

SEWER AND WATER ENGINEER REPORT

for



KRE

KUSHNER REAL ESTATE GROUP

Proposed Residential Development

**Block 42, Lots 37, 38 & 41
DeForest Ave and River Road
Township of East Hanover
Morris County, New Jersey**

Prepared by:

BOHLER //

NJ Certificate of Authorization No. 24GA28161700

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July 2020
Revised September 2020

BENJ # JM200547

Project Description

The subject property is located at 100 Deforest Avenue in the Township of East Hanover, Morris County, New Jersey. The property is identified as Block 42, Lots 37, 38, & 41 on the Township of East Hanover tax maps and is a total of 74.34 acres in size and will hereafter be referred to as “the site”. The site is bordered to the northeast by an office building; to the southeast and southwest by residential neighborhoods; and to the northwest by a cemetery and industrial uses. A tax map and aerial map is included in the Appendix for reference.

The site is currently an office building with associated improvements and open space within the Residential Multi-Family (RMF) Zone. The site is proposed to have the office building demolished and is proposed to consist of multi-family townhouses and apartments, along with road network, ancillary parking, sidewalks, driveways, stormwater system, and utility improvements.

Said area will hereafter be referenced as “the Site,” and its location is illustrated on the USGS Map and Site Location Map within the Appendix of this report. The site consists of approximately 74.34 ± acres.

The proposed sanitary sewer system for the project will include the construction of 8" sanitary sewer mains in the existing Ring Road, Roads A, B, C, E and within the parking areas of the apartment buildings. The proposed sanitary sewer main will tie into the existing main at three different locations, including Deforest Avenue, River Road, and the adjacent site to the North. Connection points were determined in such a way to minimize disturbance to the existing Ring Road.

The proposed water service for the project will include the construction of a new eight-inch water main, connecting service lines, gate valves, and fire hydrants.

Sanitary Sewer Flow Analysis

The total anticipated sewage effluent generated by the proposed development for all phases will be 143,660 gallons per day. The sewer flow for each phase is based on an average flow for each unit type (N.J.A.C. 7:14A-23.3c), as described below.

Phase 1 Sewer Flow

Facility	Flow Rate (Gallons/Day)	No. of Units	Flow
3- & 4-Bedroom Townhouses	300 gpd	64	19,200
One-Bedroom Apartments	150 gpd	108	16,200
Two-Bedroom Apartments	225 gpd	123	27,675
Three-Bedroom Apartments	300 gpd	8	2,400
Apartment Clubhouse	15 gpd / member	120	1,800
Apartment Clubhouse Office	0.1 gpd / sf	3,600	360
Total Flow			67,635

Phase 2 Sewer Flow

Facility	Flow Rate (Gallons/Day)	No. of Units	Flow
3- & 4-Bedroom Townhouses	300 gpd	118	35,400
Townhome Clubhouse	15 gpd / member	91	1,365
Townhome Clubhouse Office	0.1 gpd / sf	2,000	200
Total Flow			36,965

Phase 3 Sewer Flow

Facility	Flow Rate (Gallons/Day)	No. of Units	Flow
3- & 4-Bedroom Townhouses	300 gpd	127	38,100
Townhome Clubhouse	15 gpd / member	64	960
Total Flow			39,060

Overall Project Sewer Flow

Facility	Flow Rate (Gallons/Day)	No. of Units	Flow
3- & 4-Bedroom Townhouses	300 gpd	309	92,700
One-Bedroom Apartments	150 gpd	108	16,200
Two-Bedroom Apartments	225 gpd	123	27,675
Three-Bedroom Apartments	300 gpd	8	2,400
Apartment Clubhouse	15 gpd / member	120	1,800
Apartment Clubhouse Office	0.1 gpd / sf	3,600	360
Townhome Clubhouse	15 gpd / member	155	2,325
Townhome Clubhouse Office	0.1 gpd / sf	2,000	200
Total Flow			143,660

Water Flow Analysis

The total anticipated water demand for the proposed development for all phases will be 128,110 gallons per day. The following table, based on Table 5.1 of N.J.A.C. 5:21 (Residential Site Improvement Standards), presents an estimated analysis of water demand for the project.

Phase 1 Water Flow

Facility	Flow Rate (Gallons/Day)	No. of Units	Flow
Four-Bedroom Townhouses	275 gpd	32	8,800
Three-Bedroom Townhouses	210 gpd	32	6,720
One-Bedroom Apartments	120 gpd	108	12,960
Two-Bedroom Apartments	175 gpd	123	21,525
Three-Bedroom Apartments	270 gpd	8	2,160
Apartment Clubhouse	60 gpd / member	120	7,200
Total Flow			59,365

Phase 2 Water Flow

Facility	Flow Rate (Gallons/Day)	No. of Units	Flow
Four-Bedroom Townhouses	275 gpd	59	16,225
Three-Bedroom Townhouses	210 gpd	59	12,390
Townhome Clubhouse	60 gpd / member	91	5,460
Total Flow			34,075

Phase 3 Water Flow

Facility	Flow Rate (Gallons/Day)	No. of Units	Flow
Four-Bedroom Townhouses	275 gpd	64	17,600
Three-Bedroom Townhouses	210 gpd	63	13,230
Townhome Clubhouse	60 gpd / member	64	3,840
Total Flow			34,670

Overall Project Water Flow

Facility	Flow Rate (Gallons/Day)	No. of Units	Flow
Four-Bedroom Townhouses	275 gpd	155	42,625
Three-Bedroom Townhouses	210 gpd	154	32,340
One-Bedroom Apartments	120 gpd	108	12,960
Two-Bedroom Apartments	175 gpd	123	21,525

Three-Bedroom Apartments	270 gpd	8	2,160
Apartment Clubhouse	60 gpd / member	120	7,200
Townhome Clubhouse	60 gpd / member	155	9,300
Total Flow			128,110

Description of Proposed Sanitary Sewer System

Sanitary sewer service to the new development will be accomplished by the construction of an 8-inch PVC sewer main that discharges into three different sanitary sewer manholes, one adjacent to the access onto Deforest Avenue, one adjacent to the access on River Road and one on the adjacent property to the north.

The service laterals shall be comprised of four-inch (4”), SDR 35, PVC pipe, at a minimum slope of 0.02 ft/ft for the townhouse units and six-inch (6”), SDR 35, PVC pipe, at a minimum slope of 0.01 ft/ft for the apartment buildings.

Description of Proposed Water System

Water service to the project will be accomplished by tapping into the existing water mains along Deforest Avenue and River Road. A new 8-inch water main, along with connecting service lines, gate valves, and a fire hydrant, will be constructed as part of the development.

Conclusion

All design features are clearly described in the drawings. All pipes and appurtenances are intended to meet the standards of East Hanover Township Public Works for proposed sanitary sewer and water mains, as well as the standards for Morris County Municipal Utility Authority and the New Jersey Department of Environmental Protection.

The design drawings for the project have been prepared based on the best practice engineering methods and are intended to satisfy the requirements of the New Jersey Department of Environmental Protection Rules and Regulation. All design features are closely described either herein or on the drawings. With the design of this project proposed, no detrimental effects are being imposed on the East Hanover Township, Morris County Municipal Utility Authority, or the environment.

APPENDIX



Figure 2
Aerial Map

Source: NJ GeoWeb

Date Access: 7/7/2020

Proposed Residential Development

Deforest Avenue and River Road
Block 42; Lots 37, 38 and 41

Township of East Hanover, Morris County, NJ

BENJ #200547

Prepared by: ajh

Date: 7/7/2020

Checked by: at

Scale: nts



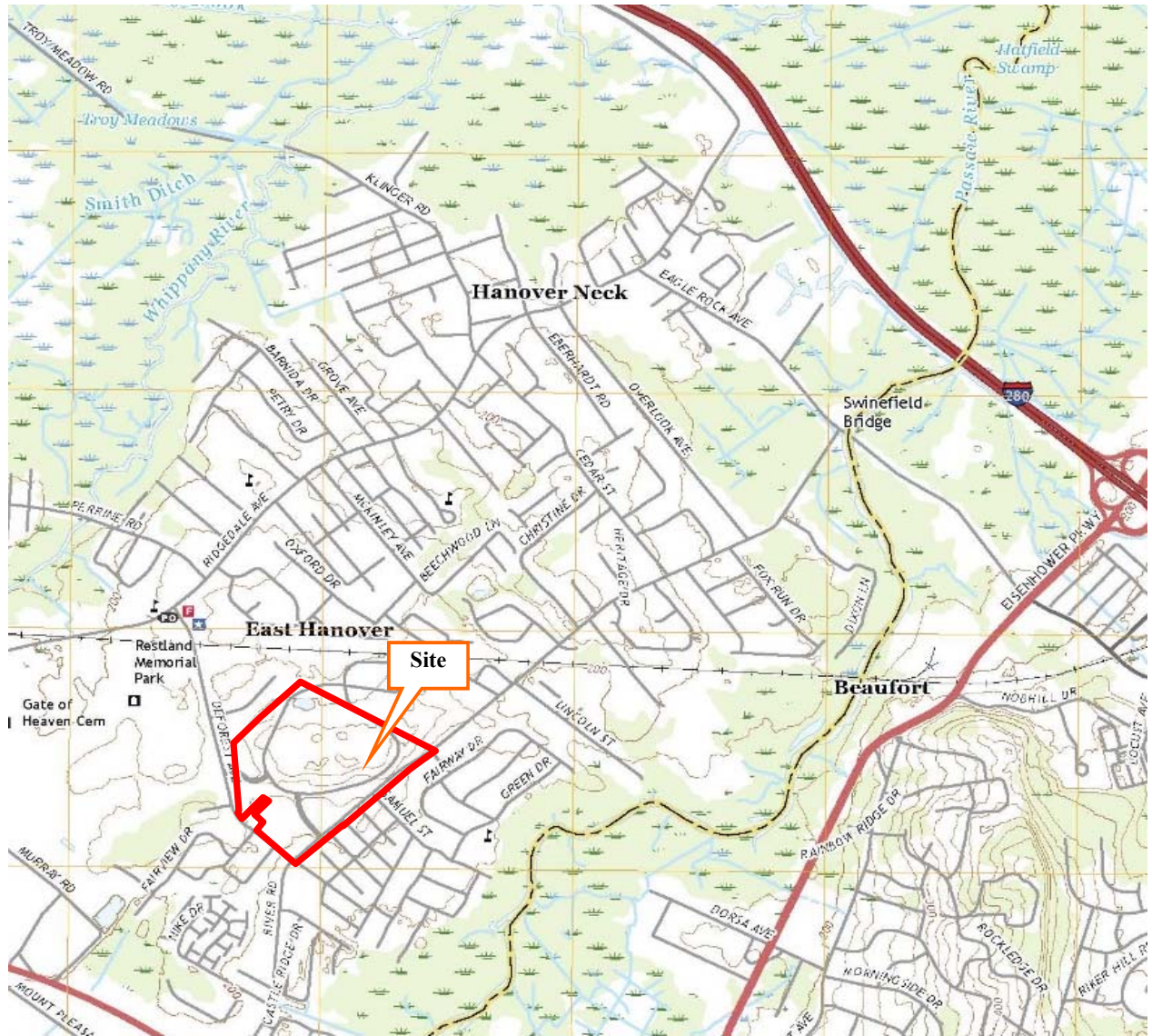


Figure 3
USGS Map
531,068-ft. E; 722,087-ft. N
Caldwell Quadrangle

Source: USGS, 2019

Date Access: 7/7/2020

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