

**REAR OF
1385 WASHINGTON AVENUE
STUDENT HOUSING PROJECT**

City of Albany
Albany County, N.Y.

**ENGINEER'S REPORT
ON WATER SYSTEM**

APPLICANTS:
DMG Investments



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INTRODUCTION

Hershberg & Hershberg, Consulting Engineers and Land Surveyors, were retained by DMG Investments (hereinafter the "Applicant") as site engineer in conjunction with a proposal to build a dormitory building with a total of 319 +/- beds. This report is prepared to address the question of adequate of water service to the site.

DESCRIPTION OF EXISTING SITE AND USE

The 2.16 acres, which constitute the lot on which this project will be located, is currently vacant. There is an 0.45 +/- acre Federal wetland (Waters of the United States) on the site. It is crossed by a sewer easement occupied by a sanitary sewer of the Albany Water Board.

DESCRIPTION OF INTENDED SITE DEVELOPMENT AND USE

Applicant proposes to subdivide the property and create a new lot of 2.16 +/- acres. Applicant proposes to build a 5 story building as a dormitory under the Unified Sustained Development Ordinance. The development would consist of 184 +/- units which are a mixture of studios, 1 bedroom, 2 bedroom, 3 bedroom and 4 bedroom. There would be a total of 319 +/- beds. Below grade parking would be created beneath the 5 story building which would accommodate 92 +/- parking spaces. An additional 6 +/- spaces will be provided in surface lots.

WATER PRESSURE DATA

The static pressure in the existing 8" water main within the easement over No.1395 Washington Avenue (Extended Stay America) is approximately 50 psi. A fire flow test is attached as Attachment A. The elevation of the hydrant where test was conducted is 248 +/- . The grade at the front of the proposed building is 236 +/- . A static pressure of 50 PSI may be used.

WATER DISTRIBUTION SYSTEM

The existing 8" DIP water main within the easement running through 1385 Washington Avenue will be extended to serve the proposed building at Rear of 1385 Washington Avenue. That main is connected to an 8" distribution main constructed in 1997. This 8" main was connected to both the 20" and 24" transmission lines. The recent addition of a Booster Station has increased available pressure. A water extension to support the installation of fire hydrants, fire protection and potable water will be made along this line.

WATER DEMAND

To compute the required water demand, the average water usage from two similar facilities, 1385 Washington Avenue & 1475 Washington Avenue, was utilized based upon billings provided by the City of Albany Department of Water & Water Supply. The results are shown in Fig. No. 1 below. This information was used to establish the demand from this site is shown in Fig. No. 2.

Computation from Similar Uses on Washington Avenue Extension
1385 Washington Avenue - 314 Beds

<u>Period</u>	<u>Water Cost</u>	<u>100 Cubic Feet</u> <u>Units</u>	<u>Equivalent</u> <u>Gallons</u>	<u>Days</u>	<u>Usage (GPD)</u>
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1/07/19 to 5/03/19	\$5,989.44	2,260	1,692,864	118	14,346
5/04/19 to 9/08/19	\$5,067.36	1,912	1,432,246	118	12,138
9/08/19 to 1/02/20	\$6,933.28	2,616	1,959,633	116	16,893
1/02/20 to 5/04/20	\$6,143.58	2,259	1,691,743	<u>124</u>	13,643
			Totals		<u>57,020</u>
	Average Daily Usage				<u>14,255</u>
	Average Daily Usage per bed				<u>45</u>

Computation from Similar Uses on Washington Avenue Extension
1475 Washington Avenue - 292 Beds

<u>Period</u>	<u>Water Cost</u>	<u>100 Cubic Feet</u> <u>Units</u>	<u>Equivalent</u> <u>Gallons</u>	<u>Days</u>	<u>Usage (GPD)</u>
1/09/17 to 5/04/17	\$5,364.03	2,024	1,516,098	117	12,958
5/05/17 to 9/8/17	\$5,673.75	2,141	1,603,637	125	12,829
9/8/17 to 1/08/18	\$6,327.90	2,388	1,788,527	122	14,660
1/08/18 to 5/08/18	\$8,001.09	3,019	2,261,440	122	18,536
5/09/18 to 9/04/18	\$7,510.71	2,834	2,122,838	121	17,544
9/05/18 to 1/7/19	\$7,067.49	2,667	1,997,566	124	16,109
1/07/19 to 5/03/19	\$6,318.56	2,384	1,785,887	118	15,135
5/04/19 to 9/03/19	\$7,216.16	2,723	2,039,586	121	16,856
9/03/19 to 1/02/20	\$8,268.80	3,120	2,337,106	121	19,315
1/02/20 to 5/04/19	\$8,121.69	2,986	2,236,451	<u>124</u>	18,036
			Totals		<u>69,342</u>
	Average Daily Usage				<u>17,335</u>
	Average Daily Usage per bed				<u>55</u>

Based on rates: \$2.72 per 100 CF Eff 1/1/20
2.65 per 100 CF Prior to 1/1/20

POTABLE WATER USE
Rear of 1385 Washington Avenue

<u>Use</u>	<u>Unit</u>	<u>Value</u>	<u>Sewage Generation</u> <u>Per Unit per day(GPD)</u>	<u>Daily Sewage</u> <u>Generation</u> <u>(GPD)</u>
Residential	Beds	319	See Note 1 55	17545
TOTAL ESTIMATED WATER USE				17545
NET ESTIMATED WATER USE				17545
Average Daily Water Use in GPM		12.18		
Peak Water Use in GPM		48.74		

1) Source: Averages of uses for 1385 and 1475 Washington Avenue

Fig. No. 2 – Increase in Water Demand

IMPACT ON WATER SYSTEM

The total water treated in 2019 at the Feura Bush Water Filtration Plant was 6,473,227,216 gallons. The daily water production averaged 17,734,869 gallons, with maximum daily production of 22,272,288 gallons. The capacity of this treatment plant is 32,000,000 GPD. The increase in potable water demand is 17,545 GPD represents an insignificant portion of (0.099%) of the average daily water production.

FIRE PROTECTION

The new buildings will be equipped with automatic sprinkler systems. The water service will be separated within the buildings to provide domestic water and fire protection. Backflow preventors, meters and valves will be provided as required. Fire pumps will be required.

CORROSIVITY

Due to the relatively low pH levels and moisture content in the sub-surface soils, the soil most likely would provide corrosive environment to the proposed ductile iron pipe. Therefore, all pipe will be encased in a polyethylene sleeve to prevent pipe deterioration. No quantitative tests have been performed to substantiate the corrosivity of the soil.

FINANCING

All water main improvements including hydrants, connections and service line will be paid for by the Applicants.

CONCLUSION:

Given the recent addition of a booster station to the system, adequate water quantity and water pressure are available for both potable water and fire protection without any negative impact on the Albany Water Board's system.

Prepared by



A handwritten signature in black ink, appearing to be "D. Hershberg", written over a horizontal line.

Daniel R. Hershberg, P.E. & L.S.

APPENDIX A
FIRE HYDRANT TEST

ID				361
Location				
1395 Washington ave				
Date	By	Representing	Witnessed By	
10/5/2020	G Jones	AWD	O Powell	
Purpose of Test		System Demand MGD		
Hershberg & Hershberg		23MGD		
Pumps In Operation				
NA				
Pressure Regulated Zone				
<input type="checkbox"/>				
Flow Hydrant Location				
1395 Washington ave HYD 58649				
Nozzle Size	Number of Nozzles	Pitot Pressure	Pitot Flow GPM	
2.5	1	35	1000	
Total Flow GPM				
1000				
Residual Hydrant Location				
Rear of 1395 Washington HYD 58659				
Static Pressure PSI	Residual Pressure PSI	Fire Flow at 20 psi		
50	42	2042		
Remarks				
Hydrants fed off of 8" main				