

# **WATER SUPPLY**

## **Chapter Eleven**

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### Introduction:

Since preparation of the DEIS, refinements have been made to the mix of tenant space proposed on the site resulting in the following proposed occupancy:

Retail (Higher water use, i.e.supermarket)	65,000 s.f.
Retail (Dry use)	74,250 s.f.
Restaurant	3,750 s.f.
Hotel	100 rooms

The water use projection for this use mix will be determined on the basis of the following usage flow rates:

Supermarket: 0.1 gpd/s.f., Source (1)

Retail: 0.011 gpd/s.f., Source (2)  
(Dry use) (See Note below)

Restaurant: 35 gpd/seat less 20% with water saving fixtures, Source (1)  
Seating density = 34 seats/1,000 s.f., Source (3)

Hotel: 110 gpd/room, Source (1)

- (1) New York State Department of Environmental Conservation Design Standards for Intermediate Sized Wastewater Treatment Systems, March 5, 2014.
- (2) Crossroads 312 DEIS, Chapter Ten Page 10A-6
- (3) Estimate based on seating density of similarly sized restaurants.

Note: Rate derived from metered data. The rate is increased by 50% in the calculations to provide a factor of safety.

Applying these unit rates to the various categories of floor space, the project's water use and wastewater flow projection is as follows:

Supermarket	65,000 s.f. x 0.1 gpd/s.f.	= 6,500 gpd
Retail (Dry use)	74,250 s.f. x 0.011 gpd/s.f. x 1.5	= 1,225 gpd
Restaurant	3,750 s.f. x 34 seats/1,000 s.f. = 127.5 seats x 35 gpd/seat x 0.8 (water saving fixture deduction)	= 3,570 gpd
Hotel	100 rooms x 110 gpd/room	= 11,000 gpd
	Total	= 22,295 gpd

The combined water system to supply Crossroads will also serve the elderly housing project in T-3 of Terravest for which a design flow of 7,200 gpd has been established. Existing and proposed uses in T-1 and T-2 of Terravest will remain on individual drilled wells for potable water. The average daily demand for potable water is then the summation of 22,295 gpd for Crossroads and 7,200 gpd for the elderly housing totaling 29,495 gpd. Relative to required well capacity, 29,495 gpd is equivalent to an average daily demand of 20.5 gpm. The standards for well capacity require at least two wells. The lower yielding well or wells are to provide the maximum daily demand (twice the average demand) with the best (highest) yielding well out of service.

The two wells in Terravest T-3 to supply the combined system were previously pump tested simultaneously for a 72 hour period in 2008. The yield obtained at a stabilized drawdown was 35 gpm from each well. The pumping rate did not however produce significant drawdown in either well which indicates that additional capacity is available. The test pumping rate was sufficient for capacity requirements of the water system under design at that time. The better well as shown by least drawdown was Well #1. For the proposed system, well #2 at 35 gpm is 6.0 gpm under the twice average day requirement of 41 gpm. Therefore, the Applicant proposes to use the existing Terravest "fire protection" well which currently supplies the fire protection system for Terravest. (See response to Comment #WS-1). The Terravest "fire protection" well is estimated to have a yield of 6-8 gpm. The Terravest "fire protection" well is 600 feet deep and is equipped with a 1 HP submersible pump set at 560 feet. A 72 hour pump test will be conducted on the Terravest "fire protection" well. If the test shows a sustained yield of 6 gpm then together with Well#2 at Terravest -3, the project would be able to meet the 40.5 gpm requirements with the highest yielding well in the system (Well#1 at Terravest-3) out of service.

### **Comment WS-1**

*The DEIS states in Section A of Chapter 12 that the existing well near the water storage tank will be maintained, although it is not quite sure what is meant by the statement. If this well is to be used in the proposed water system, then it must also be yield tested and a Part 5-1 water quality analysis test performed. (PCDOH (10/18/2013))*

#### **Response:**

The existing well located near the storage tank serves to maintain a tank full condition for the fire protection system. It is proposed to include this well with Wells #1 and #2 located in Terravest T3 to supply the combined water system. The well will undergo yield and water quality testing in accordance with State and County Health Department requirements. Estimates of the well's present yield are in the range of 6-8 gpm.

### **Comment WS-2**

*The water supply and wastewater disposal facilities which will serve this development must meet the standards of the Putnam County Sanitary Code and the New York State Department of Environmental Conservation and New York State Department of Health. A detailed review of the engineering plans and specifications will be required prior to final approval of the water supply and wastewater facilities serving this project. (PCDOH (10/18/2013))*

#### **Response:**

It is acknowledged that the water system modifications required to provide a potable supply and connect wastewater from the project to the treatment plant will require a detailed review of plans for compliance with applicable State and County standards.

### **Comment WS-3**

*DEC Approvals Required*  
*Article 15, Water Withdrawal - Required by the owner of the wells existing within Terravest Corporate Park for operating a water withdrawal system with a capacity greater than 100,000 gallons per day (gpd). (NYSDEC (11/22/2013))*

Response:

It is acknowledged that the proposed water system supply wells (Terravest 3, Wells 1 & 2) have the capacity to yield in excess of 100,000 gpd and thus require a Water Withdrawal Permit. Presently, however these wells are not connected to the water system on Terravest Corporate Park lands. That water system presently provides fire protection from a 428,000 gallon storage tank, pumphouse containing fire pumps and control equipment, 8" distribution main throughout a portion of the Park and fire hydrant assemblies. The pumphouse contains a jockey pump to maintain water pressure in the distribution main. The water level in the storage tank is maintained at the full level from a well located at the site of the tank and pumphouse. The supply well yields approximately 6-8 gpm which falls under the capacity threshold requiring a Water Withdrawal Permit. A Water Withdrawal Permit will be obtained as part of the process required for approval to construct a potable water system supplied by three wells.

#### **Comment WS-4**

##### *Water Infrastructure*

*It appears that the Crossroads 312 LLC has entered into a service agreement with the owners of Terravest Corporate Park to provide water for the proposed project. The project sponsor has estimated that the development will require up to 10571 gpd. Since the owner of these wells must obtain a water withdrawal permit for DEC, it is appropriate that documentation verifying that the Terravest Corporate Park water withdrawal system will be able to supply sufficient capacity be part of this EIS. ((NYSDEC (11/22/2013)*

Response:

See discussion at the beginning of this chapter.

#### **Comment WS-5**

*According to the DEIS, the existing Terravest Corporate Park has two wells. Well No.1 has a capacity of 70 gpm (100,800 gpd) and Well No.2 has a capacity of 35 gpm (50,400 gp) for a total of 151,200 gpd. Since the capacity is greater than 100,000 gpd, the owner cannot operate these wells without a DEC permit pursuant to 6 NYCRR Part 60-1: Water Withdrawal Permitting, Reporting and Registration. <http://www.dec.ny.gov/regs/4445.html#15728>. (NYSDEC (11/22/2013)*

Response:

See discussion at beginning of the chapter. It is acknowledged that the Terravest project will need to prepare documentation for a Water Withdrawal Permit. It is acknowledged

that the capacity of Wells #1 and #2 meets the threshold requiring a Water Withdrawal Permit. The application and supplements will be compiled and submitted as part of the water system approval review by the involved agencies; New York State Department of Environmental Conservation, New York State Department of Health , Putnam County Health Department.

#### **Comment WS-6**

*According to Department's Water Withdrawal Reporting Database, Terravest Corporate Park has never reported their water withdrawal to the DEC; therefore, they do not qualify for the "initial permit" schedule (as described in §601.7 <http://www.dec.ny.gov/regs/4445.html#15728> and at the Department's website [www.dec.ny.gov/lands/86935.html](http://www.dec.ny.gov/lands/86935.html) and must apply for a Water Withdrawal Permit immediately. Please note that Terravest Corporate Park will not be allowed to supply water to any new facilities until its water withdrawal system is in compliance with the applicable regulations and the owner has obtained the necessary Water Withdrawal Permit from the Department. (NYSDEC (11/22/2013)*

#### **Response:**

The original purpose for Wells #1 and #2 was to supply a water system serving the elderly housing project in Terravest T-3. The water system and housing to be served has not yet been constructed and the wells are not in operation. The combined water system to incorporate Wells #1 and 2 will first require receipt of a Water Withdrawal Permit as noted.

#### **Comment WS-7**

*In addition to a Water Withdrawal Application, the owner of the Terravest Corporate Park water withdrawal system should submit to the Department, as soon as possible, the following forms:*

- *Water Withdrawal Reporting Form*  
*([http://www.dec.ny.gov/docs/water\\_pdf/wwrnonag.pdf](http://www.dec.ny.gov/docs/water_pdf/wwrnonag.pdf))*
- *Outside Sales to Other Water Systems or Facilities*  
*([http://www.dec.ny.gov/docs/water\\_pdf/outsidemales.pdf](http://www.dec.ny.gov/docs/water_pdf/outsidemales.pdf))*

*(NYSDEC (11/22/2013)*

#### **Response:**

The noted forms; Water Withdrawal Reporting Form, Outside Sales to Other Water Systems or Facilities, will be included in the forms required for the application for a Water Withdrawal Permit.

### **Comment WS-8**

*The DEIS states that all buildings in Terravest have individual wells. Where is the aquifer located? (Public Hearing (11/07/2013))*

Response:

The typical well on individual lots within Terravest is drilled into rock which is overlain with earth varying from 30± to 150± feet deep. The depth of the drilling into rock for a sufficient water service varies widely. Well #1 extended 305 feet into rock whereas well #3 extended down through 625 feet of rock. The water is obtained from fractures intercepted along the rock bore. Generally, highly fractured rock will provide greater yield from a well.

### **Comment WS-9**

*Was the original intention of this water service dedicated to Terravest 1, 2 or 3 and not off-site? What does the original Terravest 1, 2 or 3 EIS say about this water service? (Public Hearing 11/17/2013)*

Response:

The water system constructed at Terravest was originally intended to serve existing and future buildings within Terravest with fire protection. The pumphouse component of the water system was constructed with room for the future addition of equipment to deliver potable water but these plans did not materialize. The businesses in Terravest have not required large amounts of potable or process water and have been adequately served by individual wells. Presently no compelling need exists for an alternate potable supply by the commercial properties. Should a new business require connection to the central system in the future, the water demand placed on the system would be evaluated and an additional well connected if necessary.

### **Comment WS-10**

*What is the extent of the aquifer? Which homes or businesses are competing for water from the same aquifer?(Public Hearing (11/07/2013))*

Response:

When Wells #1 and #2 were pump tested in 2008, six (6) on and off-site wells were monitored for influence by the pumping. The test and monitoring wells draw water from water bearing rock crevices and fractures intercepted by the drill hole. Not all fractures are interconnected between wells and the influence from pumping of a well on

neighboring wells can vary substantially. In this instance the 2008 pump test reported no influence on those monitoring wells located beyond 1,000 feet from the test wells. Monitoring wells under 1,000 feet away were minimally affected as follows:

<u>Monitoring Well</u>	<u>Distance to Test Well</u>	<u>Test Influence</u>
H. & N. Inga, 34 Holmes Road	659 feet	1 foot
Ace Endico - North well	850 feet	2.5 feet

The minimal degree of influence will not adversely affect the yield or pumping levels of the wells servicing the residences along Bullet Hole Road. (a.k.a. Holmes Road)

**Comment WS-11**

*Where is the potable water coming from for the property? Are any on-site wells proposed? (Public Hearing (11/07/2013))*

Response:

Wells to supply the combined water system are the currently idle Wells #1 and #2 existing on lands of Terravest T-3 and a well presently serving the Terravest fire protection system. These three (3) wells have yield sufficient to supply the users proposed for connection with potable water. There is no present need for wells to be located on the Crossroads 312 lands.

**Comment WS-12**

*Why did my neighbor's well go dry on North Brewster Road? Does this project use water from the same aquifer? How will the existing wells be affected by the proposed project? (Public Hearing (11/07/2013))*

Response:

Please refer to the response to Comment #WS-10. In summary, the pump test conducted on Wells #1 and #2 in 2008 showed no impact on monitored wells over 1,000 feet from the test wells, and negligible influence on monitored wells with less than 1,000 feet of separation. The north end of North Brewster Road is separated from the test wells by approximately 1 mile. Any wells on North Brewster Road would be far beyond the zone of influence by the project wells.