RUGGIANO engineering, inc.

Civil Engineers • Land Use Planners

August 5, 2015

Attn: Alex Weinhagen
Town of Hinesburg
10632 Route 116
Hinesburg, VT 05461

Subject: **Hinesburg Center - Phase II, Proposed Low Impact Design (LID) Features, Farmall Drive, Hinesburg, Vermont** File: 2007039.1

Dear Alex:

The purpose of this letter is to address the requirement to include low impact design (LID) stormwater control measures in the site design for the proposed Phase II portion of the Hinesburg Center project. At this time the applicant is seeking Preliminary Plat approval for the overall configuration of buildings, streets, parking and utilities. There are two phases of the project design development where LID measures will be considered and incorporated, including the overall project's common stormwater collection and treatment system and on individual sites. The specific measures to be utilized on individual sites/lots will be finalized when the applicant seeks Site Plan approvals for those specific sites/lots, as the LID practices at each will be catered to the specific nature of the use and/or tenant's needs. A discussion of the conceived LID practices follows:

Overall Project's Common Stormwater Infrastructure

Whereas the LID practices incorporated on individual sites/lots will be geared toward reducing the amount of runoff discharged from the site and are generally designed for smaller storm events, the overall project's common stormwater infrastructure must be capable of quickly conveying and discharging rain water from the streets during larger storms. The applicant's proposal includes a bioretention swale as part of the overall project's initiative to include LID practices. The proposed bioretention swale is located west of the Phase II development, along the back edge of lots 76-82. Unlike a traditional grass swale, the bioretention swale will not be regularly mowed, but rather includes specific shrubbery designed to slow the flow of runoff, encourage infiltration, and remove sediment and pollutants prior to discharge to improve water quality. The bioretention swale is designed to intercept a large portion of the discharge from the collection storm drain along the extension of Farmall Drive and the new streets, as well as from the adjacent building lots 76-82.

The overall project's stormwater system also includes a detention pond with a large sediment forebay. Stormwater that cannot be effectively infiltrated or retained using the onsite and common LID practices and overflows from larger storm events will be controlled by the detention pond, which is designed to detain flows from at least a 10 year storm event while ensuring a discharge rate at or below the pre-development rate of discharge from the site.

2007039.1
Hinesburg Center Phase II
Low Impact Design

Onsite Low Impact Design Practices

Before the proposed Phase II buildings can be constructed, each will be required to obtain a Site Plan approval from the Town of Hinesburg. When specific commercial uses and/or tenants are identified in each building, the type and location of LID practices will be incorporated that best suit the needs of the user. For example, a commercial tenant as a florist may request additional rain barrel storage so that the stormwater can be retained for use in their business, whereas another commercial tenant may prefer a rain garden that will be maintained by the owner or commonly contracted landscaper. It is anticipated that as each site is developed at least one of the following LID practices will be incorporated:

1) *Rain Barrels*

Rain barrels typically collect rain water from the gutter system of a building. Stormwater that would otherwise be discharged to the ground surface where it increases the quantity and rate of runoff from the site and could cause erosion from a concentrated flow is retained for future use. Future uses may include watering of plants, lawns or other vegetation, and unutilized stored rain water can be more slowly discharged to the ground surface or planting beds during dry periods.

2) *Rain Gardens*

Similar to the bioretention swale, rain gardens will provide an area for concentrated stormwater runoff from rooftops, parking areas and other impervious surfaces to infiltrate. Rain gardens can easily be incorporated into landscaped beds that enhance building entrances, pylon signs, walkways and parking areas. This attractive LID practice helps to filter runoff pollution, recharge groundwater, and even create habitat for birds and butterflies.

3) *Pervious Concrete and Pervious Pavers*

Pervious concrete and pervious pavers can more or less eliminate the effect of creating an impervious surface, allowing stormwater to infiltrate directly through the surface of the sidewalk, patio or parking area. As a result of increasing the amount of stormwater infiltration, there are added benefits of reduced stormwater pipe sizes and smaller detention requirements (i.e. a smaller detention pond). Since these surfaces are relatively weak they are not typically used in heavy traffic areas, where these unreinforced porous materials will have a tendency to ravel, crack and more rapidly deteriorate. Therefore their use will be limited to certain sidewalks and patio areas.

We look forward to working with the applicant to incorporate these site-specific LID practices as individual lot site plans are developed.

Sincerely,
Ruggiano Engineering, Inc.

Clifford R. Collins, Jr., P.E.

CC: Brett Grabowski