

July Monthly Report

BJCJSTP Rehabilitation and Restoration Project

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	Complete
Contract No. 2	FEMA Mechanical	Substantial Completion Date July 2016 Anticipated Completion Date July 2017
Contract No. 3	BAF Facility Demolition	Complete
Contract No. 4	MCC HH Emergency Replacement	Substantial completion in December 2016. Awaiting completion of punch list work. Anticipated final completion July 2017.
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	Project substantial Completion achieved on December 30, 2016
Contract No. 10 13	Solids Handling Renovation	Bids were opened March 16, 2017. NTP issued July 20, 2017.
Floodwall	Floodwall and New Diversion Structure	Currently in construction. Anticipated Completion Date September 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.

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 completed all of the work not deleted by change with exception of installation of the elutriate pumps. It was determined that it would be better to replace the elutriate pumps than to rehabilitate the pumps as included in the contract documents.

Contract Status: 85% 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.

Contract Status: 100% Complete

Contract No. 4 - MCC - HH Emergency Replacement

Contract 4 replaces the original existing Motor Control Center (MCC) in the Head House (HH). 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: All work on the MCC HH project has been completed except some final reports.

Contract Status: 100% 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, new chemical storage building, 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, a new plant outfall to the river.

Status: The placement of concrete for all of the base slab segments of the new Backwash Tank has been completed, and the tensioning of the rock anchors that resist the buoyant force under the slab are complete. Issues relative to the installation of the reinforcing steel for intermediate columns and interior walls has caused some delays. Most of the columns have been installed while there remains a 3' offset on 2 columns that still needs to be addressed. Remaining leaks in the secant walls are being repaired as they materialize. Installation of the shotcrete has begun on the lower level, but has been delayed due to the unfavorable conditions relating to leaks in the Secant Wall. These are being addressed. BAF Backwash tank is about 90% complete.

The contractor continued the excavation for the new Headworks and BAF Backwash Treatment Facilities. The support for the existing substation in the Courtyard has been installed and is not impacting the operation of the substation. PC began installing the support of excavation on the south side of the excavation.

PC has erected a second tower crane in the vicinity of the excavation for the new Headworks and BAF Backwash Treatment Facilities to provide better crane access to the eastern portion of the jobsite. The crane foundation is an integral part of the bottom of the new proposed diversion box. Some questions regarding placement of rebar are being evaluated.

PC is preparing for the temporary connection of the force main to the temporary header for Primary Clarifiers 1 and 6. The temporary connection will allow for removal of the temporary force main from the site and make access around the site much better. This should happen by the second week in August.

The demolition portion of the work is nearly completed in the area of the existing primary clarifiers 7-10, and the new concrete work is continuing. Demolition work is wrapping up in the CN Cells 1-8 areas.

The construction of the new Chemical Building is well underway. The concrete walls below grade have been placed, and the block walls are being built. Backfill around the structure is nearing completion.

Kruger equipment submittals are complete and the final detailed reviews are in progress. Bi-weekly telephone conference calls with the Kruger, PC, GHD, and the CM have proven helpful in progressing the work. The casting of nozzle decks is nearing completion and has progressed satisfactorily. PC has begun to take delivery of the nozzle decks and is storing them off-site. We have received the preliminary BAF Operations and Maintenance manuals as well as the startup and testing plan from Kruger.

Work continues with the metal roof deck for the Administration Building. Joists and other features have been placed. Concrete work is progressing on the building as well as work in the lower level maintenance portion of the building. The Sewage Treatment staff has completed the move from the existing administration building to an off-site temporary facility.

PC has installed the 72" outfall pipe. The construction of the concrete headwall is complete. Coordination with the Floodwall Contractor are on-going on how to bypass the effluent.

Contract Status: 23% 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. All of the manholes and 95% of the associated duct bank work for the new dual primary service have been installed. Demolition of the electrical systems at the east scrubber building are complete. Electrical control and circuit conduit installation has begun at various locations. Conduit installation of circuits, alarms and communication at the administration building is progressing

The installation of aerial conduits for medium voltage feeds above the Head House and for low voltage distribution along the aerial trestle to the sludge thickening area of the plant from the Head House is ongoing. There was an issue with the quality of some of the PVC coated conduit which has been resolved.

Installation of the underground duct banks adjacent to the existing Headhouse and in the area of the Digesters is underway. This work is anticipated to be complete in early June. Work on the underground portion of the new NYSEG power feeds is complete. The completion of the new power feeder includes new switch gears. Delivery of this equipment is expected within the next two months.

The City had a temporary standby generator installed for the next 6-12 months to prevent flooding of the site in the event of any further power outages at the plant. The plan for the installation of the permanent generators has been approved including floor supports and building openings for installation. The generator is expected to be delivered in a week.

Contract Status: 23% 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 continued working on ductwork installation in the Maintenance Building, the East Scrubber Building, the Headhouse and the Chemical Storage Building. J&K has provided supporting information for the development of the CPM Schedule. They are coordinating with PC Construction and the other prime contractors. They have acknowledged they can meet the required milestones of the Consent Order. Rough-in is ongoing at the new Administration Building with various other work proceeding throughout the site.

Contract Status: 30% 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 continues working on plumbing pipe installations in the new Administration Building, the Maintenance Building and the East Scrubber Building. Danforth has installed the under slab piping in the Chemical Storage Building and are completing the under slab piping in 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. They are coordinating with PC Construction and the other prime contractors and they have confirmed that they can meet the required milestones of the Consent Order. Rough-in at the new Administration Building is ongoing.

Contract Status: 22% 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 wall is complete. The contractor has completed the wales and struts and they have completed the excavation to the required elevation for work to begin under Contract 5. One of the two items from the punch list for project was completed this month. The surfacing of the columns has been completed, and the leaks in the secant piles are being sealed as they become known. To accelerate the project, PC Construction progressed with the placement of the concrete floor of the backwash tank while Welliver addressed the punch list items.

There are some issues with alignment of reinforcing bars for columns in the backwash tank which are being resolved.

Contract Status: 99% 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 was further developed during the design progresses. The constructability review was completed on the 100% design documents.

Status: Bids were received on March 16, 2017. GHD has evaluated the bids and has recommended awarding the contracts. The contracts were awarded on May 4, 2017. The NTP's were issued on July 20, 2017. Pre-construction meetings are being held on August 2, 2017. Because of the

necessity to have the Solids Handling equipment operational before Phase 1 is complete, the Sewage Treatment Plant staff has relocated their administration offices off site.

Contract Status: Contracts and Notice to Proceeds issued.

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 sides of the STP. The project also includes two new pump stations to pump up stream out of the plant during the storm events. The new floodwall system works in conjunction with new floodwall features included in Contract No.5 BAF General Civil Construction. The floodwall systems are being funded by a FEMA recovery grant.

Status: Construction is proceeding with the concrete work on the floodwall. The concrete work for the floodwall is complete with the exception of the work on the west end near the existing 84" outfall. Construction of the Vestal sewer line relocation is temporarily on hold until coordination with Contract 5 is complete. The remaining concrete floodwall will be complete after the existing 84" outfall is removed.

The concrete work for Pump Stations No 1 and 2 are complete. The contractor has continued installing the pump and pipework for the two pump stations. The contractor is anticipating that they will be complete with the floodwall by December 2017, and will complete the work associated with Manhole #3 on the 54" trunk sewer line from Binghamton east of the floodwall during the fall. The completion of the gate installation in the sampling manhole will occur approximately three weeks after manhole #3 is completed.

Rehabilitation of the digesters is underway. Scaffolding has been installed and surface cleaning is complete in Digester 3. Repairs to joints and deteriorated concrete is ongoing. Work in Digesters 1 and 2 will follow.

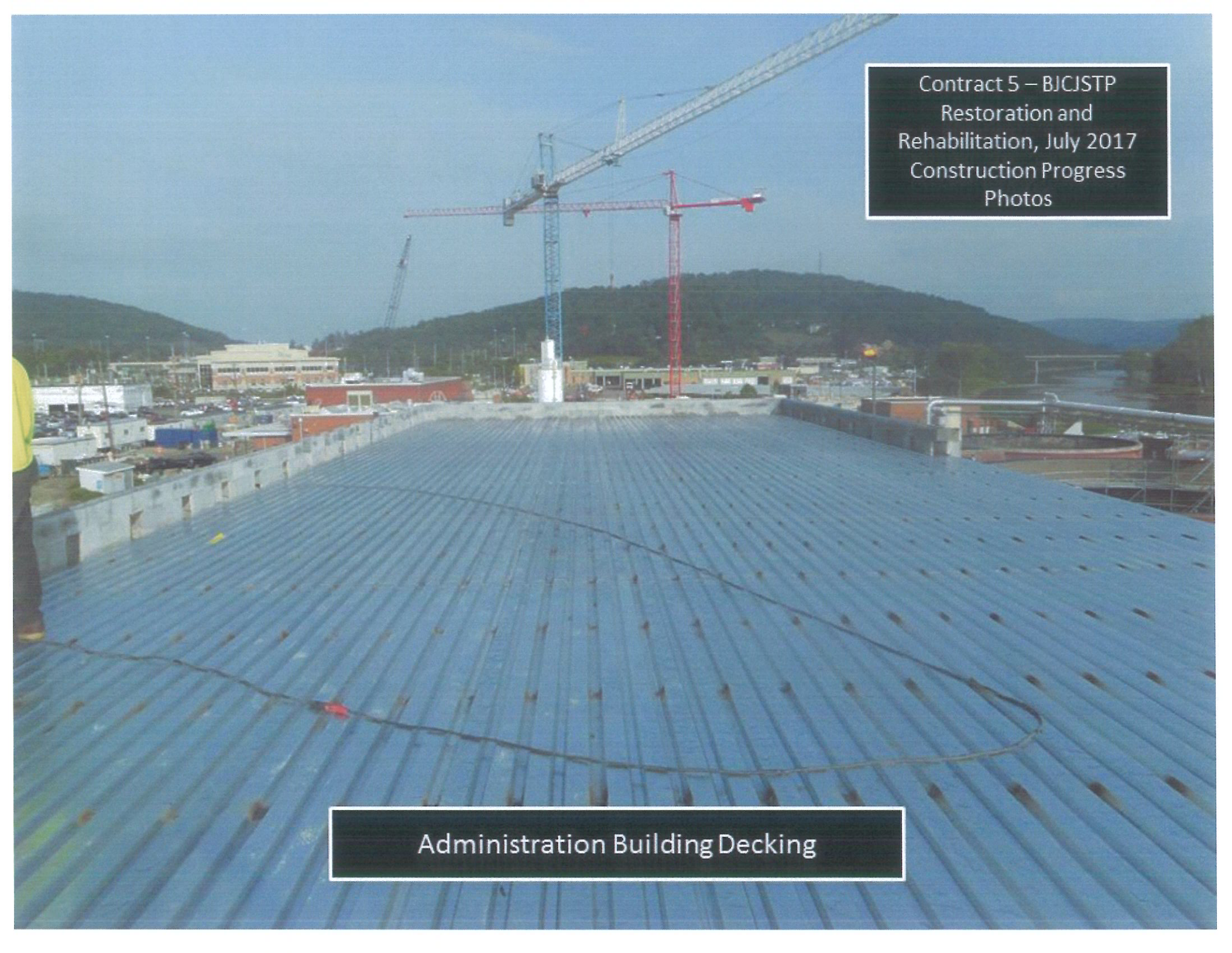
All permit requirements regarding the SEQR and the USACE permit have been complied with. We are currently projecting the Contractor to complete the floodwall within the allowed contract completion date in the Consent Order milestones. Streeter has submitted a price to construct a temporary at shore outfall for bypass.

Contract Status: 75% Complete

NOTES:


1. SWPPP measures continue to be maintained by all contracts. Any deficiencies noted during daily or weekly inspections are quickly remedied.

2. Weekly meetings are held for each contract to discuss the progress of the work and identify and resolve issues and problems. Meetings between contractors on the various contracts are held as necessary to facilitate any concerns and coordinate work between all contracts.
3. Contracts 5-8 are continuing the submittal process for all equipment and materials. They are being reviewed and processed as they are submitted.
4. Contracts 10-13 have begun submittals and are preparing the CPM Schedule.



Contract 5 – BICJSTP
Restoration and
Rehabilitation, July 2017
Construction Progress
Photos

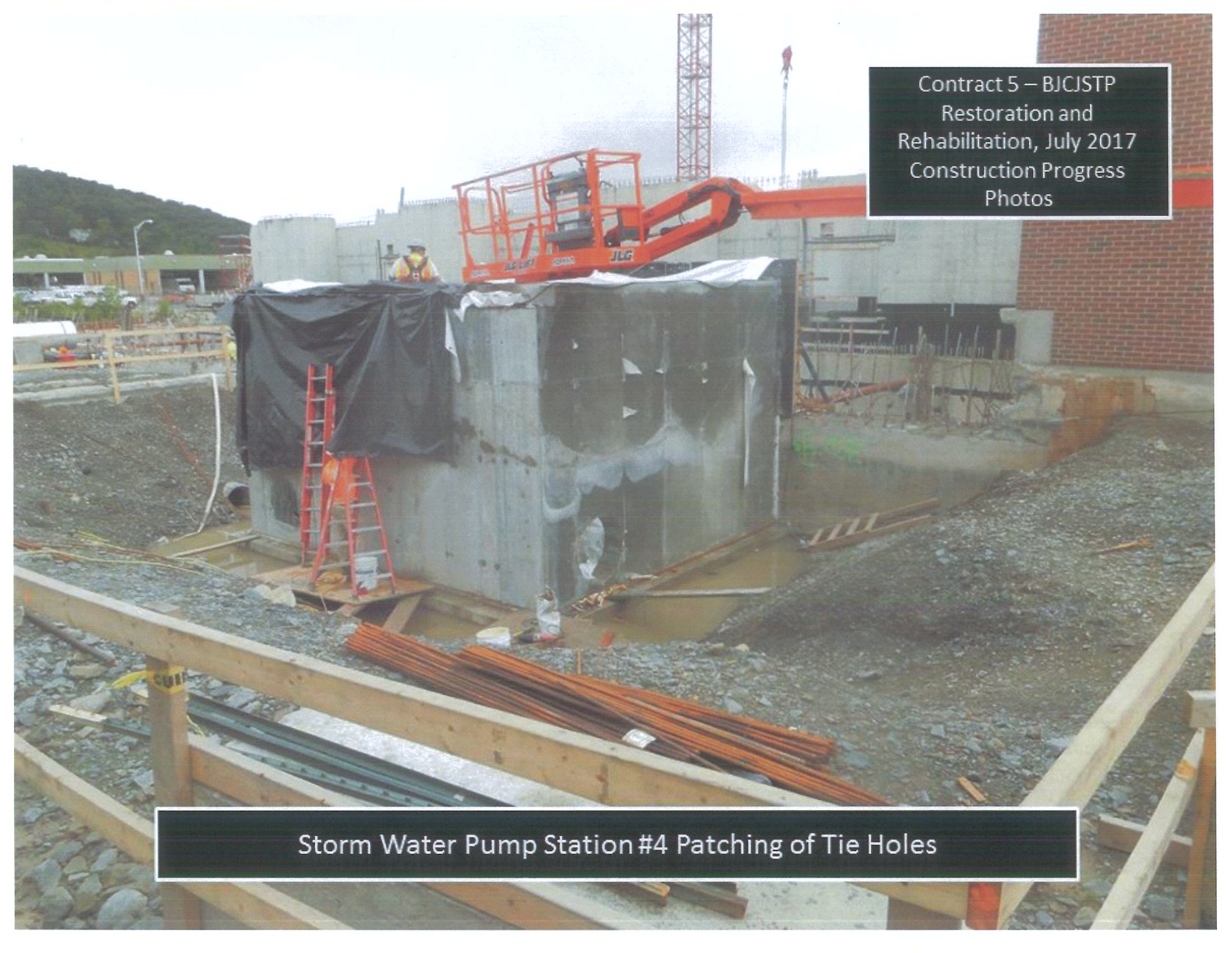
Administration Building Decking



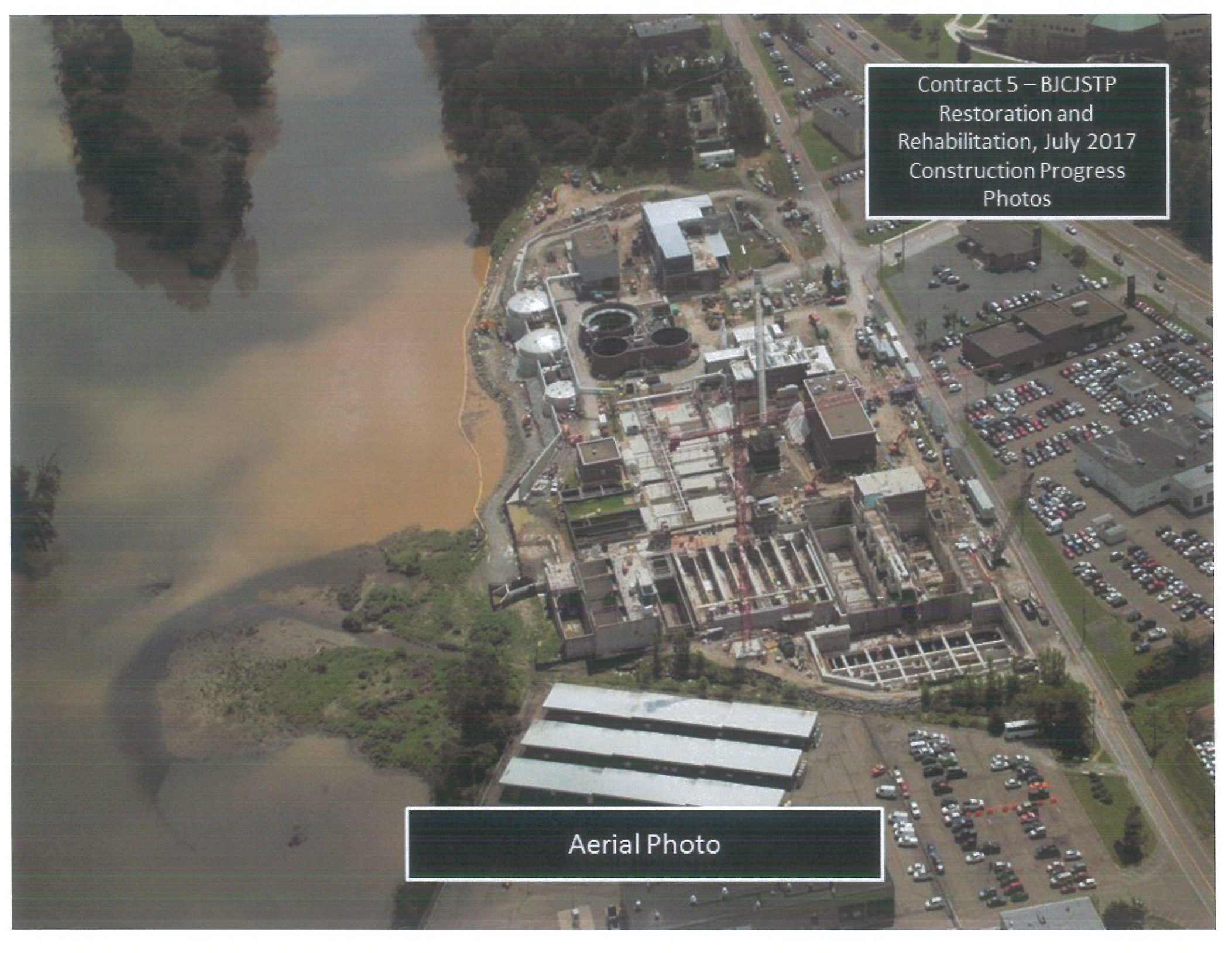
Contract 5 – BJCJSTP
Restoration and
Rehabilitation, July 2017
Construction Progress
Photos

CN 9-14 C2 Walls Concrete Pour

Contract 5 – BJCJSTP
Restoration and
Rehabilitation, July 2017
Construction Progress
Photos




Storm Water Pump Station #4 Patching of Tie Holes



Contract 5 – BICJSTP
Restoration and
Rehabilitation, July 2017
Construction Progress
Photos

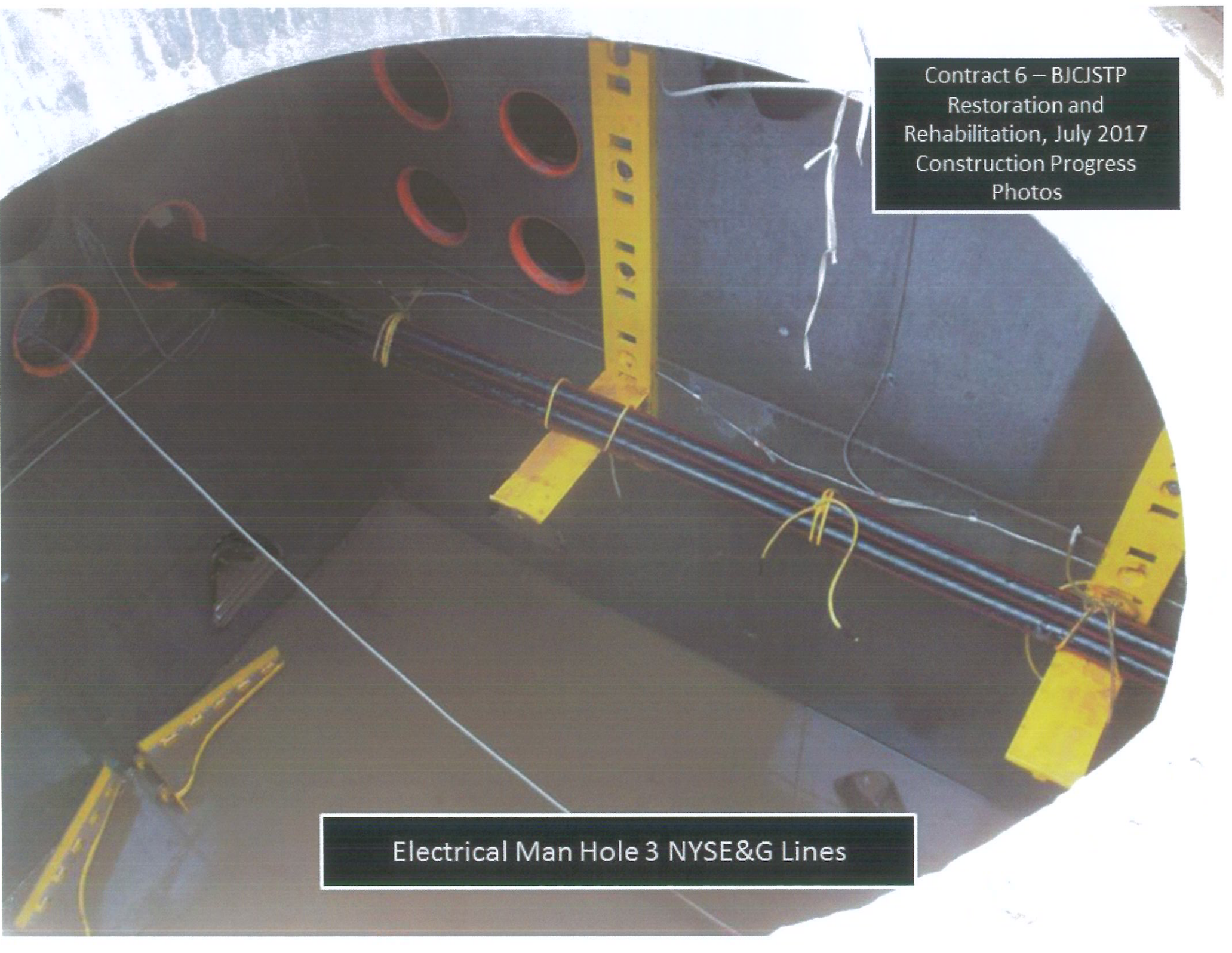
Aerial Photo



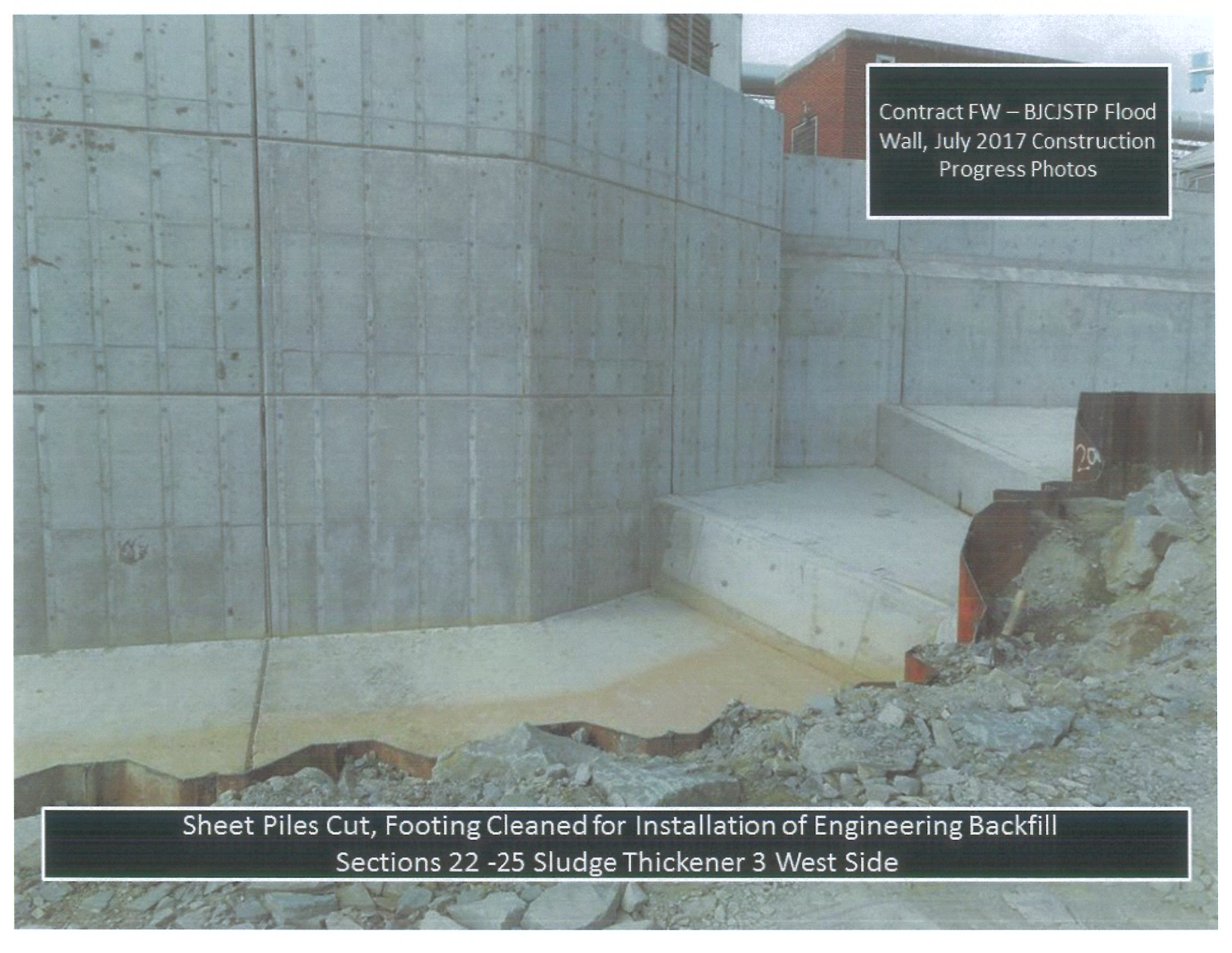
Contract 6 – BJCJSTP
Restoration and
Rehabilitation, July 2017
Construction Progress
Photos

Chemical Building Duct Bank Line S1

Contract 6 – BJCJSTP
Restoration and
Rehabilitation, July 2017
Construction Progress
Photos

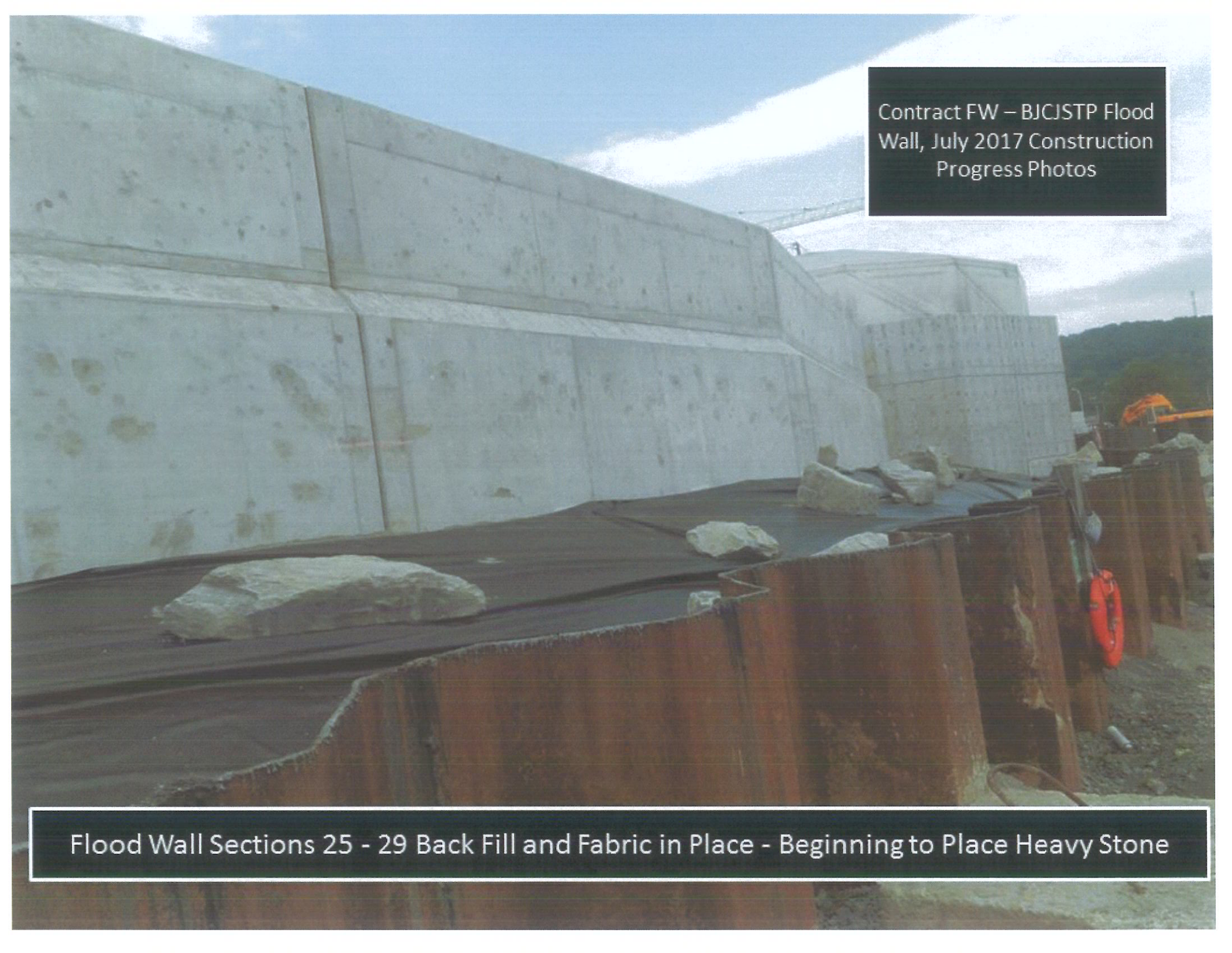


Electrical Man Hole 3 NYSE&G Lines

A photograph of a construction site for a flood wall. The main structure is a wall made of large, grey concrete panels. In the foreground, there are several sheet piles (interlocking steel sheets) that have been cut and are lying on a bed of rubble and gravel. The wall appears to be part of a larger structure, possibly a sludge thickener. In the background, a red brick building is visible. The sky is overcast.

Contract FW – BJCJSTP Flood
Wall, July 2017 Construction
Progress Photos

Sheet Piles Cut, Footing Cleaned for Installation of Engineering Backfill
Sections 22 -25 Sludge Thickener 3 West Side

A large-scale construction project for a flood wall. The main structure is a massive concrete wall composed of several sections, each with a grid-like pattern of reinforcement. In the foreground, a series of vertical steel sheet piling walls are installed, creating a cofferdam. The interior of this cofferdam is filled with a dark, fibrous fabric material. Large, light-colored stones are being placed on top of this fabric. In the background, a yellow excavator is visible, and the sky is overcast.

Contract FW – BICJSTP Flood
Wall, July 2017 Construction
Progress Photos

Flood Wall Sections 25 - 29 Back Fill and Fabric in Place - Beginning to Place Heavy Stone

A construction site for a flood wall. In the foreground, there are several large, reddish-brown vertical pipes (manholes) installed in a concrete structure. To the right, a concrete wall is under construction, with a black pipe protruding from it. In the background, an orange Hitachi excavator is visible on a dirt path. The site is surrounded by trees and a clear sky.

Contract FW – BJCJSTP Flood
Wall, July 2017 Construction
Progress Photos

Yard Piping Beginning at Pump Station Number 1

The image shows the interior of a large industrial structure, likely an anaerobic digester, during construction. The ceiling is made of metal panels, many of which are heavily rusted and discolored. A complex network of silver metal scaffolding is erected throughout the space, providing access to the walls and ceiling. The walls are a light brown or tan color, showing signs of wear and repair. The floor is covered with wooden planks and metal debris. In the upper right corner, there is a black text box with white text. In the lower left corner, there is another black text box with white text.

Contract FW – BJCJSTP Flood Wall, July 2017 Construction Progress Photos

Anaerobic Digester - Example of Coating Entirely Removed from the Wall and the Mid Joint Repair Finished Prior to Coating Removal