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Via Electronic Mail

November 3, 2022

Mr. Dean Tagliaferro
EPA Project Coordinator
U.S. Environmental Protection Agency
c/o HDR, Inc.
10 Lyman Street, Suite 2
Pittsfield, MA 01201

Re: GE-Pittsfield/Housatonic River Site
Rest of River (GECD850)
Pre-Design Investigation Work Plan for Reach 6

Dear Mr. Tagliaferro:

In accordance with the Revised Final RCRA Permit issued by EPA for the Rest of River, Section 4.2.3.1 of the *Final Revised Rest of River Statement of Work*, and the schedule in GE's *Final Revised Overall Strategy and Schedule for Implementation of the Corrective Measures*, enclosed for EPA's review and approval is GE's *Pre-Design Investigation Work Plan for Reach 6*.

Please let us know if you have any questions about this Work Plan.

Yours truly,

Andrew T. Silfer, P.E.
GE Project Coordinator

Enclosure

Cc: (via electronic mail)
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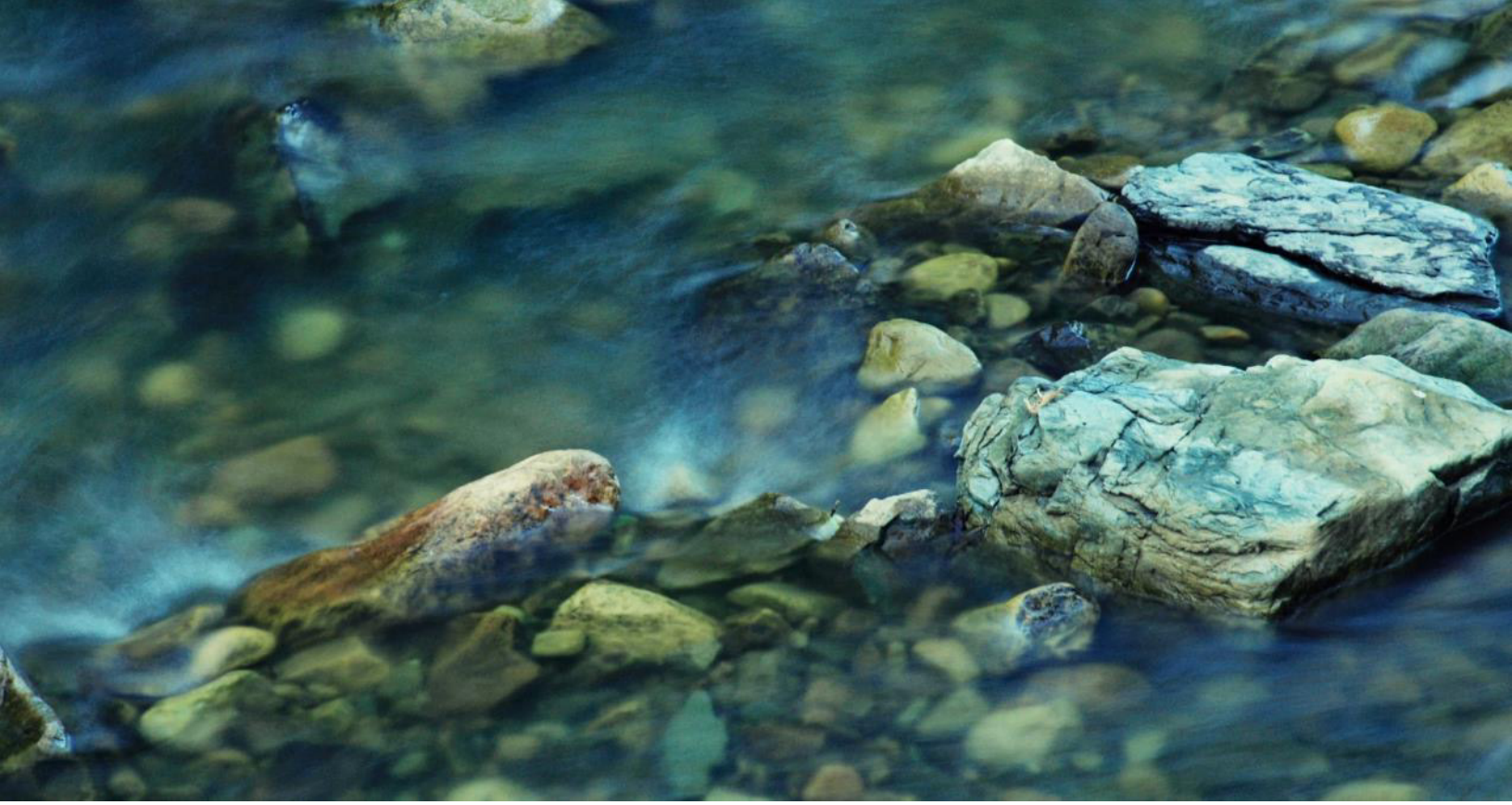
Public Information Repository at David M. Hunt Library in Falls Village, CT
GE Internal Repository



November 2022
Housatonic River – Rest of River

ANCHOR QEA

Pre-Design Investigation Work Plan for Reach 6

Prepared for General Electric Company
Pittsfield, Massachusetts

November 2022
Housatonic River – Rest of River

Pre-Design Investigation Work Plan for Reach 6

Prepared for
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Project Number: 220469-11.01

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APPENDICES

ABBREVIATIONS

BRA Work Plan for Reaches 5B-8	*Revised Baseline Restoration Assessment Work Plan for Rest of River Reaches 5B Through 8*
CD	Consent Decree
DGPS	differential global positioning system
DQO	data quality objective
EA	Exposure Area
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
Final Revised OSS	*Final Revised Overall Strategy and Schedule for Implementation of the Corrective Measures*
Final Revised SOW	*Final Revised Rest of River Statement of Work*
FSP/QAPP	*Field Sampling Plan/Quality Assurance Project Plan*
GE	General Electric Company
HHRA	*Human Health Risk Assessment*
LiDAR	Light Detection and Ranging
MassDFW	Massachusetts Division of Fisheries and Wildlife
mg/kg	milligram per kilogram
NAD83	North American Datum of 1983
NAVD88	North American Vertical Datum of 1988
NGVD29	National Geodetic Vertical Datum of 1929
PCB	polychlorinated biphenyl
PDI	pre-design investigation
PSA	Primary Study Area
QA/QC	quality assurance/quality control
RCMS	*Housatonic River – Rest of River, Revised Corrective Measures Study Report*
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
Reach 5A Floodplain PDI Work Plan	*Second Revised Pre-Design Investigation Work Plan for Reach 5A Non-Residential Floodplain Exposure Areas*
Reach 5A Sediment/ Bank PDI Work Plan	*Revised Pre-Design Investigation Work Plan for Reach 5A Sediment and Riverbanks*
Reach 6 PDI Work Plan	*Pre-Design Investigation Work Plan for Reach 6*
Revised Final Permit	Revised Final Resource Conservation and Recovery Act Permit Modification
RFI	RCRA Field Investigation
ROR	Rest of River
RU	Remediation Unit

TOC	total organic carbon
UDF	Upland Disposal Facility

1 Introduction

1.1 Background

Pursuant to Section II.H.3 of the Revised Final Resource Conservation and Recovery Act (RCRA) Permit Modification (Revised Final Permit), issued by the U.S. Environmental Protection Agency (EPA) to the General Electric Company (GE) on December 16, 2020, for the Rest of River (ROR) portion of the GE-Pittsfield/Housatonic River Site, GE is required to prepare pre-design investigation (PDI) work plans for the collection of data to be used to support the design for the ROR remedial activities prescribed by the Revised Final Permit. The requirements for PDI work plans for the various ROR areas to be remediated are specified in Section 4.2.3.1 of the *Final Revised Rest of River Statement of Work* (Final Revised SOW; Anchor QEA et al. 2021), submitted by GE on September 14, 2021, and approved by EPA on September 16, 2021.

As described in Section 3.2 of GE's *Final Revised Overall Strategy and Schedule for Implementation of the Corrective Measures* (Final Revised OSS; Anchor QEA 2022), approved by EPA on July 6, 2022, the ROR has been segmented into six separate Remediation Units (RUs) to manage workflow and schedule for the ROR Remedial Action. Reach 5A is the first RU to be addressed because it is the most upstream reach in the ROR, and pre-design work is already underway in that RU. The Final Revised OSS states that sediment removal in Reach 6, which includes Woods Pond and is farther downstream, will be conducted in parallel with sediment/soil removal in Reach 5A such that sediment removal in both reaches will be completed at approximately the same time. To achieve this objective, the Final Revised OSS requires that a PDI Work Plan for Reach 6 be submitted within 120 days after EPA approval of that submittal (i.e., by November 3, 2022). This *Pre-Design Investigation Work Plan for Reach 6* (Reach 6 PDI Work Plan) constitutes that plan.

As specified in Section II.B.2.e of the Revised Final Permit, remediation in Woods Pond will involve removal and engineered capping of sediments in the pond as needed to achieve a post-capping minimum water depth of six feet as measured from the crest of Woods Pond Dam, except in near-shore areas, where the slope from the shore to the six-foot water depth is to be as steep as possible while also being stable. In areas with water depth greater than six feet prior to remediation, sufficient sediment will be removed to allow for the placement of an engineered cap so the final grade is equal to or deeper than the original grade. These requirements and the requirements for remediation of the floodplain associated with Woods Pond are described further in Section 1.3.

While sediment and floodplain soil removal in Reach 6 will be conducted in parallel with sediment/soil removal in Reach 5A, engineered capping in Woods Pond will be delayed until after all sediment and soil removal, backfill/capping, and placement of sediment amendments have been completed in all upstream RUs (i.e., Reaches 5A, 5B, and 5C). This delay in cap placement is anticipated to be on the order of approximately 5 to 6 years; therefore, this Reach 6 PDI Work Plan

describes only the PDI activities and data collection required to support the sediment and floodplain soil removal components of the remedy in Reach 6. An addendum to this Reach 6 PDI Work Plan will be prepared in the future to propose additional PDI data collection needed to support the engineered capping component of the remedy for this reach.

1.2 Description of Reach 6

Under the Consent Decree (CD) for the GE-Pittsfield/Housatonic River Site (EPA and GE 2000), the ROR is defined as the 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). Reach 6 begins approximately 10 miles downstream of the Confluence and consists of Woods Pond, which is an impounded waterbody formed by the construction of Woods Pond Dam in the late 1800s, and its associated floodplain (Figure 1-1). The existing dam at Woods Pond is a concrete overflow weir dam (constructed in 1989) that consists of a 140-foot-long concrete overflow spillway, a concrete non-overflow gravity section with sloped downstream face at the west abutment, and a concrete and steel sheetpile raceway closure structure at the east abutment (GZA 2019). The spillway has a crest elevation of 948.3 feet National Geodetic Vertical Datum of 1929 (NGVD29), and the top elevation of the west abutment is 954.0 feet NGVD29 (GZA 2019).[1]

Woods Pond is approximately 0.2 mile in length and has a surface area of approximately 60 acres. Water depths (as measured from the crest of the dam) over much of the pond generally range from one to three feet; however, a deeper portion on the southeastern side of the pond has a maximum depth greater than 15 feet. The water in Woods Pond is relatively slow-moving and contains aquatic habitat characteristics of a standing, shallow-water environment.

Within Reaches 5 and 6 (i.e., between the Confluence and Woods Pond Dam), the CD defines the ROR site boundary as the floodplain area extending laterally to the 1 milligram per kilogram (mg/kg) polychlorinated biphenyl (PCB) isopleth, which corresponds approximately to the 10-year floodplain. The floodplain in Reach 6 is relatively narrow, generally extending no more than 50 to 150 feet from the pond shoreline. Much of the vegetation in the Reach 6 floodplain consists of hardwood and transitional floodplain forests, with some more limited areas of shrub swamp and emergent marsh habitat (Woodlot 2002).

[1] As described in Section 3.2, the vertical datum being used for data collection conducted pursuant to this PDI is the North American Vertical Datum of 1988 (NAVD88). Using that datum, the Woods Pond Dam spillway crest elevation is 947.7 feet NAVD88.

1.3 Summary of Applicable Remediation Requirements

Section II.B.2.e of the Revised Final Permit sets forth the Performance Standards for remediation of sediment in Woods Pond. Specifically, Section II.B.2.e.(1)(a) requires that sediment be removed throughout the pond and an engineered cap be placed over any residual PCBs such that there is a post-capping minimum water depth of six feet measured from the crest of Woods Pond Dam,[2] with the exception that, in near-shore areas, the slope from the shore to the six-foot water depth needs to be as steep as possible, but also stable and not subject to erosion or sloughing. In areas with water depth greater than six feet prior to remediation, sufficient sediment needs to be removed to allow for the placement of an engineered cap so the final grade is equal to or deeper than the original grade. Section II.B.2.e.(1)(b) requires bathymetric surveys to be conducted before sediment removal and before and after capping. Section II.B.2.e.(2) provides that, if feasible, sediment removed from Woods Pond will be conveyed hydraulically to the Upland Disposal Facility (UDF) for processing, provided that such sediment meets the applicable criteria in the Revised Final Permit for disposal in the UDF.

There are no prescribed sediment sampling requirements in the Revised Final Permit or Final Revised SOW to meet the Performance Standards for Reach 6; however, requirements related to characterization of sediment excavated from the ROR for the purposes of disposal in the UDF or off site are provided in Attachment E of the Revised Final Permit. That attachment states that both relevant historical data from the RCRA Field Investigation (RFI) and data collected pursuant to the Revised Final Permit will be used for disposal characterization for Reach 6 sediments. Additional vertical core sediment samples need to be collected to supplement the existing data by filling in any horizontal data gaps and characterizing the full vertical extent of sediments to be removed; however, there are no prescribed requirements for data gap sediment sampling in Woods Pond.

Section II.B.3 of the Revised Final Permit sets forth the Performance Standards for ROR floodplain soil and vernal pools, which apply to the floodplain in Reach 6. Section II.B.3.a.(2)(a) requires GE to conduct additional sampling of floodplain soil (as needed) to determine the total PCB exposure point concentration (EPC) for each floodplain Exposure Area (EA) using a Thiessen polygon approach. Footnote 12 of the Revised Final Permit further states that, for the non-residential EAs, "the EPCs shall be calculated using the methods described in Appendix D to the GE's Corrective Measures Proposal and subsequent revisions described in Section 4.4 in GE's October 2010 Revised Corrective Measures Study, including the use of an approved 95% Upper Confidence Limit method to estimate the mean concentration of total PCBs, the use of spatially interpolated representation of Floodplain soil PCB data, and factoring in habitat community mapping where applicable." In addition to the

[2] The post-capping minimum water depth is applicable to Woods Pond proper and does not apply to all of Reach 6 (which, in addition to Woods Pond, includes an approximately 500- to 900-foot portion of the headwaters leading into Woods Pond [see Figure 1-1]). It is anticipated that this headwaters portion of Reach 6 will be a transition zone between the downstream end of Reach 5C and Woods Pond.

sampling requirements, the Revised Final Permit specifies numerical Performance Standards—i.e., soil PCB concentrations to be achieved—for the floodplain EAs, based on their current exposure scenarios (Tables 1 and 2 of the Revised Final Permit). The listed floodplain EAs located in Reach 6 are designated EAs 56 through 60, as shown on Figure 3 of the Revised Final Permit.

In the event that vernal pools are identified in the Reach 6 floodplain, Section II.B.3.b sets forth the applicable Performance Standards. Those Performance Standards require remediation of any vernal pool with a spatial average PCB concentration greater than 3.3 mg/kg, either by application of an amendment such as activated carbon or by excavation and replacement of the soil/sediment in the pool.

1.4 Work Plan Organization

The remainder of this Reach 6 PDI Work Plan is organized into the follow three sections:

- Section 2 provides a summary of existing sediment and floodplain soil PCB data for Reach 6.
- Section 3 contains a summary of data quality objectives (DQOs) for the sediment and floodplain soil PDI and a description of proposed PDI activities, including field surveys and sampling and analysis.
- Section 4 provides a schedule for performance of the PDI activities described herein and a description of how the data collection activities and analytical results will be reported.

2 Summary of Prior Reach 6 Investigations and Field Surveys

2.1 Sediment PCBs

Numerous investigations were conducted dating back to the 1970s to evaluate the presence and extent of PCBs in the Housatonic River sediments. Between 1979 and 1998, 2,172 sediment samples were collected within the Massachusetts and Connecticut portions of the river by GE, as well as the Connecticut Agriculture Experiment Station and U.S. Geological Survey, with 506 of those samples collected within Reach 6 (BBL and QEA 2003, Table 4-2). EPA conducted the most current sampling of sediments in the ROR as part of its Supplemental Investigation between 1998 and 2002 (Weston 2000). That study included both systematic and discrete sediment sampling programs along the entire ROR to further delineate the nature and extent of PCBs in sediment and to facilitate EPA's human health and ecological risk assessments and modeling study. Specifically, the systematic sampling consisted of the collection of samples at regular intervals, and the discrete sampling consisted of "random, judgmental, or focused samples collected at distinct locations" to support specific sampling objectives (Weston 2000). That sampling program resulted in the collection of approximately 700 sediment samples within Reach 6. Surface sediment (0- to 6-inch) PCB concentrations in this dataset within Reach 6 ranged from non-detect to 210 mg/kg and have median and average concentrations of 17 and 32 mg/kg, respectively. These previous investigations show that average PCB concentrations in this reach generally decrease with depth and are at or below 1 mg/kg at depths greater than six feet (BBL and QEA 2003, Table 4-8).

In addition, EPA and GE conducted a joint sampling program to evaluate sediment PCB partitioning characteristics in 2001. This program included PCB analysis of porewater extracted from surface sediment (0- to 6-inch) core samples. For this program, 14 sediment samples were collected in Reach 6.

2.2 Floodplain Soil PCBs

Several studies dating back to the late 1980s were conducted to characterize PCB concentrations in floodplain soil in the ROR. Between 1988 and 1998, GE collected more than 1,000 floodplain soil samples along the Massachusetts portion of the ROR, with nearly 180 of those samples located in the Reach 6 floodplain. An additional comprehensive sampling of the ROR floodplain was conducted by EPA as part of its Supplemental Investigation between 1998 and 2002 (Weston 2000). EPA collected nearly 5,000 floodplain soil samples (including in vernal pools) during the Supplemental Investigation; approximately 150 samples were collected in the Reach 6 floodplain. PCB concentrations in the surface soil samples (top six inches) in this Reach 6 dataset ranged from non-detect to 321 mg/kg and have median and average concentrations of 1.0 and 19 mg/kg, respectively.

2.3 Data on Other Parameters

In addition to the PCB data described above, a considerable amount of sediment and floodplain soil data on other parameters has been collected in Reach 6, much of which was collected as part of EPA's Supplemental Investigation between 1998 and 2002 (Weston 2000). This dataset includes, for sediments, approximately 480 sample results for total organic carbon (TOC), 320 for percent solids, and 95 for grain size distribution (in 0- to 6-inch samples) and, for floodplain soils, approximately 20 sample results for TOC, 130 for percent solids, and 15 for grain size distribution.

2.4 Field Surveys

Field surveys were conducted previously in the river in Reach 6 by EPA as part of its Supplemental Investigation between 1998 and 2002 (Weston 2000). Those surveys included flow and stage height monitoring, velocity measurements, and measurement of geometry.

More recently, between December 2021 and May 2022, in accordance with GE's *Revised Pre-Design Investigation Work Plan for Reach 5A Sediment and Riverbanks* (Reach 5A Sediment/Bank PDI Work Plan; Anchor QEA and AECOM 2022), detailed topographic and bathymetric surveys of the riverbed and floodplain were conducted for the length of the Primary Study Area (PSA) (i.e., from the Confluence to Woods Pond Dam), extending laterally to include the approximate 100-year floodplain and including nearby infrastructure (e.g., roads). These surveys were conducted for the entire length of the PSA, rather than being limited to Reach 5A, because topographic and bathymetric data are needed to develop the hydraulic model that will be used as a design tool for Reach 5A. That model is planned to extend from the Confluence to Woods Pond Dam, given that the latter serves as a hydraulic control point for much of the PSA.

Specifically, in December 2021 (during low-flow, leaf-off conditions), an aerial Light Detection and Ranging (LiDAR) survey of floodplain topography was conducted for the entire PSA (i.e., from the Confluence to Woods Pond Dam). In late April and early May 2022, a single-beam sonar bathymetric survey was conducted throughout the entire PSA main channel (where water depth was sufficient to conduct such a survey), including Woods Pond. In areas where single-beam sonar could not be deployed due to limited water depth, such as some shallow portions of Woods Pond, bathymetry was surveyed using conventional survey methods from a shallow draft vessel or on foot by survey personnel wearing waders.

3 Pre-Design Investigation Activities

3.1 Data Quality Objectives

The overall objective of the PDI activities in this Reach 6 PDI Work Plan is to provide the data necessary to meet the requirements of the Revised Final Permit and support remedial design for Woods Pond and the associated floodplain. Specific DQOs for this PDI are as follows:[3]

DQO 1. Gather additional bathymetric information within Woods Pond to address existing data gaps and to support the sediment removal design.

DQO 2. Obtain sediment thickness data to support the dredge design to achieve a post-capping minimum water depth of six feet within Woods Pond and to remove sediments to facilitate placement of the engineered cap.

DQO 3. Identify and delineate structures and utilities and other base-map information to support the remedial design to protect those features and worker safety.

DQO 4. Characterize PCB concentrations in sediments and floodplain soils to be removed to support assessment of on-site versus off-site disposal requirements.

DQO 5. Update floodplain accessibility information to support evaluations of floodplain soil PCB data with respect to accessibility.

DQO 6. Obtain soil PCB data within the Reach 6 and adjacent floodplain to supplement the existing floodplain soil PCB data set, as appropriate, to provide ample spatial coverage and sample density that captures the variability in floodplain soil PCB concentrations, and to be used for calculation of representative 0- to 1-foot PCB EPCs for the non-residential EAs in the Reach 6 floodplain and 0- to 3-foot PCB EPCs for the Frequently Used Subareas in that floodplain.

DQO 7. Provide a dataset of 0- to 1-foot and 0- to 3-foot EPCs that can be used to demonstrate that the applicable Performance Standards for the non-residential EAs and Frequently Used Subareas in the Reach 6 floodplain either are currently achieved or will be achieved through the performance of remediation activities to be specified during remedial design.

[3] These DQOs do not include characterizing the existing habitat in Reach 6 or obtaining information on potential archaeological and historical resources in Reach 6. The former is covered by GE's *Revised Baseline Restoration Assessment Work Plan for Rest of River Reaches 5B Though 8* (BRA Work Plan for Reaches 5B-8; AECOM 2022a), submitted to EPA on August 2, 2022; and the latter is covered by GE's *Supplemental Phase IA Cultural Resources Assessment Work Plan* (AECOM 2022b), submitted to EPA on January 17, 2022, and approved by EPA on April 20, 2022, and the *Supplemental Phase IA Cultural Resources Assessment Report for the Housatonic Rest of River* (AECOM 2022c), submitted to EPA on October 20, 2022.

DQO 8. Provide sufficient floodplain soil PCB data to support future remedial design and remedial action evaluations and work plans for the non-residential EAs and Frequently Used Subareas in the Reach 6 floodplain. While supplemental data may be needed, the combined data sets should support delineation of the remediation extent to meet applicable Performance Standards, including preliminary access and constructability considerations.

DQO 9. Obtain sufficient PCB data in Core Area 1 habitat areas to ensure that these areas are adequately characterized.[4]

DQO 10. Obtain geotechnical properties of sediment to be removed from Woods Pond to support the dredging and dredged material handling design, and for sediments that will remain after dredging, to evaluate the post-dredging slopes in near-shore areas such that they are as steep as possible, stable, and not subject to erosion or sloughing.

3.2 Field Surveys

PDI activities to address DQOs 1 through 3 will involve three field surveys. These will consist of supplemental bathymetric surveys, sediment probing, and a survey of shoreline structures and utilities.[5] All survey coordinates will be gathered and recorded using the following horizontal and vertical datums, respectively: Massachusetts State Plane, Mainland Zone, North American Datum of 1983 (NAD83), U.S. feet; and North American Vertical Datum of 1988 (NAVD88), U.S. feet.

3.2.1 Bathymetric Survey

As noted above, Section II.B.2.e.(1)(b) of the Revised Final Permit requires bathymetric surveys to be conducted prior to sediment removal. As described in Section 2.4, a recent survey of Woods Pond bathymetry was conducted in early 2022. Figure 3-1 shows an interpolated bathymetry surface within Woods Pond based on the 2022 survey; this figure also includes an overlay of the discrete locations where single-beam sonar soundings and conventional survey data were collected during this survey. As noted in Section 2.4, there were some limited portions of Woods Pond where the single-beam sonar could not be deployed due to limited water depth. Therefore, additional bathymetric survey data will be collected under this Reach 6 PDI Work Plan in those portions of Woods Pond that could not be accessed during the 2022 survey (DQO 1). The additional bathymetric survey data will be

[4] As defined in the Revised Final Permit, Core Area 1 habitat consists of areas identified by the Massachusetts Division of Fisheries and Wildlife as areas with "the highest quality habitat for species that are most likely to be adversely impacted by PCB remediation activities," most of which species are plants because they are not mobile (Attachment B to Revised Final Permit).

[5] Field surveys to characterize the existing habitat in Woods Pond will be conducted in accordance with the BRA Work Plan for Reaches 5B-8 (AECOM 2022a).

collected either using single-beam sonar during higher flows when water depths are approximately three feet or greater or using conventional survey methods from a shallow draft vessel.

3.2.2 Sediment Probing

Sediment probing will be conducted within Woods Pond to characterize sediment thickness and general sediment texture in support of sediment sampling activities and remedial design (DQO 2). Sediment probing will be conducted at the sediment PCB sampling grid locations described in Section 3.3.1. Probing will be performed at a minimum of three locations within each grid cell. The objective of the probing is to map approximate sediment thickness at various locations throughout Woods Pond and determine the likelihood of obtaining the desired sediment sample collection depth at the target sampling locations described in Section 3.3.1. Sediment probing will be conducted in advance of sediment sample collection; however, the probing information will not be used to eliminate any of the proposed target sampling locations or depths in advance.

Sediment probing will be performed following the methodology outlined in GE's current *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP; Arcadis 2013) unless a ROR FSP/QAPP has been submitted and approved by that time, in which case the methodology in that ROR FSP/QAPP will be followed. In summary, sediment probing will be conducted from a shallow draft vessel (where possible) or by wading in shallow-water areas. Probing will be performed utilizing a small-diameter (less than 0.5-inch) steel rod advanced manually through the sediment to refusal. Additional rod lengths will be available to accommodate deep water and/or thick sediment deposits. A standard survey rod (approximately two-inch diameter) will be used to measure water depth and identify the sediment-water interface. During all probing activities, the horizontal coordinates of the probing location, water depth, sediment thickness, relative sediment consistency, date, time, and any pertinent visual observations will be recorded. Horizontal position data will be collected with a differential global positioning system (DGPS) capable of sub-foot accuracy.

3.2.3 Shoreline Structure and Utility Surveys

The presence of aboveground and underground utilities could pose risks during sample collection and/or remedial construction work to both the integrity of the utility and the safety of the workers. Therefore, a survey of shoreline structures and utilities will be conducted in support of DQO 3.

In preparation for PDI subsurface sediment and floodplain sampling work, a utility clearance will be conducted to identify the locations of utilities within the planned work area. Massachusetts law requires that a utility clearance be performed prior to initiation of any subsurface work. Massachusetts Dig Safe Inc. (i.e., 811) will be contacted as part the PDI activities to coordinate utility identification and mark-outs within Reach 6. The Dig Safe utility mark-outs include a 30-day expiration date, beyond which the mark-outs are invalid unless markings are preserved. Identified utilities and their locations within the planned work area will be documented and surveyed as

appropriate, and the locations of identified natural gas, electric, telephone, cable television/internet, water, and sewer lines will be depicted on maps. This documentation of utility locations and types will be retained to support future remedial design and construction work.

The presence and locations of observed shoreline structures and utilities will also be documented during field reconnaissance activities conducted concurrently with the sediment and floodplain sampling programs.

During the PDI, active outreach will also be conducted with local city building departments and county and state transportation agencies regarding the presence of utilities and structures that could impact the PDI, remedy implementation, worker safety, and/or utility integrity.

3.3 Sampling and Analysis

3.3.1 Sediment PCB Characterization

Sediment sampling will be performed in Woods Pond to characterize PCB concentrations over the full vertical extent of sediments to be removed (i.e., the removal needed to achieve a post-capping minimum water depth of six feet) so as to support an assessment of disposal requirements in accordance with Attachment E of the Revised Final Permit (DQO 4). Specifically, the results of sediment samples collected during this PDI will be used, together with relevant data from the RFI, to determine the volume-weighted average PCB concentration of the sediment to be removed from Woods Pond. In addition, the results of samples collected from Woods Pond as part of the PDI will be used to determine the length-weighted average concentration at each vertical core location within the targeted removal depth. These data will be used to differentiate sediments suitable for disposal in the UDF from those to be sent off site for disposal, consistent with the requirements of Attachment E of the Revised Final Permit.

A grid-based sampling design was selected to characterize the sediments within Woods Pond to provide spatial representation across the pond and to characterize the full depth of sediment to be removed. As described in Section 2.1, approximately 700 discrete sediment samples were collected from Reach 6 during the prior sampling conducted by EPA. While this is a considerable amount of data, this existing data set does not provide full horizontal or vertical characterization of the sediments to be removed from Reach 6 as required by the Revised Final Permit.

Sediment PCB sampling within Reach 6 will be conducted on a 200-foot grid as shown on Figure 3-2; this corresponds to 84 core locations, including 66 cores within the pond and 18 cores in the headwaters transition zone between the downstream end of Reach 5C and Woods Pond. The core sampling locations have been sited in the middle of the 200-foot grid cells or off-center to avoid existing landforms, to target shallower water (deeper sediment sample thicknesses), or to focus on near-shore areas. At each core location, sediment samples will be segmented in 12-inch intervals for

PCB analysis from the sediment surface to the bottom of the core as described below. Each 200-foot grid cell equates to 40,000 square feet (0.92 acre), and each discrete 12-inch sample interval will be representative of a maximum of approximately 1,480 cubic yards of in situ sediment, which is adequate for disposal characterization based on the total estimated volume of sediment to be dredged from Woods Pond. Core samples will also be collected at four locations within the outlet channel between the pond and the dam at a 250-foot spacing, consistent with the transect spacing for channel sampling prescribed in Attachment E of the Revised Final Permit for other upstream reaches of the river.

In accordance with the Revised Final Permit, the sediment removal depth within Woods Pond will be based on achieving a post-capping minimum water depth of six feet measured from the crest of Woods Pond Dam (i.e., elevation 947.7 feet NAVD88) (except in near-shore areas). Because the Woods Pond cap thickness has not yet been determined, the depth of sediment coring will extend an additional four feet beyond what is needed to characterize sediments that would be removed to achieve the six-foot minimum water depth (i.e., a total depth of 10 feet below the dam crest, corresponding to a bottom elevation of 937.7 feet NAVD88) or to the depth of refusal if encountered first. At sampling locations where the existing sediment surface is already more than six feet below the dam crest (i.e., below elevation 941.7 feet NAVD88), sediment core samples will be advanced to a total depth of four feet below the existing mudline elevation or to the depth of refusal if encountered first. In addition, sediment cores collected within the headwaters transition zone between the downstream end of Reach 5C and Woods Pond and within the outlet channel between the pond and the dam will be advanced to a depth of four feet below the existing mudline elevation (see Figure 3-2) or to the depth of refusal if encountered first. The core samples collected will be analyzed for PCBs in 12-inch depth increments, except that the bottom two feet of each core sample will be archived for potential future PCB analysis after review of analytical results for the upper sampling intervals. These bottom depth increments are anticipated to represent sediment that will remain after dredging is complete.[6]

Based on the sampling design described above and the current bathymetry data at each sampling location, this sampling will involve PCB analysis of an estimated 476 discrete 12-inch sediment samples from the 88 core locations shown on Figure 3-2. In addition, an estimated 176 discrete 12-inch sediment samples collected from the bottom two feet of each core sample will be archived for potential future PCB analysis. These sample quantities may vary based on field conditions—specifically, if refusal is encountered prior to achieving the full target sampling depth or if the existing sediment surface varies from the interpolated bathymetry surface shown on Figure 3-1.

[6] As described in Section 3.3.3.1, a subset of the sediment samples collected will be analyzed for the full depth of 10 feet below the crest of Woods Pond Dam (i.e., elevation 937.7 feet NAVD88) for geotechnical parameter testing to support an assessment of slope stability of sediment that will remain in the pond after dredging.

The sediment sample collection and processing will be performed following the methodology specified in GE's current FSP/QAPP (Arcadis 2013) unless a ROR FSP/QAPP has been submitted and approved by that time, in which case the methodology in that ROR FSP/QAPP will be followed. Due to the required depth of sampling, it is expected that most samples will be collected using vibracore sediment sampling methods. Manual core sampling methods may be used as appropriate for thinner sediment sample thicknesses (i.e., in deeper water areas, the transition zone between Reach 5C and Woods Pond, and the outlet channel upstream of the dam). The sampling crew will locate proposed sediment sampling locations using a DGPS. It may be necessary to make small adjustments to some of the target sampling locations based on conditions encountered in the field. In the event that any more significant adjustments to target sampling locations are necessary, they will be discussed with and approved by the EPA field representative. Coordinates of the actual sampling locations will be recorded using DGPS.

Each discrete sediment sample designated for PCB analysis will be analyzed for PCBs as Aroclors using EPA Method 8082, applying quality assurance/quality control (QA/QC) measures specified in GE's current FSP/QAPP (Arcadis 2013) unless a ROR FSP/QAPP has been submitted and approved by that time, in which case the QA/QC measures specified in that ROR FSP/QAPP will be followed.

3.3.2 Floodplain Soil PCB Characterization

EPA's *Human Health Risk Assessment* (HHRA; EPA 2005) divided the ROR floodplain into 90 EAs for the assessment of direct human contact with floodplain soils. Although those EAs were initially defined by EPA starting with property boundaries, the EAs covered by this work plan are limited to the portions of the floodplain between the edge of the Housatonic River and the ROR floodplain boundary.[7] Specific non-residential exposure scenarios and receptors were then assigned to each such EA. Several of those EAs contain overlying direct-contact subareas, which are typically characterized by a different and/or more frequent exposure scenario.[8] In addition, in the *Housatonic River – Rest of River, Revised Corrective Measures Study Report* (RCMS; Arcadis et al. 2010), GE identified "heavily used subareas" within EAs. These heavily used subareas are referred to as "Frequently Used Subareas" in the Revised Final Permit and are also referred to as such in this Reach 6 PDI Work Plan.

[7] As described in Section 4.3.5 of the HHRA (EPA 2005), EAs were defined by EPA starting with individual tax parcels. The parcels were kept intact, subdivided, or combined with adjacent parcels based on similarity of land use, similarity of ownership, and/or number of available soil samples. In many cases, parcel boundaries extend beyond the lateral boundaries of the ROR (defined in the CD as the 1 mg/kg PCB isopleth in Reaches 5 and 6, which is approximated by the 10-year floodplain); however, the EAs evaluated for potential soil remediation will be limited to the portion of the floodplain between the edge of the Housatonic River and the ROR floodplain boundary.

[8] Specifically, as described in the HHRA, several EAs were divided into subareas based on the observation that distinct activities could occur at different locations within the EA. In these cases, a risk assessment was conducted for the activity in the subarea in addition to the activity in the EA as a whole.

Of the 90 EAs identified in the HHRA, five are located wholly or partially within Reach 6 (EAs 56 through 60), as shown on Figure 3-3. EAs 56 and 57 are located partially within Reach 5C but will be fully characterized as part of this Reach 6 PDI. Three of the five EAs in Reach 6 contain subareas based on distinct exposure scenarios (EAs 56a, 59a, and 60a). In addition, three of the EAs in this reach contain Frequently Used Subareas identified in the RCMS (EAs 58, 59, and 60).

This section describes the proposed sampling of these Reach 6 floodplain EAs and subareas for PCBs. GE's *Second Revised Pre-Design Investigation Work Plan for Reach 5A Non-Residential Floodplain Exposure Areas* (Reach 5A Floodplain PDI Work Plan; Anchor QEA 2021) provides a detailed description (including a separate attachment) of the methods that will be used for calculation of floodplain removal areas and volumes based on the PCB data. Those same methods (which are not repeated here to avoid unnecessary duplication) will be likewise applied to the Reach 6 floodplain.

Desktop evaluation and field surveys to characterize the existing habitats in the Reach 6 floodplain, including updating of the "super habitats" (i.e., grouped habitats having similar characteristics) developed from the Woodlot habitat survey (Woodlot 2002) and the identification and assessment of any vernal pools in the floodplain, will be conducted in accordance with GE's *Revised Baseline Restoration Assessment Work Plan for Rest of River Reaches 5B Through 8* (BRA Work Plan for Reaches 5B-8; AECOM 2022a), submitted to EPA on August 2, 2022.[9] GE proposes to commence those activities in Reach 6 prior to those in the other reaches covered by that work plan. Those evaluations and surveys will also include updating the accessibility categories for the floodplain in Reach 6 (i.e., walkable, wadable, difficult, and boatable) to meet DQO 5.

In addition, survey activities will include delineation of the extent of the Frequently Used Subareas within Reach 6 because these areas were defined at a relatively coarse spatial resolution in the RCMS. For example, in the RCMS, all trails/paths were defined as approximately 10-foot-wide corridors, while aerial photos were used to define all other types of these areas. For each of the Frequently Used Subareas in Reach 6, the actual extent of the area that appears to be frequently used will be identified by visual observations (e.g., hiking/biking trails with either disturbed or absent vegetation) and will be surveyed using traditional survey equipment or DGPS.

Section 3.3.2.1 describes the approach used to identify proposed soil PCB sampling locations, and Section 3.3.2.2 provides a detailed description of the soil PCB sampling needs in each of the five EAs located within Reach 6. These sampling activities will meet DQOs 4 and 6 through 9. The proposed soil PCB sampling locations shown in this work plan should be considered preliminary and subject to change based on any future updates to the super habitat mapping. Any changes to the proposed

[9] It should be noted that only one small vernal pool was previously identified by EPA in the Reach 6 floodplain. That pool and any other potential vernal pools in Reach 6 will be evaluated in accordance with the BRA Work Plan for Reaches 5B-8 (AECOM 2022a).

soil sampling locations will be submitted to EPA for review and approval. All samples designated for PCB analysis will be analyzed for PCBs as Aroclors using EPA Method 8082, applying QA/QC measures specified in GE's current FSP/QAPP (Arcadis 2013) unless a ROR FSP/QAPP has been submitted and approved by that time, in which case the QA/QC measures specified in that ROR FSP/QAPP will be followed. As described below, some sample depth increments will be archived for potential future PCB analysis depending on the results from other depth increments.

3.3.2.1 Approach to Identifying Proposed Sampling Locations

Section 3.2.1 of the Reach 5A Floodplain PDI Work Plan (Anchor QEA 2021) provides a detailed description of the approach used to identify proposed floodplain soil PCB sampling locations in that reach. Those same methods have been applied to the floodplain EAs located in Reach 6. In summary, sampling locations were generally determined using a grid-based sampling approach. Sample locations were generally spaced 100 feet apart in floodplain areas that are within 200 feet of the river/pond. The floodplain in Reach 6 is relatively narrow so most areas do not extend farther than 200 feet from the river/pond; however, in the limited areas where the floodplain is wider, sample spacing increases to 300 feet. Consistent with the floodplain sampling approach used in Reach 5A, the 100-foot/300-foot sample spacing described above was modified such that sampling locations provided adequate spatial coverage in each unique super habitat area and avoided being projected (i.e., interpolated) across non-contiguous super habitats or across the river. Therefore, a minimum of two sample locations were placed in each unique super habitat area, even if it required locating samples closer together than 100 or 300 feet (depending on distance from the river). Also, sample locations within Frequently Used Subareas were spaced approximately 100 feet apart regardless of distance from the river.

Depth of sampling and the vertical segmentation of floodplain soil samples to be collected in the Reach 6 EAs will be consistent with those in Reach 5A. In summary, soil sampling is required to a total depth of one foot within the EAs and three feet within the Frequently Used Subareas. There are several areas of the Reach 6 floodplain where samples have been collected previously only from the 0- to 6-inch interval. New PDI samples representing the top foot of soil will be segmented into 0- to 6-inch and 6- to 12-inch intervals. At selected locations where data from the 0- to 6-inch interval already exist, only the 6- to 12-inch interval will be submitted for PCB analysis initially, and the new 0- to 6-inch interval will be archived for potential future analysis if necessary based on the result from the 6- to 12-inch interval.[10] At proposed locations within the Frequently Used Subareas where sampling is required to a depth of three feet, samples will be collected in 0- to 6-inch, 6- to 12-inch, 12- to 24-inch, and 24- to 36-inch intervals. At selected locations where data from the 0- to 6-inch

[10] Analysis of an archived PDI sample from the 0- to 6-inch depth interval may be necessary if the result from the 6- to 12-inch PDI sample is unexpected and indicates an apparent inconsistency with the historical sample data from the 0- to 6-inch depth. Analysis of any held samples will be determined in consultation with EPA and will be subject to EPA approval.

and 12- to 36-inch intervals already exist, only the 6- to 12-inch interval will be submitted for PCB analysis initially, and the new 0- to 6-inch and 12- to 36-inch intervals will be archived for potential future analysis, if necessary, based on the results from the initially analyzed interval.[11] A complete summary of the proposed sampling, including segmentation and archiving, is provided in Appendix A.

With respect to vernal pools, because only one small potential vernal pool has been identified previously in Reach 6, this Reach 6 PDI Work Plan does not include any proposed soil PCB samples in that area. If certifiable vernal pools are identified in Reach 6, additional sampling in those vernal pools will be proposed in the future, if necessary, for EPA approval.

3.3.2.2 Proposed Sampling Locations

This section provides a detailed description of PDI sampling needs in each of the five EAs in Reach 6. Each subsection includes a summary of the EA, including a count and list of properties (i.e., tax parcels) or portions of properties within the EA, the exposure scenario(s) evaluated in the HHRA and RCMS for that EA (including any subarea[s] and/or Frequently Used Subareas evaluated in the RCMS), and a summary of the existing soil PCB data coverage. Following this background information, the proposed PDI sample locations are specified, including the rationale for the number, location, and depth of the samples proposed in each EA.

Figures 3-4 through 3-8 show the following for each EA:

- EA and subarea boundaries;
- Super habitats and accessibility categories based on Woodlot (2002);
- Frequently Used Subareas (where present);
- Core Area 1 habitat, if any;
- Existing floodplain soil PCB samples;
- An approximate 50-foot grid and a line showing a distance of approximately 200 feet from the river shoreline (to provide a visual scale for the targeted inter-sample spacing, not to specifically determine sample locations); and
- Proposed PDI soil sample locations in the EAs.

[11] The need for analysis of such archived samples will be determined based on the same considerations described in the prior footnote but applied to the pertinent depth intervals. Again, that determination will be made in consultation with EPA and will be subject to EPA approval.

3.3.2.2.1 Exposure Area 56

EA 56 occupies approximately 33 acres and is partially within Reach 6, with the northern two-thirds of this EA located in upstream Reach 5C. This EA consists of a portion of Lenox Tax Parcel 9-18, which is a privately owned parcel (see Figure 3-4). EA 56 was classified by EPA as a medium-use area and was evaluated in the HHRA and RCMS using the general recreation exposure scenario for older child and adult receptors (RCMS Table 4-1). EPA also identified one subarea within EA 56 (Subarea 56a). Subarea 56a is a relatively narrow (approximately 25 feet wide) strip of land that encompasses the shoreline portion of EA 56 and represents the portion of this EA where a waterfowl hunting exposure scenario was applied (RCMS Table 4-1). The majority of this EA is classified as walkable with a small portion considered to be wadable and/or difficult-to-access. More than 70% of this EA is considered to be Core Area 1 habitat, and there are no Frequently Used Subareas within this EA.

Previous soil PCB sampling in EA 56 resulted in the analysis of 29 samples from the 0- to 6-inch depth interval and 11 samples from the 6- to 12-inch depth interval. GE proposes to collect soil samples from the top foot of soil at 98 locations within EA 56 (including 45 locations in Subarea 56a), as shown on Figure 3-4. At 86 of the 98 locations, both the 0- to 6-inch and the 6- to 12-inch depth intervals will be submitted for PCB analysis; and at the remaining 12 locations (which have existing 0- to 6-inch data), only the 6- to 12-inch depth interval will be submitted for initial analysis, and the top 0- to 6-inch depth interval will be archived.

3.3.2.2.2 Exposure Area 57

EA 57 occupies approximately 13 acres and is partially within Reach 6, with the northern half of this EA located in upstream Reach 5C. This EA is a portion of Tax Parcel 1-1 on the eastern side of Woods Pond, which is owned by Massachusetts Division of Fisheries and Wildlife (see Figure 3-5). EA 57 was classified by EPA as a high-use area and was evaluated in the HHRA and RCMS using the general recreation exposure scenario for older child and adult receptors (RCMS Table 4-1). Portions of this EA are classified as walkable, wadable, and difficult-to-access. No Core Area 1 habitat or Frequently Used Subareas are present within this EA.

Previous soil PCB sampling in EA 57 resulted in the analysis of 28 samples from the 0- to 6-inch depth interval and two samples from the 6- to 12-inch depth interval. GE proposes to collect soil samples from the top foot of soil at 91 locations within EA 57, as shown on Figure 3-5. At 73 of the 91 locations, both the 0- to 6-inch and the 6- to 12-inch depth intervals will be submitted for PCB analysis; and at the remaining 18 locations (which have existing 0- to 6-inch data), only the 6- to 12-inch depth interval will be submitted for initial analysis, and the top 0- to 6-inch depth interval will be archived.

3.3.2.2.3 Exposure Area 58

EA 58 is an approximately 1.3-acre area located southeast of Woods Pond. This EA is a portion of a privately owned Tax Parcel 2-8 (see Figure 3-6). EA 58 was classified by EPA as a high-use area and was evaluated in the HHRA and RCMS using the general recreation exposure scenario for adult receptors (RCMS Table 4-1). Approximately half of this EA is walkable with the remaining area being wadable and or difficult-to-access. This EA also includes a dirt road/walking path that is defined as a Frequently Used Subarea in the Revised Final Permit. No Core Area 1 habitat is present within this EA.

Previous soil PCB sampling in EA 58 resulted in the analysis of six samples from the 0- to 6-inch depth interval and none within the 6- to 12-inch depth interval. GE proposes to collect soil samples to a depth of one foot at 12 locations within EA 58 and soil samples to a depth of three feet at 10 locations within this EA, as shown on Figure 3-6.[12] At 9 of the 12 locations, both the 0- to 6-inch and the 6- to 12-inch depth intervals will be submitted for PCB analysis; and at the remaining three locations (which have existing 0- to 6-inch data), only the 6- to 12-inch depth interval will be submitted for initial analysis, and the top 0- to 6-inch depth interval will be archived. At each of the three-foot depth locations, the entire three-foot depth interval will be analyzed in 0- to 6-inch, 6- to 12-inch, 12- to 24-inch, and 24- to 36-inch increments.

3.3.2.2.4 Exposure Area 59

EA 59 is an approximately 1.9-acre area located south of Woods Pond. This EA consists of portions of privately owned Tax Parcels 2-4 and 2-12 (Figure 3-7). EA 59 was classified by EPA as a high-use area and was evaluated in the HHRA and RCMS using the general recreation scenario for older child and adult receptors (RCMS Table 4-1). EPA also identified one subarea within EA 59 (Subarea 59a). Subarea 59a is a relatively narrow (approximately 25 feet wide) strip of land that encompasses the shoreline portion of EA 59 and represents the sub-portion of the EA, which was evaluated in the HHRA and RCMS using the bank fishing scenario (RCMS Table 4-1). This entire EA is characterized as walkable. This EA includes a dirt road/walking path connecting to the Woods Pond footbridge that is defined as a Frequently Used Subarea in the Revised Final Permit. No Core Area 1 habitat is present within this EA.

Previous soil PCB sampling in EA 59 resulted in the analysis of 12 samples from the 0- to 6-inch depth interval and three samples from the 6- to 12-inch depth interval. GE proposes to collect soil samples to a depth of one foot at 14 locations within EA 59 (including 11 locations in Subarea 59a) and soil samples to a depth of three feet at 11 locations within this EA, as shown on Figure 3-6.[13] At 12 of the 14 locations, both the 0- to 6-inch and the 6- to 12-inch depth intervals will be submitted

[12] A portion of the Frequently Used Subarea in this EA is located near, but outside of, the 1 mg/kg PCB isopleth. GE has sited three sampling locations in this area given the close proximity to the isopleth.

[13] A portion of the Frequently Used Subarea in this EA is located near, but outside of, the 1 mg/kg PCB isopleth. GE has sited six sampling locations in this area given the close proximity to the isopleth.

for PCB analysis; and at the remaining two locations (which have existing 0- to 6-inch data), only the 6- to 12-inch depth interval will be submitted for initial analysis, and the top 0- to 6-inch interval will be archived. At each of the three-foot depth locations, the entire three-foot depth interval will be analyzed in 0- to 6-inch, 6- to 12-inch, 12- to 24-inch, and 24- to 36-inch increments.

3.3.2.2.5 Exposure Area 60

EA 60 is an approximately one-acre area located southwest of Woods Pond. This EA consists of a portion of privately owned Tax Parcel 9-16 (see Figure 3-8). EA 60 was classified by EPA as a high-use area and was evaluated in the HHRA and RCMS using the general recreation scenario for older child and adult receptors (RCMS Table 4-1). EPA also identified one subarea within EA 60 (Subarea 60a). Subarea 60a is a small portion of the EA's northern quarter and was evaluated in the HHRA and RCMS using the recreational canoeist scenario. All of Subarea 60a is defined as a Frequently Used Subarea in the Revised Final Permit. Approximately half of EA 60 is considered walkable, and the remaining area is wadable and/or difficult-to-access. No Core Area 1 habitat is present within this EA.

Previous soil PCB sampling in EA 60 resulted in the analysis of 15 samples from the 0- to 6-inch depth interval and three samples from the 6- to 12-inch depth interval. GE proposes to collect soil samples from the top foot of soil at four locations within EA 60, as shown on Figure 3-8. At one of the four locations, both the 0- to 6-inch and the 6- to 12-inch depth intervals will be submitted for PCB analysis; and at the remaining three locations (which have existing 0- to 6-inch data), only the 6- to 12-inch depth interval will be submitted for initial analysis and the top 6-inch interval will be archived. Within the EA 60a Frequently Used Subarea, GE proposes to collect soil samples to a depth of three feet at three locations. At one location, the entire three feet will be analyzed (in 0- to 6-inch, 6- to 12-inch, 12- to 24-inch, and 24- to 36-inch increments). At the remaining two locations, only the 6- to 12-inch depth interval will be submitted for initial analysis, and the top 0- to 6-inch interval, as well as the 12- to 24-inch and 24- to 36-inch intervals, will be archived.

3.3.2.3 Summary

The pre-design PCB soil sampling proposed herein will involve collection of soil samples from 243 locations within the five non-residential EAs in the Reach 6 floodplain. Of these 243 locations, 219 are one-foot sampling locations and 24 are three-foot sampling locations. Of the 219 one-foot sampling locations, 181 will include PCB analysis of both the 0- to 6-inch and 6- to 12-inch depth intervals (for a total of 362 samples), and 38 will include PCB analysis of just the 6- to 12-inch depth interval (with the 0- to 6-inch depth interval to be archived). Table 3-1 provides a summary of the number of proposed PDI sample locations for each EA. Appendix A provides a full tabular summary of all proposed samples, including grid IDs and depth intervals to be sampled/held.

Table 3-1
Summary of Proposed PDI Sampling Locations at Floodplain Exposure Areas

EA	Parcel	Owner	Number of Existing Samples		Number of Proposed PDI Sampling Locations	
			0–6 inches	6–12 inches	1-foot	3-foot
56	9-18	Private, non-residential	29	11	98	0
57	1-1	MassDFW	28	2	91	0
58	2-8	Private, non-residential	6	0	12	10
59	2-4, 2-12	Private, non-residential	12	3	14	11
60	9-16	Private, non-residential	15	3	4	3
Total			**90**	**19**	**219**	**24**

3.3.3 Sediment Geotechnical Characterization

Geotechnical characterization will be performed to support the sediment removal design for Woods Pond. Specifically, geotechnical characterization data will provide information about the material types that will be subject to dredging, including the feasibility of hydraulically transporting the dredged material to the UDF in accordance with Section II.B.2.e.(1)(b) of the Revised Final Permit, and to support an assessment of slope stability of sediment that will remain in the pond after dredging (DQO 10).[14]

The geotechnical investigation will include collection of data to identify sediment material types and general index properties (e.g., moisture content, organic content, grain size, Atterberg limits, density, and specific gravity), and measure the shear strength of the sediment using in situ vane shear testing and laboratory triaxial shear strength testing. The geotechnical sampling will be performed in conjunction with the PCB characterization sampling described in Section 3.3.1 and is described below.

3.3.3.1 Soil/Sediment Properties

A subset of the sediment samples collected as described in Section 3.3.1 will be analyzed for geotechnical parameters. Specifically, 25% of the sediment samples collected will be selected and submitted for analysis for the following geotechnical parameters:

- Moisture content (using ASTM D2216/D2974A);
- Organic content (using ASTM D2974);

[14] After completion of the Reach 6 PDI, additional treatability testing of the sediment may be proposed as part of the Conceptual RD/RA Work Plan for this reach to evaluate the ability and methods for hydraulic transport and dewatering of sediment dredged from Woods Pond.

- Particle size analysis (using ASTM D6913/D7928); and
- Atterberg limits for fine-grained materials (using ASTM D4318).

In addition, a smaller subset of the geotechnical samples (approximately 10% to 20% of the initial subset of samples collected for the index property testing described above) will be submitted for bulk density analysis (using ASTM D7263), and up to five samples from each unique geologic material type encountered within Woods Pond will be submitted for specific gravity analysis (using ASTM D854).

The geotechnical samples will be collected from the same core locations targeted for PCB sampling, as described in Section 3.3.1, and from two underlying one-foot depth intervals that will provide physical data for sediment estimated to remain after dredging. The geotechnical samples will be collected from the full thickness of continuous geologic material types in a particular core. For example, if there is a continuous sand layer from 12 to 30 inches, the sample will be collected over that full thickness, rather than limiting the sample to a 12-inch section. Samples will not be composited from multiple core locations.

The specific samples to be subject to geotechnical analyses (i.e., 25% of the overall sediment samples collected) will be selected in the field to provide data that are spatially representative of Reach 6 but with a focus on near-shore areas. Samples will also be selected to provide data for each unique geologic material type and from various sampling depths, including sediment targeted for removal and sediment that will remain after dredging.

Table 3-2 provides a summary of the target number of samples for testing of each geotechnical parameter along with the analytical methods.

Table 3-2
Summary of Geotechnical Parameters Testing

Parameter	Analytical Method	Approximate Number of Samples
Moisture Content	ASTM D2216/D2974A	160
Organic Content	ASTM D2974	160
Particle Size	ASTM D6913/D7928	160
Atterberg Limits	ASTM D4318	TBD[1]
Bulk Density	ASTM D7263	30
Specific Gravity	ASTM D854	25

Note:

1. TBD (to be determined): The number of samples to be analyzed for Atterberg limits will depend on the amount of fine-grained sediments encountered.

3.3.3.2 In Situ Vane Shear Testing

In situ vane shear testing will be conducted within Woods Pond to measure the undrained shear strength of the relatively soft, fine-grained sediments (clays and silts). The vane shear testing will focus on areas where fine-grained sediments are expected, which is currently expected to include most of the pond. The vane shear testing will be performed using a hand-held vane shear test apparatus. The vane shear testing will be conducted within the same 200-foot sampling grid used for the PCB characterization sampling described in Section 3.3.1, and the locations for this testing will be co-located with those locations (Figure 3-9).

The vane shear testing in Woods Pond will be conducted using a hand-held vane shear testing apparatus in one-foot increments starting one foot below the existing mudline and advancing to refusal. The actual testing locations may be adjusted in the field based on observations of the material types encountered during the PCB characterization sampling. The test method is not applicable to coarse-grained sediment (i.e., sand), so it will not be performed in locations (if any) where that material type is encountered. Vane shear testing will be conducted in general accordance with ASTM D2573/D2573M and the standard operating procedure provided in Appendix H to the Reach 5A Sediment/Bank PDI Work Plan (Anchor QEA and AECOM 2022).

3.3.3.3 Laboratory Sediment Strength Testing

The geotechnical investigation program will also include laboratory testing of sediment shear strength for both sediment to be dredged and sediment that will remain in place after dredging. The sediment samples collected for this testing will focus on near-shore areas where dredge prism slopes will be designed to be stable, yet as steep as possible in accordance with the Revised Final Permit. The sediment samples for laboratory strength testing will be collected from up to five locations, as shown on Figure 3-9. At each location, sediment samples will be collected from depths of 4 to 8 feet and 8 to 10 feet below the crest of the Woods Pond Dam. The number and locations of sediment samples collected for strength testing may be adjusted based on field conditions and observations during the sediment sampling program described in Section 3.3.1 to target silt or clay layers.

If undisturbed samples can be collected, the sediment samples will be analyzed for consolidated undrained triaxial shear strength (ASTM D4767). Triaxial strength testing requires the collection of an undisturbed, thin-walled tube sample (ASTM D1587). Vibracore sampling methods will not be used to collect the undisturbed samples. In conjunction with the sediment sampling program described in Section 3.3.1, collection of relatively undisturbed sediment samples will be attempted using manual push core methods. If manual sampling methods are not successful due to the sediment thickness/type, sample collection will be attempted using a vibracore sampler in “non vibrate” mode or using a slide hammer. If these sampling methods are not successful due to site conditions, alternate equipment and sampling methods will be evaluated and will be applied, as appropriate, as

part of supplemental data collection activities to be described in the Conceptual RD/RA Work Plan for this RU.

3.4 Summary of Pre-Design Investigation Activities

Table 3-3 summarizes the various field surveys and sampling and analysis activities described in Sections 3.2 and 3.3.

Table 3-3
Summary of Pre-Design Investigation Activities

Program	Survey/Sampling	Description
Field Surveys	Bathymetric Survey	Single-beam sonar survey of Woods Pond in areas not covered by the prior 2022 survey that have sufficient water depth; conventional survey in shallow areas with prior data gaps.
	Sediment Probing	Probing of sediment thickness in Woods Pond.
	Shoreline Structures and Utility Surveys	Utility clearance via Massachusetts Dig Safe and field reconnaissance of in-river or shoreline structures and utilities.
Sampling and Analysis	Woods Pond Sediment PCB Sampling	Collection of sediment cores in Woods Pond to characterize PCB concentrations over the full vertical extent of sediments to be removed to support disposal characterization. Sediment cores will be collected and processed in 12-inch depth intervals.
	Floodplain Soil PCB Sampling[15]	Collection of soil cores in Reach 6 floodplain EAs. Cores to be collected to a depth of one foot except in Frequently Used Subareas where EPA has specified collection of three-foot cores. Cores will be processed in 6-inch depth intervals and submitted for analysis for PCBs.
	Sediment Geotechnical Sampling	Collection of geotechnical characterization data, including various soil/sediment properties (moisture content, organic content, particle size distribution, Atterberg, bulk density, and specific gravity), vane shear testing, and sediment strength testing.

[15] To support this sampling, desktop evaluations and field surveys of the habitat in the Reach 6 floodplain will be conducted as part of Baseline Restoration Assessment activities to update and refine the mapping and characterization of floodplain super habitats and the accessibility assessment in the floodplain in this reach.

4 Schedule and Reporting

GE will initiate the PDI activities described in this Reach 6 PDI Work Plan, with the exception of those relating to floodplain soil sampling, within 45 days after EPA approval of this work plan, to the extent that weather conditions allow. These activities will include the field surveys described in Section 3.2 and the sampling described in Sections 3.3.1 and 3.3.3. These PDI activities are anticipated to commence in spring 2023.

As noted in Section 3.3.2, the floodplain soil PCB sampling locations proposed in this Reach 6 PDI Work Plan should be considered preliminary and subject to change based on potential updates to the super habitat mapping in Reach 6. Desktop evaluation of the super habitat boundaries and a field survey to confirm those boundaries will be conducted as soon as practicable after EPA approval of both this work plan and the BRA Work Plan for Reaches 5B-8 (AECOM 2022a) (with a target of initiating that work within 30 days after the later of those approvals), subject to weather constraints for the field surveys. GE will then provide any proposed revisions to target floodplain soil PCB sampling locations to EPA for review and approval within 30 days following completion of the super habitat field survey. Subsequently, GE will initiate floodplain soil PCB sampling within 45 days after EPA approval of the revised sampling locations, again subject to weather constraints.

Following completion of the sampling described herein and receipt of the results, GE will evaluate the need for analysis of any archived sediment or floodplain soil samples and/or for additional pre-design sampling or analysis. If GE determines that analysis of held samples is warranted, GE will provide EPA with the results of the sampling completed, consult with EPA regarding the analysis of any archived samples, and, upon agreement, proceed with the analysis of the archived samples. Following any such analyses of archived samples, GE will evaluate the need for additional pre-design sampling and/or other data collection to complete the PDI and will advise EPA of the results of that evaluation. Specifically, if GE determines that additional pre-design sampling and/or data collection is warranted, GE will contact EPA to describe the additional data collection and obtain its concurrence or, if necessary, submit to EPA an addendum to this Reach 6 PDI Work Plan presenting the data received to date and proposing the additional data collection. Upon EPA concurrence or approval, GE will conduct the additional data collection. If GE determines that no additional pre-design data collection is warranted, GE will notify EPA and proceed to the development of a PDI Summary Report for Reach 6, described in the next paragraph.

Following the completion of all required PDI activities in Reach 6, a PDI Summary Report for Reach 6 will be prepared that summarizes the data collected pursuant to this work plan and any addendum or addenda thereto. That report will include the following:

- A summary of the results of the field surveys described in Section 3.2;

- A summary of the sediment and floodplain soil sampling investigations performed and investigation results in Reach 6;
- A summary of validated analytical data and discussion of any QA/QC issues with the data;
- Data validation reports and laboratory data reports;
- Supporting documentation of the PDI activities (e.g., sampling logs, photographs);
- An evaluation of the sufficiency of the data to support sediment and soil removal remedial design/remedial action activities for Reach 6; and
- An identification of any supplemental engineering or other data that may be needed to complete the remedial design, with such supplemental data collection to be described in the Conceptual RD/RA Work Plan for this RU.

Under the schedule set forth in GE's Final Revised OSS (Anchor QEA 2022), the PDI Summary Report for Reach 6 will be submitted concurrently with the Conceptual RD/RA Work Plan for Reach 6. As such, both documents will be submitted within nine months after receipt and validation of all PCB analytical data collected pursuant to this Reach 6 PDI Work Plan (or as otherwise proposed by GE and approved by EPA).

In the meantime, a summary table of the analytical results received each month collected pursuant this Reach 6 PDI Work Plan and any addendum(a) thereto will be included in GE's monthly progress reports under the CD.

5 References

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AECOM, 2022b. *Supplemental Phase IA Cultural Resources Assessment Work Plan*. Prepared for General Electric Company. January 2022

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Nos. 99-30225, 99-30226, 99-30227-MAP, entered by the United States District Court for the District of Massachusetts. October 27, 2000.

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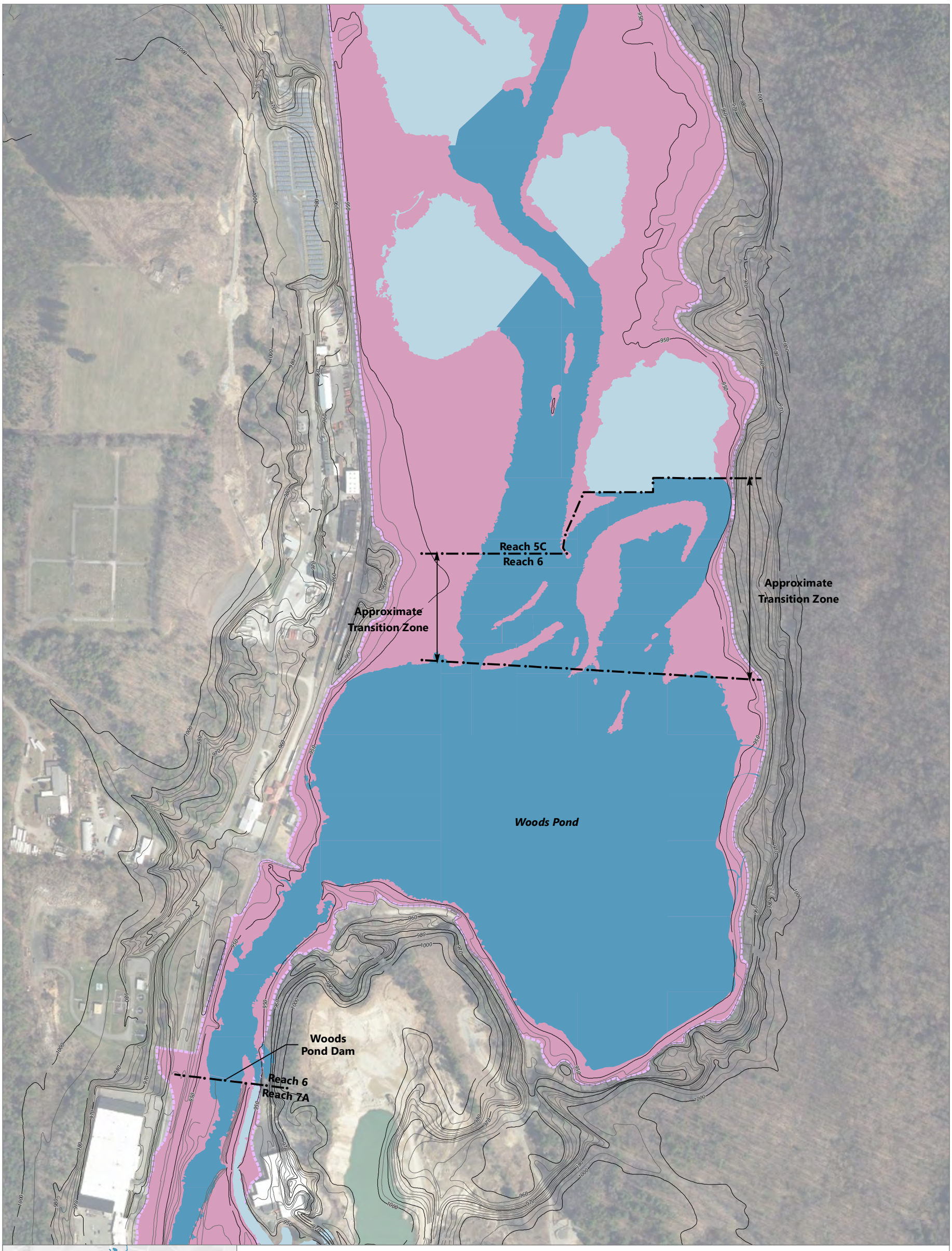
Woodlot (Woodlot Alternatives, Inc.), 2002. *Ecological Characterization of the Housatonic River*. Prepared for EPA Region 1, Boston. Contract No. DACW33-94-D-0009/032. September 2002.

Figures



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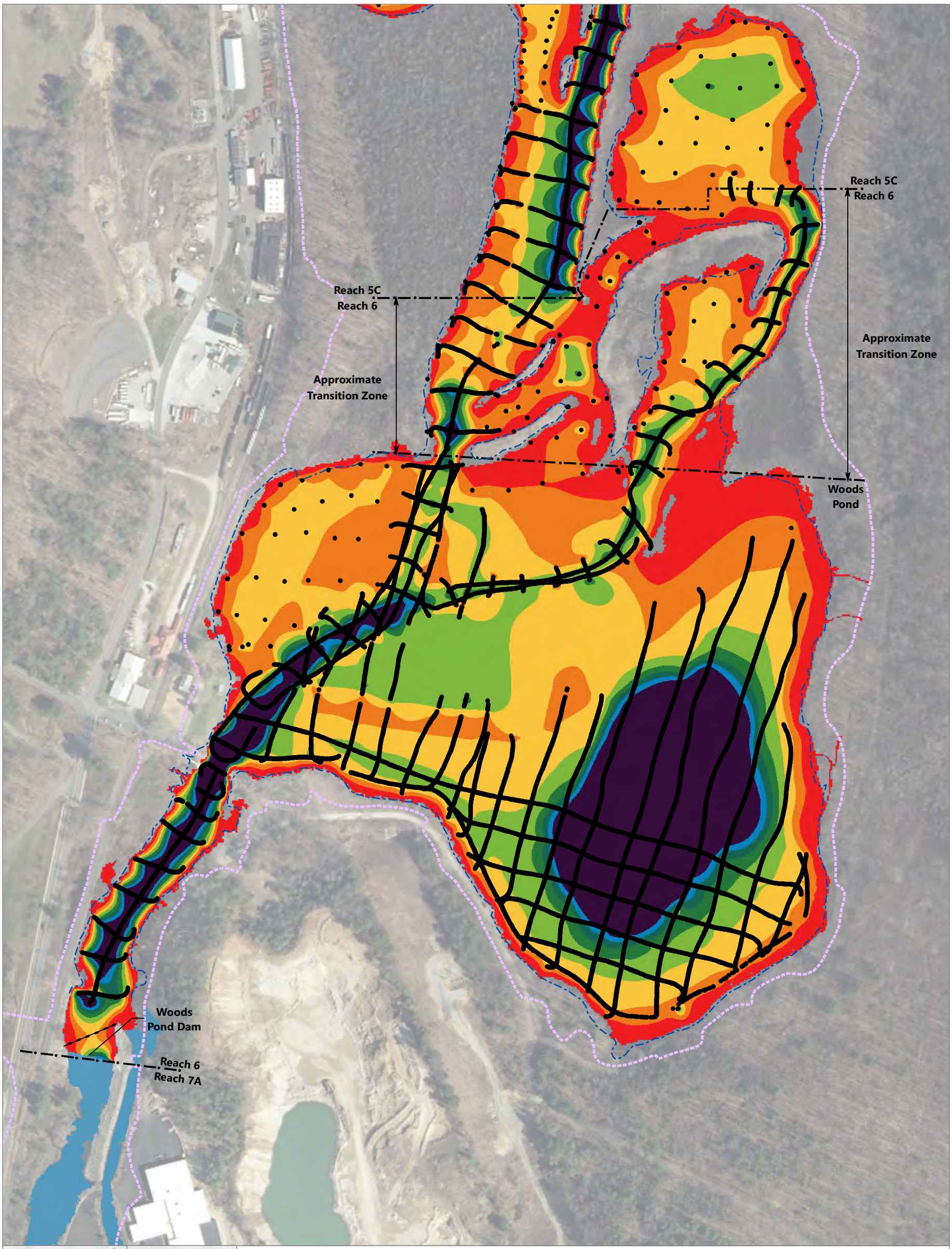
ANCHOR QEA

Figure 1-1
Reach 6 Site Map
Pre-Design Investigation Work Plan For Reach 6
Housatonic River



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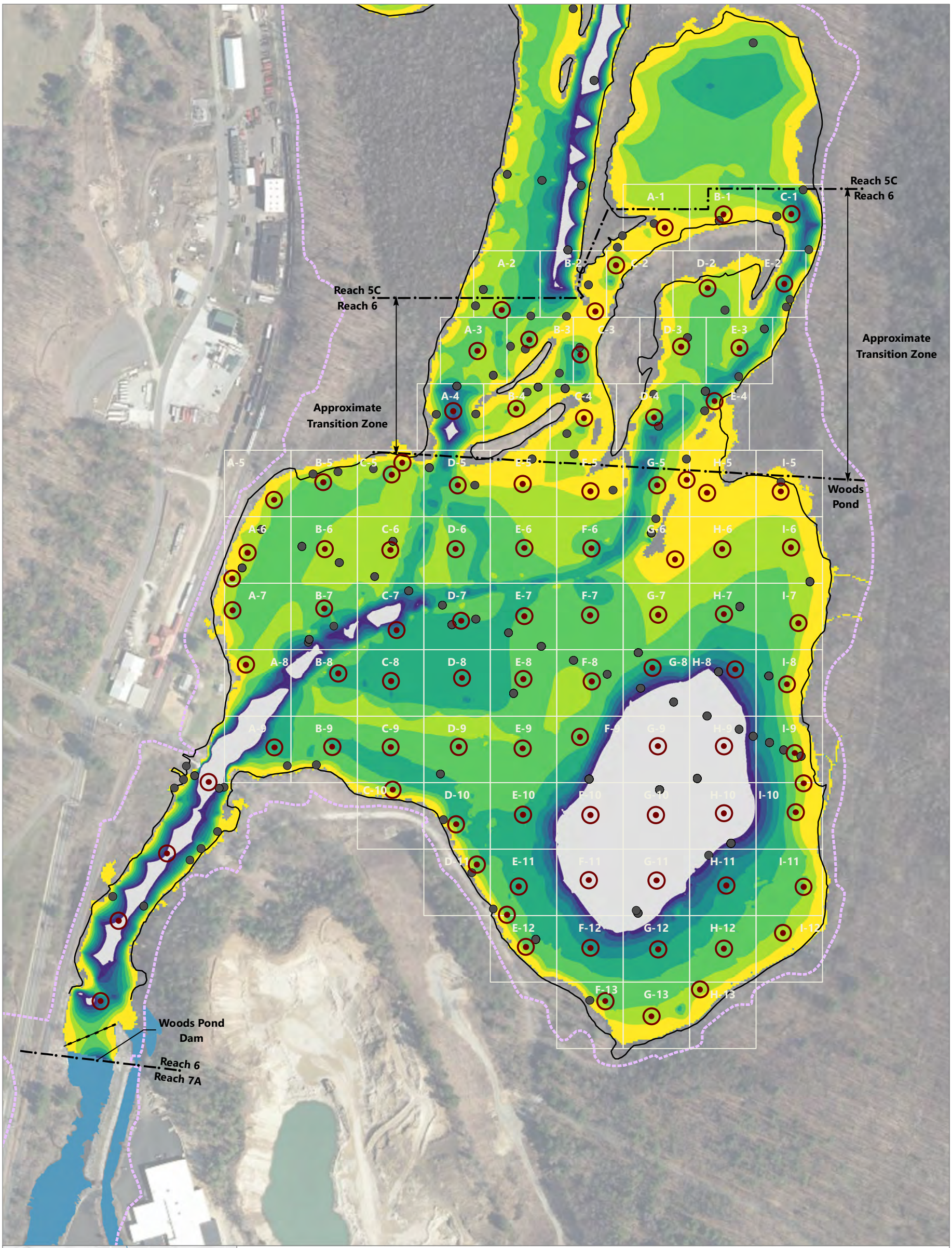
ANCHOR QEA

Figure 3-1
Existing Woods Pond Bathymetry
Pre-Design Investigation Work Plan For Reach 6
Housatonic River



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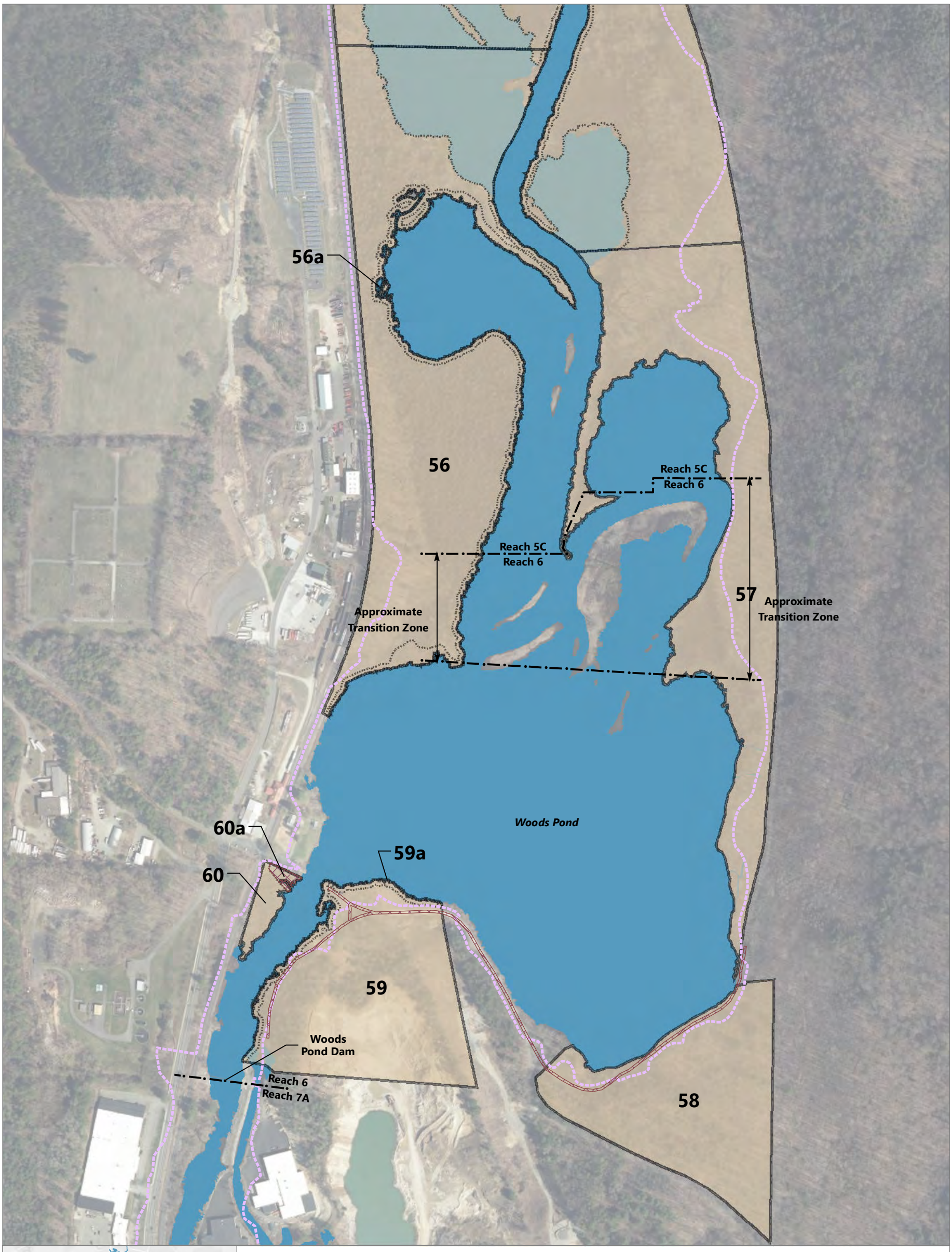
ANCHOR QEA

Figure 3-2
Woods Pond Sediment Sampling Locations
Pre-Design Investigation Work Plan For Reach 6
Housatonic River



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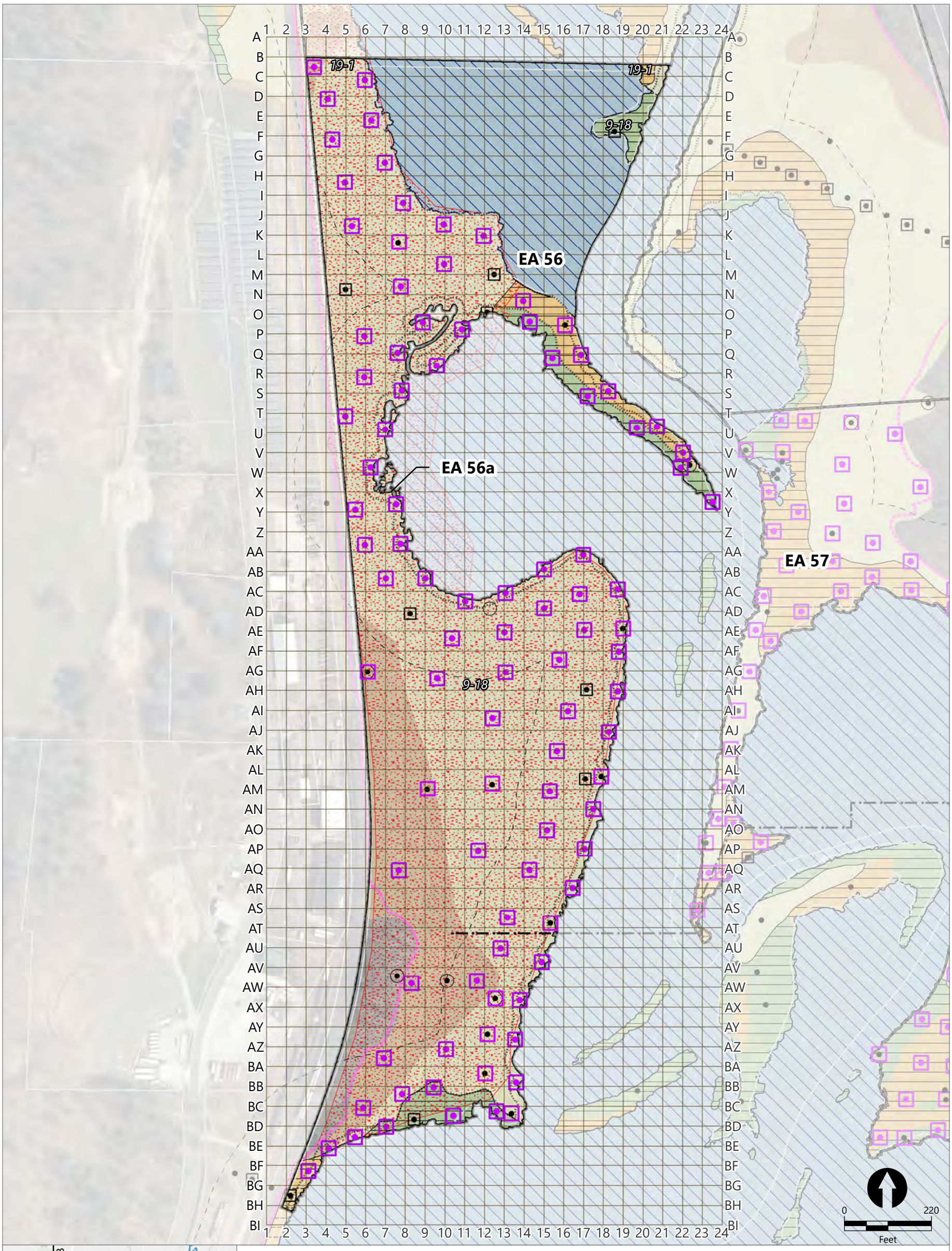
ANCHOR QEA

Figure 3-3
Exposure Areas, Subareas, and Frequently Used Subareas in Reach 6
Pre-Design Investigation Work Plan For Reach 6
Housatonic River



LEGEND:

- Tax Parcel Boundary
- Exposure Area Boundary
- Exposure Subarea Boundary
- 1 mg/kg PCB Isopleth
- 200' Shoreline Buffer
- Core Area 1 Habitat
- 50-Foot Sampling Grid
- Difficult Access Area
- Boatable Area

Existing Floodplain Soil Sample

- 0 to 6 inches
- 6 to 12 inches
- Locations with Data Down to 36 inches

Proposed Floodplain Sample

- 0-6" and 6-12" Samples
- 6-12" Sample

Super Habitats (2002)

- Emergent marsh and wet meadow
- Transitional floodplain forest
- Hardwood forest, agricultural field
- Shrub swamp
- Stream

Notes:
1. Aerial Imagery from MassGIS, 2021
2. Sampled intervals sent for analysis or archive shown in Appendix A.

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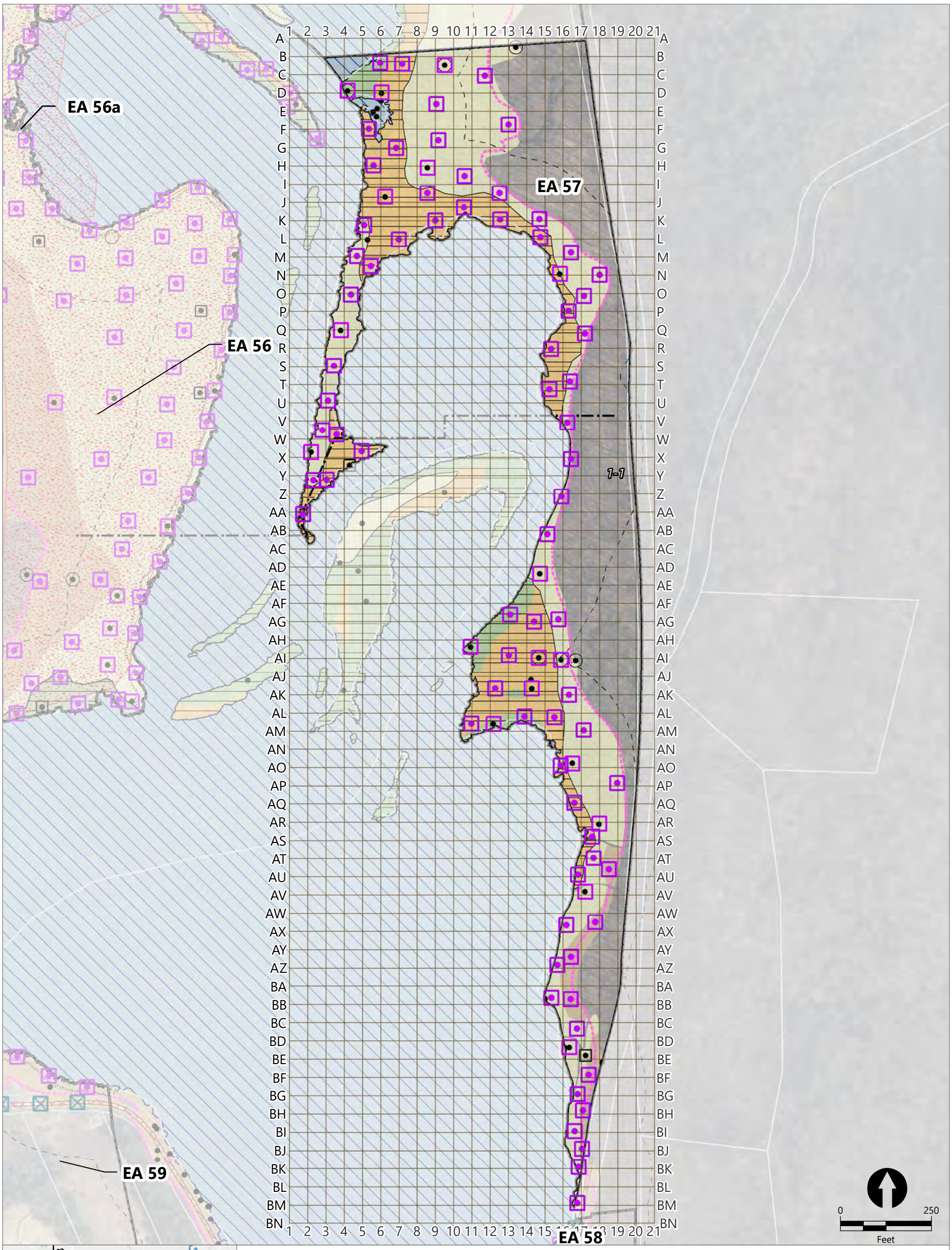
ANCHOR QEA

Figure 3-4
Exposure Area 56
Pre-Design Investigation Work Plan For Reach 6
Housatonic River



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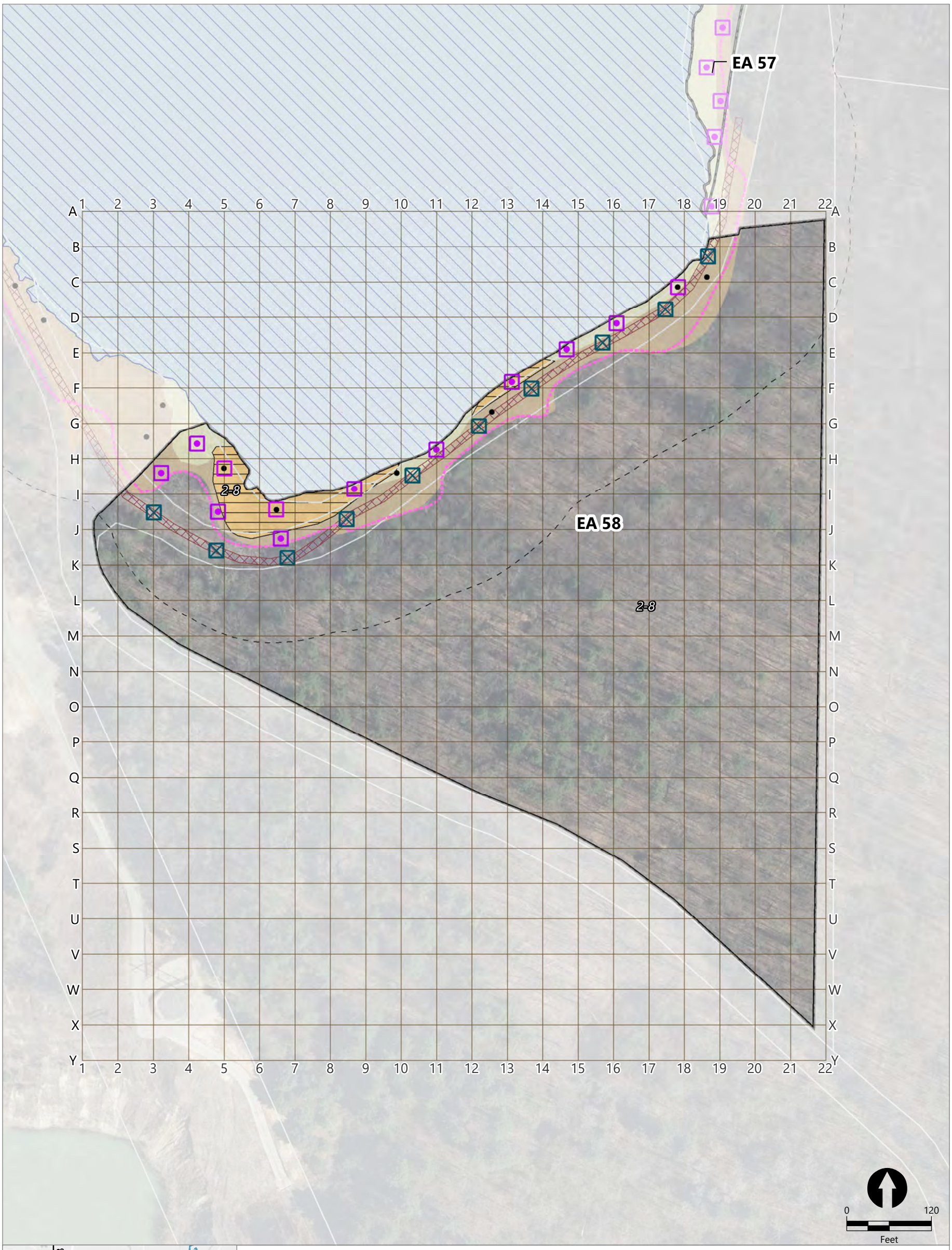
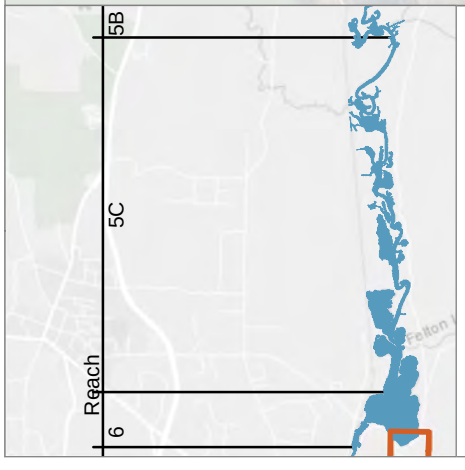
ANCHOR QEA

Figure 3-5
Exposure Area 57
Pre-Design Investigation Work Plan For Reach 6
Housatonic River





LEGEND:

- Tax Parcel Boundary
- Exposure Area Boundary
- 1 mg/kg PCB Isopleth
- Frequently Used Sub-Area (FUSA)
- 200' Shoreline Buffer
- 50-Foot Sampling Grid
- Difficult Access Area
- Boatable Area

Existing Floodplain Soil Sample

- 0 to 6 inches

Proposed Floodplain Sample

- 0-6" and 6-12" Samples
- 6-12" Sample
- 36" Sample

Super Habitats (2002)

- Transitional floodplain forest
- Hardwood forest, agricultural field
- Shrub swamp
- Stream

Notes:
1. Aerial Imagery from MassGIS, 2021
2. Sampled intervals sent for analysis or archive shown in Appendix A.

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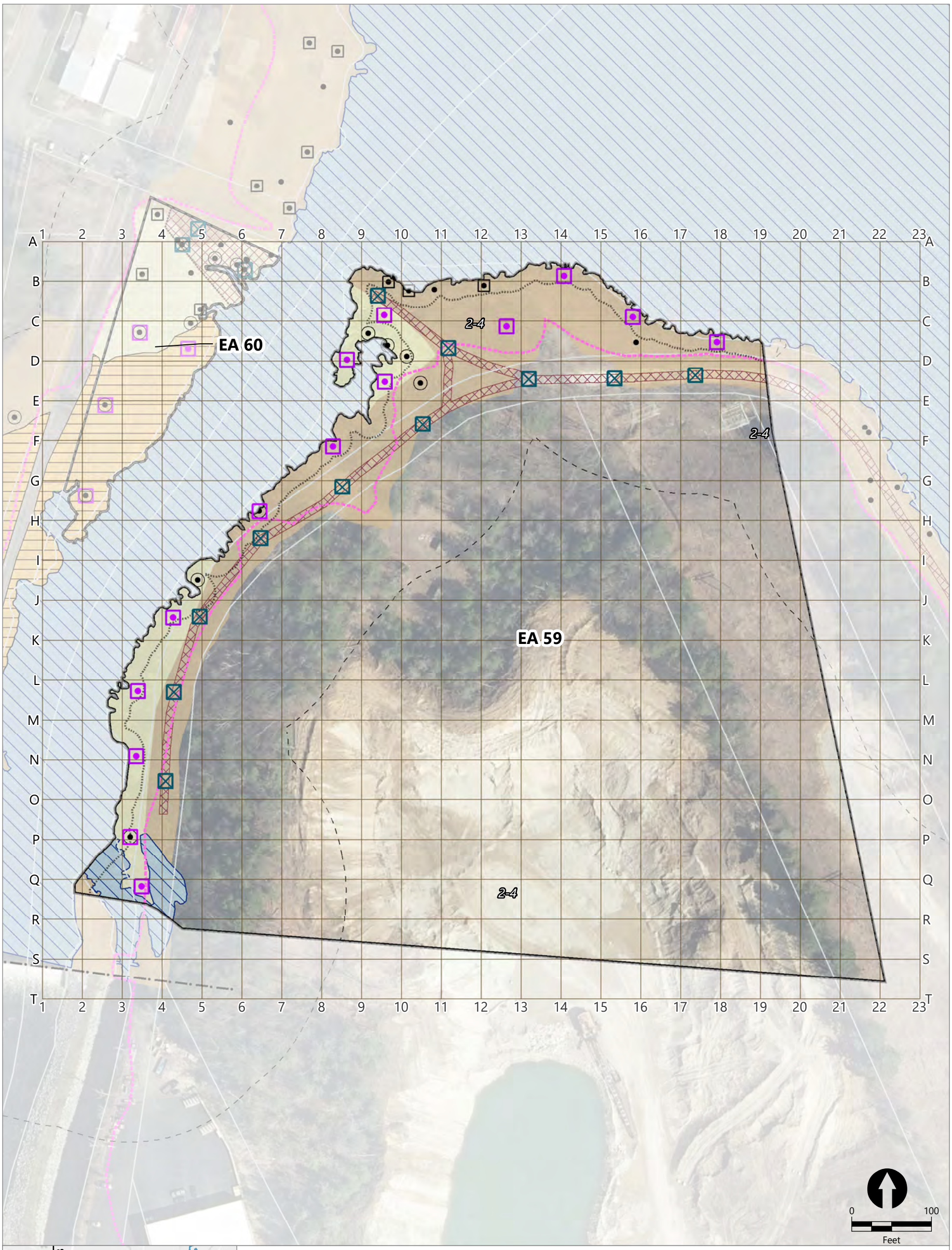
ANCHOR QEA

Figure 3-6
Exposure Area 58
Pre-Design Investigation Work Plan For Reach 6
Housatonic River



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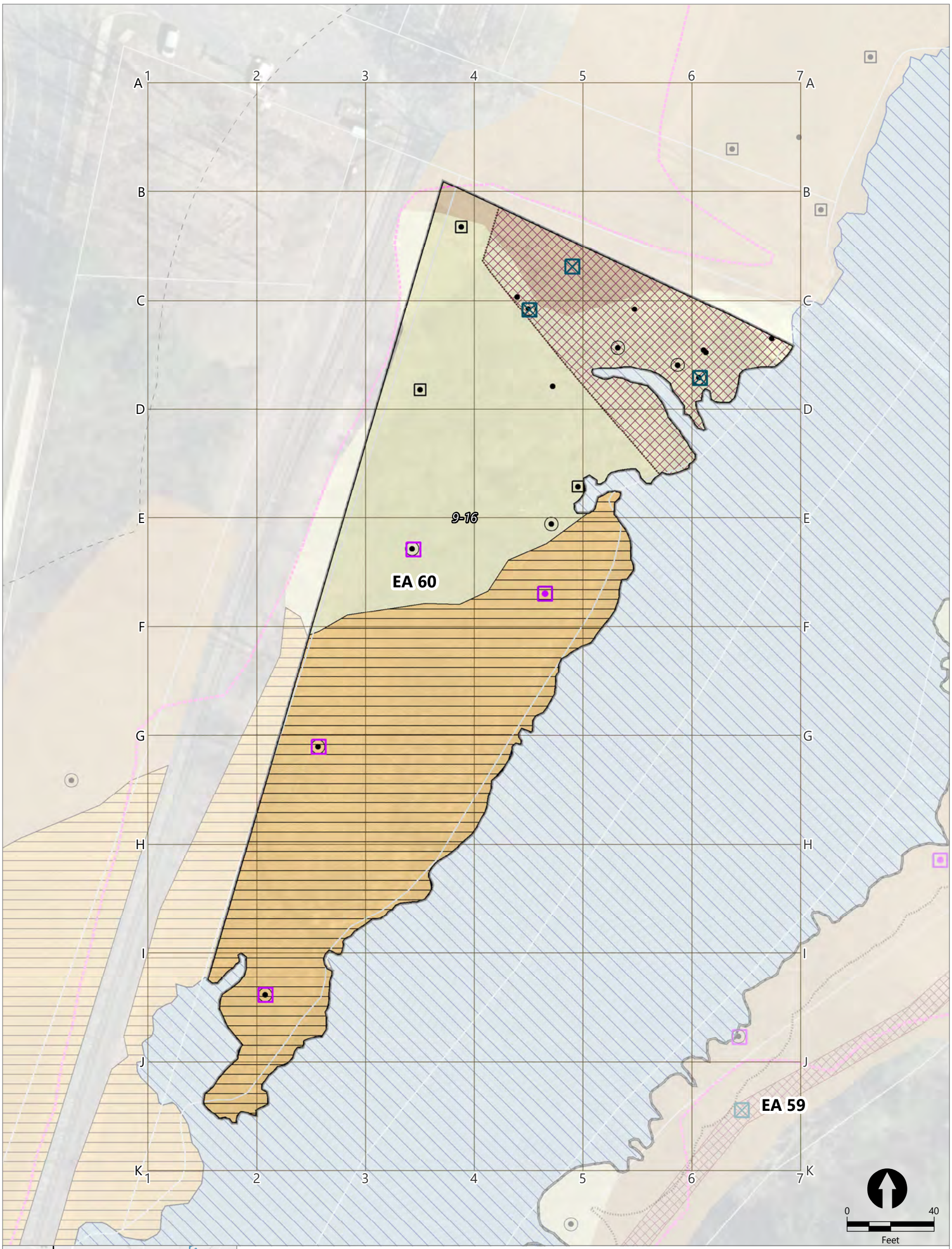
ANCHOR QEA

Figure 3-7
Exposure Area 59
Pre-Design Investigation Work Plan For Reach 6
Housatonic River



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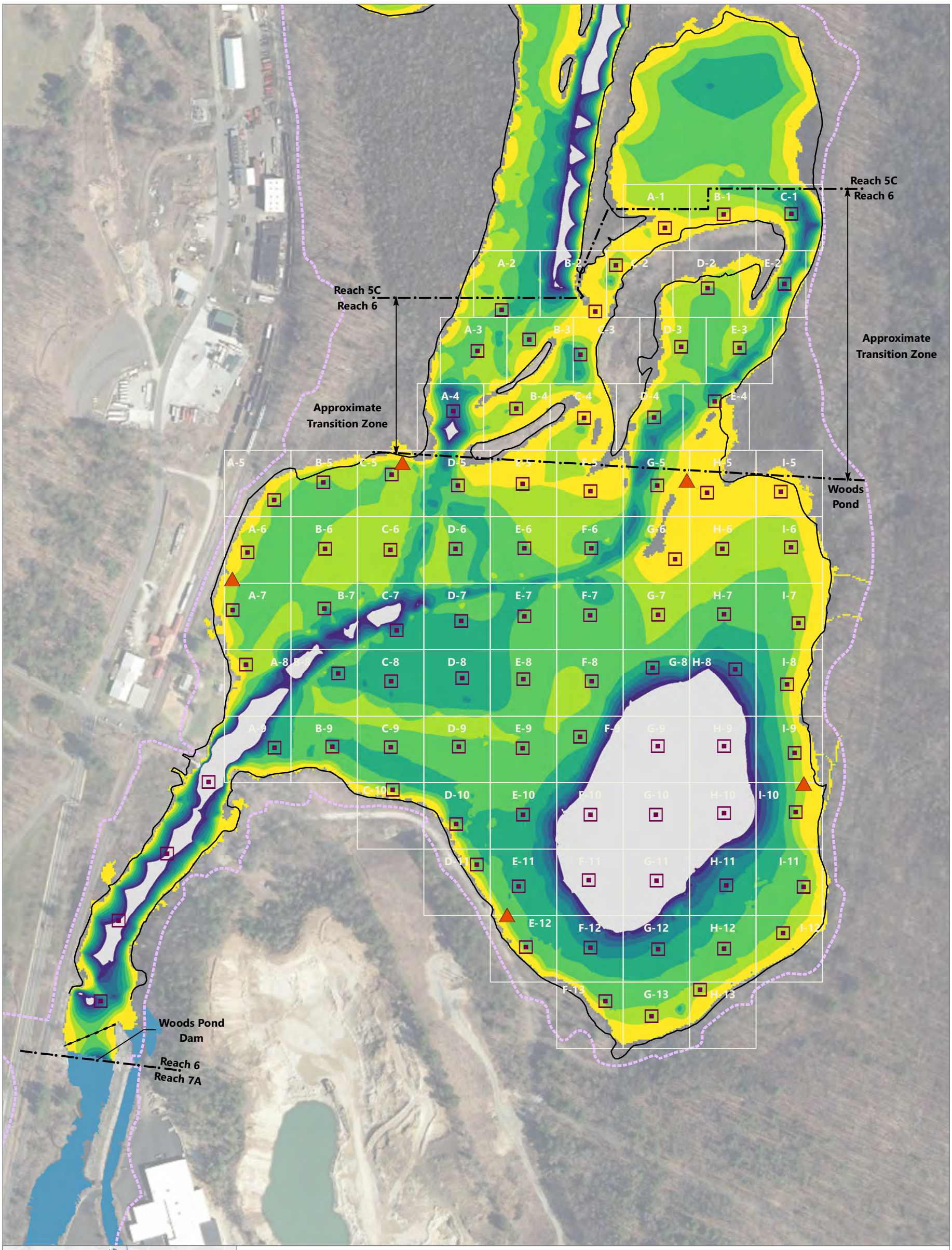
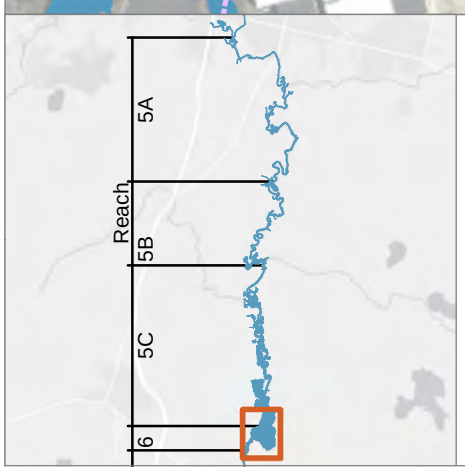
ANCHOR QEA

Figure 3-8
Exposure Area 60
Pre-Design Investigation Work Plan For Reach 6
Housatonic River





LEGEND:

- Housatonic River
- 1 mg/kg PCB Isopleth
- 200-Foot Sampling Grid
- Bottom of Bank
- Dam Safety Cable
- Vane Shear Test Location
- Geotechnical Sampling Location (Triaxial Testing)[1]

Water Depth (feet)

- At or Above Spillway Crest
- ≤ 1 foot Below Crest
- 1.1 - 2
- 2.1 - 3
- 3.1 - 4
- 4.1 - 5
- 5.1 - 6
- 6.1 - 7
- > 7 feet Below Crest

Notes:
1. The number and locations of geotechnical sediment samples collected for strength testing may be adjusted based on field conditions and observations during the sediment sampling program to target silt or clay layers.
2. Aerial Imagery from MassGIS, 2021.
3. Single-beam bathymetric survey performed by Spicer Group in 2022.
4. Water depths calculated below dam spillway elevation of 947.7 feet NAVD88 (948.3 feet NGVD29).

0 300
Feet

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ANCHOR QEA

Figure 3-9
Woods Pond Geotechnical Sampling Locations
Pre-Design Investigation Work Plan For Reach 6
Housatonic River

Appendix A
Proposed Floodplain PCB Sample Tracking Matrix

Appendix A
Proposed Floodplain PCB Sample Tracking Matrix

Exposure Area	Location ID	Coordinates Are in NAD83 Massachusetts State Plane, U.S. Feet		Depth Increment (below ground surface)			
		Easting (X Coordinate)	Northing (Y Coordinate)	0-6"	6-12"	12-24"	24-36"
56	EA56-AB/AC-7	185178.72	2959550.01	X	X	--	--
56	EA56-AC-17	185668.45	2959510.03	X	X	--	--
56	EA56-AD-15	185578.53	2959474.29	X	X	--	--
56	EA56-AE/AF-10/11	185346.03	2959398.49	X	X	--	--
56	EA56-AE-13	185478.31	2959413.85	X	X	--	--
56	EA56-AE-17	185679.65	2959419.49	X	X	--	--
56	EA56-AF/AG-16	185617.22	2959344.90	X	X	--	--
56	EA56-AG/AH-9/10	185309.20	2959297.07	X	X	--	--
56	EA56-AG-13	185480.61	2959313.38	X	X	--	--
56	EA56-AG-6	185133.65	2959313.96	H	X	--	--
56	EA56-AI/AJ-12/13	185448.64	2959197.59	X	X	--	--
56	EA56-AI-16	185638.86	2959215.14	X	X	--	--
56	EA56-AK-15/16	185610.69	2959113.84	X	X	--	--
56	EA56-AL/AM-12/13	185447.19	2959031.93	H	X	--	--
56	EA56-AM-15/16	185592.32	2959013.07	X	X	--	--
56	EA56-AM-9	185284.97	2959018.63	H	X	--	--
56	EA56-AO-15	185585.58	2958913.87	X	X	--	--
56	EA56-AP-11/12	185412.32	2958863.10	X	X	--	--
56	EA56-AQ-14	185541.46	2958812.90	X	X	--	--
56	EA56-AQ-7/8	185211.51	2958812.41	X	X	--	--
56	EA56-AS/AT-13	185486.08	2958693.37	X	X	--	--
56	EA56-AU-13	185468.30	2958615.46	X	X	--	--
56	EA56-AV/AW-11/12	185409.20	2958532.86	X	X	--	--
56	EA56-AW/AX-12/13	185455.43	2958488.45	H	X	--	--
56	EA56-AW-8	185243.51	2958527.45	X	X	--	--
56	EA56-AY/AZ-12	185435.47	2958398.90	H	X	--	--
56	EA56-AZ/BA-7	185173.55	2958338.87	X	X	--	--
56	EA56-AZ-10	185331.25	2958361.41	X	X	--	--
56	EA56-B/C-3/4	184997.72	2960840.75	X	X	--	--
56	EA56-BA/BB-12	185429.46	2958299.68	H	X	--	--
56	EA56-BB/BC-8	185220.28	2958247.96	X	X	--	--
56	EA56-BC/BD-13/14	185496.29	2958198.97	H	X	--	--
56	EA56-BC-6	185122.02	2958212.40	X	X	--	--
56	EA56-C-6	185126.12	2960808.15	X	X	--	--
56	EA56-D-4	185031.97	2960760.58	X	X	--	--
56	EA56-E-6	185141.80	2960706.32	X	X	--	--
56	EA56-F-4/5	185043.64	2960657.76	X	X	--	--
56	EA56-G/H-7	185176.61	2960600.14	X	X	--	--
56	EA56-H/I-5	185076.02	2960550.66	X	X	--	--
56	EA56-I/J-8	185222.38	2960498.06	X	X	--	--

Appendix A
Proposed Floodplain PCB Sample Tracking Matrix

Exposure Area	Location ID	Coordinates Are in NAD83 Massachusetts State Plane, U.S. Feet		Depth Increment (below ground surface)			
		Easting (X Coordinate)	Northing (Y Coordinate)	0-6"	6-12"	12-24"	24-36"
56	EA56-J/K-10	185325.33	2960443.94	X	X	--	--
56	EA56-J/K-5/6	185093.82	2960440.00	X	X	--	--
56	EA56-K/L-7/8	185212.14	2960399.30	H	X	--	--
56	EA56-K-12	185425.89	2960415.16	X	X	--	--
56	EA56-L/M-10	185325.58	2960343.76	X	X	--	--
56	EA56-M/N-8	185216.98	2960286.86	X	X	--	--
56	EA56-N/O-14	185525.14	2960250.94	X	X	--	--
56	EA56-O/P-16	185631.19	2960189.18	H	X	--	--
56	EA56-P-6	185124.50	2960161.60	X	X	--	--
56	EA56-R-6	185124.55	2960057.56	X	X	--	--
56	EA56-T-5	185076.87	2959959.56	X	X	--	--
56	EA56-Y-5/6	185101.76	2959722.81	X	X	--	--
56	EA56-Z/AA-6	185126.05	2959634.17	X	X	--	--
56a	EA56a-AA-17	185677.36	2959609.18	X	X	--	--
56a	EA56a-AB/AC-9	185278.42	2959549.78	X	X	--	--
56a	EA56a-AB-15	185578.35	2959572.19	X	X	--	--
56a	EA56a-AC/AD-11	185379.84	2959491.72	X	X	--	--
56a	EA56a-AC-13	185481.07	2959513.13	X	X	--	--
56a	EA56a-AC-18/19	185764.41	2959521.80	X	X	--	--
56a	EA56a-AE-19	185777.62	2959423.27	H	X	--	--
56a	EA56a-AF-19	185767.01	2959365.33	X	X	--	--
56a	EA56a-AH-18/19	185764.95	2959264.22	X	X	--	--
56a	EA56a-AJ-18/19	185741.85	2959162.46	X	X	--	--
56a	EA56a-AL/AM-18	185722.51	2959050.15	H	X	--	--
56a	EA56a-AN-17/18	185702.33	2958967.12	X	X	--	--
56a	EA56a-AP-17	185680.70	2958866.77	X	X	--	--
56a	EA56a-AR-16/17	185650.77	2958768.04	X	X	--	--
56a	EA56a-AS/AT-15/16	185594.56	2958678.87	H	X	--	--
56a	EA56a-AU/AV-15	185572.62	2958581.06	X	X	--	--
56a	EA56a-AW/AX-14	185517.35	2958484.29	X	X	--	--
56a	EA56a-AY/AZ-13/14	185505.17	2958385.20	X	X	--	--
56a	EA56a-BB-13/14	185507.68	2958277.13	X	X	--	--
56a	EA56a-BB-9/10	185300.03	2958264.75	X	X	--	--
56a	EA56a-BC/BD-10/11	185348.96	2958192.95	X	X	--	--
56a	EA56a-BC-12/13	185458.33	2958204.44	X	X	--	--
56a	EA56a-BD/BE-5/6	185100.59	2958139.86	X	X	--	--
56a	EA56a-BD-7	185179.80	2958165.46	X	X	--	--
56a	EA56a-BE-4	185035.12	2958112.30	X	X	--	--
56a	EA56a-BF/BG-3	184983.52	2958053.38	X	X	--	--
56a	EA56a-O/P-11	185371.02	2960178.23	X	X	--	--

Appendix A
Proposed Floodplain PCB Sample Tracking Matrix

Exposure Area	Location ID	Coordinates Are in NAD83 Massachusetts State Plane, U.S. Feet		Depth Increment (below ground surface)			
		Easting (X Coordinate)	Northing (Y Coordinate)	0-6"	6-12"	12-24"	24-36"
56a	EA56a-O/P-15/16	185542.53	2960197.13	X	X	--	--
56a	EA56a-O/P-9	185272.04	2960196.15	X	X	--	--
56a	EA56a-Q/R-9/10	185307.15	2960086.70	X	X	--	--
56a	EA56a-Q-16/17	185599.42	2960106.74	X	X	--	--
56a	EA56a-Q-18	185671.73	2960114.66	X	X	--	--
56a	EA56a-Q-7/8	185208.49	2960119.78	X	X	--	--
56a	EA56a-S-18	185688.44	2960009.56	X	X	--	--
56a	EA56a-S-18/19	185740.54	2960022.22	X	X	--	--
56a	EA56a-S-8	185218.85	2960023.49	X	X	--	--
56a	EA56a-T/U-19/20	185812.26	2959930.09	X	X	--	--
56a	EA56a-T/U-20/21	185863.80	2959933.02	X	X	--	--
56a	EA56a-U-7	185177.69	2959925.35	X	X	--	--
56a	EA56a-V/W-22	185922.96	2959829.58	X	X	--	--
56a	EA56a-V/W-6/7	185140.21	2959830.03	X	X	--	--
56a	EA56a-V-22	185929.29	2959867.02	X	X	--	--
56a	EA56a-X/Y-23/24	186003.48	2959742.33	X	X	--	--
56a	EA56a-X/Y-7/8	185205.36	2959736.22	X	X	--	--
56a	EA56a-Z/AA-7/8	185216.02	2959636.67	X	X	--	--
57	EA57-AA-1/2	185964.70	2958711.78	X	X	--	--
57	EA57-AB-15	186634.59	2958657.06	X	X	--	--
57	EA57-AD/AE-14/15	186614.37	2958548.62	H	X	--	--
57	EA57-AF/AG-13	186532.33	2958436.74	X	X	--	--
57	EA57-AG-14/15	186597.92	2958417.46	X	X	--	--
57	EA57-AG-15/16	186664.40	2958423.69	X	X	--	--
57	EA57-AH/AI-11	186424.30	2958348.75	H	X	--	--
57	EA57-AH/AI-13	186529.35	2958326.38	X	X	--	--
57	EA57-AI-14/15	186611.50	2958318.56	H	X	--	--
57	EA57-AI-16	186671.94	2958313.36	H	X	--	--
57	EA57-AJ/AK-12/13	186491.94	2958234.30	X	X	--	--
57	EA57-AJ/AK-14/15	186592.38	2958234.42	H	X	--	--
57	EA57-AK-16/17	186693.54	2958216.46	X	X	--	--
57	EA57-AL/AM-11	186426.55	2958138.81	X	X	--	--
57	EA57-AL/AM-12	186487.44	2958137.93	H	X	--	--
57	EA57-AL-14	186572.32	2958157.16	X	X	--	--
57	EA57-AL-15/16	186653.63	2958156.10	X	X	--	--
57	EA57-AM-17	186733.64	2958120.27	X	X	--	--
57	EA57-AO-16	186671.47	2958022.92	X	X	--	--
57	EA57-AO-16/17	186703.12	2958028.05	H	X	--	--
57	EA57-AP-19	186825.80	2957975.22	X	X	--	--
57	EA57-AQ-16/17	186708.52	2957919.57	X	X	--	--

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		Easting (X Coordinate)	Northing (Y Coordinate)	0-6"	6-12"	12-24"	24-36"
57	EA57-AR-18	186776.63	2957863.27	H	X	--	--
57	EA57-AS-17/18	186757.42	2957827.89	X	X	--	--
57	EA57-AT/AU-18/19	186803.33	2957737.85	X	X	--	--
57	EA57-AT-17/18	186761.64	2957768.20	X	X	--	--
57	EA57-AU-17	186719.02	2957722.83	X	X	--	--
57	EA57-AV-17	186738.74	2957676.54	H	X	--	--
57	EA57-AW/AX-16	186686.48	2957584.76	X	X	--	--
57	EA57-AW/AX-17/18	186765.69	2957592.90	X	X	--	--
57	EA57-AY/AZ-16/17	186699.57	2957497.79	X	X	--	--
57	EA57-AZ-15/16	186662.51	2957476.15	X	X	--	--
57	EA57-B/C-6	186176.30	2959949.40	X	X	--	--
57	EA57-B/C-7	186236.80	2959947.08	X	X	--	--
57	EA57-B/C-9/10	186353.11	2959943.63	H	X	--	--
57	EA57-BA/BB-15/16	186646.02	2957384.84	X	X	--	--
57	EA57-BA/BB-16/17	186698.28	2957381.13	X	X	--	--
57	EA57-BC/BD-16/17	186715.50	2957300.94	X	X	--	--
57	EA57-BD/BE-16/17	186694.76	2957249.94	H	X	--	--
57	EA57-BF-17/18	186748.11	2957174.92	X	X	--	--
57	EA57-BG-17	186717.66	2957121.71	X	X	--	--
57	EA57-BH-17	186731.97	2957076.62	X	X	--	--
57	EA57-BI-16/17	186709.43	2957020.36	X	X	--	--
57	EA57-BJ-17	186729.12	2956972.63	X	X	--	--
57	EA57-BK-17	186720.85	2956922.22	X	X	--	--
57	EA57-BM-16/17	186716.53	2956824.06	X	X	--	--
57	EA57-C-11/12	186463.93	2959914.16	X	X	--	--
57	EA57-D/E-9	186330.63	2959837.16	X	X	--	--
57	EA57-D-4	186087.37	2959873.55	H	X	--	--
57	EA57-D-6	186180.45	2959868.40	H	X	--	--
57	EA57-E/F-13	186528.16	2959780.40	X	X	--	--
57	EA57-F/G-9	186336.22	2959737.71	X	X	--	--
57	EA57-F-5/6	186145.05	2959768.34	X	X	--	--
57	EA57-G-7	186220.19	2959716.66	X	X	--	--
57	EA57-H/I-10/11	186408.19	2959639.79	X	X	--	--
57	EA57-H-5/6	186157.89	2959669.10	X	X	--	--
57	EA57-H-8/9	186306.42	2959663.18	H	X	--	--
57	EA57-I/J-12/13	186503.66	2959592.33	X	X	--	--
57	EA57-I/J-6	186190.21	2959582.47	H	X	--	--
57	EA57-I/J-8/9	186306.29	2959592.40	X	X	--	--
57	EA57-J-10/11	186406.06	2959553.38	X	X	--	--
57	EA57-K-12/13	186505.46	2959520.41	X	X	--	--

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		Easting (X Coordinate)	Northing (Y Coordinate)	0-6"	6-12"	12-24"	24-36"
57	EA57-K-15	186613.15	2959521.11	X	X	--	--
57	EA57-K-5	186133.04	2959505.48	X	X	--	--
57	EA57-K-9	186327.39	2959517.78	X	X	--	--
57	EA57-L-15	186615.31	2959472.54	X	X	--	--
57	EA57-L-7	186227.84	2959466.10	X	X	--	--
57	EA57-M/N-5/6	186150.68	2959392.42	X	X	--	--
57	EA57-M-16/17	186699.40	2959429.76	X	X	--	--
57	EA57-M-4/5	186112.68	2959419.69	X	X	--	--
57	EA57-N-16	186669.56	2959371.13	H	X	--	--
57	EA57-N-18	186777.43	2959368.33	X	X	--	--
57	EA57-O-17	186734.94	2959311.52	X	X	--	--
57	EA57-O-4/5	186096.65	2959314.89	X	X	--	--
57	EA57-P-16/17	186693.22	2959269.14	X	X	--	--
57	EA57-Q-17	186738.01	2959207.06	X	X	--	--
57	EA57-Q-4	186068.90	2959216.48	H	X	--	--
57	EA57-R-15/16	186644.34	2959165.38	X	X	--	--
57	EA57-S-3/4	186049.50	2959118.62	X	X	--	--
57	EA57-T-15	186640.63	2959054.55	X	X	--	--
57	EA57-T-16/17	186697.01	2959075.44	X	X	--	--
57	EA57-U-3	186033.78	2959023.57	X	X	--	--
57	EA57-V/W-3	186017.62	2958942.26	X	X	--	--
57	EA57-V/W-3/4	186056.89	2958929.78	X	X	--	--
57	EA57-V-16	186689.28	2958962.65	X	X	--	--
57	EA57-W/X-2	185987.02	2958881.83	H	X	--	--
57	EA57-W/X-5	186125.46	2958884.79	X	X	--	--
57	EA57-X-16/17	186699.58	2958863.22	X	X	--	--
57	EA57-Y/Z-3	186029.35	2958806.19	X	X	--	--
57	EA57-Y-2/3	185993.68	2958805.60	X	X	--	--
57	EA57-Z-16	186672.94	2958759.72	X	X	--	--
58	EA58-B/C-18/19	186711.24	2956753.34	X	X	X	X
58	EA58-C-18	186669.02	2956709.76	H	X	--	--
58	EA58-D/E-15/16	186562.27	2956631.73	X	X	X	X
58	EA58-D-16	186582.04	2956658.79	X	X	--	--
58	EA58-D-17/18	186651.33	2956678.33	X	X	X	X
58	EA58-E-14/15	186511.68	2956622.28	X	X	--	--
58	EA58-F-13	186434.22	2956575.81	X	X	--	--
58	EA58-F-13/14	186461.94	2956566.22	X	X	X	X
58	EA58-G/H-11	186327.84	2956480.07	X	X	--	--
58	EA58-G/H-4	185989.69	2956488.41	X	X	--	--
58	EA58-G-12	186387.98	2956513.17	X	X	X	X

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58	EA58-H/I-10/11	186294.09	2956443.55	X	X	X	X
58	EA58-H/I-3	185938.92	2956446.94	X	X	--	--
58	EA58-H/I-5	186028.14	2956453.67	H	X	--	--
58	EA58-I/J-3	185928.60	2956391.03	X	X	X	X
58	EA58-I/J-5	186019.27	2956392.07	X	X	--	--
58	EA58-I/J-6/7	186101.65	2956395.45	H	X	--	--
58	EA58-I/J-8/9	186201.10	2956381.86	X	X	X	X
58	EA58-I-8/9	186211.76	2956424.63	X	X	--	--
58	EA58-J/K-5	186017.07	2956337.56	X	X	X	X
58	EA58-J/K-6/7	186108.07	2956354.49	X	X	--	--
58	EA58-K-7	186117.31	2956327.21	X	X	X	X
59	EA59-B/C-9/10	184948.29	2957198.99	X	X	X	X
59	EA59-C/D-11	185036.51	2957133.24	X	X	X	X
59	EA59-C-12/13	185109.58	2957160.29	X	X	--	--
59	EA59-C-9/10	184956.13	2957174.75	X	X	--	--
59	EA59-D/E-13	185137.60	2957094.33	X	X	X	X
59	EA59-D/E-15/16	185244.95	2957095.02	X	X	X	X
59	EA59-D/E-17/18	185346.20	2957099.10	X	X	X	X
59	EA59-E/F-10/11	185004.46	2957037.80	X	X	X	X
59	EA59-G-8/9	184903.87	2956959.29	X	X	X	X
59	EA59-H/I-6/7	184801.02	2956894.92	X	X	X	X
59	EA59-J/K-5	184724.79	2956796.53	X	X	X	X
59	EA59-L/M-4/5	184692.65	2956702.17	X	X	X	X
59	EA59-N/O-4	184681.85	2956591.04	X	X	X	X
59	EA59-Q-3/4	184651.88	2956458.41	X	X	--	--
59a	EA59a-A/B-14	185181.59	2957223.85	X	X	--	--
59a	EA59a-C/D-18	185373.16	2957140.82	X	X	--	--
59a	EA59a-C-15/16	185267.92	2957172.23	X	X	--	--
59a	EA59a-D/E-9/10	184957.08	2957090.79	X	X	--	--
59a	EA59a-D-8/9	184909.54	2957118.74	X	X	--	--
59a	EA59a-F-8/9	184892.21	2957009.75	X	X	--	--
59a	EA59a-G/H-6/7	184799.89	2956928.54	H	X	--	--
59a	EA59a-J/K-4/5	184691.65	2956795.28	X	X	--	--
59a	EA59a-L/M-3/4	184647.28	2956703.14	X	X	--	--
59a	EA59a-N-3/4	184645.31	2956621.73	X	X	--	--
59a	EA59a-P-3	184637.80	2956520.36	H	X	--	--
60	EA60-E/F-3/4	184650.01	2957152.71	H	X	--	--
60	EA60-E/F-4/5	184710.51	2957132.32	X	X	--	--
60	EA60-G-2/3	184606.45	2957061.83	H	X	--	--
60	EA60-I/J-2	184582.00	2956947.81	H	X	--	--

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60a	EA60a-B/C-5	184723.01	2957282.72	X	X	X	X
60a	EA60a-C/D-6	184781.79	2957231.30	H	X	H	H
60a	EA60a-C-4/5	184703.39	2957262.89	H	X	H	H

Notes:
NAD83: North American Datum of 1983
PCB: polychlorinated biphenyl