



MILLENNIUM ENGINEERING, INC.
Land Surveyors and Civil Engineers

October 14, 2021

Haverhill Conservation Commission
 City Hall, 4 Summer Street
 Haverhill, MA. 01830

Attn: Harmony Wilson, Chair

Re: Response to Peer Review Comments prepared by Comprehensive Environmental Incorporated
 October 5, 2021

Members of the Commission,

The following provides our response to review comments provided by the Comprehensive Environmental Incorporated in a letter dated October 5, 2021. We have included the review comment and our response to facilitate the Commission’s review.

No.	Comment / Response	
Standard 1		
	<i>Comment:</i>	<i>Deep sump catch basins, hydrodynamic separator (CDS) and subsurface infiltration systems are proposed to provide treatment.</i> <i>See comments below regarding TSS removal.</i>
	<i>Response:</i>	Please see our responses below regarding TSS removal.
Standard 2		
1.	<i>Comment:</i>	<i>The precipitation frequencies used in the HydroCAD model are not consistent with the current NOAA14 Precipitation Frequency Estimates. The NOAA14 frequencies are recommended to reflect the current range storm events used to model peak runoff flows for pre and post-development conditions. The model should be revised with the NOAA14 precipitation frequencies for each storm event.</i>
	<i>Response:</i>	The precipitation frequencies have been updated on both the pre and post development HydroCAD models.
2.	<i>Comment:</i>	<i>The total Pre-Development subcatchment area is greater than the Post-Development area in the HydroCAD model. The model should be revised with matching pre and post- subcatchment areas.</i>



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	Response:	The total area for the pre and post development have been revised so they are equal.
Standard 3		
4.	Comment:	<i>Soil test pits were not completed within the two subsurface infiltration system areas. CEI recommends performing test pits to confirm the estimated Seasonal High Groundwater (ESHGW) elevation at each of the proposed locations.</i>
	Response:	Addition test pits will be performed in infiltration area 1. Infiltration Area 2 in located within the footprint of the existing building.
5.	Comment:	<i>The two nearest soil test pits (T.PIT#19-1 and #19-4) indicate ESHGW is approximately 75" to 82" below the existing grade. The ESHGW elevation in the proximity of the subsurface infiltration systems is 11.75' to 12.2'.</i> <i>The proposed bottom of stone elevation for the subsurface infiltration systems (indicated on Sheet 9) is 13.0'. The stone elevation does not provide a minimum 2 foot of separation to ESHGW, as required by the Stormwater Handbook design guidelines for infiltration systems.</i>
	Response:	We will perform the additional test pits as requested and adjust the elevation of the infiltration area once we have the results of the soil testing.
6.	Comment:	<i>The Simple Dynamic Method was used to calculate the storage volume needed by the two subsurface infiltration systems to meet the recharge volume requirements. This method takes into account that exfiltration occurs while the storage chambers are filling during a storm event. As indicated in the Stormwater Handbook (Volume 3, Chapter 1, page 19), the Simple Dynamic Method can produce smaller storage requirements in sandy soils (HSG A), which is the case at this Site.</i> <i>Calculations provided in the Stormwater report indicate the proposed infiltration systems provide sufficient recharge volume. However, concern for separation to groundwater may limit the infiltration capacity of the proposed systems and ability to achieve the design rate. CEI recommends using the Static Method (assumes no infiltration occurs until the system is filled to the required recharge volume elevation) to size the infiltration systems. This is a more conservative approach that will provide additional storage volume to increase stormwater attenuation.</i>
	Response:	It is our opinion the use of the "Simple Dynamic Method" is acceptable. If a 2" separation to groundwater is not attained, then the infiltration areas will likely be



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		re-designed as detention areas. This project qualifies as a redevelopment project and the requirement for groundwater recharge is to the maximum extent practicable.
Standard 4		
3.	<i>Comment:</i>	<i>A TSS removal efficiency of 92% was included for the Contech CDS unit. A manufacturer TSS removal worksheet should be provided using the proposed waterquality volume (WQV) flow rate through the unit.</i>
	<i>Response:</i>	The requested worksheets have been provided and are included in the revised Stormwater Report.
Standard 5		
	<i>Comment:</i>	<i>The proposed project does not meet thresholds or characteristics of a LUHPPL.</i>
	<i>Response:</i>	No response required.
Standard 6		
	<i>Comment:</i>	<i>The Applicant has indicated there are discharges to Critical Areas. The Limit of NHESP Estimated and Priority Habitat Areas is identified on the plans. The proposed stormwater management design includes BMPs to provide treatment and prevent impacts to the CriticalAreas.</i>
	<i>Response:</i>	No response required.
Standard 7		
	<i>Comment:</i>	<i>The proposed project is considered a redevelopment and meets the definition outlined byStandard 7.</i>
	<i>Response:</i>	No response required.
Standard 8		
4.	<i>Comment:</i>	<i>The Applicant is required to submit NPDES Construction General Permit filing with EPA. The site owner and the contractor are each considered "operators" under that permit, and each will need to file an EPA Notice of Intent for coverage under that permit. Prior to filing a Notice of Intent, the applicant and its contractor must prepare a Stormwater Pollution Plan (SWPPP).</i>
		a. <i>The Applicant shall provide the Conservation Commission with a copy of theSWPPP before land disturbance commences.</i>



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		<p>b. <i>The Applicant shall provide the Commission with evidence that all "operators" (as defined in the NPDES Construction General Permit) have filed for coverage under the permit.</i></p> <p>c. <i>The Applicant shall obtain authorization from the Conservation Commission or its agent prior to filing a Notice of Termination under the EPA permit.</i></p>
	Response:	A SWPPP will be filed with the EPA prior to the start of construction and a copy will be submitted to the Conservation Agent.
5.	Comment:	<i>CEI recommends the installation of temporary fencing around the proposed infiltration areas to provide an additional visual indicator to prevent encroachment of construction equipment into the area.</i>
	Response:	Note 2 has been added to Sheet 3 of the plan set requiring temporary fencing be installed around the subsurface infiltration areas.
6.	Comment:	<i>Due to the close proximity to the Merrimack River, CEI recommends installation of erosion control blankets in areas that are disturbed where invasive plant removal and other construction activities that will occur along the embankment.</i>
	Response:	Note 16 has been added to the General Erosion Control Notes on Sheet 11.
7.	Comment:	<i>Include silt sock perimeter controls around the proposed temporary stockpile location.</i>
	Response:	Silt sock has been proposed around the soil stockpile areas.
8.	Comment:	<i>The silt sock installation detail should show overlapping ends with a minimum 2-foot requirement.</i>
	Response:	The silt sock detail has been revised to show the 2' overlap
9.	Comment:	<p><i>Catch basin inlet protection (e.g. silt sack) should be labelled for all proposed catch basins and any existing catch basins along Railroad Street that are adjacent to the Site.</i></p> <p>a. <i>Locations should be identified on the Open Space & Erosion Control Plan;</i></p> <p>b. <i>General Erosion Control Notes (Sheet 11) should include installation of silt sacks;</i></p> <p>c. <i>A detail of the inlet protection should be included on the plans.</i></p>



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	Response:	The locations of the inlet protection have added to the Erosion Control Plan. Note 17 has been added to the General Erosion Control Notes on Sheet 11. A detail of the silt sack has been added to Sheet 11.
10.	Comment:	<i>General Erosion Control Notes should include installation of construction entrance.</i>
	Response:	Note 18 has been added to the General Erosion Control Notes on Sheet 11.
11.	Comment:	<i>CEI recommends including temporary construction fencing along the limit of work to contain construction wastes and prevent impacts to adjacent properties.</i> <p style="text-align: center;">a. <i>Installation of temporary construction fencing should be included in the Construction Sequence.</i></p>
	Response:	Note 3 has been added to the General Notes on Sheet 3. The Construction sequence has been updated.
12.	Comment:	<i>Include location for concrete cleanout and drum wash water.</i> <p style="text-align: center;">a. <i>A detail of a containment structure should be added to the plans.</i></p>
	Response:	Concrete cleanout and drum washout areas will be addressed during the preparation of the SWPPP and once a site contractor has been selected.
13.	Comment:	<i>Snow storage locations during the construction period should be included on the plans.</i>
	Response:	Once a site contractor is selected, a plan for construction phase snow storage will be addressed. As with the post construction snow storage, it may be required that the snow has to be melted or removed from the site.
Standard 9		
14.	Comment:	<i>A standalone Long Term Pollution Prevention and Operation and Management Plan(O&M Plan) should be provided as a reference document for the facility owner(s) to review the property's stormwater management plan and BMP inspection and maintenance requirements.</i> <p style="text-align: center;">a. <i>Please refer to the Massachusetts Stormwater Handbook for information that should be included in the O&M Plan.</i></p>
	Response:	A stand-alone O & M has been provided with this submittal.
15.	Comment:	<i>A Site plan should be included in the O&M Plan to identify the locations of stormwater BMPs. Snow storage areas should also be identified on the plan at locations where snowmelt runoff will be directed to stormwater BMPs for</i>



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		<p><i>proper treatment.</i></p> <p style="text-align: center;">a. <i>Proper snow storage requirements should be outlined in the O&M Plan.</i></p>
	Response:	A Site Plan has been included in the O&M. Snow will need to be removed from the site.
16.	Comment:	<i>Outfall riprap apron inspection and maintenance procedures should require removal of sediment and debris and repair of any erosion channels or vegetation loss.</i>
	Response:	Riprap inspection and maintenance has been added to the O&M.
17.	Comment:	<i>Underground Detention System inspection and maintenance procedures should be included in the O&M Plan.</i>
	Response:	The underground detention system inspection and maintenance has been added to the O&M.
18.	Comment:	<i>Procedures for embankment inspection and repair of eroded areas should be included in the O&M Plan.</i>
	Response:	The embankment will be monitored during construction and until it is stabilized by the Environmental Monitor as part of the SWPPP.
Standard 10		
19.	Comment:	<i>Upon completion of the drainage system construction, the Applicant shall furnish documentation to the Conservation Commission, which states illicit discharge inspections were performed following the construction of the drainage system. Inspections are required prior to the discharge of any stormwater to post-construction BMPs.</i>
	Response:	No response required.
20.	Comment:	<i>Dumpster location should be included on the plans. The dumpster pad should include curbing to direct runoff to an adjacent catch basin for proper treatment.</i>
	Response:	Dumpster locations are shown on Sheet 3 of the plan set.
General Comments		
21.	Comment:	<i>The Grading and Drainage Plan (Sheet 4) includes a Flood Storage table of the Project's compensatory flood storage. It's difficult to identify these locations on the plans and would be helpful to show them as shaded areas</i>




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		<i>that correspond to the summary table.</i>
	Response:	A plan showing each elevation shaded has been provided with this submittal.
22.	Comment:	<i>The Infiltration Chamber Detail (Sheet 9) should include the size of crushed stone around the chambers. Washed crushed stone should be required for use in all infiltration BMPs.</i>
	Response:	The Stormtech detail has been revised to include the classification of stone required.
23.	Comment:	<i>Infiltration system inspection/cleanout port detail was provided. Cleanouts are needed for each row of chambers to provide proper maintenance access to remove sediment and debris.</i>
	Response:	Cleanouts are shown on the detail of the infiltration areas on Sheet 9.
24.	Comment:	<i>Plans of the proposed infiltration systems should be added to the plans that show the configuration of the chambers and header pipes. Locations of risers, inspection ports and cleanouts should be indicated on the infiltration chamber plans.</i>
	Response:	Details of the infiltration areas have been added to Sheet 9/
25.	Comment:	<i>Include outlet protection (e.g. riprap aprons) downstream of all outlet pipes along the embankment.</i> <i>a. A detail of the outlet protection, with sizing requirements, should be added to the plans.</i>
	Response:	A detail of the rip rap aprons has been added to the plan set.

We trust this response letter provides the necessary information for the Board’s consideration of the request for completeness. If you have any questions or comments, please feel free to contact our office at your convenience.

Sincerely,

Millennium Engineering, Inc.


 James Melvin, P.E.
 Project Manager

w/ Attachments