

III.8 Groundwater

Comment No. 8-1

Due to the fact that pumping-related water level drawdown effects were observed in one off-site well (Ginsberg Development Corporation Well 3 - 29.5 feet of drawdown) during the 1992 pumping test, and the well was not monitored during the 2004 pumping test, mitigation measures should include steps (i.e., hydrofracking, extending well depth) to mitigate any potential long term, site-related cumulative effects to Ginsberg Development Corporation Well 3, or any other well for that matter.

(B-1, AKRF)

They have their own wells. What type of impact - - you're talking about the type of place that you have. This will probably need a lot of water. What is this going to have in the overall water table that we all have to draw from?

What type of impact is going to have on everybody else, the enormity of your project on the use of water, on the water table for everybody else?

(B-2, PH #1, Mr. Wasserman)

Studies on the impacts to these homeowners' wells. Will - - will this project impact the well water?

(B-3, PH #2, Mr. Kenny)

And the groundwater supply and the wells of Hunters Glen, which are immediately adjacent to this project's boundary.

(B-3, PH #2, Mr. Catalino)

What is this going to do to our wells which are already a problem (at Twin Brook there is sodium in the water which cannot be removed by a filter). If you have to watch your sodium intake, you cannot drink it. This is going to add more stress to the wells.

(B-8, Amanda Dettaan)

I am particularly opposed to this project because of its proximity and impact to our water supply here in Hunter's Glen.

(B-27, Linda Cuzzi)

Will it affect my well water?

(B-84, Rita LaBella)

Impact on the water table.

(B-101, Jack Pizzicara)

The potential harm to wetlands & the groundwater supply / wells of Hunters Glen, which are immediately adjacent to this projects boundary.

(B-138, Michael Catalano)

It [Tilly Foster Farm] will likely receive the most impact from the constant ground water harm the project will generate.

(B-142, Steve & Susan Elias)

[Minimal] water usage [not credible].

(B-172, David Buckner)

Water drinking, toilet flushing, washing, [seemed disingenuous].

(B-172, David Buckner)

Response No. 8-1

No significant effect on offsite wells or the regional water table is likely to result from water usage for the Commercial Campus at Fields Corner.

Water usage for the project is projected to be substantially less (less than a tenth) than water that would be used for the Campus residential project, which was previously shown to be sustainable. The 1992 pumping test was conducted on wells OW-1, OW-3 and NW-4 pumping at 140 gallons per minute (gpm), 58 gpm, and 90 gpm, respectively, for a combined 288 gpm or 414,720 gallons per day (gpd). The current project water demand has been conservatively calculated at 15,600 gpd or about 10.9 gpm. This water demand is less than 4% of what was pumped during the 1992 well tests.

The water demand for the current project is calculated based on the March 2014 New York State Design Standards for Intermediate Sized Wastewater Treatment Systems, issued by the New York State Department of Environmental Conservation (NYSDEC), Division of Water. The water usage multiplier for a Distribution Warehouse in Section B.6.b, Table B-3 is 15 gallons per day (gpd) per employee per shift. The water usage multiplier does not differentiate between day or night shift employees, and the resulting water demand associated with the total number of 1,040 employees on the three shifts is 15,600 gpd. This water demand is considered conservative because it does not incorporate the 20% reduction in water usage for use of water-saving plumbing fixtures allowed by the NYSDEC Design Standards. If the 20% reduction is applied to the 15,600 gpd, this would decrease the projected total water withdrawal to 12,480 gpd or 8.7 gpm. However, the credit was not incorporated in the analysis of the potential effects of the groundwater withdrawals to provide a more conservative assessment.

An additional water usage of 12,000 gpd for onsite irrigation will be supplied from cisterns capturing runoff from the roofs of the proposed buildings.

Testing in connection with the Campus residential project indicated that there is no direct hydraulic interconnection between the Commercial Campus at Fields Corner wells and the Hunters Glen, Twin Brooks and Tilly Foster Farm wells. During the 1992 pumping test program, water levels were measured in eight offsite wells and five onsite monitoring wells to assess the potential for water-level drawdown in other wells near the project site. Included in the offsite wells that were measured were wells at Hunters

Glen, Twin Brooks and Tilly Foster Farm (called Benedict Farm in the 1992 report). During the 1992 pumping test with the onsite wells pumping at a combined 288 gpm, no drawdown was measured in these three offsite well locations, which indicates there is no direct hydraulic interconnection between the Commercial Campus at Fields Corner and the Hunters Glen, Twin Brooks and Tilly Foster Farm wells measured. Even beyond the lack of hydraulic connection to wells for Hunters Glen, Twin Brooks, and Tilly Foster Farm, the substantially reduced daily water usage of the project indicates that no drawdown effects or changes in water quality in these wells are anticipated from pumping onsite wells OW-3 and NW-4 at 10.9 gpm or less to meet the current project's water requirements.

Similarly, the water-level drawdown that may occur in the limited area to the north/northeast of the project site in the vicinity of the Ginsberg well will be significantly lower than what was observed during either of the previous pumping tests. As such, no mitigation measures are required in connection with off-site well impacts.

During the 1992 pumping test, water-level drawdown was measured in the offsite Ginsberg Development Corporation Well 3 at 29.5 feet and in the nearby onsite monitoring well NW-3 at 9.6 feet to the north/northeast of the project site. Smaller amounts of drawdown were measured in three other onsite wells ranging from 3.3 feet to 7.3 feet. No drawdown was measured in the seven other offsite wells measured that were located to the north, west and south of the property.

During the 2004 pumping test conducted, wells OW-1, OW-3 and NW-4 were pumped at 56 gallons per minute (gpm), 30 gpm, and 60 gpm, respectively, for a combined 146 gpm or 210,240 gallons per day (gpd). Although the Ginsberg well was not measured during this pumping test, the nearby onsite monitoring well NW-3 was measured. The drawdown observed in well NW-3 during the 2004 pumping test was 1.8 feet, which was 81% less than the drawdown observed in NW-3 in 1992. It is reasonable to assume that a similar decrease in drawdown effects in the bedrock aquifer in that general area to the northeast of the pumping wells occurred based on the data from NW-3. Using

that assumption, the drawdown in the Ginsberg well was likely in the range of 5-6 feet with the onsite wells pumping at 146 gpm, and no water-level drawdown occurred in the other offsite wells where no drawdown occurred in 1992. The table below is a summary of the drawdown observed in Ginsberg Well 3 and NW-3 during the 1992 and 2004 pumping tests.

Well ID	1992	2004
Ginsberg Development Corp. Well 3	29.5 feet	5-6 feet ^{1/}
NW-3	9.6 feet	1.8 feet

^{1/} Estimated based on the drawdown observed in the nearby monitoring wells NW-3.

The present conservative water demand for the Commercial Campus at Fields Corner is 15,600 gpd or about 10.9 gpm, which is significantly less than the pumping rates from either of the pumping tests conducted on project site. The drawdown that may occur in the limited area to the north/northeast of the project site in the vicinity of the Ginsberg well will be significantly lower than what was observed during either of the previous pumping tests, and no significant effect on offsite wells or the regional water table is likely from the use of wells OW-3 and NW-4 to supply water for the project. Therefore, the implementation of a mitigation plan is not warranted.

Wetland water-level monitoring was also conducted as part of the 2004 pumping test. Piezometers were installed at three locations in the onsite wetland to assess the potential for a hydraulic interconnection between the deep bedrock groundwater withdrawal and the wetlands. Water-level measurements were collected for the surface-water in the wetlands and the shallow, overburden groundwater below the wetland to determine if pumping the onsite bedrock wells caused a drawdown in the water level. No drawdown was observed at any of the piezometers in either the shallow groundwater or surface water that was caused by pumping the onsite bedrock wells. This data indicates that the use of the onsite bedrock wells to supply water to the project will not affect wetlands in the area.

Comment No. 8-2

Secondly, what assurances do I have when you pollute our well and Twin Brook's well that you're going to get us water from somewhere else so I don't lose value of my home and I don't poison my child?

(B-2, PH #1, Ms. Fay)

What guarantees do you give us to not pollute our well or Twin Brooks' well in writing? And if you do, do you pay to fix it without litigation or questioning the findings of an independent water assessment?

(B-2, PH #1, Ms. Fay)

I am a resident of Hunters Glen adjoining this proposed development and I am concerned how this will affect our well water supply, whether by diminishment or contamination.

(B-88, Eugene J. Duffy, Jr.)

The possibility of water contamination.

(B-103, Donna Shenkman)

Ensure water usage and any run off will not impact the drinking wells of those in Twin Brook or Hunter's Glen.

(B-107, Twin Brooks Homeowners Association, Inc.)

Pollution of local well water.

(B-112, MaryAnn Bartolini)

The impact to our standard of living – to potential harm to our well water.

(B-135, Alison Yara)

I can attest that the current Logistics Center's proposal is woefully inadequate to protect both the Reservoir system and our own watershed, thus impacting home owners with wells.

(B-151, Miriam Yekutiel)

Response No. 8-2

In the first instance, as explained in the immediately preceding response, a 1992 pumping test with the onsite wells pumping indicated that there is no direct hydraulic interconnection between the Commercial Campus at Fields Corner wells and the tested wells at Hunters Glen, Twin Brooks and Tilly Foster Farm.

Moreover, the project has developed a Stormwater Pollution Prevention Plan in accordance with the requirements of the NYSDEC SPDES General Permit No. GP-0-15-002, effective January 2015, last modified November 2016; NYS Stormwater Management Design Manual last revised January 2015; NYSEP Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources, amended April 2010; and Chapter 119 “Stormwater Management and Erosion and Sediment Control” of the Town of Southeast Zoning Code. The goal of the plan is to capture and retain stormwater runoff from the developed areas on the project site to prevent flooding and erosion and to provide treatment prior to runoff infiltration into groundwater to manage potential groundwater impacts.

The stormwater practices being implemented include the use of erosion and sediment controls during construction; stormwater management practices, including infiltration basins in series with either wet extended detention basins, pocket ponds, or subsurface detention system, wet pond extended detention in series with extended detention shallow wetland, stormwater planters, cisterns and hydrodynamic separators; and the use of landscaping and vegetation to enhance potential pollutant removal and contribute to erosion prevention

The development and implementation of the Stormwater Pollution Prevention Plan in accordance with the State, NYCDEP, and Town requirements is intended to prevent impacts to groundwater quality. The water-quality practices will meet total suspended solids (TSS), phosphorus and nitrogen removal threshold requirements.

NYCDEP regulations are crafted to protect the watershed including reservoirs and aquifers to the maximum extent possible with both design and operating practices. The proposed project complies fully with these regulations and, in turn, assures the community that it will protect the abutting water resources for all residents and businesses.

No road salt will be stored on site. An outside contractor will clear snow after a storm and will comply with all pertinent NYCDEP regulations regarding any materials used for snowmelt, and use the minimum amount necessary.

Hydrodynamic water quality separators will be used to separate any oil accumulated from the parking lots and driveways that may source from small leaks in engines and potential larger spills, prior to flowing to any other stormwater management practice. The separators can store various volumes of oil depending upon the amount of runoff they are designed to treat, and the separators used on the project site will be appropriately sized for the areas that they will be associated with. For example, the hydrodynamic separators in the project's stormwater design range from an oil storage capacity of 210 gallons (which will only be proposed in landbanked parking lot areas where the large trucks will never travel). The next largest sizes used will store 263, 520, 568, 965, 1,172 and 1,309 gallons of oil. The separators will be regularly maintained, and the accumulated oil will be disposed of at a licensed processing facility.

For the foregoing reasons, the project will not adversely impact offsite wells or the watershed.

Comment No. 8-3

The [previously approved project with 143 homes and 237,000 s.f. of office/commercial space], they're going to use more water.

(B-3, PH #2, Ms. Miller)

With construction and a 24/7 operation you can also add ... water usage.

(B-66, Lori Pesick-Pierro)

Response No. 8-3

In fact, the Commercial Campus at Fields Corner would use significantly less (less than a tenth) of the water that the Campus residential project would use. The water demand for the project is calculated based on the March 2014 New York State Design Standards for Intermediate Sized Wastewater Treatment Systems prepared by the NYSDEC Division of Water. The water usage multiplier for a Distribution Warehouse in Section B.6.b, Table B-3 is 15 gallons per day (gpd) per employee per shift. The water usage multiplier does not differentiate between day or night shift employees, and the resulting water demand associated with the total number of 1,040 employees on the three shifts is 15,600 gpd. This water usage calculation is also conservative because it does not incorporate the 20% reduction for use of water-saving plumbing fixtures allowed by the NYSDEC Design Standards.

Water use during construction is projected to be even less than the water demand of the completed facility. Water usage during construction is typically associated with construction activities; dust control, if needed, and landscape irrigation.

Comment No. 8-4

The disruption of the ridge-line will affect local water quality. I also have concern about inevitable oil and diesel gas leaks from >250 trucks and other vehicles leaking into the water supply.

(B-176, Dr. Bernadette Brandon)

Response No. 8-4

See Response 8-2.

Comment No. 8-5

WELL TESTING:

GROUNDWATER III.F:

Well tests haven't been done since 1992 and 2004.

Unless there has been water quality testing more recently testing should be done again.

(B-147, Lynne Eckardt)

And, of course, [I am concerned about] the water quality for the drinking water and testing.

(B-145, Mr. Gress)

Response No. 8-5

Water-quality testing was conducted on proposed supply wells OW-3 and NW-4 in May/June 2018. Water samples from the wells were analyzed for all parameters required by the New York State Department of Health (NYSDOH) Sanitary Code Part 5, subpart 5-1 for non-community, public water-supply wells. The proposed sampling parameter list was submitted to the Putnam County Department of Health (PCDH) prior to the sample collection in 2018 and the PCDH concurred with the list. The

water-quality results for wells OW-3 and NW-4 from the 2018 sampling event met all NYSDOH drinking water which is contained in Appendix 8-1.

Comment No. 8-6

Our natural resources, particularly water [is being threatened].

(B-83, Carol Yannarell-Duffy)

Response No. 8-6

Groundwater at the site will naturally be recharged at a much higher level than the projected water demand of the Commercial Campus at Fields Corner (CCFC). Groundwater is replenished by recharge from precipitation. Recharge rates for till-covered metasedimentary bedrock that underlays the area has been estimated at 400,000 gpd/sq. mi. or about 8 inches annually by the U.S. Geological Survey open file report 80-437 for the Fishkill-Beacon area. The recharge rate is equal to 625 gpd per acre and for the 328 acre project site, is a recharge rate of 205,000 gpd of water or 142.4 gpm. In comparison, the project's water demand is conservatively projected to be 15,600 gpd or about 10.9 gpm.

Even during drought conditions, water will naturally recharge at the site at a greater rate than anticipated usage. During drought conditions, the groundwater recharge rate from precipitation would be reduced. The one-year-in-30 low precipitation (3.33% chance of recurrence) in the area typically ranges from a 30-35% reduction in annual precipitation. To be conservative, a 35% reduction in the average annual precipitation would result in a decrease in groundwater recharge to the bedrock to 133,250 gpd or 92.5 gpm, compared with the project demand of 10.9 gpm (see Response 8-1). Under both normal and drought precipitation conditions, the available groundwater recharge to the project site is more than sufficient to meet the project's water demand without having to rely on contributions from offsite areas and does not oversubscribe or threaten the available resources. In addition, the groundwater is being recharged by the

subsurface septic disposal fields, which reconditions the sanitary sewage water to augment aquifer recharge.

Comment No. 8-7

Water Supply: First and foremost, Hunters Glen is concerned that its water supply not be impacted any way whatsoever. We urge the Town and its consultants to carefully review and study the issue of water usage and potential impact on Hunters Glen's wells. Hunters Glen intends to retain its own engineer to review this issue and reserves its right to comment further. (B-98, Snyder & Snyder)

Response No. 8-7

During the 1992 pumping test, the onsite wells OW-1, OW-3 and NW-4 were pumped at 140 gpm, 58 gpm, and 90 gpm, respectively, for a combined 288 gpm or 414,720 gpd. During that test, water-level measurements were collected from wells on the Hunter Glen property, the Twin Brooks property and the Gottwald property to the west of the project site. The continuous pumping of the three onsite wells for 72 hours at a rate of 288 gpm caused no discernible water-level drawdown in any of the offsite wells to the west of the project site. The current proposed groundwater withdrawal of 15,600 gpd is less than 4% of the rate that was previously tested. Since no water-level drawdown was observed at the combined rate of 288 gpm, no water-level drawdown in the wells to the west of the project site are anticipated at the much-reduced rate of 10.9 gpm.

The development and implementation of the Stormwater Pollution Prevention Plan for the project in accordance with the State, NYCDEP, and Town requirements is intended to prevent impacts to groundwater quality underlying the project site and surrounding areas. NYCDEP regulations are crafted to protect the watershed including reservoirs and aquifers to the maximum extent possible with both design and operating practices. The proposed project complies fully with these regulations and in turn

assures the community that it will protect the abutting water resources for all residents and businesses.

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