



## GREEN INTERNATIONAL AFFILIATES, INC.

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September 27, 2018  
Revised October 3, 2018

Ms. Maren Toohill  
Planning Administrator/Permit Coordinator  
Town of Littleton Planning Board  
37 Shattuck Street, Room 303  
Littleton, MA 01460

**Subject: Engineering Review Services of  
Definitive Subdivision Application for  
"Highland Park"  
Littleton Planning Department**

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Dear Ms. Toohill:

Pursuant to our agreement with the Town of Littleton, Green International Affiliates, Inc. (Green) is submitting this letter report of the findings from our peer review of Definitive Subdivision Plan Application Package for "Highland Park".

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. Following our initial peer review letter, dated August 16, 2018, we received the following supplemental/revised documents from the Applicant:

- Plans titled "Definitive Subdivision Plan, An Open Space Development for Highland Park at 93 Foster Street, Littleton, Massachusetts" prepared by Stamski and McNary, Inc., dated May 23, 2018 and Revised August 17, 2018 and containing eleven (11) sheets;
- Letter titled "Definitive Subdivision Plan "The Homes at Croft Common" 93 Foster Street (Previously known as "Highland Park") with responses to comments, an updated traffic operations analysis, Development Statement, Definitive Development Impact Report, updated waiver list, construction management plan, and updated cost estimate;
- Revised Stormwater Operation and Maintenance Manual dated May 23, 2018 and revised August 17, 2018
- Revised Highland Park Stormwater Report of unknown dated May 23, 2018 and revised August 17, 2018.
- Drainage maps dated April 5, 2018 and revised August 17, 2018

Green offers the following comments resulting from our review of the above supplemental/revised documents as they pertain to the Code of the Town of Littleton, Massachusetts, Chapter 173, Zoning Bylaw and Chapter 249, Subdivision of Land Regulations. Please note that this peer review is not a complete review of the project design and does not relieve the Applicant and Engineer of Record from meeting all requirements of local, state and federal regulations. **Please note that the highlighted items below either require action by the Applicant or are items that we have deferred to or made a recommendation to the Planning Board.**

**Form C Comments:**

**Definitive Plan Comments:**

1. Initial 08/16/2018 Comment: Per §249-32. A and § 249-32. D, the Applicant shall provide Roadway Cross Sections. A waiver was not requested for this requirement and no cross sections were included in this submittal.

*08/17/2018 Applicant Response: A "Street Cross Section, 1"=4'" detail has been added to sheet 7. Labels on this detail show at what stations the roadway side slopes differ from the 4:1 required.*

**09/27/2018 Comment: The cross sections are a requirement of the subdivision regulations; therefore, if the Applicant is required to provide them or request a waiver. We recommend the Board require cross sections at the locations where roadway sideslopes are steeper than 4:1 and recommend a waiver be requested for requirement for providing cross sections at 50-foot intervals.**

8. Initial 08/16/2018 Comment: Per § 249-32. D, the Applicant shall show the location of the proposed lighting and electrical transformers. The Applicant should coordinate with the Littleton Electric Department and show all components of the electrical system on the Definitive Subdivision Plans. The locations should be coordinated with the sidewalk and other features to avoid conflicts during construction.

*08/17/2018 Applicant Response: The location of the proposed electrical transformers is now shown on sheet 6.*

**09/27/2018 Comment: The Applicant has revised the plans to show junction boxes and transformers, as requested. However, the revised plans show a new location for the underground conduit and it conflicts with the proposed street trees throughout the subdivision. The Applicant should revise the plans to resolve this conflict.**

9. Initial 08/16/2018 Comment: Per §249-32. E, the Applicant shall submit a water study and should demonstrate that each service connection (fire hydrant) will have a minimum residual pressure of 20 PSI. The Water Study states that the Littleton Water Department estimates 636 GPM; however, the Applicant should state if this equates to the required residual pressure. Additionally, the Applicant should provide a full water study or request a waiver for this requirement.

*08/17/2018 Applicant Response: The applicant has scheduled a water study with the town to demonstrate a residual pressure of 20 PSI. The results will be forwarded once they are received.*

**09/27/2018 Comment: Green will review the results when available.**

10. Initial 08/16/2018 Comment: Per §249-32. E, Public Works Costs have been provided by the Applicant but should be verified. Based on the information provided, the reviewer calculates \$3,285 per year.

*08/17/2018 Applicant Response: No response required.*

**09/27/2018 Comment: The Applicant has stated that the public works cost is \$16,536 per mile of roadway and the Applicant proposes 0.19 miles of roadway and they also state the annual cost for this project is \$389. The Applicant did not revise the public works cost statement to reflect the actual amount of \$3,285. The Applicant should revise this statement in their Permit Application Package.**

11. Initial 08/16/2018 Comment: Per §249-32. E, the Applicant shall provide Municipal Service Costs for review. Municipal Service Costs were not included as a part of the Definitive Subdivision submission.

*08/17/2018 Applicant Response: Municipal Services Cost relative to schools has been added to the Development Impact Statement.*

**09/27/2018 Comment: The municipal services costs statement has been added; however, it does not indicate the anticipated revenue from taxes the Town will collect from the new housing stock. The Applicant should revise this paragraph to include this discussion.**

12. Initial 08/16/2018 Comment: Per §249-32. F, the Applicant shall provide a typical street cross section that is to scale at 1" = 4'. The Applicant shall revise the scale of the typical street cross section shown on Sheet 8. Additionally, the typical section should also be revised to show a 2.0% cross slope with a crown at the centerline and a 1.5% (max) cross slope on the sidewalk. The roadway side slopes should be revised to be 4:1 or flatter per Figure 1. If sideslopes that are 3:1 or steeper are proposed, the Applicant should provide cross sections and show locations where guardrail is needed or demonstrate that guardrail is not required.

*08/17/2018 Applicant Response: A "Street Cross Section, 1"=4'" detail has been added to sheet 7 and revised as requested. The area where the side slopes are steeper than 4:1 are in a cut situation, so guard rails are not required.*

**09/27/2018 Comment: We agree with the Applicant that guardrail will not be required in cut situations. The typical section indicates there is a 120-foot section of roadway where sideslopes will be 2:1, which will not provide sufficient snow storage. We recommend the Town DPW be consulted regarding the need for snow storage at this location.**

15. Initial 08/16/2018 Comment: Per §249-32. F, the Applicant shall submit a cost estimate including all the items required. The cost estimate should be based on MassDOT unit prices or other sources that reflect prevailing wage rates. The estimate provided is based on RS Means and some "Engineer Estimate" items appear low, such as the sediment basin. The Applicant should ensure all items are included in the estimate, including, but not limited to: infiltration basins, separate costs for gravel borrow and dense graded crushed stone, sidewalk materials, roadway binder and roadway top course thicknesses, roadway excavation and/or fill costs, all electrical system components such as transformers, water main costs, cleaning the drainage system before roadway acceptance, loam and seed with the right-of-way, street trees, line striping, signs, cement concrete wheelchair ramps and snow removal.

*08/17/2018 Applicant Response: The cost estimate has been adjusted as requested to include mentioned items.*

**09/27/2018 Comment: The Applicant should confirm the number of handicap ramps included in the estimate. The estimate should also be updated to reflect the installation of hydrants, water gates and outlet control structures. Most of the unit prices are based from RS Means. We recommend the Board require the estimate be based on MassDOT unit prices, wherever applicable.**

For example, the average price for 12" RCP based on MassDOT costs is \$80 per foot. RS Means unit pricing for this item is approximately \$49. This estimate will be utilized to determine the roadway bond and in the event the bond is utilized, the Town is required to pay prevailing wage rates, which are not included in RS Means pricing.

Additionally, we recommend a cost of \$7,000 be carried for snow removal, based on information provided by previous subdivision applicants.

18. Initial 08/16/2018 Comment: The Applicant shall revise the roadway profile where it meets Foster Street to comply with Exhibit 6-14 A. The 7.0% grade break at the Foster Street intersection does not comply with the MassDOT PD&DG and may result in vehicles bottoming out as they attempt to enter or exit the roadway. The applicant should also evaluate if a cross culvert is required at this location.

*08/17/2018 Applicant Response: The intersection as shown in Exhibit 6-14A was evaluated for this proposed road but determined not to be feasible due to topography. A low point right before the intersection of the proposed road with Foster Street would require catch basins, and runoff could not be routed from this location to the proposed Infiltration Basin #3 given the 2' separation from bottom of basin to groundwater. The catch basins in the proposed road are as close to the Foster Street intersection as possible while still being able to connect to Infiltration Basin #3. Also, there is a grade break of 4.14% (9.14-5.0), which is less than the maximum grade break of 6% allowed per Table 249-43.3. A cross culvert is not necessary in a cut situation like this.*

**09/27/2018 Comment: The reviewer acknowledges that adding a low point at the bottom of Croft Circle would be infeasible due to the drainage concerns noted by the Applicant. However, we recommend the Applicant review the profile to reduce the 7.0% grade break at the intersection with Foster Street (5.0% on Croft Circle and 2.0% (assumed) on Foster Street). The current design will not provide a smooth transition from Foster Street to Croft Circle.**

20. Initial 08/16/2018 Comment: There appears to be tangents adjacent to the horizontal curves at Sta. 1+60 and at Sta. 9+60. The Applicant should consider revising the plans to remove these short tangents per the MassDOT PD&DG and AASHTO Green Book requirements.

*08/17/2018 Applicant Response: Section 4.2 of MassDOT PD&DG says "broken back curvature (a short tangent between two curves in same direction) should be avoided because drivers do not expect to encounter this arrangement on typical highway geometry." The proposed road is a residential lane with a proposed speed limit of 15 mph.*

**09/27/2018 Comment: We recommend the broken back curve be removed unless there is an existing condition that requires an alternative roadway alignment infeasible or to avoid disturbing an existing feature on site. The MassDOT PD&DG applies to both highways and local roads. We recommend the Applicant comment on hardships that may result from a revised alignment.**

23. Initial 08/16/2018 Comment: Per §249-43. D, the Applicant shall make the nearest line of any driveway not closer than 50' from the intersection of two streets. The driveway for Lot 8 is located within 50-feet of an intersection. The Applicant should revise the plans accordingly.

*08/17/2018 Applicant Response: The waiver request letter has been revised to include Lot 8's driveway being within 50' of an intersection (if deemed applicable). We view this road as an expanded cul-de-sac, for one street, therefore a waiver is not required.*

**09/27/2018 Comment: An additional waiver has been requested.**

25. Initial 08/16/2018 Comment: The proposed drainage easement for the drain line between Lots 3 and 4 should be centered on the drainage infrastructure. All drainage shall be located within an easement. There is a portion of a drain line located on Lot 3 without an associated easement.

*08/17/2018 Applicant Response: The proposed drainage easement for the drain line between Lots 3 and 4 is now centered on the drainage infrastructure. The easement around Infiltration Basin #1 has been expanded along Lot 3's driveway for access. All drainage is now located in an easement.*

**09/27/2018 Comment: The drainage easements were revised so all drainage is within the easement; however, it easement is not centered on the drain lines. The easements need to be centered to provide adequate access for maintenance and repairs.**

28. Initial 08/16/2018 Comment: Per §249-59. A, all wiring and appurtenances of electric power, telephone, cable and other utilities shall be placed underground within the limits of the street right-of-way. The Grading, Drainage, and Utility Plans indicate electric power will be placed underground. The Applicant should show all wired utilities placed underground along the same route as the underground electric, or spare conduits will be provided, per §249-59. B. The Applicant should also show all electrical transformers and confirm that they avoid conflicts with sidewalks, guardrails and other features within the subdivision.

*08/17/2018 Applicant Response: The proposed electric line (linetype "E") has been changed to linetype "UGW" (underground wires) to show that all wired utilities will be placed underground along the same route.*

**09/27/2018 Comment: The Applicant has revised the plans to show junction boxes and transformers, as requested. However, the revised plans show a new location for the underground conduit and it is in conflict with the proposed street trees throughout the subdivision. The Applicant should revise the plans to resolve this conflict.**

29. Initial 08/16/2018 Comment: Per §249-59. G, the Applicant shall provide construction management plans, including a traffic management plan, a truck route, and proposed hours of construction.

*08/17/2018 Applicant Response: A Construction Management Plan is attached.*

**09/27/2018 Comment: Green reviewed the construction management plan. The Applicant should revise the Snow Removal section to state that snow removal will be performed by the Applicant until the roadway is accepted by the Town. Snow removal will be required between the time the lots are released and roadway acceptance.**

34. Initial 08/16/2018 Comment: Per §249-85. A, the Applicant shall provide hydrants at intervals of no more than 500 feet and show them on the plans. The proposed roadway is 1050-feet in length; therefore, at least 2 fire hydrants shall be proposed. The locations of the hydrants shall be coordinate with the Water Department and Fire Department. Potential locations for the hydrants are at the roadway high points located at Sta 3+91 and 8+11.

*08/17/2018 Applicant Response: Two fire hydrants are now proposed at the locations suggested, Sta 3+91 and 8+11.*

**09/27/2018 Comment: The Applicant has revised the hydrant locations shown on the Sheet 6; however, the hydrant locations were not updated on the profile on Sheet 7. The Applicant should update the profile.**

37. Initial 08/16/2018 Comment: Per §249-85. D, streetlights are not required; however, the Board reserves the right to require street lighting. We respectfully defer to the Board for a determination on this item. We recommend street lights be installed at the Foster Street intersection.

*08/17/2018 Applicant Response: There is a streetlight currently on Utility Pole #35, which is proposed to be relocated about 9' to make way for the proposed sidewalk. This light should be sufficient for the area where the proposed road meets Foster Street.*

**09/27/2018 Comment: The relocated utility pole and light should provide sufficient light at the Foster Street intersection. We feel this lighting is adequate for the subdivision; however, we defer to the Board if street lights are required within the subdivision.**

**Stormwater Report Comments:**

54. Initial 08/16/2018 Comment: Per §249-32. D, proposed labels (e.g. "CB-1") rims and inverts for the proposed drainage structures shall be added to the plans to confirm pipe calculations provided in the report and assist the Contractor. Rims and inverts are shown for some, but not all drainage structures.

*08/17/2018 Applicant Response: The missing labels for the drainage structures have been added to the Plan View of Sheet 7.*

**09/27/2018 Comment: Labels are still missing for CB-4, CB-6 and CB-3. The Flared End Section inverts should also be added.**

55. Initial 08/16/2018 Comment: Infiltration Basins 2 and 3 show spillway overflows onto roadways. Per Standard 2 of the Massachusetts Stormwater Standards, the applicant must evaluate the impact of peak discharges from the 100-year, 24-hour storm and that has been done. It is understood that the intent is for the infiltration basins to contain the 100-year storm within the basin and the overflow will not be utilized. However, we recommend the Applicant to comment on the severity or frequency of overflow events due to concerns with overflows directed onto the roadway.

*08/17/2018 Applicant Response: Infiltration Basins 2 and 3 have been designed to hold and infiltrate all runoff up to and including the 100-year storm. It is not anticipated that the overflow would be utilized as the overflow elevation is above the 100-year elevation. The overflows are provided for emergency situations. An overflow event has a <1% chance of happening per year given that the overflow elevations area above the 100-year storm elevation. Level spreaders at the exit of the overflow pipe would disperse runoff and lessen the downstream impact.*

**09/27/2018 Comment: It is understood that the basins have been designed to contain the 100-year storm and have met the stormwater regulation requirements. However, we are recommending the Applicant comment on the approximate design frequency that a storm would overtop the basins for the Town's information since two of the basins discharge to the public way and not to a wooded area or wetland. The "100-year storm is based on rainfall amounts and intensity and the frequency of "100-year rainfall events" has increased in recent years.**

56. Initial 08/16/2018 Comment: The bottom of Infiltration Basin #3 is 5-feet higher than Foster Street. The water infiltrating into the basin may bleed out the embankment and onto the roadway. The Applicant should provide additional details for the design of this basin and ensure water infiltrates and does not bleed out of the embankment. The Applicant should also provide more details on the retaining wall that is designed in the infiltration basin.

*08/17/2018 Applicant Response: A detail for the retaining wall within Infiltration Basin #3 has been added to sheet 9. An anti-seep collar is proposed within the berm so that water does not bleed out of the embankment, which is shown in the "Infiltration Basin #3" detail.*

**09/27/2018 Comment: The retaining wall detail reference by the Applicant cannot be located on the plans. The anti-seep collar proposed will only be installed around the outlet pipe and does not address the issue of water bleeding from the retaining wall onto Foster Street.**

63. Initial 08/16/2018 Comment: The sidewalk proposed on Foster Street should be carried across existing driveways to ensure ADA compliance for the length of the sidewalk. Detectable warning panels are not required at the driveways. Cement concrete sidewalk should be extended across the driveways. The Applicant should also identify any all utility poles, hydrants, signs and other infrastructure that will need to be relocated to facilitate the new sidewalk. A 5-foot minimum clear path should be provided to facilitate the Town's sidewalk plow.

*08/17/2018 Applicant Response: The sidewalk along Foster Street is now shown extending across the driveways. The warning panels at the driveways have been removed. The utility poles that are to be relocated (UP 34, 35, & 36) are now labeled on sheet 5.*

**09/27/2018 Comment: It is our understanding that the existing stone retaining wall along Foster Street between Croft Circle and Mill Road is to be retained. It does not appear the proposed sidewalk alignment accounts for the retaining wall between UP 33 and Mill Road. The Applicant should review and revise the plans accordingly.**

67. Initial 08/16/2018 Comment: The Applicant has designed some of the stormwater infrastructure, including infiltration basins to be located within Open Space parcels. Stormwater infrastructure within the Open Space precludes that area from being used for any other uses. We respectfully defer to the Board for a determination on this item.

*08/17/2018 Applicant Response: Infiltration Basins were shown in the Open Space on the Preliminary Plan and its location was approved by the Board.*

**09/27/2018 Comment: The Preliminary Subdivision plans do show Infiltration Basin 1 within the Open Space. Definitive Subdivision Plans do not propose a significant change from the Preliminary Subdivision Plans.**

#### **Stormwater Management and Erosion Control Bylaw Comments:**

68. Initial 08/16/2018 Comment: Per Page 8 of the "Checklist for Stormwater Report", the Applicant plans to submit a SWPPP before land disturbance begins. We recommend the Board require the submission of a SWPPP to the Town prior to the start of construction as a condition of approval.

*08/17/2018 Applicant Response: No response required.*

**09/27/2018 Comment: We continue to recommend this requirement be a condition of approval.**

69. Initial 08/16/2018 Comment: If the Applicant intends to use the proposed infiltration basins as temporary sediment basins during construction and the Planning Board and Conservation Commission decide to allow this condition, we recommend that the following conditions be included in any approval:

- a. To minimize impact on the infiltration capacity of the final infiltration basin, temporary sediment basins should be excavated to no deeper than 12" above the final bottom of infiltration basin elevation.

*08/17/2018 Applicant Response: No response required.*

**09/27/2018 Comment: We continue to recommend this requirement be a condition of approval.**

74. Initial 08/16/2018 Comment: Per §38-18.C of the Stormwater Management and Erosion Control By-law, the Applicant shall include a mechanism for implementing and enforcing the Operations and Maintenance Plan in the case of stormwater BMPs that are serving more than one lot. The O&M provided names a responsible party for all O&M being the "condominium association", however it is assumed that the Town will be accepting the O&M of the above ground infiltration basins. It is also assumed that the dry wells and infiltration trenches will be the responsibility of the individual owners and not a condominium association. The Applicant should revise the Operations and Maintenance Manual to reflect the two scenarios.

*08/17/2018 Applicant Response: The O&M has been revised to say that the individual homeowners shall be responsible for the inspection and maintenance of the infiltration trenches and drywells on their lots. The developer will be responsible for the inspection and maintenance of the infiltration basins and sediment forebays, street sweeping, snow removal, catch basins, and drainage manholes until street acceptance.*

**09/27/2018 Comment: We take no exception to the Applicant's response and defer to the Planning Board for acceptance of the requirements outlined in the Operation and Maintenance Manual assuming the Town accepts the infiltration basins and the streets.**

75. Initial 08/16/2018 Comment: Also, per §38-18.C, the Applicant shall provide a copy of the legal instrument that establishes the terms of and legal responsibility for the operation and maintenance of stormwater BMP's. We recommend the Planning Board include this as a condition of the approval.

*08/17/2018 Applicant Response: No response required.*

**09/27/2018 Comment: We continue to recommend this requirement be a condition of approval.**

76. Initial 08/16/2018 Comment: The Town of Littleton has expressed concerns regarding the maintenance of subsurface infiltration chambers. As it is assumed the subsurface infiltration chambers (roof drywells) proposed for this project are to be maintained by the property owner, we take no exceptions to their installation.

*08/17/2018 Applicant Response: No response required.*

**09/27/2018 Comment: The Applicant has confirmed that all roof drywells are to be maintained by the property owner; therefore, we take not exceptions. The Town DPW has indicated that they take no exceptions to privately maintained subsurface chambers.**

**Special Permit Application:**

**Chapter 173, Zoning Bylaws:**

**Traffic Impact and Access Study Comments:**



86. Initial 08/16/2018 Comment: Green's review of the intersection sight distance recommended a Combination Horizontal Alignment/Intersection sign (W1-10 Series) be installed for northbound traffic on Foster Street. The applicant should show this sign on the plans.

*08/17/2018 Applicant Response: A label for the Combination Horizontal Alignment/Intersection sign (W1-10 Series) is now shown on sheet 6.*

**09/27/2018 Comment: The Applicant should revise the location of the W1-10 sign. The intention of the sign is to warn eastbound motorists of both Croft Circle and Mill Road. The sign should be installed west of Croft Circle and at a distance that is in compliance with MUTCD.**

**Comments Received from Chris Stoddard, DPW Director via email on 8/16/18:**

88. Initial 08/16/2018 Comment: The applicant is proposing to use the inside of the cul-de-sac for an open space park, the planning board should require an association be set up to maintain the park, as well as any appropriate easements to be set up. The Highway department does not have the budget or staff to maintain additional parks.

*08/17/2018 Applicant Response: A Homeowner's Associates can be created should they not accept the park proposed inside the cul-de-sac.*

**09/27/2018 Comment: We recommend the Board require the Applicant to create a Homeowner's Association that will be responsible for maintaining the park; however, it should be clear the park is considered Open Space and can be used by the public at-large.**

89. Initial 08/16/2018 Comment: The plan does not show where the location of the proposed mailbox is going to be. The mailbox should be placed outside the ROW layout, if the mailbox is within the layout and gets damaged the Highway department will not be liable to repair/replace the structure.

*08/17/2018 Applicant Response: A proposed mailbox is now shown and labeled on sheet 6, outside the ROW layout.*

**09/27/2018 Comment: The Applicant has shown a proposed mailbox outside the ROW; however, the final location may need to be coordinated with the Postal Service.**

**New 09/27/2018 Comments:**

91. There are two proposed water lines shown on the plans. This appears to be an error. The Applicant should revise the plans.
92. The drain line between DMH-1 and DMH-2 may appear to be in conflict with the water main given the pipe inverts and the water profile drawn. The Applicant should review and show how the water will cross the drain line at this location and other drain crossings.
93. There are two pipes shown entering the Flared End Section within Infiltration Basin 2. Flared End Sections can only accommodate one pipe. The Applicant should consider providing a manhole structure upstream of the FES, an additional FES, or a headwall structure that will accommodate both pipes.
94. The Applicant revised the plans to depict the sidewalk crossing the driveways on Foster Street; however, the cement concrete sidewalk should also be carried across the driveways within the subdivision. The Applicant should revise the plans accordingly.

**Requested Waivers:**

- §249-32 B. The plan shall be at the scale of one (1) inch equals twenty (20) feet or other scale approved by the Planning Board to accept to show details clearly and adequately and shall be identified as a Definitive Plan. **The proposed Definitive Plan is at a scale of one (1) inch equals forty (40) feet.**

Green's Comment: We take no exception to this waiver request and respectfully defer to the Board for a final determination on this item.

- §249-32 D. Site Plans and Profiles. For every street, there shall be a separate plan at 1"=20' and profiles at 1"=4' (Vertical), which is preferred, or plans at 1"=40' and profiles at 1"=8' (Vertical), showing the following data. **A profile of the proposed road is provided at 1"=40' and 1"=4' (Vertical).**

Green's Comment: We take no exception to this waiver request and respectfully defer to the Board for a final determination on this item.

- §249-43 A (3). Dead end street shall be provided at the closed end with a turnaround having dimensions conforming to AASHTO Exhibit 5-8D. Only circular offset type is allowed. **A loop turnaround is provided per preliminary plan approval with an open space parcel in lieu of the cul-de-sac island for use as a park.**

Green's Comment: The proposed loop turnaround should provide adequate access for emergency vehicles. We take no exception to this particular waiver request; however, we recommend the Applicant resolve other comments related to the length of roadway and a second means of egress prior to the Board approving this waiver.

- §249-43 D (10). Street intersections on all Collector and Arterial Streets, including but not limited to Great Road, King Street, Newtown Road, Shaker Lane, Goldsmith Street, Tahattawan Road, Harvard Road, Harwood Avenue, Foster Street, Taylor Street, and Whitcomb Avenue, shall be spaced not less than four hundred (400) feet apart. **The proposed road intersects with Foster Street and is only three hundred twenty-three (323) +/- feet as previously approved in the preliminary decision from the intersection of Mill Road and Foster Street.**

Green's Comment: Green reviewed the intersection spacing during the Preliminary Plan phase. While the proposed design does not meet §249-43 D (10), the design does meet the requirements of the MassDOT PD&DG. It is Green's understanding that this was previously approved and we take no exception to the waiver request.

§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 nearest line of the proposed intersection of the proposed road and Foster Street is forty-four (44) +/- feet from the nearest line of the nearest abutting driveway.**

Green's Comment: The Waiver requested appears to be for the driveway for 105 Foster Street; however, the Waiver request should also include the driveways for 96 Foster Street and possibly 92 Foster Street. There is also a driveway within the subdivision that is within 50-feet of an intersection. Based on the spacing of existing driveways on Foster Street, it may be infeasible for the Applicant to meet this requirement. Green respectfully defers the Board for a determination on this item.

§249-43 E (1). Cul-de-sac center islands shall be landscaped. Eight (8) feet width of gravel is required on the perimeter of the cul-de-sac, inside the curb. Low-maintenance groundcover shall be planted with topsoil and bark mulch, with trees screening any transformers or electrical equipment. Do not obstruct access.

**The cul-de-sac center island, Open Space Parcel B, is proposed as a park. Trees shall be clustered in a manner to provide open space for park use.**

Green's Comment: We take no exception to this waiver request and respectfully defer to the Board for a final determination on this item.

§249-51 H. The maintenance berm shall be flat and at least fifteen (15) feet in width. The pipe inlets discharging into the basin shall be at or above the 25-year storm event ponding elevation. A minimum thirty (30) foot setback as measured from the top of the inside slope to all property lines is required. **The proposed maintenance berms are a minimum of (6) six feet in width. The pipe inlets discharging into the basin are below the 25-year storm event ponding elevation. A portion of the proposed infiltration basins are to be constructed within 30' of property lines.**

Green's Comment: We recommend the Applicant provide additional information to support their waiver request. We respectfully defer to the Board for a final determination on this item.

**09/27/2018 Comment: We continue to recommend the Applicant provide additional information to support the waiver request.**

§259-59 C. Written Approvals. No Definitive Plan will be approved unless the developer submits written certification of approval of the design by all utilities which are to provide services within the subdivision.

**A waiver is requested for written certification of approval of the design by all utilities which are to provide services within the subdivision.**

Green's Comment: We recommend the Board require the certification for all utilities designed by the Applicant (i.e. storm drainage and domestic water); however, we respectfully defer to the Board for a final determination on this item.

§249-81 A. Concrete shall be placed to a depth of at least four (4) inches. At driveways, concrete shall be placed to a depth of at least six (6) inches. **The proposed sidewalk shall be made of hot mix asphalt as shown on the Hot Mix Asphalt Sidewalk Detail. All proposed wheelchair ramps shall be made of concrete.**

Green's Comment: The DPW Director has requested cement concrete sidewalk be constructed on Foster Street and within the Subdivision. Cement concrete sidewalk is more durable than bituminous concrete sidewalk. We defer to the Board for a determination of this item.

**09/27/2018 Comment: The Applicant should withdraw this waiver request, as the Applicant now proposes cement concrete sidewalks.**

**Exclusions:**

As indicated in the Scope of Services, this peer review does not include the following:

- Review of the Definitive Subdivision Application Package for compliance with other Local, State or Federal codes, ordinances or laws not mandated by 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;
- Review of any previously approved plans, reports or applications for compliance with Local, State or Federal codes, ordinances or laws;
- Confirmation of any delineated resource areas;
- Review of septic system design;
- Review of the project during construction.

Several of the above comments include recommendations for the provision of additional drawing and document information. The updated information may result in the generation of additional comments once received and reviewed. Should you have any questions regarding this Peer Review please do not hesitate to contact us.

Sincerely,

**Green International Affiliates, Inc.**

*Thomas Bigelow*

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

*Courtney Semlow*

Courtney Semlow, P.E., CFM, ENV SP  
Project Manager

TPB/cs

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