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July 21, 2021

Mary Ellen Schloss, Administrator
Weymouth Conservation Commission
75 Middle Street, 3rd Floor
Weymouth, MA 02189

**RE: Hanover Weymouth Residential Development
Response to CDG Peer Review Comments**

Dear Ms. Schloss:

Please review this letter, submitted in response to the comments provided by the Crocker Design Group (CDG) via email on July 14, 2021, regarding the peer review conducted by Comprehensive Environmental, Inc. (CEI) for the proposed development at 1325 Washington Street in Weymouth, Massachusetts. CEI offers the following recommendations to each comment response below.

Original comments provided by CEI are indicated in standard text with CDG's response in **bold text**, followed by CEI's responses in ***bolded red italics***.

Compliance with Stormwater Management Standards and Good Engineering Practice

Based on our review, CEI believes the project design addresses the Massachusetts Stormwater Standards and good engineering practice, as follows:

Standard 1: No New Untreated Stormwater Discharges

Standard 1 is partially met, provided the Applicant revises the proposed design to meet the treatment requirements set by Standards 4, 5, and 6 (see comments below).

The current design proposes comingling new impervious discharges from the Site with the existing drain manhole and catch basin series of structures along Washington Street (Route 53) to convey to the wetlands directly across Route 53 (Point of Discharge WD [PD WD]). CEI understands that the existing structures are within the jurisdiction of MassDOT and cannot be modified by any other party without permission and by permit. The MA Stormwater Handbook states that new discharges that tie into existing structures/systems require an Applicant to bring all components of the system, including outfalls, up to performance standards. The Applicant must confirm that the existing system has the capacity to accept increasing flows from new discharges or modify the conveyance in coordination with MassDOT. During the site visit, CEI was unable to visually inspect PD WD outfalls, as they appear to be partially or fully submerged in sediment. See comment for Standard 2, below, for additional observations.

CDG Response: The revised design complies with the treatment requirements on-site for a Land Use of Higher Potential Pollutant Loads (LUHPPL). Thus, the required oil/grit

separators have been added to the treatment trains to meet the 44% minimum pretreatment requirements for LUHPPL sites.

In addition, the redesign incorporates a 3-sided open bottom box culvert to convey the intermittent stream to the outfall into the wetland on the downstream side of the Washington Street Right-of-Way. The majority of this culvert has been designed to reside within the project boundaries and limits the segment of culvert that crosses the MassDOT Right-of-Way to the perpendicular crossing section. This configuration also creates the potential for water quality units to be installed in the Washington Street Right-of-Way to accommodate added treatment of the roadway runoff prior to entering the culvert, subject to MassDOT's review and approval.

Please see the enclosed revised Stormwater Analysis and Report with a revision date of 7/14/2021 as well as the revised Site Plans with revision date of 7/14/2021.

CEI RTC: Based on the provided Stormwater Report, Standard 1 is met. CEI notes that the proposed culvert design will necessitate minor wetland mitigation around the existing outfalls to remove sediment deposits prior to installation of the culvert. CEI recommends that a condition be set ensure these actions take place prior to installation.

Standard 2: Peak Rate Control

Based on Table 1.7.1 of the Stormwater Report, it appears that the site meets Standard 2. However, CEI notes that while Peak Rates are reduced from Pre to Post conditions, stormwater volumes flowing to PD WD effectively double in the 2-year storm from 22,383 c.f. to 41,324 c.f. Due to the conditions of the existing downstream system and outfalls below PD WD, CEI recommends that the Applicant confirm that this increase in volume will not result in both localized roadway and downstream flooding during storm events.

In order to provide the most recent rainfall data and peak flow modeling for the site, CEI recommends that the Applicant revise their peak rate calculations and other required stormwater modeling with more recent precipitation data provided in NOAA Atlas 14 (https://www.weather.gov/media/owp/oh/hdsc/docs/Atlas14_Volume10.pdf). NOAA Atlas 14 data reflects recent observable climate trends and ensures that the proposed subsurface detention basins are sized to attenuate and slow the more frequent and intense storm events associated with the changing climate. The 2, 10, 25, and 100-year 24-hour duration rainfall depths are provided in the table below.

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.302 (0.231-0.392)	0.376 (0.287-0.488)	0.497 (0.378-0.646)	0.597 (0.452-0.780)	0.735 (0.543-1.00)	0.837 (0.608-1.16)	0.948 (0.674-1.38)	1.08 (0.723-1.56)	1.28 (0.828-1.90)	1.46 (0.921-2.19)
10-min	0.428 (0.327-0.555)	0.533 (0.407-0.691)	0.704 (0.536-0.916)	0.847 (0.641-1.11)	1.04 (0.769-1.42)	1.19 (0.862-1.65)	1.34 (0.955-1.93)	1.53 (1.02-2.21)	1.82 (1.17-2.70)	2.06 (1.31-3.11)
15-min	0.504 (0.385-0.653)	0.627 (0.479-0.813)	0.829 (0.630-1.08)	0.996 (0.754-1.30)	1.23 (0.904-1.67)	1.40 (1.01-1.94)	1.58 (1.12-2.27)	1.80 (1.21-2.60)	2.14 (1.38-3.17)	2.43 (1.54-3.65)
30-min	0.700 (0.535-0.907)	0.872 (0.685-1.13)	1.15 (0.877-1.50)	1.39 (1.05-1.81)	1.71 (1.26-2.32)	1.94 (1.41-2.69)	2.20 (1.56-3.16)	2.51 (1.68-3.62)	2.98 (1.92-4.42)	3.38 (2.14-5.09)
60-min	0.896 (0.685-1.16)	1.12 (0.852-1.45)	1.48 (1.12-1.92)	1.77 (1.34-2.32)	2.19 (1.61-2.97)	2.49 (1.81-3.45)	2.82 (2.00-4.05)	3.22 (2.15-4.64)	3.82 (2.47-5.66)	4.33 (2.74-6.53)
2-hr	1.14 (0.872-1.46)	1.44 (1.10-1.85)	1.92 (1.47-2.48)	2.33 (1.77-3.02)	2.88 (2.14-3.90)	3.29 (2.40-4.54)	3.74 (2.68-5.34)	4.29 (2.88-6.13)	5.13 (3.33-7.54)	5.86 (3.72-8.74)
3-hr	1.32 (1.01-1.69)	1.66 (1.28-2.13)	2.23 (1.71-2.88)	2.69 (2.05-3.48)	3.34 (2.48-4.50)	3.81 (2.79-5.24)	4.33 (3.11-6.17)	4.97 (3.34-7.07)	5.96 (3.87-8.70)	6.81 (4.33-10.1)
6-hr	1.73 (1.33-2.20)	2.15 (1.66-2.73)	2.83 (2.18-3.62)	3.40 (2.61-4.36)	4.19 (3.13-5.59)	4.77 (3.50-6.49)	5.40 (3.88-7.60)	6.17 (4.16-8.69)	7.36 (4.79-10.6)	8.38 (5.35-12.3)
12-hr	2.26 (1.76-2.86)	2.75 (2.13-3.48)	3.55 (2.74-4.50)	4.21 (3.24-5.36)	5.12 (3.83-6.77)	5.79 (4.26-7.79)	6.52 (4.70-9.07)	7.40 (5.01-10.3)	8.73 (5.71-12.5)	9.86 (6.31-14.3)
24-hr	2.77 (2.16-3.48)	3.35 (2.61-4.21)	4.31 (3.35-5.43)	5.10 (3.94-6.45)	6.19 (4.65-8.12)	7.00 (5.17-9.34)	7.87 (5.69-10.8)	8.92 (6.06-12.3)	10.5 (6.88-14.8)	11.8 (7.59-17.0)
2-day	3.16 (2.47-3.94)	3.88 (3.04-4.84)	5.06 (3.94-6.33)	6.04 (4.68-7.58)	7.38 (5.58-9.61)	8.38 (6.22-11.1)	9.46 (6.87-12.9)	10.8 (7.34-14.7)	12.7 (8.38-17.9)	14.4 (9.30-20.5)
3-day	3.46 (2.71-4.29)	4.23 (3.32-5.26)	5.50 (4.30-6.85)	6.55 (5.09-8.19)	7.99 (6.05-10.4)	9.06 (6.74-11.9)	10.2 (7.44-13.9)	11.6 (7.94-15.8)	13.7 (9.06-19.1)	15.6 (10.0-22.0)
4-day	3.73 (2.94-4.63)	4.53 (3.56-5.62)	5.83 (4.57-7.25)	6.92 (5.39-8.82)	8.40 (6.37-10.9)	9.51 (7.08-12.5)	10.7 (7.79-14.5)	12.1 (8.31-16.4)	14.3 (9.46-19.9)	16.2 (10.5-22.7)
7-day	4.50 (3.55-5.54)	5.32 (4.20-6.56)	6.67 (5.25-8.24)	7.79 (6.09-9.66)	9.34 (7.10-12.0)	10.5 (7.83-13.6)	11.7 (8.54-15.7)	13.2 (9.05-17.7)	15.4 (10.2-21.1)	17.3 (11.2-24.0)
10-day	5.21 (4.12-6.39)	6.05 (4.79-7.44)	7.44 (5.86-9.16)	8.59 (6.73-10.6)	10.2 (7.75-13.0)	11.4 (8.49-14.7)	12.6 (9.19-16.7)	14.1 (9.70-18.8)	16.2 (10.8-22.2)	18.1 (11.7-25.0)
20-day	7.27 (5.78-8.86)	8.20 (6.51-10.0)	9.73 (7.70-11.9)	11.0 (8.65-13.5)	12.7 (9.71-16.0)	14.1 (10.5-17.9)	15.4 (11.2-20.0)	16.9 (11.7-22.3)	18.8 (12.6-25.4)	20.4 (13.3-27.9)
30-day	8.99 (7.16-10.9)	9.99 (7.95-12.1)	11.6 (9.22-14.1)	13.0 (10.2-15.8)	14.8 (11.3-18.5)	16.3 (12.2-20.5)	17.7 (12.8-22.7)	19.1 (13.3-25.1)	21.0 (14.0-28.1)	22.3 (14.6-30.4)
45-day	11.1 (8.91-13.5)	12.2 (9.76-14.8)	14.0 (11.1-17.0)	15.4 (12.2-18.8)	17.5 (13.3-21.6)	19.0 (14.2-23.8)	20.6 (14.8-26.1)	22.0 (15.3-28.6)	23.7 (15.9-31.5)	24.8 (16.2-33.6)
60-day	13.0 (10.4-15.6)	14.1 (11.3-17.0)	16.0 (12.7-19.3)	17.5 (13.9-21.2)	19.6 (15.0-24.2)	21.3 (15.9-26.5)	22.9 (16.5-28.9)	24.3 (17.0-31.5)	25.9 (17.4-34.4)	27.0 (17.7-36.3)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

NOAA Atlas 14 Point Precipitation Frequency Estimates: MA; South Weymouth NAS Station: https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ma

CDG Response: The hydrology analysis has been re-run utilizing the NOAA Atlas 14 Rainfall Data as recommended. Please refer to Section 3 of the revised Stormwater Analysis and Report for copies of the HydroCAD output for both the existing and post-development conditions analysis.

Two additional recharge systems have been added into the design including UG-4B and UG-1B. These additional recharge systems that now provide for more recharge than required under Standard 3 – Recharge. We provide a more descriptive response under the Standard 3: Recharge section on the next page.

The receiving wetland system directly downstream is approximately 10-acres in size and ultimately discharges through two large culvert systems, including Colonel’s Lane which includes two (2) 4.5’x4.5’ square culverts and Colonel’s Drive which includes two 6’ wide by 3’ tall open bottom arches. The Colonel’s Lane culvert capacity we estimated to be more than 280 CFS and the Colonel’s Drive capacity we estimate to be over 300 CFS. This project will result in a net decrease in peak rate in the 100-year storm event of 12 CFS (19.93 CFS Existing

vs. 7.93 CFS Proposed) ultimately discharging toward these culverts, and thus taking pressure off of these downstream culverts. In addition, in the highly unlikely event that both outlets were completely blocked, and no water was allowed to flow out of the wetland system, the additional volume in the 100-year storm event (15,900 +/- cubic feet) would only amount to 0.36 inches of depth across the wetland system, which is diminimus. Based on the above, it is our professional opinion that the project will not adversely impact the downstream wetland system and will have a net positive impact on the downstream capacity of the existing culverts.

Lastly, the project includes the addition of an open-bottom box culvert to connect the intermittent stream to the downstream wetland system as can be seen on the revised Grading and Drainage Plans. This culvert system coupled with the proposed curb, gutter and sidewalk improvements within the Washington Street Right-of-Way will address the current sediment travel and deposits that currently occur into the downstream wetland system due to the lack of formal runoff controls within the roadway today, which will help ensure the downstream wetland capacity is consistently maintained over time.

CEI RTC: Standard 2 is met for Peak Rate Attenuation. As per the discussion regarding Standard 2 during the design meeting on July 8, 2021, CEI notes that dry wells may be used for non-metal roof infiltration, if desired.

Standard 3: Groundwater Recharge

Due to the presence of D soils and bedrock on-site, the Applicant is requesting a waiver to meet Standard 3 to the maximum extent practicable. Subsurface infiltration system UG-5 provides 6,858 c.f. of recharge. The calculations provided in section 4.1 of the Stormwater Report state that the total recharge volume required for the Site is 9,914 c.f.

Based on the information provided, CEI believes that subsurface systems UG-6, UG-1, and UG-2 have access to groundwater and are not limited by bedrock. However, there are resource area setbacks and groundwater depth setbacks that may prohibit one or more of these structures from infiltrating. No alternatives analyses were provided.

CDG Response: The stormwater system has been redesigned to increase the recharge capacity in through the addition of two new underground recharge systems, UG-1B and UG-4B. The total recharge volume required is computed to be 9914 CF and the total now provided is 21,833 CF, thus the project now complies with the required recharge volume amount. Refer to Section 4.1 in the revised Stormwater Report.

CEI RTC: Comment addressed, Standard 3 is now met.

Standard 4: Water Quality

a. Water Quality Volume Calculations

The Applicant did not provide a water quality volume (WQV) calculation. Section 4.3 of the Stormwater Report provides a table with water quality unit (WQU) and isolator row (IR) removal rates and flows to prove appropriate sizing. CEI notes that treatment BMPs are sized by volumes,

not expected runoff flows. The 1-inch rule applies to this site because it is a LUHPPL (see Standard 5).

CDG Response: The table in Section 4.3 of the revised Stormwater Report has been updated accordingly. The table now also includes the computations for water quality volume as discussed at our meeting last week. In addition, the table addresses the sizing requirements for the oil/grit separators that have been added to the treatment trains throughout the plan set to confirm the tank meets the sizing criteria.

CEI RTC: Comment addressed.

b. TSS Removal

The project site was incorrectly excluded from Standard 5. As a result, none of the proposed treatment trains are receiving 44% pretreatment and no oil/grit separators are in use. While each treatment train is expected to meet the required 80% TSS removal, based on the provided documentation, this Standard is not met.

CDG Response: The Applicant has revised the design to comply with the 44% pre-treatment requirements which now include oil/grit separators.

CEI RTC: Comment addressed.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPL)

This Site will see an excess of 1,000 vehicle trips per day, which requires the Site to be treated as a LUHPPL. Stormwater runoff requires 44% TSS pretreatment. Standard 5 is not met.

CDG Response: The site design has been updated to provide the 44% TSS pretreatment as recommended through the addition of oil/grit separators downstream of the deep sump hooded catch basins. In addition, the rear overflow parking lot, in our opinion, will experience significantly less than 1,000 ADT and as such, it is our opinion that this lot is not a LUHPPL. For that lot in particular, the updated design incorporates the use of a porous pavement cross section per UNH design specifications. This section meets the 80% TSS requirements and provides an opportunity for recharge in the vicinity of locally jurisdictional vernal pool (quarry hole). We note that no “credit” has been taken from a hydrology standpoint (still assumed to be impervious in the HydroCAD model) and the recharge volume is not credited toward the volume being provided in the stormwater calculations.

CEI RTC: Comment addressed. CEI recommends that a condition be set for the porous paved area to include an emergency shut-off/clean-out for the underdrain, in the event of a vehicle fluid spill, due to the proximity of environmental resource areas.

Standard 6: Critical Areas

Although the vernal pool on-site has not been certified through the Massachusetts Natural Heritage and Endangered Species Program (NHESP), CEI's understands that the vernal pool is potentially certifiable based on Conservation Commission observations and photographs of obligate species which meet the NHESP biological criteria. CEI recommends that the performance standards for Standard 6 should be applied to the extent practicable with regard to the vernal pool, pending potential future certification. CEI notes that submittal of a Vernal Pool Observation Form to NHESP requires a property owner signature.

CDG Response: The Applicant is generally agreeable to a condition that requires future monitoring and certification following project completion and Certificate of Occupancy. The Applicant will prepare draft special condition accordingly for the Commission's consideration and will circulate shortly to CEI and Mary Ellen Schloss for consideration.

CEI RTC: CEI recommends that a condition be set to allow Weymouth Conservation Commission, and/or any contracted agent, access to the vernal pool between February and March 2022 for documentation of breeding obligate vernal pool species, for the purpose of official certification. If the Massachusetts Division of Fisheries and Wildlife Guidelines for Vernal Pool Certification criteria are met (<https://www.mass.gov/doc/guidelines-for-the-certification-of-vernal-pool-habitat/download>), CEI recommends that the Applicant be required to establish a monitoring and protection plan that documents vernal pool health for the first one (1) year out from the onset of construction activities. At such point, the Commission may choose to review the status of the vernal pool and determine if additional protective measures shall be required.

Standard 7: Redevelopment

Standard 7 is not applicable.

Standard 8: Construction Phase Erosion and Sediment Controls

Soil stockpile locations should occur outside of resource area buffer zones. Sheet C-6 of the plan set shows numerous proposed soil stockpiles up to the 25-foot buffer for wetland resource areas.

CDG Response: Please see the revised Sheet C-6. The stockpile locations have been shown in locations that avoid building footprints and subsurface drainage system locations and have been sited as far from the wetland areas as practicable. Also, as discussed, the stockpile locations identify the use of wire-backed silt fence to surround the stockpiles on Sheet C-6.

CEI RTC: Comment addressed. CEI Recommends that a condition be set to require the use of wire-backed silt fencing for all stockpiles within 100-feet of resource areas.

Standard 9: Operation and Maintenance

The Operations and Maintenance (O&M) Plan should provide information about the intended use and storage of road salt and other de-icers, including areas where salt and de-icers will not be used to minimize pollutant loads to wetlands.

CEI notes that a Stormwater Pollution Prevention Plan (SWPPP) will be required for this site, as land disturbances (including grading and fill) will exceed 1-acre.

CDG Response: The O&M plan has been revised to address de-icing chemicals. As discussed, the O&M now indicates the use of magnesium chloride as an alternative to sodium chloride on standard pavement and sidewalks. A section was also added to address the porous pavement and to identify the use of anti-icing agent (brine solution) rather than de-icing chemicals.

CEI RTC: CEI recommends a condition be set to restrict the site to use of magnesium chloride solely for ice and snow control, except in the porous pavement lot where a dilute brine solution may be used. CEI recommends that darker colored permeable or porous pavers/asphalt be used, as solar energy can help reduce winter maintenance costs/alternative de-icing methodologies. CEI also recommends that a condition be set to control dewatering of the pool activities from affecting nearby resource areas.

Standard 10: Prohibition of Illicit Discharges

Standard 10 is met.

CDG Response: Comment acknowledged.

CEI RTC: Noted.

II. Stormwater Management Design

1. Upon reviewing the provided table, CEI notes that the contributing drainage areas and percent impervious coverage did not all match the values provided in the HydroCAD model. For example:

Basin/Isolator Row	Section 4.3 Table		HydroCAD	
	Drainage Area(acres)	% Impervious	Drainage Area(acres)	% Impervious
UG-1/IR-1	0.65	36%	1.14	58%
UG-2/IR-2	0.38	71%	0.38	69%
UG-3/IR-3A+3B	0.79	3A: 61%; 3B: 76%	1.08	88%
UG-4/IR-4	0.39	90%	0.59	92%
UG-5/IR-5	1.48	77%	1.48	78%
UG-6/IR-6	1.00	62%	1.00	79%
UG-7/IR-7	1.16	86%	1.17	81%
WQ	0.45	93%	0.45	92%

CDG Response: The table in the HydroCAD report has been revised. Please note the table and HydroCAD will differ in that the table is specific to the paved areas that require treatment and thus excludes building roof area, whereas HydroCAD includes both paved areas and roof area.

CEI RTC: Noted, however CEI would like to identify the issue with routing roof runoff through Proprietary Separators lies in the volume for treatment. As the redesign has done, CEI always recommends directing roof runoff through different structures than the structures required to meet TSS removal.

2. The observed existing stormwater structures on Washington Street were approximately 90% full of water/potentially sediment, the cause of which was unclear. CEI recommends that the Applicant inquire with MassDOT for permission to inspect, clean, and map these structures accurately and as noted before ensure that the system has adequate capacity to handle the runoff from the proposed development without adversely impacting the resource area or exacerbating historic downstream flooding.

CDG Response: The Applicant is proceeding with coordination with MassDOT and had a positive initial meeting with them. The Applicant anticipates the Order of Conditions from the Commission would include a condition requiring the Applicant obtain a Stormwater Permit from MassDOT. The Applicant is preparing a series of draft special conditions for the Commission's consideration, including this one, and will circulate to CEI and Mary Ellen Schloss shortly.

CEI RTC: CEI recommends that the Applicant be required to obtain a Stormwater Permit from MassDOT for the proposed design solution that incorporates an approved 3-sided box culvert design, or equivalent. If MassDOT denies this portion of the project, for any reason, the Applicant will be required to appear before this Board again and seek permitting for any subsequent redesigns. The proposed Washington street drainage work and culvert replacement must be completed prior to any discharge of new impervious surface runoff or the proposed drainage system to the hydrologically connected wetland series along the eastern edge of the site towards PD WD.

3. The Applicant does not discuss proposed onsite usage of pesticides and/or herbicides for landscaped areas, other than the "First-Line Defense" to be organic-based chemicals provided by the party responsible for maintenance. Due to close proximity to resource areas, CEI recommends that use and storage of pesticides and/or herbicides be clearly outlined in the O&M manual and restricted within buffer zones.

CDG Response: The O&M has been revised to address the use of organic herbicides and pesticides and recommends the selection be from the Organic Materials Review Institute (OMRI). Please see Section 5 of the Stormwater Report for the revised Long Term Operation & Maintenance Plan.

CEI RTC: CEI recommends that a condition be to set to limit the use of herbicide and pesticide application solely to OMRI approved chemicals.

4. The following subsurface detention structures and the associated test pit (SHTP), while proposed to be lined, have less than 2 feet of separation to estimated seasonal high groundwater (ESHGW):
 - a. UG-1 bottom of stone EL:83, ESHGW EL: 82.5 [SHTP-113]
 - b. UG-2 bottom of stone EL:82, ESHGW EL: 81.5 [SHTP-112]

- c. UG-6 bottom of stone EL:111.8, ESHGW EL: 113.5 [SHTP-10]

CDG Response: The revised design includes three (3) systems that meet the required two-feet of separation to groundwater including UG-1B, UG-4B and UG-5. These three systems have been designed to accommodate stormwater recharge. The rest of the underground systems have less than the 2' separation and thus have not been credited with any stormwater recharge and have been designed to be lined systems.

CEI RTC: CEI agrees that the infiltrating structures have been redesigned to provide 2 feet of separation to groundwater. However, comment 4.c. above identified that structure UG-6 is proposed to be placed below the high groundwater elevation, which poses additionally engineering concerns.

5. The Applicant proposes grading for a plunge pool/level spreader stormwater outlet within the 25-foot “no disturb” buffer zone for Wetland Series “E”. CEI recommends that this grading and outlet be moved outside the 25-foot buffer, with additional natural outlet protection down-gradient of the proposed discharge.

CDG Response: The discharge has been pulled back outside the 25-foot buffer zone accordingly. The detention system which drains to this outlet was redesigned to accommodate a higher discharge elevation to help accomplish this. In addition, the Soil Erosion and Sedimentation Control Plan has been updated to incorporate two layers of silt sock at the outfall in order to provide added protection to allow the buffer enhancement area to fully establish stable vegetation prior to the removal of the silt socks.

CEI RTC: Comment addressed.

6. The Applicant proposes tying into an existing stormwater conveyance system on Washington Street that is actively culverting the intermittent stream leaving the site. This stream/wetland channel has hydrologic connection with Wetland Series “E”. Approximately 41,324 cf of runoff (in a 2-year storm) is proposed to be discharged to these hydrologically connected areas and, ultimately, flow to the wetlands across Washington Street, which eventually converge with the Plymouth River. For this design to be feasible the Applicant should:
- Coordinate with MassDOT to ensure the existing system has the capacity and performance capability to accept the proposed runoff without surcharging or causing further damage to the resource(s).
 - Ensure that the proposed runoff to the existing downstream wetlands are not resulting in increased flooding to areas outside the limit of study.
 - Ensure that sedimentation from the project into downstream wetlands does not occur.
 - Provide aquatic organism passage, to promote continuous connectivity between resource areas.

CDG Response: The enclosed plan redesign incorporates a 3-sided open bottom box culvert to convey the intermittent stream to the outfall into the wetland on the downstream side of the Washington Street Right-of-Way. The majority of this culvert has been designed to reside

within the project boundaries and limits the segment of culvert that crosses the MassDOT Right-of-Way to the perpendicular crossing section. This configuration also creates the potential for water quality units to be installed in the Washington Street Right-of-Way to accommodate added treatment of the roadway runoff prior to entering the culvert, subject to MassDOT's review and approval. The 3-sided, open bottom box culvert design will allow for aquatic organism passage from the intermittent stream to the downstream wetland system.

The receiving wetland system directly downstream is approximately 10-acres in size and ultimately discharges through two large culvert systems, including Colonel's Lane which includes two (2) 4.5'x4.5' square culverts and Colonel's Drive which includes two 6' wide by 3' tall open bottom arches. The Colonel's Lane culvert capacity we estimated to be more than 280 CFS and the Colonel's Drive capacity we estimate to be over 300 CFS. This project will result in a net decrease in peak rate in the 100-year storm event of 12 CFS (19.93 CFS Existing vs. 7.93 CFS Proposed) ultimately discharging toward these culverts, and thus taking pressure off of these downstream culverts. In addition, in the highly unlikely event that both outlets were completely blocked and no water was allowed to flow out of the wetland system, the additional volume in the 100-year storm event (15,900 +/- cubic feet) would only amount to 0.36 inches of depth across the wetland system, which is diminimus. Based on the above, it is our professional opinion that the project will not adversely impact the downstream wetland system and will have a net positive impact on the downstream capacity of the existing culverts.

This culvert system coupled with the proposed curb, gutter and sidewalk improvements within the Washington Street Right-of-Way will address the current sediment travel and deposits that currently occur into the downstream wetland system due to the lack of formal runoff controls within the roadway today, which will help ensure the downstream wetland capacity is consistently maintained over time.

CEI RTC: Comment addressed with 3-sided box culvert design.

III. Construction Phase Pollution Controls

1. The stormwater report and site plans should specify the final destination of any stockpiled material. If the stockpiled material will not be used onsite, the applicant should remove the material according to regulations. The plan should also specify any proposed practices to stabilize temporary soil stockpiles. If the practices do not provide for routine covering of soils stockpiles with tarps, we recommend a condition of approval that, in the event the specified practices do not adequately control wind and water-borne erosion of the stockpiles, the Town may require the applicant to cover stockpiles at the end of each working day with anchored tarps which should remain in place when the stockpiles are not being actively used.

CDG Response: The Erosion and Sedimentation Control Plan now identifies wire backed silt fence in the plan view around every pile as well as everywhere silt fence is proposed around the project perimeter. The project goal will be to reuse existing soil, rock and gravel materials on site to the maximum extent possible. The Applicant is amenable to a condition as suggested and is preparing a series of draft special conditions for the Commission's consideration, which they will circulate shortly to Mary Ellen Schloss and CEI for review and input.

CEI RTC: Comment addressed.

2. This site will require a National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) and a Stormwater Pollution Prevention Plan (SWPPP).

CDG Response: We concur. As discussed at the meeting last week, the Applicant is amenable to a special condition requiring the submittal of the draft SWPPP to the Commission and CEI prior to commencement of construction. The Applicant is preparing a series of draft special conditions for the Commission's consideration, which they will circulate shortly to Mary Ellen Schloss and CEI for review and input.

CEI RTC: Noted.

3. CEI notes that a portion of the proposed constructed sloped areas onsite may prohibit the sole usage of silt fencing, and may require additional control measures, such as Erosion Control Blankets (ECBs). This includes areas where the grade within the Limit of Work of the proposed retaining wall technically sits lower in elevation than the existing grade on the outside.

CDG Response: The revised Erosion and Sedimentation Control Plan includes Note #1 which requires seeding or installation of jute netting to prevent erosion. In addition, erosion control measures throughout the perimeter of the project have been refined to include single or double rows of 12" silt sock where appropriate in addition to wire-backed silt fencing.

CEI RTC: Comment addressed. CEI recommends that a condition be set to require the use of ECBs when slopes have a grade of 3:1 or greater.

4. The Applicant does not provide details in the stormwater prevent to prevent ledge blasting debris from entering on-site resource areas, particularly near Wetland Series "E".

CDG Response: We have added Note #19 to the revised Erosion and Sedimentation Control Plan that requires the use of blast mats to prevent rock from being displaced into wetlands and wetland buffer areas to be preserved.

CEI RTC: Comment addressed.

IV. Miscellaneous

Bordering Vegetated Wetlands (BVW) and Isolated Vegetated Wetlands (IVW):

The proposed project includes filling 4,400 square feet of IVW and proposes grading and construction up to the 25-foot buffer to on-site BVW. CEI notes the following:

- The original plan set includes sheets W-1 through W-3, detailing wetland mitigation proposals and buffer enhancement areas. The Applicant proposes a wetland replication area of 5,100 square feet and an adjacent buffer enhancement area of 3,000 square feet. CEI notes that during the Site Walk, conversation between the Applicant and the Town expressed a potential alternative to waive replication requirements in lieu of more comprehensive buffer enhancement activities. CEI recommends that the Applicant provide more a detailed buffer

enhancement narrative, included phasing, restoration monitoring, and protective measures to prevent residents from interfering with ongoing enhancements.

CDG Response: The revised plan set eliminates the proposed combination of wetland replication and buffer enhancement and now proposes entirely buffer enhancement. Please refer to revised Sheets W-1 and W-2 accordingly. This plan results in approximately 9,500 square feet of buffer enhancement, exceeding 2:1 area as proposed mitigation for the proposed filling of the two locally jurisdictional isolated vegetated wetlands.

As you'll see, the Applicant has obtained permission from the seller to preserve additional buffer area in the rear corner of the site and has extended the buffer enhancement and preservation into that area. The plans include an easement to address construction, access and future maintenance of this area.

The design revisions result in an average wetland buffer along Wetland E of 66 feet and along the intermittent stream of 44 feet respectively, exceeding the 25' minimum required for multi-family projects.

CEI RTC: CEI has reviewed the revised buffer enhancement plan and has no further comment for the Commission. CEI recommends a condition be set to require the Applicant to install signage that informs residents of sensitive environmental resource areas and prohibits their access to certain areas on-site.

- Any temporary impacts to BVW should be restored in-place and in-kind. This should include (1) re-grading and raking of any BVW areas where soils have been disturbed and/or compacted during construction activities and (2) re-establishment of native wetland vegetation in any areas where BVW vegetation has been damaged. At minimum, re-vegetation should include seeding with a native wetland seed mixture such as New England Wetmix from New England Wetland Plants, Inc. Temporary impacts to the 25-foot "no disturb" buffer zone soils should also be restored and reseeded with a native upland grass mix to minimize sediment runoff into resource areas.

CDG Response: This recommendation has been added as Note # 20 on the revised Erosion and Sedimentation Control Plan.

CEI RTC: Comment addressed.

- A small culvert (~10 to 12-inch diameter) exists on-site at the convergence of Wetland Series "E" and "F". CEI observed the culvert to be concrete on the downstream end and ductile iron on the upstream end and was approximately 50% full of standing water. CEI recommends that this culvert be replaced with an 18-inch or greater diameter culvert of uniform material.

CDG Response: This culvert is now proposed to be replaced accordingly. Please refer to the revised Grading and Drainage Plans and Buffer Zone Restoration and Enhancement Plans.

CEI RTC: Comment addressed.

Planting Plan: The Landscape Planting Plan presented on Sheets C-4 and C-4.1 of the Site Development Plans references the following comments:

- Non-Native and Invasive Species: Much of the upland landscaped area is within the resource area buffer zones. The following species are not native to the region and/or have potentially invasive characteristics, and CEI recommends either eliminating them from the planting plan or replacing with native species:
 - Miscanthus sinensis ‘Yaku Jima’: invasive ornamental grass species.
 - Pachysandra terminalis: invasive groundcover species.
 - Catharanthus roseus: invasive groundcover species.

CDG Response: The Landscape Plans have been revised accordingly and the plant species listed above have been removed from the plant list accordingly. Also, as discussed at last week’s meeting, the Lighting Plan was revised to call for full cut off, directional shields on all perimeter lighting adjacent to wetland resource areas.

CEI RTC: Comment addressed.

If you have any additional questions or require any further information, please do not hesitate to contact Elisha Musgraves or Matt Lundsted at 508-281-5160.

Sincerely,

Comprehensive Environmental, Inc.



Elisha Musgraves, Review Engineer



Matthew Lundsted, P.E.

Principal