



LAKE • GEORGE
WATERKEEPER®

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July 29, 2010

Mr. Thomas Saehrig
Adirondack Park Agency
P.O. Box 99
Ray Brook, NY 12977

Re: The Enclave at Lake George, LLC
APA Project No. 2010-118

Dear Mr. Saehrig:

The above referenced permit application was personally reviewed in my capacity as a licensed professional engineer and the Lake George Waterkeeper. In general, the Lake George Waterkeeper feels the extent of the proposed disturbance, clearing and impervious coverage is excessive and will have negative impacts to Irish Bay and Lake George. Additionally, the Waterkeeper recommends implementing Low Impact Development to reduce negative impacts measures and to create a development that works more with the site's natural resources. Furthermore, the stormwater management plan is deficient in numerous areas and does not meet the Lake George Park Commission's regulations.

The Lake George Waterkeeper offers the following comments regarding the proposed development:

LOW IMPACT DEVELOPMENT

The project should be redesigned to implement Low Impact Development measures.

Low Impact Development is a method of development that reduces the level of disturbance and works more closely with the natural features of a site to minimize negative impacts. The design as proposed fails to accomplish this on numerous levels:

- Preserve and conserve natural resources: Extensive development and roads are proposed on steep slopes which will make it difficult to mitigate negative impacts from grading and soil destabilization. Buffers along wetlands should be protected to prevent impacts to the natural filtration process provided and to protect wildlife habitat.
- Minimize changes to landscape: All disturbances from clearing, grading and other development activities changes the natural drainage patterns and increases stormwater runoff. This project proposes large areas of clearing and earthwork requiring significant



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disturbance to mitigate the increased runoff. The concept plan should be reevaluated to reduce the overall disturbance.

- Stormwater controls closer to source: Stormwater should be controlled and treated closer to the source. This reduces the increased disturbance necessary to mitigate the runoff and reduces project cost. The project proposes gutters and piping for stormwater collection and conveyance to large stormwater basins down the hill from the development. Stormwater should be controlled closer to the source through infiltration measures such as rain gardens near units. Additionally, stormwater should be conveyed on natural drainage channels that will further reduce stormwater volumes.
- Reduce impervious coverage: Impervious cover should be minimized to reduce increased stormwater runoff. The project proposes significant impervious cover in roads and driveways. Driveway widths for Units 1-9 are 24 feet wide. Lot 10 has a 450 foot long, 16 foot wide driveway, which is excessive.
- Dwelling should be built to the land: Dwellings should be built with the landscape, and not the land altered to accommodate the dwellings. The project proposes dwellings that are dimensionally uniform on all sides and will require more construction into the mountainside, resulting in additional clearing, disturbance and earthwork. The dwellings should be designed with a long side parallel to the land contours, requiring less construction into the hillside.

STORMWATER MANAGEMENT

An application has yet to be filed with the Lake George Park Commission regarding the proposed stormwater management plan.

According to Joe Thouin, Environmental Technician with the Lake George Park Commission, an application has not been filed for the project as of July 28, 2010 despite the Adirondack Park Agency's (Agency) request to coordinate all outside agency reviews and applications in the Notice of Incomplete Permit Application (NIPA) dated June 8, 2010. Stormwater management is a major component of any development project, especially one located in a critical environmental area with steep slopes, wetlands and with stream. Stormwater management approval must be obtained prior to any approvals on this application.

Infiltration is improperly applied to several of the proposed stormwater ponds to reduce the post-development runoff volumes.

Ponds 1P, 2P, 3P, 4P, 5P, 6P, and 7P are all designed as wet ponds with permanent water in the ponds. This significantly reduces the potential for infiltration and Lake George Park Commission Regulations require a 2 foot separation to seasonal high groundwater for infiltration. However, the calculations indicate runoff volumes are reduced in each of the seven ponds:

RUNOFF VOLUMES – 10-YEAR STORM EVENT

<u>POND</u>	<u>INFLOW VOLUME (af)</u>	<u>OUTFLOW VOLUME (af)</u>	<u>Δ (INFILTRATED VOLUME – af)</u>
1P	0.116	0.071	0.045
2P	0.063	0.018	0.045
3P	0.165	0.065	0.100
4P	0.196	0.135	0.061
5P	0.135	0.031	0.104
6P	0.038	0.024	0.014
7P	0.024	0.006	0.018

The proposed ponds reduce the inflow volume by 0.387 acre-feet despite the fact there is less than 2 feet of storage above the permanent water line which prevents the ability to infiltrate. It is not clear how the stormwater runoff volume is reduced by the amount specified if infiltration is not possible. Additionally, it should be explained how this proposed plan complies with the Lake George Park Commission regulations since such a large developed area and subsequent stormwater runoff volume is directed to stormwater controls that cannot infiltrate.

Significant areas of increased stormwater are discharged directly to wetlands without any management or treatment.

The goal of stormwater management is to capture, manage and treat increased stormwater runoff prior to discharge to our natural resources to reduce the negative impacts from development. Unfortunately, stormwater runoff from a significant area of disturbed land changed from its natural conditions will not be managed and treated. The following is a summary of these areas based on the stormwater management report:

RUNOFF VOLUMES – 10-YEAR STORM EVENT

<u>CATCHMENT</u>	<u>SURFACE AREA (sf)</u>	<u>GROUND COVER</u>
1S	20,000	Grass (Septic area)
2S	18,965	Grass (Units 5-9)
5S	21,765	Grass (Units 3-4)
7S	23,330	Grass (Units 3-4)
9S	4,500	Grass (Lot 10)
16S	1,515	Paved (Lower road)
19S	56,330	Grass (Units 1&2)
23S	8,400	Grass (Lot 10 drive)
23S	1,300	Paved (Lot 10 drive)
24S	7,800	Grass (Lot 10 basin)
26S	6,000	Grass
TOTALS	167,090	Grass
	2,815	Paved

Nearly 4 acres of disturbed land will not receive stormwater management or treatment. It should be noted that medium density developed lands produces 5 times the amount of nutrient loading compared to natural forest areas. Therefore, the lack of stormwater management and treatment of these areas will have a negative impact on water quality.

Pond 3P should have a permanent pool elevation.

Pond 3P does not indicate a permanent pool and is located between Ponds 1P and 2P, which both will have permanent pools. It is unclear if Pond 3P will have a liner or if there will be a permanent pool elevation. In either case, this will impact the pond routing calculations and they should be reevaluated.

Proposed stormwater management ponds will require variances for separation to wetlands.

According to the Lake George Park Commission regulations, ponds for major stormwater projects treating runoff from paved surfaces must maintain a 100 foot separation from lakes, rivers, protected streams, ponds and wetlands. Alternatives are available regarding stormwater treatment and there is no hardship for the applicant.

The proposed wet ponds do not provide adequate treatment during cold climate conditions.

Stormwater ponds with permanent pool elevations installed in the Lake George watershed have been monitored over the past three winters. These ponds develop and maintain an ice surface for 4-5 months, which reduces the level of treatment and management. In some applications, the ice accumulates and builds up to the primary spillway elevation, eliminating all storage volume. The potential for ice accumulation will only increase on ponds proposed on a mountainside with greater exposure to cold weather. As rain events become more prevalent during winter conditions, the potential for high storm volumes increase along with corresponding negative water quality impacts.

Soil investigations required for stormwater controls.

Some soil investigations in the vicinity of the stormwater controls indicate seasonal high groundwater at depths that would appear to be less than the required separation. Soil investigations must be provided for each stormwater management control to determine the method of stormwater treatment.

Incorrect hydrologic soil group is applied in calculations.

The calculations are based on Hydrologic Soil Group B. However, the portion of the development below the upland homes is located on Oakville and Otisville soils, which are Hydrologic Soil Group A. This will result in a lower actual pre-development stormwater volume as well as a greater increase in post-development runoff from impervious areas. These calculations should be reevaluated.

The stormwater management report calculations contain minor inconsistencies that could impact total site runoff.

The following values should be clarified in the calculation report:

- Slope – Subcatchments 2S and 5S indicate grass slopes of 10% when 2:1 grades are proposed that will affect Tc calculations.
- Sheet flow in woods – Subcatchments 2S and 5S indicate sheet flows of 100 feet in woods when nearly all woods are cleared. This will affect Tc calculations.
- Total flow path length – Flowpaths in subcatchments 7S, 15S and 16S seem shorter than actual conditions, which will affect Tc calculations.
- Ground cover coefficient (CN) – The CN value for grass areas for subcatchments 13S and 14S (around Units 5 and 7-9) is 61 and every other grass condition has a CN value of 69. This affects runoff values.

WETLANDS

Wetland mitigation is proposed in stormwater basins that will be routinely dredged of sediment.

The proposed area for wetland mitigation is located in Ponds 1P and 2P, which are designated as forebays. Forebays are required pretreatment devices important for maintenance and the longevity of a stormwater pond and it is recommended that the bottom of the forebay be hardened to ease sediment removal. (NYSDEC) No maintenance schedule was provided, but these devices are typically dredged every year or two. Based on the required maintenance and hard bottom, these locations would not be good for wetland mitigation.

The proposed wetland mitigation should be connected to the existing wetlands for habitat and water quality measures.

The proposed location for wetland mitigation will be in a constructed area where 2-3 feet of existing soil is removed to the lower subsoils, which are not good hydric soils for wetland

conditions. Additionally, the wetland mitigation will be separated from the existing wetland by a 4 foot high compacted berm that will eliminate any connectivity to the wetlands.

The proposed development alters natural drainage patterns supplying wetland.

The development will act like a cut-off drain intercepting all surface and ground water recharge and supply to the wetlands. All areas upland of the development will be collected and discharged in concentrated flows to the wetland altering the distribution to the wetland. Additionally, the hydroperiods of the wetland should be evaluated to maintain the same extended wet and dry periods within the complex.

The plans contain no details on the proposed mitigated wetlands.

GENERAL

The wastewater treatment system is proposed on excessive slopes.

The wastewater treatment system for the upland units is a fill system and is located on slopes of 20%. This exceeds the allowable slopes for fill systems.

The submission information did not contain any visual assessment as requested in the NIPA dated June 8, 2010.

The plans do not contain any landscaping plans as requested in the NIPA.

It appears some of the well locations behind the upland units may not be realistic and should be reevaluated.

In conclusion, this development plan has too much disturbance and does not balance the protection of the natural resources that are important for the water quality protection of Lake George. The most important mitigation plan for the project, the stormwater management plan, has not been submitted to the Lake George Park Commission and it does not meet the requirements of its regulations. On this fact alone, the project should be deemed incomplete.

The Lake George Waterkeeper makes the following recommendations to the Adirondack Park Agency:

- 1) Require a natural resources assessment plan to delineate and protect steep slopes and buffer areas;
- 2) Disturbance and clearing should be reduced on steep slopes which removes the important natural features (mature vegetation and soils) important for water quality protection;
- 3) Stormwater management and treatment must be done at the source and not through an end-of-the-pipe solution;
- 4) Stormwater should be conveyed through the site in open channels and not pipes;
- 5) Impervious coverage of roads and driveways should be reduced through shortening and decreasing the width;
- 6) Redesign the dwellings to fit better with the landscape or use townhouses to reduce disturbance;
- 7) Require submission and technical comments from the Lake George Park Commission (LGPC) on the stormwater management plan prior to holding another public comment;
- 8) Require infiltration to reduce post-development volumes to pre-development volumes as per the LGPC regulations;
- 9) Require management and treatment of runoff from all disturbed areas;
- 10) Stormwater management for a development this size should not require any variances;
- 11) Stormwater management facilities should address cold climate conditions;

- 12) Additional soil investigations should be provided to determine the adequacy of all proposed stormwater management facilities;
- 13) Address inconsistencies between the stormwater management report and plans;
- 14) Provide better wetland mitigation area that will be contiguous with existing wetland and not located within stormwater facility that will be dredged;
- 15) Provide details on proposed wetland mitigation plan;
- 16) Reduce negative impacts to wetlands by improving surface and ground water supply to wetlands;
- 17) Locate wastewater treatment facilities in compliant locations;
- 18) Provide requested visual assessment plan; and
- 19) Provide requested planting plan that should consist of native plants.

The Lake George Waterkeeper looks forward to working with the Town of Fort Ann Planning Board to defend the natural resources of Lake George and its watershed. Thank you for your consideration.

Sincerely,

A handwritten signature in black ink that reads "Chris Navitsky". The signature is written in a cursive, flowing style.

Christopher Navitsky, P.E.
Lake George Waterkeeper

cc: Curt Stiles – Adirondack Park Agency
Terry Martino – Adirondack Park Agency
Town of Fort Ann Planning Board
Tom Jarrett, PE - Jarrett Engineering
Michael White - Lake George Park Commission
Mike Shaw – New York State Department of Health
Bill Lupo – New York State Department of Environmental Conservation