TECHNICAL MEMORANDUM

To:

Nicholas Capozza, Onondaga County Department of Water Environment Protection

Copies:

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From:

John C. Perriello, P.E.
Benjamin R. Tillotson, PE

Date:

April 9, 2018 (Revised 11.30.18)

Arcadis Project No.:

B0000384.0025

Subject:

WO No. 25 – Ultra Dairy Facility Conceptual Routing Evaluation for New Sewer

INTRODUCTION AND BACKGROUND

Arcadis of New York, Inc. (Arcadis) was retained by Onondaga County Department of Water Environment Protection (OCDWEP, The County) per Work Order No. 25 of the Miscellaneous Engineering Services, to provide an evaluation and planning level options for siting a new sanitary sewage pump station and route(s) for a new sanitary sewage force main to tie-into the existing Franklin Park Trunk Sewer along Route 298 just west of the Kinne Street intersection. The County has indicated that the existing town/city collection sewers and the Franklin Park Trunk Sewer serving the industrial area located east of Fly Road (Ultra Dairy and the future Fulton Boiler, formally Edward Joy Mechanical building) has insufficient capacity to accommodate the projected peak wastewater flows between 1 and 2 million gallons per day (mgd). The County indicated that the Franklin Park Trunk Sewer in the upstream reaches is small, in the order of 10 to 12-inch diameter and was not designed to accommodate these industrial flows. It is desired to route the wastewater flows from these industries downstream to a location on the Franklin Park Trunk Sewer located on Route 298 that possesses adequate flow capacity.

This Technical Memorandum summarizes Arcadis' evaluation of two potential force main routes, a proposed pump station, an opinion of probable construction cost and a preliminary project schedule.

A site plan of the area which shows the two industries and the existing town/city collection sewers and Franklin Park Trunk Sewer is included in Attachment A. Benjamin Tillotson and John Perriello conducted a site reconnaissance to assess the area for the pump station location and potential force main routes and tie-in location to the Franklin Park Trunk Sewer near the intersection of Route 298 and Kinne Street. A photo log from the site reconnaissance is included in Attachment B.

PUMP STATION

Per the County, the resulting wastewater from Fulton Boiler could result in wastewater temperatures of up to 150 degrees Fahrenheit (F); therefore, due to the potentially high wastewater temperatures, a traditional submersible pump station would not be suitable for this application. Arcadis recommends utilizing a duplex, self-priming suction lift pump station with a weatherproof enclosure to convey the flows from the industries to the downstream Franklin Park Trunk Sewer. The duplex pump station would include a precast concrete wet well tied with the industry gravity laterals/collection sewers, an aboveground heated enclosure which would house the pumps, piping, discharge valves and pump motor controls. Manufacturer's information on the proposed pump station are included in Attachment C.

The pumps would be sized for a peak flow of approximately 2 mgd or 1,400 gallons per minute (each pump with one pump acting as a standby unit).

During the site reconnaissance, Arcadis identified a potential location for the pump station located within a grassed area at the east end of Benedict Road and adjacent to the town/city collection sewer situated between the Ultra Dairy and Fulton Boiler buildings. The site is located within the Benedict Road right-of-way and west of the I-481 right-of-way, refer to Photo No. 4 in Attachment B. There appears to be three phase electrical power (via existing poles) adjacent to this site.

CONCEPTUAL FORCE MAIN ALTERNATIVES

Force Main Sizing and Pipeline Materials

Per the County, the estimated wastewater flow rates from Ultra Dairy and Fulton Boiler are between 1 and 2 mgd. Per 10 States Standards, the force main should be sized to maintain a minimum cleansing velocity of 2 feet per second (ft/s) and a maximum velocity of 8 ft/s to avoid high head loss. Several force main pipe sizes were evaluated for this flow range and are presented below:

Pipe Size, Inches Diameter	Pipe Velocity, Ft/s @ 1 mgd	Pipe Velocity, Ft/s @ 2 mgd
8	4.42	8.84
10	2.84	5.67
12	1.97	3.94

Based upon the desired velocity ranges, a 10-inch (inside) diameter force main is the preferred size for the estimated flow range.

Since the force main may be subjected to high wastewater temperatures, up to 150 degrees F, Arcadis performed a materials compatibility review for commonly used sanitary sewer pipeline materials including high density polyethylene (HDPE), polyvinyl chloride (PVC) and ductile iron pipe (DIP). Based on the compatibility review, PVC, and HDPE pressure pipe, are commonly rated up to 140 degrees F; however, some HDPE products can be pressure rated to high temperatures up to 180 degrees F. DIP with seal coated cement-mortar linings are rated up to 150 degrees F. Due to the temperature of the fluid, for cost

estimating purposes, High-Temperature Rated HDPE pipe will be used. If High-Temperature Polyethylene pipe is used for the design of the force main, the actual wastewater temperatures, system pressures, and considerations for thermal expansion will need to be further evaluated.

Force Main Routes

Arcadis reviewed existing sewer mapping provided by the County and Syracuse-Onondaga County GIS mapping for the area between Fulton Boiler and Ultra Dairy to the Franklin Park Trunk Sewer near the intersection of Route 298 and Kinne Street. No field survey of the existing force main routes or easement/property deed research was performed for this evaluation. Arcadis identified two potential force main routes and walked the routes during our site reconnaissance. A description of each force main alternative is described below and a plan showing the alternative routes is included in Attachment D.

Alternative A

From the proposed pump station, the force main would be routed west down the south side of Benedict Road and then northwest crossing Benedict Road at an unnamed access road to Inficon. The force main would then be routed northwest along the unnamed access road to its endpoint. The force main in this segment could be installed by either open-cut or horizontal directional drilling (HDD) methods. From the end of the unnamed access road, the force main would be constructed west across Fly Road by either HDD or jack-and-bore methods to the south side of Sunny Square Drive. The force main would be constructed west along an existing drainage swale past Hammersmith Drive and along a wooded area adjacent to the drainage swale. This segment of the force main could be installed using either open-cut or HDD methods. It is believed that an existing drainage easement may exist along this drainage swale, but this would need to be researched and verified. The force main would then be routed west to the existing railroad spur adjacent to Wells Drive. The force main would cross the railroad spur by jack-and-bore methods to the north side of the Wells Drive right-of-way. The force main would continue eastward along the northside of the drainage swale to Tilden Drive where at this point the drainage swale turns northward. The force main would continue west, leaving the drainage swale, through a wooded area parallel to the apartment buildings located on Deerfield Road. Given that this area is densely wooded, it would be required that the route be cleared and the force main could be installed using either open-cut or HDD methods. It is assumed that this segment of the force main would require a permanent easement. The force main would then be routed northward to Sanders Creek Parkway and then west within the road right-of-way to the intersection with Kinne Street. Along Kinne Street, the force main would continue north on the east side of the roadway. Just prior to the intersection of Kinne Street and Route 298, the force main would cross Kinne Street by either HDD or jack-and-bore methods to the south side of Route 298 where it would be connected into the existing Franklin Park Trunk Sewer.

Alternative A would consist of approximately 7,825 linear feet of 12-inch diameter (10-inch inside diameter) force main and would require crossings at Benedict Road, Fly Road, a railroad spur, Sanders Creek Parkway and Kinne Street. This alternative avoids disruption to much of the Franklin Park neighborhood. Assuming the existence of an existing easement along the well-defined drainage swale, this alternative would require approximately 1,800 linear feet of easement acquisition across the following properties:

Parcel No.	Address	Owner	Use
027.-02-23.0	132 Creek Circle	Syracuse SMSA Lmt.Part.	Distribution Facility
027.-02-22.3	114 Creek Circle	Edgewater/United Reality	Vacant Industrial

027.-02-22.2	148 Sanders Creek Pkwy	Town of Dewitt	Fire/Police
027.-02-22.1	Sanders Creek Pkwy	Edgewater/United Reality	Vacant Industrial

Alternate B

From the proposed pump station, the force main would be routed west down the south side of Benedict Road within the right-of-way to Fly Road. The force main in this segment could be installed by either open-cut or horizontal directional drilling (HDD) methods. From the intersection of Benedict Road and Fly Road, the force main would be constructed west across Fly Road by either HDD or jack-and-bore methods to the south side of Fly Road. The force main would be routed south along the Fly Road right-of-way, across Hammersmith Drive by either HDD or jack-and-bore methods than west along the south side of Hammersmith Drive. Approximately 950 linear feet from the intersection of Fly Road, the force main would be routed from the road right-of-way, west across an undeveloped property to the railroad spur located east of Wells Drive. This segment of the force main would require an easement (from Hammersmith Drive to Wells Drive). The force main would cross the railroad spur and Wells Drive by jack-and-bore methods to the south side of Winchester Road. The force main would continue eastward along the south side of Winchester Road within the right-of-way crossing the following cross streets: Curwood Drive, Carson Drive, Wembridge Drive, Tilden Drive, Washburn Drive, Stillwell Circle, and Barton Circle. At the intersection of Winchester Road and Franklin Park Drive, the force main would cross Winchester Road and continue along the north side of Franklin Park Drive within the road right-of-way crossing Saginaw Drive, Deerfield Road and Kinne Street. All road crossings could be performed using HDD methods. From the west side of Kinne Street, the force main would be routed north and west parallel to the Franklin Park Trunk Sewer within the road right-of-way to a connection point adjacent to the intersection of Kinne Street and Route 298.

Alternative B would consist of approximately 8,425 linear feet of 12-inch diameter (10-inch inside diameter) force main and would require crossings at Fly Road, Hammersmith Drive, a railroad spur, Wells Drive, Curwood Drive, Carson Drive, Wembridge Drive, Tilden Drive, Washburn Drive, Stillwell Circle, Barton Circle, Winchester Road, Saginaw Drive, Deerfield Road, and Kinne Street. This alternative has the potential to create significant traffic disruptions in the Franklin Park neighborhood. Except for an approximate length of 500 linear feet of easement required between Hammersmith Drive and Wells Drive, the remaining force main could be constructed within the existing road rights-of-ways. The easement acquisition would be across the following property:

Parcel No.	Address	Owner	Use
037.-10-04.4	Fly Road	Anaren Microwave	Vacant Industrial

COST ESTIMATE

The proposed project would consist of a 1,400 gpm, packaged duplex suction-lift pump station with integral controls and discharge valving and a High-Temperature Polyethylene (SDR 11) 12-inch diameter (inside diameter equal to 10.3 inches) force main. The total project cost estimate for the proposed pump station and each of the force main alternatives (A and B) are presented in Table 1-1. The costs presented herein are considered an AACE Class-5 estimate with an accuracy of -30-percent to +50-percent. A breakdown of the total project cost estimate can be found in Attachment E, including an opinion of probable construction cost (OPCC) based on 2019 dollars with construction presumed to start summer of 2019.

Alternatives	Total Project Cost (2019 Dollars)
Alternative A	$3,900,000.00
Alternative B	$4,100,000.00

SCHEDULE

The project would be executed through a conventional Design-Bid-Build project since there are no New York State provisions which would qualify it to be executed as a Design-Build project. To be a Design-Build project, it would have to be performed under one of the permitted state agencies (e.g., Dormitory Authority), be an energy savings performance contract (ESCO) or obtain New York State Legislative approval. This project does not meet any of the New York State Design-Build criteria for a municipally funded project.

The following is a preliminary project schedule for the pump station and force main project:

Survey and Subsurface Borings	2 months from Notice to Proceed (NTP)
Easement Preparation/Acquisition	6 months from NTP
Final Design	9 months from NTP
Permitting/Approvals	12 months from NTP
Bidding and Award	15 months from NTP
Construction Completion	27 to 30 months from NTP

The above construction schedule could possibly be shortened if the packaged pump station is pre-purchased in advance of the construction contract. This could potentially shorten the total schedule by 4 to 6 months.

SUMMARY

Arcadis evaluated a pump station and two different force main routes to convey projected wastewater generated from the Ultra Dairy and Fulton Boiler facilities to a location on the Franklin Park Trunk Sewer with available flow capacity. Based on our evaluation, it is recommended that a suction-lift pump station be constructed at the end of Benedict Road adjacent to the Ultra Dairy and Fulton Boiler facilities and that a 12-inch diameter High-Temperature Polyethylene force main be constructed along the Alternative A route. The Alternative A force main route is slightly more cost effective than the Alternative B route and will minimize localized traffic disruptions in the Franklin Park neighborhood.

ATTACHMENT A

Existing Site Plan

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DRAFT THIS MAP INTENDED FOR GENERAL PLANNING PURPOSES ONLY

Created : 3/7/2018 by : dsmhenn

Onondaga County Wastewater Infrastructure

Wastewater Flow from Ultra Dairy LLC

Suggested / Potential Force Main Alignment

C/O ULTRA DAIRY LLC

Ley Creek PS

Project Site

Salina

Geddes

Dewitt

Onondaga

Lafayette

ROUTE 298

KINNE ST

NEW VENTURE GEAR DR

MYERS RD

CAMPUSWOOD DR

FAIR LAKES RD

CHRYSLER LN

THOMPSON RD

YORKT OWN CIR

OLD COLLAMER RD S

BAPTIST WAY

WEIGHLOCK DR

SAUNDERS CREEK PKWY

CREEK CIR

TECHNOLOGY PL

FLY RD

I-481

DEERFIELD RD

SAGINAW DR

TILDEN DR

WEMBRIDGE DR

CARSON DR

GURWOOD DR

WELLS DR

HAMMERSMITH DR

W BENEDICT RD

LYONS ST

STILLWELL CIR

BARTON CIR

WASHBURN DR

SCOTLAND RD

SARGENT RD

RUTGER RD

LYNDALE CT

ALTMONT DR

RICHWOOD DR

LONGWOOD DR

BROADMOR E LN

ARONES DR

KIRKVILLE RD

E MANLIUS ST

GREENTREE DR

REVERE AV

EXETER ST

BENNETT ST

BALL LN

WATERTREE DR

CUTLER ST

Onondaga County Trunk Sewer

Field Verified Town/City Sewer

Outfall Piping

Forcemain

Onondaga County Manhole / Air Relief Valve

Onondaga County Pump Station

0 600 1,200 2,400

1 inch = 800 feet

4

Onondaga County Water Environment Protection

7120 Henry Clay Boulevard, Liverpool NY 13088

P. 315-435-5402

ATTACHMENT B

Photograph Log

PHOTOGRAPH LOG

Onondaga County Department of Water Environment Protection
Ultra Dairy Facility Conceptual Routing Evaluation for New Sewer / B0000384.0025
Town of DeWitt, New York

Photograph: 1

Description:
Proposed Force Main Route from Pump Station

Location:
Benedict Road between Ultra Dairy and Fulton Boiler

Direction Taken:
West

Date: 4/2/2018

Photograph: 2

Description:
Fulton Boiler from Proposed Pump Station, County Sewer in foreground

Location:
Benedict Road between Ultra Dairy and Fulton Boiler

Direction Taken:
Northwest

Date: 4/2/2018

Photograph: 3

Description:
Ultra Dairy from Proposed Pump Station

Location:
Benedict Road between Ultra Dairy and Fulton Boiler

Direction Taken:
Southwest

Date: 4/2/2018

Photograph: 4

Description:
Proposed Pump Station Site, County Sewer in foreground, I-481 in background

Location:
Benedict Road between Ultra Dairy and Fulton Boiler

Direction Taken:
South

Date: 4/2/2018

Photograph: 5

Description:
Proposed Force Main Route (Alt. A)

Location:
Unnamed Service Road from Benedict Road to Inficon

Direction Taken:
Southeast

Date: 4/2/2018

Photograph: 6

Description:
Proposed Force Main Route (Alt. A) Looking across Fly Road along Sunny Square Drive

Location:
Unnamed Service Road from Benedict Road to Inficon

Direction Taken:
West

Date: 4/2/2018

Photograph: 7

Description:
Proposed Force Main Route (Alt. A) Looking across Fly Road along Sunny Square Drive

Location:
Intersection of Fly Road and Sunny Square Drive

Direction Taken:
West

Date: 4/2/2018

Photograph: 8

Description:
Gas Marker along Proposed Force Main Route (Alt. A)

Location:
Sunny Square Drive

Direction Taken:
South

Date: 4/2/2018

Photograph: 9

Description:
Proposed Force Main Route (Alt. B)

Location:
Intersection of Fly Road and Sunny Square Drive along West Side of Fly Road

Direction Taken:
South

Date: 4/2/2018

Photograph: 10

Description:
Proposed Force Main Route (Alt. A) along Drainage Swale

Location:
Sunny Square Drive

Direction Taken:
West

Date: 4/2/2018

Photograph: 11

Description:
Proposed Force Main Route (Alt. A) along Drainage Swale

Location:
Sunny Square Drive

Direction Taken:
East

Date: 4/2/2018

Photograph: 12

Description:
Proposed Force Main Route (Alt. A)

Location:
Intersection of Hammersmith Drive and Sunny Square Drive

Direction Taken:
Northeast

Date: 4/2/2018

Photograph: 13

Description:
Gas Marker along Proposed Force Main Route (Alt. A)

Location:
Sunny Square Drive at "Spirit & Sanzone" Entrance

Direction Taken:
West

Date: 4/2/2018

Photograph: 14

Description:
Proposed Force Main Route (Alt. B)

Location:
Hammersmith Drive

Direction Taken:
West

Date: 4/2/2018

Photograph: 15

Description:
Proposed Force Main Route (Alt. B)

Location:
Hammersmith Drive

Direction Taken:
East

Date: 4/2/2018

Photograph: 16

Description:
Proposed Force Main Route (Alt. A) at Railroad Spur

Location:
East End of Winchester Road

Direction Taken:
East

Date: 4/2/2018

Photograph: 17

Description:
Proposed Force Main Route (Alt. B), Water and Electric on Northside of Roadway

Location:
Intersection of Winchester Road and Washburn Drive

Direction Taken:
West

Date: 4/2/2018

Photograph: 18

Description:
Proposed Force Main Route (Alt. A) along Drainage Swale

Location:
North End of Wells Drive

Direction Taken:
West

Date: 4/2/2018

Photograph: 19

Description:
Proposed Force Main Route (Alt. A) along Drainage Swale, Railroad Spur in background

Location:
North End of Wells Drive

Direction Taken:
East

Date: 4/2/2018

Photograph: 20

Description:
Proposed Force Main Route (Alt. A) from Railroad Spur

Location:
North End of Wells Drive

Direction Taken:
East

Date: 4/2/2018

Photograph: 21

Description:
Proposed Force Main Route (Alt. A)

Location:
North End of Tilden Drive at Drainage Swale

Direction Taken:
East

Date: 4/2/2018

Photograph: 22

Description:
Proposed Force Main Route (Alt. A)

Location:
North End of Tilden Drive at Drainage Swale

Direction Taken:
West

Date: 4/2/2018

Photograph: 23

Description:
Proposed Force Main Route (Alt. B)

Location:
Intersection of Winchester Road and Franklin Park Drive

Direction Taken:
Southeast

Date: 4/2/2018

Photograph: 24

Description:
Proposed Force Main Route (Alt. B)

Location:
Intersection of Winchester Road and Franklin Park Drive

Direction Taken:
Northwest

Date: 4/2/2018

ATTACHMENT C

Pump Manufacturer Cut Sheets

MUNICIPAL

RELIASOURCE®

TOTAL SYSTEM RESPONSIBILITY

Your Single Source for Total Lift Station Reliability.

GORMAN-RUPP PUMPS

THE MUNICIPAL MARKET'S MOST RELIABLE LIFT STATION. GUARANTEED.

For decades, municipalities have trusted Gorman-Rupp for the most reliable heavy-duty sewage pumps in the industry. But even the world's best pump can't operate alone.

Effective wastewater handling requires lift stations with valves, controls, pipes and pumps that all work together to meet your sewage handling needs. If any one of these components fails, it can put your operation–and your investment–at risk.

Gorman-Rupp created the ReliaSource® line of packaged, fully customizable, above- and below-ground lift stations to eliminate costly service interruptions caused by interior parts. Every component of a ReliaSource lift station–from the pumps, to the NEMA-rated controls, to the corrosion- and weather-resistant fiberglass enclosures–is 100% Gorman-Rupp custom-engineered, manufactured and assembled. With Gorman-Rupp quality inside and out, ReliaSource lift stations outlast and outperform any other lift station on the market, delivering trouble-free performance you can rely on. Guaranteed.

A 99% Customer Satisfaction Rating Begins with 100% Gorman-Rupp Quality.

There's more than one reason why ReliaSource® customers are completely satisfied with their lift stations. From specifying the right equipment, to custom-engineering and design, through testing and installation, Gorman-Rupp is your single source for complete lift station satisfaction:

01 Specification

Our highly trained distribution team works hand-in-hand with both municipalities and consulting engineers to understand your wastewater and solids-handling challenges and analyze your total system requirements. Our distributors can help recommend and specify the best ReliaSource lift station for the job.

02 Custom Engineering and Design

Our experienced engineers custom-design your ReliaSource lift station to your specifications. We precision-match pumps, motors, controls, valves, pipes and accessories for maximum compatibility and maximum performance.

03 Factory-Built

Every component of a ReliaSource lift station is 100% manufactured by Gorman-Rupp in our state-of-the-art facilities, taking advantage of the latest technologies and innovations. Each lift station is fully assembled in-house by our experts.

04 Testing

Every ReliaSource lift station is rigorously tested using a wide range of testing options based on customer specifications and guided by Hydraulic Institute testing standards. By testing the complete unit under your unique operating requirements, we ensure your equipment performs exactly as it should.

05 Installation

ReliaSource lift stations are shipped complete from the factory, ready for professional installation. Just add power and connect piping for years of reliable lift station performance.

ReliaSource® Above-Ground Submersible Valve Package (ASVP)

RELIASOURCE® DELIVERS DECADES OF PERFORMANCE AND VALUE.

Gorman-Rupp is committed to meeting your sewage and wastewater handling requirements long after installation.

The quality manufacturing and testing that go into every ReliaSource® lift station guarantee long-lasting, trouble-free operation. And we provide the fastest parts service and the industry's best warranty to back up our products and ensure your peace of mind.

Make ReliaSource® Your Single Source For:

Value

ReliaSource lift stations boast some of the lowest lifecycle costs in the industry. Because of the quality manufacturing and testing that goes into every ReliaSource lift station, you benefit from minimal service interruptions and some of the lowest maintenance in the industry. ReliaSource delivers the best ROI by ensuring low operating costs for decades.

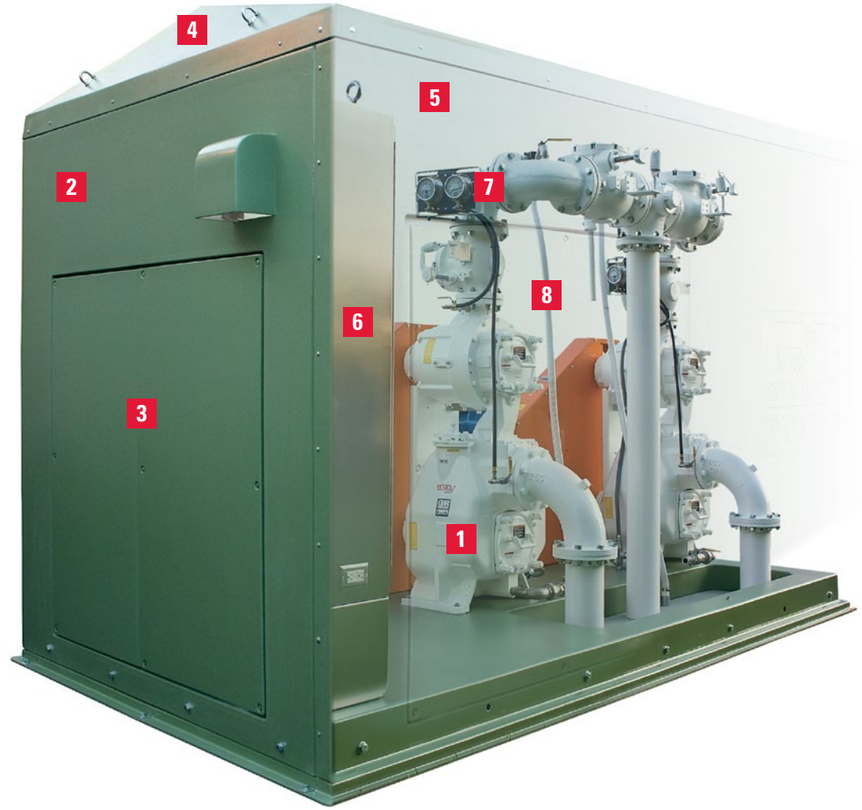
Parts and Service

When you need a replacement part for your ReliaSource lift station, you'll have it fast. With tens of thousands of genuine Gorman-Rupp parts and pumps at our disposal, we fill and ship 97% of parts orders within 24 hours. If your ReliaSource lift station ever does require service, our worldwide network of factory-trained distributors is ready to quickly respond to your needs. With just one number to call for parts and service for your entire lift station, it's easy and convenient to keep your equipment performing as it should.

Peace of Mind

At Gorman-Rupp, we don't just say our lift stations are reliable. We prove it by guaranteeing our equipment longer than any other manufacturer in the business. Unlike standard 90-day or one-year warranties, every part and working component of a ReliaSource lift station is guaranteed for five full years. From the pumps, to the valves, controls, piping and enclosure, we will repair or replace anything found to be defective during the warranty period. With ReliaSource, reliable performance is always guaranteed.

RELIASOURCE® 8x12 ABOVE-GROUND LIFT STATION



The original ReliaSource® packaged lift station, the 8x12 above-ground model represents the long-lasting performance, quality and convenience that define the ReliaSource brand. Fully customizable and NFPA 820-compliant, the 8x12 is our most robust model, capable of accommodating a variety of pump configurations and sophisticated controls to meet your pumping requirements.

01–Pumps

Accommodates Gorman-Rupp self-priming pumps in duplex and triplex configurations:

Super T Series® Pumps
Sizes 3-8" in duplex arrangements up to 100 HP
Sizes 3-4" in triplex pump arrangements

Ultra V Series® Pumps:
Sizes 3-6" in duplex arrangements up to 100 HP
Sizes 3-4" in triplex arrangements up to 60 HP

02–Enclosure

Manufactured with Nida-Fusion® STO complexes, created by Nida-Core Corp, for flexural strength, excellent fatigue and delaminating resistance*

03–Maintenance access panels on two sides

04–Removable roof

05–Man-door station entrance

06–Interior wall for accommodating more sophisticate controls

07–Custom-engineered, NEMA-rated automatic controls:

Includes your choice of adjustable pressure controls, H-O-A selectors, overload reset buttons and circuit breakers for station accessories

Available U.L. and C.S.A. listed

08–Clearly marked field connections for fast and efficient electrical hook-up

Specifications

Pump Size: 3" (75 mm), 4" (100 mm), 6" (150 mm), 8" (200 mm)
Max. Capacity: 2600 GPM (164.0 lps)
Max. Solids: 3" (76.2 mm)
Max. Head: 320' (97.5 m)
Max Temperature: 160°F (71°C)
Motor – Voltage: 200 V 3P, 230 V 1P, 230 V 3P, 460 V 3P
Motor – Cycles: 60 Hz
Horsepower: 2 HP - 100 HP

**Exclusive to the ReliaSource® 8x12 model. All other lift stations feature durable fiberglass enclosures.*

RELIASOURCE® LIFT STATION MODELS AND FEATURES

Every ReliaSource® lift station is engineered to accommodate an extensive selection of heavy-duty, solids-handling Gorman-Rupp self-priming or submersible pumps.

Above- and below-ground stations feature robust NEMA controls, corrosion-, weather-, and vandal-resistant fiberglass enclosures, and easy access for maintenance and service. Every ReliaSource® lift station is fully customizable, and your knowledgeable Gorman-Rupp distributor can help specify the right equipment for your job.

ReliaSource® 6x6 Above-Ground Lift Station

Accommodates two Gorman-Rupp T Series®, Super T Series® or Ultra V Series® self-priming pumps.

Specifications:

- Pump Size: 2" (50 mm), 3" (75 mm), 4" (100 mm), 6" (150 mm)
- Max Capacity: 1300 GPM (82.0 lps)
- Max Solids: 3" (76.2 mm)
- Max Head: 150' (45.7 m)
- Max Temperature: 160°F (71°C)
- Motor – Voltage: 200 V 3P, 230 V 1P, 230 V 3P, 460 V 3P
- Motor – Cycles: 60 Hz
- Horsepower: 2 HP - 25 HP

ReliaSource® 6x6T Above-Ground Lift Station

Accommodates two Gorman-Rupp Super T Series® or Ultra V Series® self-priming pumps.

Specifications:

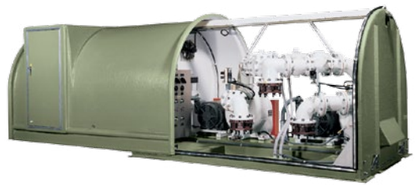
- Pump Size: 3" (75 mm), 4" (100 mm), 6" (150 mm)
- Max Capacity: 1475 GPM (93.1 lps)
- Max Solids: 3" (76.2 mm)
- Max Head: 160' (48.8 m)
- Max Temperature: 160°F (71°C)
- Motor – Voltage: 200 V 3P, 230 V 1P, 230 V 3P, 460 V 3P
- Motor – Cycles: 60 Hz
- Horsepower: 5 HP - 50 HP

ReliaSource® Below-Ground Lift Station

Accommodates Gorman-Rupp Super T Series® or Ultra V Series® self-priming pumps in duplex or triplex configurations.

Specifications:

- Pump Size: 3" (75 mm), 4" (100 mm), 6" (150 mm), 8" (200 mm), 10" (250 mm)
- Max Capacity: 3300 GPM (208.2 lps)
- Max Solids: 3" (76.2 mm)
- Max Head: 128' (39.0 m)
- Max Temperature: 160°F (71°C)
- Motor – Voltage: 200 V 3P, 230 V 1P, 230 V 3P, 460 V 3P
- Motor – Cycles: 60 Hz
- Horsepower: 2 HP - 75 HP
- Station Sizes: 7'6" (2.3 m) & 10' (3.1 m)



ReliaSource® 7x10 Above-Ground Lift Station

Accommodates two Gorman-Rupp Super T Series® or Ultra V Series® self-priming pumps.

Specifications:

- Pump Size: 3" (75 mm), 4" (100 mm), 6" (150 mm), 8" (200 mm)
- Max Capacity: 2500 GPM (157.7 lps)
- Max Solids: 3" (76.2 mm)
- Max Head: 160' (48.8 m)
- Max Temperature: 160°F (71°C)
- Motor – Voltage: 200 V 3P, 230 V 1P, 230 V 3P, 460 V 3P
- Motor – Cycles: 60 Hz
- Horsepower: 2 HP - 50 HP

ReliaSource® Above-Ground Submersible Valve Package (ASVP)

Available with Infinity™ SF Series® slide rail-mounted submersible pumps.

Specifications:

- Pump Size: 3" (75 mm), 4" (100 mm), 6" (150 mm)
- Max Capacity: 1600 GPM (100.9 lps)
- Max Solids: 3" (76.2 mm)
- Max Head: 155' (47.2 m)
- Max Temperature: 104°F (40°C)
- Motor – Voltage: 208 V 3P, 230 V 1P, 230 V 3P, 460 V 3P
- Motor – Cycles: 60 Hz
- Horsepower: 3 HP - 50 HP

ReliaSource® Auto-Start Lift Station

Accommodates Gorman-Rupp Super T Series®, Ultra V Series®, or VS self-priming centrifugal, heavy duty solids-handling pumps.

Specifications:

- Pump Size: 3" (75 mm), 4" (100 mm), 6" (150 mm), 8" (200 mm), 10" (250 mm)
- Max Capacity: 3400 GPM (214.5 lps)
- Max Solids: 3" (76.2 mm)
- Max Head: 320' (97.5 m)
- Max Temperature: 160°F (71°C)
- Motor – Voltage: 200 V 3P, 230 V 3P, 460 V 3P
- Motor – Cycles: 60 Hz
- Horsepower: 3 HP - 150 HP

ReliaSource® Base-Mounted Lift Station

Accommodates Gorman-Rupp T Series®, Super T Series®, Ultra V Series® or VS self-priming centrifugal, heavy duty solids-handling pumps.

Specifications:

- Pump Size: 2" (50 mm), 3" (75 mm), 4" (100 mm), 6" (150 mm), 8" (200 mm), 10" (250 mm)
- Max Capacity: 3400 GPM (214.5 lps)
- Max Solids: 3" (76.2 mm)
- Max Head: 320' (97.5 m)
- Max Temperature: 160°F (71°C)
- Motor – Voltage: 200 V 3P, 230 V 1P, 230 V 3P, 460 V 3P
- Motor – Cycles: 60 Hz
- Horsepower: 2 HP - 150 HP

RELY ON THE LIFT STATION EXPERTS SINCE 1967

Make ReliaSource® your single source for lift station satisfaction today.

★ **Manufacturing Facilities**
• **Distribution Centers**

The Gorman-Rupp Company
Mansfield, Ohio, USA

Mansfield Division
Mansfield, Ohio, USA

Gorman-Rupp International
Mansfield, Ohio, USA

Gorman-Rupp Industries
Bellville, Ohio, USA

Patterson Pump Company
Toccoa, Georgia, USA

American Machine and Tool Co., Inc. of Pennsylvania
Royersford, Pennsylvania, USA

National Pump Company
Glendale, California, USA (Headquarters)
Fresno, California, USA
Zolfo Springs, Florida, USA
Vienna, Georgia, USA
Olive Branch, Mississippi, USA
Lubbock, Texas, USA

Gorman-Rupp Europe
Leeuwarden, Netherlands

Patterson Pump Ireland Limited
County Westmeath, Ireland

Gorman-Rupp of Canada Limited
St. Thomas, Ontario, Canada

Distrubution Centers
Sparks, Nevada, USA
Sand Springs, Oklahoma, USA
Leeuwarden, Netherlands
Bangkok, Thailand

Engineering and manufacturing superiority has been a hallmark of Gorman-Rupp since our inception in 1933. Today we bring our products to life in some of the most efficient, modern and state-of-the-art manufacturing facilities in the world. Over the past decades, Gorman-Rupp has manufactured more than 13,000 pump stations, and our world-class team of distributors has worked closely with thousands of municipalities around the world. We have the proven expertise and the resources to specify, manufacture, test and service your complete packaged lift station, and to ensure reliable solids-handling performance for the long haul.

ISO 9001:2008 REGISTERED COMPANY MANSFIELD DIVISION

ISO 14001 REGISTERED COMPANY MANSFIELD DIVISION

GRPUMPS.COM

THE GORMAN-RUPP COMPANY
MANSFIELD DIVISION
P.O. BOX 1217
MANSFIELD, OHIO 44901-1217 | USA
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GRSALES@GORMANRUPP.COM

GORMAN-RUPP PUMPS

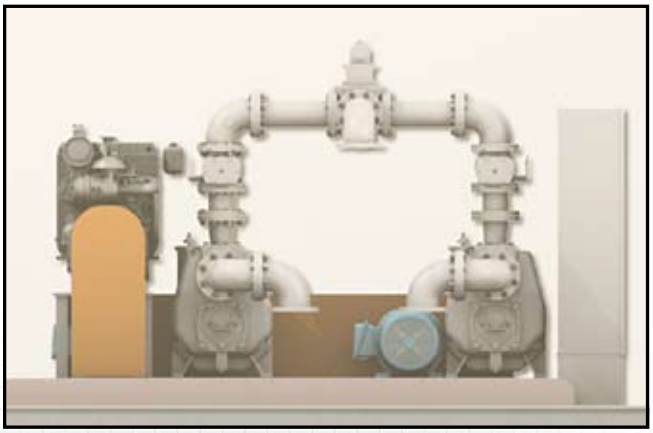
AV-06510

SEWAGE PUMPING STATIONS

AUTO-START

Gorman-Rupp's Auto-Start pump stations are pre-engineered units available with Super T Series®, Ultra V Series® and VS pumps with an extensive selection of motors, controls, piping and accessories. Gorman-Rupp has many standard designs for new installations, or custom designs can be provided for existing installations with minimum hookup time.

Auto-Start pump stations are available with 2", 3", 4", 6", 8" or 10" pumps, depending on pump model. For consistently heavy flows, a third or fourth pump may be added. Flows are available to 3400 GPM on single pump operation. For high head/low flow, we offer standard staged designs.



The Gorman-Rupp **Base Mounted Auto-Start** station uses a liquid level control which automatically converts to 12 volt DC and drives the pump with a standby engine providing normal pumping service during power failures. When power resumes, AC motor operation is automatically restored. It meets all standby requirements and uses a variety of fuels.

The Auto-Start unit is a space-saving, modular combination of pump, electric motor and engine, all coupled to the same drive, eliminating the need for an expensive engine/generator set.

MODULAR ENCLOSURES AVAILABLE FOR YOUR STATION

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GORMAN-RUPP INTERNATIONAL | P.O. Box 1217, Mansfield, Ohio 44901-1217, USA • Tel: 419-755-1011 • Fax: 419-755-1266 • E-mail: intsales@gormanrupp.com
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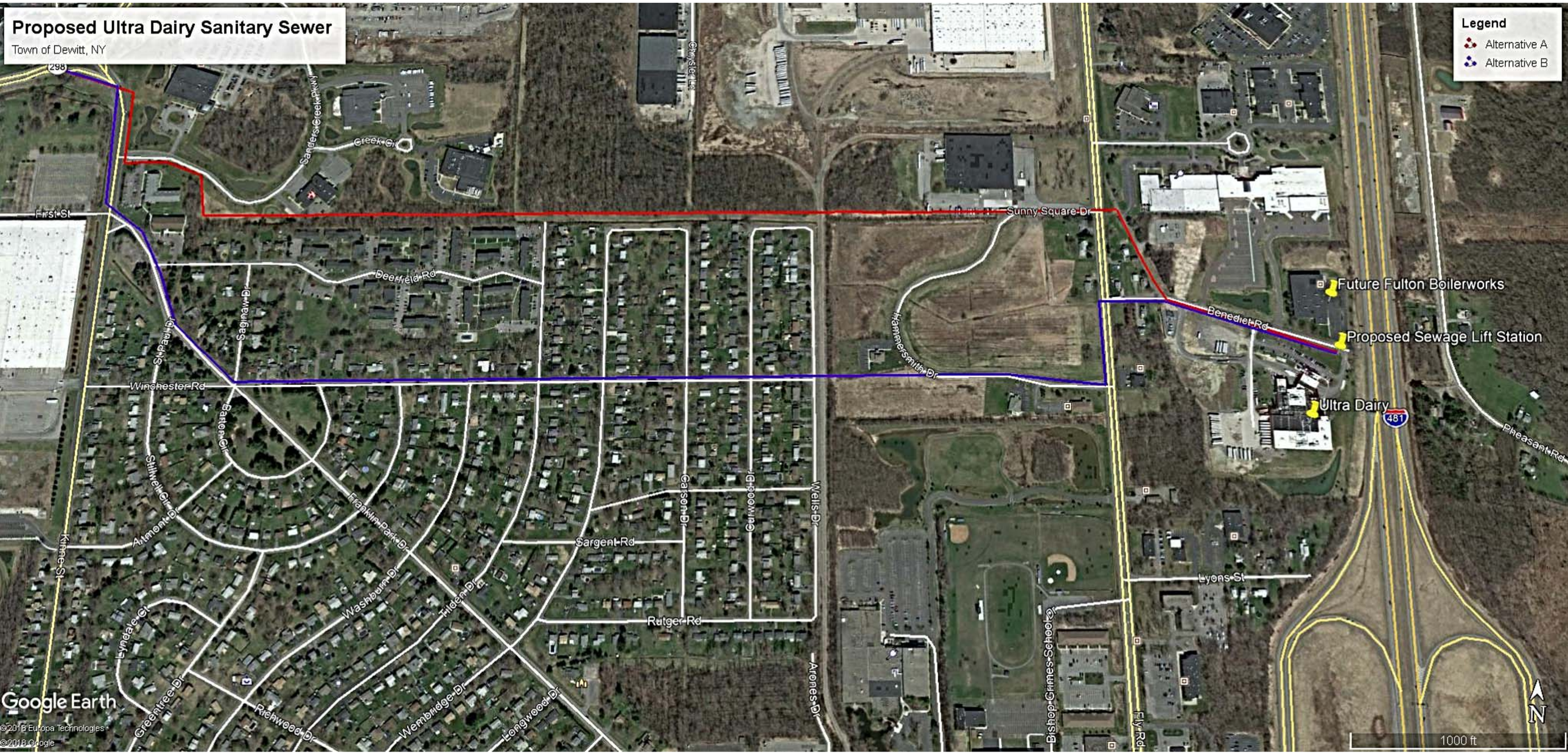
MANSFIELD DIVISION

AV-05005-63_0908

ATTACHMENT D

Site Plan with Alternative Routes


Proposed Ultra Dairy Sanitary Sewer
Town of Dewitt, NY
Legend
Alternative A
Alternative B
Future Fulton Boilerworks
Proposed Sewage Lift Station
Ultra Dairy
481
298
First St
Sanders Creek Pkwy
Creek Cir
Chrysler Dr
Sunny Square Dr
Deerfield Rd
Benedict Rd
Hammersmith Dr
Pheasant Rd
Winchester Rd
Barton Cir
Shilwell Cir
Almont Dr
Franklin Park Dr
Kinne St
Washburn Dr
Tilden Dr
Carson Dr
Elmwood Dr
Wells Dr
Sargent Rd
Rutger Rd
Aroness Dr
Lyons St
Bishop Grimes School Dr
Fly Rd
Lyndale Ct
Greentree Dr
Richwood Dr
Wembridge Dr
Longwood Dr
Google Earth
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N
1000 ft

ATTACHMENT E

Conceptual Project Cost Estimate

ARCADIS Design & Consultancy for natural and built assets

Alternative	Total Project Cost (2019 Dollars)
Alternative A	$ 3,900,000
Alternative B	$ 4,100,000

ARCADIS Design & Consultancy for natural and built assets

Alternative A

Item No.	Description	Quantity	Units	Unit Price	Total
1	**Replacement Force Main**				
1.1	Mobilization (3%)	1	LS	$ 76,917.00	$ 76,917
1.2	Suction Lift, Duplex Pump Station	1	LS	$ 200,000.00	$ 200,000
1.3	6-foot Diameter Precast Wet Well	1	LS	$ 20,000.00	$ 20,000
1.4	12-inch Diameter PE-RT (SDR11) HDD Installation	7,400	LF	$ 196.00	$ 1,450,400
1.5	FM Air Release valve vaults	4	EA	$ 7,500.00	$ 30,000
1.6	Connection at Franklin Park Trunk Sewer	1	LS	$ 15,000.00	$ 15,000
1.7	Benedict Road Crossing - HDD	50	LF	$ 500.00	$ 25,000
1.8	Fly Road Crossing - jack and bore	100	LF	$ 2,000.00	$ 200,000
1.9	Hammersmith Road Crossing - HDD	60	LF	$ 500.00	$ 30,000
2	Railroad Spur Crossing - jack and bore	75	LF	$ 2,500.00	$ 187,500
2.1	Sanders Creek Parkway - HDD	60	LF	$ 500.00	$ 30,000
2.2	Kinne Street Crossing - jack and bore	80	LF	$ 2,000.00	$ 160,000
2.2	Easement Acquisition (20-foot wide utility)	1,800	LF	$ 100.00	$ 180,000
2.3	Easement Clearing	36,000	SF	$ 1.00	$ 36,000
				Subtotal	$2,640,817
				Construction Contingency (20%)	$528,163
				Total Opinion of Probable Construction Cost (2018 Dollars)	$3,168,980
				Total Opinion of Probable Construction Cost (2019 Dollars)	$3,361,971
				Engineering Costs (15% of Total Opinion of Probable Construction Cost including Contingency)	$504,296
				Total Project Cost (2019 Dollars)	$3,866,267
				Total Project Cost (2018 Dollars Rounded)	**$3,900,000**

ARCADIS Design & Consultancy for natural and built assets

Alternative B

Item No.	Description	Quantity	Units	Unit Price	Total
1	**Parallel Force Main**				
1.1	Mobilization (3%)	1	LS	$ 80,689.80	$ 80,690
1.2	Suction Lift, Duplex Pump Station	1	LS	$ 200,000.00	$ 200,000
1.3	6-foot Diameter Precast Wet Well	1	LS	$ 20,000.00	$ 20,000
1.4	12-inch Diameter PE-RT (SDR11) HDD Installation	7,460	LF	$ 196.00	$ 1,462,160
1.5	FM Air Release valve vaults	4	EA	$ 7,500.00	$ 30,000
1.6	Connection at Franklin Park Trunk Sewer	1	LS	$ 15,000.00	$ 15,000
1.7	Benedict Road Crossing - HDD	60	LF	$ 500.00	$ 30,000
1.8	Fly Road Crossing - jack and bore	100	LF	$ 2,000.00	$ 200,000
1.9	Hammersmith Road Crossing - HDD	50	LF	$ 500.00	$ 25,000
1.9	Cross Street Road Crossings - HDD	600	LF	$ 500.00	$ 300,000
1.9	Railroad Spur Crossing - jack and bore	75	LF	$ 2,500.00	$ 187,500
2.1	Kinne Street Crossing - jack and bore	80	LF	$ 2,000.00	$ 160,000
2.2	Easement Acquisition (20-foot wide utility)	500	LF	$ 100.00	$ 50,000
2.3	Easement Clearing	10,000	SF	$ 1.00	$ 10,000
				Subtotal	$2,770,350
				Construction Contingency (20%)	$554,070
				Total Opinion of Probable Construction Cost (2018 Dollars)	$3,324,420
				Total Opinion of Probable Construction Cost (2019 Dollars)	$3,526,877
				Engineering Costs (15% of Total Opinion of Probable Construction Cost including Contingency)	$529,032
				Total Project Cost (2019 Dollars)	$4,055,908
				Total Project Cost (2018 Dollars Rounded)	**$4,100,000**