Engineering Report

FOR THE

Genesee County Economic Development Center (GCEDC)

STAMP Offsite Sanitary Sewer Route Analysis

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1. Introduction and Purpose

The Genesee County Industrial Development Agency d/b/a/ the Genesee County Economic Development Center (GCEDC) and its affiliate, the Genesee Gateway Local Development Corporation (GGLDC), have been working for the last several years on the development of the Western New York Science & Technology Advanced Manufacturing Park (STAMP), a planned advanced manufacturing campus on approximately 1,250 acres of land in the Town of Alabama, New York located along the west side of New York State Highway 77/63 (north of Judge Road) approximately five miles north of the I-90/New York State Thruway (STAMP Site). At full build out, STAMP will be a high technology campus with the potential to accommodate over 6 million square feet of advanced technology manufacturing and related uses and to create up to 10,000 jobs. The GCEDC, as lead agency pursuant to the State Environmental Quality Review Act (SEQR), prepared a Generic Environmental Impact Statement (GEIS) and a Smart Growth Impact Statement ("SGIS") that analyzed the potential impacts of STAMP pursuant to the requirements of the SEQR and the State Smart Growth Public Information Policy Act.

The Final GEIS for STAMP was accepted as complete in January of 2012. The FGEIS identified alternatives for wastewater treatment for STAMP and assumed a maximum of 3 million gallons per day (MGD) of sanitary discharge would be needed. The preferred treatment alternative at that time included an onsite Wastewater Treatment Facility (WWTF) with discharge to either Oak Orchard Creek, Whitney Creek or Tonawanda Creek Based on feedback received during the GEIS process, several meetings with the neighboring Tonawanda Seneca Nation, and changes in the development focus of the STAMP Site to focus on the semiconductor industry, new alternatives for treatment were developed.

In August of 2013, a Conceptual Water and Wastewater Alternatives Analysis and Recommendations Report was completed for STAMP. This study identified potential sanitary sewage conveyance and treatment options for the STAMP project, including 1.0 million gallons per day (MGD) of sanitary sewer effluent and 11.0 MGD of industrial process wastewater. Based on this report, the Village of Medina Wastewater Treatment Facility (Medina WWTF) was selected as the preferred sanitary sewer effluent treatment alternative.

This report analyzes the system impacts of up to 1.0 MGD of discharge from the STAMP site to the Village of Medina collection system and/or the Medina WWTF. Any additional flow above 1.0 MGD that may be necessary in the future will need to be reviewed in detail at that time.

A major concern of the Tonawanda Seneca Nation was direct discharges of treated wastewater onto the Reservation which is immediately downstream from the STAMP Site. Another concern expressed by the New York State Department of Environmental Conservation (NYSDEC) was direct discharges to the Tonawanda State Wildlife Management Area. By utilizing the Medina WWTF and connecting to an established collection system, discharging to the Tonawanda Seneca Nation Reservation, and/or the Tonawanda Wildlife Management Area can be avoided.

A Memorandum of Understanding (MOU) was developed between the Village of Medina and the GCEDC. The MOU outlines the process of analyzing potential discharge routes through the Village, analyzing potential capacity upgrades at the Medina WWTF, and overall project implementation and ownership.

Currently, the majority of the STAMP Site consists of agricultural land and a few residential houses that do not have municipal sanitary sewer service. The Medina WWTF is approximately 12 miles to the north of the STAMP Site and the route from the STAMP site to the Village of Medina has been established with input from the Village of Medina, Orleans County and the Town of Shelby. The purpose of this STAMP Sanitary Sewer Route Analysis is to evaluate the route alternatives within the Village of Medina (from NYS Route 31) to the Medina WWTF and to determine the preferred route.

2. Alternatives Evaluation

A. Preliminary Route Analysis

Initially, several route alternatives were considered for conveyance of sanitary sewage from the STAMP Site to the Medina WWTF. All of the alternatives analyzed include an on-Site pump station located within the designated utility area, approximately in the center of the STAMP Site. The initial alternatives considered are shown in Figure 1 at the end of this report and are as follows:

- Alternative 1: NYS Route 63 to Blair Road to Salt Works Road
- Alternative 2: Lewiston Road to Salt Works Road
- Alternative 3: NYS Route 63 To West Avenue
- Alternative 4: NYS Route 63 to NYS Route 31 to Salt Works Road

Alternatives 1, 3 and 4 include installation of sanitary sewer force main(s) along NYS Route 63, while Alternative 2 includes installation along Salt Works Road. Profiles and a geological review were completed for each alternative route. The profiles are included in Appendix A and the geological review is included in Appendix B. Based on existing topography, existing bedrock and existing wetlands and streams, it was determined that all alternatives were feasible with regards to construction.

After reviewing the information assembled for the alternatives with the Village of Medina, the Town of Shelby and Orleans County, it was determined that the preferred route for the sanitary sewer was along NYS Route 63, up to the intersection of NYS Route 63 and NYS Route 31. Additional analysis within and around the Village was required to determine the preferred sanitary sewer discharge location and route between NYS Route 63 and the Medina WWTF.

B. STAMP Base Force Main Project

For this analysis, the force main construction along NYS Route 63 from the STAMP Site to the intersection of NYS Route 63 and NYS Route 31 is referred to as the Base Project and is shown in Figure 2 at the end of this report. This project would include approximately 49,800 linear feet (9.4 miles) of sanitary sewer force main and a pump station located on the STAMP Site. The Base Project will be required for all Village Alternatives discussed in the next section of this report.

A summary of the estimated total capital costs associated with this alternative is as follows:

Construction Costs	Soft Costs	Total Capital Costs
$6,619,600	$2,316,860	$8,937,000

A full detailed cost estimate is included in Appendix C.

C. Village Alternatives

Several alternatives, referred to as the Village Alternatives, were considered within and around the Village of Medina to continue the sanitary sewer evaluation from the intersection of NYS Route 63 and NYS Route 31 to the Medina WWTF. Upon development of conceptual sewer layouts and preliminary budgetary estimates, it was apparent that certain alternatives were more practical and cost effective. These alternatives are outlined and explained below.

All of the Village Alternatives in this section are in addition to the Base Project identified above. The Base Project includes construction of force main(s) up to the intersection of NYS Route 63 and NYS Route 31. The Village Alternatives address options from this intersection to the Medina WWTF. Options for the Village and County were explored for each alternative to accommodate future expansion within or around the Village.

i. Alternative 1A – Force Main to 24-inch Gravity Sewer on West Avenue

Alternative 1A is shown in Figure 3 at the end of this report. This alternative would consist of continuing the force main installation from the intersection of NYS Route 63 and NYS Route 31 along West Avenue in the Village of Medina. This includes approximately 4,400 linear feet of additional force main along West Avenue to a point where the existing gravity sewer increases to a 24-inch diameter gravity main, approximately at the intersection of West Avenue and Park Avenue in the Village.

The Village has tentative plans to reconstruct West Avenue in the near future. Along with the road reconstruction, the Village intends to separate the combined storm and sanitary sewer system. Since, the Village has indicated that they intend to reconstruct West Avenue, this alternative may reduce the overall impact to the Village and residents by combining the STAMP sewer main and street reconstruction into one project.

The force main would be installed using open cut installation, preferably within the public road right-of-way. Some permanent easements may be required to avoid existing physical features. Installation would be challenging due to the existing utility congestion within the Village, including existing water mains and services, gas mains and services, storm sewers, gravity sewers and other utilities such as cable and electric along West Avenue.

A summary of the estimated total capital costs associated with this alternative is as follows:

Construction Costs	Soft Costs	Total Capital Costs
$696,800	$243,880	$941,000

A full detailed cost estimate is included in Appendix C.

ii. Alternative 1B – Replace Gravity Sewer on West Avenue

Alternative 1B is shown in Figure 4 at the end of this report. This alternative would consist of replacing the existing 8 and 10-inch gravity sewers along West Avenue with 24-inch gravity mains from the intersection of NYS Route 63 and NYS Route 31 to the point where the existing gravity sewer increases to a 24-inch diameter gravity main, approximately at the intersection of West Avenue and Park Avenue in the Village. This includes approximately 4,400 linear feet of gravity sewer and associated manholes.

The Village has tentative plans to reconstruct West Avenue in the near future. Along with the road reconstruction, the Village intends to separate the combined storm and sanitary sewer system. Since, the Village has indicated that they intend to reconstruct West Avenue, this alternative may reduce the overall impact to the Village and residents by combining the STAMP sewer main and street reconstruction into one project.

Based on preliminary survey and profile information, it appears that the replacement of the gravity sewers with a 24-inch diameter main is feasible. A conceptual profile is shown in Figure 5. The gravity sewer would be installed using open cut installation, using the same trench as the existing gravity sewer. Installation would be challenging due to the existing utility congestion within the Village, including existing water mains and services, gas mains and services, storm sewers, gravity sewers and other utilities such as cable and electric along West Avenue.

Further complicating the installation would be several connections at intersections along the sewer route and approximately 90 service laterals that would need to be reconnected after the new sewer is installed. A portion of West Avenue consists of a concrete subbase. These factors escalate construction costs and may result in other unforeseen conditions during construction.

This Alternative provides the greatest benefit for the Village by upsizing the existing gravity sewer and providing the capacity to accommodate future expansion.

A summary of the estimated total capital costs associated with this alternative is as follows:

Construction Costs	Soft Costs	Total Capital Costs
$1,924,000	$673,400	$2,598,000

A full detailed cost estimate is included in Appendix C.

iii. Alternative 2 – Replace Gravity Sewer in Lakewood Village

Alternative 2 is shown in Figure 6 at the end of this report. This alternative would consist of continuing the force main installation with 2,500 linear feet of force main along NYS Route 31 from the intersection of NYS Route 63 and NYS Route 31 to the intersection of Lakewood Village and NYS Route 31. This alternative also includes replacing the existing 8 and 10-inch gravity sewers along and through Lakewood Village with approximately 5,500 linear feet 24-inch gravity mains to the intersection of Erie Street and Park Avenue in

the Village. This alternative would also reroute a portion of the existing sewer that appears to be located underneath an existing building.

Due to the length of gravity main replacement, the expected capital costs, and the complications of rerouting the existing sewer, this alternative was not advanced beyond the conceptual stage.

A summary of the estimated total capital costs associated with this alternative is as follows:

Construction Costs	Soft Costs	Total Capital Costs
$2,706,600	$947,310	$3,654,000

A full detailed cost estimate is included in Appendix C.

iv. Alternative 3A – Force Main to Salt Works Road

Alternative 3A is shown in Figure 7 at the end of this report. This alternative consists of continuing the force main installation from the intersection of NYS Route 63 and NYS Route 31, along NYS Route 31 to the west to Salt Works Road. The installation would continue to the north along Salt Works Road. At the intersection of NYS Route 31E (W Center Street) and Salt Works Road, the force main would continue along an existing utility easement and connect to the existing gravity sewer system at Erie Street. This alternative includes 14,400 linear feet of additional force main.

The force main would be installed using open cut installation, preferably within the public road right-of-way. Some permanent easements may be required to avoid existing physical features. Based on a preliminary review, the route appears to have adequate space to install a new force main. Existing utility locations would need to be verified prior to design and construction to minimize the disturbance to any existing utilities in the area.

A summary of the estimated total capital costs associated with this alternative is as follows:

Construction Costs	Soft Costs	Total Capital Costs
$1,996,800	$698,880	$2,696,000

A full detailed cost estimate is included in Appendix C.

v. Alternative 3B – Force Main from Erie St. to WWTF (Add to Alternative #3A)

Alternative 3B is shown in Figure 8 at the end of this report. This alternative would be an additional cost to Alternative 3A. This alternative would consist of continuing the force main installation from Erie Street (connection point from Alternative 3A) and connecting directly to the Medina WWTF. This would involve approximately 6,100 linear feet of force main, a Canal crossing, and connection directly to the Medina WWTF.

The force main would be installed using open cut installation, preferably within the public road right-of-way. Some permanent easements may be required to avoid existing physical features. Based on a preliminary review, the route appears to have adequate space to install a new force main. Existing utility locations would need to be verified prior to design and construction to minimize the disturbance to any existing utilities in the area.

A summary of the estimated total capital costs associated with this alternative is as follows:

Construction Costs	Soft Costs	Total Capital Costs
$980,200	$343,070	$1,324,000

A full detailed cost estimate is included in Appendix C.

D. Village Alternatives Summary Comparison

The following is a list summarizing the Village alternatives and capital costs:

Alternative	Alternative Description	Total Capital Costs
1A	Force Main to 24-inch Gravity Sewer on West Avenue	$941,000
1B	Replace Gravity Sewer on West Avenue	$2,598,000
2	Replace Gravity Sewer in Lakewood Village	$3,654,000
3A	Force Main to Salt Works Road	$2,696,000
3B	Force main from Erie Street to WWTF	$4,020,000*

*Total cost of Alt 3A + 3B

3. Flow Monitoring

A. Monitoring Background

Flow monitoring for sections of the Village of Medina was implemented during the sanitary sewer route analysis. Several alternatives outlined above rely on connections to existing gravity systems. Understanding the existing flow conditions and available pipe capacities for these options is critical in determining the feasibility of these alternatives. The flow monitoring also provides an indication of the amount of inflow and infiltration (I/I) into the system by comparing flows during dry weather and wet weather periods.

During periods of wet weather, the system can experience increases in depth, velocity and volume of sewage within the system. These increases typically indicate that there may be: (i) direct storm sewer connections to the sanitary system; (ii) manhole structures that may have deteriorated allowing water to penetrate between the cover and the structure or through the walls; (iii) that the sewer mains have cracked or failed allowing water into the pipes, or (iv) pipe joint

separation is severe enough to allow water to penetrate the joints. In this case, the increases can also be attributed to the system being a combined system (both sanitary and storm).

Flow monitoring was completed for two different time periods. The first period was conducted by Burgh Schoenenberger Associates (A Corrosion Products & Equipment, Inc. (CPE) Company) beginning on December 5, 2014 and concluding on December 29, 2014. The second period was completed by TECSmith beginning on April 13, 2015 and concluding on July 8, 2015. Due to the duration of data and number of wet weather events recorded, the second period of flow monitoring will be the focus of this report and the basis of the capacity analysis.

The flow monitoring included the installation of six temporary flowmeters within the Village's sewer system as shown in Figure 9 at the end of this report. Flow data was collected at intervals of every 15 minutes throughout the entire duration of the study period. For the monitoring duration, rainfall events were collected from the National Weather Service Precipitation Analysis web page. During this period, rainfall was recorded for 37 days, with significant rainfall events (more than 0.5-inches) occurring on April 20th, May 11th, May 31st, June 8th, June 10th, and June 27th.

B. Medina WWTF

The Medina WWTF is currently permitted for 4.5 MGD of capacity. Operation reports were reviewed for the months of May, June and July to coincide with the flow monitoring period and are included in Appendix D. The following is a summary of the total precipitation and flow at the Medina WWTF for these months.

Month	Total Precipitation (inches)	Monthly Average (MGD)	Instantaneous Maximum (MGD)
May	2.42	1.47	7.68
June	5.52	2.19	7.68
July	2.34	1.43	7.70

Medina WWTF Operation Report Data

Based on conversations with the Village and Medina WWTF operator, flows in excess of approximately 5.0 MGD are bypassed through microscreens in order to remove solids and then discharged directly to Oak Orchard Creek. The bypassed wastewater is considered to be low level treatment and is within NYSDEC regulations according to the Village's SPDES permit. The operation reports indicate that flows were above 5.0 MGD on 14 days during the three-month period. The duration of the bypass was directly related to the intensity of the storm and varied for storm events during this three-month period. The precipitation data was consistent with the flow monitoring results for the collection system.

C. Flow Monitoring Analysis

To determine the existing sanitary sewer collection flow conditions at the proposed connection points, the average dry weather flow, the average daily flow and the peak flows during rainfall events from the monitoring period were analyzed. A summary of the flow data is included in Appendix E. Data collected during the entire monitoring period was plotted in a flow versus time graph for each flow meter. These graphs are also included in Appendix E.

i. Dry Weather Analysis

Dry weather analysis is used to establish base flow conditions during dry weather periods. In order to understand the pipe capacity and effect of I/I during wet weather, it is important to characterize the collection system's flow during periods of dry weather. The most noticeable period of dry weather during the monitoring occurred from May 17th to May 28th. This period had sufficiently uniform data to establish a base flow. The average daily dry weather flow for each flow meter was collected from the data and is shown in the following table:

Flow Meter	Average Dry Weather Daily Flow (MGD)
#1	0.11
#2	0.40
#3	0.16
#4	0.08
#5	1.51
#6	0.13

Average Daily Dry Weather Flow

ii. Wet Weather Analysis

During the data collection period, wet weather significantly raised the flow rate and daily flow volumes of sanitary sewage in the days immediately on or following the rainfall event. The increased amount of sanitary sewage can be attributed to I/I in the system. The peak wet weather flow was recorded on June 12th and was noted for each flow meter location as follows:

Flow Meter	Peak Wet Weather Flow (MGD)
#1	3.86
#2	8.72
#3	2.86
#4	3.98
#5	13.24
#6	2.88

Peak Wet Weather Flow

iii. Peaking Factor Analysis

Peaking factors are a ratio of high flow levels to low flow levels. Typically in the case of I/I, high flow levels are associated with wet weather events and low flow levels are associated with dry weather. The following table shows the peaking factor associated with the rain event on June 12th for each flow meter location.

Flow Meter	Average Daily Dry Weather Flow (MGD)	Peak Wet Weather Flow (MGD)	Peaking Factor
#1	0.11	3.86	35.18
#2	0.40	8.72	22.05
#3	0.16	2.86	17.62
#4	0.08	3.98	48.34
#5	1.51	13.24	8.78
#6	0.13	2.88	21.38

Peak Wet Weather Flow

Based on the high peaking factors associated with the flow meters, it is apparent that the system is susceptible to I/I and has results consistent with a combined system (both sanitary and storm). However, according to the Village, they have not experienced a direct untreated discharge within their system in the past ten to fifteen years.

4. Pipe Capacity Analysis

A. Pipe Capacity Methodology

To further analyze the Village alternatives, full flow pipe capacity of connection points were evaluated. Flow capacity for Alternatives 1A/B and 3A/3B were evaluated based on existing invert elevations. Field survey was performed to collect rim and invert elevations along West Avenue (Alternatives 1A/B) while record mapping was used to calculate pipe slopes for sanitary sewer at the Erie Street connection (Alternative 3A/3B).

B. Alternatives 1A and 1B West Avenue Capacity

The invert elevations and surveyed manhole locations were used to calculate existing pipe slopes for the 24-inch gravity main connection point to the Canal and from the Canal to the Medina WWTF. The full flow capacity in millions of gallons per day (MGD) was calculated for each corresponding pipe segment, beginning near the intersection of West Avenue and Park Avenue and continuing to the Medina WWTF. The following tables summarize the capacities of the pipe segments. The full calculations are included in Appendix F along with a key map that shows the location of each pipe segment.

Pipe Segment	Pipe Material	Pipe Diameter (in)	Slope (ft/100ft)	Full Flow Capacity (MGD)	Notes/Location
1	VCT	24	0.520	9.05	
2	VCT	24	0.360	7.53	
3	VCT	24	0.310	6.98	Limiting pipe on West Avenue
4	VCT	24	0.430	8.23	
5	VCT	24	0.710	10.57	
6	RCP	24	0.810	13.16	
7	VCT	24	0.630	9.96	
8	PVC	24	0.330	9.22	
9	VCT	24	2.720	20.69	

West Avenue Route Capacity: Park Avenue to Canal crossing

Pipe Segment	Pipe Material	Pipe Diameter (in)	Slope (ft/100ft)	Full Flow Capacity (MGD)	Notes/Location
1	DIP	36	1.790	83.36	Canal crossing
2	VCT	30	0.230	10.82	
3	VCT	30	0.270	11.73	
4	VCT	30	0.270	11.73	
5	VCT	30	0.270	11.73	
6	VCT	24	1.540	15.57	
7	VCT	24	1.540	15.57	
8	RCP	27	0.220	9.39	Limiting pipe near WWTF
9	RCP	27	0.220	9.39	Limiting pipe near WWTF
10	RCP	27	0.220	9.39	Limiting pipe near WWTF
11	RCP	27	0.220	9.39	Limiting pipe near WWTF

West Avenue Route Capacity: Canal crossing to Medina WWTF

The limiting pipe on West Avenue is a 24-inch VCT pipe located to the north of the intersection of West Avenue and Park Avenue and has a theoretical full flow capacity of 6.98 MGD. Once the sanitary sewer crosses the Canal, the limiting pipes are the 27-inch RCP pipes near the Medina WWTF that have a full flow capacity of 9.39 MGD.

C. Erie Street Capacity (Alternatives 3A and 3B)

Record mapping was used to calculate slopes for the sanitary sewer at the Erie Street connection point to the Medina WWTF. The full flow capacity in millions of gallons per day (MGD) was calculated for each corresponding pipe segment, beginning at the connection point on Erie Street and continuing to the Village of Medina WWTF.

Based on record mapping, it appears that there are two possible routes from the Erie Street connection to the Canal crossing. The existing sewer appears to split at the intersection of Commercial Street and Prospect Avenue. The southern section (Route 1) continues along Commercial Street to the Canal crossing. The northern section (Route 2) continues along Prospect Avenue to the north and then turns east along the Canal to the Canal crossing. Therefore, both routes were analyzed for full flow capacity.

The following table summarizes the capacities of the pipe segments for Route 1 of Alternative 3A. The full calculations are included in Appendix F.

Pipe Segment	Pipe Material	Pipe Diameter (in)	Slope (ft/100ft)	Full Flow Capacity (MGD)	Notes/Location
1	VCT	18	0.280	3.49	Limiting pipe
2	VCT	18	0.280	3.49	Limiting pipe
3	VCT	22	0.290	5.56	
4	VCT	22	0.270	5.36	
5	VCT	22	0.180	4.38	
6	VCT	22	0.300	5.65	
7	VCT	22	0.330	5.93	
8	VCT	22	0.260	6.22	
9	VCT	22	0.260	6.22	Intersection of Prospect Ave
10	PVC	24	0.570	12.17	
11	PVC	24	0.270	8.37	
12	PVC	24	0.470	11.05	
13	PVC	24	16.670	65.80	Pipe before Canal crossing

Alternative 3A: Full Flow Capacity of Erie Street Connection – Route 1

The limiting pipe for this route is the 18-inch VCT pipe near the connection point on Erie Street and has a theoretical full flow capacity of 3.49 MGD. Once the sanitary sewer crosses the Canal, the limiting pipes are the 27-inch RCP pipes near the Medina WWTF that have a full flow capacity of 9.39 MGD as described in the West Avenue analysis above.

Flow meter results for Route 1 had several wet weather flows of 2.1 MGD or above, with the peak wet weather flow being 3.98 MGD. Due to the overall low capacity of 3.49 MGD and flow metering results, it appears that Route 1 would not be suitable for STAMP's discharge needs of 1.0 MGD.

The following table summarizes the capacities of the pipe segments for Route 2 of Alternative 3A. The full calculations are included in Appendix F.

Pipe Segment	Pipe Material	Pipe Diameter (in)	Slope (ft/100ft)	Full Flow Capacity (MGD)	Notes/Location
1	VCT	18	0.280	3.49	
2	VCT	18	0.280	3.49	
3	VCT	22	0.290	5.56	
4	VCT	22	0.270	5.36	
5	VCT	22	0.180	4.38	
6	VCT	22	0.300	5.65	
7	VCT	22	0.330	5.93	
8	VCT	22	0.260	6.22	
9	VCT	22	0.260	6.22	Intersection of Prospect Ave
10	PVC	18	0.500	5.37	
11	PVC	18	0.150	2.94	Limiting pipe, along Canal
12	PVC	18	0.400	4.80	
13	PVC	18	0.400	4.80	
14	PVC	18	13.780	28.18	Pipe before Canal crossing

Alternative 3A: Full Flow Capacity of Erie Street Connection – Route 2

The limiting pipe for this route is the 18-inch PVC pipe along the Canal and has a theoretical full flow capacity of 2.94 MGD. Once the sanitary sewer crosses the Canal, the limiting pipes are the 27-inch RCP pipes near the Medina WWTF that have a full flow capacity of 9.39 MGD as described in the West Avenue analysis above.

Flow meter results for Route 2 had several wet weather flows of 2.1 MGD or above, with the peak wet weather flow being 3.1 MGD. Due to the low overall capacity of 2.94 MGD and flow metering results, it appears that Route 2 would not be suitable for STAMP's discharge needs of 1.0 MGD.

D. Alternatives Capacity Summary

To complete the capacity analysis for the Village Alternatives, the existing peak wet weather flows determined by the flow monitoring, the average dry weather flow, the average daily flow, and the limiting pipe capacity in each alternative were plotted on the monitoring graphs for each flow meter included in Appendix E.

The following table is a summary of the existing conditions compiled from the analysis above:

Alternative	Flow Meter	Flow Meter Location	Average Dry Weather Flow (MGD)	Average Daily Flow (MGD)	Peak Wet Weather Flow (MGD)	Limiting Pipe Capacity (MGD)
1A/1B	#1	West Ave & Park Ave	0.11	0.32	3.86	6.98
1A/1B	#2	West Ave & Brennon Pl	0.40	0.58	8.72	9.22
3A/3B	#3	Commercial St. & West Ave	0.16	0.37	2.86	9.39
3A/3B	#4	Commercial St.	0.08	0.16	3.98	3.49
1A/1B	#5	Glenwood Ave (WWTF)	1.51	2.01	13.24	9.39
3A/3B	#6	Commercial St. & Ohio St	0.13	0.31	2.88	3.49

Existing Conditions Capacity Summary

5. Televising Results

A closed caption television (CCTV) survey of the system located on West Avenue was completed from the intersection of West Avenue and Park Avenue to the Medina WWTF. The survey and logs were provided by Kandey Company in order to analyze the conditions of the sanitary sewer mains in this location. A summary log is included in Appendix G noting the pipe defects discovered during the survey.

There are a few pipe segments with notable cracking, root ball formation and one section of pipe with a noticeable location of infiltration. Based on the results and evaluation of the pipe survey, it appears that the West Avenue gravity sewer and the sanitary sewer from the Canal to the Medina WWTF is in adequate structural condition.

6. Preferred Route and Recommendations

A. Preferred Route

Based on this analysis and several meetings with the Village of Medina regarding the route alternatives, televising results and the flow monitoring results, the Preferred Route within the Village of Medina is along West Avenue. Bid alternates are recommended to compare actual costs of both a gravity sewer main and a force main connection at the intersection of Park Avenue and West Avenue.

The Preferred Route is the least costly. With the Village's desire to reconstruct West Avenue in the near future, the Preferred Route also appears to be the least disruptive to the Village. Increasing the capacity and replacing gravity sewers along West Avenue provides the best option to address the Village's and County's economic development expansion desires. This route also provides the most flow capacity for STAMP and the Village combined, with the exception of routing STAMP's discharge directly to the Medina WWTF. The following table summarizes the total capital costs for Alternatives 1a and 1b.

Alternative	Alternative Description	Alternative Capital Cost	Base Project Capital Cost	Total Capital Costs
1A	Force Main to 24-inch Gravity Sewer on West Avenue	$941,000	$8,937,000	$9,878,000
1B	Replace Gravity Sewer on West Avenue	$2,598,000	$8,937,000	$11,535,000

Alternatives 1A and 1B Total Capital Costs

B. Collection System Capacity

A wide range of sanitary sewer flows is expected to be generated from STAMP. The first phase is expected to produce up to approximately 200,000 gallons per day of flow that will be conveyed to Medina's WWTF. The next phase of development may increase that demand up to 1,000,000 gallons per day.

A comparison of a 200,000 gallon per day STAMP demand versus the current capacity is summarized in the following table.

Alternative	Flow Meter	Average Daily Flow (MGD)	Peak Wet Weather Flow (MGD)	STAMP Sanitary Sewer Flow (MGD)	Total STAMP + Average Daily Flow (MGD)	Total STAMP + Peak Wet Weather Flow (MGD)	Limiting Pipe Capacity (MGD)
1A/1B	#1	0.32	3.86	0.20	0.52	4.06	6.98
1A/1B	#2	0.58	8.72	0.20	0.78	8.92	9.22
1A/1B	#5	2.01	13.24	0.20	2.21	13.44	9.39

STAMP 200,000 Gallons per Day Demand and Pipe Capacity Summary

A comparison of a 1,000,000 gallon per day STAMP demand versus the current capacity is summarized in the following table.

Alternative	Flow Meter	Average Daily Flow (MGD)	Peak Wet Weather Flow (MGD)	STAMP Sanitary Sewer Flow (MGD)	Total STAMP + Average Daily Flow (MGD)	Total STAMP + Peak Wet Weather Flow (MGD)	Limiting Pipe Capacity (MGD)
1A/1B	#1	0.32	3.86	1.00	1.32	4.86	6.98
1A/1B	#2	0.58	8.72	1.00	1.58	9.72	9.22
1A/1B	#5	2.01	13.24	1.00	3.01	14.24	9.39

STAMP 1,000,000 Gallons per Day Demand and Pipe Capacity Summary

The West Avenue route has plenty of capacity to accommodate an additional 200,000 gallons per day under average daily flows, as well as an additional 1,000,000 gallons per day.

The peak wet weather flows recorded during the flow monitoring period appear to be greater than the calculated theoretical full flow capacity of the existing system in certain locations. There are several sections of pipe on the north side of the Canal that, according to the theoretical full flow calculations, should overflow during wet weather events. However, the Village has indicated that there have been no known overflows or untreated discharges in the collection system within the past ten to fifteen years. Therefore, the collection system must have additional storage that is not factored into the theoretical calculations. This is confirmed by the fact that measured peak wet weather flow exceeded theoretical limiting pipe capacity by approximately 30% without any bypasses or adverse system impacts occurring.

C. Recommendations

Based on these results, an additional 200,000 gallons per day of wastewater from STAMP should not adversely impact the system, even during wet weather flows, since it is a very minor increase in overall flow. In addition, the Village plans to split the combined sanitary and storm systems along West Avenue which should offset some or all of the additional 200,000 gallons per day from STAMP.

At this time, it is uncertain if 1,000,000 gallons per day will have an adverse impact system during wet weather flow conditions. For flows at this level, additional collection system flow monitoring and capacity evaluations may be required. This should be done after the 200,000 gallons per day of wastewater flow from STAMP has been established and the combined system along West Avenue has been separated.

It is recommended that the Village begin reviewing possible mitigation efforts to accommodate 1,000,000 gallons per day that may include upsizing of existing sewers, reduction of I/I in the system or a combination of both as described in the following section.

D. Mitigation

It is recommended that the Village pursue funding in order to study and address the Inflow and Infiltration (I/I) within their system. An I/I study would investigate the system for potential sources of I/I, including storm sewer connections, illegal private connections (sump pumps and roof leaders), deteriorating manholes and pipe defects, including roots and cracking or failures that may be contributing to the overall flow within the system. By reducing I/I, wet weather flows in the system will be reduced and the available sewer capacity will be increased.

According to the Village, there are three main streets that are primary targets for I/I reduction, including West Avenue, Park Avenue and Center Street. These three streets have combined sanitary and storm systems and would have a significant impact on overall reduction of I/I if these systems were separated. The STAMP project is an opportunity to separate the system on West Avenue and the Village is currently reviewing funding opportunities for Park Avenue and Center Street. There are other side roads within the Village that have combined systems. These should also be part of the overall I/I reduction plan once these streets have been addressed.

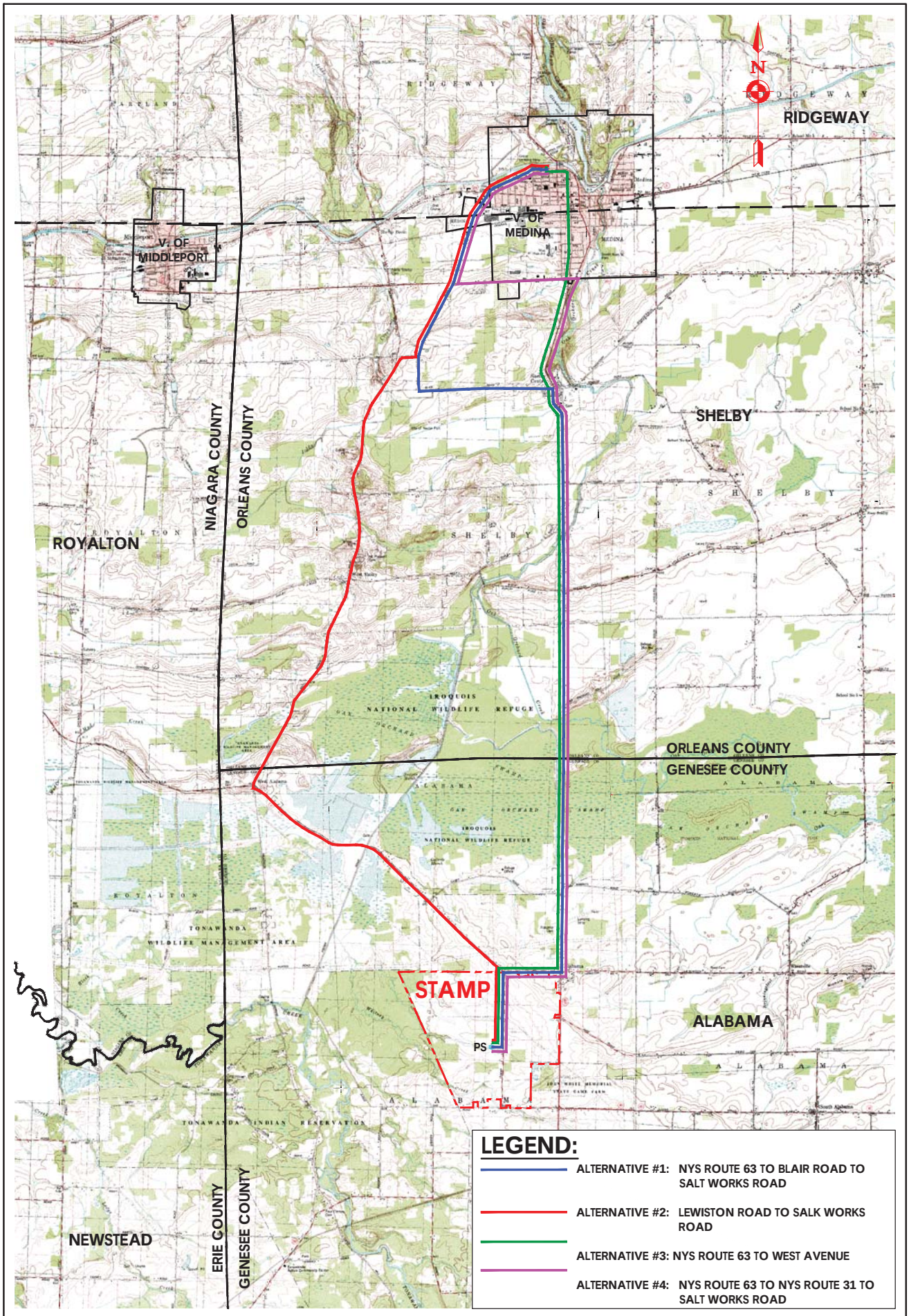
Pipe upsizing and replacement of pipe north of the Canal may be an alternative mitigation method to provide additional capacity for STAMP if I/I efforts have not adequately reduced wet weather flows. It is recommended that the first priority for increasing capacity of the existing collection system be the reduction of I/I within the Village system.

The Village of Medina has reviewed this report and agrees with the findings and preferred route. A copy of the Village's response is included in Appendix H.

The NYSDEC reviewed this report and provided comments based on their review. These comments have been considered during this preliminary phase and will be further addressed through the design phases. A Phase I cultural resource investigation is underway which includes review of archeologically sensitive areas along the route. A preliminary investigation of aquatic and ecological resources including wetlands, streams, significant natural communities, and wildlife has been conducted for the proposed route as well. Final design will fully consider these resources and potential impacts are anticipated to be minimal. Any unavoidable impacts will be reviewed under corresponding permit application and review processes. A copy of the NYSDEC comments is included in Appendix H.

FIGURES

Drawing Name: J:\PROJECTS\GCEDC\STAMP Medina\D Design\ACAD\Civil\Site\Combined w USGS.dwg Date last accessed: 10/28/2015 8:01 AM Date last plotted: 11/6/2015 9:44 AM Plotted By: Andrew Kosa



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DATE:	11/05/14
DRAWN:	ZLA
CHECKED:	ARK
SCALE:	1"=5000'
PROJ. #:	12498.11

FIG 1: PRELIMINARY ROUTE ANALYSIS

GENESEE COUNTY ECONOMIC DEVELOPMENT CORP. – STAMP

ALABAMA, NEW YORK

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TOWN OF ALABAMA GENESEE COUNTY NEW YORN STATE

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SCALE:	1"=2000'

STAMP OFFSITE SANITARY SEWER ROUTE ANALYSIS

STAMP BASE FORCE MAIN PROJECT

PROJECT NUMBER XXXX.XX

DRAWING NUMBER FIG-2

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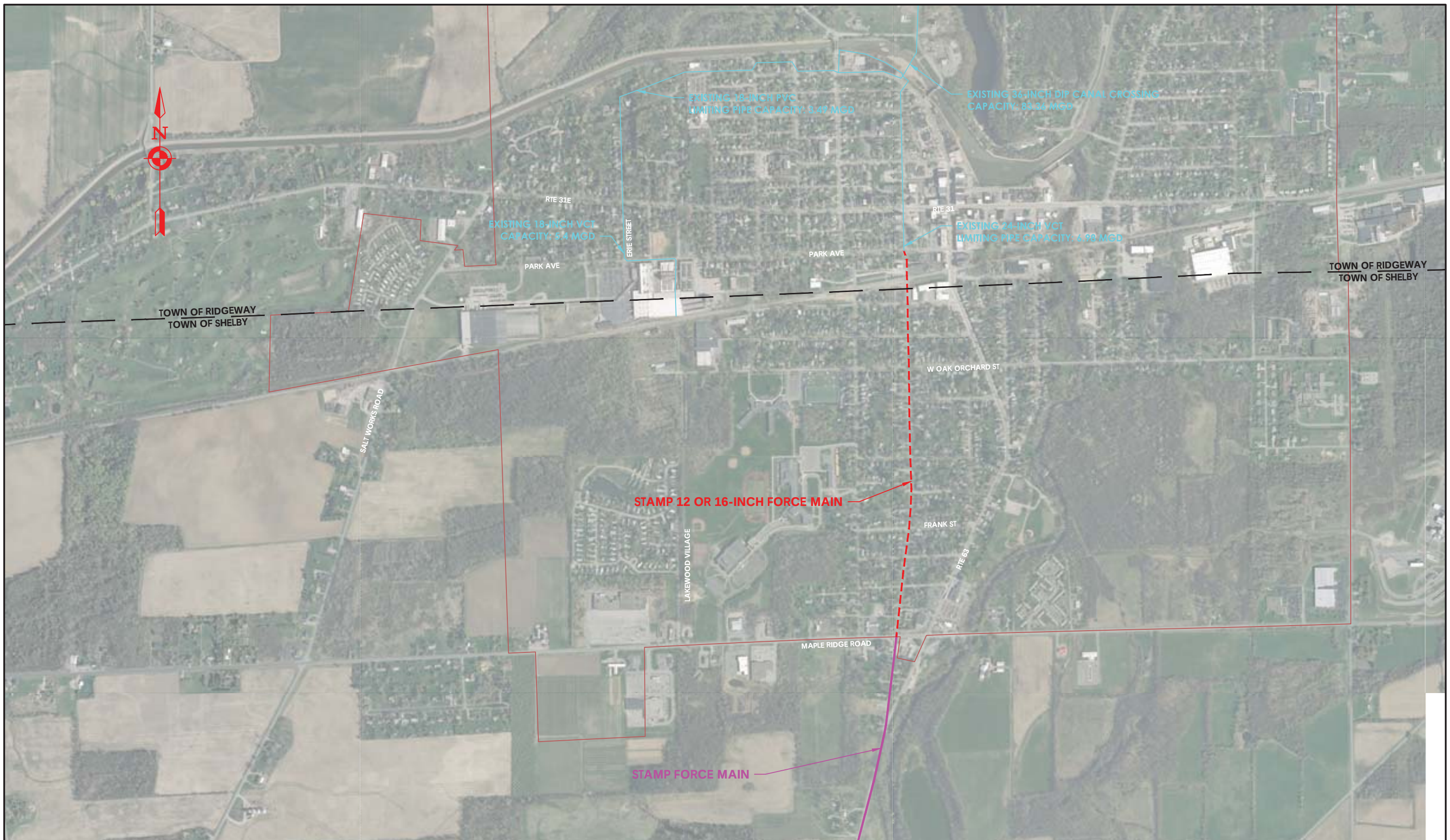
Date last accessed: 10/28/2015 9:23 AM
Referenced Drawings: SR 63 orthos USGS_NY83-18



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Plotted By: Andrew Kosa

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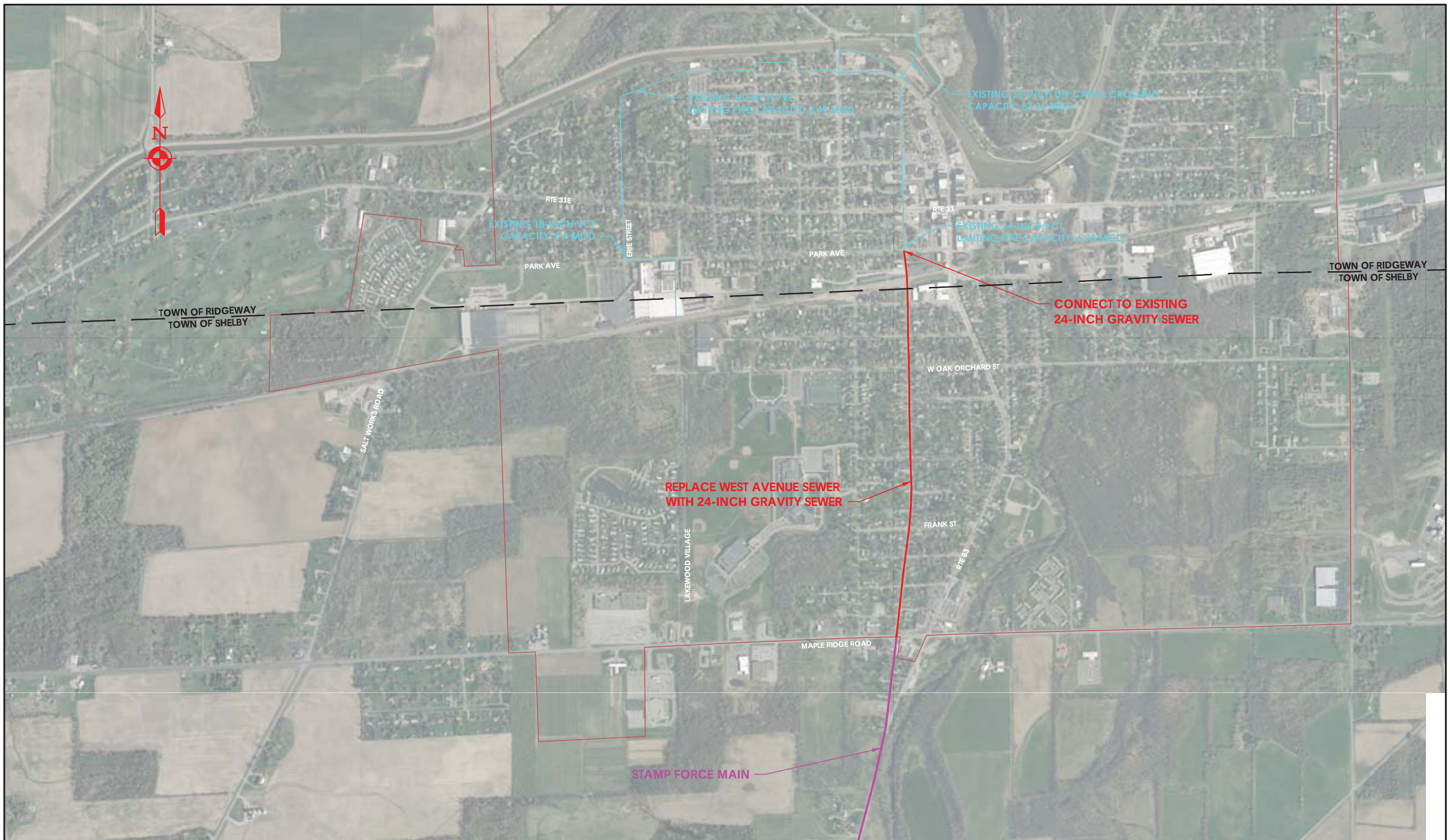
STAMP OFFSITE SANITARY SEWER ROUTE ANALYSIS

ALTERNATIVE 1A: FORCE MAIN TO 24-INCH GRAVITY SEWER ON WEST AVENUE

PROJECT NUMBER
12498.11

DRAWING NUMBER
FIG 3



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CHECKED:	TAC
SCALE:	AS NOTED

STAMP OFFSITE SANITARY SEWER ROUTE ANALYSIS

ALTERNATIVE 1B: REPLACE GRAVITY SEWER ON WEST AVENUE

PROJECT NUMBER
12498.11

DRAWING NUMBER
FIG-4

Referenced Drawings: SR 63 orthos USGS_NY83-18
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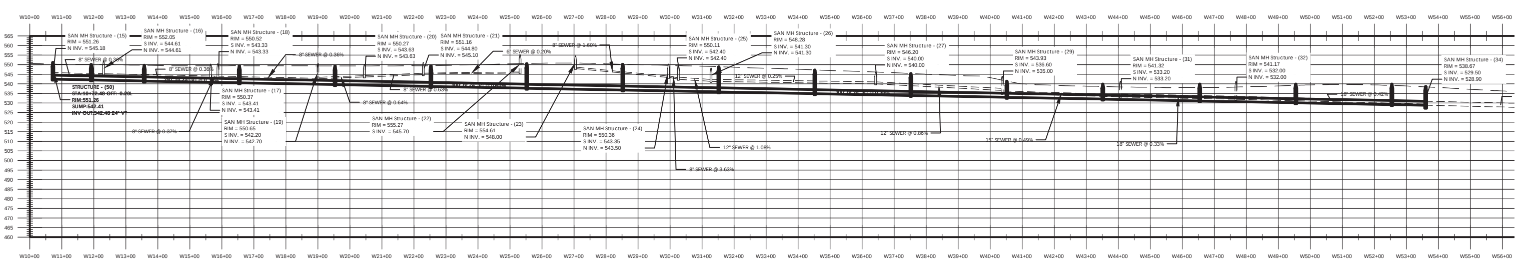

WEST AVE SANITARY SEWER

SCALE: NTS

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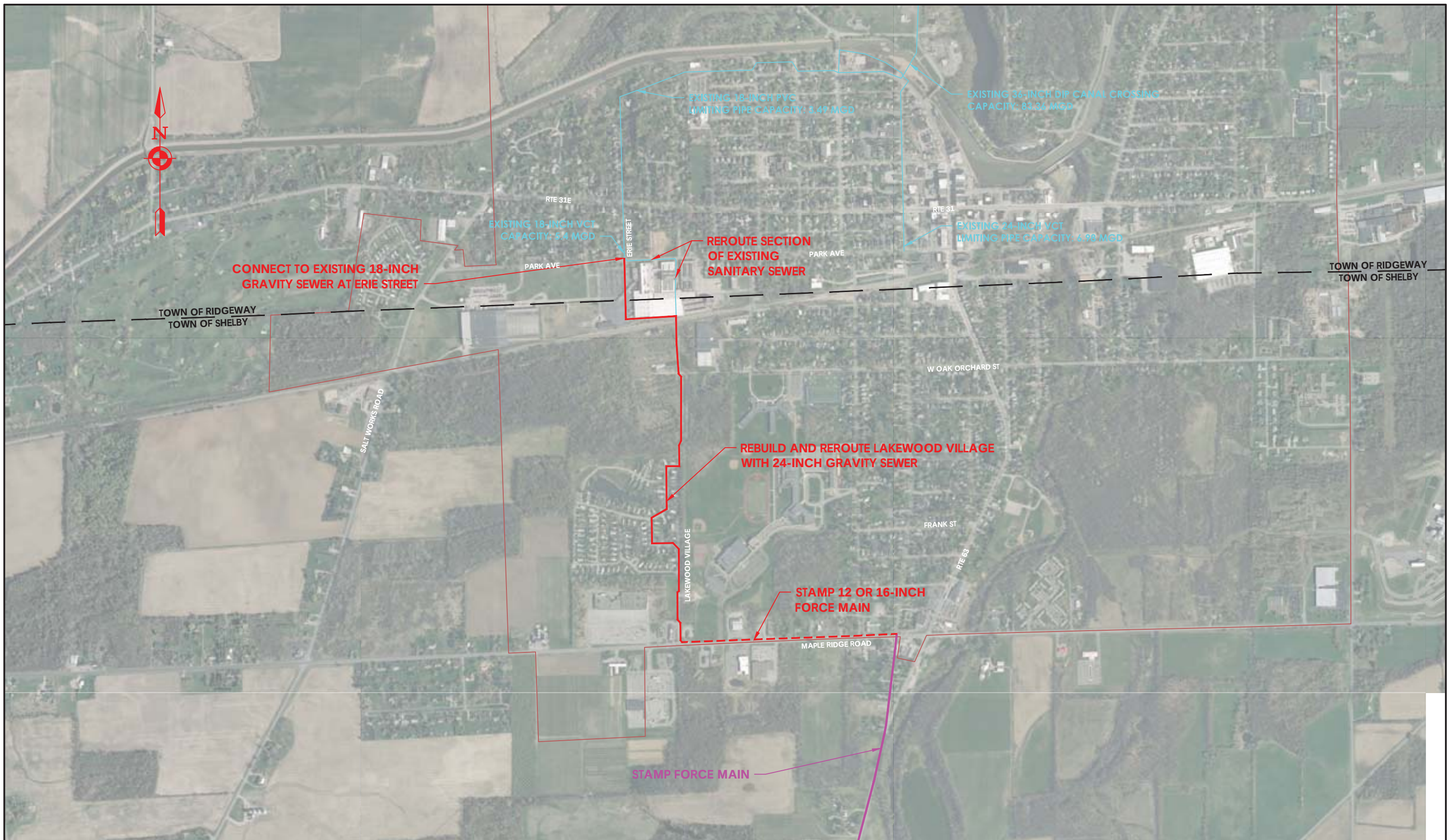
DATE: 12/16/14
DRAWN: ZLA
DESIGNED: ARK
CHECKED: TAC
SCALE: AS NOTED

STAMP OFFSITE SANITARY SEWER ROUTE ANALYSIS

WEST AVENUE GRAVITY REPLACEMENT PRELIMINARY PROFILE

PROJECT NUMBER
12498.11

DRAWING NUMBER
FIG-5



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SCALE:	AS NOTED

STAMP OFFSITE SANITARY SEWER ROUTE ANALYSIS

ALTERNATIVE 2: REPLACE GRAVITY SEWER IN LAKEWOOD VILLAGE

PROJECT NUMBER
12498.11

DRAWING NUMBER
FIG-6

Plotted By: Andrew Kosa
Date last plotted: 11/6/2015 9:59 AM
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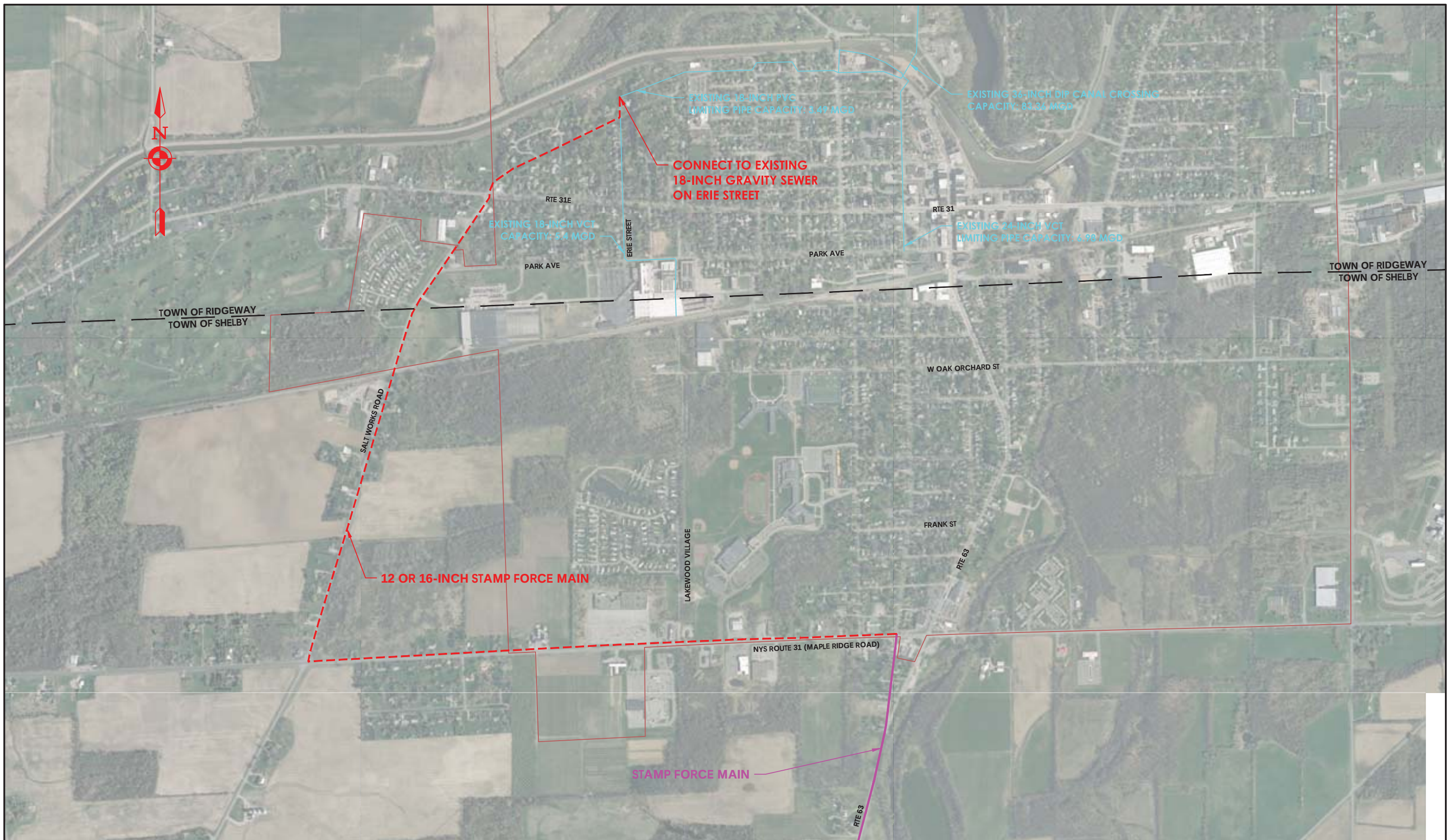

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SCALE:	AS NOTED

STAMP OFFSITE SANITARY SEWER ROUTE ANALYSIS

ALTERNATIVE 3A: FORCE MAIN TO SALT WORKS ROAD

PROJECT NUMBER
12498.11

DRAWING NUMBER
FIG-7

Plotted By: Andrew Kosa
Date last plotted: 11/20/2015 9:58 AM
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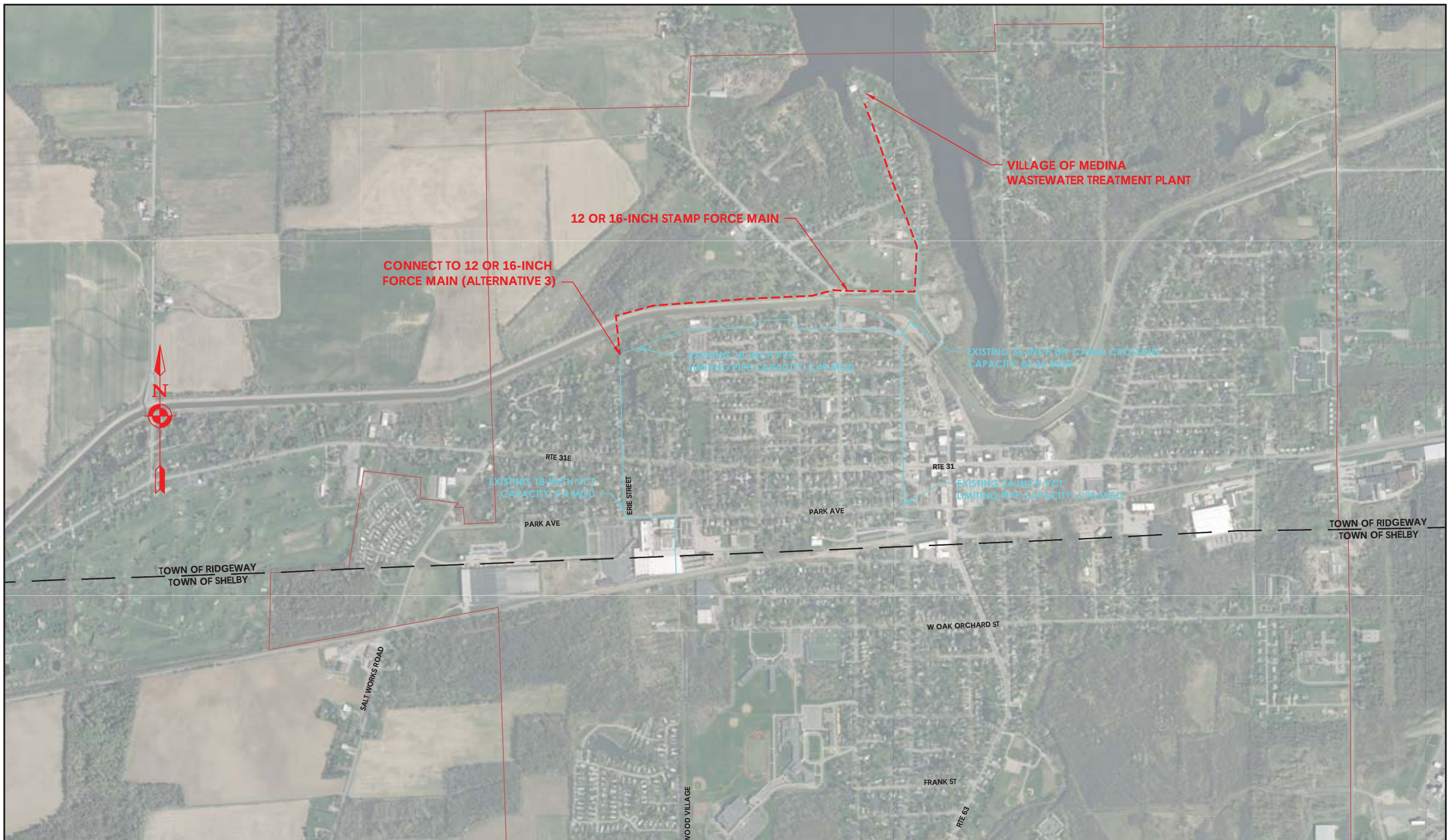

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Plotted By: Andrew Kosa

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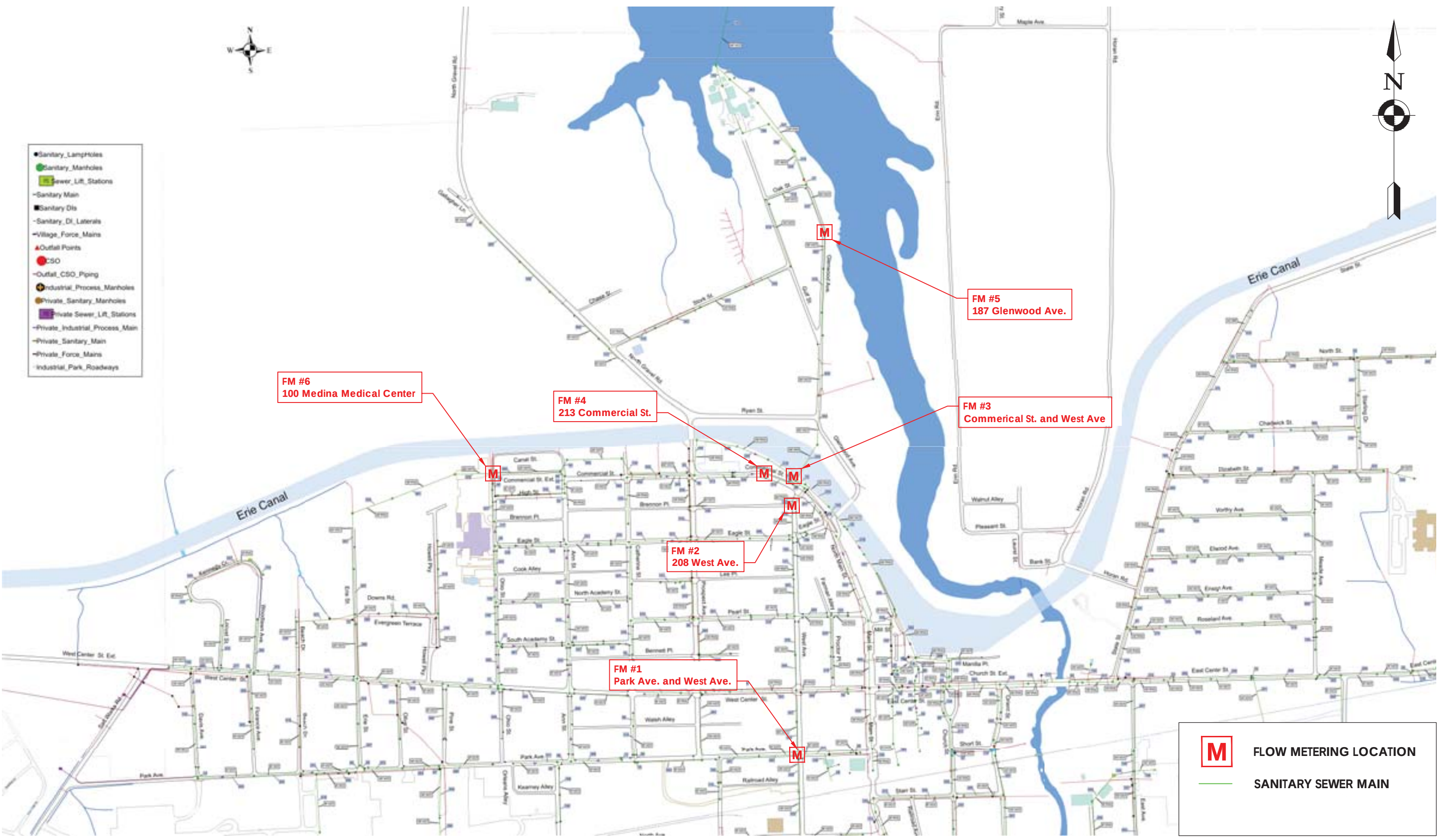
DRAWN: ARK
DESIGNED: ARK
CHECKED: TAC
SCALE: AS NOTED

STAMP OFFSITE SANITARY SEWER ROUTE ANALYSIS

ALTERNATIVE 3B: FORCE MAIN FROM ERIE ST. TO WWTF (ADD TO ALTERNATIVE #3A)

PROJECT NUMBER
12498.11

DRAWING NUMBER
FIG-8



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SCALE:	N.T.S.

STAMP OFFSITE SANITARY SEWER ROUTE ANALYSIS

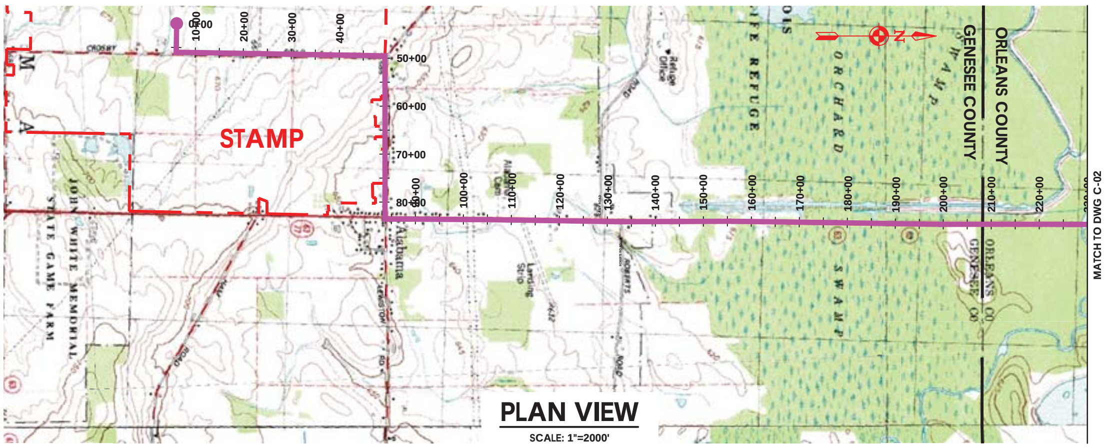
FLOW MONITORING LOCATION MAP

PROJECT NUMBER 12498.11

DRAWING NUMBER FIG-9

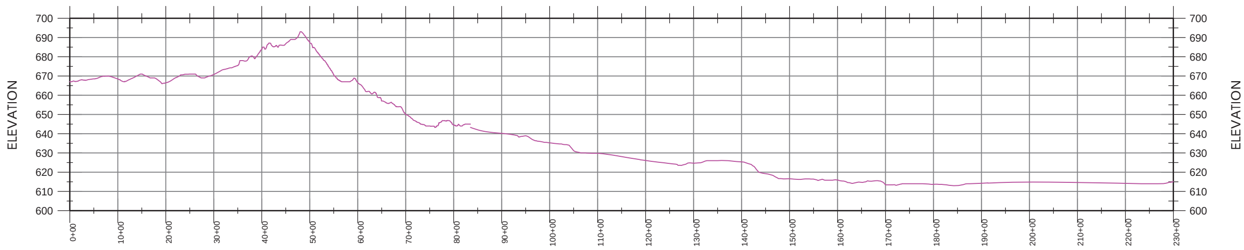
APPENDIX A

Preliminary Route Analysis Profiles



PLAN VIEW

SCALE: 1"=2000'



PROFILE VIEW

SCALE: H: 1"=2000'
V: 1"=50'

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DESIGNED: ARK
CHECKED: TAC
SCALE: AS NOTED

MEDINA SANITARY SEWER

NYS ROUTE 63 TO BLAIR ROAD TO SALT WORKS ROAD PLAN AND PROFILE

PROJECT NUMBER
XXXX.XX

DRAWING NUMBER
C-01

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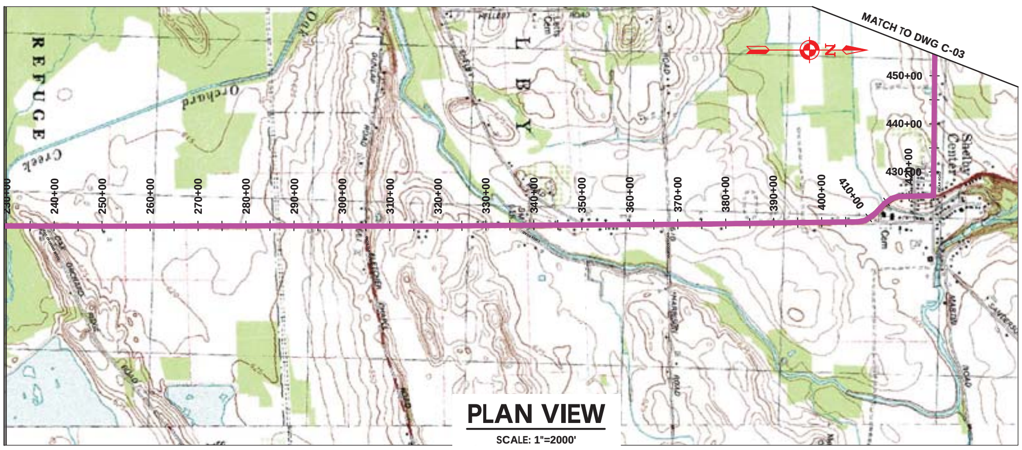

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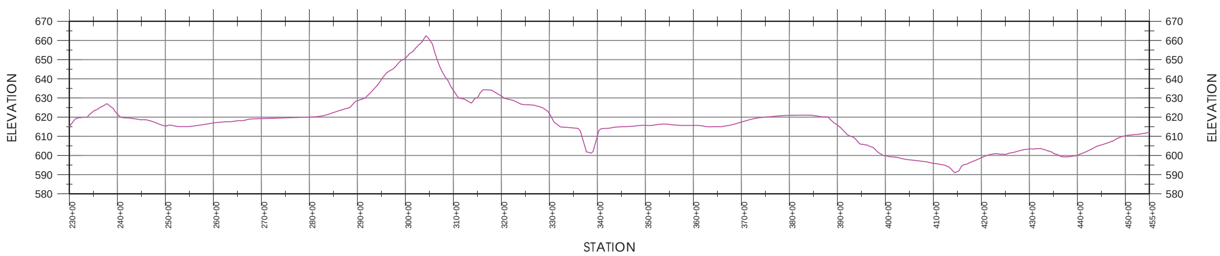

PROFILE VIEW

SCALE: H: 1"=2000'
V: 1"=50'

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CHECKED:	TAC
SCALE:	AS NOTED

MEDINA SANITARY SEWER

NYS ROUTE 63 TO BLAIR ROAD TO SALT WORKS ROAD PLAN AND PROFILE

PROJECT NUMBER: XXXX.XX

DRAWING NUMBER: C-02

Plotted By: Zach Anderson
Date last plotted: 11/10/2014 2:50 PM
Date last accessed: 11/10/2014 2:41 PM
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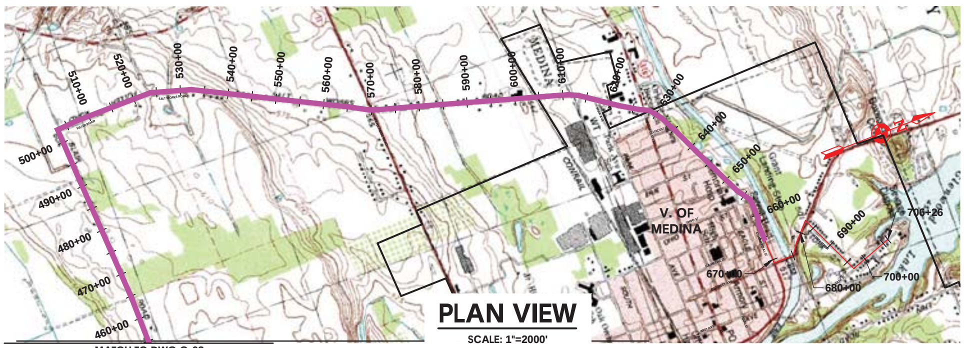

MATCH TO DWG C-02

PLAN VIEW

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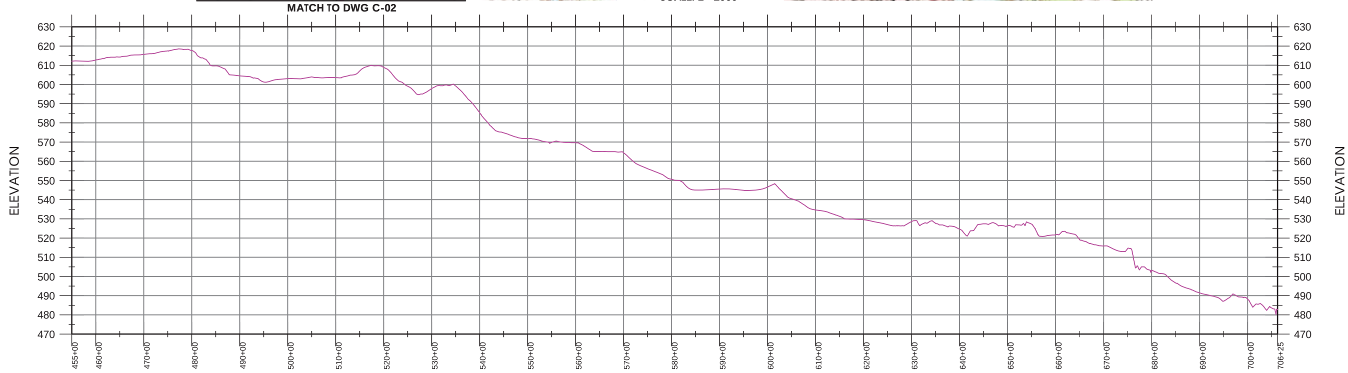

PROFILE VIEW

SCALE: H: 1"=2000'
V: 1"=50'

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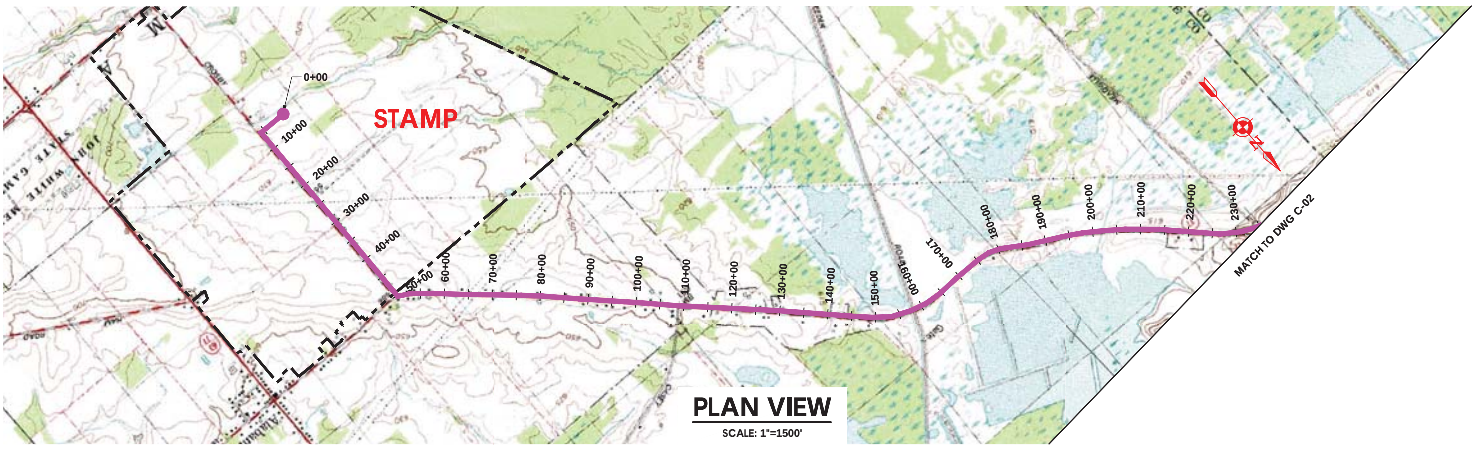
MEDINA SANITARY SEWER

NYS ROUTE 63 TO BLAIR ROAD TO SALT WORKS ROAD PLAN AND PROFILE

PROJECT NUMBER XXXX.XX

DRAWING NUMBER C-03



PLAN VIEW

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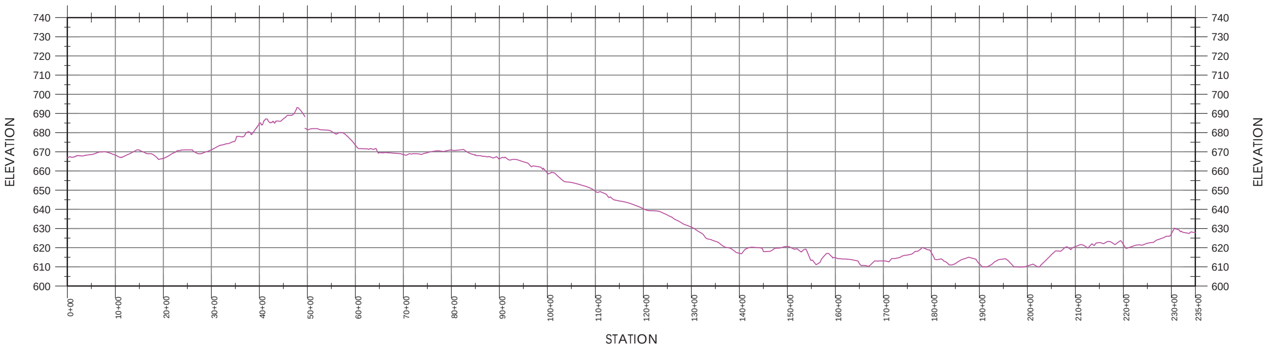

PROFILE VIEW

SCALE: H: 1"=2000'
V: 1"=50'

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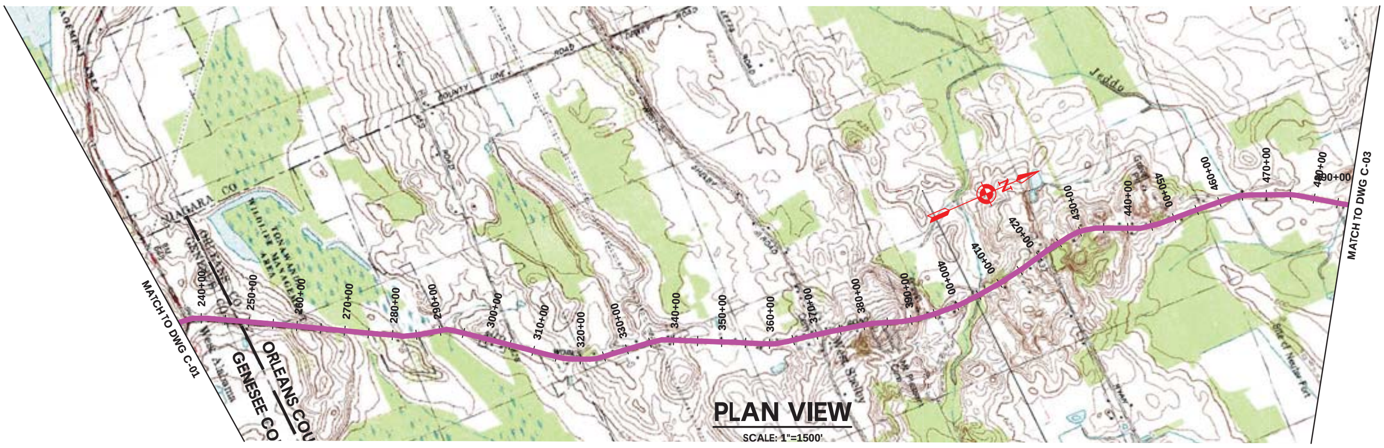
MEDINA SANITARY SEWER

LEWISTON ROAD TO SALT WORKS ROAD PLAN AND PROFILE

PROJECT NUMBER XXXX.XX

DRAWING NUMBER C-01



PLAN VIEW

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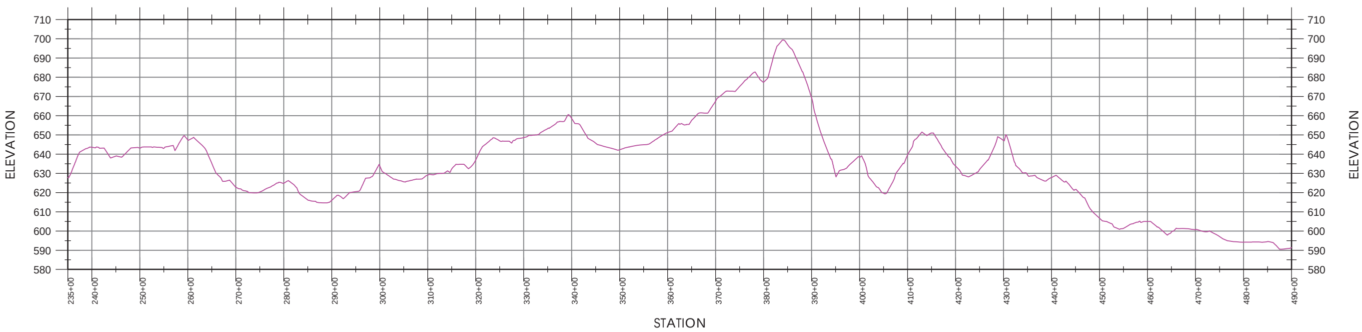

PROFILE VIEW

SCALE: H: 1"=2000'
V: 1"=50'

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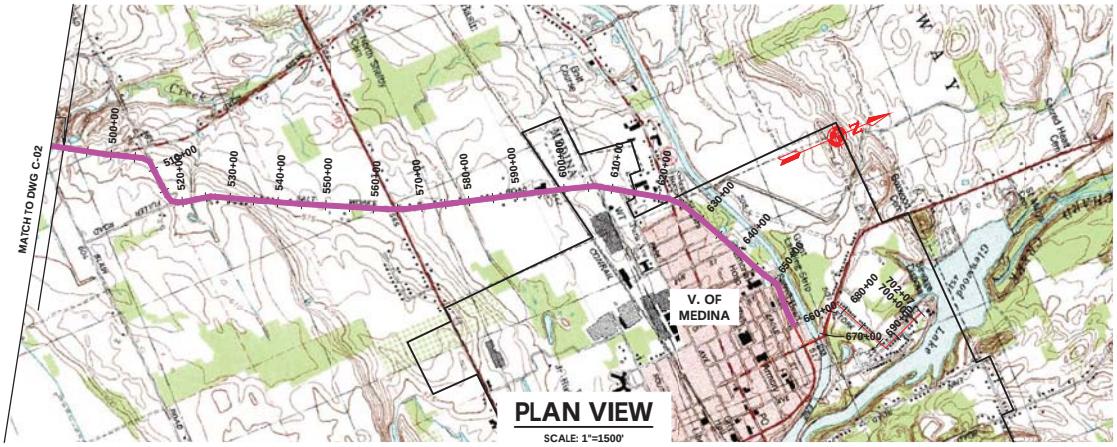
MEDINA SANITARY SEWER

LEWISTON ROAD TO SALT WORKS ROAD PLAN AND PROFILE

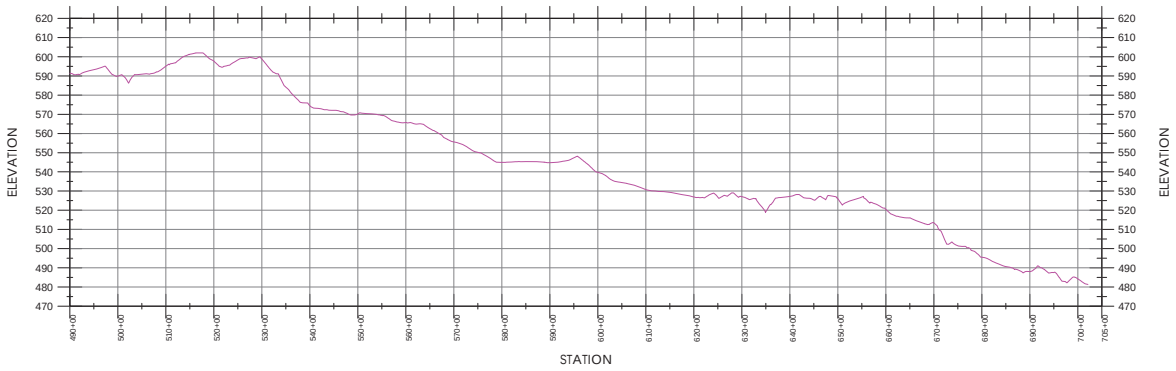
PROJECT NUMBER: XXXX.XX

DRAWING NUMBER: C-02



PLAN VIEW

SCALE: 1"=1500'



PROFILE VIEW

SCALE: H: 1"=2000'
V: 1"=50'

REVISIONS

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CHECKED:	TAC
SCALE:	AS NOTED

MEDINA SANITARY SEWER

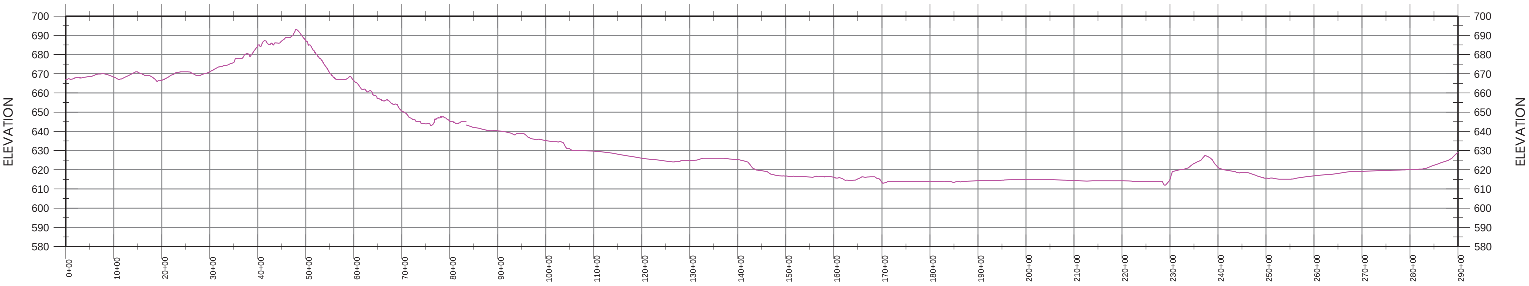
LEWISTON ROAD TO SALT WORKS ROAD
PLAN AND PROFILE

PROJECT NUMBER
XXXX.XX

DRAWING NUMBER
C-03

PLAN VIEW

SCALE: 1"=1500'



PROFILE VIEW

SCALE: H: 1"=2000'
V: 1"=50'

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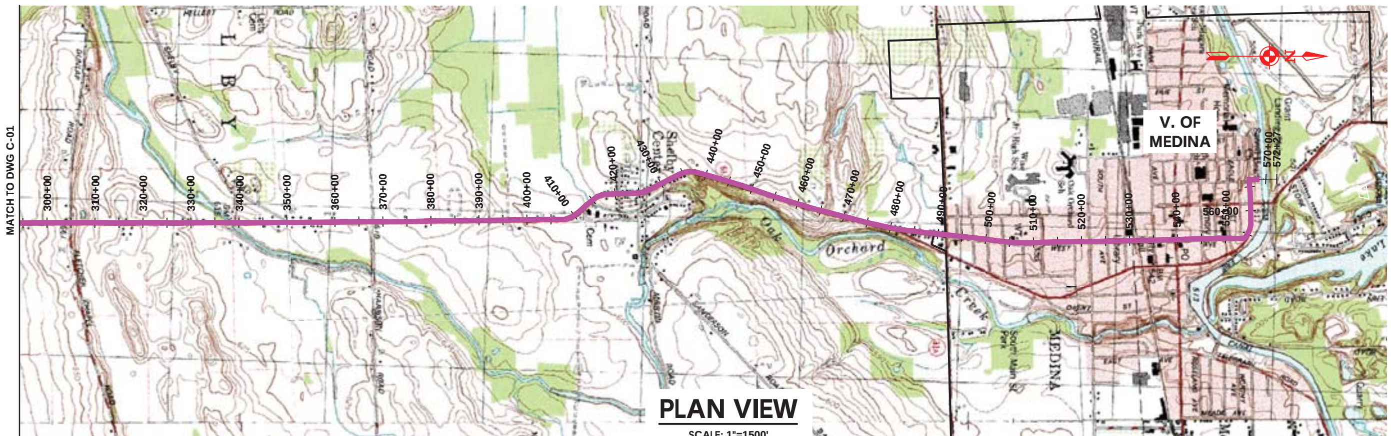
TOWN OF ALABAMA GENESEE COUNTY NEW YORK STATE

DATE:	10/29/14
DRAWN:	ZLA
DESIGNED:	ARK
CHECKED:	TAC
SCALE:	AS NOTED

MEDINA SANITARY SEWER
NYS ROUTE 63 TO WEST AVENUE
PLAN AND PROFILE

PROJECT NUMBER: XXXX.XX
DRAWING NUMBER: C-01



PLAN VIEW

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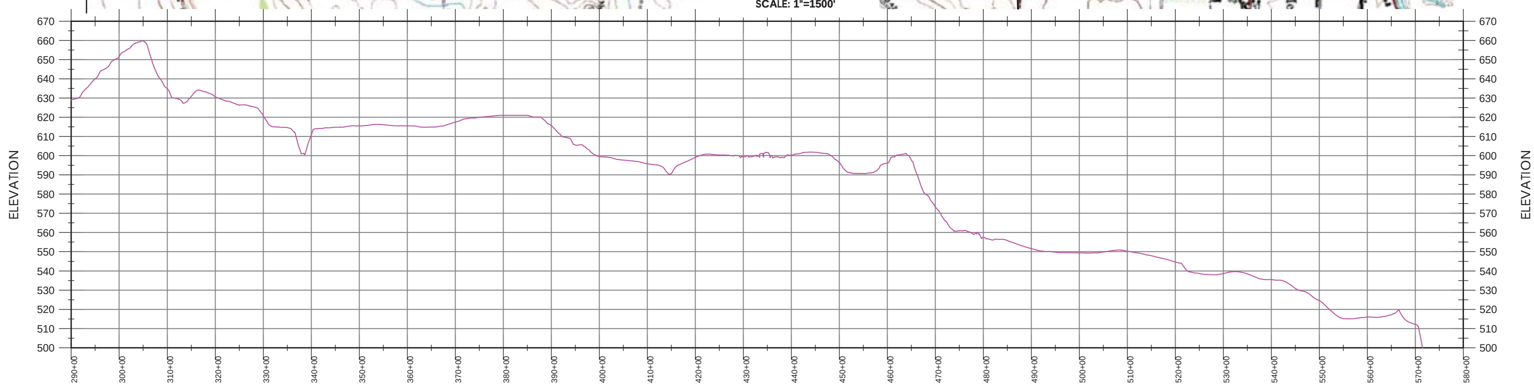

PROFILE VIEW

SCALE: H: 1"=2000'

V: 1"=50'

REVISIONS				
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TEL (800) 274-9000
FAX (585) 232-5836
www.clarkpatterson.com

GENESEE COUNTY ECONOMIC DEVELOPMENT CORPORATION

TOWN OF ALABAMA GENESEE COUNTY NEW YORK STATE

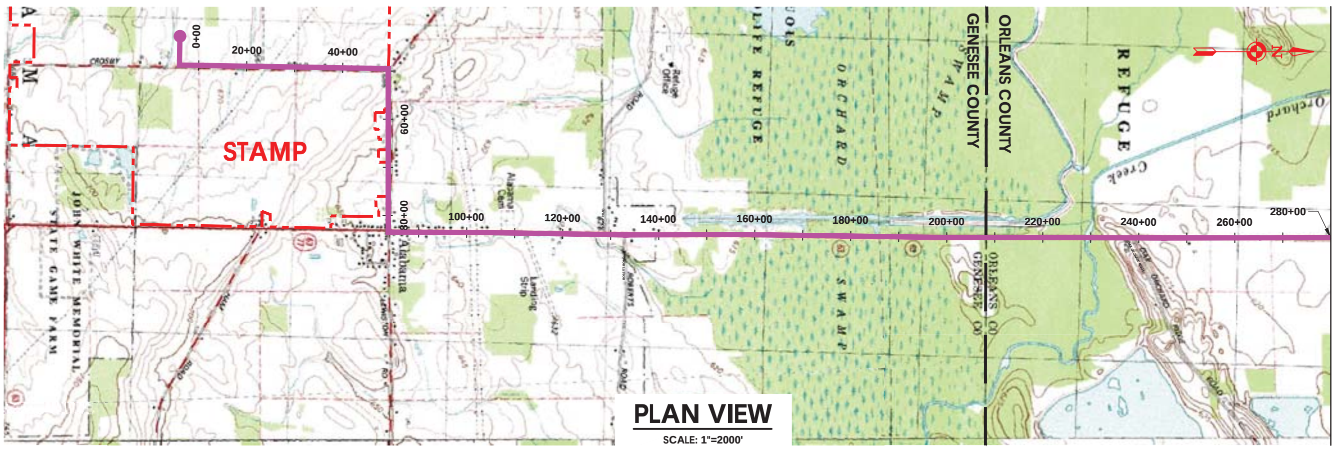
DATE:	10/29/14
DRAWN:	ZLA
DESIGNED:	ARK
CHECKED:	TAC
SCALE:	AS NOTED

MEDINA SANITARY SEWER

NYS ROUTE 63 TO WEST AVENUE
PLAN AND PROFILE

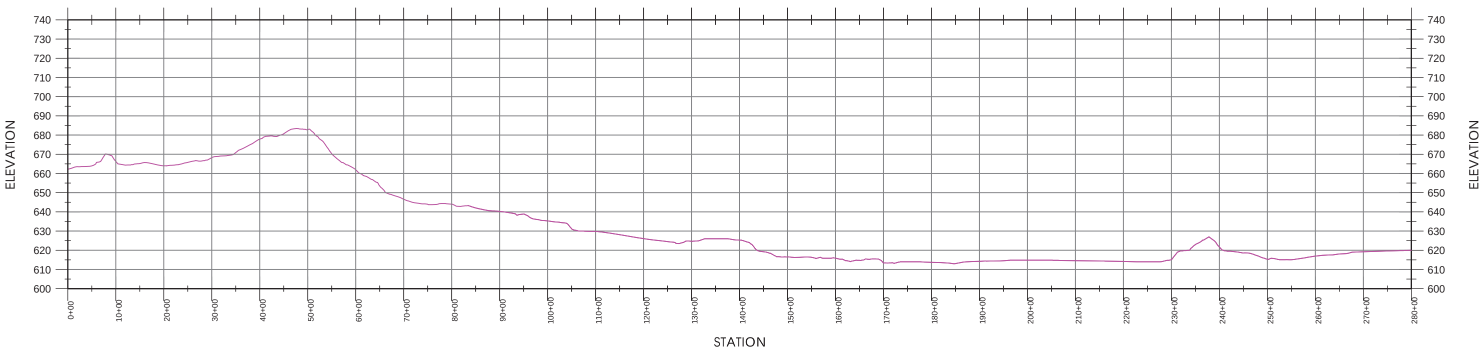
PROJECT NUMBER
XXXX.XX

DRAWING NUMBER
C-02



PLAN VIEW

SCALE: 1"=2000'



PROFILE VIEW

SCALE: H: 1"=2000'
V: 1"=50'

Plotted By: Zach Anderson
Date last plotted: 11/10/2014 3:07 PM
Date last accessed: 11/10/2014 3:05 PM
Referenced Drawings: SR 63 orthos USGS_NY63-18

REVISIONS				
NO.	DATE	BY	CHKED	DESCRIPTION

CLARK PATTERSON LEE
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GENESEE COUNTY ECONOMIC DEVELOPMENT CORPORATION

TOWN OF ALABAMA GENESEE COUNTY NEW YORK STATE

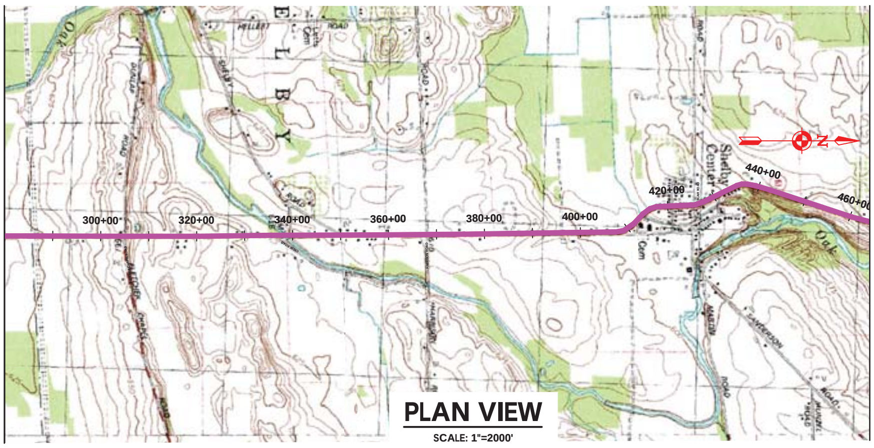
DATE:	10/29/14
DRAWN:	ZLA
DESIGNED:	ARK
CHECKED:	TAC
SCALE:	AS NOTED

MEDINA SANITARY SEWER

NYS ROUTE 63 TO NYS ROUTE 31
TO SALT WORKS ROAD
PLAN AND PROFILE

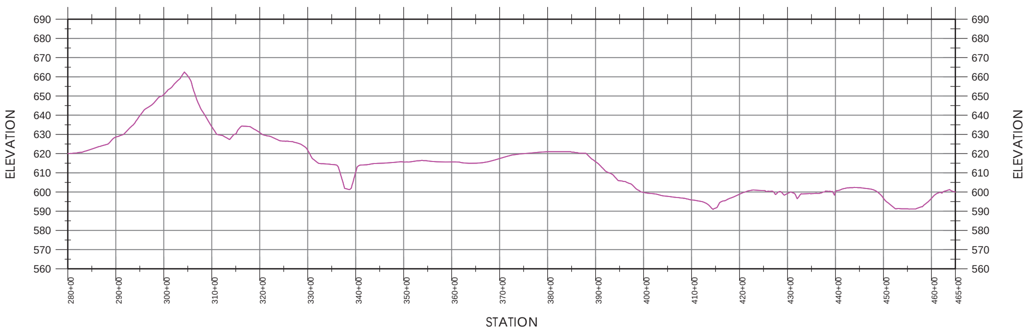
PROJECT NUMBER
XXXX.XX

DRAWING NUMBER
C-01



PLAN VIEW

SCALE: 1"=2000'



PROFILE VIEW

SCALE: H: 1"=2000'
V: 1"=50'

Plotted By: Zach Anderson
Date last plotted: 11/10/2014 3:08 PM
Date last accessed: 11/10/2014 3:05 PM

REVISIONS				
NO.	DATE	BY	CHKED	DESCRIPTION

CLARK PATTERSON LEE
DESIGN PROFESSIONALS
205 ST. PAUL STREET, SUITE 500
ROCHESTER, NEW YORK 14604
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GENESEE COUNTY ECONOMIC DEVELOPMENT CORPORATION

TOWN OF ALABAMA   GENESEE COUNTY   NEW YORK STATE

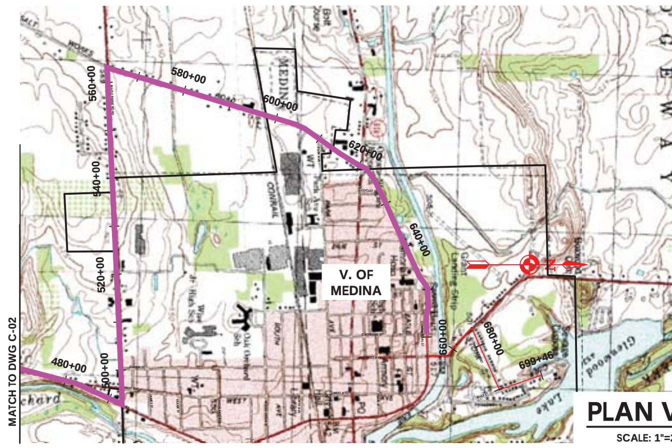
DATE:	10/29/14
DRAWN:	ZLA
DESIGNED:	ARK
CHECKED:	TAC
SCALE:	AS NOTED

MEDINA SANITARY SEWER

NYS ROUTE 63 TO NYS ROUTE 31
TO SALT WORKS ROAD
PLAN AND PROFILE

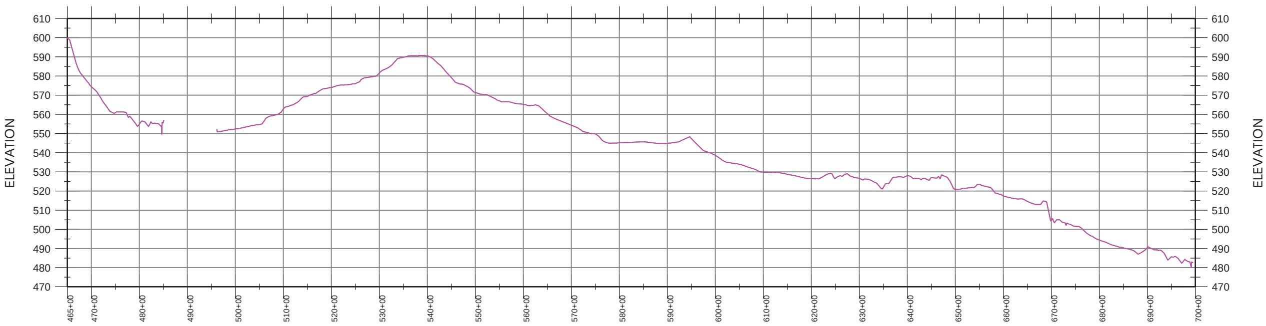
PROJECT NUMBER
XXXX.XX

DRAWING NUMBER
C-02



PLAN VIEW

SCALE: 1"=2000'



PROFILE VIEW

SCALE: H: 1"=2000'
V: 1"=50'

REVISIONS				
NO.	DATE	BY	CHKED	DESCRIPTION

CLARK PATTERSON LEE
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GENESEE COUNTY ECONOMIC DEVELOPMENT CORPORATION

TOWN OF ALABAMA GENESEE COUNTY NEW YORK STATE

DATE: 10/29/14
DRAWN: ZLA
DESIGNED: ARK
CHECKED: TAC
SCALE: AS NOTED

MEDINA SANITARY SEWER

NYS ROUTE 63 TO NYS ROUTE 31 TO SALT WORKS ROAD PLAN AND PROFILE

PROJECT NUMBER: XXXX.XX

DRAWING NUMBER: C-03

Referenced Drawings: SR 63 orthos USGS_NY83.18

Plotted By: Zach Anderson
Date last plotted: 11/10/2014 3:08 PM
Date last accessed: 11/10/2014 3:05 PM

APPENDIX B

Preliminary Route Analysis Geological Review

Clark Patterson Lee
DESIGN PROFESSIONALS

SITE OBSERVATION REPORT

TO: File

FROM: Norm Gardner, C.P.G.

DATE: November 20, 2014

RE: STAMP Sanitary Force Main Routing
Geological Review

I have reviewed the four potential routes for the sanitary sewer force main from STAMP to the Village of Medina, including field review of the routes. The attached Figures represent the geological mapping of the routes, including bedrock and surface soils information. This information should be used to help develop a geotechnical boring program.

All three of the potential routing (Options #1, #3 and #4) that follows Route 63 likely do not have any shallow bedrock concerns until Shelby Center (420+00). However, peat / muck soil conditions with shallow groundwater will be encountered through the Wildlife Refuge from approximately 150+00 to 220+00. From Shelby Center north, shallow bedrock (within a few feet of ground surface) could be encountered. Bedrock mapping indicates it is dolostone / limestone. Typically, this bedrock may weathered near the surface but could be massive (not bedded) and relatively hard.

The Blair Road section of Option #1 route will likely encounter several areas of very shallow bedrock.

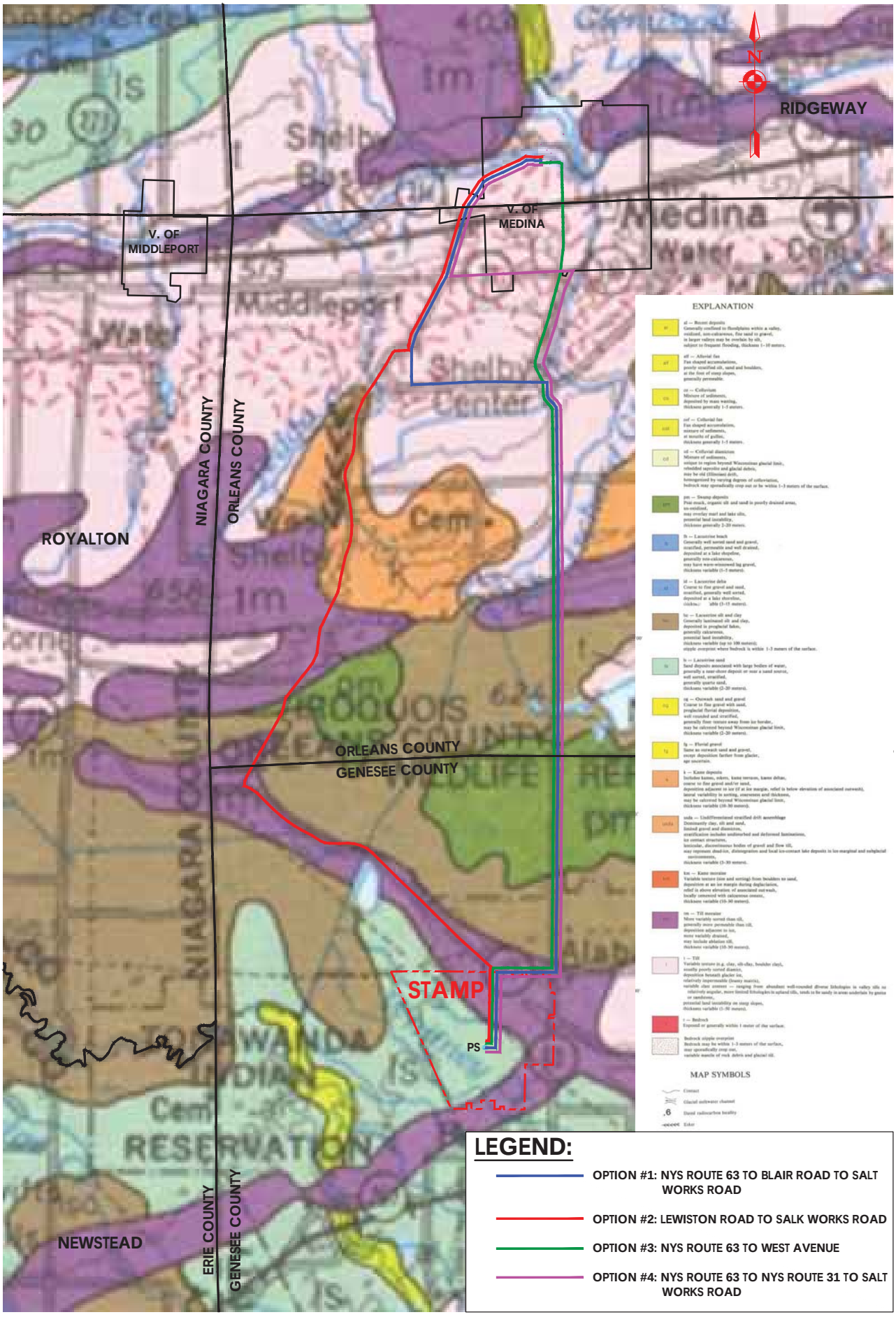
Option #2, following Lewiston to Salt Works Road will likely have similar conditions, however, the routing on Lewiston Road up through approximately Station 470+00 will be along a till moraine and gravelly kame deposits. Surface soils, groundwater or shallow bedrock should not be too much of a concern and bedrock will likely be deep enough to not present any installation issues. At approximately Station 480+00 however, bedrock outcrops at the surface and the road culvert crossing has a waterfall, north of this point bedrock will be relatively shallow through the Village.

Areas that are already serviced by water should be reviewed to see if there is any geotechnical information for these routes, primarily the Salt Works Road section.

I would recommend a geoprobe evaluation of the routing to assess constructability issues once it is determined. We can review the route in detail and focus more borings in areas that will have variability, and minimize borings in areas that appear to have consistent geology.

205 St. Paul St., Suite 500
Rochester, NY 14604
clarkpatterson.com
585.454.7600 TEL
585.454.7618 FAX

Drawing Name: J:\PROJECTS\GCEDC\STAMP Medina\D Design\ACAD\Civil\Site\Combined w Soils.dwg Date last accessed: 11/12/2014 7:29 AM Date last plotted: 11/12/2014 9:10 AM Plotted By: Zach Anderson



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205 ST. PAUL STREET, SUITE 500
ROCHESTER, NEW YORK 14604
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www.clarkpatterson.com

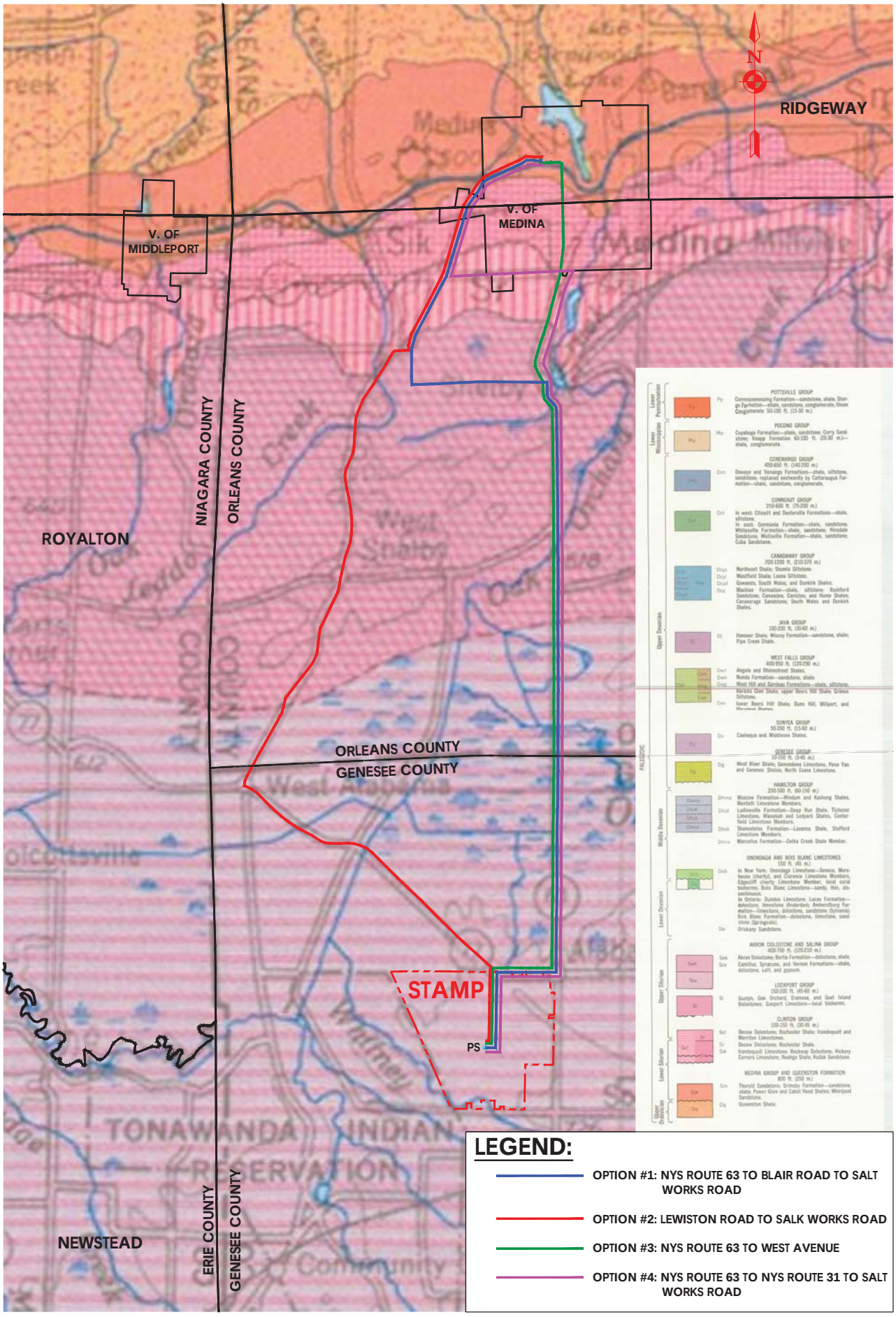
DATE:	11/05/14
DRAWN:	ZLA
CHECKED:	ARK
SCALE:	1"=5000'
PROJ. #:	12498.11

MEDINA SANITARY FORCE MAIN OPTIONS – SURFICIAL GEOLOGY

GENESEE COUNTY ECONOMIC DEVELOPMENT CORP. – STAMP

ALABAMA, NEW YORK

Drawing Name: J:\PROJECTS\GCEDC\STAMP Medina\D Design\ACAD\Civil\Site\Combined w Soils.dwg Date last accessed: 11/12/2014 7:29 AM Date last plotted: 11/12/2014 9:14 AM Plotted By: Zach Anderson



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TEL (800) 274-9000
FAX (585) 232-5836
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DATE:	11/05/14
DRAWN:	ZLA
CHECKED:	ARK
SCALE:	1"=5000'
PROJ. #:	12498.11

MEDINA SANITARY FORCE MAIN OPTIONS – BEDROCK GEOLOGY

GENESEE COUNTY ECONOMIC DEVELOPMENT CORP. – STAMP

ALABAMA, NEW YORK

APPENDIX C

Alternative Cost Estimates

STAMP
Medina Sanitary Sewer Route Analysis
Prelim Engineering Estimate
October 29, 2015

Clark Patterson Lee
DESIGN PROFESSIONALS

STAMP Medina Sewer

Base Project: STAMP Site to Maple Ridge Road	**$ 8,937,000.00**			
(Cost Part of STAMP project for all Village Alternatives		**Pros**	**Cons**	**Anticipated Flow Capacity (MGD)**
STAMP Alternative 1A: FM to 24-inch Gravity Sewer on West Avenue	**$ 941,000.00**	Lowest capital cost Good option for lower flows	Limited flexibility for higher flows Capacity may fill quickly with Village and County	
Total Option 1A:	**$ 9,878,000.00**			
STAMP Alternative 1B: Replace Gravity Sewer on West Avenue (24-inch)	**$ 2,598,000.00**	2nd lowest capital cost Benefit to STAMP, County, Village	Limited flexibility for higher flows Capacity may fill quickly with Village and County	
Total Option 1B:	**$ 11,535,000.00**			
STAMP Alternative 2: Replace Gravity Sewer in Lakewood Village (24-inch)	**$ 3,654,000.00**	Benefit to STAMP, County, Village	Highest capital cost	
Total Option 2:	**$ 12,591,000.00**			
STAMP Alternative 3: FM Along Maple Ridge to Salt Works Road	**$ 2,696,000.00**	Greatest flexibility for STAMP project 3rd lowest capital cost	2nd highest capital cost Not much benefit to County and Village	
Total Option 3:	**$ 11,633,000.00**			
STAMP Alternative 4: FM from Erie Street to WWTP (Add on to Alternative #3)	**$ 1,324,000.00**	Greatest flexibility for STAMP project	High Capital Cost Not much benefit to County and Village	
Total Option 3+4:	**$ 12,957,000.00**			

Notes:

1) Sub-surface investigation will be needed to accurately estimate rock excavation quantities.

2) Hamlet of Alabama, Shelby Center, and Village of Medina are considered "Village" installations

STAMP
Sanitary Sewer Route Analysis
Prelim Engineering Estimate
October 29, 2015

Clark Patterson Lee
DESIGN PROFESSIONALS

STAMP Alternative 1A: FM to 24-inch Gravity Sewer on West Avenue

Item	Description	Quantity	Unit	Unit Price		Total
1	12-Inch Sanitary Forcemain Sewer - Village	4,400	LF	$125.00	$	550,000.00
2	Horizontal Boring & Casing (RR)	150	LF	$400.00	$	60,000.00
3	Directional Drill Road or Creek Crossing	200	LF	$300.00	$	60,000.00
4	Mobilization (2%)	1	LS	$13,400.00	$	13,400.00
5	Maintenance and Protection of Traffic (2%)	1	LS	$13,400.00	$	13,400.00
	CONSTRUCTION SUBTOTAL				**$**	**696,800.00**
	CONTINGENCY (15%)				$	104,520.00
	LEGAL, ENGINEERING AND ADMINISTRATION (20%)				$	139,360.00
	TOTAL				$	940,680.00
	TOTAL CAPITAL COST				**$**	**941,000.00**

Notes:

1) Sub-surface investigation will be needed to accurately estimate rock excavation quantities.

2) Hamlet of Alabama, Shelby Center, and Village of Medina are considered "Village" installations

STAMP
Sanitary Sewer Route Analysis
Prelim Engineering Estimate
October 29, 2015

Clark Patterson Lee
DESIGN PROFESSIONALS

STAMP Alternative 1B: Replace Gravity Sewer on West Avenue (24-inch)

Item	Description	Quantity	Unit	Unit Price		Total
1	24-Inch Sanitary Gravity Sewer - Village	4,400	LF	$400.00	$	1,760,000.00
2	Horizontal Boring & Casing (RR)	150	LF	$600.00	$	90,000.00
3	Mobilization (2%)	1	LS	$37,000.00	$	37,000.00
4	Maintenance and Protection of Traffic (2%)	1	LS	$37,000.00	$	37,000.00
	CONSTRUCTION SUBTOTAL				**$**	**1,924,000.00**
	CONTINGENCY (15%)				$	288,600.00
	LEGAL, ENGINEERING AND ADMINISTRATION (20%)				$	384,800.00
	TOTAL				$	2,597,400.00
	TOTAL CAPITAL COST				**$**	**2,598,000.00**

Notes:

1) Sub-surface investigation will be needed to accurately estimate rock excavation quantities.

2) Hamlet of Alabama, Shelby Center, and Village of Medina are considered "Village" installations

STAMP
Sanitary Sewer Route Analysis
Prelim Engineering Estimate
October 29, 2015

Clark Patterson Lee
DESIGN PROFESSIONALS

STAMP Alternative 2: Replace Gravity Sewer in Lakewood Village (24-inch)

Item	Description	Quantity	Unit	Unit Price		Total
1	12-Inch Sanitary Forcemain Sewer - Village	2,500	LF	$125.00	$	312,500.00
2	24-Inch Sanitary Gravity Sewer - Village	5,500	LF	$400.00	$	2,200,000.00
3	Horizontal Boring & Casing (RR)	150	LF	$600.00	$	90,000.00
4	Mobilization (2%)	1	LS	$52,050.00	$	52,050.00
5	Maintenance and Protection of Traffic (2%)	1	LS	$52,050.00	$	52,050.00
	CONSTRUCTION SUBTOTAL				**$**	**2,706,600.00**
	CONTINGENCY (15%)				$	405,990.00
	LEGAL, ENGINEERING AND ADMINISTRATION (20%)				$	541,320.00
	TOTAL				$	3,653,910.00
	TOTAL CAPITAL COST				**$**	**3,654,000.00**

Notes:

1) Sub-surface investigation will be needed to accurately estimate rock excavation quantities.

2) Hamlet of Alabama, Shelby Center, and Village of Medina are considered "Village" installations

STAMP
Sanitary Sewer Route Analysis
Prelim Engineering Estimate
October 29, 2015

Clark Patterson Lee
DESIGN PROFESSIONALS

STAMP Alternative 3: FM Along Maple Ridge to Salt Works Road

Item	Description	Quantity	Unit	Unit Price		Total
1	12-Inch Sanitary Forcemain Sewer - Village	14,400	LF	$125.00	$	1,800,000.00
2	Horizontal Boring & Casing (RR)	150	LF	$400.00	$	60,000.00
3	Directional Drill Road or Creek Crossing	200	LF	$300.00	$	60,000.00
4	Mobilization (2%)	1	LS	$38,400.00	$	38,400.00
5	Maintenance and Protection of Traffic (2%)	1	LS	$38,400.00	$	38,400.00
	CONSTRUCTION SUBTOTAL				**$**	**1,996,800.00**
	CONTINGENCY (15%)				$	299,520.00
	LEGAL, ENGINEERING AND ADMINISTRATION (20%)				$	399,360.00
	TOTAL				$	2,695,680.00
	TOTAL CAPITAL COST				**$**	**2,696,000.00**

Notes:

1) Sub-surface investigation will be needed to accurately estimate rock excavation quantities.

2) Hamlet of Alabama, Shelby Center, and Village of Medina are considered "Village" installations

STAMP
Sanitary Sewer Route Analysis
Prelim Engineering Estimate
October 29, 2015

Clark Patterson Lee
DESIGN PROFESSIONALS

STAMP Alternative 4: FM from Erie Street to WWTP (Add on to Alternative #3)

Item	Description	Quantity	Unit	Unit Price		Total
1	12-Inch Sanitary Forcemain Sewer - Village	6,100	LF	$125.00	$	762,500.00
2	Directional Drill Canal Crossing	300	LF	$600.00	$	180,000.00
3	Mobilization (2%)	1	LS	$18,850.00	$	18,850.00
4	Maintenance and Protection of Traffic (2%)	1	LS	$18,850.00	$	18,850.00
	CONSTRUCTION SUBTOTAL				**$**	**980,200.00**
	CONTINGENCY (15%)				$	147,030.00
	LEGAL, ENGINEERING AND ADMINISTRATION (20%)				$	196,040.00
	TOTAL				$	1,323,270.00
	TOTAL CAPITAL COST				**$**	**1,324,000.00**

Notes:

1) Sub-surface investigation will be needed to accurately estimate rock excavation quantities.

2) Hamlet of Alabama, Shelby Center, and Village of Medina are considered "Village" installations

APPENDIX D

WWTF Operation Reports

92-15-7 (7/91)-27c

NEW YORK STATE DEPARTMENT OF ENVIROMENTAL CONSERVATION
DIVISION OF WATER

WASTEWATER FACILITY OPERATION REPORT FOR THE MONTH OF **May** , 20 15

SPDES PERMIT NO.	FACILITY NAME	FACILITY OWNER	FACILITY LOCATION
NY-- 0021873	Medina Wastewater	Village of Medina	200 Gulf Street, Medina, New York 14103

			VOLUME OF SEWAGE TREATED			TEMPERATURE (°C.)		pH (S.U.)				SETTLEABLE SOLIDS(ml/l)		BOD_5(mg/l)		SUSPENDED SOLIDS(mg/l)	
Day	Date	Daily Precip in/day	Inst.Max. MGD	Daily Average MGD	Inst. Min MGD	Influent (2)	Effluent (2)	Influent Minimum	Influent Maximum	Effluent Minimum	Effluent Maximum	Influent Maximum	Effluent Maximum	Influent Type	Effluent Type	Influent Type	Effluent Type
Fri	1		3.76	1.77	1.45	54	55	7.8	7.9	7.4	7.5	1.5	<0.1				
Sat	2		3.72	1.73	1.23	54	55	7.9	7.9	7.6	7.6	0.5	<0.1				
Sun	3		3.70	1.71	1.34	54	55	7.8	7.8	7.4	7.4	0.5	<0.1				
Mon	4		3.56	1.20	0.00	55	59	7.7	7.8	7.3	7.3	1.0	<0.1				
Tue	5		4.02	1.67	1.31	57	59	7.7	7.8	7.4	7.4	2.0	<0.1	55	11	72	7
Wed	6		3.60	1.65	1.07	57	59	7.7	7.8	7.3	7.4	1.0	<0.1				
Thu	7		3.62	1.62	1.23	57	61	7.7	7.8	7.5	7.6	1.5	<0.1				
Fri	8		3.62	1.58	0.80	59	61	7.7	7.8	7.3	7.3	1.5	<0.1				
Sat	9		3.51	1.50	1.18	61	61	7.7	7.7	7.4	7.4	1.0	<0.1				
Sun	10	.16	3.64	1.50	1.15	61	61	7.8	7.8	7.4	7.4	0.5	<0.1				
Mon	11		3.40	0.61	0.00	61	63	7.6	7.7	7.3	7.3	11.0	<0.1				
Tue	12		3.52	0.89	0.00	61	63	7.6	7.8	7.2	7.3	2.0	<0.1	59	19	11	11
Wed	13		3.59	1.51	1.23	59	59	7.7	7.7	7.3	7.4	2.5	<0.1				
Thu	14		3.44	1.46	1.16	59	59	7.7	7.7	7.3	7.4	3.5	<0.1				
Fri	15	.15	4.43	1.55	1.16	59	61	7.7	7.8	7.4	7.5	3.0	<0.1				
Sat	16		3.57	1.46	1.01	59	61	7.8	7.8	7.5	7.5	0.5	<0.1				
Sun	17		3.47	1.41	1.11	59	61	7.7	7.7	7.5	7.5	0.5	<0.1				
Mon	18		3.52	1.39	1.09	61	64	7.7	7.8	7.5	7.5	1.5	<0.1				
Tue	19		3.44	1.37	1.06	61	63	7.6	7.7	7.1	7.3	1.5	<0.1				
Wed	20		3.37	1.34	1.02	61	61	7.7	7.7	7.2	7.3	1.0	<0.1				
Thu	21		3.44	1.32	1.04	61	61	7.6	7.7	7.1	7.2	2.0	<0.1	101	18	122	12
Fri	22		3.37	1.27	0.98	59	61	7.6	7.7	7.3	7.3	1.0	<0.1				
Sat	23		3.47	1.24	0.97	59	61	7.7	7.7	7.3	7.3	1.0	<0.1				
Sun	24		3.36	1.21	0.92	59	61	7.6	7.6	7.3	7.3	0.5	<0.1				
Mon	25		3.28	1.23	0.81	61	61	7.6	7.6	7.3	7.3	2.0	<0.1				
Tue	26		3.44	1.25	0.95	63	64	7.7	7.7	7.3	7.4	1.5	<0.1				
Wed	27	.07	3.22	1.24	0.85	63	64	7.7	7.7	7.2	7.3	4.0	<0.1				
Thu	28		3.22	1.23	0.90	63	64	7.7	7.7	7.2	7.3	1.0	<0.1	2	2	58	2
Fri	29		3.33	1.22	0.94	63	64	7.7	7.7	7.3	7.3	6.0	<0.1				
Sat	30	.29	4.84	1.44	0.92	63	64	7.7	7.7	7.5	7.5	0.5	<0.1				
Sun	31	1.75	7.68	4.12	1.54	63	64	7.5	7.5	7.2	7.2	0.5	<0.1				
		Total Precip.		Monthly Average		Monthly Average Influent	Monthly Average Effluent	Minimum	Monthly Maximum	Minimum	Maximum	Monthly Maximum	Monthly Maximum	30 day flow-weighted avg (1) Inf.(mg/l)	Eff.(mg/l)	Rem.%	30 day flow-weighted avg (1) Inf.(mg/l)	Eff.(mg/l)	Rem.%
		2.42		1.47		60	61	7.5	7.9	7.1	7.6	11.0	<0.1	54	12.5	77	66	8.0	88
												30 Day Quanity	Average Loading(1)	153.7		lbs/day	98.3		lbs/day
												NFLUENT daily avg		667		lbs/day	808		lbs/day

92-15-7 (7/91)-27c

NEW YORK STATE DEPARTMENT OF ENVIROMENTAL CONSERVATION
DIVISION OF WATER

WASTEWATER FACILITY OPERATION REPORT FOR THE MONTH OF June , 20 15

SPDES PERMIT NO.	FACILITY NAME	FACILITY OWNER	FACILITY LOCATION
NY-- 0021873	Medina Wastewater	Village of Medina	200 Gulf Street, Medina, New York 14103

			VOLUME OF SEWAGE TREATED			TEMPERATURE (°C.)		pH (S.U.)				SETTLEABLE SOLIDS(ml/l)		BOD_5(mg/l)		SUSPENDED SOLIDS(mg/l)	
Day	Date	Daily Precip in/day	Inst.Max. MGD	Daily Average MGD	Inst. Min MGD	Influent (2)	Effluent (2)	Influent Minimum	Influent Maximum	Effluent Minimum	Effluent Maximum	Influent Maximum	Effluent Maximum	Influent Type	Effluent Type	Influent Type	Effluent Type
Mon	1	.10	5.27	2.97	1.88	63	63	7.7	7.8	7.5	7.5	0.5	<0.1				
Tue	2		3.78	1.88	1.40	61	63	7.5	7.7	7.3	7.5	2.0	<0.1				
Wed	3		3.54	1.63	1.31	63	63	7.8	7.8	7.5	7.5	2.0	<0.1				
Thu	4		3.55	1.52	1.24	63	63	7.8	7.8	7.4	7.4	0.5	<0.1	49	12	30	6
Fri	5	.39	7.37	1.97	1.18	63	64	7.5	7.7	7.4	7.4	1.0	<0.1				
Sat	6		3.68	1.62	1.34	63	64	7.6	7.6	7.4	7.4	1.0	<0.1				
Sun	7	.19	4.19	1.59	1.19	63	64	7.6	7.6	7.5	7.5	2.0	<0.1				
Mon	8	.53	7.68	3.18	1.51	64	66	7.7	7.7	7.2	7.4	0.5	<0.1				
Tue	9	.02	3.84	1.49	0.00	64	64	7.7	7.7	7.3	7.4	1.5	<0.1				
Wed	10	.75	7.34	2.82	1.56	64	64	7.7	7.7	7.3	7.3	0.5	<0.1				
Thu	11		3.99	2.20	1.76	63	64	7.7	7.7	7.5	7.5	0.5	<0.1	39	9	31	8
Fri	12	.76	7.54	3.72	1.66	64	64	7.4	7.6	7.3	7.3	2.0	<0.1				
Sat	13	.01	4.19	2.59	2.05	63	64	7.7	7.7	7.7	7.7	0.5	<0.1				
Sun	14	.18	6.04	2.61	1.94	63	64	7.8	7.8	7.4	7.4	0.5	<0.1				
Mon	15	.09	5.99	2.83	2.13	64	66	7.6	7.6	7.5	7.5	2.5	<0.1				
Tue	16	.18	5.12	2.50	0.00	66	66	7.4	7.6	7.3	7.5	3.0	<0.1				
Wed	17		4.03	2.31	1.88	64	64	7.5	7.5	7.4	7.5	2.0	<0.1				
Thu	18		3.88	2.01	1.46	64	66	7.6	7.6	7.5	7.5	4.0	<0.1	46	10	78	5
Fri	19		3.72	1.83	1.52	64	66	7.5	7.6	7.4	7.4	5.0	<0.1				
Sat	20		3.73	1.72	1.39	66	66	7.6	7.6	7.4	7.4	1.0	<0.1				
Sun	21		3.57	1.61	1.26	66	66	7.6	7.6	7.4	7.4	0.5	<0.1				
Mon	22		3.42	1.54	1.20	66	66	7.5	7.6	7.3	7.4	2.0	<0.1				
Tue	23	.10	3.61	1.55	1.22	66	68	7.6	7.6	7.3	7.4	3.5	<0.1				
Wed	24		3.49	1.43	1.17	66	68	7.5	7.5	7.4	7.4	1.0	<0.1				
Thu	25		3.47	1.40	1.10	66	66	7.6	7.6	7.3	7.4	4.5	<0.1	70	5	86	7
Fri	26		3.37	1.34	0.97	66	68	7.4	7.5	7.3	7.3	3.0	<0.1				
Sat	27	1.68	7.29	3.24	1.04	66	66	7.6	7.6	7.4	7.4	0.5	<0.1				
Sun	28	.35	7.08	3.97	2.43	64	64	7.7	7.7	7.3	7.3	1.0	<0.1				
Mon	29	.02	4.04	2.34	1.82	66	66	7.6	7.6	7.3	7.4	0.5	<0.1				
Tue	30	.17	6.44	2.28	1.67	66	66	7.5	7.6	7.5	7.6	1.0	<0.1				
	31																
		Total Precip.		Monthly Average		Monthly Average Influent	Effluent	Minimum	Monthly Maximum	Minimum	Maximum	Monthly Maximum	Monthly Maximum	30 day flow-weighted avg (1) Inf.(mg/l)	Eff.(mg/l)	Rem.%	30 day flow-weighted avg (1) Inf.(mg/l)	Eff.(mg/l)	Rem.%
		5.52		2.19		64	65	7.4	7.8	7.2	7.7	5.0	<0.1	51	9.0	82	56	6.5	88
												30 Day Quanity	Average Loading(1)	164.4	lbs/day		118.2	lbs/day	
												NFLUENT daily avg		931	lbs/day		1027	lbs/day	

92-15-7 (7/91)-27c

NEW YORK STATE DEPARTMENT OF ENVIROMENTAL CONSERVATION
DIVISION OF WATER

WASTEWATER FACILITY OPERATION REPORT FOR THE MONTH OF July , 26 15

SPDES PERMIT NO.	FACILITY NAME	FACILITY OWNER	FACILITY LOCATION
NY-- 662107<	Medina Waste3 ater	Village of Medina	266 Gulf Street, Medina, Ne3 York 1416<

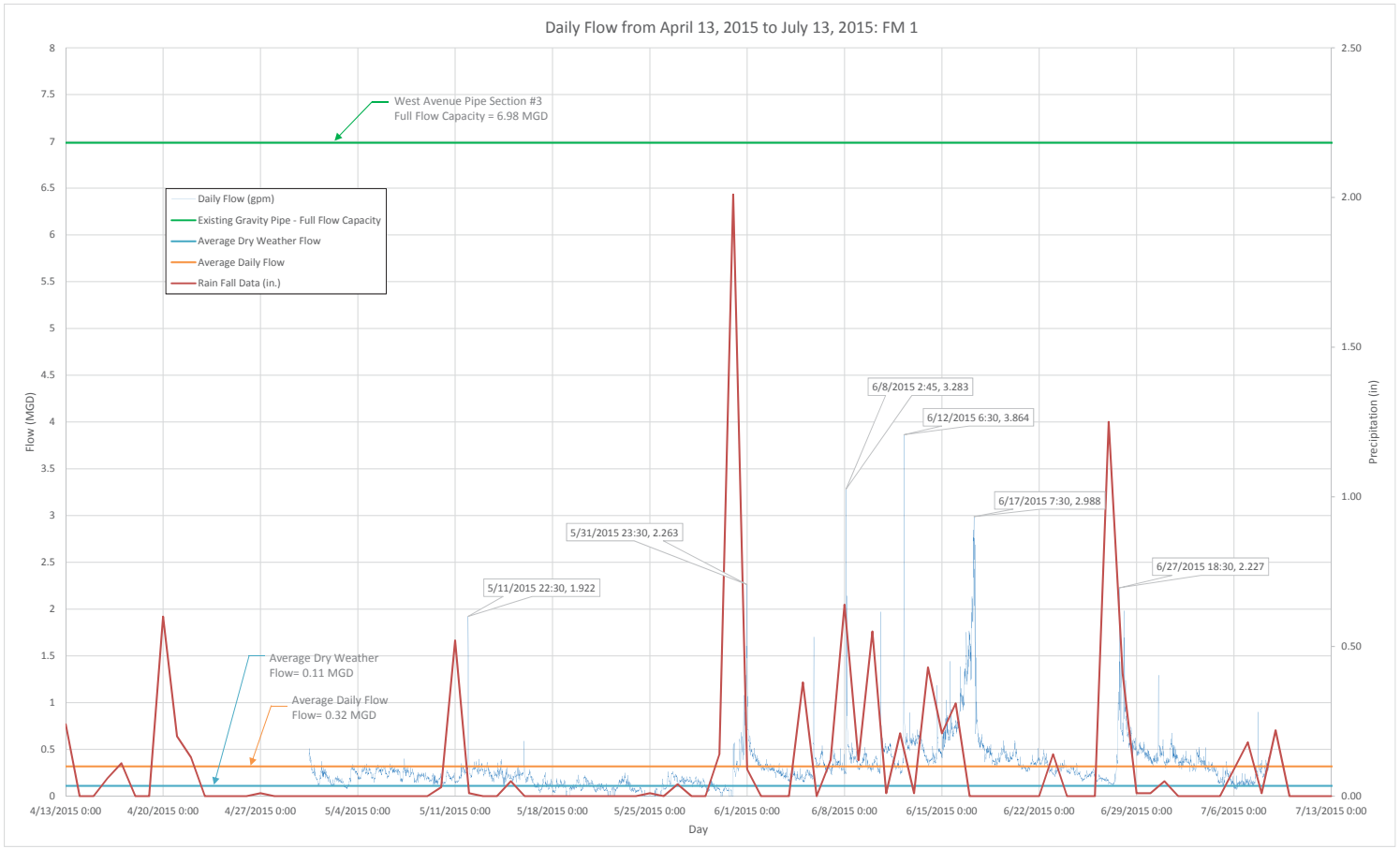
			VOLUME OF SEWAGE TREATED			TEMPERATURE (°C.)		pH (S.U.)				SETTLEABLE SOLIDS(ml/l)		BOD_5(mg/l)		SUSPENDED SOLIDS(mg/l)	
Day	Date	Daily Precip in/day	Inst.Max. MGD	Daily Average MGD	Inst. Min MGD	Influent (2)	Effluent (2)	Influent Minimum	Influent Maximum	Effluent Minimum	Effluent Maximum	Influent Maximum	Effluent Maximum	Influent Type	Effluent Type	Influent Type	Effluent Type
3 ed	1	.68	<.08	1.99	1.81	88	88	7.7	7.7	7.4	7.4	1.5	h6.1				
twu	2		<.87	1.70	1.47	88	88	7.7	7.7	7.<	7.4	6.5	h6.1	87	0	89	5
fri	<		<.49	1.80	1.<8	88	88	7.7	7.7	7.4	7.4	1.6	h6.1				
sat	4		<.40	1.58	1.14	88	88	7.5	7.5	7.<	7.<	6.5	h6.1				
sun	5		<.42	1.40	1.68	88	88	7.8	7.8	7.4	7.4	1.6	h6.1				
mon	8	.65	<.58	1.51	1.14	88	80	7.8	7.8	7.<	7.<	1.5	h6.1				
tue	7	.24	8.<1	1.88	1.10	80	76	7.8	7.8	7.2	7.4	<.6	h6.1				
3 ed	0	.61	<.<8	1.48	1.18	80	80	7.8	7.8	7.<	7.<	1.5	h6.1				
twu	9	.26	4.26	1.85	1.1<	80	80	7.8	7.8	7.<	7.4	5.6	h6.1	12<	11	04	4
fri	16		<.54	1.48	1.17	80	80	7.5	7.5	7.2	7.<	<.5	h6.1				
sat	11		<.<8	1.<0	1.12	80	80	7.5	7.5	7.<	7.<	1.6	h6.1				
sun	12		<.47	1.<8	6.97	80	80	7.5	7.5	7.<	7.<	2.5	h6.1				
mon	1<		<.22	6.78	6.66	80	76	7.4	7.5	7.1	7.2	1<.6	h6.1				
tue	14	.17	<.82	1.44	6.05	80	76	7.5	7.5	7.2	7.<	<.5	h6.1				
3 ed	15		<.<8	1.<4	1.67	80	80	7.4	7.4	7.2	7.2	2.6	h6.1				
twu	18		<.<6	1.<2	1.64	80	76	7.5	7.5	7.<	7.<	7.6	h6.1	27	11	58	4
fri	17	.14	<.44	1.<1	1.62	80	76	7.5	7.5	7.2	7.<	8.6	h6.1				
sat	10	1.25	7.76	2.40	1.67	80	76	7.4	7.4	7.<	7.<	1.6	h6.1				
sun	19	.6<	<.87	1.5<	1.10	80	76	7.<	7.5	7.<	7.5	1.6	h6.1				
mon	26		<.46	1.46	1.1<	76	76	7.8	7.8	7.<	7.<	2.5	h6.1				
tue	21	.64	<.<9	1.<0	1.11	76	76	7.4	7.5	7.4	7.4	1.6	h6.1				
3 ed	22		<.25	1.<1	1.67	76	76	7.5	7.8	7.<	7.4	4.5	h6.1				
twu	2<		<.29	1.29	1.62	76	76	7.8	7.8	7.5	7.5	5.6	h6.1	40	0	94	5
fri	24		<.21	1.27	1.61	76	76	7.5	7.5	7.4	7.5	4.5	h6.1				
sat	25	.60	4.61	1.<<	6.98	76	76	7.5	7.5	7.5	7.5	6.5	h6.1				
sun	28		<.20	1.25	6.90	76	76	7.5	7.5	7.4	7.4	6.5	h6.1				
mon	27		<.24	1.62	6.66	76	72	7.4	7.5	7.2	7.<	<.6	h6.1				
tue	20		<.<7	1.25	6.9<	72	72	7.4	7.4	7.2	7.<	5.6	h6.1				
3 ed	29		<.2<	1.21	6.98	72	7<	7.<	7.5	7.<	7.4	5.6	h6.1				
twu	<6		<.28	1.26	6.94	72	7<	7.<	7.5	7.<	7.4	7.6	h6.1	148	0	168	5
fri	<1	.67	<.46	1.28	6.91	72	72	7.4	7.5	7.<	7.4	2.5	h6.1				
		Total Precip. 2.<4		Montwly Average 1.4<		Montwly Influent 89	Average Effluent 89	Minimum 7.<	Montwly Maximum 7.7	Minimum 7.1	Maximum 7.5	Montwly Maximum 1<.6	Montwly Maximum h6.1	<6 day flo3 -3 eigwted avg (1) Inf.(mg/l) 02	Eff.(mg/l) 9.2	Rem.% 09	<6 day flo3 -3 eigwted avg (1) Inf.(mg/l) 02	Eff.(mg/l) 4.7	Rem.% 94
												<6 Day Quanity	Average Loading(1)	169.9	lbs/day		55.7	lbs/day	
												NFLUENT daily avg		906	lbs/day		978	lbs/day	

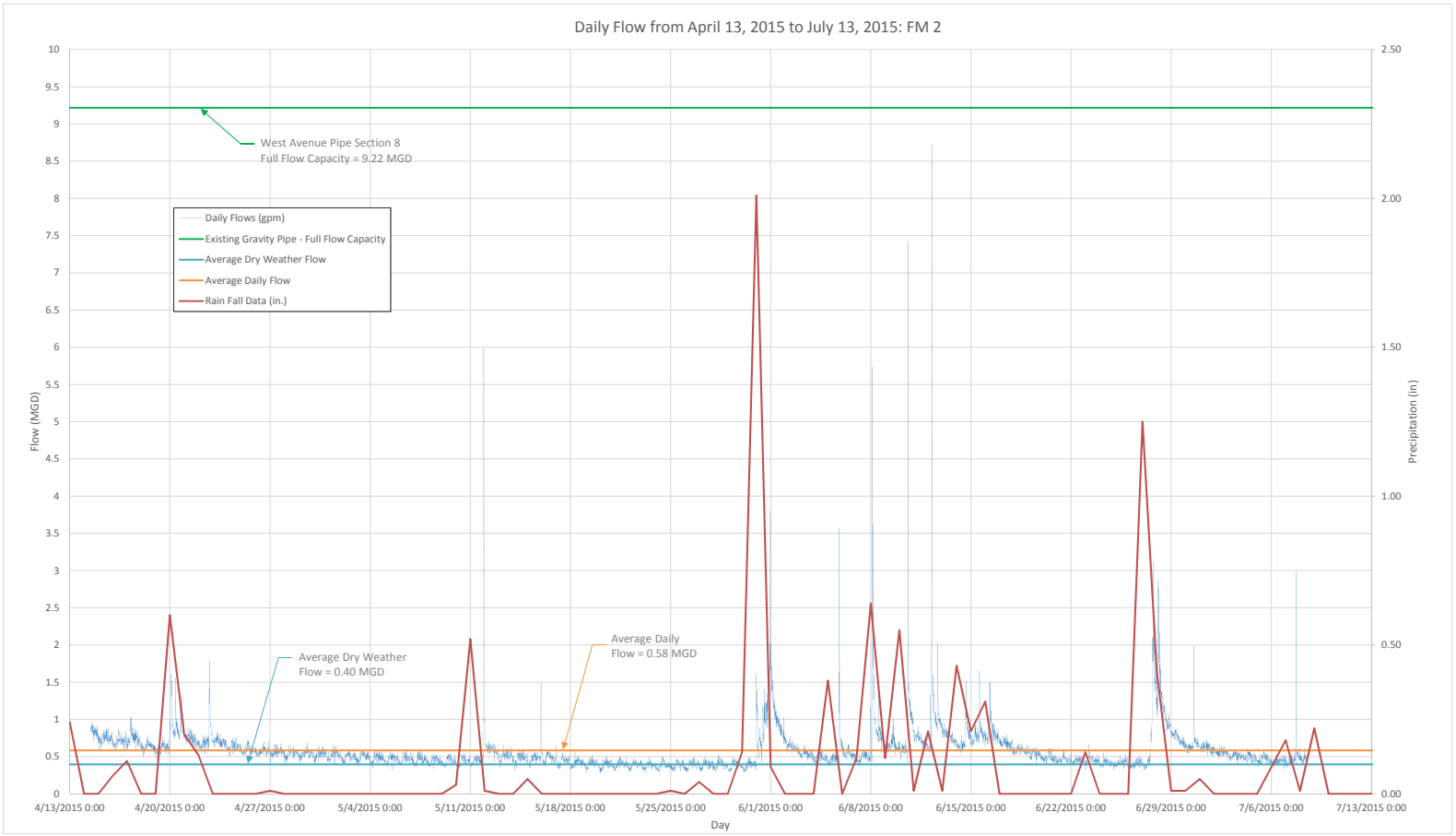
APPENDIX E

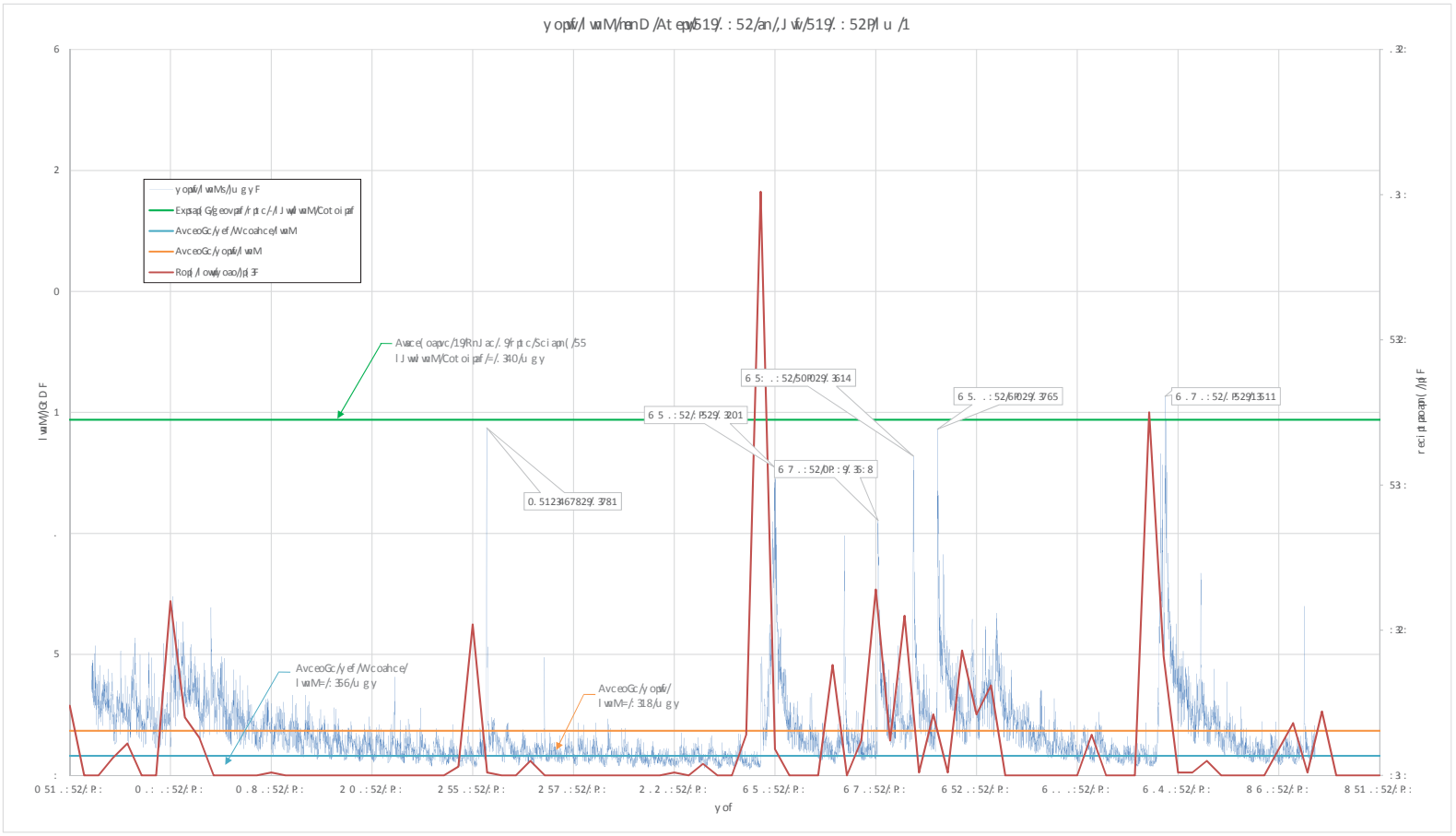
Flow Monitoring Summary and Graphs

Western NY STAMP
Village of Medina Sanitary Sewer Options
Flow Monitoring Data
Flow Monitoring Period: April 13, 2015 to July 8, 2015

			Meter Location					
			Park & West Ave	West Ave near Canal	Commercial St & West Ave	Commercial St	Glenwood Ave	Medical Center
		Precipitation	FM #1	FM #2	FM #3	FM #4	FM #5	FM #6
	Date	(in)	Average Daily Flow (MGD)					
Dry Weather Base Flows (5/17 to 5/28)	5/17/2015	0.00	0.12	0.44	0.19	0.10	1.66	0.15
	5/18/2015	0.00	0.10	0.42	0.20	0.09	1.60	0.18
	5/19/2015	0.00	0.09	0.40	0.18	0.09	1.57	0.17
	5/20/2015	0.00	0.13	0.39	0.18	0.09	1.58	0.16
	5/21/2015	0.00	0.08	0.40	0.18	0.08	1.55	0.14
	5/22/2015	0.00	0.10	0.39	0.16	0.08	1.50	0.14
	5/23/2015	0.00	0.12	0.38	0.14	0.08	1.46	0.11
	5/24/2015	0.00	0.06	0.38	0.13	0.07	1.44	0.10
	5/25/2015	0.01	0.03	0.38	0.15	0.07	1.44	0.11
	5/26/2015	0.00	0.17	0.39	0.16	0.08	1.44	0.12
	5/27/2015	0.04	0.17	0.39	0.16	0.08	1.43	0.13
	5/28/2015	0.00	0.14	0.39	0.13	0.07	1.41	0.12
	Average Dry Weather Flow =		0.11	0.40	0.16	0.08	1.51	0.13
	Peak Wet Weather Flow 6/12/15 (MGD)=		3.86	8.72	2.86	3.98	13.24	2.88
	Wet Weather Peaking Factor =		35.18	22.05	17.62	48.34	8.78	21.38


Daily Flow from April 13, 2015 to July 13, 2015: FM 1
West Avenue Pipe Section #3
Full Flow Capacity = 6.98 MGD
Daily Flow (gpm)
Existing Gravity Pipe - Full Flow Capacity
Average Dry Weather Flow
Average Daily Flow
Rain Fall Data (in.)
6/8/2015 2:45, 3.283
6/12/2015 6:30, 3.864
6/17/2015 7:30, 2.988
5/31/2015 23:30, 2.263
6/27/2015 18:30, 2.227
5/11/2015 22:30, 1.922
Average Dry Weather
Flow= 0.11 MGD
Average Daily Flow
Flow= 0.32 MGD
Flow (MGD)
Precipitation (in)
Day
4/13/2015 0:00
4/20/2015 0:00
4/27/2015 0:00
5/4/2015 0:00
5/11/2015 0:00
5/18/2015 0:00
5/25/2015 0:00
6/1/2015 0:00
6/8/2015 0:00
6/15/2015 0:00
6/22/2015 0:00
6/29/2015 0:00
7/6/2015 0:00
7/13/2015 0:00


Daily Flow from April 13, 2015 to July 13, 2015: FM 2
Flow (MGD)
Precipitation (in)
Day
West Avenue Pipe Section 8
Full Flow Capacity = 9.22 MGD
Daily Flows (gpm)
Existing Gravity Pipe - Full Flow Capacity
Average Dry Weather Flow
Average Daily Flow
Rain Fall Data (in.)
Average Dry Weather
Flow = 0.40 MGD
Average Daily
Flow = 0.58 MGD
10
9.5
9
8.5
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
2.50
2.00
1.50
1.00
0.50
0.00
4/13/2015 0:00
4/20/2015 0:00
4/27/2015 0:00
5/4/2015 0:00
5/11/2015 0:00
5/18/2015 0:00
5/25/2015 0:00
6/1/2015 0:00
6/8/2015 0:00
6/15/2015 0:00
6/22/2015 0:00
6/29/2015 0:00
7/6/2015 0:00
7/13/2015 0:00


y opti/l wuMs/u g y F
Expaq G[geovpaf/r pc/-/l J wl wuM/Cot oi paf
AvceoGc/y ef /Vcoahce/ wuM
AvceoGc/y opti/l wuM
Rop[/l owl y oao/p[F
Avace(oapvc/19RnJ ac/. 9r pc/Sci apn(/55
l J wl wuM/Cot oi paf /=/. 340/u g y
6 5: . : 52/50R029/. 3614
6 5. . : 52/6R029/. 3765
6 5 . : 52/. R529/. 3201
6 . 7 . : 52/. R529/13611
6 7 . : 52/0R . : 9/. 35: 8
0. 5123467829/. 3781
AvceoGc/y ef /Vcoahce/
l wuM=/. 356/u g y
AvceoGc/y opti/
l wuM=/. 318/u g y
l wuM/Gt D F
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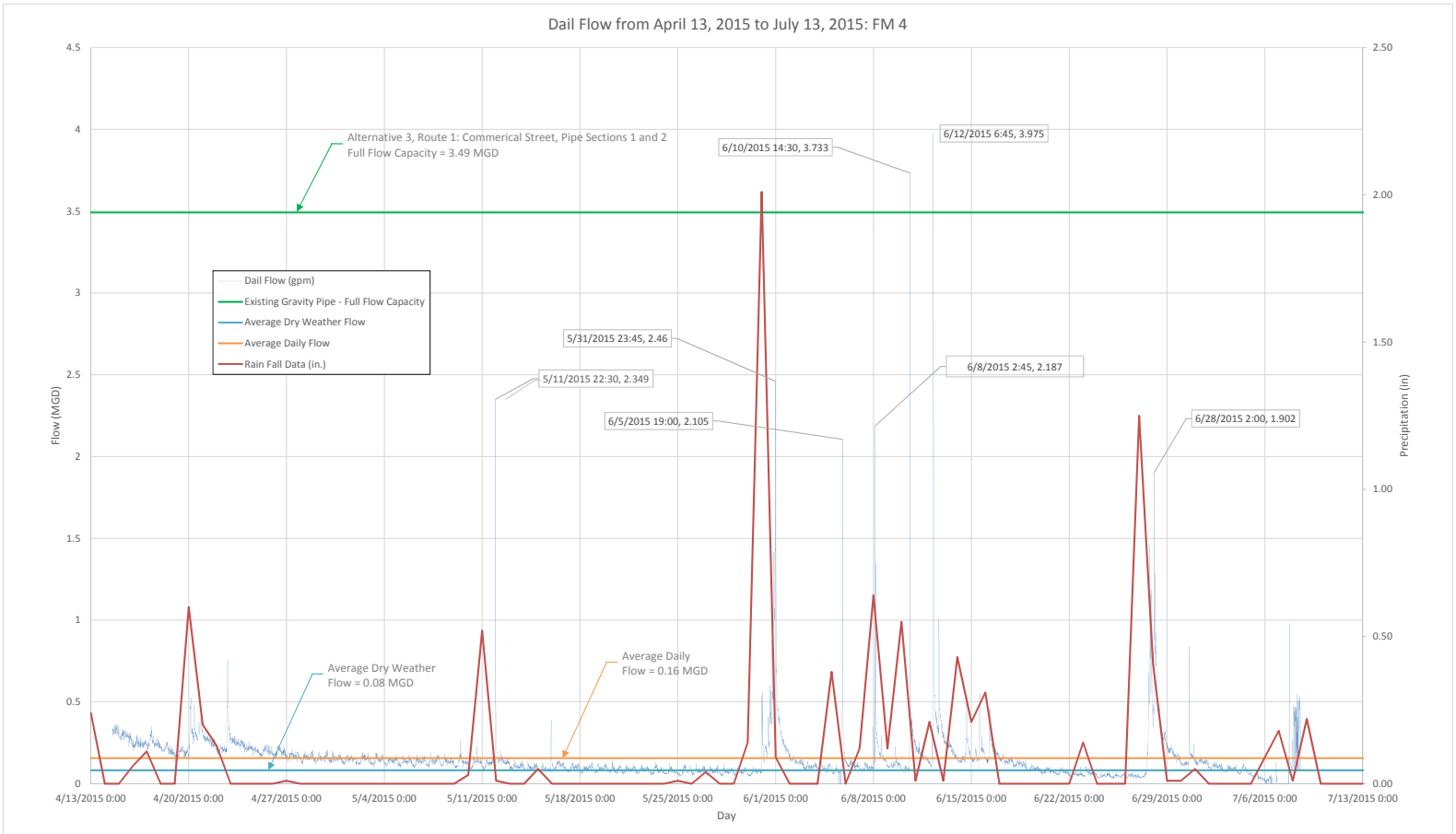
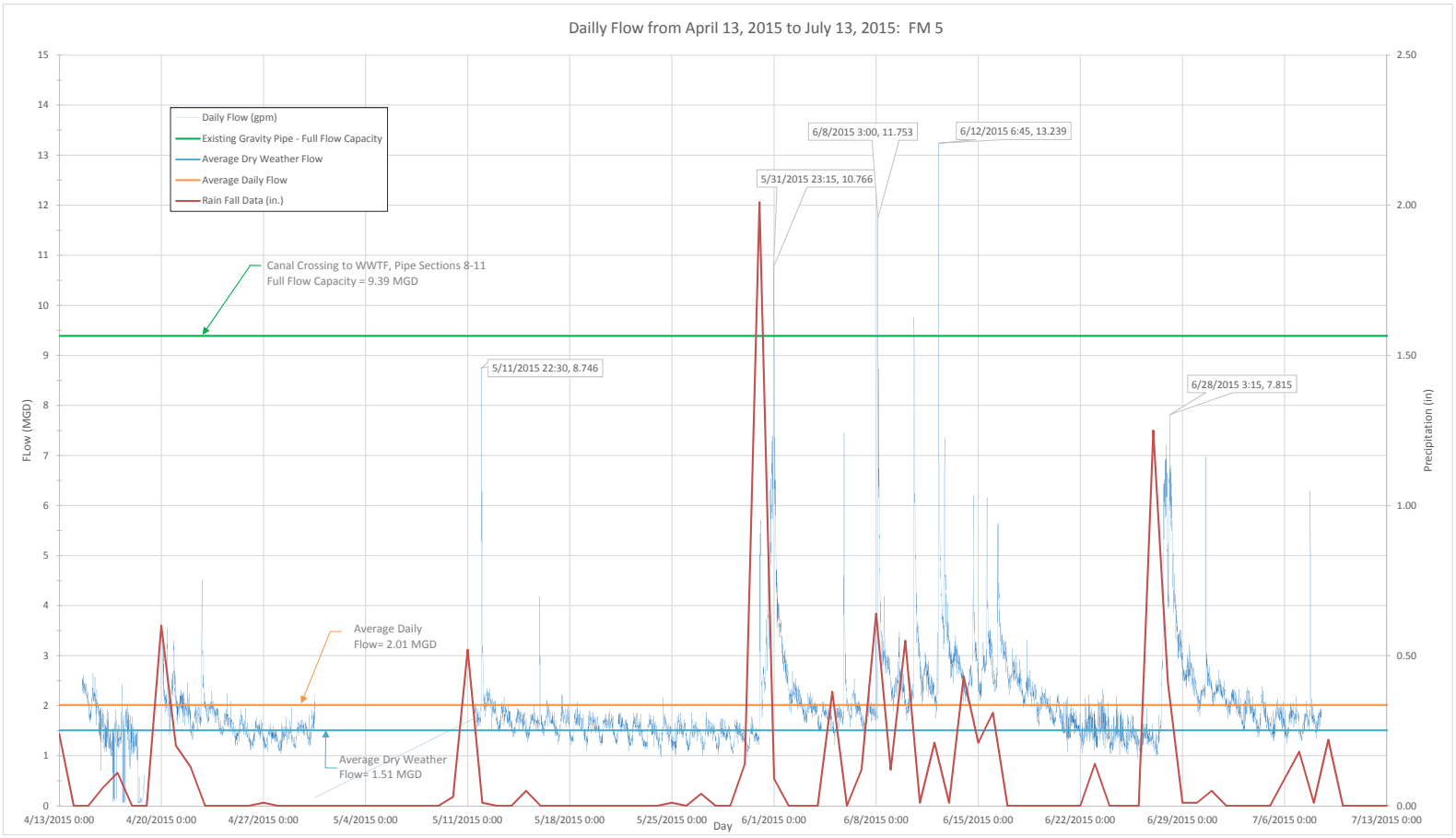

Dail Flow from April 13, 2015 to July 13, 2015: FM 4
Flow (MGD)
Precipitation (in)
Day
Alternative 3, Route 1: Commerical Street, Pipe Sections 1 and 2
Full Flow Capacity = 3.49 MGD
6/10/2015 14:30, 3.733
6/12/2015 6:45, 3.975
5/31/2015 23:45, 2.46
5/11/2015 22:30, 2.349
6/8/2015 2:45, 2.187
6/5/2015 19:00, 2.105
6/28/2015 2:00, 1.902
Average Dry Weather
Flow = 0.08 MGD
Average Daily
Flow = 0.16 MGD
Dail Flow (gpm)
Existing Gravity Pipe - Full Flow Capacity
Average Dry Weather Flow
Average Daily Flow
Rain Fall Data (in.)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
2.50
2.00
1.50
1.00
0.50
0.00
4/13/2015 0:00
4/20/2015 0:00
4/27/2015 0:00
5/4/2015 0:00
5/11/2015 0:00
5/18/2015 0:00
5/25/2015 0:00
6/1/2015 0:00
6/8/2015 0:00
6/15/2015 0:00
6/22/2015 0:00
6/29/2015 0:00
7/6/2015 0:00
7/13/2015 0:00


Dailly Flow from April 13, 2015 to July 13, 2015: FM 5
Daily Flow (gpm)
Existing Gravity Pipe - Full Flow Capacity
Average Dry Weather Flow
Average Daily Flow
Rain Fall Data (in.)
Canal Crossing to WWTF, Pipe Sections 8-11
Full Flow Capacity = 9.39 MGD
Average Daily
Flow= 2.01 MGD
Average Dry Weather
Flow= 1.51 MGD
6/8/2015 3:00, 11.753
6/12/2015 6:45, 13.239
5/31/2015 23:15, 10.766
5/11/2015 22:30, 8.746
6/28/2015 3:15, 7.815
FLow (MGD)
Precipitation (in)
Day
4/13/2015 0:00
4/20/2015 0:00
4/27/2015 0:00
5/4/2015 0:00
5/11/2015 0:00
5/18/2015 0:00
5/25/2015 0:00
6/1/2015 0:00
6/8/2015 0:00
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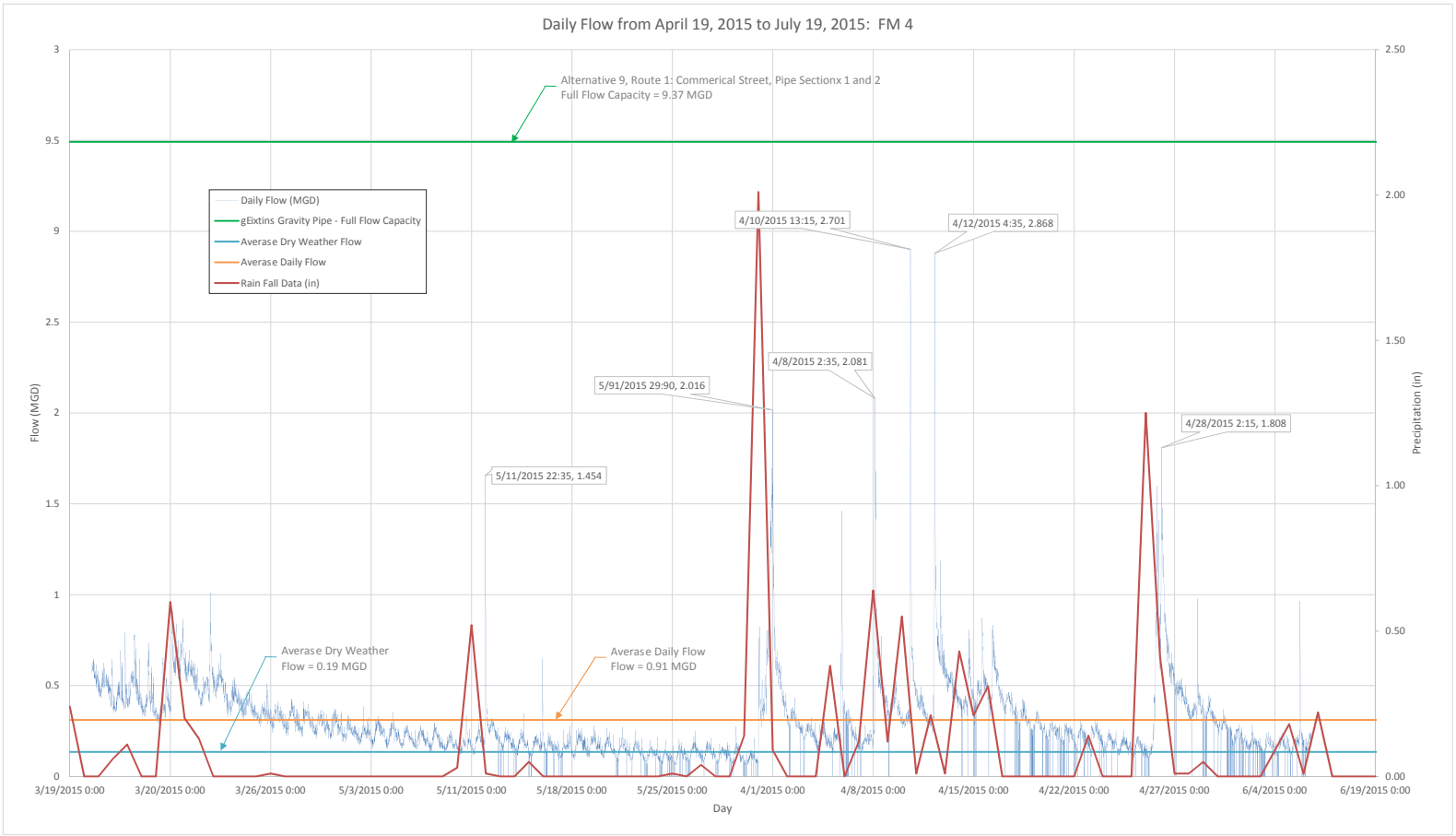
7/6/2015 0:00
7/13/2015 0:00


Daily Flow from April 19, 2015 to July 19, 2015: FM 4
Alternative 9, Route 1: Commerical Street, Pipe Sectionx 1 and 2
Full Flow Capacity = 9.37 MGD
Daily Flow (MGD)
gEixtins Gravity Pipe - Full Flow Capacity
Averase Dry Weather Flow
Averase Daily Flow
Rain Fall Data (in)
4/10/2015 13:15, 2.701
4/12/2015 4:35, 2.868
4/8/2015 2:35, 2.081
5/91/2015 29:90, 2.016
4/28/2015 2:15, 1.808
5/11/2015 22:35, 1.454
Averase Dry Weather
Flow = 0.19 MGD
Averase Daily Flow
Flow = 0.91 MGD
Flow (MGD)
Precipitation (in)
Day
3
9.5
9
2.5
2
1.5
1
0.5
0
2.50
2.00
1.50
1.00
0.50
0.00
3/19/2015 0:00
3/20/2015 0:00
3/26/2015 0:00
5/3/2015 0:00
5/11/2015 0:00
5/18/2015 0:00
5/25/2015 0:00
4/1/2015 0:00
4/8/2015 0:00
4/15/2015 0:00
4/22/2015 0:00
4/27/2015 0:00
6/4/2015 0:00
6/19/2015 0:00

APPENDIX F

Pipe Capacity Calculations

West Avenue Full Flow Pipe Capacity Calculations

September 24, 2015

Existing Gravity Pipe - Full Flow Capacity: Park Avenue to Canal Crossing																
Pipe Segment ID	Pipe Material	Nominal Pipe Diameter (in.)	Pipe Outside Diameter (inches)	Pipe Wall Thickness (in.)	Pipe Inside Diameter (in.)	Pipe Diameter (feet)	Area (Sq Inches)	Area (Sq ft)	Hyd. Radius (in)	Hyd. Radius (Ft)	Slope (ft/100ft)	n Value	Flow (CFS)	Flow (GPM)	Flow (MGD)	Flow (GPD)
1	VCT	24	28.85	2.47	23.91	1.993	653.70	3.12	7.21	0.50	0.520	0.015	14.00	6,282.38	9.05	9,046,626
2	VCT	24	28.85	2.47	23.91	1.993	653.70	3.12	7.21	0.50	0.360	0.015	11.65	5,227.26	7.53	7,527,248
3	VCT	24	28.85	2.47	23.91	1.993	653.70	3.12	7.21	0.50	0.310	0.015	10.81	4,850.69	6.98	6,984,991
4	VCT	24	28.85	2.47	23.91	1.993	653.70	3.12	7.21	0.50	0.430	0.015	12.73	5,712.90	8.23	8,226,578
5	VCT	24	28.85	2.47	23.91	1.993	653.70	3.12	7.21	0.50	0.710	0.015	16.36	7,340.94	10.57	10,570,954
6	RCP	24	30.00	3.00	24.00	2.000	706.86	3.14	7.50	0.50	0.810	0.013	20.36	9,138.27	13.16	13,159,110
7	VCT	24	28.85	2.47	23.91	1.993	653.70	3.12	7.21	0.50	0.630	0.015	15.41	6,915.01	9.96	9,957,613
8	PVC	24	25.80	1.23	23.34	1.945	522.79	2.97	6.45	0.49	0.330	0.011	14.26	6,400.80	9.22	9,217,147
9	VCT	24	28.85	2.47	23.91	1.993	653.70	3.12	7.21	0.50	2.720	0.015	32.01	14,368.35	20.69	20,690,426

Existing Gravity Pipe - Full Flow Capacity: Canal Crossing to WWTF																
Pipe Segment ID	Pipe Material	Nominal Pipe Diameter (in.)	Pipe Outside Diameter (inches)	Pipe Wall Thickness (in.)	Pipe Inside Diameter (in.)	Pipe Diameter (feet)	Area (Sq Inches)	Area (Sq ft)	Hyd. Radius (in)	Hyd. Radius (Ft)	Slope (ft/100ft)	n Value	Flow (CFS)	Flow (GPM)	Flow (MGD)	Flow (GPD)
1	DIP	36	38.30	0.42	37.46	3.122	1,152.09	7.65	9.58	0.78	1.790	0.010	128.98	57,890.70	83.36	83,362,607
2	VCT	30	36.06	3.13	29.80	2.483	1,021.27	4.84	9.02	0.62	0.230	0.015	16.75	7,516.53	10.82	10,823,808
3	VCT	30	36.06	3.13	29.80	2.483	1,021.27	4.84	9.02	0.62	0.270	0.015	18.14	8,143.96	11.73	11,727,300
4	VCT	30	36.06	3.13	29.80	2.483	1,021.27	4.84	9.02	0.62	0.270	0.015	18.14	8,143.96	11.73	11,727,300
5	VCT	30	36.06	3.13	29.80	2.483	1,021.27	4.84	9.02	0.62	0.270	0.015	18.14	8,143.96	11.73	11,727,300
6	VCT	24	28.85	2.47	23.91	1.993	653.70	3.12	7.21	0.50	1.540	0.015	24.09	10,811.42	15.57	15,568,449
7	VCT	24	28.85	2.47	23.91	1.993	653.70	3.12	7.21	0.50	1.540	0.015	24.09	10,811.42	15.57	15,568,449
8	RCP	27	33.50	3.25	27.00	2.250	881.41	3.98	8.38	0.56	0.220	0.013	14.53	6,519.88	9.39	9,388,627
9	RCP	27	33.50	3.25	27.00	2.250	881.41	3.98	8.38	0.56	0.220	0.013	14.53	6,519.88	9.39	9,388,627
10	RCP	27	33.50	3.25	27.00	2.250	881.41	3.98	8.38	0.56	0.220	0.013	14.53	6,519.88	9.39	9,388,627
11	RCP	27	33.50	3.25	27.00	2.250	881.41	3.98	8.38	0.56	0.220	0.013	14.53	6,519.88	9.39	9,388,627

*See Pipe Capacty Sheet (Drawing C-01 & C-02) in this Appendix for pipe locations

Alternative 3, Route 1 Full Flow Pipe Capacity Calculations

September 24, 2015

Gravity Pipe - Full Flow Capacity: Alternative 3: Route 1 Connection at Intersection of Ohio St. and Commerical St. to Canal Crossing																
Pipe Segment ID	Pipe Material	Nominal Pipe Diameter (in.)	Pipe Outside Diameter (inches)	Pipe Wall Thickness (in.)	Pipe Inside Diameter (in.)	Pipe Diameter (feet)	Area (Sq Inches)	Area (Sq ft)	Hyd. Radius (in)	Hyd. Radius (Ft)	Slope (ft/100ft)	n Value	Flow (CFS)	Flow (GPM)	Flow (MGD)	Flow (GPD)
1	VCT	18	21.87	2.03	17.81	1.484	375.65	1.73	5.47	0.37	0.280	0.013	5.40	2,425.16	3.49	3,492,235
2	VCT	18	21.87	2.03	17.81	1.484	375.65	1.73	5.47	0.37	0.280	0.013	5.40	2,425.16	3.49	3,492,235
3	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.290	0.013	8.60	3,859.04	5.56	5,557,021
4	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.270	0.013	8.30	3,723.59	5.36	5,361,976
5	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.180	0.013	6.77	3,040.30	4.38	4,378,035
6	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.300	0.013	8.74	3,925.01	5.65	5,652,019
7	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.330	0.013	9.17	4,116.59	5.93	5,927,888
8	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.260	0.011	9.62	4,318.35	6.22	6,218,424
9	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.260	0.011	9.62	4,318.35	6.22	6,218,424
10	PVC	24	24.80	0.71	23.38	1.948	483.17	2.98	6.20	0.49	0.570	0.011	18.83	8,449.83	12.17	12,167,752
11	PVC	24	24.80	0.71	23.38	1.948	483.17	2.98	6.20	0.49	0.270	0.011	12.96	5,815.57	8.37	8,374,421
12	PVC	24	24.80	0.71	23.38	1.948	483.17	2.98	6.20	0.49	0.470	0.011	17.10	7,672.90	11.05	11,048,971
13	PVC	24	24.80	0.71	23.38	1.948	483.17	2.98	6.20	0.49	16.670	0.011	101.81	45,696.00	65.80	65,802,245

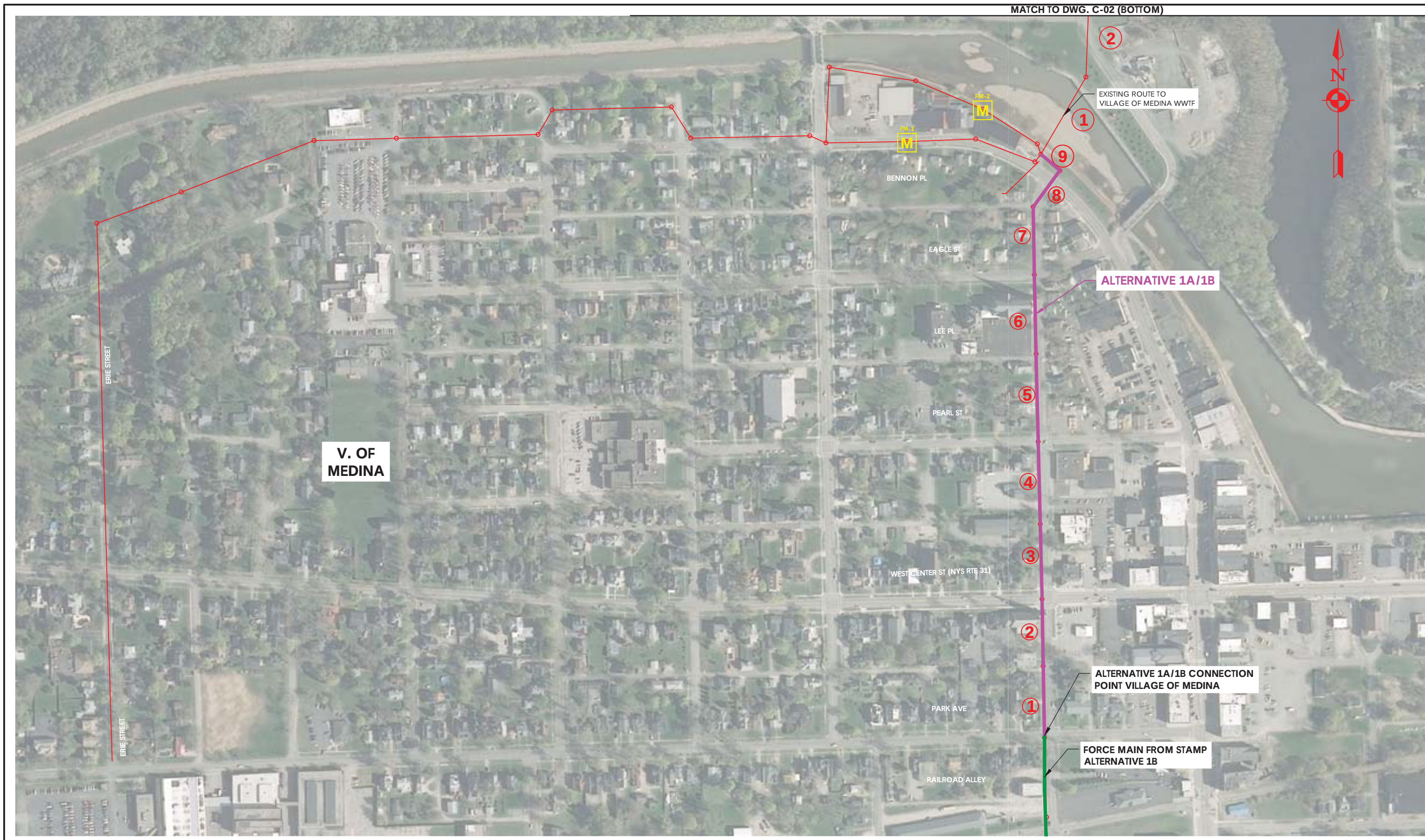
*See Pipe Capacty Sheet (Drawing C-03) in this Appendix for pipe locations

Alternative 3, Route 2 Full Flow Pipe Capacity Calculations

Gravity Pipe - Full Flow Capacity: Alternate 3: Route 2 Connection at Intersection of Ohio St. and Commerical St. to Canal Crossing																
Pipe Segment ID	Pipe Material	Nominal Pipe Diameter (in.)	Pipe Outside Diameter (inches)	Pipe Wall Thickness (in.)	Pipe Inside Diameter (in.)	Pipe Diameter (feet)	Area (Sq Inches)	Area (Sq ft)	Hyd. Radius (in)	Hyd. Radius (Ft)	Slope (ft/100ft)	n Value	Flow (CFS)	Flow (GPM)	Flow (MGD)	Flow (GPD)
1	VCT	18	21.87	2.03	17.81	1.484	375.65	1.73	5.47	0.37	0.280	0.013	5.40	2,425.16	3.49	3,492,235
2	VCT	18	21.87	2.03	17.81	1.484	375.65	1.73	5.47	0.37	0.280	0.013	5.40	2,425.16	3.49	3,492,235
3	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.290	0.013	8.60	3,859.04	5.56	5,557,021
4	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.270	0.013	8.30	3,723.59	5.36	5,361,976
5	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.180	0.013	6.77	3,040.30	4.38	4,378,035
6	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.300	0.013	8.74	3,925.01	5.65	5,652,019
7	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.330	0.013	9.17	4,116.59	5.93	5,927,888
8	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.260	0.011	9.62	4,318.35	6.22	6,218,424
9	VCT	22	25.78	2.36	21.06	1.755	521.98	2.42	6.45	0.44	0.260	0.011	9.62	4,318.35	6.22	6,218,424
10	PVC	18	18.70	0.54	17.63	1.469	274.68	1.70	4.68	0.37	0.500	0.011	8.30	3,727.07	5.37	5,366,982
11	PVC	18	18.70	0.54	17.63	1.469	274.68	1.70	4.68	0.37	0.150	0.011	4.55	2,041.40	2.94	2,939,617
12	PVC	18	18.70	0.54	17.63	1.469	274.68	1.70	4.68	0.37	0.400	0.011	7.43	3,333.59	4.80	4,800,375
13	PVC	18	18.70	0.54	17.63	1.469	274.68	1.70	4.68	0.37	0.400	0.011	7.43	3,333.59	4.80	4,800,375
14	PVC	18	18.70	0.54	17.63	1.469	274.68	1.70	4.68	0.37	13.780	0.011	43.59	19,566.24	28.18	28,175,380

*See Pipe Capacty Sheet (Drawing C-03) in this Appendix for pipe locations

MATCH TO DWG. C-02 (BOTTOM)



REVISIONS				
NO.	DATE	BY	CHKED	DESCRIPTION

CLARK PATTERSON LEE
DESIGN PROFESSIONALS
205 ST. PAUL STREET, SUITE 500
ROCHESTER, NEW YORK 14604
TEL (800) 274-9000
FAX (585) 232-5836
www.clarkpatterson.com

GENESEE COUNTY ECONOMIC DEVELOPMENT CORPORATION

TOWN OF ALABAMA GENESEE COUNTY NEW YORK STATE

DATE:	12/16/14
DRAWN:	ZLA
DESIGNED:	ARK
CHECKED:	TAC
SCALE:	AS NOTED

VILLAGE OF MEDINA SANITARY SEWER

PIPE CAPACITY KEY

PROJECT NUMBER 12498.11

DRAWING NUMBER C-01

Referenced Drawings: SR 63 orthos USGS_NY83-18
Drawing Name: J:\PROJECTS\GCEDC\STAMP Medina\D Design\ACAD\Civil\Site\West Ave Sewer-PipeCapacity.dwg Date last accessed: 8/18/2015 4:33 PM Date last plotted: 10/30/2015 6:58 AM Plotted By: Andrew Kosa

MATCH TO DWG. C-01 (TOP)

REVISIONS				
NO.	DATE	BY	CHKED	DESCRIPTION

CLARK PATTERSON LEE
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ROCHESTER, NEW YORK 14604
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GENESEE COUNTY ECONOMIC DEVELOPMENT CORPORATION

TOWN OF ALABAMA GENESEE COUNTY NEW YORK STATE

DATE:	12/16/14
DRAWN:	ZLA
DESIGNED:	ARK
CHECKED:	TAC
SCALE:	AS NOTED

VILLAGE OF MEDINA SANITARY SEWER

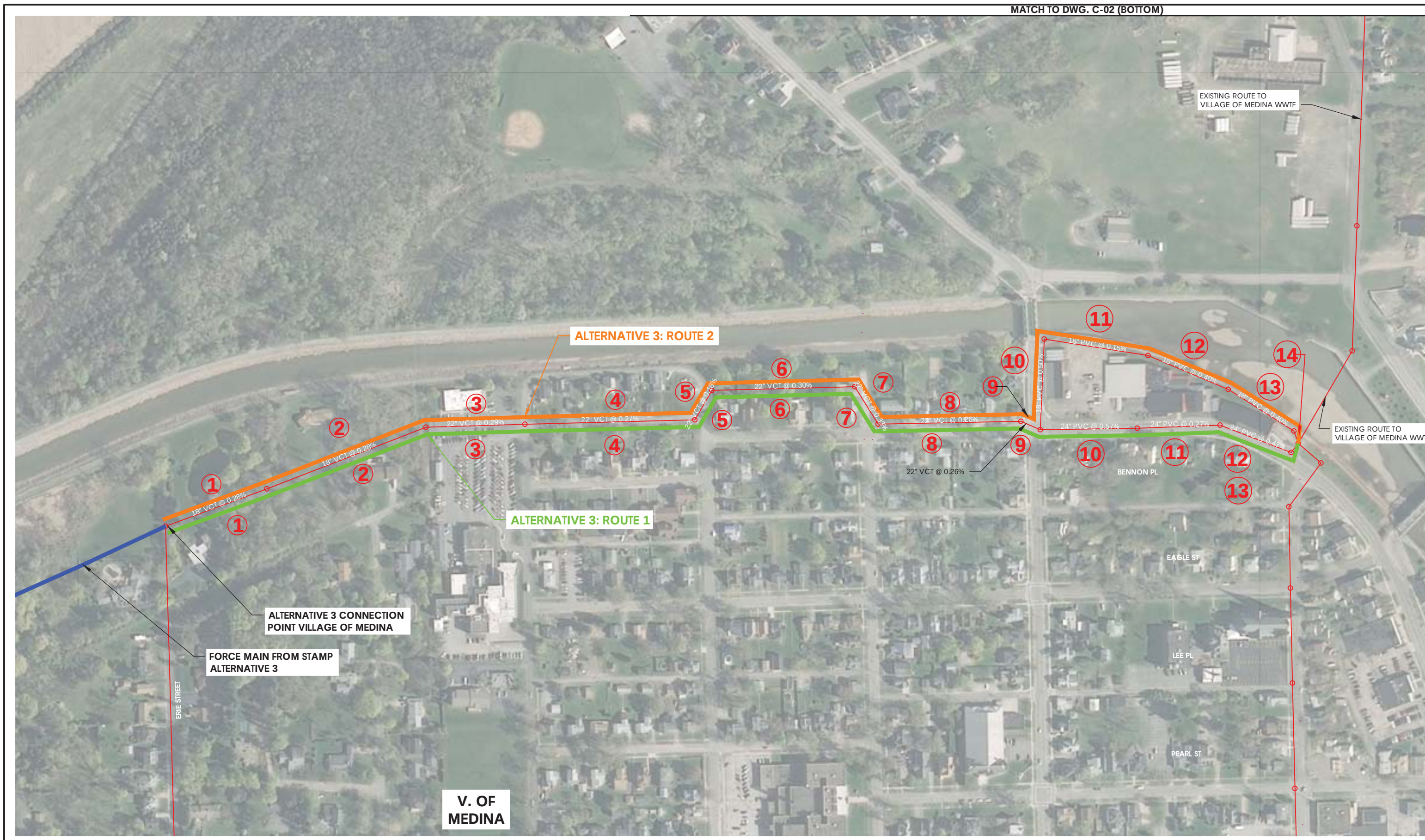
PIPE CAPACITY KEY

PROJECT NUMBER 12498.11

DRAWING NUMBER C-02

Referenced Drawings: SR 63 orthos USGS_NY83-18
Drawing Name: J:\PROJECTS\GCEDC\STAMP Medina\D Design\ACAD\Civil\Site\West Ave Sewer-PipeCapacity.dwg Date last accessed: 8/18/2015 4:33 PM Date last plotted: 10/30/2015 6:55 AM Plotted By: Andrew Kosa

MATCH TO DWG. C-02 (BOTTOM)



REVISIONS				
NO.	DATE	BY	CHKED	DESCRIPTION

CLARK PATTERSON LEE
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205 ST. PAUL STREET, SUITE 500
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GENESEE COUNTY ECONOMIC DEVELOPMENT CORPORATION

TOWN OF ALABAMA GENESEE COUNTY NEW YORK STATE

DATE:	12/16/14
DRAWN:	ZLA
DESIGNED:	ARK
CHECKED:	TAC
SCALE:	AS NOTED

VILLAGE OF MEDINA SANITARY SEWER

PIPE CAPACITY KEY

PROJECT NUMBER 12498.11

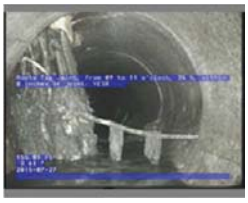
DRAWING NUMBER C-03

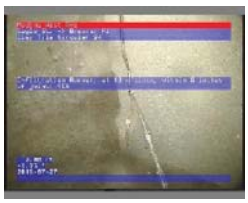
Referenced Drawings: SR 63 orthos USGS_NY83-18
Date last accessed: 8/18/2015 4:33 PM
Date last plotted: 10/30/2015 6:55 AM
Plotted By: Andrew Kosa

APPENDIX G

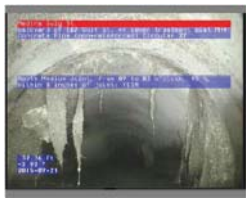
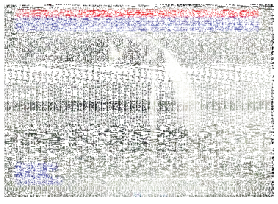
Televising Summary Log

West Avenue Sanitary Sewer Televising Log – West Avenue/Park Avenue to WWTF

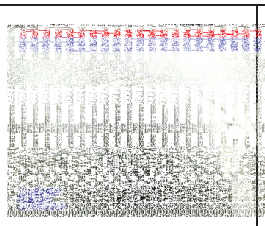
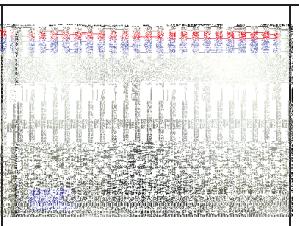
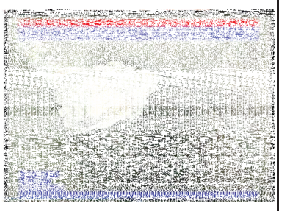
Start MH	End MH	Total Length (ft)	Pipe Condition Photographs			Notes
West Ave/Park Ave	493 West Ave	238				No issues
493 West Ave	W. Center (Route 31)	219				Root ball*
W. Center (Route 31)	414 West Ave	251				Root balls*
						
414 West Ave	Pearl St.	273				Longitudinal cracks, root balls*, multiple cracks
						

Pearl St.	Lee St.	292				Root balls*, defective tap, longitudinal cracks, multiple cracks
						
Lee St.	Eagle St.	266				No issues
Eagle St.	Brennon Pl.	223				Infiltration gusher, infiltration runner, deformed 20%, root balls*, longitudinal crack, multiple cracks
						
						
Brennon Pl.	N. Main St. (63-S)	227				No issues

West Avenue Sanitary Sewer Televising Log – West Avenue/Park Avenue to WWTF

N. Main St. (63-S)	To North (Under Canal)	291				No issues
Canal MH	To NNW (T.P #3)	257				Infiltration gusher
Glenwood Ave (T.P #3)	Sewer Plant	17				No Issues
187 Glenwood Ave.	199 Glenwood Ave	256				Root Balls
199 Glenwood	Glenwood/Oak St.	362.18				No issues
Glenwood Ave./Oak St	Overflow chamber	29.30				No Issues
Backyard of 178 Gulf St.	Sewer treatment plant MH#1	245.86				Root Balls*

West Avenue Sanitary Sewer Televising Log – West Avenue/Park Avenue to WWTF

Sewer plant MH#1	Sewer plant MH#2	193.53				Root Balls*
Sewer plant MH#2	Sewer treatme nt plant	137.74				Root Balls*
T.P #3	Gulf St. MH	32.00				No Issues

* Problem observed in video but not listed in report from Kandey Company.

APPENDIX H

Village of Medina and

NYSDEC Review Comments

February 29, 2016

Mr. Andrew R. Kosa, PE
Senior Associate
Clark Patterson Lee
205 St. Paul Street, #500
Rochester, NY 14604

RE: STAMP OFFSITE SANITARY SEWER ANALYSIS

Dear Mr. Kosa:

We have had the opportunity to review the Draft Engineering Report that Clark Patterson Lee has developed for the Genesee County Economic Development Center entitled, "STAMP Offsite Sanitary Sewer Analysis."

As the Village of Medina's representative, we find the recommended routing acceptable as it identifies Route 63 as the preferred sanitary sewer route from the STAMP site to the Village of Medina at West Avenue. We would further like to state that a gravity main would be the preferred method to convey sanitary sewage along West Avenue to a connection point at Park Avenue, but the Village is willing to have further discussion on the utilization of a force main as there is a cost difference in the two options.

Sincerely,
Wendel

Brian Sibiga, PE
Senior Associate Principal

Andrew Kosa

From: Andrew Kosa
Sent: Thursday, February 25, 2016 3:17 PM
To: Andrew Kosa
Subject: FW: Draft STAMP Offsite Sanitary Sewer Route Analysis

From: Sheeley, Scott E (DEC) [mailto:scott.sheeley@dec.ny.gov]
Sent: Friday, February 12, 2016 4:41 PM
To: Sheila Hess <shess@ccenvironment.com>
Subject: FW: Draft STAMP Offsite Sanitary Sewer Route Analysis

Sheila,

I've received some additional feedback from staff on Wildlife and Water Issues:

Wildlife
There are state-listed species within the utility route corridor. To really determine permit and work restrictions, we'll need additional information and detail on schedule, work plans, construction drawings. With that said, the following should be considered as the project is developed:

- Work should stay within highway ROW and as close to existing disturbed road shoulders wherever possible;
- There may be time-of-year restrictions imposed, even for work along road shoulders;
- And there's potential for Part 182 permit requirements.

We are available to consult further on these issues as the design progresses.

Water
Scott Rodabaugh and Karis Manning provided some comments on this and indicated that "The base added flow of .2mgd to Medina facility should not be an issue. Added future flows of 1 mgd (or greater) are well within the current capacity of the plant, but should only be considered upon completion of planned plant upgrades, completion of an acceptable I&I evaluation of the collection system, and completion of needed repairs/replacement of collection system piping (based upon the I&I study results)." Also, taking flow into West Ave. is acceptable, with the caveat that the I and I work get studied and that pipe be replaced in near future. In addition, as we have discussed before, details of a pre-treatment program for tenants/users at the STAMP site also need to be developed.

Hope this is helpful.

Scott

Scott E. Sheeley
Regional Permit Administrator, Division of Environmental Permits

New York State Department of Environmental Conservation
Region 8, 6274 E. Avon-Lima Rd., Avon, NY 14414
P: (585) 226-5382 | F: (585) 226-2830 | scott.sheeley@dec.ny.gov
www.dec.ny.gov |

From: Sheeley, Scott E (DEC)
Sent: Tuesday, February 09, 2016 3:58 PM
To: 'Sheila Hess'
Subject: RE: Draft STAMP Offsite Sanitary Sewer Route Analysis

Good Afternoon Sheila,

I shared the report with staff here, but I haven't gotten any feedback yet on it. I've taken look at the preferred route in GIS (see description on page 2 description of "Base Force Main Project", and page 13 for preferred route within the Village). This involves force main along SR 63 north from the STAMP site to Route 31, then continuing north into the Village along West Avenue. Based on that, I'll offer the following preliminary comments:

- Archaeologically sensitive areas along route – will required OPHRP coordination and SHPA compliance (unless reviewed under Section 106 pursuant to federal jurisdiction)
- One large state-freshwater wetland (A-5), where there will likely be adjacent area impacts, and perhaps wetlands, requiring an Article 24, Freshwater Wetland permit
- About 8 – 9 crossings of class C streams, which may require a Section 401 Water Quality Certification depending on how the Corps of Engineers handles the Section 404 jurisdiction.
- No DEC lands along route
- Several records of state-listed bird species along route – bald eagle, a couple grassland species, and pied-billed grebe. There is a need to consult further with our Wildlife staff concerning state-listed species to determine potential impacts and need for an Article 11, Incidental Takings permit. To avoid impacts time-of-year restrictions on the work may also be required.
- Possible involvement with federal lands if unable to stay completely within State DOT ROW.

I don't think the above results are unexpected, and to the extent the project stays on DOT ROW within the road shoulder the impacts should be minimal. However, there will be state Article 24 permitting involved and need for at least Erosion & Sediment Control SWPPP coverage under the SPDES GP. In addition, as noted above, further input from our Wildlife staff is needed regarding state-listed species and potential Article 11 jurisdiction.

Division of Water staff are also still reviewing the report and may have comments to provide on the wastewater collection and treatment design considerations/discussion.

I'll let you know if I receive anything further from staff on this. In the meantime, I hope the above information is helpful for your discussion.

Thanks.

Scott

(P.S. – I apologize if this is a second reply to the same message. I thought I had sent one, but couldn't find record of it in my "sent" box.)

From: Sheila Hess
Sent: Friday, January 15, 2016 4:46 PM
To: Sheeley, Scott E (DEC) <scott.sheeley@dec.ny.gov>
Subject: Draft STAMP Offsite Sanitary Sewer Route Analysis

Hi Scott,

Please use the link below to access the WNY STAMP Offsite Sanitary Sewer Route Analysis Report. The upcoming SEQR update will include reference to this analysis and we are hoping you and appropriate DEC staff will be able to provide a "red flag" review prior (within the next couple of weeks) if possible. Let me know if you have any questions. Thanks!

https://conservationconnectsllc.sharepoint.com/_layouts/15/guestaccess.aspx?guestaccesstoken=hevo3%2fLFGE6efImcF8D67NY2SWr2WlhqfT2e%2bxTy1Gc%3d&docid=0d779847ad93e45c2a63d84fbedcf6532

Sheila Hess
Principal Ecologist/CEO
CC Environment & Planning