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**CULTURAL RESOURCE MONITORING PLAN  
RTA-1 REMEDIATION & RESTORATION OF THE 1<sup>st</sup> STREET  
TURNING BASIN  
GOWANUS CANAL SUPERFUND SITE  
BOROUGH OF BROOKLYN, NEW YORK**

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## 1.0 INTRODUCTION

The United States Environmental Protection Agency (USEPA) issued a Record of Decision (ROD) for the Gowanus Canal Superfund Site in September 2013. The RTA-1 remediation and restoration of the 1<sup>st</sup> Street Turning Basin (TB-1) project sites (Site) are located in the Borough of Brooklyn, New York as shown on the Area of Potential Effect (APE) map (Attachment 1).

The Gowanus Canal (Canal) is a brackish, tidal arm of the New York–New Jersey Harbor Estuary, extending for approximately 1.8 miles through Brooklyn, New York. The approximately 100-foot-wide canal runs southwest from Butler Street to Gowanus Bay and includes several turning basins in addition to the main canal. The Canal's four short turning basins branch to the east of the main channel at 4<sup>th</sup> Street, 6<sup>th</sup> Street, 7<sup>th</sup> Street, and 11<sup>th</sup> Street; a fifth turning basin located on the east side of the Canal at 1st Street has been filled in and would be restored as part of the mandated Superfund remediation of the Canal. Additionally, a portion of 4<sup>th</sup> Street turning basin will be restored east of 3<sup>rd</sup> St bridge, and this area represents the former 5<sup>th</sup> Street turning basin. The adjacent waterfront is primarily commercial and industrial, including concrete plants, warehouses, and parking lots. Several residential neighborhoods and a few municipal facilities and residential buildings adjoin the Canal. For more detail on the history of the Canal and its uses see the *National Register of Historic Places Eligibility Evaluation and Cultural Resources Assessment for the Gowanus Canal* by Hunter Research (Hunter Research, 2004) and the *Archaeological Sensitivity Study; Gowanus Canal* (Lee et al, 2011).

During the Canal's use hazardous substances, pollutants and contaminants have entered the Canal and the sediments below and around the Canal via several transport pathways or mechanisms, including spillage during product shipping and handling, direct disposal or discharge, contaminated groundwater discharge, surface water runoff, storm water discharge (including combined sewer overflow), and contaminated soil erosion. As a result of decades of direct and indirect discharges of hazardous substances generated by industrial and other activity, the Canal became a repository for untreated industrial wastes, raw sewages and runoff, causing it to become one of New York's most polluted waterways.

Much of the heavy industrial activity along the Canal has ceased, although many upland areas adjacent to the Canal remain zoned as manufacturing districts and some industrial activities remain immediately adjacent to the Canal. Land uses along and near certain portions of the Canal are in the process of transitioning from heavy industrial to light industrial, commercial and residential uses. The Canal is used by some for recreational purposes such as boating, diving, and catching fish for consumption. The Canal and New York City harbor are subject to New York State fishing advisories.

This Cultural Resource Monitoring Plan (Plan) outlines the basic protocol to be implemented for cultural resources (historic and archaeological resources) encountered or anticipated during the archaeological monitoring for the dredging, excavation and debris removal activities related to the remediation efforts at the Site. This and any site-specific protocols proposed under the USEPA

mandate will need to be reviewed and approved by the USEPA and the New York State Office of Parks Recreation and Historic Preservation (OPRHP aka SHPO) prior to implementation as per Section 106 of the National Historic Preservation Act (NHPA).

All work will be conducted in accordance with the *Secretary of the Interior Standards and Guidelines for Archaeology and Historic Preservation 1983; as amended, Section 106 of the National Historic Preservation Act; New York State Historic Preservation Act of 1980, section 14.09*, the New York Archaeological Council's *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State* (1994) and the *Guidelines for the use of Archaeological Monitoring as an Alternative to Other Field Techniques* (adopted by the New York Archaeological Council 2002). Qualified Archaeologists who meet or exceed the *Secretary of the Interiors (SOI) Professional Qualifications Standards* published in the Code of Federal Regulations, 36 CFR Part 61 will conduct or oversee the archaeological monitoring.

Activities that could require archaeological monitoring are those with the potential to impact archaeologically sensitive soils or structures located along the water ward side of the Gowanus Canal, portions of the canal that have been filled in and will be restored, any areas on the landward side of the bulkhead walls of properties if included in the APE and potential staging areas for heavy equipment and/or soil stockpiles not on previously hard packed surfaces within the Gowanus Canal Historic District Boundary. This monitoring plan sets forth a general protocol for the RTA-1 remediation and the restoration of the TB-1 that may need to be altered or refined for activities in specific locations or for activities not anticipated under this plan. Site-specific monitoring plans may need to be created based on this Plan.

## **2.0 SCOPE OF WORK**

In accordance with the ROD for the Gowanus Canal Superfund Site (September 2013) remediation efforts within the APE with the potential to affect cultural resources are subject to archaeological monitoring. The goal of archaeological monitoring is to avoid or mitigate effects to cultural resources within the APE, described in the section below.

The current remediation work consists of the in-water work for RTA-1 and restoration of the TB-1. In addition, there are three staging areas located on paved streets that are in the APE but no excavation is anticipated in these areas. Therefore, only elements related to the in-water RTA1 remediation efforts and the excavation in TB-1 are covered in this Plan. For example, installation of combined sewage overflow retention tanks is not in the current scope of work and therefore not included in the APE for the purposes of this Plan.

Dredging will be conducted within the canal starting from 3rd Street to the head of the Canal extending from bank-to-bank. The dredging depth extends to depths of up to approximately 15 ft below the current bathymetry. In select areas, the upper couple of feet of the native sediment will also be removed to accommodate infrastructure around the Canal (e.g., the Flushing Tunnel). The dredging will be conducted in three phases:

- Phase I Dredging will be conducted to create navigational access for bulkhead support installation and other activities along the Canal;
- Phase II Dredging will be conducted to remove soft sediment to the pre-In Situ Stabilization (ISS) elevation, and
- Phase III Dredging will be conducted after ISS to remove the remainder of soft sediment.

Dredging will be conducted via mechanical means with sediment dredged via a bucket, placed in a scow, and transported to the processing location (the Clean Earth Facility in Jersey City, NJ) for stabilization prior to end disposal. Additional potential work includes the installation of bulkhead supports, some of which may need tie-backs as determined when designed in the upland areas. The installation of these tiebacks would most likely trigger Level 2 monitoring and would be addressed once identified as part of the project.

The TB-1 restoration consists of the following work elements:

- Removal of soil and buried sediment to an approximate depth of 26 feet below grade.
- Installation of temporary support of excavation measures and permanent bulkhead walls that will be incorporated into existing bulkheads and used as part of the restoration of the excavated basin.
- Installation of a multi-layer cap along the excavation bottom of the basin.
- Restoration of the upland perimeter, including the fortification of existing bulkhead walls, installation of new permanent bulkheads in support of the existing land use on the east and south sides of the basin.

## **2.1 Area of Potential Effect (APE)**

The APE includes any location where ground disturbing, staging or other project-related activities will be conducted as a part of RTA1 remediation and the restoration of TB-1. The APE includes the area to be dredged between the bulkhead walls in the canal and the three upland staging areas (Attachment 1). Areas of known cultural resources (historic or archaeological resources) are discussed in Section 3.0. As the project progresses, the APE may need to be adjusted in areas to achieve unforeseen project needs.

## **3.0 PREVIOUS INVESTIGATIONS, SENSITIVITY AND KNOWN AND POTENTIAL RESOURCES**

Several previous cultural resource studies have been conducted on the Gowanus Canal. They are the *National Register of Historic Places Eligibility Evaluation and Cultural Resources Assessment for the Gowanus Canal* by Hunter Research, Raber Associates and Northern Ecological Associates, Inc. (Hunter Research, 2004), which defined the extents of the potential historic district that was determined eligible for the National Register of Historic Places (NRHP) by the State Historic Preservation Office (SHPO) in 2006. The *Gowanus Canal Preliminary Bulkhead Study* (McVarish, 2010) and *Side Scan Sonar Report* (Cox, 2010) identified possible historic bulkheads and submerged cultural resources in the canal. The *Archaeological Sensitivity Study; Gowanus Canal* (Lee et al, 2011) identified areas of archaeological sensitivity for the canal and adjacent areas.

These known and potential cultural resources are depicted on Cultural Resource map (Attachment 2). Additional previously unidentified cultural resources may be encountered during the project. Any potential cultural resource encountered during the project will be reviewed by an AHRS archaeologist to determine if it qualifies as a cultural resource or not, based on this plan (see section 4.3). Findings will be submitted to EPA for review by EPA's consulting archeologist, followed by EPA's determination regarding the resources. EPA will consult with SHPO and the community, as appropriate, regarding disposition of materials that are retained. Any debris removal, excavation/dredging or staging activities not on previously hard pack surfaces in or adjacent to these known or potential resources will be archaeologically monitored as needed.

#### Prehistoric Archaeological Sensitivity

According to the New York State Cultural Resource Information System (CRIS) the portion of the Canal north of Sackett Street and the 4th Street Turning Basin (already completed) are considered archaeologically sensitive. However, the *Archaeological Sensitivity Study; Gowanus Canal* (Lee et al, 2011), which was based on research, only identified two areas of prehistoric potential. Both of these areas are outside of the RTA-1 APE and do not include the limits of TB-1. These two upland areas are depicted in Attachment 1 and consist of two areas:

- On the west side of the canal between Sackett Street and just north of Douglas Street; and
- On the east side of the canal in an area from just south of 2<sup>nd</sup> Street (includes the former 1st Street Turning Basin) up to Degraw Street.

Neither of these upland areas will be impacted by the dredging; however, if upland excavation is needed or if the excavation for the restoration of TB-1 goes beyond the original design dimension (length, width and depth) there is the potential to impact prehistoric cultural resources.

#### Historic Archaeological Sensitivity

According to the *Archaeological Sensitivity Study; Gowanus Canal* (Lee et al, 2011), "Of greater certainty are the survival of archaeological resources associated with the Gowanus Canal itself and the industries that grew beside it in the mid- to late-19th century and first half of the 20<sup>th</sup> Century. The canal and its basins include over two miles of timber cribwork bulkheads that have been identified as part of the canal's historic fabric and are likely to contain important information about the canal's design and construction."

Based on this study there is a moderate to high potential for historic archaeological resources in the upland areas surrounding the canal and a moderate to high potential for submerged archaeological resources within the limits of the canal. In the RTA-1 remediation APE there are no remains of ships/barges or other previously identified submerged resources. In the APE for the restoration of TB-1, excavation will be in fill and there is a low potential for archaeological resources within the limits of TB-1 with the exception of the timber bulkhead wall or if any barges or vessels were used to fill in TB-1.

Below is a list of identified areas of historic archaeological and potential historic archaeological resources within the APE or adjacent to the APE (Attachment 2):

- Identified resources in the APE:
  - Historic Bulkhead and Cribbing along the canal;
  - The 3<sup>rd</sup> Street Bridge and Operator House;
  - The Carroll Street Bridge and Gatehouse;
  - The Union Street Bridge;
  - The Bowers Mill Complex boundary; and
  - Sullivan’s Avenue of Retreat during the Battle of Brooklyn in the Revolutionary War – this area represents the path taken by retreating American soldiers under the command of General Sullivan. Since the retreats were not organized, historic artifacts (weapons, utensils, coins, buckles, buttons, saddles, etc.) and/or archaeological sites (hearths, burials, privies, etc.) from the retreating army may exist in the upland areas.

The Bowers Mill complex and Sullivan’s Avenue of retreat are only partially in the APE (the Canal) with the majority located in the upland areas outside of the APE. Currently no excavation is planned within the Canal that will extend into natural soils (except in discrete locations), therefore, these resources are unlikely to be impacted.

- Identified resources adjacent to the APE:
  - The Knickerbocker Ice Company (adjacent to a staging area);
  - 206-210 Douglass Street (adjacent to a staging area); and
  - Denton’s Mill Complex boundary (adjacent to a staging area).

For other previously identified resources adjacent to the APE, no dredging or excavation activities are proposed. In addition, there are numerous resources that contribute to the Gowanus Canal Historic District that are not listed here as they are outside of the APE. If plans change due to project needs, then archaeological monitoring, archaeological surveys, or other site-specific activities shall be required, as directed by the EPA, for that work.

#### **4.0 ARCHAEOLOGICAL MONITORING**

Archaeological monitoring will be conducted within the APE on one of two levels as described in Section 4.4 of this Plan. Areas of archaeological monitoring potentially include any sonar contacts that could be potential cultural resources in the water, the full scope of the bulkhead structure, any upland area excavation and any equipment or supply staging areas within the APE not on previously hard packed surfaces or previously reviewed for cultural resources. Additionally, any excavation activities (e.g., trenching) used to mitigate possible adverse effects to known historic properties may also require monitoring.

During the dredging and excavation, historic properties will be avoided to the greatest extent possible. Historic properties include districts, sites (including archaeological sites), buildings,



structures and objects that are eligible for listing or listed in the National Register of Historic Places (NRHP).

Archaeological monitoring of varying degrees will be required for the debris, sediment and soil removal. Monitoring may need to be conducted on both land and in water for submerged resources, that date to within the canal's period of significance (1853 to 1965). This Plan includes the methodology for archaeological monitoring, weekly and final reporting, the treatment of finds, contingencies for unanticipated discoveries and the planning for the curation of artifacts, if needed. If significant historic features, prehistoric and historic artifacts or artifact concentrations are identified during monitoring, consultation between, the USEPA, SHPO, and Consulting Parties will be carried out to discuss the steps to follow, in accordance with the proposed Programmatic Agreement.

In the event that a potential find requires more time to investigate, an additional archaeological monitor and/or monitoring assistant will be assigned to help with the investigation. The Owner's Representative and the project team, including EPA, will be notified upon any encounters with unique features or similar buried structures that may require additional archaeological field staff. The EPA will determine if additional consultation is appropriate.

#### **4.1 Notice for Archaeological Monitor**

AHRS will be notified for the need for an archaeological monitor five business days or more prior to the beginning of excavation, dredging or grading. Notice will be made by the Owner's Representative to schedule monitoring.

#### **4.2 Training Onsite Personnel**

As part of the archaeological monitoring, AHRS will conduct training briefings on the identification of potential cultural resources for the contractor staff engaged in excavation/dredging activities and any other relevant personnel working on material and sediment removal. Other staff identified by GCERT and the USEPA will also be trained, as requested. Training should occur approximately 3 to 5 business days prior to the start of excavation or dredging activities and will consist of a PowerPoint presentation and discussion by an AHRS archaeologist reviewing the nature of potential cultural resources and how to recognize them. The intent of this training is to assist non-archaeological staff in identifying potential cultural resources during Level 1 monitoring and to provide an understanding of their importance. The training will also convey the protocol to be followed in the event any potential cultural resources are encountered during remediation activities and Level 1 monitoring.

#### **4.3 Definitions of Finds**

The following definitions will be used by the AHRS archaeologist/archaeological monitor to establish whether a found object is an artifact, object of local interest, or debris.

#### **4.3.1 Artifacts**

Artifacts are defined as meeting all the following criteria:

- Identifiable by type, function, material and time period;
- Has an identifiable association with a specific building, site, event, or person along the Gowanus Canal during the canal's period of significance (1853 to 1965); and
- Confirms previously unconfirmed archival information along the canal or reveals new information that changes our understanding of the history/development of the area.

#### **4.3.2 Objects of Local Interest**

Objects of Local Interest are defined as meeting all the following criteria:

- Identifiable by type, function, material and/or time period;
- Has a general association with the area, but not with a specific site, event, or person along the Gowanus Canal during the canal's period of significance (1853 to 1965); and
- Does not confirm previously unconfirmed archival information along the canal or reveal new facts that changes our understanding of the history of the area.

#### **4.3.3 Debris**

Debris is defined as any other item recovered from excavation/dredging, including unidentifiable objects, objects with no apparent association with the local area, construction debris, objects made after 1965 and natural items (such as trees, brush, rocks, etc.).

### **4.4 Archaeological Monitoring Protocol**

Potential cultural resources can be prehistoric (stone tools, pottery, animal remains, fire cracked rock, etc.) or historic (stone or brick foundations, structures, metal tools, weapons [bayonets, pistols, swords, rifles], ceramics [plates, cups, jars], glass bottles and jars, leather products [shoes, jackets, saddles], kitchen implements, building materials, etc.).

The archaeological monitoring of debris, sediment and soil removal, both on land and in the water, shall be carried-out at one of two levels: Level 1 Monitoring or Level 2 Monitoring.

#### **4.4.1 Level 1 Monitoring**

Level 1 monitoring for the dredging of soils and sediment within the APE will be conducted by remediation contractors trained in general archaeological protocols and recognition of potential resources noted in section 2.0. Areas of Level 1 monitoring include any dredging in the existing canal that does not extend into the native alluvial soils or is not within 25 feet of any previously identified sonar targets. Level 1 monitoring includes the areas identified for the Brower's Mill Complex and Sullivan's Avenue of Retreat during the Revolutionary War in the canal, unless it extends into native alluvial soils or is within 25 feet of any previously identified sonar targets. In areas where no cultural resources are anticipated field monitoring will follow the Level 1 protocol.

Each machine operator or other designated trained individual will monitor their machine or a machine assigned to them for monitoring purposes. Dredged and excavated soils removed from the canal will be loaded into 100 cubic yard scows, transloaded into larger barges, and taken to Clean Earth (NJ) for screening on 4-inch vibrating screens on the land for sorting and photographing. If the monitoring contractor identifies any potential cultural materials during debris, soil or sediment removal, the contractors will place the object in a part of the scow where it will not be damaged so that it can be removed and photographed at the offsite screening location.

In the event that portions of a vessel or other large feature is encountered during debris, soil or sediment removal during Level 1 monitoring, AHRS should be contacted immediately to assess whether the unanticipated discovery protocol in section 4.8 should be followed. The contractors will note the location and take photographs of the object.

If an unanticipated discovery occurs (such as a concentration of objects or feature) the contractor staff will follow the unanticipated discovery protocol set forth in Section 4.8.

#### **4.4.2 Level 2 Monitoring**

Level 2 monitoring during debris, sediment, and soil removal will be conducted by an archaeologist at all times during Level 2 monitoring. This will either be by an Archaeologist who shall meet the Secretary of the Interior's Professional Qualifications Standards (SOI) for archaeology or by an archaeologist under the direction of the SOI archaeologist. Archeological monitoring will occur from either the barge or the shore, as appropriate. Each machine in operation will have one archaeological monitor. Level 2 monitoring is reserved for areas of excavation/dredging that retain the potential for prehistoric or historic cultural resources and features. Archaeological monitors will take photographs of the approximate excavation/dredging location showing the nearest upland features for context before, during, and after debris, sediment, and soil removal activities. The archaeological monitor will also:

- Oversee the conduct of the monitoring and ensure a professional standard of data collection and recordation;
- Recover any artifacts or objects of local interest observed and record their location (by handheld GPS if possible), if possible; and
- Recover finds associated with cultural resource deposits which have been disturbed by the excavation during monitoring.

If structures or features of archaeological potential are observed during the debris, soil or sediment removal activities, the archeological monitor may request the machine operator to:

- Stop excavation/dredging, as necessary;
- Avoid working in the area of the potential resource; or
- Alter the way in which the machine is operated.

When a machine operator is requested to stop, the monitoring archaeologist will log the time, the action taken, and the duration of the stoppage. This log will document work stoppages and record the impact of the excavation work on potential archaeological resource(s), debris, soil or sediment removal

To minimize delays for the debris removal or excavation/dredging work, any identified feature will be explored by way of either small-scale exploratory hand-excavation (on land only) or targeted machine excavation/dredging or possibly both. The archaeological monitor will coordinate these investigations to expedite a recommendation of NRHP eligibility to the extent practicable. If the examination reveals the area to be ineligible, the area will be returned to debris removal or excavation/dredging. If work stoppage of more than 2 hours is necessary, and the archaeological monitor cannot determine the extent of the deposit or determine whether it may be archaeologically significant, consultation between, the USEPA, SHPO, and Consulting Parties in accordance with the PA.

#### 4.4.2.1 In the Canal

As a result of previous dredging and removal of sediments in the 1970's, Level 2 monitoring within the canal will only be conducted during the dredging of native alluvial sediments, in any upland areas and within 25 feet of any previously identified sonar targets, that have not yet been removed/resolved.

#### 4.4.2.2 Upland Areas

Level 2 monitoring will include any upland excavation, any excavation beyond the former TB-1 design depth or limits of the bulkhead walls, within 25 feet of any identified submerged cultural resources of the Gowanus Canal Historic District (Attachment 2).

If Level 2 monitoring uncovers any potentially significant finds, the on-site archaeological monitor will make any determinations of cultural value in consultation with the Principal Archaeologist, SHPO, and USEPA, who will obtain additional Consulting Party input as appropriate. Offsite screening will follow the screening protocol described in section 4.4.3.

#### 4.4.2.3 Staging Areas

The Principal Archaeologist or archaeological monitor will identify any known cultural resources within areas identified for staging within the APE. Based on professional judgment, the Principal Archaeologist or archaeological monitor will:

- 1) work with the contractor to identify suitable locations that meet the conditions set forth in this agreement
- 2) work with the contractor to establish a buffer zone around the historic property and enforce a no work zone or
- 3) determine if archaeological monitoring is needed.

#### **4.4.3 Offsite Sediment and Soil Screening**

Offsite screening of excavated or dredged soils and sediments will be conducted at the Clean Earth site in New Jersey. This screening will be conducted by contractors trained in Level 1 archaeological monitoring protocols and recognition of potential resources. All objects, less debris manufactured after 1965, recovered each day and not easily identifiable will be segregated from the rest of the screened material and wiped off or rinsed, as appropriate. Material not identified for segregation will be cleared for disposal. Segregated objects will be digitally photographed and posted daily on a project portal, file sharing site, or other appropriate site where AHRS archaeologists will review the photographs and tentatively identify any artifacts or objects of local interest. Based on this review, objects that AHRS archaeologists identify as potential artifacts or objects of local interest will then be washed and placed in a controlled holding area until an AHRS archaeologist can visit the holding area and establish either its cultural resource value or determine that it is debris and can be discarded. Segregated material identified as debris will be cleared for disposal.

At the end of each week of screening, AHRS will schedule an archaeologist to visit the appropriate site (Clean Earth, etc.) to review any tentatively identified artifacts or objects of local interest and make any recommendations for retention or disposal in a weekly memo described in section 4.12.1. If a significant number of objects are waiting for review at the holding site additional visits may be necessary. The reviewing archaeologist may need additional rinsing to identify and fully document objects in the holding site. Documentation includes measurements, additional photographs and detailed descriptions of objects. Small, non-porous objects of local interest may be retained and turned over to USEPA for eventual public display, subject to future cleaning and/or decontamination procedures to be established.

The extent to which soil contamination may have affected the integrity or research value of cultural materials, particularly archaeological deposits and features, is unknown. Loss of integrity or research value will be considered in recommendations for NRHP eligibility if such resources are encountered in areas of known or potential contamination.

Removal and screening of potentially contaminated sediments may result in the emission of odors. Protocols approved by the USEPA as odor control measures include the use of odor-suppressing foams, such as Rusmar AC-645, to control migration of odors during dredging and screening activities. These foams form a viscous foam barrier when applied to soil, debris, or dredge materials being loaded or transported in trucks and barges. The non-hazardous foam naturally degrades and can be easily washed from debris for closer inspection if needed.

## **4.5 Debris Removal in Water or on Land**

### **4.5.1 Monitoring Debris Removal on Land**

In addition to the General Monitoring Protocol described in Section 4.4, Debris Removal Activities on Land should follow the applicable procedures below:

1. When using heavy equipment, all work will be performed from hard or firm surfaces to the fullest extent possible, to avoid sinking into soft soils;
2. The Contractor will, to the fullest extent possible, ensure that soil disturbance is minimized when operating heavy equipment on wet soils (6 inches or less) in areas where excavation is not anticipated;
3. Potential resources identified by the archaeological monitor may require additional investigation (by way of small scale, exploratory hand-excavation) to identify the nature and extent of potential cultural resources.
  - a. Should an exploratory examination reveal the item to be non-archaeological, this will be documented and the area returned for debris removal;
4. If intact cultural resource deposits or features are found, then hand excavation by the archaeological monitor or additional archaeologists may be needed to determine the extent of the deposits and features.
5. Once an initial recommendation of the potential archaeological significance is made by the Principal Archaeologist, the Owner's Representative will be notified.
  - a. The GCERT Representative is responsible for notifying the USEPA and SHPO.
  - b. The project team will work with USEPA and SHPO to determine the best way to proceed, with input from the Consulting Parties, which EPA will manage; and,
6. For surface grading and site cleanup the Contractor will ensure, to the fullest extent possible, that site grading will be limited to the area of disturbance for that specific activity and to within the first six (6) inches of the existing surface elevation outside the area of disturbance.

### **4.5.2 Monitoring Debris Removal on Water**

In addition to the General Monitoring Protocol described in section 4.4, Debris Removal Activities in the Water should follow the applicable procedures below:

1. The Principal Archaeologist and the archaeological monitor will compare data related to the location(s) of known submerged historic properties/objects against debris removal target locations identified by side-scan sonar data;
2. The archaeological monitor will utilize the side scan sonar and target evaluation reports to identify both known and unknown historic properties within the APE; and,
3. For unknown or unanticipated resources additional investigation may be needed. This may be accomplished by removing relevant debris from the water for evaluation, if the deposit is small enough. For larger finds, additional side scan sonar or underwater archaeologists may be required to evaluate the potential resource in order to make a determination.

## **4.6 Sediment and Soil Removal**

The onsite archaeological monitoring of sediment and soil removal (on land and in the water) shall be carried out in accordance with the protocol described in Section 4.4. The same two-level approach for monitoring will be used for soil and sediment removal with trained contractors conducting the Level 1 monitoring and AHRS archeologists performing the Level 2 monitoring. The protocol below applies to any discoveries that could be cultural resources.

In some of the upland areas the risk of encountering potential buried artifacts and objects of local interest during soil and sediment removal exists. These buried resources could be impacted by the movements of heavy machinery. Therefore, it is imperative that once an area of potential buried artifacts and objects of local interest has been confirmed, it should be subject to the following protocol:

### **4.6.1 Monitoring Sediment and Soil Removal on Land**

In addition to the General Monitoring Protocol described in section 4.4, Soil Removal Activities on Land should follow the applicable procedures below:

1. Potentially affected areas will be appropriately fenced off and clearly marked with warning signs;
2. The area will be photographed, recording time and date;
3. Features will be logged, numbered sequentially (i.e. in order of their discovery) and their extent and location surveyed (by handheld GPS if possible);
4. Potential resources identified by the archaeological monitor may require additional investigation (by way of small scale, exploratory hand-excavation) to identify the nature and extent of potential cultural resources.
  - Should an exploratory examination reveal the site to be non-archaeological, this should be documented and the area returned for debris removal; and,
5. If intact archaeological deposits or features are found, then hand excavation by the archaeological monitor or additional archaeologists may be needed to determine the extent of the deposits and features.
  - Once an initial determination of the archaeological significance is made by the Principal Archaeologist, the Owner's Representative will be notified.
  - The GCERT Representative is responsible for notifying the USEPA and SHPO.
  - The project team will work with USEPA and SHPO to determine the best way to proceed, with input from the Consulting Parties, which EPA will manage.

### **4.6.2 Monitoring Sediment and Soil Removal on Water**

In addition to the General Monitoring Protocol described in section 4.4, Soil or Sediment Activities in the Water should follow the applicable procedures below:

1. The Principal Archaeologist and the archaeological monitor will compare data related to the location(s) of known submerged cultural resources against sediment or soil

removal target locations identified by the *Side Scan Sonar Report, Gowanus Canal Brooklyn, Kings County, New York* by J. Lee Cox 2010 of Dolan Research, Inc.;

2. If unanticipated cultural resources are identified, the monitoring plan may need to be altered to investigate or mitigate the effect of the soil or sediment removal on the cultural resource. If needed investigation can be completed by divers, additional side scan sonar or other appropriate underwater archaeological techniques;
3. For unknown or unanticipated resources additional investigation may be needed. This may be accomplished by removing relevant debris from the water for evaluation, if the deposit is small enough. For larger finds, additional side scan sonar or underwater archaeologists may be required to evaluate the potential resource in order to make a determination.

#### **4.7 Site-Specific Monitoring Plans and Other Cultural Resource Investigations**

In situations where the scope of work changes or deviates from that described in section 3.0 a site-specific monitoring plan or other cultural resource investigation may be necessary. Once an area is identified as needing a site-specific monitoring plan or other cultural resource investigation, AHRS will notify the Owner's Representative and the GCERT who will contact the USEPA to determine if the scope of work can be altered to avoid or minimize potential impacts. If avoidance or minimization is not possible, consultation between the USEPA, SHPO, and any Consulting Parties will be needed to determine the best way to proceed. The USEPA will make the final decision on the necessity of the site-specific monitoring plan or other cultural resource investigation.

#### **4.8 Unanticipated Discoveries or Unanticipated Effects Protocol**

During any debris, soil or sediment removal, the potential for an unanticipated discovery (unknown structure, vessel, foundation, shaft feature, artifact concentration) or effect (unanticipated damage to a historic property, building, structure, archaeological site, etc.) is possible. In the event of an unanticipated discovery during monitoring (Level 1 or 2) the trained Contractor conducting monitoring, archaeological monitor, and/or the Contractor's representative will follow the process outlined below:

1. Stop construction activities within 25 feet of the discovery or unanticipated effect;
2. Take all reasonable measures to avoid or minimize harm with traffic cones and caution tap, orange snow fencing or other protective measure to the historic property until documentation requirements are complete;
3. If an AHRS archaeologist is on site monitoring (Level 2), they will make an initial recommendation of significance then contact the Principal Archaeologist, the Owner's Representative who will contact the GERT and the USEPA to inform them of the find;
4. If an AHRS archaeologist is not on-site monitoring (Level 1), the Owner's Representative will contact AHRS, the GERT and the USEPA. The contractor or site supervisor will provide any information available (i.e. photographs, description, etc.) on the find. AHRS will then review the information provided and attempt to make an initial recommendation of significance. AHRS will then contact the Owner's Representative to inform them of the find and when an archaeologist will be onsite to investigate;



5. Instruct the contractor to gently place the resources back into the general location from which they were removed (both on land and in water) tag the location with GPS until a decision is made by USEPA in consultation with SHPO and Consulting Parties of how to treat the find;
6. In the event that an unexpected discovery or unanticipated effect is determined after retrieval of the find and the find cannot be placed back in the general location from which it was removed, further consultation with USEPA and, SHPO may be needed, with such input from the Consulting Parties as EPA determines is appropriate.
7. Once on site, if not already present, the Archaeologist will document the find as best as possible including:
  - a. GPS coordinates in decimal/degrees of the find.
  - b. Photographs of the find.
  - c. A written description of the find.
8. If needed, the completion of an archaeological site form to be filed with the New York State Museum as well as submitted to the NY SHPO.

The excavator/dredge will move to a different location until either the Principal Archaeologist can determine, through the information provided, that the find is not archaeologically significant or the Principal Archaeologist or other archaeologist, directed by the Principal Archaeologist, arrive on site and complete the documentation and provide a recommendation to USEPA through the GCERT. Consultation by the USEPA and SHPO may be required with input from Consulting Parties as EPA determines appropriate.

It may take a day or two after the find for the Principal Archaeologist or other archaeologist to arrive on site to investigate. Once on site, the Principal Archaeologist or other archaeologist will record and document the findings with the assistance of the excavator/dredge under the archaeologist's observation and guidance. No one will be permitted to enter into this protected zone until the archaeologist arrives onsite. Excavation and grading cannot continue in this area until it is the area released back to the excavation/dredge team.

#### **4.9 Disturbance or Removal of Historic Properties**

If it is determined that a historic property must be removed or may be affected by a project activity further consultation with the SHPO, USEPA and other Consulting Parties, as appropriate, will be required to complete the Section 106 review for that specific historic property. The USEPA will determine if identification and evaluation efforts will be necessary to inform the consultation process. The project team will not proceed with removal or disturbance of the historic property until this consultation process is completed.

#### **4.10 Treatment of Finds**

Objects from many different time periods are anticipated to be recovered during the dredging activities for the project. However, not all objects will have the same level of significance. Prehistoric or Precontact artifacts are some of the most sought out because they can help us

better understand the prehistory of the area. However, it is unlikely that there will be Prehistoric or Precontact artifacts present in the APE because of the prior ground disturbance associated with the construction of the canal and surrounding upland areas. Per the *National Register of Historic Places Eligibility Evaluation and Cultural Resources Assessment for the Gowanus Canal* (Hunter Research, 2004) the period of significance associated with the canal design and construction and its association with the industrial nature of the area is from 1853 to 1965. The upland areas are outside the APE.

#### **4.10.1 Artifacts/Objects of Local Interest to be Discarded**

Objects that were manufactured after 1965 are outside of the period of significance of the canal and would not provide any new information on the canal or the activities during its period of significance. Therefore, objects manufactured post-1965 will be identified as debris and will be cleared for disposal. Debris may include, modern vehicles, tires, scrap lumber, plastic containers, modern bottles, plastic sheeting, cardboard, newspapers, shopping carts, buckets, modern ceramics, kitchen items, garbage, demolition debris, aluminum cans, furniture, clothing, personnel items, unidentifiable metal, etc. Natural objects including decaying wood from branches, trees, saturated logs and rocks are also included in the Debris category.

Artifacts or objects of local interest that date to the period of significance (1853 to 1965) associated with industrial activities in the area will most likely be contaminated and not easily be decontaminated. These items could include cloth, yarn, wood, wood doors with business names on them, furniture, wagon parts, signs, other porous materials or any other artifact that cannot be decontaminated. These artifacts or objects of local interest will be inspected and documented in the field at the screening site. Following documentation these artifacts should be properly disposed of due to contamination.

#### **4.10.2 Artifacts/Objects of Local Interest to be Retained**

Artifacts and objects of local significance that should be retained include anything identifiable from the canal's period of significance (1853 to 1965) including industrial equipment, early motor vehicles and parts, diagnostic ceramics, flatware, items from canal transportation (metal items from barges, boats and other shipping from the period of significance), nonporous personnel item (combs, jewelry, coins, belt buckles, etc.) and any other artifact determined potentially significant. Artifacts that are deemed not worth curating by the USEPA and SHPO after the completion of field investigations and laboratory analysis (if appropriate) and upon approval of the legal owners, can be turned over to interested parties for display or for their collection, subject to cleaning/decontamination procedures (to be established). Items not able to be cleaned/decontaminated will not be released and will be disposed. The USEPA will make a determination regarding the appropriateness of releasing artifacts/objects to interested parties in consultation with SHPO and Consulting Parties. An agreement among interested parties (including, at a minimum the CGERT, the legal owner and the interested party) is recommended prior to release of objects.

#### **4.10.3 Treatment of Artifacts**

Objects that meet the definition of "artifact" in section 4.3.1, at a minimum, will be rinsed and stored in a location determined in consultation with the USEPA and GCERT. Many of the retained artifacts will be waterlogged in salt water and may require storage in water tanks to ensure that they do not rapidly disintegrate from drying. In addition, these waterlogged artifacts may need to be desalinated to reduce the natural breakdown process.

Artifacts inspected by the archaeological team will fall into two categories:

1. those that can be inspected and documented at the screening site and
2. those that need to go to the archaeological lab for further analysis.

For artifacts that can be inspected and documented in the field at the screening site, the removal of sediment or other debris will be completed using hand tools, hand sprayers or power washers in the screening area. Artifacts will then be documented (photograph and written description) and placed in storage for future analysis, until it is determined whether the artifacts must be disposed of if they cannot be properly decontaminated, or will be curated at an appropriate facility.

Artifacts that need to go to the archaeological lab for further analysis will require decontamination prior to being transported to the lab. Smaller waterlogged artifacts can be stabilized while in the lab for the analysis, but will need to be transported upon completion of analysis to a facility capable of desalination and storage of waterlogged artifacts. Long term storage of waterlogged artifacts is to be determined. If artifacts cannot be decontaminated, the artifact will be documented at the screening site and moved to the storage location.

Artifacts stored at the field storage location (to be determined) will be retained for up to four months after identification and documentation. Non-contaminated artifacts transported to AHRS's archaeology lab will be retained for a period of up to 1 year from completion of the lab analysis, unless they require storage in water. After 1 year, AHRS will ship or deliver the artifacts to a USEPA-designated facility to await a determination of curation, donation or disposal. Artifacts to be prepared for curation will be determined in consultation with the USEPA and SHPO (see 4.10.5). Currently no storage location has been identified. The archaeological monitoring staff is not responsible for the decontamination of artifacts.

#### **4.10.4 Treatment of Objects of Local Interest**

Objects of local interest, as defined in section 4.3.2, may include small, non-porous objects of local interest that can potentially be turned over to interested parties for display or for their collection. This is subject to cleaning/decontamination procedures yet to be established and a USEPA determination regarding the appropriateness of the objects release. An agreement among interested parties (at a minimum, the GCERT and the interested party) will likely be required prior to release of an object. These arrangements will need to be made quickly so

that numerous objects with no archaeological significance do not overwhelm the storage facility.

Objects of local interest stored at the field storage location will be retained for up to four months after identification and field documentation. After that timeframe, if no appropriate agreement has been made with an interested party, these objects of local interest will be either disposed of properly (in consultation with the USEPA) or shipped or delivered to a USEPA-designated facility for storage, possible donation, or proper disposal as determined by the USEPA.

#### **4.10.5 Curation of Artifacts**

Materials recovered and records produced will be maintained until analysis is complete, and if applicable, artifacts are returned to their legal owners, in accordance with state guidelines. Legal owners of artifacts associated with NRHP-eligible resources will be encouraged to donate the artifacts for curation. Artifacts determined for curation shall be curated in accordance with the provisions of 36 CFR Part 79 (Curation of Federally Owned and Administered Archaeological Collections) and in accordance with state, and local guidelines, at a recognized curatorial facility identified in consultation with the SHPO and New York State Museum, with a preference for a facility in close proximity to the Canal. The need for curation is currently unknown and no curation facility has been identified for this project.

#### **4.11 Treatment of Human Remains**

The discovery of human remains and items of cultural patrimony as defined by Section 3001 of the Native American Graves Protection and Repatriation Act (NAGPRA) require special consideration and care.

In the event human remains are discovered during field investigations, the NY SHPO's *Human Remains Discovery Protocol* (2018) will be followed (Appendix A). Human remains must be treated with the utmost dignity and respect. If human remains are encountered, work within the immediate vicinity of the discovery will halt, the archaeological monitor will notify the Principal Archaeologist and the Owner's Representative, who will notify the USEPA, the New York City Police Department (NYPD) and the New York City Office of the Chief Medical Examiner (OCME). The EPA will notify the NY SHPO.

The OCME will make the determination as to whether the remains are forensic (generally under 50 years in age) or archaeological (generally over 50 years in age). If a determination is made by OCME that the remains are archaeological, consultation between the USEPA, SHPO, and Tribal Nations may be required to determine the best path forward for the remains.

## **4.12 Reporting**

Information collected during the current remedial activities will be reported to USEPA and its consulting archeologist in various reports. These consist of a weekly recommendation memo of items reviewed at the Clean Earth Site, an End of Field Summary Report at the end of the scheduled remedial activity effort and a final monitoring report at the end of the overall remediation project. All the reports will be submitted in electronic format to the USEPA and copied to the Gowanus CAG Archaeology Committee by the USEPA or its contractor

### **4.12.1 Weekly Reporting**

During Level 1 monitoring, an archaeologist will be scheduled to review items for the screening at the Clean Earth site and will maintain an internal field log for each day present. These logs will be used to prepare the weekly recommendation memo to the EPA and will include the types of materials observed from the screening activities and a description and photograph of any items recommended for retention as an artifact or object of interest.

During Level 2 monitoring, the onsite monitoring archaeologist will maintain a daily internal field log of the Level 2 monitoring documenting any observations in the field. Additional internal field logs will be created for each day at the Clean Earth site reviewing the types of items reviewed from screening activities, as discussed above. These combined internal field logs will be used to prepare the weekly recommendation memo for the USEPA and will include the types of materials observed from the screening activities and a description and photographs of any items recommended for retention as an artifact or object of interest. Any observations made during the Level 2 monitoring will also be included.

### **4.12.2 End of Field Work Summary Report**

At the end of the remedial action an End of Field Work Summary Report will be prepared summarizing the archaeological monitoring and the results and recommendations for review and comment by the USEPA and the SHPO. The End of Field Work Summary Report will consist of summaries of the field methodology, results of archaeological monitoring, a table of artifacts and objects of local interest retained, results of any analysis, and recommendations for NRHP eligibility for cultural resources identified during the monitoring. The Management Summary provides the basis for the Section 106 process to continue, pending the production of a Final Monitoring Report.

The draft End of Field Work Summary Report will be submitted to GCERT within 120 days of the completion of the field work or any needed laboratory work and will comply with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (1983). The final End of Field Work Summary Report will be submitted to the GCERT within 60 days of receipt of all comments

#### **4.12.3 Final Monitoring Report**

Information collected during the entire monitoring effort will be analyzed and compiled into a final monitoring report in accordance with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation*, the New York State Historic Preservation Office *Phase I Archaeological Report Format Guidelines* (2005) and *Guidelines for the use of Archaeological Monitoring as an Alternative to Other Field Techniques (adopted by the New York Archaeological Council 2002)*. The report will contain the following:

- An overview of the landscape (physical and archaeological) in which the project took place;
- A description of the monitoring protocol;
- A description of the areas for debris, sediment, and soil removal;
- The dates and duration of monitoring;
- The monitoring methodology, including the project team, machinery used, and the types hours worked;
- An overview of the ground, weather, and overall monitoring conditions, particularly with respect to any problems encountered;
- A description of any archaeological artifacts and features uncovered, including provenience information;
- Subsequent decisions made with regard to any archaeological sites or features discovered during the work, including the cross-referencing (where available) with any official number designation to a site subsequently excavated;
- An overview (including tables) of all artifacts;
- A general statistical analysis of the artifacts identified;
- Conclusion and any recommendations;
- Bibliography and references;
- Supporting maps, plans, photographs and illustrations; and
- Details on the location and content of the monitoring archive.

The draft report will be submitted to GCERT within 180 days of the completion of the field work or any needed laboratory work and will comply with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (1983). The final report will be submitted to GCERT within 60 days of receipt of all comments.

#### **4.13 Health and Safety**

AHRS will follow all site-specific Health and Safety Plans (HASPs), normal field monitoring (trenching techniques, placement of monitors, etc.), and OSHA Health and Safety (training, medical monitoring, briefings, etc.) procedures that apply to the project. All HASPs written for the project will be provided to the archaeological monitoring team no later than 14 days prior to monitoring. All archaeological monitoring personnel will follow OSHA requirements for field work and will be OSHA 40-hour HAZWOPER certified.

## 5.0 PROJECT MANAGEMENT

The AHRS archaeological team will meet with the USEPA, SHPO, GCERT, Geosyntec and the remediation contractor, prior to the start of debris removal/excavation work to review the cultural resource monitoring procedures. While on site Geosyntec and the remediation contractor will be verbally informed of the monitoring work and observations on a daily basis. Following is the list of Parties/Agencies involved and their contact information.

### **Project Coordinator:**

Geosyntec Consultants  
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Pennington, New Jersey 08534

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### **Project Administrator:**

*de maximis*, Inc.  
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William Lee  
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### **Engineering Consultant:**

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### **Archaeologist:**

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Michael Audin, RPA, *Principal Archaeologist*  
973-919-1965 Cell  
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### **Owner's Representative**

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### **Reviewers:**

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Christos Tsiamis  
212-637-4257

New York State Office of  
Parks Recreation and Historic Preservation  
Peebles Island  
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Cohoes, New York 12047

Philip Perazio, HP Program Arch.  
518-268-2175  
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**EPA Archaeological Contractor:**

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Crowne Point  
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**Remediation Contractor:**

Cashman Dredging and Marine  
Contracting Co., LLC  
549 South Street  
Quincy, MA 02169

Christopher Sheedy, Project Manager  
Office: (617) 890-0600  
Cell: (781) 413-7508

**NYC Office of the Chief Medical Examiner**

421 East 26th Street  
New York, New York 10016  
(212) 447-2030

Bradley Adams, Forensic Anthropologist

**New York City Police Department**

76<sup>th</sup> Precinct - 191 Union St,  
Brooklyn, New York 11231  
(718) 834-3211

**5.1 Timeline**

The following tentative excavation/dredging timeline was provided for the cultural resource monitoring plan;

1. Mid-November to late January 2021 – Access Dredge near TB1, and Phase 2 dredging between Canal and Union Streets
2. Early February to mid-March 2021 – Dredging between Union and DeGraw Streets and North of DeGraw to Head End
3. Mid-November 2020 to mid-April 2021 – Phase 2 dredging between 3<sup>rd</sup> and Carroll
4. Mid-March 2022 to mid-April 2022 – Phase 2 dredging north of Union Street
5. Phase 3 dredging runs from August 2022 to December 2022.



## **5.2 Resources**

Field work will be conducted by AHRS archaeological monitors under the direction of or in coordination with the Principal Archaeologist. Additional archaeological monitors or archaeological monitoring assistants may be needed in some cases. AHRS will supply all non-mechanical field equipment (shovels, rakes, sifting screens, camera, etc.) necessary for the archaeological monitoring. This does not include excavation machinery.

## **5.3 Project Coordination**

- The Owner's Representative is responsible for coordinating with the different functions of the project team (Engineer, Archaeologist, Contractor, etc.);
- The Project Coordinator is responsible for reporting and coordinating with the USEPA and passing USEPA decisions to the Project Administrator for dissemination to the project team;
- The USEPA in consultation with NY SHPO will make final decisions on the monitoring process and any determinations for the final disposition of artifacts and objects of local interest.
- The USEPA will be responsible for conducting coordination and consulting with the SHPO, Tribal Nations and the public, as needed;
- The USEPA will coordinate with SHPO to develop site-specific monitoring plans, preservation plans, avoidance plans, or other investigations, as needed, for portions of the project where sub-surface disturbance or other potential adverse effects to historic properties will occur.

## 6.0 REFERENCES

Archaeology & Historic Research Services, LLC (AHRS)

2016a Area of Potential Effect & Bulkhead Materials/Existing Data Map Books

2016b *Identification and Historical Assessment of Targets 37a, 37b, 37c and 39, Located in the 6<sup>th</sup> Street and Targets 31 and 31b, Located in Turning Basin 4, of Gowanus Canal.* Prepared by Jason Flatt and Michael Audin.

Cox, J. Lee

2010 *Side Scan Sonar Report.* Prepared for HDR, Inc. and the USEPA by Dolan Research, Inc.

Dietrich, Gregory

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Hunter Research

2004 *National Register of Historic Places Eligibility Evaluation and Cultural Resources Assessment for the Gowanus Canal, Borough of Brooklyn, Kings County, New York in Connection with the Proposed Ecosystem Restoration Study.* Prepared for the US Army Corps of Engineers, New York District by Hunter Research, Raber Associates, and Northern Ecological Associates, Inc.

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2011 *Archaeological Sensitivity Study; Gowanus Canal, Brooklyn Borough, City of New York, Kings County, New York.* Prepared for CH2MHill and the USEPA by Hunter Research.

McVarish, Doug C.

2010 *Gowanus Preliminary Bulkhead Study.* Prepared for HDR, Inc. and the USEPA by John Milner Associates, Inc. in association with Dolan Research, Inc.

New York Archaeological Council, Standards Committee

1994 *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State*

2000 *Cultural Resource Standards Handbook: Guidance for Understanding and Applying The New York State Standards For Cultural Resource Investigations.*

2002 *Guidelines for the use of Archaeological Monitoring as an Alternative to Other Field Techniques.* Adopted by the NYS Archaeological Council.

United States Secretary of the Interior

1983 *Standards and Guidelines for Archaeology and Historic Preservation; as amended,*

**ATTACHMENT 1**

**RTA-1 & TB-1 APE MAP**

**ATTACHMENT 2**  
**CULTURAL RESOURCE MAP**

**APPENDIX A**

**HUMAN REMAINS DISCOVERY PROTOCOL (AUGUST 2018)**