



**WESTPORT, CONNECTICUT
CONSERVATION DEPARTMENT**

TOWN HALL - 110 MYRTLE AVENUE
WESTPORT, CONNECTICUT 06880
(203) 341-1170 • (203) 341-1088

May 15, 2018

GHD, Inc.
c/o Stuart Manley
45 Farmington Valley Drive
Plainville, CT 06062

**RE: RFP – Third Party Review
Hiawatha Lane, Affordable Housing Project, Westport, CT**

Dear Mr. Manley:

Per our conversation, below is a Scope of Services outlining our request of your services in the review of an Inland Wetland and Watercourse and Waterway Protection Line Ordinance 8-30 (g) application for a 187 apartment complex located within five separate buildings with 343 parking spaces and associated grading and drainage on 8.8 acres. Sewer hook-up is anticipated.

The Conservation Commission will be reviewing the application pursuant to the Inland Wetland and Watercourse Regulations of the Town of Westport (IWW Regs) and the Waterway Protection Line Ordinance (WPLO). The Ordinance is somewhat unique to Westport but was adopted in an effort to evaluate development within and around watercourses and their associated 25-year floodplains and or wetlands. Specifically, we would be asking your assistance in reviewing the plans and what, if any impact there may be to wetlands, watercourses and the 25 year floodplain as well as reviewing the stormwater components of the project insofar as water quality treatment is concerned.

Our expected Scope of Services include:

- Review application material;
- Inspect site;
- Identify additional information needed to evaluate the project within the purview of the IWW Regulations and WPL Ordinance;
- Attend at least 2, possibly 3 public hearings;
- Prepare an initial report to the Conservation Commission with additional reports as needed;
- Review draft findings and resolution; and
- Meet and or dialogue with Conservation Department staff and applicant's agents as necessary.

Under separate cover we will be providing with electronic copies of the plan. A hard copy can be provided upon request.

We expect the application to be received at the May 16, 2018 work session of the Conservation Commission. Opening of the hearing will be dependent on contractual requirements and fees satisfied as well as adequate time for review of application material. Please note, the applicant has requested they receive comments no less than three business days prior to any of the public hearings scheduled. We intend to honor this request.

If you could reply to our request no later than May 24th, it would be greatly appreciated.

Should you have any questions, please contact myself, or Conservation Analyst, Lynne Krynicki.

Sincerely,

A handwritten signature in cursive script, appearing to read "Alicia Mozian".

Alicia Mozian
Conservation Director

Corr-out/Hiawatha GHD rfp letter

Mozian, Alicia

From: Stackpole, Karen <kstackpole@geiconsultants.com>
Sent: Monday, June 04, 2018 3:35 PM
To: Mozian, Alicia
Subject: RE: Westport RFP Response

Thank you for your reply Alicia. The person I was thinking of is Jodie Chase at Chase Ecological. She is located on the shoreline in CT. Her and I recently connected briefly on a different project. Her email is: jodie@chaseecological.com

Thank you again Alicia, and I hope things go smoothly for the development. Karen

Karen Stackpole
Senior Consultant



GEI Consultants, Inc.
455 Winding Brook Drive, Suite 201 | Glastonbury, CT 06033
T: 860.368.5300 | M: 720.878.5510
www.geiconsultants.com | [vCard](#) | [map](#) | [LinkedIn](#) | [Twitter](#) | [Facebook](#)

From: Mozian, Alicia [<mailto:AMOZIAN@westportct.gov>]
Sent: Monday, June 4, 2018 3:25 PM
To: Stackpole, Karen <kstackpole@geiconsultants.com>
Subject: RE: Westport RFP Response

Hi Karen,

Thanks for getting back to me. I'm sorry the timing did not work out for you. I guess the good news is that you are busy. We ended up choosing another firm.

However, if you'd like to send me the name of the wetland scientist for future reference that would be great. I will also keep GEI in mind for future project review.

Thank you.

Alicia Mozian
Westport Conservation

From: Stackpole, Karen <kstackpole@geiconsultants.com>
Sent: Wednesday, May 30, 2018 2:04 PM
To: Mozian, Alicia <AMOZIAN@westportct.gov>
Subject: RE: Westport RFP Response

Alicia, I apologize for not getting back to you sooner, I was pulled out into the field for the past two weeks without much time left to address things in the office. I recognize your deadline is passed, and I apologize again I missed that deadline with how busy my schedule got since we last talked. Would you like me to send you contact information for a

wetland/natural resource person who may be interested in bidding on it? I could provide you her information if you would like, and you could contact her directly. Again I truly apologize about my heavy schedule and lack of prompt response.

Best, Karen

Karen Stackpole

Senior Consultant



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From: Mozian, Alicia [<mailto:AMOZIAN@westportct.gov>]

Sent: Friday, May 25, 2018 2:38 PM

To: Stackpole, Karen <kstackpole@geiconsultants.com>

Cc: Krynicki, Lynne <LKRYNICKI@westportct.gov>

Subject: Westport RFP Response

Hi Karen,

I'm writing to see if you were interested in responding to the RFP that was sent out to you week before last. Yesterday was the deadline but I can hold it open if you are interested. Please let me know.

Thanks,

Alicia Mozian

Westport Conservation Director



**WESTPORT, CONNECTICUT
CONSERVATION DEPARTMENT**

TOWN HALL - 110 MYRTLE AVENUE
WESTPORT, CONNECTICUT 06880
(203) 341-1170 • FAX (203) 341-1088

TO: Sheila Carey, Deputy Finance Director

FROM: Alicia Mozian, Conservation Director

DATE: June 11, 2018

RE: **Hiawatha Lane Establishment of Escrow Account
Application #IWW, WPL-10619-18, Proposed Affordable Housing Project**

The Conservation Commission is reviewing the above-referenced application for an affordable housing project involving multiple properties on Hiawatha Lane and has determined the need for the assistance of an outside expert to aid in its review.

Section 9.1.6 of the "Regulations for the Protection and Preservation of Wetlands and Watercourses for the Town of Westport" allows us to retain said expert with the expense directed to the applicant as part of the overall application fee. The Conservation Department has chosen GHD to perform this task.

Enclosed is GHD's contract and estimated fee of \$27,000. The Regulations also allows us to apply a 150% contingency to this estimate. Therefore, a certified check in the amount of \$40,500 has been submitted by the applicant, Summit Saugatuck LLC to cover this cost.

We are writing to ask that you establish an escrow account for this application so that invoices submitted by GHD can be paid using this account. Any unused funds will be returned to Summit Saugatuck LLC.

The address for GHD is:
45 Farmington Valley Drive
Plainville, CT 06062

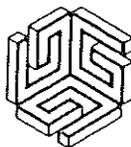
Should you have any questions, please contact me.

Thank you.

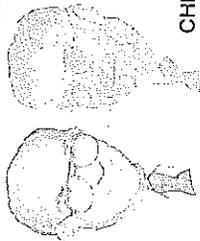
Summit Saugatuck LLC

DATE	INVOICE NO	DESCRIPTION	ACCOUNT	Town of Westport INVOICE AMOUNT
6-05-18	680060518		680-1020	40500.00
CHECK DATE	6-05-18	CHECK NUMBER	300532	TOTAL >
				40500.00

PLEASE DETACH AND RETAIN FOR YOUR RECORDS.



Summit Saugatuck LLC
 C/O The Grossman Companies, Inc.
 One Adams Place
 859 Willard Street, Suite 501
 Quincy, MA 02169
 617-472-2000



Brookline Bank
 Brookline, MA

59-7148
 2113

DATE
 June 5, 2018

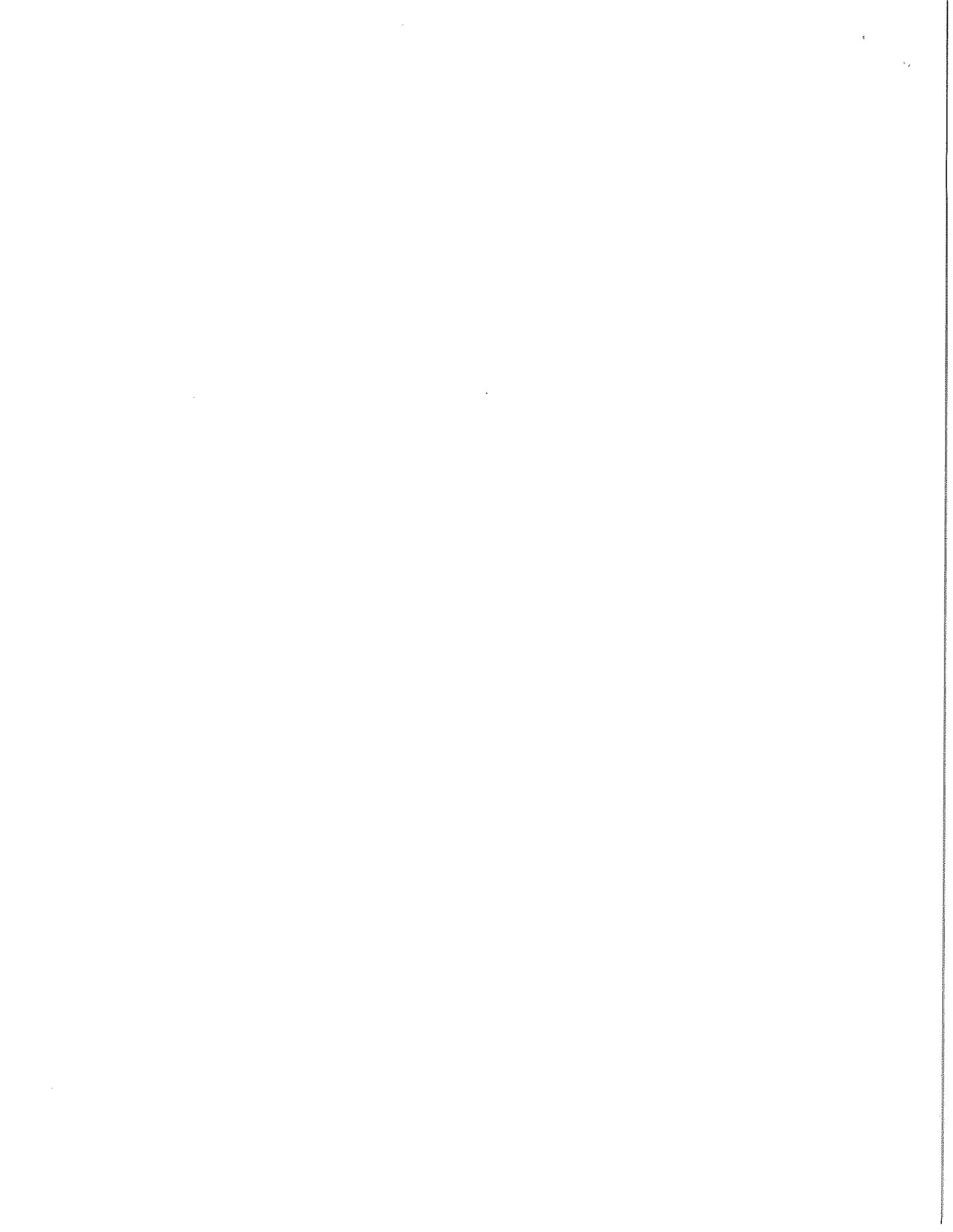
CHECK NO.
 300532

AMOUNT
 \$*****40,500.00

Pay:*****Forty thousand five hundred dollars and no cents

PAY TO THE ORDER OF
 Town of Westport

⑆000300532⑆ ⑆21371489⑆1221053992⑆





June 11, 2018

Reference No. 11177357

Ms. Alicia Mozian
Conservation Director
Town Hall, 110 Myrtle Avenue
Westport, CT 06880

Dear Ms. Mozian:

**Re: Proposal for Third Party Review
Hiawatha Lane, Affordable Housing Project, Westport, Connecticut**

1. Introduction

GHD Services Inc ("GHD") is pleased to present this proposal to the Town of Westport ("Westport") to provide Third Party Review services of the proposed Affordable Housing Project located on Hiawatha Lane in the Town of Westport, Connecticut ("Site"), as described more fully in your May 15, 2018 letter RE: RFP—Third Party Review, Hiawatha Lane, Affordable Housing Project, Westport CT ("RFP").

2. Background

As described in the RFP, there is an 8-30g application submitted to the Westport Conservation Department for a proposed 187 apartment complex, consisting of five separate buildings and a parking lot for 343 spaces at the Site ("Project"). Westport is requesting a Third Party Review of the application. Specifically, the review will focus on potential impacts to the wetlands, watercourses and the 25-year floodplain, as well as reviewing the stormwater components of the project insofar as water quality treatment is concerned, and potential impacts to surface water quality. The public hearing on the Project is scheduled for July 18.

3. Scope of Services

Our Scope of Services will include:

- Review application material
- Site inspection
- Identify additional information needed to evaluate the Project within the purview of the Westport Inland Wetland and Watercourse (IWW) Regulations and Westport Waterway Protection Line Ordinance
- Attend two to three public hearings



- Prepare an initial report to the Westport Conservation Commission, with additional reports as needed
- Review draft findings and resolution, and
- Meet and dialogue with Westport Conservation Department staff and applicant's agents as necessary

4. Cost and Schedule

GHD proposes work on a time and materials basis. For the purpose of this proposal, GHD proposes a budget of \$27,000 U.S. The estimated cost is based on the number of meetings listed above and assumes that one meeting with the Conservation Staff and applicant's agents will be necessary and other discussions can be accomplished via conference calls or other remote communications.

GHD does not charge a premium for overtime, weekend, or holiday work necessary to meet client deadlines. The above estimate includes all professional fees, disbursements, and subcontractor fees, as appropriate. Subcontractors shall not be engaged to perform any part of the Scope of Services without Westport's prior written consent. In the event of unforeseen scope changes that may exceed the proposed budget, GHD will identify any potential increases in effort or costs and obtain client approval before proceeding. GHD will make every effort to complete this project and satisfy project objectives as cost effectively as possible.

In order for the Westport Conservation Department, Westport Conservation Commission and the applicant to review our work before the scheduled July 18, 2018 public meeting on the application, we agree that our initial report will be delivered to the Westport Conservation Department on or before July 2, 2018 unless otherwise agreed in writing by the Westport Conservation Department at least 7 days prior to July 2.

The Third Party Review and the other rights and obligations of the parties shall be on the terms and conditions set forth in this proposal letter and in the Terms and Conditions contained in Attachment 1, which are incorporated herein by reference and made a part of this agreement (together, "Agreement"). A copy of this proposal letter, when signed below by me and by an authorized representative of Westport, constitutes a binding agreement between us effective the date signed by Westport. GHD will initiate project work immediately upon such authorization by Westport.

We appreciate the opportunity to submit this proposal for Third Party Review services and look forward to working with you on this project. Please contact the undersigned at (860) 747-1800 if you require further information or clarification.



Sincerely,

GHD

A handwritten signature in cursive script that reads "Stuart Manley".

Stuart Manley, LEP, LSP, CHMM

SM/sm/1

ACCEPTED AND AGREED:

June 11, 2018

Date

A handwritten signature in cursive script that reads "Alicia M. Mozian".

Alicia Mozian

Conservation Director

Authorized Representative for Town of Westport



Reference No.: 11177357

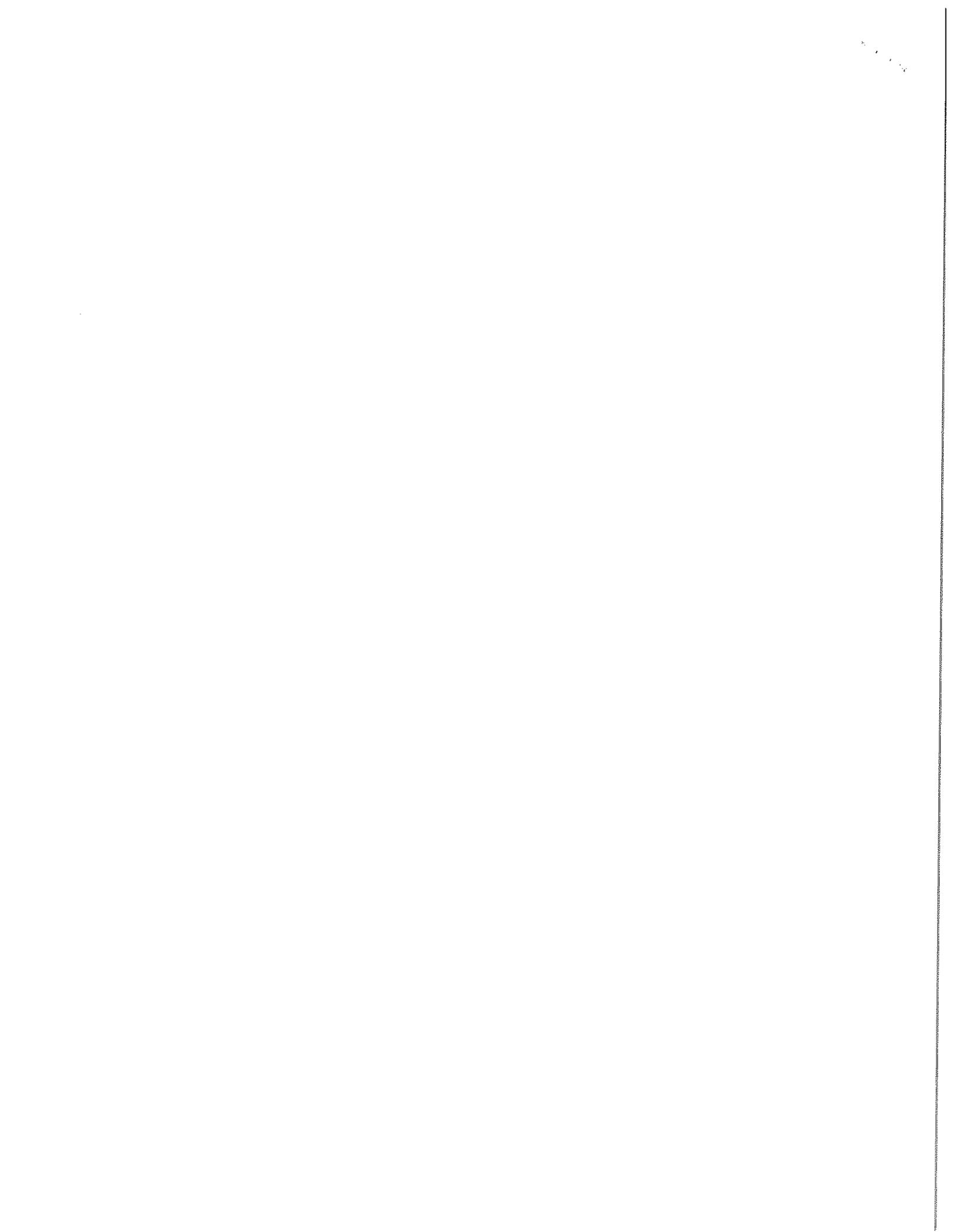
Attachment 1

Terms and Conditions

1. These Terms and Conditions, together with the attached proposal, constitute the Agreement between GHD Services Inc. ("GHD") and the Town of Westport ("Client") to perform the services.
2. Invoices for services rendered will be issued monthly payable on receipt. Amounts due will be increased at the rate of 1 1/2 percent per month if not paid within 30 days after receipt of invoice. GHD reserves the right, without penalty, to discontinue services in the event of non-payment of undisputed amounts.
3. GHD will maintain: workers' compensation insurance as required under the laws of Connecticut; commercial general liability insurance with a combined single limit of \$1,000,000 per occurrence and \$2,000,000 in the aggregate for bodily injury, including death and property damage; automobile liability insurance with a combined single limit of \$1,000,000 per occurrence; professional liability insurance in the amount of \$1,000,000 per claim and in the aggregate; and contractor's pollution liability insurance in the amount of \$1,000,000 per occurrence and in the aggregate. Prior to Client's signing the Agreement, GHD will furnish Client with a certificate of insurance evidencing the coverages listed above and providing prior written notice in the event of cancellation or material change in coverage. With the exception of worker's compensation and professional liability insurance, the Town of Westport will be named as an additional insured. Insurance shall be primary and non-contributory, and with the exception of worker's compensation and professional liability insurance, a waiver of subrogation shall apply.
4. GHD's services are solely for Client's benefit and may not be relied upon by any third party without GHD's express written consent. Any use, change, or distribution of work product without the written consent of GHD shall be at Client's risk and will not give rise to liability of GHD.
5. GHD shall perform its professional services in the manner consistent with the level of care and skill ordinarily exercised by other professional firms acting under similar circumstances and at similar times. All professionals shall maintain all required certifications, licenses and other professional qualifications required to perform the services under this Agreement. GHD makes no other warranty, implied or expressed.
6. GHD shall indemnify and hold harmless Client for its services to the extent GHD's neglect or willful misconduct causes liability for the Client. Neither party shall be liable for any consequential loss, injury or damages suffered by the other party, including but not limited to loss of use, earnings, and business interruption.
7. To the maximum extent permitted by law, GHD's liability and that of its employees, agents, directors, officers, and subcontractors to Client due to any negligent acts, errors or omissions, shall not exceed the amount of insurance coverage, except as to damages resulting from the gross negligence or willful misconduct of GHD.
8. Client acknowledges that the pre-existing presence, if any, of pollutants, and other potentially hazardous conditions at the project site were not caused by or are not the responsibility of GHD, and that this contractual arrangement does not transfer any legal responsibilities for such conditions to GHD.
9. GHD may terminate this Agreement for nonpayment or other default by Client. Client may terminate this Agreement at any time, and in such event shall pay GHD for the services performed and reimbursable expenses incurred to the date of termination.



10. GHD's services will be performed by one or more of the personnel presented in GHD's May 20, 2018 proposal to the Client, Reference #11034002, or similarly qualified personnel.
11. GHD agrees and acknowledges that GHD is an independent contractor and that neither it nor any of its employees, members or managers is an employee, partner, or co-venturer of the Client. Neither party is authorized to speak for, represent, or obligate the other party in any manner without its prior express written authorization.
12. GHD and its employees, officers, directors and agents shall be responsible for all taxes arising from compensation and other amounts paid under this Agreement, and GHD shall be responsible for all payroll taxes and fringe benefits of its own employees, officers, directors and agents. Each party understands that it is responsible to pay, according to law, its own taxes.
13. All notices shall be in writing and sufficient if delivered personally, delivered by certified United States Post Office mail, return receipt requested, or sent via a nationally-recognized overnight courier service (charges prepaid), signature required, and addressed to the intended recipient to the respective address of that recipient that is on the first page of the proposal letter, addressed to the attention of the person who signed this Agreement on behalf of GHD and the Client, respectively.
14. This Agreement, incorporating the signed proposal letter and this Attachment 1, embodies the complete agreement and understanding between the parties. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument. The provisions of this Agreement may be amended and waived only with the prior written consent of GHD and the Client. This Agreement shall be governed by and construed in accordance with the laws of the State of Connecticut. In the event of a final adjudication that any provision of this Agreement is invalid or unenforceable, such provision shall be deemed severable from the remaining provisions of this Agreement, and the remaining provisions shall remain in full force and effect, unless the provision is adjudicated as so essential to the Agreement as to render performance of the Agreement impossible in its absence. This Agreement shall not be assigned by the GHD without the prior written consent of the Client in its sole discretion.





Memorandum

FILE COPY

July 11, 2018

To: Town of Westport, Connecticut
Alicia Mozian, Conservation Director

Ref. No.: 11177357

From: GHD
Jeff Lambert, PE, Scott Bush, PWS, Jeff Bellino, PE

Tel: 860-747-1800

CC:

Subject: **Third Party Review:
Hiawatha Lane, Affordable Housing Project, Westport, Connecticut**

1. Background

A local development company, Summit Saugatuck, LLC, submitted an 8-30G application to the Westport Conservation Department (the Town) for a proposed affordable housing project consisting of a 187 unit apartment complex comprised of five individual structures and parking facility for 343 vehicles (the Project). The existing site includes 10 parcels with single-family homes that will be demolished to allow for construction of the apartment complex. The Project will include four 3-story buildings, one 4-story building, partial underground parking, and associated site work and utilities.

2. Purpose of Technical Memorandum

The Town requested proposals for a third party review of the Project as described in the May 15, 2018 letter "RE: RFP – Third Party Review, Hiawatha Lane, Affordable Housing Project, Westport, CT". Specifically, the Town is interested in review of the potential impacts the Project may have on the wetlands, watercourses, and the flood plain, as well as reviewing the proposed stormwater management systems. The stormwater management systems will be reviewed with respect to water quality treatment and the potential impacts to surface water quality.

In this report, each item reviewed was assigned either "appears to be adequate", meaning there was sufficient information provided and the proposed work appears to be in conformance with the Town of Westport Drainage Design Manual, CT DEEP Water Quality Manual, and accepted practice for civil engineering; or "appears to be inadequate", meaning there was not sufficient information provided, or the item does not appear to be in conformance with the Town of Westport Drainage Design Standards, CT DEEP Stormwater Quality Manual or accepted civil engineering practice.



3. Documents Reviewed

The following appendices submitted with the application were reviewed to assess the adequacy of the proposed work and identify the potential impacts to the wetlands and surface water quality:

1. Plans entitled "The Village at Saugatuck, Westport, Connecticut Application for Inlands Wetland Regulated Activity Permit and Waterway Protection Line Ordinance Approval", dated May 7, 2018
2. Extreme precipitation tables
3. Stormwater calculations
4. Stormwater management report
5. Infiltration chambers
6. Operations and maintenance plans
7. Soil tests
8. Wetland delineation report
9. Wetland assessment
10. Wetland Function and Values

4. Engineered Plans

The plans submitted with the application were reviewed for general conformance with Town of Westport Drainage Design Standards (and the November 1, 2015 update document) (Town standards), 2004 Connecticut Stormwater Quality Manual (State manual), and the typical standard of care for civil engineering practice. They include layout plans, existing conditions plans, grading and utility plans, landscape plans, erosion control plans, construction phasing plans, mechanical (wastewater) plans, profiles, and construction details.

Overall, the level of detail and comprehensiveness of the engineered plans submitted by the applicant were adequate for permit-level design drawings.

5. Runoff Calculations

The applicant used accepted civil engineering methods to perform runoff calculations, including "Urban Hydrology for Small Watersheds, Technical Release 55" to estimate peak runoff rates for Type III 24-hour storms and Bentley PondPack v10.1 to model the existing and proposed stormwater systems. The model inputs including drainage areas, curve numbers, and times of concentration, appear to be reasonable and adequate. Per the Town standards, the applicant used the current Extreme Precipitation Tables prepared by the Northeast Regional Climate Center.

Please note, not all calculations and models were re-calculated or re-computed during this review. It is the responsibility of the design engineer sealing the documents to perform calculations and the hydrologic and hydraulic modelling. To assess the adequacy of the proposed stormwater management systems, GHD randomly "spot-checked" various inputs and outputs of the model and calculations, paying close attention to the stormwater systems that may have a higher risk of adversely affecting the wetland or water quality.



Overall, the existing runoff calculations appear to be adequate and in general conformance with the Town standards and the State manual.

Although the proposed project increases impervious surfaces from 1.1 acres (pre-development) to 3.9 acres (post-development), there is a net decrease in runoff for the site. Storage and infiltration from the proposed stormwater management systems reduces peak flows generated during the 1, 2, 10, and 25-year storms to values less than the pre-development conditions. The proposed calculations appear to be adequate and in conformance with the Town standards; however, there is a lack of information regarding runoff generated during the 100-year event. The Town standards require the engineered stormwater managements systems to accommodate the 25-year type III design storm whereas the CT manual recommends peak runoff attenuation during the 100-year event.

GHD recommends that the applicant show the topography of the wetland (2' GIS contours) and perform runoff calculations for the 100-year event to quantify the impact to the wetland water surface elevation as well as the potential risk of flooding down-stream properties.

See below table for a summary of the existing and proposed runoff calculations.

Table 5.1 Summary of Runoff Calculations

Item	Adequacy	Reason	Action Item
Existing runoff calculations	Appear to be adequate	Appear to conform to design guidelines	N/A
Proposed runoff calculations	Appear to be inadequate	Does not include analysis for the 100-year storm, specifically related to offsite flooding and impact to water surface elevation of wetland	Show topography on plans to the south of the site (wetland) and summarize impacts of 100-year storm

6. Stormwater Management Systems

The proposed site will utilize the following stormwater management system components to treat, store, and infiltrate runoff:

- Catch basin inlet filters
- Stormwater infiltration basins
- Underground infiltration systems
- Rain gardens
- Footing Drains
- Level Spreaders
- Trench Drains
- Storm Sewer Piping



6.1 Catch basins and Inlet Filters

The proposed site utilizes 15 catch basins to collect runoff, each are to be equipped with an AbTech Industries catch basin inlet filter to provide pretreatment. According to the manufacturer, the filters are capable of removing 80% total suspended solids (TSS) and 80% oil and gas for flows up to 500 gallons per minute (gpm). The filters are specified to contain additional media ("Smart Sponge") to help remove heavy metals and bacteria from the runoff. Due to the proprietary nature of inlet filters, there is little design guidance other than what each individual manufacturer recommends.

Overall, the inlet filters appear to be adequate however, for them to function properly they must be replaced every 1 to 3 years (according to the manufacturer.) The applicant has proposed, for the first year, to inspect and clean quarterly, and from the second year onward to inspect and clean twice per year.

The proposed catch basin structures have an internal diameter of 3-feet (ft) with a 2-ft deep sump. The State manual recommends a 4-ft internal diameter and a 4-ft deep sump from the invert of the outlet pipe to the bottom of the structure. The deep sump will aid in sediment and trash removal should the inlet filters become clogged or exceed their capacity of 500 gpm.

See below table for a summary of the proposed catch basins and inlet filters.

Table 6.1 Summary of Catch Basins and Inlet Filters

Item	Adequacy	Reason	Action Item
Inlet filters	Appear to be adequate	Provide pre-treatment (TSS, oil, heavy metal removal)	N/A
Catch basin structures	Appear to be Inadequate	<ul style="list-style-type: none"> 2-ft sump is too small 3-ft internal diameter is too small 	All structures have an internal diameter of 4-ft and a 4-ft deep sump

6.2 Infiltration Basins

The proposed site utilizes three at-grade, open stormwater infiltration basins to provide stage storage and infiltration of stormwater. The infiltration basins were designed to infiltrate the 1-inch water quality volume and provide storage for peak flows up to the 25-year storm with negligible overflow. Test pits indicate percolation rates greater than the minimum of 0.3 inches per hour (in/hr) for infiltration basins. Because infiltration rates are greater than 3 in/hr, pretreatment is required, which the applicant has included in the design. However, two test pits (TP-7 and TP-8) exhibit percolation rates of 10.5 in/hr and 13.5 in/hr that is greater than 5.0 in/hr recommended by the State.

GHD recommends that the applicant provide a construction detail or specification for the infiltration basins. The proposed soil matrix used to construct the basin (bottom, sub-grade, and side slopes) should be designed such that it can impede infiltration velocity to 5.0 in/hr to provide the proper hydraulic residence time to allow sufficient time for treatment by improving water quality as it percolates through the subsurface.

See below table for a summary of the proposed infiltration basins.



Table 6.2 Summary of Infiltration Basins

Item	Adequacy	Reason	Action Item
Water quality volume (1")	Appear to be adequate	Systems designed to infiltrate 1-inch water quality volume	N/A
Peak rate attenuation (up to 25-year)	Appear to be adequate	Systems can store 25-year storm with negligible overflow	N/A
Percolation rates	Appear to be inadequate	Test pits TP-7 and TP- 8 (for systems BB-2 and BB-4) exceed the State recommended percolation rate of 5 in/hr and may not provide minimum residence time of 12 hours	Utilize engineered soil to provide a hydraulic residence time of 12 hours
Construction details	Appear to be inadequate	Plans do not provide information or show details for construction of infiltration basins	Provide typical section and construction detail showing dimensions, materials, surface treatment, etc.

6.3 Underground Infiltration Systems

The proposed site utilizes three large underground infiltration systems (StormTech SC-740 chambers) to provide storage and infiltration of stormwater. The infiltration systems were designed to infiltrate the 1-inch water quality volume and provide storage for peak flows up to the 25-year storm, with negligible surcharge to a secondary component (rain garden or level spreader). As suggested in the State manual, the systems utilize catch basin inserts as pretreatment. Test pits indicate percolation rates greater than the minimum of 0.3 in/hr for underground infiltration systems. However, two test pits (TP-5 and TP-6) exhibit percolation rates of 8.25 in/hr and 10.5 in/hr that is greater than maximum of 5.0 in/hr recommended by the State.

GHD recommends that the applicant provide further information on the "basis of design" for the underground infiltration systems, specifically how the percolation rate will not adversely affect the wetland. If the applicant proposes to remove and replace the unsuitable material below the chambers with a slower draining material (to allow for increased hydraulic residence time), they must provide backup documentation.

In addition, the construction detail on sheet SP-5.3 entitled "Isolator Row and Inspection Port" refers to the installation of the inspection ports being optional; GHD recommends requiring at least one inspection port on all rows of chambers in the underground infiltration systems. Inspection ports allow the inspector to understand how much sediment or standing water is in the system, which helps determine system condition and whether or not it needs replacement or rehabilitation.

See below table for a summary of the underground infiltration systems.



Table 6.3 Summary of Underground Infiltration Systems

Item	Adequacy	Reason	Action Item
Water quality volume (1")	Appear to be adequate	Systems designed to infiltrate 1-inch water quality volume	N/A
Peak rate attenuation (up to 25-year)	Appear to be adequate	Systems can store 25-year storm with negligible overflow	N/A
Percolation rates	Appear to be inadequate	Test pits TP-5 and TP- 6 (for systems BB-1 and BB-3) exceed the State recommended percolation rate of 5 in/hr and may not provide minimum residence time of 6 hours	<ul style="list-style-type: none"> • Provide information on how this will not adversely impact wetland • If engineered soil material is proposed to increase residence time, provide backup documentation
Construction details	Appear to be inadequate	Sheet SP-5.3 refers to the installation of inspection ports being optional	Provide at least one inspection port on each row of chambers in each system

6.4 Rain Gardens

The proposed site utilizes six small rain gardens, or bioretention facilities, to store and infiltrate stormwater from the green roof, parking lot, and overflow from other stormwater systems should they surcharge. The rain gardens appear to use a stone check dam to create a forebay within the raingarden to provide pretreatment in addition to treatment provided by the catch basin filters and the green roof. They appear to provide at least three feet of separation between the bottom of the rain garden and the water table as recommended in the State manual. The composition of the filter bed, although proprietary, appears to be adequate and consists of layers of mulch, amended soil, subbase, geotextile, a drainage course, and river stone. Some of the systems utilize an 8-inch PVC riser pipe to allow for a 6-inch ponding depth prior to discharge to other stormwater management systems.

See below table for a summary of the proposed rain gardens.

Table 6.4 Summary of Rain Gardens

Item	Adequacy	Reason	Action Item
Rain Garden	Appear to be adequate	Systems appear to be adequately designed	N/A

6.5 Footing Drains

The proposed design utilizes foundation footing drains that discharge to two different locations on site; one footing drain (for building E) connects directly to the existing storm sewer on Hiawatha Lane and the other footing drain (serving buildings A, B, C and D) drains through a drainage manhole and is routed to a level spreader. According to the Town standards, footing drains shall not be connected to the Town-owned storm sewer unless specifically allowed by the director of Public Works.

Unless permission to connect to the Town storm sewer has already been granted, GHD recommends that the applicant seek permission to do so. If permission has not yet been granted, a capacity analysis of the



existing storm sewer should be performed to evaluate if the piping can accommodate the additional proposed flows.

Sheet SP-2.2 also refers to a “building sump pump” in the garage of Building A; The application provides little to no information regarding the routing, discharge capacity, or discharge location. GHD recommends that the applicant submit detailed information on this pumping system.

See below table for a summary of the proposed foundation footing drains.

Table 6.5 Summary of Footing Drains

Item	Adequacy	Reason	Action Item
Footing Drain (Building E)	Appear to be inadequate	Proposed system is connected directly to Town-owned storm sewer	Applicant to seek permission to discharge to storm sewer and provide capacity analysis under existing and proposed conditions
Sump Pumps	Appear to be inadequate	Sheet SP-2.2 refers to a building sump pump in the garage of Building A. Routing of the discharge is unknown.	<ul style="list-style-type: none"> Applicant to provide information on all building sump pump discharge locations. If discharges connected to Town-owned storm sewer, provide analysis on pipe capacity with actual pump flow rates

6.6 Level Spreaders and Basin Overflows

The proposed design utilizes two 70-foot long level spreaders to distribute concentrated flows from day-lighted discharge pipes (end sections) prior to entering the wetland. Per the Town standards, the proposed level spreaders were designed to promote “overland flow” and maintain a maximum water depth of ½-inch for the 25-year storm. Basin overflows on BB-2 and BB-4 were also designed to maintain overland flow conditions by maintaining a maximum water depth of ½-inch for the 25-year storm.

Overall, the proposed level spreaders and basin overflows appear to be adequate. See below table for a summary.

Table 6.6 Summary of Level Spreaders and Basin Overflows

Item	Adequacy	Reason	Action Item
Level Spreaders and Basin Overflows	Appear to be adequate	Proposed systems appear to promote overland flow by maintaining a maximum water depth of ½-inch for the 25-year storm.	N/A

6.7 Storm sewer piping

The proposed alignment, routing, and depth of cover (2-feet) of the storm sewer piping appear to be acceptable. However, the pipe diameter and material are not provided for the storm sewer (mains).



Table 6.7 Summary of Storm Sewer Piping

Item	Adequacy	Reason	Action Item
Storm Sewer Piping	Appear to be inadequate	Unable to locate pipe type or diameter of storm sewer mains.	Applicant to specify pipe type and diameter of storm sewer mains.

6.8 Trench Drains

The proposed site utilizes several trench drains to collect runoff (sheet flow) prior to entering the garage and Hiawatha Lane. Trench drains are acceptable but they must be inspected and cleaned frequently, as they are susceptible to clogging with sediment, leaves, and debris. The applicant should specify the trench drain inspection and maintenance schedule in the Operation and Maintenance Plan.

Table 6.8 Summary of Trench Drains

Item	Adequacy	Reason	Action Item
Trench Drains	Appear to be inadequate	Unable to locate information on operation and maintenance for trench drains	Applicant to address trench drains in operation and maintenance plan.

6.9 Green Roof

The proposed buildings utilize a green roof to incorporate low impact development (LID) into the design. The green roof serves as the first component of treatment for the rainfall that precipitates onto the buildings before it is routed to subsequent stormwater management components. For the green roof to function properly and provide suitable stormwater treatment, it must be regularly monitored and maintained. GHD was unable to identify engineering plans, details or notes for the green roof. In addition, the Operation and Maintenance plan did not include information regarding the green roof.

The applicant should specify the components of the green roof including drainage, membranes, substrates, vegetation, and irrigation. The applicant should provide construction details, plans, notes, and include detailed information in the Operation and Maintenance plan.



Table 6.9 Summary of Green Roof

Item	Adequacy	Reason	Action Item
Green Roof	Appears to be inadequate	Unable to locate detailed information on green roof construction and operation and maintenance	Applicant to provide detailed information on green roof, including plans, details, notes, and operation and maintenance plan.

7. Operation and Maintenance Plan

Overall, the operation and maintenance plan appears to be adequate (for the components identified). However, the applicant did not address the following items:

- Trench drains
- Ensure that the rain gardens remain vegetated
- Plowing and road salt application

As previously stated, trench drains are an acceptable means for collecting runoff, especially sheet flow, but must be maintained more frequently than catch basins. The grate size and long narrow shape of these structures make them susceptible to clogging thereby reducing inlet capacity. When these structures fail (due to clogging) the sheet flow they were intended to capture will travel past the grate and flow to Hiawatha Lane, the underground parking area, or other unplanned areas.

Per the Town standards (Item 5, Engineered Systems), the applicant must include a maintenance narrative explaining how the six proposed rain gardens will not become permanent wetlands overtime.

The operation and maintenance plan does not address snow plowing or deicing measures, specifically the application of road salt. GHD is concerned that salt-laden snow and any resulting runoff from snowmelt may negatively affect the wetland. GHD recommends that the applicant delineate, on the plans, "snow disposal areas" that are located as far from the wetland as possible. The applicant should also demonstrate how de-icing chemicals, excess sand, and road salt will not negatively impact the wetlands or stormwater management systems.

In addition, the operation and maintenance should include the proposed green roof and identify the frequency of inspections during vegetation establishment (minimum of 5 years), the acceptable level of plant mortality, removal of invasive plants and acceptable limits of bare ground. In addition, there should be a long term Operation and Maintenance Plan to ensure the green roof remains vegetated.



Table 7.1 Summary of Operation and Maintenance Plan

Item	Adequacy	Reason	Action Item
Trench Drains	Appear to be inadequate	Unable to locate information on operation and maintenance for trench drains	Applicant to address trench drains in operation and maintenance plan.
Rain Gardens	Appear to be inadequate	Unable to locate information on methods to prevent rain garden from becoming permanent wetland	Applicant to address methods to prevent rain gardens from becoming permanent wetland
Snow plowing and de-icing	Appear to be inadequate	Unable to locate information on snow plowing and de-icing and how these activities will not adversely impact the wetlands or stormwater management systems	Applicant to address the following: <ul style="list-style-type: none"> • Provide snow disposal areas on plans • Document how sand and de-icing chemicals will not adversely impact the wetland or stormwater management systems
Green Roof	Appear to be inadequate	Unable to locate information on operation and maintenance for the green roof	Application to address methods to ensure the green roof is properly established and maintained: <ul style="list-style-type: none"> • Inspection frequency during vegetation establishment • Acceptable level of plant mortality. • Removal of invasive plants • Acceptable limits of bare ground. 1 • Long term plan to ensure the green roof remains vegetated

8. Erosion and Sedimentation Controls

The applicant submitted a comprehensive erosion and sedimentation plan, construction details, construction notes, and a phasing plan. Proposed erosion control measures include catch basin inserts, double-row silt fence, contained soil stockpiles, inlet protection, construction entrances, coir logs, and sediment traps.

The narrative provided in the notes on sheet SP-4.1 summarizes the following goals for a comprehensive erosion and sedimentation control plan:

- Trapping particles at source by promptly stabilizing disturbed areas
- Avoiding concentration of runoff
- Avoiding contamination of existing storm drains
- Weekly maintenance (and after storm events) of controls

See below table for a summary of the proposed erosion and sedimentation control plan.



Table 8.1. Summary of Erosion and Sedimentation Controls

Item	Adequacy	Reason	Action Item
Erosion and Sedimentation Control Plans	Appear to be adequate	Plans, notes, and details appear to be adequate	N/A

9. Potential Impacts to Wetlands

GHD has reviewed the Application of Summit Saugatuck LLC for Regulated Activity Permit and Waterway Protection Line Ordinance Approval, Hiawatha Lane and Hiawatha Lane Extension, dated May 14, 2018, and the supporting technical reports and attachments. These documents discuss the existing regulated and non-regulated resources in and adjoining the Site and provide an analysis of potential impacts resulting from the proposed development. These documents also discuss proposed mitigation measures incorporated into the project design to mitigate identified potential impacts to the wetlands and waterways on the Site.

Based on these documents:

- The applicant is not proposing any direct impacts to wetlands or waterways on or adjoining the site.
- The applicant has identified that potential secondary impacts to wetlands and watercourse related to construction (short-term) and increased impervious surfaces and stormwater run-off (long-term) could occur, if unmitigated.
- The applicant has provided an analysis and discussion of proposed mitigation measures to address potential short-term and long-term adverse impacts on the wetlands and watercourses as a result of the project. The proposed mitigation measures include an erosion and sedimentation control plan to address potential short-term due to construction activities and a comprehensive stormwater management plan to address potential long-term adverse impacts to the wetlands and water courses.

The stormwater management plan presented incorporates a variety of accepted best management practices to address stormwater quantity and stormwater quality generated by the project prior to its discharge to the wetland. GHD has reviewed the stormwater management plan and has identified items where additional information is required or where inadequacies exist in the design (see Item 6). If these inadequacies can be addressed to GHD's and the Towns satisfaction, the amended stormwater management plan will appear to be adequate to mitigate potential long-term adverse impacts to the wetlands and waterways.

As previously expresses in this memorandum (see Item 7), the stormwater management facilities designed for this facility must be properly inspected and maintained on a regular basis on order to perform their designed functions. GHD recommends that the applicant provide the Town with financial assurances for the inspection and maintenance of the stormwater system.

GHD believes the erosion and sedimentation control plan is adequate as presented and meets the Town and state standards for erosion and sedimentation control plans (see Item 8). The plan appears adequate to mitigate potential short term impacts resulting from construction.



GHD believes the applicant has adequately identified and characterized the wetland and watercourse resources on the Site. The applicant proposes to place 2.8 acres into a conservation easement that includes the wetlands and watercourses on the Site. The applicant also proposes to install permanent markers to delineate the easement boundary.

However, the applicant has not identified who will be the owner of the easement area that is responsible for the inspection; maintenance of the easement markers and protection of the easement; and funding for these actions.

GHD believes this easement and the proposed control of invasive species in the adjoining areas will benefit the wetland in the long term. GHD recommends the applicant provide a plan to address the maintenance of the easement area. The plan should include the removal of invasive plants and a schedule of proposed native plants; including the species, size and form of materials to be used. In addition, the plan should include proposed monitoring and performance standards where native planting and invasive species control will occur. At a minimum, all dead tree and shrub specimens will be replaced during the first three (3) years, subsequently, if greater than 10 percent mortality is observed. The inspection and maintenance program should be conducted by a qualified landscaper with the appropriate credentials.

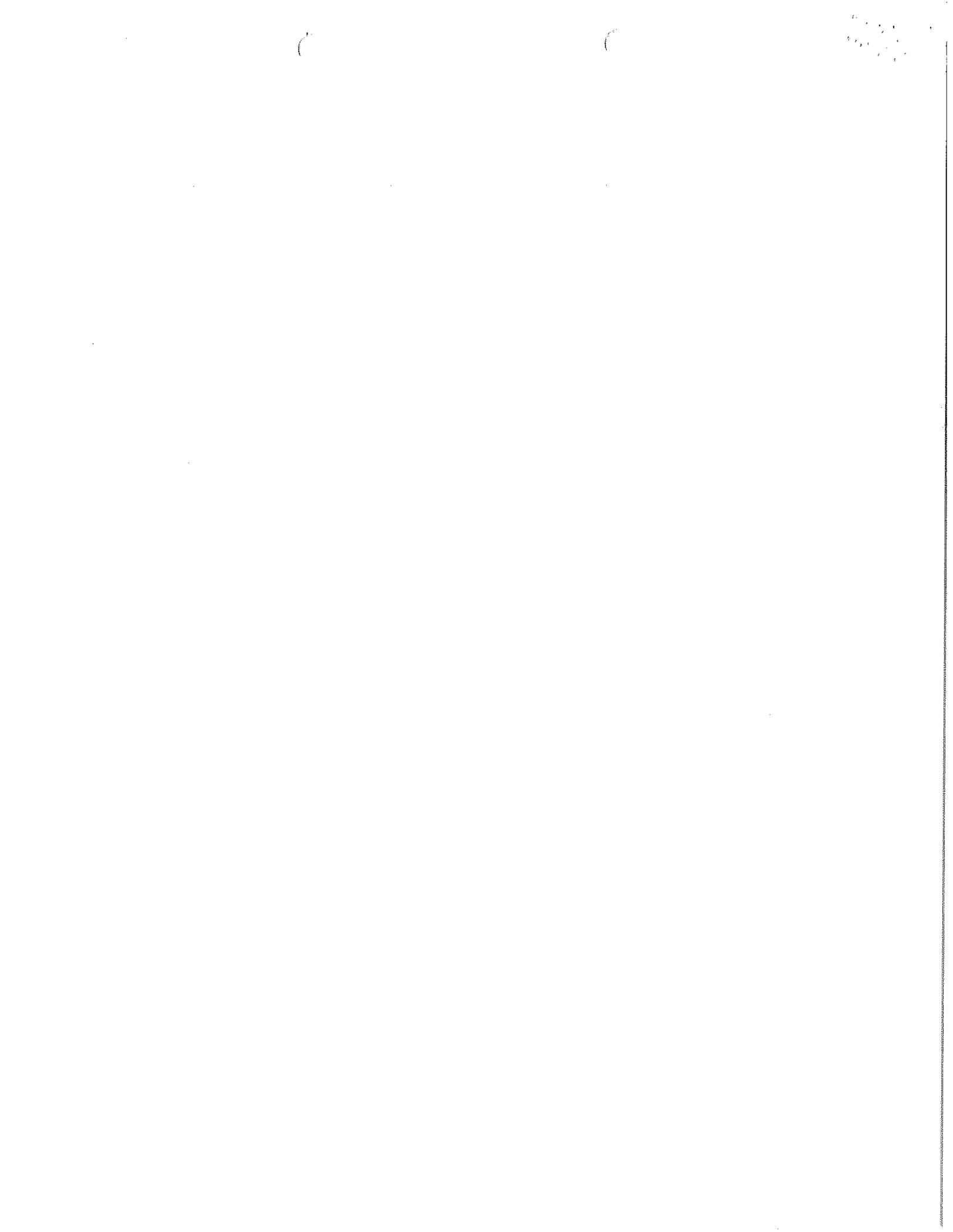
10. Summary of Recommendations

The following is a summary of the action items identified:

Item	Action Item
Proposed runoff calculations	Show topography on plans to the south of the site (wetland) and summarize impacts of 100-year storm
Proposed runoff calculations	Show topography on plans to the south of the site (wetland) and summarize impacts of 100-year storm
Catch basin structures	All structures have an internal diameter of 4-ft and a 4-ft deep sump
Infiltration basin percolation rates	Utilize engineered soil to provide a hydraulic residence time of 12 hours
Infiltration basin construction details	Provide typical section and construction detail showing dimensions, materials, surface treatment, etc.
Underground infiltration system percolation rates	Provide information on how this will not adversely impact wetland
Underground infiltration system construction details	If engineered soil material is proposed to increase residence time, provide backup documentation Provide at least one inspection port on each row of chambers in each system
Footing drain (Building E)	Seek permission to discharge to storm sewer and provide capacity analysis under existing and proposed conditions Provide information on all building sump pump discharge locations.
Footing drain sump pumps	If discharges are to be connected to Town-owned storm sewer, provide analysis on pipe capacity with actual pump flow rates
Storm sewer piping	Specify pipe type and diameter of storm sewer mains.
Green Roof	Applicant to provide detailed information on green roof, including; plans, details, notes, and operation and maintenance plan
Operations and Maintenance Plan - trench drains	Address trench drains in operation and maintenance plan.



Item	Action Item
Operations and Maintenance Plan - rain gardens	Address methods to prevent rain gardens from becoming permanent wetland
Operations and Maintenance Plan - snow plowing and de-icing	Provide snow disposal areas on plans Document how sand and de-icing chemicals will not adversely impact the wetland or stormwater management systems
Operation and Maintenance Plan – financial assurance	Provide the Town with financial assurances for the inspection and maintenance of the stormwater system
Operations and Maintenance Plan – green roof	Address methods to ensure the green roof is properly established and maintained: inspection frequency, acceptable plant mortality levels, removal of invasive plants; acceptable limits of bare ground, and Long term plan to ensure the green roof remains vegetated
Easement Area	Identify the owner of the easement area Identify who is responsible for the maintenance and protection of the easement area and funding for these actions Provide an easement area maintenance plan that includes: <ul style="list-style-type: none"> • removal of invasive plants and a • schedule of proposed native plants; including the species, size and form of materials to be used. In addition, the plan should include • proposed monitoring and performance standards • Conducted by a qualified landscaper



Alicia

Mozian, Alicia

From: Stuart.Manley@ghd.com
Sent: Wednesday, July 11, 2018 9:19 AM
To: Mozian, Alicia
Cc: Matharu, Amrik; Jeff Bellino; Scott.Bush@ghd.com; cctofiling@croworld.com
Subject: RE: Hiawatha ~COR-11177357~
Attachments: Hiawatha Lane Third Party Review - final.docx; Hiawatha Lane Third Party Review - final.pdf

Hi Alicia,
Attached please find the updated report. For your convenience, I have attached a pdf version as well.
In regards, to your comments below, I have inserted our responses.
I am available this afternoon if you have any additional comments or think revisions/additional detail is needed.
Thanks
Stuart

**Stuart Manley, LEP, LSP, CHMM
Associate**

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Please consider our environment before printing this email

From: Mozian, Alicia <AMOZIAN@westportct.gov>
Sent: Thursday, July 05, 2018 4:15 PM
To: Stuart Manley <Stuart.Manley@ghd.com>
Cc: Matharu, Amrik <amatharu@westportct.gov>
Subject: RE: Hiawatha ~COR-11177357~

Hi Stuart,

This report is good. Just a few things we think could be included though:

Section 7 on O&M:

How about the need for a detail of the green roof and how it will be installed, established and maintained?
Added to the report.

Section 8 on S&E:

Do you think the Construction Phasing Plan is adequate – looks like 8.5 +/- will be cleared all at once. How will they stabilize it over the short and long term during construction?
Yes, they have a thorough phasing plan. To stabilize disturbed areas they are proposing erosion control matting, mulch, vegetative cover, and sprinkling for airborne particulates. Note 20 on Sheet SP-4.1 states they are not to expose more than 5 acres at a time. They also mention they are to follow all applicable laws, perform work in accordance with the

"CT guidelines for erosion and sediment control" and other governing agencies. Note 21 on the same sheet states any disturbed area not under active construction for 7 days is to be stabilized with straw, stone or hydroseed. This all seems adequate.

Is there a need for soil stabilization on the steep slopes?

We did not identify extreme slopes (they appear to be 3:1 horizontal : vertical) and it appears they are proposing hydroseed and erosion control mat for these areas, which would be common practice.

Is there a need for a maintenance plan of the sediment basins during construction?

They will need to maintain sediment basins during construction. Note 22 on SP-4.1 states they are to remove sediment from sediment traps. It's a bit vague but I think they are trying to say they will be maintained and scraped out prior to conversion to infiltration basins.

Are the two rows at the edge of the construction sufficient?

Yes, they are proposing two rows of heavy duty silt fence that are to be keyed into the ground 6-inches and will utilize wire mesh for rigidity. As long as they are installed and maintained correctly there shouldn't be any issues.

Section 9 on Impacts to Wetland:

I would like to see a detail on the invasive plant removal and planting schedule though this could be a condition of approval, but more detail is needed for this area. Do you have a recommendation of what planting material would serve this purpose best?

Added to the report

Overall, looks like maintenance is the key to wetland protection.

How do you want to handle making these changes, if you deem them appropriate? At this time, would it be ok if I gave the applicant this draft but then you mark any changes as a supplement? I'll await your response before I send to the applicant.

Thanks very much.

Alicia

From: Stuart.Manley@ghd.com <Stuart.Manley@ghd.com>

Sent: Thursday, July 05, 2018 2:58 PM

To: Mozian, Alicia <AMOZIAN@westportct.gov>

Subject: RE: Hiawatha ~COR-11177357~

That's up to you, but think that is adequate.

Let me know if you think the description needs to be adjusted to what the Town will use.

Thanks

Stuart

Stuart Manley, LEP, LSP, CHMM
Associate

GHD

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From: Mozian, Alicia <AMOZIAN@westportct.gov>
Sent: Thursday, July 05, 2018 2:53 PM
To: Stuart Manley <Stuart.Manley@ghd.com>
Subject: RE: Hiawatha ~COR-11177357~

Thank you Stuart. I know a lot of times the various Town agencies require the posting of a bond. Would that suffice?

From: Stuart.Manley@ghd.com <Stuart.Manley@ghd.com>
Sent: Thursday, July 05, 2018 2:25 PM
To: Mozian, Alicia <AMOZIAN@westportct.gov>
Cc: Jeff Bellino <Jeffrey.Bellino@ghd.com>; Scott.Bush@ghd.com; cctofiling@croworld.com
Subject: RE: Hiawatha ~COR-11177357~

Hi Alicia,

Here's the draft memo for your review and comment.

Please note, we're recommending that some type of financial assurance be provided to ensure the O&M plan is implemented over the long term. I'm not sure if that would be setting a precedent or whether Town has a mechanism to manage it?

We can finalize the memo early next week after we receive your input.

Please feel free to call me if you have any questions or comments.

Stuart

Stuart Manley, LEP, LSP, CHMM
Associate

GHD

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From: Mozian, Alicia <AMOZIAN@westportct.gov>
Sent: Thursday, July 05, 2018 1:48 PM
To: Stuart Manley <Stuart.Manley@ghd.com>
Subject: RE: Hiawatha

Thanks very much.

From: Stuart.Manley@ghd.com <Stuart.Manley@ghd.com>
Sent: Thursday, July 05, 2018 1:43 PM
To: Mozian, Alicia <AMOZIAN@westportct.gov>
Subject: RE: Hiawatha

Hi Alicia,

I'm wrapping up the edits and will have a draft to you shortly.

Stuart

**Stuart Manley, LEP, LSP, CHMM
Associate**

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From: Mozian, Alicia <AMOZIAN@westportct.gov>

Sent: Thursday, July 05, 2018 1:24 PM

To: Stuart Manley <Stuart.Manley@ghd.com>

Subject: Hiawatha

Hi Stuart,

Just checking in to see how the report is coming along.

Thanks,

Alicia

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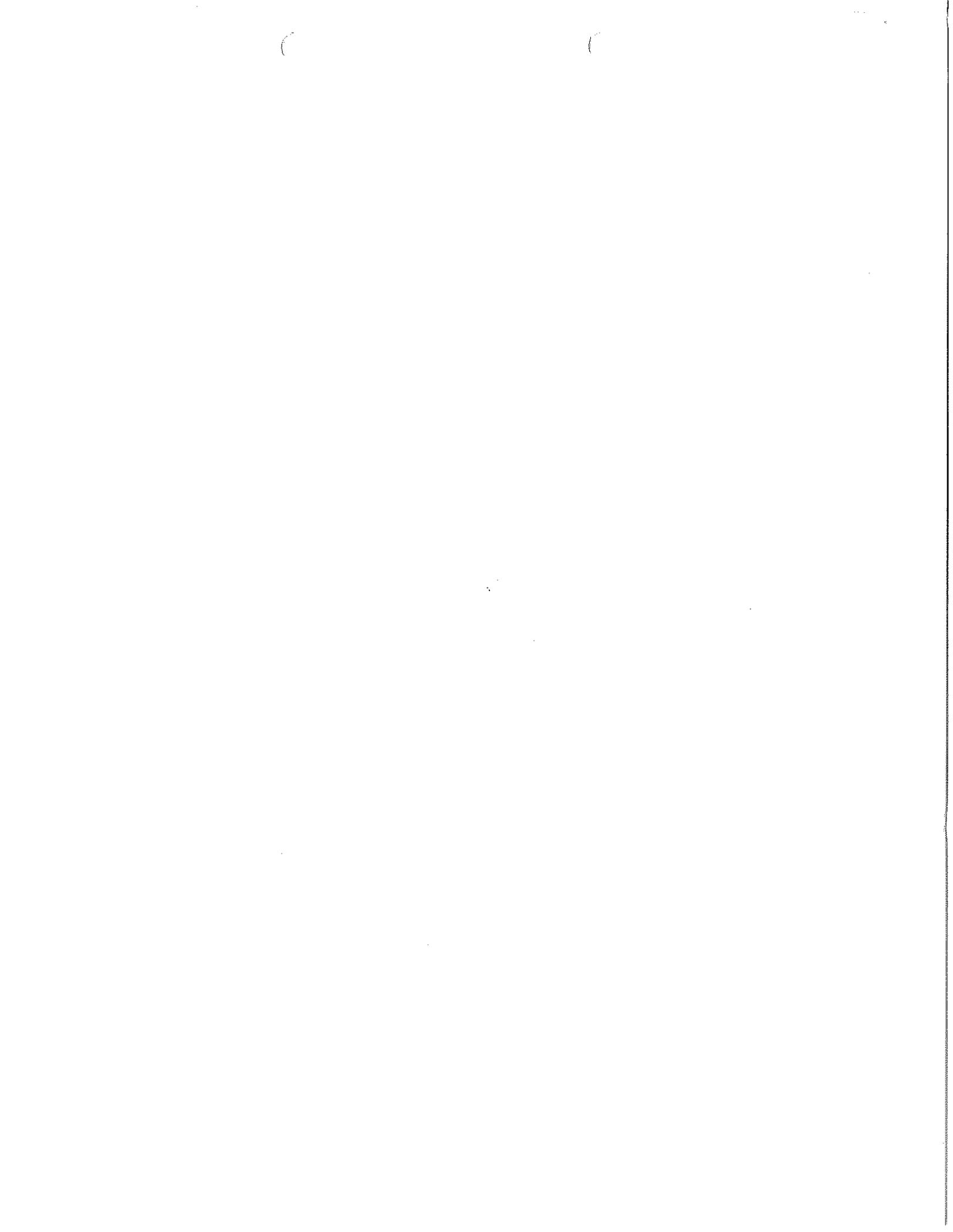
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Memorandum

SEP - 7 2018

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September 6, 2018

TOWN OF WESTPORT
CONSERVATION DEPARTMENT

To:	Town of Westport, Connecticut Alicia Mozian, Conservation Director	Ref. No.:	11177357
From:	GHD Jeff Lambert, PE, Scott Bush, PWS, Jeff Bellino, PE	Tel:	860-747-1800

CC:

**Subject: Third Party Review: Response to comments
Hiawatha Lane, Affordable Housing Project, Westport, Connecticut**

Response #1: The total parking count on the current site plan is 325 spaces, not 343.

Comment #1: Acknowledged.

Response #2: A further evaluation of potential impacts on surface elevation within the wetland south of the proposed redevelopment has been completed. This evaluation includes GIS topography with 1-foot contours and a PondPack modeling summary of existing and proposed conditions for the wetland area. Due to the proposed use of detention measures including below ground infiltration systems and infiltration basins, the total runoff volume decreases from existing to proposed conditions. This evaluation found that the project will not increase the peak water elevation within the wetland area for storms up to and including the 100-year storm, and therefore the redevelopment will have no impacts on the flooding of downstream properties. The peak water elevation decreases by approximately three quarters of an inch for the 100-year storm. See Exhibit 1, Wetland Water Level Impact Evaluation for additional information.

Comment #2: Additional evaluation and summary of results appear adequate

Response #3: The proposed catch basins have been revised to include a 4-foot internal width and 4-foot minimum sump. See Detail #5 on Sheet SP-5.2 for additional information.

Comment #3: Response appears acceptable

Response #4: An infiltration basin construction detail has been provided on Sheet SP-5.4, which includes the basin side slopes, bottom, sub-grade, and 6-inches of topsoil. SP-2.1 includes the required elevations and surface area for each infiltration basin. The basin seed mix, ERNMX-183, is shown on SP-3.1 and 3.2. The percolation rates provided are for subsoil only. The top soil percolation rate will likely be slower than the subsoil due to the presence of organic material. Testing of the topsoil will be conducted prior to construction and the topsoil amended if necessary to impede infiltration velocity to 5.0 inches per hour to provide the proper hydraulic residence times to allow sufficient time for treatment.

Comment #4: Response appears acceptable.



Response #5: As to percolation rates, BB-1 is more than 40 feet from the wetland and receives runoff only from the roof. BB-3 is more than 270 feet from the wetland. Regarding construction details, Detail 5 on sheet SP-5.3 has been revised to require an inspection port on each row of chambers in each system. The isolator rows in the underground infiltration systems will capture incoming sediment, slowing the infiltration rate over time as the sediment restricts the flow rate of the filter fabric lining the bottom of the isolator row.

Comment #5: Response appears adequate. The inspection port size identified is larger than the recommended 4" minimum necessary to allow for a vactor truck access for cleaning purposes.

Response #6: Exhibit 2 includes a sump pump detail and pump curves. The footing drain and sump pump for Building E will connect to a proposed catch basin on the project site, which will connect to an existing catch basin on Hiawatha Lane Extension. Hiawatha Lane Extension is a private street, which means town permission is not required for the connection. The 2-inch discharge pipe from the sump pump will connect to the proposed catch basin with a 12-inch diameter outlet pipe. The pump has a rating of 30 gpm, and the 12-inch pipe has a total capacity of 1,600 gpm, and an available capacity of 1,000 gpm during the 25-year storm. The flow from the sump pump and the remainder of the site is less than the predevelopment flow and the existing flow and that currently enter the existing catch basin.

The footing drain and sump pump for Buildings A-D will connect to a drainage manhole east of Building A, which will drain to a level spreader uphill of the wetland. This 3-inch discharge pipe will connect to a proposed manhole with a 15-inch diameter outlet pipe. The pump has a rating of 112 gpm, and the 15-inch pipe has a capacity of 2,050 gpm, and an available capacity of 1,060 gpm during the 25-year storm.

Comment #6: Response appears adequate. However, a baffled settling tank and/or a sump pump inspection program incorporated in the O&M plan are recommended to mitigate potential risks associated with chemicals being introduced to the sump pump and ultimately discharged to the wetland.

Response #7: The proposed type and diameter of the storm sewer mains have been added to sheets SP-2.1 and SP-2.2, where not previously provided.

Comment #7: Response appears adequate.

Response #8: Maintenance will include regular inspections and removal of accumulated sediment every 6 months. Full maintenance procedures have been added to the Operation and Maintenance Plan in Exhibit 3, and on the new full size plan sheet OM-1.

Comment #8: Response appears adequate



Response #9: *A detail of the green roof is provided on Sheet SP-5.4 including drainage, membranes, substrates, and vegetation. Irrigation will come from building mounted hose bibs. The maintenance plan includes requirements for establishing and maintaining vegetative cover, clearing drainage outlets, and making structural repairs. Guidance for actions to be taken in all 4 seasons is provided in the Operation and Maintenance Plan and on Sheet OM-1.*

Comment #9: Response appears adequate.

Response #10: *Maintenance procedures for the trench drains have been added to the Operation and Maintenance Plan. Maintenance procedures for the raingardens have been expanded in the Operation and Maintenance Plan, which includes removal of accumulated sediment and invasive plants.*

Snow disposal areas are located in corners of parking lots and have been noted on Sheets SP-1.1 and 1.2. Maintenance procedures for the green roof have been expanded and include requirements for establishing and maintaining vegetative cover as well as 4-season maintenance requirements. See the Operation and Maintenance Plan and sheet OM-1. See Exhibit 3 for more information.

Comment #10: Response appears adequate.

Response #11. *Improvements and clarifications to the stormwater management plan (GHD comments 6.1 to 6.8) have been addressed as discussed above and on the site plan as revised to August 24, 2018. Stormwater operations and maintenance (GHD comment 7.1) are addressed above and on the revised site plan.*

The "owner" (grantee) of the proposed Conservation Easement is the Town of Westport's choice, and is presumably the Town of Westport and/or its Conservation Commission. The applicant will accept a condition of approval requiring that the Conservation Easement will include each of the maintenance obligations listed in GHD's comment above, and otherwise will accept a standard Conservation Easement used by the Town of Westport.

As to financial guarantees, the applicant will, of course, accept the financial guarantees in form and amount, for public improvements and erosion controls as required by the Connecticut General Statutes

Comment #11: As indicated the improvements and clarifications to both the stormwater management plan stormwater operations and maintenance appear to be adequate.

GHD recommends that if the owner (grantee) of the Conservation Easement is any party other than the Town of Westport, then that party must agree to conduct routine inspections and maintenance of the easement (including identifying and removal of invasive species), maintenance of the easement markers, protection of the easement and funding for these actions.

GHD notes that density of the proposed development is much greater than the surrounding properties. Consequently, the amount of impervious area is also greater that has the potential to cause adversely impact both the quantity and quality of stormwater discharges into the receiving waterbody. The applicant has incorporated multiple levels of engineered controls to mitigate the potential impacts and GHD has indicated that these mitigation measures appear adequate. However, the impact mitigation is only effective if the engineered controls are properly inspected and maintained over time. GHD recommends that the Conservation Commission seek advice from the Town Attorney regarding appropriate financial instruments



18

or other measures that can be implemented to ensure future property owners will continue to inspect and maintain the engineered measures included in this application.

Public Hearing Comments:

18

During the Westport Conservation Commission Public Hearing on July 18, 2018, the applicant indicated that the proposed development has a "net cut," meaning that a (large) portion of the excavated soil will be transported off-site. GHD recommends that the applicant identify the final disposition of this excavated soil to ensure the material does not impact a wetland at another location.

Mozian, Alicia

From: Stuart.Manley@ghd.com
Sent: Tuesday, October 09, 2018 3:16 PM
To: Shogren, Mark J.
Cc: Mozian, Alicia; Matharu, Amrik
Subject: RE: Hiawatha

Hi Mark,

Our only new comment pertains to Amrick's Comment 4 regarding an additional deep hole test for Infiltration AA-1. Assuming the Town agrees, we think it would be prudent to include an alternate option in case the soils are found unsuitable.

Thanks
Stuart

Stuart Manley, LEP, LSP, CHMM
Associate

GHD

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From: Shogren, Mark J. <mshogren@divneytungschwalbe.com>
Sent: Tuesday, October 09, 2018 1:36 PM
To: Stuart Manley <Stuart.Manley@ghd.com>
Subject: Hiawatha

Stuart,

Checking to see if you have had a chance to review the revised drawings and Stormwater Report or if there are any remaining issues to address before the 10/17 Conservation Commission meeting.

Thank you,

Mark J. Shogren, P.E.
mshogren@divneytungschwalbe.com

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Intelligent Land Use

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WESTPORT, CONNECTICUT

DEPARTMENT OF PUBLIC WORKS
TOWN HALL, 110 MYRTLE AVENUE
WESTPORT, CONNECTICUT 06880
(203) 341 1120

MEMORANDUM

Date: 09/07/2018

To: Alicia Mozian, Director of Conservation

From: Amrik Matharu, Engineer II

Re: Hiawatha Lane Development, IWW 10619-18, WPL 10659-18

Reference Materials Reviewed:

- Plans prepared by Divney, Tung, Schwalbe, LLP; Rednis & Mead, Inc.; William Kenny Associates, LLC; The Monroe Partnership, LLC; and Lewis Associates; 24 sheet set, entitled, "The Village at Saugatuck, Westport, Connecticut, Application for Inlands Wetlands Regulated Activity Permit and Waterway Protection Line Ordinance Approval," dated 05/07/2018 revised to 08/17/2018.
- Application package dated 05/14/2018, including a stormwater management report prepared by Divney, Tung, Shwalbe, LLP, dated 05/07/2018.
- Memorandum in response to GHD Peer Review Memo, prepared by Summit Saugatuck LLC, dated 08/24/2018.
- Memorandum in response to GHD Peer Review Memo, prepared by Divney, Tung, Schwalbe, LLP, dated 07/30/2018.

Dear Ms. Mozian,

Our office has reviewed the proposed activity as depicted by the above referenced documents. Based on these criteria, we offer the following comments:

1. **Project Description.** The applicant is proposing to a 5-building residential development with associated parking areas, stormwater infrastructure and other associated site appurtenances.
2. **Flood & Erosion Control Board (FECB).** The project was reviewed and approved at the 07/11/2018 FECB meeting, WPL # 10619-18. The WPLO line is depicted on the existing conditions survey and the site development plan referenced above.
3. **Permitting.** As part of the Planning & Zoning Permit process, the applicant shall be required to secure a Sanitary Sewer Connection Permit.
4. **Drainage.** The storm water drainage system as depicted on the plans does not substantially comply with the Town of Westport Engineering Department Drainage Standards. See comments below.

5. **Grading.** The proposed grading as depicted on the plans does not substantially comply with the Town of Westport Zoning Regulations, Sec. 32-8: Excavation and Filling of Land.
6. **Flood Zones & FEMA.** The parcel lies within Flood Zone AE (El. 11) and Zone X. None of the proposed work falls within the Flood Zone AE (El. 11) boundary.
7. **Sedimentation & Erosion Controls.** The plan depicts silt fencing, inlet protection, sediment traps, wash facilities, a stockpile area and an anti-tracking pad construction entrance. Thus, the project substantially complies with Sedimentation & Erosion Control requirements.

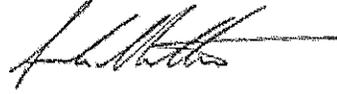
This office agrees with a majority of findings highlighted in the initial peer review prepared by GHD, as well as the revisions performed by Divney, Tung, Schawlbe, LLP. It is the view of this office, that there are still items that require some attention. With respect to the referenced material above, we offer the following recommendations:

1. **Drainage.** Impervious total for BB-3 on table No. 2 does not add up correctly.
2. **Drainage.** Notes #6/#7 on Table No. 2 and notes #2/#3 on Table No. 3 state that flow rates of 0.01 cfs and 0.04 cfs are used for footing drain calculations. Based on the revisions, this flow rate shall be updated.
3. **Drainage.** It does not appear gutters are proposed for half of the building E. The infiltration trench practice is not a permitted practice in areas such as this. A significant amount of additional stormwater may enter the system from the adjacent overland flows not computed as part of this drainage analysis.
4. **Drainage.** Additional deep hole test is required for Infiltration AA-1. As depicted, it is 18" (El. 17) lower than the restrictive layer of 54" (El 18.5) observed in TP#2 (Ground El. 23). Systems are required to be set 1' above seasonal high groundwater.
5. **Drainage.** Infiltration BB-3 does not appear to be set 1' above the observed restrictive layer in TP#5.
6. **Drainage.** Provide details for flow splitters and outlet control structures utilized in the design.
7. **Drainage.** It is not clear whether interior drains are proposed for the garage areas. If internal floor drains are proposed, they shall be directed to an oil/grit separator and discharge into the sanitary sewer system.
8. **Drainage.** Infiltration Basin BB-5 does not appear to be set 1' above the observed restrictive layer in TP#9.
9. **Drainage.** Composite Curve Number calculations were not submitted as part of the drainage report.
10. **Drainage.** It appears that the flow rate for sump pump in Building A will be closer to 175 gpm (gallons per minute), not the 112 called out on the cut sheet.
11. **Drainage.** It appears that the footing drain from Building A will be pumped and discharged as surface water. This practice is in conflict with Planning & Zoning Regulation 32-8.3.10.
12. **Drainage.** It appears that the footing drain from Building E will be pumped to the private drainage network and discharged as surface water before entering the wetlands. This practice is in conflict with Planning & Zoning Regulation 32-8.3.10.
13. **Drainage.** It is not clear whether Buildings B, C, and D will have a footing drain and sump pump system.
14. **Drainage.** It appears that Infiltration Basin BB-2 is not set 1' above the observed restrictive layer in TP#7.
15. **Grading.** Grading on the west side of BLDG E is steeper than 1:5 (V:H).

Hiawatha Lane Development, IWW 10619-18, WPL 10659-18, 09/07/2018

Please contact me should you have any questions regarding the above items.

Thank you kindly,

A handwritten signature in black ink, appearing to read "Amrik Matharu", with a horizontal line extending to the right from the end of the signature.

Amrik Matharu,
Engineering Department

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Mozian, Alicia

From: Stuart.Manley@ghd.com
Sent: Monday, October 15, 2018 2:09 PM
To: Mozian, Alicia; Hollister, Timothy; Matharu, Amrik
Cc: 'Bill Kenny'; 'Shogren, Mark J.'; 'David Ginter'; Felix Charney
Subject: RE: Summit Hiawatha - Conservation Commission application
Attachments: RE: Hiawatha

Hi Alicia,

Mark had proposed an alternate regarding potential unfavorable soil data from the last test pit (see attached email). This approach seems reasonable to us.

Thanks

Stuart

Stuart Manley, LEP, LSP, CHMM Associate

GHD

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From: Mozian, Alicia <AMOZIAN@westportct.gov>
Sent: Monday, October 15, 2018 2:03 PM
To: Hollister, Timothy <THollister@goodwin.com>; Matharu, Amrik <amatharu@westportct.gov>; Stuart Manley <Stuart.Manley@ghd.com>
Cc: 'Bill Kenny' <wkenny@wkassociates.net>; 'Shogren, Mark J.' <mshogren@divneytungschwalbe.com>; 'David Ginter' <d.ginter@rednissmead.com>; Felix Charney <FCharney@summitdevelopment.com>
Subject: RE: Summit Hiawatha - Conservation Commission application

Hi Tim,

I am just awaiting Amrik's review of the revised plans.

Our consultant also had raised the issue of an additional deep test pit for infiltration AA-1. This was in Amrik's September 7th memo. If the test pit data proves to be unfavorable, what is the alternative option?

Other than that, I don't anticipate more new information.

I do know the Commission had relayed their concern about failing sump pumps and if you had a back up generator. You can address that as well.

Thanks,

Alicia

Mozian, Alicia

From: Shogren, Mark J. <mshogren@divneytungschwalbe.com>
Sent: Wednesday, October 10, 2018 4:32 PM
To: Stuart.Manley@ghd.com
Cc: Mozian, Alicia; Matharu, Amrik
Subject: RE: Hiawatha

Stuart,

If the restrictive layer is higher than assumed on our plans, the entire infiltration system could be shifted to the north raising the bottom elevation by up to 12". If additional raising is necessary, we could switch to a smaller chamber, say the SC-310, which could allow us to raise the bottom by up to an additional 14". The footprint for the shallower chamber system would increase. Based on the 2 nearby test pit results, the ability to raise the infiltration system if needed, and the available space within the parking lot; potential modifications to the system should be feasible.

Mark J. Shogren, P.E.
mshogren@divneytungschwalbe.com

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From: Stuart.Manley@ghd.com <Stuart.Manley@ghd.com>
Sent: Tuesday, October 9, 2018 3:16 PM
To: Shogren, Mark J. <mshogren@divneytungschwalbe.com>
Cc: Mozian, Alicia <AMOZIAN@westportct.gov>; Matharu, Amrik <amatharu@westportct.gov>
Subject: RE: Hiawatha

Hi Mark,

Our only new comment pertains to Amrick's Comment 4 regarding an additional deep hole test for Infiltration AA-1. Assuming the Town agrees, we think it would be prudent to include an alternate option in case the soils are found unsuitable.

Thanks

Stuart

Stuart Manley, LEP, LSP, CHMM
Associate

GHD

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