

Section 3.13 Utilities - Water

Comment 3.13-1-2C: Another vital question is, will Amenia have enough water to supply all these additional households? [Romia Kimball, Letter, March 24, 2008, Comment C, page 1]

Response 3.13-1-2C: The DEIS evaluates the project's potential impacts on water supply. In Section 5.2, the analysis of the Traditional Neighborhood Alternative shows that the project will have enough water to supply the entire development, without creating any drawdown impacts off-site.

Comment 3.13-2-26H: It appears from reviewing Volume 9.9 that there is lead in most of the wells tested, and that the applicant is going to cure this situation by using "conventional treatment methods such as particulate filtration, ion exchange, activated carbon method or reverse osmosis". How complicated is this and how costly? Is this really possible?

When discussing drinking water for a resort community like this, it would be important to review relevant related documents in order to achieve due diligence. This should include the hazard assessment information in the adjacent Amenia Town Landfill. See the PreDesign Investigation Work Plan. (NYSDEC site 3-14-006, Printed Aug. 22, 2007 and revised November 30, 2007) At page 7 in section 5.3 it says that "exploratory test pits will be excavated along the west slope of the landfill to determine the western limit of the waste, its depth and the stability of the slope." This is the same western slope that is adjacent to the southeastern section of the Silo Ridge property, where there appears from the map to be a group of homes planned. There is a long list of contaminants, so this location should be reviewed further for the placement of houses. [Sharon Kroeger, Letter, March 24, 2008, Comment H, page 3]

Response 3.13-2-26H: Any concentrations of lead in water quality samples are associated with the particulate content in the water. Routine particulate filtration will remove this source of lead. Off-site sites and their potential hazards were considered in the layout of the wells proposed for the Silo Ridge property. The duration of the pumping tests are long enough that any influences of off-site wastes would have been detected. As a standard practice, if any wastes are encountered during construction of homes, geotechnical modifications would be considered and NYSDEC would be contacted to devise a remedial response plan. The extent of preliminary geotechnical work already conducted on the site makes it extremely unlikely that unknown pockets of buried wastes or other unknown hazards exist on the site.

Most of the wells that contain lead have been newly drilled and in our experience all minerals will diminish with well development. Turbidity on the wells with high levels of lead is well over what is expected from groundwater, and indicate that the wells may still be suffering from drilling debris. That being ignored, the MCL limit for lead is 0.015 mg/liter; two wells are at 0.016 mg/liter, one at 0.015 mg/liter, and one at 0.020 mg/liter. Normally sand filtration and coagulation will remove metals such as iron, manganese and lead on a proportional basis. The system as designed has two sand filters with increasingly finer gradation of sand to provide an additional barrier for floc removal as well as protozoan cyst removal. There is no problem in removing this level of lead with a two-stage system. As for cost, sand filtration is not expensive to run; some of the other alternatives such as micro filtration, R.O., or ion exchange are costly depending on metal levels, but all are feasible.

Comment 3.13-3-GP118: It is our understanding Sections 3.13 Utilities – Water and 3.14 Utilities- Wastewater will be reviewed by Mike Soyka, PE. [Greenplan, Inc., Letter, April 6, 2008, Comment #118, page 21]

Response 3.13-3-GP118: No response necessary.

Comment 3.13-4-31C: Page 3.13-5, Groundwater Supply, last sentence: "During drought years, drawdowns could be expected to occur if average withdrawal rates were to exceed 230 gpm." Would drawdown impacts extend off site? If so, would any adjacent wells be affected? [Michael Soyka, Rohde, Soyka & Andrews, Letter, March 27, 2008, Comment C, page 1]

Response 3.13-4-31C: The Applicant's preferred alternative as described in the April 2008 MDP has fewer units than the Traditional Neighborhood Alternative described in the DEIS and therefore, it will have less water demand (132 gpm compared to 136 gpm). This is substantially below the estimated drought-year on-site average recharge rate of 230 gpm. Accordingly, the site is capable of meeting its own water needs during both average and drought years and the site pumping tests on the site demonstrated that the wells have been installed in locations that imposed no impacts on adjacent wells.

Comment 3.13-5-31D: Page 3.13-7: The second paragraph on this page states that the combined capacity of the wells with the largest out of service of 283 gpm is less than the anticipated maximum day demand. The FEIS should clearly state how this deficiency will be corrected and the impact of the corrective action. [Michael Soyka, Rohde, Soyka & Andrews, Letter, March 27, 2008, Comment D, page 1]

Response 3.13-5-31D: With the Applicant's preferred alternative, which (per revisions noted in the April 2008 MDP) has 338 residential units compared to 359 in the Proposed Action, the project's estimated maximum daily water demand is 264 gpm, which is less than the capacity of the wells with the largest well out of service. Therefore, there will not be any deficiency in the water supply.

Comment 3.13-6-31E: Page 3.13-10: The text indicates a "public water supply" where other sections of DEIS call for a "privately owned water supply system". Explain what a public water supply system is in the context of NYSDOH regulations, even though the system is privately owned by a transportation corporation. [Michael Soyka, Rohde, Soyka & Andrews, Letter, March 27, 2008, Comment E, page 1]

Response 3.13-6-31E: Subpart 5-1 of the State Sanitary Code under NYCRR Title 10 defines a public water system as an entity that provides water to the public for human consumption through pipes or other constructed conveyances. NYSDOH categorizes all residential water systems serving 5 or more connections or serving at least 25 residents as Community Water Systems, which is one of their categories of regulated Public Water Systems. These categorizations do not distinguish between privately or publicly owned or operated water supplies.

Comment 3.13-7-31F: Page 3.13-13, Fire Flow and Fire Suppression System: The description of the hydrant locations should be expanded to include all locations stated in Appendix 9.9, Water Report, i.e., at all road intersections, dead end lines and high points, and will be spaced at 300 foot intervals. [Michael Soyka, Rohde, Soyka & Andrews, Letter, March 27, 2008, Comment F, page 1]

Response 3.13-7-31F: This change has been made as an errata change to the DEIS. See FEIS Section 2, item 3-13, Utilities-Water.

Comment 3.13-8-31G: The areas that will be provided with fire flows should be identified. [Michael Soyka, Rohde, Soyka & Andrews, Letter, March 27, 2008, Comment G, page 1]

Response 3.13-8-31G: Public water supply systems are not required to be designed to meet fire flow requirements. However, the proposed water distribution and storage facilities will be robust enough in many areas to provide significant fire flows in duration adequate to meet needed fire flows as recommended by the Insurance Services Office (ISO). During the engineering design phase of this project, a complete hydraulic model of the distribution system will be developed to predict available fire flows at each hydrant.

The hotel and commercial spaces will have a fire suppression, i.e. an automatic sprinkler, chemical suppression, etc., internal to the respective buildings. With the exception of the four most northern single-family homes in Block "L", winery area and nine most western vineyard townhomes in Block "V", the site (i.e. remaining area below an elevation of approximately 710-feet) is expected to have 1,000 gpm sustained for 4 hours at all hydrants. It is anticipated that the four most northern single-family homes in Block "L" will have approximately 750 gpm sustained for 4-hours and the winery area and nine vineyard town homes are expected to have approximately 500 gpm for 4 hours.

Comment 3.13-9-31H: The areas that will not be provided with fire flows should be identified. The FEIS should explain why these areas, of what is a high-end project, couldn't be supplied with adequate fire protection, while other areas of the project will be provided with adequate fire protection. [Michael Soyka, Rohde, Soyka & Andrews, Letter, March 27, 2008, Comment H, page 1]

Response 3.13-9-31H: See Response 3.13-8-31G.

Comment 3.13-10-31I: Page 3.13-14, last paragraph: Other automated measures to ensure available water supply should be summarized here. The reader should only be directed to Appendix 9.9 to become aware of the details of the automated measures. [Michael Soyka, Rohde, Soyka & Andrews, Letter, March 27, 2008, Comment I, page 1]

Response 3.13-10-31I: This change has been made as an errata change to the DEIS. See FEIS Section 2, item 3-13, Utilities-Water.

Comment 3.13-11-31J: Page 3.13-16, Monitoring and Maintenance: The requirements of NYSDOH part 5-1 concerning system monitoring should be summarized here with the reference to Appendix 9.9 given for additional details only. [Michael Soyka, Rohde, Soyka & Andrews, Letter, March 27, 2008, Comment J, page 2]

Response 3.13-11-31J: This change has been made as an errata change to the DEIS. See FEIS Section 2, item 3-13, Utilities-Water.

Comment 3.13-12-33A: During drought years, where will the water come from? Will the aquifer be able to support this level of withdrawal? [David Reagon, Letter, March 20, 2008, Comment A, page 3]

Response 3.13-12-33A: As described on page 3.13-5 of the DEIS, recharge rates during drought years are reduced due to reduced precipitation. Analysis of precipitation records suggests that annual precipitation deficits of 30

percent can be expected during drought years, leading to reductions in the average site-wide annual recharge of 330 gpm to approximately 230 gpm during drought years. The Applicant's preferred alternative plan (as described in the April 2008 MDP) will generate an average potable water demand of just 132 gpm, so the aquifer, recharged by precipitation and holding water in porous sediments and fractured bedrock, will support the project during both average and drought years.

Comment 3.13-13-33B/E: The treatment methods for these contaminants are not in Section 3.2.2. These wells have high lead levels. This is a serious problem that the DEIS glosses over. The treatment method should be specifically discussed. Is distillation a serious proposal? Where is the lead coming from? Naturally occurring lead in groundwater is very rare. Will Silo Ridge comply with US EPA Lead and Copper Rule, 56FR 26460 26564, June 7, 1991? [David Reagon, Letter, March 20, 2008, Comments B and E, pages 4 and 5]

Response 3.13-13-33B/E: A summary of treatment methods for groundwater contaminants is provided in Section 3.2.2 beginning on page 3.2-33. Treatment methods include particulate filtration, micro-filtration, iron and manganese reduction, lead reduction, and disinfection. As noted in Section 3.2, the full results of groundwater testing, as well as a more detailed description of treatment processes, are found in Appendix 9.9. Also as noted in Section 3.2, a summary of water treatment methods is also provided in Section 3.13 of the DEIS.

Comment 3.13-14-33D: The overall map of the water supply does not show the buffer zones around each well. In some cases, W2 for example, it shows the well virtually on a proposed dwelling. Also, the wastewater outfall is very close to supply well W2. The potential for contamination should be discussed. [David Reagon, Letter, March 20, 2008, Comment D, page 4]

Response 3.13-14-33D: Given the size of the site, all site water supply wells easily meet the standard criteria of a 200 foot ownership and/or control radius. Drainage controls are also being arranged to minimize any ponding of runoff near wells, thus reducing risks of point source contaminant infiltration close to wells. No threat to Well 2 water quality is anticipated from the proposed wastewater outfall location because effluent will be treated to tertiary treatment quality and, as shown by the log for Well 2 in the groundwater pumping test appendix, over 100 feet of soil and dense glacial till separates the land surface from the water-bearing bedrock aquifer formation tapped by Well 2. The protective nature of this barrier is reflected by pumping test sample data from Well 2 indicating the lowest risk category for surface water quality influences on Well 2. The absence of chemical contaminants in any of the extensive water quality sampling data collected

from this existing golf course facility, and the careful redesign that is proposed for the golf course, suggest that the risk of site well contamination is low.

Comment 3.13-15-33F: The required draw down tests during the 72 hour pumping tests were not actually completed. The DEIS should include the draw down effects on surrounding wells and it does not. [David Reagon Letter, March 20, 2008, Comment F, page 5]

Response 3.13-15-33F: The aquifer pumping test report included in Appendix 9.12 indicates that off-site abutting property owners with domestic wells to the north and east of the site were contacted requesting permission to record aquifer water level conditions during the pumping tests. One such property provided permission for monitoring and no drawdown was observed during the pumping tests (Figure 27 in Appendix 9.12). Wells 3, 7, 12, 13 14 and 15 on the Silo Ridge property were also monitored during testing to predict likely off-site drawdown in the north, south and easterly directions. No pumping test influences were observed in these wells, so no drawdown in more distant offsite wells would have occurred.

Comment 3.13-16-33O: The proximity of two waste sites, the Harlem Valley Landfill and the Old Amenia Landfill and the effect that these two sites may have on the project are not mentioned. [David Reagon Letter, March 20, 2008, Comment I, page 10]

Response 3.13-16-33O: The old Amenia Landfill is a Class 2 Inactive Hazardous waste disposal site, located south of the hamlet of Amenia on the west side of Route 22. The NYSDEC has performed extensive site investigations and a feasibility study of the site, and selected and approved a remedy for site cleanup. This remedy includes the excavation of approximately two acres of impacted sediment along the eastern area of the wetlands/pond located along the western edge of the landfill, dewatering those sediments and placing them under the proposed landfill cap as part of the landfill closure which will be completed in accordance with NYCRR Part 360 requirements. Wetland restoration is also included as part of the selected remedy.

The Harlem Valley Landfill, located south of the Silo Ridge property, was closed in 1997 under an Order of Consent issued by the NYSDEC. The landfill was closed in accordance with 6 NYCRR Part 360 requirements at that time. Since closure in 1997, routine quarterly sampling has taken place at the landfill and continues presently. This monitoring appears to be in compliance with NYCRR Part 360 requirements. The quarterly monitoring includes groundwater samples, air monitoring and landfill cap inspections.

Wells 12 and 13 on the Silo Ridge site are situated between the Silo Ridge water supply wells and these two landfills. Their water levels were monitored during the 72-hour pumping tests and showed no drawdown influences. This means the pumping tests caused no reversal of groundwater flow which could draw water from these otherwise downgradient (Old Amenia Landfill) and down-valley (Harlem Valley Landfill) locations. Water quality samples from the test wells monitored during pumping tests at the site did not detect any landfill leachate or contaminant compounds.

Comment 3.13-17-21D: Please also be aware that the project sponsor will also be required to submit a Water Supply Application (Supplement WS-1) and a Water Conservation Program Form (WCPF). [NYSDEC, Letter, January 14, 2008, Comment D]

Response 3.13-17-21D: Comment noted.

Comment 3.13-18-38K: VI. For two of the last three summers, the Amenia Water District (#1) has experienced drought emergencies, accompanied this year with the total failure of one well, and another nearly having to be taken off-line. Will the water requirement analysis for this high-density project and its new Water District take into account not only the possible drain on the aquifer relative to the very nearby Amenia Water District, but also the potential impacts for the hamlet of Wassaic residents who rely totally on aquifer/well water? Will the recharge analysis take the whole valley bottom aquifer into account, or just on or in the vicinity of the site? [Patrick J. Nelligan, Letter, March 24, 2008, Comment K, page 5]

Response 3.13-18-38K: See Response 3.13-12-33A.

Comment 3.13-19-41T: The Sponsor maintains that there is enough water on the site to support its proposed projects based on contemporary measurement standards for the Traditional Neighborhood Alternative Development Program (but not for its originally Proposed Action). According to comments appearing at page 5-140 and reinforced in Table 5-14: "The anticipated maximum daily flow is approximately 391,000 gpd (272 gpm), with a maximum hourly flow of 816 gpm." The Sponsor also maintains that the combined water production of the wells on site (with the largest well out of service) is 283 gpm. DEIS at pp. 3.13-7, 5-142. However, 272 gpm figure mentioned above contemplates only 300 rooms in the hotel, and excludes the additional water necessary to support 393 rooms available in the hotel. Although the Sponsor considers the additional 93 rooms for traffic congestion it specifically excludes it, ostensibly because: "(T)he [water demand and wastewater generation] analyses were calculated on the number of bedrooms than the number of units." DEIS at p. 5-130. However, Tables 5-14 and 5-15 are labeled in terms of units. More importantly, water consumption and wastewater generation is dependent upon the number of occupants, and neither on the number of bedrooms, parties, "rooms" or units nor on any other semantics. Therefore, I respectfully submit that

the additional 93 rooms should be included for purposes of determining the adequacy of the water (and wastewater generation). [Bart Wu, Letter, March 25, 2008, Comment T, pages 4-5]

Response 3.13-19-41T: Estimation of water usage and wastewater generation rate on a per bedroom basis is a valid approach accepted by NYSDEC and local Department of Health. Early on, the Applicant consulted with the Dutchess County Department of Health which concurred with its approach to estimate anticipated water usage and wastewater generation rate for this project. Relative to the question regarding the additional 93 rooms, please refer to Response 5.2-3-GP9.

Comment 3.13-20-41U: Assuming that the maximum number of units is 393 units, what is the resulting additional amount of project water demand? Does the resulting number exceed the 283 gpm capability of the existing wells? [Bart Wu, Letter, March 25, 2008, Comment U, page 5]

Response 3.13-20-41U: See Response 3.13-20-41T and Response 3.13-12-33A.

Comment 3.13-21-41V: What is the revised amount of water demand (after using wastewater) if portions of the golf course also use water (not wastewater) supplies? [Bart Wu, Letter, March 25, 2008, Comment V, page 5]

Response 3.13-21-41V: See Response 3.2-2-PHT.

Comment 3.13-22-41W: The significance of the increased demand for water arising from the Project is the fact that the Sponsor relies on a *40-year old assessment* of the watershed stream flow. See DEIS at p. 3.13-8. When the report was prepared in 1968, there were significantly fewer homes within the Town, and, upon inquiry substantially lower water demands on the Murphy farm, which originally occupied the site of the current golf course. [Bart Wu, Letter, March 25, 2008, Comment W, page 5]

Response 3.13-22-41W: The 1968 USGS summary of streamflow data in Dutchess County remains a benchmark for local flow analyses because of its quality of detailed analysis and its summarization of more than 30 years of preceding streamflow statistics. USGS subsequently decommissioned many gauging stations in the County, including those in Amenia, and today only maintains one active gauging station in the TenMile River watershed. This downstream gauging station is located near the outflow of the TenMile River into the Housatonic River and does not allow differentiation of the fractional flow contributed from the Amenia Brook. Precipitation patterns have not changed substantially since the USGS study period, and although land uses in Amenia have changed in ways that could subtly modify Amenia Brook's

runoff and baseflow, peak and drought flow levels recorded by a USGS stream gauge downstream of Amenia on the Ten Mile River show little to no change in flows relative to those recorded prior to 1968. This is consistent with the overall low residential density in Amenia and the Harlem Valley and their limited consumptive (evaporative loss) water uses.

The current project proposes very little new increased water demand relative to the current water demand from the existing golf course. The potable water supply proposed for the site is an intentional, water-saving, pre-use of the water currently used for existing irrigation uses. The USGS data and the Silo Ridge analysis are sufficient to represent how the proposed consumption of 30 gpm will have a de-minimus impact on flow of the Amenia Brook during all but the driest of stream flow conditions. The precise percentages described in the DEIS would change if multi-year, updated and current stream flow records were available but would not substantively change the conclusion that the proposed project will not terminate flow in this stream or otherwise affect the stream biota or function.

Comment 3.13-23-41X: In light of the water shortage emergencies that have been declared within the hamlet over the past several years, wouldn't it be appropriate for the Board to obtain an updated assessment of the watershed stream flow? [Bart Wu, Letter, March 25, 2008, Comment X, page 6]

Response 3.13-23-41X: Please see Response 3.13-22-41W.

Comment 3.13-24-41Y: Assuming development within the hamlet, including the growth of light industry or commerce, what are the projected increasing uses of the watershed stream flow over the next five to ten years? Will there be enough water to support both the hamlet and the Project based on the revised projections for both normal and drought years? [Bart Wu, Letter, March 25, 2008, Comment Y, page 6]

Response 3.13-24-41Y: As outlined in Response 3.13-22-41W, the proposed Silo Ridge project has been designed to impose little change on the water budget of site. Accordingly, it will impose little change on the present flow of the watershed stream. This is likely to be true also for any development in the hamlet since most residential and light commercial water uses are not consumptive of water (e.g., leading to heavy evaporative losses). Stream and aquifer conditions are known to experience significant flow and quality changes where impervious cover begins to exceed 10 to 20 percent of land areas, a condition which is not being approached either in the watershed or on the Silo Ridge site.

Comment 3.13-25-41Z: Wouldn't it be more appropriate for an unrelated firm to make and independent, more comprehensive test of off-site water levels to ensure that during drought years, of which there appears to be an increasing number,

there will be enough watershed stream flow to ensure that the current and projected inhabitants of the hamlet outside of the Project will have sufficient water supplies to sustain their respective properties? [Bart Wu, Letter, March 25, 2008, Comment Z, page 6]

Response 3.13-25-41Z: As outlined in Response 3.13-22-41W, the Silo Ridge project will impose little change to existing consumptive water losses. The Planning Board retains professional experts to evaluate submissions provided by Silo Ridge.