

BIO CELL PLAN
1"=5'

- NOTES:
- EMBANKMENT FOOTPRINT SHALL BE CLEAR OF TRASH/DEBRIS AND ANY ROCKS GREATER THAN 6", BE FREE OF ANY STANDING WATER, BE GRADED TO BE NO STEEPER THAN 1H:1V, BE SCARIFIED PRIOR TO EMBANKMENT FILL PLACEMENT, AND BE INSPECTED AND APPROVED BY THE PROJECT ENGINEER BEFORE FILL PLACEMENT BEGINS.
 - COMPACTED EMBANKMENT MATERIAL, MEETING MDOT SECTION 703.19, GRANULAR BORROW MODIFIED TO HAVE 100% PASSING THE 6" SIEVE. (COMPACTED TO 95% OF MODIFIED PROCTOR). SUBMIT EMBANKMENT MATERIAL GRADATION TO PROJECT ENGINEER PRIOR TO CONSTRUCTING EMBANKMENT.

Table 1
MEDOT Specifications for Aggregate (MEDOT #703.01)

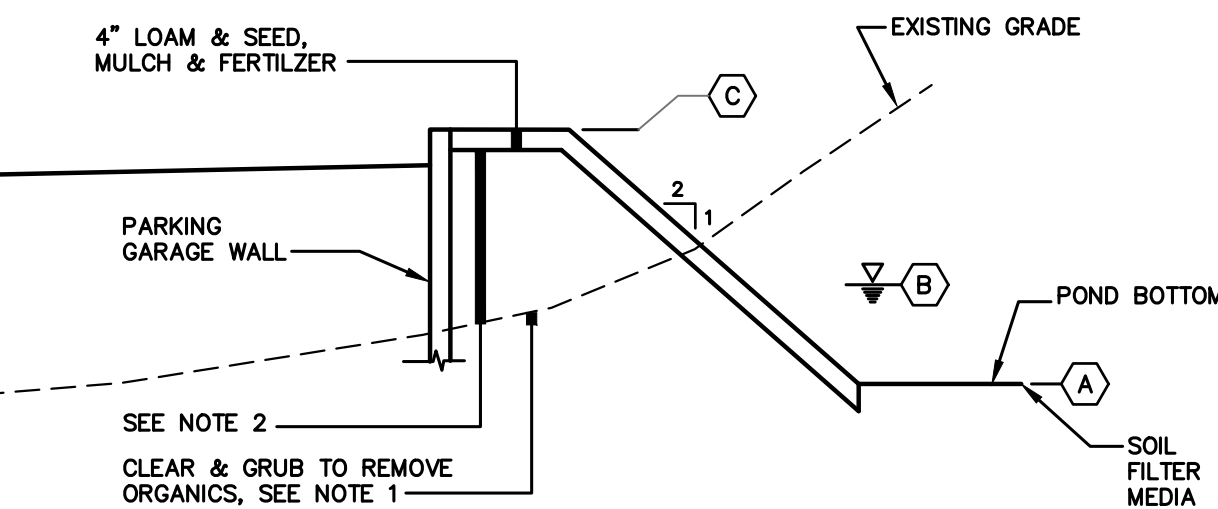
SIEVE SIZE	% PASSING BY WEIGHT
3/8"	100
#4	95-100
#8	80-100
#16	50-85
#30	25-60
#60	10-30
#100	2-10
#200	0-5

Table 2 MEDOT
Specifications for Underdrain Type B (MEDOT #703.22)

SIEVE SIZE	% PASSING BY WEIGHT
1"	90-100
1/2"	75-100
#4	50-100
#20	15-80
#50	0-15
#200	0-5

SCHEDULE A

ITEM DESCRIPTION	BIORETENTION CELL DIMENSION/ELEVATION
A CHANNEL PROTECTION VOLUME STAGE	42.75
B TOP SOIL FILTER	42.25
C TOP UNDERDRAIN BEDDING STONE	40.75
D PIPE INVERT: 4" PERF. UD	40.08
E BOTTOM UNDERDRAIN BEDDING	39.75



SCHEDULE B
EMBANKMENT SCHEDULE

ITEM DESCRIPTION	DIMENSION/ELEVATION
(A) POND BASE ELEVATION	42.25
(B) PEAK ELEVATION - CHANNEL PROTECTION VOLUME	42.75
(C) TOP OF CURB	43.00

TYPICAL POND CROSS SECTION
NOT TO SCALE

BIORETENTION CELL NOTES:

SOIL SPECIFICATIONS:

- THE SOIL FILTER MEDIA SHALL BE A LAYERED SYSTEM CONSISTING OF THE FOLLOWING FROM THE BOTTOM:
 - 12" OF LOAMY COARSE SAND, MEDOT 703.11, SEE TABLE 1.
 - 2" LAYER OF TOPSOIL (SEE "C" BELOW) ROTOTILLED INTO THE LOAMY COARSE SAND LAYER.
 - 6" OF NON-CLAYEY, LOAMY TOPSOIL SUCH AS USDA SANDY LOAM TOPSOIL WITH 5-8% HUMIFIED ORGANIC MATTER. SUPERHUMUS OR EQUIVALENT MAY BE ADDED TO THE TOPSOIL TO INCREASE ORGANIC CONTENT.
- SOIL FILTER MEDIA MIXTURE SHALL HAVE A PERMEABILITY OF 2.4 IN./HR. TO 4 IN./HR UPON COMPACTION BETWEEN 90% AND 92% STANDARD PROCTOR (ASTM D698).

SUBMITTALS:

- SUBMIT RESULTS OF FIELD AND LABORATORY TESTING TO PROJECT ENGINEER.
- SUBMIT 75 LB. SAMPLE OF EACH TYPE OF MATERIAL: SUBMIT IN AIR TIGHT CONTAINERS TO TESTING LABORATORY.
- THE FOLLOWING MATERIAL SHALL BE SUBMITTED:
 - SAND.
 - UNDERDRAIN BEDDING MATERIAL.
- PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM G136 - STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES; 1996g ON EACH TYPE OF THE SAMPLE MATERIAL AND SUBMIT RESULTS TO PROJECT ENGINEER.
- PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90% TO 92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698. SUBMIT RESULTS TO THE PROJECT ENGINEER.
- PERFORM ONE COMPACTION DENSITY TEST ON THE IN PLACE SOIL FILTER FOR EVERY 2,000 SQUARE FEET OF FILTER SURFACE AREA. TEST SHALL CONFORM TO ASTM D 2922 - STANDARD TEST METHODS FOR DENSITY OF SOIL AND SOIL-AGGREGATE IN PLACE BY NUCLEAR METHODS (SHALLOW DEPTH); 1996. SUBMIT RESULTS TO THE PROJECT ENGINEER.

CONSTRUCTION:

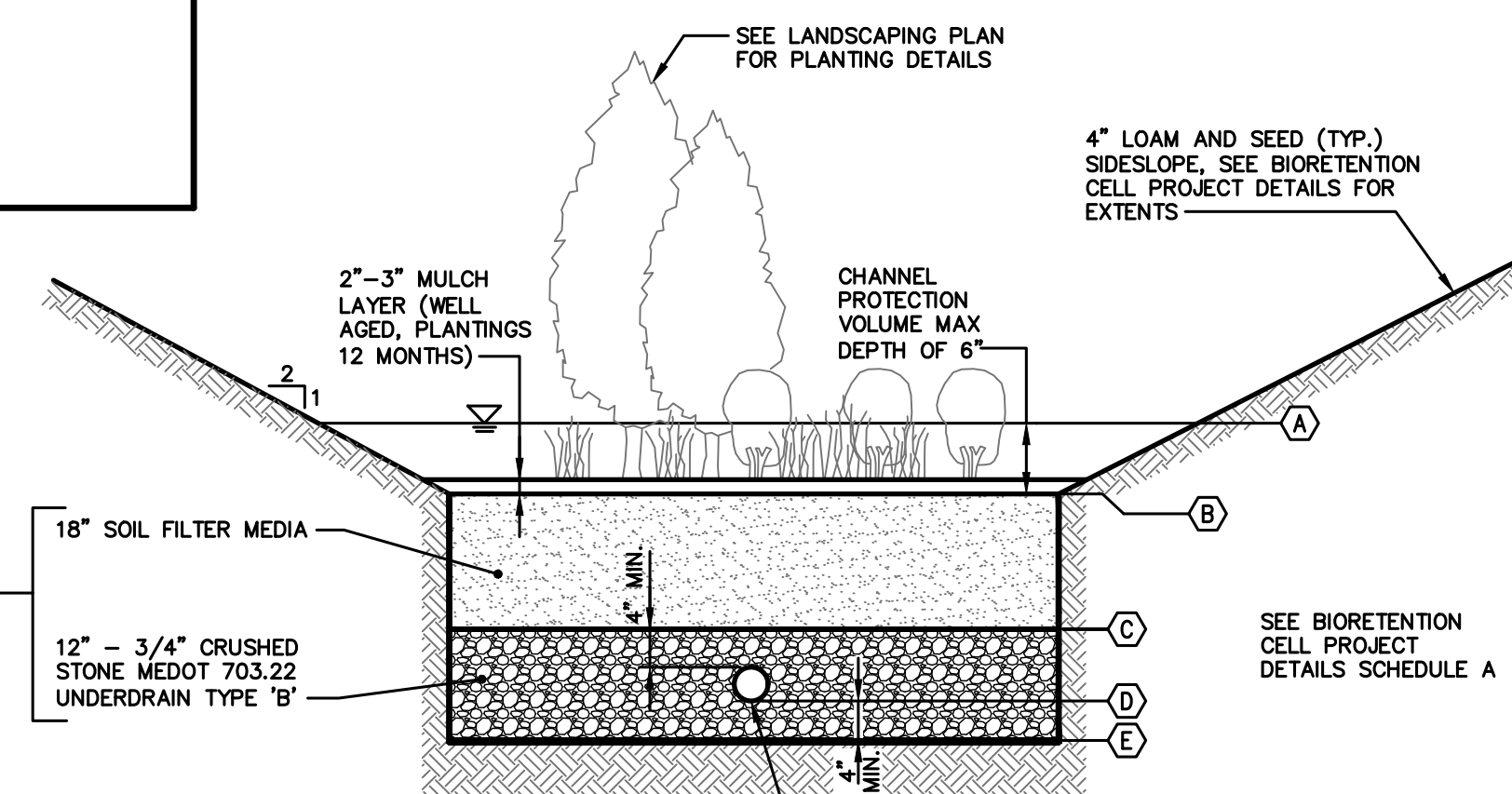
- SOIL FILTER MEDIA AND UNDERDRAIN BEDDING MATERIAL SHALL BE COMPACTED TO BETWEEN 90% AND 92% STANDARD PROCTOR.
- PERFORATED UNDERDRAIN PIPE SHALL BE 4" PIPE. SPACED 15 FEET ON CENTER MAXIMUM.
- TRIBUTARY AREAS SHALL BE STABILIZED PRIOR TO INSTALLATION OF THE SOIL FILTER MEDIA MIXTURE AND UNDERDRAIN. STABILIZED IS DEFINED AS PAVED IF IN A PARKING AREA OR ROADWAY, AND 90% GRASS CATCH IF IN A VEGETATED AREA.
- OUTFLOW OF THE BIORETENTION CELL SHALL BE CONTROLLED BY A 4" DUCTILE IRON GATE VALVE WITH VALVE WRENCH AND EXTENSION (AVAILABLE FROM E.J. PRESCOTT OR EQUIVALENT). A THREE PIECE VALVE BOX (AVAILABLE FROM E.J. PRESCOTT OR EQUIVALENT) SHALL BE INSTALLED OVER THE VALVE.
- ALL EQUIPMENT USED WITHIN THE LIMITS OF THE BIORETENTION CELL SHALL BE LOW GROUND PRESSURE VEHICLES (LESS THAN 2.0 PS) WHEN FULLY LOADED.
- UPON COMPLETION OF THE INSTALLATION OF THE SOIL FILTER MEDIA AND THE PLANTING INSTALLATION, THE CONTRACTOR SHALL FLOOD THE BIORETENTION CELL TO THE DESIGN ELEVATION WITH CLEAN WATER AND ADJUST THE VALVE TO OBTAIN A 24 HOUR TO 32 HOUR RELEASE TIME.

CONSTRUCTION OVERSIGHT

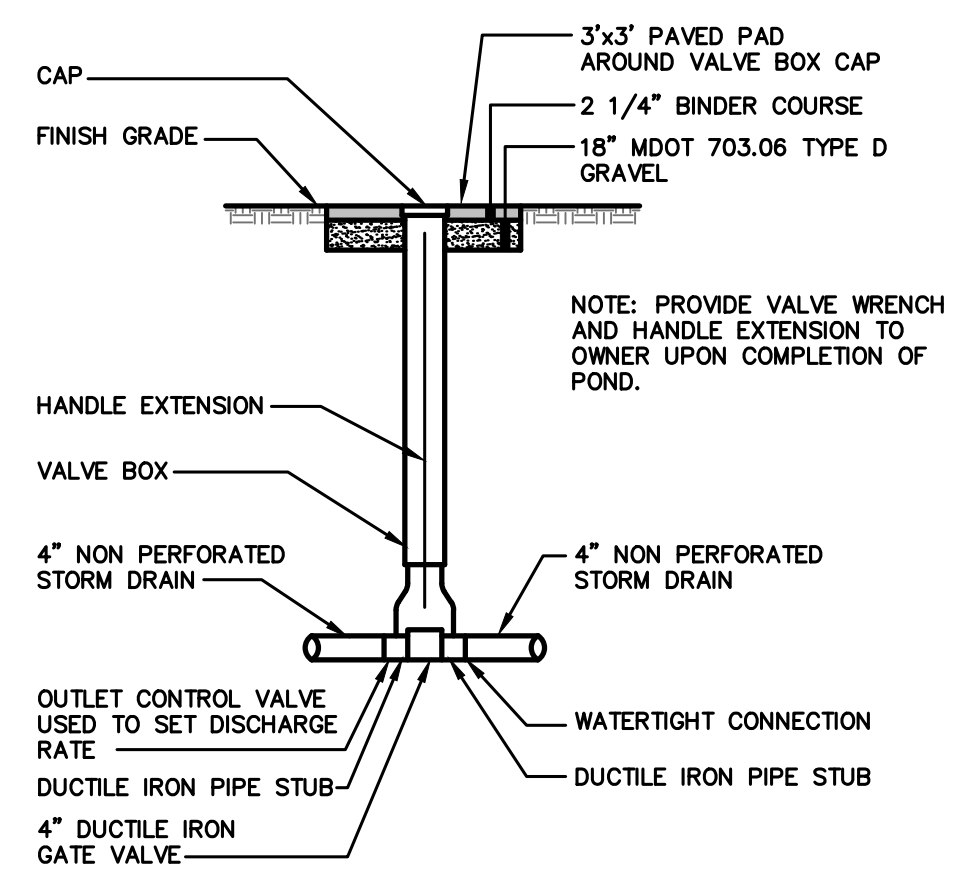
INSPECTION OF THE FILTER BASIN SHALL BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY THE DESIGN ENGINEER WITH REQUIRED REPORTING TO THE DEP. AT A MINIMUM, INSPECTIONS WILL OCCUR:

- AFTER PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED.
 - AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA.
 - AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDING. BIORETENTION CELLS MUST BE STABILIZED PER THE PROVIDED PLANTING SCHEME AND DENSITY FOR THE CANOPY COVERAGE OF 30% AND 50%.
 - AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS.
- ALL MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN WILL BE APPROVED BY THE DESIGN ENGINEER AFTER TESTS BY A CERTIFIED LABORATORY SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.

NOTE: CONTRACTOR SHALL NOTIFY PROJECT ENGINEER 48 HOURS PRIOR TO THE MILESTONES LISTED ABOVE TO ALLOW FOR INSPECTION.



BIORETENTION CELL DETAIL
NOT TO SCALE



OUTLET VALVE
NOT TO SCALE

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Rev.	Date	Revision
3	05/09/16	RESPONSE TO CITY COMMENTS
2	03/10/16	RESPONSE TO CITY COMMENTS
1	11/13/15	RESPONSE TO CITY COMMENTS

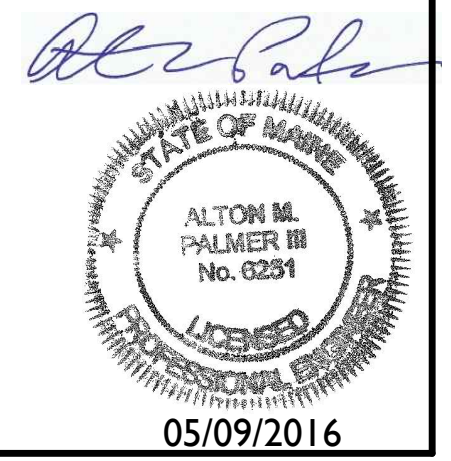
SITE PLAN REVIEW	Date	By
ISSUED FOR	8/7/15	AMP

Design: CEH Draft: CG Date: JUNE 2015
 Checked: AMP Scale: AS SHOWN Job No.: 3018
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Drawing Name: **Bio Cell Plan and Details**
 Project: **York Street - Mixed Use Development**
 Client: **York Street, LLC**
 36 Danforth Street, Portland, ME 04101

Drawing No. **C5.04**



NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

05/09/2016