

***Sanitary Sewerage & Water System Facilities
Engineer's Report***

For

Amin Family, LLC

Proposed Mixed Use Development

**202 West 7th Street and Arlington Avenue
Block 711, Lot 2
City of Plainfield
Union County, NJ**

Prepared By

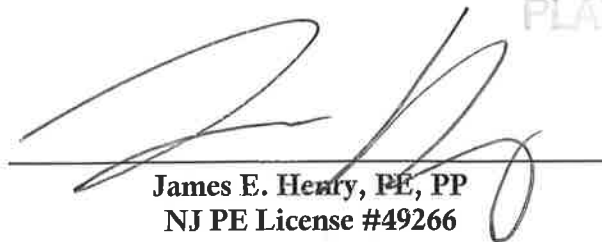


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**January 2020
DEC #3327-99-001**

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. PROPOSED WATER SYSTEM FACILITIES	1
III. EXISTING SANITARY SEWERAGE FACILITIES	2
III. SANITARY SEWER PIPE DESIGN	2
IV. CONCLUSION	3

I. INTRODUCTION

The project area is comprised of Lot 2, Block 711 in the City of Plainfield in Union County, New Jersey. The property is located at 202 West 7th Street and Arlington Avenue and consists of 0.603 acres of land. The site currently is developed as a retail strip center which includes a convenience store, vacant retail use, and laundromat with associated site amenities. The proposed project consists of constructing building additions to the existing building and proposing two (2) floors above the existing building in order to provide twelve (12) residential units. Additional site improvements will include parking, lighting, landscaping, grading and other associated site amenities.

II. PROPOSED WATER SYSTEM FACILITIES

The proposed 2" domestic water service lines will connect to the existing water main located along Arlington Avenue. In addition, a 4" fire service is proposed for the proposed development and will be designed in accordance with the 2015 International Fire Code. A Fire Sprinkler Contractor has not yet been determined, however the proposed fire services will provide sufficient water capacity for the proposed sprinkler system within the building. Calculations will be provided as a condition of approval. Please reference architectural drawings for more information on water line design.

In accordance with N.J.A.C. 7:10-12.6(2) 2 – Table 1, the existing and proposed Daily Water Demand calculations for the area of development are as follows:

Existing Average Daily Water Demand:

- Retail – 4,512 SF X 0.125 GPD/SF = 564 GPD
- Laundromat – 290 washes/day X 50 gallons/wash = 14,500 GPD (estimated)
- **Total Existing Average Daily Water Usage = 15,064 GPD**

Proposed Average Daily Water Demand:

- Retail stores - 3,530 SF X 0.125 GPD/SF = 441 GPD
- Laundromat – 290 washes/day X 50 gallons/wash = 14,500 GPD (estimated)
- Multiple family dwelling (twelve 2-Bedroom unit) – 24 persons X 75 GPD/person = 1,800 GPD
- **Total Proposed Average Daily Water Usage = 16,741 GPD**

Net Increase in Domestic Water Demand = 1,677 GPD

According to NJDEP regulations, the applicant would be required to obtain a Bureau of Safe Drinking Water (BSDW) Permit for an increase in average daily water demand flow of 12,000 GPD for a non-residential development. Therefore, since the non-residential development only proposes a net increase of 1,677 GPD, a BSDW Permit is not required.

III. EXISTING SANITARY SEWERAGE FACILITES

We anticipate that the proposed development will be serviced via the existing 4" PVC sanitary sewer lateral, which ultimately drains towards the existing sanitary sewer main located within Arlington Avenue. Please reference architectural drawings for more information on sanitary sewer line design.

In accordance with N.J.A.C. 7:14A-23.3, the existing and proposed Sanitary Sewer Daily Demand calculations for the area of development are as follows:

Existing Average Daily Sewerage Flow:

- Retail – 4,512 SF X 0.100 GPD/SF = 451 GPD
- Laundromat –25 Machines X 580 GPD/Machine = 14,500 GPD
- **Total Existing Average Daily Sewerage Flow = 14,951 GPD**

Proposed Average Daily Sewerage Flow:

- Retail stores - 3,530 SF X 0.100 GPD/SF = 353 GPD
- Laundromat - 25 Machines X 580 GPD/Machine = 14,500 GPD
- Residential (2-Bedroom unit) - 12 unit X 225 GPD/unit = 2,700 GPD
- **Total Proposed Average Daily Sewerage Flow = 17,553 GPD**

Net Increase in Sanitary Sewer Demand = 2,602 GPD

According to NJDEP regulations, the applicant would be required to obtain a Treatment Works Approval (TWA) permit for an increase in average daily sanitary sewer demand flow by 8,000 GPD from existing conditions. Therefore, since the non-residential development only proposes 2,602 GPD, a TWA permit is not required.

IV. SANITARY SEWER PIPE DESIGN

We assume that the subject property contains an existing 4" sanitary sewer lateral connecting from the existing building to the existing sanitary sewer main within Arlington Avenue. Prior to construction, the architect will confirm the sanitary sewer size, location and design as noted on the site plan drawings.

Per NJDEP regulations, the criteria for establishing the size of gravity sanitary sewer is to convey two times the average daily flow with the pipe flowing half full. Utilizing Manning's Equation with a roughness coefficient of 0.010 for PVC pipe, the following is the minimum capacity of the proposed sanitary sewer gravity lateral:

Pipe Size	Slope	Roughness (n)	Capacity at ½ Full	ADF	2 X ADF
4"	2.08%	0.010	115,618 GPD	17,553 GPD	35,106 GPD

V. CONCLUSION

In summary, this report has been prepared to further expand on the water and sanitary sewer designs for the proposed mixed use development as seen within the Preliminary and Final Site Plan drawings for Amin Family, LLC. The water and sanitary sewer demands generated from this development will not exceed the approved demands and allocated flows based on the actual usages. The proposed development will have no negative impacts on the subject property.