



May 17, 2019  
(revised June 19, 2019)

Ms. Bridget Graziano  
Medway Conservation Agent  
Medway Town Hall  
155 Village Street  
Medway, MA 02053

**Re: 39 Main Street  
Stormwater Review  
Medway, Massachusetts**

Dear Ms. Graziano:

Legacy Engineering LLC (LEL) has submitted revised documents in response to comments included in our May 17, 2019 letter. The updated submittal included the following materials:

- A plan (Plans) set titled "39 Main Street Site Plan of Land", dated October 11, 2018, revised June 10, 2019, prepared by Legacy Engineering LLC. (LEL)
- A stormwater management report (Stormwater Report) titled "Stormwater Report for 39 Main Street, Medway, MA 02053" dated March 26, 2019, revised June 10, 2019, prepared by LEL.
- A response to comments letter dated June 14, 2019, prepared by LEL

The materials were reviewed against comments provided in our previous letter (May 17, 2019) and updated comments are provided below. Text shown in gray represents information contained in previous correspondence while new information is shown in black text.

Comments which have been addressed to our satisfaction and require no additional responses or documentation are noted with the phrase "Comment resolved" and will be removed from subsequent comment letters to ensure an efficient review process. Additionally, comment numbering will be maintained throughout.

## **Comments**

### Stormwater

The Site Plans depict a comprehensive system of infrastructure collecting and conveying runoff to on-site mitigation prior to final discharge. The proposed stormwater design was reviewed against the Massachusetts Department of Environmental Protection's (MA DEP) Stormwater Standards (Standards) and appurtenant Stormwater Handbook (Handbook) and good engineering practice. The following specific comments are offered specific to the Project Stormwater design and related analysis.

1. We recommend the applicant consider using National Oceanic and Atmospheric Administration (NOAA) Atlas 14 precipitation frequency estimates in the stormwater analysis of the site. MassDEP is currently reviewing studies conducted recently by NOAA and the 2008 Northeast Regional Climate Center (NRCC) for potential amendments to the Stormwater Handbook. Applying these new estimates to the site will ensure the site is designed with the present and future in mind to prevent flooding, provide greater climate change resiliency for the site and protect the safety of on-site residents and downstream resource areas.

TT 6/19/19 Update: The response letter indicates using the larger design storms from NOAA Atlas 14 precipitation frequency estimates would result in “substantive additional construction expenses, which is not appropriate for a low-income housing project.” Current stormwater system is designed using the current MassDEP approved design storms. Our original comment was a recommendation and not a requirement and the proposed stormwater design reflects current regulations. Comment resolved.

2. We recommend the applicant include the 25-year storm event in the analysis to confirm storm drain infrastructure is sized to convey stormwater during this event. Additionally, the applicant should provide grate sizing calculations to confirm flooding does not occur at the catch basins during this event.

TT 6/19/19 Update: The 25-year storm has been provided in the Stormwater Report. Grate sizing calculations have also been provided. Comment resolved.

3. The applicant provided test pit information at proposed Infiltration Field (IF) locations. Test pits conducted at IF#1 show a loamy sand (2.41 in/hr Rawls rate), sand and fill at the bottom elevation of the system at each test pit location. The applicant shall remove fill material beneath the system to native soils and backfill with suitable material (the Applicant has provided provision for this in the Infiltration Trench/Field Detail). The applicant shall also use the Rawls rate associated with the loamy sand in the analysis as opposed to the higher conductive sand layer due to it being the most restrictive layer found in the test pits at the proposed bottom elevation of the system. This condition is similar for IF#2 where loamy sand was encountered at the proposed bottom elevation of that system.

TT 6/19/19 Update: IF#1 has been separated into two fields in the revised design to appropriately reflect soil conditions encountered within the limit of each field. The applicant's engineer states that conditions found within the limits of the originally designed field at OTH 7 reflect soil conditions at the fringe of the system and that OTH 9 and 22 more accurately reflect conditions within the limits of much of the system. IF#2 has been updated to reflect a Rawl's rate for loamy sand (2.41 in/hr) in the analysis.

In an effort to simplify the design and construction (and subsequent inspection, maintenance, etc.) of the proposed infiltration field we recommend the applicant provide one continuous system in the design and the Commission provide a Condition for the applicant to confirm soil conditions within the limits of IF#1 during construction. If at that time soil conditions are not representative of the analysis provided, the design should then be modified to reflect those conditions.

Comment not resolved.

4. Groundwater elevations not present in test pits (OTH 19, OTH 20) for IF#2. However, the applicant mentions groundwater elevation in the mounding analysis portion of the Stormwater Report. Please provide all test pits conducted at the system locations if test pits confirmed groundwater under the proposed system.

TT 6/19/19 Update: Groundwater elevations assumed to be at the bottom of the test pit for conservative design purposes in the mounding discussions. Comment resolved.

5. Third party testing documentation is required for the First Defense proprietary separators (including inlet separators) to document TSS removal rates associated with water quality calculations for Standard 4. Furthermore, we request sizing calculations be provided to ensure these units are sized to accommodate flow from upstream catchment areas.

TT 6/19/19 Update: Third party testing documentation and sizing calculations have been provided. Comment resolved.

6. The project is considered a Land Use with Higher Potential Pollutant Load (LUHPPL) since it generates greater than 1,000 vehicle trips per day (as provided in the November 2018 Transportation Impact Assessment). The applicant shall provide required information to meet requirements for Standard 5.

TT 6/19/19 Update: The applicant has provided a narrative related to Standard 5 and the site had previously been designed to a point where it met the standard. Comment resolved.

7. We recommend the applicant provide greater detail on proposed SWPPP Plans. The Plans should provide construction related phasing including laydown areas, stockpiles, equipment fueling, temporary sediment basins, etc.

TT 6/19/19 Update: Plans have been updated accordingly. Comment resolved.

8. We recommend including greater inspection frequency of area drains located along the west side of the building in the fall months due to potential for being clogged by leaves and debris which may cause flooding in this area.

TT 6/19/19 Update: Language regarding removal of leaves and debris has been added to the O&M Plan and inspection frequency for the area drains located along the western portion of the building have been increased to weekly. Comment resolved.

9. We recommend the applicant provide one-foot of freeboard from the 100-year peak elevation in the proposed IF's. Freeboard is typical of basin applications and provides relief for inconsistencies in design. Additionally, monitoring wells are required to be installed at the systems and should be included in the Plans.

TT 6/19/19 Update: The applicant's engineer indicates that freeboard is provided in open basins, but not necessary for subsurface infiltration basins since they do not contain an embankment condition and is willing to provide 3-inches of freeboard in the system. We are in agreement with the revised design as freeboard is typically provided to protect against overtopping of impoundments, associated potential embankment failure and damage to downstream infrastructure. Comment resolved.

10. The proposed "Infiltration Trench/Field Detail" shows fabric on all sides of the system. We do not recommend fabric be installed on the bottom of the system as it may act as a limiting barrier if all materials placed on it are not clean of sediment. The applicant should coordinate with the manufacturer to determine if removal of the fabric will negatively affect the performance of the system.

TT 6/19/19 Update: Detail has been changed to include fabric on only the top and sides of the system. Comment resolved.

11. The proposed "Infiltration Trench/Field Detail" calls for 1.5" – 2" crushed stone. Stone in these systems should double washed stone to prevent sediment buildup and potential lack of recharge.

TT 6/19/19 Update: Detail has been revised to include double washed stone. Comment resolved.

12. We recommend the applicant plan site traffic during construction to avoid heavy equipment trips within the limits of the Infiltration Fields. Proper cover should be established per the manufacturers recommendations prior to travelling over the systems to prevent damage or potential collapse during construction.

TT 6/19/19 Update: Traffic restrictions within the area of infiltration fields have been included in the erosion control plan. However, the callout references Note 3, the correct reference is to Note 6.

Please revise the plan prior to final submission.

Comment not resolved.

13. Light poles are proposed above proposed Infiltration Field #1 and are expected to extend into the field below. The Applicant should reconfigure the system to prevent any damage to the system during light pole installation.

TT 6/19/19 Update: The response letter indicates the top of the infiltration field is located at elevation 161.9. Light poles are proposed at ground elevation 167, installed to 4 feet below grade. Light poles are not expected to impact infiltration field.

Our initial comment referenced light poles located adjacent to the east side of IF#1 where ground elevations are approximately 165.0 which would put the bottom of light pole within the limit of the field. The field has since been realigned and the light poles described above are now located outside of the IF#1 limit. Comment resolved.

14. The applicant should confirm if the proposed building will contain a basement. If a basement is proposed it is expected foundation drains will be installed and flow should be accounted for if discharging to proposed drain infrastructure.

TT 6/19/19 Update: Building will not have a basement. Comment resolved.

15. Inconsistencies exist between the Plans and HydroCAD report for the proposed outlets at DMH #10. The pipe callout on Sheet 5 shows a 4" drain outlet from DMH #10 but the structure callout for DMH #10 and the HydroCAD include an 8" drain outlet. Please confirm proposed pipe size and coordinate plans with HydroCAD analysis.

TT 6/19/19 Update: HydroCAD and Plans have been updated to show consistent dimensions.

Comment resolved.

### Site Grading

The Site Plans provide a good introduction to the Project and its various components and shows the Project is placed in an appropriate location on the site in upland area. The following specific comments are offered to identify areas where additional information is required, or changes are requested to address questions or support further review.

16. Western portion of building is graded in a low spot with the parking areas higher in elevation than the building with proposed yard drains for drainage between the building and the wall at proposed low points. Potential for flooding lower portions of the building in this area.

TT 6/19/19 Update: The response letter indicates the proposed area drain rims are about 18 inches lower than the finished floor elevation of the building. Provisions have been added to the O&M Plan for proper maintenance of area drains to prevent excess flooding at this location. Comment resolved.

17. The proposed wall stops and begins adjacent to FD/CB#12. The applicant may be able to limit disturbance to the buffer zone due to grading in this area if the proposed wall continues and is not interrupted.

TT 6/19/19 Update: The response letter indicates the break in the retaining wall provides a corridor for potential wildlife movement and all graded areas beyond the retaining wall will be vegetated.

We do not anticipate wildlife passage into the development would be preferential for their well-being. Conversely, in this case, a continuous wall would prevent wildlife from entering the site and potentially being struck by vehicular traffic or entering the subsurface stormwater infrastructure. A continuous wall would also negate the need for grading on the low side of the wall further preserving the buffer to the nearby resource area. We defer additional comment to the Commission and their Agent as this may be a matter of opinion related to the resource area and appurtenant wildlife.

Comment not resolved.

#### **General Comments**

18. The Project will require a United States Environmental Protection Agency (US EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) as the site is altering greater than one acre of land. A SWPPP has been included in the Stormwater Report and we request it be finalized and confirmation of filing of Notice of Intent with US EPA prior to commencement of construction.

TT 6/19/19 Update: The applicant stated confirmation of filing will be provided prior to construction. Comment resolved.

19. We anticipate construction of the proposed retaining walls to extend partially into the B.L.S.F. buffer along the eastern portion of the site. The applicant shall consider extent of area required for anticipated construction of the walls in revised Plans.

TT 6/19/19 Update: Parking areas and downslope construction areas have been reconfigured to provide larger undisturbed buffers to wetland areas. Comment resolved.

20. We recommend the applicant overlay proposed site grading on the Utilities Plan (Sheet 5) for ease of review and use during construction.

TT 6/19/19 Update: Contours have been added. Comment resolved.

21. The applicant should add the 100-foot buffer zone to the Plans to ensure all parties are aware of jurisdictional areas on-site.

TT 6/19/19 Update: Buffer zone has been added. Comment resolved.

#### **Additional Comments**

22. The applicant has revised the drainage design to include an at-grade infiltration basin to intercept flow from the proposed boulevard driveway and the emergency access road. Test pits (OTH 1, OTH 12) performed within the limits of the basin show loamy sand (2.41 in/hr Rawl's rate) at the bottom elevation of the basin in both test pits. The HydroCAD analysis and recharge calculations provide

exfiltration from the system at 8.27 in/hr which is a Rawl's rate that coincides with sand. The applicant shall revise the analysis to reflect the 2.41 in/hr Rawl's rate associated with loamy sand found at the bottom elevation of the basin. Furthermore, the applicant should include a detail or cross-section of the proposed basin in the Plans.

These comments are offered as guides for use during the Town's review and additional comments are likely to be generated during the course of review. The applicant shall be advised that any absence of comment shall not relieve him/her of the responsibility to comply with all applicable local, state and federal regulations for the Project. If you have any questions or comments, please feel free to contact us at (508) 786-2200.

Very truly yours,



Steven M. Bouley, P.E.  
Senior Project Engineer

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