Memorandum

To: New Bedford Conservation Commission
Attn: Sarah Porter

Date: December 11, 2017

Project #: 12815.00

From: Richard H. Carey, P.E.

Re: South Coast Rail
Proposed Layover Facility in New Bedford
Responses to Comments

Based on the comments received by Nitsch Engineering (peer reviewer for the New Bedford Conservation Commission) dated December 5, 2017, the stormwater drainage design for the proposed layover facility has been revised. The design changes, backup calculations, and specific responses to the comments are hereby submitted for review.

Response to Comments

The following are responses to the comments in the December 5, 2017 letter:

1. Comment: The New Bedford Department of Public Infrastructure (DPI) issued a letter dated December 1, 2017 indicating that the 2-foot by 5-foot box culvert shown in the VHB drawings is appropriate for the municipal drainage system from Wamsutta Street. However, DPI also indicates that they (DPI) may make changes to the culvert in the next 18-24 months, including increasing the hydraulic opening by lowering the culvert invert. IT is unclear why changes would be needed, i.e. to accommodate higher flows or other changes within the contributing watershed. The DPI letter does not provide the backup information for the design assumptions and does not reference any report by CDM, which was previously discussed with the Applicant. Any changes to the invert would be difficult as the culvert appears to be a 4-sided box culvert, rather than a 3-sided culvert with stone bottom. Future changes to the culvert design may result in impacts to the wetland, and would need to be reviewed by the Commission.

   Response: As noted above, DPI has found the current proposed design to be appropriate. The drainage analysis/report by CDM of the City's drainage infrastructure is currently incomplete/preliminary in nature. Should DPI complete their assessment of existing conditions with CDM and determine that additional improvements are desired prior to the installation of improvements proposed by SCR, DPI will file their own Notice of Intent for those changes and MassDOT has agreed to work with DPI and the City to incorporate those changes into the SCR program.

2. Comment: To better quantify the work within the wetland resource areas, Nitsch Engineering requested that VHB provide riprap apron sizing calculations for the municipal culvert. VHB provided these calculations as requested and revised the plans accordingly; however, they utilized an anticipated flow through the municipal system (25 CFS) as a design assumption for these calculations. We cannot confirm the accuracy of this assumption given that calculations quantifying the amount of flow being discharged by the municipal system in Wamsutta Street have not been provided.

Response: The proposed 5' x 2' box culvert is based on a flow calculation on the existing 24" pipe/culvert in Wamsutta Street assuming it to be flowing full via gravity (15.9 CFS +/-), plus the added calculated flow from our layover facility site (flow out of WQS-1, 9.3 CFS +/-). This results in the above referenced 25 CFS flowing through the municipal culvert. VHB has revisited the riprap apron sizing and determined that it is appropriate and adequate for the new 2' x 5' box culvert flowing full (maximum capacity of 31.4 CFS). We do not suggest any changes at this time, but as indicated in the previous response, MassDOT is committed to working with the City DPI to support any changes they may determine to be desirable via their own filing.

3. Comment: The revised plan set indicates that the culvert headwall has been pulled back from the wetland line to allow for the construction of the riprip apron without disturbing the wetland. However, the downstream portion of the culvert, the headwall, and the associated riprap are all located within 25 feet of wetlands, with the riprap ending at the wetland line. As noted previously, additional work associated with the layover facility is proposed within the 25 feet of the wetland, but is generally consistent with the limit of the existing disturbed area.

   Response: No response required.

4. Comment: The Proposed Drainage Plan should be revised to reflect the current headwall and riprap apron locations for the 5-foot by 2-foot box culvert.

   Response: The Proposed Drainage Plan has been revised as requested and attached hereto.

5. Comment: The proposed water quality inlet (WQI) tanks discharge into the ballast stone system. The outflow for the ballast stone system is a weir set at elevation 11.0 in DMH-6, which is above the inlet/outlet elevations of upstream structures including the WQI tanks. We recommend that the Applicant consider the addition of backflow valves on the outlets to the WQI tanks to prevent surcharging and resuspension within the tanks.

   Response: A note has been added to the Water Quality Inlet detail indicating backflow prevention devices are to be provided on outlet pipes of the WQI tanks. The revised detail sheet is attached.

6. Comment: The Stormwater Report notes that the "area requires Geotech" to confirm the assumed subsurface soil conditions and infiltration rate of 0.17 inches per hour; if the observed rate onsite is lower, then there will likely be issues with long-term water within the ballast stone that would exceed the MassDEP requirement of 72 hours. Long-term ponding would also increase the flow out of DMH-6 (the outlet control structure) resulting in higher flows to the downstream drainage system. Typically, geotechnical information is provided by the applicant to confirm infiltration rates prior to approval of projects.

   Response: The existing soils on the site are classified as Urban soils which do not have a Hydrologic Soil Group (HSG) rating due to their variability and/or inability to conduct soil sampling at the time of the soil survey. Additionally, the site has been filled with an engineered soil cap. The cap material as-

built specification indicates all material contains a maximum of 30% passing the #200 sieve, meaning a minimum of 70% sand content. Per the soil textural triangle in the MassDEP Stormwater Manual (Volume 3, Chapter 1, Page 14), material with a minimum 70% sand content correlates to, at worst, a sandy clay loam which is assigned an infiltration Rawls Rate of 0.17 inches per hour (See MassDEP Stormwater Manual Volume 3, Chapter 1, Table 2.2.3.), which is the basis of our report calculation. With this calculation and material basis supported by the as-built product gradation, the system will drain in less than 72 hours. Due to the capped condition and contaminated soil restrictions, on-site testing was not and will not be performed.

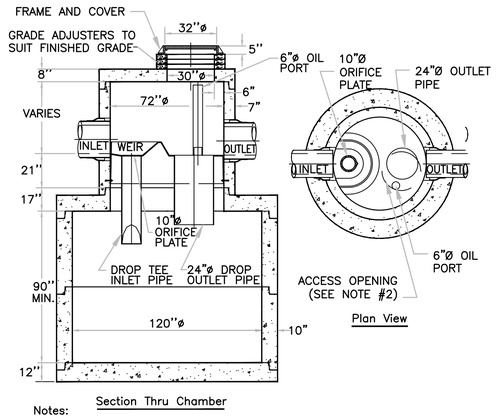
7. Comment: In their response letter, the Applicant indicated that the new Whale's Tooth station platform and associated site work will be submitted to the Conservation Commission under a separate Notice of Intent.

   Response: No response required

Attachments:

Revised Proposed Drainage Area Plan, Figure 4

Revised Detail Sheet, CV-306

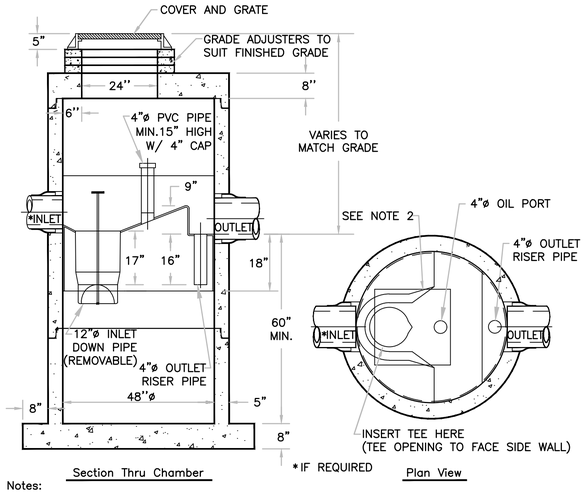


Notes:

1. THE USE OF FLEXIBLE CONNECTION IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE OUTLET DROP PIPE AND THE OIL PORT.
3. APPROVED EQUIVALENT MUST PROVIDE 80% TSS REMOVAL FOR 2.9 ACRES OF IMPERVIOUS AREA.

Water Quality Unit 1 (WQU)

SCALE: N.T.S.

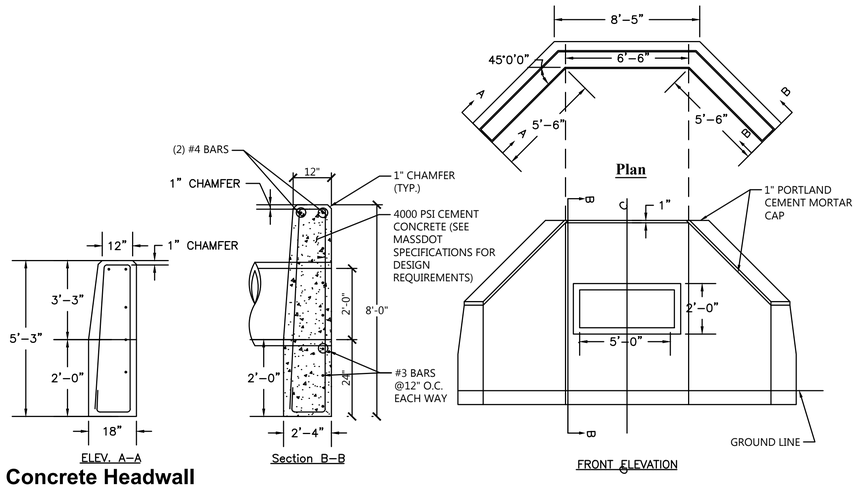


Notes:

1. THE USE OF FLEXIBLE CONNECTION IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE INLET DROP PIPE AND THE OIL PORT.
3. APPROVED EQUIVALENT MUST PROVIDE 80% TSS REMOVAL FOR 0.32 ACRES OF IMPERVIOUS AREA.

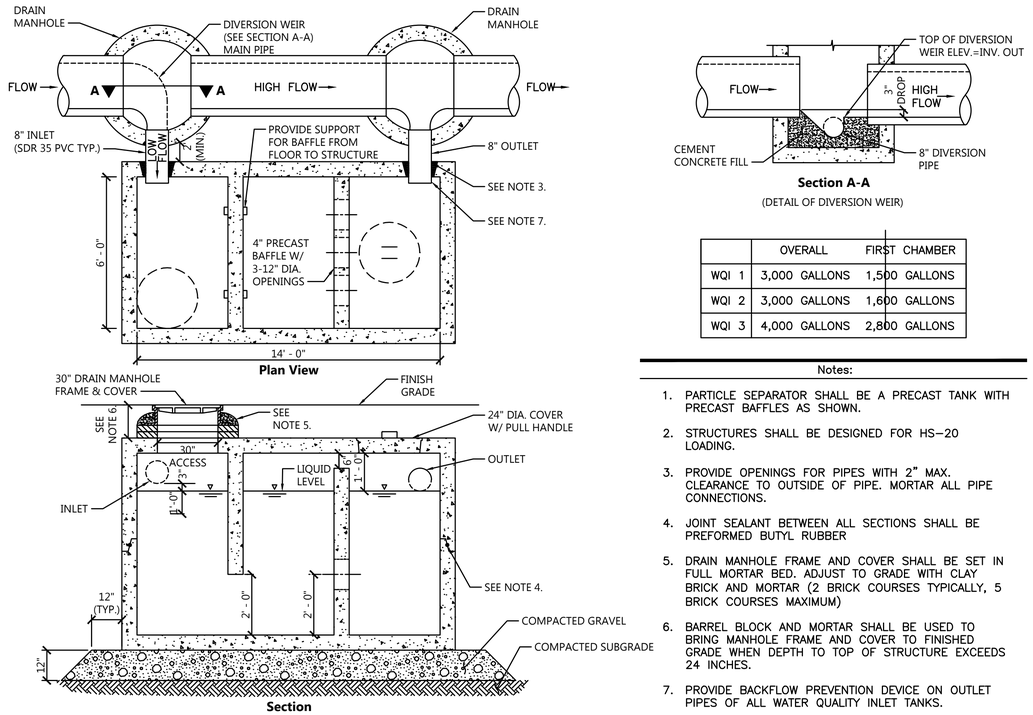
Water Quality Unit 3 (WQU)

SCALE: N.T.S.



Concrete Headwall

SCALE: N.T.S.



Water Quality Inlet Tank

SCALE: N.T.S.

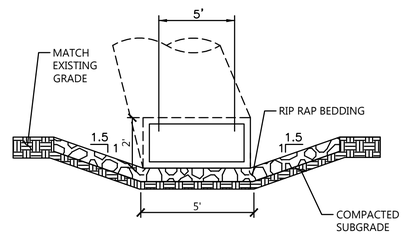
Section A-A

(DETAIL OF DIVERSION WEIR)

	OVERALL	FIRST CHAMBER
WQI 1	3,000 GALLONS	1,500 GALLONS
WQI 2	3,000 GALLONS	1,600 GALLONS
WQI 3	4,000 GALLONS	2,800 GALLONS

Notes:

1. PARTICLE SEPARATOR SHALL BE A PRECAST TANK WITH PRECAST BAFFLES AS SHOWN.
2. STRUCTURES SHALL BE DESIGNED FOR HS-20 LOADING.
3. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN ALL SECTIONS SHALL BE PREFORMED BUTYL RUBBER
5. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)
6. BARREL BLOCK AND MORTAR SHALL BE USED TO BRING MANHOLE FRAME AND COVER TO FINISHED GRADE WHEN DEPTH TO TOP OF STRUCTURE EXCEEDS 24 INCHES.
7. PROVIDE BACKFLOW PREVENTION DEVICE ON OUTLET PIPES OF ALL WATER QUALITY INLET TANKS.



Channel Outlet Section

SCALE: N.T.S.

ISSUED FOR NOTICE OF INTENT

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
SOUTH COAST RAIL
DESIGN ENGINEERING AND PM/CM SERVICES
CONTRACT NO.

NEW BEDFORD MAIN LINE
WAMSUTTA LAYOVER AND TRACK PLAN DETAILS 2

ISSUE	DATE	DESCRIPTION	BY	CHKD.	APP.
	11-28-17	RTC CON. COMM. 11/20/17	RG	HF	RC
	11-15-17	RTC CON. COMM. 11/06/17	RG	HF	RC
	11-3-17	RTC CON. COMM. 10/20/17	RG	HF	RC

vhb HNTB
99 HIGH STREET
BOSTON, MA 02110
(617) 728-7777

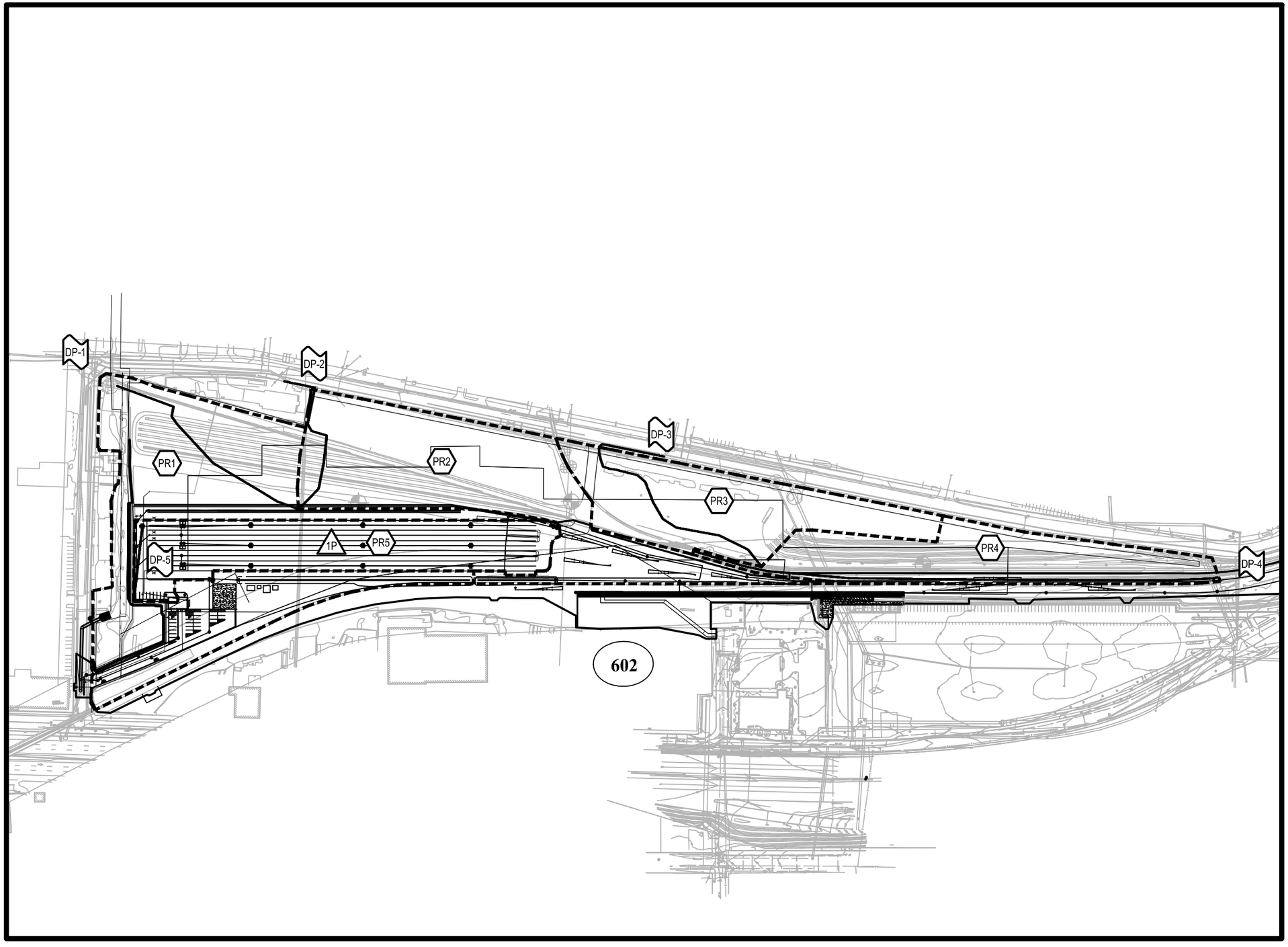
PROJECT MANAGER Date

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
APPROVED BY:
PROJECT MANAGER Date

HORIZ: NONE
VERT: NONE
DATE: 08/04/2017

DES. BY	DR. BY	CHK. BY
ADZ	RRD	KJC

PLAN NO.
SHEET CV-306
ISSUE



Legend

SYMBOLS

DP-1 — DESIGN POINT

PR2 — DRAINAGE AREA DESIGNATION

1P — POND

LINETYPES

DRAINAGE AREA BOUNDARY

TIME OF CONCENTRATION FLOW LINE

SCS SOIL CLASSIFICATIONS

602 — URBAN LAND

0 125 250 Feet

vhb

Proposed Drainage Areas

Figure 4

Wamsutta Layover
New Bedford, MA

12/11/2017