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851 Chemung Street  
Horseheads, New York, 14845

July 20, 2012

Mr. Tom Skebey, Stormwater Management Officer  
Town of Horseheads  
150 Wygant Road  
Horseheads, NY 14845

**Re: SWPPP Review  
Biltmore Crossing  
Town of Horseheads, New York**

Mr. Skebey:

As per the Town's request, we have reviewed the following information in regards to the above-referenced project.

- Site Plan Drawings for Conifer Realty – Biltmore Crossing, Prepared by Fagan Engineers, Not stamped by a licensed professional engineer, Dated May 29, 2012
- Stormwater Pollution Prevention Plan for the Conifer Realty Biltmore Crossing, Prepared by Fagan Engineers, Not stamped by a licensed professional engineer, Dated June 2012

My review comments and questions regarding the above-referenced project are as follows. At your request, I would be happy to direct a copy of this letter to Fagan Engineers.

**Stormwater Management Calculations**

1. The total drainage area to the Gardner Road point of interest in the developed/mitigated condition model (6.39 acres) is less than that in the existing condition model (6.55 acres). This should be reviewed.
2. It is unclear why the time of concentration for the drainage area for the existing conditions model (0.3893 hours) is less than the time of concentration for the developed sub-area I-A (0.4379 hours), as the area of sub-area I-A is unchanged from existing to developed conditions.
3. In regards to the RRV calculations, the following items are noted.
  - For vegetated swales, when conveying the water quality volume flow rate, flow depths must be 4 inches or less.
  - For rain gardens in HSG C soils, 40 percent of the WQv can be credited for the RRV.

### **Stormwater Collection & Conveyance**

1. Hydrologic and hydraulic calculations justifying the sizing of the stormwater collection and conveyance system (including roof drains) should be provided, as part of the SWPPP. The calculations shall include estimates of the hydraulic capacity of stormwater inlets.
2. Will impounded water within the proposed stormwater management basin create a tailwater condition for the proposed storm sewer system that, in turn, will impact the performance/capacity of this storm sewer system?
2. Roof drains for the proposed buildings should be shown on the plans.
3. What size rip rap is proposed to be used for the splash pads?
4. The SWPPP indicates that Turf Reinforcement Mats are proposed to be installed with select drainage swales. These swales should be indicated on the plans.

### **Stormwater Treatment, Infiltration, and Detention**

1. In regards to the proposed rain gardens, where and how will overflows from these facilities be directed?
2. Will the mulch for the proposed rain gardens have a tendency to float and wash away?
3. A keyway into native soils is often utilized, as part of the berm construction for a detention basin.
4. A summary of the test pits logs and infiltration testing, including the associated locations, is requested. In regards to the proposed stormwater management basin and rain gardens, were the number of infiltration tests completed consistent with the requirements of Appendix D of NYSDEC's Stormwater Management Design Manual? What is the depth to groundwater at the proposed stormwater management basin?
5. The location and size of proposed spillway for the stormwater management basin should be indicated on the plans.
6. Under certain conditions, could the proposed outlet control structure become buoyant?
7. Will the proposed hoods on the outlet structure work effectively on structures with curved (circular) walls? Is a bar screen needed for the smaller flow control orifi?

### **Erosion & Sediment Control**

1. A complete Erosion & Sediment Control Plan is required, which includes locations of all proposed temporary and permanent erosion control practices. Phasing lines should be noted on the plans.
2. In regards to the Stabilized Construction Entrance detail on Sheet C16, the minimum width of the drive shall be 24 feet, if a single entrance is utilized.

3. In the upper right corner of Sheet C9, notes with the title of "Specifications for Straw Bale Protection" are provided. It appears that this title should be "Specifications for Filter Fabric Storm Drain Protection".
4. The submitted Construction Sequence indicates that temporary sediment basins shall be utilized. Details regarding these sediment basins, including locations and sizing, should be provided on the plans. Is the proposed stormwater management basin proposed to be utilized as a temporary sediment basin?
5. Locations of temporary stockpiles areas should be indicated on the plans.

#### Miscellaneous Items

1. For permanent stormwater management controls for which their long-term performance/viability depends upon routine maintenance, an associated operation & maintenance agreement for the stormwater system must be developed and executed by the Owner. This agreement must be binding and enforceable and run in perpetuity with the property. It is recommended that this agreement be reviewed by the Town's lawyer.
2. In regards to the submitted Construction Sequence, would the Deep-Ripping and Decompaction step be more effective, if completed after the buildings, infrastructure, and new pavement? It is recommended that NYSDEC's Deep-Ripping and Decompaction guidelines be included in the SWPPP.
3. It appears that the horizontal distance between proposed watermain and storm sewer is closer than the minimum separation distance requirement for water and sewer utilities.

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

Sincerely,



Jimmie Joe Carl, P.E.  
Stormwater Engineer

Cc: Jessica Verrigni, Chemung County Stormwater