Comments for Belleayre Mountain Ski Center Revised Unit Management Plan/DEIS and Modified Belleayre Resort SDEIS and Cumulative Impacts

Dr. Lance D. Hoffman
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Portions of this report were written using an Audio/Voice computer program.

Kindly disregard any grammatical errors that are inevitable.

Written by Dr. Lance D. Hoffman

The Unit Management Plan (UMP) Draft Environmental Impact Statement (DEIS) for the Belleayre Ski Center, the Supplemental Draft Environmental Statement and Agreement in Principle (AIP) for the modified Belleayre Resort project and related Cumulative Impacts Analysis, along with selected drawings, appendices, and documents have been reviewed to point out sections that need further study to determine whether project elements comply with sound environmental practices and regulations. These include questionable methods; unclear topics, wording, and procedures; improper or irregular modeling, possible legal violations; negative environmental and economic impacts; unsound engineering principles; stormwater, wastewater and potable water issues; emergency and other safety issues; problems with the so-called "Organic Golf Course"; and short and long term effects, all requiring resolution before approval by regulatory agencies can move forward. Some comments were prepared in relation to preliminary versions of the SDEIS released publicly prior to the initiation of the Public Comment period on April 17, 2013, and have not been fully updated due to time constraints imposed by the roughly 90-day public comment period provided for the review of the final SDEIS, the UMP/DEIS, and the Cumulative Impact Analysis. In addition, conflicts between the earlier and current documents could not be easily compared because the 2013 SDEIS documents were not provided to the public in searchable format.

Soil Suitability

Using the U. S. Department of Agriculture (USDA) and National Resources Conservation Service (NRCS) Web Soil Survey (WSS) tool to investigate the project area showed that soil conditions for the project were mostly negative.[1] Various aspects of the project were analyzed, such as buildings, buildings with foundations, roadways, lawns/golf courses, and ponds. Each of the reports shows, in red, that the geotechnical conditions of the area are not suited for the type of development the project proposes. The NRCS information is based on physical samples in the project area.

Although tests were done on the proposed development by project consultants, the test findings seem to differ from government agency results. Drawings L-2.02 and L-2.03 reveal test pit data that are different from the drawing data, different from the reference table listed, and different again from NRCS Governmental Web Soil Survey reports. Some of the test points

(Crossroads soil samples) have omitted data on crucial measurements, such as soil conditions surrounding building foundations and the depth of the high water table in critical areas (see Drawing L-2.03). Tests performed at the project site, where information has not been excluded, seem to correlate well with the NRCS findings that state the bedrock is only inches from the surface, making the project area a poor candidate for this type of development.

The soil test data are severely flawed in that on Drawings L-2.02 and L-2.03 some of the test pits are carefully numbered from 1 to 77 and fully described, whereas half the test pits that are also on the drawings are not sequenced or described. Many of the non-sequenced pits are in crucial areas of the project and necessary to determine the geological conditions of the soils. It is very odd that some areas, including the non-sequenced non-described pit areas depict a specific soil group on the drawings mentioned previously. How were the soil conditions delineated with such precision based on no collected data or missing data collection documentation? Independent soil sampling is necessary to confirm that the missing soil survey data is consistent with data provided by the NRCS and USDA.

Test pits are not shown in or around foundation areas. Similarly, soil series are indicated for the irrigation pond (actually, a dam; see below) but no test pits are indicated. In many instances, test pits do not match the legend; for example, test pit number 54 states "red shale Rocky" but this is identified on the map legend as "LdB Lairdsville silty clay loam." This soil identification differs from the USGS, so which one of these soil identifications is correct? The silty clay loam on the map legend indicates greater than 20 to 40 inches to bedrock refusal, yet the test pit sample for pit number 54 shows depth to bedrock to be 59 inches.

Test Pit Logs and descriptions were provided in Appendix H of the 2011 version of the SDEIS. It is not clear how the test pit logs of Appendix H are reflected on the 2011 and 2013 drawings. Some appear to be Drawing L-2.03, but the number sequencing from 53 to 68 was left out of Appendix H. DEP representatives accompanied the test pit sampling in November 2000; it is not clear why no DEP representatives were present on September 3, 4, 5, 2002, or in November 2007, as stated on page 2 of SDEIS 2011 Appendix H.

Note: On page 2 of "Appendix H, Test Pit WA Pond 3" of the 2011 version of the SDEIS Mr. Roger Case states that the impervious hardpan soils

should make successful ponds. This is absolutely correct; however, is this test pit located in a pond area where the depth of the pond (when excavated) exceeds the depth of the soil layers identified as Bx and Cd horizons? Would this mean that the layers of soil that are suitable for a pond will be excavated and removed? Will these materials be stockpiled, further and substantially increasing the footprint of the project during construction and making it subject to more erosion and run off?

Note: Page 6, "Individual Stormwater Pollution Prevention Plan," March 2011, paragraph 3.8, Soils," states, "Deep hole test pits were performed throughout the site to confirm the USDA soil mapping and to define the soil boundaries better…." This paragraph makes it very clear that the USDA/NRCS Web Soil Surveys were used as a basis for study and then confirmed for local boundary definition by the deep hole pits. Following this methodology and using the data provided, the soil conditions clearly do not allow for this type of construction, based on a broad reading of the WSS for the subject area.

Most of the soil appears to be inadequate for golf course subsurface or green roofs. In addition, the test pits dug in November 2007 were not in accordance with standard methods and engineering practices to correctly analyze the seasonal high water table (see below).

Material Balance/Quality

Although the "cuts and fills" appear to balance for the most part, the material must be blasted, mined, processed, crushed, screened, washed, transported, stockpiled, sorted, placed, and graded. The SDEIS states that all fill will come from on-site. Based on local soil conditions, onsite fill material will fall hundreds of tons short in suitable topsoil, crucial to this project in particular because of the "organic" golf course. Will the balance of topsoil need to be trucked in from off site? What about the soils for the "Green Roof"?

Historical Preservation

Does any part of the project affect an archeological area of interest or property listed on the State or National Historic Registry? The New York State Office of Parks, Recreation and Historic Preservation is the governing agency reviewing this area of the SDEIS. Clearly, we can see that there are sensitive areas that the project will affect.[2] A letter dated January 6, 2003, from Kenneth Markunas, Historic Sites Restoration Coordinator for the New

York State Historic Preservation Office (SHPO) submits findings, with conditions, that all work on historic structures on the site would be reviewed by SHPO prior to the initiation of any construction activities. However, this relates to the original Crossroads project in 2003, and new areas of concern have been added that were not recognized by SHPO in 2003 and therefore escaped their survey. One such area is an Archeological Area of Interest that the 11,000-foot sewer line will pass through (lies off project property but on undetermined utility right of way). The Historic Office should perform an up-to-date review to document the environmental effects in the complete areas of concern of this project.

The SDEIS states on page *xxvi* that the Historic Office had determined there "will be no adverse impacts" from the project. What part of the project was investigated? Where is this report? On what data was this based? A review of the Historic Registry website shows an Area of Archeological Interest. Was an environmental review by the Historic Office also included? The detailed report needs to be fully disclosed.

The SDEIS (page *xxviii*) states that after approvals of the project are received, the Historic Office will continue to be consulted on the complete and total reconstruction of the Marlowe Mansion. The normal procedure is to disclose plans to the approving officials during the application, not get permission to construct, then disclose or discuss construction plans afterwards. Have construction plans and application for approvals been submitted?

In inspecting the Galli Curci estate area, it is clear that the entire potable water supply system for this historically listed mansion will be greatly impaired and potentially ruined by the construction of the project. The majority of the collection area for the mansion's water supply will be destroyed, with surface and subsurface water destroyed or diverted. The seasonal high water table and the collection system could potentially be obliterated by construction uphill from the mansion.

Belleayre Resort Irrigation Pond/Dam

One of the proposed sub-catchment areas for the proposed resort (see Sheets L5.07-5.08) for stormwater detention (irrigation pond/dam) appears to be a cut to a depth of over 30 feet. This cut would be into rock and would require blasting and mining. The present contour lines show an elevation of 1945+ feet and a bottom contour of the sub-catchment area below 1910 feet. This

would constitute over a 35-foot deep blasted cut in the solid fragipan and bedrock. The finished high water elevation of the sub-catchment area is shown at almost 1940 feet. That would indicate that during a *25-year storm event*[3] the depth of the water would be approximately 30 feet. It is stated that this sub-catchment area will hold a volume of 3,725,300 gallons. Based on NYS Dam Permit specifications, any pond holding a quantity of water 3 million gallons or more at a depth of 6 feet or more requires a Dam Permit.[4]

For this dam, a low-grade threat to the environment, a Class "A" designation would likely be assigned. The Drawing PN9 from the 2011 SDEIS shows at least 4 to 6-foot high berms above the water level safety bench; thus, if compromised, this could be a threat to downstream areas and populations. In a northeasterly direction of the dam, the finished grade of the golf course, elevation 1924 feet, (see 2011 SDEIS Sheet P10) is indicated as 14 feet below the safety bench water level. That is at least 18 to 20 feet below the top of the dam berm. The 2011 SDEIS said in one part that there is no weir structure; therefore it is not a dam. Reading the referenced constraints, however, provides a different interpretation.

A possible basis for the misconception about the structure not being a dam is that the pond is fed primarily by well water. The contour lines for the finish grade show that runoff and atmospheric deposition from water sources will enter the pond in every storm event. Are there stanchion pipes? Also, there doesn't appear to any emergency plan in place for this structure (dam).

Further investigation reveals that this deep of a cut appears below the seasonal high water table. The headwaters of the Emory Brook (Delaware) and possibly underground springs are in near proximity to this dam. This would make the pond construction an illicit excavation.

Another issue is the use of potable water, in excess of the very conservative stated figure of nearly 8 million gallons, to fill the pond; this water has been proven/tested (Crossroad's certified lab results) to have dangerous levels of heavy metals, arsenic in particular, that exceed the *Ten States Standards* and will bio-accumulate in the pond and be distributed on the golf course and directly impact the stormwater runoff pollutant levels. The arsenic levels in the ground water are also a good indication that the soils in the project area may have other naturally occurring heavy metals that are known to be "carcinogenic contaminants." Based on soil tests in the surrounding areas, the metals include, but are not limited to, lead, arsenic, and mercury.

"Effects of methyl-mercury exposure on wildlife can include mortality (death), reduced fertility, slower growth and development, and abnormal behavior that affects survival, depending on level of exposure. In addition, research indicates that the endocrine system of fish, which plays an important role in fish development and reproduction, may be altered by the levels of methyl-mercury found in the environment" (http://www.epa.gov/mercury/eco.htm). Disturbance of the large project area will certainly increase concentrates of these metals to lower lying areas and to streams that are part of the NYC Water Supply Systems, such as the Esopus and Delaware,.

A high-density polyethylene liner for containing contaminants in the pond is very difficult, if not impossible, to install when the excavation is below the high water table. How will the high water table be impacted? Pumps would need to be employed to de-water the dam in an attempt to seal the liner and pass air tests. A flexible pond liner would also be nearly impossible to install, and in each case an under drain might be necessary to keep ground water/hydraulic pressure from building underneath the membrane. Obviously, because the pond is an irrigation supply filled by pumping, one does not want the dam to leak.

Other questions about the irrigation pond/dam include the following: If no weir is used, what happens to the water when the pond is full? Will the pond be a big sediment trap of stagnant water? How is algae controlled? When is the sludge cleaned out and how will the sludge be disposed of? Would millions of gallons of water need to be pumped out at that time? Would the pond ever need to be drained? Will waterfowl feces affect the water quality? Is the pond going to be used for recreation: skating, swimming, or boating? Will it be stocked with fish? Plants? Aerated? Will the liner leak, be tested in the future, or need to be replaced?

Belleayre Ski Center Snowmaking Pond/Dam

This "pond" is also a dam, in this case, one with a high-grade threat to the environment, for which a Class "C" designation would likely be assigned. Like the irrigation pond/dam, the snowmaking pond/dam appears to be a cut to a depth of over 30 feet. Here, too, the cut would be into rock and would require blasting and mining. The ATL Snow Boring Report, UMP/DEIS Appendix H, shows borings to 30 feet in a nearby area, close to a maintenance shed, implying that construction is not into rock (http://www.dec.ny.gov/docs/permits_ej_operations_pdf/bellapph.pdf), but

onsite inspection reveals extensive rock ledging throughout this area, except near the maintenance shed, making the bore site near the shed likely to represent an isolated trough. More extensive bore drilling is required to document the suitability of this site for pond/dam construction.

Mining and Batch Plant Permits

The massive amount of material being moved for commercial purposes reveals that a **mining permit** is necessary. A project that moves more than 1,000 tons of material (40 to 50 tandem 10 wheeler dump truck loads, 750 cubic yards) requires a mining permit.[5] This would also mean that a special permit from the Town of Shandaken is necessary, as the project is not located in an industrial area, and, therefore, a mine would not be allowed.

There are special considerations that need to be addressed. All construction personnel on the site would need mine safety training, and, especially due to the magnitude of this project, the entire site should be inspected/approved by Mine Safety and Hazards Association (MSHA). As stated earlier, the depth of the mining excavation cannot, by law, go below the seasonal high water table.

A batch plant is a specialized operation that requires the proper handling of hazardous materials and treatment of wastes. There are two such proposed batch plants. A special permit is necessary to deal properly with the concrete and asphalt materials and their related environmental effects. Plants must comply with the Environmental Conservation Law (ECL), Spill Prevention Control and Counter Measures, NYS Navigation Law Article12, Part 1 paragraph 172, 6 NYCRR parts 612, 1(c), 201, 212,225,227, 40 CFR Sub part I, Drainage and Sediment Control Measures. Above ground storage tanks also require special handling and permitting. These considerations are inadequately addressed in the SDEIS.

Pine Hill Sewage Treatment Plant SPDES (State Pollution Discharge Elimination System) Permit

It is stated in the DEIS that the existing permit at the Pine Hill plant is sufficient. Even though the plant was designed to handle a specific flow, the existing permit is based on the current conditions and a new permit is therefore required for the new projected flows.

As part of the agreement to accept sewage at the plant, the project will pay

its “Fair Share” of an equalization tank, mixer, and other components necessary for the additional sewerage. What is the “fair share,” what are the specifics on the amounts, kinds, and types of equipment? Will taxpayers be required to pay for part of these costs?

Note: page 5 of SDEIS Appendix 16, “Wastewater Preliminary Design Report,” states, “The agreed-upon sewerage fees are $1.43 per 1,000 gallons.” 2012 prices for the sewer charge in the City of Kingston are $5.70/748 gallons.[6] Saranac Lake, a resort community of similar size in the Adirondacks, pays $4.44/1000 gallons.[7] Checking the New York City Water Board Rate Schedule, because the Pine Hill Sewage Treatment Plant is New York City DEP owned, one finds the fiscal year 2012-year rates for sewerage at $5.04/748 gallons, or $6.74/1,000 gallons. The reduced rate for the resort’s sewerage reflects a difference of $5.31/1000 gallons, a “gift” to the resort that comes to more than the above-mentioned charges for a similar-sized Adirondack town. ($759.43/avg. flow day or about $277,155.45/year).

These huge savings received by the Crossroads project raise questions about taxpayer monies being given away to a private entity.

The sewage collection system includes an 11,000 foot 8-inch forced main leading into an “interceptor manhole” on Academy Street in Pine Hill (note that the SDEIS is inconsistent on this basic point: the text on page 2-11 states a 6 inch forced main discharging at a gravity sewer on Academy street). It is standard engineering practice for designs for an interceptor manhole to be included for the purpose of review. The interceptor manhole should meet ASTM C478 criteria, along with other specified criteria, at least. That standard primarily governs the concrete qualities the manhole is cast of. The apparent reason for an 8-inch, or-6 inch, forced main is that the sewage pipe leading out of the manhole and to the sewage plant is only 8 inches. (Appendix 16 refers to the pipe sizing as the 6-inch force main running to the Pine Hill Sewage collection system manhole.) The flow calculations need to be shown to assure environmental safety to handle an overflow at the Interceptor Manhole, especially during peak conditions of a 25-year, and preferably 100-year, storm event.

Some questions: Is the proposed wet well of adequate capacity? Is the flow retained near the resort at the rate of say 6 (six) hours of ultimate sewer flow volume? How are the rights-of-way along Route 28 and the railroad to be

acquired? The documentation of this should be made available. Is the right-of-way 20 feet wide? How deep is the pipe along/near the railroad? The proper depth-to-diameter ratio and the relation to the added stresses of train operations must be considered for prevention of environmental damage should a leak become evident. An 8-inch line (or 6-inch) usually has areas of access for the *not shown* in-line flushing connections and possibly venting air quality control measures, inverted sewer siphons (shown in the right-of-way). However, none of this was noted in the SDEIS. Will a slug precipitate a water hammer?

Is it feasible to lay the 11,000-foot wastewater pipe deep enough under Route 49A and the railroad tracks with minimal disturbance to traffic and obtain the 0.0034 slope needed for the 6- or 8-inch pipe in this relatively flat section of terrain? Public safety could be jeopardized through road closures due to excavation and blasting and road resurfacing. Also, directional drilling is difficult over such a long distance. It may not be all together impossible, but surely would be very costly and time consuming.

According to data from the "NYSDEC Birch Creek Biological Assessment 2004," the flow of Birch Creek above the village of Pine Hill is about 15 MG/day and below the village and just below the WWTP, 22.8 MG/day. The report also states the primary reason for the substantial increase in pollutant concentration is due to the effluent from the sewage treatment plant. When the effluent is nearly doubled from the project, as proposed, what will this additional loading do to the headwaters of a cold-water fishery trout stream and water supply for NYC? What is the calculated environmental effect that this waste stream will produce on the water quality? How much of a rise in water temperature will this cause?

Blasting

Blasting, it has been observed, introduces the possibility of pieces of rocks or debris to be propelled as many as 5 miles away from the blast site even with the use of mat blankets. Will Route 49A be closed during blasting? Wells should be pretested for water quality and protected during blasting, and any damage related to a blast should be repaired/replaced. The radius of notification and letter of intention should be expanded. There should be an estimate of the quantity of explosive, number of bores, loads, time frames, ground water table evaluations, and other related information provided in the SDEIS.

Lighting, Electricity
Is there enough electrical power and an adequate grid system for the proposed expanded usage, particularly in the event of a natural disaster? If the power company puts in the needed equipment, will the price everyone pays for electricity go up? In supplying this power, where will it be produced and what is the carbon footprint? How many utility poles will be necessary for this project? How many will have to be drilled and set in solid rock?

Taxes
The project claims that it is not obtaining governmental assistance for construction, yet a tax exemption under a Pilot Program is projected until 2031 (SDEIS, page *x*). Other areas of the document use a date of 2018, which adds confusion.

Gaming
It is worthy to note that the resort will not allow Class III gaming. Will they pursue Class II gaming?[8]

Road Issues
In regards to the re-alignment of County Route 49A, installation of a crosswalk, use of ditches, installation of culverts, means of egress/ingress from project, utility installations, right-of-way, and easements, no mention is made of the cost to taxpayers for the surveying, construction oversight, maintenance, replacement, or other items. Ulster County's Commissioner of Public Works has not performed a feasibility study, been consulted to see if the county could invest the needed monies, or been asked to approve such an expensive endeavor. Another important issue is the effect of heavy equipment on reducing prematurely the life expectancy of Route 49A, necessitating early replacement at a cost to the taxpayers.

Route 49A is not designed to bear this type of traffic. When the engineers designed the road to AASHTO Highway Design Manual Specifications, such as "Guidelines for Geometric Design of Very Low-Volume Roads (ADT<=400)," they met the general axial loading and life limits for a road standard to the area. The "performance period," the time the pavement structure is expected to perform adequately before needing rehabilitation, of 49A will be decreased due to additional equivalent single axle loads, a huge increase in the "growth factor." Because of the stresses placed on the geological soil conditions that the road was built on, the "effective roadbed

soil resilient modulus" could be substantially compromised. Properties of the pavement asphalt mixture, such as stability, durability, flexibility, fatigue resistance, skid resistance, impermeability, and workability, could all be affected by the additional burden of project traffic, both during and after construction.

Realignment of a county highway is a quite an endeavor in itself, with traffic studies, surveying, line-of-sight determination, drainage plans, right-of-way acquisition, and new roadbed construction. Have all of these aspects of the project been reviewed and approved by the Commissioner's Office? Have all the monies been appropriated by Crossroads (bonds, engineering, material costs)?

Note: bedrock has been identified above an area that is sited to have pipes placed by a method known as "jacking." Jacking in solid rock is very arduous. This is important, particularly in areas where a 36-inch sluice pipe will be jacked underneath County Route 49A. Traffic lights are proposed as well; who will install them is not stated. This will further impede traffic and compromise the scenic corridor.

Note on SDEIS page 2-18: Road widths, although referred to as driveways throughout the SDEIS, are said to be "designed to Town standards." If the SDEIS is referring to the Highway Laws section 194, then the County Public Work's Commissioner, the NYS Commissioner of Transportation, and the Town of Shandaken Planning Board would need to approve all plans and specifications. If these are private roads, the applicant should pay all costs. Care should be taken to determine what roads are at risk of becoming town roads following construction, as the costs of maintaining and repairing town roads falls on the towns.

Traffic noise should be assessed to determine risks to the wildlife and humans that live in or near the project. The effects of 20 years of construction traffic, noise, dust, pollution, delays, inconvenience, global warming/carbon contribution, and destruction of scenic beauty need to be delineated and addressed.

Impervious Surfaces, Runoff and Stormwater

The SDEIS describes 21 acres of impervious surfaces. The 2011 SDEIS (pages *xv* and 2-22) stated 26 acres, and it is not clear how the reduction in housing units and other changes between 2011 and 2013 resulted in a 5-acre

reduction in impervious cover. The details are important here, as even a one-acre difference could end up being significant.

Using the Natural Resources Conservation Service's Urban Hydrology for Small Watersheds. it should be possible to use the hydrologic soil group classifications to determine what runoff curve number was used in determining the total stormwater volume that will be produced in a given storm event. Any disturbance in the soil profile through construction activities could substantially change infiltration traits of soil. The soil tests in the 2011 SDEIS showed that impervious bedrock is within inches of the finish graded ground surface. If an acre of this land is hydrologic soil group "D," the curve number might be 98. Overall, the percentage difference in the average curve number will be slight, but on a project of this magnitude it could push the limits of the capacity of a downstream culvert.

Therefore, in order to properly calculate the Storm Water Pollution Prevention Plan and assure that the correct volume of water has been calculated accurately, one needs to know the exact amount of impervious surface. As stated in the New York State Stormwater Management Design Manual on page 2-1, "a one acre parking lot can produce 16 times more stormwater runoff than a one-acre meadow each year (Schueler, 1994).

SDEIS Drawing PN6 shows the stormwater discharge pipe crossing Ulster County's Ulster & Delaware railroad corridor, without any indication about permitting. Instances such as this have been noted on the drawings throughout the project. On SDEIS Drawing PN19, in the northwest section of the detention pond, stormwater enters and exits without the proper detention time. It goes in one pipe and directly out the exit pipe.

The SDEIS treats phosphorus as the main chemical of concern, yet other chemical constituents found in stormwater are also of concern. Examples of some typical chemical constituents that could be carcinogenic, mutagenic, or teratogenic include total suspended solids, total phosphorus, soluble phosphorus, total nitrogen, total kjedhal nitrogen, nitrite and nitrate, copper, lead, zinc, BOD, COD, organic carbon, polycyclic aromatic hydrocarbons (PAHs), oil and grease, fecal coliform, fecal strep, and chloride. These pollutants can have an adverse effect on the environment, yet they aren't discussed in the SDEIS, and no standards for their levels on and off-site are referenced relative to National Median Concentrations.

Questions of concern: How will water temperature be affected by pollutants? How much nitrogen will the golf course produce in runoff? Given the relationship of impervious surface to runoff, will the phosphorus level exceed state recommended guideline values of 20 micrograms/liter? And if the monitoring group finds the guideline will be exceeded, what is the tolerance that should be allowed? What is the plan of action that will be taken should the guideline be exceeded? How will the presence of trace metals, such as arsenic, affect the benthic conditions?

In this regard, the method used to determine the seasonal high water table must be further detailed. Was the seasonal high water table determined when endosaturation occurred, as indicated by redoximorphic features? Or did someone dig a pit in the dry season, when project consultants performed tests, according to the SDEIS, and simply see ponding water? If only ponding water was observed, this indicates soil saturation, not seasonal high water table. Saturation is normally required for stormwater applications, and it must be taken to provide a credible or true and accurate depiction of the depth. It also depends exactly where the test is taken. Obviously, a test taken at the highest elevation of the area of interest will provide a different set of data from a point at a lower elevation, just feet away. When the soils are blasted, stripped, and excavated to the extent proposed for this project, the data must reflect the highest level of the seasonal water table for the area of interest. If the table is interfered with in the course of construction, problems could arise in changing the entire natural subsurface water system.

Were the piezometric pressures measured in a slotted pipe slotted over an interval? How long were measurements taken? Are there data for mottles (anerobic layer indicator)? Monitoring? Soil Color? Soil Drainage Class? Soil Evaluation? Depth to root zone? Depth to clay layer (hardpan), or redoximorphic? These findings should be provided.

Determination of the seasonal high water table can be controversial, and results subject to manipulation. For example, one test pit in November would not provide enough data to identify the true seasonal high water table. The wettest season of the year would give a better indication of the true level. A good definition of the seasonal high water table is the elevation to which ground water or even surface water may rise owing to a normal wet season.

Using this definition, the data in the SDEIS are flawed/inaccurate. Compare the data given in the Environmental Assessment Form, which raises

questions about the level of the seasonal high water table. On page 11 of 21, the level is noted as less than 3 feet. This means that construction at normal depths is at high risk of encountering water.

There were no data for the irrigation pond/dam area and snowmaking pond/dam in relation to the seasonal high water table. If the table is below the pond, does it change direction and flow under the pond liner? (The test pits in the irrigation pond/dam area are not numbered or identified in the legend on Drawings L-2.02 and L.2.03.)

While page *vii* of the SDEIS states that "With the exception of a very small portion of the Wildacres site (+/- 12 acres), storm water discharges to the sensitive Ashokan Reservoir and Watershed Basin have been eliminated," stormwater, perhaps in very substantial volumes, does flow down County Route 49A into the Ashokan basin. In addition, new wastewater discharges to the Ashokan Reservoir and Watershed Basin have been added through the transfer of sewage from buildings in the Delaware watershed to the Pine Hill WWTP. Moreover, the Pepacton Reservoir and the Delaware watershed basin are also connected to the New York City water supply, and all storm water discharges must be dealt with according to the NYS storm water manual guidelines.

Note that page 5 of Appendix 19: Individual Stormwater Pollution Prevention Plan, Phase 1 of the Belleayre Resort at Catskill Park, states, "Neither of the Emory Brook tributaries were found to support trout during recent investigations. Emory Brook itself does support trout, but is located approximately 1,500 feet from the closest proposed golf hole." One can conclude from this: Trout don't swim! If the Emory Brook has trout, wouldn't they likely swim up the tributary? Moreover, measuring of multiple scaled maps actually reveals a tributary to Emory Brook at about 650 feet away from the closest proposed golf hole. Additional data about trout populations in the tributaries are needed, and may be available but not yet entered in official registries. In addition, many other forms of aquatic life are dependent on this coldwater source. With global warming already exceeding rates the most liberal models have predicted, the fauna fn the Catskill high peaks have already been left without water sources (primarily due to dropping water table). Some, such as the snowshoe rabbit, have already perished. The streams in the project area that were inspected for trout, that used to be filled with brook trout in years past, now have dropped down to dangerously low levels, causing some of them to become intermittent.

Horizontal Directional Drilling

The SDEIS proposes horizontal directional drilling for the sewer and some water lines. The "2011 Horizontal Directional Drilling Guide: A Supplement to Trenchless Technologies" indicates that it is necessary to conduct a test hole survey to analyze the soil conditions where the pipe is going to be installed. This has not been done. The manual also says to avoid any rock ledges. As one drives up Highmount and down the other side towards Fleischmanns, you can observe many rock ledges along the highway in the exact vicinity proposed for this trenchless technology and pipe installation. In addition, no arrangements are shown for a launching and receiving area for the pipe to be drilled and installed.

The "2011 Horizontal Directional Drilling Guide: A Supplement to Trenchless Technologies" also states that a foam surfactant or soap consisting of partially hydrolyzed polyacrylamide and polyanionic cellulose may be used when you encounter tough rock conditions and/or solid rock conditions such as are likely to be encountered in this area. How are these chemicals going to be kept from spilling into the environment if a rain event occurs or other accident? How will the waters be treated that are used in this drilling process? Will they just flow in a ditch down to Pine Hill and its streams? The plan says that horizontal directional drilling will be used throughout the entire project. There are no hazardous waste plans, no drill hole tests, no starting and stopping pits indicated. Potential construction problems that can occur with directional boring include but are not limited to utility strikes, fracs outs (permanent rock fractures spiraling away from the bore hole), lost tooling and drill pipes, poor steering, and broken pipes. Insufficient documentation and analysis of these hazards has been provided to support any type of horizontal directional drilling in the project area.

Roads

Insufficient data is provided to calculate slopes and sight distances.

Note: page *xiii* of the SDEIS says that there are a total of 7,429 feet (1.4 miles) of road within the project. The table on page *v* of the SDEIS shows 1.5 miles (7,920 feet) total of road and 0.1 miles (528 feet) of roads greater than 20% slope. The NRCS Web Soil Survey recommends not to build on this type of terrain (greater than 20% slope).

If the Town would eventually take over the roads in the future, are they acceptable to Town standards? How many additional pollutants from icing control material will end up in runoff?

Organic Golf Course

On page 2-21 the SDEIS describes the management of an organic golf course, but its construction using organic soil is not discussed nor is the amount of organic soil that the golf course will require indicated. Will this come from the crushed rock at the crusher/screener plant? Or will other fill/soil/gravel also have to be brought in from off-site? Offsite soils should undergo sterilization to help protect against invasive species and other pathogens.

Town of Shandaken Comprehensive Plan

According to the *Comprehensive Plan for the Town of Shandaken*, 2005, "Only 4% (3,300 acres) of the available vacant or open space could be developed once adjustments for wetlands, water bodies, floodplain and slopes of greater than 20% are accounted for. This could lead to an increased pressure to develop the sides of mountains, which leads to conflict with environmental goals and regulations." Clearly, the Crossroads project conflicts with the Town of Shandaken's Comprehensive Plan.

Using Figure 6, "Existing Traffic Volumes (Daily)" of the Comprehensive Plan as a reference, the Crossroads project would raise the daily vehicle flow from 7,000 to over 9,000 in sections of Route 28, according to project statistics. This figure would exceed the maximum volume-to-capacity (v/c) to 0.8 (point of severe traffic congestion and stoppage), as shown on page 32 of the Town of Shandaken Comprehensive Plan.

As discussed previously, this amount of traffic would add greatly to the deterioration of the performance life of roadways and may increase carbon dioxide and other toxic emissions beyond greenhouse gas allowance standards.

Page 41 of the Comprehensive Plan, paragraph A, indicates the Town of Shandaken's agreement with SHPO Rules and Regulations. The degree to which the proposed project complies with these Rules and Regulations is uncertain, and some features, such as construction above Route 49A and the sewage collection system are highly problematic.

The Crossroads project is in Residential 5 acre and Residential 3 acre zoning. This is not zoned for a commercial resort. While hotels and motels are allowed in all zones in Shandaken, the resort's design greatly exceeds density allowances, especially when areas with steep slopes are omitted from available land calculations. Light from the resort would be shed on adjoining properties, which is also not allowed under Shandaken's Comprehensive Plan.

Fire Control

There are references for fire control formulas, but insufficient information is provided to see if the fire control measures are adequate for the protection of the project. Fire truck access and grades should be evaluated, as should spacing and placement of hydrants and pressure of water at these hydrants for length of time. How long will supply tanks last with fire trucks fighting a blaze? Has adequate fire protection been provided for the underground hotel?

Steep Slopes

Note that no guardrail systems, retaining wall details (very important for safety, runoff, erosion) are provided, and other steep slope issues are not addressed.

Since 2011 EPA has been planning to issue new national stormwater rules ("Shaping EPA's New Stormwater Regulation," by Stephen Elkind and Benjamin Cady, *Stormwater*, October 2012: http://www.stormh2o.com/SW/Articles/Shaping_EPAs_New_Stormwater_Regulations_18848.aspx). How will thes new national stormwater regulations be taken into account and what reflection will it have on the permitting process? To the extent possible, design of the resort and ski center should anticipate and comply with the new regulations.

Fleischmanns Water Supply

The water table will suffer from increased total dissolved solids due to the heavy use. This will have an effect on groundwater temperature, amount of water available for flora and fauna, and quality and quantity of potable water available. A study that analyzes flow nets, cones of influence, and effect on Fleischmanns water supply during drought periods must be performed.

It has not been shown what effect the outlying irrigation well's cone of

influence will have on the wetlands on and off site. It is possible and perhaps likely that it will cause them to dry up. The cone of influence may interfere with other water sources as well, diminishing them, or drying them up. Ponds also exist on properties adjoining the project. The water supply to the ponds could be impaired, causing the ponds to enter into an advanced eutrophic state.

Wetlands

A garage is planned to be built in a wetland (SDEIS: comparison of multiple sheets). “Seepy” areas (e.g., near the Marlowe Mansion) may be wetlands *(*see 2011 SDEIS*,* page *xvii*). When the resort uses water, wetlands may disappear. Delineation of wetlands needs to be further investigated. Will wetlands be drained by construction in the seasonal high water table, stormwater diversions, or excessive water use?

Additional Comments by Sheet

L-2.00 and L-2.04 -"existing Belleayre ski trails, should say "Highmount": misleading (correctly identified as “existing Highmount ski area” on L-1.01.

L – 2.02 –

Most of the test pits do not indicate a seasonal high water table; why is that? What criteria or method has been used in each instance for determining the seasonal high water table? Incidentally, the map legend title box spells “series” wrong for the soil series. It should also be noted that the date when the seasonal high water table was determined was “11\29.” Late fall is the wrong season for the best method practical to perform this test, resulting in erroneous data and conclusions. A related problem involves what curve number was used; for example, were several curve numbers averaged into one subcategory or was each subcategory taken and calculated in and only given one curve number? A single subcategory generally will only have one peak, but if you add multiple subcategories together, you might produce what is called a multi-peak hydrograph. Based on the contradictions in the soil types as shown on the sheets, how was the hydrologic soil group determined? Was a weighted queue overflow option combination used to produce the total runoff for an entire sub catchment? What was the curve number value used for special conditions, such as the green roof? Where are the pollutant loading calculations shown for the green roofs? Is artificial turf used on any of the golf course areas? How was the curve number determined

in any porous pavement areas? Could you provide the curve numbers that were used over the entire project? Could you also provide the time of concentration for each sub catchment? If reach modeling was used, could those details be provided? Was the runoff as a result from snowmaking considered in the equation (model of melting snow, no rainfall effects, incorporated and how)? In modeling rainfall runoff from a snowpack what was the antecedent moisture condition set to? Where is that data? Was climate change taken into account in the precipitation data and if so, how? Was the calculation of "time span" long enough to cover all flows of interest? Were the dam and pond areas included in your sub catchment, or was a separate subcategory produced? Again, if we really do not understand what soils we have, it is very difficult to calculate a runoff depth, which is a direct function of the precipitation depth and the curve number. We are not able to determine the exact curve number unless we have determined accurately the hydrologic soil group. Were any of the runoff hydrographs generated based on the rational method? If so, please provide the non-volume sensitive routing calculations and indicate why it was calculated in this manner.

L – 2.06 – wetlands determination: according to the submitted data, the wetlands delineation took place in September and November of 1999. At this time of year, the leaves had fallen off the deciduous species and the land was dry. How were the wetland species determined? It is very difficult to determine the species by looking at the stem with no leaves. Since much of this data is over 14 years old, the delineation should be performed again. On the same page, why is the K-12 parcel excluded from jurisdictional determination? Wells of the magnitude of those in the K-12 parcel produce an extremely large cone of influence that can ultimately dry up wetlands in the vicinity.

L – 2.09 – This print shows the sewer on a public right-of-way, with no indication of an existing or planned contract.

L – 3.02 –

Have the urban stormwater loads been calculated using the simple method (Shuler, 1987) to estimate pollutant load from the development site and drainage area? Although this is not the most accurate method to use, it gives you some indication; in this case, the simple method indicates that the figures stated in the design plan are underestimated. Were the concrete,

gravel, and pavement plants included in this equation?

Catskill Park and Forest Preserve

The Catskill Park was created by Chapter 233 of the Laws of 1904, following the tradition set forth by the Adirondack Park in 1892. In 1916 the voters approved a bond issue for $7.5 Million, a tidy sum for 1916, to protect from development 49,000 acres of land in the Catskill Park. In 1960, another $75 Million; in 1962, $451,000; in 1972, $15 Million; and in 1996 voters approved $1.75 Billion for a Clean Water Bond Act. Today, about 300,000 acres are part of the Catskill Park Preserve, but only 2% are designated for Intensive Use. The 2% intensive use areas are spread out throughout the Park in eleven (11) Units to further limit the environmental impact due the designation. This allocation of such a small percentage of the Park Lands is an attempt to provide uniform and environmentally sensitive management of the Catskill Park. We should expand upon this concept, as articulated in revisions to the Catskill Park Master Plan in 1985, 2003, and 2008 and not let resort development adjacent to wild forest and wilderness areas inadvertently expand intensive use beyond the 2% cap that has served us well for over one hundred years.

[1]Appendix 1, USDA-NRCS, Web Soil Survey
[2]Appendix 2, State Historic Preservation Office (SHPO) Report
[3]Project states it has been computed based on a "10-yr Storm Event," not Standard Engineering Practice, other areas state as much as 100 year computations –please use most protective standard consistently.
[4]Part 608 of NYCRR, "Use and Protection of Waters"
[5]Title 6 NYCRR Parts 420-425
[6]Verified by phone contact to Treatment Facility Offices
[7]Http://www.adirondackdailyenterprise.com/page/content.detail/id/521015/Study-calls-for-ne...
[8]Class II can be computer generated in house gaming machines