

DC WATER GREEN INFRASTRUCTURE UTILITY PROTECTION GUIDELINES

PURPOSE

The DC Water Green Infrastructure Utility Protection Guidelines (Guidelines) provide guidance on the design and construction of green infrastructure adjacent or connected to DC Water utilities. The Guidelines provide information related to the following practices: street tree planting, trees and tree box filters; bioretention and bioswales; permeable pavements and pavers; alleys with bioretention; and underdrains adjacent to catch basins. DC Water utilities adjacent to, crossing, or connected to these green infrastructure practices include water mains, sewers, water services, sewer laterals, meters, shutoffs, valve boxes, cleanouts, hydrants and other structures.

DEVELOPMENT

The development of these Guidelines included consultation with other agencies, analysis of similar guidelines in other localities and a review of local regulations (including the District of Columbia Municipal Separate Storm Sewer System permit). The specific requirements outlined herein reflect the due diligence performed as part of the development process.

USE

This document should be used by professionals to assist in the design, siting and installation of green infrastructure without conflicting with DC Water-owned utilities. In addition to these Guidelines, users of this document should follow all applicable local and federal regulations associated with their project. Waivers from these Guidelines are subject to review and approval from DC Water. Granting of waivers is at the sole discretion of DC Water.

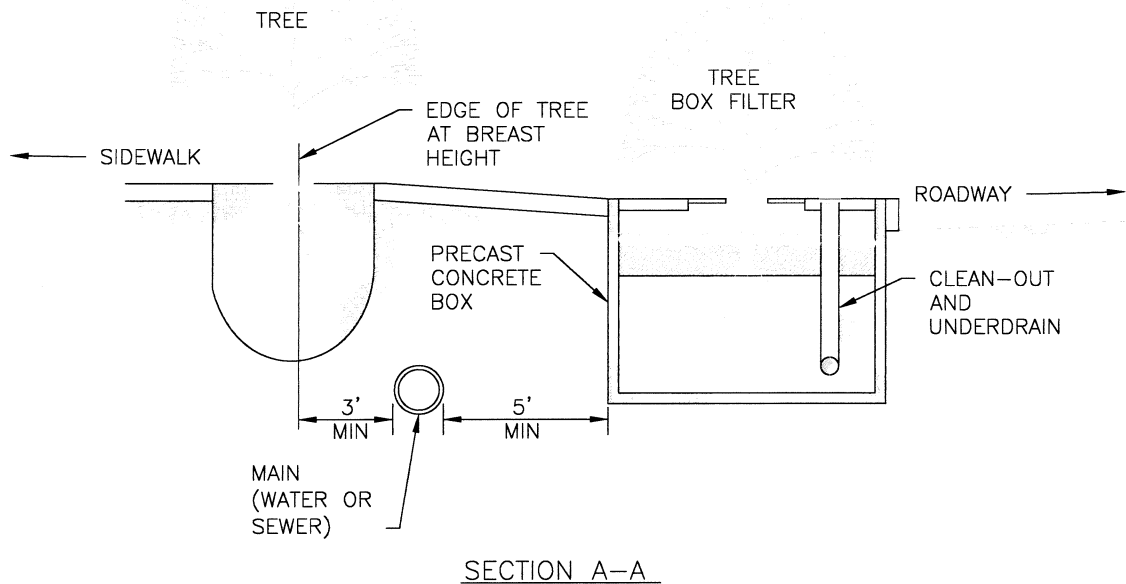
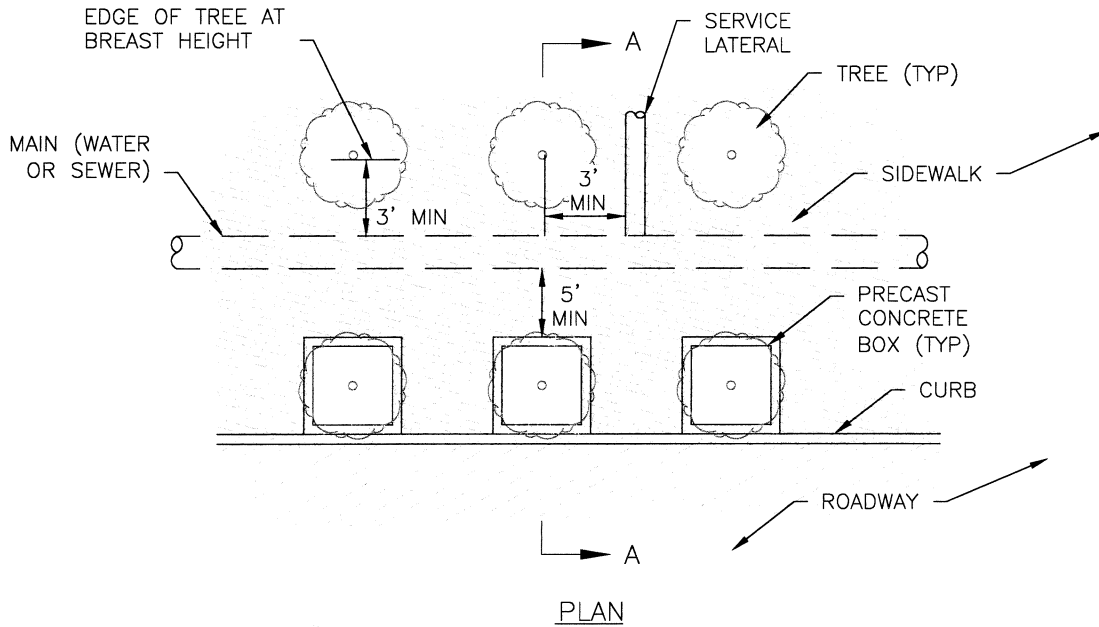
These guidelines represent a living document and will be updated as necessary to reflect the most current science and technology available.

AUTHORITY

DCMR – 12 (Construction Codes), Section 102.2 – Public Works Standards: Work performed in public space, not specifically addressed in the Construction Codes, shall conform to the pertinent standards of the District of Columbia Department of Transportation (DDOT) and the District of Columbia Water and Sewer Authority.


GENERAL

Proprietary materials removed by utility work performed by DC Water will be replaced with standard construction materials that have flow transmission capability (i.e. #57 stone). Structural / proprietary devices, including but not limited to, structural soil framing systems, precast concrete boxes, and cast in place walls, shall not be placed within 5' horizontally of the outer edge of DC Water utilities.



NOTES:

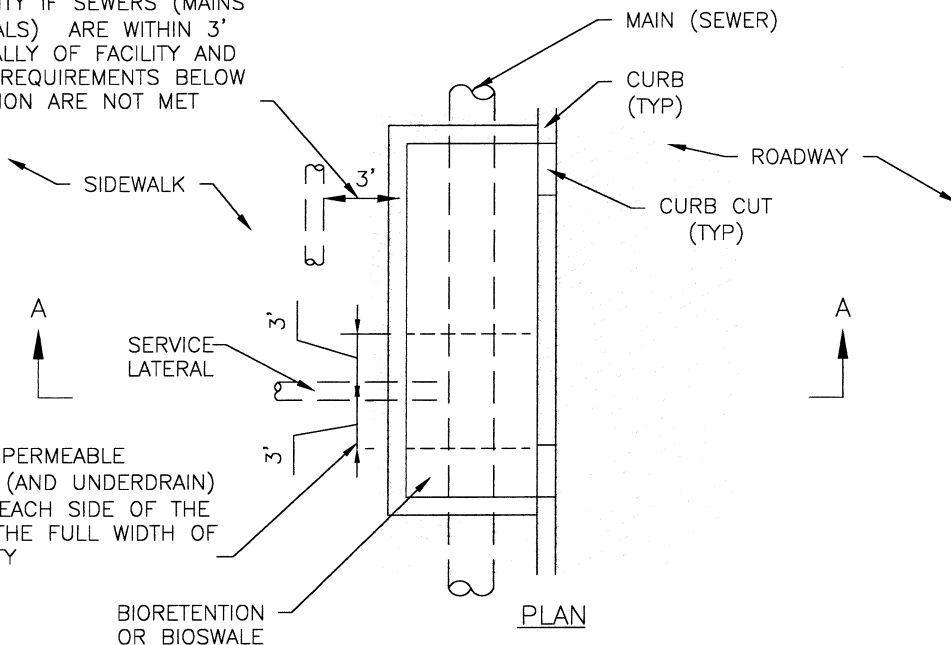
1. GREEN INFRASTRUCTURE MEASURES SHALL MEET OTHER APPLICABLE DDOT, DDOE AND DC WATER STANDARDS.
2. HORIZONTAL CLEARANCE IS 3' MIN FOR TREES FROM OUTER EDGE OF TREE AT BREAST HEIGHT TO OUTER EDGE OF UTILITY. WHEN MIN DISTANCE CANNOT BE MET, EXCEPTIONS MAY BE GRANTED IF THE UTILITY IS GREATER THAN 15' BELOW FINISHED GRADE, OR OTHERWISE APPROVED BY DC WATER.

APPROVED DATE: 7-19-13

 CHIEF ENGINEER

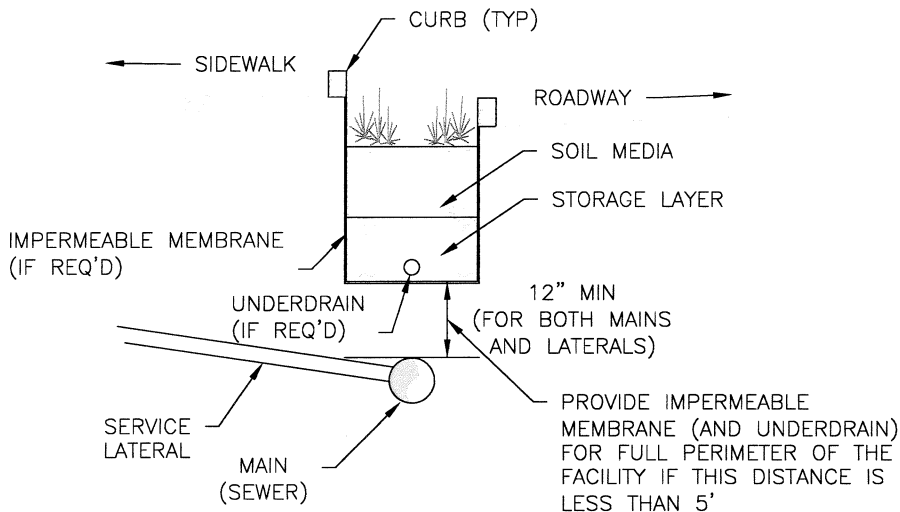
REVISION NO.: 1
 DATE: 07/19/13
 PREPARED BY: DCCR
 CHECKED BY: J. CASSIDY

STANDARD DETAIL
 WATER AND SEWER CLEARANCES
 FOR TREES

PROVIDE IMPERMEABLE MEMBRANE (AND UNDERDRAIN) FOR THE FULL PERIMETER OF THE FACILITY IF SEWERS (MAINS OR LATERALS) ARE WITHIN 3' HORIZONTALLY OF FACILITY AND IF DEPTH REQUIREMENTS BELOW BIORETENTION ARE NOT MET



PROVIDE IMPERMEABLE MEMBRANE (AND UNDERDRAIN) ON 3' OF EACH SIDE OF THE PIPE FOR THE FULL WIDTH OF THE FACILITY



SECTION A-A

NOTES:

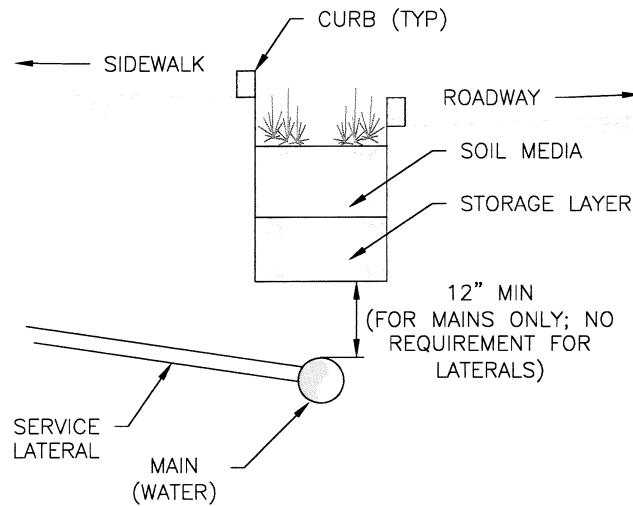
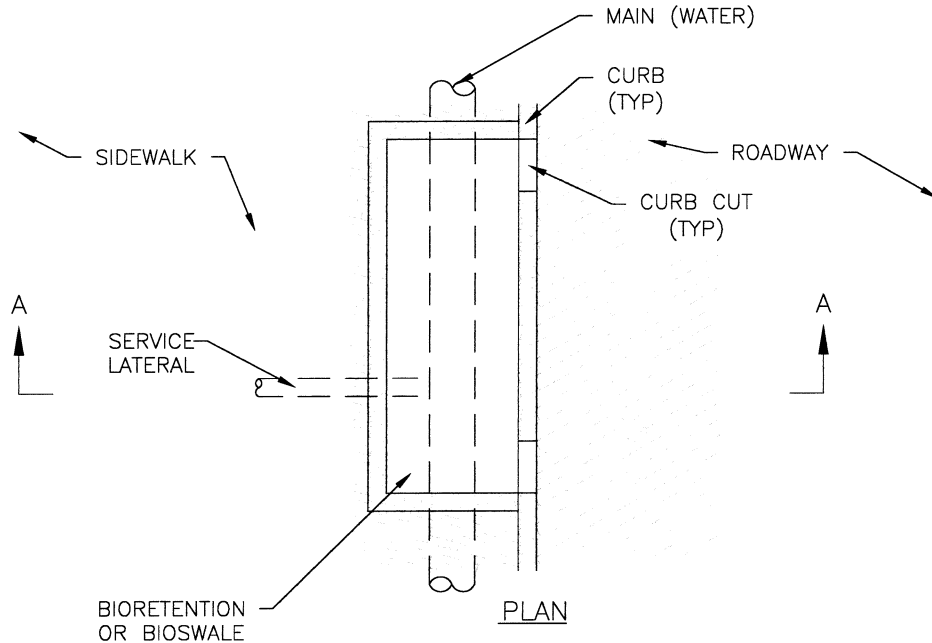
1. GREEN INFRASTRUCTURE MEASURES SHALL MEET OTHER APPLICABLE DDOT, DDOE AND DC WATER STANDARDS.
2. BIORETENTION OR BIOSWALES SHALL NOT DISTURB PIPE BEDDING AS IDENTIFIED IN DC WATER'S DESIGN MANUAL.
3. LINING SEWERS AND LATERALS FROM MANHOLE TO MANHOLE IS REQUIRED IF THE IMPERMEABLE MEMBRANE (AND UNDERDRAIN) IS NOT USED.

APPROVED DATE: 7-19-13

J. Snow
CHIEF ENGINEER

REVISION NO.: 1
DATE: 07/19/13
PREPARED BY: DCCR
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STANDARD DETAIL
SEWER CLEARANCES
FOR BIORETENTION AND BIOSWALES



SECTION A-A

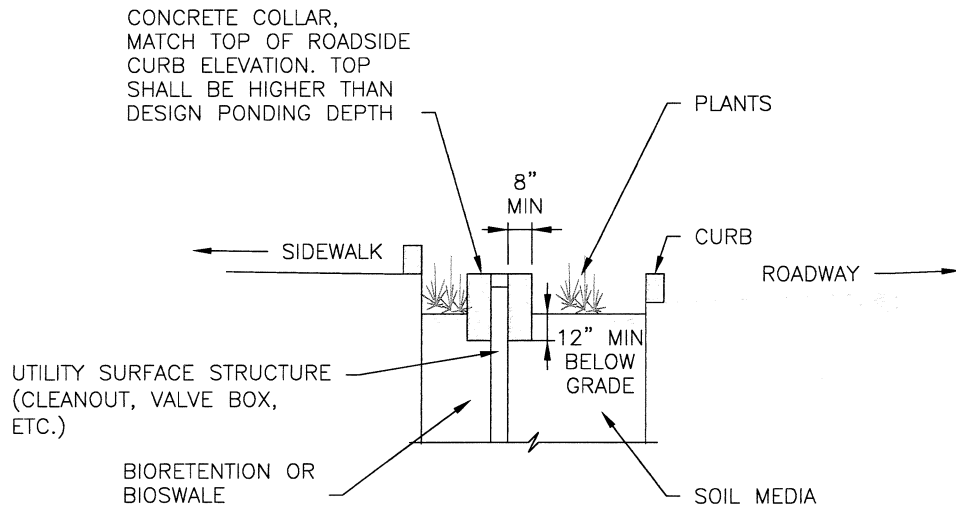
NOTES:

1. GREEN INFRASTRUCTURE MEASURES SHALL MEET OTHER APPLICABLE DDOT, DDOE AND DC WATER STANDARDS.
2. BIORETENTION OR BIOSWALES SHALL NOT DISTURB PIPE BEDDING AS IDENTIFIED IN DC WATER'S DESIGN MANUAL.
3. WATER SERVICE PIPES GREATER THAN 2" IN DIAMETER SHALL BE CONSIDERED AS WATER MAINS.
4. WATER SERVICE LATERALS SHALL NOT BE EXPOSED AND HAVE 18" SOIL COVER, MIN.

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 CHIEF ENGINEER

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STANDARD DETAIL
 WATER CLEARANCES
 FOR BIORETENTION AND BIOSWALES



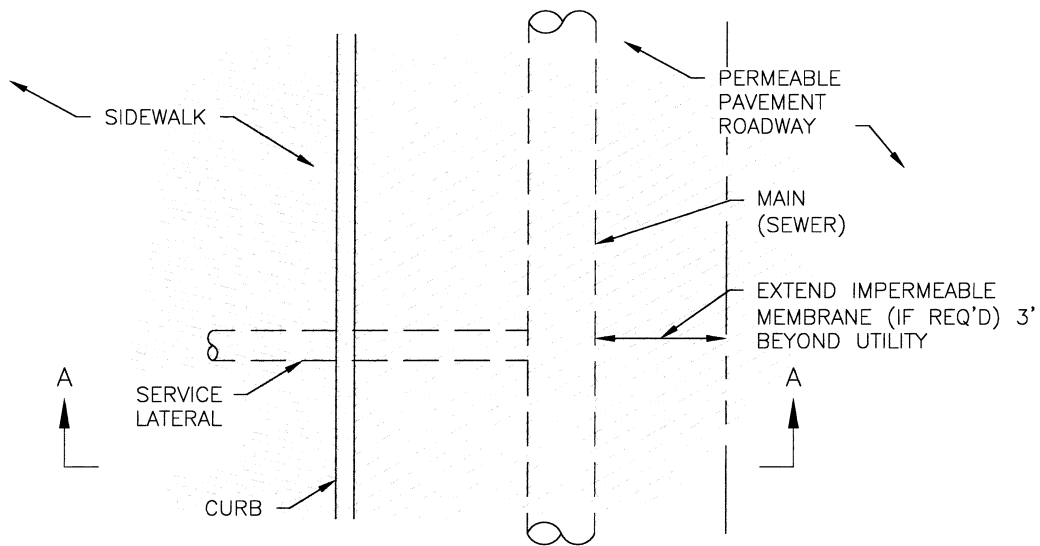
SECTION

NOTE:
GREEN INFRASTRUCTURE MEASURES SHALL MEET OTHER
APPLICABLE DDOT, DDOE AND DC WATER STANDARDS.

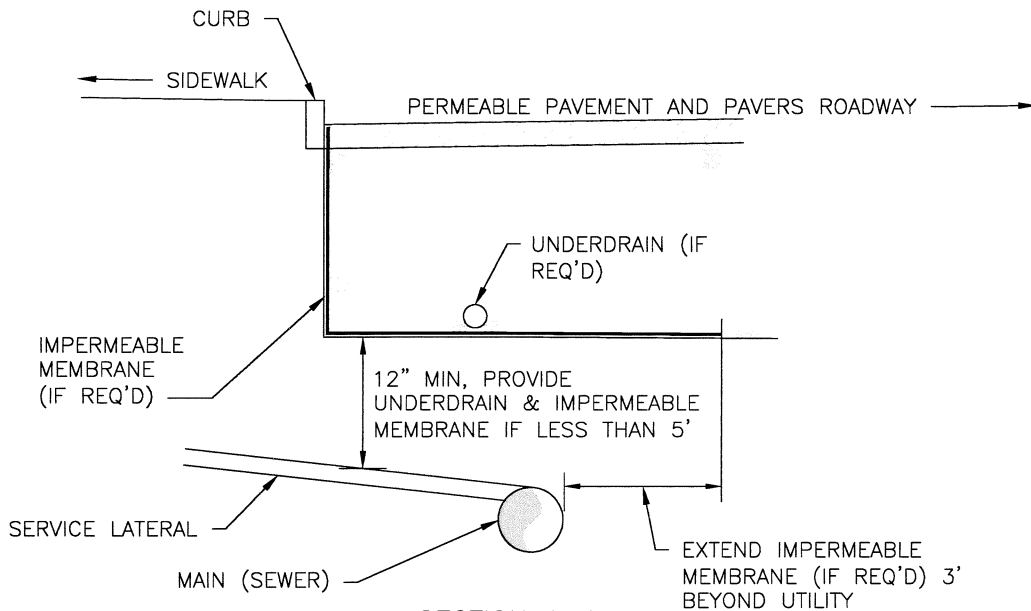
APPROVED DATE: 7-19-13
Jensen
CHIEF ENGINEER

REVISION NO.: 1
DATE: 07/19/13
PREPARED BY: DCCR
CHECKED BY: J. CASSIDY

STANDARD DETAIL
UTILITY SURFACE STRUCTURES
FOR BIORETENTION AND BIOSWALES



PLAN



SECTION A-A

NOTES:

1. GREEN INFRASTRUCTURE MEASURES SHALL MEET OTHER APPLICABLE DDOT, DDOE AND DC WATER STANDARDS.
2. PERMEABLE PAVEMENT AND PAVER SYSTEMS SHALL NOT DISTURB PIPE BEDDING AS IDENTIFIED IN DC WATER'S DESIGN MANUAL.
3. LINING SEWERS AND LATERALS FROM MANHOLE TO MANHOLE IS REQUIRED IF THE IMPERMEABLE MEMBRANE (AND UNDERDRAIN) IS NOT USED.

APPROVED DATE: 7-19-13

[Signature]
CHIEF ENGINEER

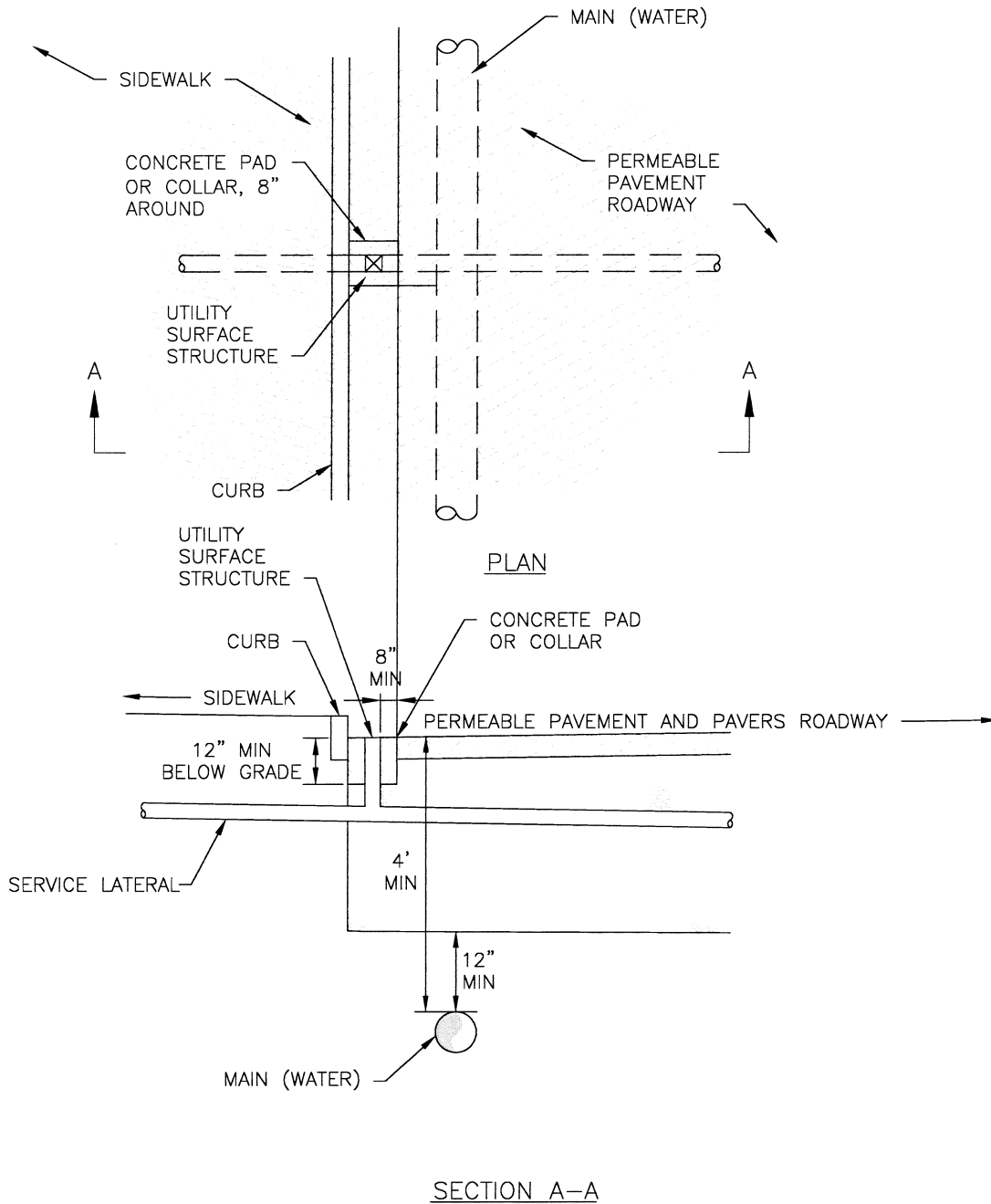
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PREPARED BY: DCCR

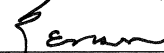
CHECKED BY: J. CASSIDY

STANDARD DETAIL
SEWER CLEARANCES
FOR PERMEABLE PAVEMENTS
AND PAVERS



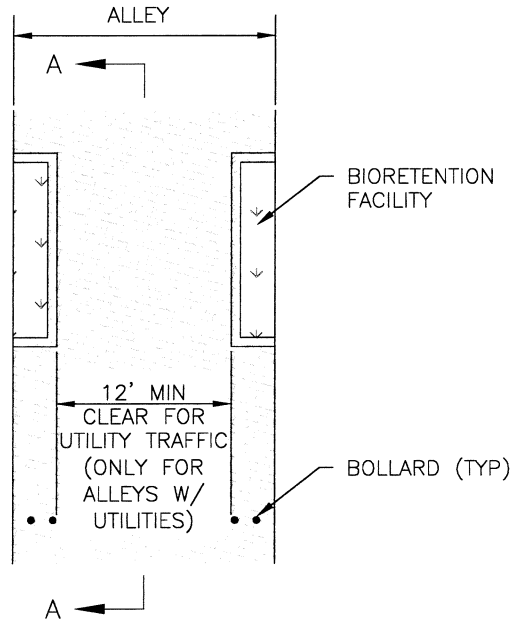
NOTES:

1. GREEN INFRASTRUCTURE MEASURES SHALL MEET OTHER APPLICABLE DDOT, DDOE AND DC WATER STANDARDS.
2. PERMEABLE PAVEMENT AND PAVER SYSTEMS SHALL NOT DISTURB PIPE BEDDING AS IDENTIFIED IN DC WATER'S DESIGN MANUAL.
3. WATER SERVICE PIPES GREATER THAN 2" IN DIAMETER SHALL BE CONSIDERED AS WATER MAINS.

APPROVED, DATE: 7-19-13

 CHIEF ENGINEER

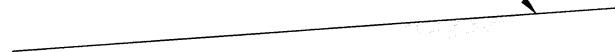
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STANDARD DETAIL
 WATER CLEARANCES
 FOR PERMEABLE PAVEMENTS
 AND PAVERS



PLAN

PROVIDE CONTINUOUS SLOPE (NO STEPS)
MEETING THE MOST RECENT APPLICABLE AASHTO
STD AS REVIEWED AND APPROVED BY DC WATER



SECTION A-A

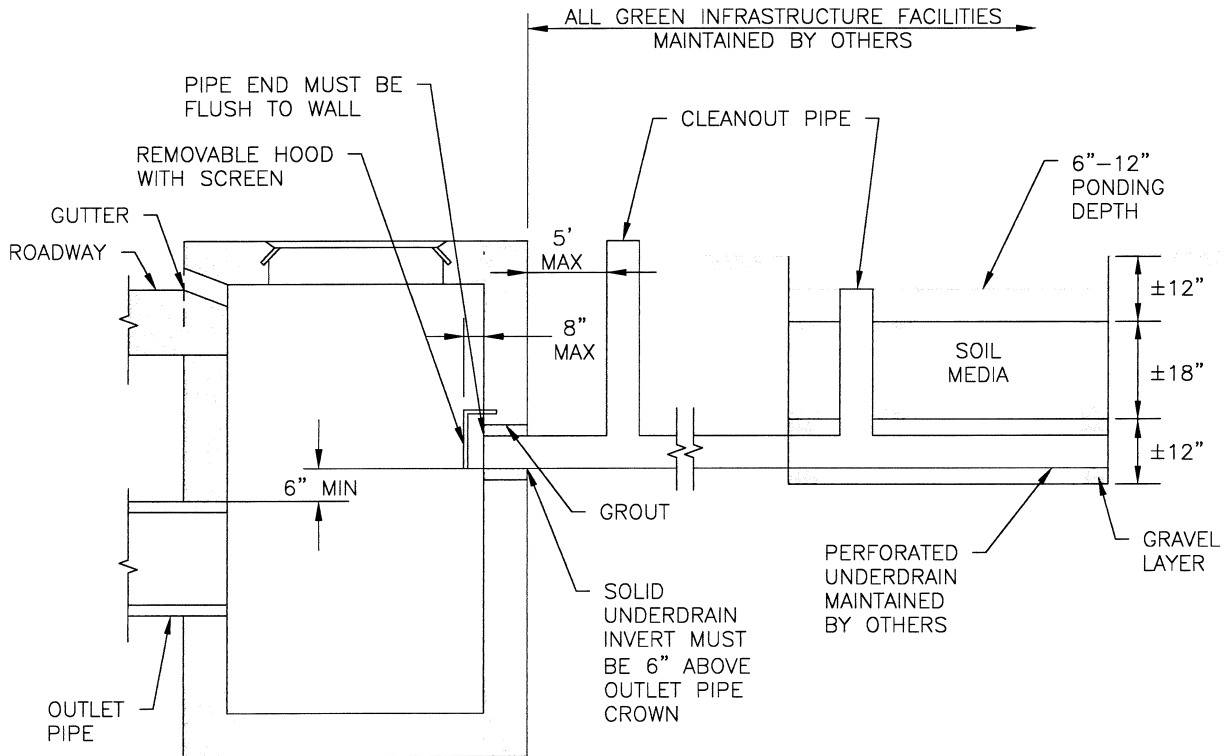
NOTE:

1. GREEN INFRASTRUCTURE MEASURES SHALL MEET OTHER APPLICABLE DDOT, DDOE AND DC WATER STANDARDS.
2. THIS DETAIL IS ONLY APPLICABLE FOR ALLEYS WITH WATER AND SEWER UTILITIES.
3. LARGE STRUCTURES WITH FOUNDATIONS SHALL NOT BE PLACED WITHIN 5' OF DC WATER UTILITIES.

APPROVED DATE: 7-19-13
J. Cassidy
CHIEF ENGINEER

REVISION NO.: 1
DATE: 07/19/13
PREPARED BY: DCCR
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STANDARD DETAIL
WATER AND SEWER CLEARANCES
FOR ALLEYS WITH BIORETENTION



SECTION

NOTES:

1. GREEN INFRASTRUCTURE MEASURES SHALL MEET OTHER APPLICABLE DDOT, DDOE AND DC WATER STANDARDS.
2. THE PREFERRED LOCATIONS FOR CONNECTING UNDERDRAINS ARE AT MANHOLES AND SEWERS.
3. UNDERDRAIN CONNECTIONS TO CATCH BASINS ARE ONLY ALLOWED IF THE GREEN INFRASTRUCTURE FACILITY IS GREATER THAN 20' FROM AN EXISTING MANHOLE OR SEWER LINE OR IF TOTAL SURFACE AREA OF ALL GREEN INFRASTRUCTURE MEASURES IS LESS THAN 250 SQ FT.
4. CATCH BASIN CONNECTIONS FROM UNDERDRAINS SERVICING PRIVATE PROPERTY ARE PROHIBITED.
5. CLAY DAMS OR OTHER APPROVED WATERSTOPS SHALL BE PROVIDED AT 100' INTERVALS (MINIMUM ONE) ALONG THE LENGTH OF THE UNDERDRAIN TO PREVENT MIGRATION OF WATER ALONG THE LENGTH OF THE PIPE.
6. CLEAN OUTS SHALL BE PLACED AT 100 FOOT INTERVALS (MINIMUM ONE MUST BE LOCATED AT A MAX OF 5' FROM CATCH BASIN).
7. DC WATER IS NOT RESPONSIBLE FOR CLOGGING OF THE UNDERDRAIN OR FOR CLEANING.
8. THE UNDERDRAIN SYSTEM SHALL BE DESIGNED TO FILTER INCOMING WATER TO PREVENT THE MIGRATION OF SILT AND OR TURBIDITY TO THE SEWER SYSTEM.
9. UNDERDRAINS SHALL BE LOW-FLOW, SUBSURFACE PIPES THAT DRAIN ONLY THE GREEN INFRASTRUCTURE MEASURE.

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STANDARD DETAIL
 WATER AND SEWER CLEARANCES
 FOR UNDERDRAINS ADJACENT TO
 CATCH BASINS