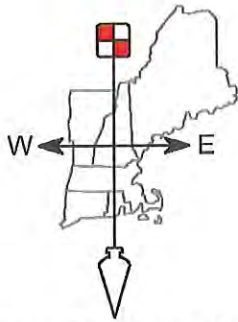


LETTER OF TRANSMITTAL



FIELDSTONE

LAND CONSULTANTS, PLLC

206 Elm Street, Milford, NH 03055 - Phone: 603-672-5456 - Fax: 603-413-5456
www.FieldstoneLandConsultants.com

Surveying ♦ Engineering
Land Planning ♦ Septic Designs

To: Cathleen Colwell, Planning Division Director
Department of Economic & Community Development
City of Methuen
41 Pleasant Street
Methuen, Massachusetts · 01844

Date: August 4, 2022

Re: Pie Hill Warehousing - 46 Old Ferry Road

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

- ☐ Shop drawings ☒ Prints ☒ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
9			Engineering Division Response letter (Addressed to Community Development)
9			Engineering Division Response letter (Addressed to Conservation Commission)
9			Peer Review Response Letter
3			Stormwater Management Report
1			Copy of TEC Transmittal
9			Full Size Site Plan Sets (24"x36")
8			Half Size Site Plan Sets (11"x17")

THESE ARE TRANSMITTED as checked below:

- ☒ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return ____ corrected copies
☒ For review and comment ☐ _____
☐ FOR BIDS DUE: _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS: Mrs. Colwell, please find attached revised site plans, and supporting documents for 46 Old Ferry Road. Please don't hesitate to contact me with any questions.
Thank you,

Charlie Ritchie

Chuck L. Ritchie, E.I.T



City of Methuen, Massachusetts

Department of Public Works

Engineering Division

The Searles Building, 41 Pleasant Street, Room 206

Methuen, Massachusetts 01844

Telephone (978) 983-8550 Fax (978) 983-8978

Neil Perry
Mayor

July 28, 2022

To: Conservation Commission
City of Methuen

From: Stephen J. Gagnon, PWM 
Engineering Department Administrator

Subject: 46 Old Ferry Road
MCC File #22-002
Notice of Intent

As requested, I have reviewed the revised plan set and Stormwater Management Report submitted by Fieldstone Land Consultants, PLLC dated June 29, 2022, and June 28, 2022, respectively, on behalf of Circle G LLC and have the following comments to offer:

1. The catch basin detail indicates a minimum sump depth of 36". DEP Stormwater Regulations require a minimum sump depth of 48" for catch basins to be considered part of the treatment train.
Catch basin detail has been revised to show a minimum sump depth of 48".
2. Stormwater outlet detail 10 DT-2, structure OS-1, the bottom of structure elevation "G" appears to be incorrect.
Elevation "G" of the outlet detail has been revised to 184.0.
3. Stormwater outlet detail 10 DT-2, the elevation of the stage 1 outlet does not agree in the plan set and stormwater calculations.
The elevation for stage 1 of the wet basin for OS1 is 193.2 and for OS2 it is 153.0.
4. In the stormwater calculations for Pond 21 there appears to be an erroneous outlet described. **Wet pond 2 (Pond 21) has an outlet structure with a 12" outlet at 153.0, grate at 158.6, outlet of the OS is at 151.8. The emergency spillway is not needed and been revised.**
5. The Applicant should consider guardrail near Pond 21 to prevent trailers from cutting the corner and impacting the pond.
A guardrail is proposed along the entrance to the site, along Wet Basin 2 (Pond 21).
6. A retaining wall is proposed southeast of Pond 21. The area disturbed by the retaining wall tiebacks should be depicted with suitable slope protection.
Additional erosion control mat is shown and called out to be installed on the back of the retaining wall.
7. The retaining walls within the Old Ferry Road right of way should conform to MassDOT specifications. **Note 27 on sheet MP-1 states that the retaining wall in the Old Ferry right of way will meet MassDOT specifications.**
8. The pipe data associated with DMH-4 does not appear to be correct.
The pipe data for DMH4 in the plan set has been revised.

9. The stormwater calculations indicate in a 100-year storm event the peak water surface elevation in Pond 14 will be approximately 2' above the top of the Stormtech structure.
The outlet for Pond 14 has been revised to keep the 100 year storm from over topping the catch basins.
10. The description of Pond 14 indicates 18" of stone under the Stormtech chamber. Is this correct? Yes, in order to provide more storage an additional 1' of stone is proposed below the system.
11. The stormwater calculations describe Pond 14, outlet device 3, as a 10' long broad crested weir. I was unable to locate this outlet, please clarify.
The weir has been removed as Pond 14 has been revised to drain without overtopping.
12. HW-1 will discharge a maximum of 18.57 CFS onto a relatively steep slope. A riprap apron is depicted at the outlet however a more substantial slope protection strategy should be provided.
A plunge pool is proposed at HW1 to control discharge from the pipe before reaching the slopes.
13. It appears the tieback for the south retaining wall will be penetrated by many features including guardrail posts, light post bases, drainage structures and pipes. Documentation indicating the penetrations are acceptable to the manufacturer should be provided.
The proposed light poles, guardrails, and drainage structures are acceptable per the manufacturer.
14. It appears the 18" pipe to HW-1 will not have any cover after it passes through the retaining wall.
The pipe outlet will be a part of the retaining wall and end in a plunge pool once discharged.
15. DMH-4 should be proposed as a drop inlet manhole.
DMH4 is called out to be a drop inlet manhole.
16. As designed, Pond 14 will back water into some of the contributing drainage system in a 2-year storm and will discharge out of CB-3 and CB-4 in a 100-year storm.
Pond 14 has been revised to not discharge out of the catch basins and to not back water in smaller storms.
17. Some of the proposed drainpipes do not have sufficient cover to allow for standard catch basin construction.
Drainpipes provide a minimum of 2' of cover which allows for standard construction.
18. According to the test pit information provided, DH-10 has an Estimated Seasonal High Groundwater Elevation (ESHGW) at elevation 235.50. The bottom of Pond 14 is 234.00. A minimum of 2' separation must be provided between the bottom of an infiltration structure and ESHGW. Deep hole 10 depicts the perched water table for the purpose of a septic design, not the seasonal high water table.
19. The diameter and elevation of the Pond 16 outlet pipe do not agree in the plans and stormwater calculations.
The outlet of Pond 16 has been revised to match in the HydroCAD model and plan set.
20. The 100-year peak water surface elevation in Pond 16 is more than 2' above the top of the Stormtech structure. The outlet for chamber system 1(Pond 16) has been revised and the peak elevation of the 100 year storm is below the stormtech structure.
21. In a 2-year storm water from Pond 16 will back into some of the contributing drainage system, in a 100-year storm the pond will discharge out of CB-10.
Pond 16 has been revised to not discharge out of the catch basins and to not back water in smaller storms.
22. The stormwater calculations describe Pond 16, device 2 as a 6' long broad crested weir. I was unable to locate this device in the plan set.
The 6' long broad crested weir has been removed as Pond 16 has been revised to not over top.
23. The pipe from DMH-10 to HW-2 does not appear to have sufficient capacity to pass the 100-year discharge from Pond 16.
The pipe has been enlarged in order to pass the 100 year storm event discharge from pond 16.

24. The stormwater calculations describe reach R-1 as an earth, grassed channel, the plan depicts the same channel as riprap.
Reach R1, the swale from HW2 to the plunge pool has been revised to depict ripap.
 25. The stormwater calculations indicate Reach R-2 does not have sufficient capacity to pass a 100-year storm. Impoundments at roadway cross culverts are not permitted.
The proposed culvert has been revised to 24" to pass even the 100 year storm event.
 26. A symbol like a retaining wall is depicted on the north embankment of Pond 19. Is a retaining wall proposed here?
No, that line type represents the berm around the top of the wet pond.
 27. The reach routing for Subcatchment 106 indicates a velocity over 27 fps. A strategy to reduce the velocity to a nonerosive level should be provided.
Subcatchment 106 does not have flows over 27 cfs. The only area with this flow is HW1 and a plunge
 28. The plan states the existing 30" culvert is to be removed. The description of *pool was added.*
Subcatchment 106 is routed through the 30" culvert.
The time of concentration for subcatchment 106 has been revised to reflect the removal of the culvert.
- The Project Engineer should address these issues in writing.



Neil Perry
Mayor

City of Methuen, Massachusetts

Department of Public Works

Engineering Division

The Searles Building, 41 Pleasant Street, Room 206
Methuen, Massachusetts 01844
Telephone (978) 983-8550 Fax (978) 983-8978

July 13, 2022

To: Community Development
City of Methuen

From: Stephen J. Gagnon, PWM 
Engineering Department Administrator

Subject: 46 Old Ferry Road
Site Plan Review

As requested, I have reviewed the revised plan set dated May 29, 2022, Stormwater Management Report dated May 28, 2022, and letter dated June 1, 2022, prepared by Fieldstone Land Consultants, PLLC (FLC).

My comments from June 8, 2022, are in plain text, the Project Engineer's response is in italics and my current comments are in bold type.

SITE

1. The intersection of Old Ferry Road and the site drive has been revised such that travel on Old Ferry Road will not be possible north of the site drive. Where Old Ferry Road is an accepted City Street and the city is considering its use in support of two separate projects, I recommend the site drive intersection be redesigned to allow use of Old Ferry Road.

FLC – The intersection of Old Ferry Road and the site drive has been revised to allow for future use of Old Ferry Road beyond the subject site.

The intersection has been redesigned as requested. However, the new design proposes centerline slopes of approximately 10% on Old Ferry Road. The slope exceeds the city's design standard of 8% maximum, therefore is not acceptable.

The extension of Old Ferry Road has been revised to a max slope of 8%.

1 of 4

2. As stated in previous memo(s), the site drive should enter Old Ferry Road as close to 90° as possible. The plan should be revised accordingly.

FLC – The entrance has been revised per your request to enter Old Ferry Road at 90+/- degrees.

The intersection has been redesigned as requested. The proposed design has a large area of pavement, on the east side of the intersection, to accommodate tractor-trailer turning radius. The additional pavement area is depicted with pavement markings to properly align smaller vehicles to the intersection. I recommend the painted area be replaced with scored concrete to discourage vehicles from cutting the corner.

Sheet SP-1 calls for scored concrete or stamped pavement to be installed in the striped area.

3. The plan depicts several retaining walls on the site, as high as 32'. A design of the walls should be provided. The design should consider the effects of stormwater features proposed adjacent to the walls, particularly at the south end of the site. Further, the wall design should also consider the proposed guardrail.

FLC – Note #24 on sheet MP-1 states “The proposed retaining walls will be designed by a licensed structural engineer prior to the issuance of a building permit.” The design of the walls will consider nearby features such as the stormwater chamber system and guardrails.

Comment addressed. I recommend this issue be incorporated in the conditions of approval.

OFF-SITE

1. Approximately 800' south of the site drive, Old Ferry Road has a pinch point where the pavement is less than 15', insufficient for truck traffic. The Applicant should be part of the resolution of this issue.

As previously stated, sheet 29 of 29 is an off-site improvement plan for the widening of Old Ferry Road.

WATER *The applicant has taken a proactive approach to designing a solution in an effort to be part of the solution. The developers are also willing to make a reasonable contribution similar to the development across the entrance from the site.*

1. The revised plan set does not depict the proposed water system. The plan should be revised accordingly.

FLC – The proposed water system is detailed on the revised plan set and includes a profile showing crossing details on sheet UT-1.

Comment addressed.

2. It is my understanding a fire flow study was completed in the project area. This data should be provided for review.

FLC - The fire flow study is attached for review.

The documentation provided is inadequate to demonstrate the proposed water system will provide adequate volume and pressure to satisfy domestic and firefighting water demands. The documentation should be prepared and sealed by an appropriate professional.

Additional information regarding the water system is pending.

SEWER

1. The revised plan set does not depict the proposed sanitary sewer system. The plan should be revised accordingly.

FLC – The proposed sewer system design is included in the revised plan set.

Comment addressed – It should be noted the septic system will be reviewed by the Health Department.

DRAINAGE

1. A stormwater analysis was not provided.

FLC – A stormwater report was submitted to the city and peer review engineer. It has been revised per the peer review engineer's comments and is attached for your review.

Comment addressed.

2. Some of the drainage features lack pertinent data such as diameter, elevation, length, etc.

FLC – The drainage features located around the proposed building and along the access drive are detailed on sheets GR-1 and GR-2.

Comment addressed.

3. Several segments of the drainage system are depicted with a slope of 0.005. A pipe analysis should be provided to confirm minimum velocity is achieved.

FLC – A pipe analysis for pipes in the design storm is provided, confirming minimum velocity is achieved.

Comment partly addressed. The requested information has been provided, however the documentation provided indicates the velocity in some of the pipes does not fall within the 3.0 FPS

minimum and 10 FPS maximum. The pipes should be adjusted accordingly.

Outlet pipes for CB6 and DMH13 have been revised to have max velocities between 3 & 10 FPS.

4. At some locations drainpipes are less than 10' from the building, consequently in the jurisdiction of the Plumbing Code. The Engineer should confirm these features comply with the Plumbing Code.

FLC - The drainpipes have been revised to be located a distance of 10 feet or greater from the building.

Comment addressed.

NEW COMMENTS

1. Reach R2 does not appear to have sufficient capacity to pass the 100-year storm flow, required for cross culverts.
Reach R2 has been revised to 24" from 18" to allow the 100 year storm to pass.
 2. Each drainage basin is required to have an emergency outlet capable of passing 100% of the 100-year storm inflow to the basin. Pond 19 appears to utilize the top of the outlet structure as an emergency outlet. Consequently, all the piping downstream of the outlet structure must have sufficient capacity to pass the emergency outlet discharge plus their contributing discharge. The pipes downstream of P-19 do not appear to have sufficient capacity. **All pipes downstream are the same size or larger than the outlet for P19 and have capacity for the 100 year storm.**
 3. The Stormwater Calculation indicate the top of the chambers in P-16 are at elevation 235.50, however the peak water surface elevation is 237.90. The peak water surface elevation should be within the chamber.
Chamber system 2 (P16) has been revised to not over flow the top of the structure.
 4. The Stormwater Calculation indicate the top of the chambers in P-14 are at elevation 238.00, however the peak water surface elevation is 240.77. The peak water surface elevation should be within the chamber. **The chamber system has been designed to contain smaller storms up to the 50 year event. In the 100 year storm it surcharges. If the outlet is revised to contain the 100 year storm within the chambers, the flow in smaller storms would not be reduced.**
 5. The elevation of Device 4 in the Pond 19 outlet structure does not agree in the calculations and the detail in the plan set.
The outlet structure detail on sheet DT-2 has been revised to match the HydroCAD model.
- The Project Engineer should address these issues in writing.

Ms. Kathleen Colwell
Planning Division Director
Department of Economic and Community Development
41 Pleasant Street
Methuen, MA 01844

July 19, 2022

Re: 46 Old Ferry Road, Methuen, MA
Civil Engineering Peer Review

Dear Ms. Colwell and Members of the Planning Board:

On behalf of the City of Methuen, TEC, Inc. reviewed documents as part of the civil engineering peer review for the project proposed at 46 Old Ferry Road. Triple G, LLC ("Applicant") submitted the following documents prepared by Fieldstone Land Consultants, PLLC ("Fieldstone"), which were reviewed by TEC for conformance with the City of Methuen Zoning Ordinance, Massachusetts Stormwater Handbook, and industry standards and best management practices:

- Site Construction Plans for "Pie Hill Warehousing", 46 Old Ferry Road, Methuen, MA 01844, prepared by Fieldstone, dated April 4, 2022; revised June 29, 2022.
- Stormwater Management Report, prepared by Fieldstone, dated April 4, 2022; revised June 28, 2022.
- Revised Traffic Assessment, prepared by Vanasse & Associates, Inc., dated April 1, 2022
- Pie Hill Warehousing Noise Review, prepared by Cross-Spectrum Acoustics, dated July 11, 2022.

For consistency, the original comment numbers have been retained from the most recent TEC Peer Review letter on May 20, 2022. The Applicant's responses to the comments are shown as **bold**; TEC's responses are shown as *italic*.

Upon review of the documents and plans, TEC has compiled the following comments for the Board's consideration:

Site Plan Review

1. The Site Plans call for 134 proposed parking spaces, however, 136 proposed parking spaces are shown. TEC recommends the parking calculations be updated.

Fieldstone: Note #14 on sheet MP-1 detailing parking calculations has been revise to state there are 136 proposed parking spaces.

TEC: Comment addressed.

2. Labels should be added on the Site Plans detailing the width of proposed parking spaces.

Fieldstone: The parking spaces are 9' wide and labeled as 9' on sheets SP-1 and SP-2.

TEC: Comment addressed.

3. An adequate buffer has not been provided between the project and the existing residential property at Lots 1008-79-11A and 1008-79-11F. TEC recommends updating the Site Plans to show a 60-foot buffer from the property line in conformance with Section VI-B (12.a) of the Zoning Ordinance.

Fieldstone: *The location of the site drive has been revised to maximize the buffering to residential properties. The design now provides a minimum of a 30' natural buffer to adjacent residential properties with a stockade fence and additional landscaping to provide the best buffer possible. The existing gas mains and other site features require the site drive to be located where it is currently proposed. We are actively working on the final design for the screening and landscaping with the City, abutting property owners and the Community Development Board.*

TEC: Comment not resolved. TEC acknowledged the revision of the site drive, and additional complications. In conformance with Section VI-B (12.a) a 60-foot buffer from the property is still recommended. TEC ultimately defers to the Community Development Board for approval of the site drive location.

Fieldstone is working with the Community Development Board on this topic.

4. The Site Plans call out "Snow Storage" with no delineation of areas. TEC recommends updating the Site Layout to include delineated areas for snow storage.

Fieldstone: *The snow storage areas are delineated showing intended areas for storage.*

TEC: Comment not resolved. TEC notes snow storage area above proposed concrete pad on SP-1 is not delineated. TEC recommends this area be delineated showing intended areas for snow storage.

Snow storage area above the concrete pad has been delineated.

5. The Site Plans call out a "50' Wetland Buffer", this label should be updated on multiple sheets.

Fieldstone: *This label has been revised.*

TEC: Comment addressed.

6. The Lighting Plan sheets are both labeled "LT-1", the sheets labels should be updated.

Fieldstone: *The sheet for Lighting Plan South has been revised to LT-2.*

TEC: Comment addressed.

7. Multiple drainage structure labels on the Grading and Drainage Plans reference connections to numerous structures that do not match structure shown. For example:

1. CB4 is proposed to DMH8 when it is shown to be routed to DMH6
2. DMH6 is proposed to DMH9 when it is shown to be routed to DMH5
3. CB3 is proposed to DMH8 when it is shown to be routed to DMH2

Fieldstone: *The structure labels on sheet GR-1 and GR-2 have been revised. CB4 is proposed to DMH6, DMH6 is proposed to DMH5, and CB3 is proposed to DMH2 along*

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with other changes.

TEC: Comment not resolved. CB-6 is proposed to DMH-7 when it is shown to be routed to DMH-8. DMH-7 is proposed to DMH-6 when it is shown to be routed to DMH-5. Based on the structure label for DMH-6, an invert in is detailed from DMH-7. DMH-7 is not shown being connected to DMH-6. TEC recommends the applicant revise GR-2 drainage plan.

Sheet GR2 has been revised with labels accurately describing what is shown.

8. TEC recommends that the Applicant label both contours around the drain inlets on the south side of the site for consistency on the Drainage and Grading Plans.

Fieldstone: The contours around the catch basins (catch basins 3 and 4) on the south side of the site have been labeled with their corresponding elevation, 240'.

TEC: Comment addressed.

9. There is limited lighting proposed along the access driveway. TEC recommends that the Applicant update the Site Plans to provide light along the entire length of the access driveway.

Fieldstone: The proposed lighting has been designed to be as minimal as possible while still providing enough light to illuminate the drive and meet safety standards. The purpose of this is to minimize lighting to be sensitive to adjacent properties. There is also no pedestrian access that would require additional lights along the drive. We believe the design addresses all safety concerns and addresses the minimum lighting requirements for site operations while finding good balance for the neighbors.

TEC: Comment not resolved. TEC acknowledges lighting sensitivity for adjacent properties.

TEC continues to recommend the Applicant update the Site Plans to provide light along the entire length of the access driveway for safety. TEC ultimately defers to the City of Methuen planning and development board for approval of lighting plan along the access drive.

Fieldstone is working with the City on this topic.

10. The Applicant should coordinate with the City of Methuen Fire Department for preferred locations for fire hydrants.

Fieldstone: Plans have been submitted to the City of Methuen Fire Department for review.

TEC: Comment addressed.

11. The water connection should be coordinated with the Methuen Department of Public Works.

Fieldstone: The water connection will be coordinated with the Department of Public Works and is noted on sheets UT-1 and UT-2, note #15.

TEC: Comment addressed.

12. Per Section XII-C.3.a., the Applicant should submit a study to document that the project will minimize the volume of cut and fill, the number of removed trees 6" caliper or larger, the length of removed stone walls, the area of wetland vegetation displaced, the extent of stormwater flow increase from the site, soil erosion, and threat of air and water pollution.

Fieldstone: *Documentation regarding cut/fill, trees to be removed, vegetation, etc. has been submitted in response to Community Development comments on June 1, 2022. The following is an excerpt from the submission: "The site has been designed and graded to try and balance the cuts and fills. The front of the development is in a cut while the back of the development is in a fill to provide essentially a level site without requiring excessive transportation of material on or off the site. Large portions of the site were cleared when the gas and electrical utilities were installed in the past, and those areas are filled with brushy vegetation and trees with smaller than 6". The stormwater runoff and erosion and sedimentation controls have been designed to meet local and state standards. The development of this site will ultimately yield an improvement as to adjacent properties and Old Ferry Road as there is currently no stormwater management on-site."*

TEC: Comment addressed. TEC defers to the City of Methuen Community Development Board to approve of documentation provided by the Applicant. No further response required.

13. Per Section XII-C.3.d., the Applicant should submit documentation to prove the project will minimize visual intrusion by controlling the visibility of parking, storage, or other outdoor service areas viewed from public ways and places.

Fieldstone: *Documentation regarding visual intrusion was submitted in response to Community Development comments on June 1, 2022. The following is an excerpt from the submission: "The site plan proposes a mixture of fencing and landscaping which will greatly reduce visual intrusion of the development. There is also existing buffering between properties that will be maintained and the Summit Place apartments has an existing 120-150 foot vegetated buffer and we will be proposing some fencing and landscaping on top of that to help minimize visual intrusion." Renderings have also been provided to the City for the proposed development depicting additional details addressing this comment. From Old Ferry Road (the public way) the development will be 90+ feet in elevation so this will also minimize visual intrusion to parking and the bay doors are situated on the back side of the building. In general the site in our opinion will minimize visual intrusion.*

TEC: Comment addressed. TEC defers to the City of Methuen Community Development Board to approve of documentation provided by the Applicant. No further response required.

14. Per Section XII-C.3.f., the Applicant should submit documentation to prove the project will minimize unreasonable departure from the character, materials, and scale of buildings in the vicinity, as viewed from public ways and places.

Fieldstone: *Documentation regarding the character of the buildings in the vicinity was*

submitted in response to Community Development comments on June 1, 2022. The following is an excerpt from the submission: "The architectural drawings have been submitted with the design package. The site is large and has been designed to minimize impacts. There are no buildings in the vicinity of the site and the design for the project is modern."

TEC: Comment addressed. TEC defers to the City of Methuen Community Development Board to approve of documentation provided by the Applicant. No further response required.

Stormwater Management Review

15. The pre-development watershed maps show that there is greater than 2 acres of gravel surface at the site. Based on review of historical aerial maps, TEC believes that there should be significantly less gravel surface in the pre-development modeling. TEC recommends that the watershed map be updated with ground covers using aerial imagery from 2016. Additional detail is required on the watershed map to prove the ground covering.

Fieldstone: The City of Methuen G/5 mapping website was used, and a "pictometry (2014)" basemap imagery was used as a reference for pre-development ground covers. There is approximately 1.1± acres of gravel per the image, mostly the drive to access the power lines. The pre- development analysis of the site has been revised accordingly.

TEC: Comment addressed.

16. The Proposed weir for P14: SC-740 chambers is 5.6' above the bottom elevation of the pond. Given use of SC-740 "which use 6 in. of stone and 2.5' chamber height" the weir is positioned 2.1' above the top of the system. TEC does not recommend designing the lowest outlet above the top of the basin. Typically, underground systems are designed to keep the peak water elevation below the top of the basin.

Fieldstone: The primary outlet is a 12" culvert out of DMH2 at an elevation of 237.0, which is the 1' below the top of the 2.5' system. This outlet allows for the peak elevation of both the 2 year and 10-year storm within the top of the system. The weir 5.6' above the pond is modeled to represent overflow in larger storms.

TEC: Comment not resolved. The primary outlet is an 18" culvert instead of a 12" culvert, as stated in HydroCAD calculations. The primary outlet elevations in HydroCAD do not match those on-site plans. The applicant should update the HydroCAD calculations to reflect intended pipe sizing, and to revise elevations of the 18" culvert. Revisions per City engineer require a primary outlet of 24" to reduce peak elevations in the 100 year storm. This is shown in HydroCAD, & sheets DT-7 & GR-2.

17. Infiltration basins should be placed at a minimum 50 feet away from any slope greater than 15% per the Infiltration Basins BMP in the Massachusetts Stormwater Handbook.

Fieldstone: The large infiltration chamber system on the south side of the site has been moved to maintain a 50' separation from the retaining wall and any slopes steeper than

15%. The smaller infiltration chamber system under the parking area has also been relocated to meet this requirement.

TEC: Comment addressed.

18. Infiltration basin P14 is proposed within 5-feet of a proposed retaining wall and 2:1 slope. The construction detail of the retaining wall shows grid reinforcement that would directly conflict with the subsurface basin. Additionally, the design would either promote a hydrostatic pressure on the retaining wall, or allow the stormwater to breakout and flow through the retaining wall's drain system. TEC does not find that this is an acceptable design practice.

Fieldstone: The chamber system has been revised to be a minimum of 50' from the retaining wall.

TEC: Comment addressed.

19. The following comments relate to the test pits conducted for the Stormwater Management Report:

- a) The location of test pits detailed in the report are unclear on the Site Plans. TEC recommends that the Applicant update test pit information to match both the Site Plans and Stormwater Management Report.

Fieldstone: Sheets GR-1 and GR-2 show all test pits done on site and the test pit write up includes all test pit information.

TEC: Comment addressed.

- b) The Applicant should also include existing surface elevations on delineated test pits.

Fieldstone: Notes on sheets GR-1 and GR-2 includes a list of approximate surface elevations for delineated test pits.

TEC: Comment addressed.

- c) The Applicant should differentiate the nomenclature used for "DH" markings and "TP" markings.

Fieldstone: A "DH" is a deep hole which has been witnessed by the city, generally for the purpose of a septic design. A "TP" is a test pit, for the purpose of stormwater management areas and not witnessed by the city. The legend on sheets GR-1 and GR-2 include the differentiation.

TEC: Comment addressed.

- d) Additional test pit data is required within the location of each stormwater BMP, consistent with Volume 2 Chapter 2, "One soil sample for every 5000 ft. of basin area is recommended".

Fieldstone: Additional test pits have been done as needed to provide a minimum of three

(3) test pits in areas proposed for infiltration. Additional test pits near the wet basins have been done as well.

TEC: Comment addressed.

20. Multiple proposed drainage structures (catch basins, drain manholes, subsurface infiltration chambers, etc.) show peak elevations during 2 & 10 year storm events well above proposed rim and inlet elevations. The applicant should revise their stormwater modeling to prevent peak elevations from exceeding the "top" of proposed drainage structures.

Fieldstone: The proposed drainage pipes have been revised. A number of pipes required a larger diameter pipe, so they can convey the 2 and 10 year storm without overtopping structure rims.

TEC: Comment addressed.

21. Multiple proposed drainage structures show rim and invert information that do not match the site plans.

Fieldstone: Rim elevations for structures have been added to the HydroCAD model.

TEC: Comment not resolved. Multiple structures on the HydroCAD model do not have rim elevations.

Rim elevations are included for structures flowing to OP1, some of which were missed in the last revision.

22. The Applicant should show pipe sizing and velocity checks for all proposed drainage connections.

Fieldstone: A pipe chart and pipe analysis are included in the drainage report which includes velocities in the design storm.

TEC: Comment addressed.

23. Based on the information from "TP21B" and proposed basin contours, the proposed top of basin "approximately 160" is 3' below the Estimated Seasonal High Water Table. The applicant should address how groundwater will be handled.

Fieldstone: The proposed stormwater basin is a wet basin, and is intended to have a permanent pool depth of 3'.

TEC: Comment not resolved. Wet basins 1 and 2 show no prevention methods for groundwater exfil or infiltration. TEC recommends exfil or infiltration methods be provided. TEC also recommends construction details of both wet basins to be included in the site plans.

A Solmax 30 mil PVC liner is specified in the Wet basin detail on sheet DT-2.

24. The Applicant should include mosquito control in the Operation and Maintenance Plan in accordance with the Massachusetts Stormwater Handbook.

Fieldstone: The Operation and Maintenance Manual includes a section on mosquito control per Volume 2 Chapter 5 of the Massachusetts Stormwater Handbook.

TEC: Comment addressed.

Massachusetts Stormwater Standards

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25. Along with providing discharge velocities for each outlet, the Applicant should include rip-rap sizing calculations to be fully in compliance with the Stormwater Standard 1.

Fieldstone: A rip-rap apron design sheet is included in the stormwater management report.

TEC: Comment addressed.

26. Updates to the proposed Stormwater Management systems may occur. TEC is unable to confirm if the Applicant has fully complied with Stormwater Standard 2.

Fieldstone: The revised design meets the requirement of standard 2, with post development discharge rates not exceeding pre-development rates.

TEC: Comment addressed.

27. To be in full compliance with Stormwater standard 3 the Applicant should provide:

- a) A Storage table detailing the storage volume below each infiltration structure,

Fieldstone: A storage table for the infiltration chamber systems is included in the drainage report.

TEC: Comment addressed.

- b) A 72-hour Drawdown Analysis to confirm each infiltration BMP will drain within 72 hours,

Fieldstone: A BMP worksheet showing the infiltration chamber systems will drain within 72 hours of the storm event is included in the drainage report.

TEC: Comment addressed.

- c) A Mounding Analysis for all infiltration BMPs within 4-feet of seasonal high groundwater.

Fieldstone: The infiltration BMP's are located in areas where ground water is believed to be well below the systems. We have enclosed a geotechnical report which shows that groundwater was not encountered in any of the borings. Additional test pits have also been performed and our soil scientists have clarified the test pit results for this project. This information can be found in our revised stormwater management report.

TEC: Comment not addressed. Portions of the bottom of the proposed chamber system on the south side of the site is above existing ground surface. TEC recommends including a specification on what type of soils will be used for fill.

A sand specification for ASTM C33 sand is detailed on sheet DT-7.

28. The Applicant should provide a Water Quality Volume computation to confirm their compliance with Stormwater Standard 4.

Fieldstone: A BMP worksheet for the infiltration chamber systems and wet ponds shows the calculations for water quality volume.

TEC: Comment addressed.

29. The Applicant should confirm the proposed use of the building. It is unclear if the project would be considered a LUHPPL under Standard 5. If the building is proposed as general "industrial" use, then it would be considered a LUHPPL and will need to provide a stormwater system that meets the higher standard.

Fieldstone: The proposed building use is a warehouse use. A warehouse is not considered a Land Use with Higher Potential Pollutant Loads (LUHPPL). There will be no vehicle maintenance on site, no heavy equipment stored on site, no storage of hazardous materials, and there anticipated to be only 278 vehicle trips per day.

TEC: The Applicant should confirm that the proposed use will be limited to warehousing only. Industrial uses are allowed within the "IL" zoning district, however, those uses would qualify the site as a LUHPPL with higher level of stormwater treatment requirements. TEC agrees that a warehouse does not qualify as a LUHPPL. If only warehousing is proposed as a use, TEC would recommend that the Community Development Board include a condition of approval limiting other industrial uses at the property.

30. To comply with Stormwater Standards the Applicant should include pretreatments in the TSS removal form for each BMP.

Fieldstone: The pretreatment for the wet basins are sediment forebays and are included in the TSS removal worksheet. The infiltration chamber systems pretreatment are deep sump catch basins/manholes in conjunction with an isolator row. Deep sump catch basins have been modeled in the TSS worksheet to depict the removal rate of solids from the use of this BMP.

TEC: Comment addressed.

31. The Applicant should provide a figure in their Stormwater Management Report detailing various critical areas that could be present on site to comply with Stormwater Standard 6.

Fieldstone: There are no critical areas on site per MassMapper gis. A reference image showing no special resource areas, outstanding resource areas, Wellhead areas, shellfish growing areas, or fisheries near the proposed discharges on site.

TEC: Comment addressed.

32. The Applicant says, on page 2 of the Stormwater Management Report, "As a redevelopment project it falls under stormwater standard 7 of the Massachusetts Stormwater Handbook." The proposed work is designed to take place on an undeveloped site, therefore does not meet the redevelopment criteria.

Fieldstone: The front of the site is a redevelopment of the existing access way. The top of the site is not considered a redevelopment as we are designing the site based on ground cover conditions from 2014. The site as a whole will meet the requirements of the

Massachusetts Stormwater handbook, including standards 2, 3, and 4 as shown by the HydroCAD model, Groundwater recharge volume worksheet, and Total Suspended Solids worksheet.

TEC: Comment addressed.

33. The Applicant should include both a Construction Period Pollution Prevention Plan within their Stormwater Management Report to comply with Stormwater Standard 8.

Fieldstone: A construction period pollution prevention plan is included in the stormwater report.

TEC: Comment addressed.

34. The Applicant should include an Illicit Discharge Statement within their Stormwater Management Report to be in full compliance with Stormwater Standard 10.

Fieldstone: An illicit discharge statement has been included in the stormwater report, to be signed by the developer.

TEC: Comment addressed.

New Comments - 7/19/2022

35. Building size shown in plan view (147,840 square feet) differs from what is in the general notes and parking calculations (150,976 square feet), please clarify.

The building was revised to 147,840 square feet to increase buffering. The parking note is updated.

36. Location and extents of retaining walls on plans is unclear. The legend on SP-1 and SP-2 denotes two different linetypes as retaining walls and the width of the lines used in the plan view appears to vary in width for each wall. For example, the wall along the entrance road is difficult to distinguish from the linetype used for stormwater pipe (not included in legend). TEC recommends clearly indicating the retaining walls on the SP sheets and providing additional elevation information on the GR sheets.

The legend on sheets SP-1 & 2 has been revised and the line type condensed for easier differentiation.

37. TEC recommends showing the location of both underground stormwater systems on the SP sheets and giving each one a unique designation to avoid confusion. Additionally, TEC recommends correcting the product name from Stormceptor, a hydrodynamic separation device, to StormTech, the underground chamber product. *The location of chambers are shown on site plan sheets as StormTech Chamber system 1 and Stormtech chamber system 2.*

38. TEC recommends creating specific details from DMH-3 and DMH-10 showing rim, invert, and interior weir elevations. *DMH3 & 10 are detailed on sheet GR-2. This includes rims, inverts in, and out. There are no interior weirs, the outlets will be standard pipes of 24" diameter.*

39. Callouts for DMH-10 and DMH-11 do not point to any structure, please correct callout location and ensure proper rim elevations.

The leaders have been revised to point to the corresponding manhole.

40. TEC recommends correcting DMH number callouts on the StormTech detail sheets.

DMH numbers have been revised on sheet DT-7, StormTech Details.

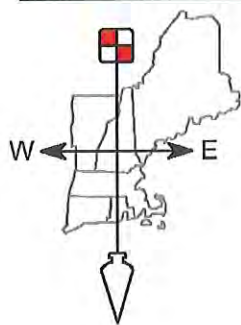
41. TEC recommends the Applicant correct numbering for DH10 on the Test Pit Surface Elevations table on GR-1 and GR-2.
Numbering for DH10 has been revised accordingly.
42. Volume #3 for pond P14 in the Hydrocad analysis does not appear to reflect contours shown on GR-2. TEC recommends the Applicant revise the contours on GR-2, and include a BMP map and detail. **Volume 3 for stormtech chamber system 2 (P14) was originally intended to depict overflow through catch basins onto the pavement. The runoff now does not exceed the chambers and volume #3 has been removed.**
43. The location for volume #3 for pond P16 in the HydroCAD analysis is unclear. Please clarify on the plans where this additional volume is stored. **Volume #3 in pond P16 (Stormtech Chamber 1) is 1' of additional stone below the system in addition to the 6" minimum. This is noted on sheet DT-7.**
44. TEC recommends the Applicant revise "Proposed Stormceptor Chamber System" callout location on MG-1.
Callouts have been revised and state "Proposed Stormtech Chamber System".
45. Pavement sections for the site entrance and parking lot are unclear. A 2.5" binder and 1.5" wearing course are specified along with a callout for 3.5" bituminous concrete. Please clarify if a total 7.5" is to be used or if the bituminous concrete callout is intended to be a total and should read 4".
The callout is intended to be a total, the details have been revised to state 4.0".
46. Multiple proposed drainage structures (catch basins, drain manholes, subsurface infiltration chambers, etc.) show peak elevations during 100-year storm events well above proposed rim and inlet elevations. The applicant should revise their stormwater modeling to prevent peak elevations from exceeding the "top" of proposed drainage structures in order to correctly size downstream BMPs.
Structures have been revised to convey the 100 year storm without over topping.
47. The location of the rectangular weir, Device #3 for pond 14, is not clear on-site plans. TEC recommends a callout for the rectangular weir on site plans and BMP map.
The chamber system has been revised and no longer requires a weir, which has been removed.
48. TEC recommends close coordination with owner of utility poles on-site. Plans depict grading on top of and several site features directly abutting power pole locations.
Fieldstone is working with the City and have submitted plans to the necessary parties.
- Please do not hesitate to contact me directly if you have any questions concerning our comments at 978-794-1792. Thank you for your consideration.

Sincerely,
TEC, Inc.
"The Engineering Corporation"



Peter F. Ellison, PE
Director of Strategic Land Planning

LETTER OF TRANSMITTAL



FIELDSTONE

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206 Elm Street, Milford, NH 03055 - Phone: 603-672-5456 - Fax: 603-413-5456
www.FieldstoneLandConsultants.com

To: TEC, Inc.
City of Methuen's Engineering Consultant
146 Dascomb Road
Andover, Massachusetts · 01810

Date: August 4, 2022

Re: Pie Hill Warehousing - 46 Old Ferry Road

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			Peer Review Response Letter
1			Full Size Site Plan Sets (24"x36")
1			Stormwater Management Report

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution

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☒ For review and comment ☐ _____

☐ FOR BIDS DUE:

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REMARKS: Please see attached revised site plan submission for 46 Old Ferry Road in Methuen, MA. Please contact me with any questions.

Thank you,

Charlie Ritchie

Chuck L. Ritchie, E.I.T.