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851 Chemung Street  
Horseheads, New York 14845

March 7, 2017

Mr. Brad Lytle, Village Manager  
Village of Horseheads  
202 South Main Street  
Horseheads, New York 14845

**Re: Villas at Gardner Road  
Gardner Road, Village of Horseheads  
Review of Stormwater Pollution Prevention Plan**

Mr. Lytle:

I have completed a review of the following submitted items for the above-referenced project regarding the proposed stormwater management system for that project.

- Site Plan Drawings for Villas at Gardner Road, Village of Horseheads, Chemung County, NY, Stamped by a NYS Licensed Professional Engineer, Prepared by Fagan Engineers, Revision dated January 23, 2017, Received February 3, 2017
- Response letter to the Stormwater Coalition's January, 2017 drainage review letter, Prepared by Fagan Engineers, Dated February 2, 2017, Received February 3, 2017

My review comments and questions regarding the SWPPP and stormwater management system for the above-referenced project, based upon the submitted information, are as follows.

**I. STORMWATER MANAGEMENT**

1. In their response letter, Fagan Engineers indicates that a 6-inch thick topsoil shall be placed above the exposed sand/gravel layer. Could this topsoil layer act to impede infiltration?

**II. STORMWATER COLLECTION & CONVEYANCE**

General

1. Upon a recent discussion with the Village Street Superintendent, it was indicated that the developer's engineer has not reviewed the details of their proposed street and drainage design with him to date. Furthermore, it was noted the question of ownership/maintenance of the streets and drainage system is an important consideration, as it would impact the drainage design. For example, if the Village is to own the streets, a drainage system for the proposed cul-de-sacs would be required to address potential icing issues. Also, potential concerns regarding the long-term maintenance of the proposed stone-lined swales was also noted, as well as the depth of the proposed storm sewer.

It is understood that the Applicant's engineer has not reached out to the Village's Street Superintendent regarding design and maintenance considerations, since our last review letter. It is recommended that the Village consider a workshop meeting with the Applicant's engineer, where specifics regarding the design and management of the proposed stormwater system can be discussed.

#### Hydraulic Sizing

1. In regards to the proposed CB-1 and CB-2, if the stormwater system is to be dedicated to the Village, the following items should be considered.
  - o These inlets be placed in shallow topographic depressions.
  - o The use of "beehive" style may be problematic in regards to plowing and should be discussed with the Street Superintendent.

#### Storm Sewer & Culvert System

1. The proposed 24-inch diameter storm sewer between CB-1 and End Section-1 is now shown to be approximately 8 feet (horizontally) from the proposed building on Lot #3. Furthermore, depending upon the elevation of the foundation for the proposed home, the elevation of this proposed storm sewer could be near or possibly below this foundation elevation. Given these items, the location of this proposed storm sewer in relation to the adjacent proposed building could be problematic for both the homeowner and the entity responsible for the maintenance of this storm sewer. As one example, if a repair to this storm sewer is needed and excavation of it is required, the excavation would be difficult (owing to the close proximity of the adjacent building) and could negatively impact the structural integrity of this building's foundation. Given these considerations, it is recommended that alternatives be explored to address this issue, if the Village is to receive dedication of the stormwater system.

#### Drainage Swales

1. Will the proposed drainage swale on and near Lot #18 that would receive runoff from the adjacent cul-de-sac be prone to erosion? As per Sheet C9, this proposed swale is not shown to receive a stone lining (or other means to control erosion).
2. As noted previously, a proposed drainage swale is shown passing through the proposed building on Lot #20. As noted in Fagan Engineer's December 7, 2016 letter, "*The standard layout home will not fit Lot #20. An alternate layout will be required for the homeowner of this lot. This will be approved by the Village of Horseheads Stormwater Management Officer during the building plan approval process.*"

It is recommended that the plans be corrected to show a proposed footprint for the proposed building on Lot #20 that does not conflict with the proposed swale and is located outside of the associated easement for this swale.

3. In regards to the "Phase II Circle Swale", the sizing/design of this swale was based on a slope of 11 percent, although it appears that a portion of this swale is at a steeper slope. Similarly, where the proposed swales discharge to the proposed forebay, steeper slopes appear to exist. Would the use of NYSDOT Light Stone Fill be suitable for the steeper portions (>15%) of the proposed rock-lined swales? Appropriate calculations should be provided.

**III. UNRESOLVED ITEMS**

1. As noted in our January 5, 2017 letter, a number of unresolved items exist, including the entity responsible for maintenance of the stormwater system; appropriate easements for the stormwater system; and a means for vehicular access to the stormwater system.
2. If the proposed stormwater system shall remain in private ownership, an appropriate Operation & Maintenance Plan and agreement shall be required. The review of this plan and agreement shall commence after the decision of whom will maintain the system is decided.

If you have any questions or comments regarding this letter, please do not hesitate to contact me. Furthermore, I would be happy to meet to discuss this project in greater detail.

Sincerely,

A handwritten signature in dark ink that reads "Jimmie Joe Carl". The signature is written in a cursive style with a large initial "J".

Jimmie Joe Carl, P.E.

Cc: Matt Mustico, Village Street Superintendent  
Attorney John Groff  
Fagan Engineers