

WRC Annual Drain Report

Project Narratives - January 2021

Questions?

Please contact Trisha Bruzek at
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Drain Projects Completed in Fiscal Year 2020

Clinton River Water Resource Recovery Facility

East Boulevard Road Primary Sludge Pumps - City of Pontiac

Project Highlights:

- Replaced two primary sludge pumps at the East Boulevard plant to transfer solids from the East Boulevard Road primary clarifiers to the Auburn plant

Consulting Engineer: Not applicable

WRC Engineer: Jared Buzo, P.E.

Contractor: Not applicable, completed by WRC

Project Costs: \$200,000

Financing: Sewer Rate Revenue

Substantial Completion Date: January 2020

George W. Kuhn Drain Rehabilitation Project

Phase 4 Rehabilitation - Various Communities in southeast Oakland County

Project Highlights:

- Cleaning and televising sanitary sewers in various communities within the system
- Investigation of six siphons underneath I-696

Consulting Engineer: U.S. Army Corps of Engineers of Detroit, Michigan

WRC Engineer: George Nichols, P.E.

Contractor: Advanced Underground Inspection, Inc. of Westland, Michigan

Project Costs: \$233,000 (plus \$700,000 in Federal Grant funds through the U.S. Army Corps)

Financing: System Reserve Funds

Substantial Completion Date: January 2020

Oakland-Macomb Interceptor Drain

Northeast Sewage Pump Station Odor and Corrosion Control Project - City of Detroit

Project Highlights:

- Rehabilitated the Northeast Sewage Pump Station Heating, Ventilation, and Air Conditioning (HVAC) equipment and process piping to improve site ventilation for working personnel and equipment
- Installed a new bio-trickling filter to remove hydrogen sulfide from the Oakland-Macomb Interceptor Drain sanitary sewer to reduce corrosion and odors

Consulting Engineer:

- CH2M Hill of Novi, Michigan
- Jacobs Engineering Group

WRC Engineer: Joel Brown, P.E. and Sid Lockhart, P.E.

Contractor: CSM Mechanical, LLC of Fenton, Michigan

Project Costs: \$7,000,000

Financing: Bond Sale

Substantial Completion Date: June 2020

Clinton River Water Resource Recovery Facility

Administration Building Renovation and Addition - City of Pontiac

Project Highlights:

- Expanded and renovated the Administration Building of the Auburn Plant at the Clinton River Water Resource Recovery Facility

Consulting Engineer: Fishbeck of Novi, Michigan

WRC Engineer: Razik Alsaigh, P.E.

Contractor: Frank Rewold & Son of Rochester, Michigan

Project Costs: \$3,800,000

Financing: Clinton River Water Resource Recovery Facility Fund Reserve

Substantial Completion Date: July 2020

Wilmont Relief Drain

Collapsed Pipe and Headwall - Waterford Township

Project Highlights:

- Culvert and headwall repair

Consulting Engineer: Spalding DeDecker of Rochester Hills, Michigan

WRC Engineer: Geoff Wilson, P.E.

Contractor: VIL Construction, Inc. of Sterling Heights, Michigan

Project Costs: \$512,000

Financing: Assessment to Drainage District

Substantial Completion Date: July 2020

Clinton River Water Resource Recovery Facility

Biosolids Handling and Septage Receiving Facility - City of Pontiac

Project Highlights:

- The project has been required to enable the facility to reliably treat and dispose of the sludge/biosolids generated during the wastewater treatment process and to eliminate capacity limitations in the facility's biosolids handling system
- A new cutting edge, methane-generating technology called thermal hydrolysis process has been constructed to produce an environmentally friendly Class A Exceptional Biosolids
- The project included the construction of the new thermal hydrolysis process system, sludge dewatering system improvements, expansion and improvement of the existing dewatered biosolids storage facility, and construction of a new septage receiving facility
- The new thermal hydrolysis process system is the only one of its type in the Midwest

Consulting Engineer: CDM Smith Inc. of Detroit, Michigan

WRC Engineer: Razik Alsaigh, P.E.

Contractor: Tooles Contracting Group, LLC of Detroit, Michigan

Project Costs: \$41,162,000

Financing: State Revolving Fund Loan Program

Substantial Completion Date: August 2020

Drain Projects Under Construction in Fiscal Year 2020

Northeast Sewage Pump Station

Dry Well Elevator Upgrades - City of Detroit

Project Highlights:

- Rehabilitation of the existing dry well elevator at the Northeast Sewage Pumping Station, including new motor, electrical panel, and control upgrades

Consulting Engineer: Not applicable

WRC Engineer: Joel Brown, P.E.

Contractor: Detroit Elevator Company of Ferndale, Michigan

Project Costs: \$270,000

Financing: Capital Improvement Reserve

Substantial Completion Date: November 2020

Stormwater, Asset Management and Wastewater (SAW) Grant Program

Drain Projects - Various Communities

Project Highlights:

- Stormwater, Asset Management and Wastewater grants from EGLE have been awarded to various systems under the jurisdiction of the Water Resources Commissioner's office
- Work includes:
 - Asset inventory
 - Condition assessment
 - Criticality and risk assessment
 - Level of service analysis
 - Capital improvement planning
 - Rate structure development
- Three drain projects were completed in fiscal year 2020:
 - Bloomfield Village Combined Sewage Overflow Drain
 - Augusta Drain
 - Henry Graham Drain
 - Edwards Relief Drain project is being worked on during fiscal year 2020

Consulting Engineer: Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan

WRC Engineer: Various

Contractor: Various

Project Costs: To be determined

Financing: SAW Grant (The SAW Grant is a 90% matching grant with 10% coming from individual drain funds)

Substantial Completion Date: December 2020

George W. Kuhn Drain

Dequindre Road Pump Station Rehabilitation - City of Madison Heights

Project Highlights:

- Replacement / rehabilitation of most of the mechanical, electrical, and process piping components of the retention treatment basin's dewatering pump station

Consulting Engineer: Wade Trim Group, Inc. of Detroit, Michigan
WRC Engineer: Craig Tiell and Gary Nigro, P.E.
Contractor: Weiss Construction Co. of Detroit, Michigan
Project Costs: \$7,000,000
Financing: George W. Kuhn Drain Capital Improvement Reserve
Substantial Completion Date: January 2021

Walled Lake-Novu Wastewater Treatment

Plant Clarifiers - City of Novi

Project Highlights:

- Replacement of the clarifier mechanism and repair of the clarifier structure on the east and west clarifiers

Consulting Engineer: Fishbeck of Novi, Michigan
WRC Engineer: Mary Koeger, P.E.
Contractor: Reliance Building Company of Novi, Michigan
Project Costs: \$1,600,000
Financing: Capital Improvement Reserve
Substantial Completion Date: March 2021

Oakland-Macomb Interceptor Drain

Odor and Corrosion Control Study - City of Detroit

Project Highlights:

- Data acquisition of hydrogen sulfide fluctuation and air pressure modeling within the system
- Develop recommendations to regulate pressure, odor discharges, and hydrogen sulfide concentrations

Consulting Engineer: Jacobs Engineering Group of Bingham Farms Michigan
WRC Engineer: Joel Brown, P.E.
Contractor: Not applicable
Project Costs: \$532,000
Financing: Bond Sale
Substantial Completion Date: March 2021

Oakland-Macomb Interceptor Drain

Immediate Repairs - Various Communities in Macomb County

Project Highlights:

- Conduct grout leak sealing and patch repairs throughout the system from the southern end of the system located near 8 Mile Road to the northern end of the system located near 23 Mile Road and Dequindre Road
- This work was recommended as part of the Asset Management Plan developed in November 2018
- The scope of the work includes:
 - Repairing 29 leaks in various manholes and 19 leaks in the interceptor
 - Patching 29 core holes in the interceptor, and completing eight deep patch repairs throughout the system
 - Cleaning and inspecting a portion of the sewer from manholes

Consulting Engineer: NTH Consultants, Ltd of Northville, Michigan
WRC Engineer: Evans Bantios, P.E.

Contractor: Doetsch Environmental Services of Warren, Michigan
Project Costs: \$1,915,180
Financing: Major Maintenance Reserve
Substantial Completion Date: May 2021

Drain File Digitalization

Oakland County Drain Files – Waterford Township

Project Highlights:

- Digitalization of exiting files and design documents for plats within Oakland County
- Work includes purging of exiting files, digitalization of existing files, and development of a searchable database for all files

Consulting Engineer: Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan

WRC Engineer: Ryan Woloszyk, P.E.

Contractor: Not applicable

Project Costs: \$100,000

Financing: To be determined

Substantial Completion Date: June 2021

Oakland-Macomb Interceptor Drain

Flow Control Improvements - City of Detroit

Project Highlights:

- Modifications to the roof members at control structures within the system to allow for equipment maintenance access
- Replacement and upgrading of existing hydraulic, instrumentation, and control equipment to improve flow control operations within the system

Consulting Engineer: FK Engineering Associates of Madison Heights, Michigan

WRC Engineer: Joel Brown, P.E.

Contractor:

- CSM Mechanical, LLC of Fenton, Michigan
- HESCO Industrial, LLC of Farmington Hills, Michigan

Project Costs: \$500,000

Financing: Capital Improvement Reserve

Substantial Completion Date:

- August 2020 (Hatch Modifications)
- December 2021 (Hydraulic System Upgrades)

Northeast Sewage Pump Station

Pumping and Electrical Upgrades - City of Detroit

Project Highlights:

- Upgrade of existing pumps, electrical switchgear, transformers, process piping and other appurtenances to restore acceptable functionality and reliability to station operations

Consulting Engineer:

- Applied Science Inc. of Detroit, Michigan
- FK Engineering Associates of Madison Heights, Michigan
- METCO Services of Detroit, Michigan

WRC Engineer: Joel Brown, P.E. and Sid Lockhart, P.E.

Contractor: Walsh Construction of Detroit, Michigan

Project Costs: \$54,100,000

Financing: Capital Improvement Reserve and Bond Sale

Substantial Completion Date: March 2023

Drain Projects Under Development in Fiscal Year 2020

Oakland-Macomb Interceptor Drain

Control Structure CS-9 Gate Design - Warren

Project Highlights:

- Construct and install a stop gate and two attached sluice gates at Control Structure No.9 on the system.
- Install all related hydraulic, electrical, and control devices to allow for local and remote operation of the sluice gates.
- Install all required instrumentation required to monitor the gate and sewer level status.
- Work is required to allow simultaneous projects to occur within the Oakland Macomb Interceptor Drain, Macomb Interceptor Drain, and North Interceptor-East Arm systems

Consulting Engineer: NTH Consultants, Ltd. of Detroit, Michigan

WRC Engineer:

- Joel Brown, P.E. and Sid Lockhart, P.E.

Contractor: Walsh Construction of Detroit, Michigan

Project Costs: \$3,300,000

Financing: Bond Sale

Substantial Completion Date: June 2021

Northeast Sewage Pump Station

Emergency Contingencies - City of Detroit

Project Highlights:

- To establish electrical redundancy for pump operation via construction of a portable generator hookup
- Modify manholes at select locations throughout the Oakland Macomb Interceptor Drain system to allow for emergency pumping operations in the event of a catastrophic failure of the Northeast Sewage Pump Station

Consulting Engineers:

- FK Engineering Associates of Madison Heights, Michigan
- Applied Science Inc. of Detroit, Michigan
- NTH Consultants, Ltd of Detroit, Michigan

WRC Engineer: Joel Brown, P.E.

Contractor:

- Rotor Electric of Detroit, Michigan
- D'Angelo Brothers, Inc. of Livonia, Michigan

Project Costs: \$230,000
Financing: Major Maintenance Reserve
Substantial Completion Date: August 2021

Randolph Street Drain

Mill Pond Court Culvert Project - City of Northville

Project Highlights:

- Construct additional culvert and upstream weir under Mill Pond Court

Consulting Engineer: Applied Science, Inc. of Detroit, Michigan

WRC Engineer: Geoff Wilson, P.E.

Contractor: To be determined

Project Costs: \$100,000

Financing: Intercounty Drainage District Assessment

Substantial Completion Date: July 2021

Bald Eagle Lake

Petitioned Maintenance - Brandon Township

Project Highlights:

- Pipe and structure replacement

Consulting Engineer: Spicer Group, Inc. of Detroit, Michigan

WRC Engineer: Geoff Wilson, P.E.

Contractor: To be determined

Project Costs: \$850,000

Financing: Special Assessment

Substantial Completion Date: To be determined

Red Run Drain

Study for the Repair, Maintenance and Management - Oakland and Macomb County

Project Highlights:

- Drain enhancement study

Consulting Engineer:

- Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan
- Spicer Group, Inc. of Detroit, Michigan

WRC Engineer: George Nichols, P.E.

Contractor: Not applicable

Project Costs: \$200,000

Financing: Intercounty Drainage District Assessment

Substantial Completion Date: To be determined

Red Run Drain

Freedom Hill Bank Stabilization Design Services - Oakland and Macomb County

Project Highlights:

- Bank stabilization and drain clearing

Consulting Engineer:

- Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan
- Spicer Group, Inc. of Detroit, Michigan

WRC Engineer: George Nichols, P.E.

Contractor: To be determined

Project Costs: \$240,000

Financing: Intercounty Drainage District Assessment

Substantial Completion Date: To be determined

North Interceptor-East Arm

Rehabilitation (Phase I) - City of Detroit

Project Highlights:

- Lining of approximately 1500 feet of 17-foot, 6-inch diameter North Interceptor-East Arm immediately downstream of the Northeast Sewage Pumping Station
- Construct access shaft to perform the lining work
- Manhole lining and repair of select manholes
- Debris removal and cleaning of the North Interceptor-East Arm at various locations
- Leak sealing of the North Interceptor-East Arm at various locations

Consulting Engineer:

- NTH Consultants, Ltd. of Detroit, Michigan
- FK Engineering Associates of Madison Heights, Michigan

WRC Engineer: Joel Brown, P.E. and Sid Lockhart, P.E.

Contractor: Marra Services, Inc. of Cleveland, Ohio

Project Costs: \$28,400,000

Financing: Capital Improvement Reserve and Bond Sale

Substantial Completion Date: June 2022

North Interceptor-East Arm

Rehabilitation (Phase II) - City of Detroit

Project Highlights:

- Lining repair of approximately 800 feet of 12-foot diameter sewer at the intersection of Mt. Elliott and Gratiot in Detroit
- Construction of two flow control gates within the system to facilitate the work
- Debris removal and cleaning of the system at various locations
- Leak sealing at various locations

Consulting Engineer:

- NTH Consultants, Ltd. of Detroit, Michigan
- FK Engineering Associates of Madison Heights, Michigan

WRC Engineer: Joel Brown, P.E. and Sid Lockhart, P.E.

Contractor: To be determined

Project Costs: \$15,000,000

Financing: Capital Improvement Reserve and Bond Sale

Substantial Completion Date: June 2023

Water and Sewer Projects Completed in Fiscal Year 2020

10 Mile and Berg Sewer

Sanitary Sewer Rehabilitation - City of Southfield

Project Highlights:

- Rehabilitated 1,617 feet of 48-inch diameter sewer

Consulting Engineer: Fishbeck of Novi, Michigan

WRC Engineer: George Nichols, P.E.

Contractor: Lanzo Trenchless Technologies of Roseville, Michigan

Project Costs: \$1,002,000

Financing: Capital Improvement Reserve Funds

Substantial Completion Date: January 2020

Orchard Lake Sewer

Sanitary Sewer Rehabilitation - West Bloomfield Township

Project Highlights:

- Rehabilitated 278 feet of 15-inch diameter sewer and 175 feet of 24-inch diameter sewer

Consulting Engineer: Fishbeck of Novi, Michigan

WRC Engineer: George Nichols, P.E.

Contractor: Inland Waters Pollution Control of Detroit, Michigan

Project Costs: \$155,000

Financing: Capital Improvement Reserve Funds

Substantial Completion Date: April 2020

Evergreen Farmington Sewage Disposal System

Sanitary Sewer Rehabilitation in Plum Hollow Golf Course (Phase 3) - City of Southfield

Project Highlights:

- Rehabilitated 3,705 feet of 36-inch diameter sewer located within the Plum Hollow Golf Course

Consulting Engineer: Fishbeck of Novi, Michigan

WRC Engineer: George Nichols, P.E.

Contractor: Insituform Technologies, Inc., of Howell, Michigan

Project Costs: \$4,000,000

Financing: Bond Sale

Substantial Completion Date: April 2020

Walton Boulevard

Watermain Improvements - City of Pontiac

Project Highlights:

- Constructed approximately one mile of 12-inch diameter watermain along Walton Boulevard from Joslyn Road to Giddings Road including associated, valves, hydrants, etc. to allow for better maintenance of the existing parallel 16-inch diameter prestressed concrete water main along Walton Boulevard and for improved reliability of the water supply system

Consulting Engineer: Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan
WRC Engineer: Mike Walsh, P.E.
Contractor: Bricco Excavating Co., Inc of Oak Park, Michigan
Project Costs: \$2,600,000
Financing: Capital Improvement Reserve
Substantial Completion Date: May 2020

Water and Sewer Projects Under Construction in Fiscal Year 2020

Elizabeth Lake

Sinkhole - Waterford Township

Project Highlights:

- A sinkhole opened on June 5, 2020 at the intersection of Elizabeth Lake Road and M-59 due to the failure of a section of 54-inch diameter sanitary sewer, part of the Clinton-Oakland Sanitary Sewage Disposal System
- Replaced 32 feet of 54-inch diameter reinforced concrete pipe and removed approximately 40 cubic yards of material from the sewer
- Injected approximately 6,600 gallons of chemical grout in the pipe to stop leaks upstream and downstream of sinkhole location
- Pumped approximately 63 cubic yards cementitious grout to stabilize the soil around the pipe
- Lined approximately 272 feet of the sewer using a cured in place pipe liner and lined 128 feet of sewer upstream of original sinkhole location using a spray on geopolymer
- Reconstructed a portion of Elizabeth Lake Road to remove the dip caused by the sinkhole
- Injected ferrous chloride upstream of the bypass pump location and a product called Planet Breeze to handle odors around the sinkhole at the adjacent Elizabeth Lake Pump Station

Consulting Engineer: NTH Consultants, Ltd of Detroit, Michigan
WRC Engineer: Evans Bantios, P.E.
Contractor: D'Angelo Brothers, Inc. of Livonia, Michigan
Project Costs: \$4,900,000
Financing: Capital Improvement Reserve
Substantial Completion Date: November 2020

Shotwell Street

Sanitary Sewer Lining - White Lake Township

Project Highlights:

- Cleaning, televising, and cured-in-place pipe lining for approximately 1,900 feet of sanitary sewer and six manholes

Consulting Engineer: Not applicable
WRC Engineer: Karen Warren, P.E.
Contractor: Granite Inliner of Romulus, Michigan
Project Costs: \$279,978
Financing: Municipality funded
Substantial Completion Date: December 2020

Evergreen Farmington Sewage Disposal System

Evergreen Extension No. 2 Rehabilitation - City of Troy

Project Highlights:

- The purpose of the project is to replace an existing section of sanitary sewer that has reached the end of its useful life
- This project will improve the sewerage system in the area and ensure the system's future reliability
- The project consists of the installation of approximately 1,000 feet of new 18-inch diameter sanitary sewer including new manhole structures and the abandonment of the existing aged section of sanitary sewer

Consulting Engineer: FK Engineering Associates of Madison Heights, Michigan

WRC Engineer: Mike Walsh, P.E.

Contractor: D.V.M Utilities, Inc. of Sterling Heights, Michigan

Project Costs: \$1,780,000

Financing: Capital Improvement Reserve

Substantial Completion Date: January 2021

Martin Luther King (MLK) Cast Iron Force Main

Engineering Study - City of Pontiac

Project Highlights:

- Engineering study of the two existing cast iron force mains that are now operating as gravity mains along MLK Blvd. between Featherstone and the Clinton River Water Resource Recovery Facility's East Boulevard Plant

Consulting Engineer: Nowak & Fraus Engineers (NFE) of Pontiac, Michigan

WRC Engineer: Rick DeVisch, P.E.

Contractor: To be determined

Project Costs: \$30,000

Financing: Capital Improvement Reserve

Substantial Completion Date: January 2021

Perry, Saginaw and Omar/McKinley Streets

Sanitary Sewer Rehabilitation - City of Pontiac

Project Highlights:

- Replacement and/or rehabilitation of approximately 1,650 feet of distressed and misaligned 8-inch diameter, vitrified clay pipe, sanitary sewer line at the following locations:
 - Perry Street between Lafayette and University
 - Saginaw Street between Lafayette and University
 - Along the backyards of the westside of Omar Street between McKinley Street and University Drive
 - Along the backyards of the southside of McKinley Paddock Street and Omar Street
- Relining of 8-inch diameter sanitary sewer along Omar Street from McKinley Street to University Drive using cured in place pipe
- Two 3-feet long sectional liner repairs along McKinley Street

Consulting Engineer: Johnson and Anderson, Inc. of Waterford, Michigan

WRC Engineer: Evans Bantios, P.E.

Contractor: D.V.M. Utilities, Inc. of Sterling Heights, Michigan

Project Costs: \$1,600,000
Financing: Bond Sale
Substantial Completion Date: January 2021

Huron-Rouge Sewage Disposal System

Linear Sewage Retention Facility - City of Novi

Project Highlights:

- Construction of a new 1,000,000-gallon sanitary sewage retention facility and pump station
- This project is being constructed in cooperation with the City of Novi and Wayne County to prevent the City of Novi from exceeding their maximum allowable flow limit to Wayne County's Rouge Valley Sewage Disposal System

Consulting Engineer: Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan

WRC Engineer: Mike Walsh, P.E.

Contractor: The LaSalle Group, Inc. of Farmington Hills, Michigan

Project Costs: \$13,500,000

Financing: Capital Improvement Reserve and cash payment from the City of Novi

Substantial Completion Date: October 2021

Walnut No. 1 Pump Station

Force Main Extension - City of Birmingham

Project Highlights:

- Installation of approximately 1,688 feet of 20-inch diameter force main along Cranbrook Road in the City of Birmingham to extend the Walnut No. 1 Pump Station discharge force main to the Bloomfield Village Combined Sewer Overflow Retention and Treatment Basin

Consulting Engineer: Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan

WRC Engineer: Evans Bantios, P.E.

Contractor: Lawrence M. Clark, Inc. of Belleville, Michigan

Project Costs: \$2,600,000

Financing: Capital Improvement Reserve

Substantial Completion Date: December 2020

Water and Sewer Projects Under Development in Fiscal Year 2020

Watermain Looping

Pontiac Section Nos. 8 and 17 - City of Pontiac

Project Highlights:

- Construction of approximately two miles of 8-inch diameter water main including valves, hydrants and water services along Price Street between Newport Avenue and Beverly Avenue, Hollywood Avenue between Columbia Avenue and Mansfield Avenue, Carlisle Street between Sheffield Avenue and Yale Avenue, and east of Price Street along Longfellow, Strathmore, Fairmount, Rutgers, Cornell, and Beverly Avenue
- This project will improve system pressure and fire flow

Consulting Engineer: Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan

WRC Engineer: Mike Walsh, P.E.
Contractor: Bricco Excavating Co., Inc of Oak Park, Michigan
Project Costs: \$4,500,000
Financing: Capital Improvement Reserve
Substantial Completion Date: April 2021

Commerce Crossings

Sewer Lining - Commerce Township

Project Highlights:

- Cured-in-place pipe lining of 922 linear feet of 21-inch diameter concrete sanitary sewer and line one manhole

Consulting Engineer: Not applicable

WRC Engineer: Karen Warren, P.E.

Contractor: To be determined

Project Costs: \$250,000

Financing: Sewer Rate Revenue

Substantial Completion Date: June 2021

Walled Lake-Novi Wastewater Treatment Plant Sewage Disposal System

Sewer Cleaning and Televising - Cities of Walled Lake and Novi

Project Highlights:

- Cleaning and televising for approximately 17,000 feet of sanitary sewer

Consulting Engineer: Not applicable

WRC Engineer: Karen Warren, P.E.

Contractor: Doetsch Environmental Services of Warren, Michigan

Project Costs: \$426,857

Financing: Sewer Rate Revenue

Substantial Completion Date: To be determined

Middlebelt

Sinkhole - City of Farmington Hills

Project Highlights:

- Implement grouting plan to fill in voids along the Middlebelt Transportation and Storage Tunnel that had resulted in a 17-feet by 16-feet by 7- to 8-feet deep sinkhole located about 700 feet north of 12 Mile Road in July of 2019

Consulting Engineer: NTH Consultants, Ltd of Detroit, Michigan

WRC Engineer: Evans Bantios, P.E.

Contractor: Ric-Man Construction, Inc. of Sterling Heights, Michigan

Project Costs: To be determined

Financing: To be determined

Substantial Completion Date: Fall 2021

Evergreen Farmington Sewage Disposal System

8 Mile Sewage Retention Tank Feasibility Study - City of Southfield

Project Highlights:

- Evaluate potential locations for a sanitary retention facility to divert flows from the 8 Mile pump station

Consulting Engineer: Fishbeck of Novi, Michigan

WRC Engineer: George Nichols, P.E.

Contractor: Not Applicable

Project Costs: \$157,000

Financing: Capital Improvement Reserve

Substantial Completion Date: May 2020

Novi Trunk Sewer

Sanitary Sewer Rehabilitation - City of Novi

Project Highlights:

- Rehab of 3,700 feet of 18-inch sewer due to extreme hydrogen sulfide corrosion
- Approximately 300 feet of sewer replacement due to major sag in the sewer

Consulting Engineer: Fishbeck of Novi, Michigan

WRC Engineer: George Nichols, P.E.

Contractor: To be determined

Project Costs: \$2,400,000

Financing: Capital Improvement Reserve

Substantial Completion Date: To be determined

Evergreen Farmington Sewage Disposal System

Southfield Rouge River Sanitary Sewer Lining - City of Southfield

Project Highlights:

- Rehab of 1,853 feet of 36-inch diameter sewer, 202 feet of 42-inch diameter sewer and nine manholes

Consulting Engineer: Fishbeck of Novi, Michigan

WRC Engineer: George Nichols, P.E.

Contractor: Pipeline Management Co., LLC

Project Costs: \$2,500,000

Financing: Capital Improvement Reserve

Substantial Completion Date: To be determined

Sanitary Sewer Lining

Rehabilitation - City of Pontiac

Project Highlights:

- Rehab of 5,700 feet of eight-inch diameter to 18-inch diameter sewer due to excessive corrosion and deterioration of the pipe

Consulting Engineer: Nowak & Fraus Engineers (NFE) of Pontiac, Michigan

WRC Engineer: Craig Tiell and George Nichols, P.E.

Contractor: To be determined
Project Costs: \$600,000
Financing: Capital Improvement Reserve
Substantial Completion Date: To be determined

Pontiac Sewer Rehabilitation – Area 3

Featherstone Road, Bay St, and Pontiac Silverdome Site - City of Pontiac

Project Highlights:

- Construct approximately 1,650 feet of 18-inch diameter force main from Bay Street Pump Station to Perry Street force main.
- Abandon approximately 8,900 feet of distressed 24-inch diameter C-76 Class II concrete pipe along Bay Street between Amos Court and Featherstone Drive, along Featherstone Drive from Bay Street to Lynch Avenue, and within the Pontiac Silverdome property
- Reconstruct and reroute new sewer within the Pontiac Silverdome property as part of new development

Consulting Engineer:

- Applied Science, Inc. of Detroit, Michigan
- Fishbeck of Novi, Michigan

WRC Engineer: Evans Bantios, P.E.

Contractor: To be determined

Project Costs: To be determined

Financing: Bond Sale

Substantial Completion Date: To be determined

Evergreen Farmington Sewage Disposal System

Sanitary Interceptor Repairs - City of Birmingham, City of Beverly Hills, and Bloomfield Township

Project Highlights:

- Repair an approximately 2,100-foot-long section of the Evergreen Farmington Sewage Disposal System sewer that starts just north of 14 Mile Road and runs south down Evergreen Road and Cranbrook Road

Consulting Engineer: Hubbell, Roth & Clark, Inc. of Bloomfield Hills, Michigan.

WRC Engineer: Evans Bantios, P.E.

Contractor: To be determined

Project Costs: To be determined

Financing: To be determined

Substantial Completion Date: To be determined

Evergreen Farmington Sewage Disposal System

Walnut No. 3 Sanitary Pump Station Reconstruction - Bloomfield Township

Project Highlights:

- Existing pump station consists of two 20-horsepower pumps that sit below ground in a dry well at a depth of approximately 32 feet
- The existing underground steel structure is over 50 years old and is experiencing significant distress

- The reconstructed pump station will contain a wet well with two pumps and pump control building that will house the supervisory control and data acquisition system and valve controls
- A condition assessment of the pump station was conducted by Johnson and Anderson in 2018

Consulting Engineer:

- Johnson and Anderson, Inc. of Waterford, Michigan
- DLZ Corporation of Waterford, Michigan

WRC Engineer: Evans Bantios, P.E.

Contractor: To be determined

Project Costs: To be determined

Financing: To be determined

Substantial Completion Date: To be determined

Evergreen Farmington Sanitary Drain

8 Mile Outlet Conveyance - City of Southfield

Project Highlights:

- Slip lining of approximately 3,800 feet of the 8 Mile Sewer downstream of the 8 Mile Road Pump Station
- Construction of approximately 4,800 feet of 18-inch diameter local tributary collector sewer to service the customers along the proposed slip lining route
- Modifications to the 8 Mile Road Pump Station, the Septage Receiving Facility and Evergreen Emergency Sanitary Sewer Overflow Chamber

Consulting Engineer: Fishbeck of Novi, Michigan

WRC Engineer: Evans Bantios, P.E.

Contractor: To be determined

Project Costs: To be determined

Financing: Bond Sale

Substantial Completion Date: Spring 2024

Lake Level Projects Completed in Fiscal Year 2020

Price Dam

Upgrades - City of Pontiac

Project Highlights:

- Completed safety improvements to price dam to allow for better flow control and improve the ability to maintain the existing gates
- Designed downstream controls for each gate
- Replaced existing control rods for the gates
- Installed new control box for one of the gates

Consulting Engineer: Not applicable

WRC Engineer: Ryan Woloszyk, P.E.

Contractor: Trojan Development Company, Inc. of Oxford, Michigan

Project Costs: \$52,000

Financing: Lake Level Assessment

Substantial Completion Date: February 2020

Pontiac Lake Level

White Lake Township

Project Highlights:

- Investigated alternative methods and designs for controlling the normal level of the 615-acre lake and make necessary repairs to the existing lake level structure

Consulting Engineer: Spicer Group, Inc. of Detroit, Michigan

WRC Engineer: Jason Say

Contractor: Trojan Development Company, Inc. of Oxford, Michigan

Project Costs: \$25,000

Financing: Special Assessment

Substantial Completion Date: August 2020

Dams Investigation

Oakland County

Project Highlights:

- Reviewed the repair status of current all the dams within Oakland County
- Generated a yearly report on the status of the dams for the Board of Commissioners

Consulting Engineer: Spicer Group, Inc. of Detroit, Michigan

WRC Engineer: Ryan Woloszyk, P.E.

Contractor: Not applicable

Project Costs: \$80,000

Financing: General Fund

Substantial Completion Date: September 2020

Upper Straits Lake

Lake Level Controls - City of Orchard Lake Village and West Bloomfield Township

Project Highlights:

- Replaced an existing lake level control structure that controls the level of Upper Straits Lake in West Bloomfield Township
- Constructed 56 linear feet of 50 feet deep steel sheet piles with an operating weir width of 24 feet to control the water level of Upper Straits Lake

Consulting Engineer: Spicer Group, Inc. of Detroit, Michigan

WRC Engineer: Jason Say and Glenn Appel, P.E.

Contractor: Trojan Development Company, Inc. of Oxford, Michigan.

Project Costs: \$903,485

Financing: Bond Sale

Completion Date: September 2020

Lake Level Projects Under Development in Fiscal Year 2020

Bevins Lake Level

Control and Structure Improvements - Holly Township

Project Highlights:

- Investigate alternative methods and designs for controlling the normal level of the 31-acre lake
- Make necessary repairs to the existing lake level structure
- Streambank restoration

Consulting Engineer: Spalding DeDecker of Rochester Hills, Michigan

WRC Engineer: Ryan Woloszyk, P.E.

Contractor: To be determined

Project Costs: To be determined

Financing: Special Assessment

Substantial Completion Date: May 2021

Pontiac Lake Emergency Action Plan

Flooding Maps Update - White Lake Township

Project Highlights:

- Survey the downstream areas of Pontiac Lake
- Update the flood inundation maps for Pontiac Lake using computer software

Consulting Engineer: Spicer Group, Inc. of Detroit, Michigan

WRC Engineer: Ryan Woloszyk, P.E.

Contractor: Not applicable

Project Costs: \$90,000

Financing: Special Assessment

Substantial Completion Date: July 2021

Oxbow Lake Emergency Action Plan

Flooding Maps Update - White Lake Township

Project Highlights:

- Survey the downstream areas of Oxbow Lake
- Update the Flood Inundation maps for Oxbow Lake using computer software

Consulting Engineer: Spicer Group, Inc. of Detroit, Michigan

WRC Engineer: Ryan Woloszyk, P.E.

Contractor: Not applicable

Project Costs: \$70,000

Financing: Special Assessment

Substantial Completion Date: July 2021

Pontiac Lake

Soils Investigation - White Lake Township

Project Highlights:

- Take four soil borings on the dam and at the toe of the dam
- Generate a water flow model for the dam
- Provide recommendations on the future reconstruction of the dam

Consulting Engineer: NTH Consultants, Ltd of Detroit, Michigan

WRC Engineer: Ryan Woloszyk, P.E.

Contractor: Not applicable

Project Costs: \$80,000

Financing: Special Assessment

Substantial Completion Date: November 2021

Upper Straits Lake

Augmentation Well - City of Orchard Lake

Project Highlights:

- Selection of an augmentation well site and construction of an augmentation well to maintain lake levels

Consulting Engineer: Spicer Group, Inc. of Detroit, Michigan

WRC Engineer: Ryan Woloszyk, P.E.

Contractor: To be determined

Project Costs: \$550,000

Financing: Special Assessment and Bond Sale

Substantial Completion Date: December 2021