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February 6, 2009

BY:.....

Mr. Thomas E. Yurkewecz, Director
Fuller Road Management Corporation
251 Fuller Road
Albany, NY 12203

Dear Mr. Yurkewecz:

Re: Review of Existing Drainage Conditions at University at Albany's
Freedom Apartments & College of Nanoscale Science & Engineering

Based upon a meeting held on August 12, 2008, I was asked to review the existing site drainage from the University at Albany's Freedom Apartments (AKA Freedom Quadrangle or Freedom Quad) and from the College of Nanoscale Science and Engineering's (CNSE) Albany NanoTech Campus. During this review, certain conditions were discovered which require remediation.

This report is based upon information obtained by survey, by personal inspection, upon review of existing surveys and plans, and upon review of plans and reports of proposed and recently installed facilities. The outfall for all drainage from the Freedom Apartments and from the developed portion of the CNSE, with the exception of the West Parking Expansion, is through a detention basin located to the rear of properties on Mercer Street.

should be Warren St.

This report concentrates on the existing system which terminates in a basin that was placed into service by the University at Albany when Freedom Apartments were constructed (Ca. 1984). No design report or detailed plans were available for this basin. Since this was constructed in advance of the adoption of GP#02-01, there were no uniformly adopted standards to govern the discharge from design storms. Also, the frequency of a storm design to be considered (i.e., 10 year storm, 25 year storm, 100 year storm) had not been established for this site.

The detention capabilities of this basin as constructed are severely limited. Intake to this basin was originally limited to flow through a 24" CMP placed at a minimum grade which has a flowing full capacity of approximately 8 CFS. Outfall was designed to be controlled through an 18" CMP which has a flowing full capacity of approximately 5 CFS. I believe that this was intended to function as a dry detention basin.

On Saturday, August 16th I examined the basin. This basin was functioning as a "wet pond" or an "extended detention basin." The inlet from the existing drainage system from Freedom Apartments (24" CMP) is 50% obscured by silt buildup in this basin. Through siltation, the outlet from this detention basin has also become partially plugged (approximately 50% of the pipe is obscured). Since much of this basin's capacity is occupied by standing water plus silt and vegetation, its function to detain storms (even as small as originally designed) is severely limited. Pipes discharging stormwater into the basin operate under the condition of a submerged outfall during storms. This reduces the carrying capacity of the pipes and may lead to flooding upstream from this basin, which includes areas within Freedom Apartments and within the developed portion of the CNSE. One possibility that may have exacerbated the deteriorated condition of this basin is that an elevated ground water table would be the cause of the changed condition. However, an examination of a nearby USGS monitoring well shows no significant change between 2004 and 2008.

Normally, an overflow from a storm water management and/or treatment system is directed through an overflow to a drainage course. Various methods of flow control are used to limit the impact on any downstream properties from the drainage course. In this case, minimal detention was planned. Immediately downstream from the discharge pipe from this detention basin is an area elevated above the outfall pipe, causing the discharge waters to be deflected to the north of the stream course downstream from this basin. Downstream from this basin is a stream course, running towards the east between properties along Warren Street and properties along Loughlin Street. This stream course terminates at a headwall with a culvert connecting this into the drainage system along Fuller Road. The drainage system along Fuller Road terminates at Western Avenue near Stuyvesant Plaza.

During construction of NanoFab East, previously existing stormwater detention basins were removed and replaced with enhanced detention facilities, including a subsurface storage system. A new 30" HDPE pipe was constructed parallel to the existing 24" CMP to carry the 100 Year Storm overflow from these systems to the existing detention basin. The proposal was to utilize SWM#1 (the pond on Tricentennial Drive just west of a surface parking lot, which is west of the Congregation Beth Abraham Jacob Cemetery) as an "extended detention pond." In a redesign of SWM#1, the plan was to retain flows from all storms up to and including the 100 year storm to a predetermined level, which was impacted by both the discharge pipe size and the discharge route which utilized the existing 24" pipe to route the flow to the existing detention basin. A permanent pool was established by excavation below the high ground water level. The permanent pool elevation is maintained at the elevation of the 15" outflow pipe which is 254.9 as constructed (plan = 254.00). Storage exists in the "extended detention storage portion," which is between 254.9 and the elevation of the overflow pipe as constructed (259.48) sufficient to maintain the 100 year frequency storm. This was based upon the diversion of storm water from previously developed areas and from the proposed parking garage site to SWM#1.

Since this area of SWM#1 is proposed to be replaced with a portion of a parking garage, the final adjustment of the size of SWM#1 has not yet taken place. Under the proposed garage plan, a treatment and storage facility is to be constructed beneath the garage to replace the redesigned SWM#1 and to provide treatment utilizing a sand filter.

In order to return the existing detention basin serving the University's Freedom Apartments to its original condition and function, the minimum maintenance would include:

- Dredging and disposing of accumulated silt
- Dredging and disposing of accumulated decomposed vegetation
- Reestablishing the bottom grade utilizing graded washed gravel or broken stone over geotextile fabric.
- Reestablish a consistent top of berm elevation to prevent overflows from occurring at an elevation less than that originally designed.
- Clean and repair inlet and outlet pipes

To reduce the impact of flooding of lands adjoining the outfall, an extended discharge pipe should be considered. This would have to be in excess of 400

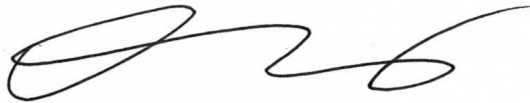
feet in length so that it may meet the grade of the downstream stream course at a point where positive drainage towards Fuller Road can be established.

It is my conclusion that the University's existing detention basin near the southern limits of the property is not functioning properly. Overflows occur from this basin after even moderate storms and such overflows have been occurring for a considerable period of time. However, the peak flow to the Fuller Road drainage system is controlled by the 12" culvert connection. This 12" pipe capacity is exceeded on a frequent basis during which impoundments occur in this stream course. Such impoundments would occur even if no new construction on the CNSE campus had taken place, based upon the tributary area from Warren Street to Loughlin Street. The impact of this non-functioning basin on the flooding which occurs at Western Avenue at Stuyvesant Plaza is, therefore, negligible.

If you require any additional information, please contact me at your convenience.

Sincerely yours,

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Daniel R. Hershberg, P.E. & L.S.

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Cc: James Ochal

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