



GREEN INTERNATIONAL AFFILIATES, INC.

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September 23, 2019

Ms. Maren Toohill, AICP
Town Planner
Town of Littleton Planning Board
37 Shattuck Street, Room 303
Littleton, MA 01460

Subject: Peer Review of Definitive Subdivision Plan Application for "Healy Corner Open Space Subdivision"
Littleton Planning Department

Dear Ms. Toohill:

Pursuant to our agreement with the Town of Littleton, Green International Affiliates, Inc. (Green) is submitting the attached comments from our peer review of the Definitive Subdivision Plan Application Package for "Healy Corner Open Space Subdivision".

This peer review investigates the application package for compliance with the Code of the Town of Littleton, Massachusetts, Chapter 38, Article II - Stormwater Management and Erosion Control Bylaw, Chapter 173 - Zoning Bylaw and Chapter 249 - Subdivision of Land Regulations. This review included an examination of the following documents:

- Plans titled "Definitive Subdivision Plan, Open Space Development, Healy Corner, Littleton, MA", prepared by Goldsmith, Prest & Ringwall, Inc., dated August 15, 2019 and containing eighteen (18) sheets;
- Report titled "Definitive Subdivision Application Open Space Development, Healy Corner, 195 Tahattawan Road, Littleton, MA", prepared Goldsmith, Prest & Ringwall, Inc, dated August 2019 and containing "Form C, Special Permit Application, Letter of Agent Authorization, Project Narrative, Direct Impact Report, Waiver Request List, Legal Documents, Certified Abutters List, and Long Term Pollution Prevention & Stormwater System Operations and Maintenance Plan";
- Stormwater Report, Pre-Development Drainage Plan and Post-Development Drainage Plan prepared by Goldsmith, Prest & Ringwall, Inc, dated August 2019.
- Traffic Impact Assessment prepared by The Engineering Corp (TEC) and dated September 3, 2019.

Green offers the attached comments resulting from our review of the above documents as they pertain to the Code of the Town of Littleton, Massachusetts, Chapter 173, Zoning Bylaw and Chapter 249, Subdivision of Land Regulations. Our review did not include a review of the sewer force main design or septic design or permitting. Please note that this peer review is not a complete review of the project design and does not relieve the Applicant and Engineer of meeting all requirements of local, state and federal regulations.

Ms. Maren Toohill, AICP
September 23, 2019

Please feel free to contact me or Michael Buraczynski if you have any questions regarding our review.

Sincerely,

Green International Affiliates, Inc.



Thomas Bigelow, P.E. (NH)
Project Manager

w/enclosure

TB/mb

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GREEN INTERNATIONAL AFFILIATES, INC.
TRANSPORTATION | STRUCTURAL | WATER RESOURCES | CIVIL/SITE



Peer Review Comment Form

NO.	SHEET NO.	SECTION	GREEN'S COMMENT	Applicant's RESPONSE	CONFIRMED BY	DATE
APPLICATION						
1	15 - 16 (Environmental Analysis)	§249-32.E.1	The Applicant shall include a visual analysis of the scenic vistas and locations of visual prominence as part of the Environmental Analysis section of the application.	See revised Development Impact Report		
2	16	§249-32.E.2	The Applicant shall revise the name of the Traffic Impact Assessment Sub-consultants to The Engineering Corp. (TEC).	The name has been changed to The Engineering Corp. (TEC).		
3	17	249-32.E.4	The Applicant shall submit a study certified by a Professional Engineer, with demonstrated qualifications as a water consultant, showing that the proposed water system provides the development with adequate fire flows and that each service connection has a minimum residual water pressure at street level of 20 PSI under. The Applicant should also confirm that the water system has been coordinate with the Littleton Water Department. The Water Study submitted only indicates it has been designed per LWD standards.	See Email from Town of Littleton Water Department.		
4	17	249-32.E.5	The Public Works Cost section of the application states that the Town will conduct a cost estimate for the development of the site. The cost estimate for bonding purposes is provided by the Applicant. Additionally, the Public Works Costs assessment is meant to estimate annual public works maintenance costs on a per mile basis. The Applicant should provide this information.	Public Works Cost information provided.		
5	17	249-32.E.6	The Applicant shall provide a calculation of the Municipal Service Cost to determine the increase in costs required for police, fire, libraries, recreation and schools.	See revised D.I.R.		
DEFINITIVE PLAN						
6	C4.1, C4.2	§249-32.A.1.a.ii	The Applicant shall revise the Existing Condition Plans to show the entire site to be subdivided. The southwest and northwest portions of the site are not included.	Waiver Requested.		
7	C5.1, C5.2, C6.1, C6.2, C7.1, C7.2	§249-32.A.1.a.v	Horizontal alignment information, including points of curvature, curve data and alignment tie information, is required to be shown on the plans. The Applicant should revise the plans to include alignment information on the Plan and Profile sheets.	Center line stationing added to sheets C5.1, 5.2, 6.1, and 6.2.		
8	C2.1	N/A	The plans include a note that states "SEE SHEET CX.1". The note appears to identify the location of the Northwest Trail Head Parking Area. The Applicant should revise the note to specify the correct page number.	Plan Note added for clarification.		
9	C5.1	N/A	There are not enough dimensions provided to layout the Northwest Trail Head Parking Area. The Applicant shall include a dimension from the edge of pavement to the edge of parking.	Additional Dimensioning added to plan.		
10	C3.1, C3.2	§249-32.B	The Applicant shall fix the text height on the plan to meet registry standards of 1/10 inch in all areas, provide 3/4 inch boarders, and fix the scales.	Applicable plans have been revised.		
11	C5.1	§249-32.C.4	The Applicant shall show the widths of the ways within 200 feet of the subdivision, including Harwood Ave. and Tahattawan Rd.	Revised.		
12	C3.1, C3.2	§249-32.C.10	The Applicant shall show the missing bearings and distances on the outer perimeter of open space parcel A.	Revised.		
13	C3.2	§249-32.C.13	The Applicant shall show the location of all permanent monuments on the plans. Per §249-89.A, permanent monuments shall be installed at all street intersections, at all points of change in direction or curvature of streets, at the center point of cul-de-sac streets, at all lot and easement corners along the right-of-way and at other points where, in the opinion of the Board, permanent monuments are necessary, but in any event not spaced further than 500 feet apart.	Revised.		
14	C2.1, C4.1, C4.2, C5.1, C5.2, C6.1, C6.2, C7.1, C7.2, C8.1, C8.2, C9.1, C9.2, C9.3, C9.4	§249-32.C.16	The Applicant shall provide a suitable space to record the action of the Board and for the date and five signatures, and the Town Clerk's certification on all sheets. This has only been done for a portion of the plan sheets.	Added to all sheets.		
15	C5.1, C5.2	§249-32.C.17	The Applicant shall provide callouts for when major existing site features such as stone walls and trees will be removed or remain retained. The stone wall in Lot 3 at the intersection of Dennis Circle and Tahattawan Road and the stone wall and tree line on the property line of Lots 2 and 3 are examples of this.	Calls added to plans.		
16	C7.2/C7.2	§249-32.D.2	The Applicant shall include existing center line profile for Tahattawan Rd.	Added to plan.		
17	C5.1/C5.2	§249-32.D.8	The Applicant should revise the plans to show all proposed features including but not limited to lighting, curbs, gutters, electrical transformers, and fire alarm boxes. The Applicant should also confirm the locations of all electrical infrastructure (conduit and transformers) have been reviewed and approved by LEED, all necessary easement have been obtained and the location of transformers have been coordinated with other design features, such as sidewalk. The plans specifically appear to be missing proposed curbing and electrical transformers.	Added to plans, with exception of electrical transformers which will be laid out in accordance with the contractor and Littleton Electric Department.		
18	N/A	§249-32.F.6	The Applicant shall submit Construction Management Plans per subdivision regulation requirements. The plans should include traffic management plans, proposed truck routes, proposed hours of operation, and meet the requirements and MUTCD standards outlined in §249-59.G.	This project site is subject to NPDES. A SWPPP will be submitted prior to construction.		
19	N/A	§249-32.F.7	The Applicant shall submit a detailed cost estimate for all construction within the proposed roadway layout and any public utility easements. It should be certified by the projects Registered Professional Engineer. The cost estimate should be based on MassDOT's Standard Item List.	Under separate cover.		
20	C1.1	§249-39	The Applicant shall add a general note to the title sheet that states that all work and materials under this project shall be done in conformance with MassDOT Standards.	Added to title sheet.		
21	C9.3	§249-39	The Applicant should revise the Drain Manhole detail to include bricked inverts, per MassDOT and Littleton DPW Standards	Revised drain manhole detail.		
22	C5.1, C5.2	§249-43.A.6	There are no easements provided to access "John's Way". The Applicant should revise the plans to include easements on Alfred Trail and Parcel B. These easements should be a minimum of 10 feet wide.	Revised.		



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23	C5.1	§249-43.B.1	The horizontal curve at Sta. 3+50 does not meet a 20-mph design speed. The roadway geometry for the project appears to have been design to meet 20-mph throughout and Green feels a 20-mph design speed is appropriate for this roadway. We recommend that the Applicant revise the curve to meet 20-mph, if feasible.	Revised. Dennis Circle has a CL radius of 107.5' which exceeds the minimum requirement of 100'.		
24	C5.1	§249-43.C.2	The Applicant should provide at least one bituminous or cement concrete paved bus waiting area. The location of which should be coordinated with the Planning Board and School Department.	Added call to plan depicting location of bus waiting area at the intersection of Dennis Circle and Tahattawan Road.		
25	C7.1, C7.2	§249-43.D.6	Locations where water mains cross drainage facilities must be shown on profile sheets. The Applicant should revise the profile sheets to show these crossings.	Shown on plan.		
26	C5.1	§249-43.D.12	The nearest line of any driveway shall not be closer than fifty (50) feet from the intersection of any two (2) streets. The Applicant should revise the driveways for lot 14.	Paper street, but actually a driveway, does not have to meet the 50 feet from the intersection of two streets because it is realistically a driveway.		
27	C5.1	§249-43.E	No more than 35% of any one species shall be used for street trees throughout the subdivision. The Applicant should add an additional species of tree to meet this requirement.	Additional species has been added, and Plant List had been updated.		
28	C5.1	§249-43.E.1	The Applicant shall verify that the center of the cul-de-sac is an appropriate location for snow storage. It is required that the center of the cul-de-sac be landscaped and snow storage here may damage the landscaping in addition to potentially creating sight distance issues around the cul-de-sac.	Revised to show as potential snow storage area.		
29	N/A	§249-43.E.2	Maintenance of the cul-de-sac inner island shall be the responsibility of the developer, it successors or a homeowners association. The Applicant should identify the party responsible for cul-de-sac island maintenance.	Lots 6-12 will be responsible for the maintenance of the cul-de-sac. This language will be written within the HOA documents.		
30	C9.4	§249-43.E.10	The Applicant shall provide the required 6 inches of loam around proposed trees and extending to the right of way. The Applicant shall revise the detail to reflect this.	No Change. Detail accurately describes the desired planting.		
31	C9.4	§249-43.E.14	The Applicant shall revise the note under General Street Tree Notes to say two year guarantee instead of one year guarantee.	Revised.		
32	C1.1	N/A	It is recommended that a note be added to the plans requiring that all proposed street trees are planted before the lots are sold. This will avoid planting trees on a lot that has already been inhabited for a few years before the roadway is accepted.	Street trees will be planted before roadway acceptance. All buyers will be notified of trees to be planted.		
33	C3.2	§249-47.A	The Applicant shall show the width of all proposed easements on the easement plan. For example, the drainage easements that go from Lot 9 to Lot 12 and from Lot 1 to Lot 4, and the sewer easement that wraps around the road should have widths shown.	Revised.		
34	C5.1, C9.1	§249-59.B	The plans do not include a conduit for future use. The Applicant should revise the plans to include this conduit.	Revised.		
35	C5.1	§249-85.A.1	The Applicant confirm hydrant locations have been approved by the Fire Department.	Hydrant locations have been approved by the fire department. See attached email.		
36	C8.2-C9.4	N/A	The Applicant shall provide a detail for a 26" diameter frame and cover that meets MassDOT and DPW standards.	MassDOT frame and cover specs at 26".		
37	C5.1	§249-85.D	The regulations state that street lighting may be provided per the request of the Board. We recommend that the Applicant provide a street light at the intersection of Dennis Lane and Tahattawan Road. We respectfully defer to the Board for a final determination on whether or not a streetlight should be included.	Street light exists at the Intersection of Harwood Ave. and Tahattawan Rd..		
38	C5.1	§249-89.B	The Applicant should revised the plans to include street name signs for Alfred Trail and Dennis Lane.	Added.		
39	C9.1-C9.4	§249-89.C	The Applicant should provide a construction detail for retaining walls on Alfred Trail. The detail should include the location of the guardrail and how it interacts with the wall.	Retaining wall to be designed by others, with attention to guardrail.		
40	C5.1	N/A	The local post master has indicated that the post office will not deliver mail to individual mailboxes on new subdivisions and is requiring common mailboxes be installed on all new subdivisions. The Applicant should coordinate with the postmaster on the most appropriate location for the common mailbox and show this location on the plans.	Added.		
41	C3.1, C3.2	N/A	The Applicant should provide a legend for the hatch patterns that define each type of easement or add a callout to each easement.	Revised.		
42	C6.2	N/A	The Applicant should consider revising the Alfred Trail profile to eliminate the low point at Sta 4+35. The low point is located in a cut section; therefore, ponding could occur in larger events when the trench drain system capacity is exceeded. If the low point cannot be eliminated, consider adding a catch basin, or a spillway and rock lined overland flow path, to convey larger flows to the sand filter and reduce ponding on the road.	The grading at this location is designed in a way that no ponding will occur.		
43	C5.1	N/A	The Applicant is proposing gravel parking spaces within the subdivision. We recommend that the Applicant provide paved parking spaces for snow removal or coordinate with the Public Works Department to determine whether or not this will be acceptable for plowing.	Revised.		
44	C3.2	N/A	The Applicant shall revise the curve length on the northerly side of Alfred Trail to 277.21' instead of 227.21'.	Revised.		
45	C5.1	N/A	The proposed tree in Lot 8 may cause a utility conflict with the force main to the house on Lot 8. The Applicant shall revise the location of the tree or the force main to ensure that there will be no utility conflict.	Revised.		
46	C5.1	N/A	The proposed driveway for the house on Lot 13 crosses into Lot 12. The Applicant shall revise the driveway so that no part of it is located in Lot 12.	Revised.		



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47	C9.1-C9.4	N/A	The Applicant shall provide a construction detail for the trails and paths proposed.	Proposed trails shall be coordinated with the Littleton Trails Committee.		
48	C5.1	N/A	The guardrail on Alfred Trail and the guardrail on the shared drive for Lot 15 and Lot 16 show conflicts with the underground gas main and telephone lines. The Applicant shall revised the plans to avoid conflicts with the guardrail and the gas mains/telephone lines.	The utilities lines shown are a visual representation for clarity and will not be in conflict with the guardrail.		
49	C5.1	N/A	The entrance to Dennis Circle does not intersect with Tahattawan Road/Harwood Road at a desirable location. A vehicle crossing Harwood Ave. from Dennis Circle to Tahattawan Rd. travels directly towards the opposing stop bar. We recommend that the Applicant provide an evaluation of the Dennis Circle, Harwood Ave. and Tahattawan Rd. intersection. Potential improvements may include relocating the subdivision entrance, realigning Dennis Circe to better align with Tahattawan, revising the intersection geometry, or adding pavement markings and signage.	We defer this decision and input to the traffic engineer.		
50	C5.1	N/A	The Applicant should relocate the existing driveway entrance at #195 Tahattawan Road (Lot 3) to Dennis Circle. The existing driveway entrance should be removed. The relocation will satisfy the required 50-foot distance from intersections.	Leaving as proposed. Planning Boards discretion to revise.		
51	C6.1, C6.2	N/A	The Applicant should confirm that length of need is met for all guardrail on the project and clearly define the guardrail limits on the plans.	Guardrails over the wetland crossing are along the entire length of the retaining wall. Additional guardrails are provided for precautionary measure but not required.		
52	C5.1, C5.2	N/A	The plans currently show short sections of proposed trail and no existing trails. For clarity the Applicant should revise the plans to show all proposed trail and existing trails throughout the site. Connections between existing trail and proposed trail should be shown.	Applicant is to work with and coordinate with Littleton Trails Committee.		
53	N/A	N/A	The plans and application do not define whom will own Parcel B once the subdivision is completed. The Applicant should revise the materials to indicate who will own Parcel B.	Healy Corner Condominium Association		
54	C5.1, C9.1	N/A	The driveway plans specify a driveway width of 12 feet. We recommend an opening width of no less than 16-feet to accommodate vehicle turning movements. Driveway widths should also be shown on all driveway details.	The 12' Driveways specified are sufficient for typical driveway widths.		
ZONING BYLAWS						
55	N/A	§173-98.A	The Applicant shall submit a development statement describing the development program, and including the number of units, types of units, floor area, number of bedrooms, ground coverage, and areas of residential development and common open space as percentages of the total open space area.	See Architectural Plans.		
56	N/A	§173-98.C.3-6	The Applicant shall submit architectural plans meeting the requirements outlined in sections §173-98.C.3 through 173-98.C.6.	Provided.		
57	N/A	§173-98	The Applicant shall submit a marketing program, construction schedule, management program, development team qualifications and a financial program.	Waiver Requested.		
58	N/A	§173-100.A	The Applicant shall protect the visual character of the environment and existing neighborhood. The current plans are largely the same as the preliminary plans however an extra lot has been added along Tahattawan Road which may disrupt the visual character of the road. We respectfully defer to the board for a determination of this item.	Noted.		
59	N/A	§173-203 - §173-212	Compliance with Article XXIX Inclusionary Housing is required and the Applicant shall request Inclusionary Housing Form 1F.	Under separate cover.		
TRAFFIC STUDY						
60	TIA Memo Page 10 - Trip Distribution	N/A	It is noted that the trip distribution of the site generated trips in/out of the cul-de-sac will represent fourteen (14) of the dwelling units (Lots 4-17), not thirteen (13) as accounted for in the TIA memo trip distribution. However, the fourteen (14) dwelling units will result not result in any additional site-generated trips during the weekday AM peak hour and will only result in one (1) additional exiting site-generated trip during the weekday PM peak hour compared to the thirteen (13) dwelling units. As a result, changing the trip distribution to account for the fourteen (14) dwelling units utilizing the cul-de-sac in/out of the project site is expected to have minimal impacts to traffic operations and is not expected to change the traffic analysis completed in the TIA memo.	Noted.		
61	TIA Memo Page 11 - Figure 3	N/A	Figure 3 shows an entering site-generated trip assigned to the Harwood Ave westbound right-turn movement at the study intersection during the weekday AM peak hour; however, a westbound right-turn at this intersection will not be able to access the site. It is noted that the total entering trips into the cul-de-sac shown in Figure 3 for the weekday AM peak hour add up to the four (4) total entering trips shown in Table 4 and as a result, removing the additional entering trip assigned to the Harwood Avenue westbound right-turn is not expected to impact the traffic analysis completed in the TIA memo.	Noted.		
62	TIA Memo Page 11 - Figure 3	N/A	It is noted that there were some instances where adding the site-generated trips shown in Figure 3 to the 2026 No-Build traffic volumes shown in Figure 2 did not equal the 2026 Build traffic volumes shown in Figure 3. However, the differences were calculated to be no greater than two (2) vehicles for any given movement at the study intersection. Thus, these differences are expected to have minimal impacts to traffic operations at the study intersections and are not expected to cause significant changes to the traffic analysis completed in the TIA memo.	Noted.		
63	TIA Memo Page 13 - Parameters for Traffic Impact Analysis	N/A	The Applicant did not use the latest available version of the Synchro intersection capacity analysis software and as a result, the intersection capacity analyses are not based upon the latest methodology and procedures defined in the 6th Edition of Highway Capacity Manual (HCM 6). However, it is noted that using HCM 6 methodology and procedures instead of HCM 2010 (used in the TIA memo) is expected to have minimal impacts on the traffic analysis results.	Noted.		
64	TIA Memo - Attachment H	N/A	The Peak Hour Factor (PHF) used in the Synchro intersection capacity analysis for the Harwood Ave eastbound approach (0.93) does not match the PHF calculated for the approach (0.89) in the turning movement counts (TMC) included in Attachment B. However, it is noted that revising the PHF from 0.93 to 0.89 is not expected to significantly impact the traffic analysis results.	Noted.		
65	TIA Memo Page 15 - Conclusions and Recommendations	N/A	The TIA states that the Applicant will commit to removing the additional trees on-site and within the public right-of-way within the intersection sight distance (ISD) sight triangles, egressing the cul-de-sac, to meet AASHTO minimum recommendations. The Applicant should show the ISD sight triangles drawn for vehicles egressing the proposed cul-de-sac onto Harwood Avenue and identify the additional trees to be removed and areas of vegetation trimming in order to provide the minimum ISD values shown in Table 2. It should be confirmed that no trees or vegetation trimming is needed outside of the public right-of-way or site layout. Tahattawan Road and Harwood Way are scenic roads; therefore, a scenic road permit will be required for any tree cutting within the right-of-way.	Noted.		



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66	TIA Memo Page 15 - Conclusions and Recommendations	N/A	It is noted that Harwood Ave eastbound and westbound average and 85th percentile vehicle travel speeds approaching the study intersection were measured to be approximately 37 and 41 mph and 37 and 42 mph, respectively. Although the posted speed limit along Harwood Ave is 35 mph in both directions just west of the study intersection, the posted speed limit is 25 mph in both directions approaching the study intersection. The Applicant should consider low-cost mitigation measures to reduce vehicle travel speeds along Harwood Avenue approaching the study intersection such as adding a reduced speed limit ahead sign (W3-5) along the Harwood Avenue eastbound approach in advance of the 25 mph posted speed limit sign and an intersection ahead warning sign (W2-1) along the Harwood Avenue westbound approach in advance of the study intersection.	Noted.		
STORMWATER REPORT						
67	Watershed Area Plans (sheet 1 & 2)	§249-32.A.1.a.i	The plan names should be revised to correct spelling error ("Watershed").	Revised.		
68	Pre-Dev Watershed Areas (sheet 2 of 2)	§249-32.D.4	It appears from MassGIS's Oliver Tool, that a portion of the property at 275 Harwood Ave (28230/284 R07/2-0) may be contributing to subcatchment SC-2. The Watershed Maps instead show the upper extent of SC-2 following the property line.	Added to sub-catchment areas.		
69	Watershed Area Plans (sheet 1 & 2)	§249-32.D.4	The Applicant should review the SC-1 limit line because it connects with the edge of the wetland in two places, which is misleading (one subcatchment cannot have two discharge locations). We recommend that the north western limit of the catchment should be moved up to the ridge line, away from the wetland line, so that it encompasses only the area contributing to AP1. This would leave one discharge point for SC-1, located at the wetland line near AP1.	Noted. Will not affect drainage calcs as that portion of sub-catchemnt areas is undisturbed		
70	Plan: C6.1	§249-51D.	CB1 and CB2 are positioned mid way around the curve of the curb return. The preferable position for inlets is at the upstream end of the transition, so that they capture more of the flow.	Discussed and to remain as submitted.		
71	Plan: C6.1	§249-32.D.5	We recommend that only loaded runoff sees the forebay. The pipe inlet to the forebay has an invert elevation of 289.33' and from there gravity will direct the water into the forebay. However, with the main basin bottom elevation at 290.00' and the forebay spillway at elevation 289.00', the forebay spillway will act like a weir in the wrong direction, ie runoff from the slopes north of the basin may end up in the forebay unnecessarily. Can the forebay be isolated from the rest of the infiltration basin?	Noted and discussed. The Fore bay could not be moved up and out of the Infiltration Basin to to site constraints and the elevation of the storm drain outlet pipe. The fore bay will not receive any un-intended sediment as designed.		
72	Plan: Post-Dev Watershed Areas (sheet 2 of 2)	§249-32.D.5	A special permit by the Board of Appeals is required for any new structure in an area designated wetland. However, there is no new structure proposed in the impacted area of wetland so we do not believe this section applies.	Noted.		
73	Plan: Post-Dev Watershed Areas (sheet 2 of 2)	§249-32.E.1	This project involves impacts to wetlands, including the 5.5-ft deep fill and walls required for the Lot 15 and 16 accessway. This will need to go before the Conservation Commission.	Noted.		
74	Pg. 8	§249-32.E.1.b	The Applicant should amend the last sentence of the second paragraph to read "Subcatchment SC-4..", rather than "..SC-2..".	Revised.		
75	Pg.32 - 109	§249-51.A	The Applicant should include with the report the "Attached Sketch" showing the location of each soil and percolation test.	Shown on Pre-Development Watershed Map.		
76	Pg 177 & Plan: Post-Dev Watershed Areas (sheet 1 of 2)	N/A	The proposed subsurface infiltration chambers ST1 and ST2 are located in soil area 305B (Fine sandy loam, HSG C). For modeling an infiltration rate of 1.02inch/hr has been used for both chambers, which is inconsistent with the Rawls Rate of 0.27inch/hr for this case. The Applicant should clarify if this number came instead from one of the soil test results.	See test pit 718-20.		
77	Pg.239 & Plan: Post-Dev Watershed Areas (sheet 1 of 2)	N/A	The proposed sand filter (SF) is located on the boundary of soils 311B (HSG C) and 420B (HSG B), fine sandy loam. For modeling an infiltration rate of 2.41inch/hr has been used, which is inconsistent with the Rawls Rates of 1.02inch/hr for this case. The Applicant should clarify if this number came instead from one of the soil test results.	Sand Filter is constructed by bringing in sand with an outlet at the bottom of the sand. The infiltration rate used was for the sand membrane.		
78	Pg.177 & Plan C9.4	N/A	The Applicant should amend the slope for the 6" pipe outlet from the sand filter (SF), which is modeled as 0.00 but shown on the plans as 0.01 ft/ft.	Revised.		
79	Pg.238 & Plan: Post-Dev Watershed Areas (sheet 1 of 2)	N/A	The proposed infiltration basin (INF) is located in soil area 305C (fine sandy loam, HSG C). For modeling an infiltration rate of 1.02inch/hr has been used, which is inconsistent with the Rawls Rate of 0.27inch/hr for this case. The Applicant should clarify if this number came instead from one of the soil test results.	see test pit 718-26.		
80	C7.2, C9.3	N/A	We recommend that anti-seep collars (extending into the origin soils) should be proposed on the Wetland Culvert and the Infiltration basin outlet pipe, because they cross through embankments. This is recommended to minimize the risk of catastrophic failure.	Discussed, not needed.		
81	Pg. 253	§249-51.C	The Applicant should add a note on the table to state what design storm was used. The closed system should be designed for the 10 year ARI 24 hour event, and the Wetland Culvert should be designed for the 50 year ARI 24 hour event.	Revised, note added.		
82	Pg. 13	§249-51.A	The referenced section states that "culverts and related facilities shall be designed to permit the unimpeded flow of all natural watercourses." Therefore, the stormwater report should demonstrate the impact that the proposed culvert across the range of storm events, separately from AP-1. For example, include a summary table showing pre and post development peak flow, volume and water levels in the "stream" at the Wetland Culvert.	Revised. Wetland culvert is free flowing in all storm events.		
83	C9.3	§249-51.H.	The Applicant should indicate the width of the maintenance berm on the infiltration basin detail. The referenced section requires a minimum of 15 feet.	Revised.		
84	C8.2 Note 3.02B	N/A	The letter "l" missing from the word Install.	Revised.		
85	C8.2	§249-52.D	What methodology will be recommended for installation of the wetland culvert? Outline the sequence of sediment and erosion control measures that will be required during the installation of the wetland culvert.	Will be outlined before construction takes place. Construction Plans.		
86	Pg. 24	§249-51.A	The O&M Manual Long-Term Pollution Prevention Plan does not include measures to prevent illicit discharges, as required by the Massachusetts Stormwater Handbook Vol. 2, Ch.2 Standard 10.	The proposed development does not have any proposed sources of Illicit Discharge.		



Peer Review Comment Form

NO.	SHEET NO.	SECTION	GREEN'S COMMENT	Applicant's RESPONSE	CONFIRMED BY	DATE
87	O&M Manual	N/A	We recommend that the O&M Manual should include a section about the wetland culvert, to include clearing debris and blockages and routine checks such as signs of erosion around the headwalls and concrete cracking.	Noted. Information will be passed on to owners of lots 15 & 16.		
88	O&M Manual	N/A	We recommend that the O&M Manual include a section about the subsurface Stormtech chambers. This section should include O&M of the chambers as recommended by the manufacturer.	O & M for lots 1 & 2 provided.		
89	O&M Manual	N/A	The O&M manual indicates that the Homeowners will be responsible for all BMP's except for the trench drain, sand filter and infiltration basin and the Town will be responsible for all other BMP's. The O&M does not specify whom is responsible for the stormtech chambers (assumed to be the homeowners association). Since the homeowners association is responsible for the majority of BMP maintenance, we recommend the Applicant specify the Town's responsibility for clarity.	O & M for Healy Corner Condominium Association provided.		
90	C6.1	N/A	According to Stormtech, the chambers can only be cleaned when an Isolator Row is in use and an Isolator Row is not proposed as part of this project. The Applicant should consider adding an Isolator Row. We understand that the chambers are only connected to the roof drains, which may be considered "clean water", but leaves and sticks often clog gutters and overtime the infiltration system may become clogged. We recommend one of the chambers be treated as the "Isolator Row" and that it be the one that the roof leader ties into.	Revised. Added downspout overflow to call. Chambers will be ripped up if the fail, so no isolator row is needed.		
91	C6.1	N/A	The inspection port should be placed in the chamber closest to where the roof leader will connect into the system as that is the chamber that will see the most sediment buildup.	Revised.		
92	C6.1	N/A	In accordance with O&M recommendations from the chamber manufacturer, a cleanout or manhole should be located at the end of the chambers to facilitate cleaning of the chambers.	No Cleaning. If fails, rip up and replace.		
93	C2.1	N/A	An existing vernal pool is noted near the northeast corner of the site. The pool is offsite and its watershed will not be changed as a result of the proposed development. Therefore, Green does not believe the proposed stormwater design will impact the vernal pool.	Noted.		
REQUESTED WAIVERS						
1	N/A	§249-32.A.1.a.ix	<i>Waive the requirement to depict roadway cross-sections.</i> We recommend that the Applicant provide cross sections at all critical locations including but not limited to guardrail, retaining walls, large grade changes and locations where the roadway typical changes.	Discuss with Planning Board.		
2	N/A	§249-32.D.2	<i>Waive the requirement to depict cross-sections at 50-ft or closer station intervals.</i> We recommend that the Applicant provide cross sections at all critical locations including but not limited to guardrail, retaining walls, large grade changes and locations where the roadway typical changes.	Discuss with Planning Board.		
3	C9.1	§249-32.F.1	<i>Provide a typical street cross section for each class of street within the subdivision, drawn not to scale.</i> We take no exception to this request as long as the required information is shown in the typical sections and respectfully defer to the board for a final determination on this request.	Noted.		
4	C5.1, C5.2	§249-43.E.3	<i>(11) Street trees are provided for the site, locating outside of the right of way at various intervals due to the location of proposed driveways and preservation of existing tree lines.</i> The requirement states that trees shall be planted on both sides of the street and shall be spaced at intervals of 40 feet on center. We take no exception to this request and respectfully defer to the board for a final determination on this requirement.	Noted.		
5	N/A	§249-43.E.9	<i>Street trees shall be 2.5" in caliper with a minimum height of 10 ft.</i> The requirement states that the minimum size of street trees shall be three inches in caliper, measured four feet from the ground level, and 10 feet in height, in place. We take no exception to this waiver, however if the trees do not survive then the Applicant should replace all trees meeting the requirements of 3" in caliper, and we respectfully defer to the Board for a final determination on this requirement.	Noted.		
6	C6.1	§249-51.H	<i>Pipe inlets discharging into the basin is lower than the 25-year storm event ponding elevation.</i> Green recognizes that this would require raising the pipe elevation 4 feet or making the basin deeper. The analysis of the closed drainage system demonstrates that the 25-year storm will not flood the catch basins in the road, therefore Green feels that the pipe elevation requirement should not be enforced, however we defer to the Board to make the final decision.	Noted.		
7	C6.1	§249-51.H	<i>Waive the requirement for a minimum setback from property lines to stormwater basins.</i> We take no exception to this request because while it is within 30 feet of the property lines for lots 4 and 14, those lots are across a roadway. However, it should be noted that a small portion of the infiltration basin is located within the ROW line for Alfred Trail and there does not appear to be a proposed drainage easement associated. The applicant should provide an easement.	Noted.		
8	N/A	§249-59.C	<i>Waive the requirement of the written certification of approval, to be provided prior to construction.</i> We recommend the Applicant provide written documentation that the water line and services and electrical system has been coordinated and approved by LELWD.	Noted.		
9	C5.1, C5.2	§249-73	<i>Sloped granite curb Type SA to be provided for the entire subdivision.</i> We take no exception to this waiver request if the sidewalk waiver is also granted. We recommend vertical granite curbing if sidewalk is installed. It is recommended that the DPW be coordinated with to determine if the sloped granite edging will have any impact to the plowing of the road.	Waiver no longer requested.		
10	C5.1, C5.2	§249-81.A	<i>Waive the requirement to provide sidewalk for the entire subdivision.</i> Two trail head parking areas are to be provided for three cars each. One along Harwood Ave. for access to "Nelly's Path" and one along Dennis Circle with a path/trail to "John's Way". We recommend that sidewalks be added per the regulations for pedestrian safety and mobility throughout the subdivision. If provided, the sidewalks should be cement concrete and vertical granite curb should be used per previous requests from the Department of Public Works.	Waiver no longer requested.		

From: [Tom Clancy](#)
To: [Bruce D. Ringwall](#)
Cc: [Maren Toohill](#)
Subject: RE: Healy Corner Hydrant locations
Date: Friday, October 11, 2019 7:42:47 AM

Good Morning Bruce:

I am in agreement with the hydrant locations.

Thanks,

Thomas Clancy
Deputy Fire Chief / Fire Prevention Officer
Littleton Fire Department
978-540-2302

From: Bruce D. Ringwall [mailto:BRingwall@gpr-inc.com]
Sent: Thursday, October 10, 2019 5:13 PM
To: Tom Clancy <TClancy@LittletonFire.org>
Cc: Maren Toohill <MToohill@littletonma.org>
Subject: Healy Corner Hydrant locations

Deputy Chief Clancy,

In the early stage of the road layout we collaborated with Kevin Hunt at LWD and yourself for the hydrant locations as well as emergency access in and around the proposed development of Healy Corner off Tahattawan Road. As is shown on sheet C5.1 of the submitted plan set:

- there is an existing hydrant on the south side of the intersection of Dennis Circle and Tahattawan Road,
- a proposed hydrant on the northwest corner of the intersection of Dennis Circle and the common drive to be known as Alfred Trail,
- and a hydrant at the eastern most edge of the Dennis Circle turn around/cul-de-sac.

The hydrants are within 350 linear feet or less of each other.

Please confirm that you have reviewed and approve of the hydrant locations.

Thank you,

Bruce

Bruce D. Ringwall, President
Goldsmith, Prest & Ringwall, Inc.
39 Main Street, Suite 301
Ayer, MA 01432
P 978-772-1590 F 978-772-1591

From: [Kevin Hunt](#)
To: [Bruce D. Ringwall](#)
Subject: RE: Healy Corner Water Pressure
Date: Friday, October 11, 2019 10:54:47 AM

Bruce,

As discussed, you're correct. The section of Harwood Ave where Healy Corner is proposed has an existing 12" ductile iron main which runs directly to the Newtown Hill Storage Tank. I expect you to see plenty of water available at adequate pressure at this location. As I also mentioned, LWD will be conducting hydrant flow testing in the area in the coming weeks and will forward to you the results of those tests when complete.

Kevin Hunt
Water Systems Manager
Littleton Water Dept.

(978) 540-2284 Office
(978) 501-6338 Cell

From: Bruce D. Ringwall [mailto:BRingwall@gpr-inc.com]

Sent: Thursday, October 10, 2019 5:29 PM

To: Kevin Hunt <khunt@lelwd.com>

Subject: Healy Corner Water Pressure

Kevin,

This email is to confirm a conversation relative to the LWD infrastructure and pressure within Tahattawan Road and available water pressure at the street level for the proposed homes at Healy Corner. It is my understanding that the water tank on top of Newtown Hill has direct service to a 12" water main within Tahattawn Road. Given the elevation difference and your knowledge of the system that the proposed lots will have a residual pressure greater than 20 PSI for each new lot at Healy Corner. Further I understand your department will be conducting hydrant flow tests this fall on Harwood Ave to confirm the flow levels and residual pressure.

Please reply to this email to confirm the above or change the information as you feel is appropriate.

Thank you,

Bruce

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