

## Background

The Binghamton-Johnson City Joint Sewage Treatment Plant (BJCJSTP) processes 18 million gallons per day with the capability of processing up to 60 million gallons per day (MGD) of wet weather flow. This plant is jointly owned by the City of Binghamton and the Village of Johnson City and managed by the Binghamton-Johnson City Joint Sewage Board (BJCJSB).

The BJCJSTP has suffered several catastrophic events since 2006. In 2006, the BJCJSTP was flooded by a 500 year flood that affected many of the processes in operation. In May of 2011, a concrete structure suffered structural failure, and in September 2011, the BJCJSTP suffered another 500 year flood that critically damaged equipment and rendered the secondary treatment fundamentally inoperable. The secondary process system is still largely inoperable today. A Consent Order was negotiated between the City of Binghamton, the Village of Johnson City, the BJCJSB and the NYSDEC to develop a plan to restore treatment operations at the BJCJSTP. The Consent Order requires the BJCJSTP to restore secondary treatment functionality and be able to fully treat 35 MGD of wet weather flow by August 1, 2018. To achieve this level of treatment, the reconstruction and testing of the Secondary Treatment Process must be completed as necessary to achieve treatment of 35 MGD. To comply with the Consent Order, the Sewage Treatment Plant must then be fully operable by May, 1, 2019, including the remainder of the secondary treatment process. There are also several interim milestones included in the Consent Order.

The project is being constructed in accordance with Wicks Law, which requires that the project be bid as multiple prime contracts. More specifically, Wicks Law requires that the bulk of the construction work, consisting of the secondary treatment biological filtration filters (BAF), be divided into a General Civil Construction Contract, an Electrical Contract, an HVAC Contract and a Plumbing Contract. The following projects are either nearing completion, in construction, or in the planning stage.

Contract No.	Description	Status
Contract No. 1	Compost Facility Demolition	Nearing final completion
Contract No. 2	FEMA Mechanical	Substantial Completion Date July 2016 Anticipated Completion Date October 2016
Contract No. 3	BAF Facility Demolition	Nearing final completion
Contract No. 4	MCC HH Emergency Replacement	Substantial completion in September 2016
Contract No. 5	BAF Restoration and Rehabilitation Civil Contract	Notice to Proceed (NTP) Issued May 27, 2016
Contract No. 6	BAF Electrical	NTP Issued May 27, 2016
Contract No. 7	BAF HVAC	NTP Issued May, 27, 2016
Contract No. 8	BAF Plumbing	NTP Issued May 27, 2016
Contract No. 9	Secant Pile Contract	Completion anticipated in September 2016

Contract No. 10 13	Solids Handling Renovation	Currently in design. Anticipated completion of design is the end of 2016.
Floodwall	Floodwall and New Diversion Structure	Currently in construction. Anticipated Completion Date July of 2017

### **Contract Descriptions**

#### **Contract No. 1 - Compost Facility Demolition**

Demolition of the upper portion of the compost facility was performed to accommodate the construction of the new Administration Building to house the plant staff as well as provide the new control room to operate the new facilities. Demolition of the lower portion of the Compost Building clears the way for the construction of a new maintenance facility.

**Status:** LeChase Construction has completed the work associated with the demolition of the compost facility. The final change order and the Notice of Final Completion are being prepared. The original contract amount was \$1,473,925, and change orders have been processed to the City for execution in the aggregate amount of \$93,658.00. The change order amount represents approximately 6% of the original construction bid amount.

**Contract Status: 100% Complete**

#### **Contract No. 2 - FEMA Mechanical**

The FEMA Mechanical Project replaces valves, equipment and other miscellaneous items damaged in the 2011 flood. It includes equipment in both the East and West Primary Sludge Pumping Stations, valves and equipment located in the Head House, and equipment associated with Sludge Thickener Pumping Station Nos. 1 and 2. Work associated with this contract is being reimbursed by FEMA due to the flood of 2011.

**Status:** Blue Heron has mobilized materials to the site and has begun construction. It should take them approximately 6 weeks to perform the work.

**Contract Status: 25% Complete**

#### **Contract No. 3 - BAF Facility Demolition**

The BAF Demolition Contract removed the existing structures and utilities that conflict with the new construction work included in the BAF Rehabilitation and Restoration Project. Demolition efforts include selective demolition in the existing process tanks (C-Filters, N-Filters, and DN-Filters) and buildings and mechanical equipment and piping to ready the site for new construction.

**Status:** LeChase has completed the demolition on the BAF Facility. They have removed the methanol from the methanol tanks that are to be disposed of in Contract #5. The only remaining

item for completion is the evaluation and repair of concrete reinforcing steel. The scope of work for the contract was increased with four change orders. Change Order One modified the contract to demolish and remove the existing Blower Building to improve construction on contracts 5-8 at the C-N cells 1-8. Change Order Two demolished the known concrete in the C cell area inside the secant pile area below the elevation 825 (the original limit of demolition indicated on the contract documents.) Change Order Three removed the additional concrete pile caps and steel H piles not originally included in the contract documents and also backfilled from elevation 825 to 831. The Fourth and final Change Order compensated the contractor for demolition of approximately 3600 CY of additional concrete within the secant pile area not known to exist. The removal of the additional concrete eliminated a delay in excess of four months on the overall project, and reduced the cost to avoid having a future contractor remove the concrete.

**Contract Status: 98% Complete**

#### **Contract No. 4 - MCC - HH Emergency Replacement**

Contract 4 replaces the original existing Motor Control Center (MCC) in the Head House. The MCC is 50 years old, and is identified as MCC-HH. The contract was bid as an emergency contract because the electrical system in the Head House is both critical to keeping the BJCJSTP in service, and because the original MCC is extremely unreliable due to the age and condition of the gear. MCC HH Emergency replacement also replaces the existing raw sewage pump drives of the existing 50 year old equipment including new electrical feeders from the HH to the Johnson City Grit House No. 1, a new feeder from the HH to the Thickened Sludge Pump Station No. 1, and various other panel boards. The emergency work also includes replacement of the existing raw sewage variable frequency drives that were located in the existing MCC HH. The new drives will be more reliable, more efficient, and will provide better performance of the existing raw sewage pumps.

**Status:** The new VFD's and MCC HH have been installed in the Head House. All work on the project has been completed except for the removal of the existing MCC, and project closeout items.

**Contract Status: 98% Complete**

#### **Contract No. 5 - BAF Restoration and Rehabilitation Civil Contract**

When combined with the other BAF contracts (Nos. 6, 7 & 8), Contract No. 5, the General Civil contract, is intended to provide a functioning automated plant using a BIOSTYR system that can be modified to fit current plant configurations. It is also intended to provide functioning automated headworks and primary clarification processes upstream of the BIOSTYR system and solid handling processes downstream of the BIOSTYR system.

Major components of the work under Contract No. 5 include new coarse screens and ancillary equipment, new piping and valves for the influent pumps, new metering equipment, new fine screens and grit removal with ancillary equipment, a new primary distribution box, new mechanical equipment for primary clarifiers 1-10, new chemical equipment for primary

treatment, modification of the primary clarifier structural components to replace the aged and deteriorated mechanical equipment, new secondary influent pumps for the new BAF system, a new BAF backwash tank, new CN BAF and DN-BAF facilities, a new methanol system that will feed the DN-BAF cells, new Ultra Violet Light disinfection system to replace the existing chlorine disinfection system, new sludge thickening equipment and systems, a new administration building, new odor control equipment, two new 2MW electric generators, and a new plant outfall to the river.

**Status:** The NTP for Contract No. 5 was issued on May 27, 2016, which complied with milestone requirements in the revised Consent Order. The west tower crane has been installed. Work has begun on demolition of the primary clarifiers 7-10, structural work has begun on the Administration Building. The temporary bypass pumping plan is under review, this plan is required to begin the work on the head works, grit chambers and distribution box. The master schedule is complete.

The contractor has acknowledged that they can complete the construction efforts within the required construction completion milestone dates.

**Contract Status: 7% Complete**

#### **Contract No. 6- BAF Electrical**

The BAF Electrical contract supports the BAF General Civil Contract and includes all electrical and instrumentation associated with the BAF contracts. The components include installation of the new UV disinfection system, installation of the new generators, installation of the electrical feed throughout the plant, as well as installation of the instrumentation and SCADA System throughout the plant.

**Status:** Contract No. 6 was bid and awarded in compliance with the May 27, 2016 milestone for issuing the NTP in the Consent Order. The contractor is mobilizing and is providing input for the Project CPM baseline schedule. Equipment and material shop drawings are being submitted for review and approval.

**Contract Status: 5% Complete**

#### **Contract No. 7-BAF HVAC**

The BAF HVAC contract supports the BAF General Civil Contract and includes installation of all HVAC Systems in all STP Facilities as well as revisions to the odor control systems throughout the plant. The odor control improvements are intended to alleviate the odors that have been prevalent in the past in and around the plant.

**Status:** Contract No. 7 was awarded on May 27, 2016 in compliance with the DEC milestones in the Consent Order. The contractor is mobilizing and has been submitting material submittals for the HVAC Equipment for the project. They have provided supporting information for the

development of the CPM Schedule. They have acknowledged they can meet the required milestones of the Consent Order.

### **Contract Status 2% Complete**

#### **Contract No. 8- BAF Plumbing**

The BAF Plumbing contract supports the BAF General Civil Contract and includes installation of plumbing systems for the new and existing facilities included in Contract No. 5.

**Status:** Contract No. 8 Notice to Proceed was issued in compliance with the May 27, 2016 milestone for issuing the NTP in the Consent Order. The contractor is mobilizing and has provided the supporting information for the overall CPM Schedule. They have confirmed that they can meet the required milestones of the Consent Order. They have begun to install the plumbing in the new maintenance building and the east scrubber building. They also intend to install the new potable water backflow preventer that will allow the potable water to be used as a backup of the existing non-potable plant water system.

### **Contract Status: 4% Complete**

#### **Contract No. 9 - Secant Pile Contract**

The Secant Pile contract includes installation of the secant piles that support the excavation for the new BAF Backwash tank as well as supporting the new CN Cells 9-14. Construction also includes excavation to the final grade for the BAF backwash tank. This project was bid separately from Contracts 5-8. In doing so, a minimum of four months on the critical path schedule was saved.

**Status:** The installation of the secant pile is complete. The contractor has completed the wales and struts and they are proceeding with the excavation below that elevation. They continue to lose ground on their schedule and are now projecting that they will be complete by November 30, 2016. This should not have any impact on the overall project schedule.

### **Contract Status: 90% Complete**

#### **Contract No. 10 - 13 -Solids Handling Renovation**

Contracts No. 10-13 are intended to renovate and improve the solids handling systems including the existing digester control building, existing digesters, solids dewatering systems, and all ancillary equipment. The scope will be further developed as the design progresses. The constructability review has begun based on 60% of the design document.

#### **Floodwall**

The new floodwall being constructed at the STP is intended to protect the plant to an elevation 1.5 feet above the 2011 flood level. The floodwall includes concrete walls on the east and north

side of the STP. The project also includes two new pump stations to pump rainwater out of the plant during the storm events that might overwhelm the existing storm drain system. The new flood wall system works in conjunction with new flood wall features included in Contract No.5 BAF General Civil Construction. The flood wall systems are being funded by a FEMA recovery grant.

**Status:** Construction is proceeding with the completion of the sheeting, and the beginning of the concrete foundation for the new floodwall. The temporary haul road between the floodwall and the Susquehanna River is complete. Form work and rebar installation is progressing on the concrete footings at the existing sludge thickeners. The contractor is preparing for the concrete work on the stem wall portion of the floodwall. The subgrade condition is being assessed as excavation areas are exposed. The excavation for Pump Stations No. 1 and 2 are complete. Concrete for the walls and floors have been placed. All early permit requirements regarding the SEQR and the USACE permit have been complied with. We are currently projecting the Contractor to complete the floodwall within the allowed contract completion date in the Consent Order milestones.

**Contract Status: 30% Complete**



Contract 9 Secant Area, Excavation Below Wales and Struts for BAF Backwash



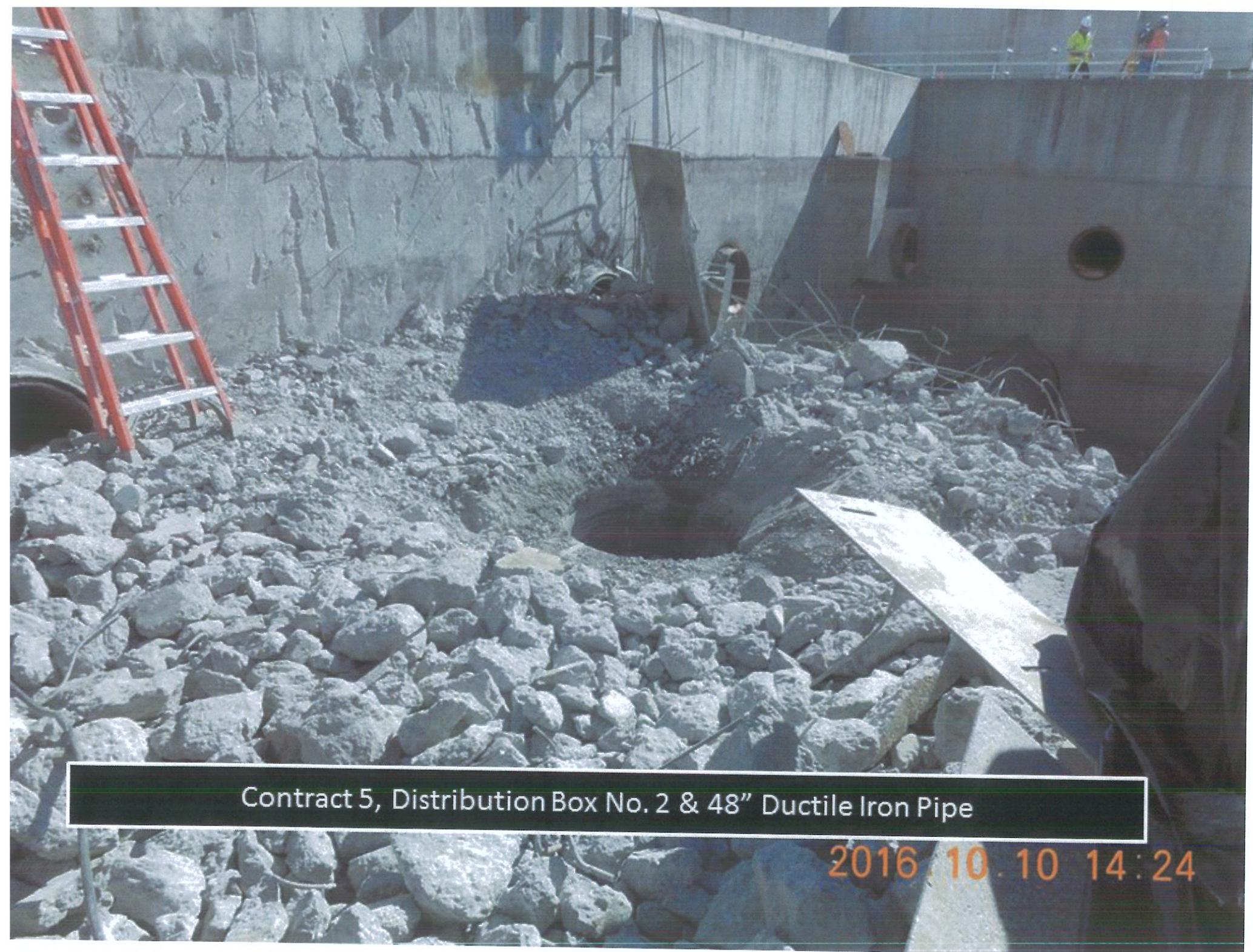
Contract 4, New Motor Control Center Progress



Contract Floodwall, Placing Concrete, (First Top of Wall Placed)



Contract Floodwall, Pump Station No. 1 - All Forms Removed



Contract 5, Distribution Box No. 2 & 48" Ductile Iron Pipe

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Contract 5, Vacated Primary Settling Tank No. 7

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