Hudson Falls Former Powerhouse Deconstruction
Environmental Monitoring and Protective Measures Work Plan
Work Task Description – East Trench Debris and Related Water Management – Addendum No. 2

Original WTD – May 11, 2023
Revised WTD (Addendum No. 1) – June 14, 2023
WTD Addendum No. 2 – August 31, 2023

Introduction / Objectives

This Work Task Description (WTD) --- related to the removal of water, debris, and loose building materials within the trench along the east wall of the former Powerhouse (East Trench) --- has been updated to reflect the results of trench cleanout activities performed in June 2023 (summarized below). Initial and subsequent trench cleaning efforts (May 23, 2023, and June 26 to 27, 2023, respectively) were performed consistent with the original WTD (May 11, 2023) and WTD Addendum No. 1 (June 14, 2023, submitted to EPA on June 15, 2023) and advanced an overall understanding of the East Trench. Based on outcomes and findings of the completed activities, this WTD Addendum No. 2 identifies additional activities, focusing on the removal of remaining portions of the former east wall of the former Powerhouse and other debris from the current base of the East Trench. The proposed activities are a continuation of efforts to achieve the previously identified objectives of this WTD for the East Trench, which include, but are not limited to:

1) Removal of East Trench contents and cleaning of the trench, recognizing that the materials are impacted based on sampling and analysis.
2) Identification of existing features of the East Trench, and the apparent integration with original building construction and remaining structural features of the former Powerhouse (e.g., walls and floor slab).
3) Identification and protection of East Trench features that may provide water drainage, including the remnant drain piping in the trench floor.
4) Provide better understanding of the East Trench conditions, configuration, and construction to inform further decisions and activities (e.g., physical modifications, sealing, water management).

Trench Cleanout Activities

On June 26 and 27, 2023, additional cleaning activities were performed to remove building materials not previously removed during deconstruction activities and initial debris cleaning efforts performed on May 22, 2023. A summary is provided below. The recent activities also incorporated National Grid requirements related to work near the overhead electric lines in this area (an evaluation dated June 22, 2023, demonstrated that the work task would be performed outside the Minimum Approach Distance requirements for work near the overhead power lines).

The summary provided below uses several terms that are defined as follows:

- **East Trench** – The lower area along the former Powerhouse foundation wall that is adjacent to and at lower elevation than the main floor slab. The East Trench includes the former “gutter” identified in the 1902 architectural drawings and (where present) portions of the Remaining Brick Wall of the former Powerhouse.

- **Trench Contents** – Water, fine-grained material, oils (non-aqueous phase liquids [NAPL]), Residual Building Debris present within the East Trench. Trench Contents excludes the Remaining Brick Wall.
- **Residual Building Debris** – Loose building materials resulting from deconstruction of the former Powerhouse. This includes several types and sizes, including discrete and pulverized brick, mortar, and concrete. The presence of these materials within the East Trench is limited and able to be removed by hand or hand tools.
- **Remaining Brick Wall** – Building materials (e.g., concrete, brick, and mortar construction) that are intact and adhered, appear to extend vertically downward from the current base of the East Trench, were not removed during the deconstruction work, and were not able to be loosened or removed manually or with the aid of hand tools during the cleanout efforts.
- **East Foundation Wall** – Concrete wall of the former Powerhouse structure extending vertically upward from the East Trench to the concrete gravity retaining wall along the former Eastern Raceway (i.e., Eastern Raceway Gravity Wall).
- **Foundation/Wall Gap** – An approximate 1- to 3-inch-wide space with varying depth (discussed below) located between the Remaining Brick Wall and East Foundation Wall.

Arcadis held an on-site kickoff meeting with the subcontractor, Precision Industrial Maintenance (PIM). Three PIM personnel were present at the site to execute the work. The WTD and *Job Safety Analysis – Former Powerhouse Trench Clean-Out* (JSA) were reviewed and discussed.

The primary tools and equipment mobilized by PIM to complete the work included:

- High-velocity vacuum truck with stainless steel-lined tank.
- 4-inch diameter corrugated poly vacuum hose.
- Miscellaneous hand tools.
- Pressure washer with attachments.
- 1-inch diameter copper pipe attachment.
- Municipal water (storage totes).

Workers donned footed Tyvek suits, hard hats safety glasses, face shields, and work gloves to perform the work in accordance with the task-specific JSA.

Representatives of the United States Environmental Protection Agency (USEPA) and New York State Department of Environmental Conservation (NYSDEC) (the Agencies) were present on both days during cleanout activities.

<u>Monday, June 26, 2023</u>

The vacuum truck and associated tools and materials were mobilized to the upland area east of the former Powerhouse. The vacuum truck was positioned adjacent to the south end of the Eastern Raceway Gravity Wall.

Cleanout activities began in the southern end of the East Trench and advanced to the north. PIM used a ¼-inch spray tool to provide municipal water to the East Trench and 1-inch copper piping to simultaneously vacuum Trench Contents from within the Foundation/Wall Gap adjacent to the former building foundation wall. The remainder of the East Trench was similarly flushed with municipal water and vacuumed with a 4-inch diameter hose to remove Trench Contents.

Cleanout activities were halted at 1230 due to weather concerns and reported lightning in the area. Work resumed but was later stopped due to lightning. PIM completed approximately 10 linear feet of cleaning related to the East Trench and Foundation/Wall Gap when work was stopped for the day at 1445. At the end of the day, the vacuum truck was relocated to the GE decontamination pad. Refer to Photographs 1 and 2 for the June 26, 2023, cleanout activities.

Tuesday, June 27, 2023

After reviewing the work performed the prior day, PIM resumed East Trench cleanout activities by positioning the vacuum truck south of the Eastern Raceway gravity wall area (to accommodate concurrent activities related to the installation of new monitoring wells RW-11 and RW-12 in this same area), reconnected the vacuum hose, and assembled the municipal wash water source connection to the tote.

As part of the East Trench cleanout activities, stationing along the trench was established starting from the south wall of the former Powerhouse (i.e., the south wall is located at Station 0 feet, 0 inches). Refer to Figure 1 for details related to the position of the work along the East Trench. Figure 1 is a markup of the 1902 architectural drawing that presents field measurement approximate widths and depths of the Foundation/Wall Gap. Measurements were recorded at approximate five-foot intervals from south to north along the alignment of the East Trench. Soundings were performed using a pry bar and tape measure. Vertical measurements are in reference to a common measurement line (apparent formwork line) along the east foundation wall (Photograph 3). A graphical depiction of the depth soundings is provided in Figure 2. Though not conclusive at this time, the depth soundings indicate the central section of the trench may be lower than the north and south sections. The actual trench configuration will be field verified once remaining materials within the trench are removed.

Cleanout activities resumed from where work was suspended on June 26, 2023, at approximately 10 feet along the east foundation wall of the former Powerhouse structure. PIM continued to flush and vacuum the Foundation/Wall Gap and East Trench. Key findings and observations during the cleaning are summarized below and supplemented with the attached photographs and Figure 1.

- At approximately 25 feet from the south wall (Figure 4), a black oily LNAPL was observed floating on the water surface and a petroleum-like odor was noted when flushing the Trench Contents. This location is generally aligned with the south edge of the former central turbine unit foundation/pad. As shown on Photograph 5, oil staining was observed on the East Foundation Wall in this same area.
- A section of Remaining Brick Wall starting at approximately 24 feet to 29 feet from the south wall was manually loosened and dislodged with a pry bar and removed and placed on and covered with polyethylene sheeting. The removed section (approximately 4.25 feet long, 8.5 inches wide and 8.5 inches high) is currently staged on the floor slab pending removal for off-site disposal. Black staining was observed on the east side of the removed brick wall section as well as the corresponding west face of the East Foundation Wall of the former Powerhouse structure. This stained area is generally aligned with and opposite the former central turbine unit/foundation pad. Refer to Photographs 4, 5, and 6 for the cleanout and observed staining on the concrete foundation wall and dislodged brick wall section.
- During the initial (May 22, 2023) cleaning activities, a pipe penetration and seven-inch diameter cast iron pipe elbow were identified in the East Trench. This pipe drain is located approximately 16 feet north from the south wall of the former Powerhouse. A similar seven-inch diameter cast iron pipe was found during the June 27, 2023, cleanout activities at approximately 42 feet north of the former Powerhouse south wall. The pipe rim was even with the bottom of the East Trench (former

gutter portion). The inside of the pipe appeared to be filled with a cementitious plug approximately four inches below the pipe rim, prohibiting further inspections or observations at that time. This northern pipe was plugged with an inflatable packer to prevent water and conveyance from the trench. Refer to Photographs 7 and 8 and Figure 1.

- From approximately 41 to 48 feet from the south wall, the Foundation/Wall Gap was observed to be filled with concrete. During cleaning activities adjacent to this area, cleaning water introduced into the East Trench was not observed to flow through or under this portion of the gap. Therefore, cleaning water collected and was pumped from lower-elevation portions of the trench on either side this gap (sump pumps are located at approximately 19 feet and 54 feet). Refer to Photographs 8 and 9 that show the area where the gap is filled.
- Between approximately 53 and 54 feet from the south wall, black oily material was identified (flushed) during cleanout activities. Similar to the material encountered at 25 feet, this material was aligned with a former turbine unit foundation/pad. An approximate one-foot horizontal, north-south notch was observed in the Remaining Brick Wall. The depth of the space was approximately two vertical layers of brick. Refer to Photographs 10 and 11 and Figure 1. The brick face at either end of the gap appeared relatively "neat" and the adjacent trench gutter concrete was disturbed. However, it is uncertain if the notch in the brick wall was intentional or a remnant of earlier wall deconstruction. After cleaning was performed, this space was further manipulated using a pry bar and advanced to a total additional depth of approximately 12 inches. At this depth, the observed cementitious base of the Foundation/Wall Gap appeared continuous with the cementitious base of the notch in the Remaining Brick Wall following the initial pry bar removal effort. Minimal pry bar removal of Remaining Brick Wall in the notch (an additional approximate 0.5-inch depth) revealed brick underlying this cementitious material, indicating the Remaining Brick Wall continued below the apparent base of the Foundation/Wall Gap base at this location.

Recommendations / Next Steps

The results of the cleanout activities provide additional insight regarding the condition, configuration, and construction of the East Trench. To satisfy the overall objectives listed above and gain additional information (e.g., vertical extent of the Remaining Brick Wall; dimensions of the Foundation/Wall Gap; and observations regarding remaining impacts, water seepage, potential migration pathways), the removal of the contents of the East Trench, including the Remaining Brick Wall, is proposed. The depth of the remaining wall is not certain but for planning purposes is assumed to be generally aligned with the various measured depths of the Foundation/Wall Gap (with an average depth of approximately 2 feet below the base of the East Trench).

Additional information is provided below.

Health and Safety / Environmental Monitoring

- Work will be performed consistent with GE's Site Health and Safety Plan (HASP), the project H&S documents included within the Powerhouse Deconstruction Design Report, the Project Operations Plan (POP), and relevant Standard Operating Procedures (SOPs) and Job Safety Analyses (JSAs). Existing SOPs and JSAs relevant to the work described herein (including boat access and in-river monitoring, discussed below) will be reviewed and modified to reflect task-specific activities; anticipated means, methods, and procedures; and potential site and worker risks.
- Critical performance functions related to health and safety (H&S), worker training, equipment, tools, procedures, etc. will be consistent with practices performed by GE and its contractors.

- Vehicle and equipment clearance with the overhead electrical lines will be confirmed in compliance with the minimum acceptable distance requirements.
- Work conducted near or within the remaining portions of the former Powerhouse and other project areas within National Grid's property will involve a two-person team (minimum) and will not be performed during periods of inclement weather such as heavy rainfall or high-wind events.
- Work activities will be performed in modified Level D personal protective equipment (PPE) with the addition of boot covers, and nitrile gloves due to the potential for contact with impacted materials within the trench.
- Prior to entering the work area, workers will observe building conditions consistent with Jensen BRV Engineering's recommendation provided in their "*Structural Condition Report*" (revised April 26, 2023). Workers will also complete the pre-access safety form. Workers are to exercise stop-work authority if a safety concern is identified.
- Monitoring of actual and forecasted weather and river-flow conditions will be performed continuously. If inclement weather and/or actual/forecasted river flows are anticipated to approach 8,000 cubic feet per second, intrusive work and any boat-related functions (discussed below) will be suspended pending discussion of safety considerations and related decision-making.
- PCB and VOC ambient air monitoring will be performed during the work consistent with the project Community Air Monitoring Plan. Dust monitoring will be performed within the worker breathing zone if determined necessary by the Contractor's H&S Plan.
- PCB surface water sampling will be performed daily consistent with the In-River Monitoring Plan included with the Environmental Monitoring and Protective Measures (EMPM) Work Plan. A daily, 12-hour composite sample will be collected from the former Outfall 004 downriver sampling location and analyzed for PCB Aroclors (3-day laboratory turnaround time). Modifications to the water monitoring program based on sampling results, ongoing work and river observations, and/or planned work activities may occur in consultation with the Agencies. This could potentially include the collection of water sample from the plunge pool area adjacent to the former Powerhouse.
- Visual monitoring of the river for the presence of sheens and/or localized turbidity observation will also be performed from the main floor slab of the former Powerhouse and from the Tailrace Tunnel pad, as accessible. In addition, a motorized boat will be positioned in the river adjacent to the penstock discharge area for the duration of each work day. The boat operator will serve as a spotter to observe river conditions during the work (e.g., the possible presence of sheens), and monitor the penstock discharge openings for evidence of water flow through wall cracks and existing pipe penetrations.
- In the event that a sheen is observed in the river, work activities will stop to allow further assessment and implementation of appropriate response measures. In addition to work stoppage, response measures will be identified in coordination with the USEPA (USEPA will consult with the NYSDEC) and could include activities performed with the East Trench (e.g., placement of adsorbent materials, discussed below), sampling of surface water, and deployment of additional adsorbent pads/booms in the river.

Equipment

- The following equipment will be utilized for this work task:
  - Varying types of manually operated, electric or pneumatically powered tools to dislodge and size the Remaining Brick Wall. This includes electric Hilti drills, pneumatic breakers, chipping hammers, etc.
  - Tow-behind compressor and tool trailers.
  - "Super Sacks" to containerize the debris as generated. Exact size, weight, lifting capabilities, etc. will consider the capabilities of the crane mobilized to remove brick and debris from the Tailrace Tunnel (TrT) outlet area.
  - Personal protective equipment (PPE).
  - Municipal water supply, container, etc.
  - Miscellaneous small equipment and hand tools.
  - Polyethylene sheeting, adsorbent materials, in-river adsorbent boom (Mycelx pads), etc.
  - Powered boat and certified operator for river-based observations of surface water quality and potential discharges from the underside of the former Powerhouse structure.

Work Procedures and Notes

- Following H&S pre-work and pre-entry planning activities, equipment and personnel will be mobilized to the site and Main Floor Slab. General housekeeping will be performed and maintained throughout to promote a safe and efficient work environment. Access to the Main Floor Slab will use the existing scaffold system.
- A waste staging area will be designated and prepared. For planning purposes, it is anticipated that approximately 5 cubic yards of solid materials and debris may be generated from a trench area approximately 70 feet long, 1 foot wide, with an approximate average depth of 2 feet. An open area on the Main Floor Slab will be identified, bermed, and lined with polyethylene sheeting. The area will be selected in consideration of the reach capabilities of the crane that will be used for removing the brick and debris from the TrT outlet area.
- Prior to starting the removal of the Remaining Brick Wall, accumulated water within the East Trench and storage totes will be removed to provide storage capacity for water and liquids that may be encountered during the work.
- Prior to starting the removal of the Remaining Brick Wall, a floating boom consisting of inter-connected Mycelx adsorbent pads will be deployed in the river adjacent to the former Powerhouse structure and the penstock discharge openings.
- Initially, a trial removal of the Remaining Brick Wall will be performed to determine the efficacy of the anticipated equipment and procedures. The initial trial location(s) are anticipated to include areas that are not: 1) beneath the scaffolding, 2) near the north and south walls, 3) near the gutter drain pipes that have been identified, 4) near areas where stained materials (in the trench, walls and/or materials previously removed) have been observed. The trial removal may warrant adjustments to the anticipated procedures.

- During the trial removal and subsequent material removal, continuous observation and inspections of the immediate work area and adjacent river will be performed, focusing on potential mobilization, migration, movement of water, oils, etc. within or adjacent to the East Trench. If such conditions are observed, work will stop and measures will be implemented to address impacts, such as water removal, and/or use of absorbent materials, sandbags, or mechanical means. Work will not resume until approval is received from the Agencies.
- During the trial removal and subsequent material removal, continuous observation and inspections will be performed, focusing on the physical features of the existing and newly exposed trench sides and base, and interaction of the Main Floor Slab and east foundation wall of the former Powerhouse. Given the uncertain configuration regarding the overall trench area, attempts will be made to identify the depth and base construction of the general area. This may require multiple iterations at a given location to reflect information/insight gained from other areas along the trench.
- Certain locations along the East Trench may not be accessible and/or selected for removal of the Remaining Brick Wall (e.g., near gutter drainpipes, beneath the existing scaffold support). The need to remove materials in these areas will be field determined in consultation with the Agencies. Provisions will be available to provide alternate/temporary support for the scaffold supports (e.g., wood or concrete blocking).
- It is not anticipated that existing wood timbers and the concrete layer(s) associated with the adjacent Main Floor Slab will be removed during this work, subject to in-field observations and discussions with the Agencies. The Contractor will be prepared to perform minor removals should it be determined necessary.
- The wall materials and other debris will be observed as generated and removed from the trench area, with an emphasis on the materials removed from areas that have been previously or currently noted as containing oils and/or staining. Removed materials and debris will be placed directly into Super Sacks within the waste staging area for future removal. Visibly impacted, stained, or otherwise suspect materials will be segregated from the other debris and placed in a dedicated Super Sack(s).
- Dislodged and sized materials will be manually placed within the Super Sacks, aided by shovels and other hand tools as the work progresses and the remaining debris is smaller and granular in size. A standard shop vacuum may be used to remove smaller-size debris. A full water flush and suction vacuum similar to the June 26-27, 2023 activities described above is not anticipated to be performed but may implemented at a future date as warranted.
- Once the wall and debris removal activities are complete, the entire length of the trench will be visually inspected and any penetrations or visible impacts (e.g., staining, NAPL) will be documented. In addition, the waste staging area will be covered with polyethylene sheeting and secured until such time that the brick and debris from the TrT outlet area is removed and appropriately managed for off-site disposal based on the characterization data.
- To supplement the available characterization data, a representative sample of the removed wall materials and trench debris containerized in the Super Sacks will be collected and analyzed in coordination with the waste disposal facility. Additional samples may be collected and analyzed if certain materials are segregated based on visual observations during the work.

- Prior to demobilization, material-contacting equipment will be disposed or cleaned. The effectiveness of cleaning efforts will be confirmed by PCB wipe sampling.
- During and following the completion of the work described in the WTD, routine monitoring and photo-documentation of the work area will be performed to gain insight into locations, sources (e.g., groundwater seepage and surface runoff), frequency, and amount of water that enters the trench.

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York

Photograph: 1

Description: Flushing and vacuuming activities occurring at south end of Foundation/Wall Gap.

Photograph taken by: Ethan Ulm

Date: 6/26/2023

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York

Photograph: 2

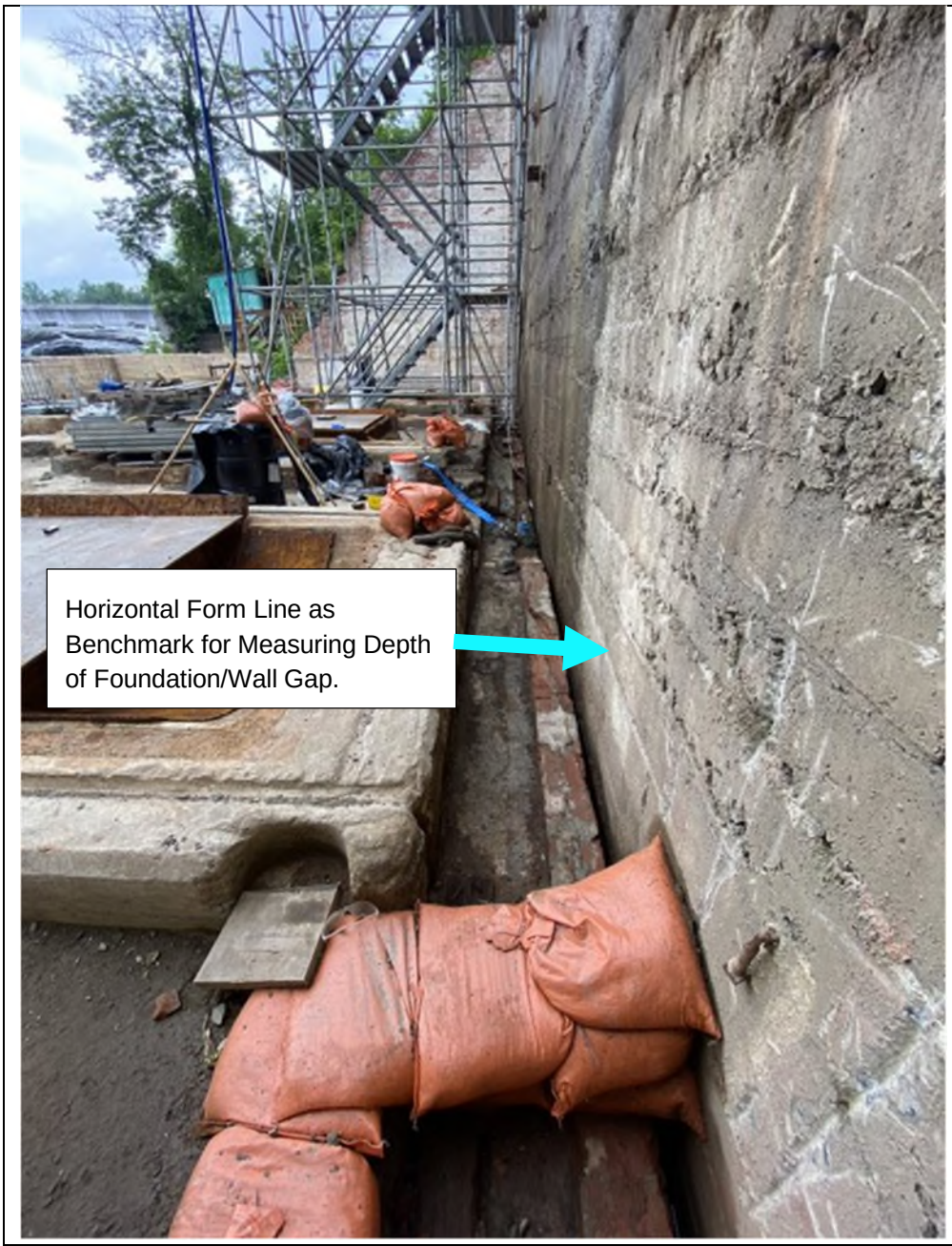
Description: Flushed/vacuumed area adjacent to south turbine foundation.

Photograph taken by: Ethan Ulm

Date: 6/26/2023

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York



Photograph: 3

Description: Measure point for depth of Foundation/Wall Gap.

Photograph taken by: Ethan Ulm

Date: 6/26/2023

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York

Photograph: 4

Description:
Area where black oily material observed floating on water surface.
Note the southern drain pipe fitted with inflatable packer in foreground.

Photograph taken by: Shannon Torhan

Date: 6/27/2023

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York

Photograph: 5

Description:
Black staining observed on East Foundation Wall after removing section of Remaining Brick Wall. Location is aligned with the central turbine foundation/pad.

Photograph taken by: Shannon Torhan

Date: 6/27/2023

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York

Photograph: 6

Description: Section from Remaining Brick Wall with oil staining after removal from the East Trench adjacent to central turbine foundation/pad.

Photograph taken by: Shannon Torhan

Date: 6/27/2023

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York

Photograph: 7

Description: Northern 7-inch East Trench drain pipe after cleaning.

Photograph taken by: Shannon Torhan

Date: 6/27/2023

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York

Photograph: 8

Description:
1. South end of the filled portion of the Foundation/Wall Gap
2. East Trench drain fitted with inflatable packer.

Photograph taken by: Shannon Torhan

Date: 6/27/2023

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York

Photograph: 9

Description:
North end of the filled portion of Foundation/Wall Gap.

Photograph taken by: Shannon Torhan

Date: 6/27/2023

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York

Photograph: 10

Description:
Notch in Remaining Brick Wall, adjacent to north turbine foundation/pad.

Photograph taken by: Shannon Torhan

Date: 6/27/2023

Photo Log - East Trench Cleanout

June 26 – 27, 2023
Former Powerhouse Deconstruction
Hudson Falls, New York

Photograph: 11

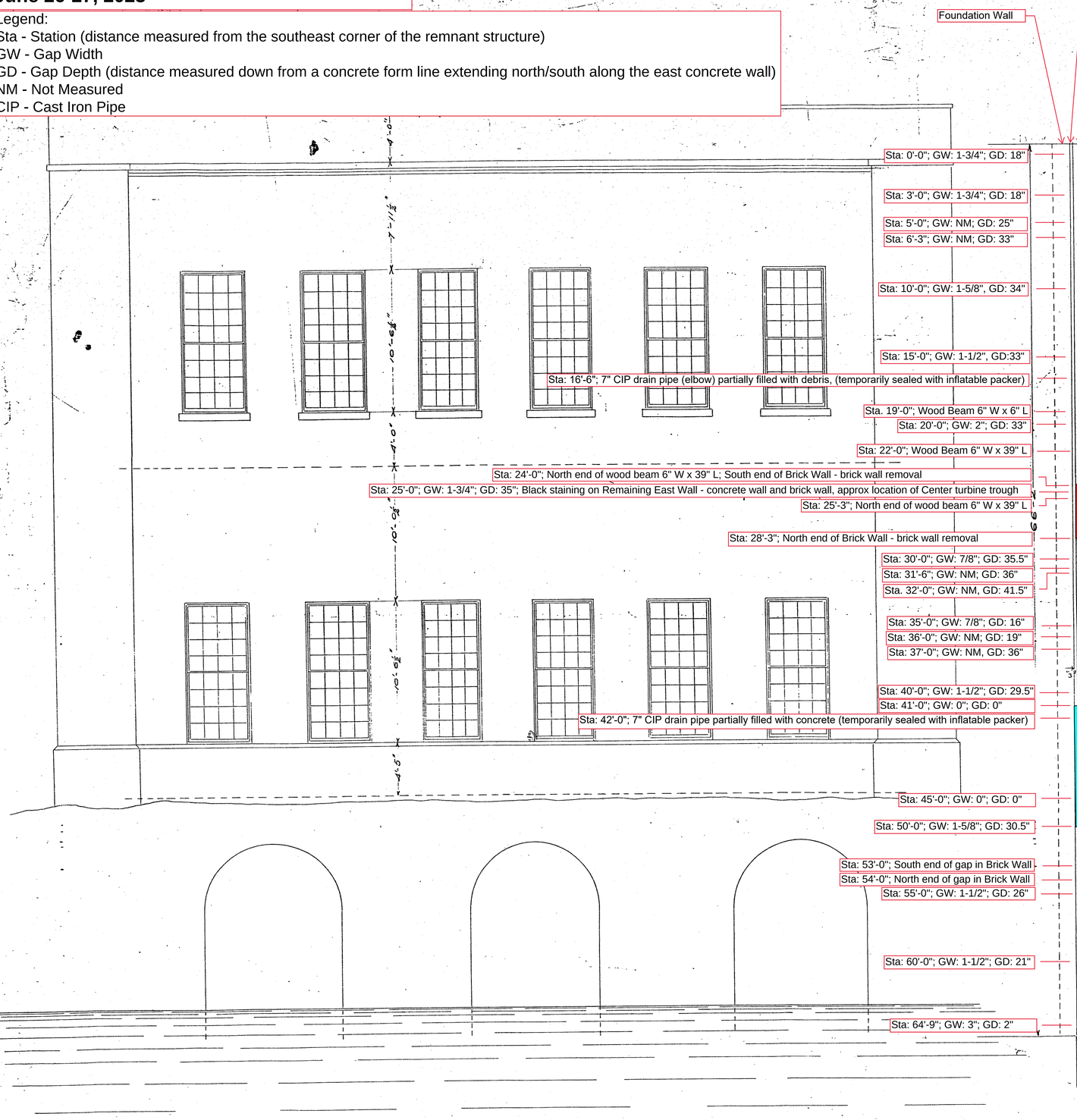
Description:
View of Notch in the Remaining Brick Wall.

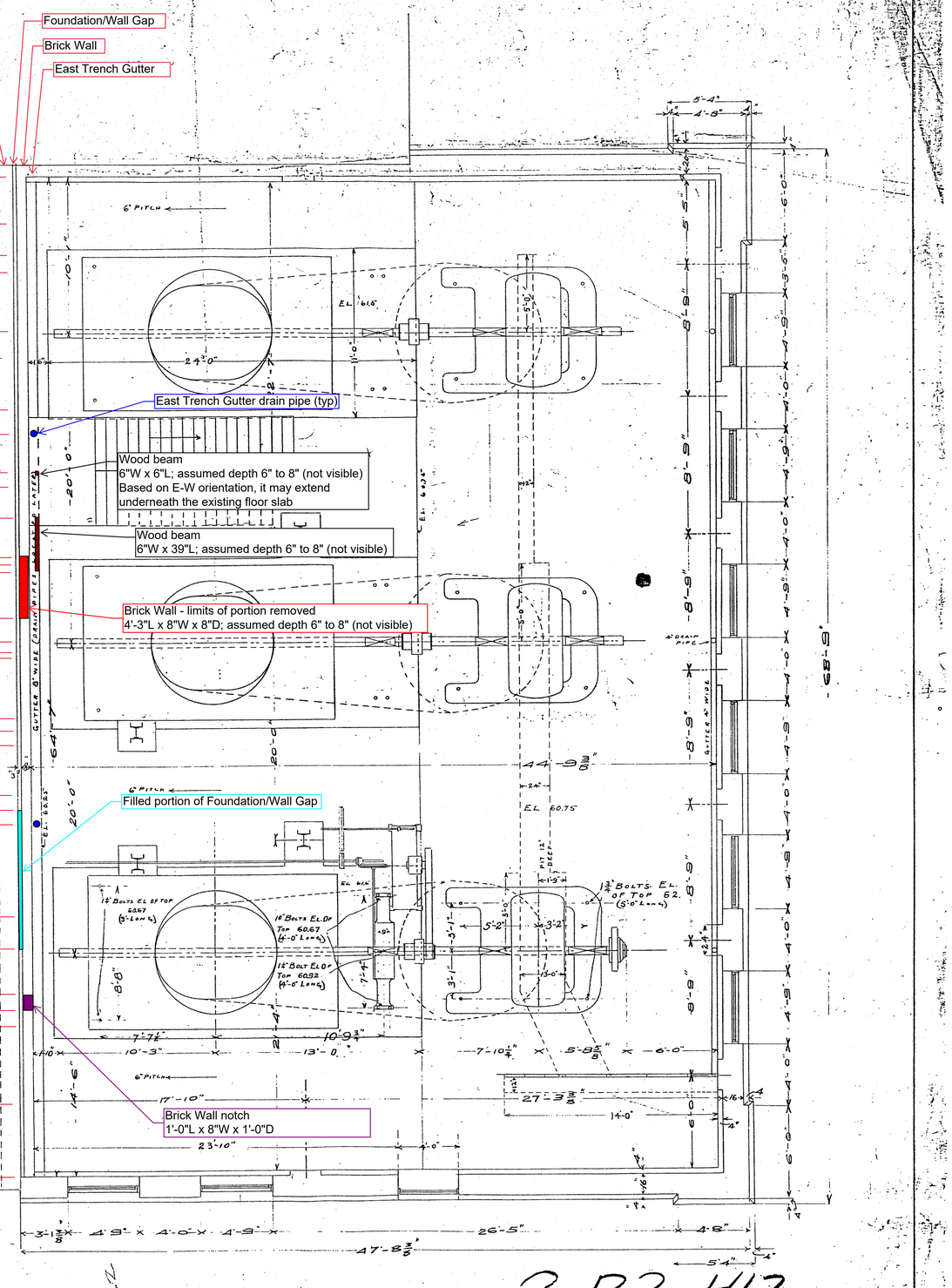
Photograph taken by: Shannon Torhan

Date: 6/27/2023

FIGURE 1
National Grid Powerhouse Deconstruction
East Trench Clean-Out
June 26-27, 2023

Legend:
Sta - Station (distance measured from the southeast corner of the remnant structure)
GW - Gap Width
GD - Gap Depth (distance measured down from a concrete form line extending north/south along the east concrete wall)
NM - Not Measured
CIP - Cast Iron Pipe





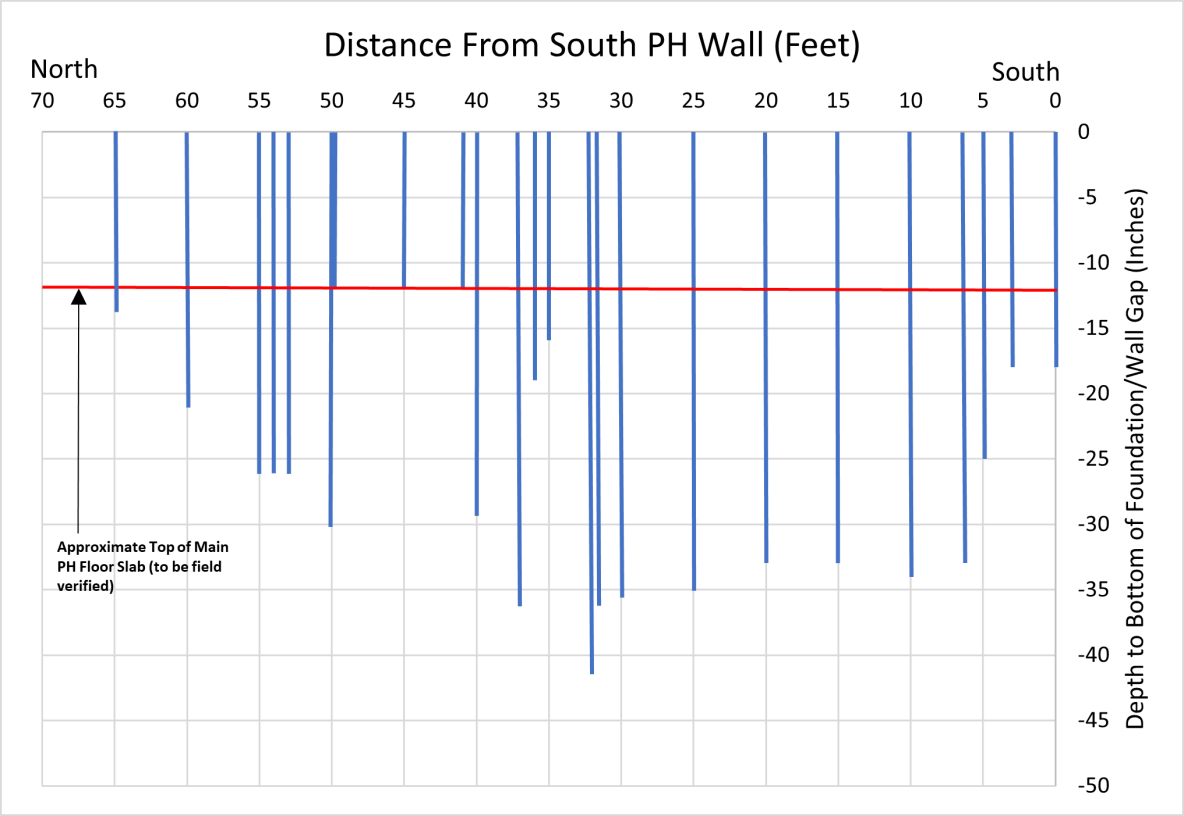
EAST ELEVATION

PLAN OF MAIN FLOOR 2-B2-H12

POWER HOUSE
THE UNION BAG & PAPER CO.
SANDY HILL N.Y.
APRIL 24TH 02.
SCALE 1/4"=1'-0"
M.O. KASSON
CHIEF ENGINEER

AB-J

FILE NO 9-7-49 A-5231


Distance From South PH Wall (Feet)
North
South
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50
Depth to Bottom of Foundation/Wall Gap (Inches)
Approximate Top of Main PH Floor Slab (to be field verified)