Brown and Caldwell Associates
3 Marcus Boulevard, Suite 106
Albany, New York 12205

T: 518.560.5910

March 14, 2023

Letter Report

John Spellman, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, New York 12233-7014

152167.207

Subject: Completion Letter Report
Gas Utility (PL E-20) Partial Replacement Project
Troy, Rensselaer County, New York
NYSDEC Site No. 4-42-029

Dear Mr. Spellman:

On behalf of National Grid, this letter provides the New York State Department of Environmental Conservation (NYSDEC) with documentation of soil management and community air monitoring activities associated with the recently completed partial replacement of gas utility pipeline (PL) E-20 (referred to as the PL E-20 Project) located in the City of Troy, Rensselaer County, New York.

This letter has been organized as follows:

- **Section 1:** Introduction and Background
- **Section 2:** Description of Work Completed
- **Section 3:** Schedule of Completed Work
- **Figures:**
  - Figure 1 - Properties/Sites Affected by PL E-20 Project
  - Figure 2 - Conceptual Overlay of PL E-20 Partial Replacement Project and Initial Phase of Area 2 and Area 3 Remediation
- **Attachments:**
  - Attachment A – Select PL E-20 Project Design Drawings (Provided for Reference)
  - Attachment B – Photographic Log
  - Attachment C – Community Air Monitoring Plan (CAMP) Documentation
  - Attachment D – Fill Import Documentation
  - Attachment E – Waste Management Documentation
  - Attachment F – Stormwater Pollution Prevention Plan (SWPPP) Inspection Reports
  - Attachment G – Archeological Monitoring Report

1. Introduction and Background

The PL E-20 Project included the replacement of a portion of pre-existing 12-inch diameter PL E-20 natural gas pipeline. The work included installation, via direct bury, of approximately 3,145 linear feet of new 12-inch diameter, coated steel pipe along with associated appurtenances. The new pipe was then tied into the existing piping at both the northern and southern ends of the replacement route (i.e., the northern and southern tie-in locations). In addition, the pre-existing section of 12-inch diameter steel pipe that was being replaced (i.e., between the northern and southern tie-in locations) was retired. Approximately 1,460 feet was retired in place and approximately 1,640 feet was retired via removal

The PL E-20 Project involved work on multiple remediation sites that are in different stages of remediation and being performed by various parties. The PL E-20 Partial Replacement Project involved work on or in the vicinity of the following remediation sites (listed from north to south):

- Troy (Water Street) Site – Area 2 (Operable Unit 1 [OU-1] of NYSDEC Site No. 4-42-029), owned by the Troy Local Development Corporation (Troy LDC) and remediation of this former manufactured gas plant (MGP) site is being conducted by National Grid. EPA ID: NYR 000 046 235 (referred to herein as Area 2 or Troy LDC property).
- Troy (Water Street) Site – Area 3 (Operable Unit 2 [OU-2] of NYSDEC Site No. 4-42-029) owned by Chevron USA and remediation of this former MGP site is being conducted by National Grid. EPA ID: NYR 000 046 235 (referred to herein as Area 3 or Chevron property north of Troy-Menands Bridge).
- Chevron Former Asphalt Facility (NYSDEC Site No. 4-42-029B) owned by Chevron USA and remediation being conducted by Chevron USA. EPA ID: NYD 000 284 620 (referred to herein as Chevron or Chevron property south of Troy-Menands Bridge).
- Troy (Water Street) Site – Area 4 (NYSDEC Site No. 4-42-029A): remediation of this former MGP Site has been completed by National Grid. EPA ID: NYR 000 046 243.

In addition, a significant portion of the PL E-20 Project also occurred within River Road on property owned by the CSX Corporation (CSX) (referred to herein as CSX property). The various properties/sites affected by the project are depicted on Figure 1.

In parallel with the PL E-20 Partial Replacement Project, National Grid's Site Investigation and Remediation (SIR) Group implemented an initial phase of remediation on both Areas 2 and 3 of the Troy (Water Street) Site (i.e., property located north of the center line of the Menands Bridge) to complete the remediation of areas of those Sites that partially overlapped with the footprint of the PL E-20 pipeline. Refer to Figure 2 for an overlay of the PL E-20 project and the remediation areas included in the initial phase of remediation. This letter report documents environmental aspects of the PL E-20 Project on the properties/sites listed above and does not address remediation activities on the affected sites. The documentation of remediation activities on Areas 2 and 3 are addressed under separate cover. Refer to Section 3 for a discussion of the coordination activities between the PL E-20 Project and National Grid SIR's remediation project.

The construction phase for the PL E-20 Project was performed between April and October 2022 (refer to Section 3). Environmental aspects of the project were performed

in accordance with the NYSDEC-approved work plan/notification (letter prepared by BC dated January 12, 2022, Re: "Gas Utility (PL E-20) Partial Replacement Project Notification, Troy (Water Street) Site, Troy, Rensselaer County, New York, NYSDEC Site No. 4-42-029", which was approved by NYSDEC in a letter dated January 26, 2022) and applicable NYSDEC guidance (notably Division of Environmental Remediation [DER] document DER-10 "Technical Guidance for Site Investigation and Remediation") and regulations.

1.1 Roles and Responsibilities

The following parties comprised the project team for the PL E-20 Project:

- **National Grid Gas:** National Grid entity undertaking and responsible for overall completion of the PL E-20 Project.
- **National Grid's Environmental Compliance (EC) Department:** National Grid entity responsible for environmental compliance during implementation of the PL E-20 Project.
- **National Grid's Site Investigation and Remediation (SIR) Department:** National Grid entity responsible for implementation of the remedial action activities on Areas 2 and 3 (conducted in parallel with the PL E-20 Project). National Grid SIR also assisted with environmental compliance during implementation of the PL E-20 Project.
- **Brown and Caldwell Associates (BC):** Environmental engineer retained by National Grid to assist in the development of environmental requirements for the PL E-20 Project and to assist with environmental compliance during implementation of the PL E-20 Project.
  - **Hartgen Archeological Associates, Inc. (Hartgen):** Retained by BC to perform archeological monitoring in accordance with the archeological monitoring plan dated April 2022 (OPRHP 21 PR06614), which was approved by the New York State Historic Preservation Office.
- **J Mullen & Sons, Inc. (JMS):** Gas infrastructure contractor responsible for construction activities required to implement the PL E-20 Project and coordination with subcontractors.
  - **HSE Consulting Services, Inc. (HSE):** Retained by JMS to prepare and oversee the implementation of the Site-Specific Health and Safety Plan (HASP) and to prepare and implement the Community Air Monitoring Plan (CAMP) in accordance with the Project's Environmental Requirements.
  - **LAND Remediation, Inc. (LRI):** Retained by JMS as the environmental remediation subcontractor to assist with project implementation, specifically with compliance with the Project's Environmental Requirements and execution of soil excavation, handling, and waste management activities.

- **CSX:** Property owner affected by the PL E-20 Project. CSX is the owner of the railroad and adjacent areas, including those that extend into River Road.
- **Chevron USA:** Property owner affected by the PL E-20 Project. Chevron USA is the owner of the property south of the Troy-Menands Bridge along the Hudson River (also referred to as the Chevron Former Asphalt Facility) and the property north of the Troy-Menands Bridge along the Hudson River (also referred to as Area 3 of the Troy (Water Street) Site).
- **Troy LDC:** Property owner affected by the PL E-20 Project. The Troy LDC is the owner of the property along the Hudson River immediately south of the Wynantskill Creek (also referred to as Area 2 of the Troy (Water Street) Site).
- **TRC Companies, Inc. (TRC):** Environmental consultant retained by CSX to oversee and document work activities on the CSX property.
- **National Railroad Safety Services (NRSS):** Safety oversight representative retained by CSX to oversee and document safety for work activities on the CSX property.

1.2 Coordination with Area 2 and Area 3 Remediation

As discussed, in parallel with the PL E-20 Project, National Grid's SIR Group implemented an initial phase of remediation on both Areas 2 and 3 of the Troy (Water Street) Site (i.e., property located north of the center line of the Menands Bridge) to complete the remediation of areas of those sites that partially overlapped with the footprint of the PL E-20 pipeline. Figure 2 provides a conceptual overlay of the initial phase of remediation activities on top of components of the PL E-20 Project. A brief summary of the remediation activities is described in this Section. Additional documentation of remediation activities on Areas 2 and 3 are addressed under a separate construction completion report to be submitted to the NYSDEC.

On Area 3 of the Troy (Water Street) Site, prior to pipeline installation, soil was excavated from the eastern portion of the site in the vicinity of proposed gas pipeline. Following excavation, the excavation bottom and sidewalls were lined with non-woven geotextile fabric (4 ounces per square yard and orange in color) and backfilled with clean imported fill. As a result, pipeline installation activities on Area 3 of the Troy (Water Street) Site were conducted within clean backfill material and resulted in no waste generation from Area 3 (with the exception of soil generated from the cut/cap and pipe removal at the Area 2 [Troy LDC] and Area 3 [Chevron USA] property boundary [refer to Section 2.2]). Where these clean backfill materials were encountered from Area 3 as part of the PL E-20 Project, the material was segregated and re-used for backfilling as part of National Grid SIR's remediation project.

On Area 2 of the Troy (Water Street) Site, prior to pipeline installation, soil was excavated from the central portion of the site and in situ solidification (ISS) was performed in the area north and east of the former E-Lot building. Following excavation, the bottom and sidewalls were lined with non-woven geotextile fabric (4 ounces per square yard and orange in color) and backfilled with clean, imported fill. Following ISS, the upper four feet or more of solidified soil was removed, non-woven geotextile fabric (4 ounces per square yard and orange in color) was placed, and clean imported fill was placed. Where these clean backfill materials were encountered from Area 2 as part of the PL E-20

Project, the material was segregated and re-used for backfilling as part of National Grid SIR's remediation project.

To maintain coordination between the Area 2 and Area 3 remediation activities and the PL E-20 Project, weekly project meetings were held between members from both project teams to discuss progress, upcoming work plans, and sequencing. In addition, routine meetings were held between the Site Safety Officers (SSOs) and the construction managers for additional in-field coordination. In order to complete both projects, a temporary detour road was installed by the SIR remediation project to accommodate work for both projects within King Road.

2. Description of Work Completed

The following sections provide a summary of the PL E-20 work activities with an emphasis on the environmental compliance aspects of the project, which were performed in accordance with the NYSDEC-approved work plan/notification (BC, January 2022). For reference, a subset of the PL E-20 Design Drawings is included in Attachment A. The as-built alignment of the installed PL E-20 pipeline was consistent with the design, therefore, for the purposes of this report, the alignment and stationing depicted on the design drawings is considered representative of the as-built condition. In addition, refer to Attachment B for a photographic log of the PL E-20 work activities with references to pipeline stationing for each photograph.

2.1 Mobilization, Site Preparation, Temporary Controls, and Monitoring

The following provides a summary of the mobilization, site preparation, temporary controls, and monitoring activities:

- **Mobilization:** On April 25, 2022, a kick-off meeting was held to discuss the scope of work and roles and responsibilities of the involved parties. Coinciding with the construction kick-off meeting, personnel, equipment, and materials were mobilized to the site.
- **Environmental Submittals:** The Contractor submitted environmental submittals detailing the means, methods, equipment, and material to be used for the environmental portion of the PL E-20 Project. The major environmental submittals included the following:
  - Qualifications of third-party subcontractor providing Certified Industrial Hygienist (CIH) and SSO services, including resumes of CIH and SSO
  - Qualifications of third-party subcontractor providing community air monitoring services
  - HASP
  - CAMP
  - Construction Management Plan (CMP)
  - Dust, Odor, and Noise Control Plan (as part of the CMP)

  - Waste Management Plan (as part of the CMP)
  - Contractor Contingency Plan (as part of the CMP)
  - Proposed products list and product data
  - Contractor's daily field reports
  - Daily CAMP data and weekly summaries (Attachment C)
  - Weekly health and safety summaries
  - Import fill documentation (source information, geotechnical testing data, analytical testing data, and bills of lading) (Attachment D)
  - Waste management documentation, including characterization analytical results, waste profiles, and waste disposal documentation (Attachment E)
- **Utility Locating and Management:** Prior to conducting intrusive activities, the locations of subsurface utilities were marked in the field, and a utility stakeout was performed by Dig Safely New York and the City of Troy to locate and mark out utilities. The locations of former utilities, MGP-related process piping, and subsurface structures were marked out based on the approximate locations shown on the drawings.
- **Site Clearing:** Tree clearing was completed by National Grid on CSX, Chevron USA, and Troy LDC properties. Removed trees were chipped and remained on the property from which they originated.
- **Temporary Facilities Set-up:** Office trailers were mobilized to the site and connected to temporary electrical power. Temporary sanitary facilities, including portable toilets and handwashing stations, were also maintained on site during the project. Material laydown and equipment staging areas were established on the Chevron USA and Troy LDC properties.
- **Health and Safety and Community Air Monitoring:** The PL E-20 Project was performed under the requirements of a Site-Specific HASP. HSE oversaw the implementation of the HASP. Work zone air monitoring was performed by HSE during intrusive activities to protect the health and safety of site workers. During ground-intrusive activities, including excavation, soil handling, soil loadout, and import of materials, HSE implemented the CAMP in accordance with the New York State Department of Health (NYSDOH) Generic CAMP. CAMP monitoring included upwind and downwind monitoring of particulates (i.e., dust), via DustTrak II 8530 monitors, and volatile organic compounds (VOCs), via MiniRAE 3000 monitors. For the duration of work, there were no exceedances of CAMP action levels that required notifications or the stopping of work. Results from community air monitoring activities are provided in Attachment D.
- **Work Zone Delineation and Access Controls:** The work area perimeter which encompassed the active work areas, staging areas, temporary facilities, and controls was marked with physical barriers including temporary fencing, Jersey barriers, signage, and traffic barrels to delineate the work area and discourage unauthorized access to the area during work. In addition, workers and visitors were required to sign-in prior to entering the work zones.

- **Traffic Controls:** Temporary detour roads were installed to accommodate work activities within River Road and King Road. Traffic controls consisted of the use of temporary signage, barricades, and fencing to delineate detour roads and identify temporary road closures. Additionally, JMS and LRI personnel performed traffic flagging, as necessary, for large construction vehicles (e.g., tractor trailers) navigating to/from the site.
- **Erosion and Sediment Controls:** In accordance with the NYSDEC-approved SWPPP and New York State Standards and Specifications for Erosion and Sediment Control (NYSSSESC) (NYSDEC, November 2016), ESCs were established and maintained on-site during construction. This included compost filter socks along the perimeter of the work area and stabilized construction entrances. Throughout work activities, ESC measures were inspected weekly and following precipitation events and repaired, as needed. The SWPPP inspection reports are included in Attachment F.
- **Decontamination:** Excavation equipment and other equipment were decontaminated prior to leaving the project. Decontamination activities were performed over the excavation footprint and included scraping and brushing to remove visible solids.
- **Archeological Monitoring:** In accordance with the Archeological Monitoring Plan for the PL E-20 Project ("Archeological Monitoring Plan, National Grid PL E-20 Partial Replacement, Troy, Rensselaer County, New York, OPRHP 21PR06614," prepared by Hartgen Archeological Associates, Inc. and dated April 2022), archeological monitoring was performed by Hartgen during the PL E-20 Project. The findings of the archeological monitoring are summarized in "Archeological Monitoring Report, National Grid PL E-20 Partial Replacement Project, Troy, Rensselaer County, New York, OPRHP 21PR06614," included as Attachment G to this letter, with notable observations summarized in Section 2.3. The report has also been submitted to the State Historic Preservation Office (SHPO) within New York State Office of Parks, Recreation, and Historic Preservation (OPRHP).

2.2 PL E-20 Pipeline Installation

Following the set-up of temporary facilities and with temporary controls and monitoring in place, trenching and PL E-20 pipe installation commenced. In order to provide more time for the SIR remediation project to progress in the northern portion of the project area, PL E-20 work activities commenced in the southern end of the project area (i.e., at approximately Station 31+45) and generally proceeded from south to north. In total, approximately 3,145 linear feet of new piping and two charging stations were installed. As discussed, the installed alignment was consistent with the design drawings included for reference in Attachment A. The following is a summary of the PL E-20 pipeline installation:

- Along the length of the pipeline, surface cover materials included asphalt pavement along River Road and King Road and crushed stone outside of the roadways. These surface materials were removed (asphalt pavement was saw-cut/demolished in-place or milled) and transported off-site for recycling or disposal (refer to Section 2.5).

- The trench was excavated to approximately 3 to 8 feet wide and 5.5 to 8 feet deep. A trench box was used for excavation support of the sidewalls and at charging station locations. Limited dewatering was necessary during the project with the most significant dewatering activity being the pump out of a vault/utility encountered on the Troy LDC property (i.e., Area 2). Refer to Section 2.3 for a summary of subsurface notable observations within the trench line and excavations. As the excavation/trenching activities progressed, waste materials were direct-loaded from the excavations/trenches into haulers with beds/trailers lined with polyethylene sheeting, tarps/covers, and locking gates. Refer to Section 2.5 for additional details on waste management.
- Following trench excavation, the gas transmission pipe (12-inch diameter, 0.500-inch wall steel pipe) was installed in approximately 45-foot segments.
- Imported bedding sand was backfilled around the new gas transmission pipe followed by imported crusher run backfill. On the Troy LDC property, due to the burial depth being typically less than other areas, a minimum of one foot of flowable fill was used to backfill above the bedding sand. Refer to Section 2.4 for further discussion on imported fill materials.
  - Due to the presence of tar-like material along the trench sidewalls (refer to Section 2.3), from Station 24+78 to Station 23+32 (146-foot length of trench on CSX property), prior to backfilling, the trench sidewalls and bottom were lined with 20-mil thick linear low-density polyethylene (LLDPE) sandwiched between two layers of non-woven geotextile fabric (4 ounces per square yard and orange in color). The inclusion of the geosynthetics within this section of the trench line was discussed with CSX and approved by the NYSDEC in an email dated August 2, 2022. Refer to Photograph 54 in Attachment B. In addition, from Station 23+32 to Station 21+97 (135-foot length of trench), a single layer of non-woven geotextile fabric (4 ounces per square yard and orange in color) was installed along the trench sidewalls and bottom although no tar-like material was encountered within this stretch.
  - Due to the increased potential to encounter impacted materials and to delineate the trench line limits during future remediation activities, the trench sidewalls and bottom on Troy LDC property (i.e., Area 2) were lined with non-woven geotextile fabric (4 ounces per square yard and orange in color). Refer to Photograph 45 in Attachment B.
- Approximately 1,640 feet of pre-existing PL E-20 piping was retired by physically removing the pipe during the trenching for the new pipeline and at the and cut/cap location straddling the Area 2 (Troy LDC) and Area 3 (Chevron USA) property boundary (where approximately 20-feet of piping was removed). The removed sections of the old pipeline were stockpiled in roll-offs provided by Sun Environmental Corporation (retained by National Grid) for further management and recycling.
- The remainder of the pre-existing PL E-20 piping (approximately 1,460 feet) that was replaced by the new pipeline was retired in-place through cutting and capping. This included cutting/capping near the gas regulator station to the north and at the

southern end of Area 3 (i.e., north of the Troy-Menands Bridge). The cut and cap locations are depicted on the Drawings in Attachment A.

  - For pipeline retired in place, periodic wipe testing was performed to confirm the absence of polychlorinated biphenyls (PCBs) and mechanically sealed (i.e., the cut/cap locations discussed above) to prevent contaminant intrusion.

- Two charging ports were installed along the pipeline, one located at southernmost portion of the newly installed pipe on CSX property (at approximately Station 31+45) and one located on Area 3 of the Troy (Water Street) Site (at approximately Station 14+20).
- Permanent hardened crossings, which are designated crossings for heavy vehicles and equipment, were constructed over the newly installed pipeline north of the former E-Lot building on Troy LDC property (approximately from Station 0+00 to Station 1+00), north of Area 3 (Chevron USA) on Troy LDC property (approximately Station 9+80 to 10+20), and north of the Troy-Menands Bridge on Chevron USA property (approximately Station 15+00 to 15+50). Each crossing consists of buried 12-inch-thick timber crane mats (with no gaps between adjacent timbers) covered with a minimum of 12 inches of crushed stone cover. For locations of the hardened crossings, refer to the Project Drawings in Attachment A.
- Hydrostatic pressure testing was performed after the entire length of the new gas transmission line was installed.
- Following successful completion of pressure testing, the northern and southern end of the new pipeline were tied-in at the northern and southern ends. On September 27, 2022, the new gas transmission line was put into commission.
- Refer to Section 2.6 for restoration activities, including surface restorations.

2.3 Notable Subsurface Observations

This section provides a summary of notable subsurface observations made within the excavations and trenches for the PL E-20 Project:

- The soil material removed from the excavations/trenches was generally observed to be fill containing brown fine-medium sand, fine-coarse gravel, and miscellaneous urban fill materials (cinders, slag, and brick). Sporadic pockets of black discoloration (flat luster) were observed throughout the project footprint.
- On June 8, 2022, during trench excavation on CSX property at approximately Station 24+78, a tar-like material was observed along the western sidewall of the excavation at approximately 3 feet below ground surface (bgs) (refer to Photograph 37 in Attachment B). Excavation was temporarily halted, NYSDEC was notified, and NYSDEC Spill No. 2202145 assigned. Following discussions with CSX and the NYSDEC, excavation in this area resumed on August 4, 2022. The tar-like material was observed from approximately Station 24+78 north to approximately Station 23+32 on the western sidewall (approximately 2 to 4-foot thickness), and Station 24+42 to Station 23+32 on the eastern sidewall (approximately 1-foot-thick non-continuous layer). Refer to Section 2.2 for a description of how this section of trench was lined with geosynthetics before backfilling. Refer to Section 2.5 for details on waste management of this material.

- On July 20, 2022, during trench excavation activities on Troy LDC property at approximately Station 9+80, a tar-like material was observed within the trench at approximately 1.5 feet bgs, with a thickness of 6 inches (refer to Photograph 46 in Attachment B). This material was observed from approximately Station 9+80 north to approximately Station 6+80. Refer to Section 2.5 for details on waste management of this material.
- On July 25, 2022, during trench excavation activities on Troy LDC property at approximately Station 9+00, a historical concrete vault structure was encountered just below existing asphalt (refer to Photograph 48 in Attachment B). The structure was investigated and contained approximately 6 inches of water and clay/soil fill, as well as five 1- to 2-inch diameter pipes oriented northeast to southwest. The historical concrete structure was demolished, and all observed pipes were cut and capped at the sidewalls of the trench. Sediment and debris (following re-sizing) was commingled with soil and transported to the landfill facility. Water generated from the pump out of the vault structure was managed by National Grid SIR's Troy (Water Street) Site Remediation Project. Refer to Section 2.5 for details on waste management of this material.
- On August 25, 2022, during trench excavation activities on Troy LDC property at approximately Station 4+00, a 30-inch diameter bell-spigot pipe (oriented slightly northeast-southwest), was encountered at approximately 5.5 feet bgs. Based on the angle, the PL E-20 gas pipe was expected to intercept the bell-spigot pipe at approximately Station 4+30 to 4+50. On August 26, 2022, National Grid investigated the contents of the bell-spigot pipe with a small incision. Contents of 30-inch bell-spigot pipe included 17 inches of water and 3 inches of dense non-aqueous phase liquid (DNAPL) with a tar-like like odor. Based on these observations, the bell-spigot pipe remained within the trench and will be further investigated and managed by National Grid SIR. New PL E-20 pipe was installed above the 30-inch bell-spigot pipe with additional shielding for protection.
- Between approximately Station 8+85 and Station 9+50, a brick wall at an acute angle to the trench was encountered. The wall was encountered at 3 feet bgs and extended to at least 7 feet bgs (bottom of trench at this location). This wall is presumed to be the western wall of the blooming department of the Bessemer Steel Mill (refer to Section 2.2.2 of Attachment G).
- At approximately Station 13+85, a brick conveyance was found crossing the trench. The structure was investigated by a robotic camera. The structure appeared to have collapsed a few feet east (beneath River Road) and progressed at least 25 feet west before turning south. Based on the sediment accumulation in the bottom of structure and its construction, it seems likely that the structure was a storm sewer (refer to Section 2.2.3.1 of Attachment G).

2.4 Backfill/Fill Materials

Sand, crushed stone materials, and flowable fill were imported from off-site sources for site preparation, backfilling, and surface restoration. A summary of the import quantities broken down by property/site is included in Attachment D-1. Fill import requests and approvals are included in Attachment D-2. Documentation for imported fill materials,

including bills of lading confirming the source and quantity of delivered materials, are provided in Attachment D-3.

- **Sand Material (Bedding Sand/Stone Dust):** Used as backfill/bedding around the installed pipeline:
  - Source: Cropseyville Quarry, Town of Brunswick, Rensselaer County, New York (DEC #4-3822-00005/00002, MLF #40032).
  - Samples were collected by the project team from the Cropseyville Quarry and shipped to Alpha Analytical Inc. (Alpha) for analysis of DER-10 parameters (inorganics, VOCs, semi-volatile organic compounds [SVOCs], polychlorinated biphenyls [PCBs], herbicides, and pesticides) and to Eurofins Lancaster Analytical Laboratory (Eurofins) for analysis of emerging contaminants 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS).
  - The source information, quality documentation, and results from analytical testing were provided to the NYSDEC via email and approved as follows:
    - Request to Import Soil form for Bedding Sand/Stone Dust (800 cubic yards) from Cropseyville Quarry dated March 9, 2022, approved by the NYSDEC via email on March 10, 2022.
    - Request to Import Soil form for Bedding Sand/Stone Dust (additional 2,500 cubic yards, up to 3,300 cubic yards total) from Cropseyville Quarry dated July 5, 2022, approved by the NYSDEC via email on July 6, 2022.
  - In total, approximately, 1,362 cubic yards of bedding sand/stone dust was imported for the project.
- **Crushed Stone Materials:**
  - Crushed stone materials used for the project included:
    - NYSDOT No. 2 Crushed Stone used as backfill for the excavation to facilitate welding and cutting activities.
    - NYSDOT No. 3 Crushed Stone used for construction of the stabilized construction entrance.
    - NYSDOT Type 2 Subbase (i.e., Crusher Run) used for construction of temporary access/haul roads, as backfill for the excavation, and for final cover over the permanent hardened crossing.
  - Source: Cropseyville Quarry, Town of Brunswick, Rensselaer County, New York (DEC #4-3822-00005/00002, MLF #40032).
  - The source information and quality documentation were provided to the NYSDEC via email and approved as follows:
    - Request to Import Soil form for NYSDOT No. 2 Crushed Stone (500 cubic yards) from Cropseyville Quarry dated March 9, 2022, approved by the NYSDEC via email on March 10, 2022.
    - Request to Import Soil form for NYSDOT No. 3 Crushed Stone (500 cubic yards) from Cropseyville Quarry dated April 13, 2022, approved by the NYSDEC via email on April 14, 2022.

    - Request to Import Soil form for NYSDOT Type 2 Subbase (12,000 cubic yards) from Cropseyville Quarry dated March 9, 2022, approved by the NYSDEC via email on March 10, 2022.
  - In total, approximately 27 cubic yards of NYSDOT No. 2 Crushed Stone, 54 cubic yards of NYSDOT No. 3 Crushed Stone, and 5,687 cubic yards of NYSDOT Type 2 Subbase was imported for the project.
- **Flowable Fill Material:** Used as backfill for the excavation on Area Troy LDC:
  - Source: Cranesville Block Company Inc., City of Albany, Albany County, New York and Bonded Concrete, Inc., Town of Colonie, Albany County, New York.
  - In total, approximately 156 cubic yards of flowable fill was imported for the project.

2.5 Waste Management

The following provides a summary of the waste management for the PL E-20 Project. Waste management documentation for the project is included in Attachment E. Attachment E-1 provides a summary of waste quantities broken down by treatment/disposal facility and property/site.

- In situ waste characterization samples were collected by BC in September 2020 (pre-excavation) and analyzed by Alpha. Based on the results of waste characterization samples, the soils were profiled and accepted for disposal as non-hazardous waste. The results of the waste characterization are provided in Attachment E-2.
- Additional waste characterization samples were collected by LRI from the tar-like material encountered during trenching (refer to Sections 2.2 and 2.3). Samples were analyzed by both Alpha and Adirondack Environmental Services, Inc. Based on the results of waste characterization sampling, the tar-like material was profiled and accepted for thermal treatment as non-hazardous waste under the NYSDEC DER-4 exemption for coal tar waste from former MGP sites. The results of the additional waste characterization are provided in Attachment E-3.
- Waste generation from the PL E-20 project was limited to the CSX property and Area 2 of the Troy (Water Street) Site. No waste was generated from the Chevron Asphalt Facility Site (Chevron property south of the Troy-Menands Bridge). Limited waste materials were generated from Area 3 of the Troy (Water Street) Site since the subsurface work was completed within clean backfill materials. The limited amount of waste generated on Area 3 of the Troy (Water Street) Site from cutting/capping the pre-existing gas line was managed by National Grid SIR as part of the Area 2 and Area 3 remediation project. Waste materials from the different properties/sites were segregated and managed/documented separately. As discussed in Section 2.2, as the excavation/trenching activities progressed, waste materials were direct loaded from the excavations/trenches into haulers with beds/trailers lined with polyethylene sheeting, tarps/covers, and locking gates.
- Licensed waste haulers with current 6 New York Codes, Rules, and Regulations (NYCRR) Part 364 permits were used to transport waste materials to off-site facilities. The following waste transporters were utilized for the project:

  - Cedar Hill Trucking, Inc. (Part 364 Waste Transporter Permit No. #4A-314)
  - Longhorn Trucking Company (Part 364 Waste Transporter Permit No. #4A-485)
- The following treatment/disposal facilities were utilized for the project:
  - Green Ridge Recycling and Disposal Facility (RDF), a non-hazardous landfill facility, located at 424 Peter Road, Gansevoort, New York (Permit No. 5-4146-00018/00010).
    - Received 5,578.34 tons of excavated materials for landfill disposal.
  - Clean Earth (formerly ESMI of New York), a low temperature thermal desorption facility, located at 304 Towpath Lane, Fort Edward, New York (Permit No. 5-5330-00038/00021).
    - Received 973.95 tons of excavated materials for thermal treatment, which contained varying amounts of tar-like material encountered on the CSX property and Troy LDC property (i.e., Area 2).
- Troy Sand and Gravel located in West Sand Lake, New York was utilized for recycling asphalt materials generated during the project. In total, 752.45 tons of asphalt material was transported to Troy Sand and Gravel for recycling.
- Water generated during the project, primarily from the pumping out of a vault/utility encountered on the Troy LDC property, was managed as part of the National Grid SIR's Troy (Water Street) Site remediation project. Waste documentation for the remediation project will be provided to the NYSDEC as part of a separate construction completion report.
- Excavated soil to complete cutting/capping of the pre-existing gas pipeline on Area 3 (immediately north of the Troy-Menands Bridge) and at the Area 2 (Troy LDC) and Area 3 (Chevron USA) property boundary was managed as part of the National Grid SIR's Troy (Water Street) Site remediation project. Waste documentation for the remediation project will be provided to the NYSDEC as part of a separate construction completion report.
- Waste management documentation for waste materials generated during the PL E-20 Project from the Area 2 of the Troy (Water Street) Site and CSX Property are provided in Attachment E-4.

2.6 Restoration

Site restoration activities included the following:

- Removal of temporary facilities (e.g., office trailers, sanitary facilities, fencing).
- Removal of the portion of the temporary access road on the Chevron property within areas previously vegetated (i.e., southern portion of the temporary road). Seeding was placed to restore these previously vegetated areas.
- Installation of asphalt pavement to restore River Road to its pre-existing condition.
- King Road was restored with crushed stone after the PL E-20 pipe installation, however, the road was eventually restored with asphalt pavement as part of National Grid SIR's remediation project.

- Other non-vegetated surfaces outside the roadways were restored with crushed stone.
- Crushed stone working surfaces (i.e., for temporary facilities, material/equipment staging areas, welding areas, etc.) installed on the Troy LDC property and the Chevron property were left in place.
- Replacement of stormwater berm along the eastern side of the Chevron property.
- Replacement of permanent fencing along the Chevron property.

3. Schedule of Completed Work

The field activities for the PL E-20 Project were completed as follows:

- **April 25, 2022:** Mobilization, installation of temporary access roads, stabilized construction entrance, support zone, temporary fence, and ESC control measures began.
- **May 17, 2022:** Existing gas transmission line south of the Troy-Menands Bridge on CSX property and on Area 3 (north of the Troy-Menands Bridge) was cut and capped.
- **May 18, 2022:** Trench excavation and installation of the new gas transmission line began.
- **July 11, 2022:** Trench for new gas transmission line north of the Troy-Menands Bridge on Area 3 was excavated.
- **July 22, 2022:** Backfilling over newly installed gas transmission line on Area 3 was completed.
- **July 25, 2022:** Trench for new gas transmission line on Troy LDC property (Area 2) was excavated.
- **September 1, 2022:** Backfilling over newly installed gas transmission line within River Road on CSX was completed, with the exception of the southern tie-in.
- **September 14, 2022:** Trench excavation on Troy LDC property (Area 2) was completed.
- **September 16, 2022:** Installation of new gas transmission line on Troy LDC property (Area 2) was completed.
- **September 27, 2022:** New gas transmission line was put into service.
- **September 28, 2022:** Backfilling over newly installed gas transmission line on Troy LDC property (Area 2) and the southern tie-in on CSX was completed and demobilization activities began.
- **September 29-30, 2022:** Retirement of former gas transmission line at the boundary of Area 2 and Area 3 began.
- **October 5, 2022:** Demobilization activities were completed.

As documented herein, environmental aspects of the construction phase for the PL E-20 Project were performed in accordance with the NYSDEC-approved work plan/notification (letter prepared by BC dated January 12, 2022, Re: “Gas Utility (PL E-20) Partial Replacement Project Notification, Troy (Water Street) Site, Troy, Rensselaer County,

New York, NYSDEC Site No. 4-42-029", which was approved by NYSDEC in a letter dated January 26, 2022). Please do not hesitate to contact Gerald Cummins of National Grid at 315-428-6073 or me at 518-560-5911 to discuss any questions or comments you may have.

Very truly yours,

Brown and Caldwell Associates

Adam R. Sherman, P.E.
Senior Principal Engineer

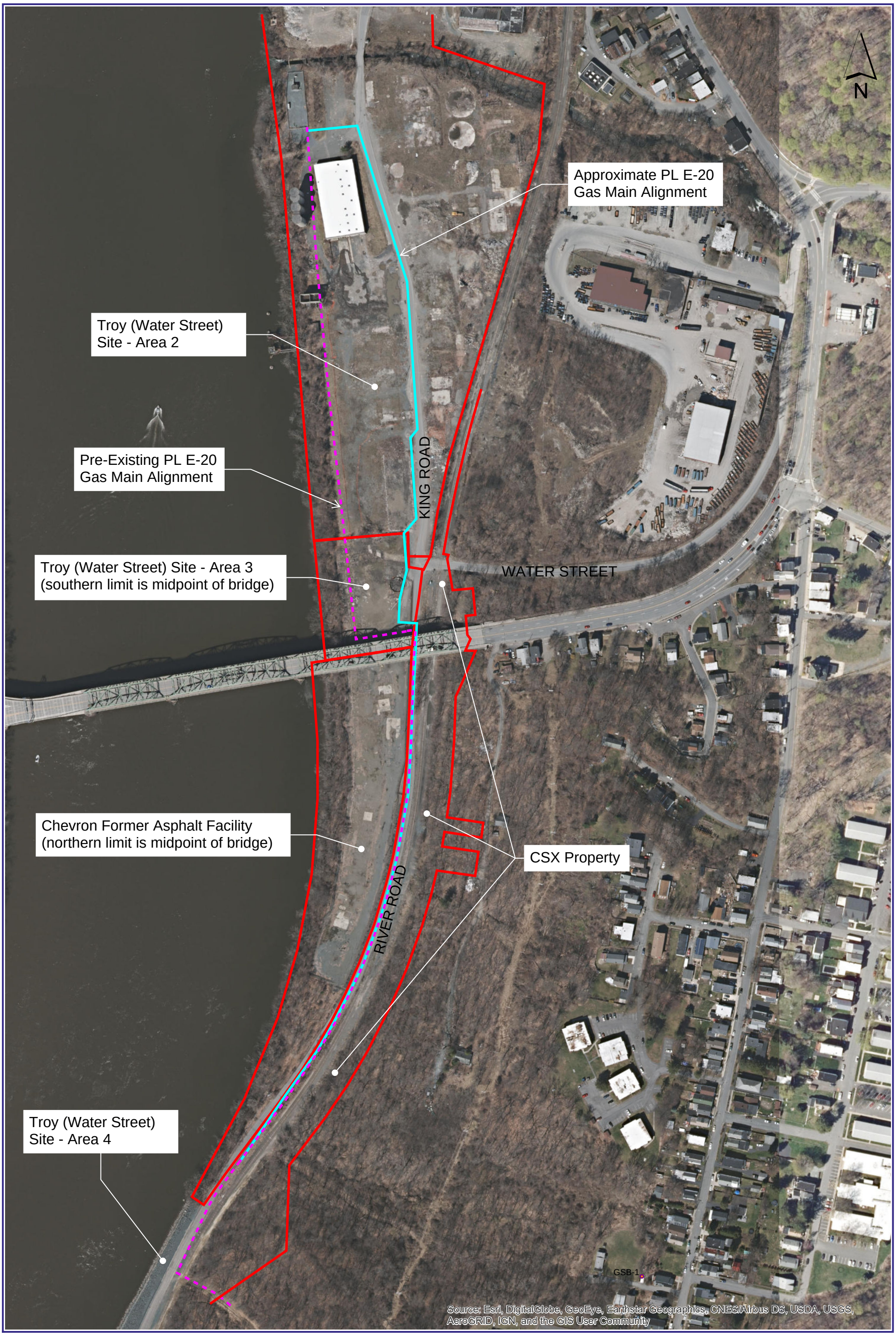
cc: Gerald Cummins, National Grid SIR
Dana Himmel, National Grid Gas
Matt Root, National Grid Environmental Compliance

Attachments (8)

- Figures
- Attachment A: Select PL E-20 Project Design Drawings (Provided for Reference)
- Attachment B: Photographic Log
- Attachment C: CAMP Documentation (Electronic Only)
- Attachment D: Fill Import Documentation (Electronic Only)
- Attachment E: Waste Management Documentation (Electronic Only)
- Attachment F: SWPPP Inspection Reports (Electronic Only)
- Attachment G: Archeological Monitoring Report

Figures

6/22/2020



Author: CMeyn Path: V:\Ramsey\National_Grid\Troy\PL_E20_Partial_Replacement_Investigation.mxd

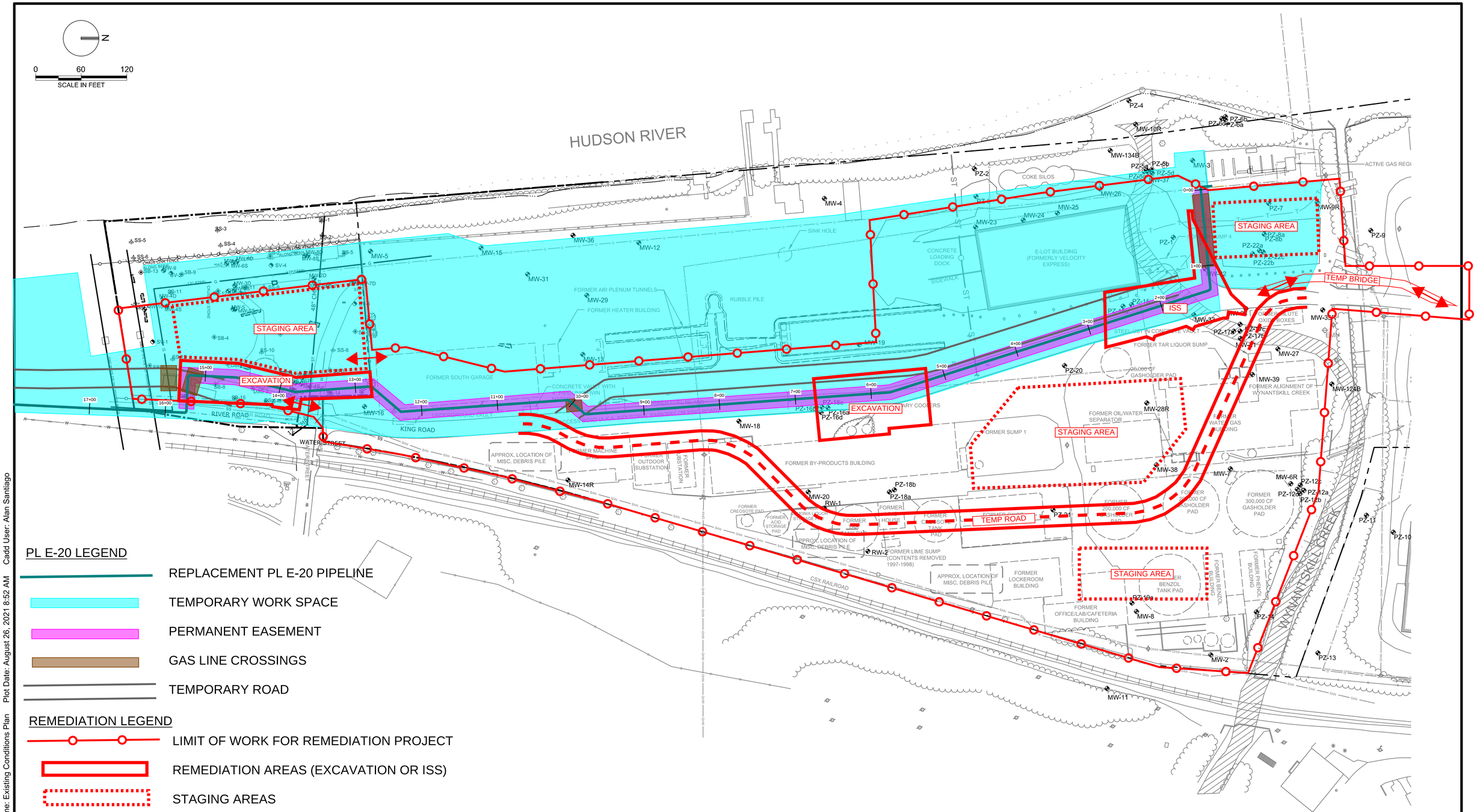
Brown AND Caldwell

FIGURE 1

PROPERTIES/SITES AFFECTED BY PL E-20 PROJECT

TROY, NY

0 120 240
Feet



PL E-20 LEGEND

- REPLACEMENT PL E-20 PIPELINE
- TEMPORARY WORK SPACE
- PERMANENT EASEMENT
- GAS LINE CROSSINGS
- TEMPORARY ROAD

REMEDIATION LEGEND

- LIMIT OF WORK FOR REMEDIATION PROJECT
- REMEDIATION AREAS (EXCAVATION OR ISS)
- STAGING AREAS
- TEMPORARY ROAD (SURROUNDED BY FENCE/BARRICADE ON BOTH SIDES)
- SITE ACCESS POINTS

Path: C:\bcpw\d0905159 File Name: Existing Conditions Plan Plot Date: August 26, 2021 8:52 AM Cadd User: Alan Santiago

Brown AND Caldwell

1/25/2023

TROY (WATER STREET) SITE - AREAS 2 AND 3
TROY. NEW YORK

CONCEPTUAL OVERLAY OF PL E-20 PARTIAL REPLACEMENT PROJECT AND INITIAL PHASE OF AREA 2 AND AREA 3 REMEDIATION

FIGURE
2

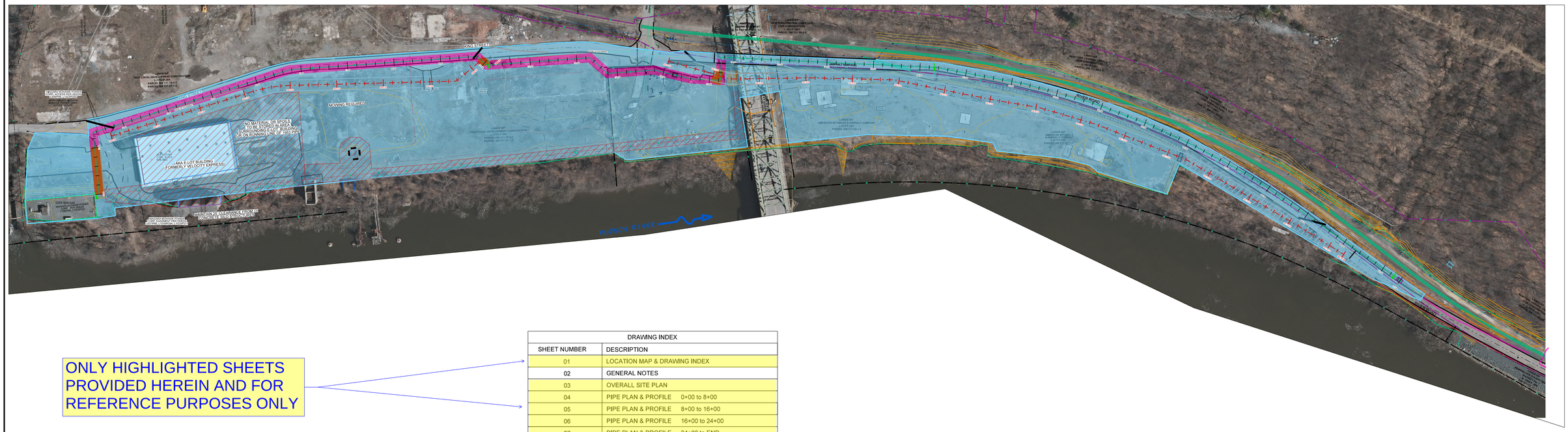
Attachment A: Select PL E-20 Project Design Drawings

(Provided for Reference)

nationalgrid

PL E-20
PIPELINE PARTIAL REPLACEMENT
TROY, NY TD:7301

GRID NORTH



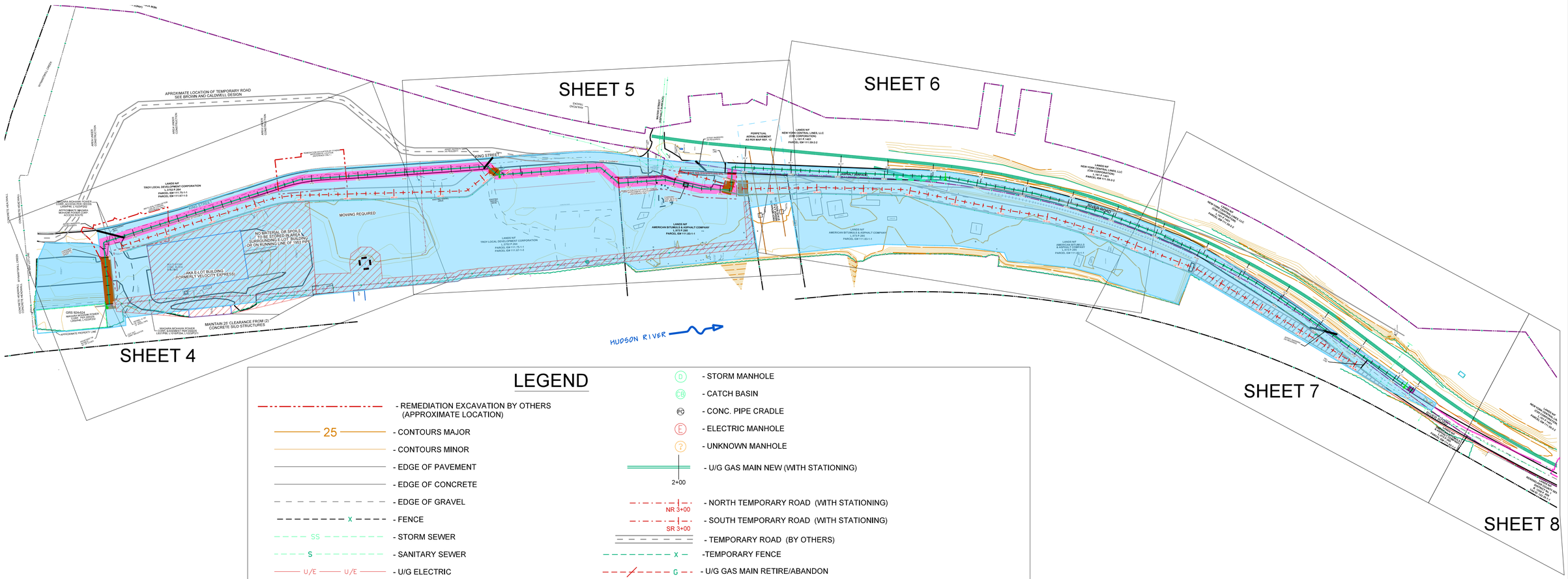
ONLY HIGHLIGHTED SHEETS PROVIDED HEREIN AND FOR REFERENCE PURPOSES ONLY

DRAWING INDEX	
SHEET NUMBER	DESCRIPTION
01	LOCATION MAP & DRAWING INDEX
02	GENERAL NOTES
03	OVERALL SITE PLAN
04	PIPE PLAN & PROFILE 0+00 to 8+00
05	PIPE PLAN & PROFILE 8+00 to 16+00
06	PIPE PLAN & PROFILE 16+00 to 24+00
07	PIPE PLAN & PROFILE 24+00 to END

0 100 200 300 400
Scale in Feet

SCALE ONLY CORRECT IF PRINTED TO 24"X36" PAPER

PIPELINE E20	ORIGINAL ISSUE DATE	09/24/2021
PARTIAL REPLACEMENT	FILE INDEX	12.3-T1.20-G1
LOCATION MAP AND DRAWING INDEX	DRAWING NUMBER	D-100056-E
CITY OF TROY, NY TD:7301, RENSSELAER COUNTY	SHEET NUMBER	01 cont. 02



LEGEND

- REMEDIATION EXCAVATION BY OTHERS (APPROXIMATE LOCATION)
- 25 - CONTOURS MAJOR
- CONTOURS MINOR
- EDGE OF PAVEMENT
- EDGE OF CONCRETE
- EDGE OF GRAVEL
- FENCE
- STORM SEWER
- SANITARY SEWER
- U/G ELECTRIC
- UNKNOWN U/G PRIVATE UTILITY
- GUARD RAIL
- EDGE OF BRUSH/TREES
- UTILITY POLE WITH LIGHT
- NG#14-4 - UTILITY POLE WITH GUY (NOT TO SCALE)
- U/G GAS MARK OUT
- TEST POINT/PED.
- GAS VALVE
- U/G GAS MAIN
- U/G WATER MAIN
- U/G WATER MARKOUT
- U/G SANITARY MARKOUT
- U/G ELECTRIC MARKOUT
- U/G UNKNOWN UTIL. MARKOUT
- WATER VALVE
- MONITOR WELL
- RAILROAD TRACKS
- RAILROAD TIES

- D - STORM MANHOLE
- CB - CATCH BASIN
- PC - CONC. PIPE CRADLE
- E - ELECTRIC MANHOLE
- ? - UNKNOWN MANHOLE
- 2+00 - U/G GAS MAIN NEW (WITH STATIONING)
- NR 3+00 - NORTH TEMPORARY ROAD (WITH STATIONING)
- SR 3+00 - SOUTH TEMPORARY ROAD (WITH STATIONING)
- TEMPORARY ROAD (BY OTHERS)
- -TEMPORARY FENCE
- G - U/G GAS MAIN RETIRE/ABANDON
- MATCH LINE
- PL - PROPERTY LINE
- PL - PROPERTY LINE RAIL ROAD
- LIMITS OF DISTURBANCE

- EXISTING EASEMENT/LICENSE AGREEMENT
- PROPOSED PERMANENT EASEMENT
- MATERIAL/ SPOIL EXCLUSION AREA
- PROPOSED TEMPORARY EASEMENT

NORTH

0 100 200 300 400
Scale in Feet

SCALE ONLY CORRECT IF PRINTED TO 24"X36" PAPER

PIPELINE E20	ORIGINAL ISSUE DATE	09/24/2021
PARTIAL REPLACEMENT	FILE INDEX	12.3-T1.20-G1
OVERALL PLAN VIEW	DRAWING NUMBER	D-100056-E
CITY OF TROY, NY TD:7301, RENSSELAER COUNTY	SHEET NUMBER	03 cont. 04

100056SH003.dgn 10/26/2021 1:33:38 PM

STATION 00+00 TO 12+80:
ON TROY LDC PROPERTY,
TRENCH BOTTOM AND
SIDEWALLS LINED WITH SINGLE
LAYER OF ORANGE NON-WOVEN
GEOTEXTILE FABRIC (4 OZ/SY)

JERSEY BARRIERS (AS REQUIRED)

INSITU-SOIL STABILIZATION (ISS) BY OTHERS (REFERENCE ONLY)

LANDS N/F
TROY LOCAL DEVELOPMENT CORPORATION
L.3752 P.264
PARCEL ID# 111.75-1-1
PARCEL ID# 111.67-1-3

REMEDIATION EXCAVATION BY OTHERS APPROXIMATE LOCATION (REFERENCE ONLY)

MATCH LINE STA. 8+00.00

NORTH

KILL CREEK

TAX MAP LOT LINE

HARDENED CROSSING (SHEET 11)

MONITORING WELL

KING STREET

EDGE OF PAVEMENT

2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00

APPROXIMATE LOCATION OF TEMPORARY ROAD (BY OTHERS) SEE BROWN AND CALDWELL DESIGN

JERSEY BARRIERS (AS REQUIRED)

MULTI STORY CONC. BLOCK BUILDING

AKA E-LOT BUILDING
(FORMERLY VELOCITY EXPRESS)

NO MATERIAL OR SPOILS TO BE STORED IN AREA SURROUNDING E-LOT BUILDING OR ON RUNNING LINE OF 1953 PIPE

MOWING REQUIRED

GRS 924-524
NIAGARA MOHAWK POWER CORP. PER DEEDS L959/P46, L1023/P202

APPROXIMATE PROPERTY LINE

PROPOSED TIE IN WELD 40" OF COVER

RETIRE ~3,120' OF 1953 12" STEEL PIPE

CUT OUT ZUNT INSULATOR

PRE-EXISTING PIPE CUT AND CAPPED.

NIAGARA MOHAWK POWER CORP. EASEMENT PER DEEDS L937/P86, L1018/P294, L1023/P371

MAINTAIN 25' CLEARANCE FROM (2) CONCRETE SILO STRUCTURES

EXISTING GRAVEL DRIVE

JERSEY BARRIERS AROUND SINK HOLE (AS REQUIRED)

TROY LOCAL DEVE
L.3
PARCEL
PARCEL I

HORIZONTAL SCALE 1 inch = 30 ft.
VERTICAL SCALE 1 inch = 10 ft.

E20 PARTIAL REPLACEMENT

PIPE ROUTE ~4' NORTH OF MONITOR WELL

UNKNOWN FOREIGN OBSTACLE DEPTH AND SIZE UNKNOWN AS INDICATED BY BLOODHOUND MARKOUT JUNE 2021

UNKNOWN FOREIGN OBSTACLE DEPTH: ~3' TO 4' WIDTH: ~ 3.6' AS INDICATED BY BLOODHOUND MARKOUT JUNE 2021

UNDER PAVEMENT

UNKNOWN FOREIGN OBSTACLE ~1.5' TO 3.5' DEEP SIZE UNKNOWN

5'-0" MIN. COVER IN ROAD

UNKNOWN FOREIGN OBSTACLE 3'-3.5' DEEP; SIZE UNKNOWN AS INDICATED BY BLOODHOUND MARKOUT JUNE 2021

PIPE ROUTE ~10' EAST OF MONUMENT

41 14 DEG. SEGMENTABLE 3R ELL

UNKNOWN FOREIGN OBSTACLE 4' DEEP TO TOP: 2.5' WIDE TOTAL DEPTH UNKNOWN AS INDICATED BY BLOODHOUND MARK OUT JUNE 2021 PROPOSED GAS LINE RUNS PARALLEL FROM 6+00 AND CROSSES AT 8+12 AND 8+83

UNKNOWN FOREIGN OBSTACLE 1.5'-2' DEEP: SIZE UNKNOWN

UNKNOWN FOREIGN OBSTACLE 2.5'-4' DEEP: SIZE UNKNOWN AS INDICATED BY BLOODHOUND MARKOUT JUNE 2021

40 30 20

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00

PIPE STATIONING BEGINS AT 90 DEG. ELL. SEE SHEET 23 FOR TIE IN DETAIL.

HARDENED CROSSING

NO MATERIAL OR SPOILS TO BE STORED IN AREA SURROUNDING E-LOT BUILDING OR ON RUNNING LINE OF 1953 PIPE

PROPOSED PERMANENT EASEMENT

PROPOSED TEMPORARY WORK SPACE

SCALE ONLY CORRECT IF PRINTED TO 24"X36" PAPER

PIPELINE E20	ORIGINAL ISSUE DATE	09/24/2021
PARTIAL REPLACEMENT	FILE INDEX	12.3-T1.20-G1
PLAN & PROFILE 0+00 to 8+00	DRAWING NUMBER	D-100056-E
CITY OF TROY, NY TD:7301, RENSSELAER COUNTY	SHEET NUMBER	04 cont. 05

100056SH004.dgn 10/26/2021 1:33:40 PM

STATION 00+00 TO 12+80:
ON TROY LDC PROPERTY,
TRENCH BOTTOM AND
SIDEWALLS LINED WITH SINGLE
LAYER OF ORANGE NON-WOVEN
GEOTEXTILE FABRIC (4 OZ/SY)

NOTE:
CUT AND CAP EXISTING 12" PIPE ~80' EAST OF BRIDGE PIER. TO BE RETIRED PIPELINE WILL BE BACK FED FROM GRS 524 AND REPRESSURIZED WITH GAS UNTIL CONSTRUCTION IS COMPLETED. (SEE SHEET 22)

MATCH LINE
STA. 8+00.00

MATCH LINE
STA. 16+00.00

VAULT

JERSEY BARRIERS
(AS REQUIRED)

KING STREET

EDGE OF PAVEMENT

MILL
LINE

JERSEY BARRIERS
(AS REQUIRED)

PERPETUAL
AERIAL EASEMENT
AS PER MAP REF. 12

LANDS N/F
NEW YORK CENTRAL LINES, LLC
(CSX CORPORATION)
L.161 P.1401
PARCEL ID# 111.59-2-2

PRIVATE ROAD

EXISTING GRAVEL
DRIVE

EXISTING
GRAVEL
DRIVE

CHARGING
PORT @14+20
SEE SHEET 12

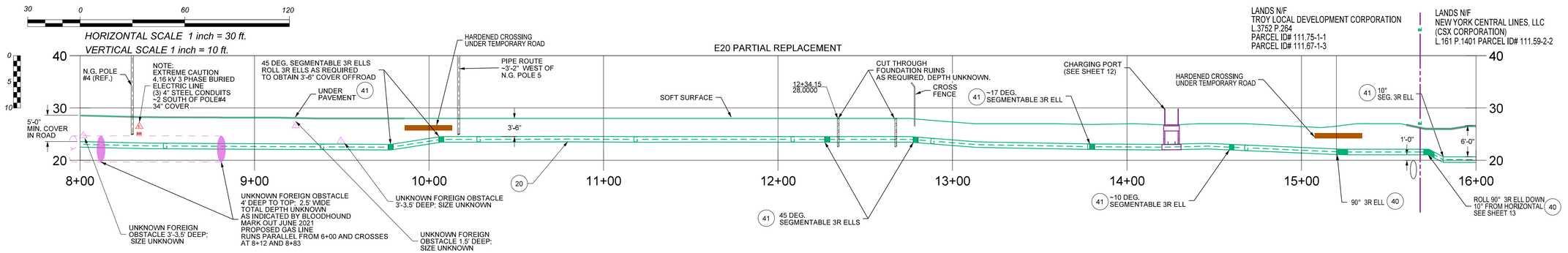
PRE-EXISTING PIPE
CUT AND CAPPED.

PRE-EXISTING PIPE
CUT AND CAPPED
AT BOTH ENDS
AND 20 FEET OF
PIPE REMOVED.

LANDS N/F
TROY LOCAL DEVELOPMENT CORPORATION
L.3752 P.264
PARCEL ID# 111.75-1-1
PARCEL ID# 111.67-1-3

LANDS N/F
AMERICAN BITUMULS & ASPHALT COMPANY
L.973 P.285
PARCEL ID# 111.83-1-1

TROY MENANDS
BRIDGE & K-3
STATE ROUTE 378



CAUTION:
BURIED 4.16 kV PRIMARY
ELECTRIC CROSSING
2 FT SOUTH OF NG POLE #4

NO MATERIAL OR SPOILS TO BE STORED IN AREA SURROUNDING E-LOT BUILDING OR ON RUNNING LINE OF 1953 PIPE

PROPOSED PERMANENT EASEMENT

PROPOSED TEMPORARY WORK SPACE

NORTH

SCALE ONLY CORRECT IF PRINTED TO 24"X36" PAPER

PIPELINE E20	ORIGINAL ISSUE DATE	09/24/2021
PARTIAL REPLACEMENT	FILE INDEX	12.3-T1.20-G1
PLAN & PROFILE 8+00 to 16+00	DRAWING NUMBER	D-100056-E
CITY OF TROY, NY TD:7301, RENSSELAER COUNTY	SHEET NUMBER	05 cont. 06

100056SH005.dgn 10/26/2021 1:33:40 PM

MATCH LINE STA. 16+00.00
MATCH LINE STA. 24+00.00
PERPETUAL AERIAL EASEMENT AS PER MAP REF. 12
LANDS N/F NEW YORK CENTRAL LINES, LLC (CSX CORPORATION) L.161 P.1401 PARCEL ID# 111.59-2-2
STATION 21+97 TO 23+32: TRENCH BOTTOM AND SIDEWALLS LINED WITH SINGLE LAYER OF ORANGE NON-WOVEN GEOTEXTILE FABRIC (4 OZ/SY)
STATION 23+32 TO 24+78: DUE TO PRESENCE OF TAR-LIKE MATERIAL ON TRENCH SIDEWALLS, TRENCH BOTTOM AND SIDEWALLS LINED WITH 20-MIL THICK LLDPE SANDWICHED BETWEEN TWO LAYERS OF ORANGE NON-WOVEN GEOTEXTILE FABRIC (4 OZ/SY)
PRIVATE ROAD
(ASPHALT SURFACE)
RIVER ROAD
MILL LINE
42" ØSANITARY SEWER 66"Ø CASING PIPE
IMPROVED GRAVEL ACCESS ROAD
TEMPORARY FENCE
TROY MENANDS BRIDGE a.k.a STATE ROUTE 378
LANDS N/F AMERICAN BITUMULS & ASPHALT COMPANY L.973 P.285 PARCEL ID# 111.83-1-1
HORIZONTAL SCALE 1 inch = 30 ft.
VERTICAL SCALE 1 inch = 10 ft.
LANDS N/F NEW YORK CENTRAL LINES, LLC (CSX CORPORATION) L.161 P.1401 PARCEL ID# 111.59-2-2
EXISTING RAILROAD SPUR TO BE REMOVED. STORE RAILS AND TIES ON RAILROAD PROPERTY AS DIRECTED BY RAILROAD.
E20 PARTIAL REPLACEMENT
UNDER PAVEMENT
UNKNOWN "SEAMS" POSSIBLE SLAB
UNKNOWN UTILITY ~2.5 FT DEEP
UNKNOWN UTILITY ~3.4' DEEP AT NORTH END ~4.5' WEST OF PROPOSED GAS CENTERLINE
6'-0" MIN
4'-6"
46"
~8° HORIZONTAL 3R ELL
~4° HORIZONTAL 3R ELL
*66" DIA. SEWER CASING PIPE UNDER RR SPUR. ACTUAL DEPTH AND DIAMETER PER 4/2021 TEST HOLE. *LENGTH UNKNOWN. *GAS PIPE CENTERLINE PIPE IS ~ 6'-6" EAST OF CASING PIPE CENTERLINE.
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
NORTH

NO MATERIAL OR SPOILS TO BE STORED IN AREA SURROUNDING E-LOT BUILDING OR ON RUNNING LINE OF 1953 PIPE

PROPOSED PERMANENT EASEMENT

PROPOSED TEMPORARY WORK SPACE

SCALE ONLY CORRECT IF PRINTED TO 24"X36" PAPER

PIPELINE E20	ORIGINAL ISSUE DATE 09/24/2021
PARTIAL REPLACEMENT	FILE INDEX 12.3-T1.20-G1
PLAN & PROFILE 16+00 to 24+00	DRAWING NUMBER D-100056-E
CITY OF TROY, NY TD:7301, RENSSELAER COUNTY	SHEET NUMBER 06 cont. 07

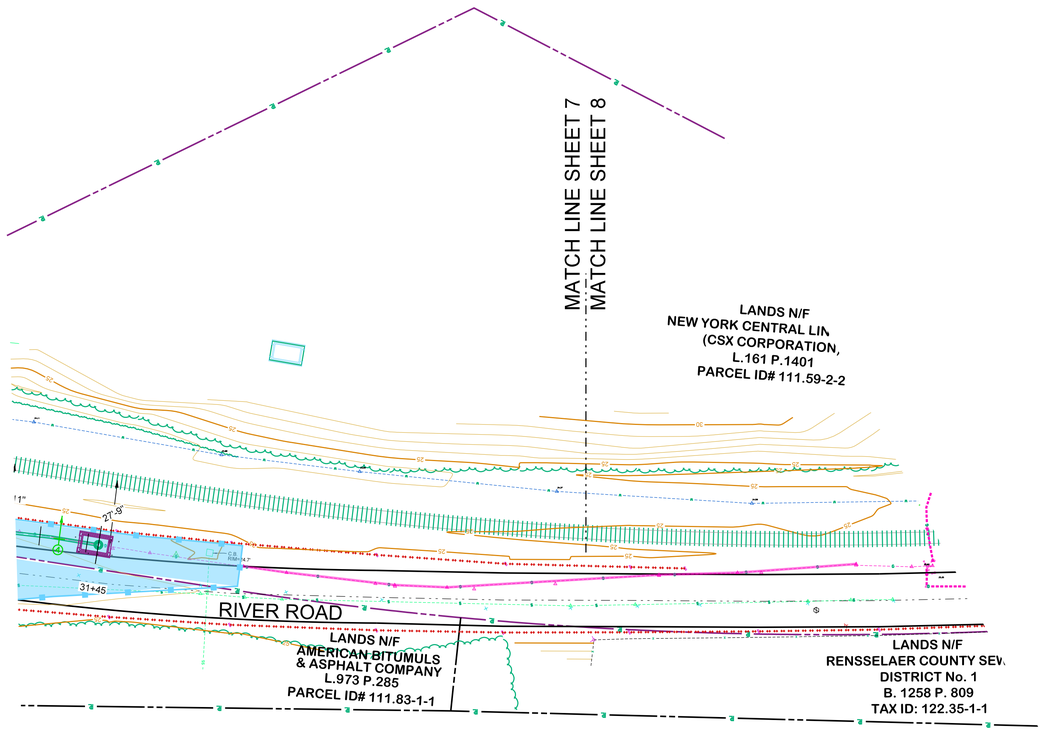
PROPOSED PERMANENT EASEMENT

PROPOSED TEMPORARY WORK SPACE

SCALE ONLY CORRECT IF PRINTED TO 24"X36" PAPER

PIPELINE E20	ORIGINAL ISSUE DATE 09/24/2021
PARTIAL REPLACEMENT	FILE INDEX 12.3-T1.20-G1
PLAN & PROFILE 24+00 to 31+30	DRAWING NUMBER D-100056-E
CITY OF TROY, NY TD:7301, RENSSELAER COUNTY	SHEET NUMBER 07 cont. 08

100056SH007.dgn 10/26/2021 1:33:41 PM



PROPOSED TEMPORARY
WORK SPACE

NORTH

SCALE ONLY CORRECT IF
PRINTED TO 24"X36" PAPER

PIPELINE E20	ORIGINAL ISSUE DATE 09/24/2021
PARTIAL REPLACEMENT	FILE INDEX 12.3-T1.20-G1
PLAN (REFERENCE)	DRAWING NUMBER D-100056-E
CITY OF TROY, NY TD:7301, RENSSELAER COUNTY	SHEET NUMBER 08 cont. 09

Attachment B: Photographic Log

Photograph #1 – View looking south. Installation of sediment filter sock and orange construction fence around the support zone being constructed on Troy (Water St.) Site - Area 2 (Area 2). (Photo Taken 4/25/2022).

Photograph #2 – View looking west. Installation of geotextile fabric and #3 stone for the access road to the support zone (Area 2). (Photo Taken 4/25/2022).

Photograph #3 – View looking north. Installation of sediment filter sock and orange construction fence on CSX Corporation (CSX) property. (Photo Taken 4/26/2022).

Photograph #4 – View looking south. Flattening of berm for installation of temporary access road on the Chevron Former Asphalt Facility Site (Chevron). (Photo Taken 4/26/2022).

Photograph #5 –View looking south. Installation of a staging area for imported fill material stockpiling and pipeline pre-fabrication on Chevron property. (Photo Taken 4/27/2022).

Photograph #6 – View looking south. Installation of the temporary road on the eastern side of the Chevron property. (Photo Taken 4/27/2022).

Photograph #7 – View looking south. Installation of sediment filter sock on the western side of the Limit of Disturbance on Chevron property. (Photo Taken 4/28/2022).

Photograph #8 – View looking southeast. Installation of the temporary road on the eastern side of the Chevron property. (Photo Taken 4/29/2022).

Photograph #9 – View looking south. Excavated area around pre-existing gas transmission line on CSX property to expose pipe to facilitate scanning (vicinity of Sta. 31+45). (Photo Taken 5/2/2022).

Photograph #10 – View looking north. Excavation around pre-existing gas transmission line on CSX property to facilitate installation of a slide rail system at the southern tie-in location (vicinity of Sta. 31+45). (Photo Taken 5/3/2022).

Photograph #11 – View looking south. Excavation within slide rail system on CSX property at the southern tie-in location (vicinity of Sta. 31+45). (Photo Taken 5/4/2022).

Photograph #12 – View looking east. Installation of trench box on CSX property at the southern tie-in location (vicinity of Sta. 31+45). (Photo Taken 5/4/2022).

Photograph #13 – View looking north. Addition of NYSDOT No. 2 stone within excavation around pre-existing gas transmission line to facilitate welding and cutting activities on CSX property at the southern tie-in location (vicinity of Sta. 31+45). (Photo Taken 5/5/2022).

Photograph #14 – View looking southwest. Installation of temporary fence along the west side of the temporary access road through Chevron property. (Photo Taken 5/6/2022).

Photograph #15 – View looking north. Implementation of dust control on the temporary access road on Chevron property. (Photo Taken 5/9/2022).

Photograph #16 – View looking north. Photograph depicts welds made on the pre-existing gas transmission line on CSX property at the southern tie-in location (vicinity of Sta. 31+45). (Photo Taken 5/9/201922).

Photograph #17 – View looking south. Photo depicts welding activities occurring on the pre-existing gas transmission line on CSX property at the southern tie-in location (vicinity of Sta. 31+45). (Photo Taken 5/10/2022).

Photograph #18 – View looking north. Installation of additional erosion and sediment controls around stockpiles of imported backfill on Area 2. (Photo Taken 5/11/2022).

Photograph #19 – Photo depicts a roll-off for transportation and disposal of the pre-existing gas transmission piping staged on Chevron property. (Photo Taken 5/11/2022).

Photograph #20 – View looking east. Photo depicts covered excavated soils staged in a rock box on Area 3. (Photo Taken 5/12/2022).

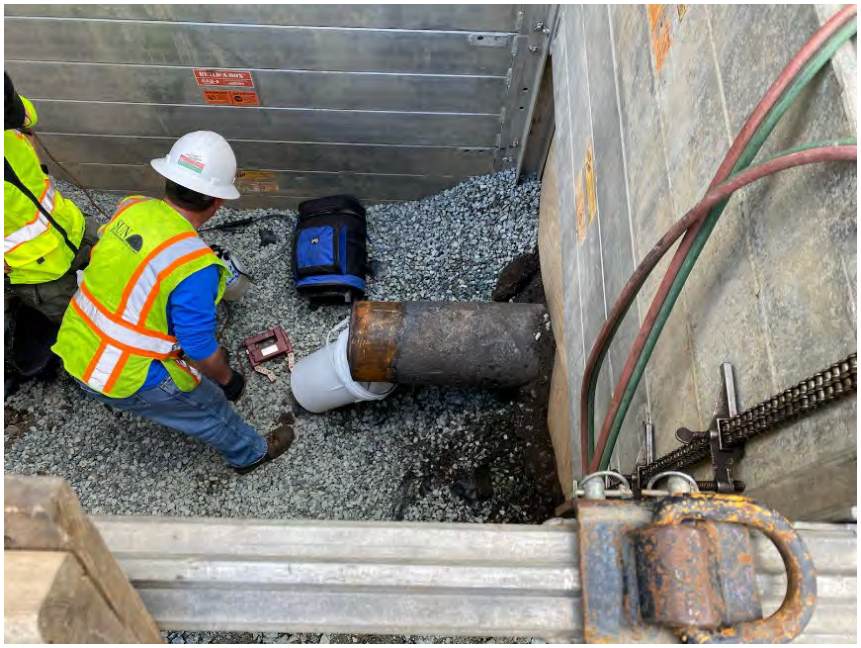
Photograph #21 – Photo depicts the excavation area on Area 3 at the location of the northern cut and cap of the pre-existing gas line (vicinity of Sta. 15+00). (Photo Taken 5/12/2022).

Photograph #22 – View looking east. Installation of the trench box on Area 3 at the location of the northern cut and cap of the pre-existing gas line (vicinity of Sta. 15+00). (Photo Taken 5/12/2022).

Photograph #23 – View looking northwest. Establishment of monitoring well protections on Area 3. (Photo Taken 5/13/2022).

Photograph #24 – View looking west. Installation of TD Williamson tooling on CSX property at the southern tie-in location (vicinity of Sta. 31+45). (Photo Taken 5/16/2022).

Photograph #25 – View looking west. Purging of existing gas transmission line on CSX property prior to cut and cap at the southern tie-in location (vicinity of Sta. 31+45). (Photo Taken 5/17/2022).

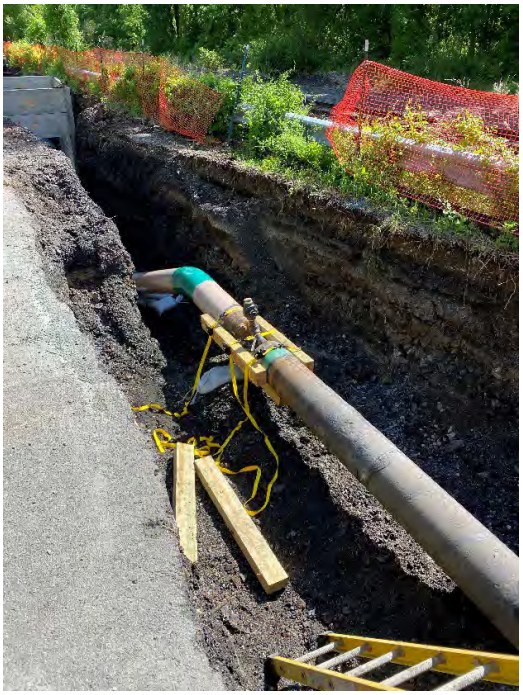


Photograph #26 – View looking south. Cutting existing gas transmission line on Area 3 at the location of the northern cut and cap of the pre-existing gas line (vicinity of Sta. 15+00). (Photo Taken 5/17/2022).

Photograph #27 – View looking northwest. Removal of the pre-existing gas transmission line on CSX property (vicinity of Sta. 31 + 00). (Photo Taken 5/18/2022).

Photograph #28 – View looking south. Removal of trees to the west of guiderail on CSX property to facilitate removal of pre-existing gas transmission line. (Photo Taken 5/19/2022).

Photograph #29 – View looking northwest. Removal of pre-existing gas transmission line on CSX property (vicinity of Sta. 30+00). (Photo Taken 5/20/2022).



Photograph #30 – View looking northeast. Installation of new gas transmission line on CSX property (vicinity of Sta. 31+45) at southern tie-in location. (Photo Taken 5/23/2022).

Photograph #31 – View looking northeast. Backfilling with bedding sand around the new gas transmission line on CSX property (vicinity of Sta. 31+00). (Photo Taken 5/23/2022).

Photograph #32 – View looking southeast. Photo depicts backfill and compaction activities on CSX property (vicinity of Sta. 31+00). (Photo Taken 5/24/2022).

Photograph #33 – View looking south. Photo depicts traffic signage for road closure and northern entrance to the temporary access road through Chevron property. (Photo Taken 5/25/2022).

Photograph #34 – View looking northeast. Excavation for new gas transmission line on CSX property (vicinity of Sta. 29+50). (Photo Taken 5/26/2022).

Photograph #35 – View looking north. Photo depicts poured concrete for construction of T.D. Williamson charging port installation on CSX property at the southern tie-in location (vicinity of Sta. 31+45). (Photo Taken 6/2/2022).

Photograph #36 – View looking south. Trench excavation for installation of new gas transmission line on CSX property (vicinity of Sta. 28+00). (Photo Taken 6/2/2022).

Photograph #37 – View looking west. Tar-like material visible on the west wall of the trench of the new gas transmission line on CSX property at Sta. 24+78. The layer of tar-like material is approximately 5 feet (ft.) below ground surface (bgs). (Photo Taken 6/8/2022).

Photograph #38 – View looking north. Collection of waste characterization samples of soils impacted with tar-like material on CSX property. (Photo Taken 6/9/2022).

Photograph #39 – View looking west. Photo depicts a layer of tacky tar-like material approximately 1 ft. bgs at test pit completed at Sta. 22+53 on CSX property. (Photo Taken 6/10/2022).

Photograph #40 – View looking north. Trench excavation starting at Sta. 22+00 on CSX property after skipping approximately 278 linear feet north due to potential for tar-like material. Photo also depicts the north-south orientated 42" diameter sewer force main (left) approximately 4.7 ft. bgs. (Photo Taken 6/14/2022).

Photograph #41 – View looking south. Paving/restoration over completed gas transmission line installation on CSX property (vicinity of Sta. 19+00). (Photo Taken 7/6/2022).

Photograph #42 – View looking north. Transmission line excavation extending from CSX property (right) to the eastern boundary of Area 3 (left) (vicinity of Sta. 16+00). (Photo Taken 7/8/2022).

Photograph #43 – View looking north. Photo depicts trench excavation activities on Area 3 and exposure of concrete foundation walls on Area 2 (vicinity of Sta. 13+00). (Photo Taken 7/12/2022).

Photograph #44 – View looking southeast. Placement of orange demarcation fabric and 1-foot final Site Cover on Area 3 above newly installed gas transmission line (vicinity of Sta. 14+00). (Photo Taken 7/14/2022).

Photograph #45 – View looking southeast. Placement of orange demarcation fabric within utility trenching on Area 2 prior to installation of new gas transmission line (vicinity of Sta. 12+50). (Photo Taken 7/15/2022).

Photograph #46 – Photo depicts tar-like material observed on Area 2 at approximately Sta. 09+80. Tar-like material approximately 18 inches bgs, 6 inches thick, and intermixed with aggregate. (Photo Taken 7/20/2022).

Photograph #47 – View looking southeast. Placement of flowable fill over bedding sand on Area 2 (vicinity of Sta. 11+00). (Photo Taken 7/21/2022).

Photograph #48 – View looking east. Photo depicts a historic concrete structure that was encountered on Area 2 (vicinity of Sta. 09+00). The structure contained approximately 6 inches of water, clay/soil fill, and five pipes (1 to 2-inch diameter, oriented northeast to southwest). (Photo Taken 7/25/2022).

Photograph #49 – View looking east. Final site cover restoration over newly installed gas transmission line on Area 3 (vicinity of Sta. 13+00). (Photo Taken 7/28/2022).

Photograph #50 – View looking east. Final installation of permanent hardened crossing over newly installed gas transmission line on Area 2 (vicinity of Sta. 10+00) to allow for access to current support zone (construction trailers). (Photo Taken 7/28/2022).

Photograph #51 – View looking northeast. Milling of asphalt on CSX property in preparation for paving/restoration (vicinity of Sta. 29+00). (Photo Taken 8/2/2022).

Photograph #52 – View looking south. Photo depicts a section of paved road on CSX property (vicinity of Sta. 17+00). (Photo Taken 8/3/2022).

Photograph #53 – View looking southwest. Installation of linear-low density polyethylene (LLDPE) liner within the utility trench on CSX property (vicinity of Sta. 23+00). (Photo Taken 8/4/2022).

Photograph #54 – View looking southwest. Installation of non-woven, orange-colored geotextile fabric over the LLDPE liner within the utility trench on CSX property (vicinity of Sta. 23+00). (Photo Taken 8/4/2022).

Photograph #55 – View looking south. Application of Rusmar Long Duration Foam within the trench on CSX property where tar-like material was encountered (vicinity of Sta. 23+00). (Photo Taken 8/4/2022).

Photograph #56 – View looking southeast. Installation of non-woven, orange-colored geotextile fabric within the trench on CSX property. White line is approximately 10 feet north of last visual observation of tar-like material. LLDPE liner, sandwiched between non-woven, orange-colored geotextile fabric, was installed within the trench up to at least that line (approx. Sta. 23+32) from approx. Sta. 24+78. (Photo Taken 8/5/2022).

Photograph #57 – View looking south. Installation of non-woven, orange-colored geotextile fabric within the trench and backfill activities over newly installed gas transmission line on CSX property (vicinity of Sta. 22+50). (Photo Taken 8/10/2022).

Photograph #58 – View looking south. Restoration of temporary access road footprint in the southern portion of the Chevron property. Restoration included removal of crusher run and geotextile fabrics, scraping existing soil and placement of seed. (Photo Taken 8/19/2022).

Photograph #59 – View looking northwest. Photo depicts approx. 30" bell-spigot pipe (oriented north-south) encountered at approximately 5.5 ft. bgs on Area 2 (vicinity of Sta. 4+00). Pipe is at a slight northeast to southwest angle and will intercept the trench excavation from approximately Sta. 4+30 to 4+50. Additional east-west oriented pipes also shown in the photo. (Photo Taken 8/25/2022).

Photograph #60 – Photo depicts contents of 30" bell-spigot pipe – 17 inches of water, 3 inches of dense nonaqueous phase liquid with tar-like odor. (Photo Taken 8/26/2022).

Photograph #61 – View looking east. Excavation and encountered hardened tar-like material at approximately Sta. 3+70 on Area 2. (Photo Taken 8/29/2022).

Photograph #62 – View looking east. Excavation and east-west oriented historical pipes encountered within trench at approximately Sta. 3+60 on Area 2. Four 12-inch steel pipes were encountered. All pipes were evaluated, determined to be empty and were removed from the trench and plugged. (Photo Taken 8/29/2022).

Photograph #63 – View looking northeast. Installation of non-woven, orange geotextile demarcation fabric. Photo also depicts an existing 12-inch steel pipe oriented east-west across the trench in Area 2 (approximately Sta. 4+50). Gas transmission line was installed underneath this existing pipe. (Photo Taken 8/30/2022).

Photograph #64 – View looking north. Exposure of pre-existing gas transmission line at the regulator station on Area 2 (Sta. 0+00) to evaluate existing line for tie-in of new gas transmission line. (Photo Taken 8/31/2022).

Photograph #65 – View looking north. Asphalt paving activities to restore River Road on CSX property (vicinity of Sta. 25+00). (Photo Taken 9/1/2022).

Photograph #66 – View looking north. Steel plates installed for temporary hardened crossing on Area 2 to facilitate movement of equipment for nearby Phase 1A remediation activities. (Photo Taken 9/8/2022).

Photograph #67 – View looking north. Excavation of trench and removal of unknown concrete structure at approximately Sta. 3+00 to 3+20 on Area 2. (Photo Taken 9/12/2022).

Photograph #68 – View looking east. Utility trench partially within the Phase 1A remediation area on Area 2 (vicinity of Sta. 00+00). (Photo Taken 9/14/2022).

Photograph #69 – View looking south. Photo depicts replacement of fencing and stormwater berm on Chevron property (vicinity of Sta. 14+00). (Photo Taken 9/19/2022).

Photograph #70 – View looking north. Water releasing from the installed gas transmission line on Area 2 (vicinity of Sta. 00+00) into a 3-inch water hose following hydrostatic pressure testing. (Photo Taken 9/20/2022).

Photograph #71 – View looking west. Photo depicts the filter bag that the water from hydrostatic pressure testing was released into on Area 2. (Photo Taken 9/20/2022).

Photograph #72 – View looking south. New chain link fencing with barbed wire along the east side of Area 3 and Chevron property (vicinity of Sta. 14+00). (Photo Taken 9/23/2022).

Photograph #73 – View looking west. Backfilling activities at the north tie-in location (Sta. 01+50) and in the utility trench on Area 2. (Photo Taken 9/28/2022).

Photograph #74– View looking west. Trench excavated for retirement of the pre-existing pipeline at the boundary of Areas 2 and 3. (Photo Taken 9/29/2022).

Photograph #75 – View looking south. Excavated trench and pre-existing gas transmission line prior to cutting and capping the pre-existing gas transmission line at the boundary of Areas 2 and 3. (Photo Taken 9/30/2022).

Photograph #76 – View looking west. Trench prior to cutting and capping the pre-existing gas transmission line at the boundary of Areas 2 and 3. (Photo Taken 9/30/2022).

Photograph #77 – View looking west. Installation of the permanent timber mat hardened crossing on Area 2 north of the former E-lot Building (vicinity of Sta. 1+00). (Photo Taken 9/30/2022).

Attachment C: CAMP Documentation

(Electronic Only)

Attachment D: Fill Import Documentation

(Electronic Only)

Attachment E: Waste Management Documentation

(Electronic Only)

Attachment F: SWPPP Inspection Reports

(Electronic Only)

Attachment G: Archeological Monitoring Report

HARTGEN
archeological associates inc

ARCHEOLOGICAL MONITORING REPORT

National Grid PL-E20 Partial Replacement Project

King Road and River Road
City of Troy
Rensselaer County, New York

OPRHP 21PR06614
HAA 5278-83

Submitted to:
Brown and Caldwell Associates (NY)
500 North Franklin Turnpike, Suite 306
Ramsey, New Jersey 07446

Prepared by:
Hartgen Archeological Associates, Inc.

1744 Washington Avenue Ext.
Rensselaer, New York 12144
p +1 518 283 0534
f +1 518 283 6276
e hartgen@hartgen.com

www.hartgen.com

An ACRA Member Firm
www.acra-crm.org

December 2022

MANAGEMENT SUMMARY

Involved State and Federal Agencies: *NY Department of Environmental Conservation (DEC), and New York State Historic Preservation Office (OPRHP)*
Phase of Survey: *Archeological Monitoring*

LOCATION INFORMATION

Municipality: *City of Troy*
County: *Rensselaer County*

MONITORING AREA

A linear project between the Hudson River's east bank, and the CSX Railroad, from a Gas Regulator Station south of the Wynantskill Creek progressing south to a point on River Road about 1,400 linear feet south of the Troy-Menands Bridge (NY Route 398). The entire alignment is 3,145 linear feet (959 m).

RECOMMENDATIONS

The archeological monitoring during construction of PL-E20 resulted in the identification of some portions of the 1864 Troy Bessemer Steel Mill, often considered the first such steel works to be built in North America. A historically known spring was also found, as was an abandoned storm sewer made of brick.

No intact, precontact soil levels were identified, nor were there any precontact deposits, artifacts, or features.

Report Authors: *Matt Lesniak; Matthew J. Kirk, MA, RPA, Principal Investigator*
Date of Report: *December 2022*

TABLE *of* CONTENTS

Table List

Map List

Photograph List

ARCHEOLOGICAL MONITORING REPORT

1 Introduction

Hartgen Archeological Associates, Inc. (Hartgen) conducted archeological monitoring for National Grid's new natural gas pipeline installation activities along King Road and River Road in the City of Troy, Rensselaer County, New York, referred to as the "PL E-20 Partial Replacement Project" (hereafter referred to as the "Project" or "PL E-20 Project"). The Project involves installation of a new natural gas pipeline, known as PL E-20, from the existing Gas Regulator Station (located at the top of the Hudson Riverbank immediately south of the Wynantskill Creek) to a location on River Road about 1,400 feet south of the Troy-Menands Bridge (NY Route 398)(Map 2) where it will tie into pre-existing gas pipeline. The project was the subject of an Archeological Monitoring Plan dated April 2022 (Hartgen Archeological Associates, April 2022) (OPRHP 21PR06614).

The Project is located in and around Areas 2 and 3 of the Troy (Water Street) Site, the location of a former manufactured gas plant (MGP), currently being remediated by National Grid under supervision by the New York State Department of Conservation (NYSDEC or DEC). The Troy (Water Street) Site is referred to as NYSDEC Site No. 4-42-029 and the official address is 8000 Main Street, Troy, NY although the public roadway passing through the site has been known as King Road. At the southern end of King Road, at the intersection with Water Street, the road transitions to River Road and continues to the south (Map 1).

The Troy (Water Street) Site is also known as the King Fuels Site. Known pollutants at the site include benzene, toluene, ethylbenzene, and xylenes (BTEX), and various polycyclic aromatic hydrocarbons (PAHs) resulting from past industrial operations, including MGP operations.

The monitoring of the PL E-20 Project was conducted and the report prepared in conformance with Section 14.09 of the State Historic Preservation Act and with the archeological monitoring plan dated April, 2022 (Hartgen Archeological Associates). The New York Department of Environmental Conservation (DEC and the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) are involved in the Project.

The results of archeological monitoring within the remediation areas that the PL E-20 gas pipeline was installed through on Areas 2 and 3 are also addressed in a separate report ("Archeological Monitoring Report, Troy (Water Street) Site - Phase 1A Remediation" dated December 2022 (Hartgen Archeological Associates 2022b)), as archeological monitoring was previously deemed necessary for Area 2 (OPRHP 20PR02197). Area 3 (OPRHP 19PR01317) also had a Phase IA survey (Hartgen Archeological Associates 2018).

1.1 Contractor's Activities

This report documents the results of the archeological monitoring of trench-digging activities for the PL E-20 Project. LAND Remediation, Inc. (LAND) of Waterford, NY performed the trench excavation, in coordination with the pipeline contractor (J. Mullen and Sons [JMS] of Saugerties, NY). Brown and Caldwell provided environmental engineering support to National Grid during the Project. National Grid managed the Project overall. As the landowner for Segment C, the portion of the Project south of the Troy-Menands bridge, CSX Railroad (CSX) also had personnel on-site to provide oversight and monitoring.

2 Archeological Monitoring

2.1 Methodology

Following the April 2022 Archeological Monitoring Plan for the PL E-20 Project, an archeological monitor from Hartgen was either present or was on-call for trench excavation (Photo 1) in three segments of the Project, as indicated in Table 1, below.

Table 1. Excavations Subject to Archeological Monitoring

Excavation Segment	Stations	Length	Depths	Typical final soil level at base of trench	Historic resources observed
Segment A	4+25 to 10+50	625 linear feet	8 feet from surface	Various fill soils	Brick wall from Blooming Mill part of Bessemer Mill
Segment B (north of bridge)	11+75 to 15+50	375 linear feet	5 to 8 feet from surface	Various fill soils	Brick storm sewer; concrete footings for early 20th C. garage
Segment C (south of bridge)	15+80 to 31+20	1,540 linear feet	9 feet from surface	Slag deposits in all but 55 linear feet, where there was silty clay	Stone marker/post; natural seep/spring
Total	*2,540 linear feet*		-	-	-

Typical equipment used was a tracked backhoe with a toothed, 3-foot wide bucket (Photo 2).

The Troy-Menands Bridge (NY Route 378) over the Hudson River is roughly at the boundary between Segments B and C (Photo 2).

At the trench excavations, the archeologist inspected the excavated soils for cultural materials, when possible, and looked at the soil profiles for features. Representative artifacts were photographed and described in notes, before being discarded with the excavated soils (because of the possibility of hazardous materials, no artifacts were collected). All archeological deposits and features were documented through field notes, photography, and measured scale drawings.

2.1.1 Schedule and Sequence

Trench excavation in Segment A was conducted from July 18 to August 25, 2022. The initial excavations between Stations 5+25 and 6+65, however, were done between July 11 and July 29, 2022 as part of the concurrent remediation activities at Area 2 of the Troy (Water Street) Site (Photo 3).

Segment B was excavated primarily from July 8 to 14, 2022. However, Stations 12+90 to 15+80 of the segment were initially excavated as part of the concurrent remediation activities at Area 3 of the Troy (Water Street) Site, between June 6 and 24, 2022.

Most of the trench excavation in Segment C was conducted from May 2 to July 8, 2022. A 200-foot portion of the segment, from approximately Station 22+50 to Station 24+50, was excavated during the first week of August 2022 (August 1 to 5).

Generally, excavation progressed from the south to north, or from the highest of the PL E-20 Station numbers (Station 31+45) toward decreasing station numbers.

Remediation areas on both Areas 2 and 3 of the Troy (Water Street) Site were in the path of the new PL E-20 gas pipeline. Once installed and in-use, the new PL E-20 gas pipeline would have impeded remediation activities; therefore, the remediation activities took place before the new gas pipeline was installed in those areas. The remediation activities involved digging deeper than the gas pipeline trenches. After remediation (via soil excavation) was completed, clean sand was backfilled into the remediation areas. Therefore, when the PL E-20 gas pipeline trenching came to these remediated areas, the only soil being disturbed was the recently placed clean fill and no new excavation into contaminated or potential archeological levels were necessary in these areas.

2.2 Results

The archeological monitoring was conducted between May 2 and August 25, 2022. The Archeological Monitor was Matt Lesniak of Hartgen Archeological Associates, Inc, assisted by Tom Boyd on June 21. Matthew J. Kirk, MA, was the Principal Investigator for Hartgen Archeological Associates, Inc.

2.2.1 Stratigraphy

All of the trench excavations were in historic (19th- or 20th-century) fill levels (Photo 4). Segment C, especially, found levels of rubble and of gravel (likely road or railroad surfaces) overlying industrial slag with a high metal content, likely leftover from the iron and steel industries in the neighborhood. Some of the slag formed concretions many feet wide – those concretions impeded digging, but eventually were broken up by the backhoe.

More varied fills were noted in Segments A and B, where there were successive periods of industrial development. The gas line trench in those segments typically terminated at the bottom in silty sand fills. In some locations in the Area 2 portion of the Troy (Water Street) Site, some scraping at about 10 feet below surface did reveal industrial slag underneath the silty sand fills.

There was a 55-foot long (17 meter) portion of Segment C, from Stations 20+10 to 20+65, where the final level in the east wall of the gas pipeline trench was a brown, silty clay. Only approximately 8 inches (20 centimeters) of the clay was visible above the base of the trench, which was approximately 9 feet (2.75 m) below pavement. Unlike the grayer clay found between Stations 24+80 and 25+10, no fill level was noted underlying the brown silty clay, raising the possibility that it was natural soil rather than fill.

Note that the west trench wall between Stations 20+10 to 20+65 did NOT contain the brown, silty clay, but did have slaggy fill. Throughout Segment C, the railroad alignment cuts across ridges descending down to the Hudson River – if railroad construction sliced into one of those ridges, some natural soils could have remained in the trench's alignment. This could be the case even if there are many feet of fill and railroad ballast to the south, west, and north of the location, as there appears to be at the Project.

No structures, artifacts, or soil features were observed in the brown silty clay level.

2.2.2 Historic Building Remains

Two historic buildings were encountered in the gas pipeline trench, both in Segment A.

There was a massive brick wall found at an acute angle to the trench between about Stations 8+85 to 9+50 (Photo 5). The upper, broken edge of the wall was found at a depth of 3 feet below surface, and it extended into the floor of the trench (which was approximately 7 feet at that location). Based on this wall's location (both horizontally and vertically), it was surmised to be the western wall of the blooming department of the Bessemer Steel Mill (Sanborn Map & Publishing Company 1885).

A middle 20th-century, concrete foundation wall was crossed in two locations on the trench, at Stations 10+00 and 12+60 (see Photo 6). These concrete foundation walls lined up with surface evidence of a large, oblong building with its long axis running north-south – remains of a garage which stood from before 1951 to after 1993 (Hartgen Archeological Associates 2020). No former floor or work surface was noted within the garage foundation.

2.2.3 Other Structures

2.2.3.1 Sewer

A brick conveyance was found crossing the gas line trench at about Station 13+85. The structure lined up with the Water Street / River Road intersection, and was also only 25 feet south of an active storm sewer on a similar course (the brick conveyance was approximately 70 degrees off River Road, in a southwesterly direction, whereas the active storm sewer was at an approximate right angle (90 degrees) to the road).

In profile, the conveyance was an "O" with straight sides and curves on the top and bottom (Photo 7). A motorized camera was sent into the brick structure and it was observed to be collapsed only a few feet to the east (beneath River Road); to the west, it progressed at least 25 feet and turned to the south. The brick conveyance was two bricks thick on its upper, curved surface, and the entire structure was 5.5 feet tall and 5.8

feet wide on the outside. The interior was 4 feet tall (only 3 feet on the sides) and 3 feet wide. Some bricks broken from the conveyance consistently measured 8 by 3½ by 2¼ inches, and appeared to have been machine made.

Approximately 13 centimeters (5 inches) of sediment was found in the bottom of the brick conveyance. Based on its perfectly level, smooth surface, that sediment settled from water in the conveyance. Therefore, it seems most likely that the brick conveyance was a storm sewer, likely carrying waste water from the former residential neighborhood on Water, Elm, Forbes, and Burke streets (all of the Water Street houses and many of the houses on the other streets were removed for the Troy-Menands Bridge in the second quarter of the 20th century)(Sanborn Map & Publishing Company 1885). A sewer is shown on a similar course on an 1889 map (Ricketts).

Remediation work on Area 3 of the Troy (Water Street) Site, which uncovered the brick sewer, removed most of the height of the conveyance in a swath about 40 feet wide (Photo 7). The structure was then plugged with new bricks and mortar, and covered with clean fill.

2.2.3.2 Stone Post

A sandstone or bluestone post was discovered, buried in a vertical position, in the east wall of the gas line trench at Station 25+15 (Photo 8). In the course of digging the trench, part of the post was broken off and brought to the ground surface. The broken section was more than 44 inches long, 8.5 inches wide, and 5 inches thick (Photo 9). At least one of the sides was dressed; the others appeared to be smoothed. There were no cavities or hardware attachments indicating it was part of a fence.

The area immediately to the north of the post contained a sizable amount of clay fill, rarely found in the gas line trench overall. There was a fill level containing some bricks and rubble in it below the clay fill. It is possible that the post was related to a boundary for the clay fill area, even though the clay fill does not extend all the way south to the post's location.

2.2.3.3 Spring

Water was found gushing out of the east wall of the trench at Station 21+25, an apparent seep or spring likely fed by runoff from the hillside to the east. There was no structure, equipment, or pipe associated with the seep (Photo 10). However, a historic map indicates that there was a sulfur spring about 500 feet south of the former city line, approximately at the Project's Station 21+50 (Halligan 1880). From outside of the trench, no sulfurous smell was noticed.

2.2.4 Objects related to industrial processes

Most of the slag which made up the fill in the lower parts of the gas line trenches was friable, rough-textured material filled with small gas bubbles, likely coke or coal by-products from the steel and iron furnaces. A few small pieces of metal were found, however, that appeared to have been waste from working with molten iron (Photo 11).

Scores of ceramic tuyeres were noted at the project (Photo 12). A *tuyère* can be any system for bringing air or other gases into an enclosed space, especially a furnace. The tuyeres found at the Project appeared similar to the bottom ends of the tuyeres illustrated for steel converting vessels.

A pamphlet prepared for an open house at the Troy Bessemer Steel Mill said that the converter bottoms each contained 10 tuyeres "pierced with twelve 3/8 inch holes" (John A. Griswold & Co. 1870).

An 1868 newspaper piece, written by someone in the industry, also describes the Bessemer converter bottoms at Troy and the tuyeres:

> "The tuyeres, or blocks of fire-brick pierced with holes, through which the air is blown up into the iron, last but six to eight heats, and their renewal has hitherto caused much delay. In

> these works the converter-bottom is removed by means of a hydraulic lift and a carriage running out at the side of the converter, where it can be conveniently got at. The bottom may be replaced when required, by a duplicate bottom, previously furnished with new tuyeres, dried and heated." (Anonymous 1868:21)

This description shows that the Bessemer converter bottom tuyeres were more or less disposable, lasting for only 6 to 8 blows. How exactly they fail is not clear, maybe the holes get gummed up with iron, or they crack from the heat. The tuyeres found at the Project were not, for the most part, cracked or visibly damaged.

Some of the tuyeres had the letters "HW" embossed on their sides. The letters likely refer to the Harbison Walker Refractories Company, a Pennsylvania fire-brick maker which has been known as Harbison and Walker since 1875 (Anonymous 2022). The company still exists as Pittsburgh's HWI (HarbisonWalker International Refractory Products), and its website indicates that it has made and still makes tuyeres for converters, for smelters, and for gasifying equipment.

2.3 Discussion

To summarize, potentially natural soils were found in only 50 feet of the new gas pipeline alignment (which ran a total of 3,145 feet), and no 17th-century or precontact deposits were noted.

At least one wall from the 19th-century, Troy Bessemer Steel Mill was found, along with other mill-related structures and features in nearby Area 2 of the Troy (Water Street) Site; the foundation wall from an early 20th-century garage was intercepted; and there was an apparent stone post or posts buried in fill next to the railroad tracks. Also, an abandoned brick sewer was found in Area 3 of the Troy (Water Street) Site.

The stone post or posts are difficult to explain. There did not seem to be different fill soils on one side or the other of the posts, neither in a north-south dimension or east to west. The post was perfectly straight vertically, and did not appear to be an element of fill. The surfaces observed on the post that was brought to the surface did not have any nails, hooks, or other attachments for a chain or for planks.

The brick wall from the blooming department part of the Bessemer Steel Mill, along with some of the walls found in Area 2 of the Troy (Water Street) Site, help to locate the footprint of the steel mill complex in the current landscape. Because no corners were identified, there is still some imprecision for the steel mill complex's location in a north-south direction.

3 Recommendations

The archeological monitoring during construction of PL E-20 Project resulted in the identification of some portions of the 1864 Troy Bessemer Steel Mill, often considered the first such mill to be built in North America. A historically known spring was also found, as was an abandoned storm sewer made of brick.

No intact, precontact soil levels were identified, nor were there any precontact deposits, artifacts, or features.

The PL E-20 Project is complete, and there are no archeological recommendations. There will be subsequent remediation work at Areas 2 and 3 of the Troy (Water Street) Site for which archeological monitoring will be conducted [OPRHP 20PR02197 (Area 2) and OPRHP 19PR01317 (Area 3)].

4 Bibliography

Anonymous
1868 The Bessemer Process and Works in the United States. *Troy Daily Times* (July 27, 1868).

2022 Old H. W. Crown #3 Harbison Walker Refractories Company Fire Brick. WorthPoint Corporation, Atlanta, GA. Electronic document, https://www.worthpoint.com/worthopedia/w-crown-harbison-walker-refractories-457798202, accessed on October 6.

Halligan, Henry
1880 *Bessemer Steel Works, Troy, 1880*, np.

Hartgen Archeological Associates, Inc.
2018 *Phase IA Literature Review and Archeological Sensitivity Assessment, National Grid Troy (Water Street) Site - Area 3, City of Troy, Rensselaer County, New York, HAA #5278-11*. Submitted to Brown and Caldwell Associates. On file at HAA, Rensselaer, NY.

2020 *Phase IA Literature Review and Archeological Sensitivity Assessment, National Grid Troy (Water Street) Site - Area 2, City of Troy, Rensselaer County, New York, HAA #5278-12*. Submitted to Brown and Caldwell Associates. On file at HAA, Rensselaer, NY.

2022a *Archeological Monitoring Plan, National Grid PL_E20 Partial Replacement, King Street, City of Troy, Rensselaer County, New York. OPRHP 21PR06614, HAA #5278-83*. Submitted to Brown and Caldwell Associates. On file at HAA, Rensselaer, NY.

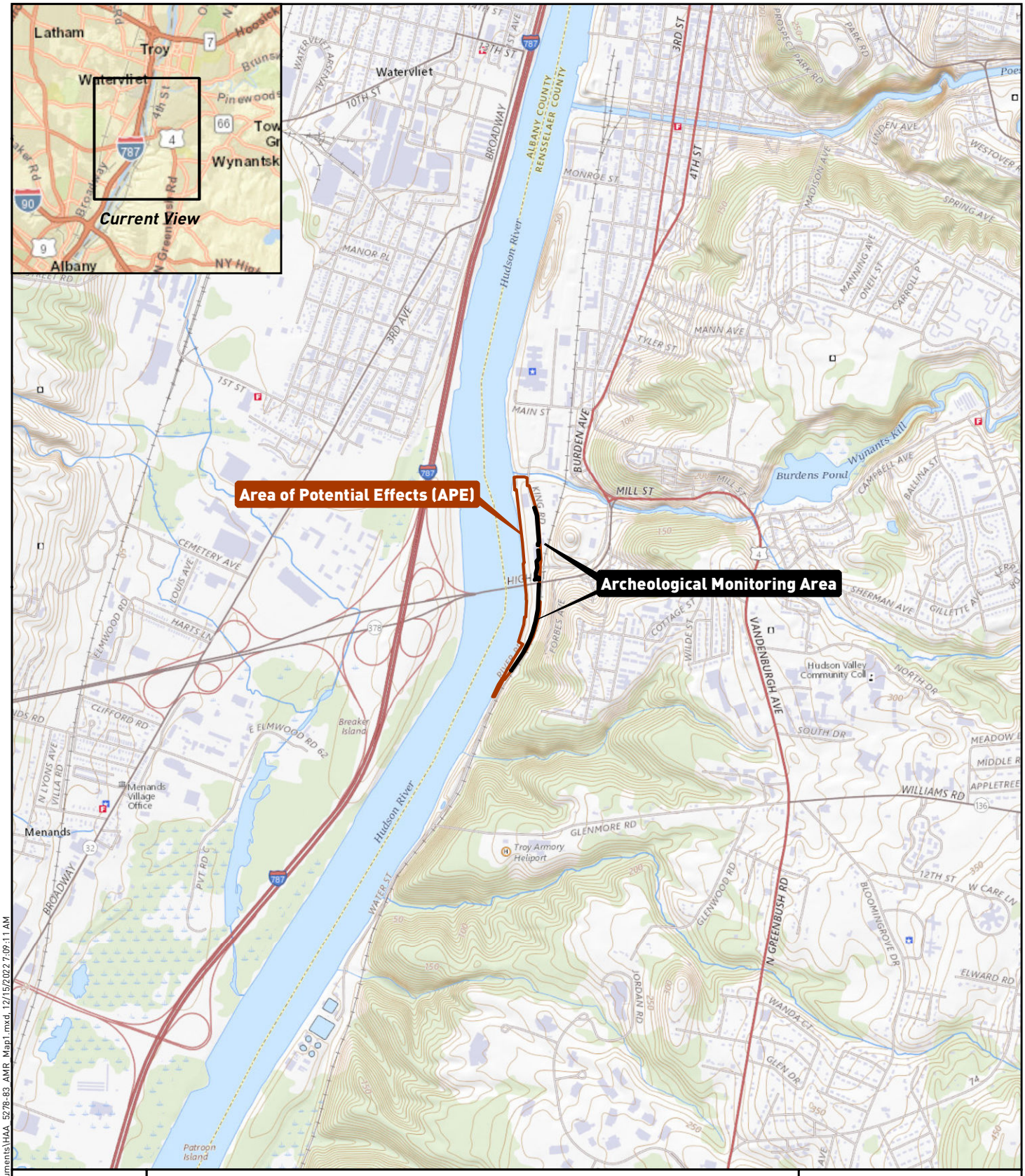
2022b *Archeological Monitoring Report Troy (Water Street) Site - Phase 1A Remediation Project. OPRHP 20PR02197 and 19PR01317, HAA #5278-82*. Submitted to Brown and Caldwell Associates. On file at HAA, Rensselaer, NY.

John A. Griswold & Co.
1870 Messrs. John A. Griswold & Co., proprietors of the Bessemer Steel Works, and the Rensselaer Iron Works respectfully invite the Members of the American Association for the Advancement of Science to Examine their Works and Processes, edited by p. o. T. B. S. W.-J. A. G. John A Griswold & Co., Erastus Corning, Jr., Erastus Corning, Chester Griswold. Wm H. Young & Blake, Troy, New York

Ricketts, Palmer
1889 *Map of the City of Troy, N.Y., showing the streets and sewers*. Public Improvements Commission, Troy, NY.

Sanborn Map & Publishing Company
1885 *Troy, New York, Volume I*. Sanborn Map & Publishing Company, New York.

Maps



1,000 0 1,000 2,000 Feet

300 0 300 600 Meters

Note: Contour interval is 10 feet.

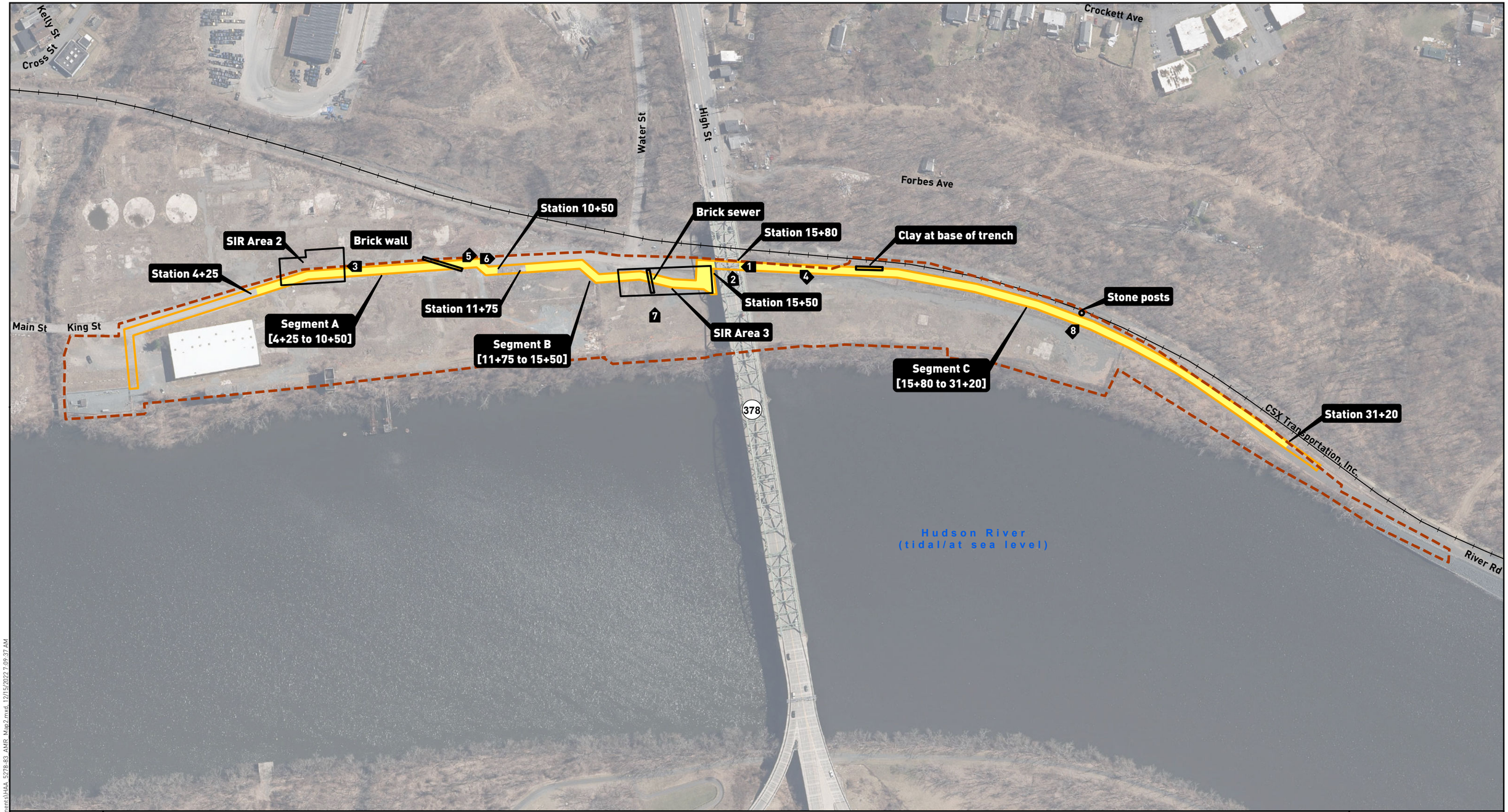
Project Location

GIS Services Accessed 12/15/2022: Environmental Systems Research Institute, Inc., World Street Map; USGS The National Map

HARTGEN archeological associates inc

Map 1

C:\HAA\projects\5278\GIS\Documents\HAA_5278-83_AMR_Map1.mxd, 12/15/2022 7:09:11 AM



110 0 110 220 Feet

33 0 33 66 Meters

Legend

- Photo Angle
- Archeological Monitoring Area
- Railroad
- Limit of Disturbance
- Area of Potential Effects (APE)

Project Map

New York State Office of Information Technology Services, Orthoimagery, 2021

HARTGEN archeological associates inc

Map 2

C:\HAA\projects\5278\GIS\Documents\HAA_5278-83_AMR_Map2.mxd, 12/15/2022 2:09:37 AM

Photos

Photo 1. Typical trench excavation, near Station 16+50. The orange sand bags will support the new gas pipeline once lowered into the trench. View facing north northeast.

Photo 2. Menands-Troy Bridge (NY Route 378) over the Hudson River, and over River Road and the Project on the east shore of the Hudson River. View facing east.

Photo 3. Remediation excavation at the Area 2 location, to approximately 10 feet below surface. View facing north.

Photo 4. Trench wall with slag levels at bottom. East wall at Station 18+25. View facing northeast.

Photo 5. Trench segment with brick wall around Station 9+50 (approx. 700 feet north of the Troy-Menands bridge). View facing northwest.

Photo 6. Concrete garage wall foundation crossing the trench at about Station 10+00 (approx. 600 feet north of the Troy-Menands Bridge). Note the rebar in the concrete wall. View facing west.

Photo 7. Culvert found perpendicular to trench within Area 3. View facing east

Photo 8. Stone post found in east wall of trench at Station 25+15 (approx. 815 feet south of the Troy-Menands Bridge). See also Photo 9. View facing east southeast.

Photo 9. Part of stone post broken off and removed from trench (see Photo 8). At least one side is rough cut. Scale stick is one meter (3.3 feet) long.

Photo 10. Seep found in east wall of trench (marked by an arrow in this photo) at Station 21+24 (approximately 425 feet south of the Troy-Menands Bridge). View facing east.

Photo 11. Typical slag chunks and metal cast offs found in the trench.

Photo 12. *Tuyère* variety found south of Station 15+80 and in Area 3. It has 12 holes, measures about 8 inches in diameter at its widest, and is 9 inches long.