



Environment

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# 2015 Construction and Restoration Work Plan

## West Branch of Bloody Brook Bloody Brook Voluntary Cleanup Program Onondaga County, New York

February 2015

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## 1.0 Introduction

This Construction and Restoration Work Plan (CRWP) has been developed for a portion of the West Branch of Bloody Brook (WBBB) and surrounding area, pursuant to a Voluntary Cleanup Agreement (VCA) between Lockheed Martin Corporation (Lockheed Martin) and New York State Department of Environmental Conservation (NYSDEC) (Index #: D7-0001-01-09, effective July 20, 2002). For the purposes of this CRWP, the site is defined as that portion of the WBBB and the surrounding area commencing on the southern boundary of the New York State Thruway (Thruway) and ending at Onondaga Lake Parkway.<sup>1</sup> The WBBB is located in the Town of Salina, and a portion of the site is located in the Village of Liverpool, Onondaga County, New York. Site location and area maps are included as Figures 1 and 2.

This CRWP defines the procedures by which AECOM Technical Services Northeast, Inc. (AECOM) will complete remediation efforts to address cadmium found in the sediments within and soil adjacent to the WBBB. Pursuant to the March 2014





2015 construction season excavation and restoration activities will generally be completed in the following sections:

- Upstream of Brookview Lane Culvert
- Brookview Lane Culvert to Sunflower Drive Culvert
- Sunflower Drive Culvert to Floradale Road Culvert
- Floradale Road Culvert to Pearl Street Culvert
- Pearl Street Culvert to Town Gardens Drive Culvert
- Downstream of Town Gardens Drive Culvert

Site controls installed and utilized during the 2014 construction season remain on site and will be used during the 2015 construction season. Prior to 2015 excavation activities, site preparation and controls extending beyond what will be utilized from the 2014 construction season will be implemented and installed as discussed in the following sections.

## **2.1 Site Preparation and Controls**

### **2.1.1 Tree Removal**

Trees requiring removal to complete the 2015 excavation were identified during a survey performed by AECOM on September 11 and 12, 2014. Tree removal activities were initiated on January 20, 2015 and are planned to be completed prior to March 31, 2015, pursuant to the NYSDEC approved November 2014 *Tree Removal Work Plan for 2015 Construction Season*. If the tree removal activities cannot be completed by March 31, 2015, NYSDEC will be notified and the steps need to be followed to remove trees between March 31<sup>st</sup> and November 1<sup>st</sup> will be followed. Tables 1 and 2 and Figure 3 identify the trees that will be leveled during these activities. Stumps left in place during the initial tree leveling activities will be removed during excavation and will be disposed of based on the planned removal actions for the soil from which the material was removed. The access road installed along the WBBB and ending at the Brookview Lane culvert, pursuant to the November 2014 *Tree Removal Work Plan for 2015 Construction Season* will be used to complete excavation activities upstream of the Brookview Lane culvert.

### **2.1.2 Erosion and Sediment Controls**

Erosion and sediment controls will be installed during the site preparation phase in accordance with the August 2010 *New York State Stormwater Management Design Manual*. Land-based and water-based erosion and sediment controls that will be used for this phase of the project include, but are not limited to:

- Silt fence;
- Silt fence, hay bales, and/or straw wattles around active stockpiles;
- Stabilized construction entrances; and
- Intermedi(c)16J3uty fntder wantstane8bander w.



All erosion and sediment controls will be constructed prior to excavation activities in accordance with the manufacturer's details. Erosion and sediment control measures will be regularly inspected to ensure that they are operating correctly. Repairs will be made as necessary to maintain all erosion and sediment controls throughout the duration of the project. After restoration activities are completed and ground surfaces are stabilized, the temporary erosion and sediment controls will be removed. Where excavation is being completed in a residential property, the erosion controls will be placed off the property in the easement adjacent to the residential property. Prior to starting excavation within the residential property, the erosion controls will be moved to the perimeter of the excavation within the residential property.

### **2.1.2.1 Monitoring and Maintenance of Control Measures**

AECOM will designate a competent person to monitor the erosion and sediment control measures to verify that the control measures are operating as intended and to identify any control measures in need of repair. The designated inspector will monitor all erosion and sediment control devices at least once every work day and maintain inspection results in site documents. AECOM will begin implementing any corrective actions within one business day of discovery and will complete the corrective actions in a reasonable time frame. Repairs will be made as necessary to maintain the erosion and sediment controls until the controls are no longer needed. Maintenance requirements for the erosion and sediment control devices used during performance of remedial action activities may include repairs or modifications based on site conditions and planned remedial action activities.

Silt fencing will be monitored at least once each day and following a rain event. Sediment will be removed from the silt fence if sediment has accumulated to a depth of 6 inches above the existing grade, or as deemed appropriate by the on-site inspector.

Maintenance of the stabilized temporary access roads may require periodic top dressing with additional stone or the washing and reworking of existing stone as appropriate. Any site soil deposited on local roads will be removed and if necessary street sweeping equipment will be used to wash the road.

Once the remedial action is completed, all staging and support facilities have been removed, and all ground surfaces restored, the temporary erosion and sediment controls will be inspected weekly and after a rainfall event. These inspections will continue until the ground surface is stabilized and the erosion and sediment controls are no longer needed.

### **2.1.3 Temporary Site Security Fencing**

Prior to starting excavation activities, a site security fence will be installed around the perimeter of the construction area. Where excavation is being completed in a residential property, the site fence will be placed off the property in the easement adjacent to the residential property. Prior to starting excavation within the residential property, the site fence will be moved to the perimeter of the excavation within the residential property.

## **2.2 Bypass Pumping**

A temporary bypass pumping system will be operated 24 hours per day, seven days a week during impacted material removal and restoration activities in and adjacent to the brook.

The bypass system shown in Appendix A will be capable of conveying the maximum system design flow to the specified discharge point using a combination of pumps and pipes. Bypass pumps and

generators, when used, will be sound attenuated. Flow will be conveyed through piping to the proposed discharge point. An outfall will be installed downstream of the construction area for transfer of upstream water back into the active stream as shown in Appendix A. The outfall will limit sediment dispersion associated with the outflow of the bypass system.

A visual leak test of the bypass pumping discharge piping and outfall area will be performed using existing stream water prior to the full operation.

The proposed system will contain the following:

- The pumping system will include a sump with a minimum of two submersible pumps.
- The pumping system will be self-priming and capable of operating with automatic controls based on the liquid level in the bypass pumping system sump.
- The pumping system will be equipped with the necessary float switches or level monitoring devices required for starting and stopping the pump. In addition, the system will be configured to send a message to designated site personnel if the water level in the bypass pumping system reaches a critical depth.

In the event the influent storm water exceeds the maximum system design flow, the bypass pumping process will continue throughout the duration of the event to reduce the storm flow through the brook

### 2.2.2.2 Water Level Monitoring

Water levels in the WBBB will be monitored on a daily basis by direct visual observation and measurement of the relative difference between current water surface elevation and nearest adjacent crest elevations at critical locations (i.e., low points) along the temporary bypass system. The water level during steady flow is expected to be 0.5 feet below the top of the hydraulic control structure (e.g., sump). The procedures described below will be used to monitor the water level.

**Dry Weather Water Level Monitoring Procedures:** Dry weather shall be any period when there has been no rainfall the previous day and no rainfall forecasted for the current day. During dry weather periods, water levels will be visually inspected daily.

**Wet Weather Water Level Monitoring Procedures:** Wet weather shall be any period when there has been rainfall within or near the WBBB watershed within the past 12 hours, or rainfall is forecasted for the current day. During wet weather periods, due to the potentially short response time of the WBBB watershed, water levels will be visually inspected and water levels measured for all designated monitoring locations at hourly (i.e., 1-hour) intervals.

If visual observations or water level monitoring indicate that water levels are less than 0.5 feet from the top of the hydraulic control structure or suggest that WBBB water levels are rising rapidly, appropriate response action will be taken as summarized below.

### 2.2.3 Bypass Pumping System Overtopping

Actions that will be completed to minimize the damaging effects of and in response to an overtopping event are summarized in the following sections,

#### 2.2.3.1 Mitigation Procedures

\*Note: water levels may fluctuate in response to rainfall and close monitoring of precipitation data will be required.

## **2.3 Remedial Construction Activities**

Prior to starting any remedial construction activities, Lockheed Martin and AECOM will obtain access to the properties by the property owners. In addition, AECOM will work with property owners and public utility providers to properly locate all utilities. Excavation activities upstream of the Brookview Lane culvert will begin in the area of stream marker 12+50 where two crews will work simultaneously moving outward from the starting location. One crew will work moving downstream toward the Brookview Lane culvert, and one crew will work moving upstream toward the temporary access road in the wooded area of the site and toward the area of the site that was excavated and backfilled during the 2014 construction activities. The remedial construction activities are summarized below.

### **2.3.1 Sediment and Side Bank Soil Excavation**

All non-cohesive sediments overlying either the clay layer or the engineered base within the WBBB

downstream wing wall of the Floradale Road culvert, the bypass system will be installed to transfer the brook water from stream markers 23+00 to 27+00. After completing construction activities through the downstream wing wall of the Pearl Street culvert, the bypass system will be installed to transfer the brook water from stream markers 27+00 to 33+00. Bypass system locations summarized above are approximate and location of bypass system will be determined in the field to accommodate field conditions.

The gabion baskets lining the vertical channel walls between the wooded area and Brookview Lane and the flagstone lining portions of the remaining brook side banks will be removed as part of the 2015 construction activities and reused where possible for restoration. The March 2014 *Decision Document* issued by NYSDEC does not require the removal of the gabion baskets, but due to potential structural issues related to retaining the gabion basket lined vertical channel, the gabion basket lining will be removed and the side banks reconstructed.

The gabion basket stone and flagstone may be reused to backfill excavations deeper than 2 feet. If used as backfill, the stone material will be placed at depths below 2 feet to allow for placement of the required soil cover and restoration of those areas as summarized below. In addition, the stone may be used for armoring the stream side banks and the bottom of the stream channel. Prior to reuse, the gabion basket stone and flagstone will be rinsed to remove impacted soil and sediment. All rinse water will be captured and treated as construction water, and the soil rinsed from the gabion stone and flagstone will be captured and properly disposed. In addition, the flagstone will be broken into smaller pieces to allow for reuse. Any stone not reused for site restoration will be properly disposed of.

Reuse of flagstone is unlikely to be a viable option due to the sequence of the flagstone removal. If the flagstone is reused, a wipe sample will be collected and analyzed for cadmium from the first five stones removed from the stream side banks and rinsed to confirm proper decontamination of the flagstone, which is embedded in the brook side banks. If the wipe sample analytical results indicate that cadmium concentrations are 2.5 ppm or less, no further sampling and analysis will be completed. If the cadmium concentration is greater than 2.5 ppm, the rinse procedure will be reviewed and corrections to the procedure will be implemented until wipe sample analysis results show a cadmium concentration of 2.5 ppm or less.

### **2.3.2 Upland Soil Excavation**

Based on the data summarized in Table 3, upland soil (soil at the top of the stream side banks) from the Onondaga County drainage district easement, residential properties, and the apartment complex

The side slopes will be backfilled with 0.5 feet of imported general fill soil; layer of woven geotextile

observed, the affected area will be fixed and an evaluation conducted to determine the cause. In

### **3.0 Culvert Construction**

In addition to sediment and soil excavation for removal of cadmium contamination on the site, Lockheed Martin has agreed to design and complete the replacement of five culverts that cross over the WBBB within the limits of the site. The need for the culvert replacements was identified by



sediment disturbed to remove and replace the culverts with a cadmium concentration of greater than 2 ppm will be handled as impacted material and shipped off-site for proper disposal at a permitted landfill.

After construction of the new culverts, the brook banks and adjacent properties will be restored as shown in Appendix A.

## 4.0 Community Air Monitoring

Community air monitoring will be performed during all intrusive activities at the site in accordance with the Community Air Monitoring Plan (CAMP) (Appendix E). In addition to the equipment designated in the CAMP, site conditions will be continuously monitored for visual dust. Appropriate actions will be taken to mitigate the risk of dust traveling off site following any visual observation of dust. Typical mitigation methods such as wetting the area, covering exposed surfaces, or reducing truck traffic will be employed. The air monitoring data and manual recordings, including any exceedance of the dust alert/action limits in accordance with DER-10 guidance, will be made available to the NYSDEC and New York State Department of Health (NYSDOH) personnel upon request.

## 5.0 Waste Management

In-situ waste characterization activities were completed in December 2014 in accordance with the NYSDEC approved October 2014 *Culvert and 2015 Construction Season Waste Characterization Soil Sampling Work Plan*. The waste characterization activities included collection and analysis of composite samples for characterization of waste soils and sediments associated with the 2015 construction activities. The sample locations are shown on Figure 4, and the analytical results are summarized in Table 5. The soils associated with LMC-WBBB-WC-25-120314 were characterized as hazardous due to a cadmium concentration exceeding 1.0 milligram/liter (mg/L) as determined by a Toxicity Characteristic Leaching Procedure (TCLP) analysis. All other parameters analyzed were not detected or were detected at concentrations below the associated regulatory limit.

The majority of the soil and sediment will be treated and disposed of as non-hazardous waste material. The soil and sediment disposed of as non-hazardous waste material will be excavated and direct loaded or stockpiled and loaded at a later time to be shipped off-site for proper disposal at a permitted landfill. In order to achieve acceptable consistency for the waste facility, the soil and sediment will be mixed with drier non-hazardous material already designated for off-site disposal and/or mixed with drying agents (e.g. cement kiln dust), as needed. As summarized below, the waste classified as hazardous waste will be stabilized on site and resampled for final waste characterization before being transported off site for disposal at a permitted landfill.

### 5.1 On-Site Waste Stabilization and Management of Hazardous Waste Soil

Similar to 2014 construction activities, the excavator will mix EnviroBlend into the soil in 0.5-foot to 1-foot thick horizontal lifts across a specified area. Once the first lift is thoroughly mixed, it will be stripped off and staged on top of 6-mil polyethylene sheets exposing the next 1-foot lift to be amended. Again, EnviroBlend will be applied to this next exposed lift, the soil and EnviroBlend will be mixed by excavator, stripped off, and placed on top of the already mixed material. This will continue until the desired depth is achieved. Once the excavated material is thoroughly mixed, it will be covered with 6-mil polyethylene sheets until end disposal facility approval is received, and the soil is ready for to be shipped off-site for proper disposal at a permitted landfill. Additional samples will be collected and analyzed as required by the off-site permitted landfill. For any additional samples collected on site for waste characterization as required by the off-site permitted landfill, the procedures used for the collection of composite samples collected in accordance with the NYSDEC approved October 2014 *Culvert and 2015 Construction Season Waste Characterization Soil Sampling Work Plan* (AECOM, 2014) will be followed.

To minimize the potential for dust, the stabilization media, (i.e., EnviroBlend) will be stored in one ton super sacs. When mixing the media and soil the media will be applied as close to the soil surface as possible. Once applied, the media will be mixed using an excavator. Mixing activities will be monitored to ensure dust generation is limited.

## 6.0 Quality Assurance and Reporting

Quality assurance associated with this CRWP is meant to reinforce the work to be performed and assure aspects of this CRWP and applicable local, state, and federal guidelines are adhered to during construction. Relevant items that may represent deviations from the approved remedial action design or schedule would be discussed with the NYSDEC representative and field changes will be submitted and approved as needed.

Progress meetings will be held on site on a regular basis (e.g., weekly, semi-weekly, or other mutually agreed upon frequency) to discuss status of project, progress-to-date, issues encountered, deviations from the approved remedial action design or schedule, corrective actions necessary, submittals/approvals necessary, schedule updates, etc.

Reporting will include daily, weekly, and monthly reporting requirements further below.

### 6.1 Daily Reporting

A daily construction report will be assembled following each work day will contain the information listed below, and will be kept in the project files.

- List of personnel, subcontractors, equipment, and visitors on site including interactions held that day with property owners, government officials, or other third party persons
- Inventory of site deliveries including materials brought on site with associated bills of lading, if applicable, (e.g., fill material)
- Description of work performed on site including soil removal activities completed that day with associated waste and shipping documents and materials used or placed on site (e.g., landscaping items and personal protective equipment)
- Documentation of decisions made that impact on-site work including potential deviations from relevant work plans
- Record of samples collected
- Description of soil and sediment erosion controls inspections and repairs and modifications completed
- Summary of quality control activities
- Record of request for information
- List of transmittals and submittals
- Description of any community air monitoring conducted that day in accordance with the CAMP



## 7.0 Spill Prevention and Response Plan

Performance of the remedial action activities, within the work areas, poses a potential for accidental spills and discharges. The immediate containment of a spill or discharge of hazardous materials is necessary to minimize the potential impact to human health and the environment. This section contains a Spill Prevention and Response Plan that includes procedures to be followed in the event of a spill or release at the work area during the remedial action activities.

### 7.1 Storage and Spill Prevention

Spill prevention has been developed as an integral part of this project. The key elements of the spill prevention program include the items listed below.

- § Leak proof containment liners on the decontamination and cleaning pad.
- § Portable fuel tanks with secondary containment (i.e. diesel and gasoline) including a 500 gallon tank with 110% secondary containment.
- § Lockable steel containers – small chemical storage (e.g., oils, greases, etc.).
- § Lined stockpiles with 6-mil polyethylene sheets.
- § Secondary containment for the construction water treatment system.
- § Storage cabinets for flammable materials.
- § On-site inventory of spill response materials including sorbent pads and boom.
- § Daily walk-through inspections of the construction site to check the piping, equipment, and tanks for leakage, soils for staining and discoloration, excessive accumulation of rainwater in containment structures, and verification that dike drain valves are sealed closed (which will be repaired or replaced as needed).
- § Storm water management systems have been established to prevent washout and migration of active sediment removal areas including
  - Decontamination graded to a collection sump; secondary containment with curbing and the liner barrier walls;
  - silt fence;
  - turbidity curtain; and
  - stabilized construction entrances.
- § Heavy equipment and haul truck operators will be trained in 8(w)23(a)24(9) 0 TD /F1 eOit4(b)24(e)68d tlo(. )]



### **7.2.2 Spill Countermeasures**

Where hazardous substances may be released by spilling impacted soil or other hazardous





### **7.3 Spill Vendors**

In the case of an unforeseen spill emergency occurs and additional supplies or assistance is needed the following vendors will be utilized.

1. Op-Tech  
6392 Deere Road  
Syracuse, NY 13206  
Ph#: 315-463-1643

## 8.0 Green and Sustainable Remediation

The work completed as part of this work plan will comply with all NYSDEC guidance documents including DER-31: Green Remediation. To ensure compliance with DER-31 the work will be completed using the best practices and techniques described below.

- Materials will be collected from local sources as available (e.g., backfill).
- Rechargeable batteries will be used for field instruments versus disposable batteries.
- Biodegradable soil stabilization matting will be used for sidebank restoration, as applicable.
- Non-impacted soils will be properly segregated from impacted soils for reuse on site.
- Solid waste volume reductions will be evaluated to properly balance acceptable water content limits for off-site disposal.
- Noise impacts to off-site receptors will be minimized.
- Work and traffic patterns will be sequenced to minimize local traffic congestion.
- Remedial work phases will be sequenced to reduce or limit double handling of materials at the site.

