PHASE 2 CONSTRUCTION PLAN FOR REACH 7 ISTHMUS TRANSLOAD AREA

Appendix A

to

Phase 2 Remedial Action Work Plan for Reach 7

HUDSON RIVER PCBs SUPERFUND SITE

Prepared for:

GENERAL ELECTRIC
319 Great Oaks Boulevard
Albany, New York 12203

Prepared by:

PARSONS

GE Company – Parsons Project Office
381 Broadway, Bldg 40-2
Fort Edward, NY 12828
Phone: 518 746-5322

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ACRONYMS AND ABBREVIATIONS

ARARs	Applicable or relevant and appropriate requirements
CAMs	Corrective Action Memoranda
CD	Consent Decree
CDE	Critical Phase 2 Design Elements (Attachment A to SOW)
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
cfs	cubic feet per second
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
DBH	diameter at breast height
DGPS	differential global positioning system
DoC	Depth of Contamination
DQAP	Dredging Construction Quality Control/Quality Assurance Plan
EHS	environmental health and safety
EPA	United States Environmental Protection Agency
EPS	Engineering Performance Standards
FDR	Final Design Report
GE	General Electric Company
GPS	global positioning system
HASP	Health and Safety Plan
HPPSC	Habitat Planting and Plant Supply Contractor
ITA	Isthmus Transload Area
LBLA	Landlocked Barge Loading Area
MPA	mass per unit area
NYSCC	New York State Canal Corporation
NYSDEC	New York State Department of Environmental Conservation
O&M	operation and maintenance

ACRONYMS AND ABBREVIATIONS (CONTINUED)

OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
PFOC	Processing Facility Operations Contractor
PPE	personal protective equipment
PSCP	Performance Standards Compliance Plan
QA	quality assurance
QC	quality control
QoLPS	Quality of Life Performance Standards
RA	Remedial Action
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
RFW	Riverine Fringing Wetland
RM	River Mile
ROD	Record of Decision
RTK	Real Time Kinematic
SAV	Submerged (and floating) Aquatic Vegetation
SBLA	Saratoga Barge Loading Area
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
TSCA	Toxic Substances Control Act
TSS	Total Suspended Solids
WQ Requirements	Substantive Water Quality Requirements

SECTION 1

INTRODUCTION

This Phase 2 Construction Plan for the Isthmus Transload Area (ITA Construction Plan) has been prepared in accordance with the revised Statement of Work (SOW; EPA 2010) for Remedial Action and Operations, Maintenance and Monitoring, which is Appendix B to the Consent Decree (CD; EPA and GE 2005). This ITA Construction Plan is an appendix to the Remedial Action Work Plan for Landlocked Dredging Operations (Landlocked RAWP).

This ITA Construction Plan describes the construction activities necessary for the ITA including; mobilization, site access, erosion control, installation of transload equipment, as well as startup and testing for the equipment used. Specifically, it describes the construction of a transload area to allow the transload of sediment and debris from smaller hopper barges located in the landlocked area to larger hopper barges located in the Champlain Canal. This transloading of the sediment allows the landlocked sediment to be transported by barge to the Fort Edward Processing Facility where it will be unloaded and dewatered before being loaded into railcars for transport to a disposal facility. The proposed location of the ITA is shown on Figure 1-1.

Construction of the ITA will commence with tree removal, tree trimming and grubbing of the ITA area as well as the construction of a temporary causeway across the Champlain Canal land-cut (at the location shown in Figure 2-1). The temporary causeway will be constructed of crushed stone and will be removed before the Champlain Canal is flooded for the 2014 Navigation Season. Once the causeway has been installed, the bank on the land-cut side of the isthmus property will be excavated to provide sufficient water depth (approx. 9 ft) for the hopper barges to be loaded. The area to be excavated is approximately 350 ft long. It is anticipated that some rock, anticipated to be weathered shale, will be encountered and that it will be able to be removed by ripping or by breaking up with a hoe ram. No blasting of rock is planned during the construction of the ITA.

While the bank is being excavated the ITA footprint will be levelled and graded using material from the excavation. A sump pit will be excavated in the southeast corner of the proposed containment area location. Additional fill will be placed to level the area and protect the liner system to be placed under the containment area which will include under the unloaders. A concrete pad will be placed over the top of the liner and an HDPE structure will be installed to provide a sump pit in the sediment handling area. Hardwood cranemats will be installed over the liner where the transload excavators will be located.

Once the ITA is constructed and operational the river or land-locked side of the river bank will be excavated to approximately 5 ft of draft. The area proposed to be excavated is within CU-62 of the designated dredge areas.

The temporary causeway is an integral part of the ITA construction effort but needs to be removed well before the 2014 Champlain Canal navigation season commences on May 1, 2014. In recognition of this schedule constraint, this plan is submitted to EPA for review and approval in

advance of the broader Remedial Action Work Plan for 2014 Dredging Operations in the Landlocked Area.

1.1 ITA CONSTRUCTION PLAN ORGANIZATION

This ITA Construction Plan addresses the following operations:

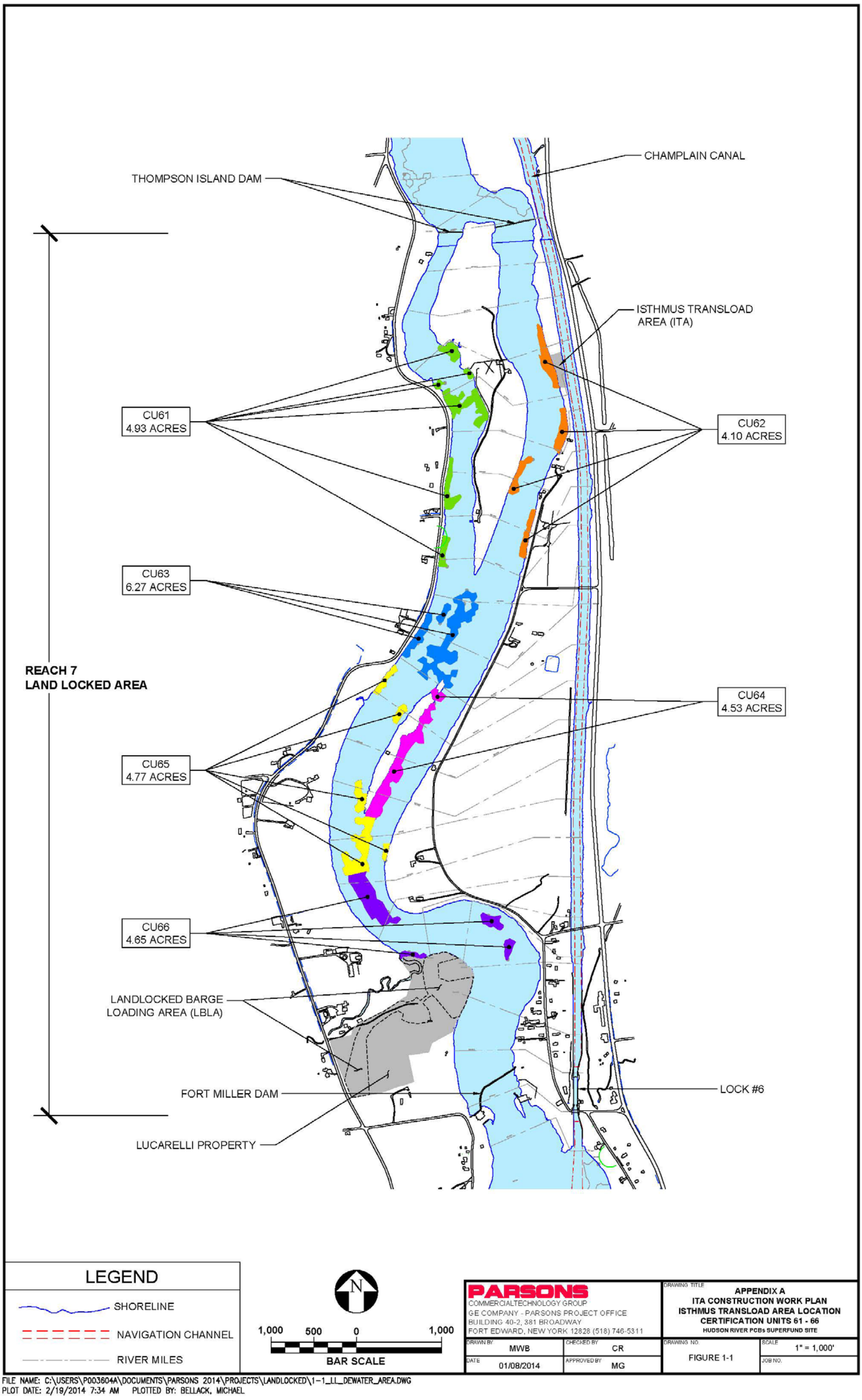
- Civil construction activities;
- Transportation and routing of equipment and materials;
- Processing equipment installation;
- Equipment startup and testing; and,
- Water treatment;

These activities will be performed by the contractor that is also conducting the main stem dredging operations described in the Remedial Action Work Plan for Dredging and Facility Operations for 2014 (2014 RAWP). This contractor will be referred to as the Isthmus Transload Contractor in this document.

This document is organized into sections as follows:

- **Section 1 – Introduction**: provides an introduction to the ITA Construction Plan, including its purpose, an overview of ITA construction activities, and the document organization.
- **Section 2 – Description of Civil Construction Activities**: presents a description of site access, preparation and civil work. Transportation methods and routing are also described.
- **Section 3 – Installation of Transload Equipment**: summarizes the installation approach of the transload equipment and the water management equipment and tanks.
- **Section 4 – Startup and Testing:** describes planning for startup and testing of the transload and water management equipment. Training Materials are also described.
- **Section 5 – Safety:** describes: (a) general worker health and safety measures; (b) decontamination of processing equipment machinery and structures, as well as workers handling PCB-containing materials; (c) spill control/containment measures covering releases of hazardous materials and fuels and untreated contaminated water and solids; (d) emergency response contact information and related information; and (e) the noise and lighting monitoring to be conducted by the relevant contractors to assess and verify compliance with the contract specifications.
- **Section 6 – References:** provides references to key documents referred to in the body of the report.

Construction Plan For Reach 7 Isthmus Transload Area



SECTION 2

DESCRIPTION OF CONSTRUCTION ACTIVITIES

A Site Plan Overview is presented in Figure 2-1, and depicts the ITA. The activities covered by this ITA Construction Plan will include the construction of the temporary causeway, tree trimming and removal, clearing, grubbing and leveling the site, installation of a flexible membrane liner (FML) and the installation of the concrete support pad. The Isthmus Transload Area Site Plan is presented in Figure 2-1.

2.1 ITA SITE ACCESS AND PREPARATION

During the initial stage of the project, access to the ITA site will be by way of NYS Route 4 to North River Rd to Senecal Lane and then onto the existing Canal Corp access road. This access route will be used to conduct initial survey work and to mobilize the site clearing equipment necessary to commence constructing the Temporary Access causeway which will run between the established South Thompson Island Pool (South TIP) crew change location and the ITA. The existing road ways identified are sufficient to support the delivery of light equipment to the site during initial mobilization. Once the temporary causeway has been constructed, the causeway will become the primary access way to the ITA and the Senecal Lane route will only be used for emergency access to the ITA.

2.1.1 Equipment Mobilization and Temporary Access

The equipment required for construction operations listed in Table 2-1 is assumed to be mobilized once to the site. Maintenance and repairs will be conducted on site whenever practicable. The equipment required for the construction of the site will be demobilized upon completion of the construction.

The temporary causeway will be constructed utilizing clean gravel fill and/or quarry rock crushing screenings trucked to the existing South TIP crew change location opposite the ITA. The causeway fill will be placed and shaped utilizing a bulldozer, an excavator and a front-loader. The fill will be compacted with a vibratory drum roller as required to support the anticipated construction loads. The top 6 inches (+/-) of the access way will be dressed with dense grade to limit erosion and provide a suitable driving surface. As the fill work moves out into the canal from the South TIP crew change location, 2 – 36” diameter pipe culverts will be placed on the existing channel bottom towards the center of the canal in order to allow for the passage of water.

The temporary causeway will be graded to accommodate the requirements of the various types of construction equipment required to make the crossing. Upon completion of the ITA

construction, the causeway material will be removed and stockpiled at the South TIP crew change location for reuse during the decommissioning/restoration phase of the ITA.

Table 2-1 List of Construction Equipment for Facility Site Work Construction

Construction Equipment	Quantity (approximate)
Air Compressor	1
Vibratory Roller	1
Bulldozer	1
Hoe ram	1
Front End Loader	1
Track Backhoe (excavator)	1
Skidsteer	1
Rubber Tired Backhoe	1
Hydraulic Crane	1
Wood Chipper	1
Brush mower	1
Diesel Genset	1
Concrete Pump	1

2.1.2 Erosion Control

Site erosion and sediment controls will be implemented on the project. Monitoring of these controls will be documented in accordance with the SWPPP prepared by the contractor and stored onsite. To prevent the tracking of sediment onto adjacent public roadways stabilized construction entrances will be installed at locations where vehicles are expected to enter and/or exit the site. The stabilized construction entrance will be constructed wide enough to cover the entire width of the entrance/exit and allow two vehicles to pass comfortably. It will also be flared where it meets the public roadway to accommodate longer construction vehicles. The length of the stabilized construction entrance will be as required to allow mud and sediment to become dislodged from vehicle tires before the vehicle enters the public roadway.

After the installation of the construction entrance and prior to clearing and grubbing, a silt fence will be installed around the perimeter of the ITA to prevent sediment-laden 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 shall be removed only after exposed soils in the contributing drainage area are stable. A natural undisturbed vegetated buffer shall be maintained beyond the limit of disturbance.

Stockpiles of erodible material, including any topsoil removed during construction, will have a perimeter sediment control (such as silt fence or haybales) installed on the pile's down gradient side to prevent storm water runoff from being contaminated by eroded sediment. Stockpiles of erodible material will be stabilized utilizing a temporary stabilization technique if the stockpile remains inactive for more than fourteen (14) days. 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.

2.1.3 Fencings and Gates

In order to restrict unauthorized access to the ITA, temporary construction gates will be installed at the top of the temporary causeway in the South TIP crew change location and across the existing NYSCC access road at the southern limit of the ITA. These gates will be locked at all times when work is not ongoing.

2.2 CIVIL WORK

The ITA will consist of a concrete pad with curbing for confining dredge sediment and on either side of the concrete pad, graded areas that are backfilled and outfitted with crane mats, for stationing the transloading excavators. This entire area, including the area under the transloading excavators will be underlain by a flexible membrane liner (FML). The civil work construction necessary to establish the ITA includes general earthwork, liner installation, excavation of river banks, pouring of concrete slab and construction of stormwater systems.

2.2.1 Fill Sources

As part of the civil work construction a variety of fill materials will be used for grading, structural fill, base material and bedding at the ITA. All borrow material imported to the ITA site for the project will be certified clean fill. The various fill types are anticipated to be provided by local sources. Table 2.2 details the proposed fill sources.

Table 2-2 Proposed Fill Source

Fill Type	Source	Location
Sand and Gravel	Lucarelli pit	George Thompson Rd, Mechanicville, NY
Dense Graded	Peckham Materials Corp or Peckham Easton Quarry	438 Vaughn Road, Hudson Falls , NY State Route 40, Easton NY
Rock Screenings	Peckham Easton Quarry	State Route 40, Easton NY

2.2.2 Earthwork and Site Clearing

The earthwork necessary to construct the ITA includes: clearing, grubbing and rough grading; construction of the foundation for the FML and the concrete and excavator pad areas.

Site clearing - The ITA contractor will remove only the trees and vegetation necessary for the construction of the ITA. A visual tree survey and GPS will be used to identify and locate all trees that will affect the transloading operations. Where space, size and safety considerations permit, trees will be felled in one piece. A majority of the project area is covered by brush ranging from three to seven feet in height. Clearing of this vegetation will be done with a brush mower. Trees, log sections, and brush less than 12-inches in diameter will be processed with a large brush chipper, discharging wood chips into controlled piles adjacent to the area being cleared. Chip piles will be moved from the ITA and stockpiled for final disposition in the South TIP crew change location using the site front end loader. Logs greater than 12-inches in diameter will be cut into 8-foot lengths and staged adjacent to the clearing area. All cut logs and wood chips will be hauled to the Washington County Transfer Station located on Rt. 196 in Kingsbury, NY. Shoreline vegetation coming into contact with river sediment will not be removed as part of this work.

Removal of stumps required for the construction of the graded area, containment pad, and the excavation of canal embayment will be performed by excavators as part of the grading operations. Rough grading will be performed with a track excavator and dozer once the excavation and fill activities are completed. Deep fill areas will be compacted as work progresses. Once the ITA site has been rough graded a subbase layer will be placed over the site and will be compacted. Non-woven geotextile will then be placed over the compacted subbase and a four to six inch layer of sand will be placed and compacted over the non-woven geotextile as a foundation layer for the FML liner.

2.2.3 Installation of the Liner and Sump

The secondary containment liner will be placed under the sediment handling area as well as under both of the transloading excavators. The liner will be comprised of a 40 mil HDPE sheet material and will be installed over the compacted sand layer. The liner will be installed per manufacturer's recommendations and the contractors approved installation and quality control procedure including adherence to all ambient temperature and weather restrictions. The liner materials will be deployed utilizing a bucket loader with spreader bar. The flexible membrane liner assembly and panel seams will either be fusion or extrusion welded utilizing the specified overlap. Test seams will be conducted per the approved procedures. An HDPE manhole structure will be installed in the excavated pit for the sump. The sump structure is double walled HDPE and will be bedded in sand. The underdrain lines installed above the liner will discharge into the HDPE sump structure through check valves which will prevent backflow into the underdrain lines. The HDPE sump structure will then be backfilled with sand and the top of the HDPE structure will be fused to the flexible membrane liner. After placement of the sand layer over the liner, a concrete slab will be placed in the sediment handling areas. Once curing of the concrete slab and curb is complete, the liner ends will be terminated to the backside top of the curb with batten strips and/or turned up with appropriate backing. In the transload excavator area, after placement of the sand layer over the liner a layer of packed crushed gravel will be placed then hardwood crane mats will be installed over the gravel layer. The liner ends in this area will be terminated to the backside of wood block curbing.

2.2.4 Excavation

Excavation work includes: excavating the river bank on the Champlain Canal side; excavating the sump; and stockpiling the excavated material on the Isthmus and/or the South TIP crew change location.

Excavation of the canal cut will be done with an excavator with a hoe ram with supporting equipment consisting of a front end loader and a wheeled excavator. The initial stage in the excavation operation will be to strip the existing riprap from the western slope of the canal and stockpile it for reuse.

Once the riprap is removed, excavation of the cut will continue by stripping the overburden material and proceeding on to excavation of the expected weathered shale. The exact extent of rock to be encountered is uncertain; the weathered shale will be removed by ripping or broken with the hoe ram. The shale excavation work will be performed in a controlled manner so as to minimize the potential of introducing fractures beyond the natural structure of the bedrock. If higher quality rock is encountered, making removal by ripping or with a hoe ram impossible, the work will be stopped and the CM notified so that the conditions may be evaluated with EPA and NYSCC.

Reconfiguration of the canal embayment may be necessary if rock is unable to be excavated by ripping or with a hoe ram.

Suitable material excavated from the canal cut will be used as fill material for the containment pad transloading area. Excavated material not used to meet required grades will be stockpiled along the existing NYSCC access road just north of the temporary access way, alternatively, as space allows, the South TIP crew change location may also be utilized to stockpile excavated material.

A sump pit sufficiently wide and deep to fit the HDPE sump structure will be excavated with the excavator within the limits of the containment pad. The excavated material will be stockpiled as described above. Bollard and fender footings will also be excavated into the existing rock substrates and grouted in place. The rock for the bollard footings will be excavated with the hoe ram. The final size of bollard footings will be contingent on the quality of rock encountered and will be reviewed with the design engineer in the field as work progresses. The fender anchors will be attached to drilled in rock bolts if competent rock is available or will use a poured footing similar to the bollards. If the rock is too deep, the bollards and fender footings will be constructed out of an appropriately sized block of concrete embedded in the earth of the ITA.

Excavation will also be required along the west edge of the ITA, the river side, in order to bring the smaller landlocked hopper barges in close enough for unloading by the transload excavators. This excavation is not included in this phase of the work because the area to be excavated is within CU-62; therefore, the sediments and shoreline to be excavated are being considered contaminated. This excavation and creation of the required west shoreline embayment will be performed in conjunction with the start of dredging when barges are available in the canal to receive the potentially contaminated sediments. No riverine fringing wetland areas are identified within the ITA footprint however a small sub-aquatic and floating vegetation (SAV) area is identified to the south of CU62 that could be impacted by the excavation on the river side of the ITA area. If this SAV area is impacted by the excavation work it will be reconstructed as a contingent SAV planting area and identified as such on the backfill and cap placement plan for CU62.

2.2.5 Concrete Pad

A reinforced concrete containment pad with 8-inch curbing will be placed over the liner for the dredged sediment handling area. The pad will slope toward the sump pit. The slab edges will be formed with conventional wood panel and stud forms staked firmly into the existing subgrade. The rebar will be transported to the pad area by the front loader and tied in place. For placement of the concrete, a concrete pump will be set up just north of the slab location and the concrete trucks brought across the temporary causeway to the pump.

Control joints will be placed in the slab at locations required in the approved slab design submittal. Once the placement is complete, an approved curing compound will be applied to the

concrete. Testing and QC of the concrete placement will be done in accordance with contractors approved Quality Control Plan.

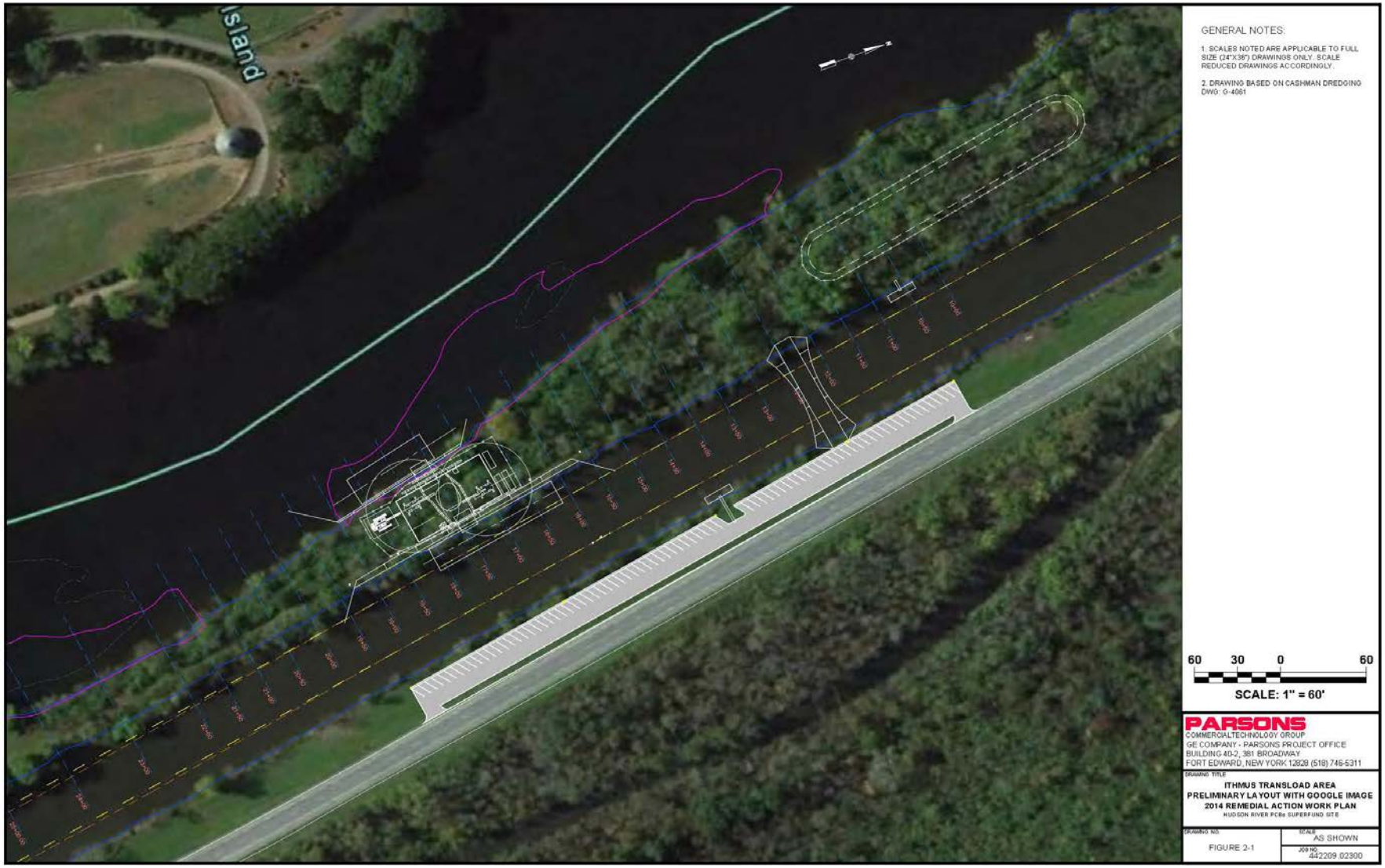
When the concrete slab reaches sufficient strength, concrete blocking will be set on the pad inside the curb. Splash screen will be constructed to extend above the top of block to contain sediment splashing which may occur during the transloading operations. The top of containment curb has been designed to be above the 100-year flood elevation.

2.3 TRANSPORTATION METHODS AND ROUTING

Figure 2-2 shows the truck routes in the vicinity of the ITA. During civil work construction, all structural fill, equipment, and materials will be trucked to the site. Truck routes from selected fill sources are presented in Attachment 1.

Subcontractors' trucks and delivery trucks are estimated initially at about 5 per day, with a peak of up to 125 on the day that the temporary access causeway is constructed. In the initial mobilization phase (i.e., first 2 weeks) most of the trucks will be hauling construction equipment such as wood chippers, brush mowers, excavators, bulldozers, compactors, and materials such as fill, and HDPE liners. During this stage trucks will also be hauling away materials generated by the site clearing activities.

Construction Plan For Reach 7 Isthmus Transload Area



Construction Plan For Reach 7 Isthmus Transload Area

GENERAL NOTES:

1. SCALES NOTED ARE APPLICABLE TO FULL SIZE (24"X36") DRAWINGS ONLY. SCALE REDUCED DRAWINGS ACCORDINGLY.

PRIMARY CONSTRUCTION ACCESS (1)

SECONDARY PERSONNEL & LIGHT VEHICLE ACCESS (2)

No.	Revision/Issue	Date

CASHMAN DREDGING

Drawing Title:

I.T.A.

TRUCK ACCESS

Date:	Scale:
02/13/2014	1"=150'
Drawn By: BG	Chk'd By: BC
Project: CDMC GE 2013	
Sheet Number: 1 of 1	

Dwg No.:

Figure 2-2

File Name: W:\2014\03 CDMC\GE 2014\GALUSHA ISLAND TRANSLOAD\2 TRANSLOAD OPTION\PDF\TRUCK ROUTES FOR CONTROL DOCUMENT\ACAD-FIG 2-3_ACCESS RTE PLAN.DWG Save Date: 2/14/2014 11:28 AM

SECTION 3

INSTALLATION OF EQUIPMENT

This section covers the installation of sediment transload equipment, and water management equipment needed for the landlocked portion of the Hudson River Sediment Project.

3.1 DELIVERY AND INSTALLATION OF SEDIMENT TRANSLOAD EQUIPMENT

The Isthmus Transload Contractor will furnish all equipment, materials and supplies necessary for the installation of the sediment transload equipment at the ITA. The equipment to be mobilized for the transloading operations is provided in Table 3-1. Because the causeway will be removed prior to filling the Champlain Canal and prior to the start of dredging in the landlocked area, the equipment required to support the transloading operation must be put in place during construction of the ITA.

The two transloading excavators will be transported to the South TIP crew change location and assembled complete with buckets. Once assembled the excavators will be driven to the ITA by way of the temporary causeway and positioned on crane mats set on dense graded crushed stone over the liner. The hydraulic crane will be moved into position in the same manner, although it will be brought in earlier in the schedule in order to support the construction activities.

Once this equipment is in place, and construction is complete, the causeway may be removed.

The flexifloat dock will be floated into position after the flooding of the canal in early May and spudded down in position. The flexifloat dock will provide dockage for personnel access via boat during the transloading operations.

3.2 DELIVERY AND INSTALLATION OF WATER MANAGEMENT EQUIPMENT

The Isthmus Transload Contractor will furnish all equipment, materials and supplies necessary for the installation and operation of the water management equipment including spill shields at the ITA.

The water management system will consist of the containment pad area, spill shields extending out over the barges on either side of the sediment handling slab and sloped to drain back to the slab, a sump pit within the limits of the slab, a submersible pump in the sump, frac tanks for water storage during times when no barge is present at the canal loading position, and a hydraulic

submersible pump for barge decant directly to canal hopper barges. The sump pump outlet will be piped with double wall pipe to the frac tanks with a Y connection allowing direct drainage to the canal side barge when available. Underdrain piping will be run through the sand layer over the liner and piped to the sump to drain stormwater from the crushed stone under the transload excavator crane mats. All pipe material and installation will be done in accordance with the contractors approved water management plan. The spill shields will be fabricated offsite in sections, trucked to the ITA, and erected using the onsite support crane.

A 6" hydraulic submersible pump will be used to decant barges in the landlocked area. The pump will discharge into a 6" cargo hose contained within a 10" layflat hose in order to provide double wall protection. The discharge hose will be installed along the outside of the poured concrete pad but within the liner area, then hung along the underside of the canal side spill pan. The free end of the discharge pipe will be able to drain directly into the canal side hopper barge. A cap will be available to cap the discharge hose when there is no barge present. The hydraulic power pack that will be used to operate the pump will be placed adjacent to the ITA service crane. At the time of writing the method for lowering the hydraulic pump into the sediment barges on the river side has not been finalized however it will be accomplished using one of the following three methods:

1) a winch will be fastened to the underside of the spill pan and used for lowering and raising the pump;
2) the ITA service crane will be used to lower and raise the pump; or
3) a davit arm positioned adjacent to the spill pan will be used to lower and raise the pump.

3.3 ELECTRICAL POWER

Electric power required to support the construction activities will be provided by a 20 Kv diesel generator. Electrical work will be done in accordance with all applicable local, state and federal codes. At the conclusion of the construction activities the generator will remain at the ITA site to provide power during transloading operations.

Table 3-1 List of Transloading Equipment to be mobilized to ITA

Construction Equipment	Quantity (approximate)
Long-reach Excavator	2
TGS 2 cy Level Cut hydraulic bucket	2
6” submersible hydraulic pump	1
Hydraulic crane	1
20 Kv Genset	1
Light plants	3
Submersible electric pump	1
20,000gal. Frac tank	2
Portable decontamination unit	1
40x10 flexifloats	2
40ft Connex box	1

SECTION 4

STARTUP AND TESTING

This section covers the startup and testing of the ITA. The Isthmus Transload Contractor will perform the work in accordance with specification Section 01810. The Isthmus Transload Contractor will submit a startup and testing plan that describes the startup and testing procedure for the transload and water management equipment (including spill shields). The startup and testing plan will be submitted for CM approval prior to commencing startup and testing of any equipment. The test data and startup results will be submitted to the CM for review and approval.

Key elements of the Isthmus Transload Contractor's startup and testing process include:

1. Field testing and quality control of transload equipment;
2. Field testing and quality control of water management equipment; and
3. Visual inspection by Contractor and CM of each individual component of the constructed ITA system prior to commencing transload operations.

4.1 CONSTRUCTION QC/QA

The quality of the ITA construction will be achieved through the use of engineered designs for critical items, e.g. the liner, concrete pad, pumps and piping and a program of quality oversight (QC/QA) conducted during implementation. The construction QC/QA program is summarized below.

4.2.1 Technical Requirements

Specific engineered designs that will define technical requirements will be developed for the following items:

1. Containment slab with liner
2. Spill shields
3. Stormwater and decant water management system

4.2.2 Monitoring for QC/QA

Monitoring of construction quality performance will be conducted in accordance with the *Dredging Construction Quality Control/Quality Assurance Plan* (DQAP) (Parsons, 2014), Appendix A to the 2014 RAWP. The DQAP has been prepared in accordance with the requirements of Section 2.1.2 and Section 2.2.2 of the CD SOW. In addition to the requirements specified in the DQAP, tests and inspections specific to ITA construction are presented in Attachment 2.

QA inspection and testing performed by the CM will be used to verify the adequacy and effectiveness of the Isthmus Transload Contractor's QC program. The QA inspection and testing frequency will be based on results of QC tests, evaluation of daily reports, audits of the QC program and verification testing conducted by the CM and owner's third party testing firm. QA oversight of the contractor's QC is also indicated on Attachment 2.

4.2.3 Construction Quality Control

The Isthmus Transload Contractor will be responsible for implementing QC for the scope of work under its respective contract. Attachment 2 provides a list of the required inspections and testing to be implemented by qualified QC personnel to ensure that equipment, materials, and the constructed product are inspected and tested in accordance with applicable specifications, codes, regulations, and industry standards.

SECTION 5

SAFETY

5.1 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 ensure 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 assure compliance with required EHS standards.

The Isthmus Transload Contractor will abide by the requirements of GE's world-class EHS program.

5.2 CONSTRUCTION MANAGER HEALTH AND SAFETY PROGRAM

The project 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 manage the interrelated areas of safety, health, environment, and risk management. The definition of an incident is any unplanned or unexpected event that results in or has the potential to result in a personal injury, property damage or environmental release.

5.3 HEALTH AND SAFETY PLAN

5.3.1 RA HASP

A *Remedial Action Health and Safety Plan* (RA HASP) (Parsons, 2014a) defines minimum safety and health requirements, guidelines, and practices applicable to the overall Phase 2 RA project, including the processing equipment installation and remaining site work. The RA HASP is an umbrella document covering all Phase 2 work.

The RA HASP reflects the corporate policy of both GE and the CM. The RA HASP uses the zero incident management approach and defines the safety goal for this project as *zero incidents and zero injuries*.

The RA HASP provides a general description of anticipated types of field activities. Specific field activities are described in more detail in the Contractor HASP. The objectives of the RA HASP are to:

- Establish minimum health and safety requirements;
- 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 RA HASP must be reviewed by all contractor and subcontractor managers, supervisors, foremen, and safety personnel. All craft personnel performing field activities will receive a site specific project orientation summarizing the content of the RA HASP. All personnel will be required to sign the appropriate documentation acknowledging an understanding of the RA HASP requirements.

The 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). All activities covered by the RA HASP will be conducted in compliance with applicable federal, state, and local health and safety regulations, including 29 CFR 1910.120.

5.3.2 Contractor HASP

Under the RA HASP and this ITA Construction Plan, the Contractor is required to prepare a "worker HASP" (referred to herein as Contractor HASP). The Contractor HASP will discuss tasks and provide detailed procedures and activity hazard analyses specific to its scope of work. The Contractor HASP will conform to the RA HASP.

SECTION 6

REFERENCES

Anchor QEA, 2013. *Hudson River Sediment Remediation 2014 Dredging Project, Contract 53A – Habitat Planting & Plant Supply 2014 Season, Hudson River PCBs Superfund Site.* September.

Anchor QEA, 2012. *Phase 2 Remedial Action Monitoring Quality Assurance Project Plan, Hudson River PCBs Superfund Site.* May.

Parsons, 2014a. *Remedial Action Work Plan for Phase 2 Dredging and Facility Operations in 2014, Hudson River PCBs Superfund Site* (2014 RAWP). February.

Parsons, 2014b. *Phase 2 Remedial Action Health and Safety Plan for 2014, Hudson River PCBs Superfund Site* (2014 RA HASP). February.

United States Environmental Protection Agency, 2002. *Hudson River PCBs Site, Record of Decision*. February.

United States Environmental Protection Agency, 2004. *Quality of Life Performance Standards, Hudson River PCBs Superfund Site.* Prepared for EPA by Ecology and Environment, Inc, Washington, DC. May.

United States Environmental Protection Agency, 2005. *Substantive Requirements Applicable to Releases of Constituents not Subject to Performance Standards; Substantive Requirements of State Pollutant Discharge Elimination System Permit for Potential Discharges to Champlain Canal (land cut above Lock 7); and Substantive Requirements of State Pollutant Discharges to the Hudson River*. Washington, DC. January.

United States Environmental Protection Agency, 2006. *Letter from EPA to GE regarding Substantive Requirements for Type II Storm Water Discharges to Bond Creek*. September 14, 2006.

United States Environmental Protection Agency, 2010a. *Hudson River PCBs Site – Revised Engineering Performance Standards for Phase 2.* Prepared for EPA by Louis Berger Group, December.

United States Environmental Protection Agency, 2010b. Technical Memorandum - *Quality of Life Performance Standards Phase 2 Changes*. December.

United States Environmental Protection Agency and General Electric Company, 2005. Consent Decree in *United States v. General Electric Company*, Civil Action No. 05-cv-1270, lodged in United States District Court of the District of New York on October 6, 2005; entered by the Court on November 2, 2006.

ATTACHMENT 1

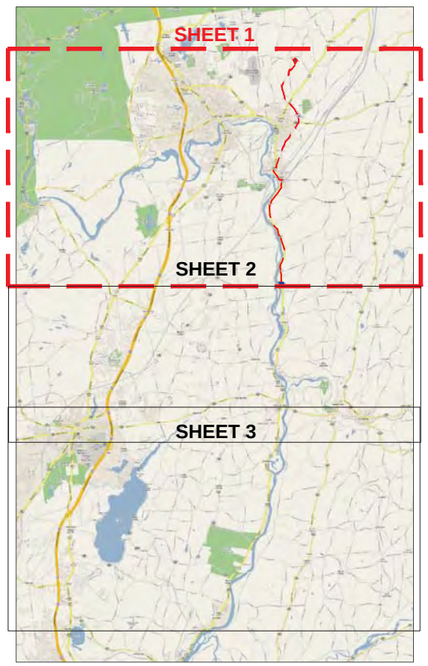
CONTRACTOR TRUCK ROUTES FROM THE SELECTED FILL SOURCES

KEY

ROUTE 4 LAND BRIDGE SITE
FORT EDWARD, N.Y.

TRUCK ROUTE FROM ROUTE 4
LAND BRIDGE SITE TO
PECKHAM MATERIALS CORP.

PECKHAM MATERIALS CORP.
483 VAUGHN ROAD
HUDSON FALLS, N.Y.



General Notes

NOTES:

No.	Revision/Issue	Date

Cashman Dredging & Marine Contracting CO., LLC
549 SOUTH ST
QUINCY, MA 02269

Title
PROPOSED TRUCK ROUTES
PECKHAM MAT&QUAR & LUCARELLI PIT

Project
CDMC GE 2013

Date
02-13-14

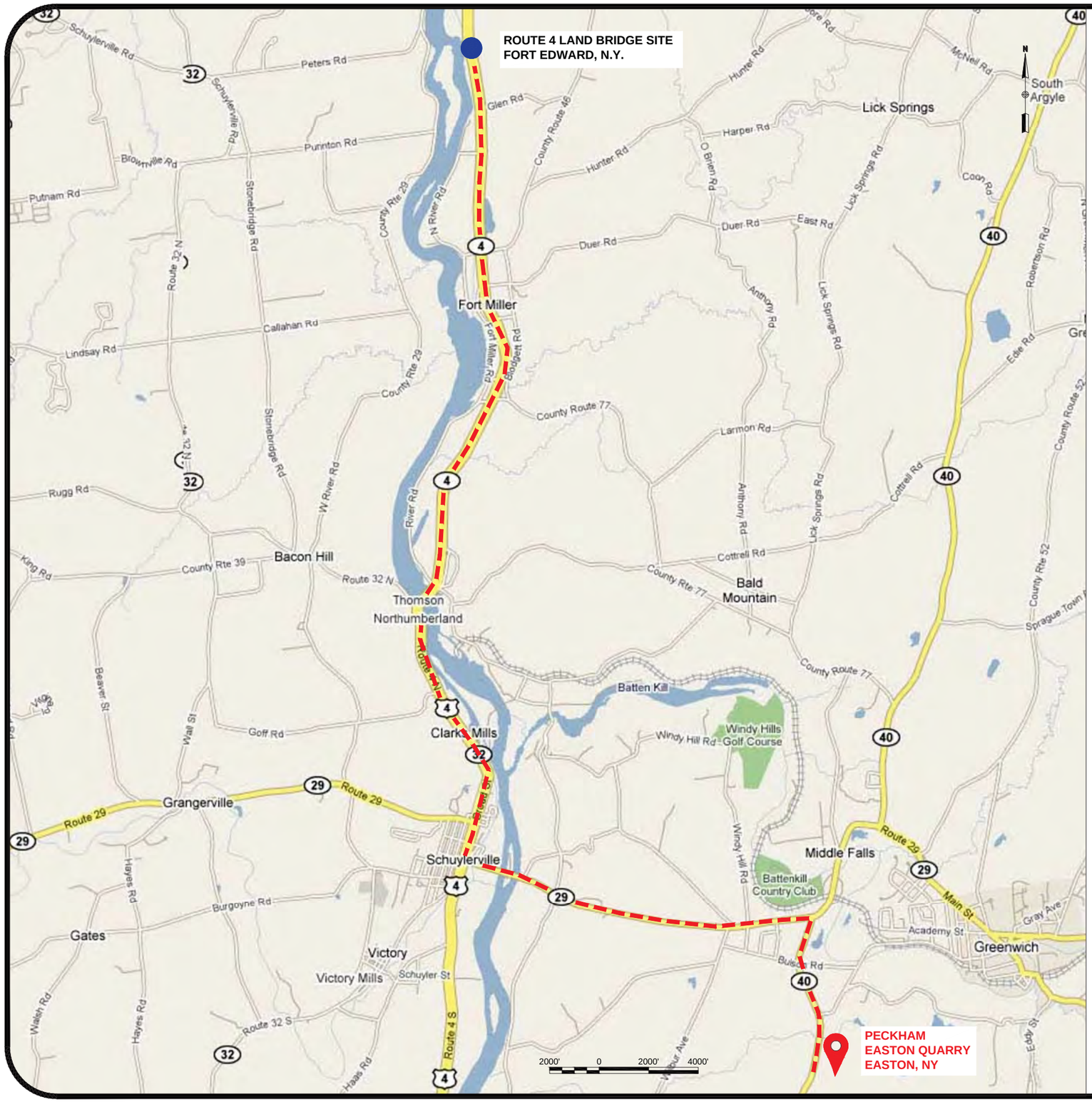
Drawn By
BG

Checked By
BC

Scale
AS NOTED

Sheet Number
G-008

Sheet Number
1 OF **3**

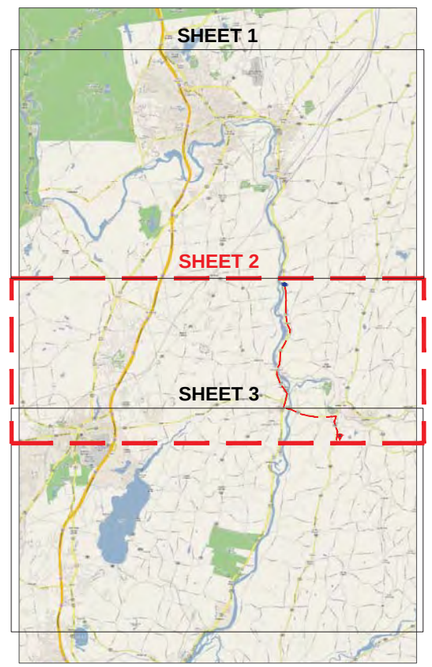


KEY

ROUTE 4 LAND BRIDGE SITE
FORT EDWARD, N.Y.

TRUCK ROUTE FROM ROUTE 4
LAND BRIDGE SITE TO
PECKHAM EASTON QUARRY

PECKHAM EASTON QUARRY
STATE ROUTE 40, EASTON, N.Y.



General Notes

NOTES:

No.	Revision/Issue	Date

Cashman Dredging & Marine Contracting CO., LLC
549 SOUTH ST
QUINCY, MA 02269

Title
PROPOSED TRUCK ROUTES
PECKHAM MAT&QUAR
& LUCARELLI PIT

Project
CDMC GE 2013

Date
02-13-14

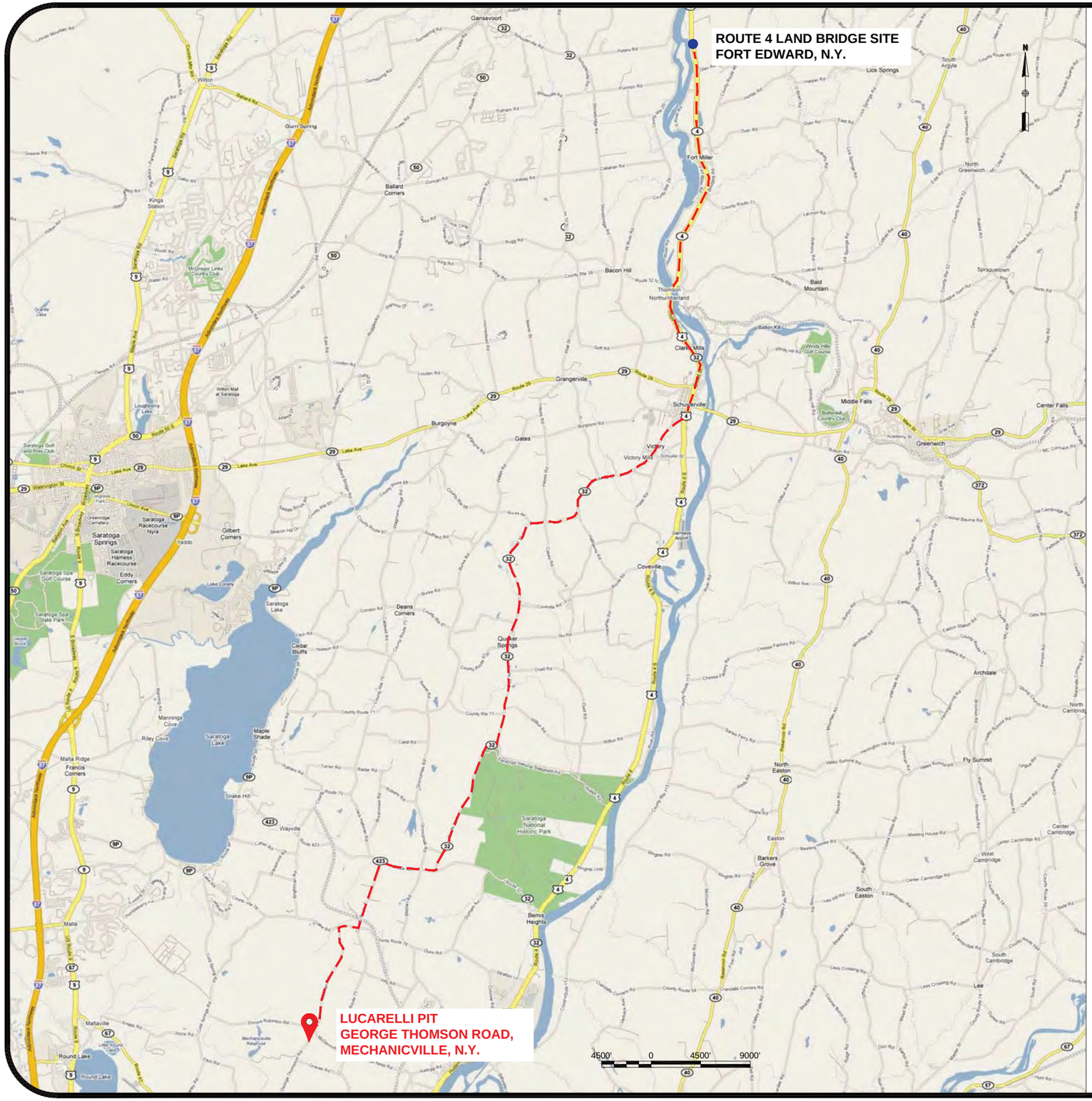
Drawn By
BG

Checked By
BC

Scale
AS NOTED

Sheet Number
G-008

Sheet Number
2 OF **3**

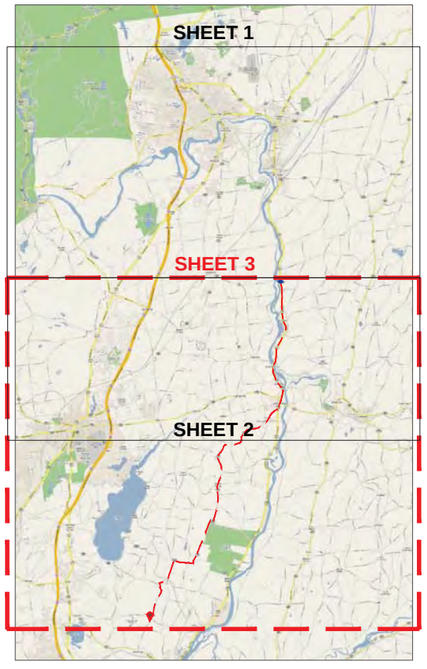


KEY

ROUTE 4 LAND BRIDGE SITE
FORT EDWARD, N.Y.

TRUCK ROUTE FROM ROUTE 4 LAND BRIDGE SITE TO LUCARELLI PIT

LUCARELLI PIT
GEORGE THOMSON ROAD
MECHANICVILLE, N.Y.



General Notes

NOTES:

No.	Revision/Issue	Date

Cashman Dredging & Marine Contracting CO., LLC
549 SOUTH ST
QUINCY, MA 02269

Title
PROPOSED TRUCK ROUTES PECKHAM MAT&QUAR & LUCARELLI PIT

Project
CDMC GE 2013

Date
02-13-14

Drawn By
BG

Checked By
BC

Scale
AS NOTED

Sheet Number
G-008

Sheet Number
3 OF **3**

ATTACHMENT 2

ITA FACILITY OPERATIONS
TEST AND INSPECTION TABLES

Table A2-1 Structural Fill Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Site Inspection	**02205-2.02C**	Visual	Once Prior to delivery, and for every two days of trucking	**CM Approval**
Site Inspection (for new source locations)	**02205-2.02C**	Visual, Field Screening with FID	Prior to mining if new area at source site	**Project Specifications**
Compaction Characteristics	**Not Available**	ASTMD 1557	1 per 100 linear feet	**CM Approval**
Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Gradation Testing	02205-2.02B	Sieve Analysis	Once prior to delivery, and for every 5,000 tons	CM Approval
Chemical	02205-2.02C	EPA SW-846 Method 8260B, 8270C, 8082, 8150, 6000/7000 Series, 9012,	**Once prior to delivery**	Project Specifications
Chemical DRO/GRO	02205-2.02C	EPA SW-846 Method 8015C	**Once prior to delivery, and for every 1,000 tons**	Project Specifications

Table A2-2 Granular Fill Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Site Inspection	**02205-2.02C**	Visual	Once Prior to delivery, and for every two days of trucking	**CM Approval**
Site Inspection (for new source locations)	**02205-2.02C**	Visual, Field Screening with FID	Prior to mining if new area at source site	**Project Specifications**
Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Gradation Testing	02205-2.02B	Sieve Analysis	Once prior to delivery, and for every 5,000 tons	CM Approval
Chemical	02205-2.02C	EPA SW-846 Method 8260B, 8270C, 8082, 8150, 6000/7000 Series, 9012,	**Once prior to delivery**	Project Specifications
Chemical DRO/GRO	02205-2.02C	EPA SW-846 Method 8015C	**Once prior to delivery, and for every 1,000 tons**	Project Specifications

Table A2-3 Reinforcing, Formwork and Cast-In-Place Concrete Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Reinforcing Material Condition	--	Visual Inspection	Prior to Installation	**Contractor Approved Plan**
Reinforcing Bundle Identification	--	Certificate Verification	Prior to Installation	**Contractor Approved Plan**
In-Place Reinforcing	--	Visual Inspection of Condition	Prior to Concrete Installation	**Contractor Approved Plan**
In-Place Formwork	--	Visual Inspection	Prior to Concrete Installation	**Contractor Approved Plan**
Concrete Truck	--	Visual Inspection	Upon Arrival onsite	**Contractor Approved Plan**
Sub-grade Preparation	--	Visual Inspection	Prior to Installation	**Contractor Approved Plan**
Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Compressive Strength	Not Available	ASTM C 39	**Per 50 cubic yards**	CM Approval
Air Content	Not Available	ASTM C 138, 231	**Per 50 cubic yards**	CM Approval
Slump Test	Not Available	ASTM C 143	**Per 50 cubic yards**	CM Approval

Table A2-4 Pre-cast Concrete Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Exposed Rebar	**Not Available**	Visual Inspection of Condition	Prior to installation	**CM Approval**
Stress Fractures	**Not Available**	Visual Inspection of Condition	Prior to installation	**CM Approval**

Table A2-5 Geo-Synthetic Liners and Fabrics Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
FML Material Condition	**13756-1.09K**	Visual Inspection of Condition and Product Verification	Per Lot	**Contractor Approved Plan**
Resin used for welding	**13756-1.09K**	Product Verification	Per Lot	**Manufacturer's recommendations**
Field Quality Control inspection	**13756-1.09K**	TBD	Per Manufacturer's recommendations	**Manufacturer's recommendations**

Table A2-6 Catch Basin and Non-Pressure Piping Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Material Condition	**02211-3.02A**	Visual Inspection, verify pipe length	Prior to testing	**CM Approval**
Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Catch Basin – Leakage Test	02211-3.02C	Exfiltration	**Prior to and after backfilling**	Project Specifications
Non-Pressure Piping	02211-3.02B	Exfiltration	**Prior to use**	Project Specifications

Table A2-7 Steel Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Material Condition	**Not Available**	Visual Inspection of Condition	Prior to Installation	**Contractor Approved Plan**
Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Weld Inspection	Not Available	AWS D1.1	**Variable**	CM Approval

Table A2-8 Portable Frac Tanks Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Product Condition	**Not available**	Visual Inspection of Condition	Upon delivery, and daily once installed	**Contractor Approved Plan**

Table A2-9 SWPPP Controls Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Silt Fence / Staked Hay Bale Inspection	Not available	Visual Inspection of Condition	Upon installation, and daily once installed	Silt Fence / Staked Hay Bale is in place and in similar integrity to when originally installed. Any sediment deposits are less than one half the height of the Silt Fence / Staked Hay Bale.
Site entrance inspections	Not available	Visual Inspection of Condition	Daily during construction activities	Construction related soils not being tracked onto public roadway.
Temporary stockpile inspection	Not available	Visual Inspection of Condition	Weekly once stockpile is established	Erosion control is in place and material run-off is minimized.