

Exhibit G
Revised Engineering Report

**ENGINEER'S REPORT
FOR**

Wegmans

EAST AVENUE

**CITY OF ROCHESTER, COUNTY OF MONROE
STATE OF NEW YORK**

PREPARED FOR:

**WEGMANS FOOD MARKETS, INC.
100 WEGMANS MARKET STREET
ROCHESTER, NEW YORK 14624**

PREPARED BY:

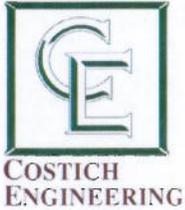


**COSTICH
ENGINEERING**

**217 LAKE AVENUE
ROCHESTER, NEW YORK 14608**

PROJECT NO. 2781

**SEPTEMBER 2009
REVISED: JANUARY 10, 2011**



ENGINEER'S REPORT
WEGMAN'S EAST AVENUE
CITY OF ROCHESTER, MONROE COUNTY

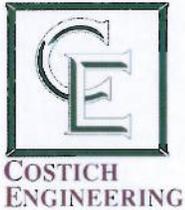
I. INTRODUCTION

The proposed Wegmans Food Market re-development on East Avenue, between Probert Street and North Winton Road in the City of Rochester, New York is outlined in this report. The existing site consists of an existing 46,697 square foot food market, a parking garage, parking and loading areas, a number of commercial buildings along East Avenue and associated site utilities; all of which will be demolished upon commencement of construction activities. The proposed development consists of a new 88,000± square foot Food Market, parking garage, parking lot and additional site improvements.

The following report will analyze the proposed stormwater quality measures for the entire site and new sanitary sewer and water services. Following the narrative of this report are appendices with corresponding calculations and exhibits.

II. SANITARY SEWERS

The proposed Food Market will be serviced by a 6 inch diameter PVC SDR-21 sanitary lateral extending from the southeast corner of the building to the existing 8 inch sanitary sewer on East Avenue. Additionally, the floor drain sewer system for the parking garage will connect to the existing 12 inch sanitary sewer located on University Avenue via a 6 inch sanitary lateral with a 500 gallon oil/water separator. This is due to the drains in the parking garage being treated as "floor drains" as there is no stormwater runoff tributary to the system. For the purposes of these calculations, the maximum domestic flow rate used for the proposed Food Market is 120 GPM, while the system in the proposed parking garage uses a peak rate of 10 GPM. The calculations showing the capacity of the 6 inch sanitary lateral at the University Avenue connection point as well



as the 6 inch sanitary lateral for the Food Market at the East Avenue connection can be seen at the rear of this report.

III. WATER DISTRIBUTION SYSTEM

The existing food market is currently serviced by a combined 8 inch DIP off the existing 12 inch diameter City of Rochester ductile iron watermain along East Avenue and will be abandoned in place once the new food market is fully operational. As the new food market now has a larger foot print, different uses and more current design criteria, flow test data in that area was requested to more accurately analyze the proposed system. Hydrant flow data supplied by the City of Rochester, as tested on 3/9/2010 is as follows:

- Static Pressure: 67 psi
- Residual Pressure: 56 psi
- Observed Flow: 2,142 gpm
- Flow at 20 psi: 4,693 gpm

The proposed food market will be fully sprinklered, an 8 inch DIP will be installed for fire service and a 4 inch DIP will provide the domestic water service.

The maximum required flow rates for the domestic and fire flow demands have been provided by Wegmans as 120 GPM and 1200 GPM, respectively. Using the abovementioned hydrant flow test information, along with the required demands, the water distribution system was modeled to evaluate its sufficiency. Upon investigation, it has been determined the current domestic demands can be met having a residual pressure of approximately 66 psi. After performing the necessary modeling for the fire service, it has been determined that the fire service will have a residual pressure of 62 psi at the first floor elevation. The calculations showing the results of the water distribution modeling for both fire and domestic can be seen at the rear of this report.

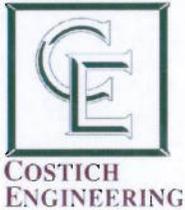
IV. STORMWATER MANAGEMENT

The existing conditions are shown on the “Existing Drainage Area Map”, which can be seen at the rear of this report. Under existing conditions, stormwater sheet drains to a series of catch basins at various locations throughout the site or onto adjacent roads, connecting to various storm sewer systems. Ultimately, discharge from the site for the designated watersheds tie into existing City storm sewers located on each of the streets where the site has frontage (i.e. East Avenue, University Avenue, North Winton Road and Probert Street). The rational method ($Q=CiA$) was used to determine runoff for the various watersheds throughout the site to calculate the total discharge to the different connection points at each street. The following table summarizes the existing peak discharge rates leaving the site at the designated connection points.

EXISTING PEAK FLOW RATES

Area Designation	Q ₁ (cfs)
East Avenue	5.9
University Avenue	12.8
North Winton Road	0.2
Probert Street	1.8
TOTAL	20.7

The developed conditions are shown on the “Developed Drainage Area Map”, which can also be found at the rear of this report. Under developed conditions, all of the sites stormwater runoff will be captured in a series of storm sewers throughout the site. This runoff will then be directed to the City’s storm sewers located along the same streets as stated earlier under existing conditions. The peak flow rates for the overall development will be reduced below those listed under existing conditions due to an increase in green space as a result of the proposed development. In addition, three (3)



CDS units will be utilized to provide water quality treatment prior to the stormwater leaving the site pursuant to the NYSDEC Stormwater Management Design Manual, dated August 2010. The following table summarized the developed peak discharge rates leaving the site.

DEVELOPED PEAK FLOW RATES

Area Designation	Q ₂ (cfs)
East Avenue	13.7
University Avenue	3.9
North Winton Road	2.0
Probert Street	0.1
TOTAL	19.7

It can be seen that the reduction in impervious area translates to a corresponding decrease in stormwater runoff. Supporting calculations can be found at the rear of the report.

V. SUMMARY

In summary, the existing site and utility infrastructure pose no restrictions to the proposed development for storm sewer collection, sanitary sewer collection or water distribution needs.



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JOB #2781 - EAST AVE. WEGMANS
SHEET NO. 1 OF 1
CALCULATED BY MOR DATE 5/2010
CHECKED BY _____ DATE _____
SCALE _____

SANITARY LATERALS

- PROPOSED (2) - 6" DIA. PVC SDR-21 SANITARY LATERALS

- MAXIMUM DOMESTIC FLOW RATE = 120 gal/min

FIND: CAPACITY OF 6" SANITARY LATERAL INSTALLED AT A MINIMUM SLOPE OF 1.00%

USING MANNING'S FORMULA: $Q = A(1.49/n) * R^{2/3} * S^{1/2}$

$A = 0.196 \text{ FT}^2$, $n = 0.013$, $R = A/P = (0.196/1.57) = 0.12 \text{ FT}$, $S = 0.01 \text{ FT/FT}$

$Q = 0.196(1.49/0.013) * (0.12)^{2/3} * (0.01)^{1/2} = 0.56 \text{ ft}^3/\text{sec}$

$Q = \frac{0.56 \text{ ft}^3}{\text{sec}} * \frac{7.48 \text{ gal}}{\text{ft}^3} * \frac{60 \text{ sec}}{\text{min}} = \boxed{251 \text{ gal/min}}$

$Q_{REQ'D} > Q_{NEC}$ \therefore 6" LATERAL IS SUFFICIENT FOR DESIGN FLOW.

 * E P A N E T *
 * Hydraulic and Water Quality *
 * Analysis for Pipe Networks *
 * Version 2.0 *

Input File: East Ave. Domestic Service.net

Wegmans East Avenue

Link - Node Table:

Link ID	Start Node	End Node	Length ft	Diameter in
4	F0	F1	100	8
6	D0	D1	100	4
F	FIREFLOW	F0	#N/A	#N/A Pump
D	DOMESTIC	D0	#N/A	#N/A Pump

Energy Usage:

Pump	Usage Factor	Avg. Effic.	Kw-hr /Mgal	Avg. Kw	Peak Kw	Cost /day
F	100.00	75.00	618.51	44.53	44.53	0.00
D	100.00	75.00	647.55	4.66	4.66	0.00
Demand Charge:						0.00
Total Cost:						0.00

Node Results:

Node ID	Demand GPM	Head ft	Pressure psi	Quality
D0	0.00	154.59	66.98	0.00
F0	0.00	147.66	63.98	0.00
F1	1200.00	144.17	62.47	0.00
D1	120.00	153.15	66.36	0.00
DOMESTIC	-120.00	0.00	0.00	0.00 Reservoir
FIREFLOW	-1200.00	0.00	0.00	0.00 Reservoir

Page 2

Wegmans East Avenue

Link Results:

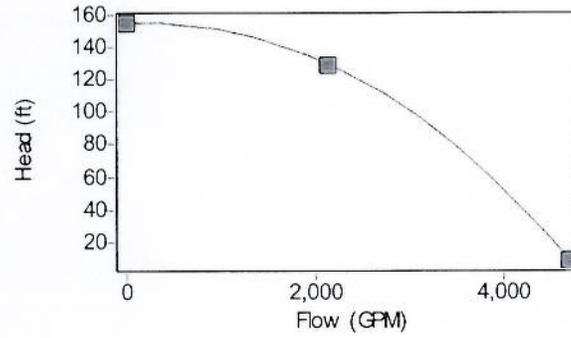
Link ID	Flow GPM	Velocity fps	Unit Headloss ft/kft	Status
4	1200.00	7.66	34.89	Open
6	120.00	3.06	14.35	Open
F	1200.00	0.00	-147.66	Open Pump
D	120.00	0.00	-154.59	Open Pump

Wegmans East Avenue

Curve 01

X-Values	Y-Values
0	154.63
2142	129.24
4693	8.666

$$\text{Head} = 154.63 - 9.488\text{E-}007(\text{Flow})^{2.23}$$





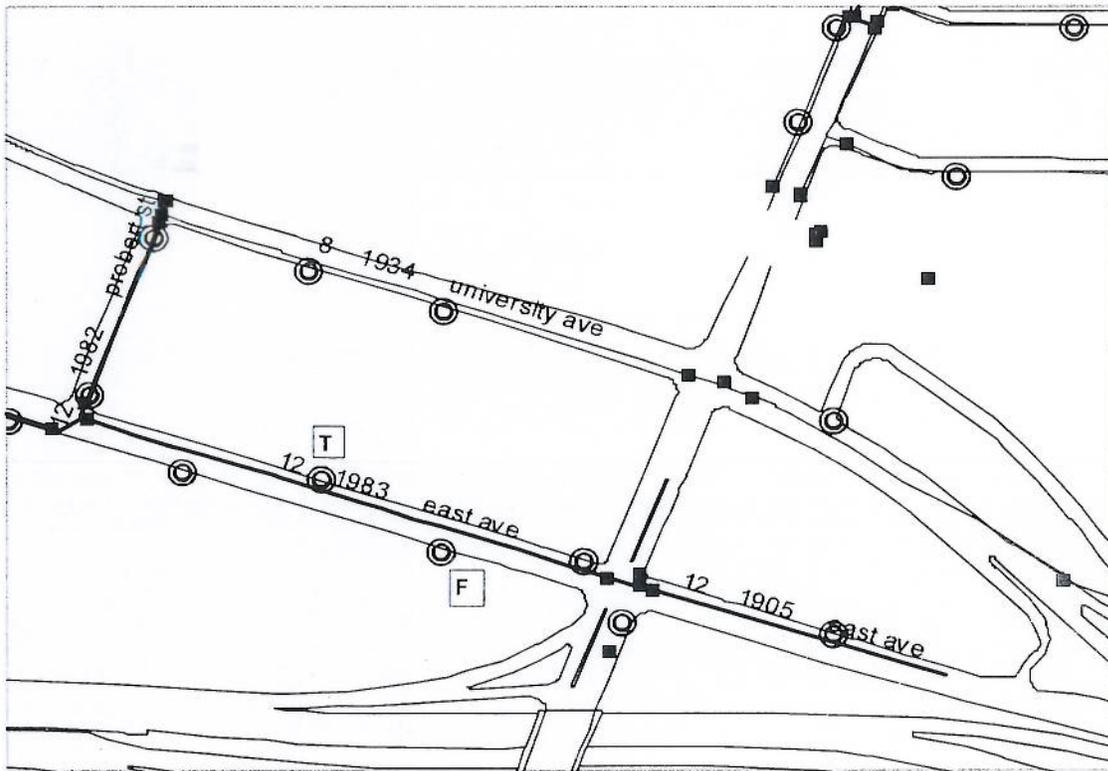
ROCHESTER WATER BUREAU

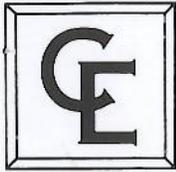
Hydrant Flow Test

04-10

Location	East Ave	Test Purpose
Observer(s)	Wheatley	Consultant Request
Date	3/9/2010	Time
Main Size, inches	12	System
Installed	1983	Lined
Test Data and Results:		
Static Pressure	67.0 psi	Corrected Test Flow
Residual Pressure	56.0 psi	Flow at 20 psi
Pressure Drop	11.0 psi	Nozzle Diameter
Pitot Pressure	20.71 psi	Nozzle Coefficient
Corrected Added +.7125		

Water Used During Test : 6,426 Gallons Mt Read BPS Flow MGD 8.78





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SHEET NO. 1 OF 1
CALCULATED BY LAP DATE 1/5/05
CHECKED BY _____ DATE _____
SCALE _____

Revised: 1/7/11

Pre-Post development run-off volumes /street

- Rational Method ($Q=CIA$) was used for all calculations
- $i = 3.5$ and $c = 0.95$ for impervious areas

Post-Development

- East Ave - $Q = 0.92 \times 3.5 \times 4.27 \text{ acres} = \underline{13.7 \text{ cfs}}$
- University Ave - $Q = 0.90 \times 3.5 \times 1.23 \text{ acres} = \underline{3.9 \text{ cfs}}$
- North Winton Rd. - $Q = 0.81 \times 3.5 \times 0.69 \text{ acres} = \underline{2.0 \text{ cfs}}$
- Probert Street - $Q = 0.25 \times 3.5 \times 0.06 \text{ acres} = \underline{0.1 \text{ cfs}}$

Total = 19.7 cfs

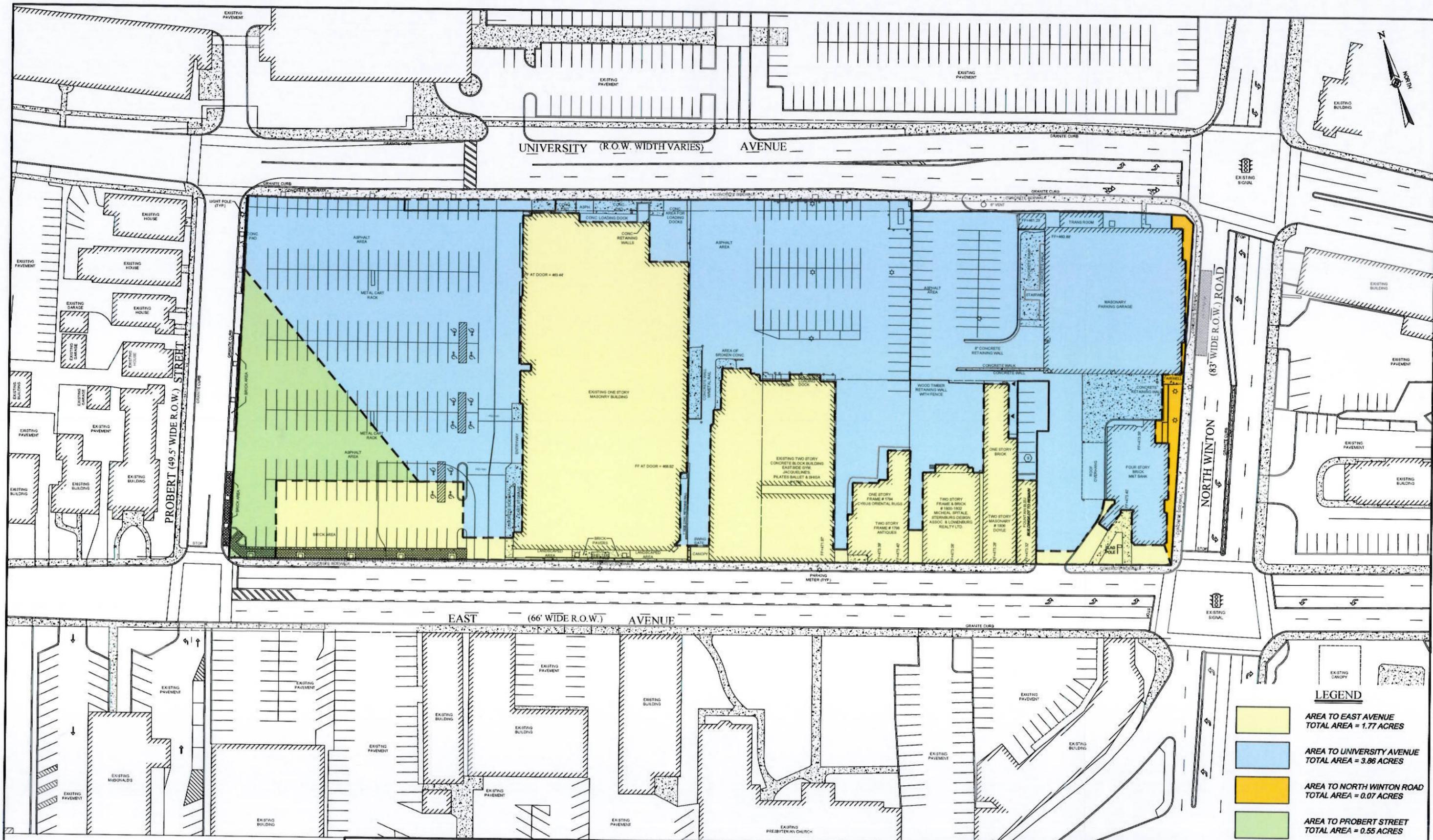
Pre-Development

- East Ave. - $Q = 0.95 \times 3.5 \times 1.77 \text{ acres} = \underline{5.9 \text{ cfs}}$
- University Ave. - $Q = 0.95 \times 3.5 \times 3.86 \text{ acres} = \underline{12.8 \text{ cfs}}$
- North Winton Rd. - $Q = 0.95 \times 3.5 \times 0.07 \text{ acres} = \underline{0.2 \text{ cfs}}$
- Probert Street. - $Q = 0.95 \times 3.5 \times 0.55 \text{ acres} = \underline{1.8 \text{ cfs}}$

Total = 20.7 cfs

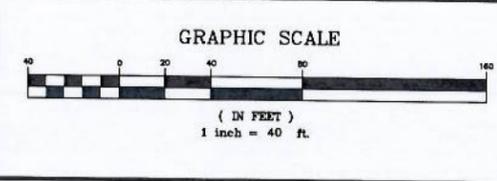
Difference Pre to Post

- East Ave = +7.8 cfs
- University Ave = -8.9 cfs
- North Winton Rd. = +1.8 cfs
- Probert Street = -1.7 cfs



LEGEND

- AREA TO EAST AVENUE
TOTAL AREA = 1.77 ACRES
- AREA TO UNIVERSITY AVENUE
TOTAL AREA = 3.86 ACRES
- AREA TO NORTH WINTON ROAD
TOTAL AREA = 0.07 ACRES
- AREA TO PROBERT STREET
TOTAL AREA = 0.55 ACRES



NO.	DATE	REVISION	BY	CWD	APLS

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 G.W.
 DRAWN BY
 D.E.L.
 BOUNDARY
 D.T.H.
 TOPOGRAPHY
 D.T.H.
 DATE
 09/18/2009
 SCALE
 1"=40'



• CIVIL ENGINEERING
 • LAND PLANNING
 • SURVEYING
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TITLE OF PROJECT
WEGMANS FOOD MARKETS, INC.
 1750 EAST AVENUE
 TITLE OF DRAWING
EXISTING DRAINAGE AREA MAP
 LOCATION OF PROJECT
 CITY OF ROCHESTER
 COUNTY OF MONROE, STATE OF NEW YORK
 CLIENT
 WEGMANS FOOD MARKETS, INC.
 100 WEGMANS MARKET STREET
 ROCHESTER, NEW YORK 14692
 DWS # 2781 03
CE100
 SHEET 1 OF 1

