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*Via Electronic Mail*

September 28, 2023

Mr. Christopher Smith  
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U.S. Environmental Protection Agency  
New England Region  
Five Post Office Square, Suite 100  
Boston, MA 02109

**Re: GE-Pittsfield/Housatonic River Site  
Rest of River (GECD850)  
Phase IB Cultural Resources Survey Work Plan for Reach 5A**

Dear Mr. Smith:

As provided in GE's *Revised Supplemental Phase IA Cultural Resources Assessment Report for the Housatonic Rest of River*, dated March 2023 and approved by EPA on March 27, 2023, enclosed for EPA's review and approval is GE's *Phase IB Cultural Resources Survey Work Plan for Reach 5A*, prepared for GE by AECOM.

Please let me know if you have any questions about this work plan.

Very truly yours,

Kevin G. Mooney  
Senior Project Manager – Environmental Remediation

Enclosure

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September 2023  
Housatonic River – Rest of River



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## Phase IB Cultural Resources Survey Work Plan for Reach 5A

Prepared for General Electric Company  
Pittsfield, Massachusetts

September 2023  
Housatonic River – Rest of River

# Phase IB Cultural Resources Survey Work Plan for Reach 5A

**Prepared for**  
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**Prepared by**  
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## ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effects
ARARs	Applicable or Relevant and Appropriate Requirements
CD	Consent Decree for GE=Pittsfield/Housatonic River Site
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeter
CRA	Cultural Resources Assessment
CRS	Cultural Resources Survey
EPA	U.S. Environmental Protection Agency
Final Revised SOW	<i>Final Revised Rest of River Statement of Work</i>
GE	General Electric Company
GIS	Geographic Information System
m	meters
MHC	Massachusetts Historical Commission
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
PCBs	polychlorinated biphenyls
RCRA	Resource Conservation and Recovery Act
Revised Final Permit	Revised Final Resource Conservation and Recovery Act Permit Modification
ROR	Rest of River
RU	Remediation Unit
SHPO	State Historic Preservation Office
SRHP	State Register of Historic Places
STP	shovel test pit

## Abstract

This document, submitted on behalf of the General Electric Company (GE), constitutes a work plan for a Phase IB Cultural Resources Survey (CRS) of portions of Reach 5A of the Housatonic River Rest of River (ROR) in Pittsfield, Massachusetts that (a) will be affected by remediation activities to address polychlorinated biphenyls (PCBs) and/or support activities such as access roads and staging areas and (b) contain or have a high potential to contain cultural resources. This work plan is submitted in connection with and support of GE's design of a remedial action for Reach 5A under a revised permit issued by the U.S. Environmental Protection Agency (EPA). It builds on background data provided in GE's Revised Supplemental Phase IA Cultural Resources Assessment (CRA) Report for the ROR, submitted to and approved by EPA in March 2023. It also summarizes the results of floodplain and river channel reconnaissance activities conducted in Reach 5A in June 2023. For purposes of this work plan, the locations and character of the anticipated remediation and support activities in Reach 5A are based on GE's Conceptual Remedial Design/Remedial Action Work Plan for Reach 5A, being submitted concurrently with this work plan.

This work plan presents updated definitions of the Archaeological and Historic Architectural Areas of Potential Effects in Reach 5A. It provides a description of the aquatic and terrestrial areas where intensive field surveys will be conducted as part of the Phase IB CRS. It describes the proposed methods to be used for those surveys, and it concludes with a description of the anticipated schedule and reporting for Phase IB CRS activities in Reach 5A and an overview of possible subsequent CRA activities.



# 1 Introduction and Background

## 1.1 Introduction

On December 16, 2020, pursuant to the 2000 Consent Decree (CD) for the GE Pittsfield/Housatonic River Site, the U.S. Environmental Protection Agency (EPA) issued to the General Electric Company (GE) a final revised modification of GE's Resource Conservation and Recovery Act (RCRA) Corrective Action Permit (Revised Permit) for the Rest of River (ROR) portion of that site. The ROR is defined as that portion of the Housatonic River and its backwaters and floodplain (excluding Actual/Potential Lawns as defined in the CD) located downstream of the confluence of the East and West Branches of the Housatonic River (the Confluence). The Revised Permit set forth a Remedial Action selected by EPA to address polychlorinated biphenyls (PCBs) in the ROR. Pursuant to that Revised Permit, GE submitted a *Final Revised Rest of River Statement of Work* (Final Revised SOW; Anchor QEA et al. 2021) on September 14, 2021, specifying the deliverables and activities that GE will conduct to design and implement the ROR Remedial Action. That submittal was approved by EPA on September 16, 2021.

Pursuant to Section II.H.15 of the Revised Permit and Section 4.2.1.7 of the Final Revised SOW, GE submitted a Revised Supplemental Phase IA Cultural Resources Assessment (CRA) Report (Revised Phase IA CRA Report; AECOM 2023) for the ROR area on March 10, 2023, with a public release version submitted on March 14, 2023. That report was approved by EPA on March 27, 2023. The Revised Phase IA CRA Report described the process and activities that GE had conducted to identify potentially affected ROR areas that contain known cultural resources or have a high potential to contain such resources. That report also described upland areas with known or suspected historic structures that might be indirectly affected by project activities.

The Revised Phase IA CRA Report stated that the next step in the process, as provided in Section 4.3.3.2 of the Final Revised SOW, is to conduct a Phase IB Cultural Resources Survey (CRS) of portions of the ROR that will be affected by remediation actions and support activities such as access roads and staging areas and contain or have a high potential to contain cultural resources.<sup>1</sup> In particular, it noted that the next cultural resources investigation submittal would be the Phase IB CRS Work Plan for Reach 5A, the first ROR Remediation Unit (RU) subject to remediation. This document constitutes that work plan. It is being submitted concurrently with the Conceptual Remedial Design/Remedial Action (RD/RA) Work Plan for Reach 5A, which presents a preliminary delineation of the areas within Reach 5A that will be subject to remediation or support activities.

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<sup>1</sup> The term "Phase IB" is appropriate under the federal program governing the Revised Permit activities, but it is not recognized terminology by the Commonwealth of Massachusetts. For archaeological resources, the Phase IB study is equivalent to an intensive archaeological survey as defined by Massachusetts Historical Commission (MHC) guidelines, but it will investigate historic structures as well.

## 1.2 Objective and Requirements

The objective of this Phase IB CRS Work Plan is to describe the investigations, including intensive survey field investigations, necessary to determine whether and the extent to which potentially significant cultural resources could be impacted by remediation and support activities in Reach 5A. The requirements for a Phase IB CRS Work Plan are specified in Section 4.3.3.2 of the Final Revised SOW. That section states, in pertinent part:

“The Work Plan will first describe and map the archaeological sensitivity of each pertinent segment of the subject area (i.e., whether it contains known cultural resources and its potential to contain unidentified potentially significant cultural resources). These sensitivity maps will be compared with the areas targeted for remediation and support areas (including access roads and staging areas), as described in the Conceptual RD/RA Work Plan. The objective of this comparison will be to determine whether any areas identified as containing known potentially significant cultural resources or having a ‘high potential’ to contain such resources are situated within or immediately adjacent to the areas subject to remediation or . . . remediation support facilities. This comparison will also include identification of areas within the Historic Architectural [Area of Potential Effects] where known or suspected historic structures could be affected. The Work Plan will identify additional information needed to determine whether the remediation and supporting activities will impact any potentially significant cultural resources . . . , including areas that need field investigations to make that determination. The Work Plan will describe the proposed field investigations to satisfy those information needs.”

For purposes of this CRS, potentially significant cultural resources consist of archaeological and historical resources in Reach 5A that are subject to the Applicable or Relevant and Appropriate Requirements (ARARs) relating to such resources, as listed in Attachment C to the Revised Permit – namely, the NHPA and its regulations, the federal Archaeological and Historic Preservation Act, and the Massachusetts Historical Commission Act and its regulations. These resources include resources that are listed or could potentially meet the criteria for listing on the National Register of Historic Places (NRHP), resources that are listed on the Massachusetts State Register of Historic Places (SRHP) and included on the State Inventory of Historic and Archaeological Assets, and potentially significant scientific, prehistorical, historical, or archaeological data subject to the Archaeological and Historic Preservation Act – collectively referred to herein as “potentially significant cultural resources.” These resources include properties of traditional religious and cultural importance that fall into any of the above categories.

As stated in the Final Revised SOW, the Phase IB CRS Work Plan is to map the areas that contain or have a “high potential” to contain known cultural resources. That mapping was already presented for the ROR, including Reach 5A, in the Revised Phase IA CRA Report and is included again in this work plan. It is likewise necessary to define the Archaeological Area of Potential Effects (APE) and

the Historic Architectural APE. For Reach 5A, the Archaeological APE comprises areas in Reach 5A where remediation is anticipated to occur, as well as associated support areas (including access roads and staging areas), as delineated in the Conceptual RD/RA Work Plan; and the Historic Architectural APE encompasses historic structures in adjacent areas that could potentially be affected by remediation and support activities. Those APEs are then compared with the areas identified as containing known potentially significant cultural resources or having a high potential to contain such resources in order to identify areas where intensive survey investigations will be required.<sup>2</sup> Phase IB intensive survey investigations are then proposed in such areas.

In coordination with the design information presented in the Conceptual RD/RA Work Plan for Reach 5A, this Phase IB CRS Work Plan describes the investigations needed to determine whether the remediation and support activities for this RU, as designed, will impact any potentially significant cultural resources. Areas requiring such additional investigations include the following to the extent that they would be impacted by remediation or support activities:

- Floodplain or riverbank areas with known cultural resources;
- Floodplain or riverbank areas with high potential to contain cultural resources but no recorded resources;
- River channel areas with high potential; and
- Areas of known or suspected historic structures within the Historic Architectural APE.

As proposed in Section 8 of GE's Revised Phase IA CRA Report, to help avoid potential delays in the planning and design process, GE undertook some initial field reconnaissance efforts in June of 2023 prior to finalization of the Conceptual RD/RA Work Plan. These initial efforts were as follows:

- Assessment of the floodplain morphology by an archaeological geomorphologist to refine the horizontal limits of landforms requiring systematic archaeological survey and to determine the potential depths of archaeologically sensitive soil and appropriate sampling methods; and
- Systematic visual inspection of the river channel and riverbanks to identify any pre-contact or post-contact manmade structural remnants.

The results of the floodplain and river channel reconnaissance activities are summarized in Section 3, and additional details are provided in Attachment A.

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<sup>2</sup> For areas outside the ROR floodplain where access roads and/or staging areas are anticipated to be located and which were not included in the prior assessment of archaeological sensitivity, their archaeological sensitivity will be assessed prior to implementation of intensive field work.

## 1.3 Work Plan Organization

The remainder of this Phase IB CRS Work Plan is organized into the following sections:

- Section 2 provides a summary of the location and character of anticipated remediation and support activities in Reach 5A, as currently defined in the Conceptual RD/RA Work Plan, and presents the resulting revised definitions of the Areas of Potential Effects (APEs).
- Section 3 summarizes the results of the June 2023 floodplain and river channel reconnaissance activities.
- Section 4 contains a description of the areas where intensive field surveys will be conducted as part of the Phase IB CRA and the proposed methods to be used for those surveys.
- Section 5 presents the anticipated schedule and reporting for Reach 5A Phase IB CRS activities, as well as an overview of possible subsequent CRA activities.

## 2 Areas of Potential Effects

### 2.1 Overview of Reach 5A Remediation

Reach 5A comprises approximately the first five miles of the ROR, extending from the Confluence to the Pittsfield Wastewater Treatment Plant. The river channel in this reach is free-flowing, contains numerous meanders, and has riverbanks that are subject to erosion in places. Reach 5A also contains six backwater areas, defined as quiescent areas adjacent and hydraulically connected to the main channel of the river. In addition, as described in the Conceptual RD/RA Work Plan, Reach 5A contains five other hydrographic features, referred to as Other Waterbodies, that are separate from, but hydraulically connected to, the main river channel. The floodplain in Reach 5A, under the CD definition of the ROR, extends laterally to the 1 milligram per kilogram (mg/kg) PCB isopleth, which corresponds approximately to the 10-year floodplain. The Reach 5A floodplain covers approximately 325 acres and ranges in width from 100 feet at its narrowest point to approximately 2,500 feet at its widest point. It contains 59 pools that meet the criteria for vernal pools.

Under the Revised Permit, remediation in Reach 5A will include removal and engineered capping of sediments in the entire riverbed, soil removal and reconstruction of contaminated erodible riverbanks (as defined in the Revised Permit), sediment removal and capping/backfilling (or placement of an amendment in) selected backwaters, removal and replacement of floodplain soils as necessary to meet specified PCB Performance Standards in the Revised Permit, and remediation (via soil excavation and replacement or placement of a soil amendment) of vernal pools with a spatial average PCB concentration above 3.3 mg/kg. In addition, sediment removal and engineered capping or backfilling will be conducted in three of the Other Waterbodies in Reach 5A – the Intermittent Side Channel, West Pond, and Lower Sykes Brook (as shown in the Conceptual RD/RA Work Plan).

It is anticipated that a number of staging areas and access roads will be constructed in Reach 5A to support the remediation activities. Locations that have been conceptually identified for these areas, as described in the Conceptual RD/RA Work Plan, are illustrated on Figures 1 through 4. During the course of future design activities, EPA review, and contractor review and input, these locations may be modified.

### 2.2 Revised Delineation of Areas of Potential Effects

This section describes the updated Archaeological APE and Historic Architectural APE within Reach 5A based on the scope and extent of remediation and support activities as currently identified. The Archaeological APE encompasses those areas of the river channel, riverbanks, backwaters, Other Waterbodies, and adjacent floodplain (including vernal pools) that will be subject to remediation activities. This APE will also include the locations of access roads and staging areas that have been identified. The Historic Architectural APE encompasses the locations adjacent to the Archaeological

APE that are visible from areas involved in remediation or support activities. This APE includes areas which could be indirectly impacted by factors such as noise, vibration from equipment, or vehicle movements associated with the remediation or support activities.

In the Phase IA CRA Report, the Archaeological APE was defined as equivalent to the ROR extent of the 1 mg/kg PCB isopleth since the specific locations that may experience disturbance as a result of remediation activities was not yet known. At the present time, more detailed preliminary, remediation plans have been developed that show the specific areas in Reach 5A subject to remediation, as well as anticipated access roads and staging area. Those areas are presented in the Conceptual RD/RA Work Plan and are shown on Figure 1 through Figure 4.<sup>3</sup> Specifically, those figures identify the area of riverbed remediation (the whole Reach 5A river channel) and the riverbanks to be remediated, the backwaters and Other Waterbodies subject to remediation, the residential and non-residential floodplain areas subject to remediation (apart from vernal pools), and the vernal pools to be remediated, as well as currently anticipated access road corridors and staging areas. These identified areas on Figures 1 through 4 collectively comprise the Archaeological APE for Reach 5A.<sup>4</sup>

Although there are no structures within the Archaeological APE, a separate Historic Architectural APE has been defined that encompasses the properties of known or suspected historic structures that are adjacent to areas involved in remediation or support activities and thus could potentially be affected by those activities. The main portion of this APE comprises four discontinuous areas located along Holmes Road between Cooper Parkway and Utility Drive, as shown on Figure 5. There is also a small, isolated portion of the Historic Architectural APE on the eastern side of the river on East New Lennox Road, as also shown on Figure 5. Consistent with established practices, the Historic Architectural APE boundaries at this stage in the process have been drawn primarily along the property lines associated with the known or suspected historic structures as well as to capture potential viewsheds from those structures. The Historic Architectural APE boundaries may be adjusted as additional property-specific background research and fieldwork are conducted.

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<sup>3</sup> Note that the shapes of some very small remediation areas have been adjusted for visibility and are not to exact scale.

<sup>4</sup> These figures do not include an overlay of the areas identified as having high archaeological sensitivity. That overlay is provided on Figures 6 through 9 in Section 4.1 below.

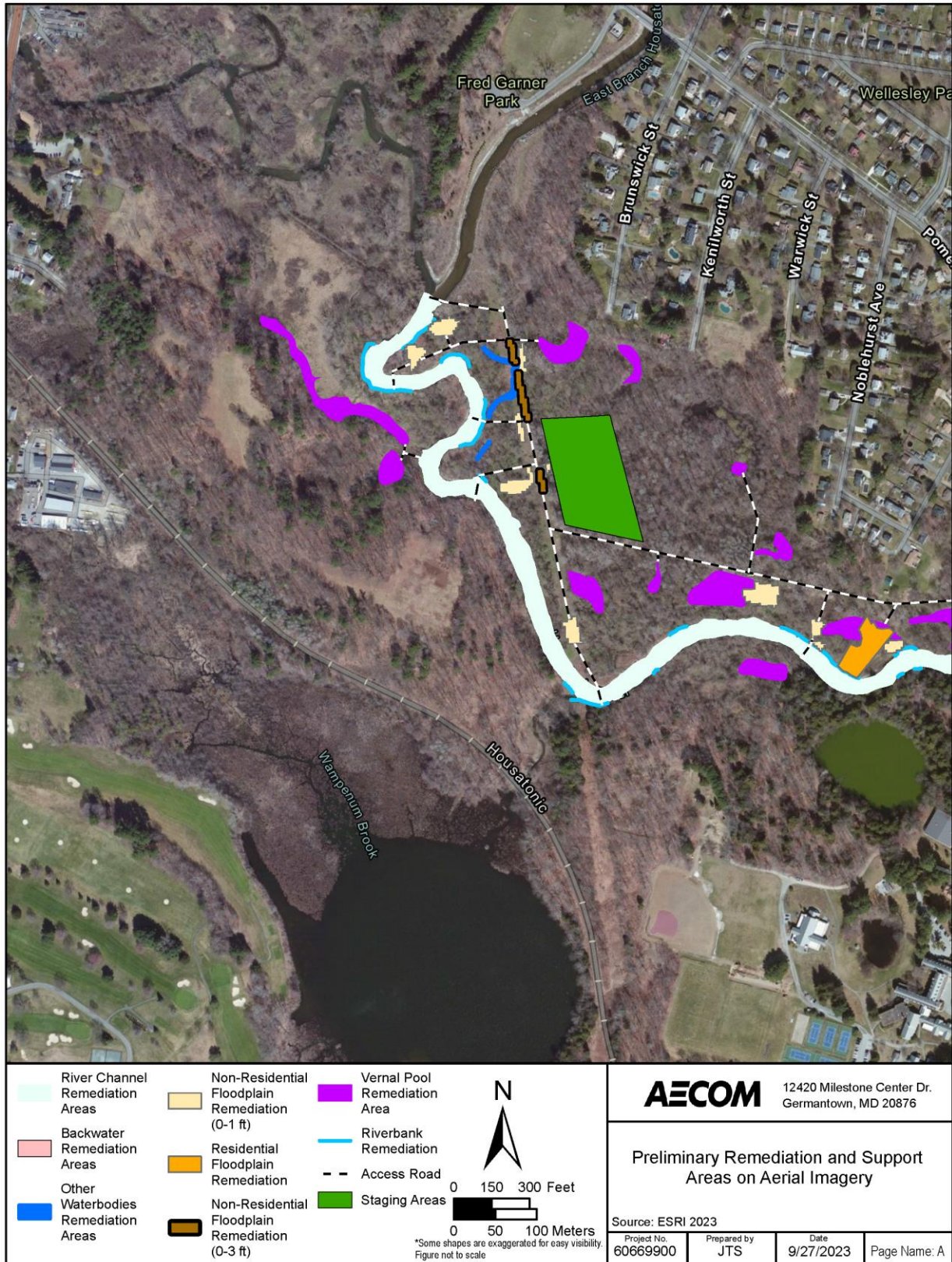


Figure 1. Anticipated Affected Areas – Comprising Archaeological Area of Potential Effects – Map 1 of 4

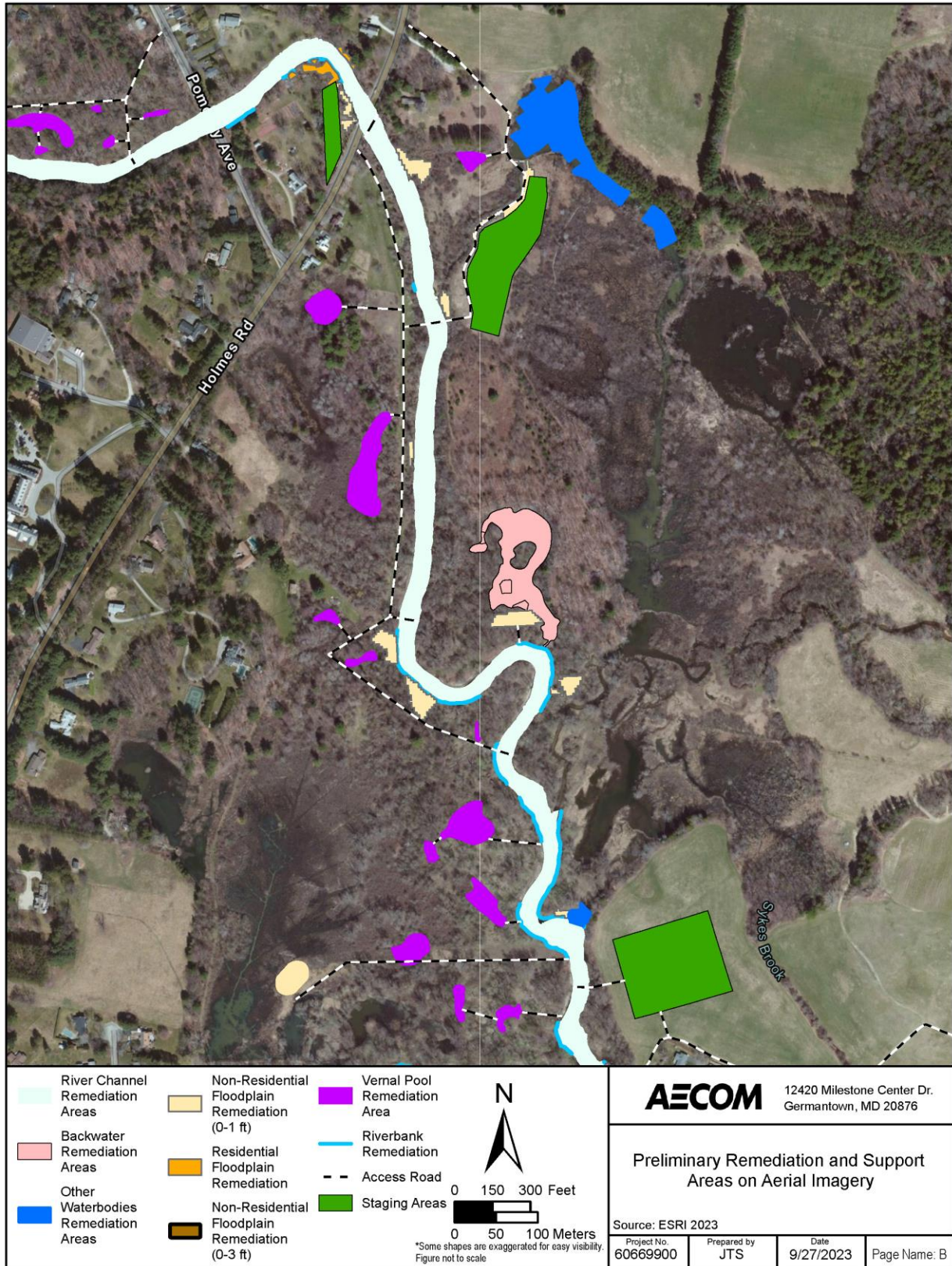


Figure 2. Anticipated Affected Areas – Comprising Archaeological Area of Potential Effects – Map 2 of 4.



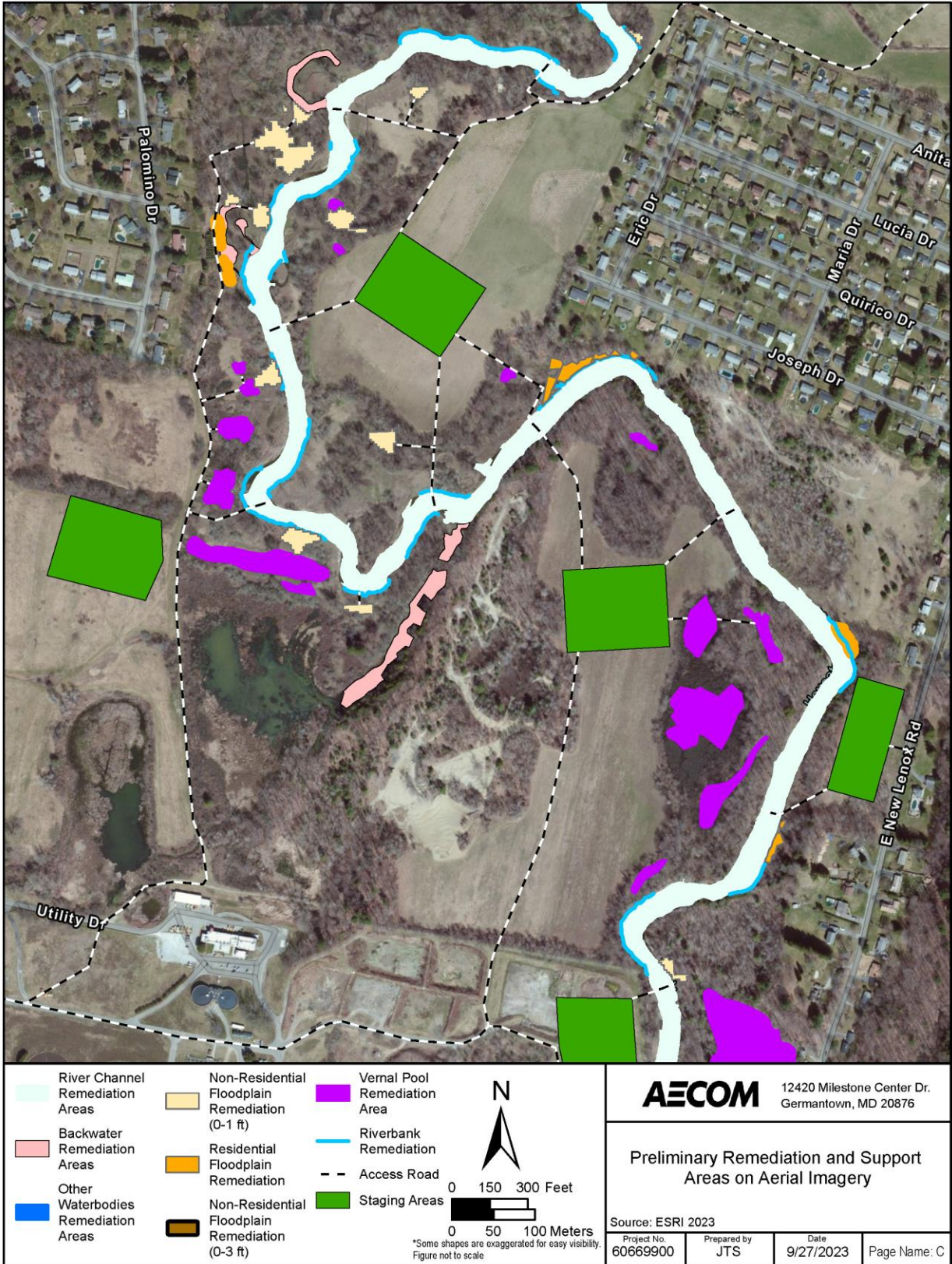


Figure 3. Anticipated Affected Areas – Comprising Archaeological Area of Potential Effects – Map 3 of 4.

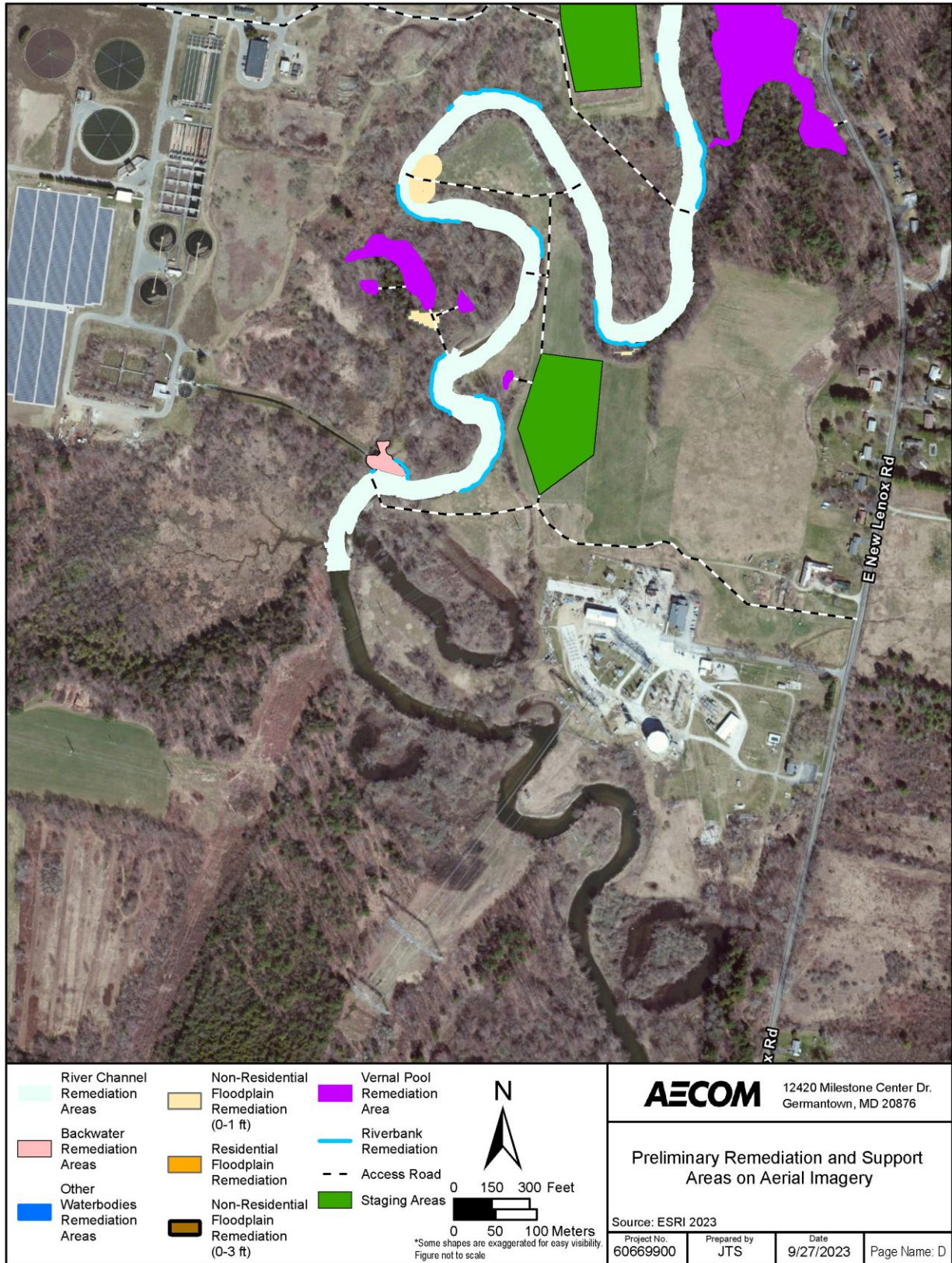


Figure 4. Anticipated Affected Areas – Comprising Archaeological Area of Potential Effects – Map 4 of 4.

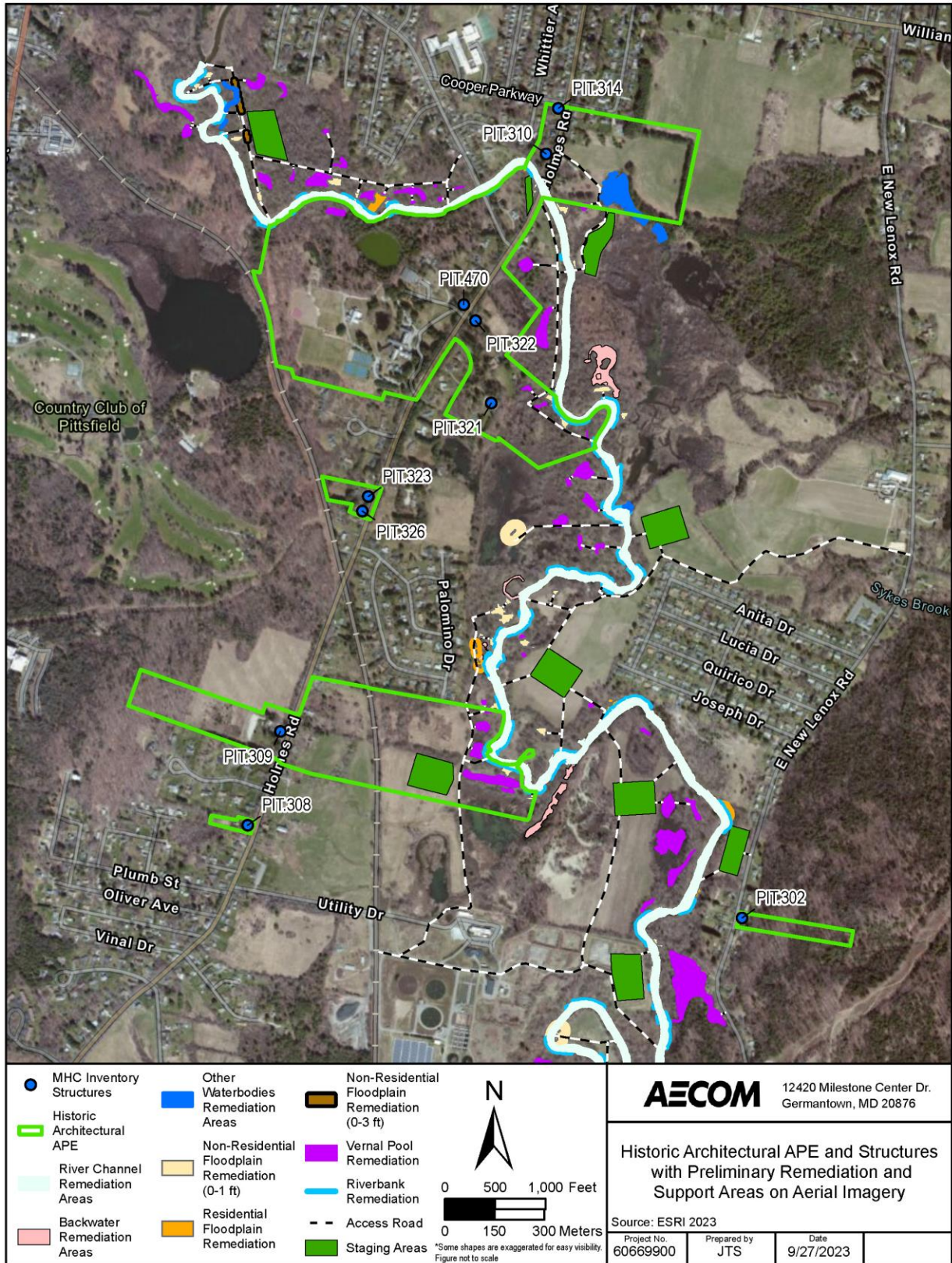


Figure 5. Historic Architectural APE.

## 3 Summary of June 2023 Floodplain and River Channel Reconnaissance

This section describes the initial field reconnaissance activities that were conducted in June 2023 in Reach 5A. More details are provided in Attachment A.

### 3.1 Floodplain Geomorphology

During the week of June 12, 2023, two geoarchaeologists from AECOM conducted a field reconnaissance of the floodplain in Reach 5A to begin the process of refining the horizontal limits of landforms requiring systematic archaeological surveys and to determine the potential depths of archaeologically sensitive soil horizons and appropriate survey methods to be used in those settings. The geoarchaeologists used a hand-held bucket auger to extract 16 separate soil cores to help better understand the age and structure of the floodplain. These cores were generally collected in or adjacent to anticipated remediation areas. Attachment A provides details regarding the locations of the soil cores and the information gained from them.

The results can be divided into several categories according to preservation potential for archaeological resources and relative age, as indicated by the soil/subsoil horizons found in the borings. Borings with buried A (Ab) horizons have a higher than average probability for preservation of deeply buried resources since there are more opportunities for the *in situ* burial of sites. Borings with Bt horizons have a higher than average probability for containing pre-contact materials since the argillic characteristics of Bt horizons take a significant amount of time to develop, and therefore, the landform would have been stable earlier in the Holocene Epoch. Borings in which Bw horizons were documented indicate a younger soil profile, where older pre-contact material will likely not be found. Overall, horizons other than A and Bt, including C horizons, have a low probability of containing buried pre-contact cultural material. As discussed in Attachment A, based on the horizons identified in the soil borings, the borings have been grouped into several categories to help inform guide field testing strategies. The findings from these borings will be taken into account in the upcoming archaeological survey work (described in Section 4.2.2) in the vicinity of these core locations, although in many cases the cores extended to a greater depth than the proposed surveys will.

### 3.2 River Channel Reconnaissance

During the week of June 19, 2023, a systematic visual inspection of the river channel and riverbanks in Reach 5A was conducted to identify any visible pre-contact or post-contact man-made structural

remnants or features.<sup>5</sup> This was done by two archaeologists using a combination of canoeing and wading to examine the entire length of the river in Reach 5A.

Eight definite or potential man-made features were identified and photographed in or immediately adjacent to the river, and their locations were recorded with a sub-meter accurate GPS unit. The resulting maps and photos are provided in Attachment A. These features include two sets of bridge abutments (cut stone and concrete), two concentrations of large cut stones, two locations of conical piles of cobbles, and two linear cobble features that are possible weirs or dams. Since these features are all in or immediately adjacent to river areas that will be remediated, they will all be revisited during the Phase IB survey work to be more closely examined, recorded, and evaluated, as discussed in Section 4.1.1.

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<sup>5</sup> This reconnaissance did not include the three Other Waterbodies that are hydraulically connected to the main river channel and that will be subject to remediation.

## 4 Phase IB Survey Research Areas and Methods

### 4.1 Archaeological Survey

The Revised Phase IA CRA Report included mapping of areas within the ROR, including Reach 5A, that contain known cultural resources or have a high potential to contain such resources. As shown there, the floodplain in Reach 5A has many areas of high potential for containing pre-contact archaeological sites. There are extensive well-drained floodplain terraces, and the background data document multiple previously recorded sites in the area, as discussed in the Revised Phase IA CRA Report. The areas around the Confluence of the West and East Branches and the confluence of the Housatonic with Sackett Brook have some of the highest densities of previously recorded pre-contact sites in the region. Areas of post-contact archaeological site sensitivity in Reach 5A are more limited due to the area's setting on the margins of the main area of post-contact settlement in Pittsfield. Exceptions to this include an area around the Holmes Road crossing, which is an old road that has been in this general alignment since the late 18th century.

In accordance with Section 4.3.3.2 of the Final Revised Work Plan, the area of high archaeological sensitivity in each Reach 5A has been overlain on the maps (presented in Section 2) showing the anticipated remediation and support areas. This overlay is shown on Figure 6 through Figure 9. The specific areas where remediation or support areas are located within areas of high archaeological sensitivity will be subject to intensive archaeological survey work.<sup>6</sup>

The following sections describe the proposed survey work that will be conducted in these areas to determine whether they contain potentially significant cultural resources that could be affected by remediation or support activities. All fieldwork will be conducted in accordance with Massachusetts Historical Commission (MHC) archaeological guidelines.

#### 4.1.1 *Aquatic Field Investigations*

The eight river channel features identified by the June 2023 systematic channel inspection described in Section 3.2 will be examined and documented. These include two sets of bridge abutments (cut stone and concrete), two concentrations of large cut stones, two locations of conical piles of cobbles, and two linear cobble features that are possible weirs or dams. These features will be mapped and photographed in detail, and the area around them will be examined for associated artifacts, features, or land modifications. This work will be done during low water conditions to maximize visibility and provide safe working conditions.

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<sup>6</sup> As discussed further below, areas outside of the previously assessed ROR floodplain where access roads and/or staging areas are anticipated to be located will be assessed for archaeological sensitivity prior to implementation of intensive field survey work.

In addition to closer examination of the features previously identified in the main river channel, a pedestrian/canoe reconnaissance will be conducted in the three Other Waterbodies that are subject to remediation to determine whether any additional cultural features are located in those areas. If any are identified, they will be documented as described above for the river channel.

Although there are a number of backwaters and vernal pools requiring remediation that are located within the overall mapped boundaries of the areas of high archaeological sensitivity (see Figures 6 through 9), those inundated and seasonally wet areas are not themselves considered to have high archaeological sensitivity. As discussed in the archaeological sensitivity model (Glover et al. 1994) suggested by the MHC and used in the Phase IA CRA (see AECOM 2023) regional studies have shown that archaeological sites are most frequently associated with level, slightly elevated areas of well-drained soils, rather than being located in poorly drained and wet, depressed terrain such as backwaters and vernal pools. Thus, the backwaters and vernal pools in Reach 5A are not included in the Phase IB survey program. As remediation plans are further developed, if it is determined that there are sensitive landforms adjacent to the backwaters or vernal pools that may be impacted by soil removal or stabilization activities in the backwaters or vernal pools, those landforms will be surveyed as part of the terrestrial survey program.

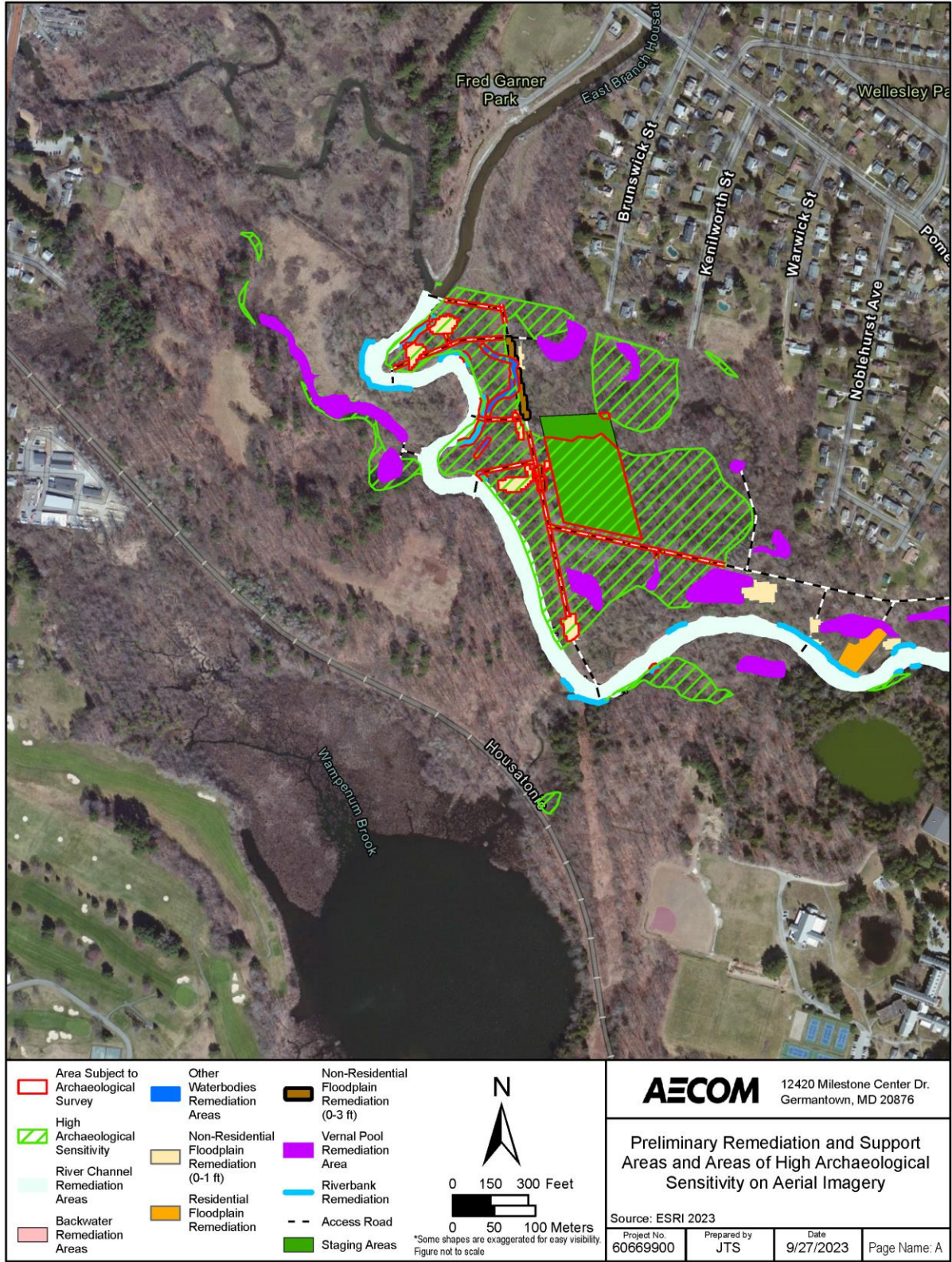


Figure 6. Remediation and Support Activities and Areas of High Archaeological Sensitivity – Map 1 of 4.



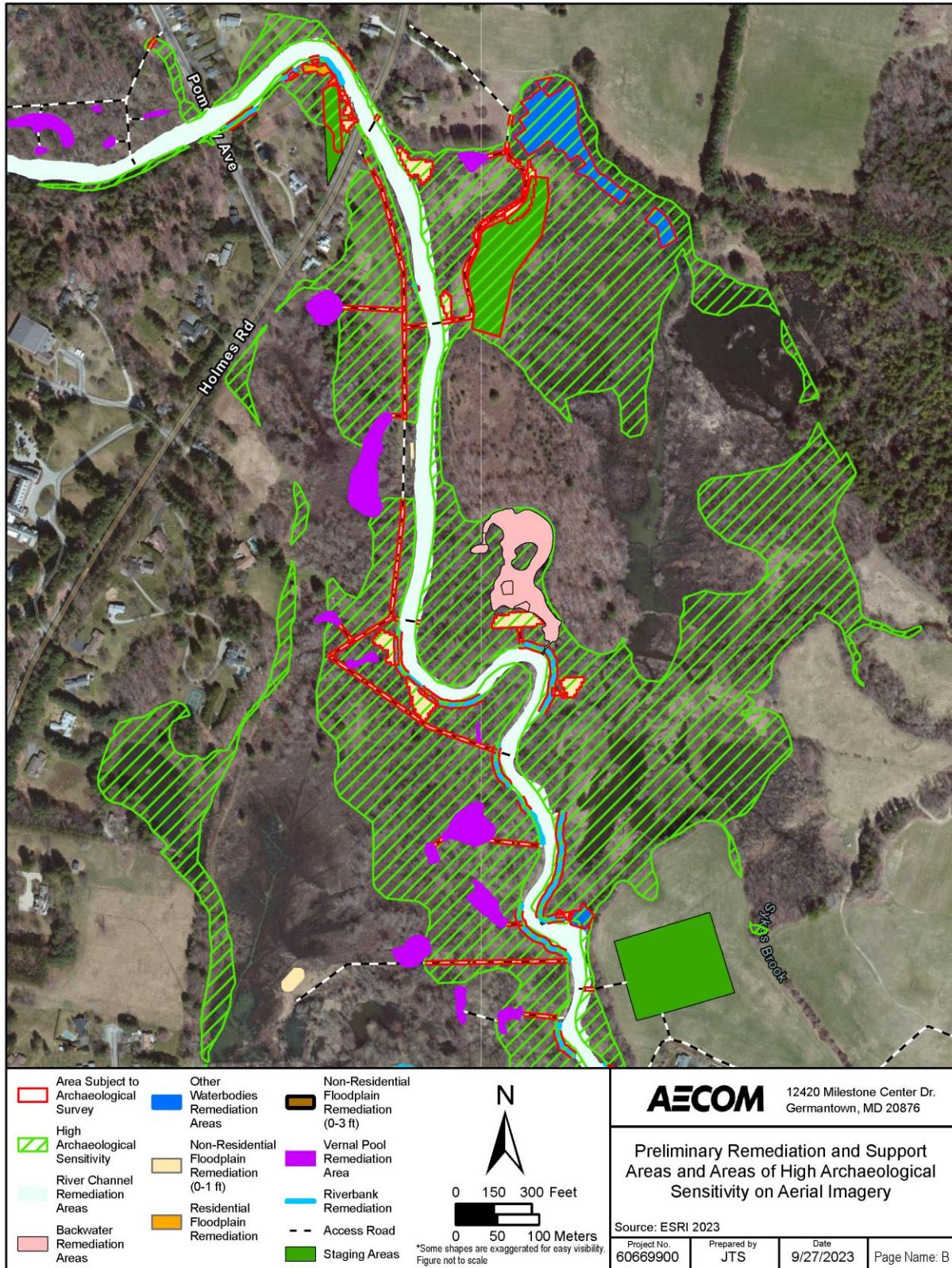


Figure 7. Remediation and Support Activities and Areas of High Archaeological Sensitivity – Map 2 of 4.

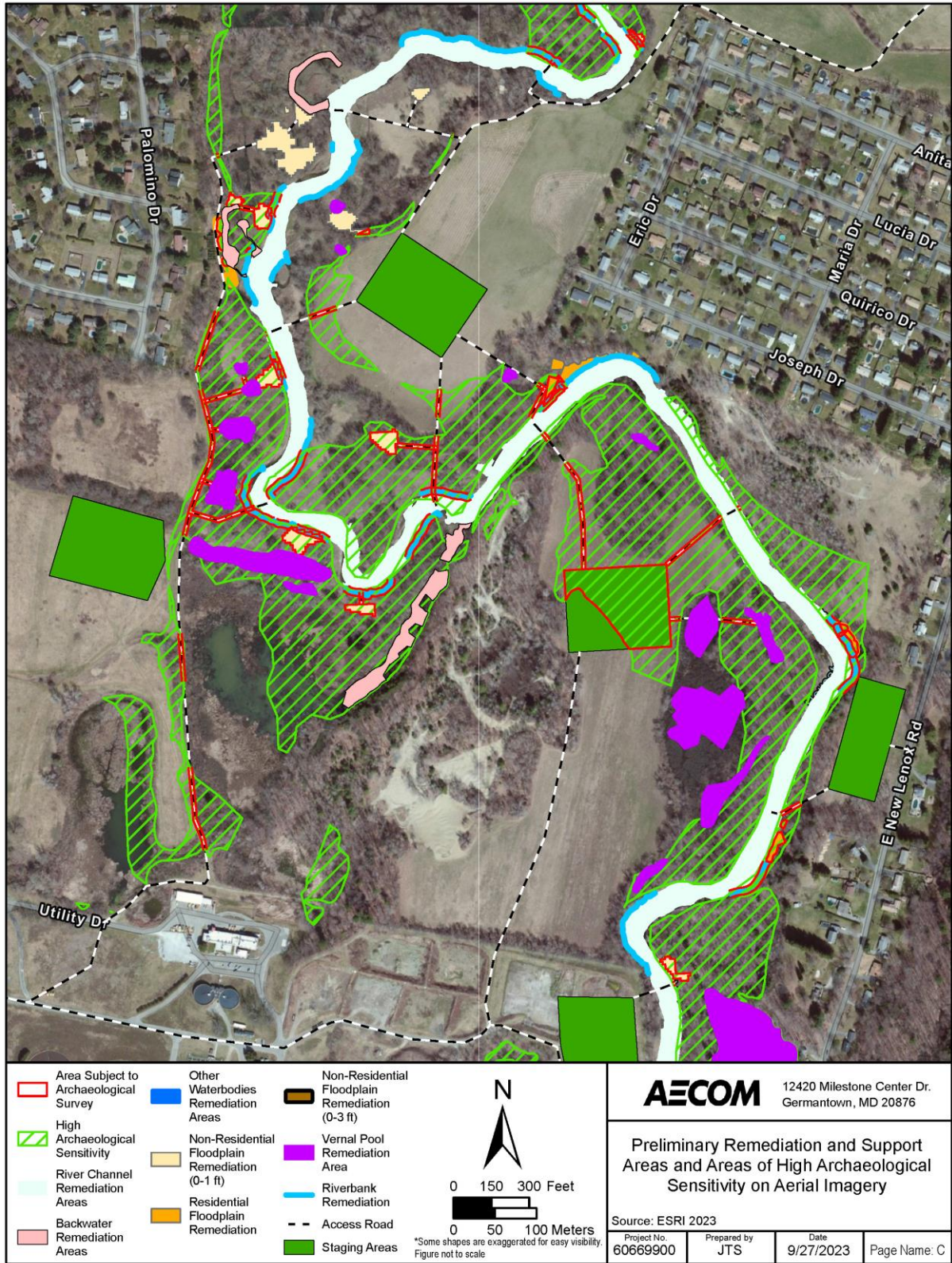


Figure 8. Remediation and Support Activities and Areas of High Archaeological Sensitivity – Map 3 of 4.

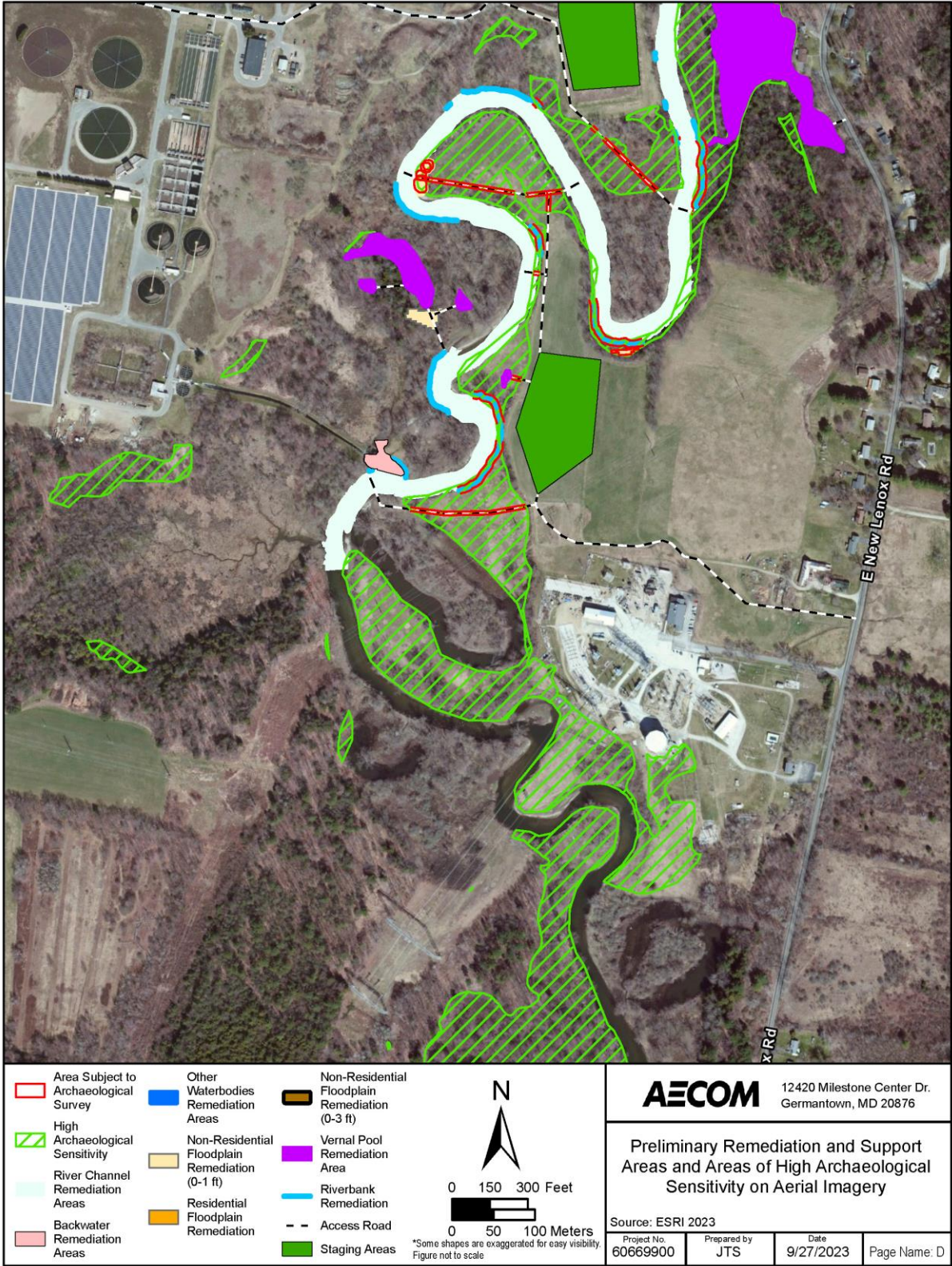


Figure 9. Remediation and Support Activities and Areas of High Archaeological Sensitivity – Map 4 of 4.

#### 4.1.2 Terrestrial Field Investigations

The fieldwork for the terrestrial archaeological survey will begin with a pedestrian inspection of the areas proposed for survey (Figures 6 through 9) to visually assess environmental characteristics, search for visible above-ground cultural resources, and assess evidence for prior disturbances and land modifications. In addition, the boundaries of the archaeologically sensitive zones will be ground truthed prior to more detailed investigations. Hand auger borings will also be advanced to further determine the potential depths of archaeologically sensitive soil and appropriate sampling methods in areas that were not examined during the June 2023 geomorphology reconnaissance described in Section 3.1. Based on the initial geomorphology assessment, it is likely that almost all areas to be investigated will require only hand excavations and will not need deep, mechanically assisted testing.

Once the limits of areas requiring a systematic survey are more precisely defined in the field, the standard approach will be to excavate 50-centimeter-square shovel test pits (STPs) spaced at 10-meter intervals across the areas to be investigated. Table 4-1 provides a breakdown of the currently projected extent of the areas that will require systematic archaeological survey (shown on Figures 6 through 9) as well as a projection of the number of STPs that will be needed to investigate them. These include areas of floodplain soil removal (other than in vernal pools), riverbanks that are planned to have soil removal and/or stabilization activities, and the anticipated staging areas and access roads.

Table 4-1. Summary of STPs Projected for Reach 5A.

Type of Affected Area	Acres	Feet	Coverage	Total STPs
Floodplain Remediation	4		50 STPs/acre	300
Riverbank Remediation		6,447	30 STPs/100 ft	193
Staging Areas	27		50 STPs/acre	1,350
Access Roads		13,146	60 STPs/1000 ft	789
<b>Totals</b>	<b>31</b>			<b>2,632</b>

Because the location and size of staging areas and access roads have only been recently identified, some of them are situated outside of the ROR floodplain areas previously assessed for archaeological sensitivity. Based on a preliminary review, most of the anticipated staging areas and many of the access roads are located in areas that appear to be archaeologically sensitive. However, the staging area on the west side of the river at River Access Point 190+00 is situated in an area of former sewage treatment plant lagoons and is likely disturbed, and some of the access roads proposed along existing utility corridors may also have extensive disturbance. Prior to the commencement of the intensive archaeological survey, a supplemental assessment will be made of the archaeological sensitivity of the non-floodplain staging area and access road locations that were not previously subject to such an assessment. This supplemental assessment will involve a desktop

assessment of these areas based on the same factors considered in the prior assessment of archaeological sensitivity (described in Section 6 of the Revised Phase IA CRA Report), along with a field assessment of the extent of disturbances in such areas during the pedestrian inspection described at the beginning of this section. The results of this supplemental sensitivity assessment will be provided to and discussed with EPA and may result in changes to the extent of STPs listed in Table 4-1.

During the intensive field surveys, STPs measuring 50 cm by 50 cm will be excavated within 10-cm arbitrary levels within natural soil strata into undisturbed subsoils or into the first C-horizon, but in no case deeper than three feet, with the exception that in the few floodplain locations requiring soil removal to three feet, the STPs will extend one foot below that depth. In those limited areas where deeper (i.e., four-foot) STPs are needed, the test pit size and shape will likely need to be modified in order to be able to safely and effectively expose the deeper soil strata. These expanded test pits will be 150 cm by 50 cm in plan view. These units are designed to facilitate investigation of deeper soil levels beyond the three-foot maximum depth typically achieved by 50 cm by 50 cm units. Actual safe working depths will be determined by a competent professional who is capable of identifying existing and predictable hazards or working conditions, soil types, and protective systems required. A hand-held soil auger may also be used in the bottom of each test pit to examine deeper soil stratigraphy, depending on the character of the soil horizons documented at the bottom of the test pit.

If potential cultural features are encountered, they will be cleaned and documented in plan view via drawings and photographs. In such cases, excavations will then be halted and the STP backfilled for feature preservation for potential future archaeological investigation if needed. All excavated soil will be screened through 1/4-in mesh hardware cloth for systematic artifact recovery. All artifacts will be bagged and labeled by provenience, including the STP number, soil horizon, level, depth, date, and excavator initials. Each bag will be given a field specimen (FS) number for tracking purposes and will be documented on a field specimen log. Following excavation, STPs will be completely backfilled, and the backfill will be compacted, the sod replaced if present, and the area revegetated (if it was previously vegetated).

All STPs will be documented using field site forms that will document stratigraphic profiles, including a description of the soil type, texture, and color using the Munsell color chart. Measurements will be provided in metric. Artifacts recovered will also be documented per excavated level and characterized. The locations of all STPs and identified surface features will be mapped using a hand-held, sub-meter accurate GPS unit,

Photographs documenting the work will be taken. These will include photographs of sample STPs, including, but not limited to, all STPs with positive findings. Field photography will conform to the state archaeologist's memorandum on improving photography and cartography (Simon 2014). This

includes the use of a north arrow, a metric scale, and sign board in all plan view, and profile photographs. Photos will be taken in consistent lighting, whenever possible, with any distracting items removed from the surrounding area. General view photographs of the project area, however, will be taken without horizontal or vertical scales or sign boards to provide an overall visual of the conditions of the project area at the time of the archaeological investigations.

### 4.1.3 *Laboratory Analysis and Curation*

Any archaeological artifacts and samples recovered will be returned to the AECOM laboratory for professional analysis and cataloging. Artifacts will be cleaned and labeled. Any artifact needing conservation will be removed from the collection for separate processing and evaluation. After the artifacts are dry, they will be separated by class and placed in individual 4-mil polyethylene bags, labeled with provenience information in permanent marker. The individual bags will be placed within a large bag(s) for the entire provenience. All bags will be labeled and will be pierced for air circulation.

Any artifacts recovered from the investigation will be fully inventoried and cataloged. This information will be used to establish the contemporaneity of contexts and strata, as well as to determine whether assemblages represent primary or secondary deposits. At a minimum, basic analyses performed on these artifacts from any given archeological context will include the identification of key characteristics for each object, including general form and function (e.g., nail – architectural), material composition (ceramic, glass, metal, etc.), manufacturing technique, date of manufacture, maker’s marks (if present), and the total number of artifacts with such characteristic within a specific context.

Any artifacts recovered from intact deposits will additionally undergo more intensive analyses designed to facilitate the interpretation of these materials and the context in which they were found. Additional artifact characteristics will be recorded for identified vessels, including those related to methods of decoration, motifs, and use-wear. Efforts will also be made to more accurately date all diagnostic artifacts, and to utilize those data to establish *terminus post quem* (TPQ) and *terminus ante quem* (TAQ) dates for specified archeological deposits.

At the conclusion of this investigation, any artifacts recovered and project records will be prepared for permanent curation with a qualified curation facility. All artifacts will be delivered in archivally stable Hollinger Record Storage Boxes or an equivalent. Artifacts within the boxes will be packaged in labeled, vented, zipper-sealed polyethylene bags. Along with the artifact collection and a paper catalog, an electronic format copy of the final catalog will be provided. In addition, all notes, photographs, drawings, maps, and both original and duplicate copies (photo-reproduced onto acid-free paper) of all field documentation and notes will be curated.

## 4.2 Historic Architectural Survey

The Phase I CRA Report noted that there is an area of known and suspected historic structures located along Holmes Road west of the floodplain in Reach 5A. The estate of Oliver Wendell Holmes is located on a hill overlooking the floodplain, and the campus of Miss Hall's School is located across the road from the Holmes property. Both of these properties are included in the MHC inventory, as are three other nearby residential properties, but none of the five has yet been evaluated for NRHP eligibility. In addition, author Herman Melville's home, Arrowhead, is located a short distance south at 780 Holmes Road, situated on a hillside that overlooks the Housatonic River floodplain from the west. This property was designated as a National Historic Landmark (NHL) in 1962 and is therefore automatically listed on the NRHP. It is operated as a museum by the Berkshire County Historic Society. There are three additional residential structures in the MHC inventory that are located west of the river on Holmes Road south of Arrowhead, and there is one structure situated east of the river on East New Lennox Road.

These properties are all mapped within the discontinuous Historic Architectural APE (see Figure 5 above) as they could potentially be affected by remediation and support activities in Reach 5A. Although no direct impacts such as demolition or modification are planned for any of the above-ground structures at these properties, there could potentially be indirect effects from activities such as noise and vibration from heavy equipment operation and transportation, as well as visual intrusions, that could diminish the integrity of a property's significant historic features.

Assessment of known and potential historic structures within the Historic Architectural APE will be conducted by a qualified architectural historian to determine their historic status (including, for properties not already listed on the NRHP, whether they meet the eligibility criteria for the NRHP) and their relationship to the remediation and support areas. This assessment will include more intensive background research on the history of the neighborhood and individual properties, including builders, owners, and residents, which will include archival research incorporating deeds and probate records and print and visual sources such as historic photographs and maps. The background research will also be used to prepare specific historic contexts that summarize information about historic properties based on a shared theme, specific time period, and geographical area. These contexts will then be used to evaluate properties against established criteria to determine their significance in the broad patterns of history and architecture.

Fieldwork will include the inspection of every historic property to assess its condition and record details of its architectural and landscaped qualities. This will require the description of each historic building, structure, object, or cultural landscape in the Historic Architectural APE, with reference to standard architectural and landscape architectural terminology. Detailed photographs will be taken of each such property and a photo log created that will describe the subject of each photograph, the address of the property, and the direction in which the camera is facing.

### 4.3 Coordination and Consultation

Section 106 of the NHPA requires federal agencies to engage in formal consultation with certain groups and individuals, known as consulting parties, which typically include states agencies and Native American tribes, Solicitation of information from the MHC and with Native American tribal representatives regarding the locations of cultural resources and traditional cultural properties in the vicinity of the ROR was previously conducted through EPA’s outreach efforts to consulting parties, as well as through AECOM’s contacts with the Stockbridge Munsee Band of Mohican Indians and the Wampanoag Tribe of Gay Head (Aquinnah).

During the Phase IB intensive survey activities, GE will continue to support EPA efforts to coordinate and consult with state agencies and Native American tribes. This outreach has been, and will continue to be, an ongoing aspect of the cultural resources regulatory compliance process for the ROR Remedial Action.<sup>7</sup>

### 4.4 Reporting

Following an assessment of the field data collected and the laboratory analysis that comprise the Phase IB intensive survey work, AECOM will produce a Phase IB CRS Report on GE’s behalf presenting the results of that work. In accordance with Section 4.3.3.2 of the Final Revised SOW, that report will include an assessment of whether the remediation and support activities in Reach 5A would result in an adverse effect on any potentially significant archaeological or historic structural resources. In addition, to the extent that project activities would result in an such an adverse effect, the report will also assess whether locations containing such potentially significant cultural resources (or the adverse effects themselves) can be avoided consistent with the goal of the remediation program for Reach 5A. If the resources or effects cannot be avoided, the report will evaluate, to the extent possible with the available data, whether the resources are in fact significant – i.e., are listed on the NRHP or meet the criteria for eligibility for inclusion in the NRHP, or are listed on the Massachusetts SRHP and included on the State Inventory of Historic and Archaeological Assets, or constitute significant scientific, prehistorical, historical, or archaeological data under the Archaeological and Historic Preservation Act. If additional information is needed to make that determination, the report will outline the scope of such additional data needs. In addition, the report will evaluate the need for

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<sup>7</sup> In addition to Section 106, Section 110(f) of the NHPA provides that, when considering projects that may directly and adversely affect a National Historic Landmark (NPL), federal agencies shall, “to the maximum extent possible, undertake such planning and action as may be necessary to minimize harm” to the NHL. 36 CFR Part 800.10 also directs the agency to seek comments from the Advisory Council on Historic Preservation, and requires the agency to notify the Secretary of the Interior. Thus, in the event that it is determined, through the survey of historic properties and the process of consultation, that the Reach 5A remedy would have a direct and adverse effect on an NHL, the substantive requirements of and regulations under this statutory provision will be met.



any additional Phase IB field investigations to further assess impacts on potentially significant cultural resources, and if appropriate, will propose such investigations.

The Phase IB CRS Report will be prepared to meet the standards of the MHC reporting guidelines (950 CMR 70.14). At a minimum, the report will include the following: an abstract (consistent with the State Archaeologist's memorandum on archaeological abstracts), introduction, background research methods, description and justification of the research design, field testing methods, field results, laboratory procedures and analyses and discussion, conclusions, and recommendations for further work (if any), bibliography, and lists of tables, figures, and photographs. The report will include maps created in GIS depicting the locations of the areas surveyed and the results of field studies. All figures and field photographs will be prepared consistent with professional practices and the State Archaeologist's memorandum on cartography and photography. MHC Survey and Inventory Forms for all archaeological sites and historic structures examined during the study will be included in an appendix to the report.

## 4.5 Unanticipated Discoveries

In the case of an unanticipated discovery of human remains during the Phase IB CRS activities, the investigators will follow all relevant state and federal law and recommendations regarding treatment of human remains. GE and AECOM recognize the importance of providing careful and respectful treatment for human remains recovered as an unanticipated discovery or as part of this archaeological investigation. In the event of an unanticipated discovery of human remains, the following protocols will be followed:

- (1) Should human remains or evidence of possible burials be encountered, work in the general area of the discovery will stop immediately and the location will be immediately secured and protected from damage and disturbance.
- (2) Human remains and associated artifacts will be left in place and not disturbed. No skeletal remains or materials associated with the remains will be collected or removed until appropriate consultation has taken place and a plan of action has been developed.
- (3) The county coroner/medical examiner, local law enforcement, the MHC, and the appropriate Native American Nations will be notified immediately. The coroner and local law enforcement will make the official ruling on the nature of the remains, being either forensic or archaeological.
- (4) If human remains are determined to be Native American, the remains will be left in place and protected from further disturbance until a plan for their avoidance or removal can be generated. AECOM will consult with the MHC and appropriate Indian Nations to develop a

plan of action that is consistent with the Native American Graves Protection and Repatriation Act (25 U.S.C. Ch. 32) and regulations thereunder (43 CFR Part 10).

- (5) If human remains are determined to be non-Native American, the remains will be left in place and protected from further disturbance until a plan for their avoidance or removal can be generated in accordance with MHC's "Policy and Guidelines for Non-Native Human Remains Which are Over 100 Years Old or Older" and in a manner consistent with the Advisory Council on Historic Preservation (ACHP) Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects (ACHP 2007). Consultation with the MHC and other appropriate parties will be required to determine a plan of action.

## 4.6 Compliance with ARARs

As noted in Section 1.2, the ARARs relating to cultural resources are listed in Attachment C to the Revised Permit. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the ROR Remedial Action, as an on-site response action, must comply with the substantive provisions of those ARARs, but not their administrative requirements, as discussed in EPA's ARARs guidance (EPA 2023). As required by EPA, this section discusses how the Phase IB survey activities will comply with the substantive provisions of the identified ARARs. The Conceptual RD/RA Work Plan for Reach 5A includes, in Table 6-1, more details regarding the actions to be taken in Reach 5A to comply with the ARARs relating to cultural resources.

### **Federal ARARs**

Section 106 of the NHPA (54 U.S.C. § 306108) and its implementing regulations at 36 CFR Part 800 require federal agencies to consider the impacts of their undertakings on cultural properties through identification, evaluation, mitigation processes, and consultation with interested parties. EPA's 1989 ARARs guidance (EPA 1989) specifically addresses which components of the NHPA are considered to be substantive and which components are considered to be administrative. According to that guidance, the substantive requirements of the NHPA include identification of cultural resources and mitigation or avoidance of impacts to cultural resources and the administrative requirements include consultation and coordination among the lead agency, the SHPO, and the ACHP.

Attachment C to the Revised Permit states (on page C-5) that, if the RoR Remedial Action affects historic properties or structures subject to the NHPA and its regulations, "activities will be coordinated with the state, tribal and federal authorities and conducted in accordance with the substantive requirements of [the applicable] regulations."<sup>8</sup>

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<sup>8</sup> In addition, in the event that remediation or support activities in Reach 5A would directly and adversely affect an NHL, the substantive requirements of Section 110(f) of the NHPA (54 U.S.C. 306107) relating to such projects, as noted above in Section 4.3, will be followed.

The Archaeological and Historic Preservation Act of 1974, (54 U.S.C. 312501 et seq.) requires that the federal actions do not cause the loss of significant archaeological or historic data. This Act mandates preservation of data; it does not require protection of the actual site or facility. Attachment C to the Revised Permit states (on page C-5) that if it is determined that the ROR Remedial Action “may cause irreparable loss or destruction of significant scientific, prehistorical, historical, or archaeological data, EPA will notify state, tribal or federal authorities and comply with the substantive requirements in this statute.”

For the present stage of the project, the Phase IB intensive survey work will comply with these federal ARARs by conducting systematic field surveys and lab analysis to determine if potentially significant archaeological sites or historic structures exist within the Archaeological and Historic Architectural APEs and would be affected by remediation and support activities in Reach 5A. See also Table 6-1 of the Conceptual RD/RA Work Plan.

### **State ARARs**

The Massachusetts Historical Commission Act, MGL Ch. 9, section 27C, and its implementing regulations at 950 CMR 71.07 require a state body that is undertaking a project or funding or licensing a private project to notify the MHC of the project and give the MHC an opportunity to determine whether the project will have an adverse effect on any historic or archaeological properties listed on the SRHP. If the project will have such an effect, the regulations outline a process for the MHC and project proponents to attempt to come to an agreement on ways to eliminate, minimize, or mitigate adverse effects. Attachment C to the Revised Permit states (on page C-14) that these requirements will be met.

For the present stage of the project, the Phase IB intensive survey work will comply with these state ARARs by conducting systematic field surveys and lab analysis to determine whether historic or archaeological properties listed on the SRHP (or other properties included in the State Inventory of Historic and Archaeological Assets that could be eligible for the SRHP) are present in the Archaeological and Historic Architectural APEs and would be affected by remediation and support activities in Reach 5A. See also Table 6-1 of the Conceptual RD/RA Work Plan.

## 5 Schedule and Next Steps

Tasks required by this work plan include background research for historic architectural resources, archaeological and historic architectural field surveys, laboratory analysis of archaeological data, and report preparation. Work on these tasks will be initiated within 30 days of EPA approval of this Phase IB CRS Work Plan or the Conceptual RD/RA Work Plan (whichever is later), assuming favorable weather conditions. Archaeological field survey work cannot be done under conditions of frozen ground or snow covering the surface, so such work will be likely not be possible during January and February and portions of December and March. Given the floodplain and river channel location of the project area, conditions of flooding and high water would also constrain the field survey work. Once the Phase IB activities described herein have been initiated, it is anticipated that they will be completed within three months and a Phase IB CRS Report for Reach 5A submitted to EPA within 60 days thereafter.

If the additional Phase IB investigations and assessments indicate that the Reach 5A remediation or support activities would result in an adverse effect on potentially significant archaeological or historic structural resources, that such effects cannot be avoided, and that additional information is necessary to determine whether the resources to be affected are in fact significant (as defined above), GE will prepare and submit a Phase II CRA Work Plan to evaluate the latter issue. The Phase II CRA Work Plan will be submitted on a schedule specified in the Phase IB CRS Report and will describe the additional activities proposed to determine whether the resources identified are in fact significant. Following EPA approval, the proposed activities will be conducted, and the results will be presented in a Phase II CRA Report, to be submitted no later than the date of submittal of Final RD/RA Work Plan for Reach 5A.

If it is determined that remediation or support activities would affect significant cultural resources, GE will evaluate whether those resources can be protected during such activities. In the event that the remediation and/or supporting activities would result in unavoidable adverse effects on significant cultural resources, mitigation activities may be necessary. If necessary, proposed mitigation activities will also be included in the Final RD/RA Work Plan for Reach 5A.

## 6 References

- Advisory Council on Historic Preservation (ACHP), 2007. *Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects*. February 23, 2007.
- AECOM, 2023. *Revised Supplemental Phase IA Cultural Resource Assessment Report for the Housatonic Rest of River*. Prepared for the General Electric Company, Pittsfield, Massachusetts. March 2023.
- Anchor QEA, AECOM, and Arcadis, 2021. *Final Revised Rest of River Statement of Work*. Prepared for the General Electric Company. September 2021.
- EPA, 1989. Office of Emergency and Remedial Response, *Compliance with Other Laws Manual Part II: Clean Air Act and Other Environmental Statutes and State Requirements Interim Final § 4.1*.
- EPA, 2023. Office of Land and Emergency Management, *Documenting Applicable, or Relevant and Appropriate Requirements in Comprehensive Environmental Response, Compensation, and Liability Act Response Action Decisions*. OLEM Directive 9234.0-07. March 1, 2023
- Glover, S., P. Russo, A. McFeeters, and M. Cavanaugh, 1994. *Phase IA Cultural Resources Survey for the Relicensing of Eight Hydroelectric Developments Along the Deerfield River Valley in Vermont and Massachusetts*. The Public Archaeology Laboratory, Inc., Pawtucket, Rhode Island. Submitted to New England Power Company, Westborough, Massachusetts.
- Massachusetts Historical Commission, 2006. *Policy and Guidelines for Non-Native Human Remains Which are Over 100 Years Old or Older*.
- Simon, Brona, 2014. *Improving Technical Photography and Cartography*. Memorandum from the Massachusetts State Archaeologist.

**ATTACHMENT A**

**SUMMARY REPORT ON JUNE 2023**

**FIELD RECONNAISSANCE ACTIVITIES**

## FLOODPLAIN GEOMORPHOLOGY

During the week of June 12, 2023, two geoarchaeologists from AECOM conducted a field reconnaissance of the floodplain in Reach 5A to begin the process of refining the horizontal limits of landforms requiring systematic archaeological surveys and to determine the potential depths of archaeologically sensitive soil horizons and appropriate survey methods to be used in those settings.

Over the course of three days, the geoarchaeologists used a hand-held bucket auger to extract 16 separate soil cores to help better understand the age and structure of the floodplain. The locations of these cores are shown on Figures A-1 through A-4. As shown, the cores were generally collected in or adjacent to anticipated remediation areas.

The information gained from these cores is summarized in Table A-1. The results can be divided into five categories according to preservation potential for archaeological resources and relative age, as indicated by the soil/subsoil horizons found in the borings. Borings with buried A (Ab) horizons have a higher than average probability for preservation of deeply buried resources since there are more opportunities for *in situ* burial of sites. Borings with Bt horizons have a higher than average probability for containing pre-contact materials since the argillic characteristics of Bt horizons take a significant amount of time to develop, and therefore, the landform would have been stable earlier in the Holocene Epoch. Borings in which Bw horizons were documented indicate a younger soil profile, where older pre-contact material will likely not be found. In light of the horizons identified in the soil borings, the borings have been grouped in the categories listed in Table A-1 to help inform guide field testing strategies.

Details regarding each of the cores are provided in the text following the figures. That text also includes a discussion of the implications for the upcoming intensive survey work involving shovel test pits in the vicinity of these cores, although in many cases the test cores extended to greater depths than the proposed shovel test pits will.

**Table A-1. Summary of Hand Auger Coring Results.**

Category	Implications	Boring Numbers
Neither buried A nor Bt horizon present	Low chance of deep sites or early pre-contact materials	HA-001 HA-002 HA-003 HA-004 HA-005 HA-008 HA-012
No buried A horizon, Bt horizon present	Low chance of deep sites, greater chance for early pre-contact materials	HA-006 HA-007 HA-009 HA-013
Buried Ap horizon present, no Bt horizon	Chance for shallow burial of late pre-contact, as well as post-contact materials	HA-011 HA-016
Buried Ap and Bt horizons present	Chance for shallow burial of early pre-contact materials	HA-010
Buried A horizon (levees)	Greater than average chance for deeply buried resources	HA-014 HA-015





Figure A-1. Location of Hand Auger Borings in Reach 5A (Map 1 of 4).

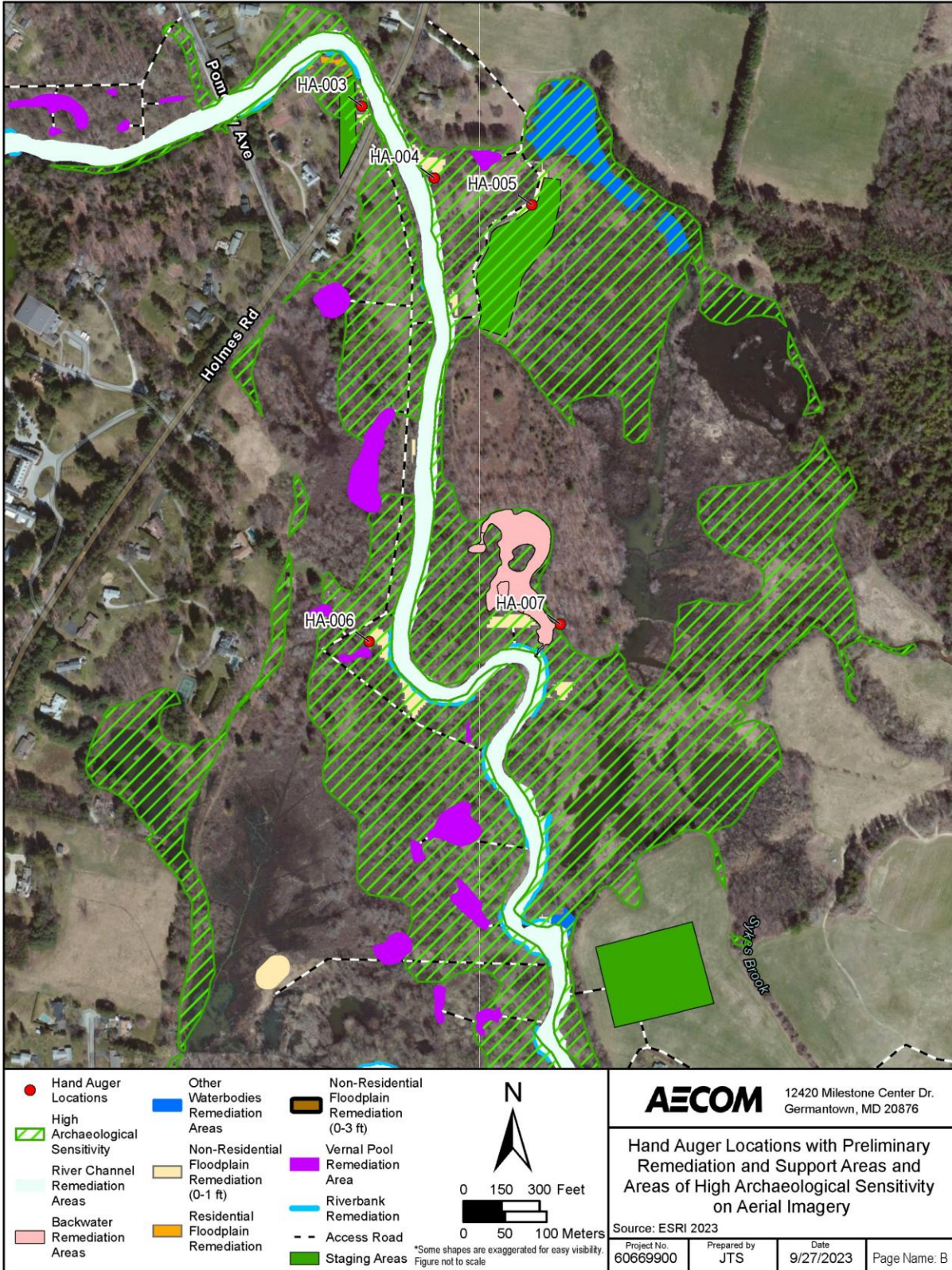


Figure A-2. Location of Hand Auger Borings in Reach 5A (Map 2 of 4).



Figure A-3. Location of Hand Auger Borings in Reach 5A (Map 3 of 4).



Figure A-4. Location of Hand Auger Borings in Reach 5A (Map 4 of 4).

### **HA-001**

This boring was located 27.5 meters east of the current channel of the Housatonic River in an overgrown, wooded floodplain off a utility corridor. The soil column started with 30 centimeters (cm) of plowzone, followed by a 25 cm-thick Bw horizon. The C horizon was reached at 55 cm below ground surface (bgs) and was composed of a moderately sorted loamy sand. Water table was reached at 90 cm bgs. For a distance of 10 cm below the water table, the boring encountered organics in the form of peat, wood, and roots preserved in a matrix of very fine sand and mica. The loamy sand C horizon continued to a depth of 290 cm, at which point the boring was terminated. The soil core shows an overall gradual upward fining representative of floodplain vertical aggradation or point bar formation. The organics seen at 90 cm bgs likely reflect a high-water event that buried and preserved the organics. The presence of a plowzone and absence of a buried A or Bt horizon suggest that this area contains limited preservation potential for early pre-contact sites or deeply buried sites. Further, later pre-contact sites or early post-contact site stratigraphy will be affected by the historic agricultural activities indicated by the plowzone. A standard shovel test pit strategy will be able to test for cultural resources at this location.

### **HA-002**

This boring was located 113 meters east of the current channel and less than 10 meters from the channel locations mapped in 1858 and 1886. Today this location is within part of the floodplain populated by older woods with less undergrowth. This boring included 25 cm of an Ap horizon followed by 45 cm of a Bw horizon of loamy fine sand. Below the Bw, there were three C horizons: C1 continued for 50 cm below the Bw and was characterized by a dark yellow brown loamy very fine sand and stopped at the water table, at which point the soil color changed to dark yellow gray and was interspersed with wood fragments, constituting the C2 horizon. The final C horizon (C3) began at 160 cm bgs and was composed of a dark gray medium to coarse sand with 15% of small sub angular gravel. This represents a transition from the Holocene floodplain sediments into the older Pleistocene glacial outwash sediments. The soil core shows an overall gradual upward fining representative of floodplain aggradation or point bar building. The organics seen at 120 cm bgs likely reflect a high-water event that buried and preserved the organics. The presence of a plowzone and absence of a buried A or Bt horizon suggest that this area contains limited preservation potential for early pre-contact sites or deeply buried sites. Further, later pre-contact sites or early post-contact site stratigraphy will be affected by the historic agricultural activities indicated by the plowzone. A standard shovel test pit strategy will be able to test for cultural resources at this location.

### **HA-003**

This boring location was set along the riverbank in a neatly landscaped backyard surrounded by old trees. The soil column started with a 5 cm A horizon of very dark brown, loamy fine sand, followed by

35 cm of plowzone that contained 5% fine, subrounded gravel. At 40 cm bgs the soil changed to a 10-cm thick Bw of dark yellowish brown fine sand. Below the Bw were four C horizons, the first of which (50-150 cm bgs) was above the water table, while the rest were below. The C2 horizon (150-180 cm bgs) was a gray loamy fine sand mottled with strong brown, C3 (180-280 cm bgs) was fully gleyed, and C4 (280-300 cm bgs) was a gleyed fine sand that contained 50% decomposed wood. The boring was terminated at 300 cm bgs when met by refusal on gravel. This decomposed wood and impenetrable gravel is interpreted as channel lag. Overall, the soil core shows steady alluvial deposition of loamy fine sand-fine sand. The presence of a plowzone and absence of a buried A or Bt horizon suggest that this area contains limited preservation potential for early pre-contact sites or deeply buried sites. Further, later pre-contact sites or early post-contact site stratigraphy will be affected by the historic agricultural activities indicated by the plowzone. A standard shovel test pit strategy will be able to test for cultural resources at this location.

#### **HA-004**

This boring was augered within an overgrown area of thickets and young trees, 10 meters east the present river channel. The plowzone, composed of very dark gray loamy very fine sand, was documented to a depth of 30 cm before transitioning to brown loamy very fine sand Bw horizon, which extended for another 10 cm. From 40 cm bgs to the end of the boring, the soil column is made up of a series of C horizons that have been gleyed due to water table. The final C horizon (C4, 350-380 cm bgs) marks a transition from friable loamy very fine sand to loose medium to coarse sand. The presence of a plowzone and absence of a buried A or Bt horizon suggest that this area contains limited preservation potential for early pre-contact sites or deeply buried sites. Further, later pre-contact sites or early post-contact site stratigraphy will be affected by the historic agricultural activities indicated by the plowzone. A standard shovel test pit strategy will be able to test for cultural resources at this location.

#### **HA-005**

This boring was completed in a marshy meadow near a perennial stream and wetland east of the main river channel. The soil column started with a 30 cm brown loam plowzone, followed by a clear transition to gray, loamy, fine sand C horizon which continued for 30 cm, at which point the water table was reached. From 60 to 250 cm bgs, the soil was a wet, dark greenish gray, loamy, very fine to medium sand. A significant amount of wood was preserved in this horizon, with what was likely a fallen log that had to be punched through. At 250 cm bgs, the soil transitioned to a dark gray, loamy fine to coarse sand which continued for 30 cm, at which point the auger refused on gravel. The upwards fining of the sediments suggests a slow transition from bed load to vertical aggradation before the original column was disturbed by historic agriculture. The presence of a plowzone and absence of a buried A or Bt horizon suggest that this area contains limited preservation potential for early pre-contact sites or deeply buried sites. Further, later pre-contact sites or early post-contact site

stratigraphy will be affected by the historic agricultural activities indicated by the plowzone. A standard shovel test pit strategy will be able to test for cultural resources at this location.

#### **HA-006**

This boring was set in young woods along the western side of the Housatonic River, approximately 25 meters from the channel. The soils started with 30 cm of very fine sandy loam plowzone, followed by 40 cm of yellowish-brown silty loam Bt horizon. Below this was a C horizon to a depth of 210 cm bgs. This was composed of silty clay loam before reaching the water table, where the color shifted, and the matrix coarsened to loamy very fine sand for 60 cm. At that point, the texture and structure changed to loose, coarse sand and subrounded gravel. The column shows upwards fining, related to bar building, and a high stable surface such that high water table events did not alter the Bt. The presence of a Bt horizon increases the possibility of pre-contact materials. Since the upper portion of original soil column has been altered by agricultural activities and there are no buried A horizons, the preservation of original site stratigraphy or deeply buried sites is unlikely. A standard shovel test pit strategy will be able to test for cultural resources at this location.

#### **HA-007**

This boring was located in a setting of young woods with some significant older growth in areas, on top of a high bluff above an oxbow pond. The boring encountered 30 cm of brown coarse sandy loam (Ap horizon), followed by a coarser 20 cm of Bt horizon composed of dark yellowish brown loamy medium sand with 10% subrounded pebbles. At 50 cm bgs, the boring encountered the first C horizon, which continued for 75 cm and was characterized by a loose, poorly sorted mixture of gravel and loamy medium to coarse sand. Below that, the second C horizon continued for 30 cm and was characterized by better sorted, friable, loamy fine sand with 5% subrounded gravel. The third C horizon continued for 30 cm and was a mottled medium sand with 10% subangular gravel; and it was followed by 125 cm of a fourth C horizon, characterized by 5% subangular gravel in a matrix of friable fine sand. The depth and character of the C horizons and the height of the bluff suggest that this location sits on top of glacio-fluvial Pleistocene terrace left over from the retreat of the last glaciation of the Housatonic River Valley and has not been impacted by meandering of the river. The presence of a Bt horizon, along with the well-drained nature of the soils in this location above a floodplain rich with resources, increase the possibility of pre-contact materials. Since the upper portion of the original soil column has been altered by agricultural activities and there are no buried A horizons, the preservation of original site stratigraphy or deeply buried sites is unlikely. A standard shovel test pit strategy will be able to test for cultural resources at this location.

### **HA-008**

This boring was set in a seasonal wetland which was formerly cultivated farmland near a tree line. The loamy plowzone went to a depth of 30 cm, below which was a 30 cm-thick Bw horizon of loamy very fine sand. At 60 cm below ground surface, the soil changed to a dark grey loamy fine to coarse wet sand, which continued for 110 cm before the boring met refusal due to soil collapse of the wet sand. The presence of a plowzone and absence of a buried A or Bt horizon suggest that this area contains limited preservation potential for early pre-contact sites or deeply buried sites. Further, later pre-contact sites or early post-contact site stratigraphy will be affected by the historic agricultural activities indicated by the plowzone. A standard shovel test pit strategy will be able to test for cultural resources at this location.

### **HA-009**

This boring was set very close to the cut bank of the Housatonic River on a bar almost directly behind the bank dyke, and above the seasonal floodplain. The loamy plowzone was recovered to 35 cm, followed by 60 cm of a loamy clay Bt horizon. The first C horizon was a mottled very fine sandy loam that extended for 20 cm before the water table was reached (about 115 cm bgs). The second C horizon, situated below the water table, consisted of a loose, loamy fine to medium sand to a depth of 255 cm bgs where the auger made refusal due to hole collapse. The presence of a Bt horizon increases the possibility of pre-contact materials in this location. Since the original soil column has been altered by agricultural activities and there are no buried A horizons, the preservation of original site stratigraphy or deeply buried sites is unlikely. A standard shovel test pit strategy will be able to test for cultural resources at this location.

### **HA-010**

This boring was set in a seasonal floodplain with mature trees and young undergrowth consisting of ferns and nettles. The column started with a very dark gray, brown silty clay A horizon for 15 cm, before transitioning slightly to a very dark gray silt Ap horizon for an additional 45 cm. The Ap horizon was buried by flood deposition after agricultural activities were ceased. This increase in sedimentation may also have been affected by the construction of the residential development to the northeast during the mid-twentieth century, which affected the hydrography of the area. The silty clay Bt horizon underlying the A horizons began at 60 cm bgs, continued for 40 cm, and was characterized dark brown silty clay. The Bt transitioned to a BC horizon around 100 cm bgs and was characterized by a gray loamy fine sand matrix with brownish yellow mottles. There was noticeable loss in the auger returns in this layer as well as a high concentration of mica flakes. At 160 cm bgs, the borehole met the water table, the soils became gleyed, and there was a noticeable coarsening downwards, first with 40 cm of loamy fine sand labeled C1 (160-200 cm bgs), followed by medium to coarse sand with 5% < 1 cm subrounded gravel labeled C2 (200-330 cm bgs), and finally a loose



medium to very coarse sand with 15% 0-2 cm subrounded gravel labeled C3 (330-360 cm bgs). Wood was present in the C1 and C2 horizons, and the core ended at 360 cm bgs due to hole collapse. The location of this boring on a seasonal floodplain and the burial of an Ap horizon suggest that this area is recently regularly flooded enough for fine sediment to be deposited. The presence of a Bt horizon increases the possibility of pre-contact materials in this location. Since the original soil column has been altered by agricultural activities and there are no buried A horizons (except for the recent burial of the Ap), the preservation of original site stratigraphy or deeply buried sites is unlikely. A standard shovel test pit strategy will be able to test for cultural resources at this location.

#### **HA-011**

This boring was set 15 meters northwest from the riverbank in a marshy meadow near a seasonal tributary of the Housatonic River. The soil column started with 20 cm of a very dark gray silt loam A horizon, which buried what is interpreted as 20 cm of very dark gray clay loam Ap. Similar to HA-010, this burial of the Ap horizon in recent years is likely due to an increased sediment load and flood deposition in this area after the abandonment of agricultural activities and possibly related to the mid-twentieth century residential development to the northeast. At 40 cm bgs, the soil transitioned to a brown very fine sandy loam Bw horizon, which continued for 30 cm (to 70 cm bgs). Below 70 cm, the soils showed signs of gleying and had some wood preservation. At 260 cm bgs, there was an increase in gravel content with pockets of very coarse sand in an otherwise loamy very fine sand matrix. The boring met refusal at 270 cm bgs due to the coarse sand and hole collapse. The location of this boring on a seasonal floodplain and the burial of an Ap horizon suggest that this area is recently regularly flooded enough for fine sediment to be deposited. The presence of a plowzone and absence of a buried A or Bt horizon (except for the recently buried Ap) suggest that this area contains limited preservation potential for early pre-contact sites or deeply buried sites. Since the original soil column has been altered by agricultural activities and there are no buried A horizons (except for the recent burial of the Ap), the preservation of original site stratigraphy or deeply buried sites is unlikely. A standard shovel test pit strategy will be able to test for cultural resources at this location.

#### **HA-012**

This boring was set along an oxbow wetland with old trees and young undergrowth at the toe slope of a large bluff. The first 10 cm of soil were a medium sandy loam A horizon with 5% fine subrounded gravel. This was followed by 60 cm of loamy medium sand Bw horizon with 25% subrounded 1-3 cm gravel. Below the Bw were two C horizons of loamy fine to very coarse sand. C1 (70-125 cm bgs) contained 50% 0 – 3 cm subrounded gravel, and C2 (125 – 155 cm bgs) contained 5%. The boring met refusal at 160 cm due to collapse. The gravel percentages, poor sorting, and location of the soil boring suggest that the A, Bw, and C1 horizons are influenced by input of colluvium from the slope rather than from the river. The lack of a Bt horizon and a thin A horizon

suggest that this land surface is only recently stable and unlikely to preserve any early pre-contact sites or to contain deeply buried sites. A standard shovel test pit strategy will be able to test for cultural resources at this location.

#### **HA-013**

The boring was set within a modern farm field along the upslope edge of a bluff, with a drop to the floodplain and river to the north. The boring recorded 15 cm of loose very fine sandy loam plowzone, with 10% 1 cm subrounded gravel, followed by 35 cm of loamy medium sand Bt horizon, with 40% coarser (2-5 cm) subrounded gravel. Below the Bt was a medium sand C horizon, which contained 50% 2-5 cm gravel. Similar to HA-007, this location is identified as the Pleistocene terrace. The presence of a Bt horizon increases the possibility of pre-contact materials in this location. Since the original soil column has been altered by agricultural activities and there are no buried A horizons, the preservation of original site stratigraphy or deeply buried sites is unlikely. A standard shovel test pit strategy will be able to test for cultural resources at this location.

#### **HA-014**

The boring was set on the riverbank surrounded by mature trees and young undergrowth. The location was slightly raised due to the natural formation of a levee. The soil column began with 10 cm of very dark brown fine sandy loam A horizon, overlaying a very dark grayish brown loamy fine sand AC horizon from 10 to 40 cm bgs. This was followed by two more combinations of A followed by AC horizons: Ab2 (40-55 cm bgs), AC2 (55-80 cm bgs), Ab3 (80-110 cm bgs), and AC3 (110-160 cm bgs). Each AC horizon contained a mix of sand and organic material. The last AC horizon transitioned to a very dark gray clay sand mottled with dark grayish brown Cg1 (160-170 cm bgs). At the water table, the soil transitioned to a dark gray loamy very coarse sand Cg2 for 20 cm. The final C horizon was encountered from 190 to 315 cm bgs, which transitioned from sandy loam to loamy very coarse sand intermittently. The series of buried A horizons in this natural levee location with little to no B horizon development between them indicates that this area is dynamic and likely reflects more recent deposition. This suggests that while the buried A horizons should be investigated, there is a lower likelihood for older pre-contact sites. A standard shovel test pit strategy may not be able to test the full soil profile for cultural resources at these levee locations. If it is necessary to expose deeper levels to complete the survey at these locations, the use of larger test pits would be needed.

#### **HA-015**

The boring was judgmentally placed downslope from HA-013 and away from the slope wash on the bank of the Housatonic. The location was set in ferns with some young trees on a natural levee, similar to HA-014. The column started with 10 cm of A horizon, characterized by dark grayish brown fine sand. Immediately below that was a 5 cm horizon of gray fine sand, the first C horizon in the

sequence, before returning to a dark grayish brown fine sand Ab horizon. The buried A horizon was followed by another 10 cm of C horizon, characterized as a dark grayish brown fine sand with mottles of pale brown, showing signs of being a reworked A. This overlay the final 25 cm A horizon, which was a very dark grayish brown fine sandy loam. The last buried A horizon lay on top 120 cm of very dark gray loam C horizon. From 190 to 290 cm bgs the spoons were full of decayed wood with no matrix, and the 10 cm below the wood was dark grayish brown loamy fine to very coarse sand, with 50% of the column consisting of 0-1 cm subrounded gravel. Similar to HA-014, the series of buried A horizons in this natural levee location with little to no B horizon development between them indicates that this area is dynamic and is likely a more recent deposition. This suggests that while the buried A horizons should be investigated, there is a lower likelihood for older pre-contact sites. A standard shovel test pit strategy may not be able to test the full soil profile for cultural resources at these levee locations. If it is necessary to expose deeper levels to complete the survey at these locations, the use of larger test pits would be needed.

#### **HA-016**

This boring was judgmentally placed 11 meters inland from HA-014 to confirm the presence of buried A horizons on the floodplain farther from the river. The boring was located on the currently uncultivated edge of a hay field. The soil column consists of a 10 cm A horizon, overlaying a 25 cm-thick Ap horizon (10-35 cm bgs), which in turn overlays a 25 cm-thick AC horizon (35-60 cm bgs). Below the AC horizon, there were five discernible C horizons of variable sandy textures, with limited gravel until Cg2 (280-300 cm bgs), which consisted of a loamy very coarse sand with 20% 0 – 1 cm subrounded gravel. Refusal was met in Cg3 (300-330 cm bgs) when the hole continued to collapse. The development of an A horizon over the Ap horizon suggests that this area has recently undergone flooding, which has provided an input of sediment to bury the Ap horizon. Since the original soil column has been altered by agricultural activities and there are no buried A horizons (except for the recent burial of the Ap), the preservation of original site stratigraphy or deeply buried sites is unlikely. A standard shovel test pit strategy will be able to test for cultural resources at this location.

## **RIVER CHANNEL RECONNAISSANCE**

During the week of June 19, 2023, a systematic visual inspection of the river channel and riverbanks was conducted to identify any visible pre-contact or post-contact man-made structural remnants or features. This was done by two archaeologists using a combination of canoeing and wading to examine the entire length of Reach 5A.

Eight definite or potential man-made features were identified and photographed in or immediately adjacent to the river, and their locations were recorded with a sub-meter accurate GPS unit, as shown on Figures A-5 and A-6. These consist of two sets of bridge abutments (cut stone and concrete), two concentrations of large cut stones, two locations of conical piles of cobbles, and two linear cobble features that are possible weirs or dams. Photographs of these features are provided on Figures A-7 through A-16 along with information about each feature. Since these features are all in or immediately adjacent to river areas that will be remediated, they will all be revisited during the Phase IB survey work to be more closely examined, recorded, and evaluated.

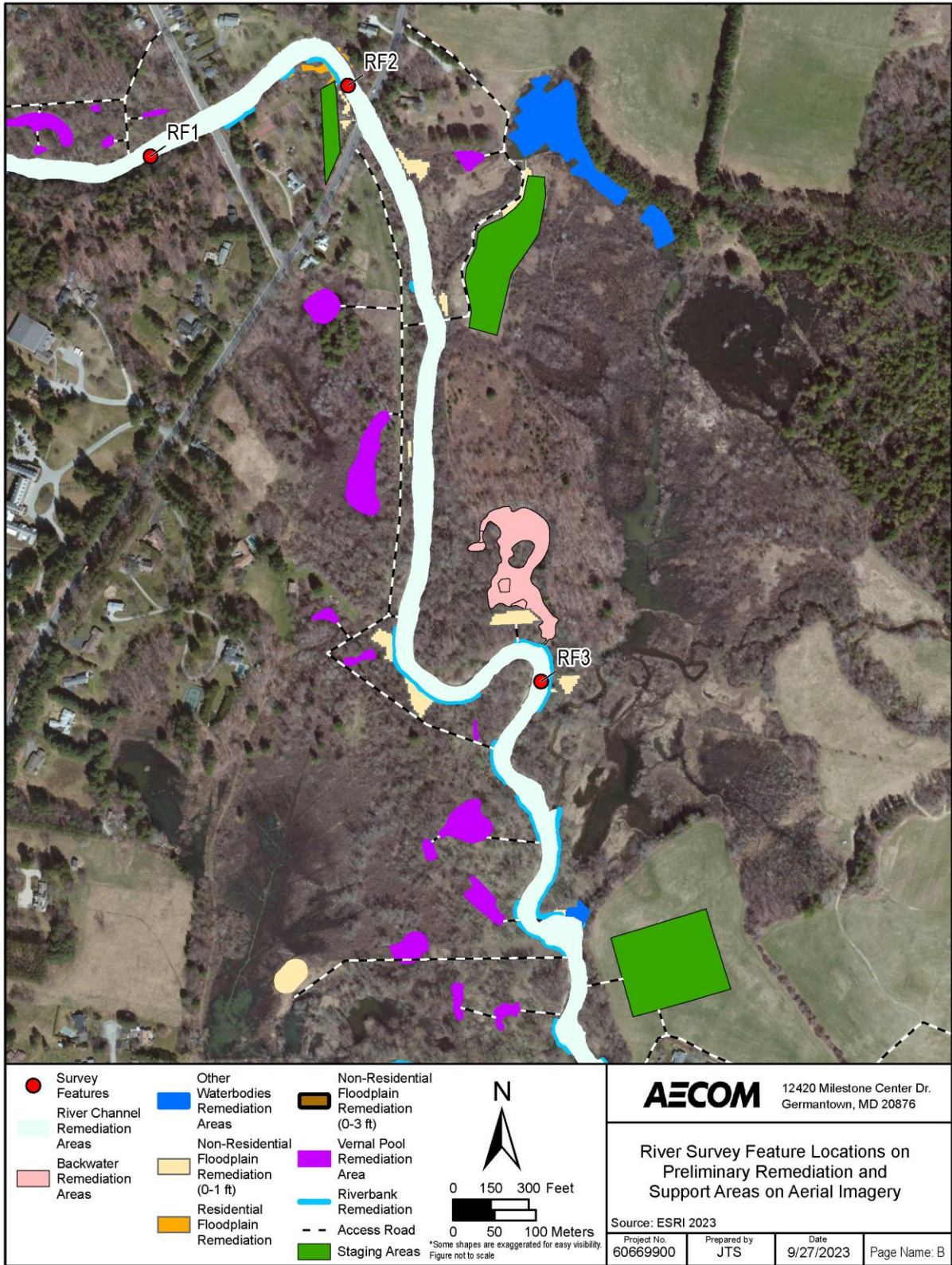


Figure A-5. Location of River Channel Features in Reach 5A (Map 1 of 2).



Figure A-6. Location of River Channel Features in Reach 5A (Map 2 of 2).

RF1



Figure A-7. RF#1: A rock pile located off along the western bank that is composed of small rounded cobbles and gravel with diameters from 120 cm to 10 cm. The pile is slightly covered in silt. The depth range is from 26 to 75 cm. The total depth is 49 cm.

RF2



Figure A-8. RF#2: An assemblage of large rectangular cut stones in bank and in channel.



## RF3



Figure A-9. RF#3: This feature includes two adjacent piles of medium to large cobbles and is the same feature identified as Rock Piles during the 2007 reconnaissance and reported in the Phase IA CRA Report.

Pile 1 = Oval-shaped with the current. Dimensions: width = 3 meters; length = 4 meters Located in the central channel. Pile 1 is north of Pile 2.

Pile 2 = Tear-shaped with the current. Dimensions: width = 5 meters; length = 7 meters Located in the central channel. Pile 2 is south of Pile 1.

RF4



Figure A-10. RF#4: A linear feature composed of medium to large cobbles running roughly in a north to south direction with a slight curve running downstream – possibly a weir. The eastern bank section of the feature is obstructed by large tree falls and debris. Width = 2 to 3 meters.

RF5



Figure A-11. RF#5, Abutment 1: A bridge abutment composed of medium and large cut stones with smaller rocks used as fill between the larger stones. Located on the western bank.



Figure A-12. RF#5, Abutment 2: A bridge abutment composed of small and medium cut stones, much of which is obstructed by thick vegetation. Located on the eastern bank.

RF6



Figure A-13. RF#6: A possible linear weir or dam composed of large cobbles and sub-angular rocks. The rocks do not cross completely through the river, with large gaps located in the central channel and western bank. Some rock coursing, but inconclusive.

RF7



Figure A-14. RF#7: Multiple very large cut tabular cut rocks located along the eastern bank. The cut rocks are roughly 4 to 5 meters long and 1 to 2 meters wide. Among the cut rocks are small to medium cobbles and sub-angular rocks. The eastern bank is very steep and has a coniferous vegetation.

RF8



Figure A-15. RF#8, Abutment 1: A bridge abutment composed of medium to large cut stones with a concrete mixture used as mortar between the stones. One of the sides is faced with the concrete mixture. The concrete mixture includes small angular rocks, rounded rocks, and coarse sand. Located on the western bank. Dimensions: height = 2 meters; width = 2.5 meters.

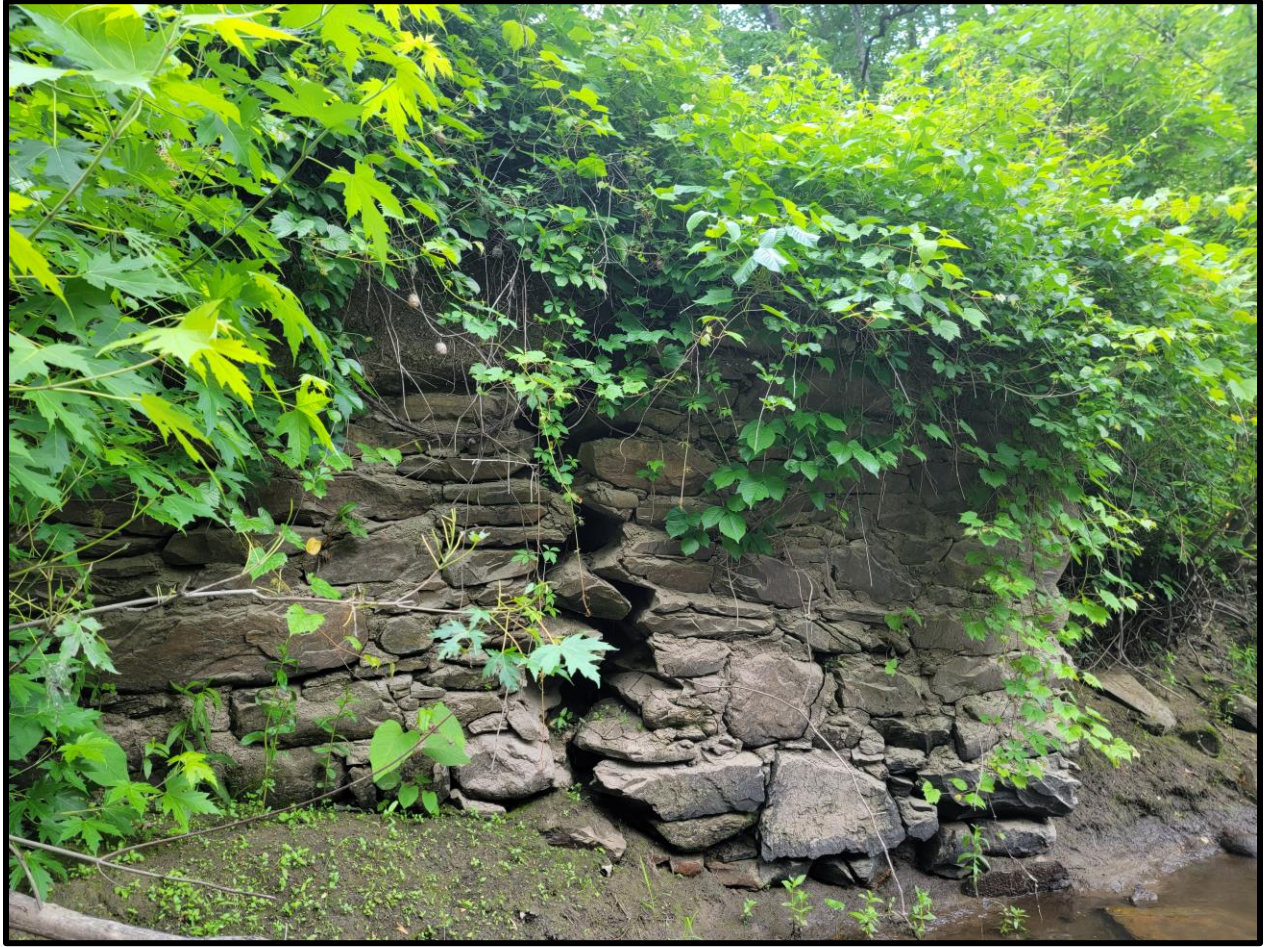


Figure A-16. RF#8: Abutment 2: A bridge abutment composed of medium to large cut stones with a concrete mixture used as mortar between the stones. The concrete mixture includes small angular rocks, rounded rocks, and coarse sand. The cut stones seem to be roughly coursed between each layer. The abutment is obscured by thick vegetation. Located on the eastern bank. Dimensions: height = 2 meters; width = 4 meters.