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Engineer's Report for Domestic Water Demand

May 29, 2026

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

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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 2 warehouse buildings totaling 1,128,270 SF, with 24,000 SF of that total to be office space. The two buildings will have a combined 184 loading docks, 456 standard parking spaces and 301 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 Water 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.

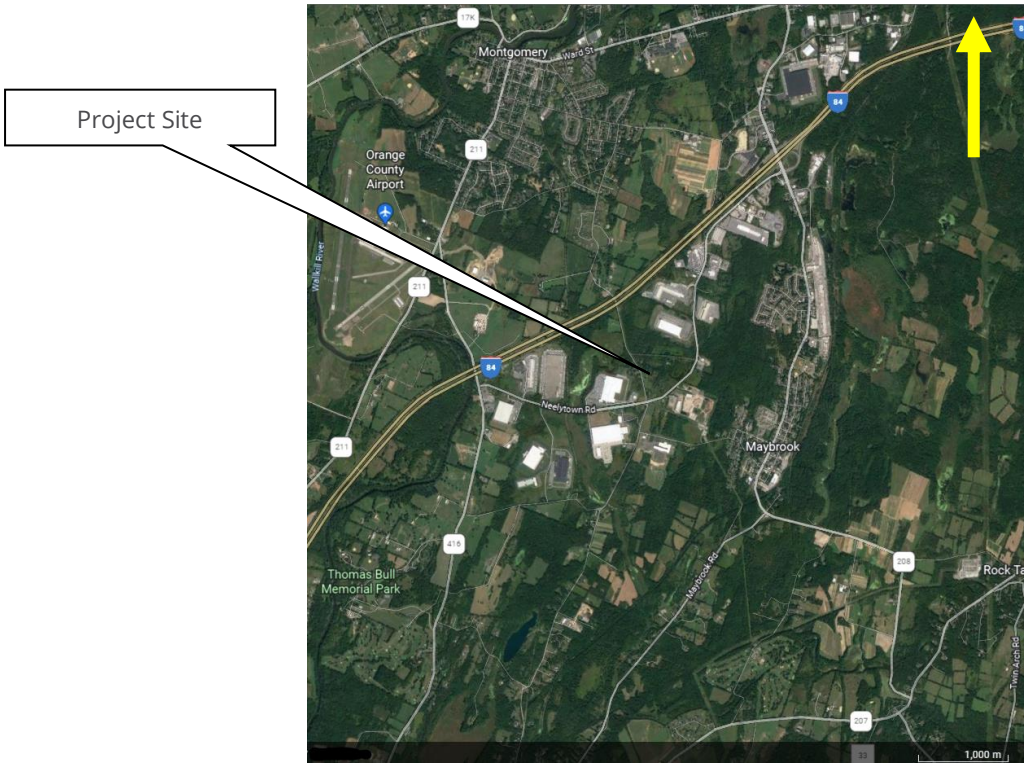

Figure 1: Location Map *(source: Google Earth)*

Scope of Water System

Proposed Lot One (1) and Lot Two (2) system shall consist of furnishing and installing approximately 9,073 LF of 8" ductile iron water pipe, along with One (1) hot box, eight (8) hydrants, thirteen (13) valves, and an on-site fire water storage tank. The proposed system will connect to the existing 12" water main within Neelytown Road at the proposed southern driveway.

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.

As per NYSDEC Design Standards for Intermediate Sized Wastewater Treatment Systems (2014);
GPD = 15 GPD * # employees (same for office and warehouse uses)

Unit Type	Projected Flow	Number of Units	Demand
Warehouse 1 (First Shift)[1]	15 GPD/employee	204 employees	3,060 GPD
Warehouse 1 (Second Shift)[1]	15 GPD/employee	204 employees	3,060 GPD
Warehouse 1 (Third Shift)[1]	15 GPD/employee	204 employees	3,060 GPD
Warehouse 2 (First Shift)[1]	15 GPD/employee	66 employees	990 GPD
Warehouse 2 (Second Shift)[1]	15 GPD/employee	66 employees	990 GPD
Warehouse 2 (Third Shift)[1]	15 GPD/employee	66 employees	990 GPD
Warehouse 1 Office (First Shift)[2]	15 GPD/employee	107 employees	1,605 GPD
Warehouse 1 Office (Second Shift)[2]	15 GPD/employee	107 employees	1,605 GPD

Warehouse 1 Office (Third Shift) [2]	15 GPD/employee	107 employees	1,605 GPD
Warehouse 2 Office (First Shift) [2]	15 GPD/employee	54 employees	810 GPD
Warehouse 2 Office (Second Shift) [2]	15 GPD/employee	54 employees	810 GPD
Warehouse 2 Office (Third Shift) [2]	15 GPD/employee	54 employees	810 GPD
Visitors[3]	5 GPD/Visitor	101 visitors	505 GPD
Total			**19,900 GPD**
Total based on flow saving devices			**15,920 GPD**

[1]Number of employees was determined using 4,100 SF of warehouse space per employee per shift

[2]Number of employees was determined using 1 employee per 150 SF per shift

[3]Number of visitors was determined using 1/3 of the total number of tractor trailer stalls

Pipe Capacity:

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

Total design flow in cfs * peaking factor (4.1) = 0.0246 * 4.1 = 0.101 cfs

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

For a full flowing 12" ductile iron pipe main within Neelytown road:

n = 0.22

$A = \pi r^2 = \pi$ sq. ft.

$R = \frac{A}{P} = 0.5$

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

Solved: **Q(peak) = 0.847 cfs**

For a full flowing 8" ductile iron pipe main within the subject site:

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

n = 0.40

$A = \pi r^2 = \pi$ sq. ft.

$R = \frac{A}{P} = 0.33$

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

Solved: **Q(peak) = 0.158 cfs**

Since the pipe capacity Q (0.847 cfs for 12" DIP main & 0.158 cfs for 8" DIP) is greater than the total design flow (0.101 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 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 1and ±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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