICES AND COORDINATE DIRECTLY WITH RELEVANT UTILITY PROVIDERS FOR REQUIREMENTS. SEE UTILITY CROSSINGS (**GC 2.1 - GC 2.12**) AND UTILITY CONFLICTS (**GC 4.1 - GC 4.4**).
9. FREEBOARD REQUIREMENTS SHOWN SHOULD BE USED AS GUIDELINES BUT THE DESIGNER SHALL REFER TO THE C.3 TECHNICAL GUIDANCE MANUAL FOR ADDITIONAL FREEBOARD REQUIREMENTS, ESPECIALLY WHERE THE BIORETENTION BASIN IS LOCATED IN A SUMP AND DEPENDS ON OUTFLOW THROUGH AN OVERFLOW STRUCTURE/CATCH BASIN.

RELATED SPECIFICATIONS

BIORETENTION:
BIOTREATMENT SOIL MIXPER BASMAA SPECIFICATIONS (SEE SMCWPPP C.3 REGULATED PROJECTS GUIDE APPENDIX K)

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ FACILITY WIDTH, LENGTH, SLOPES (INCLUDING SIDE, CROSS, AND LONGITUDINAL), AND SHAPE
- ☐ DEPTH OF BIOTREATMENT SOIL
- ☐ DEPTH AND TYPE OF GRAVEL STORAGE, IF ANY
- ☐ PLANTER SURFACE ELEVATION (TOP OF BIOTREATMENT SOIL) AT UPSLOPE AND DOWNSLOPE ENDS OF FACILITY
- ☐ CONTROL POINTS AT EVERY CORNER OF FACILITY AND POINT OF TANGENCY
- ☐ DIMENSIONS AND DISTANCE TO EVERY INLET, OUTLET, CHECK DAM, SIDEWALK NOTCH, ETC.
- ☐ ELEVATIONS OF EVERY INLET, OUTLET, STRUCTURE RIM AND INVERT, CHECK DAM, AND SIDEWALK NOTCH
- ☐ TYPE AND DESIGN OF FACILITY COMPONENTS (E.G., EDGE TREATMENTS, INLETS/GUTTER MODIFICATIONS, UTILITY CROSSINGS, LINER, AND PLANTING DETAILS)

RELATED COMPONENTS

EDGE TREATMENTS:	BC 1.1	BC 1.7
INLETS:	BC 2.1	BC 2.4
OUTLETS:	BC 3.1	BC 3.4
SOIL & AGGREGATE LAYERS:		BC 4.1
UNDERDRAINS:	BC 5.1	BC 5.2
CHECK DAMS:	BC 6.1	BC 6.2
LINERS:	GC 1.1	GC 1.2
UTILITY CROSSINGS:	GC 2.1	GC 2.12
UTILITY CONFLICTS:	GC 3.1	GC 3.3
OBSERVATION PORTS:	GC 4.1	GC 4.4
CLEANOUTS:		GC 5.2

LAYOUT REQUIREMENTS:

1. FOR RIGHT-OF-WAY APPLICATIONS, REFER TO THE SMC DPW STANDARD DRAWINGS AND SPECIFICATIONS FOR CONSTRUCTION FOR COURTESY STRIP, THROUGHWAY, PARKING SPACE AND ACCESSIBLE PATH REQUIREMENTS.
2. LOCATE CURB CUTS AND GUTTER MODIFICATIONS TO AVOID CONFLICTS WITH ACCESSIBILITY REQUIREMENTS (E.G., LOCATE OUTSIDE OF CROSSWALKS).

NOTES	SECTIONS		
BB 1.1	BB 2.1	BB 2.1.1	BB 2.2

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

FILENAME: C:\USERS\USER\DESKTOP\LOTUS\SAN MATEO\BB 1.1_SMC.DWG

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

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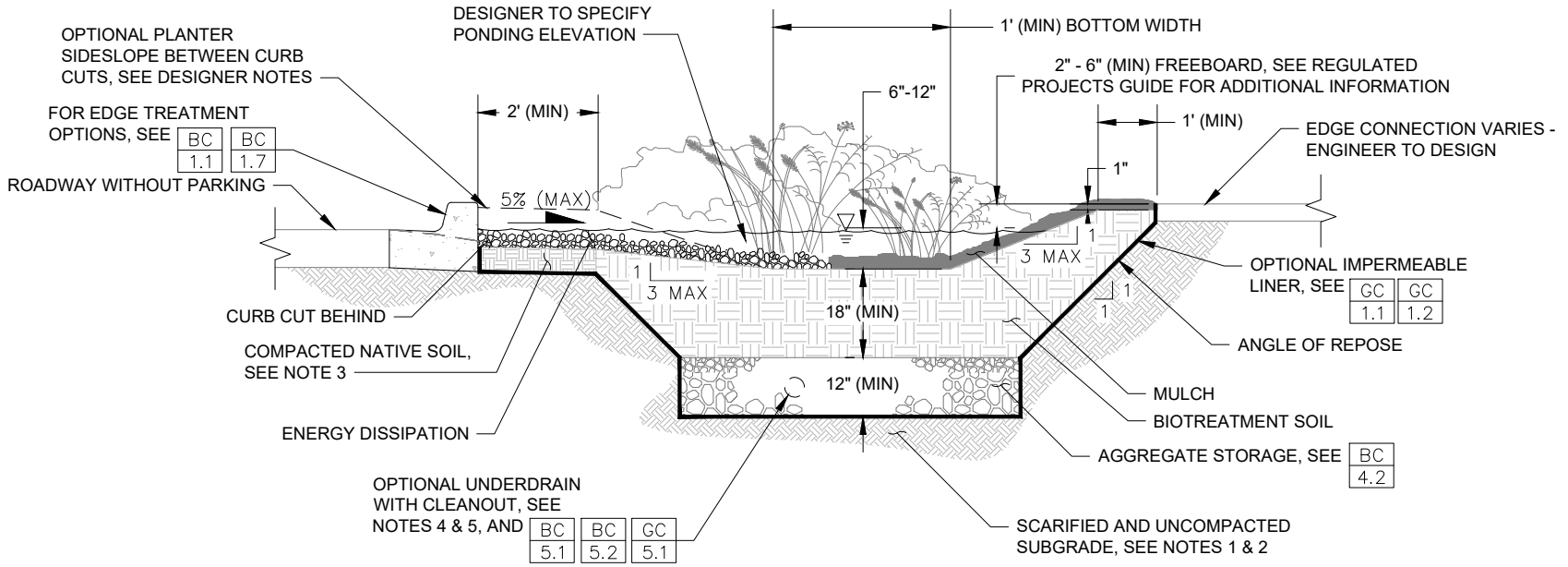
BIORETENTION BASIN

DESIGNER NOTES

FILE NO. BB 1.1



CONSTRUCTION NOTES:

1. AVOID COMPACTION OF EXISTING SUBGRADE BELOW BASIN.
2. SCARIFY SUBGRADE TO A DEPTH OF 3 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF AGGREGATE STORAGE AND BIOTREATMENT SOIL MATERIALS.
3. COMPACT SOIL IMMEDIATELY BEHIND CURB TO 90% OF MAXIMUM DENSITY PER STANDARD PROCTOR TEST (ASTM D698).
4. UNDERDRAIN REQUIRED FOR ALL FACILITIES WITH IMPERMEABLE LINER.
5. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
6. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT JURISDICTION PROTECTION STANDARDS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.
7. GEOTECHNICAL OR HYDROLOGIST ENGINEER TO DETERMINE IF LINER SHALL BE USED.
8. ANGLE OF REPOSE MAY VARY BASED ON GEOTECHNICAL ENGINEER RECOMMENDATIONS.

NOTES: BB 1.1
SECTIONS: BB 2.1 | BB 2.1.1 | BB 2.2

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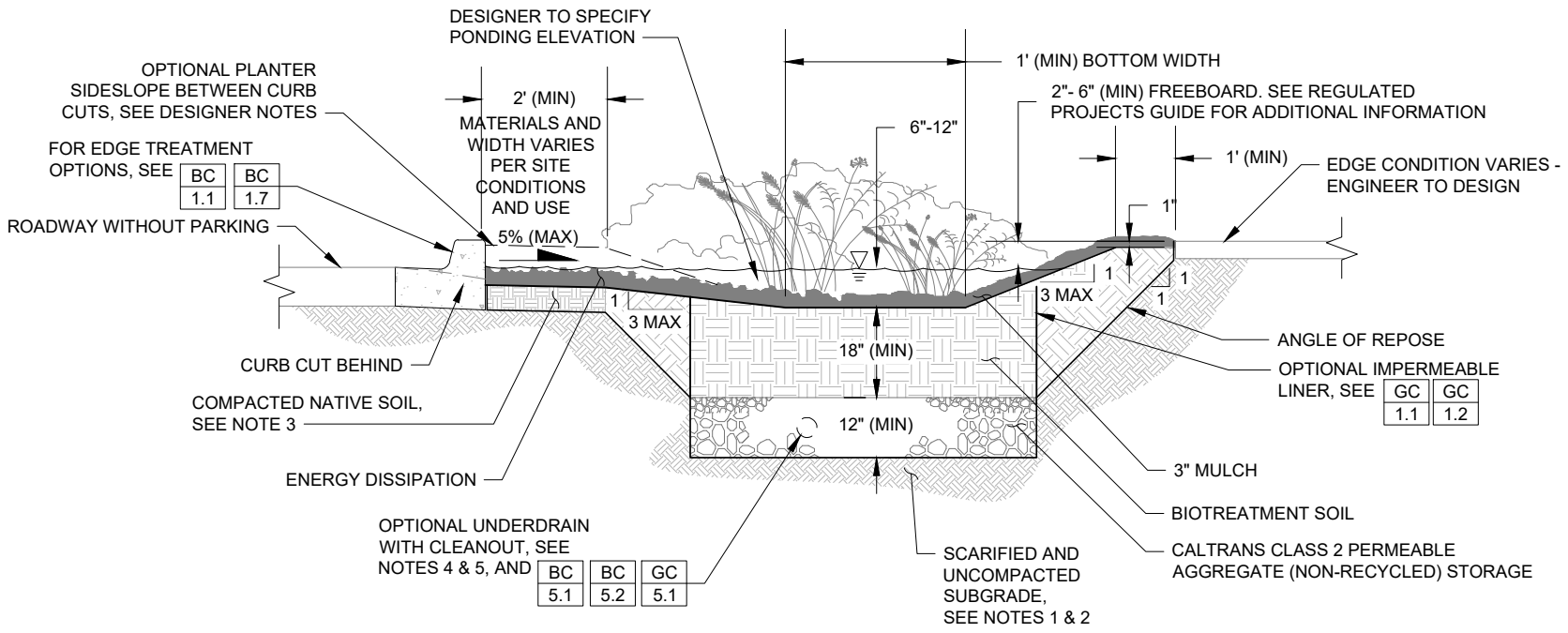
BIORETENTION BASIN

ROADSIDE SECTION TYPE 1

FILE NO. BB 2.1



CONSTRUCTION NOTES:

1. AVOID COMPACTION OF EXISTING SUBGRADE BELOW BASIN.
2. SCARIFY SUBGRADE TO A DEPTH OF 3 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF AGGREGATE STORAGE AND BIOTREATMENT SOIL MATERIALS.
3. COMPACT SOIL IMMEDIATELY BEHIND CURB TO 90% OF MAXIMUM DENSITY PER STANDARD PROCTOR TEST (ASTM D698).
4. UNDERDRAIN REQUIRED FOR ALL FACILITIES WITH IMPERMEABLE LINER.
5. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
6. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT JURISDICTION PROTECTION STANDARDS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.
7. GEOTECHNICAL OR HYDRAULOGIST ENGINEER TO DETERMINE IF LINER SHALL BE USED.
8. ANGLE OF REPOSE MAY VARY BASED ON GEOTECHNICAL ENGINEER RECOMMENDATIONS.

NOTES: BB 1.1 | SECTIONS: BB 2.1 | BB 2.1.1 | BB 2.2

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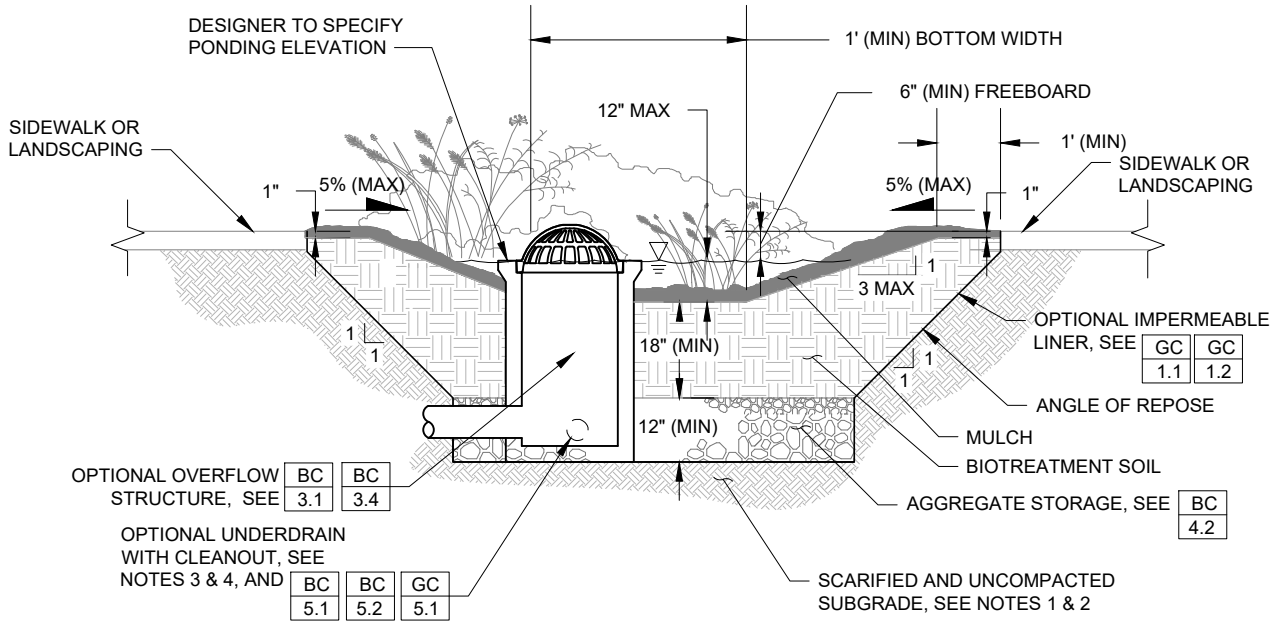
BIORETENTION BASIN

ROADSIDE SECTION TYPE 2

FILE NO. BB 2.1.1



CONSTRUCTION NOTES:

1. AVOID COMPACTION OF EXISTING SUBGRADE BELOW BASIN.
2. SCARIFY SUBGRADE TO A DEPTH OF 3 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF AGGREGATE STORAGE AND BIOTREATMENT SOIL MATERIALS.
3. UNDERDRAIN REQUIRED FOR ALL FACILITIES WITH IMPERMEABLE LINER.
4. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
5. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT SMC ASSET PROTECTION STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

NOTES: BB 1.1 | SECTIONS: BB 2.1 | BB 2.1.1 | BB 2.2

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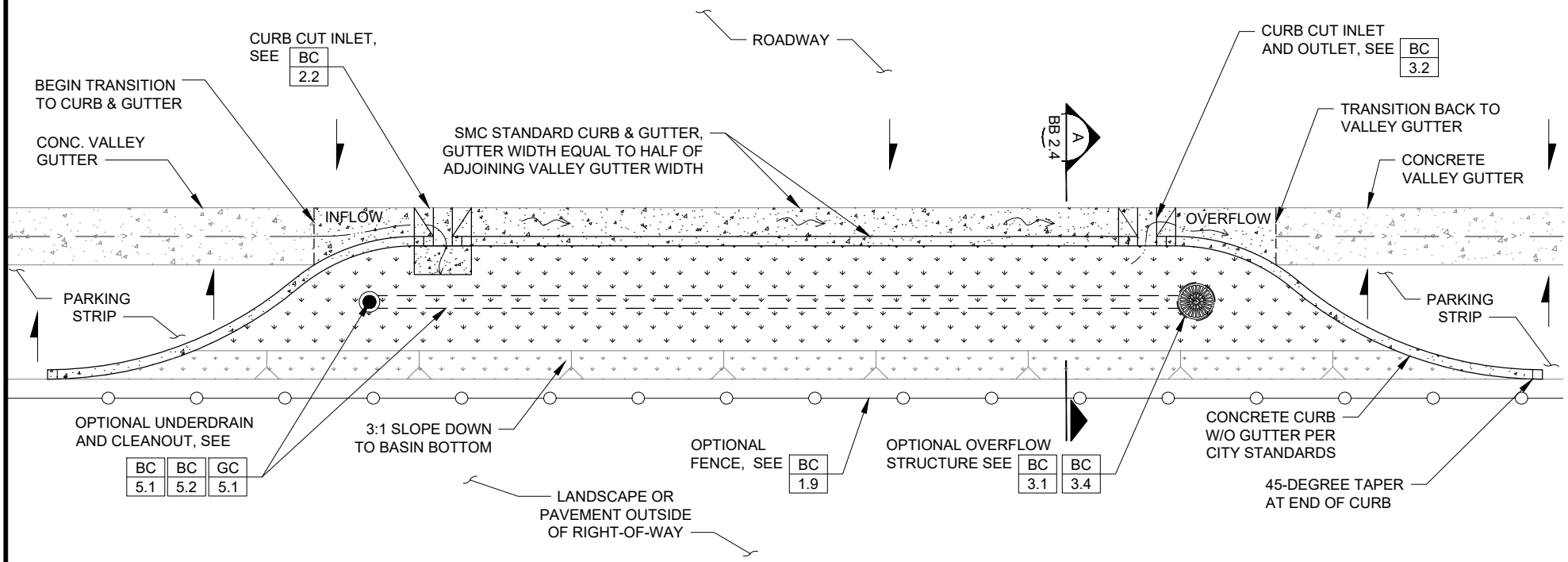
BIORETENTION BASIN

PARCEL SECTION

FILE NO. BB 2.2



NOTES: BB 1.1

LAYOUTS & SECTIONS: BB 2.1 | BB 2.1.1 | BB 2.2 | BB 2.3 | BB 2.4

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

FILENAME: P:\1153 SMC GI FEASIBILITY ANALYSIS & GI DETAILS\400 TECHNICAL\420 CAD DESIGN\422 NEW SMC GI DETAILS\03_CAD\BB 2.3 BIORETENTION BASIN VALLEY GUTTER LAYOUT.DWG

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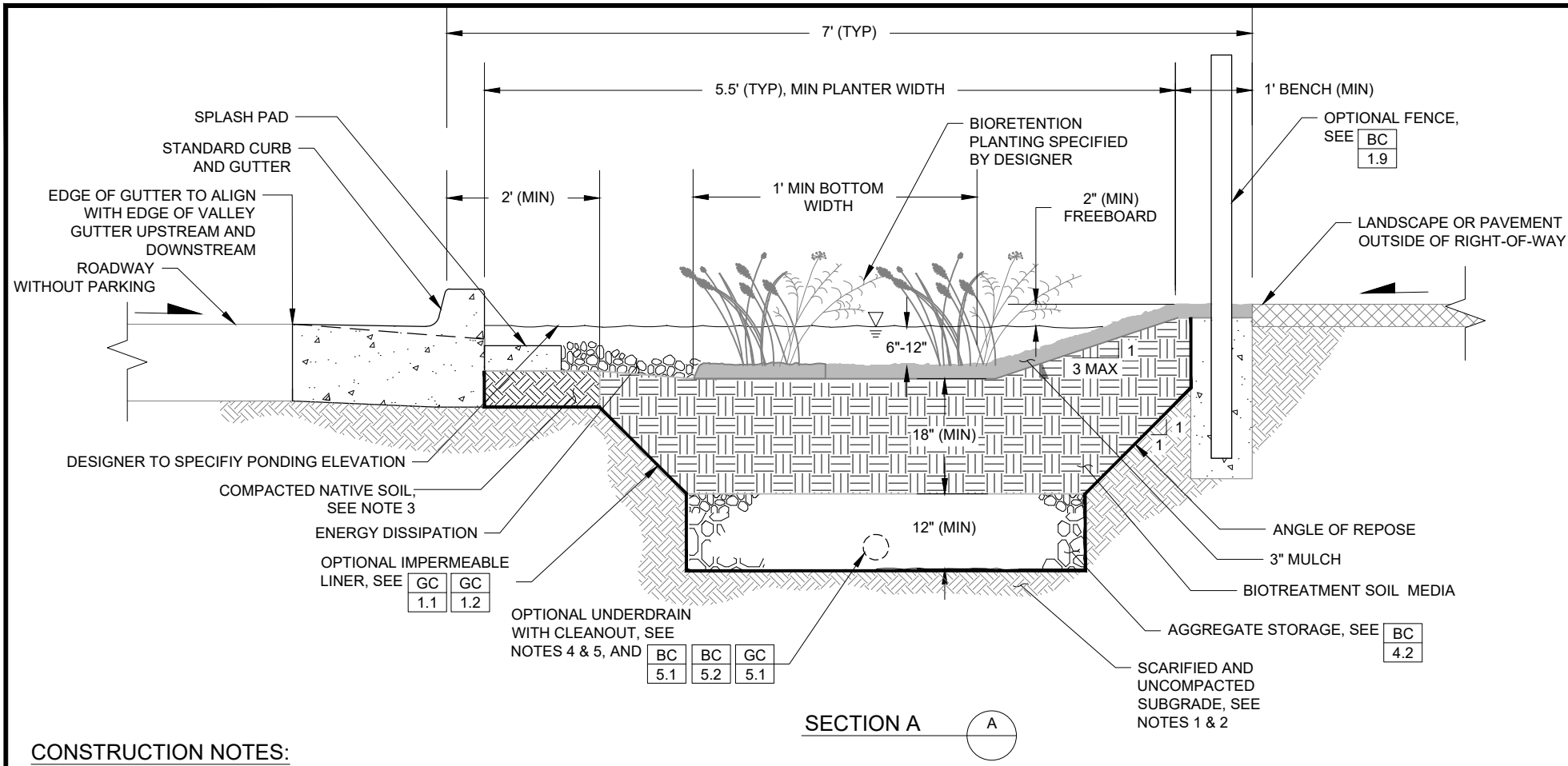
BIORETENTION BASIN

ROADSIDE LAYOUT TYPE 3
STREET WITH VALLEY GUTTERS

FILE NO.
BB 2.3



SECTION A (A)

CONSTRUCTION NOTES:

1. AVOID COMPACTION OF EXISTING SUBGRADE BELOW BASIN.
2. SCARIFY SUBGRADE TO A DEPTH OF 3 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF AGGREGATE STORAGE AND BIORETENTION SOIL MATERIALS.
3. COMPACT NATIVE SOIL IMMEDIATELY BEHIND CURB TO 90% OF MAXIMUM DENSITY PER STANDARD PROCTOR TEST (ASTM D698).
4. UNDERDRAIN REQUIRED FOR ALL FACILITIES WITH IMPERMEABLE LINER AND PLACED 1 INCH ABOVE BOTTOM OF AGGREGATE SECTION.
5. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
6. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT JURISDICTIONAL ASSET PROTECTION STANDARDS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.
7. GEOTECHNICAL OR HYDRAULOGIST ENGINEER TO DETERMINE IF LINER SHALL BE USED.
8. ANGLE OF REPOSE MAY VARY BASED ON GEOTECHNICAL ENGINEER RECOMMENDATIONS.

NOTES	LAYOUTS & SECTIONS				
BB 1.1	BB 2.1	BB 2.1.1	BB 2.2	BB 2.3	BB 2.4

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BIORETENTION BASIN

ROADSIDE SECTION TYPE 3
STREET WITH VALLEY GUTTERS

FILE NO. BB 2.4

PURPOSE:

EDGE TREATMENTS ARE USED TO DEFINE THE BOUNDARIES OF A BIORETENTION FACILITY AND ARE INTENDED PRIMARILY TO STABILIZE THE EDGE OF ADJACENT PAVEMENT AND MINIMIZE LATERAL MOVEMENT OF WATER, AS APPLICABLE. IN CASES WHERE ADEQUATE SPACE IS AVAILABLE, THE FACILITY SIDESLOPE CAN BE LAID BACK SUCH THAT THE SURROUNDING NATIVE SOIL IS STABLE AND CAN FUNCTION AS THE FACILITY EDGE TREATMENT. HOWEVER, WHEN SPACE IS LIMITED, EDGE TREATMENTS SUCH AS VERTICAL WALLS MAY BE USED TO MAINTAIN THE STRUCTURAL INTEGRITY OF THE SURROUNDING SURFACES. THESE EDGE TREATMENTS RETAIN STORMWATER WITHIN THE FACILITY (AND OUT OF THE SURROUNDING PAVEMENT SECTIONS, AS APPLICABLE) UNTIL WATER INFILTRATES, IS COLLECTED BY THE UNDERDRAIN, OR OVERFLOWS VIA THE DESIGNATED OUTLETS.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. MINIMUM EDGE TREATMENT EMBEDMENT DEPTHS ARE SPECIFIED TO PREVENT LATERAL SEEPAGE UNDER THE EDGE TREATMENT AND INTO ADJACENT PAVEMENT SECTIONS, AS APPLICABLE.
3. DESIGNER MAY ELIMINATE CONSTRUCTION BENCH TO INCREASE EFFECTIVE FACILITY AREA (I.E. INFILTRATION AND STORAGE FOOTPRINT) PROVIDED PLANTER WALL EXTENDS TO BOTTOM OF AGGREGATE STORAGE.
4. DESIGNER MAY SPECIFY ALTERNATIVE MATERIAL TYPE FOR EDGE TREATMENTS PROVIDED MATERIAL MEETS STRUCTURAL REQUIREMENTS FOR LOADING CONDITIONS, SERVES AS A WATER BARRIER BETWEEN THE FACILITY AND ADJACENT PAVEMENT SECTIONS (AS APPLICABLE), AND COMPLIES WITH SMC DPW STANDARD ACCESSIBILITY REQUIREMENTS.
5. FOOTING OR LATERAL BRACING SHALL BE PROVIDED FOR ALL PLANTER WALLS UNLESS THE DESIGNER DEMONSTRATES THAT THE PROPOSED WALL DESIGN MEETS LOADING REQUIREMENTS.
6. FOOTINGS AND LATERAL BRACING SHALL BE DESIGNED TO WITHSTAND ANTICIPATED LOADING ASSUMING NO REACTIVE FORCES FROM THE UNCOMPACTED BIOTREATMENT SOIL WITHIN THE FACILITY.
7. LATERAL BRACING SHALL MEET HYDROLOGIC AND HYDRAULIC DESIGN REQUIREMENTS FOR CHECK DAMS WHEN USED AS CHECK DAMS. SEE **BC 6.1**.
8. PLANTER WALLS EXTENDING MORE THAN 36 INCHES BELOW ADJACENT LOAD-BEARING SURFACE, OR WHEN LOCATED ADJACENT TO PAVERS, MUST HAVE FOOTING OR LATERAL BRACING. SEE **BC 1.5**

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ EDGE TREATMENT TYPE AND MATERIAL
- ☐ EDGE TREATMENT WIDTH AND HEIGHT
- ☐ EMBEDMENT DEPTH INTO SUBGRADE SOILS
- ☐ LATERAL BRACING/FOOTING REQUIREMENTS
- ☐ PIPE MATERIAL AND DIAMETER FOR ALL WALL PENETRATIONS
- ☐ WATER TIGHT CONNECTOR TYPE FOR ALL WALL PENETRATIONS (E.G., GROUTED, COMPRESSION, BOOT) SEE **GC 2.9** AND **GC 2.10**.
- ☐ ELEVATIONS - INLET, OUTLET, OVERFLOW STRUCTURE (RIM & INVERT), CLEANOUT (RIM & INVERT)
- ☐ ELEVATIONS - TOP OF SLOPE AND TOE OF SLOPE

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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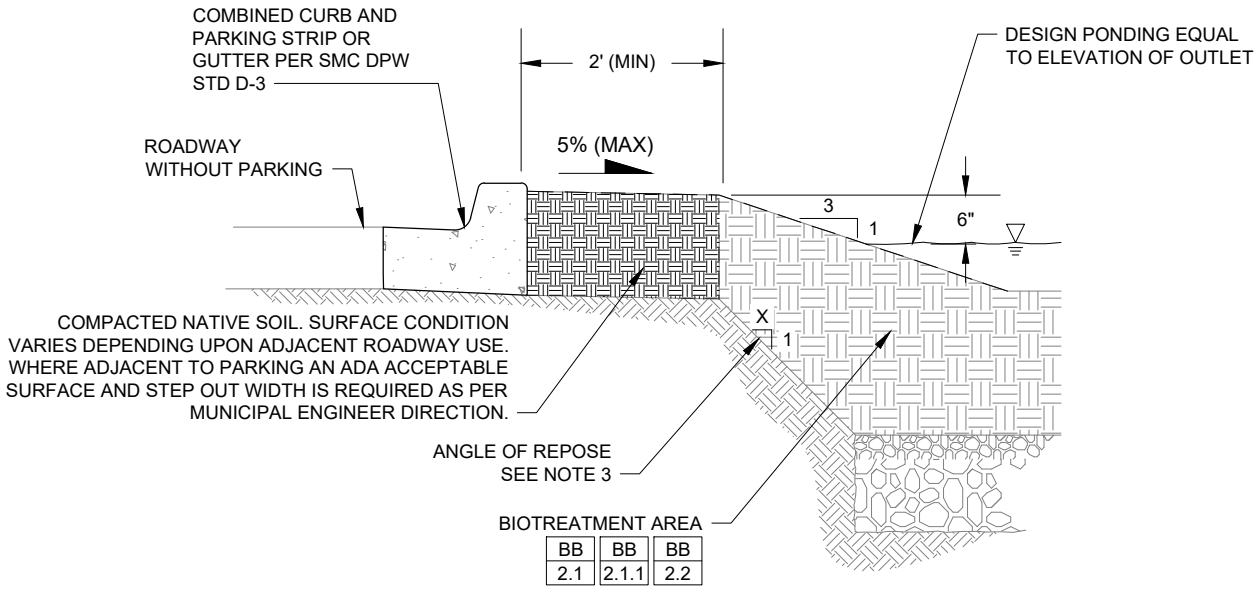
REVISED N/A

BIORETENTION COMPONENTS

EDGE TREATMENTS
DESIGNER NOTES

BC 1.1



STANDARD CURB EDGE AT BIORETENTION BASIN (1)

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO STANDARD SPECIFICATIONS AND APPLICABLE CODES PER RESPONSIBLE JURISDICTION.
2. COMPACT NATIVE SOIL TO 90% OF MAXIMUM DENSITY PER STANDARD PROCTOR TEST (ASTM D698). TRANSITION TO STANDARD BIOTREATMENT SOIL SECTION UPSLOPE OF DESIGN PONDING ELEVATION.
3. ANGLE OF REPOSE VARIES PER GEOTECHNICAL ENGINEER RECOMMENDATIONS.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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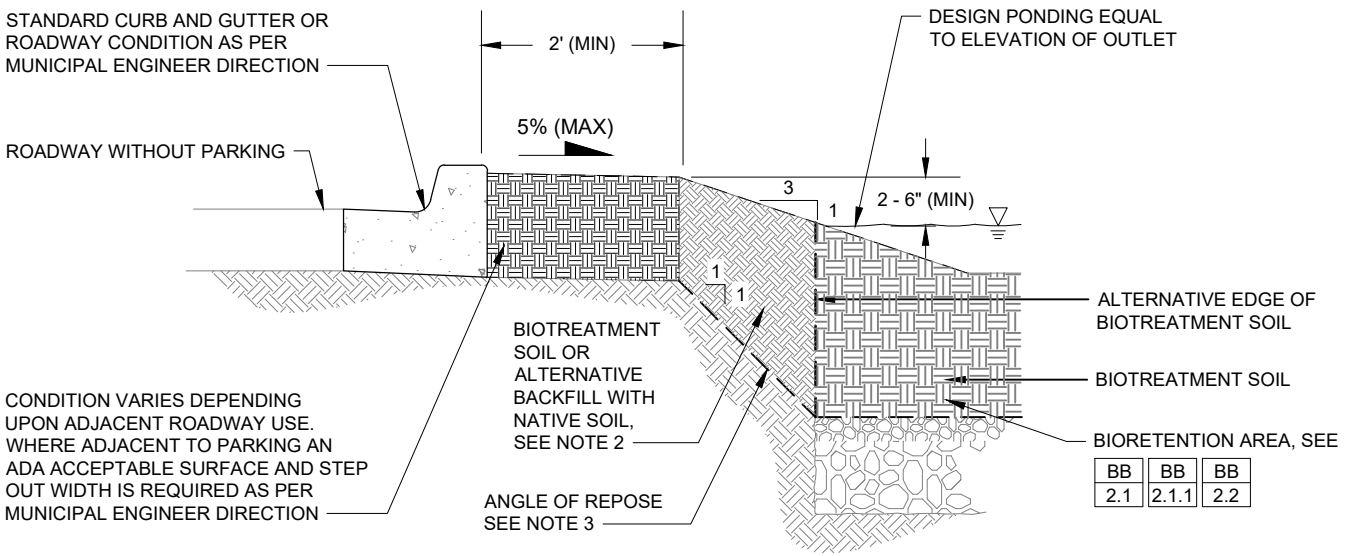
BIORETENTION COMPONENTS

EDGE TREATMENTS
VEHICULAR APPLICATIONS (1of2)

FILE NO. BC 1.2



STANDARD CURB EDGE AT BIORETENTION AREA (1)

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO STANDARD SPECIFICATIONS AND APPLICABLE CODES PER RESPONSIBLE JURISDICTION.
2. COMPACT NATIVE SOIL TO 90% OF MAXIMUM DENSITY PER STANDARD PROCTOR TEST (ASTM D698). TRANSITION TO STANDARD BIOTREATMENT SOIL SECTION UPSLOPE OF DESIGN PONDING ELEVATION.
3. ANGLE OF REPOSE VARIES PER GEOTECHNICAL ENGINEER RECOMMENDATIONS.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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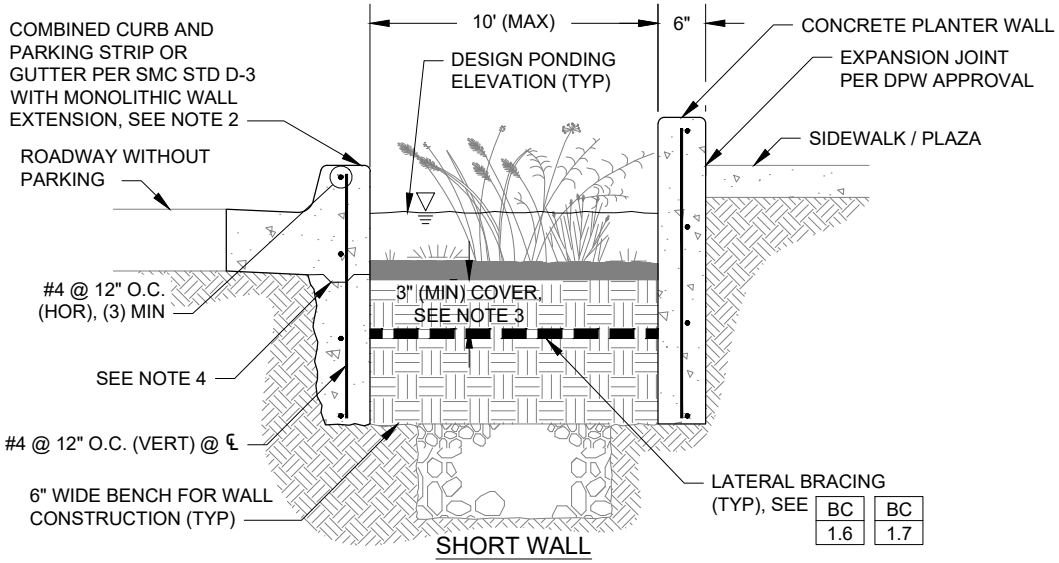
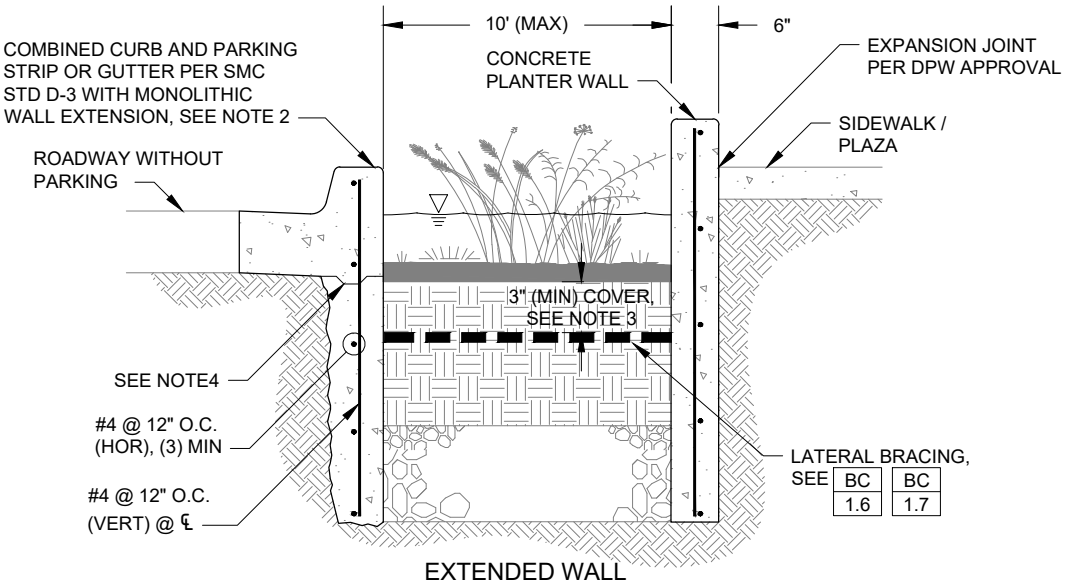
BIORETENTION COMPONENTS

EDGE TREATMENTS
VEHICULAR APPLICATIONS MODIFICATION (1of2)

FILE NO. BC 1.2.1

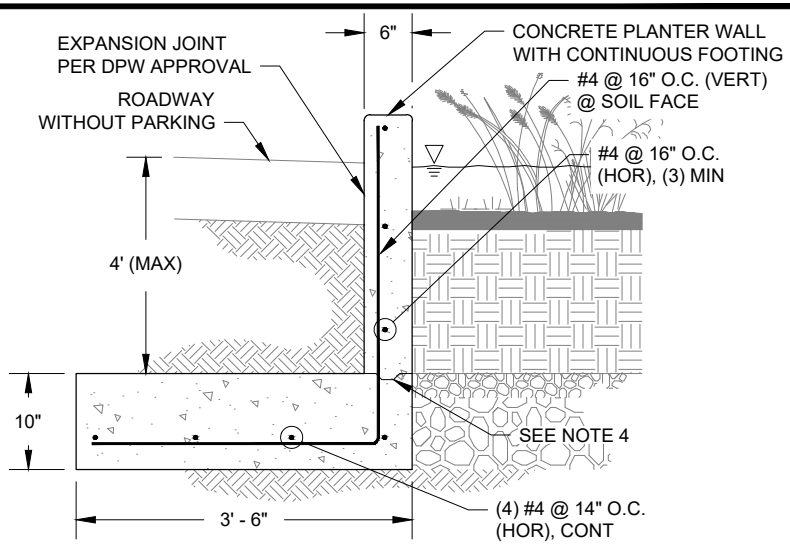


SHORT WALL



EXTENDED WALL

PLANTER WALL WITH LATERAL BRACING 1



PLANTER WALL WITH CONTINUOUS FOOTING 2

CONSTRUCTION NOTES:

1. ALL MATERIAL, REINFORCEMENT AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. ALL PLANTER WALLS SHALL EXTEND TO BOTTOM OF BIOTREATMENT SOIL OR DEEPER.
3. CONTRACTOR TO PROVIDE 3 INCH MINIMUM COVER OVER ALL LATERAL BRACING FOR PLANT ESTABLISHMENT.
4. ALL CONSTRUCTION COLD JOINTS SHALL INCORPORATE EPOXY, DOWEL/TIE BAR, KEYWAY, OR WATER STOP.
5. DETAIL NOT TO BE USED WITHIN COUNTY RIGHT-OF-WAY.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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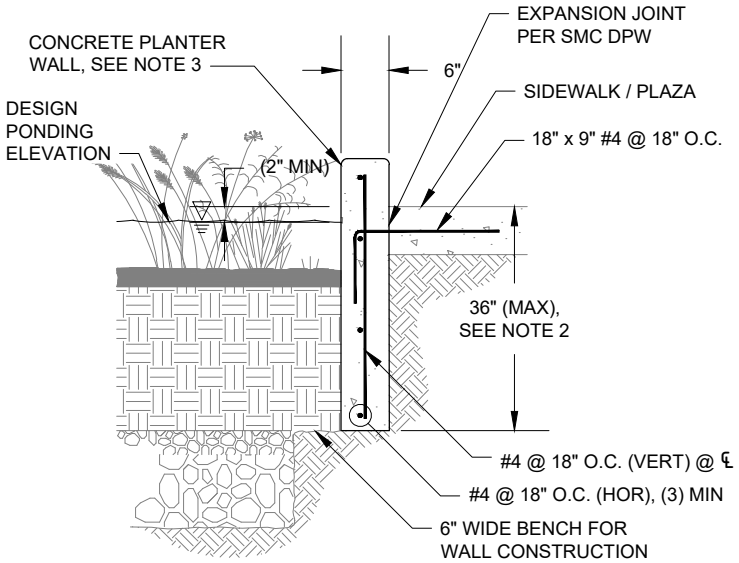
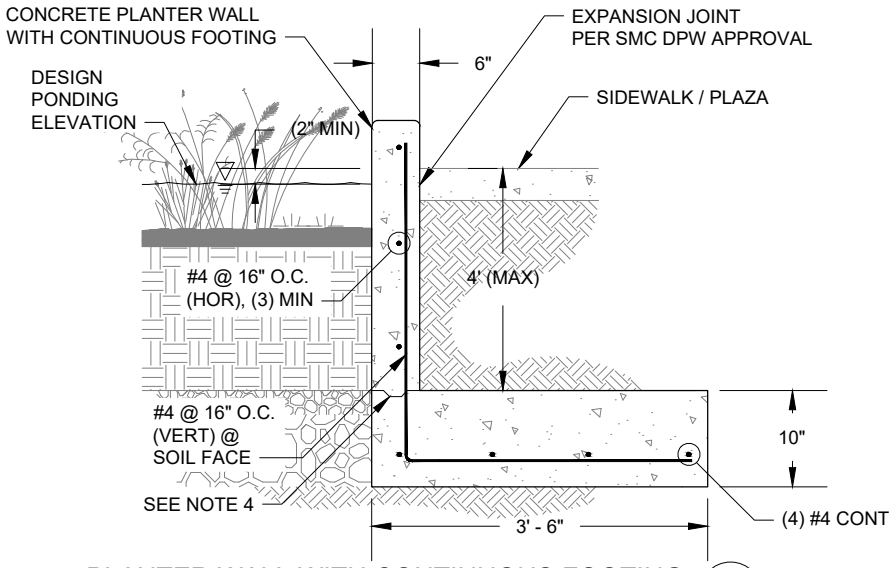
BIORETENTION COMPONENTS

EDGE TREATMENTS
VEHICULAR APPLICATIONS (2of2)

FILE NO.
BC 1.3



PLANTER WALL - PARCEL ONLY 1



PLANTER WALL WITH CONTINUOUS FOOTING 2

CONSTRUCTION NOTES:

1. ALL MATERIAL, REINFORCEMENT AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. PLANTER WALLS EXTENDING MORE THAN 36 INCHES BELOW ADJACENT LOAD-BEARING SURFACE, OR WHEN LOCATED ADJACENT TO PAVERS, MUST HAVE FOOTING OR LATERAL BRACING. COORDINATE WITH ENGINEER.
3. ALL PLANTER WALLS SHALL EXTEND TO BOTTOM OF BIOTREATMENT SOIL OR DEEPER.
4. ALL CONSTRUCTION COLD JOINTS SHALL INCORPORATE EPOXY, DOWEL/TIE BAR, OR WATER STOP.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

COUNTY OF SAN MATEO PUBLIC WORKS	JAMES C. PORTER DIRECTOR OF PUBLIC WORKS	GREEN INFRASTRUCTURE TYPICAL DETAILS COUNTY OF SAN MATEO	DATE 06.2020 VERSION 01 REVISED N/A	BIORETENTION COMPONENTS EDGE TREATMENTS PEDESTRIAN APPLICATIONS (1of2)	FILE NO. BC 1.4

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

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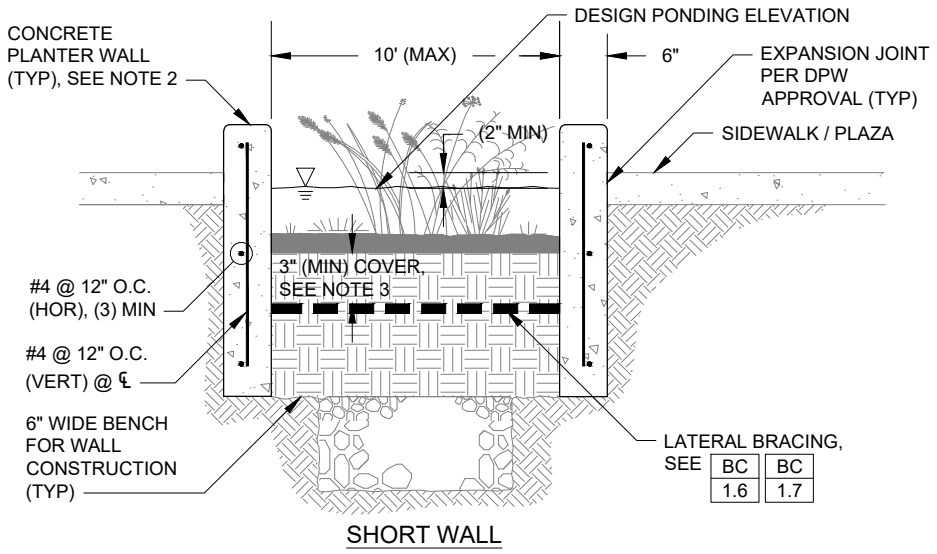
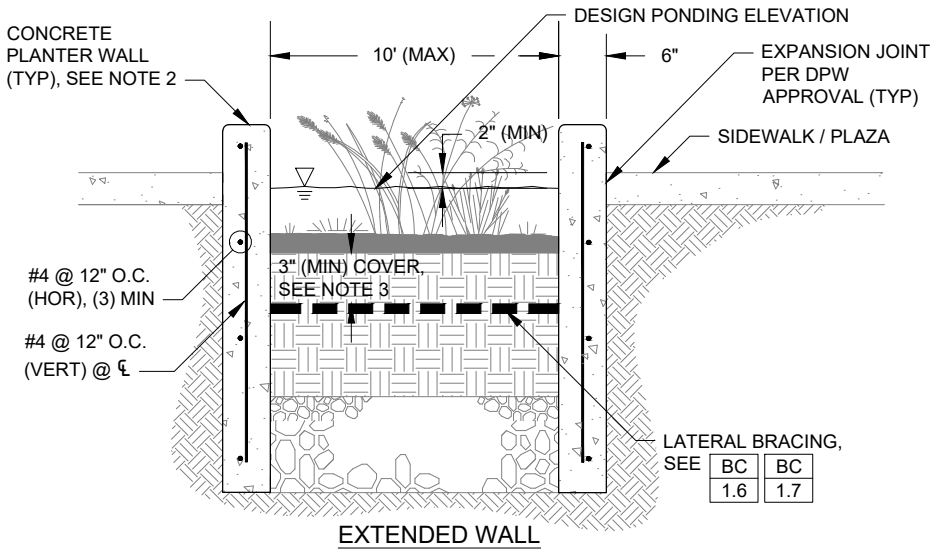


SHORT WALL

PLANTER WALL WITH LATERAL BRACING -SHORT 1



EXTENDED WALL

PLANTER WALL WITH LATERAL BRACING - EXTENDED 2

CONSTRUCTION NOTES:

1. ALL MATERIAL, REINFORCEMENT AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. ALL PLANTER WALLS SHALL EXTEND TO BOTTOM OF BIOTREATMENT SOIL OR DEEPER.
3. CONTRACTOR TO PROVIDE 3 INCH MINIMUM COVER OVER ALL LATERAL BRACING FOR PLANT ESTABLISHMENT.
4. ALL CONSTRUCTION COLD JOINTS SHALL INCORPORATE EPOXY, DOWEL/TIE BAR, AND WATER STOP.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

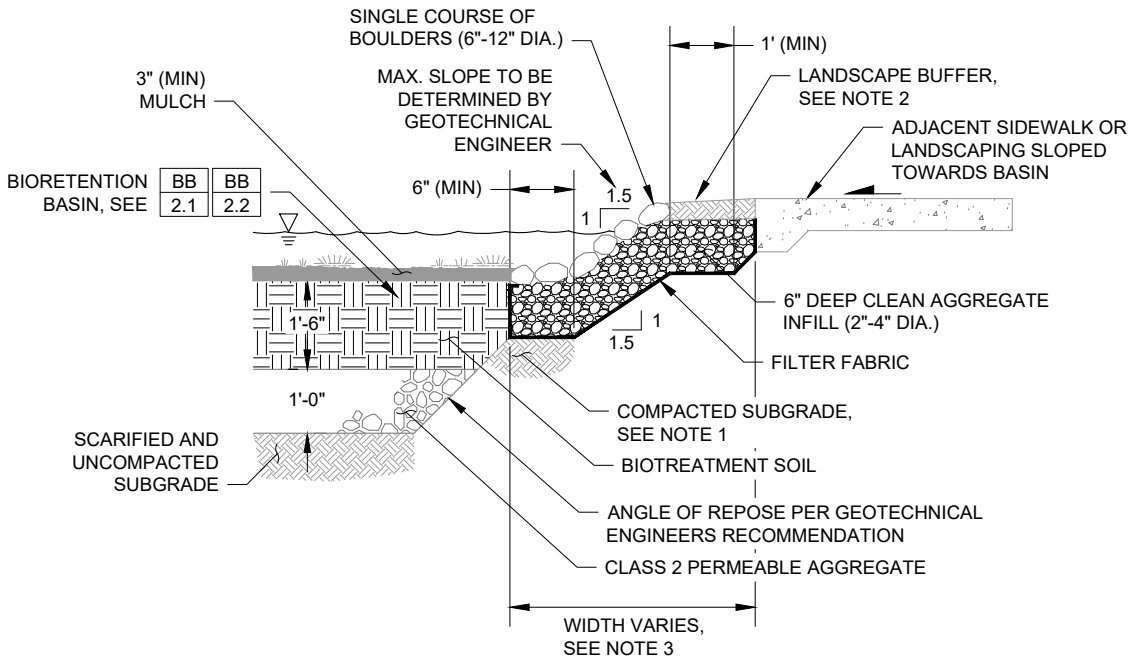
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

EDGE TREATMENTS
PEDESTRIAN APPLICATIONS (2of2)

FILE NO. BC 1.5



NOTES:

1. IF ADDITIONAL TREE ROOT VOLUME IS NEEDED FOR TREES PLANTED WITHIN THE BIORETENTION BASIN, THE DESIGNER MAY SPECIFY THE USE OF STRUCTURAL SOIL OR SILVA CELLS UNDER THE STABILIZED SLOPE AND/OR SIDEWALK BASE WITH APPROVAL FROM GEOTECHNICAL ENGINEER AND PUBLIC WORKS.
2. IF THERE IS A RISK OF EROSION ADJACENT TO A WIDE SIDEWALK/PLAZA, COBBLES SHALL BE USED IN LIEU OF LANDSCAPING TO PROVIDE ENERGY DISSIPATION AND EROSION PROTECTION. BUFFER AREA SHALL BE DESIGNED AND MAINTAINED TO ALLOW FOR FREE FLOW OF RUNOFF FROM ADJACENT SURFACE INTO BASIN.
3. IF SPACE CONSTRAINTS REQUIRE REDUCED WIDTH, A STEEPER SLOPE AND VERTICAL WALL EDGE RESTRAINT WITH RAISED CURB AT SIDEWALK MAY BE USED, SUBJECT TO APPROVAL BY GEOTECHNICAL ENGINEER.
4. REFER TO SMCWPPP GI DESIGN GUIDE FOR ADDITIONAL DESIGN GUIDANCE.

EDGE TREATMENTS									INLETS				OUTLETS				AGGREGATE STORAGE	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS								NOTES	COMPONENTS			NOTES	COMPONENTS			COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.3	BC 1.4	BC 1.5	BC 1.5.1	BC 1.5.2	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.3	BC 2.4	BC 3.1	BC 3.2	BC 3.3	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

CITY OF MENLO PARK

GREEN INFRASTRUCTURE TYPICAL DETAILS

CITY OF MENLO PARK

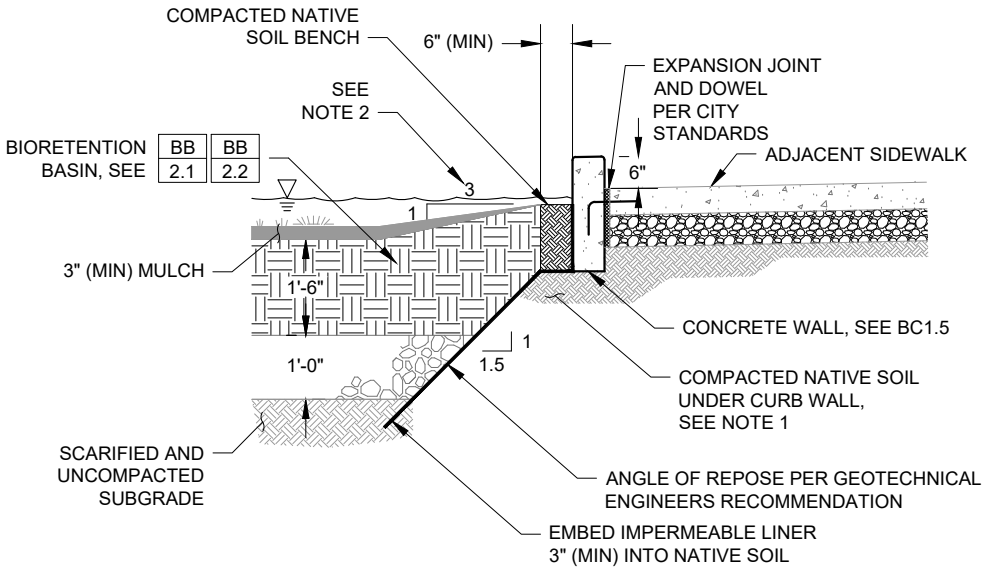
DATE: APRIL 2019
VERSION: 1.0
REVISED:

BIORETENTION BASIN

EDGE TREATMENTS - PED APPLICATIONS (3 OF 4) ROCK STABILIZED SLOPE

DWG NO.
BC 1.5.1

NOT FOR CONSTRUCTION - REFER TO USER GUIDE



NOTES:

1. IF ADDITIONAL TREE ROOT VOLUME IS NEEDED FOR TREES PLANTED WITHIN THE BIORETENTION BASIN, DESIGNER MAY SPECIFY THE USE OF STRUCTURAL SOIL OR SILVA CELLS UNDER THE STABILIZED SLOPE AND/OR SIDEWALK BASE WITH APPROVAL FROM GEOTECHNICAL ENGINEER AND PUBLIC WORKS.
2. IF SITE CONSTRAINTS REQUIRE STEEPER SIDE SLOPES, THE DESIGNER MAY STEEPEN THE EARTHEN SLOPE TO 2:1 (MAX) WITH APPROVAL FROM THE GEOTECHNICAL ENGINEER. HOWEVER, ADDITIONAL COMPACTION AND/OR NON-BIOTREATMENT SOIL WILL LIKELY BE REQUIRED TO ACHIEVE SLOPES STEEPER THAN 3:1 AND THUS THE SLOPED SIDE AREAS MUST BE EXCLUDED FROM STORMWATER MANAGEMENT FACILITY SIZING CALCULATIONS.
3. REFER TO SMCWPPP GI DESIGN GUIDE FOR ADDITIONAL DESIGN GUIDANCE.

EDGE TREATMENTS									INLETS				OUTLETS				AGGREGATE STORAGE	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS								NOTES	COMPONENTS			NOTES	COMPONENTS			COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.3	BC 1.4	BC 1.5	BC 1.5.1	BC 1.5.2	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.3	BC 2.4	BC 3.1	BC 3.2	BC 3.3	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

CITY OF MENLO PARK

GREEN INFRASTRUCTURE TYPICAL DETAILS

CITY OF MENLO PARK

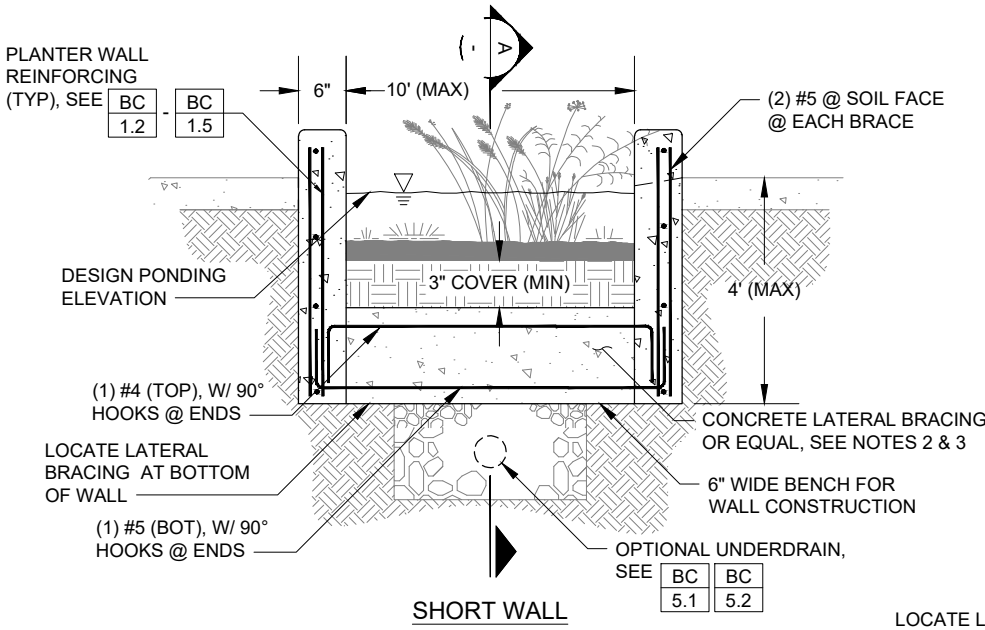
DATE: APRIL 2019
VERSION: 1.0
REVISED:

BIORETENTION BASIN

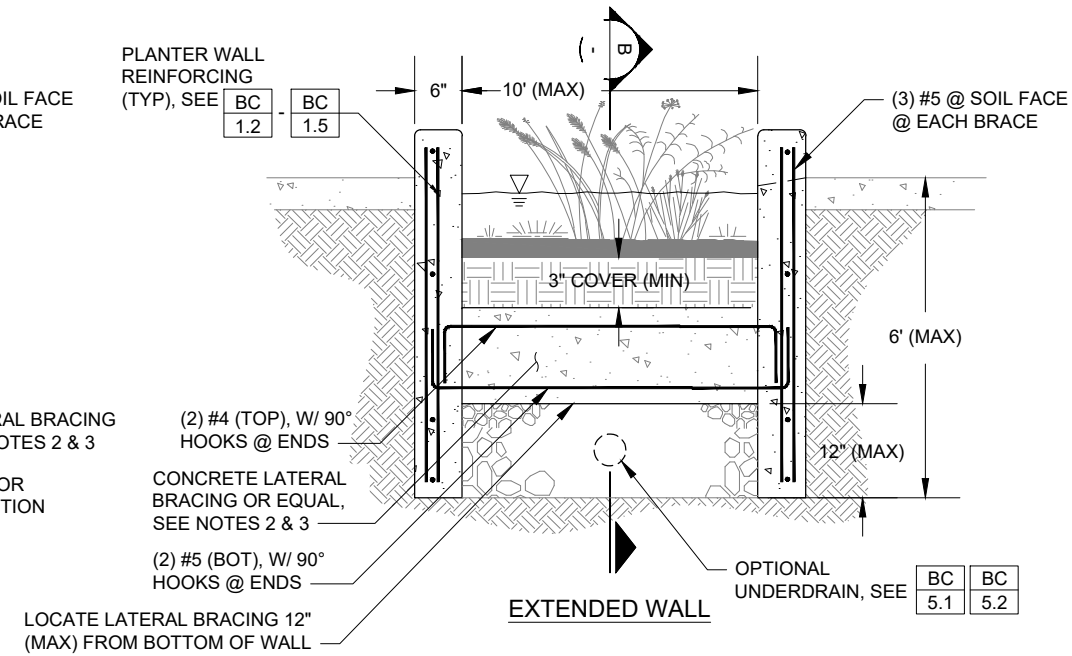
EDGE TREATMENTS - PED APPLICATIONS (4 OF 4) COMPACTED SOIL BENCH

DWG NO.
BC
1.5.2

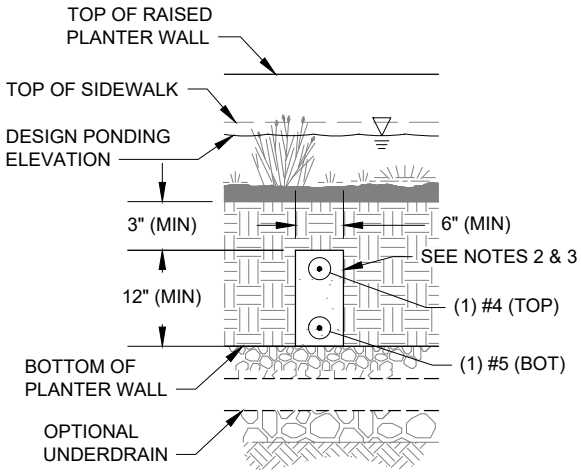
NOT FOR CONSTRUCTION - REFER TO USER GUIDE



SHORT WALL



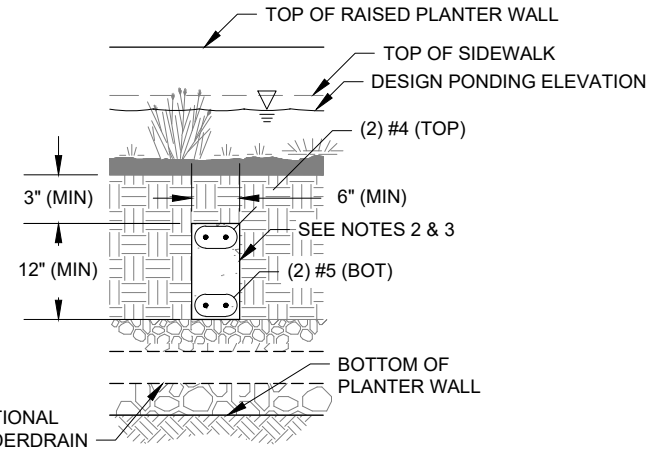
EXTENDED WALL



SECTION A

CONSTRUCTION NOTES:

1. ALL MATERIAL, REINFORCEMENT AND WORKMANSHIP FOR LATERAL BRACING SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. CONCRETE LATERAL BRACING SHALL BE CONTINUOUS (NO JOINTS).
3. LATERAL BRACING SHALL BE PROVIDED EVERY 6 FEET (MAX) FOR WALLS UP TO 4 FEET IN HEIGHT AND EVERY 4 FEET (MAX) FOR WALLS BETWEEN 4 AND 6 FEET IN HEIGHT. COUNTY APPROVAL IS REQUIRED FOR CASES THAT REQUIRE LATERAL BRACING.
4. THE EXTENDED WALL DETAIL IS FOR CASES IN WHICH STORAGE VOLUME NEEDS TO BE MAXIMIZED IN CONSTRAINED CONDITIONS.



SECTION B

CONCRETE BRACING WALL - SHORT (1)

CONCRETE BRACING WALL - EXTENDED (2)

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

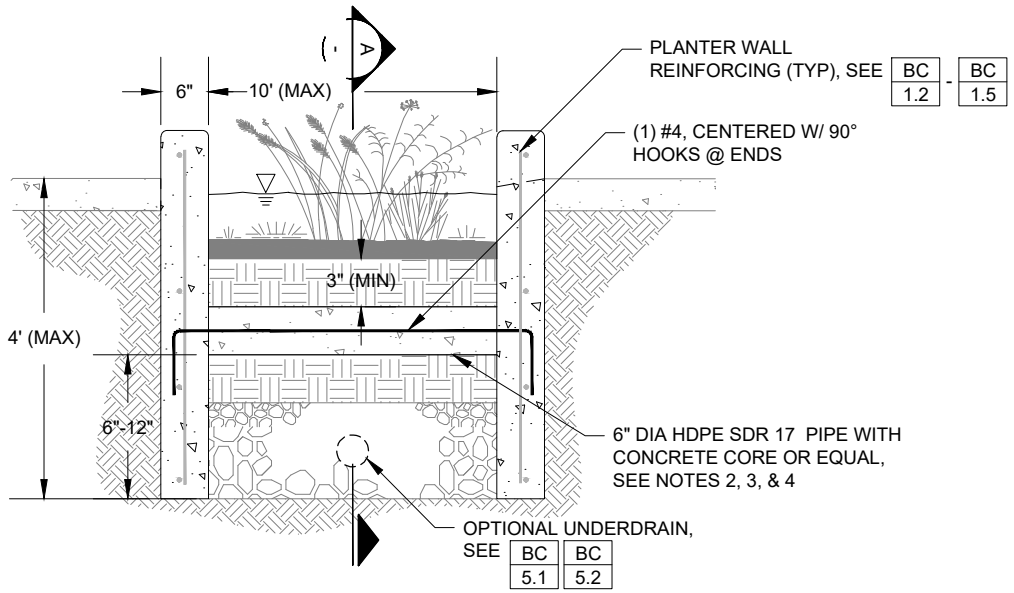
COUNTY OF SAN MATEO

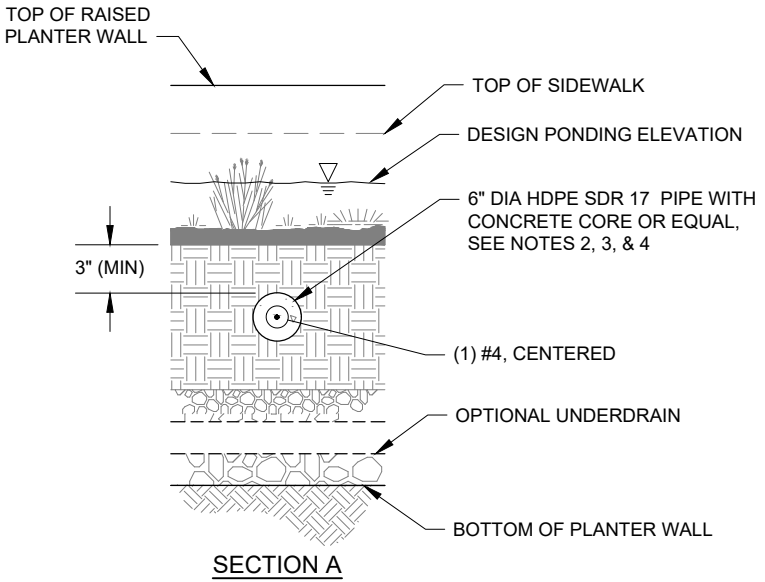
DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

EDGE TREATMENTS
LATERAL BRACING (1of2)

FILE NO. BC 1.6





SECTION A

CONCRETE STRUT

1

CONSTRUCTION NOTES:

1. ALL MATERIAL, REINFORCEMENT AND WORKMANSHIP FOR LATERAL BRACING STRUCTURES SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. LATERAL BRACING SHALL BE PROVIDED EVERY 6 FEET (MAX) FOR WALLS UP TO 4 FEET IN HEIGHT.
3. OTHER MATERIALS MAY BE USED IN LIEU OF HDPE PROVIDED MATERIAL IS NON CORROSIVE, NON-LEACHING, AND SCHEDULE 40.
4. PROVIDE 3 INCH CONTINUOUS SLOT ACROSS TOP OF PIPE TO PLACE REINFORCEMENT AND ENSURE STRUT IS FREE OF VOIDS.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

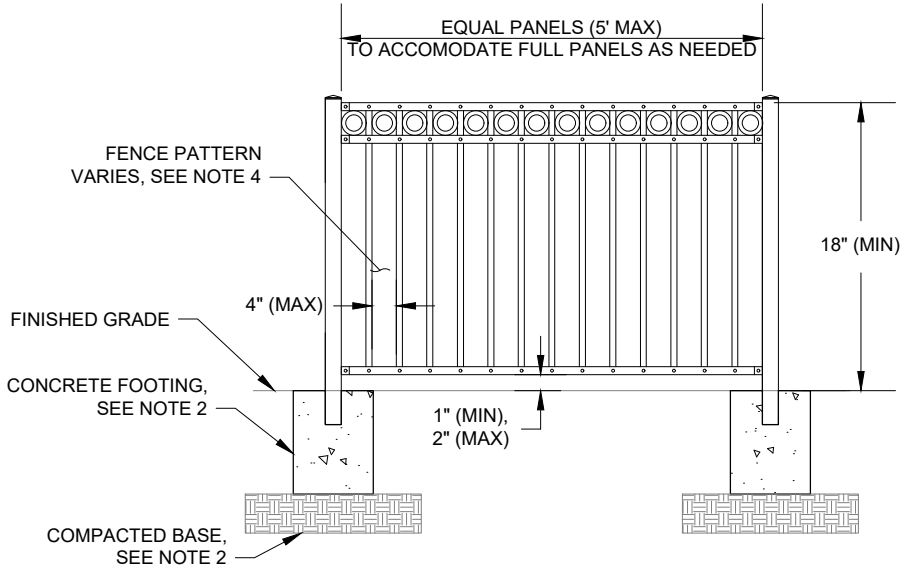
BIORETENTION COMPONENTS

EDGE TREATMENT
LATERAL BRACING (2of2)

FILE NO. BC 1.7

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

FILENAME: C:\USERS\USER\DESKTOP\LOTUS\SAN MATEO\BC 1.7_SMC.DWG



TYPICAL FENCE

NOTES:

1. ALL MATERIAL, REINFORCEMENT AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS, ADA REQUIREMENTS, AND OTHER APPLICABLE CODES.
2. DESIGNER TO SPECIFY FOUNDATION DETAILS.
3. FIELD MEASUREMENTS MUST BE TAKEN PRIOR TO FABRICATION.
4. SPECIFIC FENCE PATTERN, POST/RAIL DIMENSIONS, MATERIALS, COLOR, JOINTS, AND OTHER FENCE DETAILS SHALL BE SPECIFIED BY DESIGNER FOR REVIEW AND APPROVAL BY SMC.
5. POSTS MAY BE EMBEDDED IN SIDEWALK , CONCRETE CURB, OR LANDSCAPE ADJACENT TO THE BIORETENTION PLANTER. POSTS SHALL NOT BE INSTALLED INSIDE THE BIORETENTION PLANTER. SPECIFIC EMBEDMENT OF POST SHALL BE DESIGNED FOR SITE SPECIFIC CONDITIONS.

EDGE TREATMENTS											INLETS										OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS										NOTES	COMPONENTS									NOTES	COMPONENTS					NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 1.8	BC 1.9	BC 1.10	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 2.6	BC 2.7	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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GREEN INFRASTRUCTURE TYPICAL DETAILS

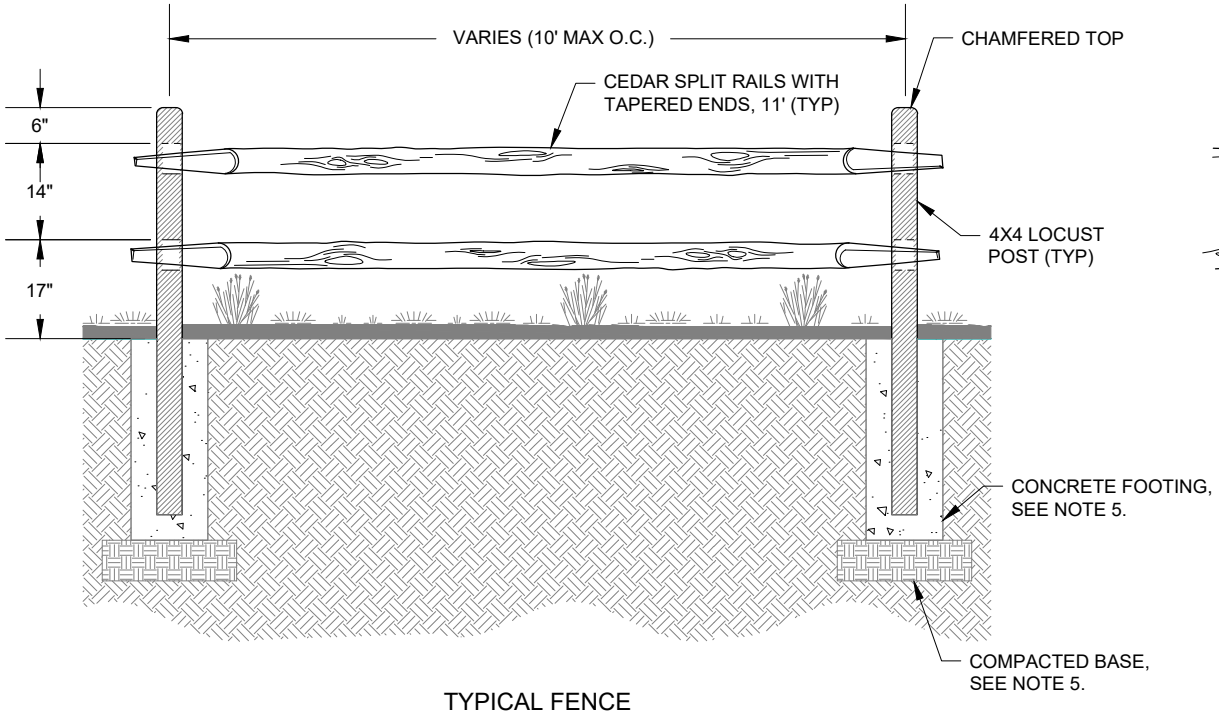
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

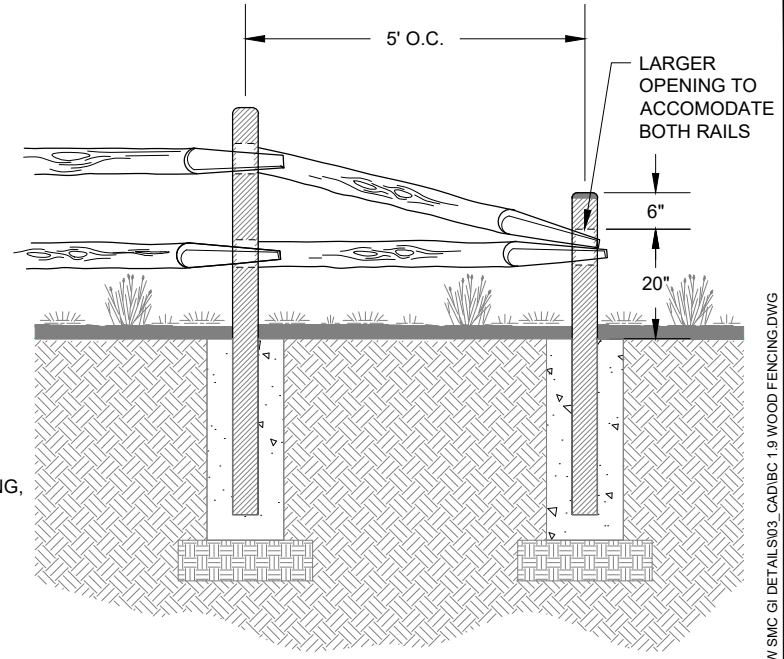
BIORETENTION COMPONENTS

EDGE TREATMENTS
METAL FENCING

FILE NO.
BC
1.8



TYPICAL FENCE



FENCE END

NOTES:

1. ALL MATERIAL, REINFORCEMENT AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. ALTERNATIVE WOOD FENCE MATERIALS MAY BE USED WITH APPROVAL FROM SMC DPW.
3. DECK SCREWS SHALL BE USED TO TIE FASTEN RAILS TOGETHER AT POINT OF INTERSECTION AT POSTS. EACH RAIL MUST OVERLAP EACH OTHER BY 3" TO ENSURE STABILITY.
4. FENCE END SECTION TO BE INCLUDED WHERE NOTED ON DRAWINGS.
5. DESIGNER TO SPECIFY FOOTING DETAILS.

EDGE TREATMENTS											INLETS										OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS										NOTES	COMPONENTS									NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 1.8	BC 1.9	BC 1.10	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 2.6	BC 2.7	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020

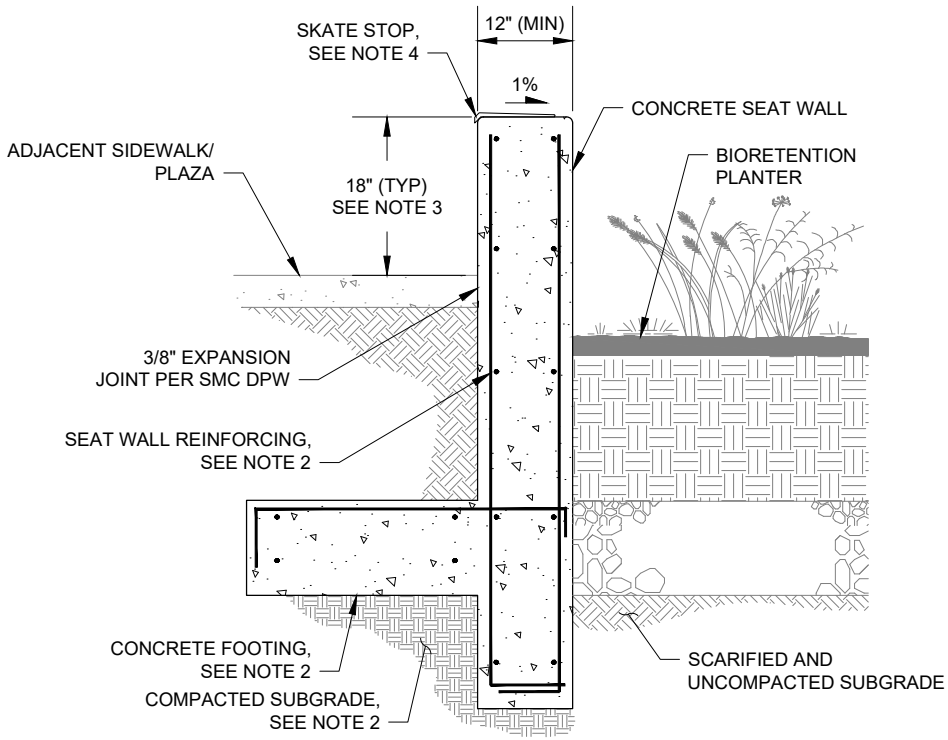
VERSION 01

REVISED N/A

BIORETENTION COMPONENTS

EDGE TREATMENTS
WOOD FENCING

FILE NO. BC 1.9



SEAT WALL

DESIGNER NOTES:

1. ALL MATERIAL, REINFORCEMENT AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. DESIGNER TO SPECIFY SEAT WALL REINFORCING AND FOOTING DETAILS. FOOTING DESIGN SHALL MINIMIZE IMPACT TO STORAGE VOLUME WITHIN BIORETENTION PLANTER.
3. SEAT WALL HEIGHT AND VERTICAL PROFILE MUST COMPLY WITH SMC ACCESSIBILITY REQUIREMENTS.
4. SKATE STOP TO BE STAINLESS STEEL SKATESTOPPERS DIAMOND INSERT SERIES SKATE STOP OR APPROVED EQUAL. PROVIDE SKATE STOPS AT EXPANSION JOINTS/GROUT LINES OF SEAT WALL AT NO MORE THAN 48" O.C. SPACING ALONG LENGTH OF WALL.
5. DESIGNER TO IDENTIFY WALL CONTROL JOINT LOCATIONS.

EDGE TREATMENTS											INLETS										OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS										NOTES	COMPONENTS									NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 1.8	BC 1.9	BC 1.10	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 2.6	BC 2.7	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020

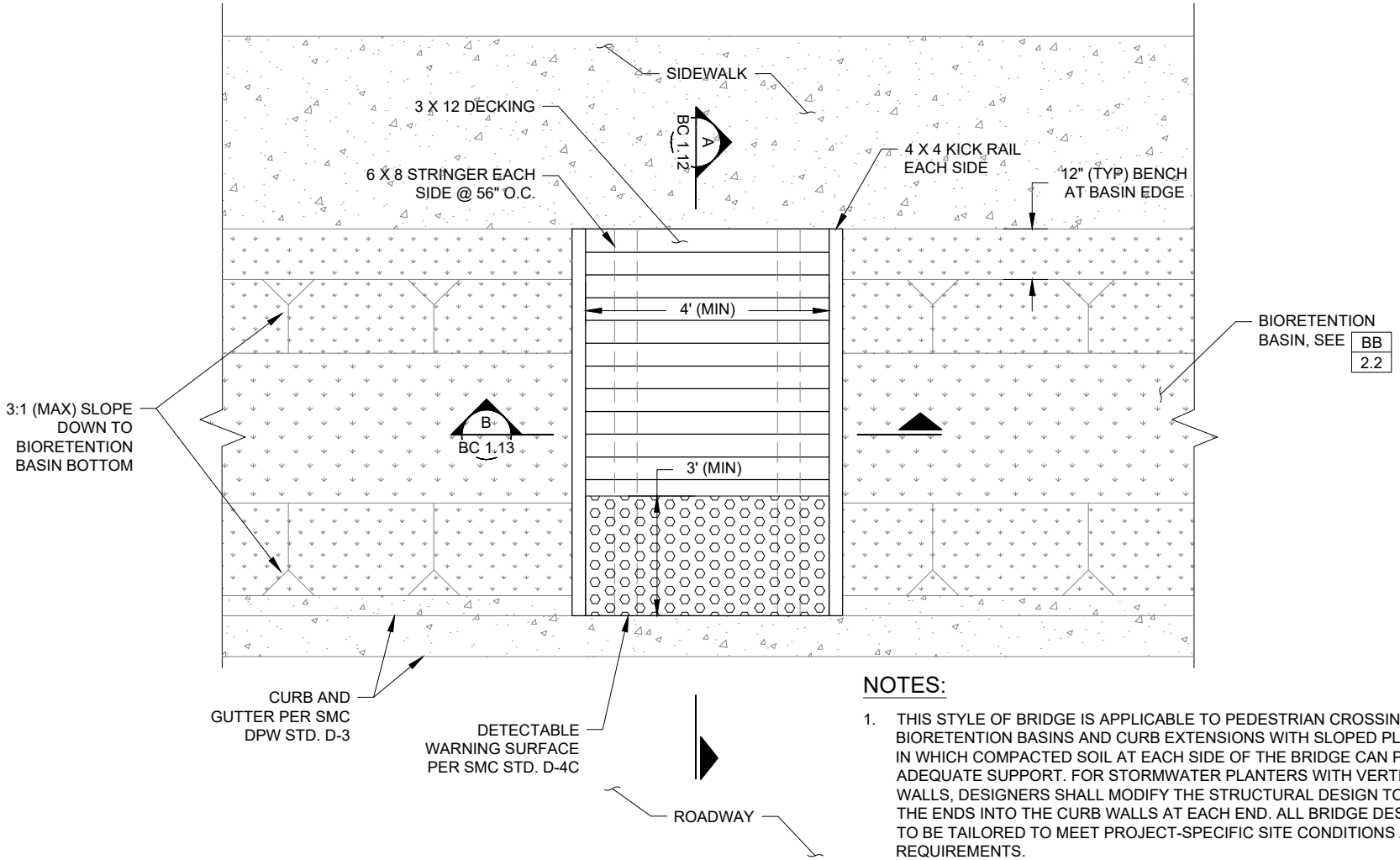
VERSION 01

REVISED N/A

BIORETENTION COMPONENTS

EDGE TREATMENTS
SEAT WALL

FILE NO. BC 1.10



NOTES:

1. THIS STYLE OF BRIDGE IS APPLICABLE TO PEDESTRIAN CROSSINGS OF BIORETENTION BASINS AND CURB EXTENSIONS WITH SLOPED PLANTER SIDES IN WHICH COMPACTED SOIL AT EACH SIDE OF THE BRIDGE CAN PROVIDE ADEQUATE SUPPORT. FOR STORMWATER PLANTERS WITH VERTICAL CURB WALLS, DESIGNERS SHALL MODIFY THE STRUCTURAL DESIGN TO ANCHOR THE ENDS INTO THE CURB WALLS AT EACH END. ALL BRIDGE DESIGNS NEED TO BE TAILORED TO MEET PROJECT-SPECIFIC SITE CONDITIONS AND REQUIREMENTS.
2. ALL MATERIAL, REINFORCEMENT, AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
3. ALL WEIGHT-BEARING AND SUPPORT LUMBER MUST BE STRUCTURAL SELECT GRADE.
4. BEAM FASTENERS TO BE STAINLESS STEEL, SIMPSON STRONG TIE, OR EQUAL. DECKS SCREWS TO BE HEAVY-DUTY STAINLESS STEEL.

EDGE TREATMENTS														INLETS										OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS	
NOTES	COMPONENTS													NOTES	COMPONENTS									NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 1.8	BC 1.9	BC 1.10	BC 1.11	BC 1.12	BC 1.13	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 2.6	BC 2.7	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

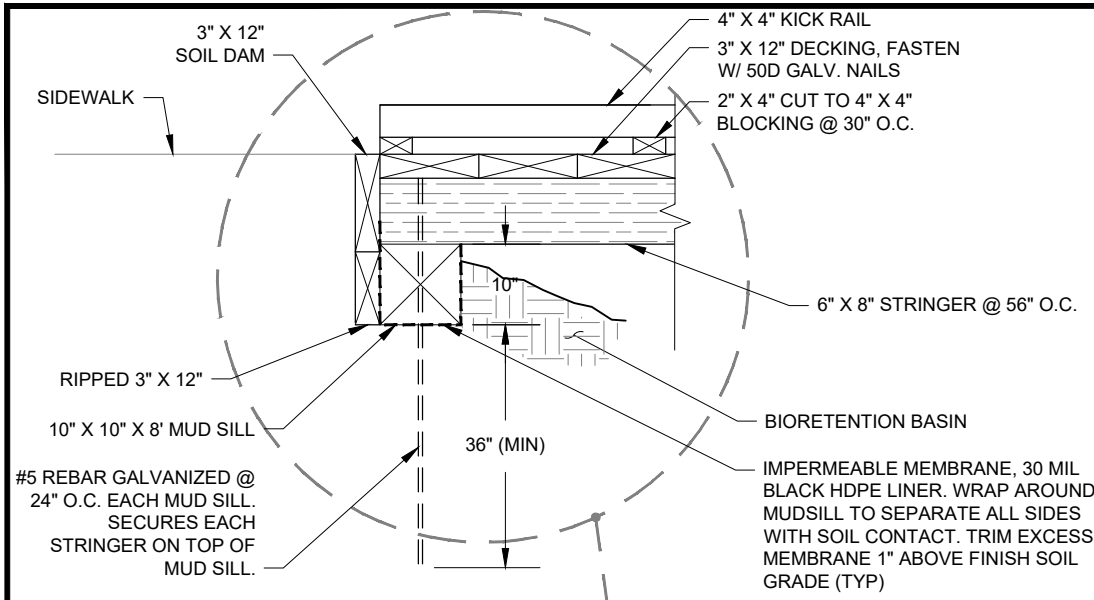
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

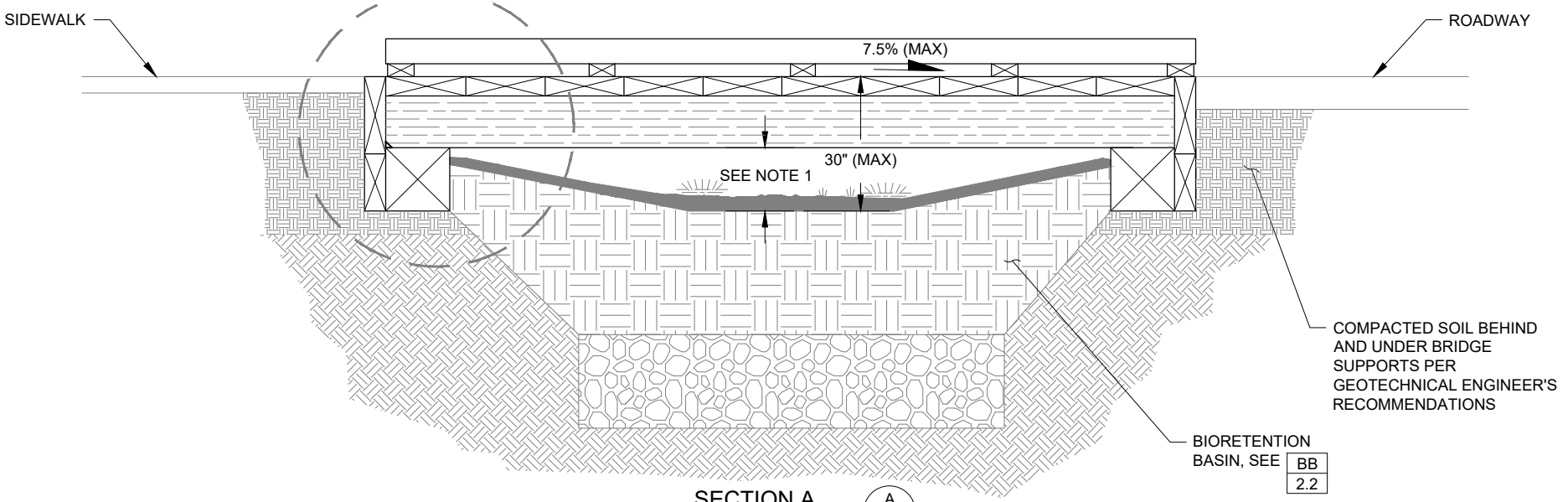
EDGE TREATMENTS
TIMBER FOOT BRIDGE – LAYOUT

BC 1.11



NOTES:

1. DESIGNER TO ENSURE BOTTOM OF BRIDGE IS SET ABOVE MAXIMUM PONDING ELEVATION AND THE MINIMUM REQUIRED FREEBOARD DEPTH.
2. ALL MATERIAL, REINFORCEMENT, AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
3. ALL WEIGHT-BEARING AND SUPPORT LUMBER MUST BE STRUCTURAL SELECT GRADE.
4. BEAM FASTENERS TO BE STAINLESS STEEL, SIMPSON STRONG TIE, OR EQUAL. DECKS SCREWS TO BE HEAVY-DUTY STAINLESS STEEL.



SECTION A (A)

EDGE TREATMENTS														INLETS										OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS	
NOTES	COMPONENTS													NOTES	COMPONENTS									NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 1.8	BC 1.9	BC 1.10	BC 1.11	BC 1.12	BC 1.13	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 2.6	BC 2.7	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2

JAMES C. PORTER
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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

EDGE TREATMENTS
TIMBER FOOT BRIDGE – SECTION

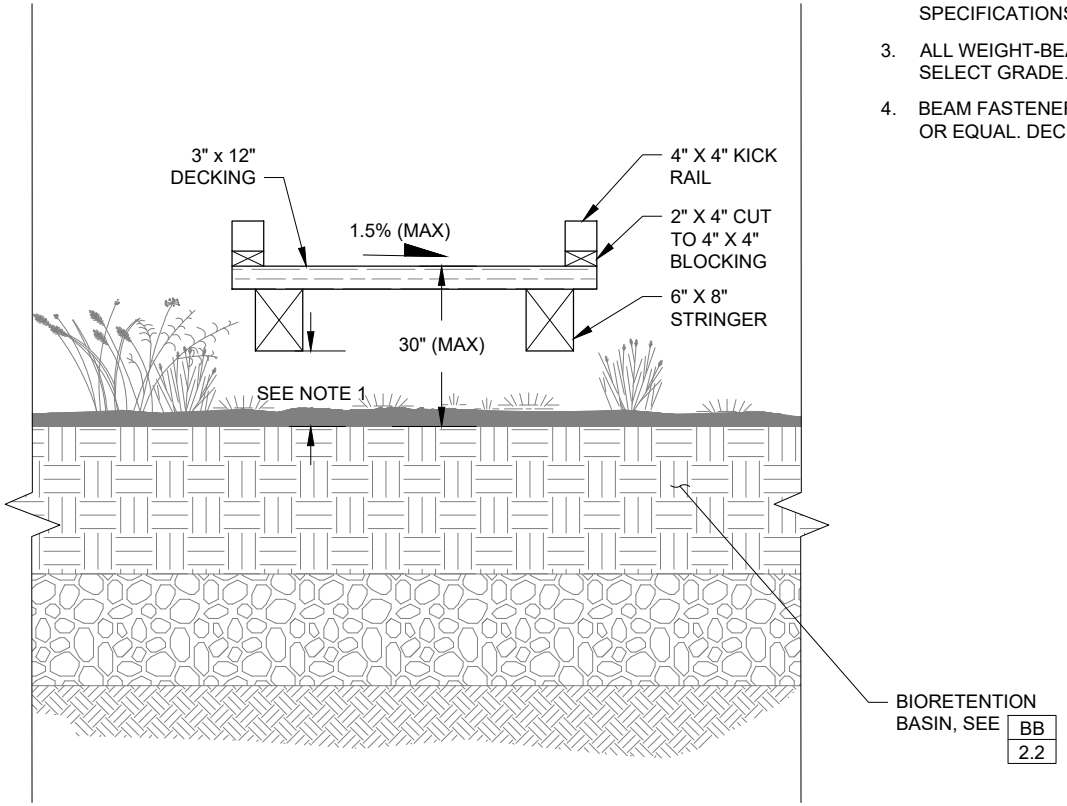
FILE NO. BC 1.12

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

FILENAME: P:\1153 SMC GI FEASIBILITY ANALYSIS & GI DETAILS\400 TECHNICAL\420 CAD DESIGN\422 NEW SMC GI DETAILS\03_CAD\BC 1.12 TIMBER FOOT BRIDGE SECTION.DWG

NOTES:

1. DESIGNER TO ENSURE BOTTOM OF BRIDGE IS SET ABOVE MAXIMUM PONDING ELEVATION AND THE MINIMUM REQUIRED FREEBOARD DEPTH.
2. ALL MATERIAL, REINFORCEMENT, AND WORKMANSHIP FOR EDGE TREATMENTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
3. ALL WEIGHT-BEARING AND SUPPORT LUMBER MUST BE STRUCTURAL SELECT GRADE.
4. BEAM FASTENERS TO BE STAINLESS STEEL, SIMPSON STRONG TIE, OR EQUAL. DECKS SCREWS TO BE HEAVY-DUTY STAINLESS STEEL.



SECTION B — B

FILENAME: P:\1153 SMC GI FEASIBILITY ANALYSIS & GI DETAILS\400 TECHNICAL\420 CAD DESIGN\422 NEW SMC GI DETAILS\03_CAD\BC 1.13 TIMBER FOOT BRIDGE SECTION.DWG

EDGE TREATMENTS															INLETS											OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS	
NOTES	COMPONENTS														NOTES	COMPONENTS										NOTES	COMPONENTS					NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 1.8	BC 1.9	BC 1.10	BC 1.11	BC 1.12	BC 1.13		BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 2.6	BC 2.7		BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4		BC 4.1	BC 5.1	BC 5.2

JAMES C. PORTER DIRECTOR OF PUBLIC WORKS	GREEN INFRASTRUCTURE TYPICAL DETAILS COUNTY OF SAN MATEO	DATE 06.2020 VERSION 01 REVISED N/A	BIORETENTION COMPONENTS EDGE TREATMENTS TIMBER FOOT BRIDGE – SECTION	FILE NO. BC 1.13

PURPOSE:

CURB CUTS AND TRENCH DRAINS SERVE AS INLETS TO CONVEY STORMWATER RUNOFF TO A BIORETENTION FACILITY. CURB CUTS ARE TYPICALLY USED IN PLANTER APPLICATIONS WHEN THE FACILITY IS IMMEDIATELY ADJACENT TO THE ROADWAY (I.E. NO COURTESY STRIP), PROVIDING AN OPENING TO INTERCEPT AND CONVEY STORMWATER FROM THE GUTTER TO THE PLANTER. TRENCH DRAIN SYSTEMS ARE MOST COMMONLY USED TO CONVEY STORMWATER FROM A GUTTER THROUGH THE COURTESY STRIP TO A BIORETENTION PLANTER; PROVIDING A CONTINUOUS SURFACE FOR PEDESTRIAN ACCESS WHILE MINIMIZING ELEVATION LOSSES AT THE FACILITY INFLOW LOCATIONS. CURB CUT AND TRENCH DRAIN INLETS INCLUDE MODIFICATIONS TO THE GUTTER TO HELP DIRECT FLOW INTO THE FACILITY.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. THE DESIGNER MUST ENSURE THAT CURB CUTS AND TRENCH DRAIN INLETS ARE ADEQUATELY SIZED, SPACED, AND SLOPED. THE CURB CUT OPENING WIDTH MUST BE SIZED BASED ON THE CATCHMENT AREA, LONGITUDINAL SLOPE ALONG THE CURB, AND THE CROSS SLOPE OF THE GUTTER OR ADJACENT PAVEMENT AT THE INLET. SEE SIZING EQUATIONS AND NOMOGRAPHS FOR CURB OPENING INLETS IN THE U.S. DEPARTMENT OF TRANSPORTATION HYDRAULIC ENGINEERING CIRCULAR NO. 27.
3. TRENCH DRAIN GRATES AND ASSEMBLIES MUST COMPLY WITH SMC ACCESSIBILITY REQUIREMENTS AND SMCWPPP GI DESIGN GUIDE CHAPTER 4.
4. USE CURB CUT INLET/OUTLET MODIFICATION WITH METAL PLATE TOP (BC 2.2.1) WHEN ADJACENT TO VEHICLE PARKING AND LOADING AREAS

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ CURB CUT DIMENSIONS
- ☐ FRAME AND GRATE TYPE/MATERIAL AND DIMENSIONS
- ☐ CHANNEL DIMENSIONS
- ☐ CONTROL ELEVATIONS FOR OPENINGS AT GUTTER AND PLANTER WALL
- ☐ CURBCUT TYPE WITH OR WITHOUT METAL PLATE TOP MODIFICATION

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS					NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

JAMES C. PORTER

DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020

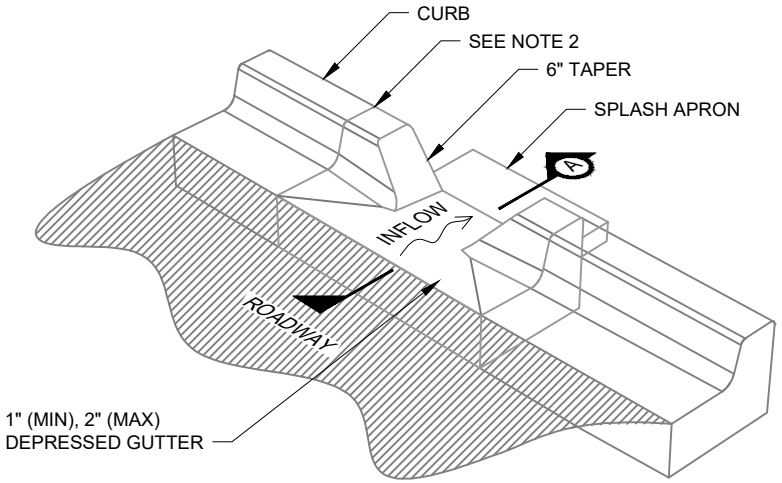
VERSION 01

REVISED N/A

BIORETENTION COMPONENTS

INLETS
DESIGNER NOTES

FILE NO. BC 2.1



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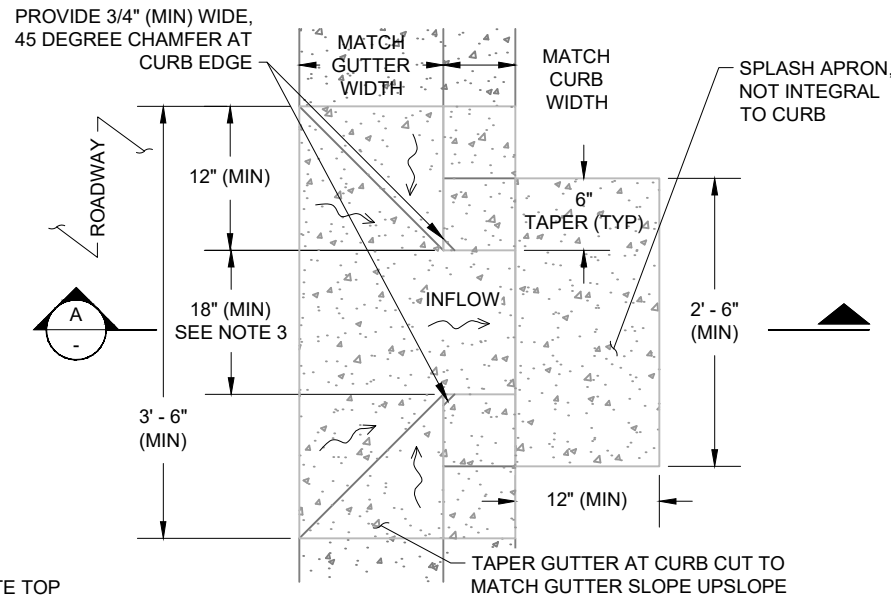
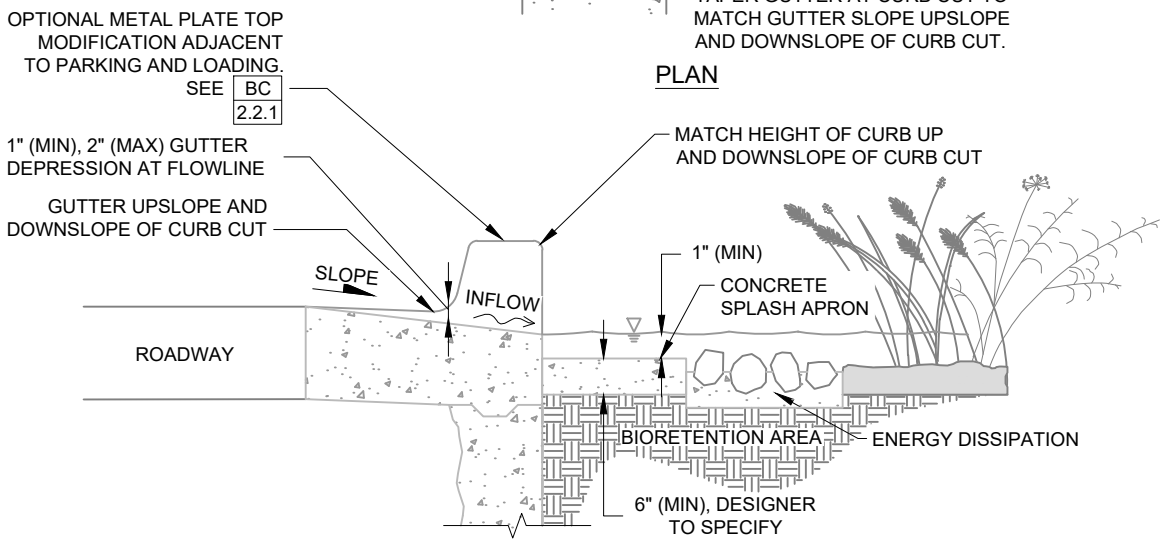


PLAN



SECTION A

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR CURB CUTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. BOND NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY AND DOWEL CONNECTION.
3. INLET WIDTH MAY BE INCREASED ON STEEPER GUTTER SLOPES. DESIGNER TO SPECIFY.

EDGE TREATMENTS									INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS								NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7		BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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GREEN INFRASTRUCTURE TYPICAL DETAILS

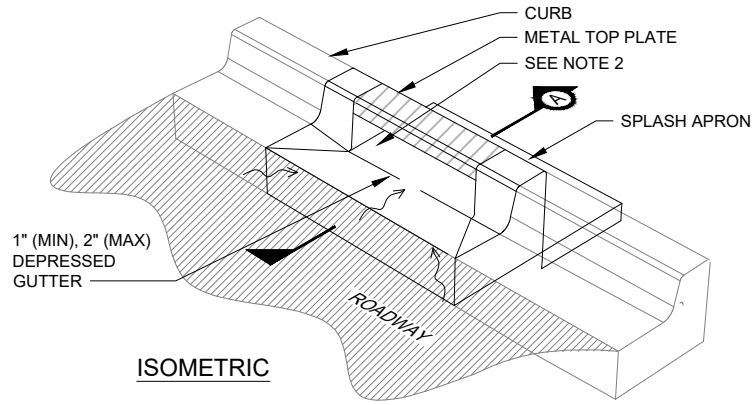
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

INLETS
CURB CUT WITH GUTTER MODIFICATION

FILE NO. BC 2.2



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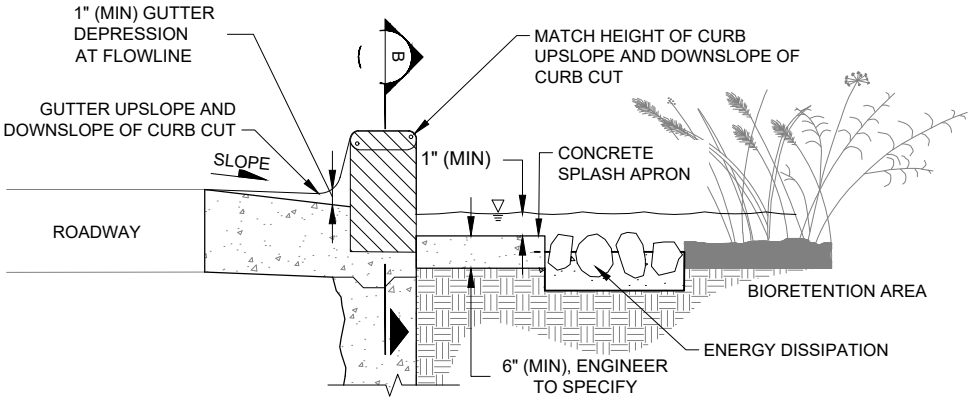
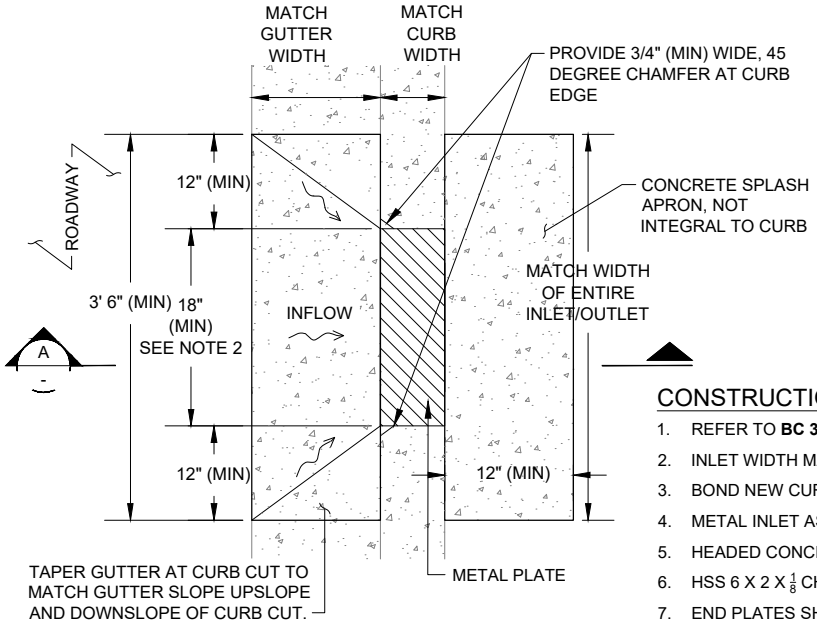
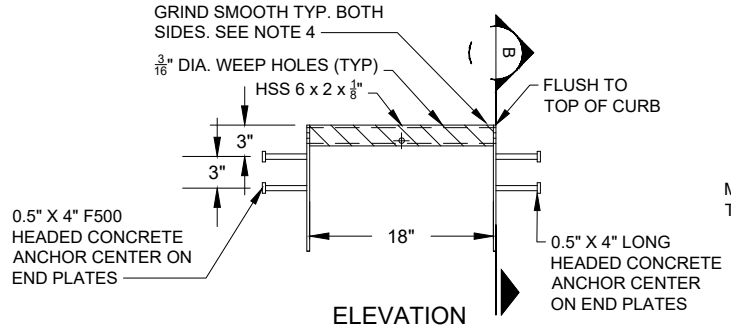


SECTION A

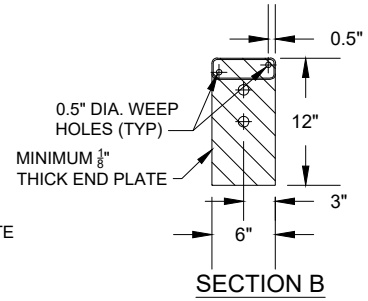


PLAN

METAL INLET ASSEMBLY



ELEVATION



SECTION B

CONSTRUCTION NOTES:

1. REFER TO **BC 3.1** NOTES FOR GUIDELINES AND CHECKLIST.
2. INLET WIDTH MAY BE GREATER ON STEEP GUTTER SLOPES. DESIGNER TO SPECIFY.
3. BOND NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY AND DOWEL CONNECTION.
4. METAL INLET ASSEMBLY SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A-123.
5. HEADED CONCRETE ANCHORS SHALL MEET THE REQUIREMENTS OF ASTM A-108.
6. HSS 6 X 2 X $\frac{1}{8}$ CHANNEL SHALL MEET THE REQUIREMENTS OF ASTM A-500 GRADE B.
7. END PLATES SHALL MEET THE REQUIREMENTS OF ASTM A-36
8. DESIGN VERTICAL WHEEL LOAD IS 8.5 KIPS ($\frac{1}{2}$ OF TANDEM AZLE WEIGHT SPECIFIED IN FHWA-HOP-06-105) AND SHALL WITHSTAND H-20 LOADING
9. SINGLE BEVEL GROOVE WELD
10. ALTERNATE MATERIAL FOR ASSEMBLY (E.G. CAST IRON, GRAY IRON) MAY BE USED PER DESIGN PLANS IF APPROVED BY JURISDICTION ENGINEER.

EDGE TREATMENTS									INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS								NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7		BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

JAMES C. PORTER

DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020

VERSION 01

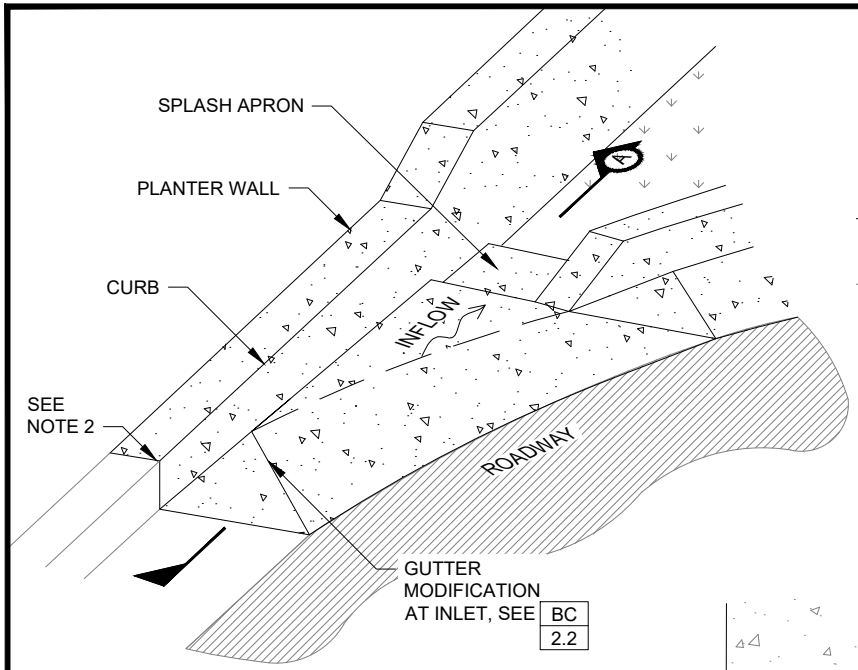
REVISED N/A

BIORETENTION COMPONENTS

INLETS

CURB CUT WITH METAL PLATE TOP

FILE NO. BC 2.2.1



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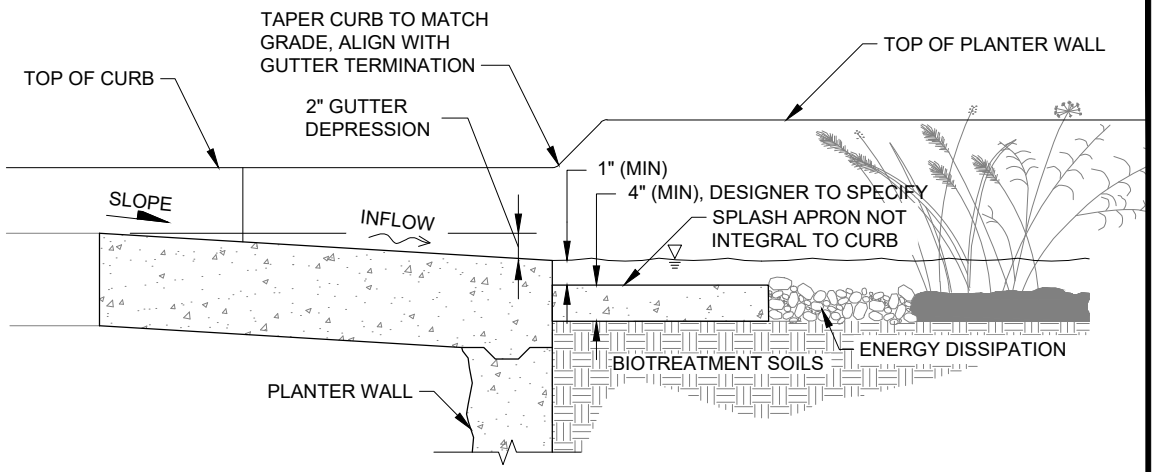
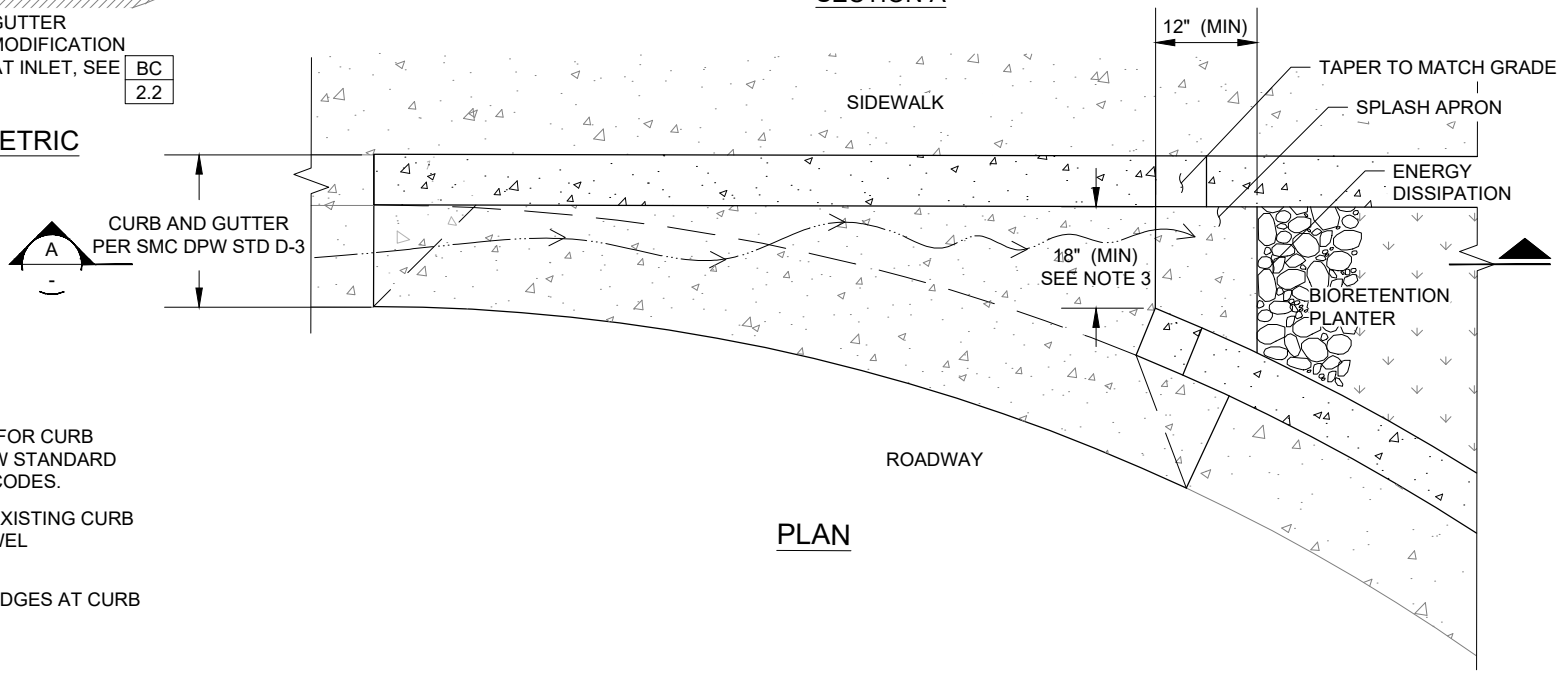


SECTION A



PLAN

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR CURB CUTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. BOND NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY AND DOWEL CONNECTION.
3. OPTIONAL CHAMFERED OR FILLET EDGES AT CURB CUTS MAY BE USED.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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GREEN INFRASTRUCTURE TYPICAL DETAILS

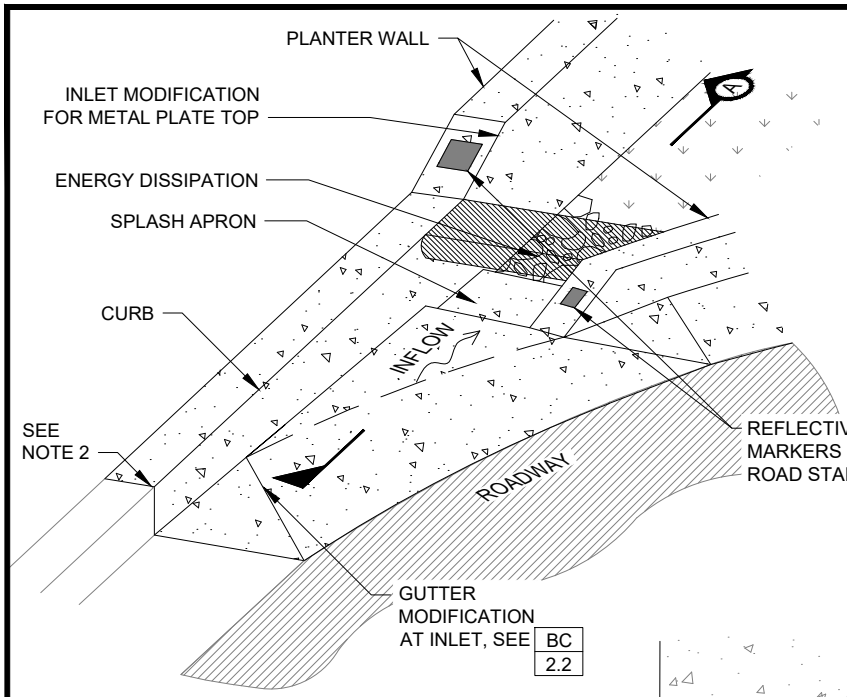
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

INLETS
CURB CUT AT BULB OUT

FILE NO. BC 2.3



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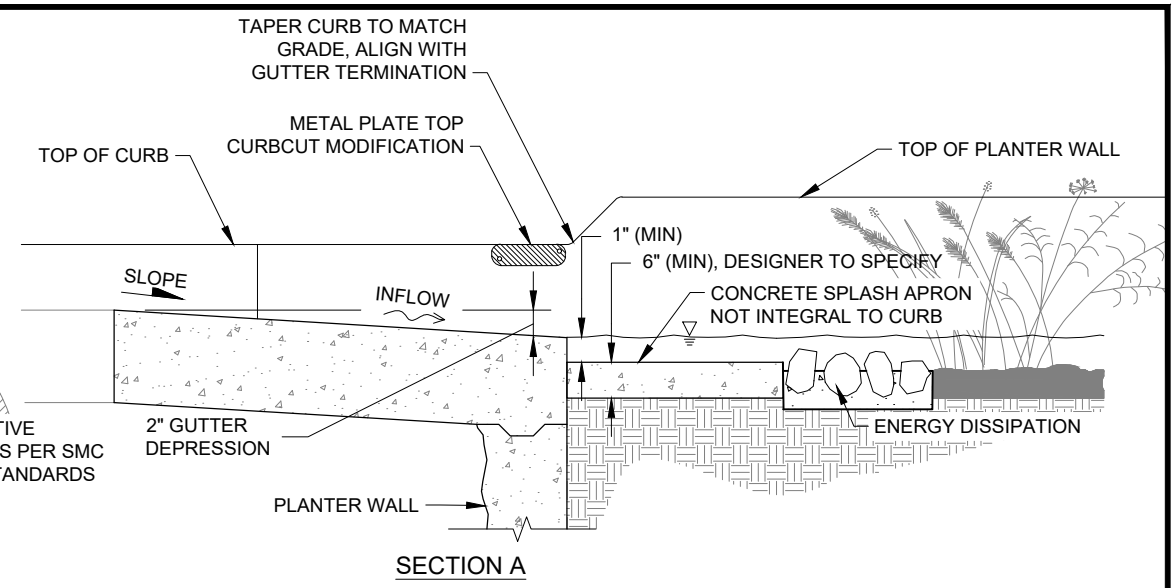
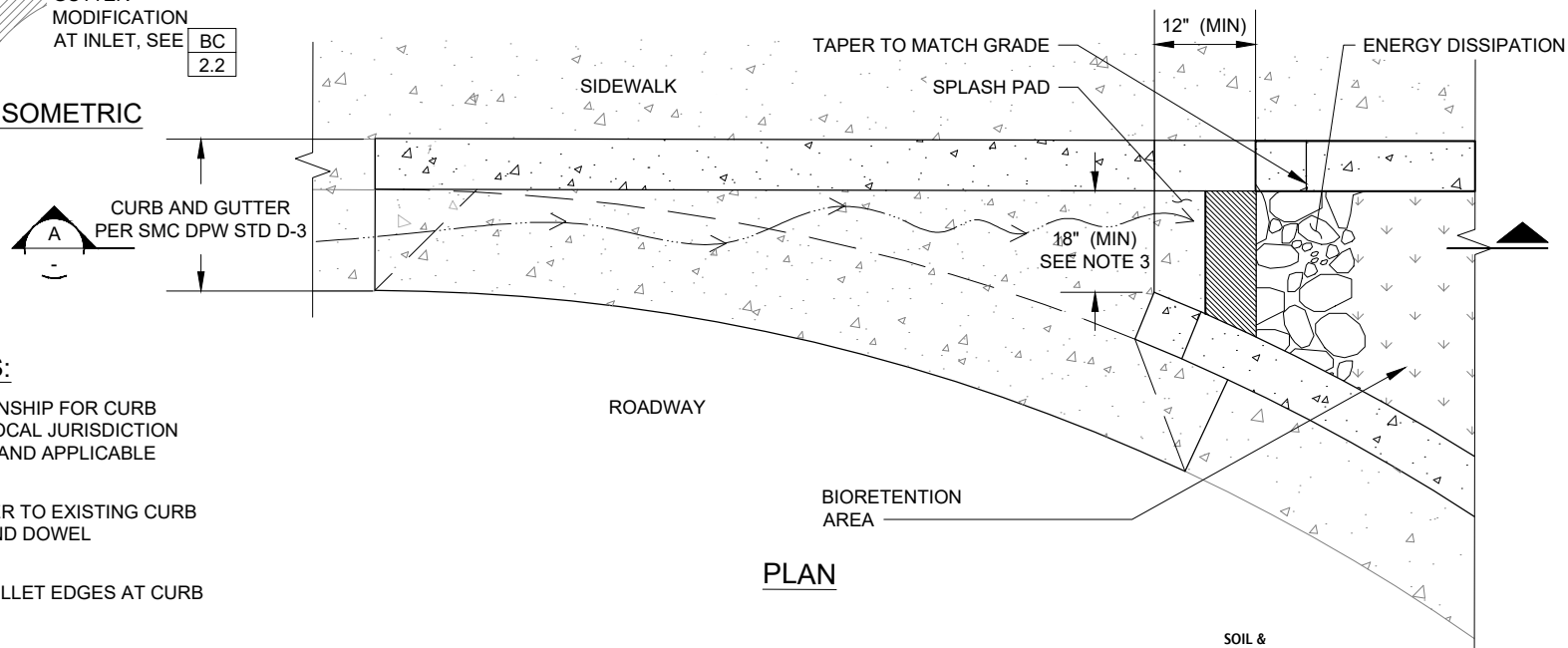


SECTION A



PLAN

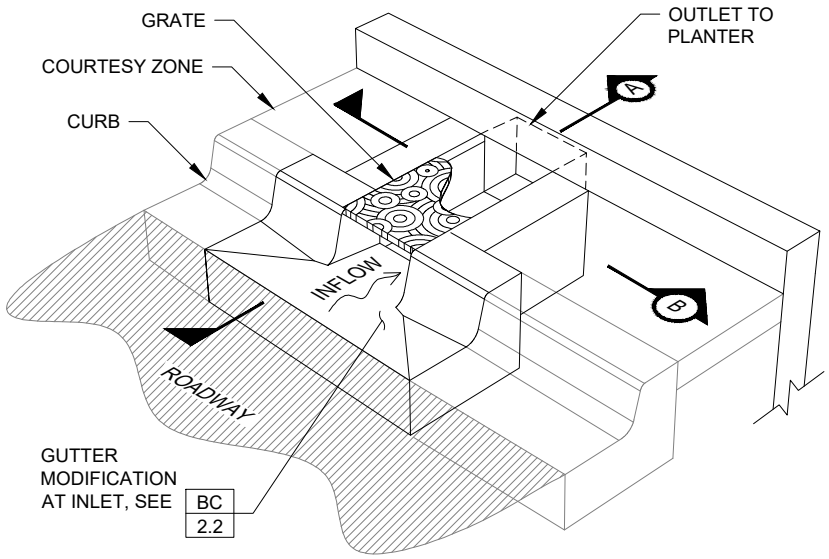
CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR CURB CUTS SHALL CONFORM TO LOCAL JURISDICTION STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. BOND NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY AND DOWEL CONNECTION.
3. OPTIONAL CHAMFERED OR FILLET EDGES AT CURB CUTS MAY BE USED.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

JAMES C. PORTER DIRECTOR OF PUBLIC WORKS	GREEN INFRASTRUCTURE TYPICAL DETAILS COUNTY OF SAN MATEO	DATE 06.2020 VERSION 01 REVISED N/A	BIORETENTION COMPONENTS INLETS – CURB CUT AT BULB OUT MODIFICATION WITH METAL PLATE TOP	FILE NO. BC 2.3.1

NOT FOR CONSTRUCTION - REFER TO USER GUIDE



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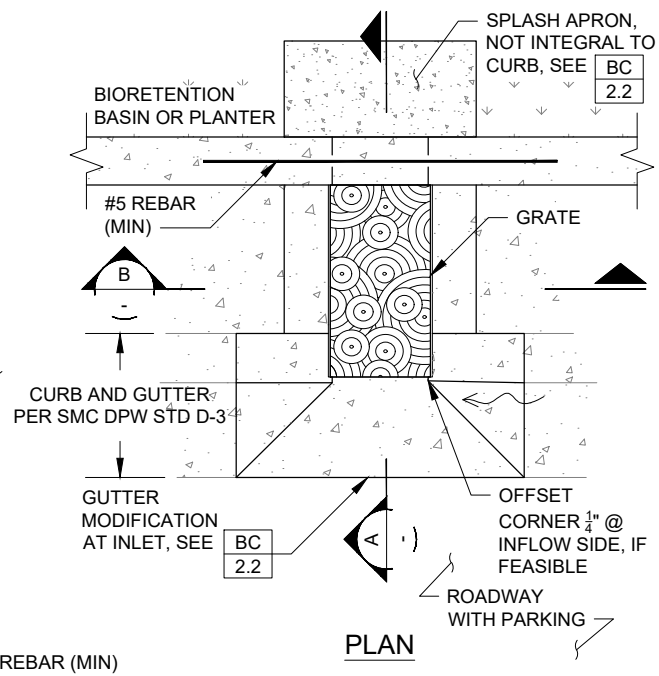
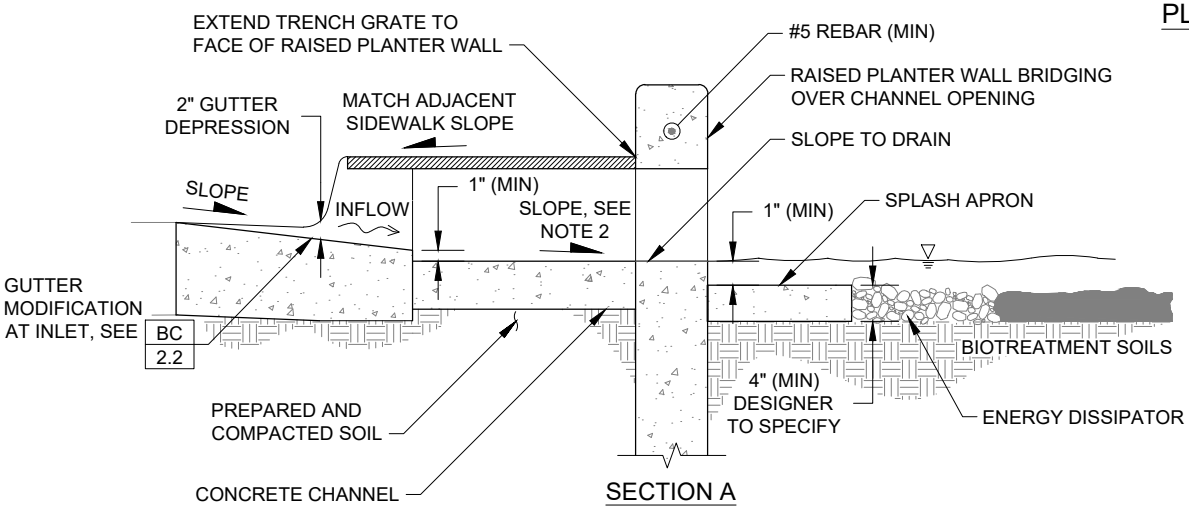


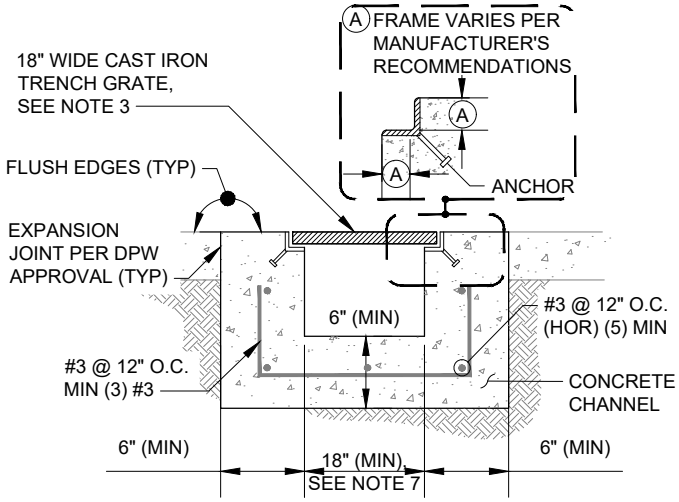
PLAN

CONSTRUCTION NOTES:

1. ALL MATERIAL, REINFORCEMENT AND WORKMANSHIP FOR TRENCH DRAIN ASSEMBLY SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. SLOPE TO PROVIDE AT LEAST 1 INCH DROP OVER LENGTH OF CHANNEL OR A MINIMUM OF 2 PERCENT, WHICHEVER IS LARGER.
3. ALL TRENCH GRATES SHALL BE REMOVABLE, RATED PER THE ANTICIPATED LOADING, AND BOLTED IN PLACE OR OUTFITTED WITH APPROVED TAMPER-RESISTANT LOCKING MECHANISM, FLUSH OR RECESSED IN GRATE.
4. BOND NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY AND DOWEL CONNECTION.
5. HORIZONTAL CONTROL JOINTS SHALL BE PROVIDED EVERY 10 LINEAR FEET, OR PER MANUFACTURER'S RECOMMENDATIONS.
6. APPLY EPOXY BONDING AGENT AT ALL TRENCH DRAIN CONSTRUCTION COLD JOINTS.
7. INLET CURB CUT AND CONCRETE CHANNEL WIDTH SHALL BE INCREASED ON STEEPER GUTTER SLOPES. DESIGNER TO SPECIFY.



SECTION A



SECTION B

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

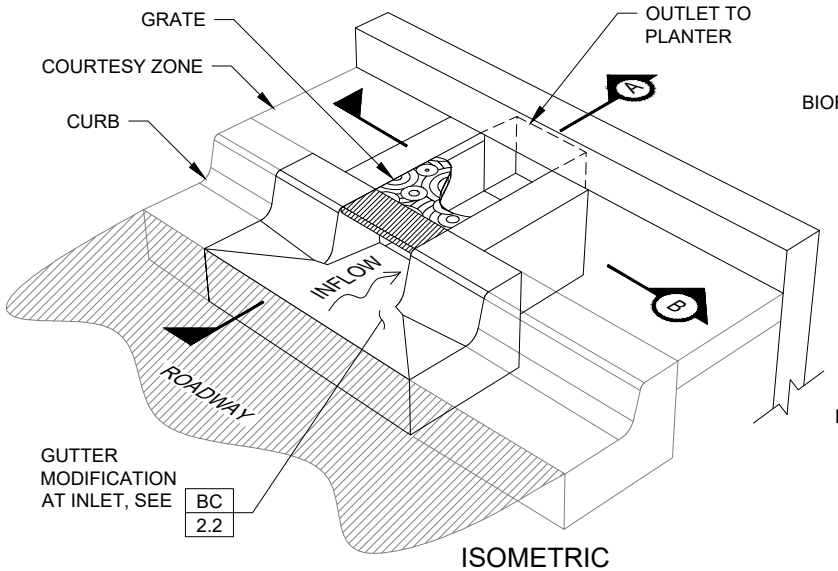
DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

INLETS
CURB CUT WITH TRENCH DRAINS

FILE NO.
BC
2.4

NOT FOR CONSTRUCTION - REFER TO USER GUIDE



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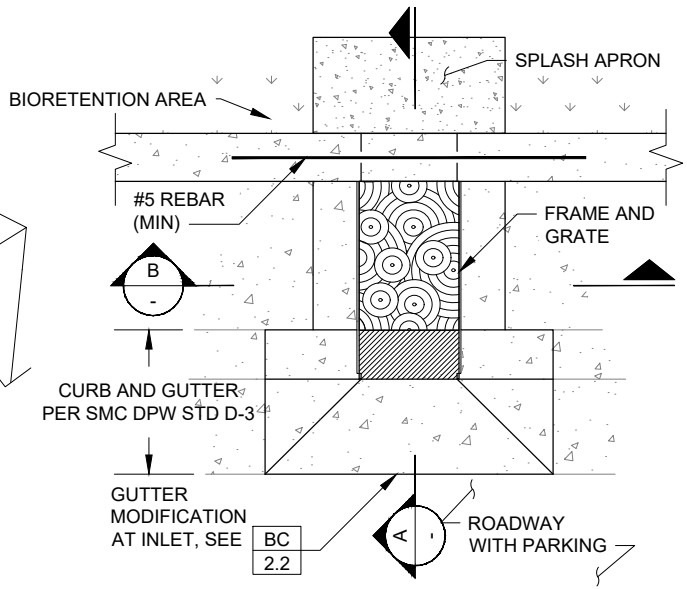
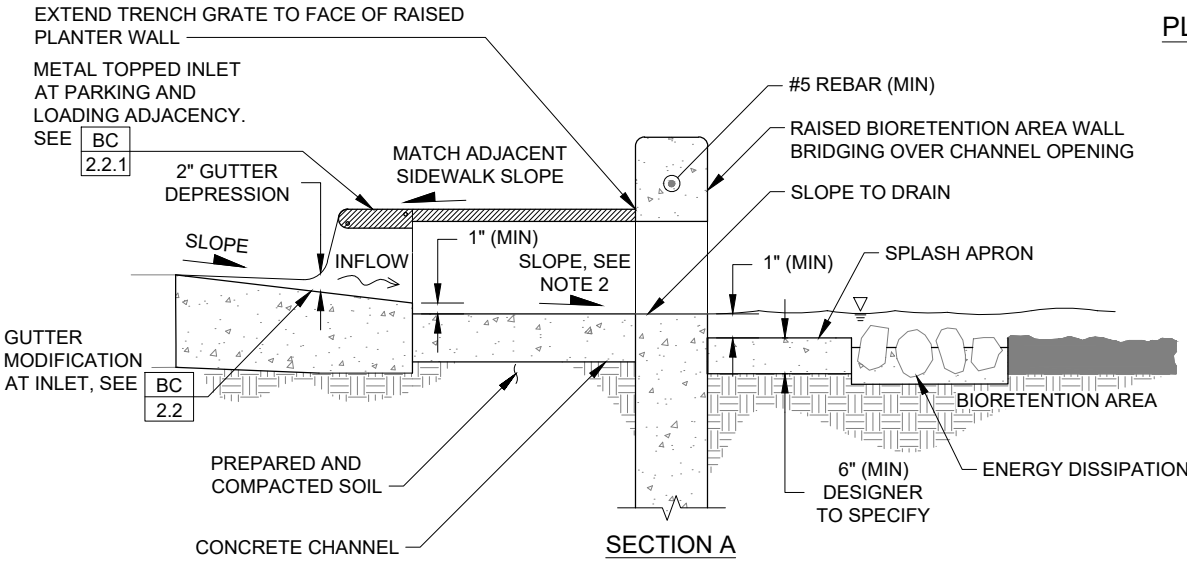


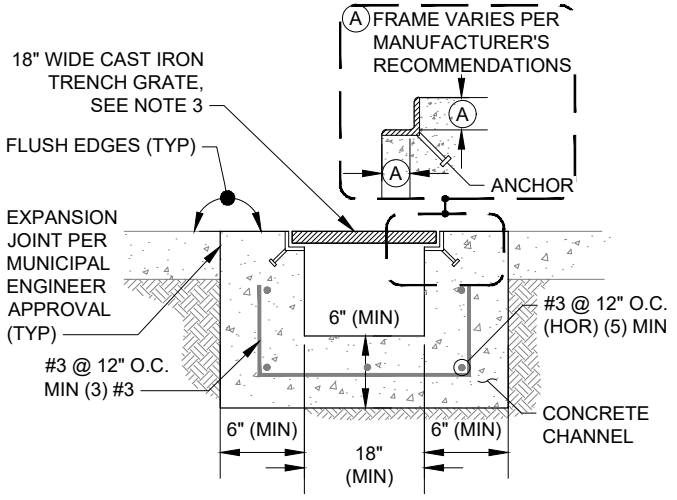
PLAN

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR TRENCH DRAIN ASSEMBLY SHALL CONFORM TO MUNICIPAL'S STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. SLOPE TO PROVIDE AT LEAST 1 INCH DROP OVER LENGTH OF CHANNEL OR A MINIMUM OF 2 PERCENT, WHICHEVER IS LARGER.
3. ALL TRENCH GRATES SHALL BE REMOVABLE, RATED PER THE ANTICIPATED LOADING, AND BOLTED IN PLACE OR OUTFITTED WITH APPROVED TAMPER-RESISTANT LOCKING MECHANISM, FLUSH OR RECESSED IN GRATE.
4. BOND NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY AND DOWEL CONNECTION.
5. HORIZONTAL CONTROL JOINTS SHALL BE PROVIDED EVERY 10 LINEAR FEET, OR PER MANUFACTURER'S RECOMMENDATIONS.
6. APPLY EPOXY BONDING AGENT AT ALL TRENCH DRAIN CONSTRUCTION COLD JOINTS.
7. INLET CURB CUT AND CONCRETE CHANNEL WIDTH SHALL BE INCREASED ON STEEPER GUTTER SLOPES. DESIGNER TO SPECIFY.



SECTION A



SECTION B

EDGE TREATMENTS								INLETS							OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS						NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

JAMES C. PORTER
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GREEN INFRASTRUCTURE TYPICAL DETAILS

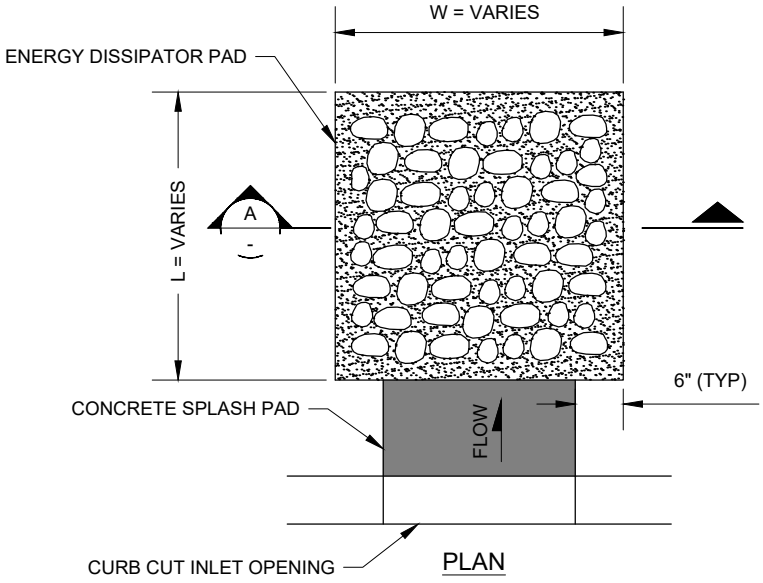
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

INLETS
CURB CUT WITH TRENCH DRAINS MODIFICATION

FILE NO. BC 2.4.1



PLAN

DIMENSIONS:

WIDTH (W) x LENGTH (L)

INLET:

W = EXTEND MIN. 12" BEYOND SPLASH APRON

L = EXTEND MIN. 12" BEYOND SPLASH APRON

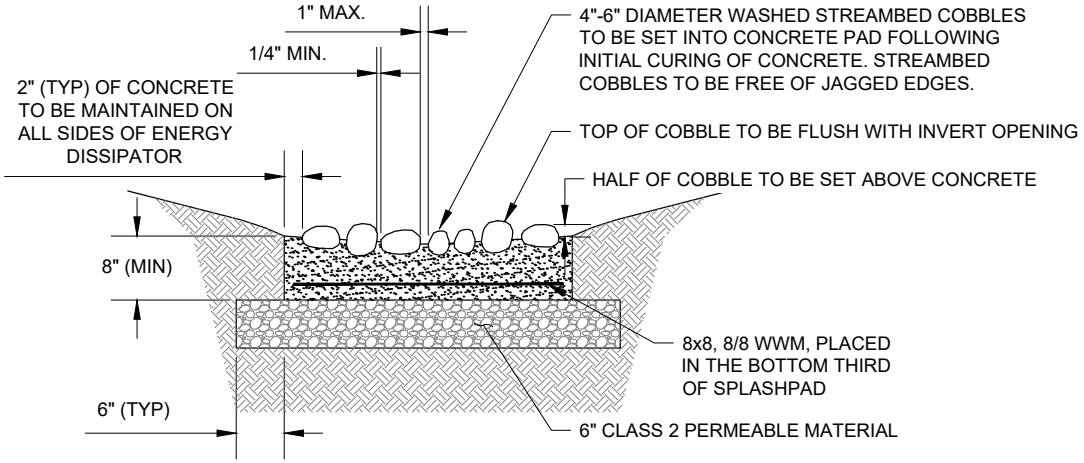
OUTLET:

W = EXTEND 6" MIN. BEYOND BOTTOM OF CURB CUT

L = 12" MIN.

CONSTRUCTION NOTES:

1. COBBLES SHALL BE ARRANGED IN PATTERN THAT PREVENTS LINEAR FLOW PATHS THROUGH THE ENERGY DISSIPATOR.
2. ENSURE THAT SOIL BENEATH ENERGY DISSIPATORS IS STABLE AND WILL NOT SETTLE OVER TIME.
3. ENSURE CONCAVITY IN BOTH DIRECTIONS OF ENERGY DISSIPATOR.



SECTION A-A

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

FILENAME: C:\USERS\USER\DESKTOP\LOTUS\SAN MATEO\BC 2.5_SMC.DWG

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GREEN INFRASTRUCTURE TYPICAL DETAILS

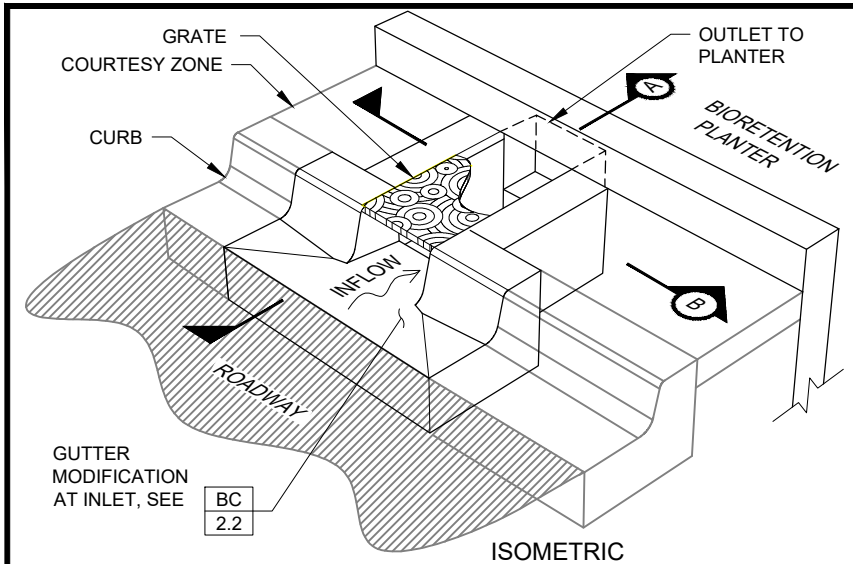
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

INLETS
EMBEDDED ROCK ENERGY DISSIPATOR

FILE NO.
BC
2.5

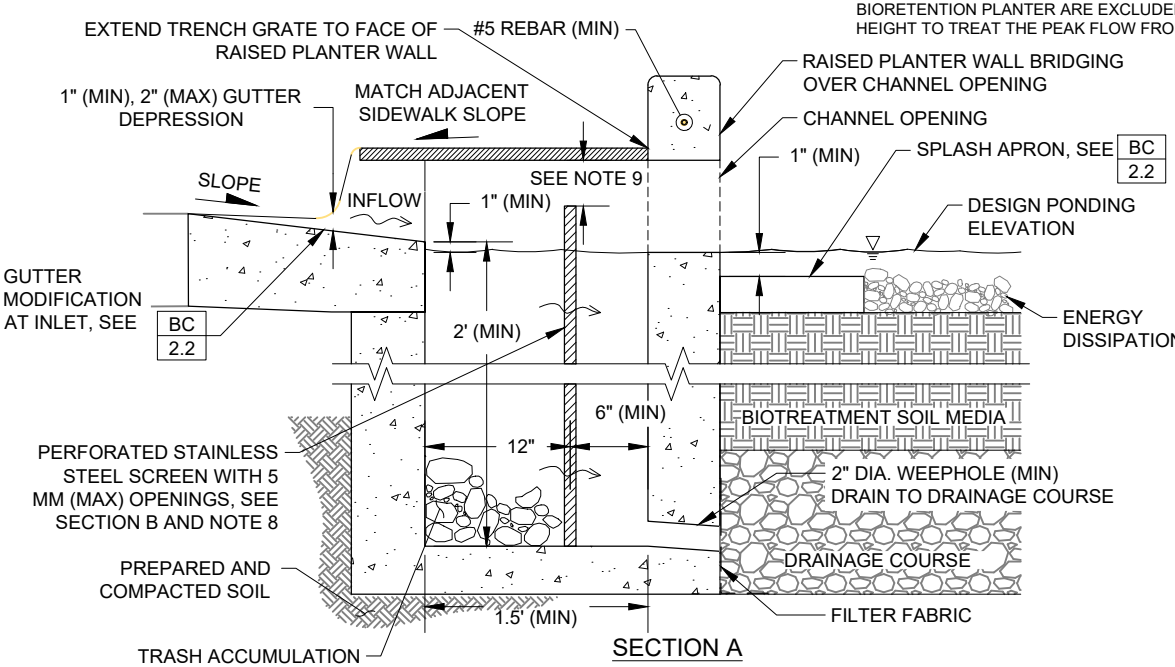


ISOMETRIC

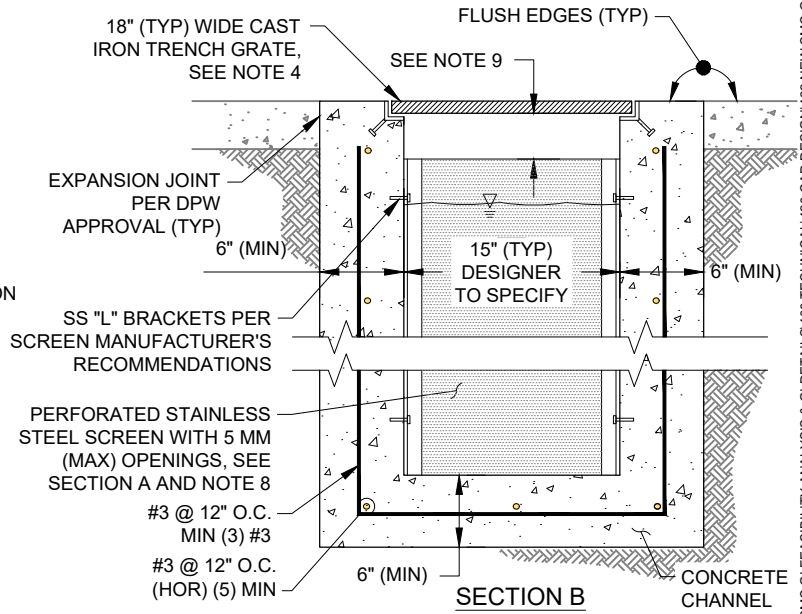
NOTES:

1. THIS DETAIL SHOWS ONE EXAMPLE OF A CUSTOMIZED TRASH CAPTURE DEVICE THAT CAN BE PROVIDED ON THE INLET SIDE OF ROADSIDE BIORETENTION PLANTERS TO MEET THE FULL TRASH CAPTURE SYSTEM REQUIREMENTS MANDATED BY THE STATE AND REGIONAL WATER BOARDS* OR AS A PRE-TREATMENT MEASURE IF THE BIORETENTION PLANTER IS DESIGNED TO MEET THE FULL TRASH CAPTURE REQUIREMENTS.
2. ALL MATERIAL AND WORKMANSHIP FOR TRENCH DRAIN AND TRASH CAPTURE ASSEMBLY SHALL CONFORM TO COUNTY OF SAN MATEO STANDARD SPECIFICATIONS AND APPLICABLE PUBLIC WORKS CODES.
3. PROVIDE AT LEAST 1 INCH DROP BETWEEN INLET ELEVATION AT GUTTER AND PONDING ELEVATION.
4. ALL TRENCH GRATES/TRASH CAPTURE STRUCTURE LIDS SHALL BE REMOVABLE, RATED PER THE ANTICIPATED LOADING (H-20 LOADING WITHIN PUBLIC STREETS), AND BOLTED IN PLACE OR OUTFITTED WITH APPROVED TAMPER-RESISTANT LOCKING MECHANISM, FLUSH OR RECESSED IN GRATE.
5. BOND NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY AND DOWEL CONNECTION.
6. HORIZONTAL CONTROL JOINTS SHALL BE PROVIDED EVERY 10 LINEAR FEET, OR PER MANUFACTURER'S RECOMMENDATIONS.
7. APPLY EPOXY BONDING AGENT AT ALL TRENCH DRAIN CONSTRUCTION COLD JOINTS.
8. SCREEN SHALL BE CUSTOMIZED VERSION OF CONNECTOR PIPE SCREEN (CPS) DEVICE THAT IS LISTED IN TABLE 1 OF THE STATE WATER BOARD'S CERTIFIED FULL CAPTURE SYSTEM LIST OF TRASH TREATMENT CONTROL DEVICES. DESIGNER TO WORK WITH SELECTED MANUFACTURER ON THE DETAILED SCREEN DESIGN AND SPECIFICATIONS.
9. DESIGNER TO SET HEIGHT OF SCREEN PER SPECIFIC PROJECT NEEDS AND HYDRAULIC CONDITIONS*. THE MINIMUM HEIGHT OF SCREEN SHALL BE AT LEAST AS HIGH AS MINIMUM FREEBOARD ON DESIGN PONDING ELEVATION (TYPICALLY 2") WHILE ALLOWING ADEQUATE CLEARANCE BETWEEN BOTTOM OF TRENCH DRAIN AND TOP OF SCREEN (IDEALLY 4").

*IF THE INLET STRUCTURE IS BEING USED TO FULFILL FULL TRASH CAPTURE SYSTEM REQUIREMENTS (AND THE BENEFITS OF THE BIORETENTION PLANTER ARE EXCLUDED), THE DESIGNER WILL NEED TO DEMONSTRATE THAT THE SCREEN IS SET AT AN ADEQUATE HEIGHT TO TREAT THE PEAK FLOW FROM THE 1-YEAR, 1-HOUR STORM IN THE AREA DRAINING TO THE INLET.



SECTION A



SECTION B

EDGE TREATMENTS								
NOTES	COMPONENTS							
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	

INLETS								
NOTES	COMPONENTS							
BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 2.6

OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

FILENAME: P:\1153 SMC GI FEASIBILITY ANALYSIS & GI DETAILS\400 TECHNICAL\420 CAD DESIGN\422 NEW SMC GI DETAILS\03_CAD\BC 2.6 TRASH CAPTURE INLET.DWG

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

INLET WITH TRASH CAPTURE
CURB CUT WITH TRENCH DRAINS

FILE NO.
BC 2.6

PURPOSE:

BIORETENTION OUTLET STRUCTURES CONVEY SURFACE AND/OR SUBSURFACE OUTFLOWS FROM A BIORETENTION FACILITY TO AN APPROVED DISCHARGE LOCATION.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. THE DESIGNER MUST SIZE CURB CUT, GRATE, AND OTHER OVERFLOW STRUCTURE FEATURES TO SATISFY RESPONSIBLE JURISDICTION HYDRAULIC REQUIREMENTS.
3. AN OUTLET STRUCTURE OR CLEANOUT(S) THAT ALLOWS MAINTENANCE ACCESS TO ALL PIPES IS REQUIRED FOR FACILITIES WITH UNDERDRAINS.
4. IF SITE CONSTRAINTS NECESSITATE STORM DRAIN PIPE IN AN AREA SUBJECT TO VEHICULAR TRAFFIC OR OTHER LOADING, APPROPRIATE COVER DEPTH AND PIPE MATERIAL MUST BE SPECIFIED.
5. OUTLET PIPES MUST BE EQUIPPED WITH CLEANOUTS, SEE CLEANOUT DETAILS (**GC 5.2**).
6. DESIGNER SHALL EVALUATE BUOYANCY OF STRUCTURES FOR SITE SPECIFIC APPLICATION AND SPECIFY THICKENED OR EXTENDED BASE / ANTI-FLOTATION COLLAR, AS NECESSARY.
7. USE CURB CUT INLET/OUTLET WITH METAL PLATE TOP (BC 2.2.1) WHEN ADJACENT TO VEHICLE PARKING AND LOADING AREAS

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ OUTLET STRUCTURE TYPE/MATERIAL, DIAMETER, AND DEPTH
- ☐ ATRIUM GRATE MANUFACTURER, MODEL NO., AND SIZE
- ☐ FRAME AND GRATE TYPE, MODEL NO., AND SIZE
- ☐ CONTROL ELEVATIONS FOR OUTLET STRUCTURE RIMS
- ☐ MATERIAL AND DIAMETER FOR ALL PIPES
- ☐ WATER TIGHT CONNECTOR TYPE FOR ALL WALL PENETRATIONS (E.G., GROUTED, COMPRESSION, BOOT), SEE GC 2.9 AND GC 2.10
- ☐ CURB CUT WITH OR WITHOUT METAL PLATE TOP MODIFICATION

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020

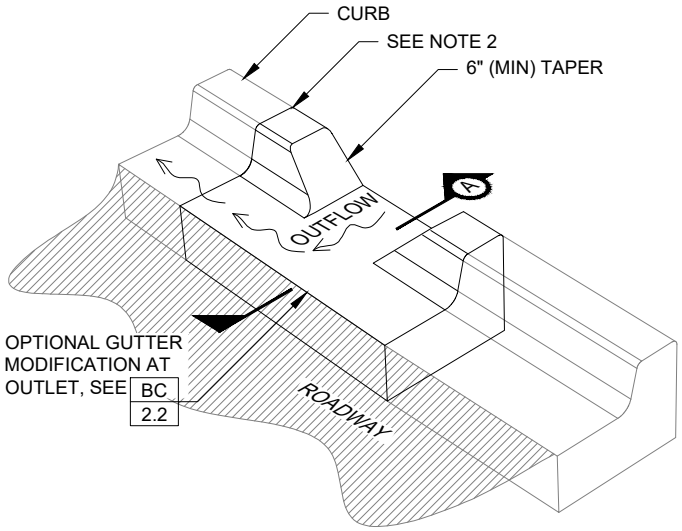
VERSION 01

REVISED N/A

BIORETENTION COMPONENTS

OUTLETS
DESIGNER NOTES

FILE NO. BC 3.1



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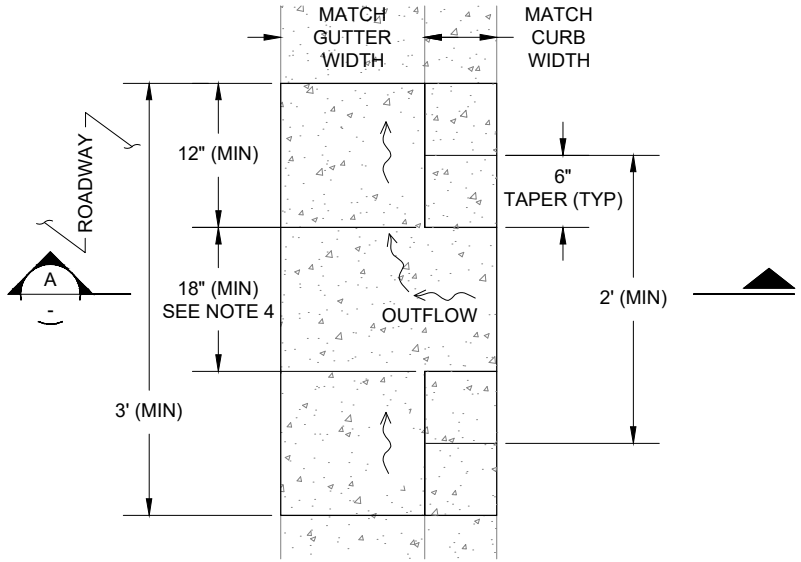
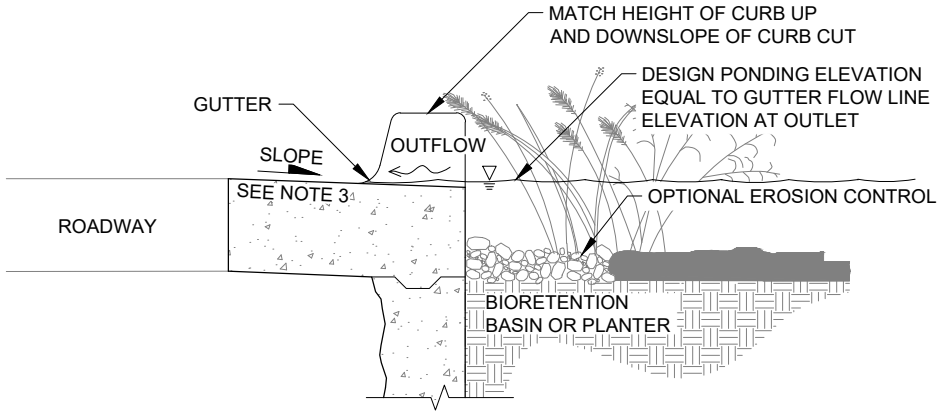


PLAN

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR CURB CUTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. BOND NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY AND DOWEL CONNECTION.
3. MATCH GUTTER SLOPE UP AND DOWNSLOPE OF CURB CUT SLOPE SIMILAR TO INLET DETAIL UNLESS MODIFYING GUTTER
4. OUTLET CURB CUT WIDTH MAY BE INCREASED ON STEEP GUTTER SLOPES. DESIGNER TO SPECIFY.
5. OPTIONAL CHAMFERED OR FILLET EDGES AT CURB CUTS MAY BE USED.



SECTION A

OUTLET - CURB CUT (1)

EDGE TREATMENTS								INLETS								OUTLETS						UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

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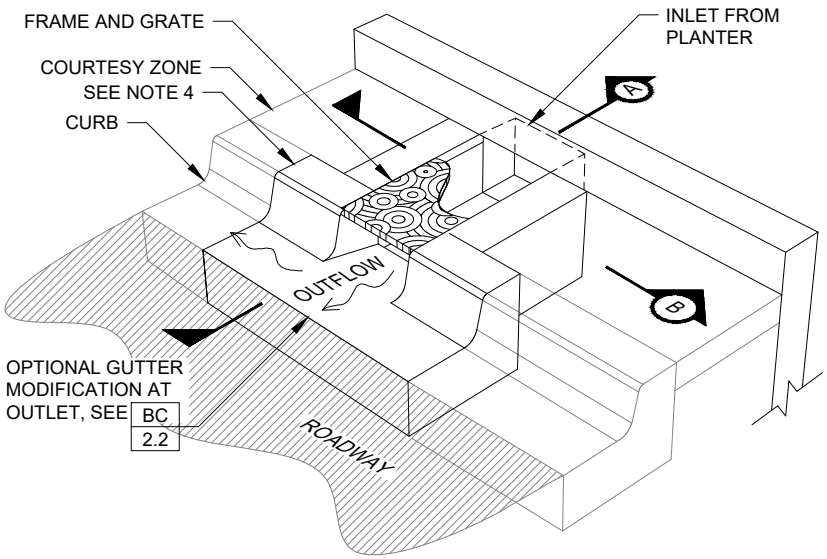
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

OUTLETS
CURB CUT

FILE NO. BC 3.2



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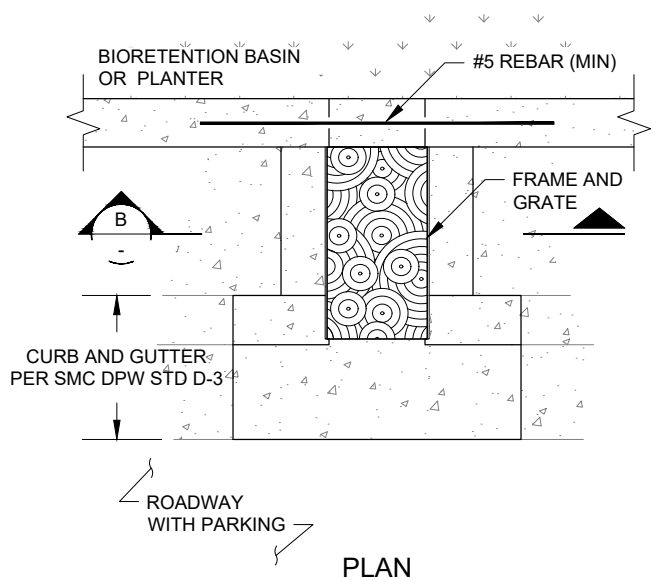
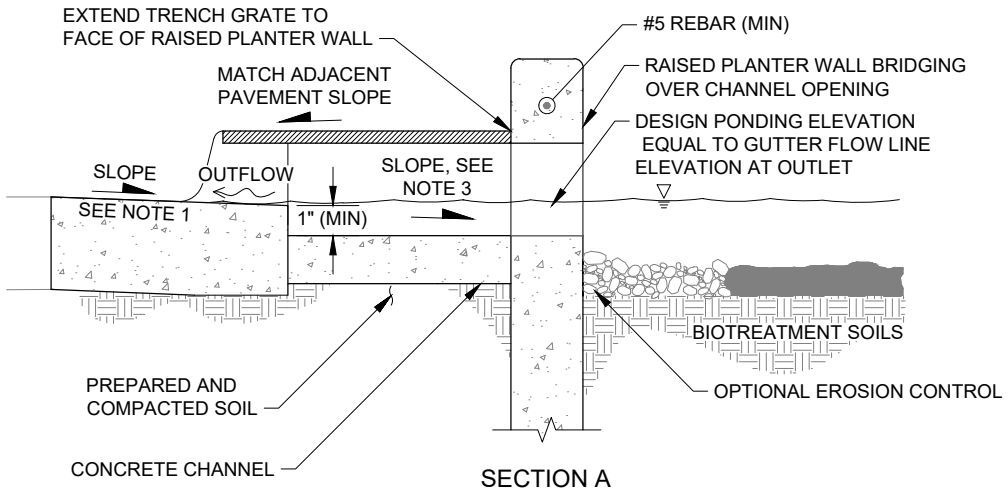


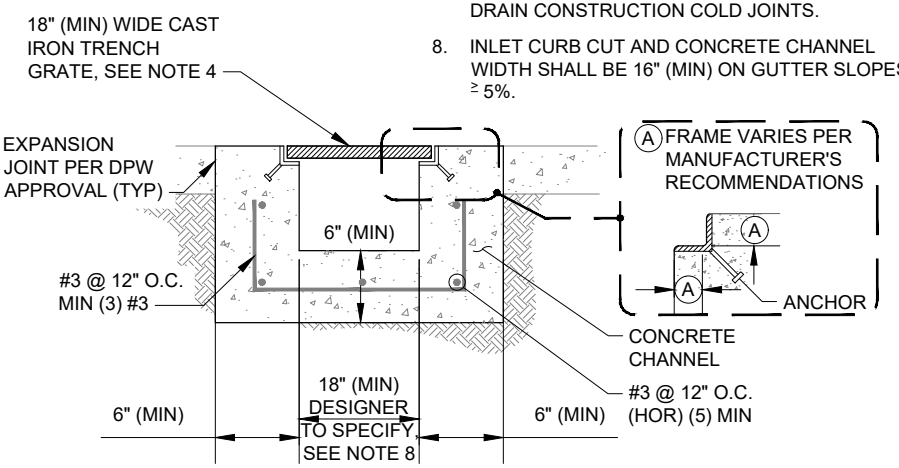
PLAN

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR TRENCH DRAIN ASSEMBLY SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. MATCH GUTTER SLOPE UP AND DOWNSLOPE (UNLESS MODIFYING GUTTER SLOPE INLET DETAIL).
3. SLOPE TO PROVIDE AT LEAST 1 INCH DROP OVER LENGTH OF CHANNEL OR A MINIMUM OF 2 PERCENT, WHICHEVER IS LARGER.
4. ALL TRENCH GRATES SHALL BE REMOVABLE, RATED PER THE ANTICIPATED LOADING, AND BOLTED IN PLACE OR OUTFITTED WITH APPROVED TAMPER-RESISTANT LOCKING MECHANISM, FLUSH OR RECESSED IN GRATE.
5. HORIZONTAL CONTROL JOINTS SHALL BE PROVIDED EVERY 10 LINEAR FEET, OR PER MANUFACTURER'S RECOMMENDATIONS.
6. BOND NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY AND DOWEL CONNECTION.
7. APPLY EPOXY BONDING AGENT AT ALL TRENCH DRAIN CONSTRUCTION COLD JOINTS.
8. INLET CURB CUT AND CONCRETE CHANNEL WIDTH SHALL BE 16" (MIN) ON GUTTER SLOPES ≥ 5%.



SECTION A



SECTION B

OUTLET - TRENCH DRAIN 1

EDGE TREATMENTS									INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS								NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7		BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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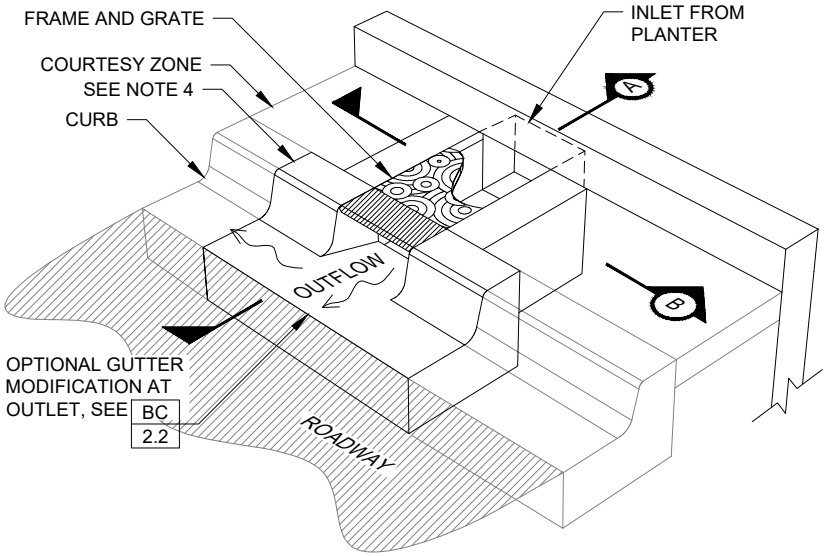
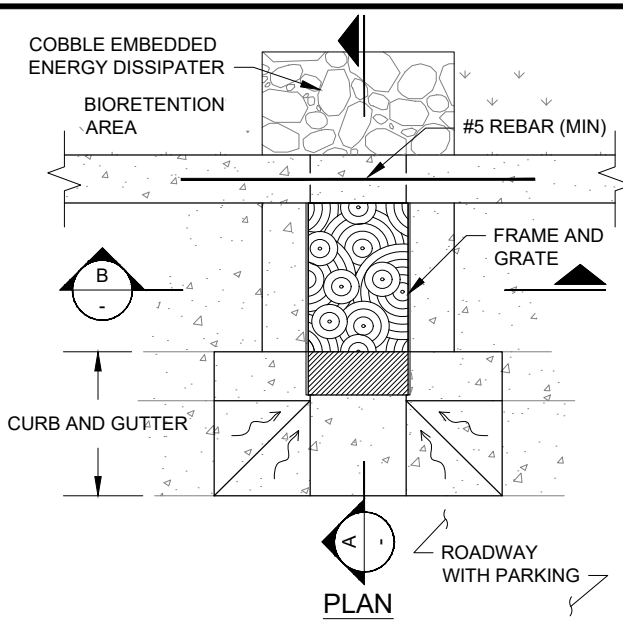
BIORETENTION COMPONENTS

OUTLETS
CURB CUT WITH TRENCH DRAIN

FILE NO. BC 3.3

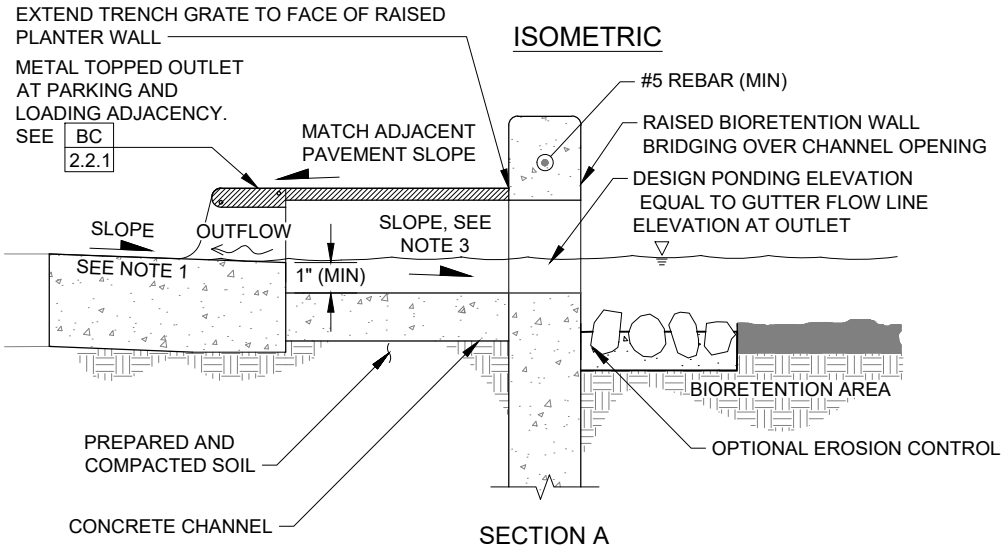




PLAN

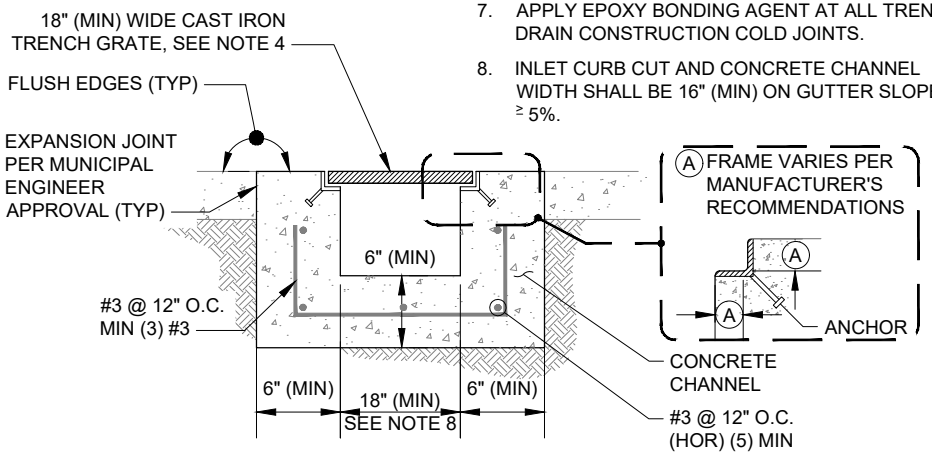
CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR TRENCH DRAIN ASSEMBLY SHALL CONFORM TO MUNICIPAL'S STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. MATCH GUTTER SLOPE UP AND DOWNSLOPE (UNLESS MODIFYING GUTTER SLOPE INLET DETAIL).
3. SLOPE TO PROVIDE AT LEAST 1 INCH DROP OVER LENGTH OF CHANNEL OR A MINIMUM OF 2 PERCENT, WHICHEVER IS LARGER.
4. ALL TRENCH GRATES SHALL BE REMOVABLE, RATED PER THE ANTICIPATED LOADING, AND BOLTED IN PLACE OR OUTFITTED WITH APPROVED TAMPER-RESISTANT LOCKING MECHANISM, FLUSH OR RECESSED IN GRATE.
5. HORIZONTAL CONTROL JOINTS SHALL BE PROVIDED EVERY 10 LINEAR FEET, OR PER MANUFACTURER'S RECOMMENDATIONS.
6. BOND NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH EPOXY AND DOWEL CONNECTION.
7. APPLY EPOXY BONDING AGENT AT ALL TRENCH DRAIN CONSTRUCTION COLD JOINTS.
8. INLET CURB CUT AND CONCRETE CHANNEL WIDTH SHALL BE 16" (MIN) ON GUTTER SLOPES ≥ 5%.



ISOMETRIC

SECTION A



SECTION B

OUTLET - TRENCH DRAIN

1

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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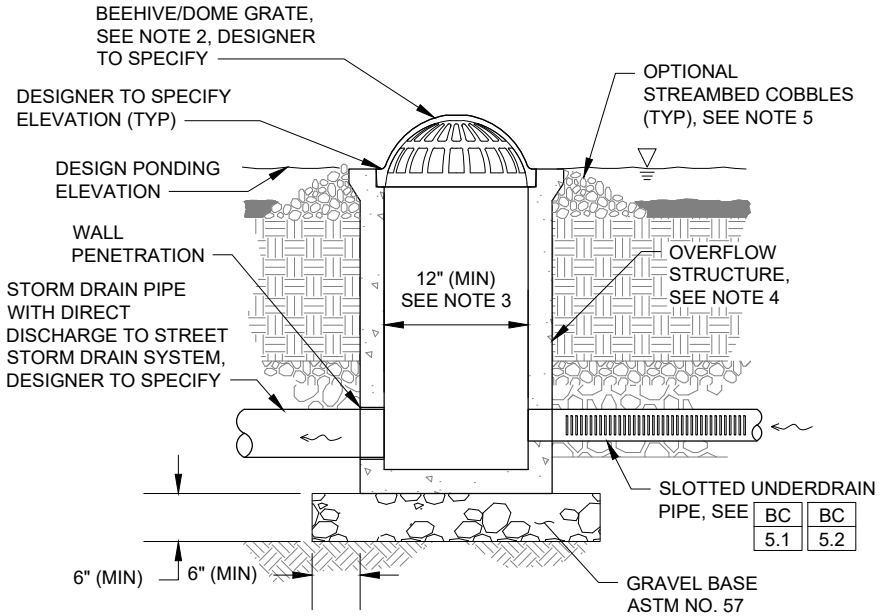
REVISED N/A

BIORETENTION COMPONENTS

OUTLETS – CURB CUT WITH TRENCH DRAIN MODIFICATION AND METAL PLATE TOP OUTLET

FILE NO. BC 3.3.1



OVERFLOW STRUCTURE AREA DRAIN (1)

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR OVERFLOW STRUCTURES SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. SIZE OF ATRIUM GRATE SHALL MATCH SIZE OF RISER SPECIFIED IN PLANS, SHALL BE REMOVABLE TO PROVIDE MAINTENANCE ACCESS, AND SHALL BE BOLTED IN PLACE OR OUTFITTED WITH APPROVED TAMPER-RESISTANT LOCKING MECHANISM. MAXIMUM GRATE OPENINGS SHALL BE 4 INCHES. GRATE MATERIAL SPECIFICATION SHALL CONSIDER SITE CONDITIONS, E.G. PUBLIC VS PRIVATE SETTING, TRAFFIC LOADING, UV EXPOSURE, AND PROXIMITY TO OCEAN/BAY.
3. IF INTERIOR DEPTH OF OVERFLOW STRUCTURE EXCEEDS 5 FEET, A MINIMUM CLEAR SPACE OF 30 INCH BY 30 INCH SHALL BE PROVIDED FOR MAINTENANCE ACCESS.
4. BARREL/BOX AND BASE OF CATCH BASIN MAY BE PRE-CAST WITH REINFORCING STEEL PER MANUFACTURER'S RECOMMENDATIONS, POURED IN PLACE CONCRETE WITHOUT STEEL PER SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES, OR NYLOPLAST DRAIN BASIN (2812AG OR EQUAL). ENGINEER TO SPECIFY.
5. MINIMUM STREAMBED COBBLE DIAMETER SHALL BE LARGER THAN MAXIMUM GRATE OPENING.
6. GROUT ALL PENETRATIONS, CRACKS, SEAMS, AND JOINTS WITH CLASS "C" MORTAR.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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GREEN INFRASTRUCTURE TYPICAL DETAILS

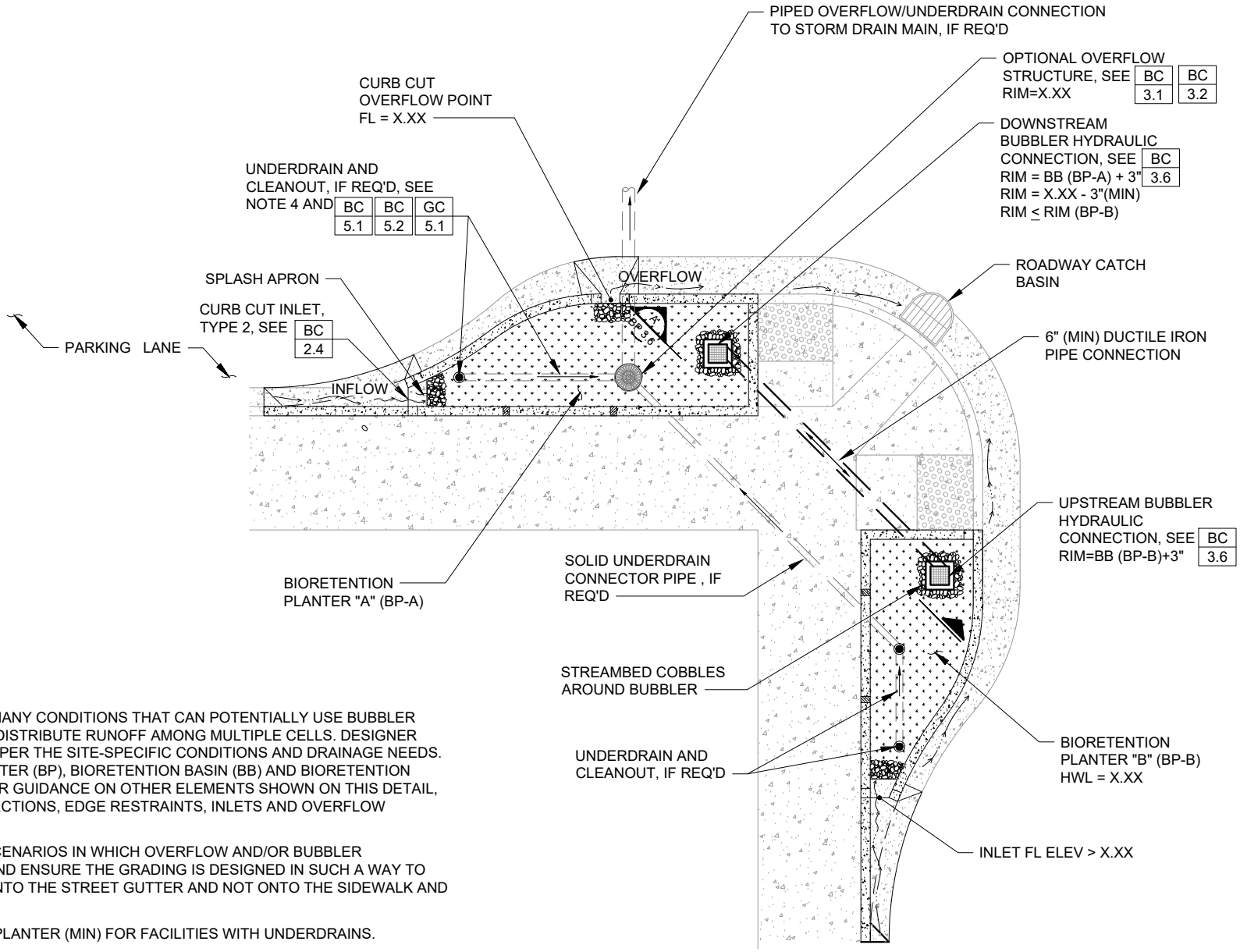
COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

BIORETENTION COMPONENTS

OUTLETS
OVERFLOW STRUCTURES

FILE NO. BC 3.4



NOTES:

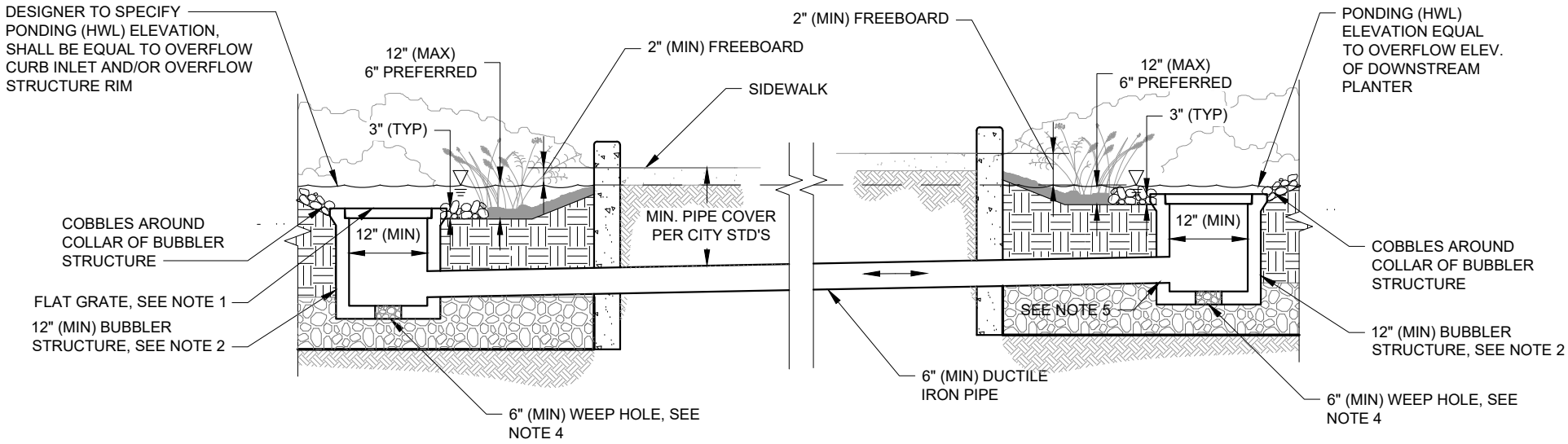
1. THIS LAYOUT SHOWS ONE OF MANY CONDITIONS THAT CAN POTENTIALLY USE BUBBLER HYDRAULIC CONNECTIONS TO DISTRIBUTE RUNOFF AMONG MULTIPLE CELLS. DESIGNER SHALL MODIFY AS NECESSARY PER THE SITE-SPECIFIC CONDITIONS AND DRAINAGE NEEDS. REFER TO BIORETENTION PLANTER (BP), BIORETENTION BASIN (BB) AND BIORETENTION COMPONENTS (BC) DETAILS FOR GUIDANCE ON OTHER ELEMENTS SHOWN ON THIS DETAIL, E.G. TYPICAL BIORETENTION SECTIONS, EDGE RESTRAINTS, INLETS AND OVERFLOW STRUCTURES.
2. DESIGNER SHALL CONSIDER SCENARIOS IN WHICH OVERFLOW AND/OR BUBBLER STRUCTURES ARE CLOGGED AND ENSURE THE GRADING IS DESIGNED IN SUCH A WAY TO ROUTE EXCESS WATER BACK INTO THE STREET GUTTER AND NOT ONTO THE SIDEWALK AND INTO PRIVATE PROPERTY.
3. PROVIDE ONE CLEANOUT PER PLANTER (MIN) FOR FACILITIES WITH UNDERDRAINS.
4. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT AGENCY ASSET PROTECTION STANDARDS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

	GREEN INFRASTRUCTURE TYPICAL DETAILS CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY	DATE JANUARY 2021 VERSION DRAFT #2 REVISED	**BIORETENTION COMPONENTS** **BUBBLER HYDRAULIC CONNECTION PLAN**	DWG NO. **BC 3.5**

DOWNSTREAM BIORETENTION
PLANTER "A" WITH OVERFLOW TO
STREET DRAINAGE SYSTEM

UPSTREAM BIORETENTION
PLANTER "B" WITH NO OVERFLOW
TO STREET DRAINAGE SYSTEM



SECTION A

CONSTRUCTION NOTES:

1. SIZE OF BUBBLER GRATE SHALL MATCH SIZE OF RISER SPECIFIED ON THE PLANS. GRATE SHALL BE REMOVABLE TO PROVIDE MAINTENANCE ACCESS, AND SHALL BE BOLTED IN PLACE OR OUTFITTED WITH APPROVED TAMPER-RESISTANT LOCKING MECHANISM. MAXIMUM GRATE OPENING SHALL BE 4 INCHES OR THE SMALLEST DIAMETER OF SURROUNDING COBBLE, WHICHEVER IS LESS.
2. BASE OF BUBBLER STRUCTURE MAY BE PRECAST CONCRETE, POURED IN PLACE CONCRETE, OR NYLOPLAST DRAIN BASIN. ENGINEER TO SPECIFY MANUFACTURER/MODEL.
3. THE BOTTOM OF THE BUBBLER STRUCTURE SHALL BE SET ON STABLE AND LEVEL STORAGE AGGREGATE, NOT BIORETENTION SOIL MEDIA.
4. A 6" DIAMETER (MIN) WEEP HOLE OPENING SHALL BE CUT INTO THE BOTTOM OF THE BASIN AND FILLED WITH CLEAN DRAIN ROCK TO PREVENT STAGNANT WATER WITHIN THE BOTTOM OF THE BASIN. FILTER FABRIC CAN BE USED ALONG THE BOTTOM AND SIDES OF THE WEEP HOLE OPENING IF RECOMMENDED BY THE ENGINEER.
5. GROUT ALL PENETRATIONS, CRACKS, SEAMS, AND JOINTS WITH NON-SHRINK GROUT.
6. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT AGENCY ASSET PROTECTION STANDARDS. COORDINATE WITH ENGINEER IN THE EVENT OF UTILITY CROSSING AND UTILITY CONFLICTS.

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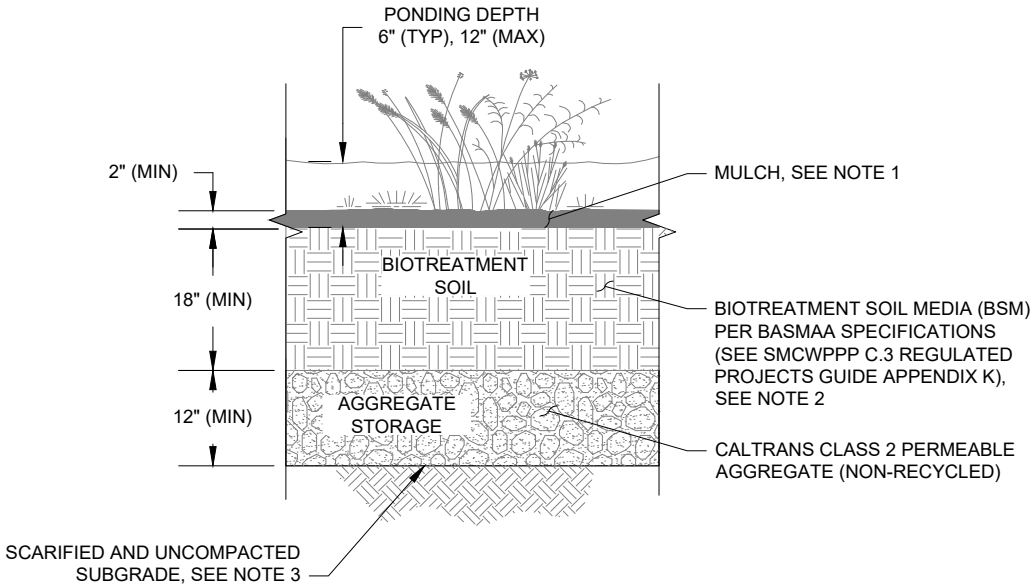
	GREEN INFRASTRUCTURE TYPICAL DETAILS CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY	DATE JANUARY 2021 VERSION DRAFT #2 REVISED	**BIORETENTION COMPONENTS** **BUBBLER HYDRAULIC CONNECTION SECTION**	DWG NO. **BC 3.6**



DESIGNER NOTES & GUIDELINES:

1. MULCH SHALL BE AGED OR COMPOSTED WOOD MULCH OR ROCK MULCH CONFORMING TO SMCWPPP GI DESIGN GUIDE, APPENDIX A.4 AND/OR OTHER APPLICABLE SMC REQUIREMENTS.
2. INSTALL BIOTREATMENT SOIL MEDIA (BSM) IN EITHER TWO 10" LIFTS AND THEN WETTED TO ACCOMODATE AN EXPECTED 2" OF SETTLING OR THREE 6" LIFTS THEN WETTED WITH ADDITIONAL BSM ADDED TO THE SURFACE AS NEEDED TO ACHIEVE A FINAL DEPTH OF 18".
3. SUBGRADE SHALL BE GRADED FLAT AND THE SURFACE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3" IMMEDIATELY PRIOR TO PLACEMENT OF AGGREGATE STORAGE. IF PLANTER IS LINED, SCARIFICATION IS NOT NECESSARY.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

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BIORETENTION COMPONENTS

SOIL AND AGGREGATE LAYERS

FILE NO. BC 4.1

PURPOSE:

UNDERDRAINS ARE USED TO COLLECT STORMWATER THAT HAS BEEN FILTERED THROUGH BIOTREATMENT SOIL AND CONVEY THAT TREATED STORMWATER TO A DESIGNATED OUTLET (E.G., PLANTER OVERFLOW STRUCTURE).

DESIGNER NOTES & GUIDELINES:

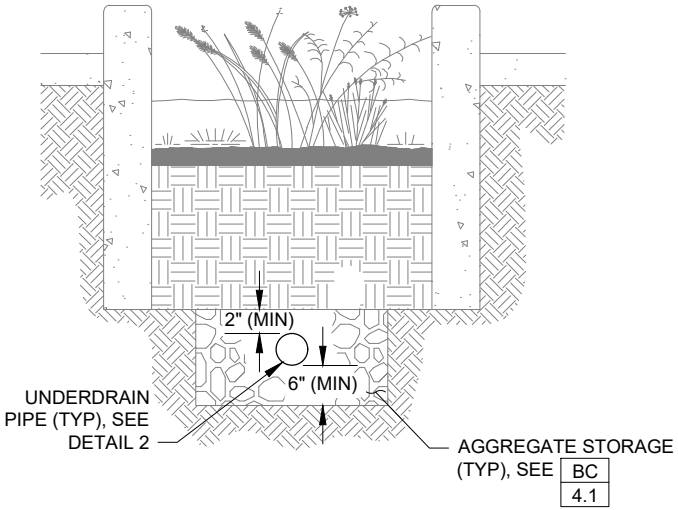
1. THE DESIGNER SHOULD INCLUDE UNDERDRAINS IN FACILITY DESIGN IN THE FOLLOWING SCENARIOS:
   - INFILTRATION IS PROHIBITED OR IMPRUDENT (E.G., FACILITY NEAR SENSITIVE INFRASTRUCTURE OR STEEP SLOPES, RISK OF CONTAMINATION IS HIGH OR SITE GROUNDWATER/SOILS ARE CONTAMINATED, THERE IS POOR INFILTRATION CAPACITY DUE TO TYPE C/D SOILS OR HIGH GROUNDWATER).
   - MAXIMUM SURFACE POOL DRAWDOWN PERIOD CANNOT BE ACHIEVED (SEE **BB 1.1**, **BP 1.1**, AND **BP 5.1**).
3. AN OUTLET STRUCTURE AND/OR CLEANOUT(S) TO ALLOW MAINTENANCE ACCESS TO ALL PIPES IS REQUIRED FOR FACILITIES WITH UNDERDRAINS.
4. UNDERDRAIN PIPE SHALL HAVE A SMOOTH INTERIOR WALL TO FACILITATE MAINTENANCE WITH PRESSURIZED WATER OR ROOT CUTTING EQUIPMENT.
5. DESIGNER SHOULD CONSIDER THE INSTALLED ELEVATION OF THE UNDERDRAIN PIPE WITHIN THE BIORETENTION FACILITIES AGGREGATE STORAGE LAYER TO PROMOTE INFILTRATION, BELOW THE UNDERDRAIN, WHEN FEASIBLE. DESIGNER SHOULD ALSO CONSIDER THE USE OF ORIFICES OR OTHER CONTROL STRUCTURES TO PROVIDE ADDITIONAL INFILTRATION AND FLOW CONTROL BENEFITS WHERE APPLICABLE.
6. PIPE MATERIAL SHALL BE DESIGNED PER SMC DPW STANDARDS.

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

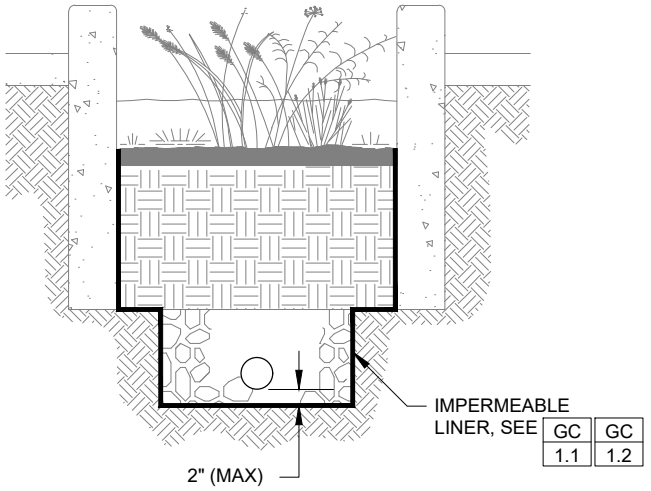
- ☐ UNDERDRAIN MATERIAL TYPE AND SIZE
- ☐ UNDERDRAIN ELEVATION, SLOPE, AND LOCATION WITHIN BASIN OR PLANTER
- ☐ PIPE BEDDING MATERIAL SPECIFICATION (i.e. AGGREGATE STORAGE LAYER)
- ☐ DISCHARGE LOCATION TO OVERFLOW STRUCTURE
- ☐ CLEANOUT LOCATIONS AND MAINTENANCE ACCESS
- ☐ ORIFICE FLOW CONTROL STRUCTURE(S), AS APPLICABLE

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

JAMES C. PORTER DIRECTOR OF PUBLIC WORKS	GREEN INFRASTRUCTURE TYPICAL DETAILS COUNTY OF SAN MATEO	DATE 06.2020 VERSION 01 REVISED N/A	BIORETENTION BASIN UNDERDRAINS DESIGNER NOTES	FILE NO. BC 5.1



ELEVATED UNDERDRAIN

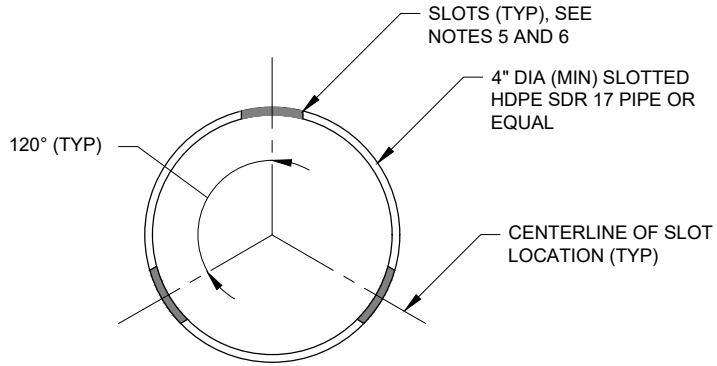


UNDERDRAIN WITH LINER
WHERE INFILTRATION PROHIBITED

UNDERDRAIN PLACEMENT ALTERNATIVES

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR UNDERDRAINS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. LONGITUDINAL SLOPE OF UNDERDRAIN PIPE SHALL BE 0.5% MINIMUM.
3. UNDERDRAIN PIPE SHALL BE SLOTTED HDPE SDR 17 (PREFERRED) OR ACCEPTABLE SUBSTITUTE MATERIAL (E.G. PERFORATED PVC PIPE) PER ENGINEERS SPECIFICATION. SINGLE WALL AND DUAL WALL CORRUGATED HDPE PIPE (AASHTO M252 AND M294 TYPES C, S, AND D) ARE NOT ACCEPTABLE.
4. UNDERDRAIN PIPE SHALL BE SLOTTED TYPE, MEASURING 0.032 INCH WIDE (MAX), SPACED AT 0.25 INCH (MIN), AND PROVIDING A MINIMUM INLET AREA OF 5.0 SQUARE INCH PER LINEAR FOOT OF PIPE.
5. SLOTS SHALL BE ORIENTED PERPENDICULAR TO LONG AXIS OF PIPE, AND EVENLY SPACED AROUND CIRCUMFERENCE AND LENGTH OF PIPE.



SLOTTED UNDERDRAIN PIPE 2

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
BC 1.1	BC 1.2	BC 1.2.1	BC 1.3	BC 1.4	BC 1.5	BC 1.6	BC 1.7	BC 2.1	BC 2.2	BC 2.2.1	BC 2.3	BC 2.3.1	BC 2.4	BC 2.4.1	BC 2.5	BC 3.1	BC 3.2	BC 3.3	BC 3.3.1	BC 3.4	BC 4.1	BC 5.1	BC 5.2	BC 6.1	BC 6.2

COUNTY OF SAN MATEO PUBLIC WORKS	JAMES C. PORTER DIRECTOR OF PUBLIC WORKS	GREEN INFRASTRUCTURE TYPICAL DETAILS COUNTY OF SAN MATEO	DATE 06.2020 VERSION 01 REVISED N/A	BIORETENTION COMPONENTS UNDERDRAINS	FILE NO. BC 5.2

PURPOSE:

CHECK DAMS ARE OFTEN USED IN BIORETENTION FACILITIES AT SLOPED LOCATIONS (ALIGNED PERPENDICULAR TO THE LONGITUDINAL SLOPE OF THE FACILITY) TO REDUCE FLOW VELOCITIES (AND EROSION) THROUGH THE FACILITY AND TO PROMOTE SURFACE PONDING, SUBSURFACE STORAGE, AND INFILTRATION OF STORMWATER. CHECK DAMS CAN BE CONSTRUCTED OF A VARIETY OF MATERIALS INCLUDING CONCRETE, WOOD, METAL, ROCK, OR COMPACTED SOIL.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT SECTION DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. THE DESIGNER MUST ESTABLISH THE HEIGHT AND SPACING OF CHECK DAMS BASED ON THE PONDING DEPTH REQUIRED TO MEET PROJECT HYDROLOGIC PERFORMANCE GOALS AND THE MAXIMUM DESIRED DROP FROM THE SURROUNDING GRADE TO THE FACILITY BOTTOM. REFER TO CHECK DAM SPACING GUIDANCE PROVIDED ON THIS DRAWING FOR FURTHER GUIDANCE.
3. THE FACILITY SUBGRADE SHALL BE GRADED FLAT BETWEEN CHECK DAMS.
4. CONCRETE CHECK DAM SHALL MEET STRUCTURAL REQUIREMENTS FOR LATERAL BRACING WHEN USED AS LATERAL BRACING. SEE **BC 1.6** AND **BC 1.7**.

THE DESIGNER SHALL SPECIFY THE FOLLOWING, AS APPLICABLE:

- ☐ CHECK DAM TYPE AND MATERIAL
- ☐ CHECK DAM HEIGHT, WIDTH, AND ELEVATION
- ☐ CHECK DAM SPACING

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
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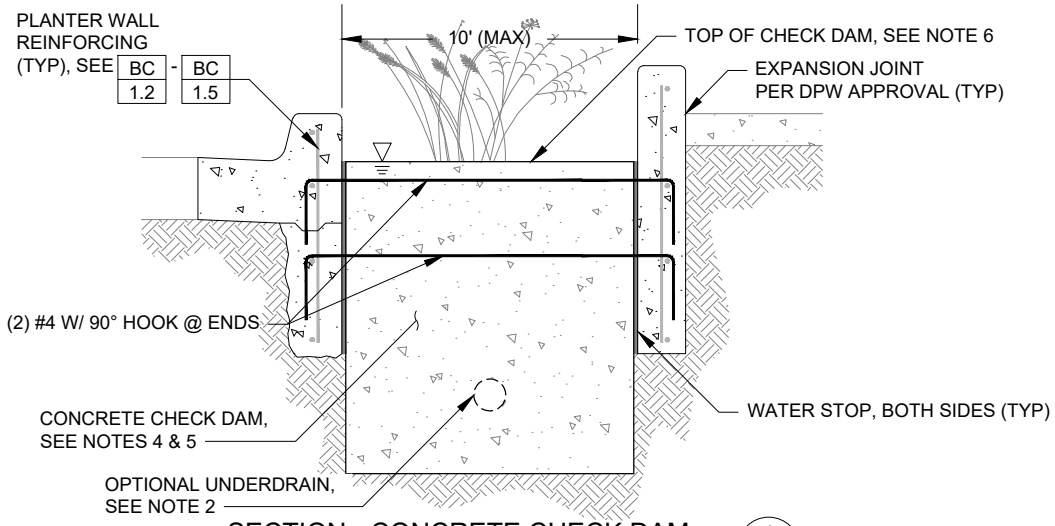
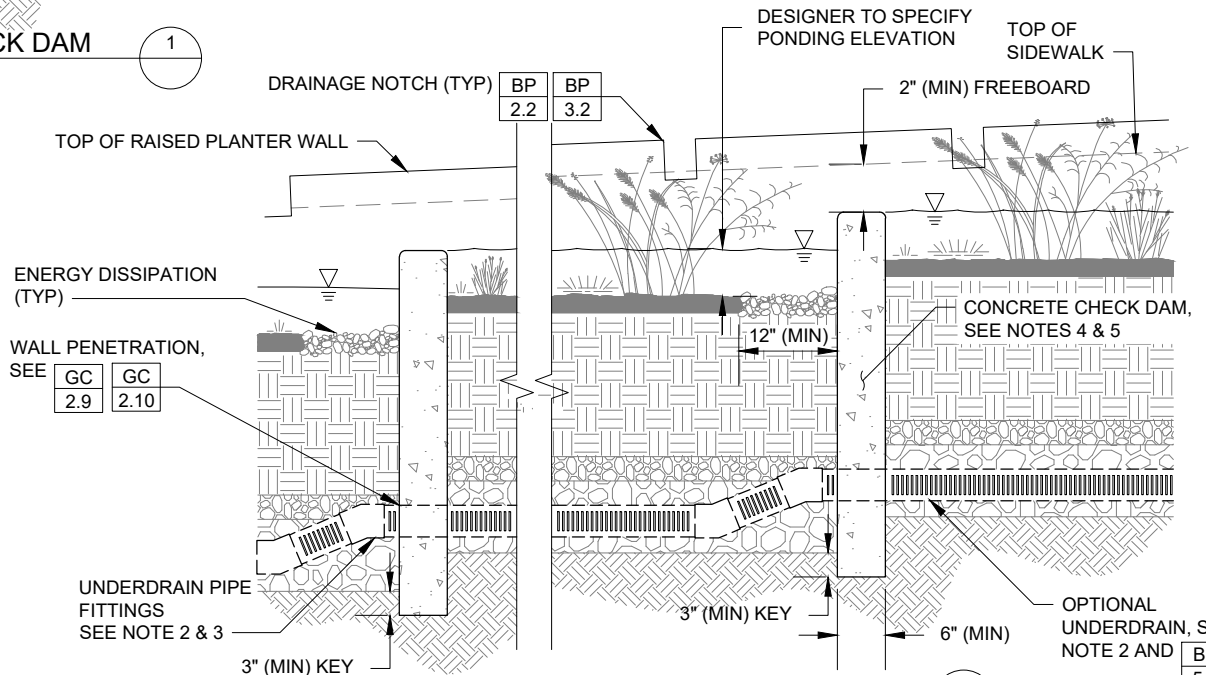
BIORETENTION COMPONENTS

CHECK DAMS
DESIGNER NOTES

FILE NO. BC 6.1



SECTION - CONCRETE CHECK DAM 1



PROFILE - CONCRETE CHECK DAM 2

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR CHECK DAM ASSEMBLY SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. UNDERDRAIN TO PASS THROUGH CHECK DAM IN NON-PERFORATED HDPE SDR 17 PIPE.
3. PIPE FITTINGS SHALL BE USED TO ACCOMMODATE CHANGES IN GRADE, AS NEEDED.
4. CONCRETE CHECK DAM SHALL BE CONTINUOUS (NO JOINTS) AND REINFORCED WITH #4 BAR, PLACED AT 18 INCHES ON CENTER, EACH WAY.
5. CONCRETE CHECK DAM SHALL MEET STRUCTURAL REQUIREMENTS FOR LATERAL BRACING WHEN USED AS LATERAL BRACING. COORDINATE WITH ENGINEER.
6. TOP OF CHECK DAM TO BE LEVEL WITH CREST ELEVATION MATCHING PONDING ELEVATION UNLESS NOTCH SIZED TO CONVEY DESIGN FLOWS PROVIDED.

EDGE TREATMENTS								INLETS								OUTLETS					SOIL & AGGREGATE LAYERS	UNDERDRAINS		CHECK DAM	
NOTES	COMPONENTS							NOTES	COMPONENTS							NOTES	COMPONENTS				COMPONENTS	NOTES	COMPONENTS	NOTES	COMPONENTS
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BIORETENTION COMPONENTS

CHECK DAMS

FILE NO. BC 6.2

PURPOSE:

SUBSURFACE INFILTRATION SYSTEMS, ALSO KNOWN AS DRY WELLS, STORMWATER DRAINAGE WELLS, INFILTRATION GALLERIES, AND SEEPAGE PITS, CONTROL PEAK FLOWS AND VOLUMES OF STORMWATER RUNOFF THROUGH SUBSURFACE STORAGE AND INFILTRATION INTO NATIVE SOIL. WATER IS ALSO TREATED AS IT FILTERS THROUGH THE GRAVEL, SAND (IF PROVIDED), AND NATIVE SOIL.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT PLAN AND SECTION DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. SUBSURFACE INFILTRATION SYSTEMS ARE CONSIDERED CLASS V INJECTION WELLS AND SUBJECT TO THE U.S. EPA UNDERGROUND INJECTION CONTROL (UIC) PROGRAM. SUBSURFACE INFILTRATION SYSTEMS MUST BE REGISTERED WITH EPA REGION IX PRIOR TO COMING ONLINE.
3. FIELD-TESTED INFILTRATION RATES OF NATIVE SOILS MUST BE BETWEEN 0.5 (INCHES PER HOUR) AND 5 (INCHES PER HOUR). FOR SITES WITH INFILTRATION RATES GREATER THAN 5 IN/HR, SUBSURFACE INFILTRATION SYSTEMS MAY STILL BE ALLOWED PROVIDED THAT THE RUNOFF IS FULLY TREATED USING UPSTREAM BMPS OR BY INSTALLING A MINIMUM OF 18 INCHES OF ASTM C33 SAND WITH AN INFILTRATION RATE LESS THAN 5 INCHES PER HOUR AT THE BASE OF THE FACILITY.
4. SUBSURFACE STORAGE DRAWDOWN TIME (I.E. TIME FOR MAXIMUM SUBSURFACE STORAGE VOLUME TO INFILTRATE INTO SUBGRADE AFTER THE END OF A STORM) SHALL BE 48-72 HOURS. DRAWDOWN TIME IS CALCULATED AS THE MAXIMUM SUBSURFACE STORAGE DEPTH DIVIDED BY THE NATIVE SOIL INFILTRATION RATE (ADJUSTED BY THE SAFETY FACTOR).
5. SUBSURFACE INFILTRATION SYSTEM SUBGRADES SHOULD BE LEVEL, REGARDLESS OF ANY LONGITUDINAL SLOPE OF THE SITE, TO PROMOTE EQUAL SUBSURFACE DISTRIBUTION OF RUNOFF.
6. DEPENDING ON THE HEIGHT AND AREA OF THE PROPOSED SUBSURFACE INFILTRATION SYSTEM, ADDITIONAL STRUCTURAL CONSIDERATIONS MAY BE REQUIRED TO ADDRESS EARTH PRESSURE AND/OR SURFACE LOADING.
7. SUBSURFACE INFILTRATION SYSTEMS ARE MOST COMMONLY USED TO MANAGE STORMWATER RUNOFF FROM ROOFS AND PARKING LOTS, BUT CAN BE USED IN OTHER APPLICATIONS. IN AREAS WITH HIGH SEDIMENT LOADS, RUNOFF SHOULD PASS THROUGH STORMWATER PRE-TREATMENT MEASURES TO REMOVE COARSE SEDIMENT THAT CAN CLOG PORE SPACES. REFER TO THE STORMWATER MANAGEMENT REQUIREMENTS APPENDIX A: BMP FACT SHEETS FOR ADDITIONAL REQUIREMENTS.
8. SUBSURFACE INFILTRATION SYSTEMS ARE NOT APPROVED AS TREATMENT MEASURES FOR RUNOFF FROM INDUSTRIAL AREAS, AREAS SUBJECT TO HIGH (GREATER THAN 15,000 VEHICLES PER DAY) TRAFFIC LOADING, AUTOMOTIVE REPAIR SHOPS, CAR WASHES, FLEET STORAGE AREAS, NURSERIES, SITES THAT STORE CHEMICALS OR HAZARDOUS MATERIALS, OR OTHER LAND USES THAT POSE A HIGH THREAT TO WATER QUALITY.
9. SUBSURFACE INFILTRATION SYSTEMS SHOULD NOT BE USED IN AREAS OF KNOWN OR PRESUMED CONTAMINATED SOIL OR GROUNDWATER, AREAS WITH CURRENT OR HISTORICAL INDUSTRIAL USE, AREAS WITHIN 100 FEET OF CURRENT OR HISTORICAL UNDERGROUND STORAGE TANKS, FILLED FORMER BAY, MARSH OR CREEK AREAS, OR AREAS WITHIN 150 FEET OF A CURRENT OR HISTORICAL HIGHWAY. SEE SETBACK REQUIREMENTS TABLE ON **SI 1.2**.
10. SMALL SYSTEMS (TYPICALLY A FEW FEET IN WIDTH) ARE KNOWN AS DRY WELLS AND ARE RECOMMENDED FOR SMALL DRAINAGE AREAS WITH LOW POLLUTANT LOADINGS, SUCH AS ROOFTOPS LESS THAN 0.25 ACRES IN SIZE. LARGER SYSTEMS (TYPICALLY 10 TO 100 FEET IN WIDTH) ARE KNOWN AS INFILTRATION GALLERIES AND CAN BE USED TO RECEIVE RUNOFF FROM DRAINAGE AREAS TYPICALLY UP TO 5 ACRES IN SIZE.
11. THE DRAWINGS PROVIDED DO NOT COVER DESIGNS THAT UTILIZE PROPRIETARY STORAGE, DISTRIBUTION, AND/OR STRUCTURAL SYSTEMS OTHER THAN PREFABRICATED DRY WELL STRUCTURES, WHICH HAVE BEEN SHOWN IN A GENERIC WAY. REFER TO THE MANUFACTURER'S RECOMMENDATIONS FOR ALL PROPRIETARY SYSTEMS.

GENERAL UTILITY NOTES:

1. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT JURISDICTIONAL ASSET PROTECTION STANDARDS. IN THE ABSENCE OF THESE STANDARDS, THE DESIGN SHALL REFER TO CHAPTER 3 OF SMCWPPP GI DESIGN GUIDE FOR BEST PRACTICES AND COORDINATE DIRECTLY WITH RELEVANT UTILITY PROVIDERS FOR REQUIREMENTS. SEE UTILITY CROSSING DESIGNER NOTES ON GC 2.1.
2. PROVIDE UTILITY TRENCH DAM, ANTI-SEEP COLLAR, OR EQUIVALENT TO PREVENT PREFERENTIAL FLOW OF WATER FROM INFILTRATIVE FACILITY INTO UTILITY TRENCH FROM CAUSING DAMAGE DOWNSTREAM. ENGINEER TO EVALUATE SITE CONDITIONS AND NEED FOR TRENCH DAM. REFER TO **GC2.12** FOR GUIDANCE ON UTILITY TRENCH DAM DESIGN.
3. PROPOSED UTILITY LINES TO BE LOCATED OUTSIDE OF FACILITY.

RELATED COMPONENTS	
UTILITY CROSSINGS:	GC 2.1 - GC 2.12
UTILITY CONFLICTS:	GC 3.1 - GC 3.3
OBSERVATION PORTS:	GC 4.1 - GC 4.3
CLEANOUTS:	GC 5.1

NOTES: SI 1.1, SI 1.2
LARGE SYSTEMS PLAN SECTIONS: SI 2.1, SI 2.2
SMALL SYSTEMS PLAN SECTIONS: SI 3.1, SI 3.2
DEEP SYSTEMS PLAN SECTIONS: SI 4.1

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
REVISED N/A

SUBSURFACE INFILTRATION SYSTEMS

DESIGNER NOTES (1 OF 2)

FILE NO. SI 1.1

LAYOUT REQUIREMENTS:

REFER TO THE SMCWPPP C.3 REGULATED PROJECTS GUIDE AND SMCWPPP DESIGN GUIDE FOR MORE DETAILED INFORMATION ON SITING AND DESIGN REQUIREMENTS FOR INFILTRATION BASED BMPS.

1. STANDARD SETBACK REQUIREMENTS PER THE SMCWPPP C.3 REGULATED PROJECTS GUIDE:
   18 FEET OR 1:1 SLOPE FROM BOTTOM OF BUILDING FOUNDATION, UNLESS DIFFERENT SETBACK IS ALLOWED BY GEOTECHNICAL ENGINEER OR CUTOFF WALL IS PROVIDED.

   100 FEET FROM GROUNDWATER WELLS USED FOR DRINKING WATER, OR ANY KNOWN WATER SUPPLY WELLS, SEPTIC SYSTEMS, AND UNDERGROUND STORAGE TANKS.
2. REFER TO SMCWPPP GI DESIGN GUIDE CHAPTER 3 AND OTHER APPLICABLE SMC REQUIREMENTS FOR ADDITIONAL SETBACK REQUIREMENTS REGARDING WATER AND SEWER INFRASTRUCTURE.
3. MINIMUM 4-FOOT VERTICAL SEPARATION FROM BASE OF SUBSURFACE INFILTRATION SYSTEM TO BEDROCK IS REQUIRED.
4. MINIMUM 10-FOOT VERTICAL SEPARATION FROM BOTTOM OF DRAIN ROCK TO SEASONAL HIGH GROUNDWATER.

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ SUBSURFACE INFILTRATION SYSTEM WIDTH AND LENGTH
- ☐ DEPTH AND TYPE OF AGGREGATE STORAGE LAYER
- ☐ DEPTH AND TYPE OF FILTER SAND, IF REQUIRED
- ☐ ELEVATIONS AND CONTROL POINTS AT EVERY CORNER
- ☐ AGGREGATE STORAGE SPECIFICATIONS AND/OR DRY WELL TYPE AND DIMENSIONS
- ☐ ELEVATIONS OF EACH PIPE INLET AND OVERFLOW INVERT
- ☐ TYPE AND DESIGN OF SUBSURFACE INFILTRATION COMPONENTS (E.G. INLETS, OVERFLOWS, OBSERVATION WELLS)
- ☐ SETBACK DIMENSIONS TO BEDROCK, HIGH GROUNDWATER TABLE, PROPERTY LINES, FOUNDATIONS, WATER SUPPLY WELLS, SEWER MAINS, AND GROUND SLOPES OF 15% OR GREATER, AS APPLICABLE. SEE SMCWPPP GI DESIGN GUIDE CHAPTER 3.
- ☐ TYPE AND SIZE OF PRETREATMENT MEASURE, AS NESSESARY

SOIL TYPE GUIDANCE:

HYDROLOGIC SOIL GROUP	SOIL TYPE	CORRESPONDING UNIFIED SOIL CLASSIFICATION	DESCRIPTION
A	SAND, LOAMY SAND, OR SANDY LOAM	GW - WELL-GRADED GRAVELS, SANDY GRAVELS GP - GAP-GRADED OR UNIFORM GRAVELS, SANDY GRAVELS GM - SILTY GRAVELS, SILTY SANDY GRAVELS SW - WELL-GRADED, GRAVELLY SANDS SP - GAP-GRADED OR UNIFORM SANDS, GRAVELLY SANDS	LOW RUNOFF POTENTIAL. SOILS HAVING HIGH INFILTRATION RATES EVEN WHEN THOROUGHLY WETTED AND CONSISTING CHIEFLY OF DEEP, WELL TO EXCESSIVELY DRAINED SANDS OR GRAVELS.
B	SILT LOAM OR LOAM	SM - SILTY SANDS, SILTY GRAVELLY SANDS MH - MICACEOUS SILTS, DIATOMACEOUS SILTS, VOLCANIC ASH	SOILS HAVING MODERATE INFILTRATION RATES WHEN THOROUGHLY WETTED AND CONSISTING CHIEFLY OF MODERATELY DEEP TO DEEP, MODERATELY WELL TO WELL-DRAINED SOILS WITH MODERATELY FINE TO MODERATELY COARSE TEXTURES.
C	SANDY CLAY LOAM	ML - SILTS, VERY FINE SANDS, SILTY AND CLAYEY FINE SANDS	SOILS HAVING SLOW INFILTRATION RATES WHEN THOROUGHLY WETTED AND CONSISTING CHIEFLY OF SOILS WITH A LAYER THAT IMPEDES DOWNWARD MOVEMENT OF WATER, OR SOILS WITH MODERATELY FINE TO FINE TEXTURES.
D	CLAY LOAM, SANDY CLAY, SILTY CLAY, OR CLAY	GC - CLAYEY GRAVELS, CLAYEY SANDY GRAVELS SC - CLAYEY SANDS, CLAYEY GRAVELLY SANDS CL - LOW PLASTICITY CLAYS, SANDY OR SILTY CLAYS OL - ORGANIC SILTS AND CLAYS OF LOW PLASTICITY CH - HIGHLY PLASTIC LAYS AND SANDY CLAYS OH - ORGANIC SILTS AND CLAYS OF HIGH PLASTICITY	HIGH RUNOFF POTENTIAL. SOILS HAVING VERY SLOW INFILTRATION RATES WHEN THOROUGHLY WETTED AND CONSISTING CHIEFLY OF CLAY SOILS WITH A HIGH SWELLING POTENTIAL, SOILS WITH A PERMANENT HIGH WATER TABLE, AND SHALLOW SOILS OVER NEARLY IMPERVIOUS MATERIAL.

NOTES	LARGE SYSTEMS		SMALL SYSTEMS		DEEP SYSTEMS
	PLAN SECTIONS		PLAN SECTIONS		PLAN SECTIONS
SI 1.1	SI 2.1	SI 2.2	SI 3.1	SI 3.2	SI 4.1

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DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020

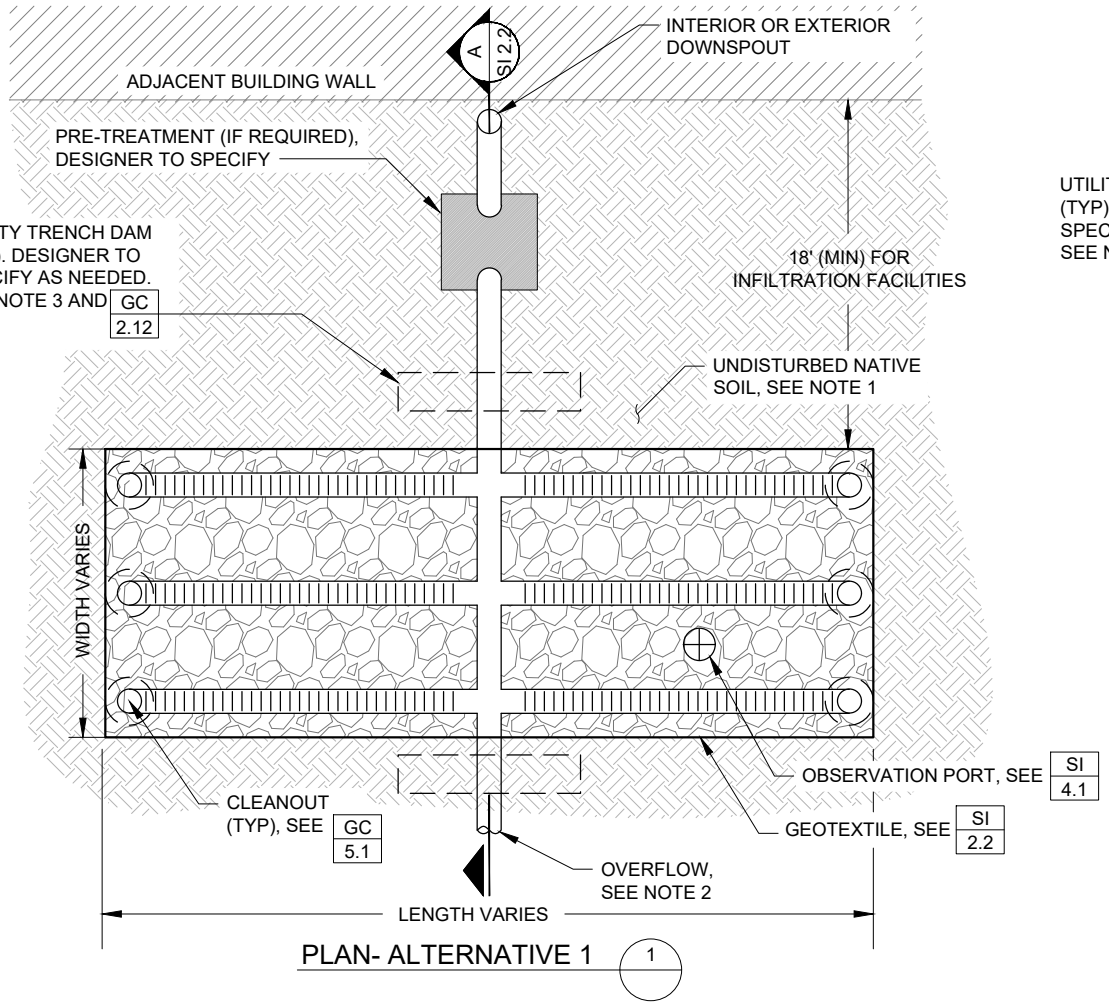
VERSION 01

REVISED N/A

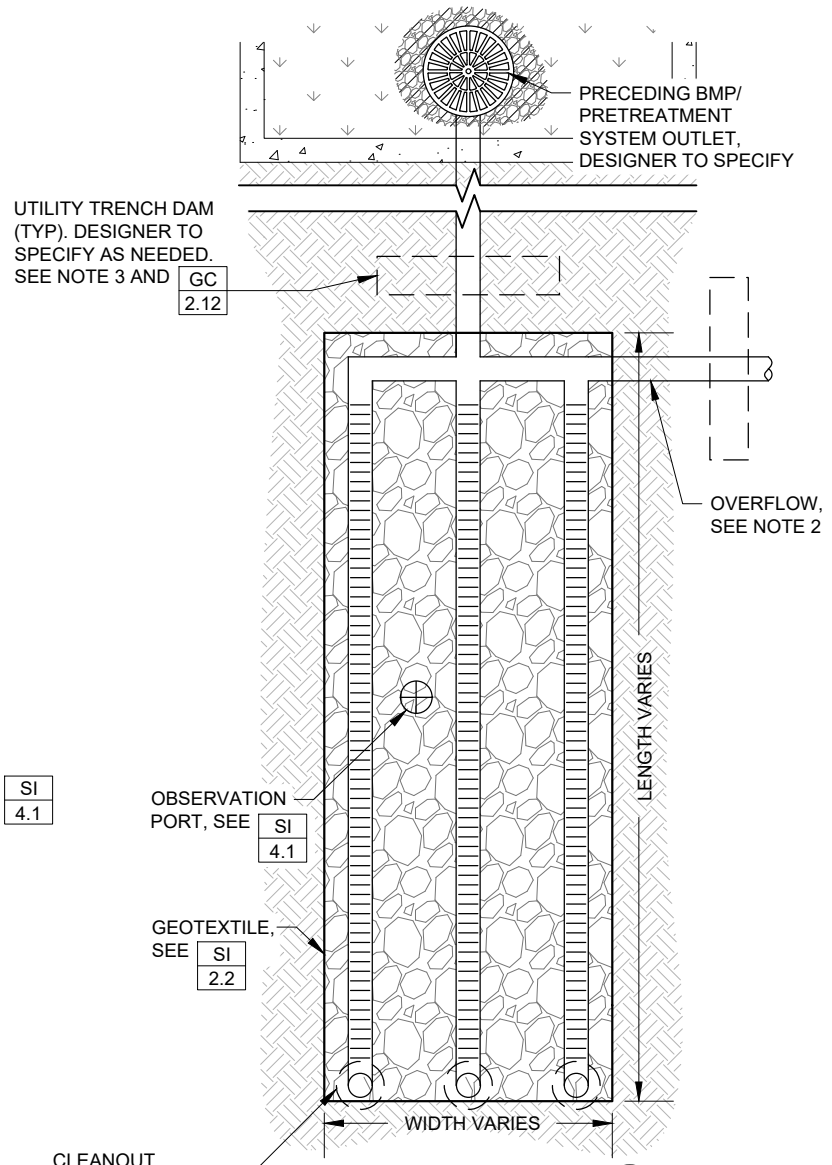
SUBSURFACE INFILTRATION SYSTEMS

DESIGNER NOTES (2 OF 2)

FILE NO. SI 1.2



PLAN- ALTERNATIVE 1 (1)



PLAN - ALTERNATIVE 2 (2)

CONSTRUCTION NOTES:

1. AVOID COMPACTION AND DISTURBANCE OF EXISTING SOIL WITHIN 5 FEET ADJACENT TO AND BELOW INFILTRATION FACILITIES DURING CONSTRUCTION.
2. ROUTE OVERFLOW PIPE TO THE STORM SEWER OR TO ANOTHER BMP FOR FURTHER TREATMENT AS SHOWN ON THE DESIGN PLANS.
3. PROVIDE UTILITY TRENCH DAM OR EQUIVALENT MEASURE OUTSIDE OF THE INFILTRATION FACILITY AT PIPE PENETRATIONS TO PREVENT PREFERENTIAL FLOW FROM SUBSURFACE INFILTRATION SYSTEM INTO UTILITY TRENCHES. COORDINATE WITH ENGINEER.

NOTES		LARGE SYSTEMS		SMALL SYSTEMS		DEEP SYSTEMS
		PLAN SECTIONS		PLAN SECTIONS		PLAN SECTIONS
SI 1.1	SI 1.2	SI 2.1	SI 2.2	SI 3.1	SI 3.2	SI 4.1

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

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VERSION 01
REVISED N/A

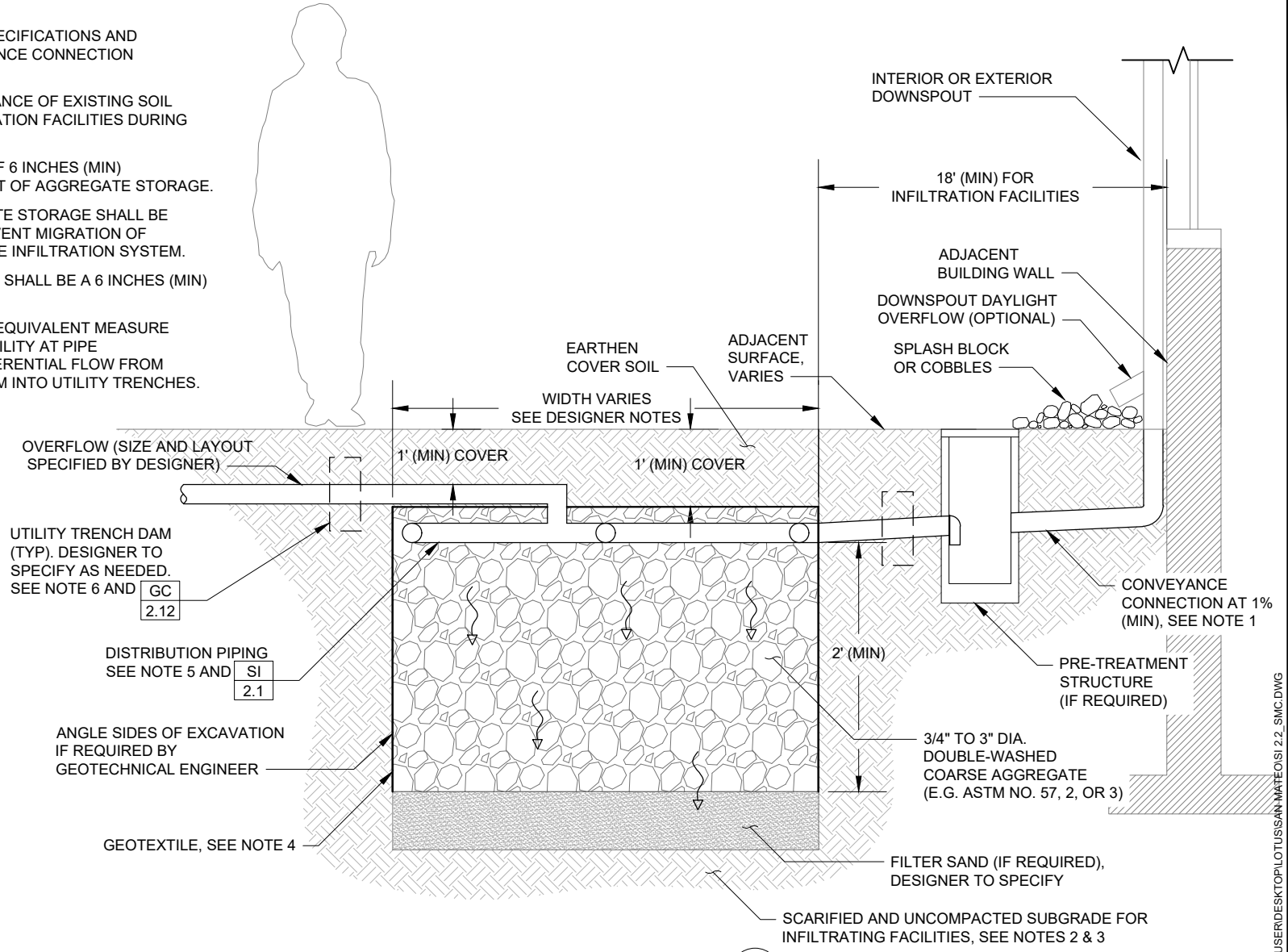
SUBSURFACE INFILTRATION SYSTEMS

LARGE SYSTEM – PLAN

FILE NO. SI 2.1

CONSTRUCTION NOTES:

1. REFER TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES FOR CONVEYANCE CONNECTION REQUIREMENTS.
2. AVOID COMPACTION AND DISTURBANCE OF EXISTING SOIL ADJACENT TO AND BELOW INFILTRATION FACILITIES DURING CONSTRUCTION.
3. SCARIFY SUBGRADE TO A DEPTH OF 6 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF AGGREGATE STORAGE.
4. SIDEWALLS AND TOP OF AGGREGATE STORAGE SHALL BE LINED WITH A GEOTEXTILE TO PREVENT MIGRATION OF ADJACENT SOILS INTO SUBSURFACE INFILTRATION SYSTEM.
5. SUBSURFACE DISTRIBUTION PIPING SHALL BE A 6 INCHES (MIN) IN DIAMETER.
6. PROVIDE UTILITY TRENCH DAM OR EQUIVALENT MEASURE OUTSIDE OF THE INFILTRATION FACILITY AT PIPE PENETRATIONS TO PREVENT PREFERENTIAL FLOW FROM SUBSURFACE INFILTRATION SYSTEM INTO UTILITY TRENCHES. COORDINATE WITH ENGINEER.



SECTION - ALTERNATIVE 1 (A)

NOTES		LARGE SYSTEMS PLAN SECTIONS		SMALL SYSTEMS PLAN SECTIONS		DEEP SYSTEMS PLAN SECTIONS
SI 1.1	SI 1.2	SI 2.1	SI 2.2	SI 3.1	SI 3.2	SI 4.1

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

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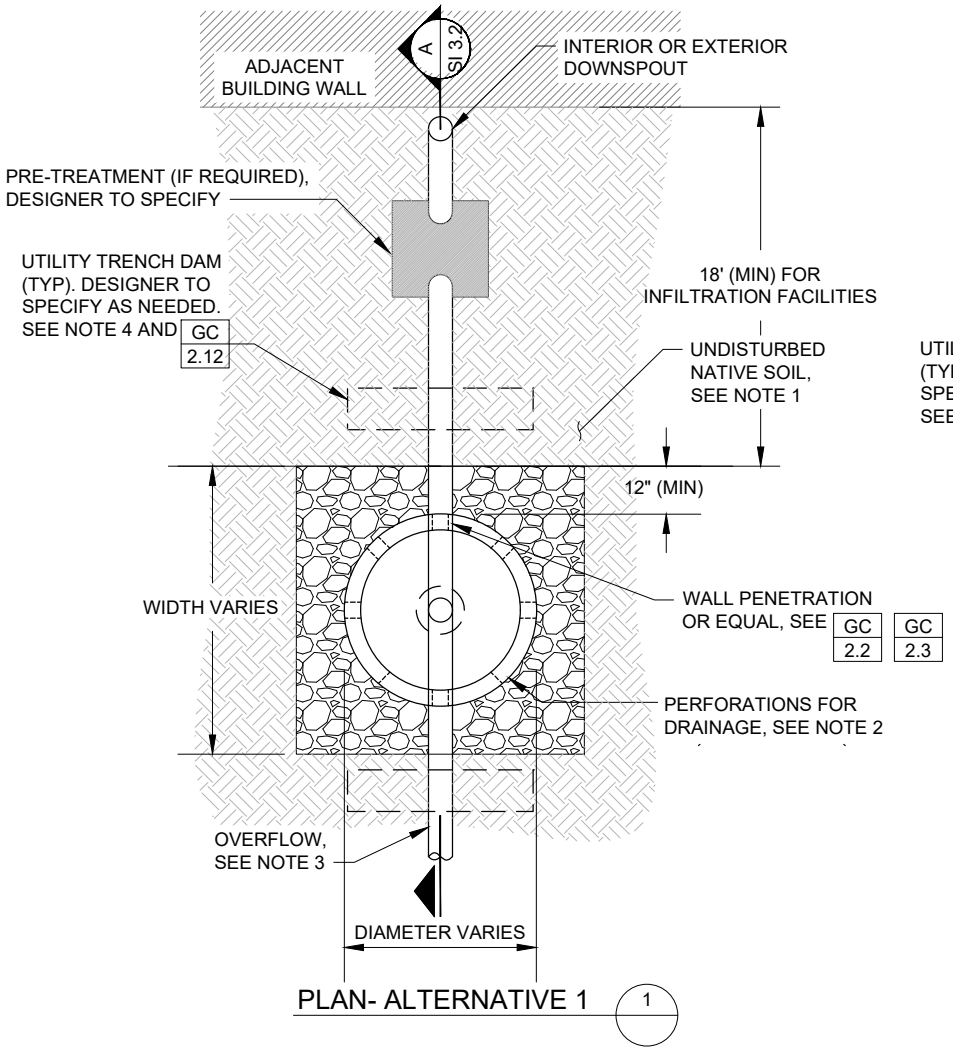
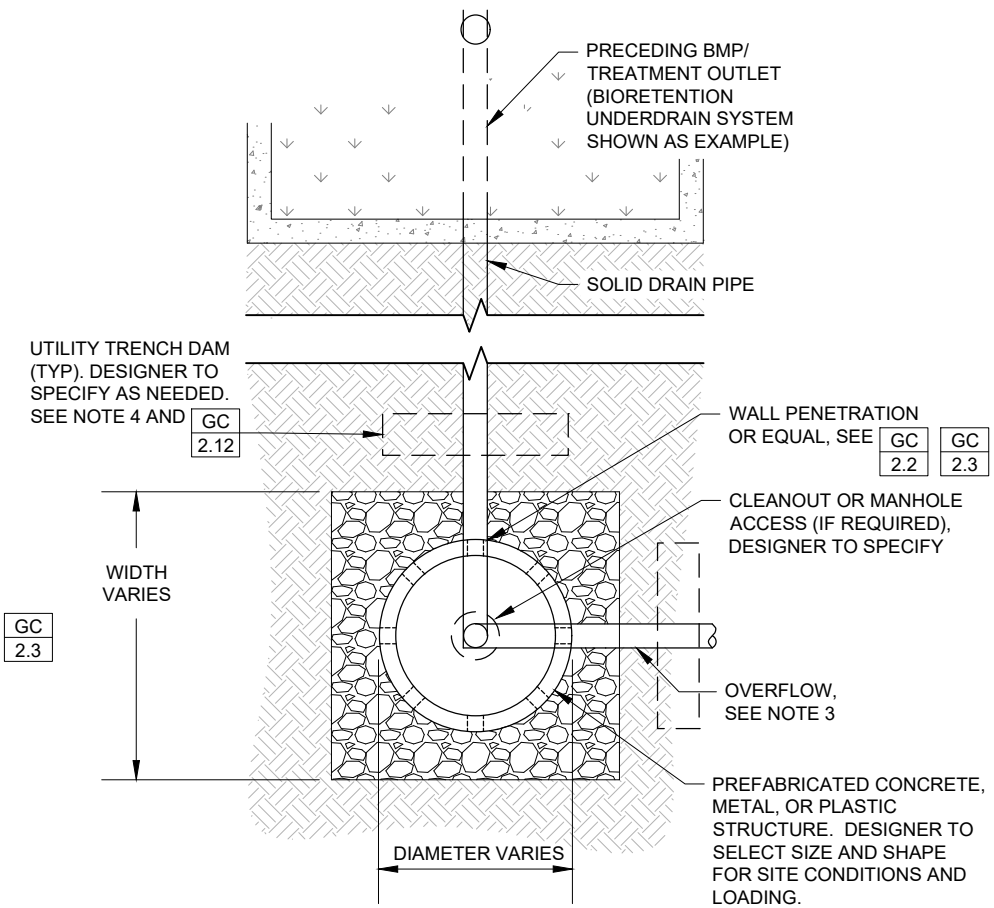
SUBSURFACE INFILTRATION SYSTEMS

LARGE SYSTEM – SECTION

FILE NO. SI 2.2



PLAN- ALTERNATIVE 1 (1)



PLAN - ALTERNATIVE 2 (2)

CONSTRUCTION NOTES:

1. AVOID COMPACTION AND DISTURBANCE OF EXISTING SOIL WITHIN 5 FEET ADJACENT TO AND BELOW INFILTRATION FACILITIES DURING CONSTRUCTION.
2. PREFABRICATED DRY WELLS SHALL HAVE SMALL DIAMETER PERFORATIONS TO PREVENT LATERAL MOVEMENT OF AGGREGATE INTO WELL AND SHALL BE SUFFICIENT IN NUMBER TO ALLOW FOR THE DRAINAGE OF THE STRUCTURE WITHIN 48 HOURS.
3. ROUTE OVERFLOW PIPE TO THE STORM SEWER OR TO ANOTHER BMP FOR FURTHER TREATMENT AS SHOWN ON THE DESIGN PLANS.
4. PROVIDE UTILITY TRENCH DAM OR EQUIVALENT MEASURE OUTSIDE OF THE INFILTRATION FACILITY AT PIPE PENETRATIONS TO PREVENT PREFERENTIAL FLOW FROM SUBSURFACE INFILTRATION SYSTEM INTO UTILITY TRENCHES. COORDINATE WITH ENGINEER.

NOTES		LARGE SYSTEMS		SMALL SYSTEMS		DEEP SYSTEMS
		PLAN SECTIONS		PLAN SECTIONS		PLAN SECTIONS
SI 1.1	SI 1.2	SI 2.1	SI 2.2	SI 3.1	SI 3.2	SI 4.1

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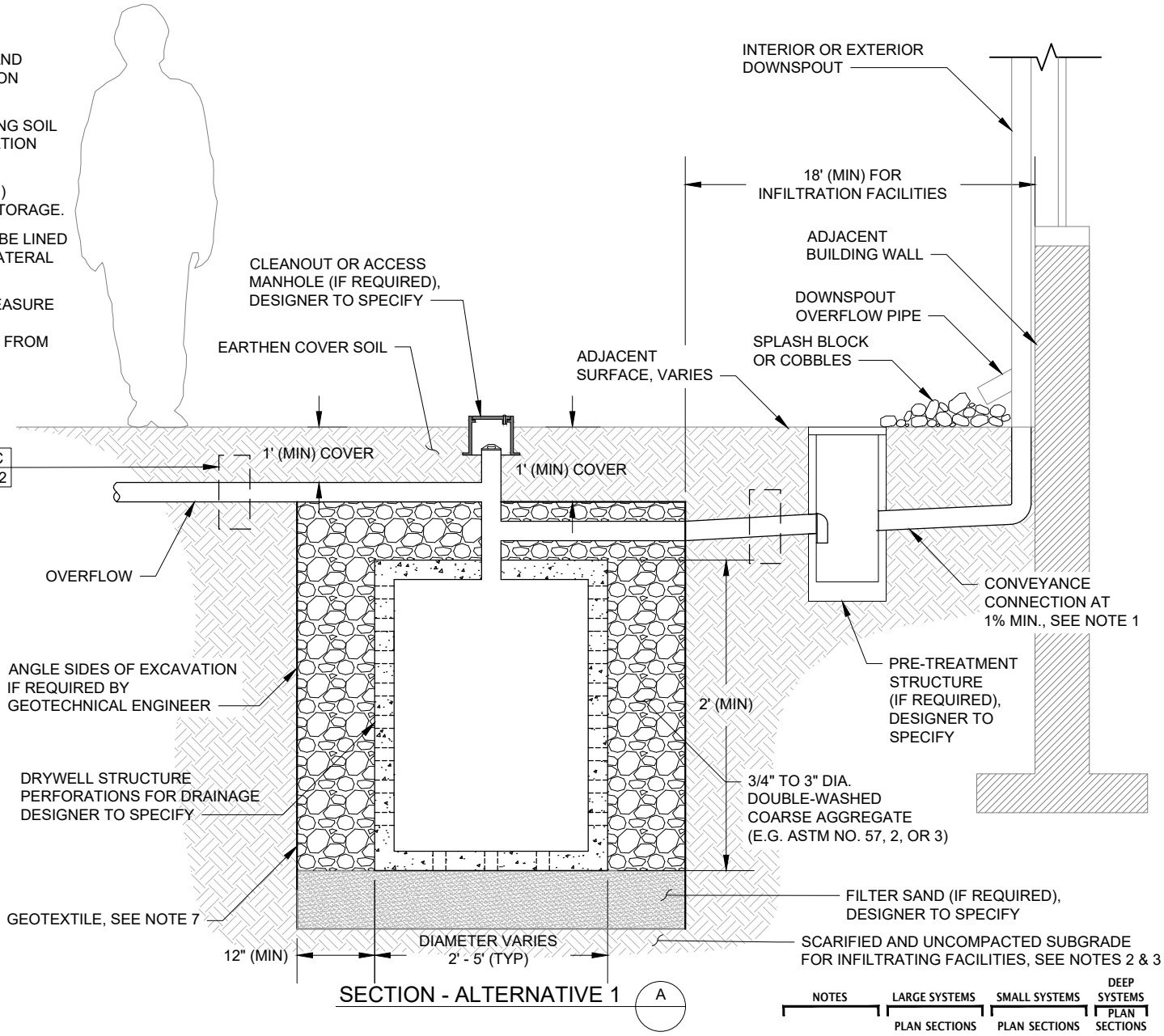
SUBSURFACE INFILTRATION SYSTEMS

SHALLOW DRY WELL
SMALL SYSTEM – PLAN

FILE NO. SI 3.1

CONSTRUCTION NOTES:

1. REFER TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES FOR CONVEYANCE CONNECTION REQUIREMENTS.
2. AVOID COMPACTION AND DISTURBANCE OF EXISTING SOIL WITHIN 5 FEET ADJACENT TO AND BELOW INFILTRATION FACILITIES DURING CONSTRUCTION.
3. SCARIFY SUBGRADE TO A DEPTH OF 6 INCHES (MIN) IMMEDIATELY PRIOR TO PLACEMENT OF GRAVEL STORAGE.
4. SIDEWALLS AND TOP OF GRAVEL STORAGE SHALL BE LINED WITH A PERMEABLE FILTER FABRIC TO PREVENT LATERAL SOIL MOVEMENT.
5. PROVIDE UTILITY TRENCH DAM OR EQUIVALENT MEASURE OUTSIDE OF THE INFILTRATION FACILITY AT PIPE PENETRATIONS TO PREVENT PREFERENTIAL FLOW FROM SUBSURFACE INFILTRATION SYSTEM INTO UTILITY TRENCHES. COORDINATE WITH ENGINEER.



SECTION - ALTERNATIVE 1 (A)

NOTES		LARGE SYSTEMS PLAN SECTIONS		SMALL SYSTEMS PLAN SECTIONS		DEEP SYSTEMS PLAN SECTIONS
SI 1.1	SI 1.2	SI 2.1	SI 2.2	SI 3.1	SI 3.2	SI 4.1

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GREEN INFRASTRUCTURE TYPICAL DETAILS

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SUBSURFACE INFILTRATION SYSTEMS

SHALLOW DRY WELL
SMALL SYSTEM – SECTION – ALTERNATIVE 1

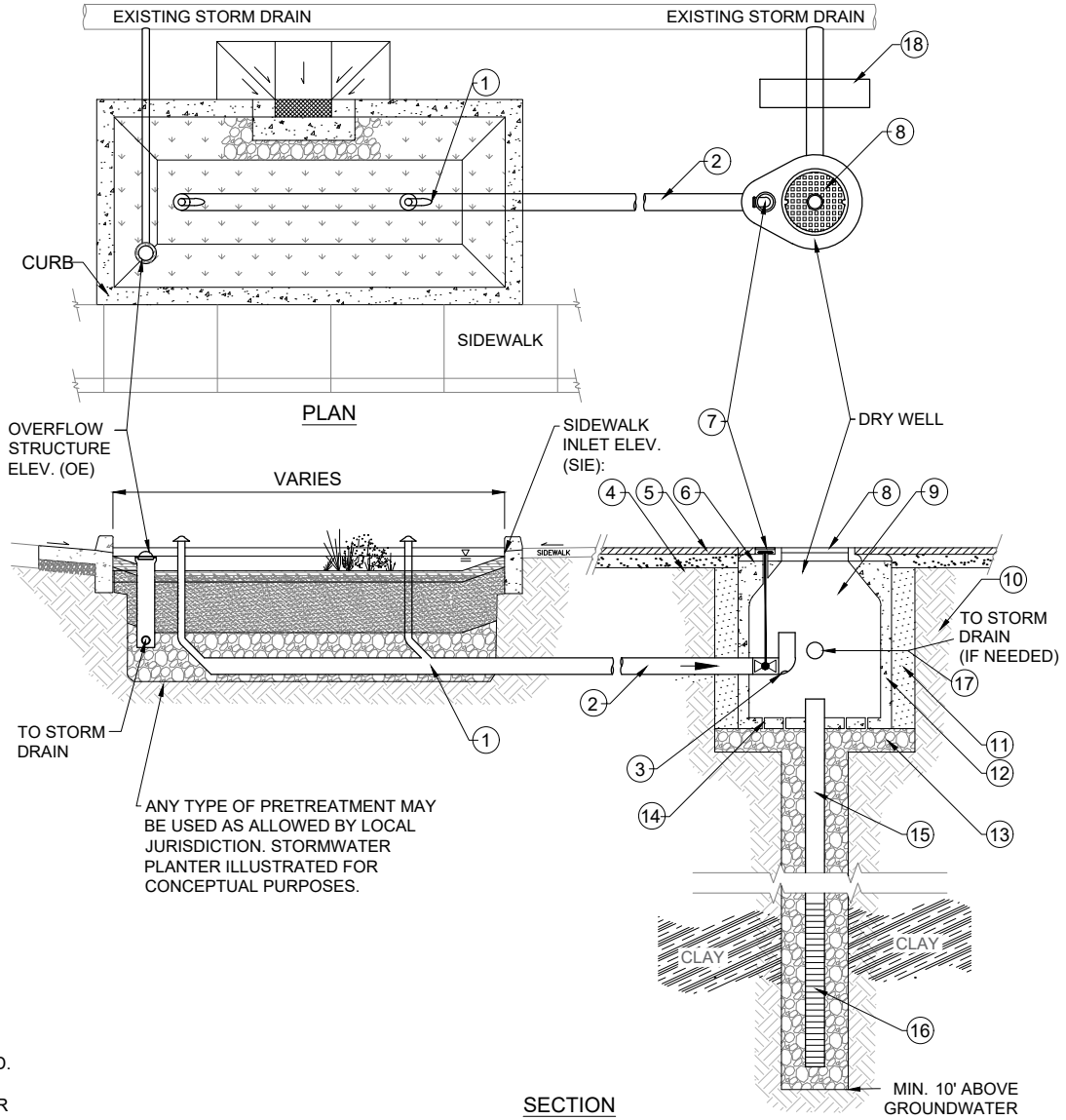
FILE NO. SI 3.2

KEY:

1. UNDERDRAIN, MIN. 4" DIA. PVC SDR 35 SLOTTED OR PERFORATED PIPE OR LARGER AS NEEDED TO CONVEY PEAK TREATED FLOWRATE WITH MINIMAL HEAD LOSS.
2. 6" (MIN) SOLID INLET PIPE OR OTHER.
3. LOW FLOW ORIFICE.
4. STABILIZED BACKFILL - TWO-SACK SLURRY MIX.
5. SIDEWALK PER MUNICIPAL STANDARDS.
6. COMPACTED BASE MATERIAL.
7. ACCESS HATCH WITH SHUT OF VALVE SWITCH. CONNECTED TO SHUT OF VALVE IN INLET PIPE.
8. MAINTENANCE HOLE COS TYPE 204-204 MH A OR B. ¾" I.D. MIN OBSERVATION PORT.
9. MANHOLE CONE - MODIFIED FLAT BOTTOM.
10. EXISTING SOILS.
11. COMPACTED BACKFILL.
12. PRE-CAST OR INSITU CAST CONTROL VAULT.
13. ROCK - WASHED, SIZED BETWEEN 3/8" AND 1-1/2".
14. PERFORATED BASE OF CONTROL VAULT
15. DRILLED SHAFT WITH 6" WELDED STEEL OR THREADED PVC CASING
16. 6 - 8" O.D. WELDED WIRE STAINLESS STEEL WELL SCREEN OR THREADED PVC SLOTTED SCREEN. SCREEN LENGTH + LENGTH + SLOT WIDTH TO BE DETERMINED IN ACCORDANCE WITH LOCAL CONSTRAINTS .I.E. DISTANCE BETWEEN CLAY LAYER AND MIN. 10FT ABOVE SEASONAL HIGH GROUNDWATER LEVEL
17. PVC STORMDRAIN CONNECTOR PIPE. SAME DIAMETER AS INFLOW PIPE TO CONTROL VAULT.
18. UTILITY TRENCH DAM PER GC 2.12. DESIGNER TO SPECIFY AS NEEDED.

DESIGNER NOTES:

1. SEE SI 1.1 AND SI 1.2 FOR ADDITIONAL GUIDANCE.
2. BOTTOM WIDTH SHALL BE 2 FEET MINIMUM.
3. IF THE LONGITUDINAL SLOPE OF THE DRY WELL EXCEEDS 6%, CHECK DAMS SHALL BE USED.
4. SHUT-OFF VALVE MAY BE LOCATED IN THE PRETREATMENT FACILITY IF DESIRED. DESIGNER TO SPECIFY LOCATION AND WHETHER STRUCTURAL SUPPORT IS REQUIRED.
5. IN AREAS WITHOUT A STORM DRAIN SYSTEM, THE MAINTENANCE HOLE SURFACE INVERT MUST BE ABOVE THE PRETREATMENT FACILITY OVERFLOW ELEVATION.
6. ALTERNATIVE PRODUCTS SUCH AS VENDOR SUPPLIED DRY WELL PRODUCTS MAY BE USED AS A SUBSTITUTE PROVIDED THAT THE ALTERNATIVE PRODUCT IS EQUAL.



NOTES		LARGE SYSTEMS		SMALL SYSTEMS		DEEP SYSTEMS
		PLAN SECTIONS		PLAN SECTIONS		PLAN SECTIONS
SI 1.1	SI 1.2	SI 2.1	SI 2.2	SI 3.1	SI 3.2	SI 4.1

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GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

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SUBSURFACE INFILTRATION SYSTEMS

DEEP DRY WELL
SMALL SYSTEM – PLAN & SECTION

FILE NO. SI 4.1

PURPOSE:

IMPERMEABLE LINERS IN GREEN INFRASTRUCTURE CAN BE USED TO RESTRICT MOVEMENT OF WATER INTO UNDERLYING AND/OR ADJACENT SOILS AND/OR AGGREGATES TO PROTECT SENSITIVE INFRASTRUCTURE (E.G., IMPERMEABLE ROADWAY BASE, FOUNDATIONS, UTILITIES), MITIGATE RISK OF GEOLOGIC HAZARDS (E.G., STEEP SLOPES, CONTAMINATED SOILS), OR OTHER SITE-SPECIFIC CONDITIONS)

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. THE DESIGNER AND/OR GEOTECHNICAL ENGINEER SHOULD ASSESS THE RISK OF WATER LEAKAGE FROM THE PLANTER AND DETERMINE THE LINER EXTENTS AND LINER CONNECTION REQUIREMENTS (E.G., WATER TIGHT, SOIL TIGHT), DEPENDING ON DEGREE OF PROTECTION NECESSARY TO PROTECT ADJACENT INFRASTRUCTURE.
6. CONSIDER PLACING GEOTEXTILE ON PREPARED SUBGRADE PRIOR TO PLACEMENT OF LINER TO PROTECT LINER FROM DAMAGE DURING INSTALLATION.
7. DEPENDING ON ANTICIPATED FACILITY MAINTENANCE, IT MAY BE PRUDENT TO INCLUDE A GEOTEXTILE OVER THE LINER TO PROVIDE AN ADDITIONAL BARRIER BETWEEN LINER AND MAINTENANCE EQUIPMENT OR TO PROTECT AGAINST AGGRESSIVE PUNCTURES DURING PLACEMENT AND COMPACTION.

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ LINER TYPE AND EXTENTS (E.G., FULL LINER, PARTIAL LINER)
- ☐ LINER ANCHOR TYPE (E.G., WATER TIGHT, SOIL TIGHT)
- ☐ LINER JOINT WELDING/SEALING REQUIREMENTS
- ☐ OTHER CRITICAL PROJECT-SPECIFIC PLACEMENT REQUIREMENTS

NOTES COMPONENTS

GC 1.1	GC 1.2

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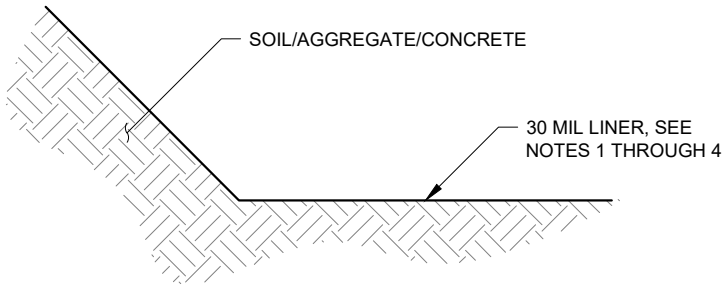
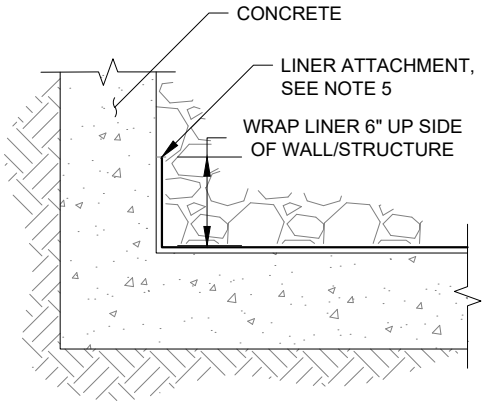
JAMES C. PORTER DIRECTOR OF PUBLIC WORKS	GREEN INFRASTRUCTURE TYPICAL DETAILS COUNTY OF SAN MATEO	DATE 06.2020 VERSION 01 REVISED N/A	GENERAL COMPONENTS LINERS DESIGNER NOTES	FILE NO. GC 1.1



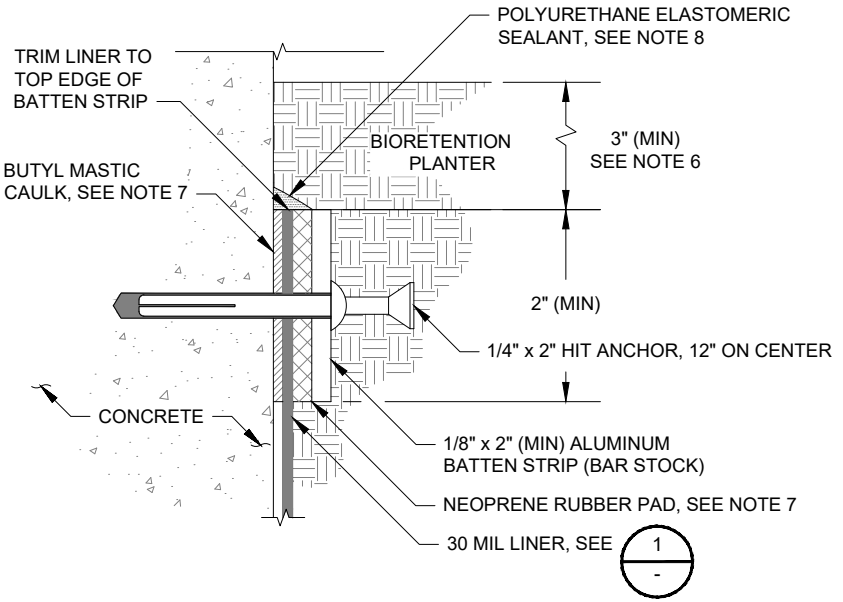
IMPERMEABLE LINER 1



SOIL TIGHT LINER ATTACHMENT AT WALL/STRUCTURE 2

CONSTRUCTION NOTES:

1. LINER SHALL BE HDPE CONFORMING TO GEOSYNTHETIC RESEARCH INSTITUTE (GRI) GM13 OR LLDPE CONFORMING TO GRI GM17.
2. LINER SHALL LAY FLUSH WITH GROUND WITH NO AIR VOIDS BELOW THE LINER PRIOR TO BACKFILLING MATERIAL ABOVE THE LINER. CONTOUR THE SUBGRADE AS NEEDED TO ENSURE LINER LAYS FLUSH WITH GROUND.
3. OVERLAP LINER PER MANUFACTURER'S RECOMMENDATIONS.
4. ALL SEAMS SHALL BE WELDED PER MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE SPECIFIED.
5. SECURE LINER CONTINUOUSLY WITH DOUBLE-SIDED TAPE ALONG LINER EDGE AND SINGLE SIDED TAPE ALONG THE TOP EDGE OF LINER TO HOLD LINER IN PLACE DURING BACKFILLING.
6. TOP OF LINER TO BE AT LEAST 3" BELOW FINISH GRADE OF BIOTREATMENT SOIL MEDIA EXCEPT WHEN ADJACENT TO BUILDING WALL. WHEN ADJACENT TO BUILDING WALL, LINER OR EQUAL WATERPROOFING SHALL EXTEND TO TOP OF FREEBOARD ELEVATION.
7. APPLY BUTYL MASTIC CAULK, BATTEN STRIP, AND NEOPRENE RUBBER PAD CONTINUOUSLY ALONG TOP EDGE OF LINER.
8. APPLY BEAD OF POLYURETHANE ELASTOMERIC SEALANT CONTINUOUSLY ALONG TOP EDGE OF BATTEN STRIP ASSEMBLY.



WATER TIGHT LINER ATTACHMENT AT WALL/STRUCTURE 3

NOTES COMPONENTS

GC 1.1	GC 1.2

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JAMES C. PORTER DIRECTOR OF PUBLIC WORKS	GREEN INFRASTRUCTURE TYPICAL DETAILS COUNTY OF SAN MATEO	DATE 06.2020 VERSION 01 REVISED N/A	GENERAL COMPONENTS LINERS LINERS AND ATTACHMENTS	FILE NO. GC 1.2

PURPOSE:

WHEN SITING GREEN INFRASTRUCTURE (GI) FACILITIES, THE DESIGNER SHOULD LOCATE AND ASSESS ALL KNOWN UTILITY CROSSINGS AND CONFLICTS AND ADJUST THE DESIGN TO AVOID AS MANY EXISTING UTILITIES AS POSSIBLE. THE CRITICALITY OF UTILITY CONFLICTS IN TERMS OF THEIR POTENTIAL IMPACT TO THE PROJECT'S DESIGN PERFORMANCE, COST, AND SCHEDULE SHOULD BE CAREFULLY EVALUATED DURING THE PLANNING PHASE.

THE PURPOSE OF THE FOLLOWING TYPICAL UTILITY CROSSING DETAILS IS TO ALERT THE DESIGNERS TO COMMON UTILITY CROSSINGS THAT OCCUR ON GI PROJECTS WITHIN THE PUBLIC RIGHT-OF-WAY AND PROVIDE GENERAL GUIDANCE ON THE PROTECTION OF THESE UTILITIES. THEY ARE PROVIDED AS TYPICAL APPLICATIONS AND DO NOT REPRESENT APPROVED COUNTY UTILITY STANDARDS AND SPECIFICATIONS. IN ADDITION TO THESE TYPICAL DETAILS, DESIGNERS MUST FOLLOW ALL APPLICABLE LOCAL AND FEDERAL REGULATIONS ASSOCIATED WITH THEIR PROJECT.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS AND UTILITY REQUIREMENTS AND OBTAIN APPROVAL FROM ALL RELEVANT UTILITY PROVIDERS PRIOR TO CONSTRUCTION.
   - CALIFORNIA WATER SERVICE OR SMC PUBLIC WORKS FOR DOMESTIC/FIRE WATER
   - SMC PUBLIC WORKS FOR SANITARY SEWER, STORM DRAIN, AND STREET LIGHTS
   - PACIFIC GAS ELECTRIC (PGE) FOR ELECTRIC/GAS/UTILITY POLES
2. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT JURISDICTIONAL ASSET PROTECTION STANDARDS. IN THE ABSENCE OF THESE STANDARDS, THE DESIGNER SHALL REFER TO CHAPTER 3 OF THE SMCWPPP GI DESIGN GUIDE FOR BEST PRACTICES AND COORDINATE DIRECTLY WITH RELEVANT UTILITY PROVIDERS FOR REQUIREMENTS.
3. UTILITY CONFLICTS SHALL BE MITIGATED PER SMC DPW STANDARDS AND OTHER UTILITY PROVIDER REQUIREMENTS. ENGINEER TO EVALUATE CONDITIONS AND NEED TO INCLUDE MEASURES TO ENSURE WATER TIGHT UTILITY PENETRATIONS THROUGH PLANTER WALL, AS NEEDED AND TO PREVENT PREFERENTIAL FLOW INTO UTILITY TRENCHES (E.G., WATER STOP, TRENCH BLOCK, OR TRENCH COLLAR). (REFER TO **GC 2.9 - 2.12**)
4. THE DESIGNER MUST DETERMINE THE TYPE OF PROTECTION MEASURE(S) REQUIRED BASED ON THE SITE-SPECIFIC CONDITIONS, UTILITY REQUIREMENTS, AND THE FUNCTION THE PROTECTION MEASURE MUST PERFORM. THE FOLLOWING ARE BRIEF DESCRIPTIONS OF THE PROTECTION MEASURES INCLUDED IN THESE DETAILS:
   a. SOIL OR ENGINEERED FILL WITH OVERLYING IMPERMEABLE LINER: PROTECTS UTILITY FROM DAMAGE DURING FUTURE TRENCHING, EXCAVATION, AND LANDSCAPE ACTIVITIES. THE LINER PREVENTS PREFERENTIAL FLOW OF WATER INTO THE UTILITY TRENCH. THESE METHODS ARE GENERALLY ONLY ACCEPTABLE WHEN THE FACILITY DOES NOT INCLUDE AN UNDERDRAIN OR WHEN THE LINER CAN BE LOCATED BELOW THE INVERT OF THE UNDERDRAIN.
   b. SLEEVE/CASING: BY HOUSING THE UTILITY PIPE WITHIN A LARGER CARRIER PIPE OR APPROVED SPLIT SLEEVE PRODUCT, THE UTILITY PIPE CAN BE REPLACED IF NEEDED IN THE FUTURE WITHOUT SIGNIFICANT IMPACT TO THE OVERLYING INFRASTRUCTURE. THE SLEEVE ALSO PROTECTS THE PIPE FROM IMPACT DURING CONSTRUCTION AND FUTURE TRENCHING, EXCAVATION, AND LANDSCAPE ACTIVITIES. ADDITIONALLY, SLEEVES CAN BE USED TO SEAL THE UTILITY FROM THE INFILTRATED STORMWATER AND/OR PROTECT THE INFILTRATION FACILITY FROM SEWER LATERAL LEAKAGES. SEE THE UTILITY SLEEVE GUIDANCE.
   c. UTILITY TRENCH DAM: WHERE UTILITY TRENCHES CROSS UNDER INFILTRATIVE FACILITIES, SUBSURFACE WATER MAY PREFERENTIALLY FLOW THROUGH THE TRENCH AND CAUSE DAMAGE TO DOWNSTREAM INFRASTRUCTURE. RISKS INCLUDE BACKFILL EROSION, CREATION OF VOIDS, THE DEGRADATION OF OVERLYING FILL/PAVEMENT, AND SUBSURFACE WATER BEING DIRECTED TO BUILDING FOUNDATIONS OR BASEMENTS. UTILITY TRENCH DAMS PLACED OUTSIDE OF THE INFILTRATION FACILITY FOOTPRINT PREVENT WATER FROM TRAVELING FURTHER ALONG THE UTILITY TRENCH.
   d. INSULATING WRAP: PROVIDES IMPACT AND WATER PROTECTION FOR EXISTING SHALLOW UTILITY SERVICE LINES THAT ARE REMAINING IN PLACE WITHIN INFILTRATION FACILITIES.
6. FOR PERVIOUS PAVEMENT FACILITIES, UTILITY CROSSINGS SHOULD BE BELOW THE BOTTOM OF THE STRUCTURAL PAVEMENT SECTION, WHENEVER POSSIBLE. IF UTILITIES ENCROACH INTO THIS SECTION, THE ENGINEER SHALL CONFIRM THAT THE STRUCTURAL INTEGRITY OF THE PAVEMENT CAN BE MAINTAINED OVER THE UTILITY.
7. THE AREA OF SUBBASE COVERED BY SUBSURFACE CHECK DAMS, IMPERMEABLE LINERS, COMPACTED ENGINEERED FILL, CONCRETE PADS AND OTHER UTILITY INFRASTRUCTURE SHOULD BE EXCLUDED FROM HYDROLOGIC PERFORMANCE CALCULATIONS WHEN THE AREA IS SIGNIFICANT (GREATER THAN 10 PERCENT) RELATIVE TO THE INFILTRATIVE AREA.

JAMES C. PORTER

DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020

VERSION 01

REVISED N/A

GENERAL COMPONENTS

UTILITY CROSSINGS

DESIGNER NOTES (1 OF 2)

FILE NO. GC 2.1

UTILITY SLEEVE NOTES AND GUIDANCE:

THE DESIGNER MUST SPECIFY THE TYPE OF SLEEVE METHOD AND MATERIALS THAT SHALL BE USED FOR ALL APPLICABLE NEW AND EXISTING UTILITIES TO REMAIN IN PLACE WITHIN THE FOOTPRINT OF INFILTRATION FACILITIES. DEPENDING ON THE SPECIFIC SITE CONDITIONS AND GOVERNING UTILITY STANDARDS, EXISTING UTILITIES TO REMAIN IN PLACE SHALL BE SLEEVED THE ENTIRE LENGTH WITHIN THE INFILTRATION FACILITY USING ONE OF THE FOLLOWING METHODS OR AN APPROVED EQUAL:

a. PLASTIC PIPE, 1 - 2 SIZES LARGER THAN UTILITY PIPE, CUT IN HALF, PLACED AROUND UTILITY PIPE, SEALED ALONG JOINTS WITH ADHESIVE, AND CLAMPED TOGETHER WITH STAINLESS STEEL BANDS/HOSE CLAMPS. PIPE SUPPORTS (E.G. CLOSED CELL FOAM BLOCKING) WITHIN THE SLEEVE PER UTILITY PROVIDER'S REQUIREMENTS.

b. GEORGE FISCHER "CONTAIN-IT" PIPE CONTAINMENT SYSTEM PRODUCT, PART NO. 8326-040AA OR 8326-060AA OR EQUAL, INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

c. STAINLESS STEEL SPLIT SLEEVE PRODUCT INSTALLED AROUND THE EXISTING PIPE AND POSITIONED IN THE FORM TO CENTER THE UTILITY PIPE. AFTER INSTALLATION, THE MANUFACTURER'S RECOMMENDED MATERIAL IS USED TO SEAL THE ANNULAR SPACE BETWEEN THE SPLIT SLEEVE AND PIPE. USE PIPE SEAL AND INSULATOR INC., WS SPLIT SEALWALL SLEEVE, OR EQUAL.

EXISTING UTILITY COORDINATION NOTES:

1. THE DESIGNER SHALL LOCATE ALL EXISTING UTILITIES WITHIN THE PROJECT AREA TO THE MOST PRACTICAL EXTENT POSSIBLE UTILIZING SITE SURVEYS, AS-BUILT PLANS, SITE INVESTIGATIONS, POTHOLING, UTILITY AGENCY DATA, ETC. AND PRESENT THIS INFORMATION AND SOURCE (I.E. AS-BUILT VS. ASSUMED LOCATION) CLEARLY ON THE DESIGN DRAWINGS. THE ASSUMED LOCATION OF EXISTING UTILITIES SHALL BE PROVIDED IN THE SAME COORDINATE SYSTEM AS THE REST OF THE DESIGN DRAWINGS. DESIGN DRAWINGS SHALL ALSO INCLUDE CONTACT INFORMATION FOR ANY UTILITIES AFFECTED BY THE PROJECT.
2. IF AN EXISTING UTILITY HAS THE POTENTIAL TO IMPACT THE PROJECT DESIGN AND/OR THE PERFORMANCE OF THE GI FACILITY, THE EXACT LOCATION, DEPTH, AND CONDITION OF THIS UTILITY SHOULD BE FIELD VERIFIED DURING THE DESIGN PHASE (VIA POTHOLING OR OTHER APPROVED METHOD) TO PREVENT COSTLY REDESIGNS AND/OR PROJECT DELAYS DURING CONSTRUCTION.
3. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTH OF EXISTING UTILITIES AT THE START OF CONSTRUCTION PER THE PROJECT SPECIFICATIONS. ANY DISCREPANCIES BETWEEN THE EXISTING UTILITIES SHOWN IN THE DESIGN DRAWINGS AND THE ACTUAL FIELD CONDITIONS SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY.
4. THE CHECK DAM SPACING AND HEIGHT SPECIFIED ON THE DESIGN PLANS MUST BE MAINTAINED. IF THE CHECK DAM PROTECTING THE EXISTING UTILITY WILL IMPACT THE CHECK DAM SPACING SPECIFIED ON THE PLANS, THE ENGINEER MUST EVALUATE ITS IMPACT ON THE HYDROLOGIC PERFORMANCE AND APPROVE THE VARIANCE. SEE **PC 2.1** AND **PC 2.2** FOR FURTHER DETAILS.

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ LINER EMBEDMENT DEPTH INTO SUBGRADE SOILS
- ☐ PIPE AND SLEEVE MATERIALS AND DIAMETER FOR ALL WALL PENETRATIONS
- ☐ WALL PENETRATION TYPE (E.G., GROUTED, COMPRESSION, BOOT) SEE **GC 2.9 - 2.11**.
- ☐ GEOTEXTILE FABRICS AND/OR LINER MATERIALS
- ☐ ENGINEERED BACKFILL MATERIAL
- ☐ DIMENSIONS OF ALL PROTECTION MEASURES
- ☐ MINIMUM SETBACKS TO ADJACENT INFRASTRUCTURE, PAVEMENT BASES, SURFACES
- ☐ MINIMUM PIPE COVER AS REQUIRED BY UTILITY PROVIDER

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DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

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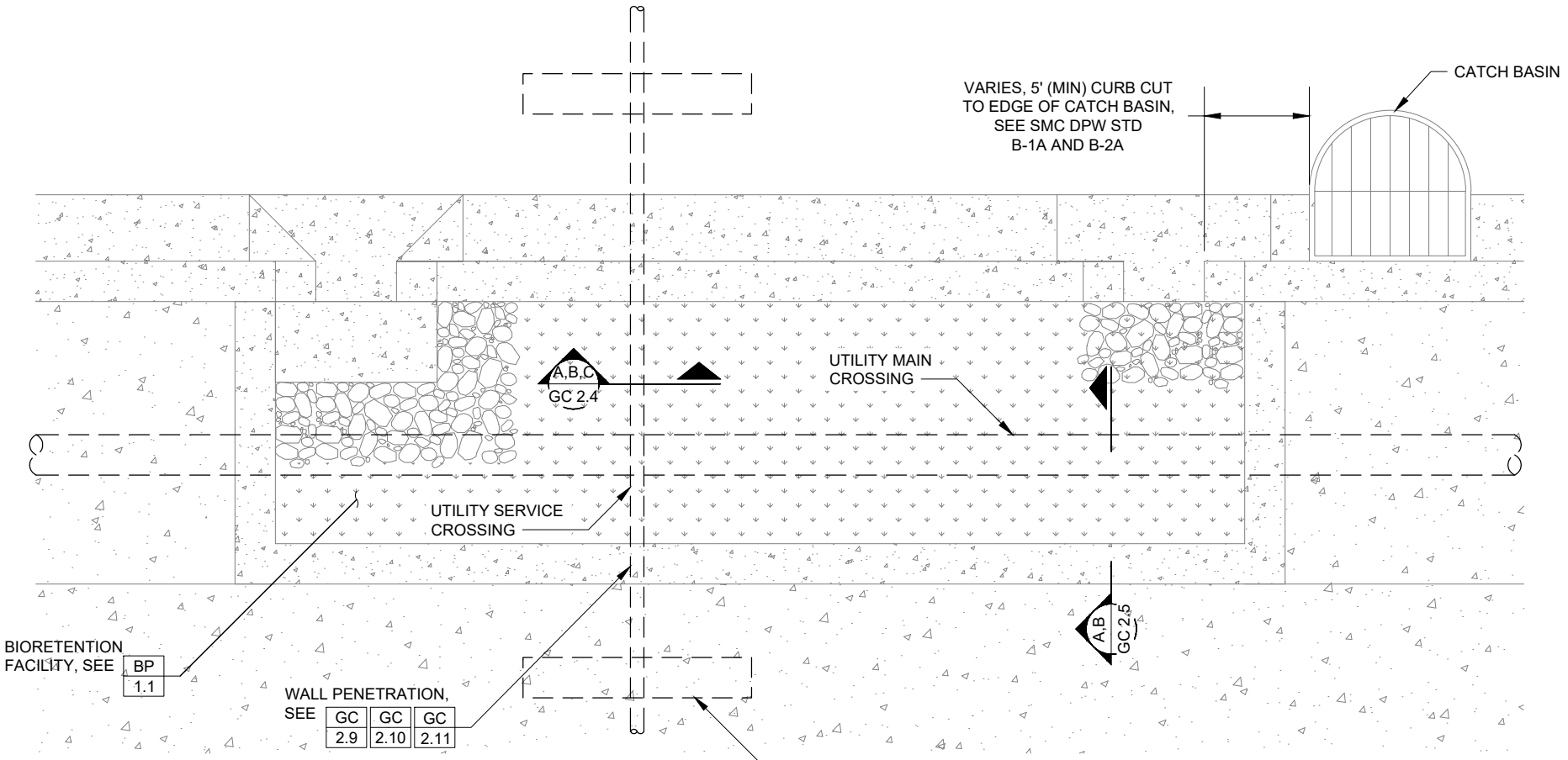
REVISED N/A

GENERAL COMPONENTS

UTILITY CROSSINGS

DESIGNER NOTES (2 OF 2)

FILE NO. GC 2.2



CONSTRUCTION NOTES:

1. ABANDONED UTILITIES WITHIN FOOTPRINT OF FACILITY AND OBSERVED DURING CONSTRUCTION MUST BE REMOVED. COORDINATE WITH MUNICIPAL OR PRIVATE OWNER AND ENGINEER.
2. PROVIDE UTILITY TRENCH DAM OR EQUIVALENT MEASURE OUTSIDE OF THE INFILTRATION FACILITY AT PIPE PENETRATIONS TO PREVENT PREFERENTIAL FLOW FROM INFILTRATION FACILITY INTO UTILITY TRENCHES. COORDINATE WITH ENGINEER.

NOTES		BIORETENTION			PERVIOUS PAVEMENT			WALL PENETRATIONS			TRENCH DAM
GC 2.1	GC 2.2	GC 2.3	GC 2.4	GC 2.5	GC 2.6	GC 2.7	GC 2.8	GC 2.9	GC 2.10	GC 2.11	GC 2.12

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GREEN INFRASTRUCTURE TYPICAL DETAILS

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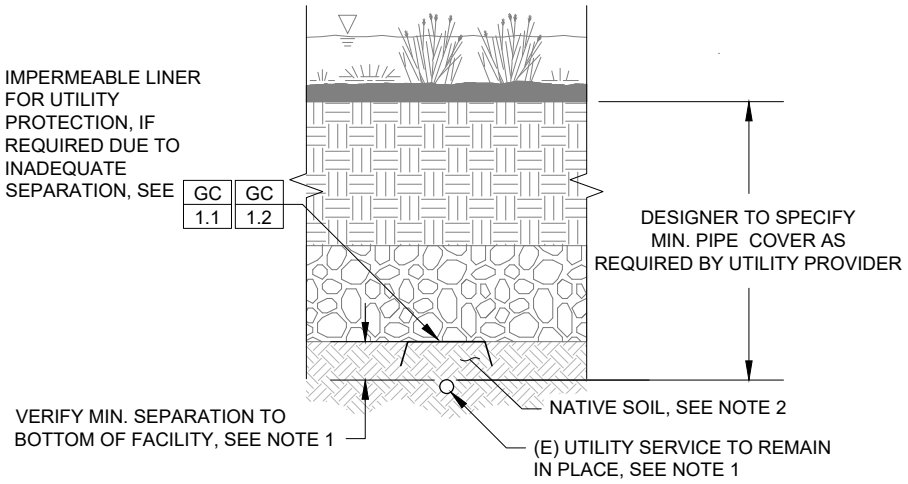
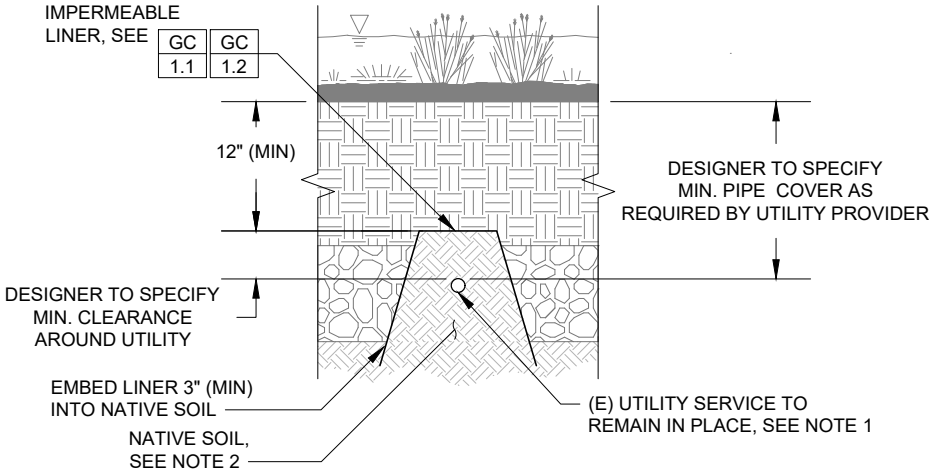
GENERAL COMPONENTS

UTILITY CROSSINGS
BIORETENTION

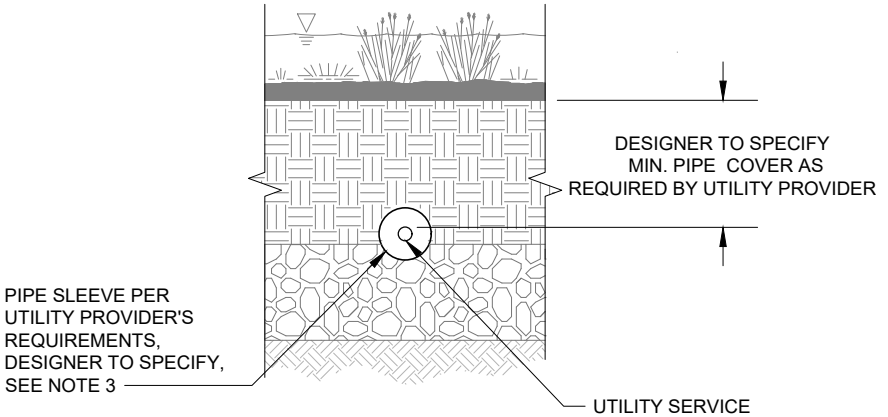
FILE NO. GC 2.3



SHALLOW UTILITY SERVICE UNDER BIORETENTION FACILITY (A)



SHALLOW UTILITY SERVICE WITHIN BIORETENTION FACILITY (B)



SLEEVED UTILITY SERVICE WITHIN BIORETENTION FACILITY (C)

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL LOCATE AND DETERMINE DEPTH OF EXISTING UTILITY WITHIN THE FOOTPRINT OF THE BIORETENTION FACILITY WHILE LIMITING THE AMOUNT OF DISTURBANCE TO THE SOIL/BACKFILL MATERIAL OVER AND AROUND THE UTILITY PIPE. IF ELECTROMAGNETIC UTILITY LOCATING, POTHOLING, OR OTHER METHOD REVEALS THAT THE UTILITY PIPE DOES NOT MEET THE REQUIRED CLEARANCE FROM THE BOTTOM OF THE BIORETENTION FACILITY, THE UTILITY PROVIDER MAY REQUIRE THAT PROTECTION MEASURES, SUCH AS THOSE SHOWN ON THIS PLAN, BE IMPLEMENTED PER THEIR STANDARDS. ANY DISCREPANCIES BETWEEN THE EXISTING UTILITIES SHOWN IN THE DESIGN DRAWINGS AND THE ACTUAL FIELD CONDITIONS SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY.
2. EXISTING UTILITIES AND NATIVE SOIL AROUND EXISTING UTILITIES SHOULD REMAIN IN PLACE WHERE POSSIBLE. IF A PORTION OR ALL OF THE UTILITY IS UNCOVERED DURING EXCAVATION OR EXISTING SOIL WITHIN 1 FOOT OF THE KNOWN EXISTING UTILITY IS SCARIFIED, NATIVE SOIL OR APPROVED ENGINEERED BACKFILL SHALL BE CAREFULLY PLACED AND COMPACTED AROUND THE UTILITY PER THE UTILITY PROVIDER'S REQUIREMENTS.
3. UTILITY PROVIDER MAY ALLOW UTILITY SERVICES TO BE LEFT IN PLACE AND WRAPPED WITH A WATERTIGHT WRAP OR TAPE IN LIEU OF A SLEEVE. THIS MUST BE APPROVED PRIOR TO THE START OF CONSTRUCTION.

NOTES		BIORETENTION			PERVIOUS PAVEMENT			WALL PENETRATIONS			TRENCH DAM
GC 2.1	GC 2.2	GC 2.3	GC 2.4	GC 2.5	GC 2.6	GC 2.7	GC 2.8	GC 2.9	GC 2.10	GC 2.11	GC 2.12

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

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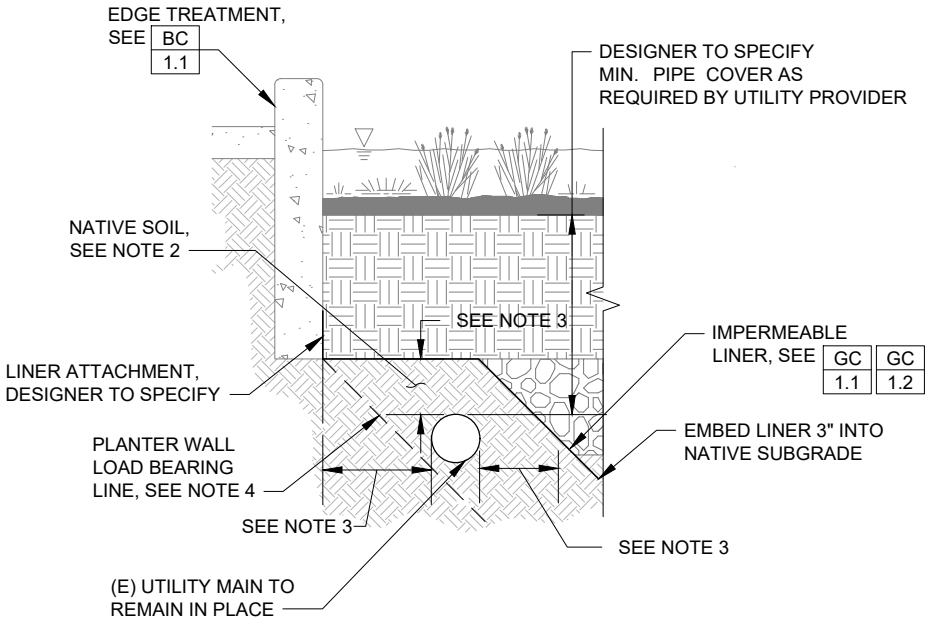
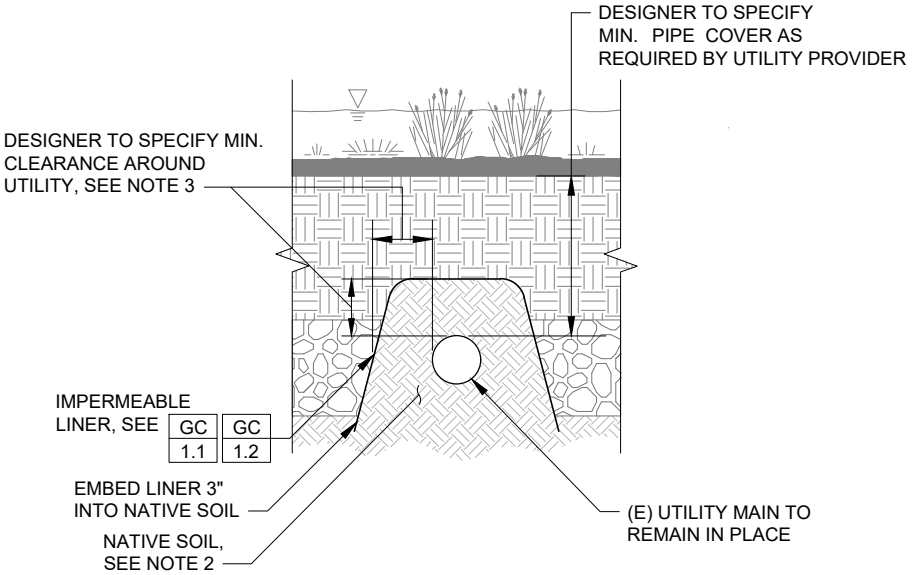
GENERAL COMPONENTS

UTILITY CROSSINGS
BIORETENTION SECTIONS (1 OF 2)

FILE NO. GC 2.4



UTILITY MAIN ADJACENT TO PLANTER WALL — A



SHALLOW UTILITY MAIN WITHIN BIORETENTION FACILITY — B

CONSTRUCTION NOTES:

1. ANY DISCREPANCIES BETWEEN THE EXISTING UTILITIES SHOWN IN THE DESIGN DRAWINGS AND THE ACTUAL FIELD CONDITIONS SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY.
2. EXISTING UTILITIES AND NATIVE SOIL AROUND EXISTING UTILITIES SHOULD REMAIN IN PLACE WHERE POSSIBLE. IF A PORTION OR ALL OF THE UTILITY IS UNCOVERED DURING EXCAVATION OR EXISTING SOIL WITHIN 1 FOOT OF THE KNOWN EXISTING UTILITY IS SCARIFIED, NATIVE SOIL OR APPROVED ENGINEERED BACKFILL SHALL BE CAREFULLY PLACED AND COMPACTED AROUND THE UTILITY PER THE UTILITY PROVIDER'S REQUIREMENTS.
3. PROVIDE THE MINIMUM CLEARANCE AROUND THE UTILITY MAIN AND SETBACKS FROM STRUCTURAL ELEMENTS PER THE UTILITY PROVIDER'S REQUIREMENTS.
4. UTILITY MAINS SHALL NOT BE SUBJECT TO LOADING FROM NEW PLANTER WALLS. LOAD BEARING LINES TO BE DETERMINED BY THE GEOTECHNICAL ENGINEER.

NOTES		BIORETENTION			PERVIOUS PAVEMENT			WALL PENETRATIONS			TRENCH DAM
GC 2.1	GC 2.2	GC 2.3	GC 2.4	GC 2.5	GC 2.6	GC 2.7	GC 2.8	GC 2.9	GC 2.10	GC 2.11	GC 2.12

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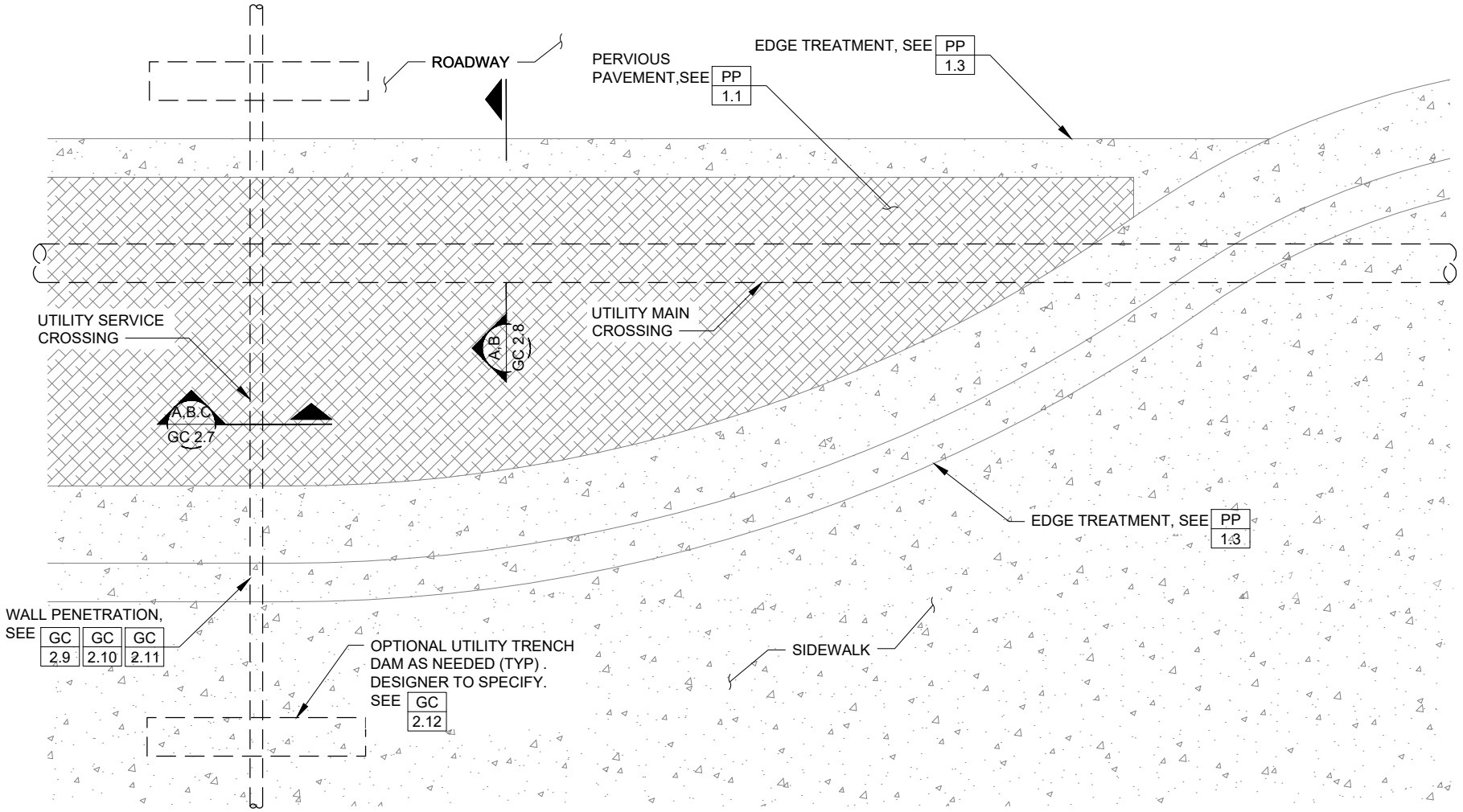
GENERAL COMPONENTS

UTILITY CROSSINGS
BIORETENTION SECTIONS (2 OF 2)

FILE NO. GC 2.5



CONSTRUCTION NOTES:

1. ABANDONED UTILITIES WITHIN FOOTPRINT OF FACILITY AND OBSERVED DURING CONSTRUCTION MUST BE REMOVED. COORDINATE WITH MUNICIPAL OR PRIVATE OWNER AND ENGINEER.
2. PROVIDE UTILITY TRENCH DAM OR EQUIVALENT MEASURE OUTSIDE OF THE INFILTRATION FACILITY AT PIPE PENETRATIONS TO PREVENT PREFERENTIAL FLOW FROM INFILTRATION FACILITY INTO UTILITY TRENCHES. COORDINATE WITH ENGINEER.

NOTES		BIORETENTION			PERVIOUS PAVEMENT			WALL PENETRATIONS			TRENCH DAM
GC 2.1	GC 2.2	GC 2.3	GC 2.4	GC 2.5	GC 2.6	GC 2.7	GC 2.8	GC 2.9	GC 2.10	GC 2.11	GC 2.12

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GENERAL COMPONENTS

UTILITY CROSSINGS
PERVIOUS PAVEMENT

FILE NO. GC 2.6

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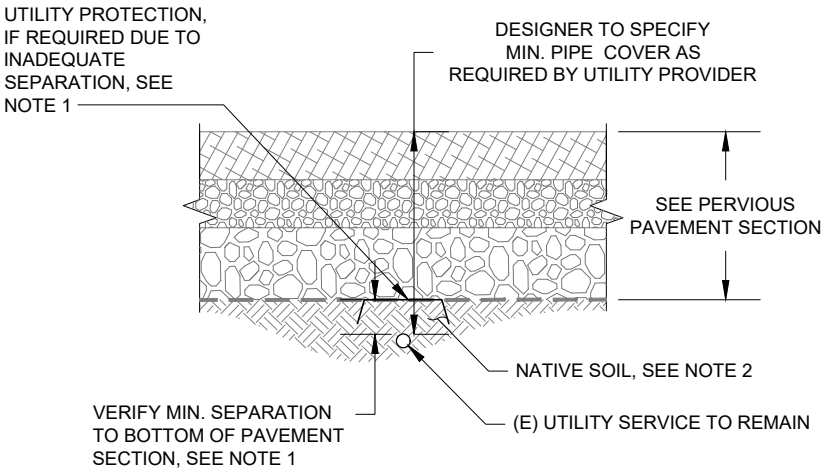
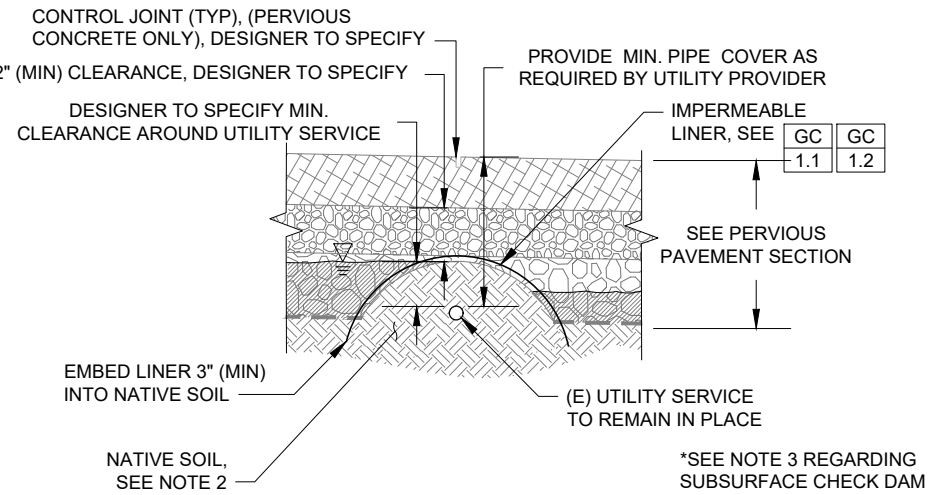
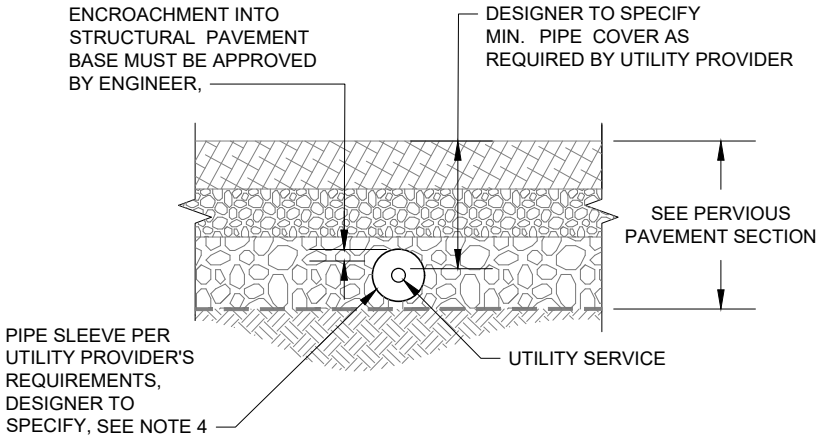


SHALLOW UTILITY SERVICE UNDER PERVIOUS PAVEMENT — A



SHALLOW UTILITY SERVICE WITHIN SUBSURFACE CHECK DAM — B



SLEEVED UTILITY SERVICE WITHIN PERVIOUS PAVEMENT — C

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL LOCATE AND DETERMINE DEPTH OF EXISTING UTILITY WITHIN THE FOOTPRINT OF THE PERVIOUS PAVEMENT FACILITY WHILE LIMITING THE AMOUNT OF DISTURBANCE TO THE SOIL/BACKFILL MATERIAL OVER AND AROUND THE UTILITY PIPE. IF ELECTROMAGNETIC UTILITY LOCATING, POTHOLING, OR OTHER METHOD REVEALS THAT THE UTILITY PIPE DOES NOT MEET THE REQUIRED SETBACK FROM THE BOTTOM OF THE PERVIOUS PAVEMENT SECTION, THE UTILITY PROVIDER MAY REQUIRE THAT PROTECTION MEASURES, SUCH AS THOSE SHOWN ON THIS PLAN, BE IMPLEMENTED.
2. EXISTING UTILITIES AND NATIVE SOIL AROUND EXISTING UTILITIES SHOULD REMAIN IN PLACE WHERE POSSIBLE. IF A PORTION OR ALL OF THE UTILITY IS UNCOVERED DURING EXCAVATION OR EXISTING SOIL WITHIN 1 FOOT OF THE KNOWN EXISTING UTILITY IS SCARIFIED, NATIVE SOIL OR APPROVED ENGINEERED BACKFILL SHALL BE CAREFULLY PLACED AND COMPACTED AROUND THE UTILITY PER THE UTILITY PROVIDER'S REQUIREMENTS.
3. THE CHECK DAM SPACING AND HEIGHT SPECIFIED ON THE DESIGN PLANS MUST BE MAINTAINED. IF THE CHECK DAM PROTECTING THE EXISTING UTILITY WILL IMPACT THE CHECK DAM SPACING SPECIFIED ON THE PLANS, COORDINATE WITH ENGINEER.
4. UTILITY PROVIDER MAY ALLOW SHALLOW UTILITY SERVICES TO BE LEFT IN PLACE AND WRAPPED WITH A WATERTIGHT WRAP OR TAPE IN LIEU OF A SLEEVE. THIS SHOULD BE APPROVED PRIOR TO THE START OF CONSTRUCTION.

NOTES		BIORETENTION			PERVIOUS PAVEMENT			WALL PENETRATIONS			TRENCH DAM
GC 2.1	GC 2.2	GC 2.3	GC 2.4	GC 2.5	GC 2.6	GC 2.7	GC 2.8	GC 2.9	GC 2.10	GC 2.11	GC 2.12

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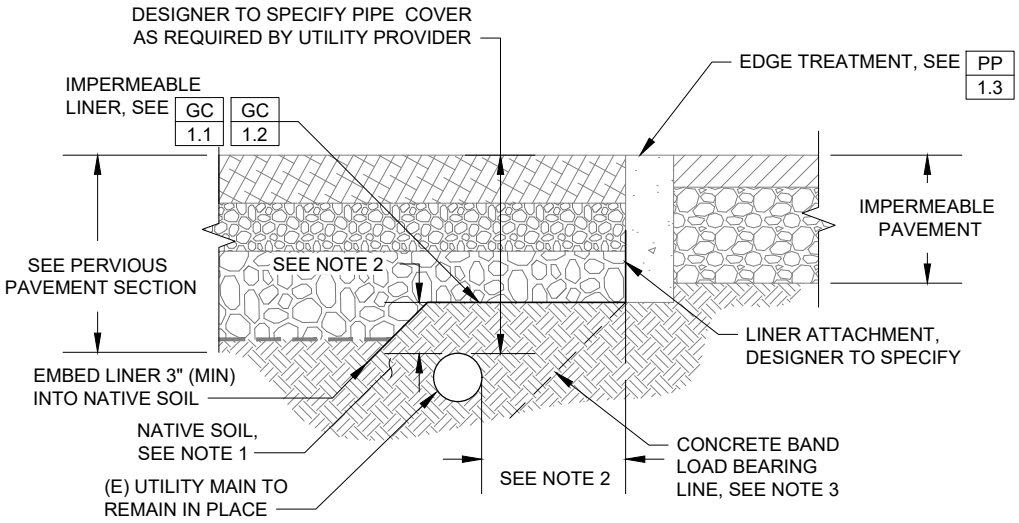
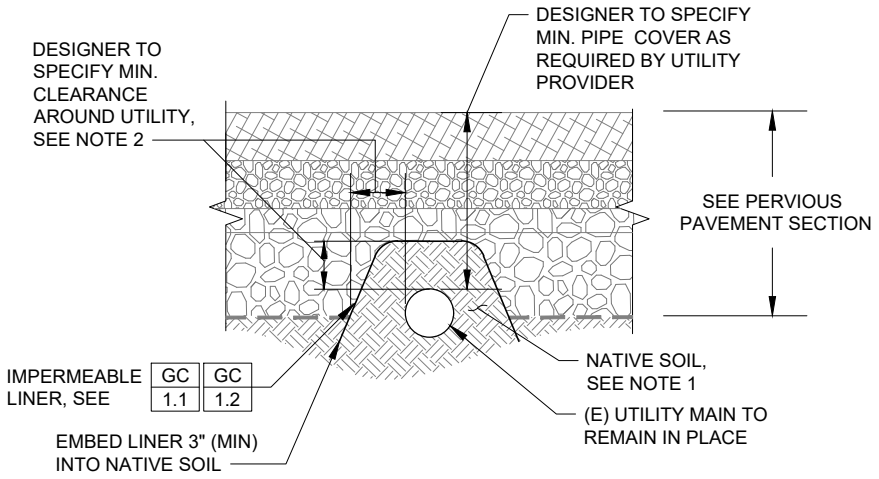
GENERAL COMPONENTS

UTILITY CROSSINGS
PERVIOUS PAVEMENT SECTIONS (1 OF 2)

FILE NO. GC 2.7



UTILITY MAIN WITHIN PERVIOUS PAVEMENT AND ADJACENT TO EDGE RESTRAINT (A)



UTILITY MAIN WITHIN PERVIOUS PAVEMENT (B)

CONSTRUCTION NOTES:

1. EXISTING UTILITIES AND NATIVE SOIL AROUND EXISTING UTILITIES SHOULD REMAIN IN PLACE WHERE POSSIBLE. IF A PORTION OR ALL OF THE UTILITY IS UNCOVERED DURING EXCAVATION OR EXISTING SOIL WITHIN 1 FOOT OF THE KNOWN EXISTING UTILITY IS SCARIFIED, NATIVE SOIL OR APPROVED ENGINEERED BACKFILL SHALL BE CAREFULLY PLACED AND COMPACTED AROUND THE UTILITY PER THE UTILITY PROVIDER'S REQUIREMENTS.
2. PROVIDE THE MINIMUM CLEARANCE AROUND THE UTILITY MAIN AND SETBACKS FROM STRUCTURAL ELEMENTS PER THE UTILITY PROVIDER'S REQUIREMENTS.
3. UTILITY MAINS SHALL NOT BE SUBJECT TO LOADING FROM NEW CURBS/WALLS. LOAD BEARING LINES TO BE DETERMINED BY THE GEOTECHNICAL ENGINEER.

NOTES		BIORETENTION			PERVIOUS PAVEMENT			WALL PENETRATIONS			TRENCH DAM
GC 2.1	GC 2.2	GC 2.3	GC 2.4	GC 2.5	GC 2.6	GC 2.7	GC 2.8	GC 2.9	GC 2.10	GC 2.11	GC 2.12

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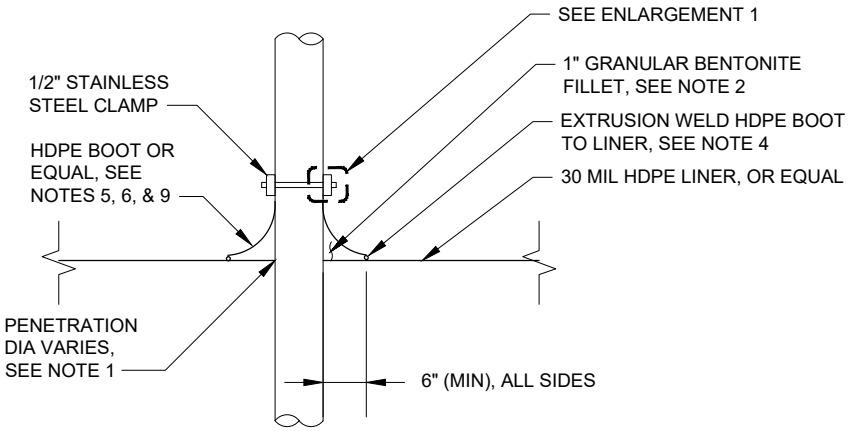
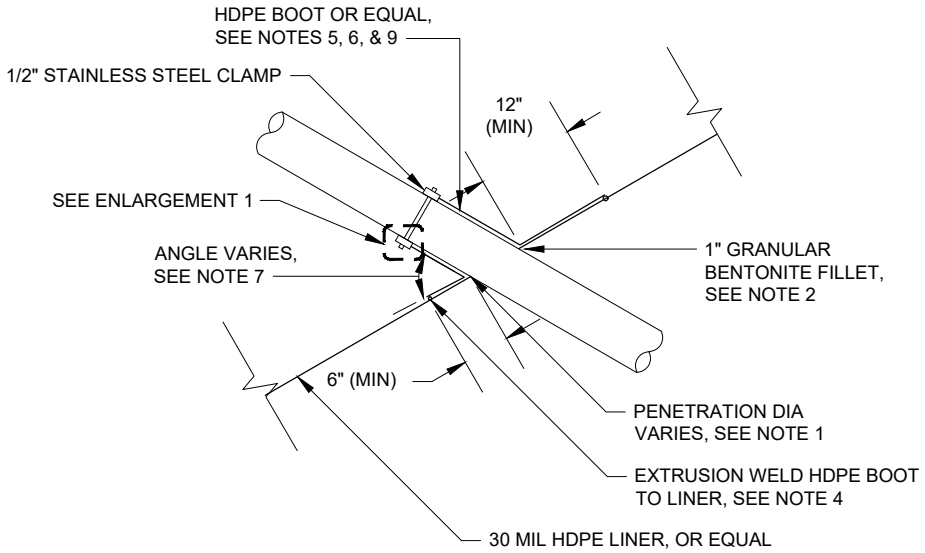
GENERAL COMPONENTS

UTILITY CROSSINGS
PERVIOUS PAVEMENT SECTIONS (2 OF 2)

FILE NO. GC 2.8



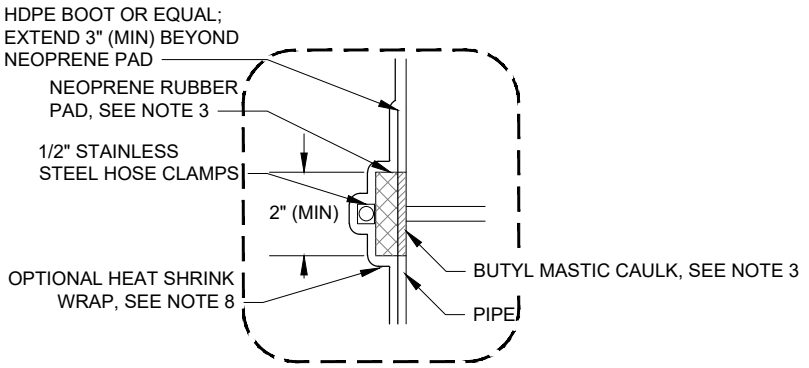
TYPICAL LINER PENETRATION - PERPENDICULAR 1



TYPICAL LINER PENETRATION - ANGLED 2

CONSTRUCTION NOTES:

1. CUT OPENING IN LINER FOR PIPE TO WITHIN 1/2" OF PIPE OUTSIDE DIAMETER.
2. FILL ANNULAR SPACE WITH 1" MINIMUM GRANULAR BENTONITE FILLET AS SHOWN.
3. APPLY BUTYL MASTIC CAULK AND NEOPRENE RUBBER PAD CONTINUOUSLY AROUND PIPE.
4. PROVIDE CONTINUOUS EXTRUSION WELD AT PIPE BOOT/LINER INTERFACE.
5. FORM BOOT WITH SUFFICIENT MATERIAL TO PREVENT OVERSTRESSING DURING BACKFILLING, BUT WITHOUT FOLDS OR WRINKLES.
6. CONSTRUCT BOOT FROM SAME MATERIAL AS THE LINER.
7. ANGLE SHOULD NOT BE LESS THAN 30°. IF ANGLE IS LESS THAN 30° ADD SOIL AROUND THE PIPE TO INCREASE THE ANGLE AND PREVENT STRESSING AND CRACKING.
8. SEAL CLAMP AND END OF BOOT WITH HEAT SHRINK WRAP. EXTEND HEAT SHRINK WRAP ONE PIPE DIAMETER (MINIMUM) BEYOND CLAMP.
9. CONTRACTOR MAY USE PREFABRICATED PIPE BOOTS IN LIEU OF FIELD-FABRICATED BOOTS. CONNECT PREFABRICATED BOOT TO LINER AND PIPE PER MANUFACTURER'S RECOMMENDATIONS.



ENLARGEMENT 1

NOTES		BIORETENTION			PERVIOUS PAVEMENT			WALL PENETRATIONS			TRENCH DAM
GC 2.1	GC 2.2	GC 2.3	GC 2.4	GC 2.5	GC 2.6	GC 2.7	GC 2.8	GC 2.9	GC 2.10	GC 2.11	GC 2.12

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GREEN INFRASTRUCTURE TYPICAL DETAILS

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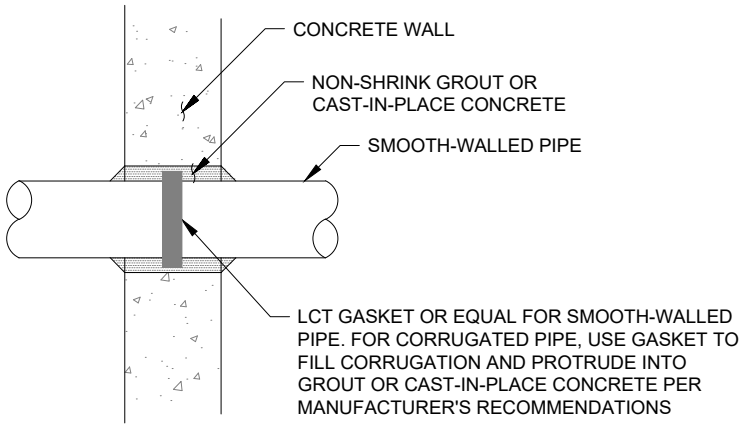
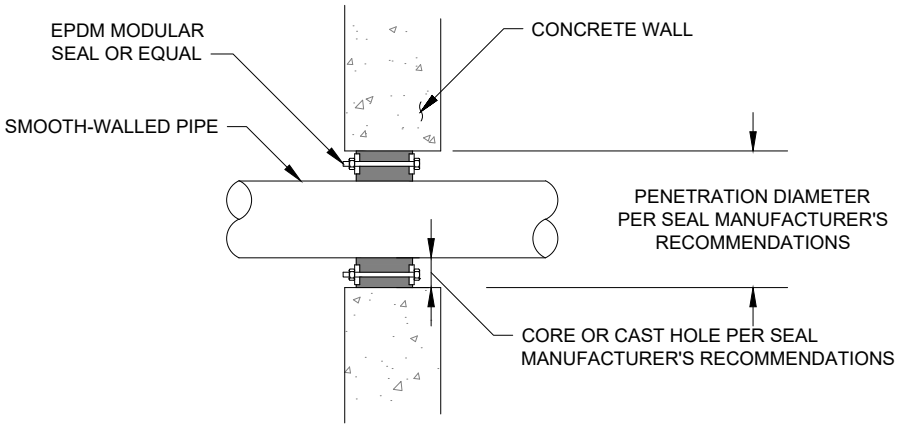
GENERAL COMPONENTS

UTILITY CROSSINGS
LINER PENETRATIONS

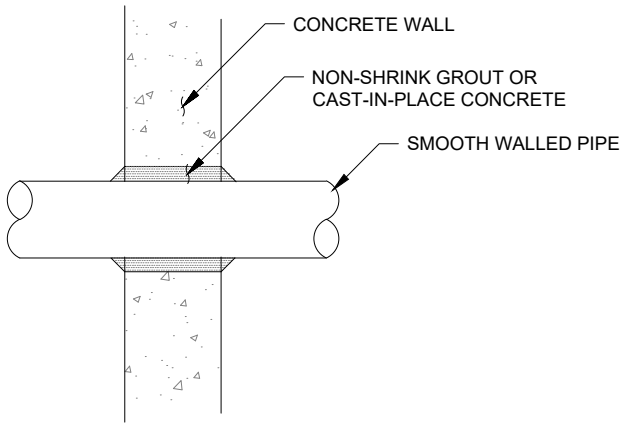
FILE NO. GC 2.9



TYPICAL WATERTIGHT WALL PENETRATION - ALTERNATE 1 (1)



TYPICAL WATERTIGHT WALL PENETRATION - ALTERNATE 2 (2)



TYPICAL SOIL TIGHT WALL PENETRATION (3)

FILENAME: C:\USERS\USER\DESKTOP\LOTUS\SAN MATEO\GC 2.10_SMC.DWG

NOTES		BIORETENTION			PERVIOUS PAVEMENT			WALL PENETRATIONS			TRENCH DAM
GC 2.1	GC 2.2	GC 2.3	GC 2.4	GC 2.5	GC 2.6	GC 2.7	GC 2.8	GC 2.9	GC 2.10	GC 2.11	GC 2.12

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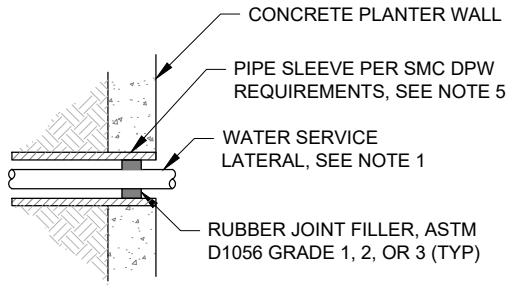
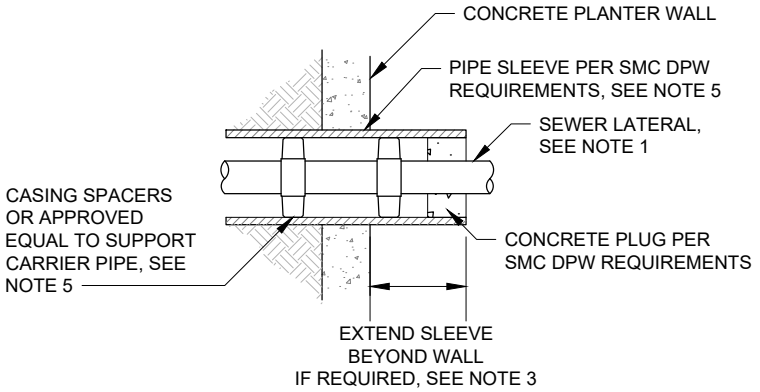
GENERAL COMPONENTS

UTILITY CROSSINGS
WALL PENETRATIONS (1 OF 2)

FILE NO. GC 2.10



WALL PENETRATION FOR WATER LATERALS 1



WALL PENETRATION FOR SEWER LATERALS 2

CONSTRUCTION NOTES:

1. IN CASES WHERE SHALLOW EXISTING UTILITIES, SUCH AS STREET LIGHT CONDUIT, HAVE BEEN APPROVED TO REMAIN IN PLACE PER THE UTILITY PROVIDER, AND SLEEVING FROM ONE END IS NOT FEASIBLE, THE EXISTING UTILITIES SHALL BE CAREFULLY WRAPPED WITH AN INSULATION MATERIAL (MIN. 1" THICK) AND A WATERTIGHT TAPE UNTIL THE WALLS ARE FORMED AROUND THE PIPE CROSSINGS. ONCE THE WALLS ARE SET, THE INSULATION WRAP SHALL BE REMOVED AND THE WALL PENETRATIONS SEALED.
2. DETECTABLE UTILITY MARKING TAPE SHALL BE PLACED OVER ALL UTILITIES WITHIN THE FOOTPRINT OF BIORETENTION FACILITIES. REFER TO THE TAPE MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM TAPE BURIAL DEPTH.
3. IF SEWER LATERAL IS BELOW BOTTOM OF BIORETENTION FACILITY AND WALL PENETRATION IS NOT NECESSARY, SMC DPW MAY REQUIRE THE SLEEVE AROUND NEW LATERAL PIPE TO BE EXTENDED BEYOND THE OUTSIDE OF THE PLANTER ON THE SIDEWALK SIDE. SEE DESIGN DRAWINGS FOR FURTHER DIRECTION.
4. ALL OTHER REPLACED OR NEW UTILITY SERVICES, SUCH AS GAS, TELECOM, ELECTRICAL, AND IRRIGATION RUNNING THROUGH A BIORETENTION FACILITY SHALL BE SLEEVED AND WALL PENETRATIONS SHALL BE DESIGNED TO MEET UTILITY PROVIDER'S REQUIREMENTS.
5. PIPE SLEEVE DESIGN AND MATERIALS, CONFORMING TO SMC DPW STANDARDS, SHALL BE SPECIFIED ON THE DESIGN DRAWINGS.

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GREEN INFRASTRUCTURE TYPICAL DETAILS

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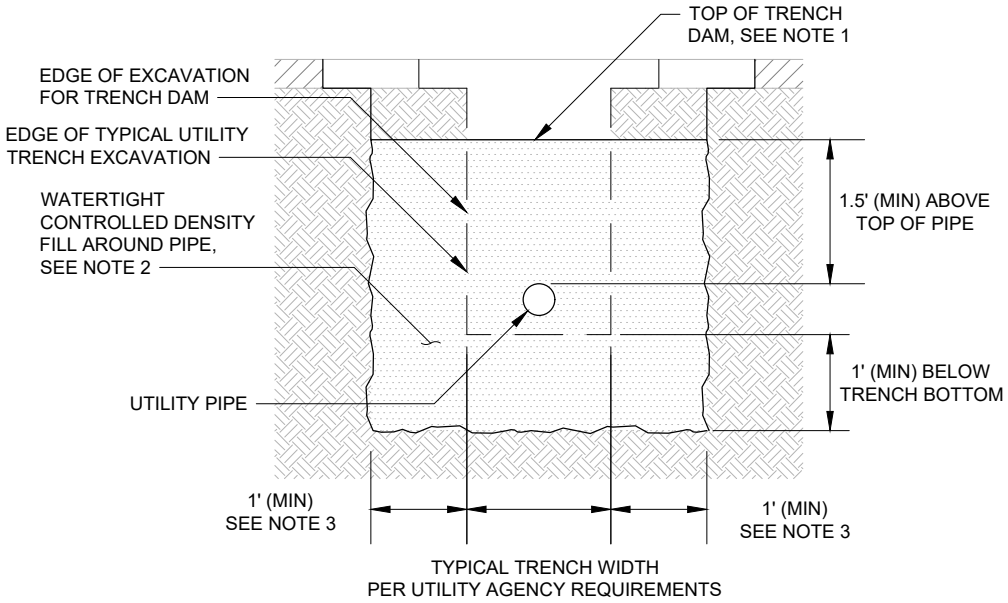
GENERAL COMPONENTS

UTILITY CROSSINGS
WALL PENETRATIONS (2 OF 2)

FILE NO. GC 2.11



UTILITY TRENCH DAM 1

CONSTRUCTION NOTES:

1. REFER TO DESIGN PLANS FOR TRENCH DAM LOCATIONS.
2. CONTROLLED DENSITY FILL SHALL BE 100 - 150 PSI STRENGTH WITH A WATER CONDUCTIVITY OF 1.0 X 10^{-6} CM/SEC (MAX).
3. TRENCH DAM SHALL EXTEND BEYOND THE EXISTING UTILITY TRENCH INTO THE NATIVE SOIL PER THE MINIMUM DIMENSIONS SHOWN. THE TRENCH DAM SHALL HAVE A MINIMUM THICKNESS OF 1' (MEASURED PARALLEL TO THE UTILITY PIPE LENGTH).

NOTES		BIORETENTION			PERVIOUS PAVEMENT			WALL PENETRATIONS			TRENCH DAM
GC 2.1	GC 2.2	GC 2.3	GC 2.4	GC 2.5	GC 2.6	GC 2.7	GC 2.8	GC 2.9	GC 2.10	GC 2.11	GC 2.12

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GENERAL COMPONENTS

UTILITY CROSSINGS
UTILITY TRENCH DAM

FILE NO. GC 2.12

PURPOSE:

WHEN SITING GREEN INFRASTRUCTURE (GI) FACILITIES, THE DESIGNER SHOULD LOCATE AND ASSESS ALL KNOWN UTILITY CROSSINGS AND CONFLICTS AND ADJUST THE DESIGN TO AVOID AS MANY EXISTING UTILITIES, LIGHTS, POLES, SIGNS AND OTHER INFRASTRUCTURE AS POSSIBLE. THE CRITICALITY OF INFRASTRUCTURE CONFLICTS IN TERMS OF THEIR POTENTIAL IMPACT TO THE GI PROJECT'S DESIGN PERFORMANCE, COST, AND SCHEDULE SHOULD BE CAREFULLY EVALUATED DURING THE PLANNING PHASE.

THE PURPOSE OF THE FOLLOWING TYPICAL UTILITY CONFLICT DETAILS IS TO ALERT THE DESIGNERS TO COMMON UTILITY CONFLICTS THAT OCCUR ON GI PROJECTS WITHIN THE PUBLIC RIGHT-OF-WAY AND PROVIDE GENERAL GUIDANCE ON THE PROTECTION AND/OR RELOCATION OF THESE UTILITIES IN RELATION TO THE GI FACILITY. THEY ARE PROVIDED AS TYPICAL APPLICATIONS AND DO NOT REPRESENT APPROVED COUNTY UTILITY STANDARDS AND SPECIFICATIONS.

DESIGNER NOTES AND GUIDELINES:

1. THE DESIGNER MUST ADAPT DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS AND UTILITY REQUIREMENTS AND OBTAIN APPROVAL FROM ALL RELEVANT UTILITY PROVIDERS PRIOR TO CONSTRUCTION. COORDINATION AND APPROVAL FROM THE FOLLOWING UTILITY PROVIDERS MAY BE NECESSARY, BUT NOT EXCLUSIVELY:
   - CALIFORNIA WATER SERVICE OR SMC PUBLIC WORKS FOR DOMESTIC/FIRE WATER
   - SMC PUBLIC WORKS FOR SANITARY/STORM SEWER, STREET LIGHTS
   - PG&E FOR ELECTRIC/GAS/UTILITY POLES
2. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT JURISDICTIONAL ASSET PROTECTION STANDARDS. IN THE ABSENCE OF THESE STANDARDS, THE DESIGNER SHALL REFER TO CHAPTER 3 OF SMCWPPP GI DESIGN GUIDE FOR BEST PRACTICES AND COORDINATE DIRECTLY WITH RELEVANT UTILITY PROVIDERS FOR REQUIREMENTS.
3. THE AREA OF SUBBASE COVERED BY THE INFRASTRUCTURE FOOTINGS, COMPACTED ENGINEERED FILL, CONCRETE PADS AND OTHER UTILITY INFRASTRUCTURE SHOULD BE EXCLUDED FROM HYDROLOGIC PERFORMANCE CALCULATIONS WHEN THE AREA IS SIGNIFICANT (GREATER THAN 10 PERCENT) RELATIVE TO THE INFILTRATIVE AREA.
4. DESIGNER TO SPECIFY CONCRETE FOOTING DIMENSIONS AND REINFORCEMENT FOR ALL VERTICAL INFRASTRUCTURE.
5. SEE SMC DPW STANDARDS FOR REQUIRED SETBACKS FROM CURBS, GUARD POSTS REQUIREMENTS, AND FOOTING DESIGN STANDARDS.
6. ALL STREET SIGN PLACEMENTS SHALL BE APPROVED BY SMC DPW PRIOR TO INSTALLATION.
7. ALL PARKING METER INSTALLATIONS OR RELOCATION DESIGNS SHALL CONFORM TO SMC DPW STANDARDS.

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ STREET LIGHT, SIGN, AND UTILITY POLE FOUNDATION DIMENSIONS, REINFORCEMENT, AND SPECIFICATIONS
- ☐ GEOTEXTILE FABRICS AND/OR LINER MATERIALS
- ☐ ENGINEERED BACKFILL MATERIAL
- ☐ DIMENSIONS OF ALL PROTECTION MEASURES
- ☐ MINIMUM SETBACKS TO ADJACENT INFRASTRUCTURE, PAVEMENT BASES, SURFACES

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

FILENAME: C:\USERS\USER\DESKTOP\LOTUS\SAN MATEO\GC 3.1_SMC.DWG

NOTES	COMPONENTS	
GC 3.1	GC 3.2	GC 3.3

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GREEN INFRASTRUCTURE TYPICAL DETAILS

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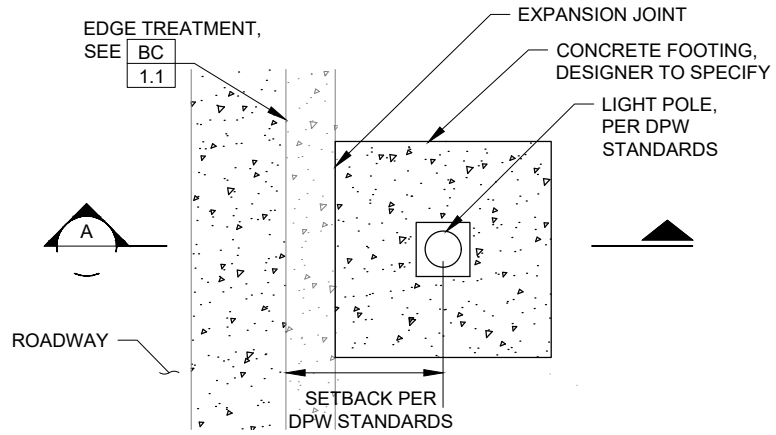
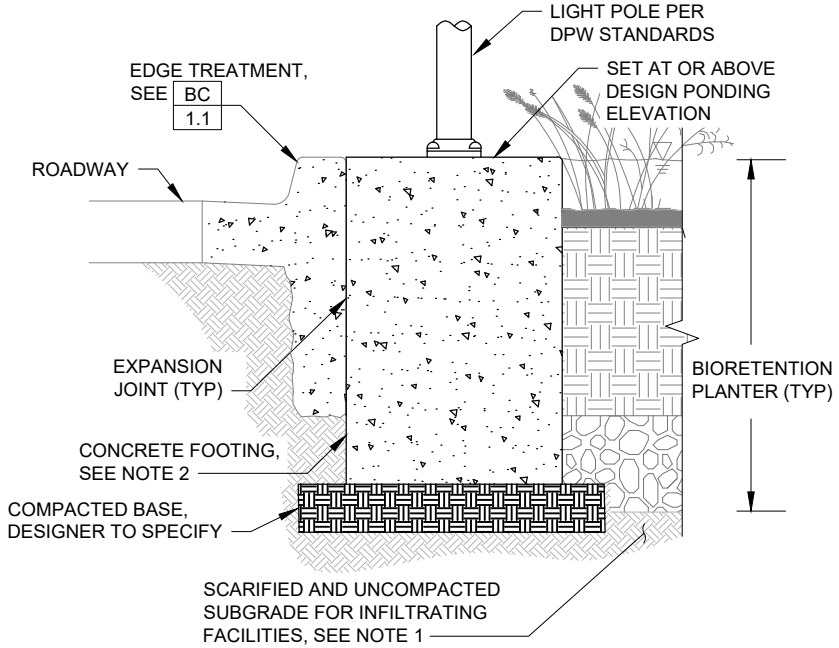
GENERAL COMPONENTS

UTILITY CONFLICTS
DESIGNER NOTES

FILE NO.
GC 3.1



PLAN



SECTION A

UTILITY POLE AT PLANTER (1)

CONSTRUCTION NOTES:

1. AVOID COMPACTION OF EXISTING SUBGRADE BELOW INFILTRATION FACILITIES DURING CONSTRUCTION.
2. DESIGNER TO SPECIFY FOUNDATION DETAILS. STREET LIGHT FOUNDATION SHALL COMPLY WITH SMC DPW STD. DWGS. E-1 AND SPECIFICATIONS.

NOTES: GC 3.1

COMPONENTS: GC 3.2 | GC 3.3

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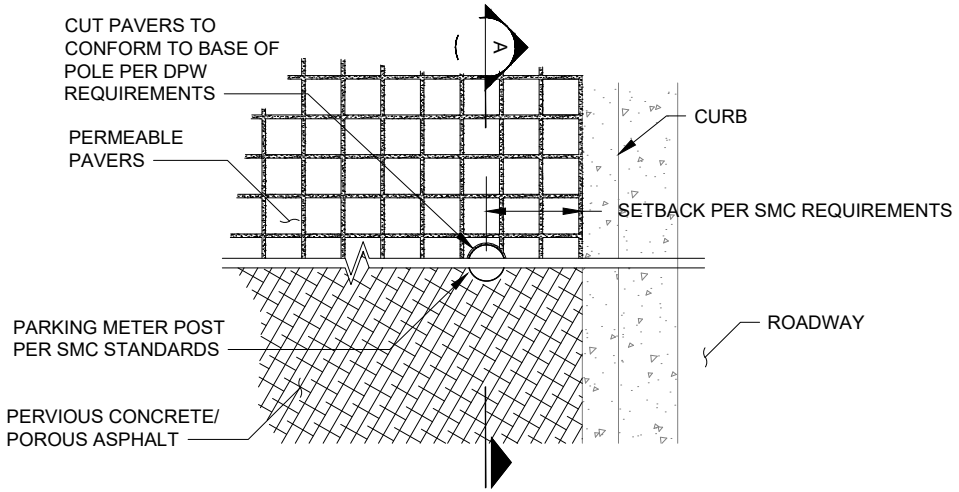
GENERAL COMPONENTS

UTILITY CONFLICTS
STREET/TRAFFIC LIGHT POLES

FILE NO. GC 3.2



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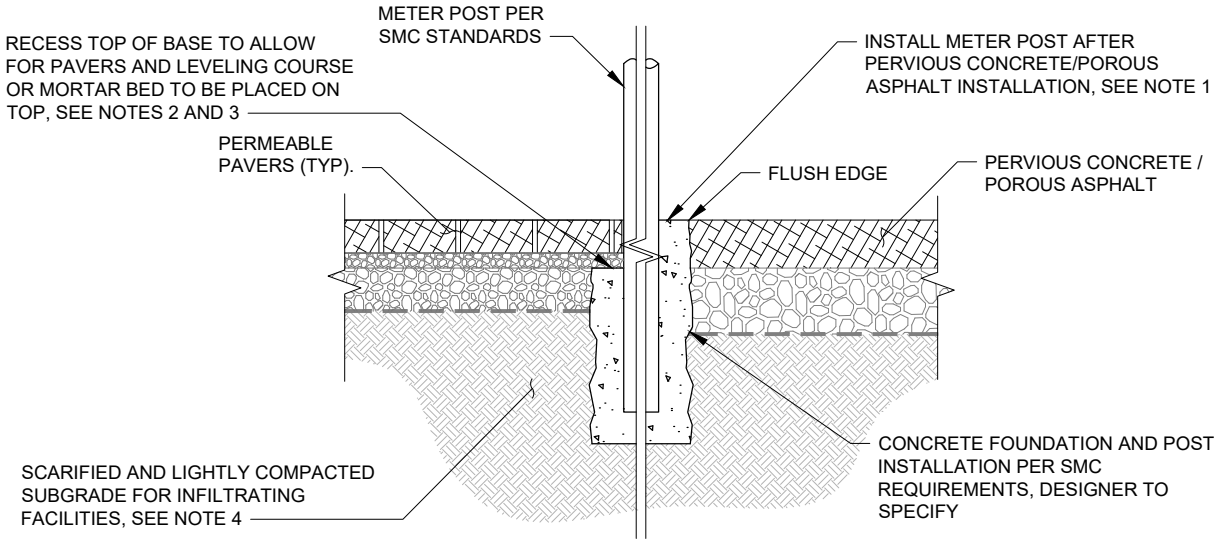

SECTION A

PARKING METER AT PERVIOUS PAVEMENT (1)

CONSTRUCTION NOTES:

1. DUE TO THE ADDED COMPLEXITY OF INSTALLING PERVIOUS CONCRETE AND POROUS ASPHALT AROUND NUMEROUS POLES/POSTS, IT IS RECOMMENDED POST HOLES BE DRILLED OUT AFTER THE PERVIOUS CONCRETE/POROUS ASPHALT HAS CURED. IF POLES ARE INSTALLED PRIOR TO THE PLACEMENT OF PERVIOUS CONCRETE/POROUS ASPHALT, THE CONTRACTOR SHALL COORDINATE WITH THE DESIGNER ON HOW THE PERVIOUS CONCRETE/POROUS ASPHALT SHALL BE INSTALLED AROUND AND/OR OVER THE POLE BASES.
2. WHERE METER POLES ARE SHOWN WITHIN A PERMEABLE PAVER AREA, THE BASES OF THE POLES SHALL BE INSTALLED BEFORE THE PAVER INSTALLATION. THE DESIGNER MAY SPECIFY THAT THE TOP OF THE BASES BE SET (OR CUT DOWN) AT A DEPTH THAT ALLOWS THE PAVERS AND LEVELING COURSE TO COVER THE TOP OF THE BASE AND REMAIN FLUSH WITH THE SURROUNDING PAVEMENT.
3. INSTALL PERVIOUS PAVEMENT OVER TOP OF FOOTING PER PROJECT SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS.
4. AVOID OVER-COMPACTION OF EXISTING SUBGRADE BELOW PERVIOUS PAVEMENT DURING CONSTRUCTION.

NOTES: GC 3.1

COMPONENTS: GC 3.2 | GC 3.3

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GREEN INFRASTRUCTURE TYPICAL DETAILS

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GENERAL COMPONENTS

UTILITY CONFLICTS
PARKING METERS

FILE NO. GC 3.3

PURPOSE:

OBSERVATION PORTS ALLOW FOR MEASUREMENT OF DRAWDOWN THROUGH A FACILITY (WHEN WATER LEVEL MEASUREMENTS ARE NOT OBSERVABLE AT THE SURFACE). THESE PORTS CAN ALSO BE USED FOR LONG-TERM MONITORING WITH A PRESSURE TRANSDUCER. FOR SYSTEMS INCLUDING UNDERDRAINS, CLEANOUTS MAY SERVE AS THE FACILITY OBSERVATION PORT PROVIDED LONG-TERM MONITORING IS NOT REQUIRED FOR THE FACILITY.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS.
2. OBSERVATION PORTS WITHIN A BIORETENTION FACILITY ARE NOT REQUIRED TO INCLUDE A SEPARATE LOCKING COVER ASSEMBLY. HOWEVER, DESIGNERS SHOULD CONSIDER REQUIRING A LOCKING OBSERVATION PORT CAP OR PLUG IF THE RISK OF TAMPERING IS CONSIDERED TO BE HIGH.
3. WHENEVER FEASIBLE, OBSERVATION PORTS SHOULD BE LOCATED OUTSIDE OF THE TRAVELED WAY. IF SITE CONSTRAINTS NECESSITATE INSTALLATION OF OBSERVATION PORTS IN AN AREA SUBJECT TO VEHICULAR TRAFFIC OR OTHER LOADING, OBSERVATION PORT COVER ASSEMBLIES AND MANHOLES MUST BE DESIGNED TO WITHSTAND ANTICIPATED LOADING (E.G., H-20).
4. OBSERVATION PORTS SHOULD INCLUDE A 12 INCH WATERTIGHT SUMP TO ACCOMMODATE CONTINUOUS WATER LEVEL MEASUREMENT WITH A PRESSURE TRANSDUCER.

DESIGNER CHECKLIST (MUST SPECIFY, AS APPLICABLE):

- ☐ OBSERVATION PORT MATERIAL, DIAMETER, AND DEPTH
- ☐ OBSERVATION PORT COVER ASSEMBLY/MANHOLE TYPE AND SIZE (IF APPLICABLE)
- ☐ CONTROL ELEVATIONS FOR OBSERVATION PORT RIMS
- ☐ TYPE OF MONITORING EQUIPMENT TO BE INSTALLED (IF APPLICABLE)

NOTES	COMPONENTS		
GC 4.1	GC 4.2	GC 4.3	

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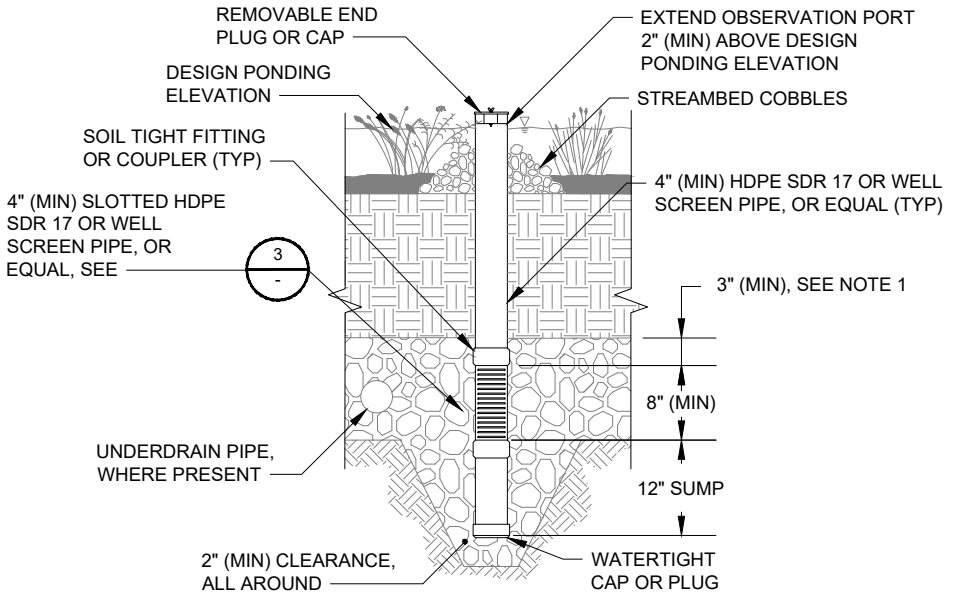
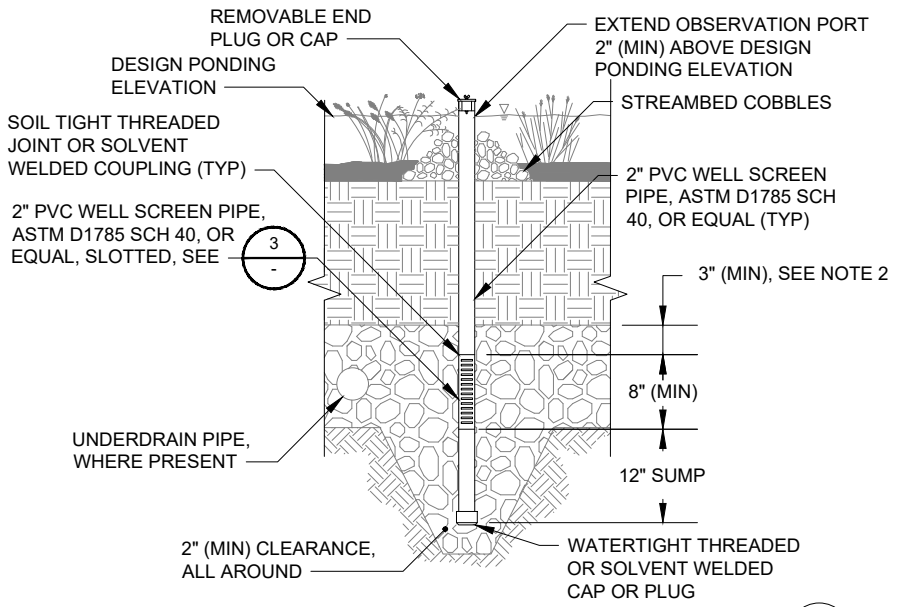
GENERAL COMPONENTS
OBSERVATION PORT DESIGNER NOTES

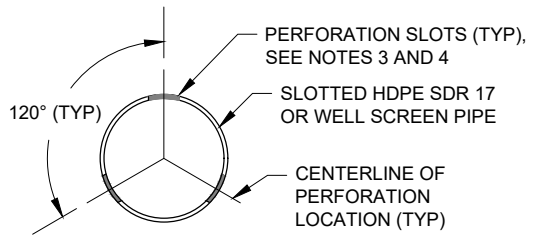
FILE NO. GC 4.1



HDPE OBSERVATION PORT 1



PVC WELL CASING/SCREEN OBSERVATION PORT 2



PIPE SLOT DETAIL 3

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR OBSERVATION PORTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. PROVIDE 3 INCH MINIMUM COVER FROM BOTTOM OF BIOTREATMENT SOIL MEDIA TO BEGINNING OF OBSERVATION PORT PERFORATIONS.
3. ALL PERFORATIONS SHALL BE SLOTTED TYPE, MEASURING 0.032 INCH WIDE (MAX), SPACED AT 0.25 INCH (MIN), AND PROVIDING A MINIMUM INLET AREA OF 5.0 SQUARE INCH PER LINEAR FOOT OF PIPE FOR PIPES 4 INCH IN DIAMETER AND LARGER AND 2.0 SQUARE INCHES PER LINEAR FOOT OF PIPE FOR PIPES SMALLER THAN 4 INCHES IN DIAMETER.
4. PERFORATIONS SHALL BE ORIENTED PERPENDICULAR TO LONG AXIS OF PIPE, AND EVENLY SPACED AROUND CIRCUMFERENCE AND LENGTH OF PIPE.
5. ALL FITTINGS SHALL BE SOIL TIGHT, UNLESS NOTED OTHERWISE.

NOTES: GC 4.1 | COMPONENTS: GC 4.2, GC 4.3

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GREEN INFRASTRUCTURE TYPICAL DETAILS

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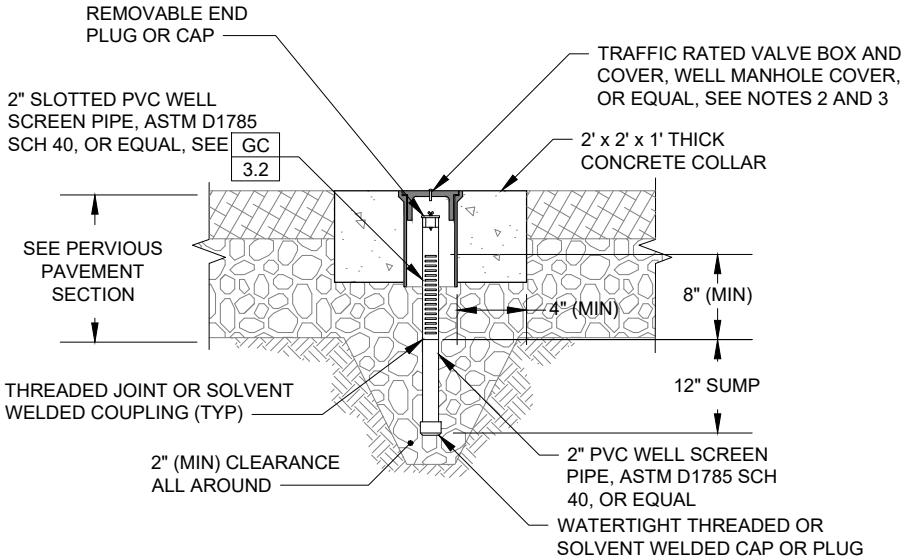
GENERAL COMPONENTS

OBSERVATION PORT
BIORETENTION

FILE NO. GC 4.2



PVC WELL SCREEN OBSERVATION PORT (1)

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR OBSERVATION PORTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. COVER SHALL BE TRAFFIC RATED WITH TAMPER RESISTANT LOCKING MECHANISM. COVER SHALL INCLUDE CASTING OF STANDARD TRIANGLE SYMBOL, "TEST WELL", "MONITORING WELL", OR EQUAL.
3. OBSERVATION PORT COVERS AND LIDS MUST COMPLY WITH SMC STANDARD ACCESSIBILITY REQUIREMENTS.
4. WELL SCREEN SLOTS SHALL BE 0.032 INCHES WIDE (MAX), SPACED AT 0.25 INCH (MIN), AND PROVIDE A MINIMUM INLET AREA OF 2.0 SQUARE INCH PER LINEAR FOOT OF PIPE.
5. ALL FITTINGS SHALL BE SOIL TIGHT, UNLESS NOTED OTHERWISE.

NOTES: GC 4.1
COMPONENTS: GC 4.2, GC 4.3

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GREEN INFRASTRUCTURE TYPICAL DETAILS

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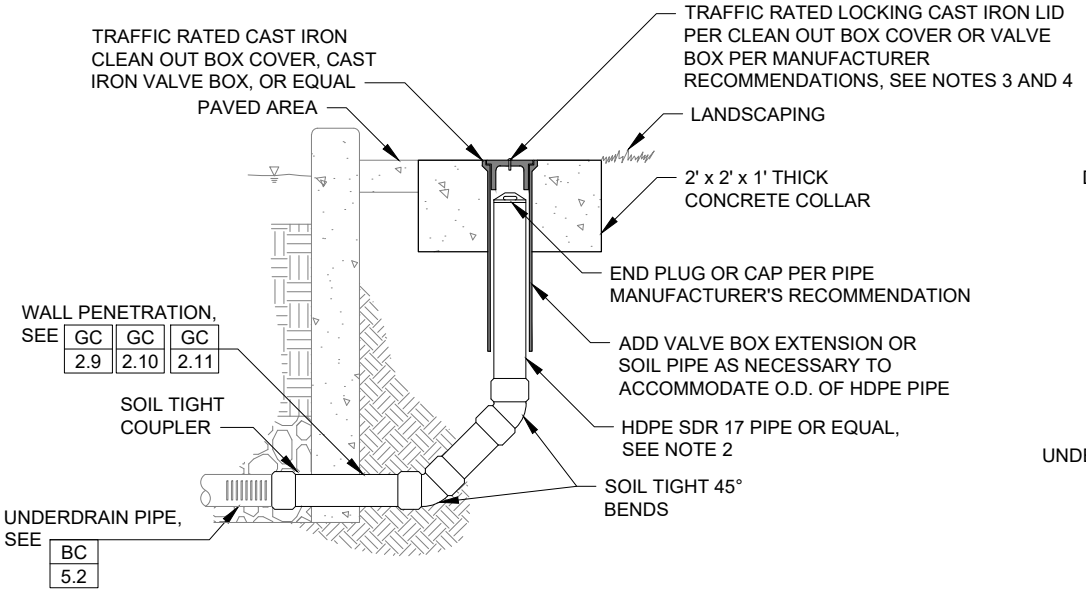
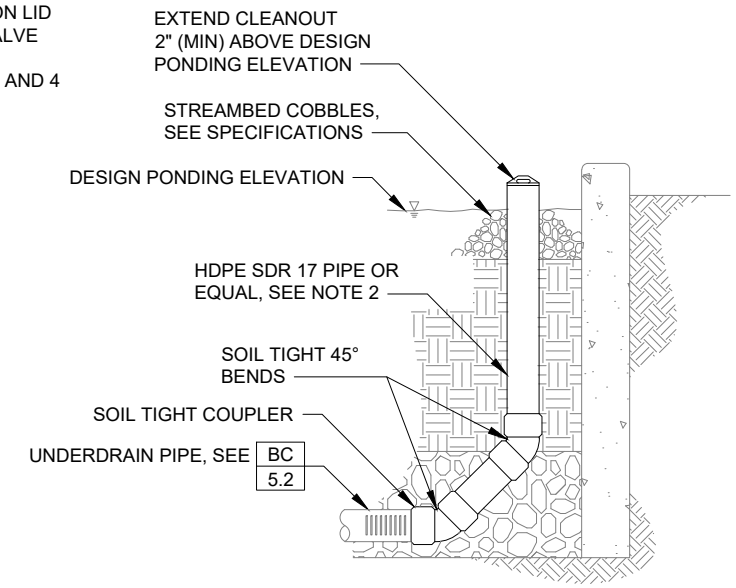
GENERAL COMPONENTS

OBSERVATION PORT
PERVIOUS PAVEMENT

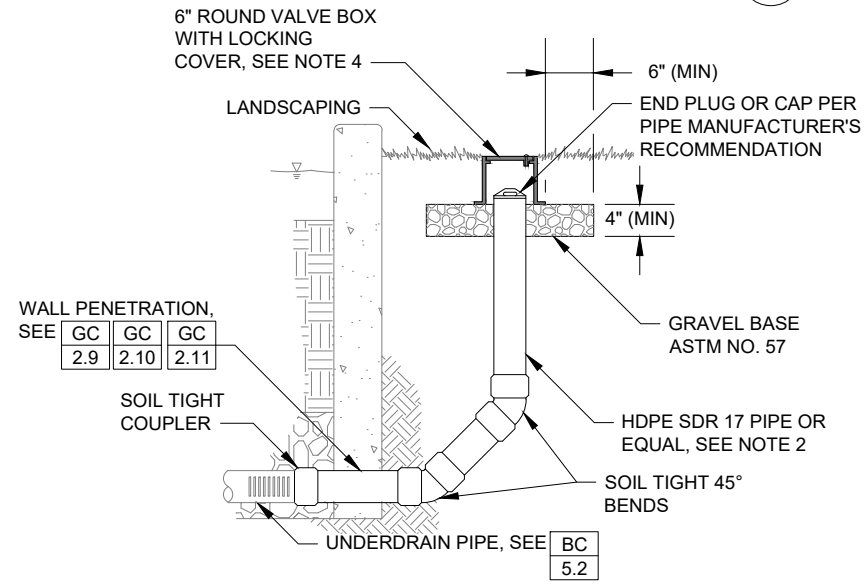
FILE NO. GC 4.3



CLEANOUT - ALTERNATIVE 1 (1)



CLEANOUT - ALTERNATIVE 2 (2)



CLEANOUT - ALTERNATIVE 3 (PARCEL ONLY) (3)

CONSTRUCTION NOTES:

1. ALL MATERIAL AND WORKMANSHIP FOR CLEANOUTS SHALL CONFORM TO SMC DPW STANDARD SPECIFICATIONS AND APPLICABLE CODES.
2. CLEANOUT PIPE AND FITTINGS SHALL BE SAME SIZE AND MATERIAL AS SLOTTED UNDERDRAIN PIPE.
3. COVER SHALL BE TRAFFIC RATED WITH TAMPER RESISTANT LOCKING MECHANISM. COVER SHALL INCLUDE CASTING OF "CO" OR EQUAL.
4. CLEANOUT COVERS AND LIDS MUST COMPLY WITH SMC STANDARD ACCESSIBILITY REQUIREMENTS.
5. CLEANOUT SHALL BE INSTALLED TO ALLOW FOR MAINTENANCE ACCESS TO ALL PIPES.
6. ALL FITTINGS SHALL BE SOIL TIGHT.

COMPONENTS: GC 5.1

NOT FOR CONSTRUCTION - REFER TO USER GUIDE

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GENERAL COMPONENTS

CLEANOUTS

FILE NO. GC 5.1

PURPOSE:

TREE WELLS CONTROL PEAK FLOWS AND VOLUMES OF STORMWATER RUNOFF BY PROVIDING SURFACE STORAGE, SUBSURFACE STORAGE, AND INFILTRATION INTO NATIVE SOIL. WATER IS ALSO TREATED AS IT FILTERS THROUGH THE BIOTREATMENT SOIL.

DESIGNER NOTES & GUIDELINES:

1. THE DESIGNER MUST ADAPT PLAN AND SECTION DRAWINGS TO ADDRESS SITE-SPECIFIC CONDITIONS. IF USING A MODULAR SUSPENDED PAVEMENT SYSTEM, CONTACT THE MANUFACTURER FOR DESIGN DETAILS AND GUIDANCE.

2. TREE WELL AREA, PONDING DEPTH, BIOTREATMENT SOIL DEPTH, AND AGGREGATE STORAGE DEPTH MUST BE SIZED TO MEET PROJECT HYDROLOGIC PERFORMANCE GOALS. C.3. REGULATED PROJECTS MAY REQUIRE EXPANSION OF TREE WELL VOLUME UNDER THE PAVEMENT USING INFILTRATION TRENCHES, STRUCTURAL SOIL, AND/OR MODULAR PAVEMENT SUPPORT CELLS. SEE CHAPTERS 4 AND 6 OF THE SMCWPPP C.3 REGULATED PROJECTS GUIDE FOR ADDITIONAL GUIDANCE ON SIZING, TREE WELL FILTERS, AND TREE PLANTING.

3. FACILITY DRAWDOWN TIME (i.e. TIME FOR SURFACE PONDING TO DRAIN THROUGH THE ENTIRE SECTION INCLUDING AGGREGATE STORAGE AFTER THE END OF A STORM) REQUIREMENTS:

   - 48 HOUR (PREFERRED), 72-HOUR MAXIMUM FACILITY DRAWDOWN. IF DRAWDOWN CANNOT BE ACHIEVED, UNDERDRAIN IS REQUIRED.

4. THE TREE WELL PLANTER EDGE SHOULD BE DELINEATED WITH A 6-INCH HIGH CURB (PREFERRED), LOW RAILING, OR TREE GRATE TO PREVENT PEOPLE FROM ENTERING THE PLANTER. THE VERTICAL DROP BETWEEN THE TREE WELL AND ADJACENT PATH OF TRAVEL MUST COMPLY WITH ACCESSIBILITY REQUIREMENTS. WHEN A TREE GRATE IS USED, A MINIMUM SEPARATION OF 4 INCHES BETWEEN THE GRATE AND TREE TRUNK SHOULD BE MAINTAINED. REFER TO SECTION 3.1 OF THE SMCWPPP GI DESIGN GUIDE FOR DETAILED GUIDANCE ON CURB, RAILING, AND OTHER EDGE TREATMENTS.

5. RECOMMENDED TREE ROOT VOLUME IS 400 CUBIC FEET FOR SMALL TREES (6-INCH DIAMETER TRUNK), 1,000 CUBIC FEET FOR MEDIUM SIZED TREES (16-INCH DIAMETER TRUNK), AND 1,400 CUBIC FEET FOR LARGE TREES (24-INCH DIAMETER TRUNK), WHERE VOLUMES ARE BASED ON A 3-FOOT DEPTH PLANTER AREA. IN CONSTRAINED SITES, ROOT CHANNELS, MODULAR PAVEMENT SUPPORT CELLS, AND OTHER TECHNIQUES CAN BE USED TO EXPAND THE TREE ROOT VOLUME. CONSULT WITH A DESIGN PROFESSIONAL TO ENSURE SUFFICIENT TREE ROOT VOLUME IS PROVIDED FOR TREE HEALTH.

6. WHEN A TREE WELL IS BEHIND A STREET CURB, VERTICAL ELEMENTS OF THE TREE WELL THAT ARE MORE THAN 12 INCHES ABOVE THE ROAD SURFACE SHALL BE SETBACK 18 INCHES FROM THE FACE OF CURB. TREE PLACEMENT SHOULD NOT IMPACT SIGHT DISTANCE FOR EXISTING DRIVEWAYS AND ON-STREET PARKING OR EXISTING DRIVEWAY AND PARKED VEHICLE INGRESS AND EGRESS.

7. TREE SPECIES AND UNDERSTORY PLANTS (IF USED) SHALL BE SPECIFIED BY A DESIGN PROFESSIONAL. PROVIDE MINIMUM 2-FOOT CLEARANCE BETWEEN TREE TRUNK AND UNDERSTORY PLANTS TO REDUCE COMPETITION FOR WATER, NUTRIENTS, AND ROOT SPACE WITH TREES. SEE SECTION 6.3 AND APPENDIX A OF THE SMCWPPP C.3 REGULATED PROJECTS GUIDE FOR GUIDANCE ON RECOMMENDED TREE SPECIES.

8. THE PREFERRED SIZE FOR A TREE WELL OPENING IS 6-FEET WIDE AND 6-FEET LONG, FOR A PLANTER AREA OF 36 SQUARE FEET. WHERE SIDEWALK WIDTH IS CONSTRAINED, WIDTH MAY BE 4 FEET MINIMUM AND A DESIRED LENGTH OF 8 FEET WITH A MINIMUM OF 5 FEET.

9. MULTIPLE TREES IN A TREE TRENCH SHOULD BE SPACED APPROXIMATELY 25 FEET TO 35 FEET APART DEPENDING ON TREE SPECIES.

10. IF STREET PARKING IS PROHIBITED ADJACENT TO THE SIDEWALK/TREE WELL AREA, THE STEPOUT ZONE CAN BE REMOVED AND THE TRENCH DRAIN INLET CAN BE CHANGED TO A SIMPLER CURB CUT INLET.

11. IF FULL TRASH CAPTURE IS A PROJECT REQUIREMENT, THE DESIGNER SHOULD DETERMINE IF ADDITIONAL MEASURES ARE NEEDED TO MEET THE REGIONAL WATER QUALITY BOARD'S TRASH FULL CAPTURE REQUIREMENTS, i.e. TRASH CAPTURE INLET STRUCTURE.

12. THE DESIGNER MUST EVALUATE UTILITY SURVEYS FOR POTENTIAL UTILITY CROSSINGS OR CONFLICTS. REFER TO **GC 2.1** - **GC 2.12** FOR UTILITY CROSSING DETAILS AND **GC 3.1** - **GC 3.3** FOR UTILITY CROSSING CONFLICT DETAILS.

13. MINIMUM UTILITY SETBACKS AND PROTECTION MEASURES MUST CONFORM TO CURRENT JURISDICTIONAL ASSET PROTECTION STANDARDS. IN THE ABSENCE OF THESE STANDARDS, THE DESIGNER SHALL REFER TO CHAPTER 3 OF THE SMCWPPP GI DESIGN GUIDE FOR BEST PRACTICES AND COORDINATE DIRECTLY WITH RELEVANT UTILITY PROVIDERS FOR REQUIREMENTS.

RELATED COMPONENTS

EDGE TREATMENTS:	BC 1.1 - BC 1.7
INLETS:	BC 2.1 - BC 2.4
OUTLETS:	BC 3.1 - BC 3.4
SOIL AND AGGREAGTE LAYERS:	BC 4.1
UNDERDRAINS:	BC 5.1 - BC 5.2
LINERS:	GC 1.1 - GC 1.2
UTILITY CROSSINGS:	GC 2.1 - GC 2.12
UTILITY CONFLICTS:	GC 3.1 - GC 3.3
OBSERVATION PORTS:	GC 4.1 - GC 4.4
CLEANOUTS:	GC 5.2

NOTES	PLAN	SECTION
TW 1.1	TW 1.2	TW 1.3

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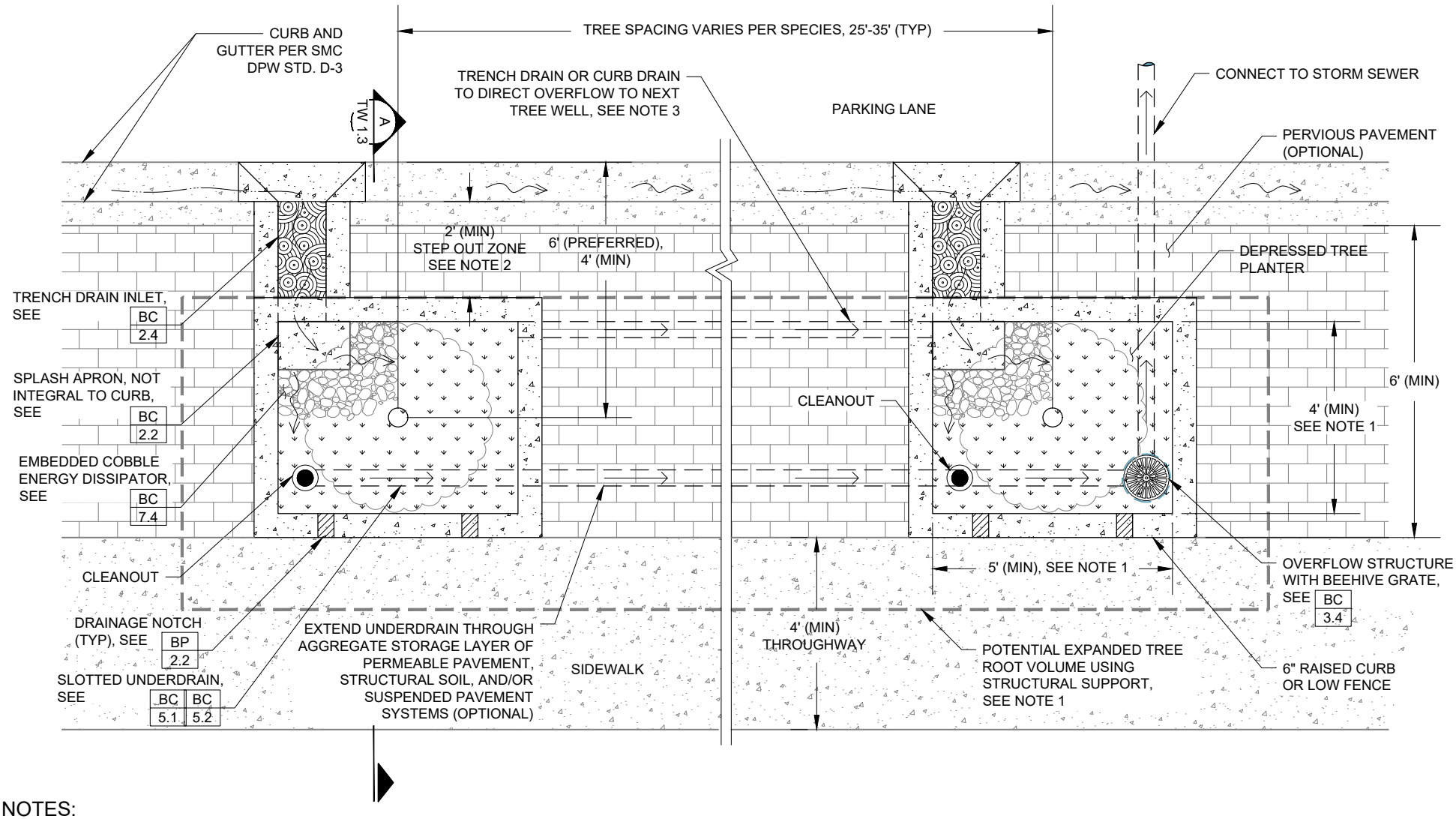
TREE WELL FILTER

DESIGNER NOTES (1 OF 1)

FILE NO. TW 1.1



NOTES:

1. PREFERRED TREE WELL OPENING SIZE IS 6 FEET BY 6 FEET, BUT CONSTRAINED SITES CAN REDUCE WIDTH TO 4 FEET PROVIDED THEY CAN ACCOMMODATE MINIMUM REQUIRED TREE ROOT VOLUME BY INCREASING LENGTH AND/OR USING STRUCTURAL SOIL, PERVIOUS PAVEMENT, AND/OR SUSPENDED PAVEMENT SYSTEMS UNDER ADJACENT SIDEWALK. IF ADJACENT TO LANDSCAPED AREAS, EXTEND THE BOUNDARY TO BACK OF SIDEWALK TO ALLOW TREE ROOTS TO ACCESS ADJACENT LANDSCAPED AREAS WITH NATIVE SOIL.
2. DESIGNER TO SPECIFY MINIMUM SIDEWALK WIDTH BEHIND AND STEP-OUT ZONE IN FRONT OF TREE WELL THAT COMPLIES WITH ALL APPLICABLE AGENCY AND ADA REQUIREMENTS. STEP-OUT ZONE CAN BE ELIMINATED IF PARKING IS PROHIBITED ALONG CURB. SEE DESIGNER NOTES.
3. IF CURB DRAIN, I.E. SHALLOW PIPES, ARE USED TO CONVEY SURFACE WATER BETWEEN TREE WELLS, 3 INCH CAST IRON PIPES SHALL BE INSTALLED AND A MINIMUM COVER OF 1-1/2 INCHES OF CONCRETE OVER PIPES SHALL BE PROVIDED. IF TRENCH DRAIN IS USED, THE GRATE SHALL BE ADA COMPLIANT AND HAVE A NON-SLIP SURFACE.

NOTES	PLAN	SECTION
TW 1.1	TW 1.2	TW 1.3

JAMES C. PORTER
DIRECTOR OF PUBLIC WORKS

GREEN INFRASTRUCTURE TYPICAL DETAILS

COUNTY OF SAN MATEO

DATE 06.2020
VERSION 01
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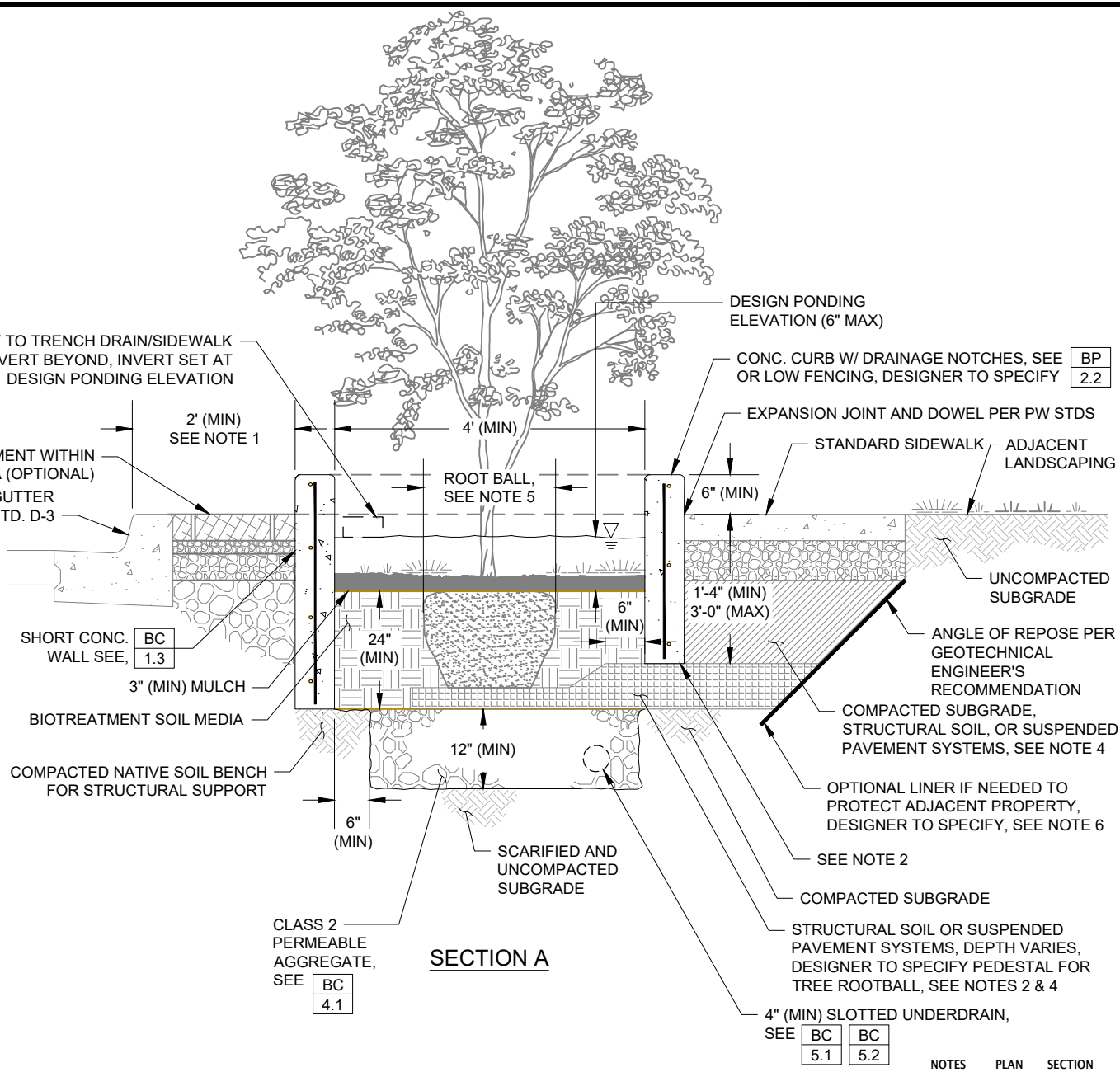
TREE WELL FILTER

CONNECTED TREE WELLS WITH PARKING – PLAN

FILE NO. TW 1.2



SECTION A

NOTES:

1. STEP-OUT WIDTH SHALL COMPLY WITH ALL APPLICABLE AGENCY AND ADA STANDARDS.
2. IF STRUCTURAL SOIL AND/OR OTHER METHODS ARE NOT USED TO EXPAND TREE ROOT VOLUME BEYOND TREE PLANTER, EDGE RESTRAINT SHALL BE EXTENDED TO BOTTOM OF BIOTREATMENT SOIL.
3. IF TREE WELL LENGTH EXCEEDS 6 FEET, LATERAL BRACING AND/OR FOOTINGS MAY BE REQUIRED. DESIGNER TO SPECIFY.
4. IF ADDITIONAL ROOTABLE SOIL VOLUME IS NEEDED, DESIGNER MAY SPECIFY THE USE OF ADDITIONAL STRUCTURAL SOIL OR SUSPENDED PAVEMENT SYSTEMS UNDER THE SIDEWALK BASE IF ALLOWED BY PUBLIC WORKS.
5. ROOT BALL SIZE TO BE SPECIFIED BY THE DESIGNER AND APPROVED BY THE CITY ARBORIST IF WITHIN PUBLIC RIGHT-OF-WAY.
6. IF POSSIBLE, DO NOT USE A LINER IF SUSPENDED PAVEMENT SYSTEMS ARE USED. THE LINER WILL NOT ALLOW TREE ROOTS TO GROW INTO THE NATIVE SOIL BEHIND THE SIDEWALK.
7. REFER TO DESIGNER NOTES FOR ADDITIONAL DESIGN GUIDANCE.

NOTES	PLAN	SECTION
TW 1.1	TW 1.2	TW 1.3

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TREE WELL FILTER

CONNECTED TREE WELLS WITH PARKING – SECTION

FILE NO. TW 1.3