
**PHASE 2 REMEDIAL ACTION WORK PLAN
FOR CERTIFICATION UNIT 60
HUDSON RIVER PCBs SUPERFUND SITE**



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ACRONYMS AND ABBREVIATIONS

CD	Consent Decree
CDE	Critical Phase 2 Design Elements (Attachment A to SOW)
CFR	Code of Federal Regulations
CHASP	Community Health and Safety Plan
CM	Construction Manager
CU	certification unit
cy	cubic yard
D&FO	Dredging and Facility Operations
DBPS	Dredge Bucket Position System
DQAP	Dredging Construction Quality Control/Quality Assurance Plan
EHS	environmental health and safety
EPA	United States Environmental Protection Agency
EoC	Elevation of Contamination
EPS	Engineering Performance Standards
ft	Foot/feet
GE	General Electric Company
GPS	global positioning system
HASP	Health and Safety Plan
MPA	mass per unit area
NYSCC	New York State Canal Corporation
NYSDEC	New York State Department of Environmental Conservation
NYSDOT	New York State Department of Transportation
O&M	operation and maintenance
OSHA	Occupational Safety and Health Administration
PAP	Property Access Plan
PCBs	polychlorinated biphenyls
PFOC	Processing Facility Operations Contractor
PSCP	Performance Standards Compliance Plan
QA	quality assurance
QoLPS	Quality of Life Performance Standards
RA	Remedial Action

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ACRONYMS AND ABBREVIATIONS (CONTINUED)

RA CHASP	Remedial Action Community Health and Safety Plan
RA HASP	Remedial Action Health and Safety Plan
RAM QAPP	Remedial Action Monitoring Quality Assurance Project Plan
RAWP	Remedial Action Work Plan
RM	River Mile
ROD	Record of Decision
SOW	Statement of Work for Remedial Action and Operations, Maintenance and Monitoring
TDP	Transportation and Disposal Plan
TID	Thompson Island Dam
TIP	Thompson Island Pool
TOC	total organic carbon
WQ Requirements	Substantive Water Quality Requirements

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SECTION 1

INTRODUCTION

In 2005, the General Electric Company (GE) and the United States Environmental Protection Agency (EPA) executed a Consent Decree (CD) relating to the performance of the Remedial Action (RA) selected by EPA to address polychlorinated biphenyls (PCBs) in sediments of the Upper Hudson River, located in New York State, through dredging, as described in EPA's February 2002 Record of Decision (ROD) for the Hudson River PCBs Superfund Site (EPA, 2002). In accordance with the ROD and the CD, the RA was to be conducted in two phases. Phase 1 was defined as the first year of dredging and was conducted by GE in 2009 (with habitat replacement/reconstruction activities in Phase 1 dredge areas completed in 2011). Phase 2 consists of the remainder of the dredging project. Phase 2 dredging activities have been conducted to date in 2011 (Phase 2 Year 1), 2012 (Phase 2 Year 2), 2013 (Phase 2 Year 3), and 2014 (Phase 2 Year 4).

The CD includes, as Appendix B, a Statement of Work (SOW) for Remedial Action and Operations, Maintenance and Monitoring, which sets forth a number of general requirements for the RA and includes several attachments specifying requirements for various aspects of the RA. EPA issued revised versions of the SOW and its attachments for Phase 2 in December 2010. For the work to be performed in each construction year of Phase 2, Section 3.1 of the revised SOW requires GE to submit a Remedial Action Work Plan (RAWP) for Phase 2 Dredging and Facility Operations for such year, along with any remaining design documents (or revisions or addenda to previously approved design documents) for the dredging to be performed in that year. GE previously submitted such documents for the prior years of Phase 2.

This *Remedial Action Work Plan for CU 60* (CU 60 RAWP) constitutes GE's RAWP for dredging and related sediment handling operations to be conducted in 2015 in Certification Unit (CU) 60, which is located in the southern part of the Thompson Island Pool (TIP) in the vicinity of the Thompson Island Dam and consists of two sub-units, referred to herein as CUs 60-1 and 60-2. CU 60-1 is located along the western shoreline of the river upstream of the western section of the dam, and CU 60-2 is located along the eastern shoreline of the river in very close proximity to the eastern portion of the dam. The locations of CU 60-1 and CU 60-2 are shown in Figure 1-1.

This CU 60 RAWP presents GE's proposed revised dredging approach for CU 60. It has been revised from the previous versions of the CU 60 RAWP (submitted in February 2015 and again in April 2015) to reflect comments from and discussions with EPA. This CU 60 RAWP references, where appropriate, the design revisions for dredging in CUs 60-1 and 60-2, which are presented in Section 2 of the *Supplemental Design Revisions for 2015* (2015 Design Revisions; Arcadis, 2015).

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In general, the dredging and associated activities in CU 60 will be conducted in accordance with the applicable provisions of GE's *Remedial Action Work Plan for Phase 2 Dredging and Facility Operations in 2015* (2015 RAWP; Parsons, 2015a) with the differences described herein. Specifically, such activities in CU 60-1 will be conducted in general accordance with that RAWP, with a number of modifications specified in Section 3 of this RAWP. CU 60-2 presents a number of additional operational challenges due to its very close proximity to the eastern portion of Thompson Island Dam. As a result, a land-based approach to dredging and backfill placement in CU 60-2 will be implemented. This approach includes: (a) construction and use of a staging area on the eastern side of the Champlain Canal (Route 4 Staging Area); (b) construction and use of a designated CU 60-2 access road; (c) construction and use of a material staging area and a transload station on the western side of the Canal for the transloading of sediments into barges situated in the Canal for transport to the Fort Edward sediment processing facility; and (d) dredging and backfill placement from a shoreline access road with finger piers extending into the dredge area, to be constructed incrementally as dredging proceeds. The proposed procedures for dredging, material transport, transloading of sediments, and backfill placement for CU 60-2 are described in this CU 60 RAWP.

As discussed further below, the dredging and associated activities in CU 60 will be subject to the separate plans that are appendices to the 2015 RAWP to the extent applicable to the CU 60 operations.

1.1 CU 60 CONTRACTS

The CU 60 activities addressed in this CU 60 RAWP will be conducted under two separate primary contracts, Contract 30 and 42A, described below:

- Contract 30 – Processing Facility Operations, covers sediment processing facility operations and maintenance at the Fort Edward sediment processing facility where sediments from CU 60 will be offloaded, dewatered, and loaded onto trains for transport to off-site disposal facilities. The contractor selected to carry out these activities under Contract 30 is referred to herein as the Processing Facility Operations Contractor (PFOC).
- Contract 42A – CU 60 Dredging Operations, covers shoreline vegetation pruning; dredging operations; and the construction, operation, demobilization, and restoration of the Route 4 Staging Area, access roads, material staging area, transload station, and finger piers. The contractor selected to implement this contract is also conducting the 2015 dredging operations in the main stem of the river and will also transport the sediment transloaded from CU 60 to the sediment processing facility for offloading by the PFOC. The contractor selected to carry out these activities under Contract 42A is referred to herein as the Dredging Contractor.

In addition, Parsons Engineering of New York, Inc. (Parsons) will provide construction management services to GE during the operations in CU 60. Figure 1-2 provides a chart that

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shows the lines of communication among the different groups involved in the project. Parsons is referred to as the Construction Manager (CM) throughout this CU 60 RAWP.

1.2 CU 60 RAWP AND ASSOCIATED DOCUMENTS

This CU 60 RAWP consists of the following sections:

CU 60 RAWP (main text) – describes the dredging and associated activities to be conducted in CU 60-1 and CU 60-2, including a description of the staging areas, access, dredging operations, transload operations, construction and operations schedule, compliance monitoring, and health and safety activities to be performed.

In accordance with the revised SOW, there are a number of separate plans that are typically submitted as appendices to the RAWP. These consist of the following:

- *Phase 2 Dredging Construction Quality Control/Quality Assurance Plan* (DQAP);
- *Phase 2 Facility Operations and Monitoring Plan* (Facility O&M Plan);
- *Phase 2 Transportation and Disposal Plan* (TDP);
- *Phase 2 Performance Standards Compliance Plan* (PSCP);
- *Phase 2 Property Access Plan* (PAP); and
- *Phase 2 Community Health and Safety Plan for 2014* (CHASP).

Except as otherwise provided herein, the activities to be conducted in CU 60 will be performed in accordance with applicable provisions of the 2015 versions of these plans which are appendices to the 2015 RAWP (or, for the TDP, the 2013 version that was an appendix to the 2013 RAWP, as discussed in the 2015 RAWP).

In addition, two other separate plans will apply to the dredging and sediment handling operations in CU 60. They are:

- *Phase 2 Remedial Action Monitoring Quality Assurance Project Plan* (Phase 2 RAM QAPP; Anchor QEA, 2012), which describes in detail the monitoring and sampling activities (including sample collection, analysis, and data handling activities) to be conducted by GE; and
- *Phase 2 Remedial Action Health and Safety Plan for 2015* (2015 RA HASP; Parsons, 2015b), which describes potential hazards and impacts to project workers, and the steps that GE and its contractors will take to prevent and respond to them.

1.3 DELIVERABLE REQUIREMENT INDEX

This CU 60 RAWP has been developed pursuant to Sections 3.1.1 and 3.1.4 of the 2010 revised SOW attached to the CD. Table 1-1 provides an index specifying where each pertinent requirement of the revised SOW is addressed.

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Table 1-1 SOW/CU 60 RAWP Cross-Reference Table

Requirement	Citation	CU 60 RAWP Location (or Cross-Reference)
RA Work Plan for sediment processing/transfer facility other than the facility used in Phase 1.	SOW Section 3.1.2 (page 3-17), cross-referencing Section 2.1.2 and 2.2.2.	This CU 60 RAWP addresses the operation of the sediment transfer facility to be constructed at the transload area. Section 2 describes construction activities associated with the transload area.
Monitoring events and compliance monitoring	Same as above	Compliance monitoring is described in detail in the Phase 2 RAM QAPP. It is summarized in the applicable PSCP and in Section 6 of this CU 60 RAWP.
Construction QA procedures	Same as above	Provided in the applicable DQAP.
Equipment staging	Same as above	Equipment staging for dredging and the construction of the transload area is described in Section 2.
Construction schedule	Same as above	Section 5
Demobilization and Restoration Plan	SOW Section 3.1.4	Section 4.7

1.4 CU 60 RAWP ORGANIZATION

This CU 60 RAWP is organized as follows:

Section 1 – Introduction: provides an introduction and overview of this CU 60 RAWP and associated documents, an index specifying where each pertinent requirement of the SOW is addressed, and an outline of the plan’s organization.

Section 2 – Access, Staging and Transload Area Development: describes the construction of staging areas, access roads, and the transload station associated with CU 60-2.

Section 3 – Dredging Operations in CU 60-1: explains that dredging and related activities in CU 60-1 will be performed in accordance with the 2015 RAWP with certain modifications, and it describes those modifications.

Section 4 – Dredging Operations in CU 60-2: describes the work to be performed in CU 60-2, including mobilization activities, equipment staging, shoreline vegetation pruning, dredging operations, dredged material transloading and transport, backfill placement, shoreline stabilization, demobilization of the support area, and habitat construction.

Section 5 – Construction and Operations Schedule: presents the construction schedule for the CU 60 activities.

Section 6 – Compliance Monitoring: provides a brief overview of the monitoring to be performed by GE during CU 60 dredging to assess achievement of the Phase 2 Engineering Performance Standards (EPS), Quality of Life Performance Standards (QoLPS), and substantive

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water quality requirements (WQ Requirements) issued by EPA. More details regarding this monitoring are provided elsewhere – mainly in the Phase 2 RAM QAPP.

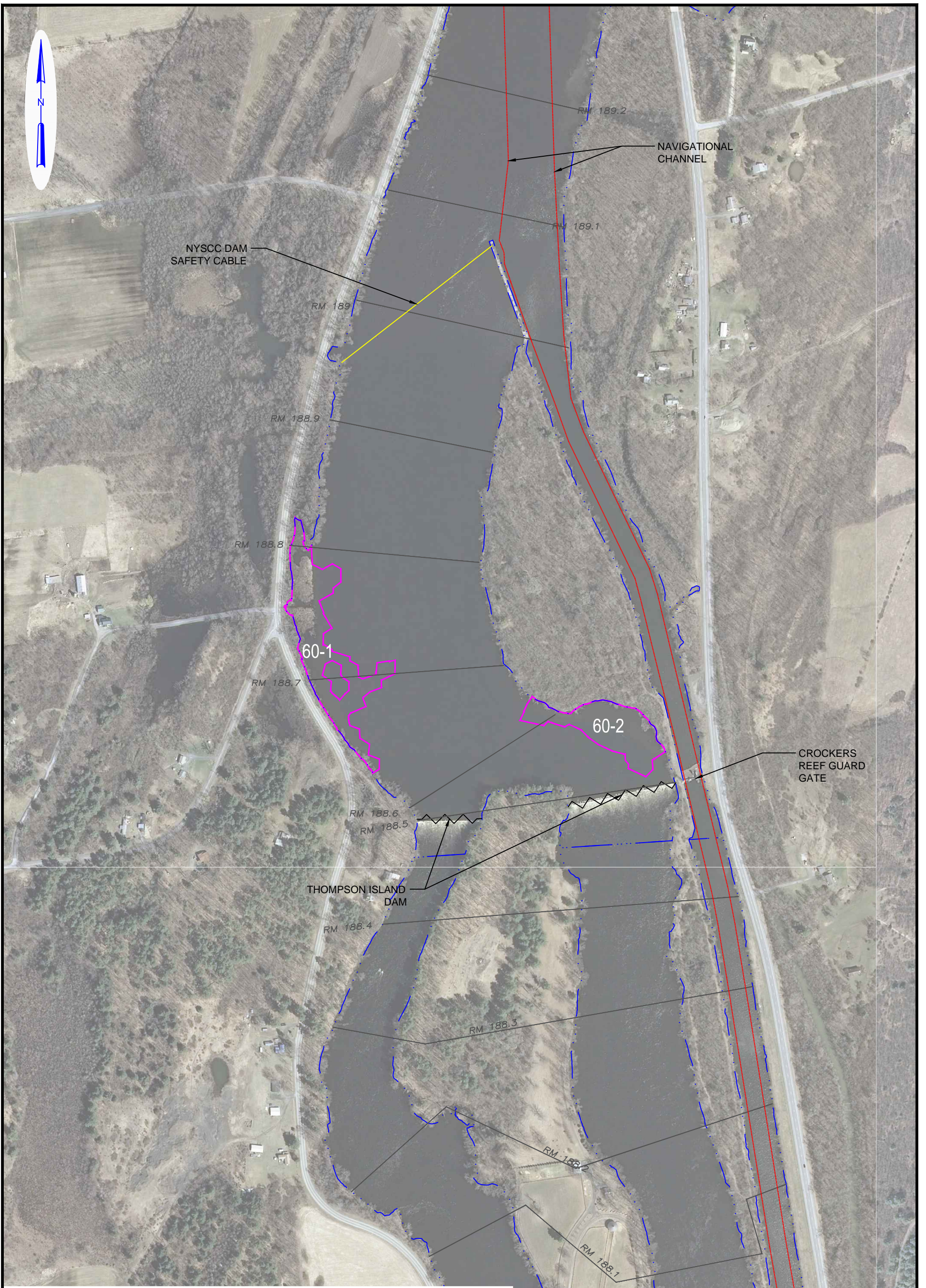
Section 7 – Health, Safety, and Environmental Protection Measures: discusses: (a) the health and safety policy, program, and plan to be implemented during CU 60 dredging activities (including general worker health and safety measures); (b) personnel decontamination; (c) emergency contact numbers and (d) the monitoring to be conducted by the contractors to verify compliance with the contract specifications.

Section 8 – Report on 2015 Activities: describes the annual progress report to be submitted following the conclusion of the 2015 dredging activities, which will incorporate dredging activities within CU 60.

Section 9 – References: provides bibliographic references to key documents referred to in the body of this CU 60 RAWP.

1.5 CU 60 RAWP REVISIONS

Dredging and related activities described herein are based on the design drawings and specifications for Contract 42A, with revisions relating to CU 60, subject to EPA approval. During implementation of dredging, revisions to this CU 60 RAWP may become necessary due to design changes, adaptive management changes made pursuant to Section 7 of the 2010 revised SOW, unexpected field conditions, or other reasons. When GE becomes aware that revisions will be necessary, and those revisions affect the approved schedule or alter the means or scope of the work set forth in this CU 60 RAWP, GE will notify EPA of the proposed change and seek EPA approval.



LEGEND

-  **CU #** CU BORDER
-  **SHORELINE (ELEVATION 119')**
-  **NAV CHANNEL**
-  **RIVER MILE MARKER**



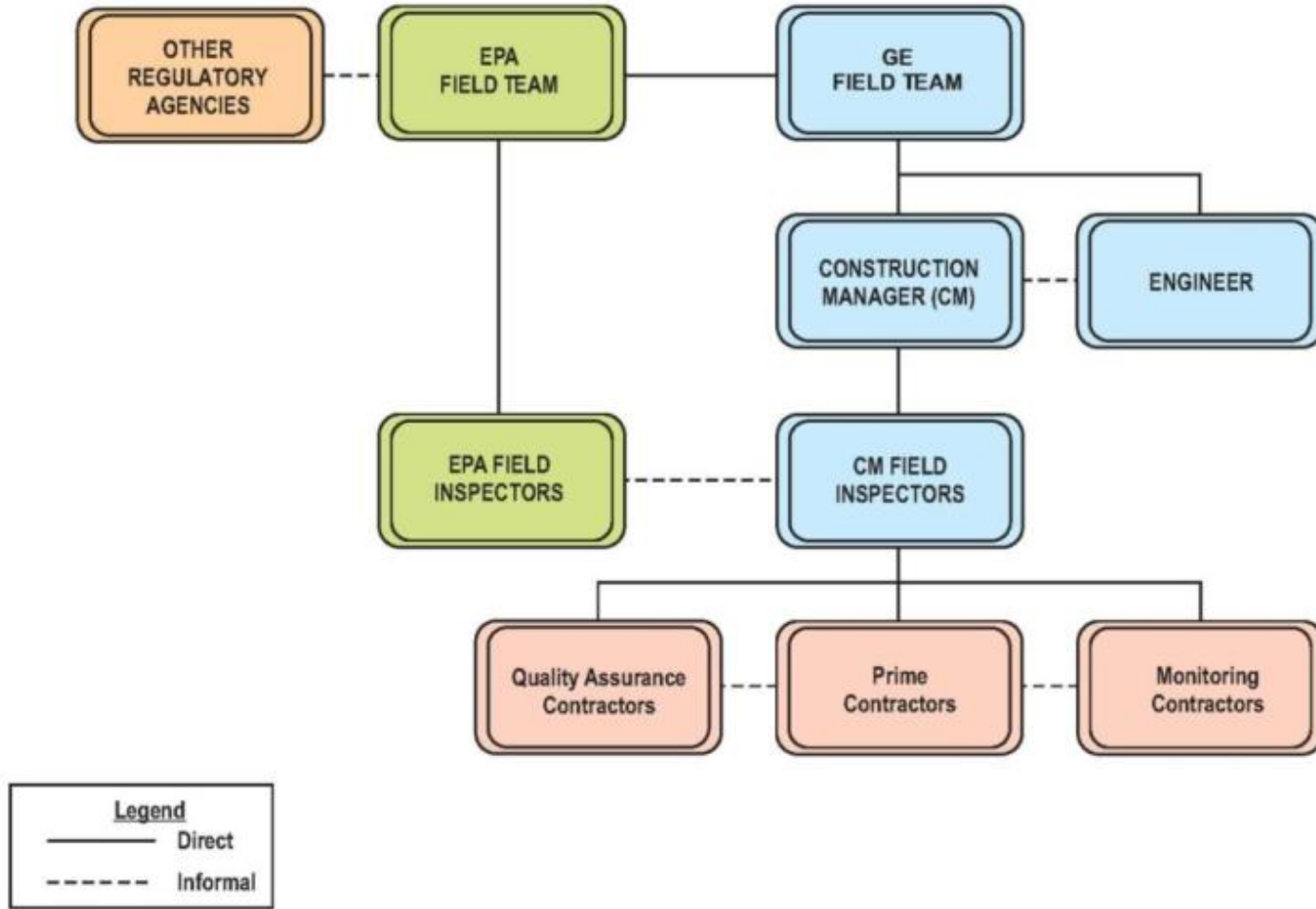
PARSONS
 COMMERCIAL TECHNOLOGY GROUP
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DRAWING TITLE
**CU60 LOCATION
 REMEDIAL ACTION WORK PLAN
 HUDSON RIVER PCBs SUPERFUND SITE**

DRAWING NO. FIGURE 1-1	SCALE 1" = 400'
JOB NO.	

Remedial Action Work Plan for CU 60

Figure 1-2 Project Lines of Communication



drawn47266 Project Lines of Communication.cdr ma 02/25/2014

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SECTION 2

ACCESS, STAGING AND TRANSLOAD AREA DEVELOPMENT

Prior to the start of the 2015 dredging season, a staging area on the eastern side of the Champlain Canal (Route 4 Staging Area), and the CU 60-2 access road, a material staging area, and a transload station on the western side of the Canal are being constructed. This section describes the construction of those facilities. During construction, a material barge placed perpendicular and across the Champlain Canal serves as a temporary bridge across the Canal and provides access from the staging area on the eastern side of the Champlain Canal to the CU 60-2 transload and material staging areas. This material barge will be removed before the 2015 Champlain Canal navigation season commences.

2.1 CULTURAL RESOURCES ASSESSMENT

Prior to construction, a Cultural Resources Assessment was prepared that summarized readily available historic and environmental background information concerning potential historic and archaeological features that might be associated with the project (URS, 2015a). That assessment, which was approved by EPA on February 25, 2015, concluded that much of the area was likely disturbed by Canal construction in the early 20th century, but that since a field survey prior to construction was not possible due to winter conditions, archaeological monitoring should be conducted during portions of clearing and grading to identify and document any features that might be encountered. As discussed in Section 2.6, archaeological monitoring was conducted during site preparation work and identified certain historic structural features in or near the project area on the western side of the Canal; and as a result, the layout of the facility was redesigned to avoid those features. Archaeological monitoring will also be conducted during restoration of the project area.

2.2 VEGETATION REMOVAL

Construction specifications limit vegetation removal to only the trees and vegetation necessary for the construction of the Route 4 Staging Area, the CU 60-2 access road, the shoreline access road, the material staging area, and the transload area. A visual tree survey and global positioning system (GPS) have been used to identify and locate all trees that would affect the operations. The tree survey was submitted to EPA for review and was approved by EPA on February 25, 2015. Where space, size, and safety considerations permitted, trees have been felled in one piece. A majority of the project area was covered by brush ranging from 3 to 7 feet (ft) in height. Clearing of this vegetation has been performed with a brush mower. Trees, log sections, and brush less than 12 inches in diameter have been processed with a large brush chipper, discharging wood chips into controlled piles adjacent to the area being cleared. Chip piles have been maintained in the vicinity of the material staging area and will be incorporated in the fill and final grading of the area during restoration of the site. Logs greater than 12 inches in diameter have been cut into 8-foot (ft) lengths and staged. All cut logs and wood chips that

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cannot be incorporated into final grading will be hauled to either the Washington County Transfer Station located on Rt. 196 in Kingsbury, NY or the Easton or Fort Ann Washington County Highway Department facilities for reuse by the Washington County Highway Department.

Stumps have been removed by excavators as required for the construction of the site.

2.3 EROSION CONTROL

Site erosion and sedimentation controls have been implemented on the project. Monitoring of these controls has been and will be documented in accordance with the Storm Water Pollution Prevention Plan (SWPPP) prepared by the contractor and stored on-site. To prevent the tracking of clean soil or backfill onto the adjacent public roadway, a stabilized construction entrance has been installed at the location where vehicles will enter and/or exit the Route 4 Staging Area. The stabilized construction entrance has been constructed wide enough to cover the entire width of the entrance/exit and allow two vehicles to pass comfortably. Where it meets the public roadway, it will be wide enough to accommodate longer construction vehicles. The stabilized construction entrance is long enough to allow clean soil or backfill to become dislodged from vehicle tires before the vehicle enters the public roadway. All road cleaning measures will meet applicable New York State Department of Transportation (NYSDOT) and local requirements.

After clearing and grubbing of the CU 60-2 access road, the material staging area, and the transload area, a silt fence has been installed around the perimeter of the disturbed areas to prevent runoff from leaving the site. The silt fence will be inspected for rips, tears, and gaps between the fence and the ground. An adequate reserve of silt fence will be kept on site at all times for emergency and/or routine replacement. Silt fence will be removed only after exposed soils in the contributing drainage area are stable. A natural undisturbed vegetated buffer will be maintained beyond the limit of disturbance.

Stockpiles of erodible material, including any topsoil removed during construction, have a perimeter sedimentation control (i.e., silt fence or haybales) installed on the pile's downgradient side to prevent storm water runoff from being contaminated by eroded sediment. Stockpiles of erodible material that remain inactive for more than 14 days will be subject to a temporary stabilization technique. Slopes will be left in a roughened condition in order to reduce erosion by decreasing slope length and runoff velocity, increasing infiltration, trapping sediment. The roughened impressions will be made perpendicular to the slope contours. If additional slope stabilization is necessary, it will be done using aggregate, crushed stone, or rip-rap as conditions may warrant.

2.4 FILL MATERIALS AND BACKFILL/CAP MATERIAL SOURCES

The civil work construction requires use of a variety of fill materials for grading, structural fill, base material, and bedding. In addition, various types of backfill and cap materials will be needed to complete the dredging operations. All borrow materials imported to the CU 60-2 site

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have been and will be certified clean fill. The various fill/backfill types have been and are anticipated to be provided by local sources. Table 2-1 below details those sources.

Table 2-1 List of Material Sources

Backfill/ Cap/Fill Type	Source	Location
Sand	Lucarelli Pit	George Thompson Rd., Mechanicville, NY
Dense Graded Crushed Rock	Peckham Materials Corp	438 Vaughn Road, Hudson Falls, NY
Backfill Type 2 Material (“Type 2”)	Lucarelli Pit	George Thompson Rd., Mechanicville, NY
Coarse Gravel (“Type N”)	Peckham Materials Corp	438 Vaughn Road, Hudson Falls, NY
Topsoil	Troy Topsoil	748 Hudson Road Mechanicville, NY

Truck routes are shown on Attachment 1.

2.5 ROUTE 4 STAGING AREA AND INITIAL ACCESS

In order to provide initial land access to CU 60-2, a staging area on the eastern side of the Champlain Canal adjacent to NYS Route 4 has been constructed. There is an existing gravel-surfaced area at that location. This area has been extended by clearing existing trees and brush and placing additional gravel surfacing utilizing a bulldozer and front-end loader. An office trailer will be mobilized and located at this location.

During construction, as depicted in Figure 2-1, a 40-ft x 140-ft material barge with a flat deck is positioned perpendicular to the Champlain Canal and extends across the Canal at this location. This barge serves as a temporary bridge across the Canal and provides for the transport of equipment and materials to the western bank of the Champlain Canal. Reinforced wood mats connect and transition the ends of the barge to the banks of the Canal.

2.6 TRANSLOAD STATION AND MATERIAL STAGING AREA.

Across from the Route 4 Staging Area, on the western side of the Champlain Canal, a transload station and material staging area are being constructed. The transload station is to consist of a long-reach excavator, material transfer bin, spill shield, pump station, and secondary containment along the lined CU 60-2 access road. The material staging area is to consist of a level and graded area where the various types of backfill materials can be staged and segregated. A front-end loader will be used to load backfill materials in this area into material transfer trucks for transfer to the long-reach excavator for placement in the CU, as discussed in Section 4.5.1.

The activities that have been and are involved in the civil work construction necessary to establish the transload station, CU 60-2 access road, and material staging area include clearing,

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grubbing, general earthwork and grading, liner installation, excavation of river banks, and placement of pre-cast concrete footings and timber crane mats.

At the transload station, a long-reach excavator will be placed adjacent to the western canal bank. This excavator will transload dredged sediment from a material transfer bin at the transload station to a regular hopper barge in the Champlain Canal. Pre-cast concrete block footings have been placed below existing grade and under the outrigger areas of the excavator to support it. An approximately 16-ft by 30-ft steel material transfer bin has been constructed for trucks to dump dredged sediment into. A steel spill shield will be constructed and installed to protect the ground under the potential swing area of the excavator bucket between the material transfer bin and the hopper barge. An hydraulic pump with hose will be used to pump water that accumulates in the material transfer bin into the hopper barge being loaded. Two Flexi-Float tanks will be spudded along the western bank of the Canal to provide a berthing location for regular hopper barges and to maintain clearance from the Canal bank.

Limited access dredging will be performed along the Canal bank to provide draft for the hopper barge to be moored at this location. Rip-rap removed during the access dredging will be placed on the shoreline so that it can be replaced during the demobilization and restoration of the transload station. Sediment that is to be removed during the access dredging will be placed in a hopper barge for eventual transport and offloading at the sediment processing facility. Based on nearby PCB sediment data, any access dredge sediment will be designated as material not subject to the regulations under the Toxic Substances Control Act (TSCA) and will be disposed of accordingly.

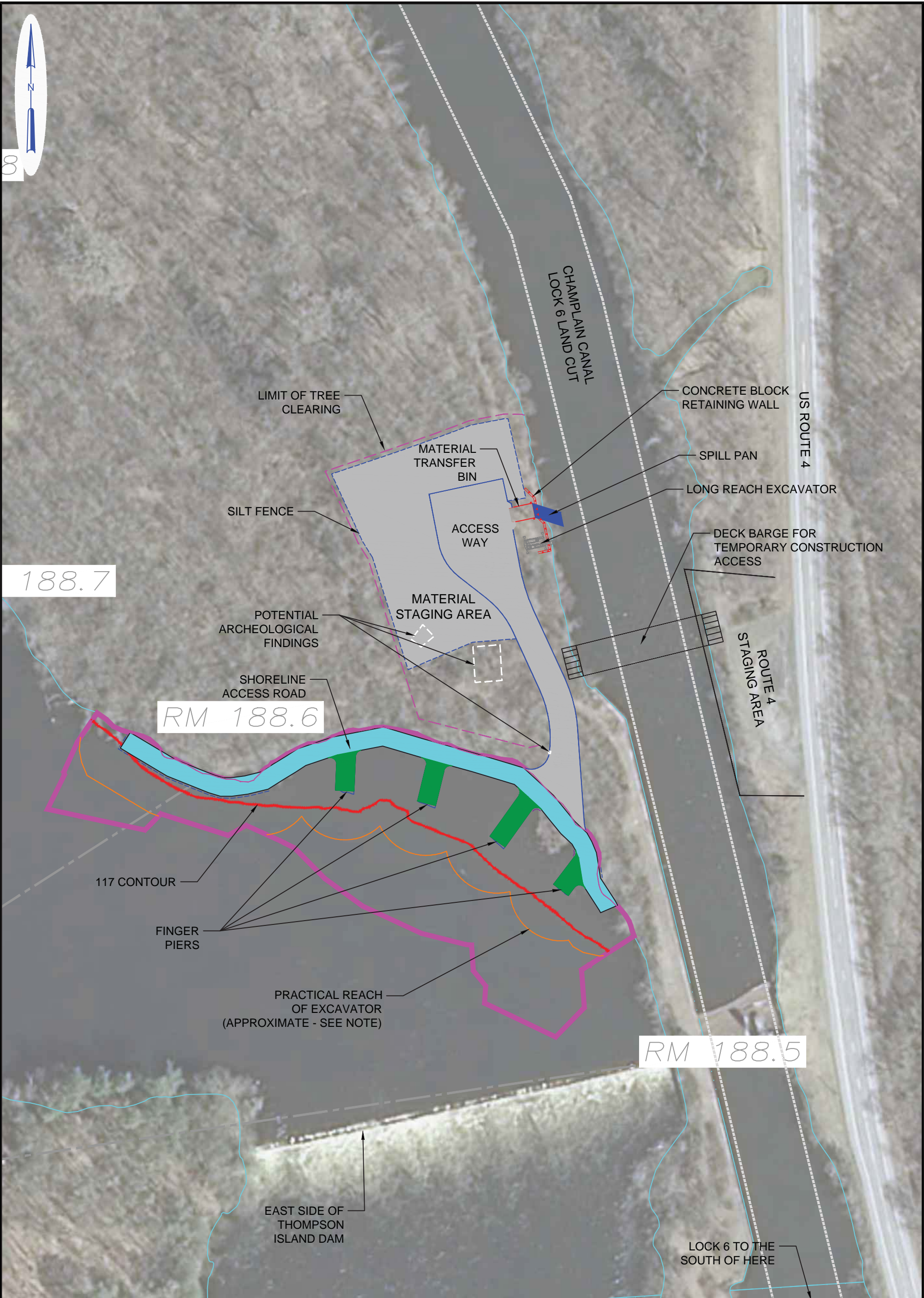
During the site preparation work conducted in March 2015, including limited rip-rap removal adjacent to the excavation for the bin foundation, archaeological monitoring was conducted in the areas of the transload station, CU 60-2 access road, and material staging area. That monitoring identified certain historic structural features in and near those areas, as described in a Cultural Resources Monitoring Report for this area (URS, 2015b), which was submitted to EPA on March 30, 2015. As a result, as also described in that report, the facility was redesigned to avoid impacts to those features. (Archaeological monitoring continued through April 1, 2015, but no additional cultural or archaeological features were found.) Figure 2-1 depicts the revised site layout of the transload station, CU 60-2 access road, and material staging area.

Table 2-2 provides a list of major equipment to be utilized in the transload process.






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Table 2-2 List of Major Transload Equipment

List of Major Transload Equipment	Quantity	Construction Activity	Description
Transloader	1	Transloading of dredged sediment	Long-reach excavator equipped with a 1 cubic yard (cy) open clamshell bucket
3-inch Hydraulic Pump w/ Hose	1	Pumping of water from transfer bin to hopper barge	
10x40 Flexi Floats	2	Support mooring and fleeting of hopper barges	Floats will be used to moor/fleet hopper barges
Long-reach Excavator	1	Dredging of sediment from CU 60-2	Long-reach excavator equipped with 2 cy open excavator bucket
Material Transfer Trucks	2	Transport of sediment from CU 60-2 to transfer bin	Articulated dump trucks with gasketed rear gate
Front-end Loader	1	Loading of backfill into material transfer trucks	Rubber-tired loader with a 5.5 cy bucket.



LEGEND

-  **CU #** CU BORDER
-  SHORELINE
-  NAV CHANNEL
-  RIVER MILE MARKER
-  REINFORCED WOOD MATS

NOTE:
 PRACTICAL REACH OF EXCAVATOR SHOWN IS APPROXIMATE. THE FINAL REACH MAY VARY AND WILL BE DEPENDENT UPON ACTUAL FIELD CONDITIONS.



PARSONS COMMERCIAL TECHNOLOGY GROUP		DRAWING TITLE	
GE COMPANY - PARSONS PROJECT OFFICE BUILDING 40-2, 381 BROADWAY FORT EDWARD, NEW YORK 12828 (518) 746-5311		CU60 STAGING AREA AND ACCESS REMEDIAL ACTION WORK PLAN HUDSON RIVER PCBs SUPERFUND SITE	
DRAWN BY MWB	CHECKED BY MG	DRAWING NO. FIGURE 2-1	SCALE 1" = 100'
DATE 04/17/2014	APPROVED BY MG	JOB NO.	

Remedial Action Work Plan for CU 60

SECTION 3

DREDGING OPERATIONS IN CU 60-1

Dredging and associated activities in CU 60-1 will be conducted in accordance with the pertinent sections of the 2015 RAWP with the exception of the following items:

1. Due to the very shallow water depths in CU 60-1, that sub-unit will be dredged exclusively using a long-reach dredge with a 2 cy enclosed clamshell bucket. The long-reach dredge will load mini-hopper barges that will be transported to a transload platform that will be located at the New York State Canal Corporation (NYSCC) dam safety cable. The transload platform will receive the mini-hopper barges and transload the sediment into regular hopper barges using an excavator fitted with an enclosed clamshell bucket. Access dredging will need to be conducted to access the very shallow portions of CU 60-1, as illustrated in Figure 3-1. Prior to initiating dredging activities in CU 60-1 the area between CU 60-1 and the transload platform will be re-surveyed to identify rock piles or other bathymetric features that could become navigation hazards. These rock piles or other features will be marked to navigate around; but depending on location, certain of these piles/features may require relocation to adjacent deeper locations so that the dredging equipment can transit to CU 60-1 in a safe and efficient manner.
2. A gate will be installed in the NYSCC safety cable for vessel access similar to the gate installed in 2013. The gate will normally remain closed; and when access through the gate is required, it will be controlled solely by the Dredging Contractor in accordance with the Contractor's approved Near-Dam Operations Plan, which will be submitted to EPA separately. When dredging or backfill/cap placement is taking place, the transload platform will be immediately adjacent to the cable. Mini-hopper barges will deliver dredged sediment or receive backfill/cap material from the transload platform on the south side of the cable. The transload platform will transload the sediments into regular hoppers positioned on the north side of the cable. Personnel will be transferred to the area below the NYSCC safety cable by using the transload platform.
3. Along the western edge of CU 60-1 there are two culverts that cross under West River Road at its intersections with Dickinson Lane and Peters Road. On the north side of Dickinson Lane there is a 36" diameter corrugated metal pipe culvert, and on the south side of Peters Road there is a 12" diameter concrete culvert. Both of these culverts provide drainage outlets to the river from land and properties to the west of West River Road. During dredging of CU 60-1, these culverts will be temporarily blocked with sandbags to prevent water from the river back-flowing into the culverts. Stakes will be placed in the ditch and wetland area to the west of the road with grades marked on them. The water build-up will be monitored west of the road and the sandbags will be adjusted

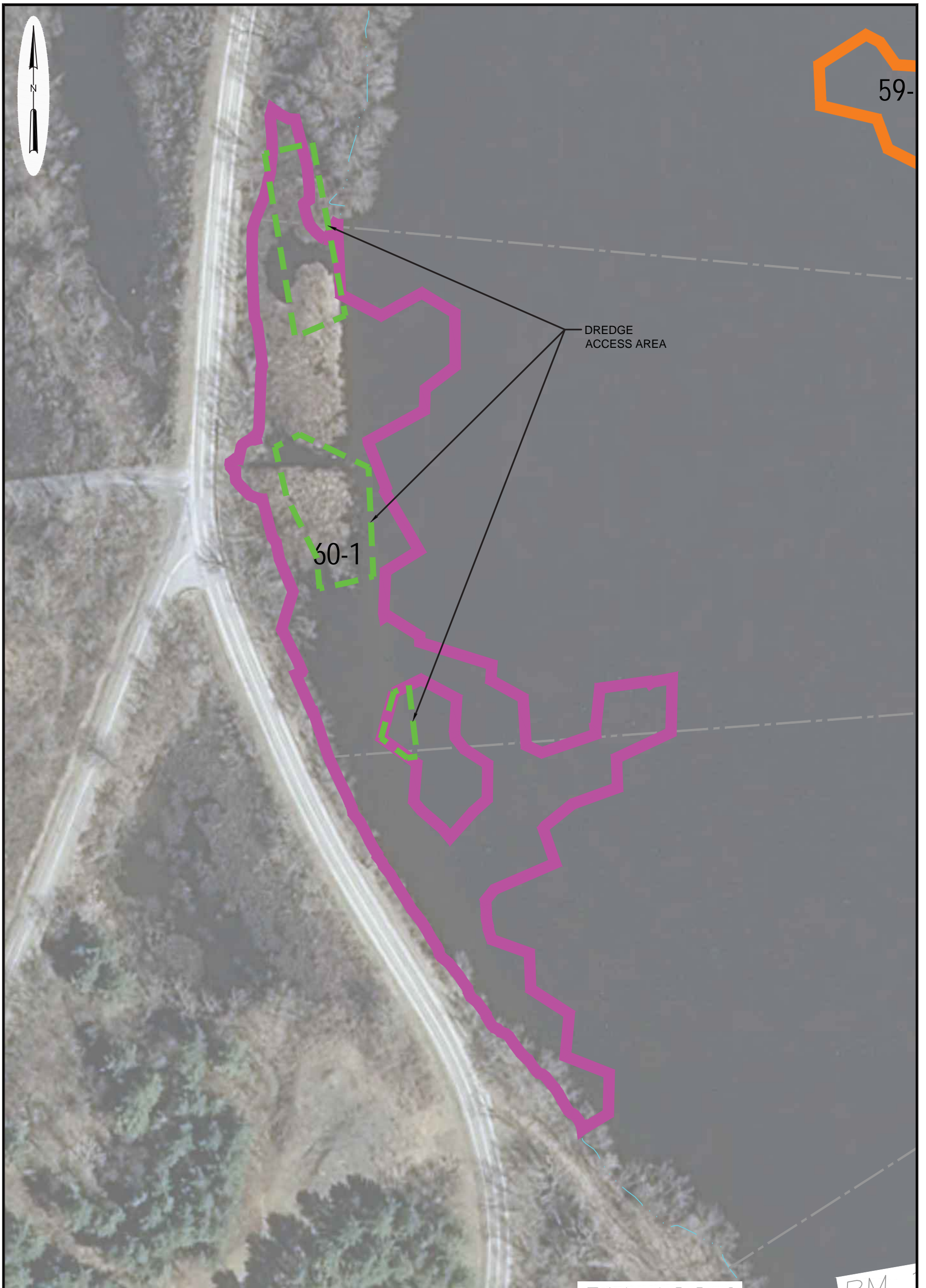
Remedial Action Work Plan for CU 60

periodically to relieve any high water from the west side of West River Road by allowing it to discharge to the river as needed.

4. Work in CU 60-1 will be performed 24 hours per day, six days per week, unless otherwise specifically approved by the CM.
5. To minimize the number of small vessels accessing CU 60-1:
 - a. Post-dredging acceptance bathymetric surveys will not be conducted separately by the Dredging Contractor and the third-party bathymetric surveyor. They will be conducted by the Dredging Contractor and witnessed by the third-party surveyor on board the Dredging Contractor's survey vessel.
 - b. Buoy-based near-field resuspension monitoring will not be performed upstream of the Thompson Island Dam, but will be conducted at the near-field buoys at Lock 6, as described more fully in Section 6.1.
 - c. The procedures for responding to sheens (if any) will not be implemented in areas between the work area and the Thompson Island Dam. Potential response to an observed sheen may include an assessment from the shore and implementation of containment measures downstream of the dam.
 - d. Sediment residual cores will be collected in CU 60-1 only after the design pass and a single additional dredge pass. A third dredging pass will not be performed.
 - e. Backfill/cap cores will not be collected in CU 60-1.
 - f. Backfill and/or cap placement surveys will not be conducted following placement in CU 60-1. Instead, verification that the backfill and cap material has been placed to specified requirements will be based on placing a minimum volume of each component in the appropriate locations using volumetric estimates and field observations by the Construction Manager. Backfill/cap elevations will also be checked by touching the bucket to the top of the placed material and verifying that the material has been placed to within the required tolerance. The elevation verification with the bucket will be performed on a 10 ft x 10 ft grid with a minimum of three bucket elevation measurements in each grid cell.
 - g. Other small vessels not under the control of the Dredging Contractor will be prohibited from travelling below the NYSCC safety cable.
6. No dredging operations will occur in CU 60-1 when any of the following environmental conditions occur in those CUs:
 - a. River velocities in the CU 60-1 work and transport areas exceed 1.0 knots per hour;
 - b. Visibility is less than 500 ft;
 - c. Sustained wind speed is greater than 30 miles per hour; and/or

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- d. Water temperatures are lower than 50 degrees Fahrenheit.
7. Habitat construction activities will be conducted as described in Section 2.1.2 and Attachment C of the 2015 Design Revisions. Those revisions include the following:
 - a. Planting of submerged and floating aquatic vegetation (SAV) will not be performed in CU 60-1. Instead, the SAV areas have been relocated to alternate EPA-approved locations within TIP above the NYSCC safety cable, and the SAV areas within CU 60-1 will be designated as unconsolidated river bottom (UCB). These plans have been incorporated into the habitat construction plans included in Attachment C to the 2015 Design Revisions and were reflected in the Form 2s and 3s for the CUs to which these SAV areas were relocated.
 - b. Approximately 1.99 acres of riverine fringing wetlands (RFW) have been delineated in CU 60-1. These areas will be returned to grade during the backfilling operations, except that erosion control fabric will not be placed in these RFW construction areas. Pre-planting surveys will not be conducted in CU 60-1 prior to RFW habitat construction. Instead, the RFW habitat construction areas in CU 60-1 will be based on the areas identified in the 2015 Design Revisions, as follows: Planting will be performed only in those areas that can be safely accessed by wading into the river from adjacent upland areas and where the workers can be tethered to a fixed object on the shore. RFW areas that cannot be accessed in this manner will not be planted, but allowed to recolonize naturally. Specifically, the areas identified for RFW planting and seeding in CU 60-1 will include: (a) an area of approximately 0.84 acre, extending to approximately the 118.3-ft elevation (approximate 8-inch water depth at the design flow); and (b) an additional approximately 0.66 acre, re-located from CU 60-2. This combined area will extend to approximately the 117.4-ft elevation (approximate 19-inch water depth at the design flow). In lieu of planting RFW areas in deeper portions of CU 60-1, approximately 1.15 acres of RFW planting were designated and planted in CUs 47 and 54 through CU 57 in 2014, as approved by EPA. These plans have been incorporated into the habitat construction plans included in Attachment C to the 2015 Design Revisions and were reflected in the Form 2s and 3s for CUs 47 and 54-57. Within the RFW construction area in CU 60-1, Zone A seeds will be hand broadcast from the shoreline, and Zone B seeds will be hand broadcast by a person wading in the water, while tethered to the shore, in water depths up to approximately 19 inches of water. The portion of the previously designated RFW areas in CU 60-1 that will not be planted or seeded will be designated as UCB.
 - c. RFW areas that are impacted by the access dredging for CU 60-1 (approximately 0.7 acre) will be reconstructed as RFW.



LEGEND

-  **CU #** CU BORDER
-  SHORELINE (ELEVATION 119')
-  NAV CHANNEL
-  *RM 192.1* RIVER MILE MARKER
-  DREDGE ACCESS AREA



 COMMERCIAL TECHNOLOGY GROUP GE COMPANY - PARSONS PROJECT OFFICE BUILDING 40-2, 381 BROADWAY FORT EDWARD, NEW YORK 12828 (518) 746-5311		DRAWING TITLE	
		CU60-1 ACCESS DREDGING REMEDIAL ACTION WORK PLAN HUDSON RIVER PCBs SUPERFUND SITE	
DRAWN BY	MWB	CHECKED BY	MG
DATE	02/01/2015	APPROVED BY	MG
DRAWING NO.		SCALE	
FIGURE 3-1		1" = 100'	
JOB NO.			

Remedial Action Work Plan for CU 60

SECTION 4

DREDGING OPERATIONS IN CU 60-2

This section provides a description of the dredging and related operations to be conducted in CU 60-2. These activities center around the dredging of sediment and debris within CU 60-2, but also include associated activities such as mobilization activities, shoreline vegetation pruning, dredged material transport, backfill placement, shoreline stabilization, and demobilization of the support area. The planned activities are presented in the general chronological order in which they will initially occur. Design information is provided in Section 2.2 of the 2015 Design Revisions, and an overview of the project components in the CU 60-2 area is shown in Figure 4-1.

Information regarding operations at the Fort Edward sediment processing facility, including unloading of dredged materials, dewatering activities, and rail transport to the disposal facilities is presented in the applicable Facility O&M Plan and TDP, as identified in Section 1.2.

The Dredging Contractor will use best management practices to minimize resuspension of dredged sediment to minimize the occurrence of visual plumes related to dredging operations.

As discussed in more detail below, sediments in CU 60-2 will be dredged from land by a track-mounted long-reach excavator to the extent of the practicable reach of that excavator. To maximize the amount of sediment that can be dredged from land, a shoreline access road with finger piers extending into the dredge area will be constructed. The dredging will be conducted in a single pass to a depth that is 12 inches deeper than the Elevation of Contamination (EoC). The portion of CU 60-2 that is situated beyond the practicable reach of the excavator, even when the excavator is located on the finger piers, will be excluded from dredging as an engineering offset.

Dredged sediment and debris will be transported from the CU 60-2 area to the transload area by truck for transloading into main stem hopper barges located in the Champlain Canal and subsequent transport to the sediment processing facility for offloading and dewatering/processing. After processing, the dewatered sediment and debris will be temporarily staged along with sediments from the main stem river, loaded into rail cars, and shipped via rail to the approved disposal facilities, as described in the applicable Facility O&M Plan and TDP.

Once dredging has been completed within each portion of CU 60-2 that is reachable by the excavator and has been confirmed to have reached the target elevation, the CM will direct the Dredging Contractor to implement the EPA-approved backfill plan for that location. The placement of backfill and the type of backfill to be used are discussed in Section 4.5.1.

CU 60-2 dredging operations will normally be performed 6 days per week during daylight hours. If necessary to meet production targets, the Dredging Contractor may work a 7th day after

Remedial Action Work Plan for CU 60

notifying the CM and receiving CM approval. In that event, GE will advise EPA of the intent to work the 7th day before work is performed on the 7th day.

Since CU 60-2 is accessible by land, the environmental restrictions pertaining to CU 60-1 (listed in Item # 5 in Section 3) will not apply.

4.1 MOBILIZATION AND PREPARATORY ACTIVITIES

This section briefly discusses the Dredging Contractor's mobilization activities to occur before the dredging operations in CU 60-2 can begin.

4.1.1 General

Mobilization is the process of procuring materials and equipment, transporting equipment, establishing the support facilities necessary to conduct the work, and providing project-specific training for construction and quality control crews. A summary of the activities performed during dredging operations mobilization is provided below:

- Procure any necessary equipment in a timely manner so that it is available to mobilize.
- Complete the construction of the Route 4 Staging Area, CU 60-2 access road, transload station, and material staging area as described in Section 2.
- Confirm communication processes with CM, PFOC, and other key parties.
- Establish on-site worker support systems for safety, sanitation, decontamination, etc.
- Set up signage (including at the entrance onto Route 4) and aids to navigation, as necessary.
- Establish project survey control network and conduct preparatory surveys.
- Transport equipment to site and establish systems for storage, fueling, repairs, and maintenance.
- Establish equipment positioning controls and field test.
- Bring materials to site for environmental protection, spill response, and sediment sheen response.
- Create piles of materials staged for initial backfill placement.
- Conduct site training for contractor personnel.

4.2 EQUIPMENT STAGING AND SUPPORT PROPERTIES

As discussed above, in order to provide initial land access to CU 60-2, a staging area on the eastern side of the Champlain Canal adjacent to NYS Route 4 has been constructed. An office trailer will be mobilized to and located at this location. Across from the Route 4 Staging Area, on the western side of the Champlain Canal, a transload station and material staging area are being constructed. The locations of these support properties are illustrated in Figure 2-1 and details on the construction are presented in Section 2.

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4.3 SHORELINE VEGETATION PRUNING

Shoreline vegetation that overhangs the dredge area will be pruned to allow the safe and effective operation of dredge and shoreline stabilization equipment and minimize incidental damage to trees. Shoreline vegetation pruning will be conducted from the shoreline access road by the Dredging Contractor utilizing a pole saw or chainsaw. The cut branches and trunks will be chipped or re-sized on site and maintained in a pile on site for use during final site restoration.

4.4 SEDIMENT SHEEN RESPONSE AND OTHER WATER QUALITY CONTROLS

During dredging operations, the Dredging Contractor will take measures to minimize the movement of sediment-related sheens. If measures need to be implemented to address sediment-related sheens, those measures will be as described in the pertinent sections of the 2015 RAWP, but will be performed below Thomson Island Dam.

4.5 DREDGING AND BACKFILL OPERATIONS

To avoid placing waterborne equipment and personnel in close proximity to the dam, CU 60-2 will be dredged incrementally from land using a track-mounted long-reach excavator outfitted with a 2 cy open excavator bucket. An access roadway along the shoreline of CU 60-2 with finger piers extending into the dredge area will be constructed and used to provide access for the long-reach excavator to reach the area to be dredged. The dredge prism for CU 60-2 will encompass the area between the 119-ft (shoreline) elevation and a line determined by the practicable reach of the long-reach excavator from the proposed finger piers. The finger piers will be constructed from the shoreline access roadway into the dredge area such that the toe of slope of the finger pier fill is coincident with the slope of the transition between dredge prisms which extends beyond the 117-ft elevation contour of the original mud-line. The portion of CU 60-2 that is situated beyond the practicable reach of the excavator, even when the excavator is located on the finger piers, is excluded from the dredge prism as an engineering offset.

Backfilling operations in CU 60-2 will likewise be conducted incrementally from the finger piers and shoreline access road, using the same track-mounted long-reach excavator used for dredging (after removal of visible sediment from the bucket). Because dredging and backfilling operations will both be conducted incrementally and are inter-related, they are described together in this section. Backfill materials will be staged at the material staging area prior to opening of the Champlain Canal. They will be loaded into the material transfer trucks by a front-end loader and transported to the long-reach excavator on the finger piers or shoreline access road for placement, as described below.

4.5.1 Dredging and Backfill Placement

As indicated above, dredging in CU 60-2 will be accomplished using the track-mounted long-reach excavator outfitted with a 2 cy open excavator bucket. The open excavator bucket allows the excavator to have a longer practicable reach than if a clamshell bucket were to be employed and also minimizes the amount of water that is dredged with the sediment. The

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dredging will be conducted in a single pass to a depth that is 12 inches deeper than the EoC. In the event that this 12-inch overcut cannot be achieved in a given area, GE will meet with EPA to discuss appropriate measures as part of backfill placement, which could include placement of Type 2 backfill with total organic carbon (TOC) over the area where that overcut cannot be achieved.

The first step in the CU 60-2 dredging sequence is to dredge the footprint of the shoreline access road while incrementally placing a base layer of backfill and constructing the shoreline access road on top of it. The shoreline access road will be constructed incrementally as follows:

1. The excavator will dredge the reachable footprint of the road to a depth that is at least 12 inches below the EoC and place the dredged sediments into sediment transfer trucks for transport to the transload station via the lined access way.
2. Once the required elevation of the excavation is reached, the excavator will place a base layer of 12 inches of Type 2 backfill in the dredged footprint of the road, followed by the placement of additional Type 2 backfill, to the maximum extent practicable, to construct the road to the necessary elevation (approximately 121 ft NAVD88). The Type 2 backfill will be supplemented with densely graded crushed stone in select locations where necessary to add structural stability to the roadway.
3. The excavator will move forward onto the newly constructed portion of the road.
4. Crane mats or another similar temporary running surface will be installed over the constructed portion of the road almost to the excavator to provide a stable running surface for trucks.
5. Steps 1, 2, 3, and 4 will be repeated until the full length of the road is constructed.

As the shoreline access road is constructed, the excavator will dredge certain adjacent portions of CU 60-2 from the access road, including, in the western portion of CU 60-2, the extent of targeted sediments that are reachable by the excavator. The sediment dredged during construction of the shoreline access road and dredging of adjacent areas will be loaded into material transfer trucks. These trucks will then transport the dredged sediment to the transload station via the shoreline access road and lined access way. After depositing the contents into the material transfer bin at the transload station, the trucks will return via the same route to the long-reach excavator to receive additional sediment.

Once the excavator has dredged to the limits of its reach from the shoreline access road, finger piers will be constructed approximately perpendicular to the shoreline access road as shown in Figure 4-1. The finger piers will be constructed incrementally, extending horizontally until their toe of slope is coincident with the dredge prism transition beyond the 117-ft elevation contour in CU 60-2, as follows:

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1. The excavator will dredge the reachable footprint of the finger pier to a depth of 12 inches below the EoC and place the dredged sediment into the material transfer trucks for transport to the transload station.
2. Once the required elevation is reached, the excavator will place a base layer of 12 inches of Type 2 backfill in the dredged footprint of the finger pier, followed by the placement of additional Type 2 backfill, supplemented with densely graded crushed stone in select locations where necessary to add structural stability to the finger pier, to construct the finger pier to the necessary elevation (approximately 121 ft NAVD88).
3. The excavator will move forward onto the newly constructed portion of the finger pier.
4. Crane mats or another similar temporary running surface will be installed over the constructed portion of the road to provide a stable running surface for trucks.
5. Steps 1, 2, 3, and 4 will be repeated until the full length of the finger pier is constructed.

These finger piers will allow the long-reach excavator to travel by land away from the shoreline and extend its reach to dredge the remaining portions of CU 60-2 to the extent reachable. Once the first finger pier is ready to be constructed, the excavator will begin removal of the western portion of the shoreline access road to 12 inches below the required elevation of the final RFW backfill. The base-layer backfill for the finger piers, as well as for the dredged areas within the reach of the excavator from the finger piers, will first come from that western portion of the shoreline access road. As the road is removed, and while the excavator can reach the limits of the area remaining to receive the top layer of backfill, the Type 2 or Type 5 backfill material will be delivered by the material transfer trucks to the excavator for placement over the Type 2 base layer remaining from the shoreline access road. Type 5 backfill will only be placed within the 20-foot shoreline band of RFW. As each finger pier is constructed, the excavator will dredge the sediment that it can practicably reach from the finger pier and place that sediment in the material transfer trucks that will be driven out to the excavator using the shoreline access road and finger pier. When the limits of the reach of the excavator have been dredged to the required grade from the finger pier, the base layer of Type 2 backfill will be placed. The excavator will back off of the finger pier, removing the portion of the finger pier no longer required as a source of base-layer backfill.

As a finger pier is removed, the excavator will remove the crane mat or other temporary running surface on that portion of the finger pier. Any visible sediment observed on the finger pier will be removed and transported via truck to the transload area for disposal. Any crushed stone that has been used in the finger pier construction will then be removed and placed over adjacent dredge areas that have not yet received a base layer of backfill and will then be covered with Type 2 backfill.

This approach will be followed for each finger pier until that finger pier area and the adjacent area of CU 60-2 have been backfilled. The excavator will also continue the incremental removal of the shoreline access road, with backfilling of the road area and adjacent areas of CU

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60-2, following the same process for the removal and backfilling of the road and adjacent dredge areas as described above for the finger piers. Should there be insufficient backfill material staged in the material staging area, additional backfill material will be brought to the transload area by deck barge and offloaded into trucks for completion of the required backfill at CU 60-2.

During the process of shoreline access road and finger pier construction, dredging, road and pier removal, and backfilling, the CM representative will confirm that the Dredging Contractor has removed visible sediment from the open excavator bucket used in dredging before the bucket is used to handle clean backfill or to place or remove clean road base materials. Similarly, before transport trucks switch from transporting dredged material to transporting backfill or other clean material, all visible dredge sediment will be removed from the truck dump body interior. At the transload station, the trucks will unload the dredged sediment into the steel transfer bin equipped with splash protection screens. With the body in the up position and the rear of the truck over the transfer bin, a tender will use a water wash to remove any visible sediment.

Verification that the target elevation has been dredged will be performed using the Dredge Bucket Position System (DBPS). This system will utilize the Hypack Dredgepack software and will also be used, in conjunction with backfill material volume estimates, to confirm that backfill has been placed to the required elevations. The configuration will be similar to that used for other portions of the dredging project. RTK GPS positioning will be utilized to establish the position of the excavator. Angle sensors mounted on the machine's boom, stick, and bucket will measure the relative angles and allow the DBPS to calculate the position of the cutting lip of the bucket in real time. The DBPS will provide the operator with a view of the bucket track and the elevation of the tip of the bucket on a predetermined time interval over that bucket track. The DBPS will also include a target elevation line on the operator's screen that is set at 0.3' below the required prism elevation. The operator will move the bucket along the target elevation line or below the target elevation line on the last cut within the excavator's swing radius.

During dredging, the DBPS will record the dredge bucket elevation. The DBPS will output a 1 ft x 1 ft xyz file of the final bucket elevations. That file will be used to generate a map showing the average of the deepest bucket elevations on a 10 ft x 10 ft grid. The elevations of the 10 ft x 10 ft grid will be used to confirm that dredging has achieved the required elevations within the specified tolerances. In addition, the dredging contractor will define the "top of slope" of the area to be backfilled based on the accepted area that has achieved the required elevations as identified by the 10 ft x 10 ft grid. The "top of slope" will be set by the dredging contractor by allowing for a 3:1 slope of backfill material and a minimum 5-ft buffer zone to the edge of the accepted dredge area. The top of slope backfill area limit will be visible on the excavator operator's screen. Once the shoreline access road or finger pier has been constructed to the "top of slope" limit, the excavator will advance onto it and begin the process of dredging the next step in the CU.

Following placement of backfill, the DBPS will be used to record the elevation of the backfill placed. Elevations for backfill will be verified by touching the bucket to the material

Remedial Action Work Plan for CU 60

surface and recording the elevation. The backfill elevation verification with the bucket will be performed on a 10 ft x 10 ft grid using the average of a minimum of three bucket elevation measurements in each grid cell.

A screen will also be available for EPA viewing of the bucket information in the trailer at the CU 60-2 material staging and transload area. Due to the close proximity of CU 60-2 to the eastern portion of the Thompson Island Dam, no additional in-river confirmatory surveying will be performed for either dredging or backfill elevations.

Again due to the close proximity to the dam, no collection of sediment cores will be undertaken after the initial dredging pass. Once the initial dredge pass elevations are achieved (which, as noted above, will be conducted to a depth 12 inches deeper than the EoC), the area dredged will be considered ready for backfill, and backfill will be placed as described above.

4.5.2 Dredged Material Transloading and Transport to Processing Facility

As indicated above, the dredged sediment and debris (as associated water) removed from CU 60-2 and loaded into material transfer trucks will be transferred to the transload station. At the transload station, the material will be unloaded into the material transfer bin and will then be loaded into hopper barges in the land-cut section of the Champlain Canal using a long-reach excavator equipped with an enclosed bucket. After the hopper barges in the land-cut section are loaded, the barges will be transported to the sediment processing facility for sediment unloading and dewatering with sediment dredged from other portions of the river.

4.5.3 Spill Prevention

The truck access way from CU 60-2 to the transload station will be lined to provide a containment area during the truck transport of dredged sediment. Any sediment that is spilled on the CU 60-2 access way will be collected and transported to the material transfer bin. Stormwater collected on the liner will be directed by the slope of the CU 60-2 access way and liner to the river at CU 60-2. Spills of dredged sediment within the lined CU 60-2 access way, the shoreline access road, or finger piers within the CU will not be considered a spill or release requiring regulatory reporting.

During barge loading, a spill plate between the material transfer bin and the moored hopper barge will be used to catch material that may be dropped by the transloader bucket. The spill plate will slope back into the material transfer bin and away from the canal. The spill plate will have raised edges to be able to channel fluids and be large enough to cover the swing path of the transload excavator bucket. The transloader bucket will pass over the spill plate, which will control incidental spills from the bucket. Water that accumulates on the material transfer bin (i.e., water released from the dredged sediment and stormwater that falls on the material transfer bin) will be pumped into the hopper barge in the land-cut section of the canal.

Hoses used for pumping water from the material transfer bin to hopper barges will be contained by the spill plate.

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4.6 SHORELINE STABILIZATION

Shoreline stabilization will be conducted as described in the 2015 Design Revisions and the pertinent section of the 2015 RAWP.

4.7 DEMOBILIZATION AND RESTORATION

After the backfilling of CU 60-2 has been completed and accepted, all equipment and temporary facilities and foundations will be removed and areas restored. Specifically, the CU 60-2 access road, liner, material transfer bin at the transload station, spill plate, foundations, and equipment will all be removed; and the materials and equipment will be transported off-site for appropriate disposition. The access road materials and liner will be loaded into hopper barges for disposal at the processing facility. The bin and spill plates as well as rolling stock which may have come into contact with PCB-contaminated sediments will be decontaminated and wipe tested in accordance with the approved decontamination procedures in the Phase 2 Facility Operations and Maintenance Plan. The rip-rap removed from the canal banks has been temporarily staged on the site and will be replaced prior to demobilization of the equipment and after the bin and spill plate have been removed. The material barge temporary bridge will be re-deployed perpendicular to and across the Canal to allow for transport of the equipment, materials and supplies being demobilized back to the Route 4 Staging Area and from there to appropriate off-site locations. It is anticipated this demobilization work will be conducted during non-operating hours of the Lock 6 land cut portion of the Champlain Canal. The timing and schedule for this demobilization operation will be coordinated with the NYSCC, and will be subject to approval by the NYSCC and EPA.

Material transfer trucks and the excavator will be decontaminated prior to leaving the site, using the same cleaning procedure described in Section 4.5.1 for removing visible sediment from the equipment prior to switching from handling dredged material to handling backfill or other clean material.

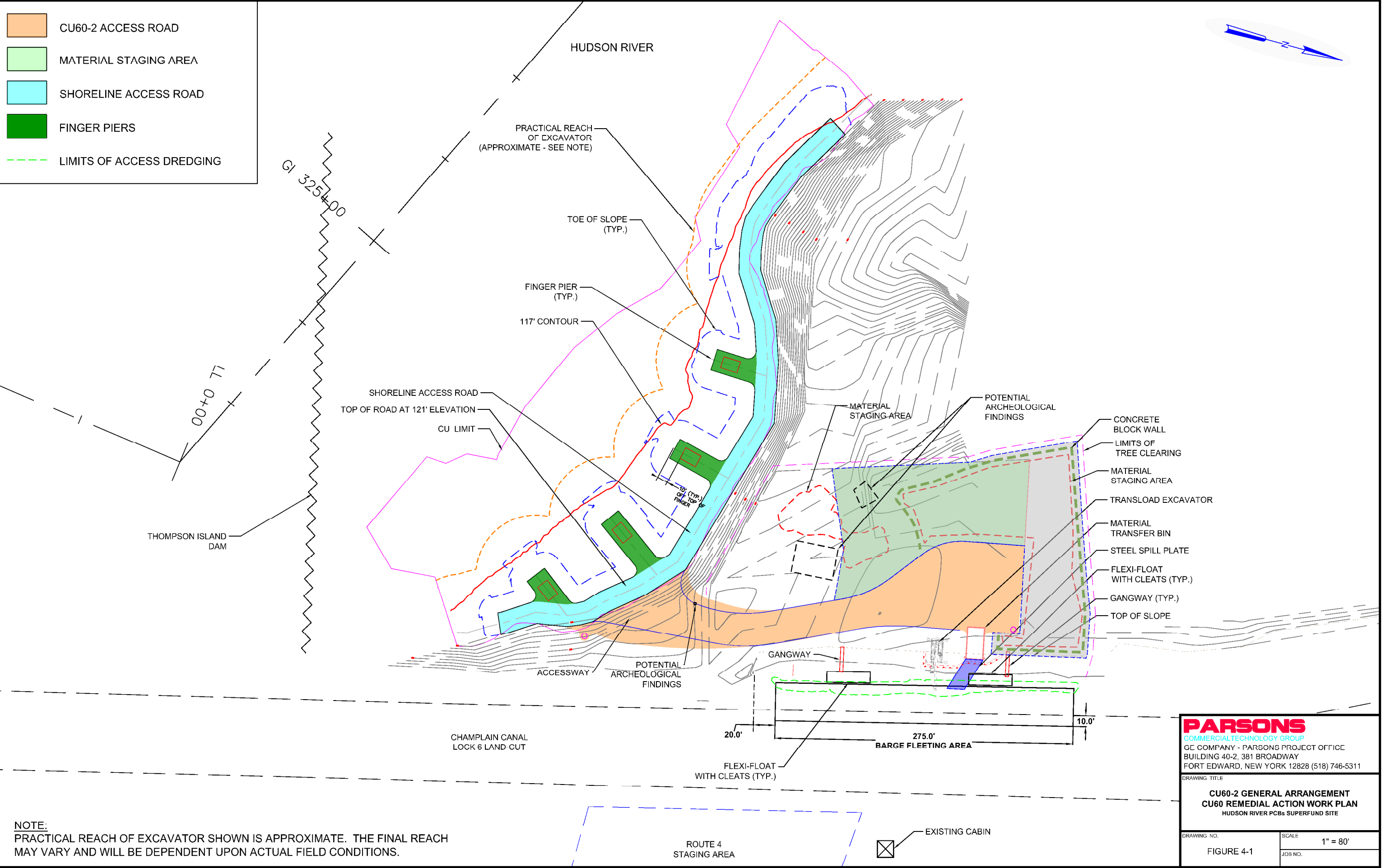
Excess fill material, if any, may be used at the site as grading material. Any such material that remains in the backfill staging area and was not used during dredging/backfilling operations may be used on-site or transported off-site without the need for further sampling. Any excess fill material that was used in construction of the shoreline access road or finger piers but exceeds the volume of backfill necessary to reach target elevations in CU 60-2 will be tested for PCBs if it is proposed to remain on-site. Otherwise, it will be tested as necessary for off-site transport and disposition.

GE will develop a grading plan for the final grading and stabilization of the site, including use of any excess materials that are proposed to remain on-site. This plan will be reviewed with and will be subject to approval by both EPA and the NYSCC before implementation. Once final grading of the site is completed, the site will be stabilized by seeding with grass and mulching. The erosion control measures will not be removed until sufficient growth of grass has been confirmed and the area is deemed to have been stabilized.

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4.8 HABITAT CONSTRUCTION

Habitat construction in CU 60-2 will be performed as described in Section 2.2.5 and Attachment C of the 2015 Design Revisions. As noted there, due to the close proximity to the eastern portion of the Thompson Island Dam, no SAV planting will be conducted in CU 60-2, although 0.21 acre will be designated for SAV natural recolonization. Approximately 0.94 acre of RFW has been delineated in CU 60-2. As described in the 2015 Design Revisions, an effort will be made in CU 60-2 to perform RFW construction in a 20-ft-wide band along the shoreline, comprising 0.28 acre, to the extent that this area can be safely accessed. This will include planting along the edge of the shoreline during a low flow period, and hand broadcasting of Zone A seeding from the shoreline or the non-inundated areas. The remaining 0.66 acre of RFW has been re-located to CU 60-1 as described in Section 3, Item 6.b, above.



NOTE:
 PRACTICAL REACH OF EXCAVATOR SHOWN IS APPROXIMATE. THE FINAL REACH MAY VARY AND WILL BE DEPENDENT UPON ACTUAL FIELD CONDITIONS.

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DRAWING TITLE
**CU60-2 GENERAL ARRANGEMENT
 CU60 REMEDIAL ACTION WORK PLAN
 HUDSON RIVER PCBs SUPERFUND SITE**

DRAWING NO. FIGURE 4-1	SCALE 1" = 80'
JOB NO.	

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SECTION 5

CONSTRUCTION AND OPERATIONS SCHEDULE

5.1 OVERVIEW

The schedule for construction and operations in CU 60-2 is presented as Figure 5-1. This schedule identifies the major construction and operational activities, sequence of dredging operations, and demobilization operations required to complete dredging operations in CU 60-2. Operations in CU 60-1 will be conducted as part of the overall 2015 schedule presented in Figure 4-1 in Section 4 of the 2015 RAWP.

The schedule for CU 60-2 specifies anticipated reasonable durations for the activities described in this CU 60 RAWP for CU 60-2. The schedule accounts for seasonal limitations on construction in the Upper Hudson River work area (e.g., ice formation, water temperatures and flow conditions that could affect safe working conditions). After construction of the transload and material staging areas is completed, dredging operations in CU 60-2 will be conducted concurrently with dredging operations in the downstream areas of the river, and dredged sediment will be transloaded into barges in the Champlain Canal for transport to the Fort Edward sediment processing facility. Thus, dredging operations in CU 60-2 will be limited by the schedule of the Champlain Canal navigation season.

Demobilization of the facilities associated with CU 60-2 will depend on coordination with the NYSCC as well as operating schedules and traffic in the Champlain Canal and may extend beyond the duration shown in Figure 5-1.

5.2 DREDGING PRODUCTION SCHEDULE

The dredging production schedule for CU 60 is included in the overall dredging production schedule provided in Section 4 of the 2015 RAWP.

CU-60 RAWP

FIGURE 5.1 CONSTRUCTION AND DREDGING OPERATIONS
SCHEDULE FOR CU 60-2

Activity Name	2015						
	Feb	Mar	Apr	May	Jun	Jul	Aug
Mobilization		[Bar]					
Dredging and Backfill				[Bar]			
Demobilization						[Bar]	

This schedule must be interpreted in light of the assumptions and qualifications specified in Section 4.4 of the 2015 RAWP

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SECTION 6

COMPLIANCE MONITORING

This section provides a very brief overview of the monitoring activities that GE will conduct during CU 60 operations to assess achievement of the Phase 2 EPS (USEPA, 2010a), Phase 2 QoLPS (USEPA, 2004, 2010b), and Phase 2 WQ Requirements (USEPA, 2005, 2006, as modified by the Phase 2 EPS and revised SOW attachments). A detailed description of these performance standards and requirements, the specific requirements for this monitoring, and the monitoring programs that GE will conduct to meet the requirements of the EPS, QoLPS, and WQ Requirements is provided in the Phase 2 RAM QAPP. Those provisions of the Phase 2 RAM QAPP will be followed during dredging and related operations in CU 60.

6.1 EPS COMPLIANCE MONITORING

The EPS consist of three performance standards:

1. Resuspension Performance Standard;
2. Residuals Performance Standard; and
3. Productivity Performance Standard.

The monitoring that GE will conduct under these standards during CU 60 operations is summarized below.

Resuspension Performance Standard

The Phase 2 RAM QAPP specifies that near-field monitoring should be conducted approximately 300 meters downstream of dredging operations and that far-field monitoring is to be conducted in an area of the river greater than one mile downstream from dredging. Due to the close proximity of CU 60 to the Thompson Island Dam, daily near-field monitoring will not be performed upstream of the dam. Rather, such near-field monitoring will be performed at buoys located downstream of the Fort Miller Dam and Lock 6 at River Mile 185.9. Far-field monitoring will be conducted daily at the Lock 5 automated monitoring station, as well as the automated Waterford station.

Residuals Performance Standard

As discussed in prior sections, sediment cores will be collected in CU 60-1 (but not CU 60-2) following the design dredging pass and a single additional dredging pass (if necessary). The samples will be analyzed and the results will dictate the appropriate response actions to be undertaken in accordance with the applicable PSCP criteria.

Productivity Performance Standard

Based on the planned dredging of CU 60, the dredging production schedule is included in the overall schedule provided in the 2015 RAWP.

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6.2 QOLPS COMPLIANCE MONITORING

The QoLPS include five performance standards:

1. Air Quality Performance Standard;
2. Odor Performance Standard;
3. Noise Performance Standard;
4. Lighting Performance Standard; and
5. Navigation Performance Standard.

The need for and type of monitoring to be conducted under these standards are summarized below.

Air Quality Monitoring

GE will conduct routine air quality monitoring for PCBs in ambient air. GE will sample the air continuously (24 hours each day that operations are taking place near a given station) at monitoring stations at the transload area and within the dredging corridor of CU 60, with PCB analysis of 24-hour average samples. The results will be compared with criteria in the Air Quality Performance Standard, although only exceedances of the air quality standards (not exceedances of an air quality concern level) will be reported, as discussed in the PSCP. In addition, GE will conduct monitoring for opacity in response to observations or a complaint indicating a potential opacity issue.

Odor Monitoring

GE will perform odor sampling if on-site workers detect an uncomfortable project-related odor or if an odor complaint is received from the public in the vicinity of the remediation zone. If the odor is identified as potentially hydrogen sulfide (H₂S), monitoring for H₂S will be performed upwind and downwind of the suspected source.

Noise Monitoring

The Dredging Contractor will conduct noise monitoring at the initial start-up of any operation or equipment that is different from that used previously in this project. This monitoring will not be considered monitoring for compliance with the Noise Performance Standard; however, if that monitoring indicates a sound level above the criteria in the Noise Standard, additional monitoring will be conducted closer to receptors to evaluate attainment of those criteria. In addition, GE will conduct noise monitoring at the transload station or elsewhere within CU 60 dredging corridor, as appropriate, if a noise complaint from the public is received. These noise measurements will be compared with the criteria in EPA's Noise Performance Standard to determine the need for additional monitoring or further noise mitigation measures.

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Lighting Monitoring

The Dredging Contractor will conduct light monitoring, if necessary, at the initial start-up of any night-time operation or equipment that is different from that used previously in this project, if any. This monitoring will not be considered monitoring for compliance with the Lighting Performance Standard; however, if that monitoring indicates a light level above a lighting standard, additional monitoring will be conducted closer to receptors to evaluate attainment of those standards. In addition, GE will conduct light monitoring at the transload station or elsewhere within the CU 60 dredging corridor, as appropriate, if a lighting complaint from the public is received. These light measurements will be compared with the criteria in EPA's Lighting Performance Standard to determine the need for additional monitoring or further lighting mitigation measures.

Navigation Monitoring

Since CU 60 is located outside of the Champlain Canal and access will be controlled by the NYSCC dam safety cable, the dredging operations in CU 60 will not hinder overall non-project-related vessel movement or create project-related navigation interferences in the Champlain Canal. Thus, navigation monitoring will not be necessary for the dredging operations themselves. However, since the transload station will load material into and out of barges located in the land-cut section of the Champlain Canal, navigation monitoring will be conducted in the land-cut section to assess potential impacts from the transload station operations on navigation within the canal.

6.3 WQ REQUIREMENTS COMPLIANCE MONITORING

The substantive WQ Requirements were issued by EPA after consultation with NYSDEC. They consist of: (1) requirements relating to in-river releases of constituents not subject to the EPS; (2) requirements relating to discharges of treated water from the Fort Edward Sediment Processing Facility, as well as treated storm water from areas within that facility where PCB-containing sediments are managed, to the Hudson River; and (3) requirements relating to discharges of non-contact storm water from that facility to Bond Creek.

For the in-river releases of constituents not subject to the EPS, GE will conduct routine sampling for certain general water quality parameters at the near-field station for the CU 60 dredging operations. In addition, monitoring for metals will be conducted if there are indications of impacts from the dredging operations, such as fish kills.

The other WQ Requirements relate to discharges from the sediment processing facility and thus are not applicable to CU 60 operations.

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SECTION 7

HEALTH, SAFETY, AND ENVIRONMENTAL PROTECTION MEASURES

7.1 DREDGING HEALTH AND SAFETY POLICY, PROGRAM, AND PLAN

7.1.1 GE Environmental Health and Safety Policy

GE provides a safe and healthy working environment in all the communities in which it does business. GE's environmental health and safety (EHS) programs combine clear leadership by management; the participation of all employees, contractors, and functions; and the use of appropriate technology to confirm the health and safety of its employees and the public.

GE requires that each of its facilities and sites identify and control potential hazards in order to protect the public, its employees, and the environment. Reviews are conducted regularly; deficiencies, if any, are identified; issues are tracked to closure; improvements are made to prevent potential hazards; and mitigation measures are implemented as a result of these reviews. The end result enhances injury prevention, increases operations knowledge, improves communications, and helps ensure compliance with required EHS standards.

The CU 60 operations will abide by the requirements of GE's world-class EHS program.

7.1.2 CM Health and Safety Program

The CM also holds the highest standards for project health and safety. The safety goal for this project is zero incidents, zero injuries – a Zero Incident philosophy. This approach originated with a study by the Construction Industry Institute, which identified specific control measures shown to dramatically reduce the probability of incidents. These control measures, known as Zero Incident Techniques, provide the framework for safety on this project, and the project team's proactive approach to managing the interrelated areas of safety, health, environment, and risk management. The definition of an incident is any unplanned or unexpected event that results a personal injury, property damage, or an environmental release.

7.1.3 Health and Safety Plan

The 2015 RA HASP (Parsons, 2015b) defines minimum safety and health requirements, guidelines, and practices that apply to the overall project, including work in CU 60. It reflects the corporate policy of both GE and the CM, and uses the Zero Incident management approach, defining the safety goal for this project as zero incidents and zero injuries.

The 2015 RA HASP provides a general description of field activities. Specific field activities are described in more detail in the Dredging Contractor's HASP. The objectives of the RA HASP are to:

- Establish minimum health and safety requirements;

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- Identify the physical, chemical, and biological hazards potentially present during field work;
- Prescribe the protective measures necessary to control those hazards;
- Define emergency procedures; and
- Prescribe training and medical qualification criteria for site personnel.

The 2015 RA HASP will be reviewed by all contractors and subcontract managers, supervisors, foremen, and safety personnel involved at CU 60. All craft personnel performing field activities in that area will receive a site-specific project orientation summarizing the content of the 2015 RA HASP.

The 2015 RA HASP was written to comply with the requirements of the Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120).

7.1.4 Personnel Decontamination

The Dredging Contractor will follow the process described in the 2015 RA HASP for decontamination of personnel.

Contractor personnel that enter Exclusion Zones (as defined in the 2015 RA HASP) or have come into contact with possible PCB-containing sediment will follow the personnel decontamination procedures detailed in the 2015 RA HASP. Decontamination will occur within the designated Contamination Reduction Zones (as also defined in that HASP) on board the Dredging Contractor's dredges that handle PCB-contaminated materials.

7.2 EMERGENCY CONTACT NUMBERS

Emergency contact information and procedures are provided in Section 10 of the 2015 RA HASP and Section 7 of the 2015 CHASP.

7.3 MONITORING

GE will separately contract for monitoring of the parameters addressed by the Phase 2 EPS, QoLPS, and WQ Requirements, including the water column, airborne PCBs, and (when necessary) opacity, odors, noise, and light, to assess achievement of the criteria set forth in those standards and WQ Requirements. This monitoring was summarized in Section 6 above. Methods for such monitoring are described in detail in the Phase 2 RAM QAPP, and the actions to be taken in the event of an exceedance of such criteria, or in response to complaints about these parameters, will be as described in the applicable PSCP.

In addition, in accordance with the project technical specifications, the Dredging Contractor will conduct monitoring within its work areas for noise and light. This work area monitoring will be conducted solely for operations management purposes – to verify compliance with contract specifications and to provide a guide to the contractors of the potential for noise or light levels to exceed the applicable QoLPS criteria at nearby receptors. In addition, the Dredging Contractor will conduct monitoring of certain water quality parameters to verify compliance with

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contract specifications. Based on the work area monitoring results, the contractors are to implement control strategies as appropriate. This work area monitoring should not be considered as monitoring to assess or verify achievement of the EPS, QoLPS, or WQ Requirements.

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SECTION 8

REPORT ON 2015 ACTIVITIES

In accordance with Section 5.5 of the revised SOW, within 30 days of the end of all work activities for the 2015 season – i.e., 30 days after completion of dredging, backfilling, capping, shoreline reconstruction/stabilization, and shipment of all processed sediment (from CU 60 and other CUs to be dredged in 2015) for that season – GE will submit to EPA an annual report on all 2015 activities. That overall 2015 annual report will include a description of the dredging and associated activities within CU 60 and will provide the required information, recording drawings, and certification for the activities in that area. A separate annual report will not be submitted for CU 60.

In addition, a description of the work conducted in CU 60 in 2015 will be included in the final Remedial Action Report to be submitted at the conclusion of Phase 2 in accordance with Paragraph 57.b of the CD.

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SECTION 9

REFERENCES

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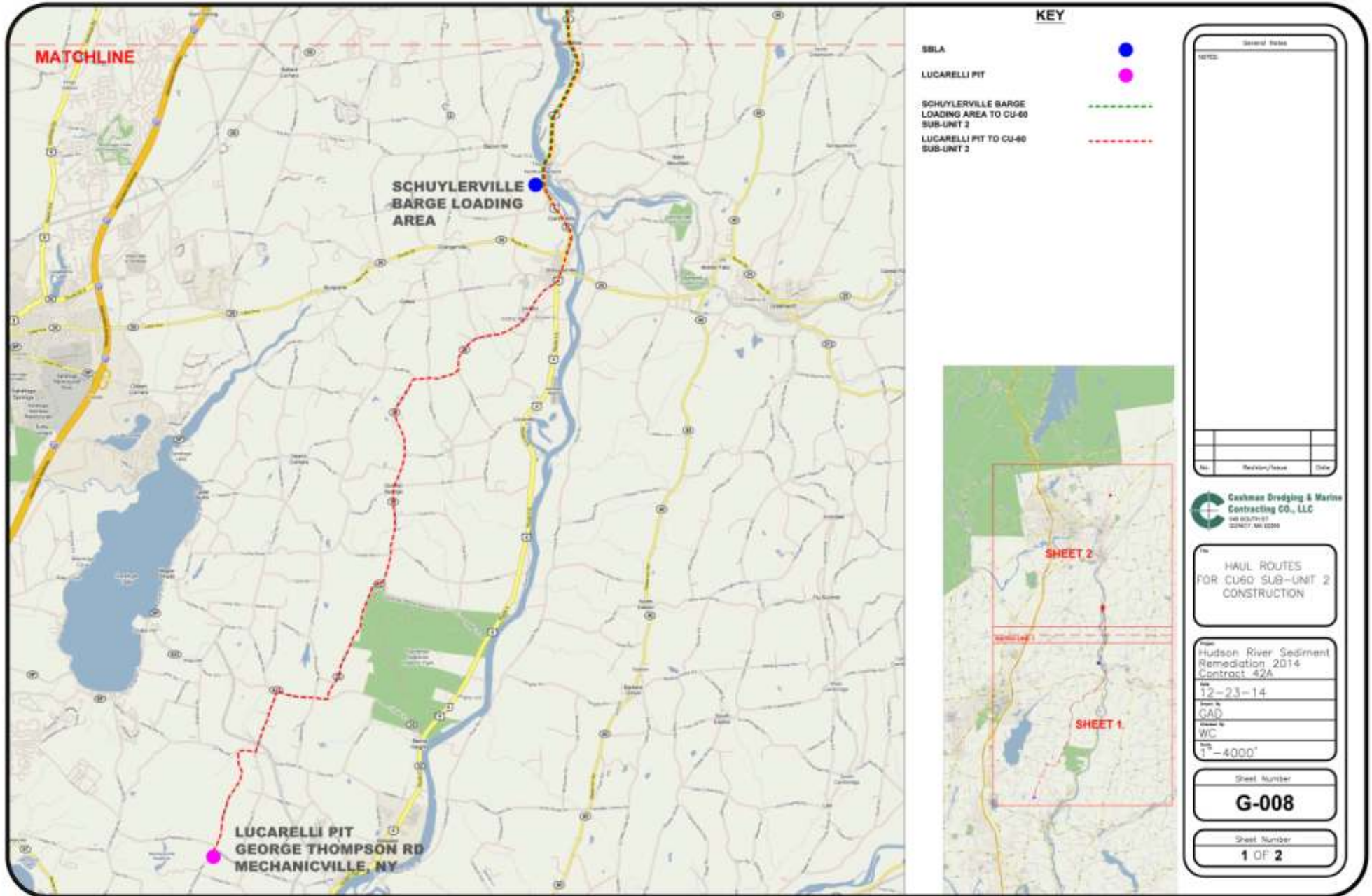
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ATTACHMENT 1

TRUCK ROUTES

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