



Engineering
& Design

Engineer's Report for Domestic Water Demand

August 14, 2024

For

RDM Group, LLC
Neelytown Business Park Development

296 Neelytown Road

**Tax Lot: 36-1-33, 36-1-11.221, 36-1-11.23, 36-1-11.212, 36-1-11.211,
36-1-11.1, 36-1-10.1, 33-1-91**

Town of Montgomery, Orange County, NY

Prepared for:

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Project Description

The proposed development, Neelytown Business Park Development, also known as Tax Lot 36-1-33, 36-1-11.221, 36-1-11.23, 36-1-11.212, 36-1-11.211, 36-1-11.1, 36-1-10.1, and 33-1-91 is an +/- 112.4-acre site located on Neelytown and Beaver Dam Road in the Town of Montgomery. Currently, the site is largely undeveloped, containing mostly wooded areas with two dirt access roads. There does exist a silo and multiple small areas of minor foundation remains adjacent to the southeast access road off of Neelytown Road. The large majority of the site however is a mixture of dense woodland, bush/meadow areas and wetlands. Per the latest FEMA mapping there are no existing floodplain areas on the project site.

The proposed project will consist of 3 warehouse buildings totaling 1,128,270 SF, with 32,000 SF of that total to be office space. The three buildings will have a combined 218 loading docks, 370 standard parking spaces and 348 trailer storage spaces. Other improvements include driveways, sidewalks, and associated utilities to service the users.

The project site has frontage on Neelytown Road to the east and Beaver Dam Road to the west. The site is located within the Town of Montgomery's Sewer District 1 but is not currently served by the district as the lot is largely undeveloped. Per a map entitled "Sheet 2, water & sewer utilities, town of Montgomery" prepared by Michael J Aiello, PE, PLLC last revised 2019 it is shown that there is an existing 12" water main within Neelytown Road.

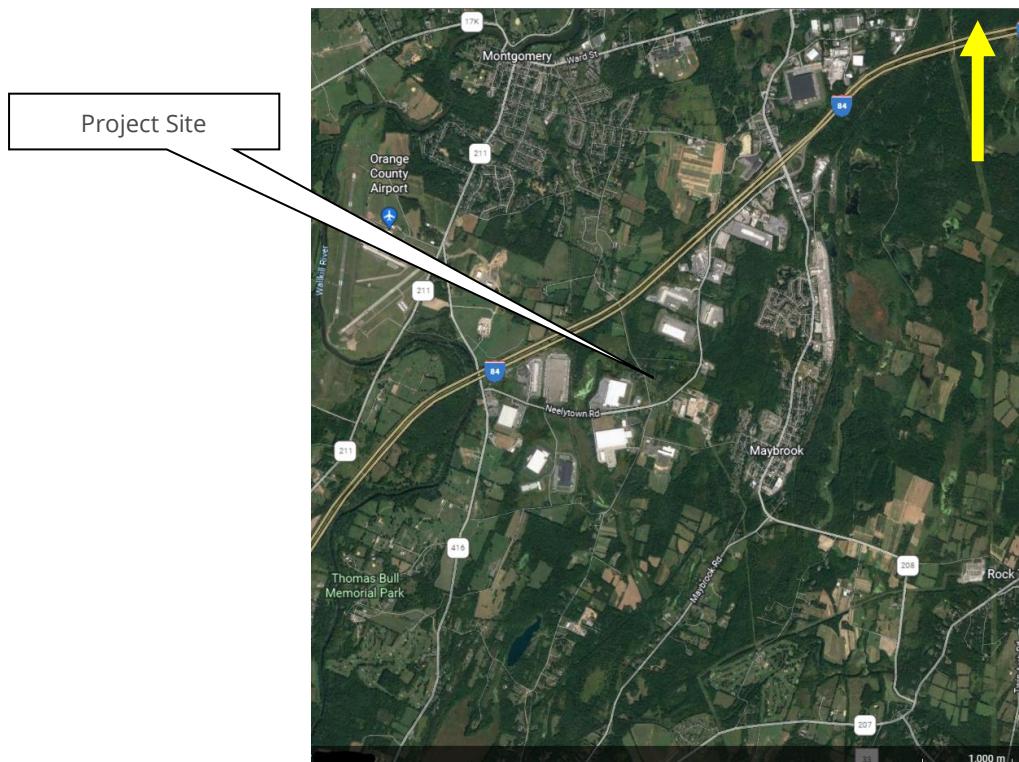


Figure 1: Location Map (source: Google Earth)

Scope of Water System

Proposed Lot One (1) system shall consist of furnishing and installing approximately 690 LF of 8" ductile iron water pipe, along with One (1) hot box and two (2) valves. The proposed system will connect to the existing 12" water main within Neelytown Road at the proposed southern driveway.

Proposed Lot Two (2) system shall consist of furnishing and installing approximately 1,328 LF of 8" ductile iron water pipe, along with One (1) hot box and two (2) valves. The proposed system will also connect to the existing 12" water main that is located within Neelytown Road at the proposed northern driveway.

Proposed Lot Three (2) system shall consist of furnishing and installing approximately 504 LF of 8" ductile iron water pipe, along with One (1) hot box and two (2) valves. The proposed system will also connect to the existing 12" water main that is located near the intersection of Neelytown and Beaver Dam Road.

Work shall also include, but not be limited to excavation, backfilling, laying and jointing of pipe, installation of sewer manholes, installation of service lines, testing, and restoration of existing structures & road surfaces as required to complete the work specified on the plans.

Determination of Water Demand and Capacities

Proposed domestic water demands were determined based on the New York State Design Standards for Intermediate Sized Wastewater Treatment Systems (NYS Design Manual), dated March 5, 2014. Calculations are shown below:

Estimated Design Flows:

In order to provide an estimated water demand we have the estimated employee count used for this analysis based on the Institute of Transportation Engineers (ITE) Parking Generation, 4th Edition. Using Land Code 150 – Warehouse, and 701- Office Building, and a total building area of 1,128,270 SF (24,000 SF of which is anticipated to be office area) we can estimate the following.

1,104,270 SF (0.24 employees / 1,000 SF) = 265 projected employees for a Warehouse use

24,000 (3.4 employees / 1,000 SF) = 82 Projected employees for an Office use

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014):

GPD = 15 GPD * # employees (same for office and warehouse uses)

15 x 347 = 5,205 GPD

Total Design Flow = **5,205 GPD**

Pipe Capacity:

(1 GPD=1.547 × 10⁻⁶ cubic feet per second)

Total design flow in cfs * peaking factor (4.1) = 0.03179 * 4.1 = 0.130 cfs

$$\text{Manning's Formula: } Q = \frac{1.49}{n} A * R^{\frac{2}{3}} * S^{\frac{1}{2}}$$

For a full flowing 8" ductile iron pipe:

$$n = 0.013$$

$$A = \pi r^2 = 0.349 \text{ sq. ft.}$$

$$R = \frac{A}{P} = 0.167$$

S = 0.004 (min. allowable design slope for 8" sewer pipe)

Solved: **Q(peak) = 0.762 cfs**

Since the pipe capacity Q (0.762 cfs) is greater than the total design flow (0.130 cfs) the proposed pipes have adequate hydraulic capacity to serve the proposed peak demand.

Installation and Testing

All installations shall conform to *Recommended Standards for Wastewater Facilities*, Latest Edition, New York State Sanitary Code Part 5, and the standards of the Town of Montgomery.

All construction and any necessary testing will conform to the specifications of the Town of Montgomery as well as County and State Environmental Health Standards and Requirements.

The proposed backflow preventers will be located in the proposed hotbox near each of the three driveways proposed along Neelytown Road. The hotbox will have adequate heating to prevent freezing of the devices, adequate lighting, and will have enough room for access. The total square footage of the two buildings are ±850,000 SF on lot 1 and ±278,270 SF on lot 2.

Horizontal and Vertical Separations

Horizontal Separation

Horizontal separation between the proposed water main and storm (structures, piping, swales, etc.) or sanitary sewer (structures, mains, services, etc.) will be ten (10) feet or greater, unless due to constructability and impact to existing utilities warrant otherwise at which time deviation will require approval by the Engineer and/or a Town of Montgomery representative.

Vertical Separation

Vertical separation between storm or sanitary sewers and proposed water main crossings will be maintained at 18" minimum unless due to constructability and impact to existing utilities warrant otherwise at which time deviation will require approval by the Engineer and/or a Town of Montgomery representative.

Appendices

APPENDIX A - WATER WILL SERVE- ADDRESSED TO TOWN OF MONTGOMERY WATER & SEWER

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Attn: Jesse Cokeley, P.E.
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50 Chestnut Ridge Road
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29 July 2024

Re: Water and Wastewater Will Serve Letter

296 Neelytown Road (Lots 36-1-33, 33-1-91, 33-1-11.221, 33-1-11.23, 33-1-11.212, 33-1-11.211, 33-1-11.1, 33-1-10.1)
Town of Montgomery, Orange County, NY

Dear Jesse,

We have reviewed your water and wastewater letters requesting if the Town of Montgomery will provide water and wastewater services to your proposed warehouses located at 296 Neelytown Rd. and the tax map parcels noted above. Your letter indicated that per the NYSDEC Design Standards the projected water/wastewater usage for the warehouses total 5205 gallons per day.

At the time of this letter, the Town has the available capacity to provide the necessary water and wastewater usage for the project.

Should you have any questions, please contact me at (914) 474-1980 or Jfarr@Farr-Engineering.com.

Respectfully submitted,



James M. Farr, P.E.
Town Engineer