CARMINA WOOD
DESIGN

DOWNSTREAM SANITARY SEWER CAPACITY ANALYSIS REPORT

for

Single Family Subdivision

1789 Dodge Road
Town of Amherst, Erie County, New York

Prepared for

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Prepared by

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Revised May 2025

Project Description

This project is a development of a 6.7 acre +/- site located at 1789 Dodge Road in the Town of Amherst. Construction will consist of extension and completion of a proposed local street. The property will be subdivided to accommodate for 14 single family home lots to be built at a later date. The site will also include the construction of on-site utilities including water service, lighting and landscaping improvements.

The proposed sewer for this project will tie into the existing 8" sewer main along Dodge Road. Sewage will then be conveyed northeast and then west through the 24" and 36" French Trunk Sewer. Flows are then ultimately conveyed north through the 48" Trunk Sewer to the Town of Amherst Wastewater Treatment Facility #16.

Node 1 – 1875 Dodge Road (8"):

Existing Peak Flow measured (wet weather event)	=	0.013 cfs (.007 mgd)*
Proposed 1789 Dodge Rd Subdivision Peak Flow	=	0.041 cfs **
Proposed Peak Flow	=	0.054 cfs
Existing Peak Flow measured (dry weather event)	=	0.253 cfs (.007 mgd)*
Proposed 1789 Dodge Rd Peak Flow	=	0.041 cfs **
Proposed Peak Flow	=	0.294 cfs

Theoretical capacity of existing 8" VTP pipe @ 0.3% = 0.614 cfs

Conclusion: The proposed peak flow is less than the capacity of the 8" VTP pipe, therefore there is sufficient capacity. At no time during the monitoring did the flow depth exceed the pipe diameter at Node 1 of the downstream monitoring points during the rain events monitored.

Node 2 – North French Rd (24")

Existing Peak Flow measured (wet weather event)	=	9.582 cfs (5.155 mgd)*
Proposed 1789 Dodge Rd Subdivision Peak Flow	=	0.041 cfs **
Proposed Peak Flow	=	9.623 cfs

Theoretical capacity of existing 24" RCP pipe = 7.714 cfs (4.15 mgd)

Conclusion: Current flows the day following the 1.11" rainfall event exceeded the capacity of the existing 24" sewer pipe, but at no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole. In addition, Sanitary Sewer Overflow (SSD) did not occur. I/I mitigation shall be required for the contribution proposed for this project.

Node 3 – North French near Millersport (24")

Existing Peak Flow measured (wet weather event)	=	9.439 cfs (5.078 mgd)*
Proposed 1789 Dodge Rd Subdivision Peak Flow	=	0.041 cfs **
Proposed Peak Flow	=	9.480 cfs

Theoretical capacity of existing 24" RCP pipe = 7.714 cfs (4.15 mgd)

Conclusion: Current flows the day following the 0.7" rainfall event exceeded the capacity of the existing 24" sewer pipe, but at no time during the monitoring period did the flow at any point slow or stall which would have caused a backup or flooding at the manhole. In addition, Sanitary Sewer Overflow (SSD) did not occur. I/I mitigation shall be required for the contribution proposed for this project.

Foot Notes:

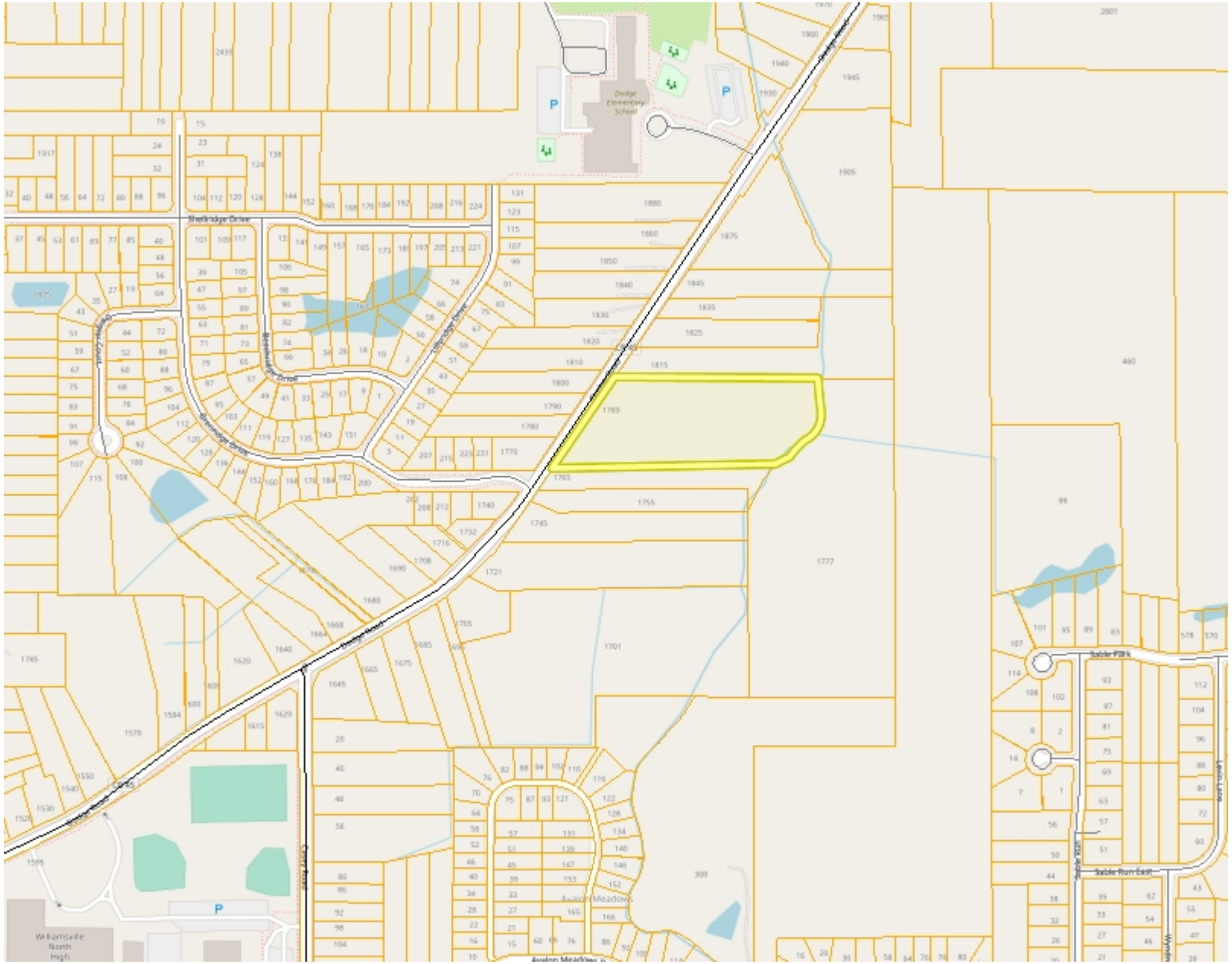
Pipe slopes, sizes and materials provided by Town of Amherst Engineering Department Sewer Maintenance Division

*Converted from measurements in TECSmith report dated 4/20/21

**See Sanitary Sewage Demand Calculations

Location Map

Erie County On-Line Mapping Application



Legend

- Parcels
- Streets and Highways
  - Interstate
  - Primary State Road
  - Secondary State Road
  - County Road
  - Local Road

0 0.14 0.3 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere
THIS MAP IS NOT TO BE USED FOR NAVIGATION

ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GIS

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

1: 9,028

Sanitary Demand Calculations

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Project No.: 20.247 Date: 4/21/2021
Project Name: Dodge Road Subdivision Revised 5/22/25
Project Address: Amherst, New York
Subject: Sanitary Sewage Demand Calcs
Sheet: 1 of 1

Sanitary Sewage Demand Calculations:

Proposed Subdivision:

14 Lots 4 bdrm @ 440 gpd = 6,160 gpd

Total Average Daily Demand = 6,160 gpd

Find Peak Sanitary Demand:

Total demand: 6,160 gpd / 100 gpcd = 62 per capita

Population (P) = 62 people

Peaking Factor : $(18 + \sqrt{P}) / (4 + \sqrt{P})$ where P is in thousands

Peaking Factor = 4.30

Peak Sanitary Demand = 6,160 x 4.30 = 26,460 gpd
= 0.026 MGD
= 0.041 cfs

Required Infiltration and Inflow Mitigation:

Peak Sanitary Flow = 26,460 gpd = 18.4 gpm

4:1 offset flow per NYSDEC requirements = 18.4 x 4 = 73.5 gpm req'd

Mitigation Credit = 250 /gpm

Mitigation Agreement Amount = **$18,375.27**

TECSmith Monitoring Report

Date	Node 1			Node 2			Node 3			Rain₂
	1875 Dodge Rd (8")			North French 24" (24")			N French EO Millersport (25")			
	FLOW (GAL x 1,000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	FLOW (GAL x 1,000)	PEAK FLOW (MDG)	PEAK LEVEL (IN)	FLOW (GAL x 1,000)	PEAK FLOW (MDG)	PEAK LEVEL (IN)	(inches)
3/15/2021	1.558	0.007	1.021	901.924	2.509	13.017	2451.565	3.138	16.050	***0***
3/16/2021	5.814	0.136	1.429	1851.456	2.431	12.927	2362.168	2.987	15.828	***0***
3/17/2021	3.897	0.117	1.276	1833.935	2.354	12.793	2359.427	3.078	15.946	***0***
3/18/2021	3.526	0.007	0.965	1810.464	2.378	12.837	2259.529	3.071	15.681	***0***
3/19/2021	2.127	0.006	0.722	1777.378	2.272	12.485	2186.568	2.873	15.229	***0***
3/20/2021	2.908	0.006	0.733	1835.479	2.712	13.695	2278.543	3.111	16.386	***0***
3/21/2021	1.471	0.005	0.891	1782.700	2.522	13.292	2306.858	3.161	16.261	***0***
3/22/2021	2.153	0.010	0.804	1756.434	2.338	12.610	2220.316	3.332	15.590	***0***
3/23/2021	1.794	0.012	0.909	1750.216	2.354	12.508	2165.263	2.942	15.598	***0***
3/24/2021	1.334	0.010	0.803	1800.258	2.322	12.720	2209.647	2.930	15.544	***0.04***
3/25/2021	2.060	0.006	0.854	1818.708	2.327	12.425	2191.851	2.903	15.835	***0.1***
3/26/2021	3.490	0.007	0.854	3394.673	5.155	32.200	3430.052	4.993	21.358	***1.11***
3/27/2021	2.520	0.008	0.748	2789.517	3.572	15.870	3247.935	4.098	19.565	***0.01***
3/28/2021	2.553	0.008	0.911	3084.039	4.855	24.342	3297.641	4.788	20.613	***0.38***
3/29/2021	1.726	0.006	0.907	1755.045	3.449	16.146	3240.507	4.662	19.849	***0***
3/30/2021	2.827	0.008	0.856	---	---	---	2916.616	3.723	17.876	***0***
3/31/2021	2.680	0.005	0.742	---	---	---	2702.193	3.508	17.153	***0.15***
4/1/2021	2.651	0.005	0.843	---	---	---	2714.987	3.372	16.766	***0.01***
4/2/2021	2.859	0.005	0.796	---	---	---	2505.293	3.203	16.568	***0***
4/3/2021	2.990	0.007	0.938	---	---	---	2525.733	3.514	16.884	***0***
4/4/2021	2.417	0.009	1.135	---	---	---	2373.848	3.533	16.405	***0***
4/5/2021	2.483	0.007	0.912	---	---	---	2266.588	3.080	15.777	***0.03***
4/6/2021	2.944	0.006	0.910	825.215	2.343	12.291	2252.135	2.939	15.594	***0***
4/7/2021	2.503	0.007	0.950	1846.587	2.402	12.565	2309.849	3.101	15.697	***0.02***
4/8/2021	2.082	0.008	1.024	1828.950	2.483	12.622	2261.713	3.460	15.656	***0***
4/9/2021	2.374	0.010	1.239	1831.352	2.368	12.721	2193.455	3.117	15.464	***0.08***
4/10/2021	2.260	0.008	1.127	1858.770	2.612	13.316	2316.192	3.504	16.334	***0***
4/11/2021	2.859	0.007	1.008	3042.992	5.147	30.730	3249.342	5.078	22.008	***0.7***
4/12/2021	2.895	0.015	0.889	2708.829	3.298	15.235	3106.551	4.305	19.509	***0.05***
4/13/2021	2.801	0.012	0.802	2463.126	3.020	14.069	2867.249	4.024	17.279	***0***
4/14/2021	2.756	0.008	0.821	2271.773	2.756	13.315	2145.403	3.626	16.706	***0***
4/15/2021	3.060	0.013	1.094	2356.976	2.957	14.016	2774.988	3.769	17.125	***0.26***
4/16/2021	3.263	0.008	1.131	2855.766	3.437	15.096	3174.564	3.761	17.887	***0.11***
4/17/2021	2.860	0.007	1.015	2575.069	3.305	14.893	3010.105	3.907	17.949	***0***
4/18/2021	3.009	0.009	0.913	2359.773	3.104	14.318	2819.097	3.644	17.325	***0***
4/19/2021	2.925	0.008	0.910	2144.199	2.646	12.962	2572.211	3.217	16.430	***0.05***
4/20/2021	1.089	0.007	0.914	928.283	2.885	13.472	1081.133	3.048	15.628	***0.2***
---	---	---	---	---	---	---	---	---	---	***3.3***

Yellow Highlights are Wet Weather Days

	MGD	CFS
Wet	0.007	0.013
Dry	0.136	0.253

MGD	CFS
5.155	9.582

MGD	CFS
5.078	9.439

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-462-0382
Fax: 716-687-1418

Date: April 20, 2021

SANITARY SEWER FLOW CAPACITY STUDY – Summary Review

Prepared For: 1789 Dodge Road Capacity Analysis

Christopher Wood
487 Main Street, Suite 600
Buffalo, New York 14203

Project Name: 1789 Dodge Road Capacity Analysis

Flow Monitoring Period: March 1, 2021 to April 13, 2021

Rain Events (> 0.5-inches) Monitored: March 26, (1.11”), and April 11 (0.70”)

Number of Monitoring Nodes: Three (3) downstream manholes

Node Locations and Descriptions:

- Node 1 1875 Dodge Rd (8")
- Node 2 North French 24" (24")
- Node 3 N French EO Millersport (25")

Summary Conclusion:

Based on the data presented in this report, specifically the flow depth measurements recorded (see graphs below)

- At no time did the flow depth exceed pipe diameter at Nodes 1 and 3 of the downstream monitoring points during the wet weather vents monitored.
- Three times the flow depth exceed pipe diameter at Node 2 of the downstream monitoring points during the wet weather vents monitored.

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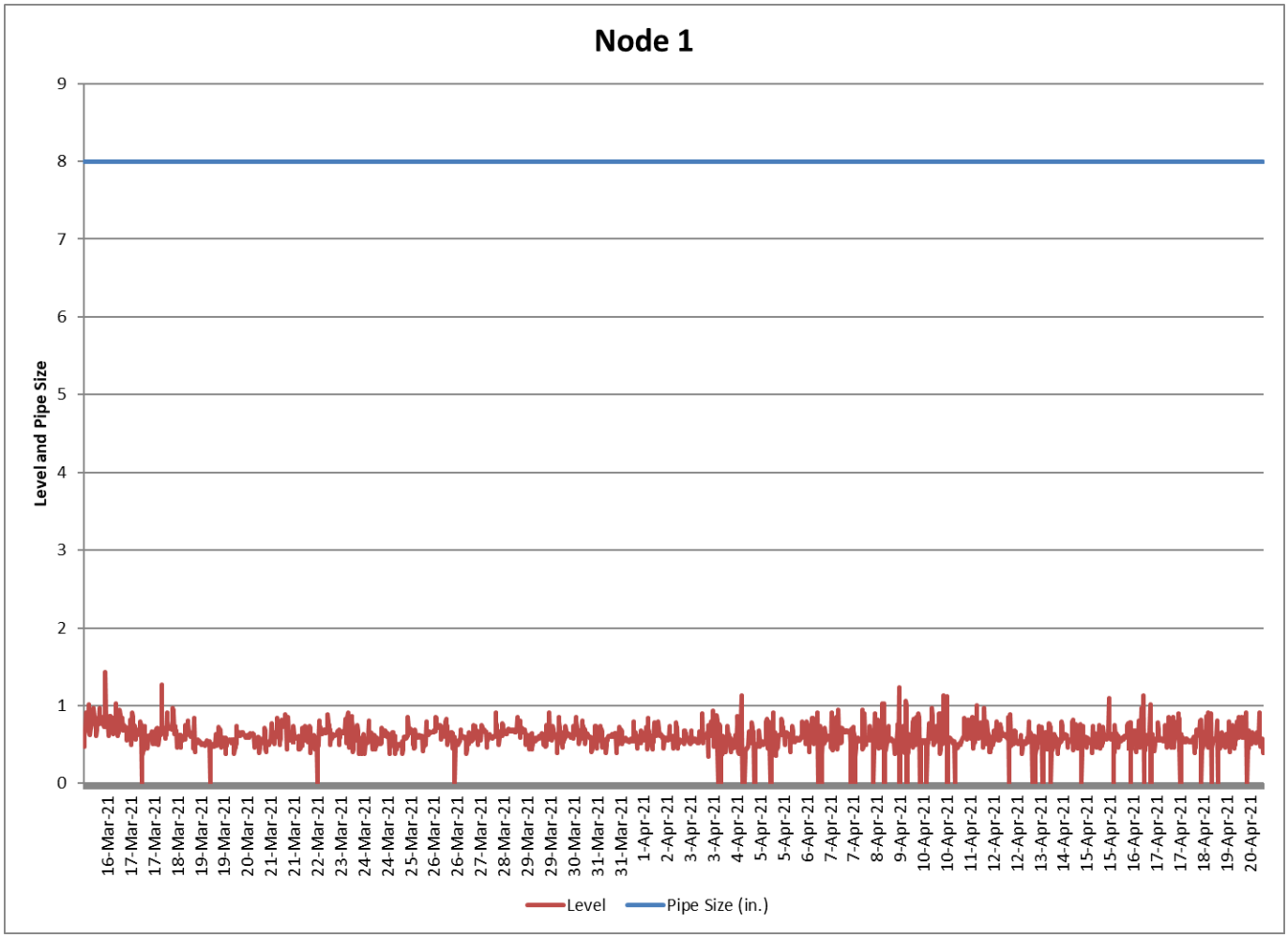
Depth of Flow Capacity Summary:

Depth of flow capacity is based on diameter of pipe. See graphs below.

- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 1.



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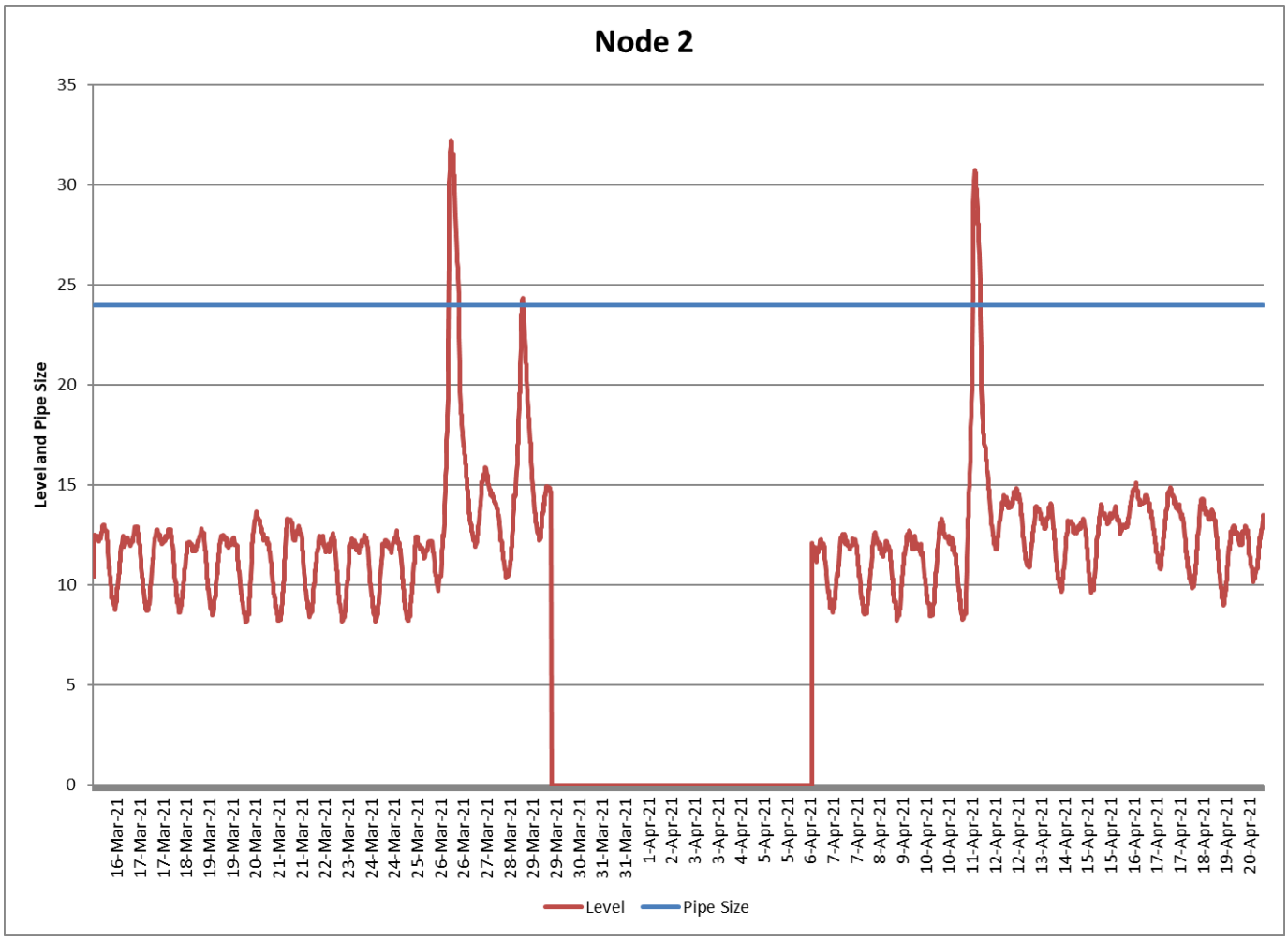
- Three times during the monitoring period did depth of flow exceed pipe diameter at Node 2.



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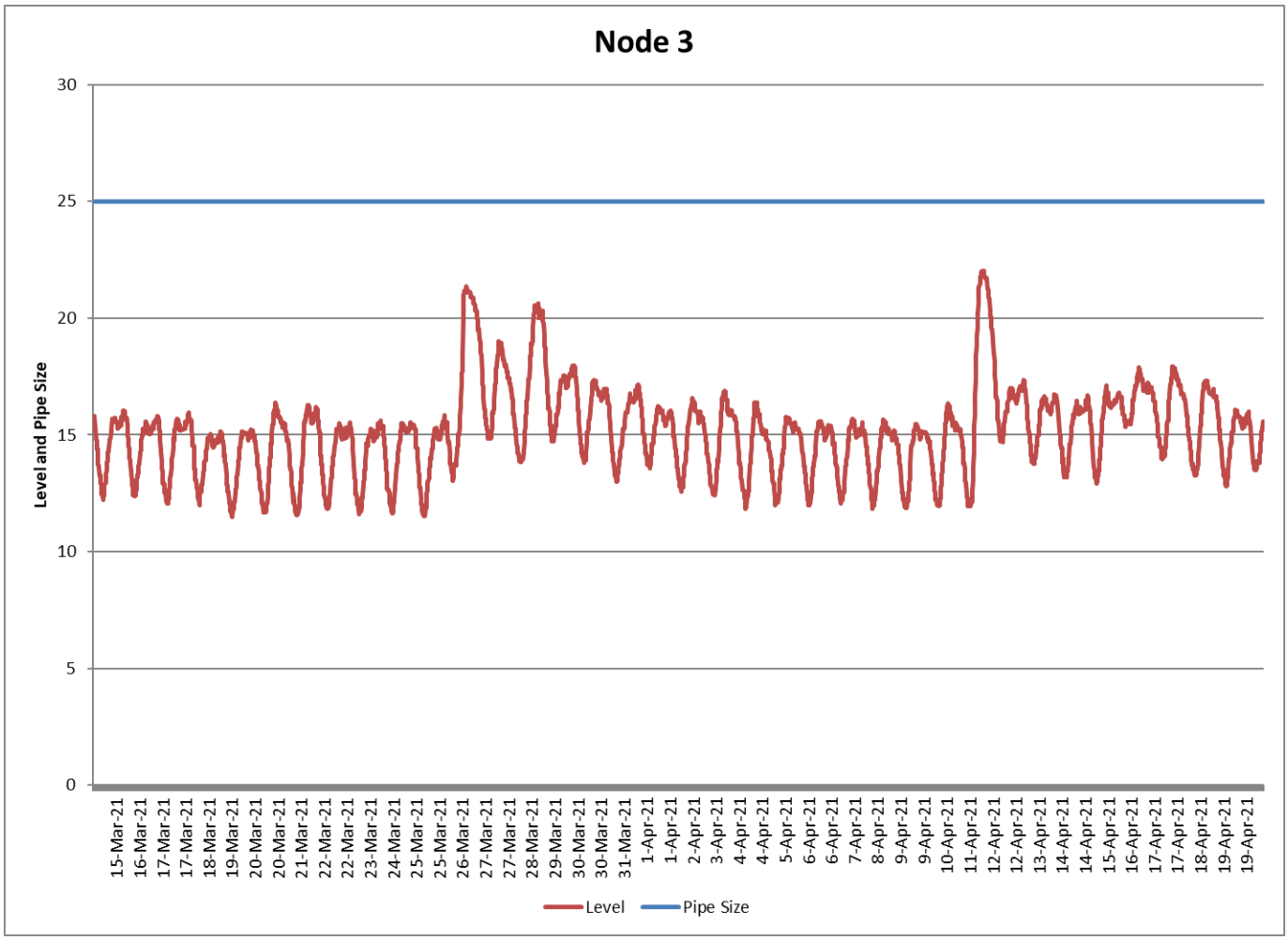
- At no time during the monitoring period did depth of flow exceed pipe diameter at Node 3.



(T) Amherst Engineering Department Sewer Maintenance Division Downstream Routing Map and Node Maps

Town of Amherst Engineering Department
Sewer Maintenance Division

Main Sanitary Sewer Interceptors

DOWNSTREAM SEWER
FRENCH/DODGE TRUNK SEWER

TRANSIT ROAD TO PLANT #16

JANUARY 2021

* INCLUDES KLEIN RD DIVERSION & WOODLAND HILLS DEVELOPMENT JANUARY 2010

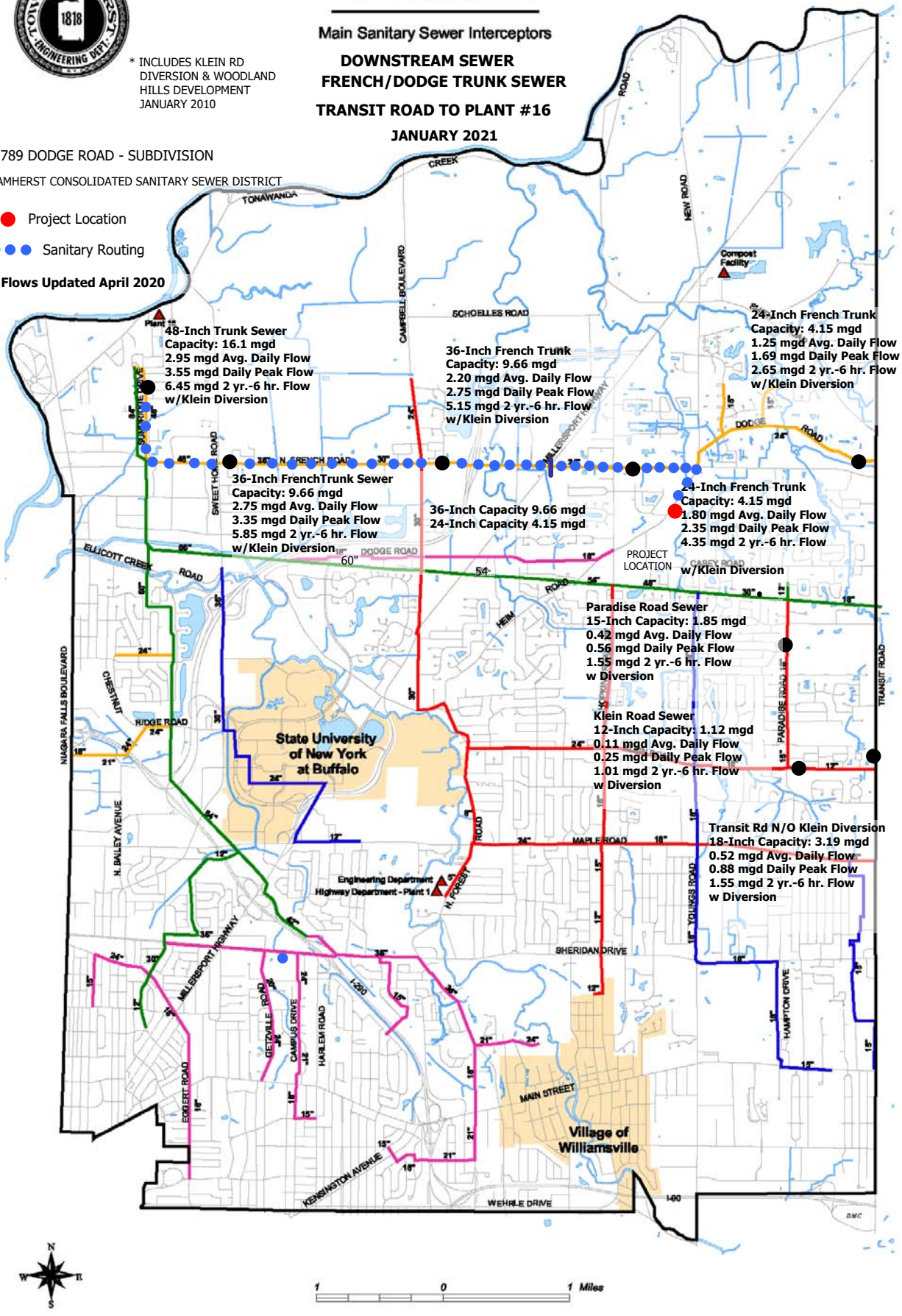
1789 DODGE ROAD - SUBDIVISION

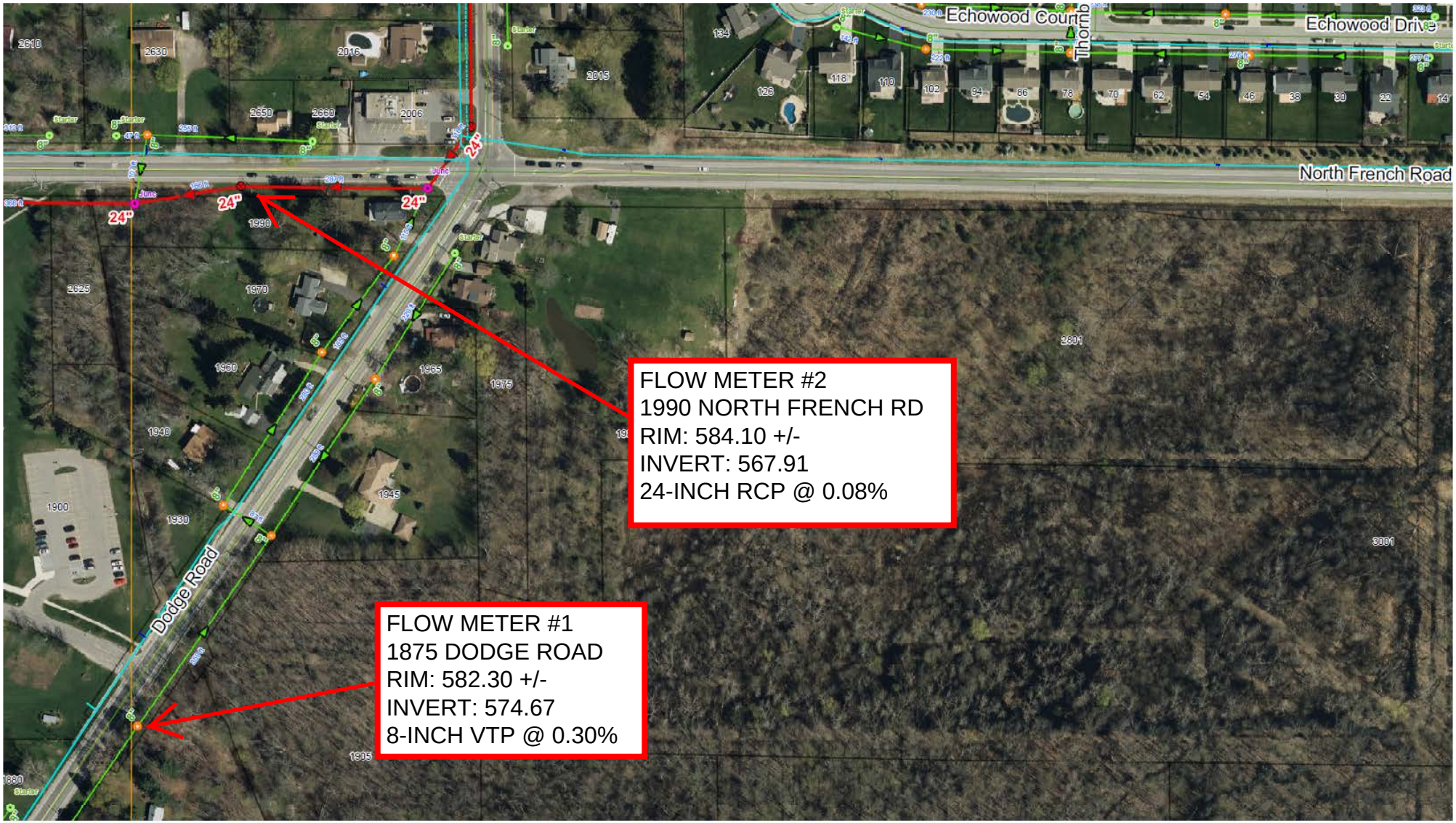
AMHERST CONSOLIDATED SANITARY SEWER DISTRICT

Project Location

Sanitary Routing

Flows Updated April 2020




Echowood Court
Echowood Drive
North French Road
Dodge Road
24"
24"
24"
24"
FLOW METER #2
1990 NORTH FRENCH RD
RIM: 584.10 +/-
INVERT: 567.91
24-INCH RCP @ 0.08%
FLOW METER #1
1875 DODGE ROAD
RIM: 582.30 +/-
INVERT: 574.67
8-INCH VTP @ 0.30%


North French Road
Millersport Highway
Daven Drive
Jackson Square Apts
2050
3400
2100
2130
2140
2158
2162
2168
2182
2198
2200
3375
3325
3355
2171-2235
8" PVC
42" PVC
12" PVC
24" PVC
24" RCP
8" VTP
6"
FLOW METER # 3
3325 NORTH FRENCH RD
RIM: 581.50 +/-
INVERT: 563.61
24-INCH RCP @ 0.08%
TOA TEMP. FLOW METER