

**DRAINAGE REPORT**  
**FOR**  
**OFFICE BUILDING ADDITION**  
**7TH ST. AND MARQUETTE AVE.**

Zone Atlas Sheet J-14-Z

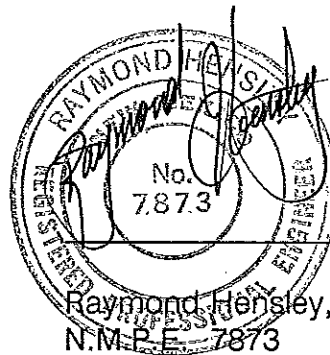
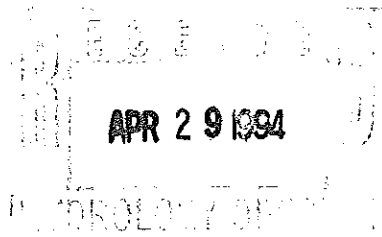
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## **PURPOSE**

The purpose of this report is to analyze the existing and proposed developed drainage on the site for the Office Addition, and to propose solutions to control the excess storm water runoff resulting from the 100-year storm falling on the adjacent and subject parcels.

## **PROJECT LOCATION AND DESCRIPTION**

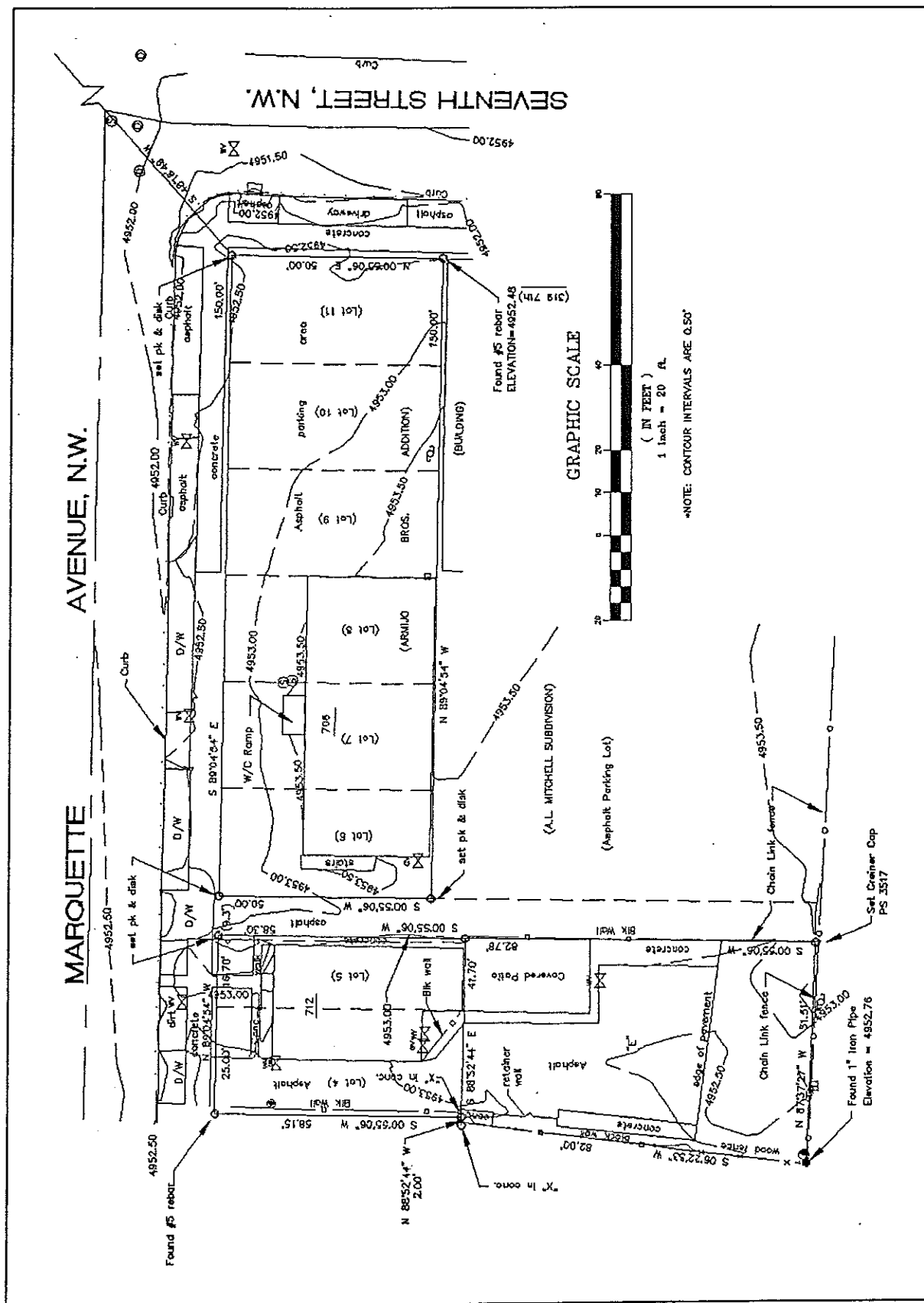
The site is located south of Marquette Ave. on the west side of Seventh St. including .328 acres more or less. It is bounded on the west by a commercial lot, and on the south by commercial lot and a parking lot. (see the appendix, plate 1 for location map and plate 4 for floodway map). The existing site consists of .328 acres of developed and impervious surface, containing buildings and paving. The parcel slopes from south to north at about 1 percent. The proposed development will not create any additional area of impermeable surface.

## **EXISTING DRAINAGE CONDITIONS**

The site is bounded by a paved roadway, Marquette Ave., on the north, a parking lot and Seventh St. to the east, a developed commercial lot containing a residential style building to the west, and paved parking areas to the south. The subject is located beyond the 100 year prudent limit flood plain, but within the 500 year limit. Please refer to plate 4.

The location of the property, shown on plate 1, indicates that the precipitation zone for the subject is Zone 2 according to the Development Process Manual, Volume 2, Section 22.2 - HYDROLOGY, Section A-1. Likewise, the soil conditions are given by Table A-4 as Treatment D.

There are no existing off-site drainage flows. The storm water flows are discharged to the north and east. The basins for the generation of these flows are indicated as Basin 1 and 2. The following are the calculations for the out flows for the subject property, using the DPM, Section 22.2, A-6:



$$Q_{p100} = Q_{pA} \times A_A + Q_{pB} \times A_B + Q_{pD} \times A_D$$

(1) Equation a-10

<u>BASIN 1</u>	<u>AREA</u>	<u>PEAK DISCHARGE</u> <u>(table A-9)</u>	<u>FLOW</u>
Treatment B	216 sf	.78 cfs/acre	.004 cfs
Treatment D	6,572 sf	2.12 cfs/acre	.320 cfs
Total	6,788 sf		.324 cfs
<u>BASIN 2</u>			
Treatment D	7,500 sf	2.12 cfs/acre	.365 cfs

324  
 365  
 689

**DEVELOPED DRAINAGE CONDITIONS**

The site plan (Plate 3) shows the configuration of the proposed development of the property. Approximately 1,800 square feet will be converted from asphalt paving to building retaining the impermeable surfaces. In addition, there will be planters created in basin 2, while the minor landscape area of basin 1 will be paved.

Subsequent to development the property will be consist of impervious surfaces, Treatment "D", and landscaped areas, Treatment "B".

DPM, Section 22.2, A-6:

$$Q_{p100} = Q_{pB} \times A_B + Q_{pD} \times A_D$$

(2) Equation a-10

<u>BASIN 1</u>	<u>AREA</u>	<u>PEAK DISCHARGE</u> <u>(table A-9)</u>	<u>FLOW</u>
Treatment B	400 sf	.78 cfs/acre	.007 cfs
Treatment D	6,988 sf	2.12 cfs/acre	.340 cfs
Total	7,388 sf		.347 cfs
<u>BASIN 2</u>			
Treatment B	1,421 sf	.78 cfs/acre	.025 cfs
Treatment D	5,479 sf	2.12 cfs/acre	.267 cfs
Total	6,900 sf		.292 cfs

347  
 292  
 639

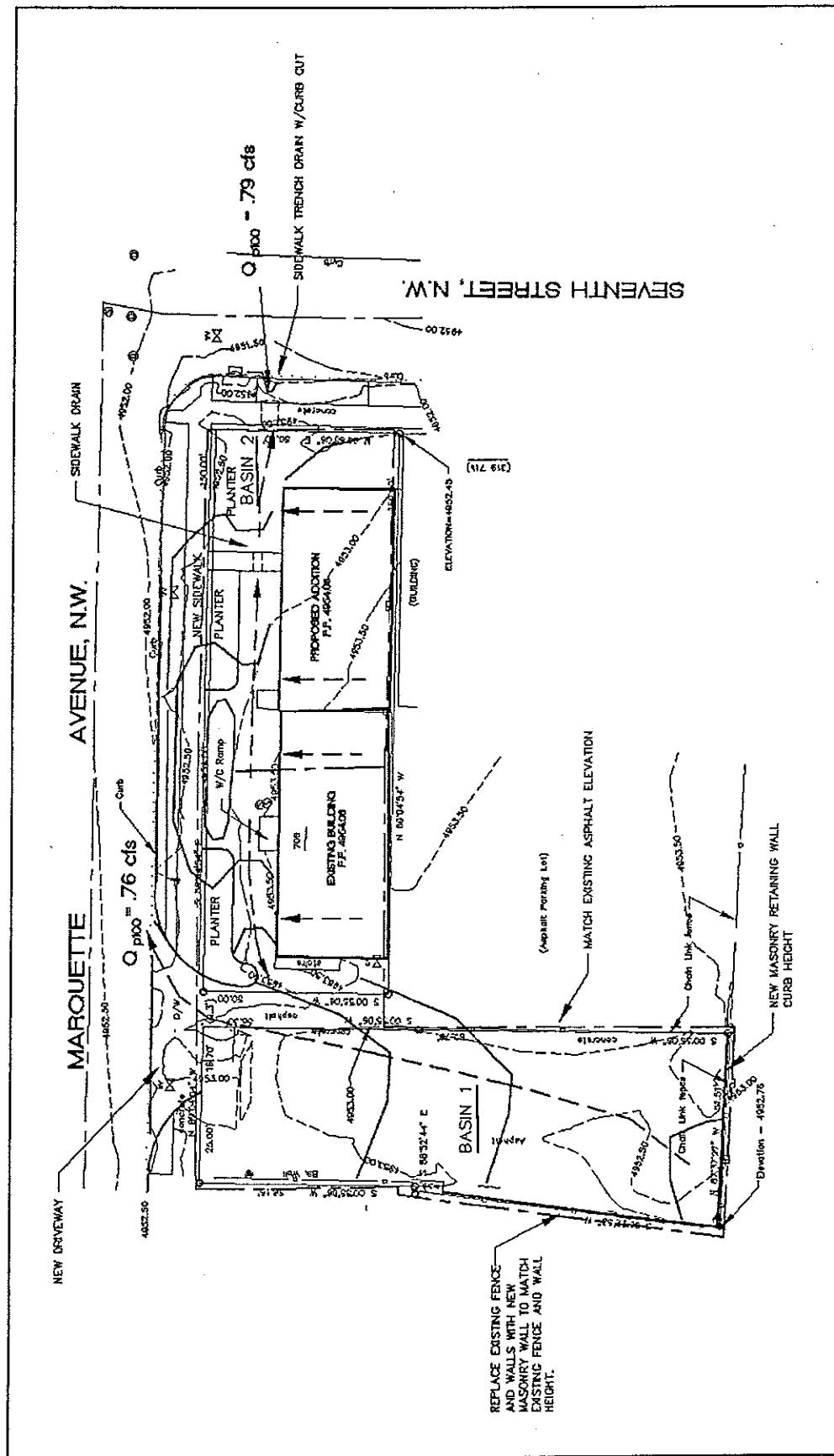


Figure 2 - Developed Site Plan (Plate 3)

The difference between the existing conditions and the developed conditions is insignificant. The total out flow from both basins for the proposed development is .639 cfs, compared to the existing conditions of .686 cfs. There is a minor variance in the distribution between basin 1 and 2. However, the gutter flow on Marquette and the out flow on to Seventh St. converge on the same drop inlet at the corner of Seventh and Marquette.

## **RECOMMENDATIONS**

Delete existing driveways on Marquette. Construct a new drive to meet city standards as the parking exit to replace the existing alley driveway. Construct new grades, landscaping and paving in accordance with the proposed drainage plan.

## **CONCLUSIONS**

If the above recommendations are followed, the site will be protected from flooding and the potential downstream flooding situation will not be altered significantly during the 100-year storm event.

**APPENDIX**



VICINITY MAP  
Plate 1



**FLOODWAY MAP**  
PORTION OF FEMA MAP PANEL 35002 0027  
PLATE 4

