ENGINEER'S REPORT

7 BREW COFFEE
3999 MAPLE STREET
AMHERST, NY

SEPTEMBER 2024
REVISED NOVEMBER 2024

PREPARED FOR:
BREWTOPIA BUFFALO, LLC
34050 SOLON RD, SUITE 105
SOLON, OH

Mannik Smith GROUP

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3999 MAPLE STREET
AMHERST, NY

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1.0 PROJECT NARRATIVE

1.1 Purpose and Project Background

The following report has been prepared to document the design and calculations for the water system, fire protection, sanitary sewers, and storm water management system for the proposed site development of a 7Brew Drive-thru Coffee shop. This project will be located at 3999 Maple St., as shown in Figure 1. These calculations are intended to represent the proposed site storm water management system, sanitary sewer system (including grease interceptor calculations), and water system, as detailed within the redevelopment plans prepared by The Mannik & Smith Group, Inc. dated 11/19/2024. The proposed project consists of the construction of a 900 square foot restaurant building, sidewalks, associated drives and drive-thru, parking, utility improvements to the site, and site landscaping. The proposed development will connect to existing water main along Maple Rd. and the proposed sanitary sewer lateral will connect the building to the Town of Amherst sanitary sewer infrastructure at the northeast corner of the site.

1.2 Existing Conditions

The existing site is a 0.95-acre parcel that is entirely impervious consisting of a large concrete parking lot and the debris of the previously-demolished building. The site is bordered on the north by Maple Rd, to the east by N Bailey Ave, to the south by Wegmans Supermarket, and an Olive Garden restaurant to the west, as shown in Figure 1. The site is tributary to the Town of Amherst storm sewer conveyance system, which, in turn, is tributary to the Niagara River/Lake Erie watershed, which ultimately discharges to Lake Erie.

Figure 1: Location Map

2.0 WATER SYSTEM

2.1 Existing Water System

The current water system is maintained by the Erie County Water Authority. Water valves and hydrants were identified during the survey, the main waterline that runs along Maple Rd was identified from the Erie County Water Authority fire flow data. A C900 water line will connect the building to the 8" mainline. The water service connects to a hydrant on the corner of Maple Rd and N Bailey Ave.

2.2 Proposed Usage

The proposed development will employ 6 people with 2 lanes for ordering. The intended purpose of this building is to be a drive-through facility with only employees occupying the building and a walk-up ordering option for pedestrians. All orders are taken in person by an employee at the window, then orders are brought out to the customers through the walk-up option or to the car drive-through lanes; no drive-through window is included or needed. No food is made on site, only drinks are created and served. The average water use for this proposed site is 533 gpd.

2.3 Pressure Data

Erie County Water Authority provided fire flow test data that was performed in the vicinity of the project site (see Appendix A). The data shows that the main had a static pressure of 94 psi. Based on the data provided, the system can provide a flow of 4,830 gpm at the required minimum residual pressure of 20 psi. No water pump will be required for this site based on the proposed usage.

2.4 Fire Protection and Exterior Water System.

A previous use of this site included a functioning restaurant that had a much larger footprint and expected water usage than the proposed. Based on the proposed building size and proposed water usage of 533 gallons per day, an acceptable water service size can be as small as 5/8". The fire flow and pressures in the existing water main provided by Erie County, demonstrates no problems will arise with a 1" water service.

The proposed building location allows for connection to the existing fire hydrant on the northeast corner of N Bailey Ave. As shown on the utility plans, the farthest part of the building is less than 150 feet from Maple Rd and the hydrant is less than 450 feet to the farthest part of the building as a hose would be laid (along pavement and around the building). Due to the small size of the building. No sprinkler system is to be installed, however a Knox Key Box will be included, as called out on the utility plans.

2.5 Cross Connection Control

The water system will include a backflow preventor assembly in order to prevent water flowing from the building into the public water main and to be in conformance with the NYS Department of Health Cross-Connection Control Program. This

assembly will sit inside the building and will follow the guidelines of both NYS Department of Health and Erie County Water Authority. See Appendix B for backflow preventor sizing calculations.

3.0 SANITARY SEWER SYSTEM

3.1 Existing Sanitary Sewer System

This site lateral runs East to connect to an 8" sewer along N Bailey Ave. The 8" sewer connects to a 12" truck sewer that runs along Maple Rd. The Town of Amherst Sewer Maintenance Division is responsible for the existing separate sanitary sewer system.

3.2 Hydraulic Loading

Based on the NYS Design Standards for Intermediate Sized Wastewater Treatment Systems (Table B-3), the hydraulic loading rate for a restaurant with a drive-up window is 500 gpd. Since no other category fits the proposed use perfectly, the door that the employees will use to enter and exit while delivering the orders is assumed similar to 1 drive-through window.

3.3 Sanitary System

Domestic sanitary wastewater will be collected in under-slab pipes and exit the building on the east side. From this point a 4-inch lateral with a minimum slope of 1.0% will convey the flow east to an existing 8" sanitary line that runs along N Bailey Ave. Sewer cleanouts will be placed at every turn of the pipe.

3.4 Grease Interceptor Calculations

A 500-gallon grease interceptor is to be placed to the east of the building per plans, venting and signage per NYS 1229, and sized with the following calculations.

GPM x Grease Factor

- (1) 3 Compartment Sink, 2" discharge pipe — 33 x 1.0 = 33.00 GPM
- (4) Floor Sink, 1.5" discharging pipe (use 1 gpm) — 4.00 GPM
- (2) Hand Sink, 1" discharging pipe — 2 x 5.0 x 0.25 = 2.50 GPM
- (1) Mop Basin, 3" waste discharge pipe (use 6 gpm) — 6.00 GPM
- (4) Trench Drain, 1.5" discharge pipe (use 1 gpm) — 4.00 GPM

Total = 49.5 GPM x 30 minutes = 1485 gallons x 1/3 PFR = 495 gallons ~ 500 gallons

4.0 STORMWATER MANAGEMENT

4.1 Stormwater Runoff Conveyance

The stormwater management system for this project includes 3 curb inlets and 2 yard drains placed at designated low spots, laterals from roof drains, and pipes that interconnect the onsite structures to the Town of Amherst existing storm infrastructure. The AutoCAD Civil 3D Storm Sewers extension was used to design the pipe network that will convey stormwater runoff to the existing storm sewer system. Storm sewers were sized based on flow capacity and hydraulic grade line of the 25-year storm.

4.2 Post Construction Stormwater Management

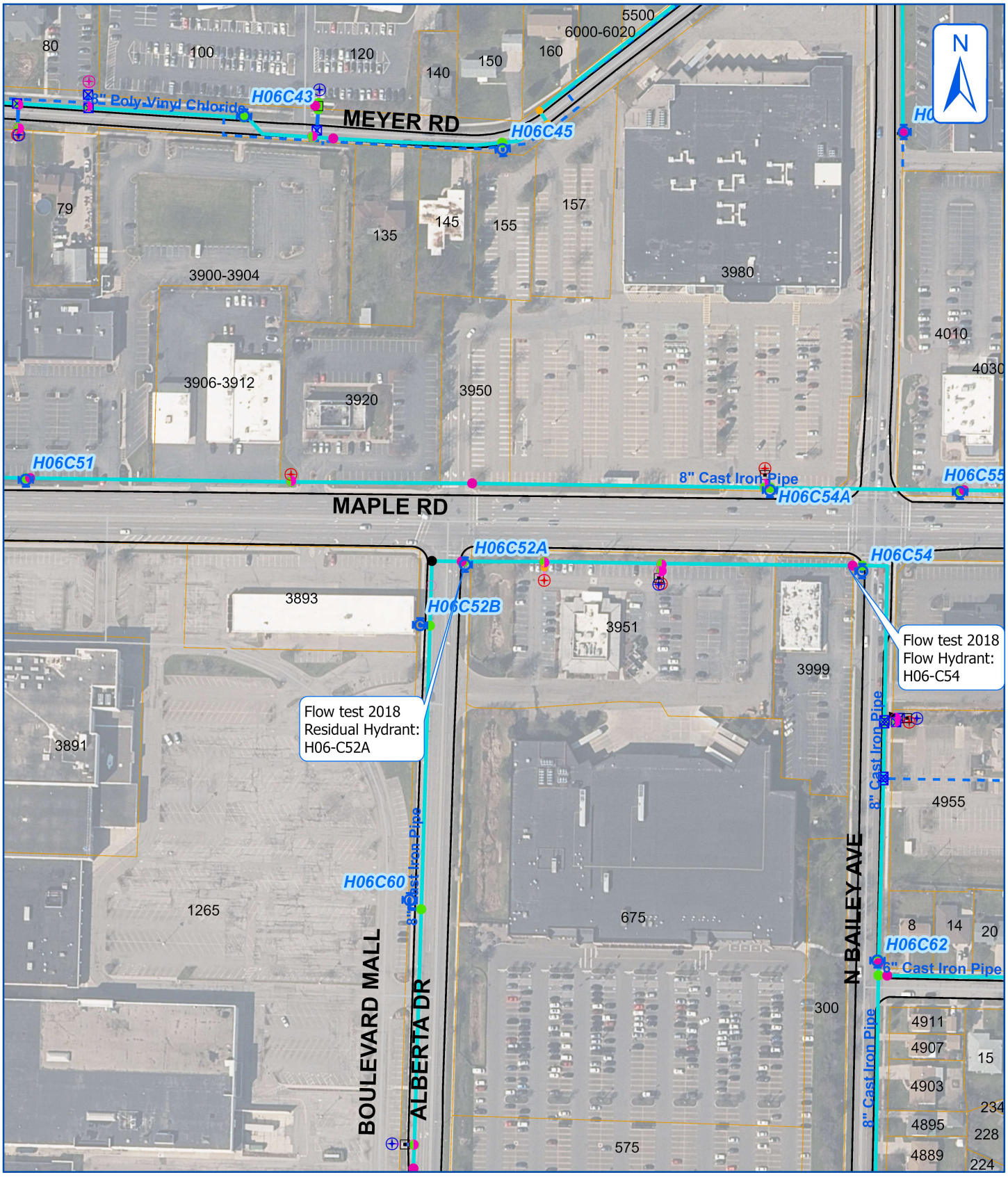
The proposed site does not require additional stormwater detention for quantity and quality purposes as the existing site is 100% impervious and does not have any existing detention or retention for stormwater, while the proposed site will decrease the amount of impervious area by adding islands, landscaping, and buffering. The final total impervious area will be 46.42% - a 53.58% reduction in impervious cover.

Hydraflow in AutoCAD Civil 3D was used to calculate the existing and proposed runoff flow. Using the TR55 method to find time of concentration values, the post-development flow was compared to the existing flow, accounting for the 10% escalation factor per the Boulevard Central District Final Generic Environmental Impact Statement (Section 3.3). As shown in the table, the pervious area, landscaping, and buffering in the proposed site will decrease the runoff substantially and no stormwater management ponds or structures are necessary.

Storm Year	Existing Flow (cfs)	Proposed Flow (cfs)	Escalation Factor (10%)
1	2.858	1.536	1.689
2	3.578	2.115	2.327
5	4.543	2.908	3.199
10	5.301	3.536	3.890
25	6.362	4.416	4.858
50	7.263	5.162	5.678
100	8.249	5.977	6.575

APPENDIX A

ERIE COUNTY WATER AUTHORITY FIRE FLOW DATA



Flow Test Data

Erie County Water Authority
Buffalo, New York

Hydrant FLow Test

Print Date: **9/25/2024**

Residual Hydrant: H06C52A Test Date/Time: 6/08/2018 08:10

Location.....: **3951 MAPLE RD SE C/O ALBERTA DR**
TOWN OF AMHERST

Size of Main/Branch: **8"/6"** Fire District: **22020 EGGERTSVILLE FD 6** Water District: **315 AMHERST DISTRICT 15C**

Performed By: **BS/GK** Comments: **HYDRANT FLOW TEST REQUESTED BY TOM YAGER, ISO**
PHONE: 716-207-4967; EMAIL: TYAGER@ISO.COM

Dischrge Coef: **090** Elvtn Usgs(ft): Static(psi): **94** Residual(psi): **86** Required Residual Pressure(psi): **20**
Gallons Used..: **4,365** Total Flow(gpm): **1,453** Flow at Reqd Resid Pressure: **4,830**

Flow Hydrants:

Flow Hyd	Location	Main/Brnch	Nzle	Size	Pitot	Flow	Comments
H06 C54	**3999 MAPLE RD**	**8"/6"**	1:	**2.50**	**75.0**	**1,453**	
	1ST HYD W/O NORTH BAILEY		2:				
	C/O NORTH BAILEY		3:			Total Flow:	**1,453**

APPENDIX B

BACKFLOW PREVENTOR SIZING CALCULATIONS

Peak Building Pressure (GPM)	20
Meter Loss	1.00
BFP & PRV Loss	13.00
Service Piping Loss	3.75
Vertical Piping Loss	0.13
Vertical Lift Loss	2.17
Total Pressure Loss	**20.04**

City Static Pressure	**94.00**
Residucal Pressure After RPZ	**73.96**

	Length	ELF(25%)	psi drop per 100'	psi
Service Piping*	30	38	10.0	3.75
Vertical Piping	5	6	2.0	0.13
Vertical Lift	5	-	-	2.17

* psi drop per 100ft of piping through 1" type l copper tubing per IPC Figure E103.3(3)