



September 4, 2014

Mr. Gregg Wood  
MeDEP  
17 State House Station  
Augusta, Maine 04333-0017

**Subject: Convenience Store and Fuel Station Development – 2282 Congress Street**  
**Applicant: Portland Property Holdings, LLC**  
**Response to Ben Viola’s Review Comments Dated August 22, 2014**

Dear Greg:

On behalf of Portland Property Holdings, LLC, we have reviewed Ben Viola’s email dated August 22, 2014 and offer the following responses to his review comments. For ease of reference, we have included the comments (*italics*) and our response follows.

Comment 1:

*Currently we are not approving the Focal Point in this type of application. Therefore this option must be removed from the plan set.*

Response:

Design Sheets C-9.0A and C-9.1A have been eliminated from the plan set. The project stormwater will be treated using a grassed underdrained soil filter as shown on Sheets C-9.0 and C-9.1

Comment 2:

*Sheet C-14.1:*

- *Please add time of concentration flow line to the plan view.*

Response:

Time of Concentration (Tc) flow lines are shown on Sheet C-14.1 where applicable. As noted on the plan, watersheds without a Tc drainage flow path defined are assumed to have the minimum Tc of 6 min. as recommended in the TR-55 Manual. Any flow path within the watershed has a Tc less than 6 min. and therefore does not need to be shown.

Mr. Gregg Wood  
 September 4, 2014  
 Page 2

- *Please add all the sub catchments to the “Stormwater Quality Treatment Computation Sheet”. This would include sub catchment “C” and sub catchment “101”.*

Response:

The table has been revised and is enclosed with this letter.

- *Whereas the applicant is required to provide treatment for the developed area this should be one of the columns in the “Stormwater Quality Treatment Computation Sheet”.*

Response:

A column for onsite developed area and offsite treated area has been added to the “Stormwater Quality Treatment Computation Sheet” and is enclosed with this letter.

As part of this process, our office realized that the percent of treated developed area took credit for 100% of the offsite areas. The table has been adjusted to take partial credit for offsite developed areas as permitted by the Chapter 500 Stormwater Manual. To reach a treatment goal of 80% of the developed area, Subcatchment C1 has been re-directed into the stormwater management basin. This combined with the adjusted offsite area will result in a total developed area treatment of 80.73% and a 106.7% total impervious area treated. The greater than 100% treatment of impervious area is due to offsite area entering the treatment system.

The changes to the hydraulic analysis are minimal and shown in the summary table below:

<b>Table 1 – Summary of Hydraulic Analysis Changes</b>						
	<b>Peak Flow at POI #1 (cfs)</b>			<b>Pond Storm Stage Elev.</b>		
	<b>2-Year</b>	<b>10-Year</b>	<b>25-Year</b>	<b>2-Year</b>	<b>10-Year</b>	<b>25-Year</b>
Predevelopment	2.86	7.18	9.42	N/A	N/A	N/A
Hydraulic Analysis with C1 Bypass Pond	2.18	6.34	8.84	90.06	90.72	90.96
Hydraulic Analysis with C1 Directed Into Pond	2.07	6.44	8.99	90.14	90.81	91.05

As shown in the table above, peak flows tributary to POI #1 are still below those of predevelopment. The required water quality filter size has increased but the filter as designed still provides more than adequate surface area. To accommodate the additional water quality volume the outlet weir has been raised by 0.02 ft. to Elevation 89.64. The HydroCAD hydraulic calculations are on file and available upon request.

Sheets C-3.0, C-9.0 and C-9.1 have been adjusted to reflect the physical changes to the stormwater system as well as the pond stage elevation changes.

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Comment 3:

*Construction oversight notes need to be added to the plans. I have attached the Construction Oversight Notes for the applicant to pick which one apply to this project. Notes such as the ones for the underdrained soil filter needs to appear next to the detail for the underdrained soil filter.*

Response:

The construction oversight notes for the grassed underdrained soil filter have been added to Sheet C-9.0. The revised sheet C-9.0 is enclosed with this letter.

Comment 4:

*Maintenance*

- *The sample log sheets appear to be for underground detention not for the underdrained soil filter.*

Response:

The log sheets have been revised to be titled "Underdrained Soil Filter".

- *The focal point maintenance information will need to be removed.*

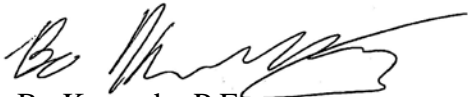
Response:

The focal point was not specifically called out in the maintenance manual as this was considered to be covered under Section III, Item E "Water Quality Filters (Above Ground)".

If you have any questions regarding these materials please contact this office.

Sincerely,

FAY, SPOFFORD & THORNDIKE



Bo Kennedy, P.E.  
Engineer

BEK/smk

Attachments

c: David Latulippe, Portland Property Holdings, LLC  
Wes Thames, Priority Group                      Jean Fraser, City of Portland

**Stormwater Quality Treatment Computation Sheet**  
**Grassed Underdrain Filter - Updated September 4, 2014**  
 Area Tributary to the WQ Treatment Area

Subcatchment ID	Pervious Area	Impervious Area	Total Area	Onsite Impervious Area	Onsite Developed Area	OffSite Developed Area	Total Adjusted Developed Treated Area
B1	0	8,879	8,879	7,536	7,536	1,343	8,342
B2	9,909	12,204	22,113	12,204	17,346	4,767	18,776
B3	0	4,242	4,242	4,242	4,242	0	4,242
B2A	0	4,562	4,562	4,562	4,562	0	4,562
B4	0	2,843	2,843	2,843	2,843	0	2,843
B4A	266	8,238	8,504	8,238	8,504	0	8,504
B5	4,428	9,780	14,208	9,780	12,403	1,805	12,945
Sub Total (B Series)	14,603	50,748	65,351	49,405	57,436	7,915	60,213
Sub Total (B Series)	0.34	1.17	1.50	1.13	1.32	0.18	1.38
C1	0	4,401	4,401	2,279	2,279	2,122	4,189
Sub Total (C Series)	0	4,401	4,401	2,279	2,279	2,122	4,189
Sub Total (C Series)	0.00	0.10	0.10	0.05	0.05	0.05	0.10
DET (SF)	10,851	0	10,851	0	10,851	0	10,851
DET (AC)	0.25	0.00	0.25	0.00	0.25	0.00	0.25
Treatment Area Total (SF)	25,454	55,149	80,603	51,684	70,566	10,037	75,253
Treatment Area Total (AC)	0.58	1.27	1.85	1.19	1.62	0.23	1.73

Untreated Site Area					
Subcatchment ID	Pervious Area	Impervious Area	Total Area	Onsite Impervious Area	Onsite Developed Area
101	98,466	8,201	106,667	0	22,869
UnTreated Area Total (SF)	98,466	8,201	106,667	0	22,869
UnTreated Area Total (AC)	2.26	0.19	2.45	0.00	0.53
Totals (SF)	N/A	N/A	N/A	51,684	93,435
Totals (AC)	N/A	N/A	N/A	1.19	2.14

Stormwater Quality Treatment Calculations				
Percent of Impervious Area Treated		106.70%		≥ 95% Required
Total Adjusted Developed Area Treated	Total Onsite Developed Area	Percent of Developed Area Treated		
1.73	2.14	80.73%		≥ 80% Required
Water Quality Volume Required (CF)	848	4,596	5,444	CF
Water Quality Volume Provided (CF)			5,444	CF
*Underdrain Soil Filter Area Required (SF)			3,267	SF
Underdrain Soil Filter Area Provided (SF)			3,518	SF
<b>Offsite Mitigation Adjustment Factors</b>				
Parking Lot	0.90			
Impervious Area	0.60			
Lawn	0.30			

\* Underdrain Soil Filters are required to be 5% of total impervious area + 2 % of total pervious area according to Chapter 7.1, Volume III of the Maine Dep Storm Water BMP manual.

**CONVENIENCE STORE AND FUEL STATION  
PORTLAND, MAINE**

STORMWATER MANAGEMENT  
UNDERDRAINED SOIL FILTER  
ANNUAL INSPECTION & MAINTENANCE LOG

<b>FACILITY:</b>		<b>YEAR:</b>	
<b>LOCATION:</b>		<b>CONTRACTOR:</b>	
<b>FUNCTION:</b>		<b>INSPECTOR:</b>	
<b>DATE OF INSPECTION:</b>			
<b>ITEM IDENTIFICATION</b>	<b>DESCRIPTION OF CONDITIONS</b>	<b>MAINTENANCE ACCOMPLISHED</b>	<b>DATE OF MAINTENANCE</b>
<b>GENERAL COMMENTS:</b>			

**CONVENIENCE STORE AND FUEL STATION  
PORTLAND, MAINE**

STORMWATER MANAGEMENT  
UNDERDRAINED SOIL FILTER  
MONTHLY INSPECTION & MAINTENANCE LOG

FACILITY:			YEAR:			
LOCATION:			CONTRACTOR:			
FUNCTION:						
MONTH	DAY	INSPECTOR	WATER DEPTH	OVERFLOW WEIR		WEIR CONDITION
				CLEAR	DEBRIS	
JANUARY						
FEBRUARY						
MARCH						
APRIL						
MAY						
JUNE						
JULY						
AUGUST						
SEPTEMBER						
OCTOBER						
NOVEMBER						
DECEMBER						
LIST SPECIAL MAINTENANCE UNDERTAKEN:						

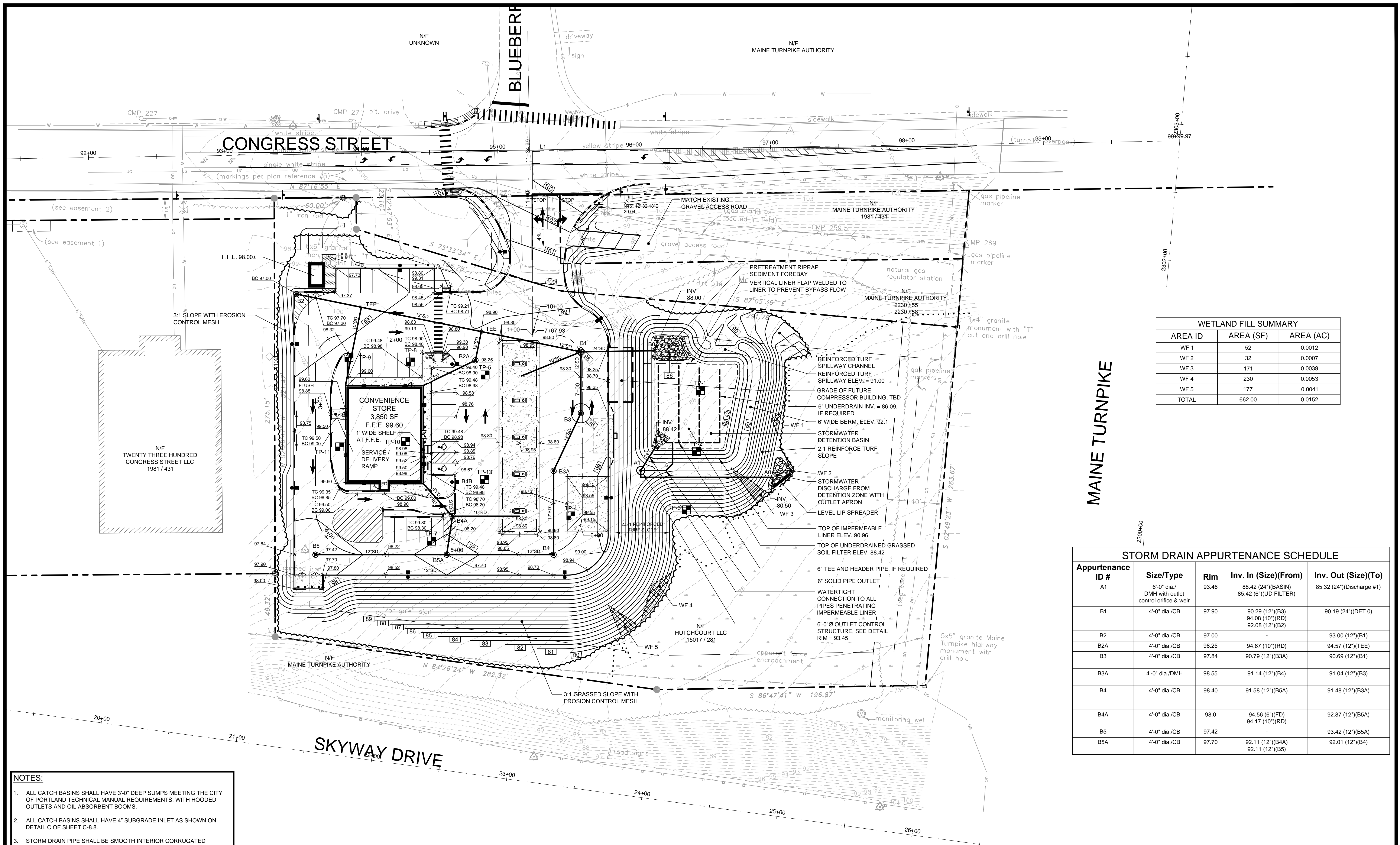
**CONVENIENCE STORE AND FUEL STATION  
PORTLAND, MAINE**

STORMWATER MANAGEMENT  
UNDERDRAINED SOIL FILTER  
SEMI-ANNUAL INSPECTION & MAINTENANCE LOG

<b>SEMI-ANNUAL INSPECT 1.2</b>	FACILITY:
DATE:	LOCATION:
INSPECTOR:	FUNCTION:
WEIR CONDITION:	
OUTLET CONDITION	

FORE BAY SUMP	EST. DEPTH SED.	REMOVED? Y/N	EST. VOL. CY	WHERE DISPOSED OF	STRUCTURAL CONDITION

CONTROL STRUCTURE:
DESCRIBE CONDITIONS FOUND & MAINTENANCE ACCOMPLISHED:



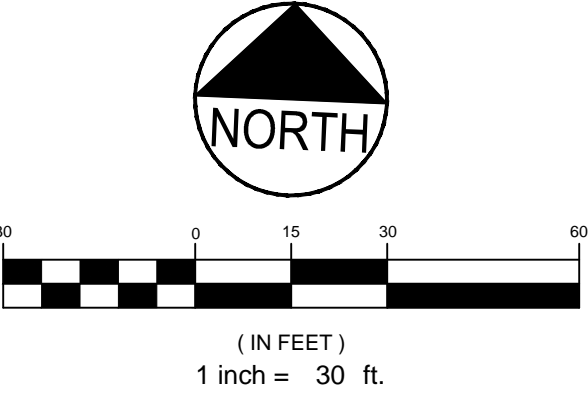
WETLAND FILL SUMMARY		
AREA ID	AREA (SF)	AREA (AC)
WF 1	52	0.0012
WF 2	32	0.0007
WF 3	171	0.0039
WF 4	230	0.0053
WF 5	177	0.0041
<b>TOTAL</b>	<b>662.00</b>	<b>0.0152</b>

STORM DRAIN APPURTENANCE SCHEDULE				
Appurtenance ID #	Size/Type	Rim	Inv. In (Size)(From)	Inv. Out (Size)(To)
A1	6'-0" dia./DMH with outlet control orifice & weir	93.46	88.42 (24")(BASIN) 85.42 (6")(UD FILTER)	85.32 (24")(Discharge #1)
B1	4'-0" dia./CB	97.90	90.29 (12")(B3) 94.08 (10")(RD) 92.08 (12")(B2)	90.19 (24")(DET 0)
B2	4'-0" dia./CB	97.00	-	93.00 (12")(B1)
B2A	4'-0" dia./CB	98.25	94.67 (10")(RD)	94.57 (12")(TEE)
B3	4'-0" dia./CB	97.84	90.79 (12")(B3A)	90.69 (12")(B1)
B3A	4'-0" dia./DMH	98.55	91.14 (12")(B4)	91.04 (12")(B3)
B4	4'-0" dia./CB	98.40	91.58 (12")(B5A)	91.48 (12")(B3A)
B4A	4'-0" dia./CB	98.0	94.56 (6")(FD) 94.17 (10")(RD)	92.87 (12")(B5A)
B5	4'-0" dia./CB	97.42	-	93.42 (12")(B5A)
B5A	4'-0" dia./CB	97.70	92.11 (12")(B4A) 92.11 (12")(B5)	92.01 (12")(B4)

- NOTES:**
- ALL CATCH BASINS SHALL HAVE 3'-0" DEEP SUMPS MEETING THE CITY OF PORTLAND TECHNICAL MANUAL REQUIREMENTS, WITH HOODED OUTLETS AND OIL ABSORBENT BOOMS.
  - ALL CATCH BASINS SHALL HAVE 4" SUBGRADE INLET AS SHOWN ON DETAIL C OF SHEET C-8.8.
  - STORM DRAIN PIPE SHALL BE SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE (CPP) WITH SILT TYPE JOINTS UNLESS SPECIFICALLY REQUIRED IN THE PROJECT DOCUMENTS.

**LEGEND**

TP-1 TEST PITS OBSERVED BY S.W. COLE ON MARCH 21, 2013. THE GEOTECHNICAL ENGINEERING SERVICES REPORT INCLUDING TEST PIT LOGS ARE AVAILABLE UPON REQUEST AND INCLUDED IN THE PROJECT CONTRACT DOCUMENTS



REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION
6	07.22.14	REVISED GRADING AND DRAINAGE AND SUBMITTED AMENDED PLANS TO CITY AND MEDEP	1	03.28.13	SUBMITTED TO CITY OF PORTLAND
5	05.21.13	ELIMINATED ONE STORMTREAT AND SUBMITTED CITY APPROVED PLANS TO MEDEP	2	04.09.13	SUBMITTED TO MEDEP STORMWATER DISCHARGE PERMIT
4	05.03.13	REVISED AND RESUBMITTED TO CITY	3	04.18.13	REVISED PER CITY STAFF COMMENTS
3	04.18.13	REVISED PER CITY STAFF COMMENTS	7	08.07.14	REVISED GRADING FOR VALUE ENGINEERING
2	04.09.13	SUBMITTED TO MEDEP STORMWATER DISCHARGE PERMIT	8	09.04.14	ELIMINATED CATCH BASIN C-1
1	03.28.13	SUBMITTED TO CITY OF PORTLAND			

PROJECT: MULTI-USE DEVELOPMENT  
2282 CONGRESS ST., PORTLAND, ME

SHEET TITLE: AMENDED GRADING AND DRAINAGE PLAN

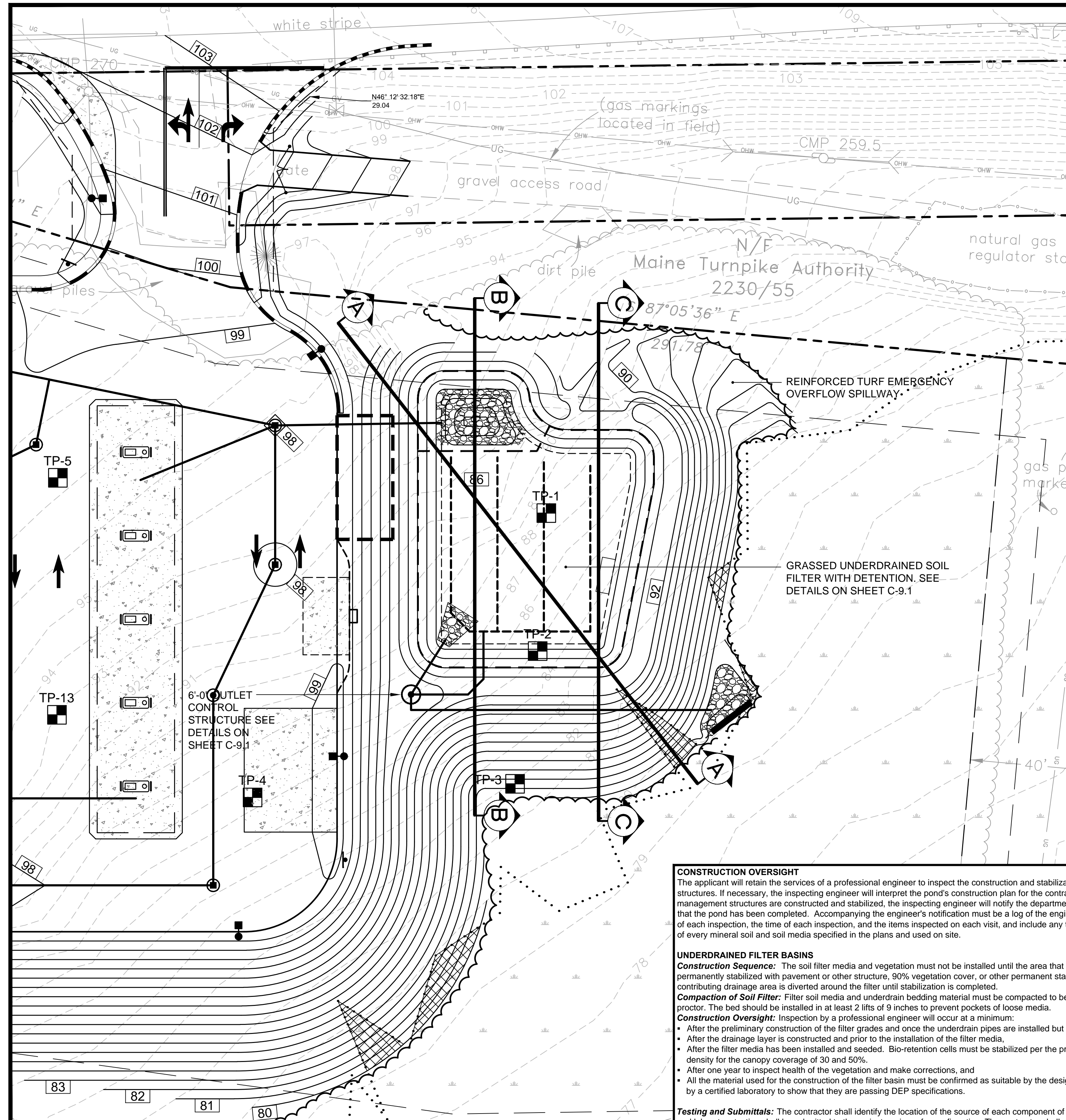
CLIENT: CJ DEVELOPERS, INC.  
35 PRIMROSE LANE, FREEPORT, MAINE 04032  
AND PORTLAND PROPERTY HOLDINGS, LLC  
2 MAIN STREET, SUITE 200, TOPSHAM, MAINE 04086

**FST** FAY, SPOFFORD & THORNDIKE  
ENGINEERS • PLANNERS • SCIENTISTS  
778 MAIN ST., SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: CMW DATE: OCTOBER 2013  
DESIGNED: SRB SCALE: 1" = 30'  
CHECKED: SRB JOB NO. 3118  
FILE NAME: 3118-SP  
SHEET C-3.0

STATE OF MAINE  
STEPHEN P. BUSHEY  
REGISTERED PROFESSIONAL ENGINEER  
LIC. # 7429





**PLAN VIEW**  
SCALE: H: 1" = 20'; V: 1" = 4'

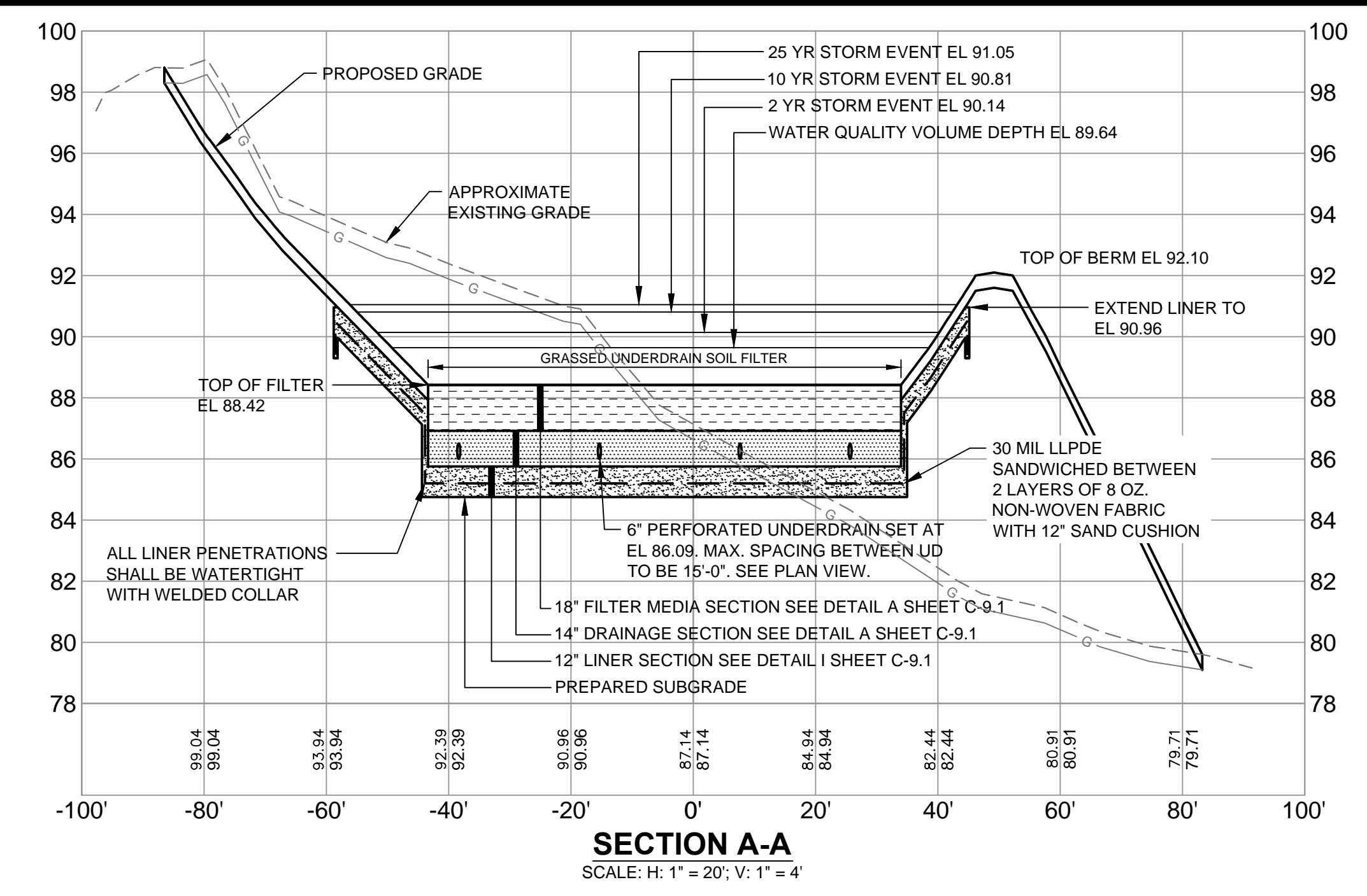
**CONSTRUCTION OVERSIGHT**  
The applicant will retain the services of a professional engineer to inspect the construction and stabilization of all stormwater management structures. If necessary, the inspecting engineer will interpret the pond's construction plan for the contractor. Once all stormwater management structures are constructed and stabilized, the inspecting engineer will notify the department in writing within 30 days to state that the pond has been completed. Accompanying the engineer's notification must be a log of the engineer's inspections giving the date of each inspection, the time of each inspection, and the items inspected on each visit, and include any testing data or sieve analysis data of every mineral soil and soil media specified in the plans and used on site.

**UNDERDRAINED FILTER BASINS**  
**Construction Sequence:** The soil filter media and vegetation must not be installed until the area that drains to the filter has been permanently stabilized with pavement or other structure, 90% vegetation cover, or other permanent stabilization unless the runoff from the contributing drainage area is diverted around the filter until stabilization is completed.  
**Compaction of Soil Filter:** Filter soil media and underdrain bedding material must be compacted to between 90% and 92% standard proctor. The bed should be installed in at least 2 lifts of 9 inches to prevent pockets of loose media.  
**Construction Oversight:** Inspection by a professional engineer will occur at a minimum:  

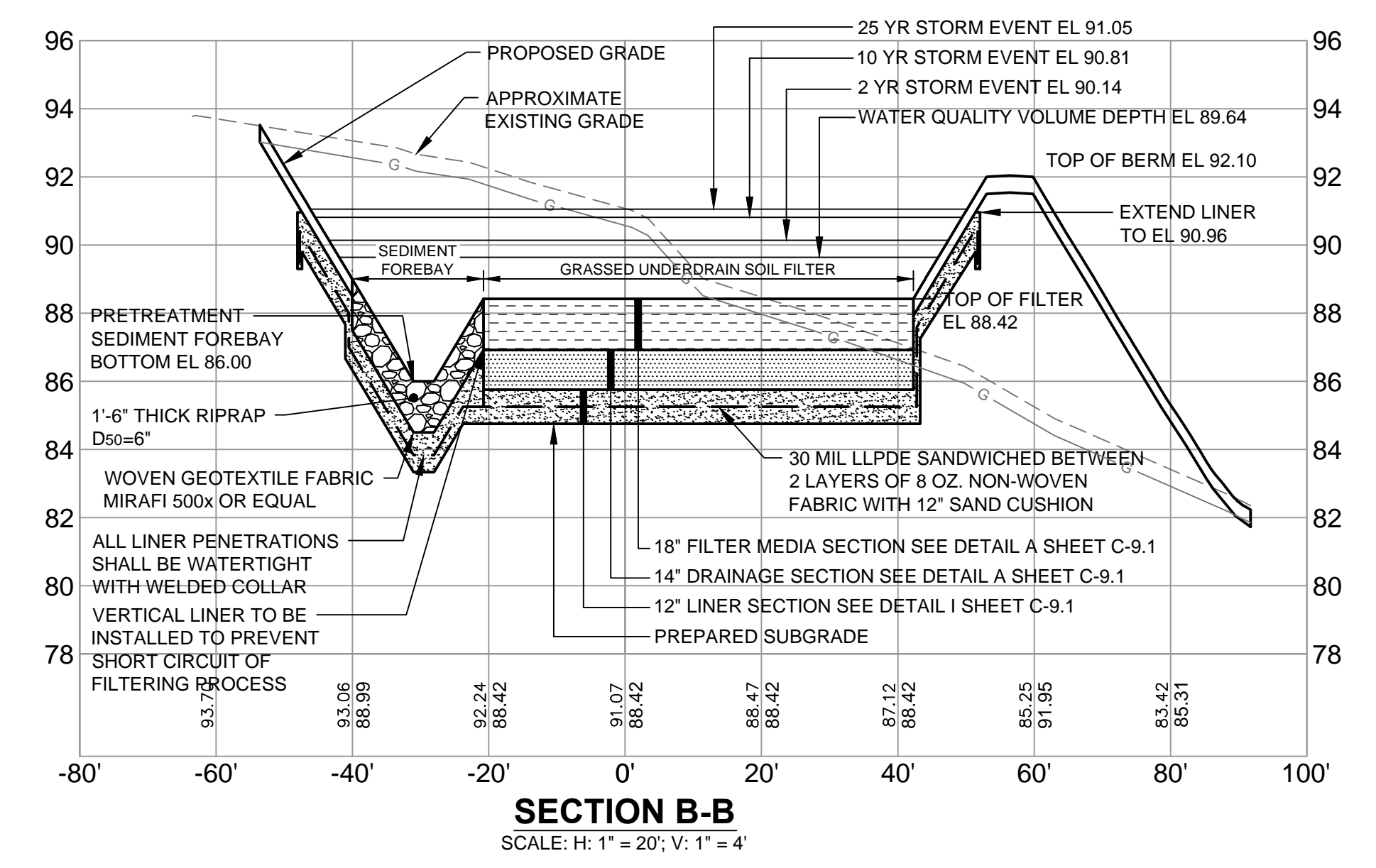
- After the preliminary construction of the filter grades and once the underdrain pipes are installed but not backfilled,
- After the drainage layer is constructed and prior to the installation of the filter media,
- After the filter media has been installed and seeded. Bio-retention cells must be stabilized 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, and
- All the material used for the construction of the filter basin must be confirmed as suitable by the design engineer. Testing must be done by a certified laboratory to show that they are passing DEP specifications.

**Testing and Submittals:** The contractor shall identify the location of the source of each component of the filter media. All results of field and laboratory testing shall be submitted to the project engineer for confirmation. The contractor shall:  

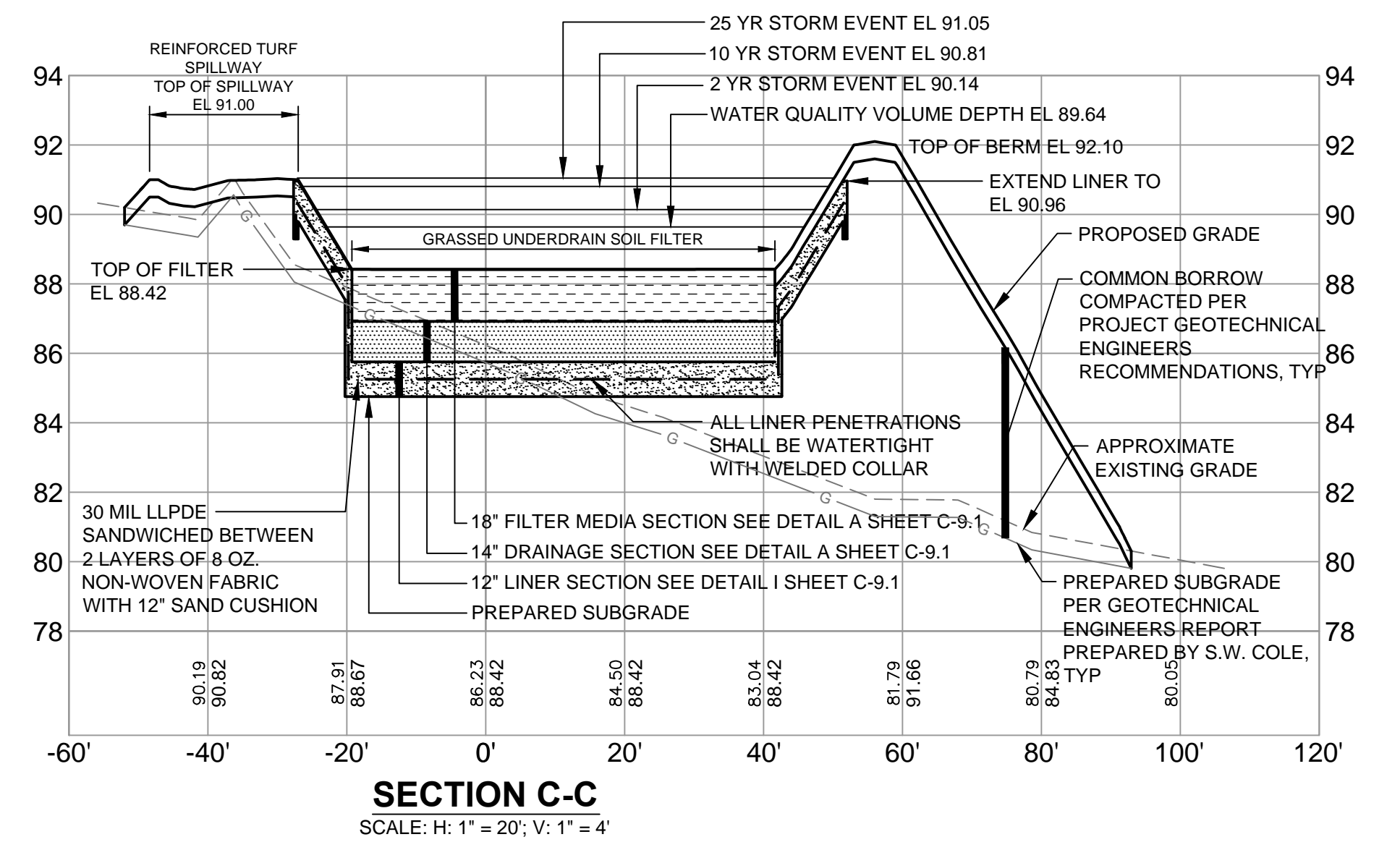
- Select samples for sampling of each type of material to be blended for the mixed filter media and samples of the underdrain bedding material. Samples must be a composite of three different locations (grabs) from the stockpile or pit face. Sample size required will be determined by the testing laboratory.
- Perform a sieve analysis conforming to STM C136 (Standard Test Method for Sieve Analysis of fine and Course Aggregates 1996A) on each type of the sample material. The resulting soil filter media mixture must have 8% to 12% by weight passing the #200 sieve, a clay content of less than 2% (determined hydrometer grain size analysis) and have 10% dry weight of organic matter.
- Perform a permeability test on the soil filter media mixture conforming to ASTM D2434 with the mixture compacted to 90-92% of maximum dry density based on ASTM D698.



**SECTION A-A**  
SCALE: H: 1" = 20'; V: 1" = 4'

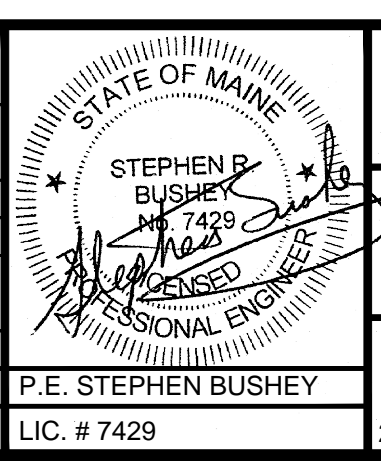


**SECTION B-B**  
SCALE: H: 1" = 20'; V: 1" = 4'



**SECTION C-C**  
SCALE: H: 1" = 20'; V: 1" = 4'

REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION
6	07.22.14	REVISED SWM BASIN AND SECTIONS AND SUBMITTED AMENDED PLANS TO CITY AND MEDEP	6	07.22.14	REVISED SWM BASIN AND SECTIONS AND SUBMITTED AMENDED PLANS TO CITY AND MEDEP
5	05.21.13	ELIMINATED ONE STORMTREAT AND SUBMITTED CITY APPROVED PLANS TO MEDEP	5	05.21.13	ELIMINATED ONE STORMTREAT AND SUBMITTED CITY APPROVED PLANS TO MEDEP
4	05.03.13	REVISED AND RESUBMITTED TO CITY	4	05.03.13	REVISED AND RESUBMITTED TO CITY
3	04.18.13	REVISED PER CITY STAFF COMMENTS	3	04.18.13	REVISED PER CITY STAFF COMMENTS
2	04.09.13	SUBMITTED TO MEDEP STORMWATER DISCHARGE PERMIT	2	04.09.13	SUBMITTED TO MEDEP STORMWATER DISCHARGE PERMIT
1	03.28.13	SUBMITTED TO CITY OF PORTLAND	1	03.28.13	SUBMITTED TO CITY OF PORTLAND



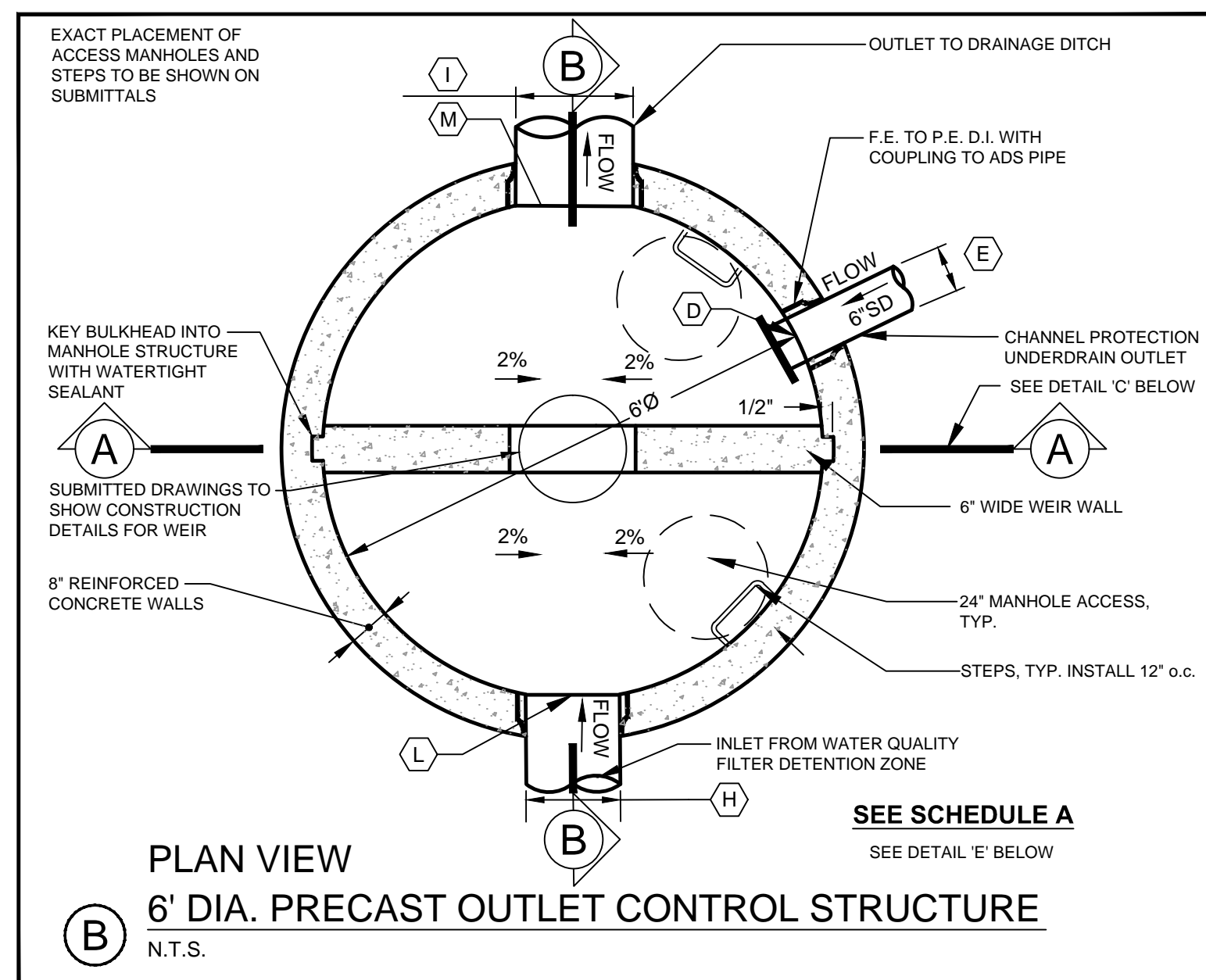
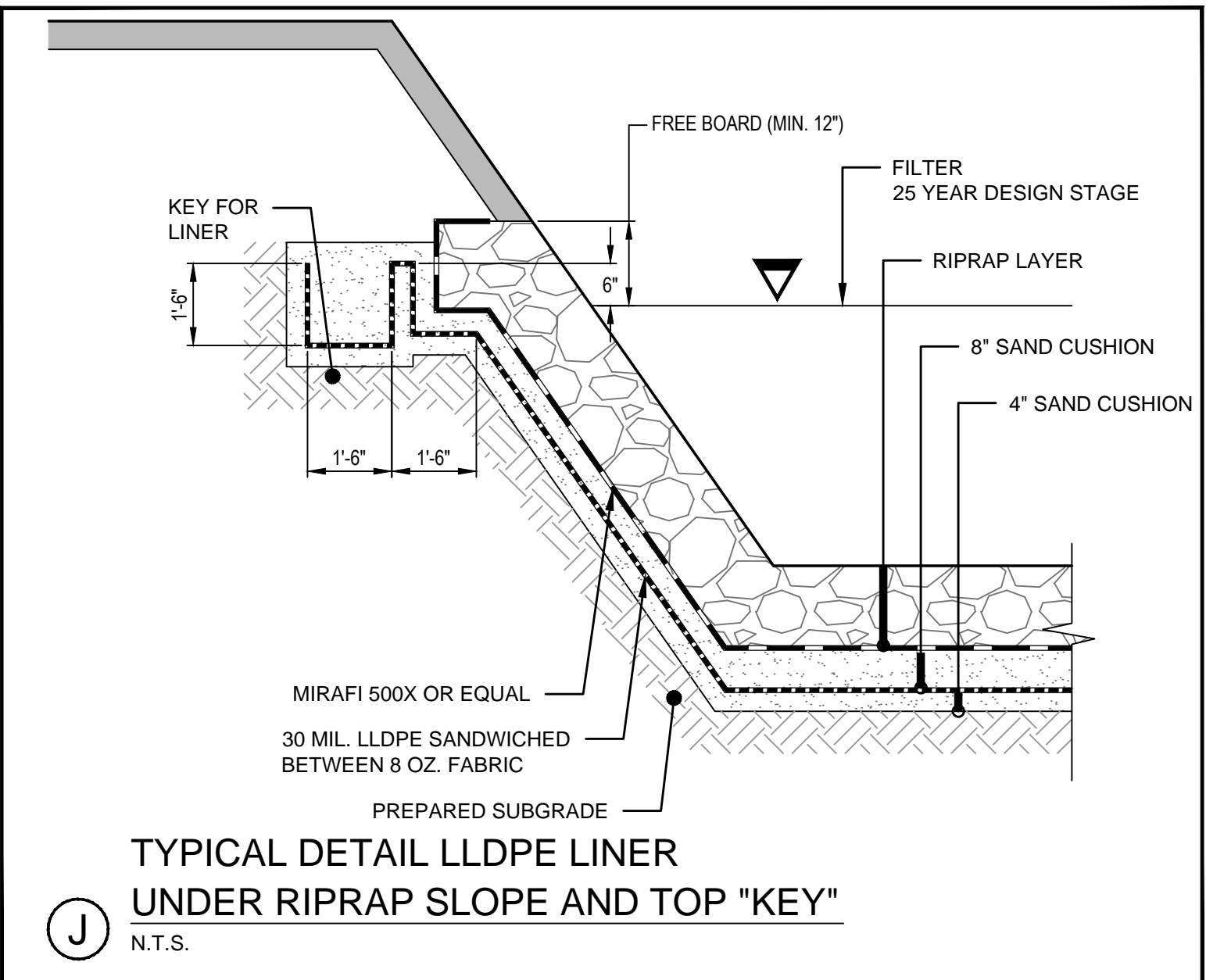
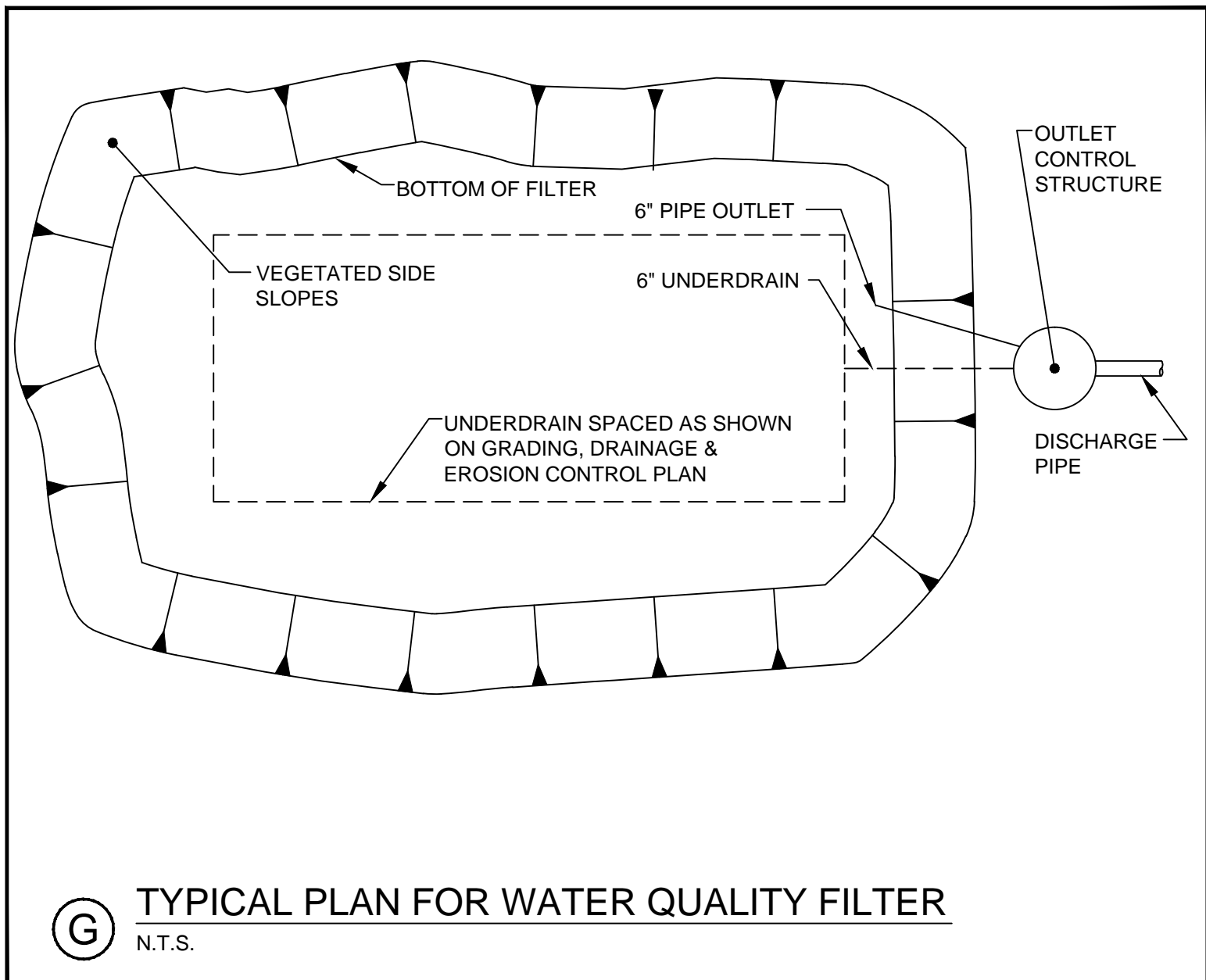
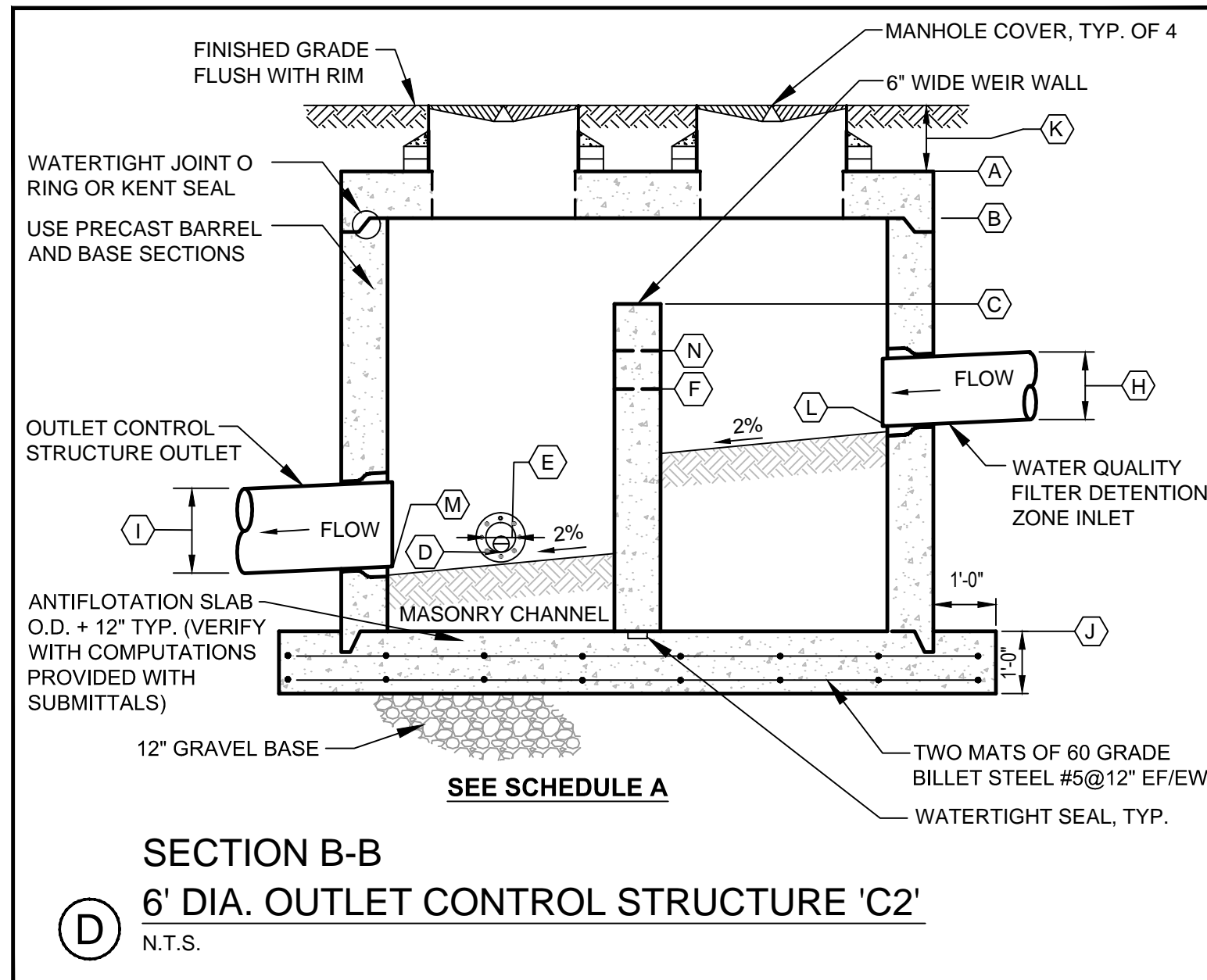
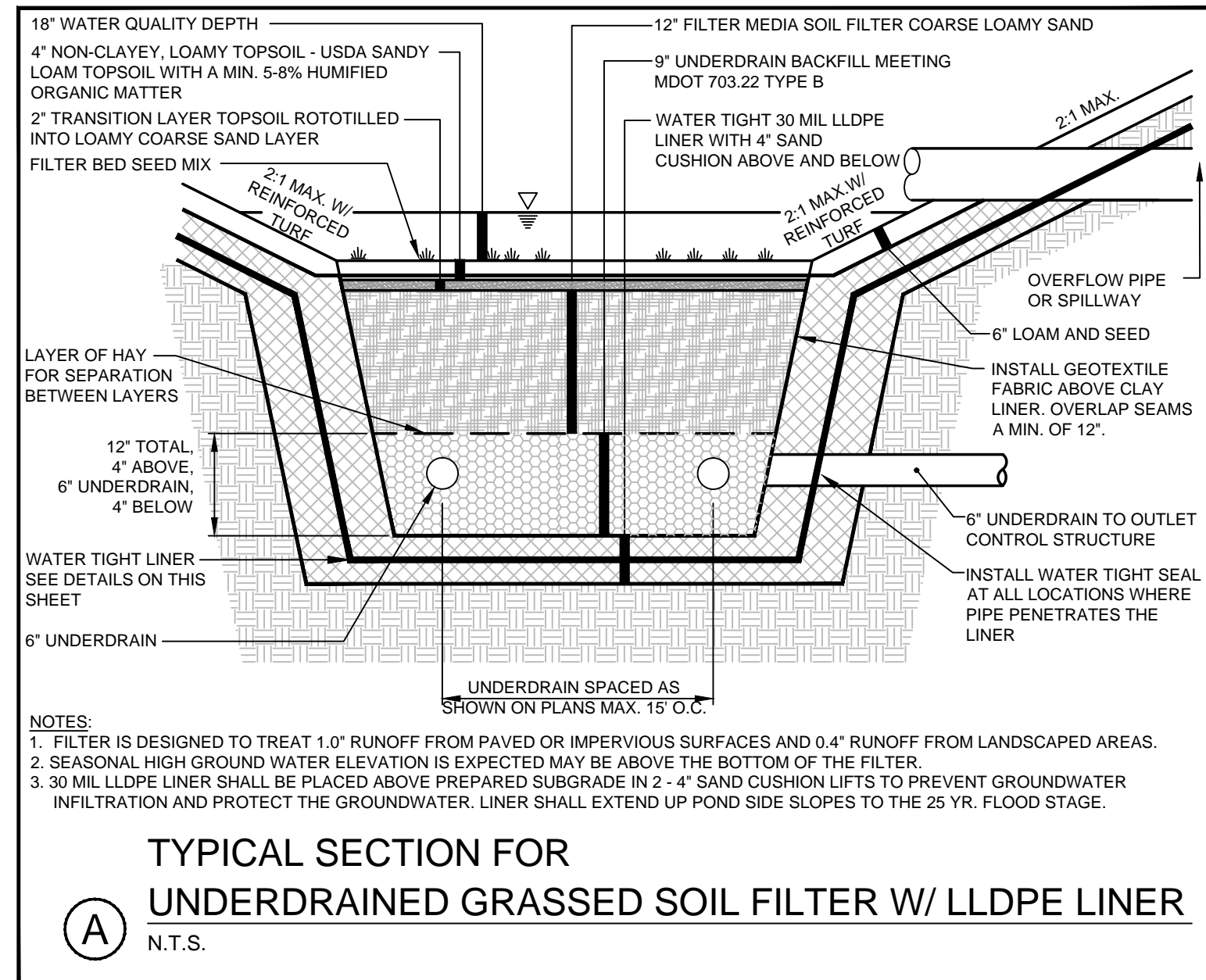
PROJECT  
**MULTI-USE DEVELOPMENT**  
2282 CONGRESS ST., PORTLAND, ME

SHEET TITLE  
**STORMWATER MANAGEMENT: FLOODING BASIN AND GRASSED UNDERDRAINED FILTER SECTIONS**

CLIENT  
CJ DEVELOPERS, INC.  
35 PRIMROSE LANE, FREEPORT, MAINE 04032  
AND PORTLAND PROPERTY HOLDINGS, LLC  
2 MAIN STREET, SUITE 200, TOPSHAM, MAINE 04086

**FST** 100 YEARS  
**FAY, SPOFFORD & THORNDIKE**  
ENGINEERS · PLANNERS · SCIENTISTS  
778 MAIN ST., SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: CMW  
DESIGNED: SRB  
CHECKED: SRB  
FILE NAME: 3118-SP  
DATE: OCTOBER 2013  
SCALE: AS NOTED  
JOB NO.: 3118  
SHEET **C-9.0**

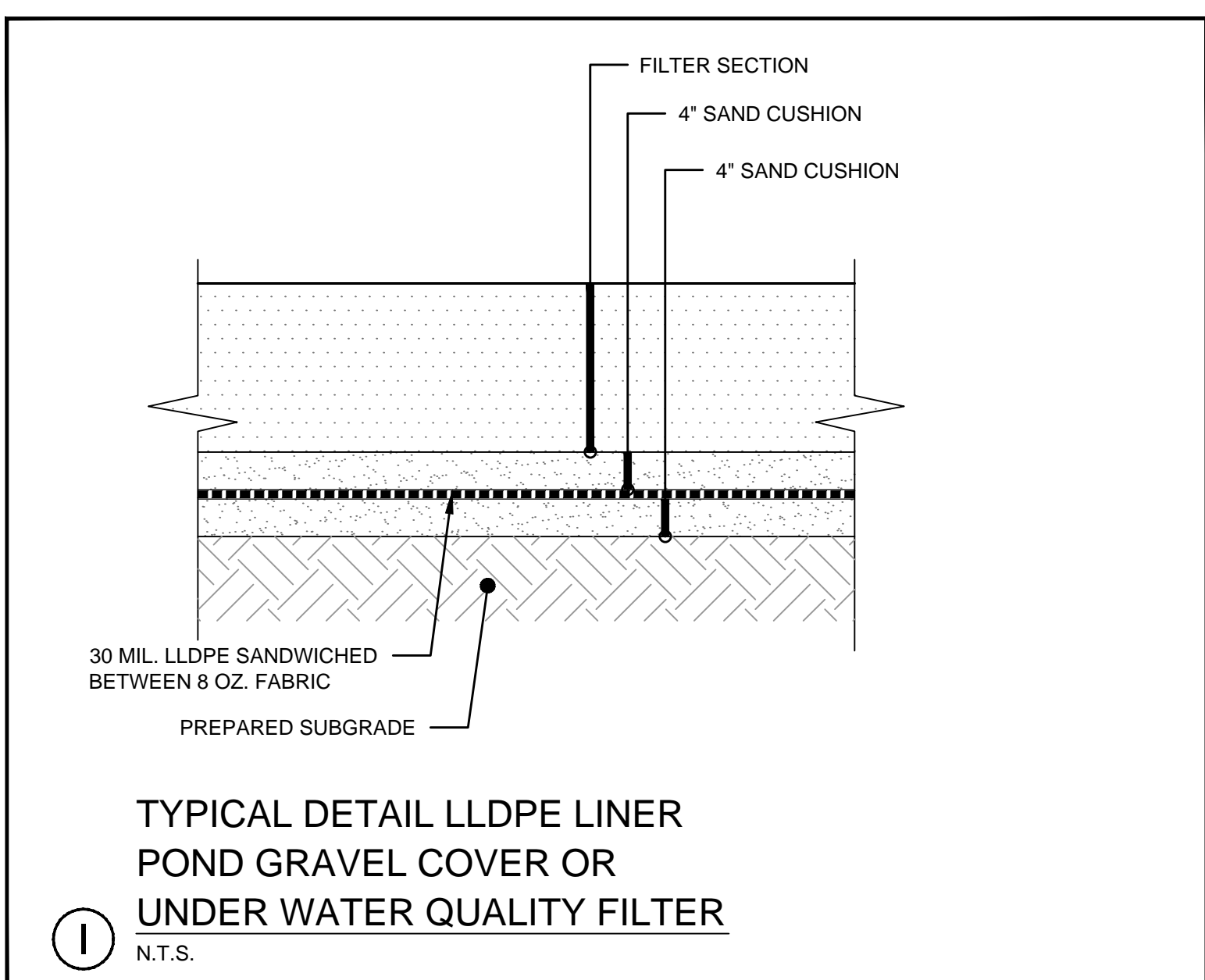
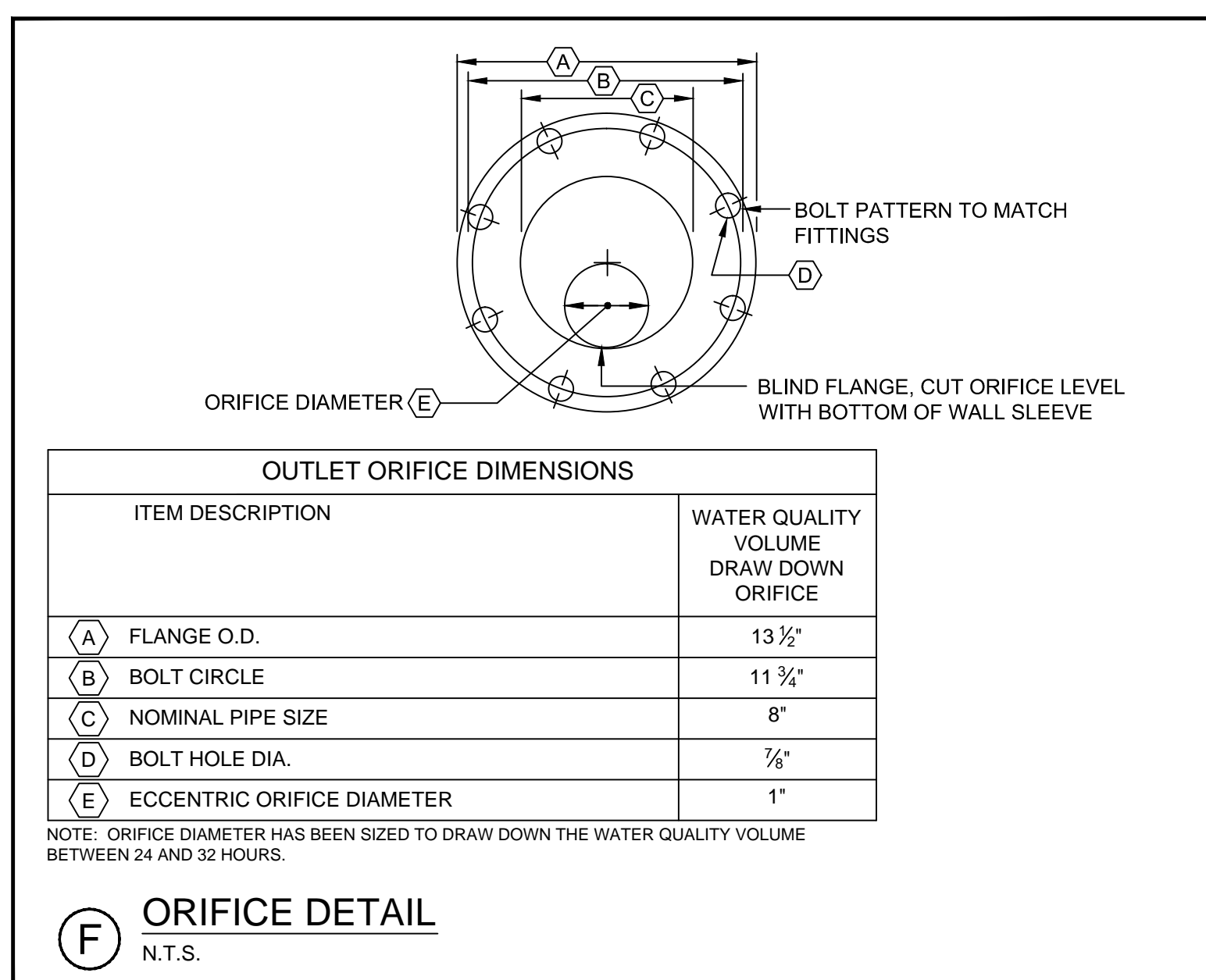
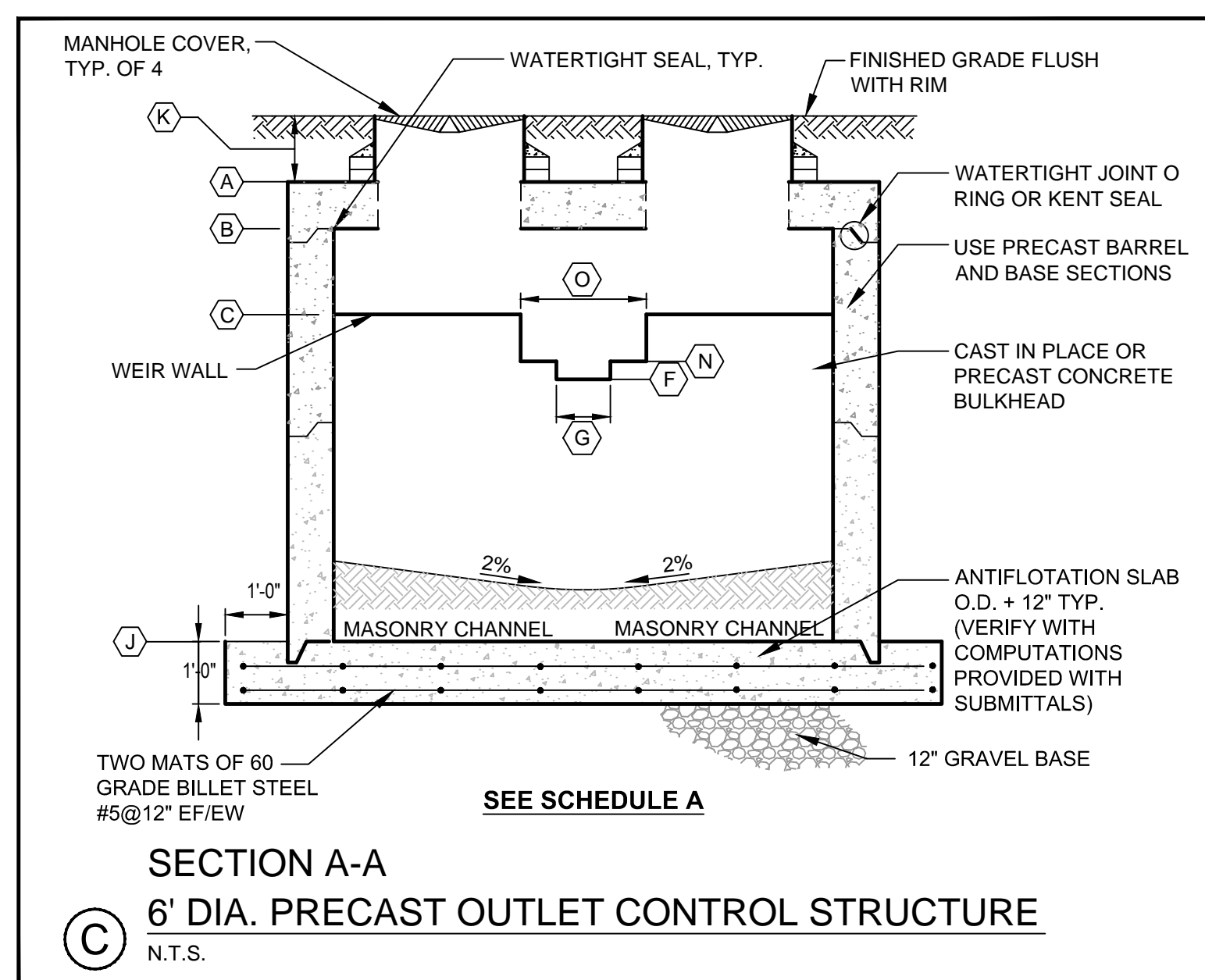
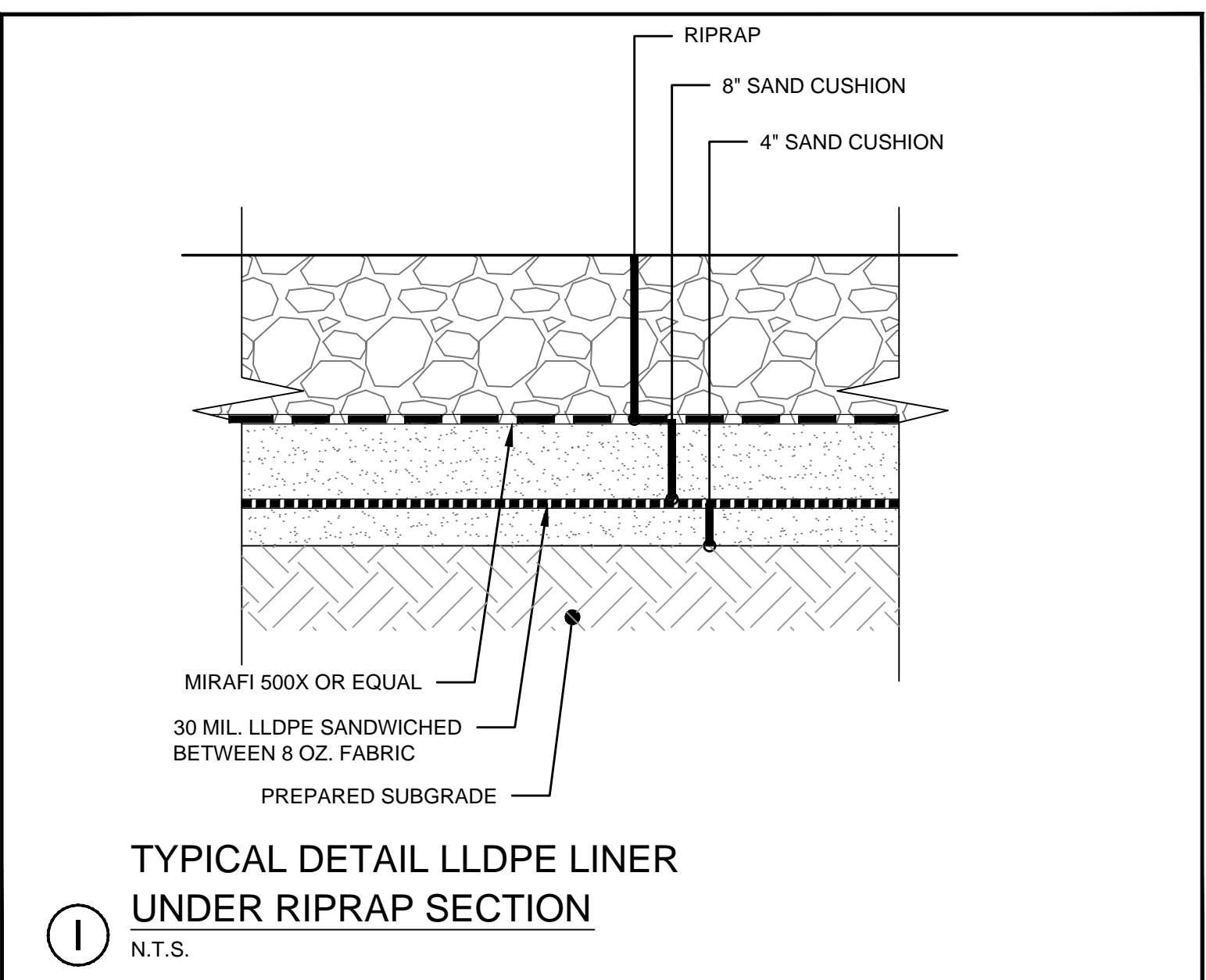
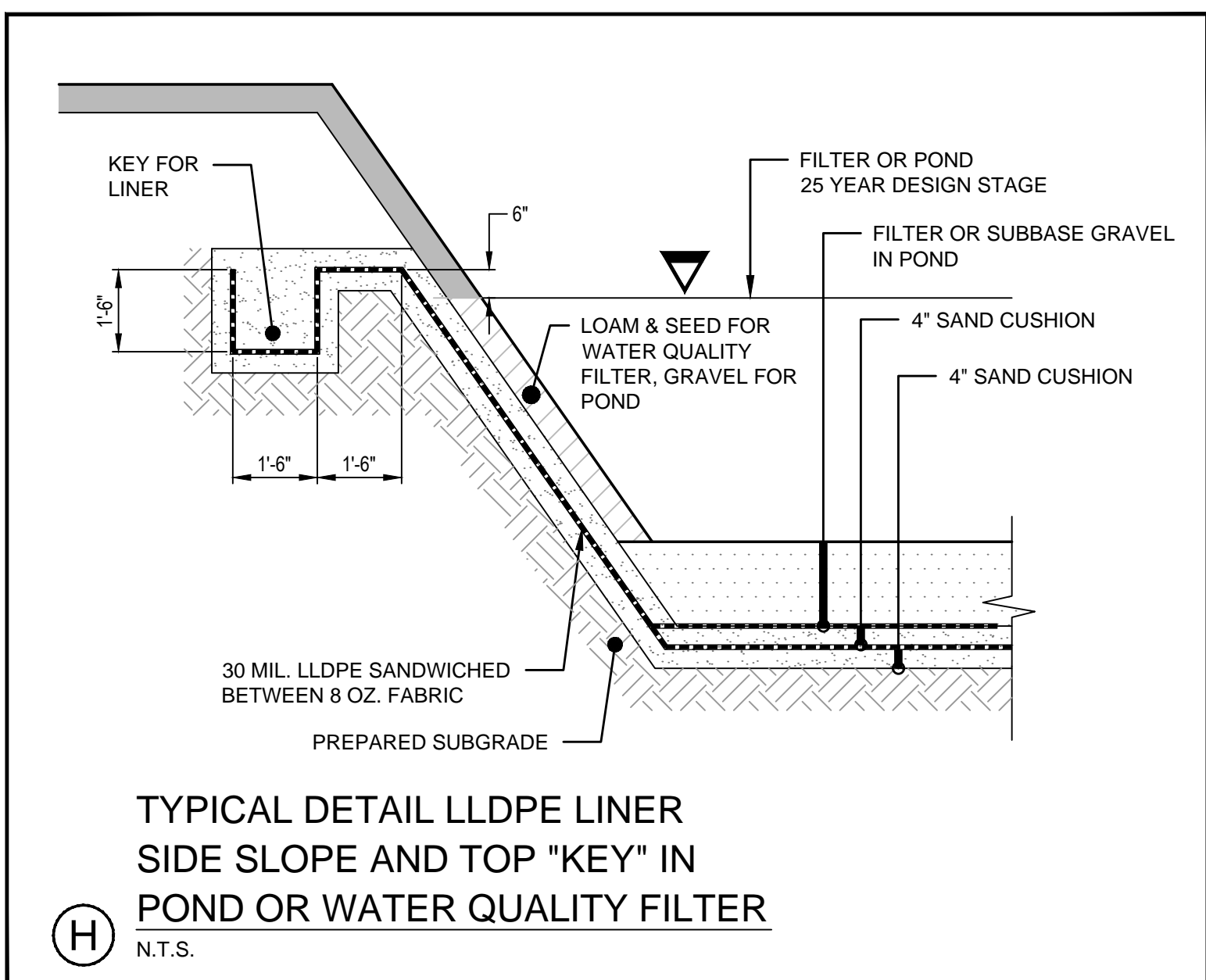


**SCHEDULE A**  
**OUTLET CONTROL STRUCTURE**

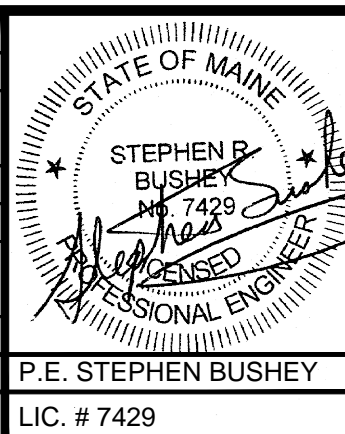
ITEM DESCRIPTION	DIMENSION/ ELEVATION
(A) TOP OF STRUCTURE	92.63
(B) UNDERSIDE TOP SLAB	91.06
(C) TOP CONCRETE WEIR WALL	90.96
(D) WATER QUALITY VOLUME PIPE INVERT	86.09
(E) WATER QUALITY VOLUME PIPE DIAMETER	6'
(F) WATER QUALITY ZONE WEIR INVERT	89.64
(G) WATER QUALITY ZONE WEIR WIDTH	0.5'
(H) DIAMETER OF INLET PIPE FROM DET. ZONE	24"
(I) DIAMETER OF OUTLET PIPE	24"
(J) BOTTOM OF STRUCTURE	84.00
(K) RIM TO TOP OF STRUCTURE	0.83'
(L) DETENTION ZONE INLET INVERT	88.42
(M) OUTLET CONTROL STRUCTURE OUTLET INVERT	85.99
(N) DETENTION ZONE WEIR INVERT	90.50
(O) DETENTION ZONE WEIR WIDTH	1'

\* SEE DETAIL 'F' ON THIS SHEET FOR ECCENTRIC ORIFICE SIZE REQUIRED. OUTLET CONTROL STRUCTURE IS AN I/D MANHOLE.

**SCHEDULE 'A'**  
N.T.S.



REV	DATE	DESCRIPTION
6	09.04.14	ELIMINATED CATCH BASIN C-1
5	07.22.14	REVISED ALL DETAILS AND SUBMITTED AMENDED PLANS TO CITY AND MEDEP
4	05.03.13	REVISED AND RESUBMITTED TO CITY
3	04.18.13	REVISED PER CITY STAFF COMMENTS
2	04.09.13	SUBMITTED TO MEDEP STORMWATER DISCHARGE PERMIT
1	03.28.13	SUBMITTED TO CITY OF PORTLAND



PROJECT: **MULTI-USE DEVELOPMENT**  
 2282 CONGRESS ST., PORTLAND, ME

SHEET TITLE:  
**STORMWATER MANAGEMENT: GRASSED UNDERDRAINED FILTER DETAILS**

CLIENT: CJ DEVELOPERS, INC.  
 35 PRIMROSE LANE, FREEPORT, MAINE 04032  
 AND PORTLAND PROPERTY HOLDINGS, LLC  
 2 MAIN STREET, SUITE 200, TOPSHAM, MAINE 04086

**FST** 100 YEARS  
**FAY, SPOFFORD & THORNDIKE**  
 ENGINEERS • PLANNERS • SCIENTISTS  
 778 MAIN ST., SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN: CMW      DATE: OCTOBER 2013  
 DESIGNED: SRB      SCALE: N.T.S.  
 CHECKED: SRB      JOB NO. 3118  
 FILE NAME: 3118-DET  
 SHEET: **C-9.1**

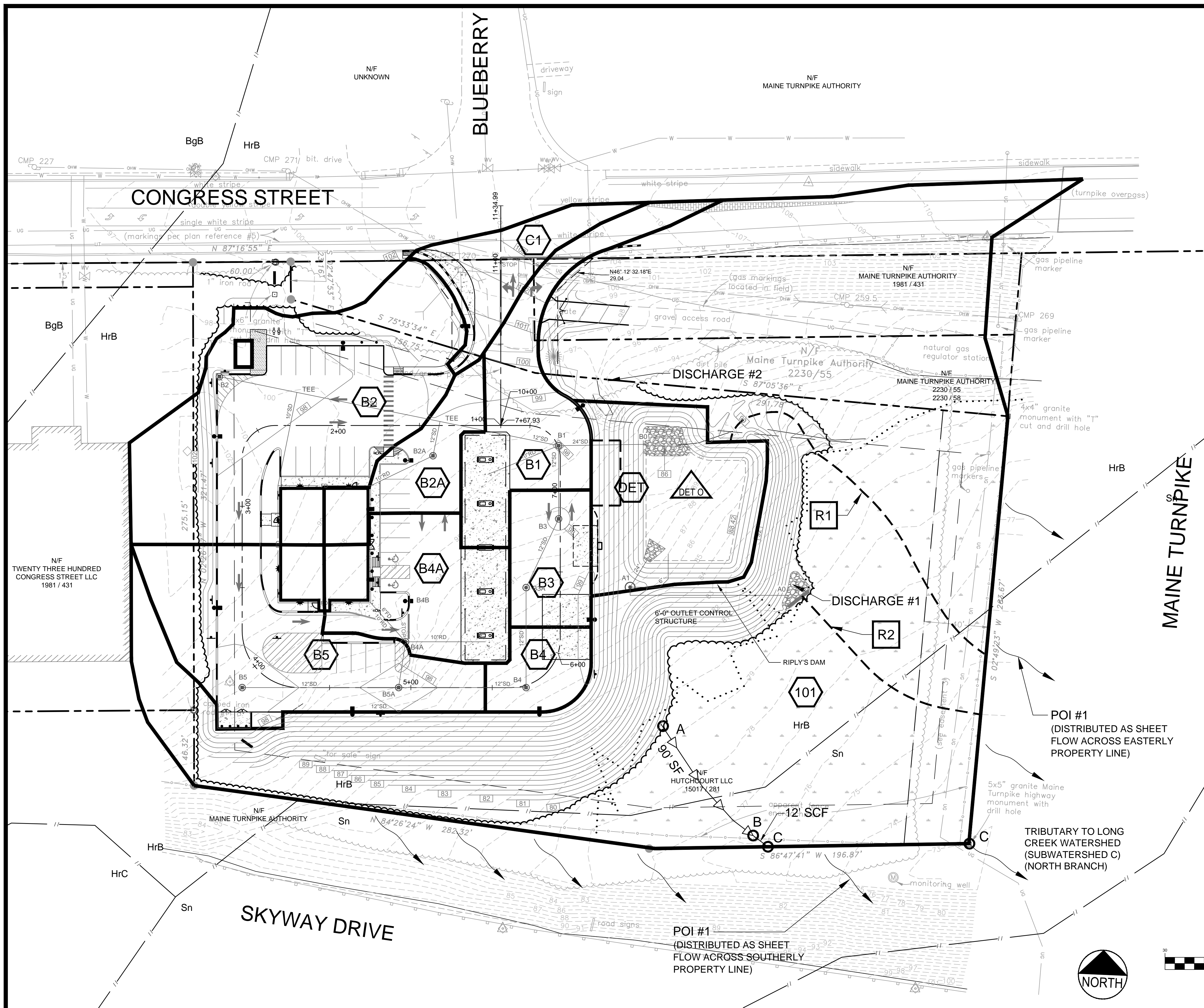
**Stormwater Quality Treatment Computation Sheet**  
Grassed Underdrain Filter - Updated September 4, 2014

Area Tributary to the WQ Treatment Area							
Subcatchment ID	Pervious Area	Impervious Area	Total Area	Onsite Impervious Area	Onsite Developed Area	Offsite Developed Area	Total Adjusted Developed Area
B1	0	8,879	8,879	7,536	7,536	1,343	8,342
B2	9,909	12,204	22,113	12,204	17,346	4,767	18,776
B3	0	4,242	4,242	4,242	4,242	0	4,242
B2A	0	4,562	4,562	4,562	4,562	0	4,562
B4	0	2,843	2,843	2,843	2,843	0	2,843
B4A	266	8,238	8,504	8,238	8,504	0	8,504
B5	4,428	9,780	14,208	9,780	12,403	1,805	12,945
Sub Total (B Series)	14,603	50,748	65,351	49,405	57,436	7,915	60,213
Sub Total (C Series)	0.34	1.17	1.50	1.13	1.32	0.18	1.38
C1	0	4,401	4,401	2,279	2,279	2,122	4,189
Sub Total (C Series)	0	4,401	4,401	2,279	2,279	2,122	4,189
Sub Total (C Series)	0.00	0.10	0.10	0.05	0.05	0.05	0.10
DET (SF)	10,851	0	10,851	0	10,851	0	10,851
DET (AC)	0.25	0.00	0.25	0.00	0.25	0.00	0.25
Treatment Area Total (SF)	25,454	55,149	80,603	51,684	70,566	10,037	75,253
Treatment Area Total (AC)	0.58	1.27	1.85	1.19	1.62	0.23	1.73

Untreated Site Area					
Subcatchment ID	Pervious Area	Impervious Area	Total Area	Onsite Impervious Area	Onsite Developed Area
101	98,466	8,201	106,667	0	22,869
Untreated Area Total (SF)	98,466	8,201	106,667	0	22,869
Untreated Area Total (AC)	2.26	0.19	2.45	0.00	0.53
Totals (SF)	N/A	N/A	N/A	51,684	93,435
Totals (AC)	N/A	N/A	N/A	1.19	2.14

Stormwater Quality Treatment Calculations			
Percent of Impervious Area Treated	106.70%	≥ 95% Required	
Total Adjusted Developed Area Treated	80.73%	≥ 80% Required	
Water Quality Volume Required (CF)	848	4,596	5,444 CF
Water Quality Volume Provided (CF)			5,444 CF
*Underdrain Soil Filter Area Required (SF)			3,267 SF
Underdrain Soil Filter Area Provided (SF)			3,518 SF
Offsite Mitigation Adjustment Factors			
Parking Lot	0.90		
Impervious Area	0.60		
Lawn	0.30		

\* Underdrain Soil Filters are required to be 5% of total impervious area + 2% of total pervious area according to Chapter 7.1, Volume III of the Maine Dep Storm Water BMP manual.



**LEGEND**

- WATERSHED BOUNDARY
- MEDIUM INTENSITY SOIL BOUNDARY
- DRAINAGE FLOW PATH
- SF SHEET FLOW
- SCF SHALLOW CONCENTRATED FLOW
- 1 SUBAREA DESIGNATION

NOTE: WATERSHEDS WITHOUT A TC DRAINAGE FLOW PATH DEFINED ASSUME A MINIMUM 6 MIN TIME OF CONCENTRATION AS RECOMMENDED IN THE TR-55 MANUAL

**SOILS LEGEND**

ID	DESCRIPTION	SLOPE	HYDROLOGIC SOIL GROUP
HrB	HOLLIS FINE SANDY LOAM	3 - 8% SLOPE	C SOIL WHERE DRAINED D SOIL WHERE UNDERDRAINED (i.e. WETLANDS)
Sn	SCANTIC SILT LOAM	- SLOPE	D

REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION
6	07.22.14	REVISED POSTDEVELOPMENT AND SUBMITTED AMENDED PLANS TO CITY AND MEDEP	1	03.28.13	SUBMITTED TO CITY OF PORTLAND
5	05.21.13	ELIMINATED ONE STORMTREAT AND SUBMITTED CITY APPROVED PLANS TO MEDEP			
4	05.03.13	REVISED AND RESUBMITTED TO CITY			
3	04.18.13	REVISED PER CITY STAFF COMMENTS			
2	04.09.13	SUBMITTED TO MEDEP STORMWATER DISCHARGE PERMIT			
7	09.04.14	ELIMINATED CATCH BASIN C-1			

PROJECT: MULTI-USE DEVELOPMENT  
2282 CONGRESS ST., PORTLAND, ME

SHEET TITLE: POSTDEVELOPMENT WATERSHED PLAN

CLIENT: CJ DEVELOPERS, INC.  
35 PRIMROSE LANE, FREEPORT, MAINE 04032  
AND PORTLAND PROPERTY HOLDINGS, LLC  
2 MAIN STREET, SUITE 200, TOPSHAM, MAINE 04086

DATE: OCTOBER 2013  
SCALE: 1" = 30'  
JOB NO.: 3118

FILE NAME: 3118-SP  
SHEET: C-14.1

DESIGNED: SRB  
CHECKED: SRB  
DRAWN: CMW

FAY, SPOFFORD & THORNDIKE  
ENGINEERS • PLANNERS • SCIENTISTS  
778 MAIN ST., SUITE 8, SOUTH PORTLAND, ME 04106

STATE OF MAINE  
STEPHEN P. BUSHEY  
REGISTERED PROFESSIONAL ENGINEER  
LIC. # 7429