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**Beazer East, Inc.**

**Final Documentation Report**

Former Koppers Wood-Treating Site  
Carbondale, Illinois

August 2011



### ENGINEERING CERTIFICATION

To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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### Final Documentation Report

Former Koppers Wood-Treating Site  
Carbondale, Illinois

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## 1. Introduction

On behalf of Beazer East, Inc. (Beazer), ARCADIS U.S., Inc. (ARCADIS), has prepared this Final Documentation Report (Report) to document the completion of environmental remediation activities performed at the Former Koppers Wood-Treating Site in Carbondale, Illinois (the Site) between 2004 and 2010. The following table summarizes the key remediation activities, implementation timeframe, and design documents associated with each of the remediation activities:

<b>Remediation Activity</b>	<b>Implementation Timeframe</b>	<b>Design Document(s)</b>
Glade Creek Channel Relocation and Trench-Based DNAPL Barrier	May 2004 - June 2005	Basis of Design: Glade Creek Channel Relocation (BBL 2003)
Former Process Area Surface Cover	May 2005 - September 2006	Basis of Design: Former Process Area Surface Cover and DNAPL Recovery System (BBL 2005a)
RW-23 DNAPL Recovery System	May 2005 - June 2005	Basis of Design: Former Process Area Surface Cover and DNAPL Recovery System (BBL 2005a)
Mitigation Wetlands	April 2006 - July 2006	Final Wetland Mitigation Plan (BBL 2005c)
Excavation of Waste Piles and Coal Tar Areas	May 2005 - July 2005	Basis of Design: CAMU Containment Cell (BBL 2004a)
Excavation of Soil/Debris Piles and Asphalt Areas	May 2005 - July 2005	May 26, 2005 letter from BBL to USEPA (BBL 2005d)
Glade Creek Sediment Removal	June 2005 - June 2006	Basis of Design: Glade Creek Final Remedial Design (BBL 2005b)
Drainage Ditch Culvert	September 2008 - October 2008	December 7, 2007 letter from ARCADIS BBL to USEPA (ARCADIS 2007) and revised drawings submitted with a February 4, 2008 letter from ARCADIS to the USEPA (ARCADIS 2008)

<b>Remediation Activity</b>	<b>Implementation Timeframe</b>	<b>Design Document(s)</b>
Former Lagoon Area Surface Cover, Former North Drainage Ditch and Railroad Right-of-Way Soil Removal	August 2010 - November 2010	August 11, 2010 letter from ARCADIS to USEPA (ARCADIS 2010); Beazer provided responses to USEPA's August 24, 2010 comments/approval conditions (USEPA 2010) in a September 7, 2010 letter to USEPA (Beazer 2010)
Corrective Action Management Unit (CAMU)	May 2004 - September 2006; August 2010 - November 2010	Basis of Design: CAMU Containment Cell (BBL 2004a); Beazer provided responses to USEPA's August 24, 2010 comments/approval conditions (USEPA 2010) in a September 7, 2010 letter to USEPA (Beazer 2010)

A Site Plan showing the current, post-construction conditions at the Site, along with the locations of the remedial components listed above, is provided as Figure 1.

Other project-related information provided in appendices include: Record Drawings (Appendix A), Project Permits (Appendix B), Field Orders (Appendix C), QA/QC Testing Results (Appendix D), Weekly Project Summaries (Appendix E), Technical Submittal Registers (Appendix F), and Laboratory Analytical Data (Appendix G). Changes from the designs that were made during the course of the remediation activities are documented in Appendices A and C. Photographs of the remediation activities and summaries of the work are provided in Appendix E.

Background information regarding the various remediation components can be found in the various design documents referenced in the table above.

The remainder of this document is organized as follows:

- Section 2 discusses the implementation of the various remedial action components at the Site.
- Section 3 discusses proposed long-term operation, maintenance and monitoring (OMM) activities for the various remedial actions.
- Section 4 lists the references cited throughout this report.

## 2. Construction Implementation

### 2.1 Overview

As noted in Section 1, the construction activities were implemented in various stages between June 2004 and November 2010. In general, the construction was performed by Severson Environmental Services, Inc. (SES) with construction observation services provided by BBL/ARCADIS. Details of the various phases of work, including access, permitting, and restoration work, are discussed in the following subsections.

### 2.2 Access

Access – both legal and physical – was required to various areas to implement the work. Access-related considerations are addressed below and are separated into legal access (access and Right-of-Entry permits) and physical access (e.g., construction of access roads).

#### 2.2.1 Legal Access

Beazer purchased approximately 11 acres of land from a private owner to facilitate the Glade Creek channel relocation activities. The property purchase limits are shown on Glade Creek Relocation Record Drawing 1.

Sediment removal activities within Glade Creek required access to two non-Beazer-owned properties, including parcels owned by the City of Carbondale and one private owner. Beazer obtained the necessary access approvals prior to commencing work activities on these properties.

For work on the adjacent railroad property along the southern boundary of the Beazer-owned property, Beazer had an existing property access agreement under which the soil removal and restoration activities were performed with advanced notification to the railroad.

#### 2.2.2 Physical Access

Where necessary, brush and/or small trees were removed to gain working access to the active removal areas and to facilitate operation of the equipment (e.g., movement of the excavator boom). To the extent practicable, clearing of vegetation was minimized. Any below-grade cleared materials (e.g., root balls) from within impacted areas were chipped, or processed through a tub grinder, or otherwise sized for disposal in the onsite CAMU. Materials cleared from above grade or grubbed in non-impacted areas were reduced to manageable sizes, stockpiled onsite, and allowed to bio-degrade. Brush and trees that were cleared, particularly in wetland and floodplain areas, were replaced as part of the restoration activities described in Sections 2.7 and 2.10.7.

Following clearing, silt fence was installed, as necessary, in bare soil areas susceptible to erosion to minimize the potential for transport of soil materials into the creek. Silt fence remained in place until adequate vegetative cover was established.

Additional access roads were constructed to facilitate access to various monitoring wells on the Site. The locations of these roads were surveyed after construction and are shown on Figure 1.

### **2.3 Permitting and Other Regulatory Approvals**

The following permits and regulatory approvals were applied for and obtained for the remediation activities (copies are provided in Appendix B):

- United States Army Corps of Engineers (USACE) Nationwide Permit (NWP) No. 38 (note that separate NWP 38 authorizations were provided for the pre-2010 and 2010 construction activities; copies of each are provided in Appendix B)
- Illinois Department of Natural Resources (IDNR), Office of Water Resources Permit
- Illinois Environmental Protection Agency (IEPA) Water Pollution Control Permit for pre-treatment of water and discharge to the City of Carbondale Sewage Treatment Plant
- City of Carbondale Floodplain Development Permit
- IEPA National Pollutant Discharge Elimination System (NPDES) Permit
- Memorandum of Agreement among the USACE, Illinois State Historic Preservation Office and Beazer

### **2.4 Glade Creek Channel Relocation and Trench-Based DNAPL Barrier**

This component of the overall remedial approach included the relocation of the Glade Creek channel, installation of a trench-based dense non-aqueous phase liquid (DNAPL) barrier, tree planting to promote phytoremediation, and ancillary design components. The work generally was completed in accordance with the design (BBL 2003); exceptions are discussed below. The Glade Creek Channel Relocation Record Drawings (Relocation Record Drawings) and Field Orders related to this component of the work are included in Appendices A and C, respectively.

#### 2.4.1 Archaeological Area

After completion of the design, but before implementation, an area of archaeological significance was found near the area of the creek relocation. This area was surveyed and, based on coordination with the Illinois State Historic Preservation Agency, fenced off to limit possible disruption as noted in Field Order No. 002 (Appendix C).

#### 2.4.2 Channel Relocation

An approximately 1,500-foot section of Glade Creek was relocated up to approximately 450 feet east of its former location to circumvent a zone of subsurface DNAPL present adjacent to a portion of the former channel. The location of the new creek channel is shown on Relocation Record Drawing 2A. The cross-sectional configuration of the new channel is shown on Relocation Record Drawing 4. Flow was diverted into the new channel by constructing a berm at the point the new channel diverges from the existing channel. The location and configuration of the diversion berm are shown on Relocation Record Drawings 2 and 4.

The Site grading associated with the creek channel relocation is shown on Relocation Record Drawings 2 and 4. There was an approximately 9,300-cy surplus of subsoil (i.e., clay) material and an approximately 900-cy deficit of topsoil material. The surplus subsoil material was temporarily stockpiled in an upland area of the Site for subsequent use during CAMU and/or surface cover construction. Additional vegetated cover material was imported from an onsite borrow area to satisfy the fill requirement.

#### 2.4.3 Trench-Based DNAPL Barrier

Two overlapping permeable trenches, comprising an overall length of approximately 930 lineal feet, were installed along the approximate orientation of the original creek channel. The trench depths extended approximately 35 feet below final grade to the top of a confining massive clay unit. The trenches include collection piping and sumps to facilitate periodic collection and removal of the DNAPL that accumulates in the bottom of the trenches. The trench bottoms were constructed at a slope of approximately 1% to facilitate gravity drainage of DNAPL along the collection pipes to the sumps at the downgradient end of each trench. Although no groundwater extraction is anticipated, the trenches include piping and sumps for potential use in extracting groundwater in the event that groundwater extraction is necessary or desirable under future conditions. Following trench installation, the original creek channel and surrounding area was backfilled.

The trenches were installed using a “one-pass” trenching technique, where excavation, installation of DNAPL collection pipes/sumps/cleanouts, and backfilling were performed in a single pass of the trenching equipment without any shoring/sheeting or groundwater management requirements. Also, this method did not use biopolymer slurries or require

bench- or pilot-testing to verify its suitability for the Site or compatibility with Site constituents.

Prior to installation of the trench-based DNAPL barrier, the existing ground surface along the path of the barrier was graded to provide a suitable base for the trenching equipment to both operate and achieve the specified trench depths. During grading, the original Glade Creek grout blanket and associated underdrain system were demolished and temporarily staged in the CAMU area (Section 2.13). Soil excavated during trench construction was also temporarily staged in the CAMU area. Following construction of the CAMU containment cell, the grout blanket, underdrain system, and trench soils were consolidated with other materials (e.g., excavated Glade Creek sediments and waste pile soils) within the cell and permanently covered. Profile and cross-section views of the trench-based DNAPL barrier are shown on Relocation Record Drawing 3. Details of the DNAPL collection system are shown on Relocation Record Drawings 5A and 5B.

#### 2.4.4 Phytoremediation

As part of mitigating the environmental effects of relocating the channel, the riparian corridor of the relocated channel was enhanced by planting trees. Specifically, approximately 12.7 acres of floodplain area along the relocated Glade Creek channel was planted with common alder (*Alnus glutinosa*), poplar (*Populus nigra* x *P. maximowiczii*, NM-6), hackberry (*Celtis occidentalis*), white mulberry (*Morus alba*), bur oak (*Quercus macrocarpa*), black oak (*Quercus velutina*), black locust (*Robinia pseudoacacia*), white willow (*Salix alba*), and shagbark hickory (*Carya ovata*) to promote phytoremediation of this area. The planted species are capable of removing significant quantities of water during the growing season, which helps maintain a lower water table in the vicinity of the trench to promote DNAPL collection and minimize the potential need for active groundwater removal.

Tree and shrub planting also were performed adjacent to the eastern bank in areas not included in the phytoremediation planting plan to establish a wooded riparian corridor in this area. The planting within the approximately 2.52-acre riparian corridor adjacent to the eastern bank utilized advanced root system tree nursery stock. Tree and shrub species planted within the eastern riparian corridor consisted of a mix of flood tolerant to somewhat flood tolerant species.

In addition to tree planting, the planting areas were seeded as shown on Relocation Record Drawing 2B. Further information on the phytoremediation design is provided in the Basis of Design: Glade Creek Channel Relocation (BBL 2003) and the Final Wetland Mitigation Plan (BBL 2005c).

#### 2.4.5 Ancillary Components

Various ancillary components were included to enhance and monitor the effectiveness of the channel relocation approach. Such components included decommissioning, replacement, and modification of existing monitoring wells, installation of new wells and piezometers to facilitate post-construction monitoring, sediment removal and barrier wall installation, surface-water control measures, Site restoration, and measures to address wetland-related impacts associated with this remedial component. Each of these ancillary components is discussed in the subsections below.

##### 2.4.5.1 *Monitoring Wells/Piezometers*

Several groundwater monitoring wells and piezometers were present within or immediately adjacent to the creek channel relocation area. To accommodate the construction activities and provide for post-construction implementation of the interim groundwater monitoring program (IGMP), several existing monitoring wells and piezometers were decommissioned, modified, and/or replaced. Well decommissioning was performed in July and August of 2004 in accordance with applicable State of Illinois regulations and the *Monitoring Well Decommissioning Standard Operating Procedure* (BBL 2004b), which was provided to the USEPA on May 14, 2004. In general, wells were decommissioned by filling with a cement/bentonite grout and cutting the well casing below grade. Water well sealing forms documenting the well decommissioning activities were submitted to the Illinois Department of Public Health. Wells located within or adjacent to the channel relocation area that were not decommissioned were modified (i.e., extended) in August 2004, and protected during construction. A summary of the well modifications and new measuring point elevations was provided in the 2004 Annual Groundwater Monitoring Report (RETEC 2005). The locations of the new and decommissioned wells and piezometers are shown on Relocation Record Drawing 2A (See Note 3 on Drawing 2A).

Three additional monitoring wells and six piezometers were decommissioned between June 21 and 30, 2006. During the same time period, nine monitoring wells and seven piezometers were installed. Further information on the 2006 installation and decommissioning activities is presented in a September 14, 2006 letter from BBL to the USEPA.

##### 2.4.5.2 *Sediment Removal and Barrier Wall Installation*

Following creek relocation and prior to backfilling the original channel area, sediments within a portion of the original creek channel were removed. The portion of the original creek channel subject to sediment removal extended from the downgradient end of the southern trench-based DNAPL barrier downstream to the reconvergence point of the new and existing channels (Relocation Record Drawing 2A). In general, sediments were

excavated to a maximum depth of 2 feet within this reach; however, additional excavation was performed in areas with visual impacts.

Excavated sediments were temporarily staged in the CAMU area for subsequent placement into the CAMU containment cell. Following the sediment removal, this portion of the channel was backfilled and compacted as part of the backfill of the original channel area.

A compacted clay barrier wall was installed across the original creek channel at a location approximately 30 feet southeast (downstream) of the downgradient end of the southern trench-based DNAPL barrier (Relocation Record Drawing 2A). The barrier wall was constructed of clay material excavated from the new channel construction and extended vertically 4 feet (minimum) below the existing creek bed and horizontally 4 feet (minimum) beyond the top of the existing creek banks. The wall was constructed a minimum of 2 feet wide. The purpose of this wall was to minimize the potential for the former creek channel to act as a preferential groundwater flow pathway toward the relocated channel.

#### *2.4.5.3 Pond Backfill*

A small pond west of Glade Creek that showed visible impact was drained and backfilled to eliminate it as a possible exposure point. This was performed as part of the regrading of the floodplain area in the vicinity of the new and former creek channels.

#### *2.4.5.4 Surface Water Control Measures*

Surface water control measures associated with the creek relocation included the construction of various swales and ditches. The locations of these surface water control measures are shown on Relocation Record Drawing 2A. In general, their function was to divert surface water flow from the floodplain and surrounding areas toward the relocated creek channel. Configurations of these swales and ditches are shown on Relocation Record Drawing 6.

#### *2.4.5.5 Site Restoration*

Site restoration activities were performed following completion of the creek relocation, trench-based DNAPL barrier installation, and associated grading activities. With the exception of the new creek channel, the Type II ditch, and the new gravel road (discussed below), a 4-inch (minimum) layer of topsoil was placed throughout the affected areas. As discussed in Section 2.4.4, trees were planted throughout the affected areas for phytoremediation purposes. Following tree planting, the remaining planting areas were seeded. Temporary erosion control mats were placed over portions of the vegetated topsoil to minimize the potential for soil erosion immediately following construction. The temporary erosion control mat will degrade over time and is intended to protect the topsoil until vegetation is fully established.

Erosion and sedimentation controls (e.g., staked hay bales and silt fences) installed prior to construction activities were left in place and were maintained following Site restoration activities. The silt fences will be removed once sufficient vegetative growth has occurred. Hay bales were left in place to degrade.

A new gravel road was constructed to replace the gravel road that originally extended from the main gravel access road to the Glade Creek grout blanket area (Relocation Record Drawings 1 and 2A). The new gravel road provides an access route to the new DNAPL collection sumps. The road was constructed of Amoco 2006 woven geotextile fabric overlain by 8 inches of compacted crusher run.

## 2.5 Former Process Area Surface Cover

This component of the overall remedial approach generally included placing a soil cover (with and without geosynthetic liner), stormwater management, and ancillary design components. The work generally was completed in accordance with the design (BBL 2005a); exceptions are discussed below. The Former Process Area Surface Cover Record Drawings (Surface Cover Record Drawings) and Field Orders related to this component of the work are included in Appendices A and C, respectively.

### 2.5.1 Site Preparation

In general, buildings and other above-ground structures located within the former process area were demolished and sent offsite for recycling/disposal. To the extent feasible, concrete foundations were removed from the former process area. The remaining concrete slabs were broken up and covered with soil fill material during the subgrade preparation activities (Section 2.5.2). Concrete and railroad ties that were removed were placed in the CAMU containment cell. Rails that were removed were sent offsite as scrap steel. The steel bottom of the former 300,000 gallon storage tank was cleaned and removed, and also sent offsite as scrap steel. Additional details regarding the building/structure demolition activities are provided on Surface Cover Record Drawing 2.

As shown on Surface Cover Record Drawing 2, 13 groundwater monitoring wells present within or immediately adjacent to the former process area were decommissioned, protected, or modified. Well decommissioning was performed in July and August of 2004 in accordance with applicable State of Illinois regulations and the *Monitoring Well Decommissioning Standard Operating Procedure* (BBL May 2004), which was provided to the USEPA on May 14, 2004. In general, wells were decommissioned by filling with a cement/bentonite grout and cutting the well casing below grade. Water well sealing forms documenting the well decommissioning activities were submitted to the Illinois Department of Public Health. Wells located within or adjacent to the surface cover area that were not decommissioned were modified (i.e., extended) in August 2004, and protected during

construction. A summary of the well modifications and new measuring point elevations was provided in the 2004 Annual Groundwater Monitoring Report (RETEC 2005).

There were several features (i.e., culverts, pipes, manholes, and the “yard drain collection basin”) located within the former process area that allowed surface water to drain to Smith Ditch. To eliminate the discharge of these waters directly to Smith Ditch, the culverts, pipes, and manholes were decommissioned by removing any accumulated liquids and then filling with grout. The collected liquids were transferred to the onsite water treatment system for treatment. The yard drain collection basin was filled with soil. Additional details regarding the decommissioning of existing yard drain features are provided on Surface Cover Record Drawing 2. Clearing and grubbing activities were conducted as discussed in Section 2.2.2.

#### 2.5.2 Subgrade Preparation

Approximately 42,200 CY of general fill material was placed and graded across the surface cover footprint to achieve the subgrade elevations depicted on Surface Cover Record Drawing 3. The fill ranged in thickness from 0 to approximately 5 feet. Placement and compaction of the general fill was performed in accordance with the material specifications provided on Surface Cover Record Drawing 7.

#### 2.5.3 Soil Cover with Geosynthetic Liner

A lined soil cover was installed over an approximately 12.0-acre portion of the former process area (see Surface Cover Record Drawing 3 for limits). An additional 0.8 acre was added to the designed area of 11.2 acres due to the presence of a soft area and surface staining near the ditch excavation. The area north of the additional lined soil cover was graded to prevent ponding of water. Sections showing the configurations of the geosynthetic-lined soil cover are provided as Details 1 and 3 on Surface Cover Record Drawing 5. As indicated on Surface Cover Record Drawing 4, portions of the lined soil cover that coincided with access roads were finished as roadways.

Wells and support posts for the existing electric panel located within the lined portion of the surface cover penetrated the geomembrane. These penetrations were made by cutting holes in the geomembrane for the well casing and support posts to pass through. The penetrations were sealed using HDPE boots consisting of the same HDPE material used for the surface cover. The outer edges of the boots were extrusion welded to the geomembrane. A neoprene gasket and stainless steel band clamps were used to tighten the boots around the exterior of the penetrating feature. Details showing these penetrations are provided on Surface Cover Record Drawings 5 and 7.

#### 2.5.4 Soil Cover without Geosynthetic Liner

A soil cover without a geosynthetic liner was installed over a 15.4-acre portion of the former process area and Smith Ditch Wetland area (see Surface Cover Record Drawings 3 and 4 for limits). Sections showing the configurations of the soil cover without a geosynthetic liner are provided as Details 2 and 4 on Surface Cover Record Drawing 5. As indicated on Surface Cover Record Drawing 4, portions of the soil cover that coincided with access roads were finished as roadways.

#### 2.5.5 Cover Transitions and Terminations

Design conditions for transitioning between the geosynthetic and non-geosynthetic surface cover types are presented on Surface Cover Record Drawings 5, 6, and 7. In general, the design conditions were followed for areas of cover type transition.

At some locations around the edge of the cover, the existing grade was excavated such that, when the minimum 1-foot thick cover was placed, it was flush with surrounding grade at the cover limit. For the remaining areas, termination of the surface cover was accomplished by grading the soil components of the surface cover beyond the limit of the cover at an approximate 5 horizontal to 1 vertical downward slope to blend into existing grade. Surface cover terminations consisting of geosynthetic liner located along the outermost boundary of the cover limits were constructed as shown in Detail 8 on Surface Cover Record Drawing 5 and Details 6 and 7 on Surface Cover Record Drawing 6. In the case where the surface cover access road with a geosynthetic liner terminates at the outermost limit of the surface cover, the geosynthetics were ended at the point of the cover where the access road surface began to taper to match existing grade. For geosynthetic liner terminations occurring within the limits of the surface cover (i.e., adjacent to the Surface Cover Type II), the geosynthetic components were placed in an anchor trench as shown on Detail 7 on Surface Cover Record Drawing 5 and Details 1 and 5 on Surface Cover Record Drawing 6. Stormwater collection pipes were installed in selected anchor trenches to manage drainage from the cover system geocomposite drainage layer. The collection pipes were routed to discharge points along the perimeter of the surface cover as shown on Surface Cover Record Drawing 4. Remaining anchor trenches were backfilled with general fill material.

#### 2.5.6 Stormwater Management

Stormwater runoff drains to Smith Ditch, the low-lying area adjacent to North Marion Street, and Glade Creek with a similar distribution in watershed area as under pre-existing conditions. With the establishment of grass type vegetation over the completed surface cover area, the volume and rate of runoff discharge resulting from the area is expected to decrease due to the change in surface cover condition. As shown on Surface Cover Record Drawing 4, stormwater runoff from the surface cover is managed by a combination of

features, including culverts, diversion berms, and ditches, which were designed to collect and convey the stormwater to appropriate areas while minimizing the potential for erosion of the soil cover components of the surface cover.

Three culverts were installed beneath the surface cover access road and CAMU containment cell access ramps. These culverts allow for discharge of runoff that would otherwise be confined by the access roads. A diversion berm was included in the surface cover design to divert runoff away from the office building and wastewater treatment plant area and toward culvert CV-1 (Surface Cover Record Drawing 4). The surface cover access roads serve to divert runoff from upgradient areas to the three culverts. The surface cover swale at the outlet of culverts CV-1 and CV-2 convey runoff across the covered Smith Ditch Wetland to a 24-inch-diameter CMP. The inlet and outlet ends of the CMP were armored with riprap to improve erosion protection. Related design details are provided on Surface Cover Record Drawings 6 and 7.

Runoff from the surface cover that is not managed by the drainage features noted above is collected within pre-existing ditches located at the perimeter of the surface cover and conveyed to downgradient areas.

## **2.6 RW-23 DNAPL Recovery System**

The work related to the RW-23 DNAPL Recovery System generally was completed in accordance with the design (BBL 2005a). The RW-23 DNAPL Recovery System Record Drawings (RW-23 Record Drawings) related to this component of the work are included in Appendix A.

The DNAPL recovery system consists of one pre-existing DNAPL recovery well (RW-23) located in the former process area of the Site, as shown on RW-23 Record Drawing R001. The well was extended vertically by approximately 2 feet to allow for construction of the former process area surface cover. An electrical control panel was mounted to a panel board located next to the well to automate operation of the groundwater pump, and for manual operation of the DNAPL recovery pump.

Groundwater extracted from the DNAPL recovery well is piped directly to the existing treatment system, where it proceeds through the permitted onsite treatment system prior to discharge to the Carbondale POTW.

DNAPL that accumulates in the recovery well sump is pumped out periodically using an electric submersible DNAPL recovery pump, or other appropriate means. The DNAPL recovery pump is operated manually using the control panel mounted next to the well. DNAPL is pumped directly from the well to a mobile DNAPL storage tank, and then is transferred to an onsite central storage tank for subsequent disposal and/or recycling.

## 2.7 Mitigation Wetlands

The work related to the Mitigation Wetlands was completed in accordance with the design (BBL 2005c). The Mitigation Wetlands Record Drawings and Field Orders related to this component of the work are included in Appendices A and C, respectively.

The extent of jurisdictional water bodies on the Site was defined in a report entitled "Wetland Delineation Final Report" (Geotechnology, Inc. 2003); 10 wetland areas were identified in the Glade Creek Channel Relocation, Glade Creek Sediment Removal, CAMU, and Former Process Area Surface Cover remediation areas. In total, approximately 3.2 acres of wetlands were permanently impacted by implementing the required remedial activities. These permanent impacts resulted from the loss of riverine fringe wetlands along the former Glade Creek channel that was relocated, the filling of emergent wetlands for the construction of the relocated stream channel, and the covering of wetlands within the former process area surface cover<sup>1</sup>.

A wetland area was constructed in the northern portion of the property adjacent to Smith Ditch as partial mitigation for the remediation-related impacts to wetland areas. The mitigation wetland was constructed by excavating two basins with a bottom surface area totaling at least 3.2 acres to compensate for the 3.2 acres of wetlands filled by remedial activities. A plan view of the constructed wetland is presented on Mitigation Wetlands Record Drawing 1. Water is supplied to the mitigation wetlands from groundwater interception, overtopping of the banks of Smith Ditch during storm events, and interception of overland runoff from adjacent areas of higher elevation. The mitigation wetland includes deep-water pools, and emergent and forested habitats were established by plantings.

Approximately 1.19 acres of emergent vegetation and 2.01 acres of tree and shrub vegetation were established within the constructed wetland to provide in-kind mitigation for the wetlands impacted by remediation activities at the Site. The upper 12 inches of topsoil were stockpiled during the excavation activities and replaced in the constructed wetlands area once the excavation subgrades were achieved. The seed bank of the topsoil, which was assumed to contain a seed bank of plant species that would be suited to grow under moist soil conditions, was supplemented with a native wetland seed mix to increase the likelihood of successful wetland vegetation establishment.

Approximately 2.01 acres of forested wetland were established within the constructed wetland. Native tree and shrub species planted within the forested wetland consisted of a mix of flood-tolerant species. The tree and shrub species planted within the constructed

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<sup>1</sup> Note that the mitigation of additional wetland impacts associated with the 2010 construction activities is discussed in Section 2.10.

wetland consisted of 2- to 3-gallon containerized, advanced root system nursery stock. These types of trees are known to be fast growing, exhibit high survival rates, and produce mast at a young age.

In addition to the mitigation wetlands construction, remediation-related wetland impacts were mitigated by the creation of a wooded riparian corridor along the relocated Glade Creek channel, the reforestation of disturbed uplands between the former and relocated channel locations, and the restoration of temporarily disturbed wetlands along Glade Creek downstream of the relocated channel.

Further information on the design of the wetland mitigation area and other wetland mitigation activities is provided in the Final Wetland Mitigation Plan (BBL 2005c).

## **2.8 Excavation of Waste Piles and “Coal Tar” Areas**

As discussed in the CAMU design (BBL 2004a), two existing waste piles and several surficial “coal tar” areas were removed and consolidated in the containment cell. These areas are shown on Figure 1 and labeled as “2005 Waste Pile Removal Areas” and “2005 Coal Tar Removal Areas,” respectively. Since the waste pile areas were covered by the former process area surface cover, removal of soils below existing grade was not necessary and no site restoration activities were required in these areas. At each of the specified surficial “coal tar” areas outside the limits of the former process area surface cover, excavation was performed to a maximum depth of 1 foot below existing grade. Following removal, the excavations were backfilled with up to 8 inches of common fill and 4 inches of vegetated cover soil.

## **2.9 Excavation of Soil/Debris Piles and Asphalt Areas**

In accordance with a May 26, 2005 letter from BBL to the USEPA (BBL 2005d), three soil/debris piles and two areas of surficial asphalt-like material were removed and either disposed of in the CAMU, placed under the former process area surface cover, or removed to a permitted offsite disposal facility. These areas are shown on Figure 1 and labeled as “2005 Soil/Debris Pile Removal Area” and “2005 Surficial Asphalt-Like Material Tar Removal Areas,” respectively.

Debris from all three soil/debris piles was transported offsite for non-regulated disposal. Soil from the SB-119 pile was removed to grade and placed in the CAMU containment cell because it exhibited the highest PAH concentrations and contained visually stained soils. Soil from the SB-118 and SB-120 piles was removed to grade and placed beneath the lined portion of the former process area surface cover. Additionally, 1 foot of soil from within an area encompassing the three soil/debris piles and samples SB-100 and SB101, and from two areas of surficial asphalt-like material, was removed and placed beneath the lined portion of the surface cover.

Soils placed beneath the lined portion of the surface cover were used as subgrade fill in existing low areas. A minimum of 1 foot of clean subgrade fill materials was placed between these soils and the surface cover liner components, plus an additional 1 foot of clean soil was placed atop the surface cover liner components. The removal areas were backfilled with 8 inches of general fill and 4 inches vegetated topsoil.

In total, approximately 7,700 cubic yards of soil and debris were removed and either disposed of in the CAMU, placed under the former process area surface cover, or removed to a permitted offsite disposal facility.

## **2.10 Glade Creek Sediment Removal**

This component of the overall remedial approach included removal of visually impacted sediments from within the Glade Creek channel, beginning at the downstream end of the relocated reach of Glade Creek and extending to the confluence with Piles Fork. Sediment and erosion control measures were in place throughout construction. The work generally was completed in accordance with the design (BBL 2005b); exceptions are discussed below. The Glade Creek Sediment Removal Record Drawings (Sediment Removal Record Drawings) and Field Orders related to this component of the work are included in Appendices A and C, respectively.

### **2.10.1 Access**

Material hauling activities in the vicinity of Glade Creek were performed with low-ground pressure (LGP) equipment to minimize damage along equipment travel routes; therefore, no new roads were constructed.

Removal activities were completed primarily from the north bank (i.e., left bank looking downstream) of Glade Creek. In instances where it was necessary to cross the creek channel and work from the opposite bank, temporary stream crossings, constructed of wooden crane mats, were installed. The temporary crossings were dismantled and removed upon completion of the sediment removal and creek restoration activities.

### **2.10.2 Water Management**

To facilitate sediment removal in the dry, sections of Glade Creek were temporarily isolated and dewatered using earthen berms and bypass pumping. Typically, temporary earthen berms were installed at a spacing of several hundred feet from upstream to downstream. If inclement weather was forecast, the berms were installed at the upstream and downstream ends of the linear extent of creek channel from which removal and restoration (as applicable) could be accomplished in one working day. Sediment Removal Record Drawing C-202 provides an illustration of a typical bypass pumping configuration and typical cross sections of the temporary earthen berms. Water accumulating within work areas that had

been disturbed was collected and transported to the on-Site Waste Water Treatment System (WWTS) for treatment. Water accumulating within work areas that had not yet been disturbed was inspected for visual impacts (e.g., sheens). If visibly unimpacted, the water was pumped downstream of the work area. If visibly impacted, oil booms were utilized to remove sheens prior to pumping the water downstream. If this was unsuccessful at removing the sheens, the water was collected and transported to the on-Site WWTS for treatment.

### 2.10.3 Sediment Removal

The approximate preliminary removal grades were established based on the deepest observed depths of impact and Beazer's agreement with USEPA to remove up to an additional 6 inches of depositional or native material beyond the extent of visual impacts observed in the field. The preliminary removal grades are noted in profile on Sediment Removal Record Drawing C-100 through C-103. Sediment removal was performed with a land-based excavator working from the top of the creek bank. Excavation was performed in the dry by utilizing creek bypass and dewatering techniques. Removal activities were performed primarily from the north bank of the creek channel; however, temporary stream crossings were installed to allow access to either bank. AllTracks™ (i.e., low ground pressure soil transport vehicles) were used to transport removed sediment material to the temporary sediment processing area.

Actual removal depths were determined in the field based on visual observations of the extent of impact and in consideration of the previous investigation data and are shown on Sediment Removal Record Drawings C-100 through C-103, and are presented in Table 1. As necessary, additional removal occurred to depths of up to two feet greater than the preliminary removal grade. Approximately 5,500 cubic yards of sediments were removed from the creek channel for disposal in the onsite CAMU.

Removal continued into the bank on one or both sides of the creek in many areas (Table 1). Approximately 3,700 cubic yards of soils were removed from the creek banks. Of this, approximately 1,200 cubic yards of vegetative cover material was used as backfill, while the remaining 2,500 cubic yards were disposed of in the onsite CAMU.

### 2.10.4 City of Carbondale Dump

An approximately 240-foot section of the creek was adjacent to a dump area owned by the City of Carbondale. Due to the presence of dumped materials and a steep bank transitioning from the dump area to the channel, this section of the creek channel was relocated to a parallel location approximately 50 feet to the north. The stream relocation was proposed to USEPA and the USACE on August 23, 2005 and approved by USACE on September 30, 2005 (McMullen 2005). The relocated channel is shown on Sediment Removal Record Drawing C-102.

#### 2.10.5 Creek Restoration

Any necessary backfilling or creek channel restoration activities were performed following the completion of removal activities in that area, while the temporary isolation and diversion berms were in place. Areas of bank removal were restored with non-visually impacted bank material or clean fill obtained from the on-Site borrow area. Non-woven geotextile and riprap were placed from the toe of the disturbed slope to approximately halfway up the slope.

In areas where less than or equal to two feet of native clay material were removed, channel backfill was not required. If, however, visual impacts were still present after removal of two feet of native clay material, 18 inches of clay and 6 inches of gravel with a D50 of 2 inches were placed and compacted to match the surrounding grade of the native material. Compaction was performed with the bucket of the excavator. The backfill was placed in accordance with Section E on Sediment Removal Record Drawing C-201.

An area on the south bank of the creek in the vicinity of the City of Carbondale dump, approximately between Stations 23+50 and 26+00 (Sediment Removal Record Drawing C102), required stabilization. The creek banks in this area exhibited signs of ongoing erosion and undercut banks and, thus, 6-inch riprap was placed to stabilize existing bank slopes and to protect against continued erosion or slope failures in accordance with Section F on Sediment Removal Record Drawing C-201. Additionally, creek bank toe protection was necessary in certain areas to maintain creek bank slope stability. In such locations, 6-inch riprap was placed in accordance with Section D on Sediment Removal Record Drawing C-201.

#### 2.10.6 Material Handling

Following excavation, removed sediment materials were direct-loaded into LGP haul vehicles for transport to the temporary sediment processing area shown on Sediment Removal Record Drawing G-101. Materials placed in the processing area were mixed with cement kiln dust (CKD) to prepare the materials for placement in the CAMU. Drying agents were added in sufficient quantities to limit the release of free liquids from the sediment during transportation. The overall blend ratio was approximately 1 CY of drying agent per 10 CY of sediment. Drying agents were added and mixed within the sediment processing area by equipment situated outside the area. Water generated as a result of gravity drainage or precipitation at the sediment processing area was collected using trash pumps and stored in a frac tank for ultimate processing in the onsite WWTP. Following conditioning, the materials were loaded from the processing area into Moxy® (off-road) trucks for transport to the onsite CAMU. The haul route from the sediment processing area to the onsite CAMU is shown on Sediment Removal Record Drawing G-100.

Following completion of the sediment removal activities in Glade Creek and transfer of all materials from the sediment processing area to the CAMU, the temporary sediment processing area was decommissioned. The temporary berm, backfill, and PVC liner resulting from the decommissioning were removed and transported to the onsite CAMU for disposal. Samples were collected from the underlying soil and analyzed for polycyclic aromatic hydrocarbons (PAHs) and pentachlorophenol before construction of the sediment processing area and after decommissioning (Appendix G). The post-decommissioning results indicated that the processing area did not have any adverse effects on the underlying soil, and therefore the excavation was backfilled with the material that was originally excavated to construct the processing area.

#### 2.10.7 Support Area Restoration

Sediment removal and associated activities were performed in a manner that minimized adverse impacts to surrounding existing conditions. Disturbed areas were restored consistent with the surrounding conditions. Areas of the floodplain and creek channel where vegetative ground cover existed prior to the work and where rutting or other surface impacts occurred because of equipment operation and material hauling activities were regraded, seeded, and mulched at the completion of remedial activities. Trees greater than 12 inches in diameter at breast height that were removed to facilitate the work were replaced with a 5-gallon container stock tree of a species appropriate for the region.

### 2.11 Drainage Ditch Culvert

During a routine inspection of the Site in May 2007, a small amount of DNAPL was observed in a drainage ditch on the eastern end of the Site. This ditch was constructed as a surface water control feature as part of the Glade Creek channel relocation project in 2004. The remedial approach to respond to this observation included installing a drainage pipe along the existing ditch to limit contact between the surface water and groundwater along the ditch alignment. The work generally was completed in accordance with the design (ARCADIS 2007, ARCADIS 2008); exceptions are discussed below. The Ditch Construction Record Drawings and Field Orders related to this component of the work are included in Appendices A and C, respectively.

#### 2.11.1 Installation of Drainage Pipe

All pipe material consisted of high-density polyethylene (HDPE) SDR 17. Prior to installation, a minimum depth of 6 inches of gravel (IDOT CA11) was placed under the pipe as bedding material, as shown on Detail 5 of Drawing 4 of the Ditch Construction Record Drawings. Pipe joints were butt fusion-welded to limit potential leakage or infiltration. No manholes were installed to limit the number of joints along the pipe. Five 42-inch HDPE anti-seep collars were installed along the pipe in accordance with Detail 3 on Drawing 4 and in the locations shown on Drawings 1, 2 and 3 of the Ditch Construction Record Drawings.

Anti-seep collars were installed at a minimum of 6-inches into native soil below the pipe bedding, and were used to minimize the potential for the pipe bedding material to act as a preferential pathway for groundwater to flow to the Large Pond. The edges of the anti-seep collars were backfilled with concrete to install a water tight seal around the pipe at least 3-feet away from any joint.

There were three primary sources of surface water flow that were considered in the design of the drainage system: a 24-inch-diameter culvert at Station 0+00, a 36-inch-diameter culvert approximately 20 feet southwest of Station 1+72, and a 12-inch-diameter culvert 200 feet southwest of Station 4+50. Based on these inputs, the pre-existing 24-inch-diameter culvert was removed between Stations 0+00 and 1+50 and reinstalled downstream in place of the existing timber mats. The 24-inch-diameter culvert was reinstalled with inverts to match the change in drainage swale. Timber mats were removed and stockpiled with existing materials that had been stockpiled at the west end of the Site in the temporary holding area (Section 2.11.3).

A 30-inch-diameter, main pipe was installed along the drainage swale between Stations 1+80 and 6+15, the pipe outfall at the Large Pond. In addition, the existing 36-inch-diameter culvert under the access road was removed and a riprap apron (IDOT RR3) was installed to an elevation of 373.96, as shown on Drawing 2 and Detail 1 of Drawing 5 of the Ditch Construction Record Drawings. The 36-inch-diameter culvert was then replaced with an 18-inch-diameter pipe based on the calculated flow, and this flow was directly connected to the main pipe at Station 1+80. A total of two 45° elbows were used to connect the 18-inch-diameter pipe to the main 30-inch-diameter pipe, as identified on Drawings 1, 2, and 3 of the Ditch Construction Record Drawings.

#### 2.11.2 Installation of Drainage Swale

Approximately 100 feet upstream of where the existing 24-inch-diameter culvert was removed (Station 0+00); the existing swale was regraded to a minimum slope of 0.5% to Station 5+00 at which point regrading continued to a slope of 0.79% to the Outfall or Station 6+00. The drainage swale follows along the east side of the newly installed pipe directing any surface water flow to the Large Pond, as shown on Drawings 1 and 2 of the Ditch Construction Record Drawings. Removal of existing ditch material (e.g., riprap, soil, sediment) was necessary in some areas to accommodate the regrading of the existing swale. Removal was conducted to the depths shown on Drawing 3 and in accordance with Detail 4 on Drawing 4 of the Ditch Construction Record Drawings. If no visual impacts were observed, the excavated materials were stockpiled for use as backfill/armoring after the pipe was installed; otherwise, the materials were transported to a temporary holding area near the CAMU (further described in Section 2.11.3). After regrading was complete, the area was restored to a grass lined swale, as shown on Drawing 4.

### 2.11.3 Temporary Holding Area

The temporary holding area was constructed in accordance with Detail 1 on Drawing 6 of the Ditch Construction Record Drawings to temporarily contain impacted soils excavated in preparation of the drainage ditch culvert installation. A single piece of 20-mil HDPE liner was placed over the area, including the slopes of the containment berms. After material placement was complete, a second piece of 20-mil HDPE liner was placed over the top of the holding area. A 6-inch-thick layer of onsite fill material was placed beneath and directly over the HDPE cover. The top piece of HDPE was fused to the bottom piece, effectively sealing the material inside until final placement in the CAMU was feasible. The holding area and all other areas that were disturbed during construction were provided with a vegetative cover.

Prior to installation of the final CAMU cover system in 2010 (see Section 2.13.4), the soil pile (and liner) from the drainage ditch culvert installation was transferred into the CAMU containment cell.

### 2.11.4 Erosion Controls and Restoration

The pipe was covered with at least one foot of soil (either material removed to accommodate the regrading of the existing swale or clean material from the on-Site borrow area), which was graded to promote surface water drainage above and around the pipe as shown on Detail 5 of Drawing 4 of the Ditch Construction Record Drawings. A water bar was installed within the upstream portion of the drainage swale, using a minimum of 6 inches of gravel material (IDOT CA5), as shown on Detail 2 of Drawing 5 of the Ditch Construction Record Drawings. Disturbed areas were seeded and mulched.

Throughout construction activities, erosion controls, including hay or straw bales and/or silt fence (Details 1 and 2, respectively, of Drawing 4), were maintained at the perimeter of the work area, as necessary. Erosion control blankets and a vegetative cover were placed over newly installed pipe, as shown in Detail 5 of Drawing 4 of the Ditch Construction Record Drawings. These features helped to limit erosion and sediment transport within and out of the work area. Most erosion controls were left in place until vegetation was adequately established in the work area. Groundwater that entered an excavated area during construction was collected, containerized, and transported to the existing onsite water treatment plant for treatment and disposal. After construction was complete, the area was monitored for groundwater seeps, pipe/culvert blockage, and/or erosion as part of regularly scheduled Site inspections.

## **2.12 Former Lagoon Area Surface Cover, Former North Drainage Ditch, and Railroad Right-of-Way Soil Removal**

On August 11, 2010, ARCADIS submitted a letter to the USEPA that summarized a proposal to address certain areas of soils containing polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDDs/PCDFs) at the Site and provided design- and implementation-related information associated with the soil removal and CAMU closure activities (ARCADIS 2010).

In general, the work activities included the following:

- Installed an approximate 7.9-acre surface cover over an area of impacted soils in the former lagoon area
- Removed approximately 1,000 cubic yards of impacted materials from the North Drainage Ditch and surrounding area (in the vicinity of sample locations A2-6, A2-8, A2-11 and A2-12), and consolidated the material into the existing CAMU
- Removed approximately 2,000 cubic yards of impacted soils from discrete areas with elevated PCDD/PCDF concentrations located in the Railroad Right-of-Way immediately south of the Beazer-owned property, and consolidated the material into the existing CAMU

The work generally was completed in accordance with the design (ARCADIS 2010, Beazer 2010); exceptions are discussed below. The Former Lagoon Area, North Drainage Ditch, and Railroad Right-of-Way Record Drawings and Field Orders related to this component of the work are included in Appendices A and C, respectively.

### **2.12.1 Former Lagoon Area Surface Cover**

A 7.9 acre soil cover was installed over impacted soils in the former lagoon area. The cover limits are shown on Former Lagoon Area, North Drainage Ditch, and Railroad Right-of-Way Record Drawing 3. Construction was accomplished by first grading the area to promote positive drainage, then installing a 1-foot cover consistent with the "Type II surface covers" installed in the Former Process Area. This included a layer of non-woven geotextile, 1 foot of clean backfill materials, and grass seed. Additional details are provided on Former Lagoon Area, North Drainage Ditch, and Railroad Right-of-Way Record Drawing 4.

### 2.12.2 Former North Drainage Ditch

As shown on Former Lagoon Area, North Drainage Ditch, and Railroad Right-of-Way Record Drawing 2, soils in and adjacent to the North Drainage Ditch were excavated from a point extending from prior sample location A2-6 and extending downgradient to the point at which the ditch enters the culvert at the access road crossing. This included the removal of soils in a low-lying area adjacent to and west of the access road crossing.

Soils were removed within the limits of the North Drainage Ditch channel to a depth of approximately 1 foot, extending at least 1 foot beyond the confined channel flow limits. Additionally, soils were removed and regraded from visually evident erosional areas where runoff occurred from the adjacent former lagoon area into the ditch. Soils in visually observed areas where overbank flow caused erosion and overland flow between the North Drainage Ditch and the access road were also removed and regraded/restored.

### 2.12.3 Railroad Right-of-Way Soil Removal

The four excavation areas within the Railroad Right-of-Way are shown on Former Lagoon Area, North Drainage Ditch, and Railroad Right-of-Way Record Drawing 2. These areas corresponded to sample locations where comparatively elevated PCDD/PCDF concentrations were detected. In general, soils from these areas were removed to a depth of 1 foot and then backfilled with clean soils. These areas were excavated in numerical order within the areas shown on Former Lagoon Area, North Drainage Ditch, and Railroad Right-of-Way Record Drawing 2, although not necessarily to the full extent of the areas shown.

### 2.12.4 Site Preparation and Controls

Various Site preparation activities and controls were implemented in conjunction with the performance of the work. In general, these controls were consistent with best management practices and prior methodologies used at the Site.

- Erosion and sedimentation controls (e.g., silt fence and/or staked hay bales) were placed around each excavation and soil cover area.
- In general, work areas were adjacent to existing Site roadways such that extensive construction of access roads was not required to perform this work. One area not serviced by existing access roads was the excavation area around sample location A1-16 in the eastern portion of the Site. Geotextile and gravel were placed atop the former railroad embankment to access this removal area.

- Clearing of vegetation was performed as needed to access and operate equipment in each work area. Vegetation cleared from above grade was be stockpiled in an on-Site area outside the floodplain. Vegetation cleared from below grade in soil removal areas was shredded and placed in conjunction with the excavated soils.
- Excavation in the North Drainage Ditch was performed during non-flow periods to minimize water management needs. The length of ditch excavated per day was no greater than could be backfilled the same day in order to minimize the potential for flow in exposed soil areas.
- Any waters accumulating in active work areas were collected and placed in a frac tank for subsequent treatment via the existing onsite water treatment system.

2.12.5 Restoration

The general restoration approach for each area is summarized in the table below. Additional details are provided on Former Lagoon Area, North Drainage Ditch, and Railroad Right-of-Way Record Drawing 4.

Area	Fill Material	Vegetation and/or Final Surface
Former Lagoon Area Soil Cover	Type II soil cover, including non-woven geotextile and 12 inches of soil fill	Seed with upland seed mix and apply mulch to stabilize until growth is established
North Drainage Ditch	6-inch rip-rap within the limits of the flow channel and along stabilized slopes; soil fill in other areas	Rip-rap in flow and potential erosional areas; Wetland seed mix for revegetation of delineated wetland areas that are restored to original grade
Railroad Right-of-Way Excavation Areas	12 inches of soil fill	Seed upland areas with upland seed mix and delineated wetland areas with wetland seed mix
Other Disturbed Areas	Grade to remove ruts, add soil fill if needed	Seed or gravel cover consistent with existing conditions

Consistent with prior remediation activities at the Site, soil fill was obtained from the existing borrow pit in the former farm field in the northern portion of the property. The approximate borrow area is indicated on Figure 1.

To the extent possible, federally regulated wetlands disturbed by remedial activities were restored to original grades and seeded with a wetland seed mix. In certain areas (e.g., the soil cover area in the former lagoon and channel/slope areas where restoration with rip-rap is necessary to prevent continued erosion), restoration of existing wetland was not feasible. Affected wetlands were considered lost and their impact mitigated by the purchase of credits from a southern Illinois wetland mitigation bank. Beazer purchased 1.31 acres of wetland mitigation credits from the Little Muddy Wetland and Stream Mitigation Bank to mitigate the 0.87 acres of wetlands impacted by this project (1.5:1 ratio), as documented in a November 23, 2010 letter from Wetlands Forever, Inc. (manager of the Little Muddy Wetland and Stream Mitigation Bank) to the USACE (Wetlands Forever, Inc. 2010). Restored Site wetlands will not be monitored except for percent cover like other revegetated areas, and a Compensatory Site Plan will not be necessary.

### 2.13 CAMU

The CAMU generally was constructed in accordance with the design (BBL 2004a); exceptions are discussed below. CAMU Containment Cell Record Drawings (CAMU Record Drawings) and Field Orders related to this component of the work are included in Appendices A and C, respectively. Additionally, the Materials and Performance Specifications for the specific geosynthetic products used (i.e., geosynthetic drainage composite [GDC], geotextile, flexible membrane liner [FML] and geosynthetic clay liner [GCL]), their certifications, and QA/QC test results are included in Appendix D.

As noted in Section 1, the CAMU was constructed over a period of several years. The primary cell, including the berms, liners, and sumps were constructed starting in 2004. Material placement started in 2004 and continued through 2006, with temporary covers placed throughout this period, as necessary. In 2010, the CAMU was reopened, filled with additional soils to reach full capacity, and covered with the final cover.

Based on as-built survey data, approximately 31,200 CY of waste materials were consolidated in the CAMU containment cell. The following table summarizes the approximate volume of materials consolidated in the CAMU from the various remedial actions:

Area/Remedial Action <sup>1</sup>	Approximate Volume (CY)
Misc. Glade Creek channel relocation area soil/sediment/debris (Section 2.4) <sup>2</sup>	1,800
Soils excavated from trench-based DNAPL barrier (Section 2.4)	2,200
Misc. Former Process Area soil/debris (Section 2.5)	600
Waste Piles (Section 2.8)	11,000

<b>Area/Remedial Action<sup>1</sup></b>	<b>Approximate Volume (CY)</b>
Coal tar areas (Section 2.8)	700
SB-119 soil pile (Section 2.9)	600
Glade Creek sediment/soil (Section 2.10) <sup>3</sup>	9,700
Drainage ditch materials (Section 2.11)	400
Former North Drainage Ditch and Railroad Right-of-Way Excavations (Section 2.12)	3,300
Misc. materials (including temporary CAMU covers)	900
<b>Total:</b>	<b>31,200</b>

Notes:

1. In-situ estimates increased by 10% to account for bulking.
2. Includes grout blanket and underdrain system, material removed to facilitate construction of the working platform for construction of the trench-based DNAPL barrier, Glade Creek sediment from the reach between the southern end of the barrier trench and the reconvergence points of the existing and new creek channels, and soils from the clay barrier wall installation.
3. Includes an extra 10% for addition of stabilization agents.

2.13.1 Subgrade and Perimeter Berm

The CAMU Containment Cell (the CAMU) is constructed above a pre-existing RCRA surface impoundment. Prior to construction of the CAMU subgrade and perimeter berm, topsoil material comprising the uppermost layer of the RCRA surface impoundment cover was stripped in addition to removal of a limited amount of cover rooting zone soil material in the area of the CAMU's leachate collection sump. The remaining RCRA surface impoundment cover soils were proof rolled and additional general fill soil material was placed as required to achieve design subgrade elevations. The general fill soil was placed in 12-inch-thick loose lifts and compacted to 90% Modified Proctor.

The CAMU subgrade was constructed with a center valley, oriented to drain from south to north. The CAMU floor was constructed with a continuous slope extending from the interior toe of the CAMU perimeter berm to the centerline of the containment cell. This configuration (floor and valley slopes) allows drainage within the containment cell to flow to the cell valley centerline and then within the valley directly to collection sump.

The perimeter berms of the CAMU provide containment for consolidation materials and allow for termination of the CAMU liner and final cover systems. The perimeter berms also serve as access roads around the exterior of the CAMU cell facilitating vehicle and equipment ingress and egress to the cell. The perimeter berms are constructed of general fill material, placed in 12-inch-thick loose lifts and compacted to 90% Modified Proctor. The

exterior sideslopes of the perimeter berm were seeded with native perennial grass and overlain with temporary erosion control mat in select areas to protect these newly seeded areas from possible erosion.

Access ramps on the northeast, southeast and southwest corners of the CAMU were constructed to facilitate vehicle access on to the CAMU perimeter berm. In some cases, these ramps cover the outlet stone for the RCRA cover system drain layer; therefore, perforated collection pipes intended to intercept, convey and discharge cover system infiltration water were installed along the cover outlet stone located beneath the access ramps. These features allow for continued drainage of the RCRA surface impoundment cover drain layer at these locations.

#### 2.13.2 Liner and Leachate Collection System

The CAMU includes primary and secondary liners as well as primary and secondary leachate collection systems. The liner systems are composed of (from bottom to top): prepared subgrade, a secondary 60-mil textured high-density polyethylene (HDPE) FML, a secondary GDC, a primary GCL, a primary 60-mil textured HDPE FML, a primary GDC, and a minimum 12-inch-thick operations layer, as shown in Detail 2 on CAMU Record Drawing 6.

The secondary and primary leachate collection systems consist of GDC installed above the FML components of the liner system, perforated collection pipes located along the center valley of the containment cell, collection sumps constructed at the low point of the containment cell, and sideslope removal pipes installed on the interior slope of the perimeter berm. In addition, cleanout pipes for the leachate collection pipes are provided on the upgradient and downgradient ends of the collection pipes to facilitate flushing.

Infiltration water (leachate) within the consolidated materials migrates downward and is intercepted by the primary GDC which conveys the intercepted leachate to the perforated collection pipe or in some areas, directly to the collection sump. Leachate received by the perforated collection pipe is conveyed directly to the leachate sump where it is periodically removed by means of pumping from the leachate sideslope removal pipe. The sideslope removal pipe consists of solid wall pipe that extends from the floor of the sump and up the interior slope of the perimeter berm to approximately 2 feet above the perimeter berm crest. A short section of perforated pipe is attached to the end of the sideslope pipe to facilitate entry of leachate in to the removal pipe. The sideslope pipe allows access to the sump for pumping of accumulated leachate.

The secondary leachate collection system function in exactly the same way as the primary system with the exception that leachate within the secondary system occurs as a result of leakage through the primary liner system due to defects and/or imperfection in the primary liner system FML.

### 2.13.3 Placement of Consolidation Materials

Following construction of the liner and leachate collection systems, excavated soils and excavated sediments as well as demolition debris from various on-Site sources were transported to the CAMU and consolidated. In general, consolidation material was placed in 12-inch thick lifts and compacted with a smooth drum roller. The first and last lift of consolidated materials had a maximum particle size limitation of 3 inches and was free from deleterious, sharp and protruding materials that could potentially damage the liner and final cover systems. Consolidation material was placed within the containment cell in a manner that minimized void spaces. Concrete material had a maximum 6-inch-thickness dimension and was placed in a manner that allowed for placement of soil between adjacent pieces of concrete. Woody vegetation was ground up prior to placement within the CAMU. Demolition debris consolidated in the CAMU was restricted from placement within the lower most two feet (i.e., within two feet of the liner system) and the upper most one foot (i.e., within one foot of the final cover system) of the consolidated material. As required by USEPA, composite samples of materials placed into the CAMU in 2004 and 2005 were collected for laboratory analysis of pentachlorophenol and PAHs. The analytical results are presented in Table 2 and Appendix G.

During consolidation activities, stormwater runoff occurring within the containment cell footprint was collected by the cell perimeter infiltration channels and managed as contact water (leachate). Stormwater runoff occurring within the containment cell that did not come in contact with consolidated materials (i.e., when interim cover was in place), flowed to lined drainage channels located outside of the consolidation cell. Runoff collected within the lined perimeter channels was routed to discharge pipes installed on the north slope of the CAMU perimeter berm.

Prior to final cover construction, an interim cover was installed over the containment cell on three separate occasions during extended periods of consolidation inactivity. Two interim covers consisted of a polyvinyl chloride (PVC) FML and one consisted of 12 inches of grass vegetated cover soil. In the case of the FML cover, the FML was eventually removed from the containment cell to allow for continued waste material consolidation. The removed FML material was shredded and distributed randomly within the upper (i.e., plateau) area of the containment cell. In the case of the interim soil cover, the approximate top six inches of the cover soil was removed and stockpiled for reuse as final cover general fill with remaining cover soil being left in place.

### 2.13.4 Final Cover System

Once material placement had occurred to the maximum design capacity, a final cover system was constructed over the consolidation cell in the fall of 2010. As shown in Detail 1 on CAMU Record Drawing 6, the final cover system is composed of (from bottom to top): a GCL, 40-mil textured HDPE FML, a GDC, an 18-inch-thick general fill layer and a 6-inch-

thick vegetated cover soil layer. The completed cover soil was seeded with native perennial grass and overlain with temporary erosion control mat in select areas to protect these newly seeded areas from possible erosion.

Infiltration water resulting from precipitation over the consolidation cell is collected in the final cover system GDC and drains within the GDC to the final cover system anchor trench. A perforated collection pipe installed within the anchor trench and backfilled with drainage stone wrapped in a non-woven geotextile, collects the infiltration water and routes the water to four discharge pipes. The discharge pipes are installed across the perimeter berm and outlet onto the exterior sideslope of the berm. Riprap aprons were constructed at each pipe outlet to protect the berm soils from erosion.

An access road is constructed around the northern, eastern, and western sides of the CAMU containment cell. The access road consists of an 8-inch-thick layer of crusher run material underlain with woven geotextile. As mentioned above, ramps constructed at the northeast, southeast and southwest corners of the CAMU provide access to the top of the perimeter berm and containment cell access road.

#### 2.13.5 Stormwater Management System

Stormwater runoff occurring on the CAMU is managed by a variety of drainage control features. Specifically, the drainage control features constructed at the CAMU include the following:

- Mid-slope swales – constructed on the final cover to intercept and convey runoff to the access road drainage crossings
- Access road drainage crossings – constructed to convey runoff flow from the mid-slope swales to the gabion lined channels located at the toe of the RCRA impoundment
- Riprap slope protection – constructed to manage concentrated runoff flow conditions in select areas on the perimeter berm sideslope
- Culverts – Installed to convey runoff flow beneath the CAMU access ramps

In addition to the drainage control features noted above, grass vegetation enhanced with erosion control matting in critical areas, was established on the CAMU to manage surface runoff flow velocities and soil erosion.

Continuing OMM activities associated with the closed containment cell are discussed in Section 3.10.

## 2.14 Erosion Controls and Site Restoration

In accordance with the Site's *Storm Water Pollution Prevention Plan* (SWPPP; RETEC 2004), prior to conducting clearing and subgrade preparation activities, hay bales and silt fences were installed at appropriate locations around the surface cover work area to minimize the potential for erosion due to surface water runoff/runoff. These controls will remain in place until adequate vegetation has been established throughout the surface cover area. During construction, ditches and swales were lined with riprap or erosion control matting, as appropriate. In addition, portions of the surface cover with vegetated cover soil were seeded as soon as possible after completion of construction activities.

Following completion of each phase of the work, the work areas were restored, to the extent possible, to their pre-existing conditions. Specifically, the following Site restoration activities were performed, in addition to the area-specific restoration activities discussed in previous sections of this report:

- Removal of surplus construction materials.
- Collection and disposal of rubbish and used PPE in accordance with applicable federal, state, and local regulations.
- Installing additional vegetated cover soil, reseeding, and installing temporary erosion control.

### **3. Post-Construction Operation, Maintenance and Monitoring**

Periodic OMM of the remediation components/areas was initiated following completion of each of the remediation components described in Section 2. OMM activities have been conducted per the frequencies specified in the various design documents. This section identifies the comprehensive long-term OMM program requirements to be conducted for the various Site-wide remediation components. Note that this section does not include long-term groundwater monitoring, a plan for which is being separately pursued with the USEPA.

#### **3.1 Inspections**

Inspections of the remediation areas will be performed annually during the month of May. Consistent with the inspection schedule described in Table 3, the CAMU will be inspected semiannually (May/November) in 2011 and 2012, and annually (May) thereafter. In general, the inspections will involve visual inspections of the remediation areas for signs of erosion and to verify that the remedies are functioning as designed. A detailed inspection scope for each area is presented in Table 3. Based on the results of the inspections, maintenance activities (e.g., erosion repairs, placing additional riprap, removing obstructions in ditches/swales/culverts) will be conducted. Inspections and any resulting maintenance activities will be documented in a field log and with photographs. These records will be maintained by Beazer for a period of at least five years and available for submittal to USEPA upon request.

In addition the inspections/maintenance, other area-specific OMM requirements are summarized below.

#### **3.2 Glade Creek Channel Relocation OMM**

In addition to the inspections and maintenance activities described in Section 3.1 and Table 3, ditches and swales will be mowed at least twice per year.

#### **3.3 Trench-Based DNAPL Barrier OMM**

Since they were installed, the collection sumps within the northern and southern DNAPL barriers have been routinely monitored. Based on the available monitoring data, continued near-term monitoring of the trench sumps will be conducted approximately twice per week. During each event, the depth to water will be measured using a water level or oil/water interface meter, and the total sump depth and DNAPL thickness will be measured using a weighted measuring tape. Measurements will be recorded in a field book, including observations of silt accumulation in the sumps.

Accumulated DNAPL will be pumped from the sumps when the level reaches 4 feet in thickness (i.e., within 1 foot of the top of the 5-foot sump). A portable pump that attaches to the 1-inch quick connect fitting at the top of the well will be used to pump the DNAPL into a portable container. The pump will operate until the discharge produces a visible mixture of DNAPL and water. The DNAPL/water mixture will be transported to the on-Site WWTP, where it will be allowed to settle for a period of at least 24 hours, after which time the total fluids and DNAPL only volumes will be measured and recorded in a field book. The DNAPL/water mixture will then be pumped to a 6,000-gallon storage tank located on the on-Site WWTP containment pad. When enough DNAPL has accumulated in the storage tank, water will be decanted and treated via the on-Site WWTP, and the DNAPL will be removed from the tank and shipped to an off-Site disposal/recycling facility in accordance with all applicable regulations.

Sump monitoring and DNAPL removal data will be reviewed on a routine basis to evaluate the trench operations. If evidence of plugging of a trench is observed (e.g., significant silt accumulations, mounding of groundwater above the trench) is observed, corrective actions will be proposed (e.g., flushing of the collection pipe).

Note that the monitoring and DNAPL pumping frequencies will be adjusted as necessary to maintain the DNAPL levels below the top of the trench sumps. After 12 consecutive months of no DNAPL accumulation above the top of the trench sumps, Beazer will make a proposal to the USEPA regarding the need for and scope of any additional monitoring efforts.

Pumps will be repaired or replaced on an as-needed basis.

### **3.4 Former Process Area Surface Cover OMM**

In addition to the inspections and maintenance activities described in Section 3.1 and in Table 3, the surface cover (including drainage ditches and swales) will be mowed at least twice per year. Routine mowing will prevent the establishment of deep-rooted vegetation that could otherwise affect the geosynthetic components.

### **3.5 RW-23 DNAPL Recovery System**

The RW-23 DNAPL Recovery System will be operated in dual-phase (groundwater and DNAPL) recovery mode to create a groundwater gradient to enhance the rate of DNAPL entry into the well. Groundwater will be extracted using an electric submersible pump, operated under level control, and pumped directly to the on-Site WWTP for pre-treatment prior to discharge to the City of Carbondale POTW.

DNAPL that accumulates in the recovery well sump will be pumped out when the level reaches 4 feet in thickness (i.e., within 0.5 feet of the top of the 4.5-foot sump) using an electric submersible DNAPL recovery pump, or other appropriate means. The pump will be operated until the discharge produces a visible mixture of DNAPL and water. The volume of DNAPL pumped during each event will be calculated (based on measuring the height of DNAPL in the portable container and the container geometry) and recorded, along with the flow meter reading for the volume of groundwater pumped. All measurements and readings will be recorded in a field book. The DNAPL recovery pump will be operated manually using the control panel mounted next to the well. DNAPL will be pumped directly from the well to a portable container, and then will be transferred to the 6,000-gallon storage tank located on the on-Site WWTP containment pad. When enough DNAPL has accumulated in the storage tank, water will be decanted and treated via the on-Site WWTP, and the DNAPL will be removed from the tank and shipped to an off-Site disposal/recycling facility in accordance with all applicable regulations.

Consistent with the monitoring frequency established since the recovery well was installed, monitoring of RW-23 will be conducted approximately once per week in the near term. During each event, the depth to water will be measured using a water level or oil/water interface meter and the total well depth and DNAPL thickness will be measured using a weighted measuring tape.

Note that the monitoring and DNAPL pumping frequencies will be adjusted as necessary to maintain the DNAPL levels below the top of the sump. Pumps, piping and electrical controls will be repaired or replaced on an as-needed basis.

### **3.6 Mitigation Wetlands**

A five-year monitoring program of the mitigation wetlands and other mitigation areas (i.e., Glade Creek riparian corridor) was initiated in 2007. Details of the monitoring program were presented in the Wetland Mitigation Plan (BBL 2005c), and results of the monitoring and maintenance activities conducted to date have been presented in annual summary reports submitted to the USACE. If, after five years, the mitigation areas have met, or show progressive improvements toward meeting the performance standards, monitoring will be discontinued. However, if areas of the Site do not sufficiently meet the performance standards, further monitoring and/or adaptive management may be required. The proposed need for and scope of further monitoring and/or adaptive management will be discussed in the 2011 Mitigation Area Monitoring Report, which will be submitted by December 31, 2011.

### **3.7 Glade Creek Sediment Removal Area**

There are no OMM requirements for Glade Creek sediment removal area besides the inspections and maintenance activities described in Section 3.1 and in Table 3.

### **3.8 Drainage Ditch Culvert**

In addition to the inspections and maintenance activities described in Section 3.1, ditches and swales will be mowed at least twice per year.

### **3.9 Former Lagoon Area Surface Cover, Former North Drainage Ditch and Railroad Right-of-Way Soil Removal Areas OMM**

There are no OMM requirements for Former Lagoon Area surface cover, Former North Drainage Ditch and Railroad Right-of-Way soil removal areas besides the inspections and maintenance activities described in Section 3.1 and in Table 3.

### **3.10 CAMU OMM**

In addition to the inspections and maintenance activities described in Section 3.1 and in Table 3, leachate levels in the primary and secondary leachate collection sumps will be monitored on an approximately weekly basis. During each event, the depth to leachate in each sump will be measured using a water level or oil/water interface meter. Measurements will be recorded in a field book. At a minimum, accumulated leachate will be removed from the primary sump when the depth to water/leachate in the primary riser pipe reaches 36.4 feet from the top of the riser pipe. That depth corresponds to a head of approximately 1 foot above the primary liner. Whenever leachate is removed from the primary sump, leachate will also be removed from the secondary sump if a pumpable volume of leachate is present (as expected, the volume of leachate accumulating in the secondary sump is significantly less than that of the primary sump). At a minimum, accumulated leachate will be removed from the secondary sump when the depth to water/leachate in the secondary riser pipe reaches 45.5 feet from the top of the riser pipe. That depth corresponds to a head of approximately 1 foot above the secondary sump.

The volume of leachate pumped from the secondary sump will be converted into an average gallons per day value and compared to the Action Leakage Rate (ALR) of 24 gallons per day (BBL 2004a). If the average daily accumulation of leachate in the secondary sump exceeds the ALR for two consecutive reporting periods, Beazer will notify the USEPA of the exceedances and propose corrective actions.

Leachate removal will be performed using dedicated electric submersible pumps, and pumped directly to the on-Site WWTP for pre-treatment prior to discharge to the City of Carbondale POTW. Flow meter readings will be recorded following each pumping event. Note that significant reductions in leachate generation have been observed since installation of the CAMU final cover system was completed in November 2011, and continued reductions are anticipated over time. Accordingly, the frequency of leachate level monitoring and leachate removal may be reduced in the future. However, as indicated above, at a minimum, leachate will be pumped whenever the depth to leachate in the primary sump reaches 36.4 feet, and the depth to leachate in the secondary sump reaches 45.5 feet.

The primary leachate collection pipe was hydroflushed in December 2010 following completion of the final cover system construction. Because of the significant decrease in leachate volumes that have been observed since completion of the final cover system, additional hydroflushing is not currently planned. The need for hydroflushing will be re-evaluated in five years (2015) based on leachate generations rates at that time.

Pumps, piping and electrical controls will be repaired or replaced on an as-needed basis.

The CAMU will be mowed at least twice per year to prevent the growth of trees and other large-rooted vegetation that could compromise the geosynthetic components of the final cover system.

#### 4. References

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## **Final Documentation Report**

Former Koppers Wood-Treating Facility  
Carbondale, Illinois

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**Tables**

**TABLE 1**  
**Glade Creek Sediment Removal Summary**

Former Koppers Wood-Treating Site Final Documentation Report  
 Beazer East, Inc.  
 Carbondale, Illinois

Station	Total Depth of Removal	Depth of Removal into North Bank	Depth of Removal into South Bank
34+05	2.0	--	--
34+00	2.0	--	--
33+75	2.0	--	--
33+50	2.0	--	--
33+25	2.0	--	--
33+00	2.0	--	--
32+75	2.0	--	--
32+50	2.0	--	--
32+25	2.0	--	--
32+00	2.0	--	--
31+75	2.0	--	--
31+50	2.0	--	--
31+25	2.0	--	--
31+00	2.0	--	--
30+75	2.0	--	--
30+50	2.5	--	--
30+25	2.6	--	--
30+00	3.3	--	--
29+75	3.2	--	--
29+50	3.3	--	--
29+25	3.4	--	--
29+00	3.4	--	--
28+75	3.0	--	--
28+50	3.0	--	--
28+25	3.1	--	--
28+00	3.4	--	--
27+75	3.5	--	--
27+50	3.4	--	--
27+25	3.7	--	--
27+00 <sup>1</sup>	3.3	--	--
26+75 <sup>1</sup>	3.3	--	--
26+50 <sup>1</sup>	3.4	--	--
26+25 <sup>1</sup>	3.3	--	--
26+00 <sup>1</sup>	3.4	--	--
25+75	2.8	--	--
25+50	2.8	--	--
25+25	3.6	--	--
25+00	2.3	--	--
24+75	3.0	--	--
24+50	2.5	--	--
24+20	0.5	--	--
24+40	0.5	--	--
24+25	1.4	--	--

**TABLE 1**  
**Glade Creek Sediment Removal Summary**

Former Koppers Wood-Treating Site Final Documentation Report  
Beazer East, Inc.  
Carbondale, Illinois

Station	Total Depth of Removal	Depth of Removal into North Bank	Depth of Removal into South Bank
24+00	1.6	--	--
23+75	2.9	--	--
23+50	3.0	--	--
23+25	2.7	--	--
23+00	2.7	--	--
22+75	2.4	--	--
22+50	3.2	--	--
22+25	2.9	--	--
22+00	3.5	--	--
21+75	3.8	--	--
21+50	3.6	--	--
21+25	5.1	--	--
21+00	5.2	--	--
20+75	2.7	--	--
20+50	2.3	--	--
20+25	3.0	--	--
20+00	2.7	--	3
19+75	2.7	--	9
19+50	2.7	--	11
19+25	3.6	--	10
19+00	3.5	--	7
18+75	3.5	--	5
18+50	3.7	--	10
18+25	2.1	--	7
18+00	2.8	--	7
17+75	2.7	--	8
17+50	2.6	--	13
17+25	2.7	--	7
17+00	2.5	--	2
16+75	2.1	5	--
16+50	2.2	7	1
16+25	2.0	6	1
16+00	2.5	8	1
15+75	3.1	8	5
15+50	3.0	1	8
15+25	3.0	1	18
15+00	3.1	2	20
14+75	1.7	1	11
14+50	1.3	1	9
14+25	2.7	2	6
14+00	6.1	4	2
13+75	6.1	8	2
13+50	6.4	4	2

**TABLE 1**  
**Glade Creek Sediment Removal Summary**

Former Koppers Wood-Treating Site Final Documentation Report  
 Beazer East, Inc.  
 Carbondale, Illinois

Station	Total Depth of Removal	Depth of Removal into North Bank	Depth of Removal into South Bank
13+25	4.7	6	2
13+00	4.3	4	4
12+75	4.7	3	8
12+50	6.3	--	13
12+25	6.3	--	16
12+00	6.4	4	1
11+75	6.1	8	1
11+50	5.4	6	1
11+25	5.9	4	1
11+00	5.7	9	--
10+75	5.3	3	--
10+50	5.5	3	--
10+25	4.9	4	--
10+00	4.6	5	--
09+75	5.0	4	--
09+50	5.0	3	--
09+25	4.6	2	2
09+00	5.4	7	3
08+75	5.5	--	4
08+50	5.1	--	6
08+25	5.0	--	4
08+00	3.7	1	--
07+75	3.9	1	--
07+50	4.8	1	2
07+25	4.6	3	7
07+00	5.1	--	9
06+75	5.0	--	6
06+50	4.9	--	4
06+25	5.7	--	4
06+00	5.1	--	4
05+75	6.2	--	--
05+50	6.8	3	--
05+25	5.8	--	--
05+00	5.5	3	--
04+75	5.5	6	--
04+50	4.5	10	1
04+25	4.2	9	--
04+00	4.4	5	--
03+75	4.2	3	1
03+50	4.1	5	1
03+25	4.5	3	1
03+00	3.3	3	1
02+75	3.8	2	1

**TABLE 1**  
**Glade Creek Sediment Removal Summary**

Former Koppers Wood-Treating Site Final Documentation Report  
 Beazer East, Inc.  
 Carbondale, Illinois

Station	Total Depth of Removal	Depth of Removal into North Bank	Depth of Removal into South Bank
02+50	4.0	3	--
02+25	4.9	2	--
02+00	5.1	2	--
01+75	6.1	--	1
01+50	5.9	--	2
01+25	5.7	--	1
01+00	5.6	--	--
00+75	5.8	--	--
00+50	5.6	--	--
00+25	5.7	--	--
00+00 <sup>2</sup>	--	--	--

**Notes:**

1. Reading taken from north side of creek bottom
2. Excavation stopped at 0+20

**TABLE 2**  
**CAMU Material Consolidation Analytical Data Summary**

**Former Koppers Wood-Treating Site Final Documentation Report**  
**Beazer East, Inc.**  
**Carbondale, Illinois**

Parameter	UTS	10X UTS	2004 CAMU Materials 11/08/04	2005 CAMU Materials 10/19/05
<b>SVOCs - 8270C (mg/kg)</b>				
Pentachlorophenol	7.4	74	720 U	2,000 U
Acenaphthene	3.4	34	220	480
Acenaphthylene	3.4	34	12 J	34 J
Anthracene	3.4	34	120 J	1,000
Benzo(a)anthracene	3.4	34	75 J	340 J
Benzo(a)pyrene	3.4	34	42 J	130 J
Benzo(b)fluoranthene	6.8	68	59 J	190 J
Benzo(g,h,i)perylene	1.8	18	19 J	120 J
Benzo(k)fluoranthene	6.8	68	25 J	89 J
Chrysene	3.4	34	77 J	390 J
Dibenzo(a,h)anthracene	8.2	82	150 U	400 U
Fluoranthene	3.4	34	370	1,700
Fluorene	3.4	34	150	530
Indeno(1,2,3-cd)pyrene	3.4	34	22 J	110 J
Naphthalene	5.6	56	910	150 J
Phenanthrene	5.6	56	830	2,300
Pyrene	8.2	82	360	1,400
Total PAHs	--	--	3,291	8,963

**Notes:**

SVOCs = semivolatile organic compounds

PAHs = polycyclic aromatic hydrocarbons

mg/kg = milligrams per kilogram (or parts per million)

J = estimated value

U = non-detected (associated value is the laboratory reporting limit)

UTS = Universal Treatment Standards (40 CFR 268.48)

Light shading indicates exceedance of UTS.

Dark shading indicates exceedance of 10x UTS.

**TABLE 3  
OMM Activity Summary**

**Former Koppers Wood-Treating Site Final Documentation Report  
Beazer East, Inc.  
Carbondale, Illinois**

<b>Site Area</b>	<b>Activity</b>	<b>Frequency</b>
Glade Creek Channel Relocation Area	Visually inspect vegetated areas to verify that vegetation is healthy and that no significant erosion has occurred	Annual
	Visually inspect the diversion berm, restored banks of the relocated channel, and the ditches/swales to identify potential signs of erosion and assess the need for placement of additional riprap and/or additional erosion control measures	
	Visually inspect the trench area for groundwater surface seepage and/or overland flow of water; note any evidence of NAPL or sheens	
	Visually inspect access roads for signs of settlement and erosion	
	Identify any required maintenance activities in the areas inspected	
Former Process Area Surface Cover	Visually inspect vegetated areas to verify that vegetation is healthy and that no significant erosion has occurred	Annual
	Visually inspect the surface cover to identify exposed or damaged geosynthetic components	
	Inspect stormwater management features (e.g., anchor trench discharge pipes, CV-1 culverts, etc.) to verify they are stable and the drainage flow paths are unobstructed (i.e., do not contain debris or excess sediment buildup)	
	Visually inspect soil cover for areas of ponding water, soft spots, signs of DNAPL seepage, etc.	
	Visually inspect surface cover for evidence of animal burrows, large-rooted vegetation, unauthorized excavations, or other conditions that could jeopardize the integrity of the surface cover system or stormwater management features	
	Visually inspect access roads for signs of settlement and erosion	
	Identify any required maintenance activities in the areas inspected	
CAMU - Final Cover System	Visually inspect for soil loss (e.g., erosion, rutting, animal burrows, unauthorized excavations)	Semiannual (2011-2012); Annual (2013 on)
	Visually inspect for instability (e.g., cracks in the soil, soil sloughing, displacement of cover and stormwater management system components)	
	Visually inspect for insufficient or undesirable vegetation (e.g., bare or sparsely vegetated areas or stressed vegetation, shrub/tree growth)	
	Visually inspect for ponding water due to differential settlement	
	Visually inspect for exposure or damage to the final cover geosynthetics (i.e., GDC, FML, GCL)	
	Visually inspect for obstructions/ blockages of the final cover anchor trench outlet pipes	

**TABLE 3  
OMM Activity Summary**

**Former Koppers Wood-Treating Site Final Documentation Report  
Beazer East, Inc.  
Carbondale, Illinois**

<b>Site Area</b>	<b>Activity</b>	<b>Frequency</b>
CAMU - Perimeter Berm, Access Roads and Ramps	Visually inspect for excessive depressions or potholes due to heaving, differential settlement, or vehicular use	Semiannual (2011-2012); Annual (2013 on)
	Visually inspect for ponding water, excessive rutting, exposed subbase materials	
	Visually inspect for excessive erosion	
	Visually inspect for insufficient or undesirable vegetation (e.g., bare or sparsely vegetated areas or stressed vegetation, shrub/tree growth)	
CAMU - Stormwater Management System <sup>1</sup>	Visually inspect for obstructions, blockages or sediment build-up within drainage ways	Semiannual (2011-2012); Annual (2013 on)
	Visually inspect for soil erosion	
	Visually inspect for displacement of riprap or drainage pipes	
	Visually inspect for settlement or low spots within drainage ways	
	Visually inspect for insufficient or undesirable vegetation	
CAMU - Leachate Management System	Test pumps, hoses, liquid level detection devices, and power supply sources	Semiannual (2011-2012); Annual (2013 on)
	Visually inspect leachate riser pipes, cleanout pipes, and exposed pipe covers (end caps)	

**Notes:**

1. CAMU Stormwater Management System includes the following components:

- Mid-slope drainage swales
- Final cover drain layer collection pipe (anchor trench) outlet pipes
- Riprap slope protection
- Access road drainage crossings
- Culverts
- Gabion lined drainage channels

**Figure**

CITY: SYRACUSE DIV: GROUP: ENV: CAD: DB: L. FORAKER LD: PIC: R. ANDERSON PW: J. HOLDEN TM: D. BESSINGPAS LVR: ON: OFF: REF: G:\ENV\CAD\SYRACUSE\ACT\18039233000\000001\DWG\DOCC\39233001.DWG LAYOUT: 1 SAVER: 8/30/2011 1:40 PM ACADVER: 18.00 (LMS TECH) PAGES: 2/11 PLOTSETUP: C:\D28-PDF PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/30/2011 1:40 PM BY: KOVALCZYK STEVE

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 39233000  
 39233004  
 39233005

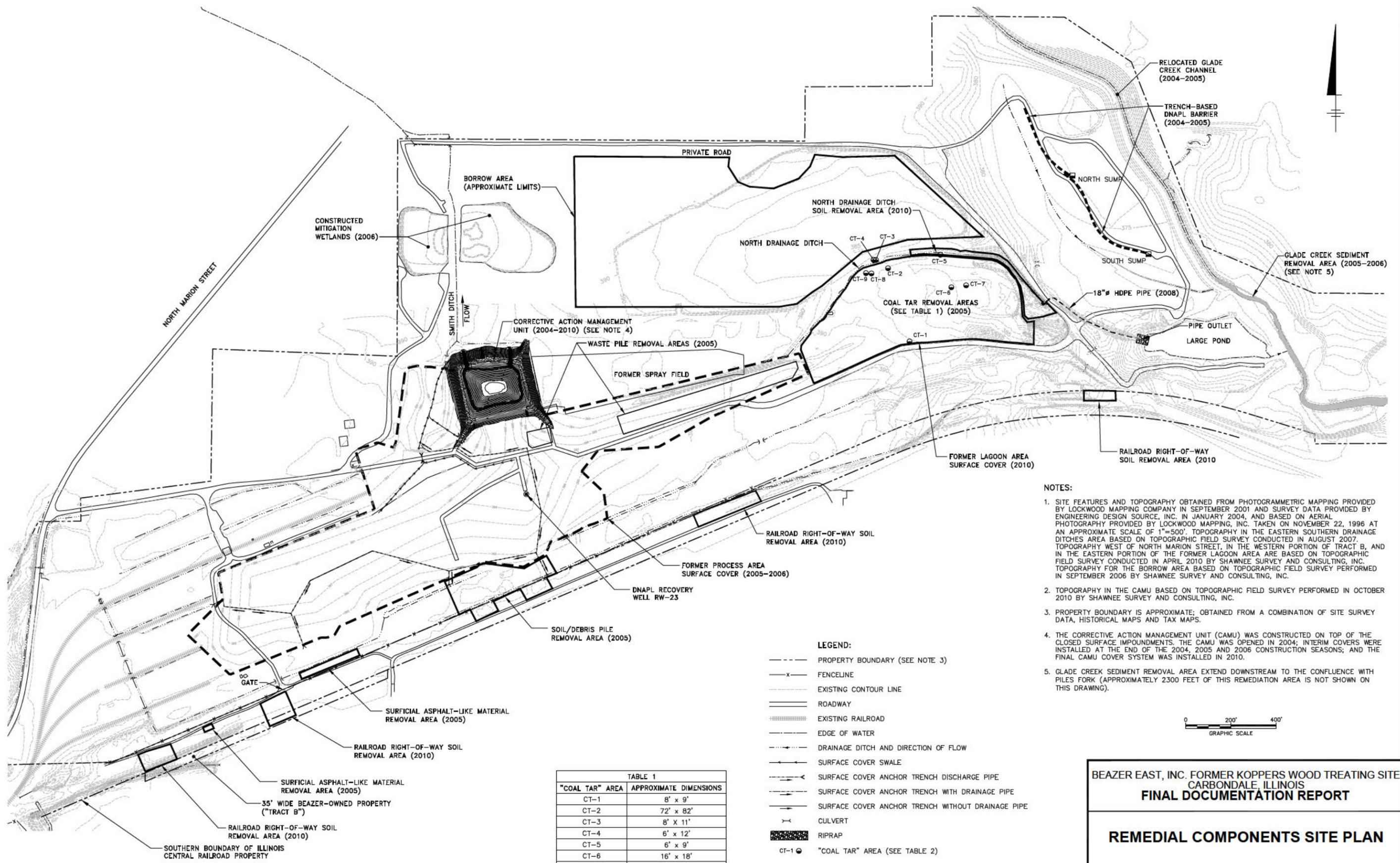
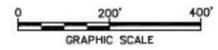


TABLE 1

"COAL TAR" AREA	APPROXIMATE DIMENSIONS
CT-1	8' x 9'
CT-2	72' x 82'
CT-3	8' x 11'
CT-4	6' x 12'
CT-5	6' x 9'
CT-6	16' x 18'
CT-7	45' x 67'
CT-8	21' x 24'
CT-9	5' x 10'

- LEGEND:**
- PROPERTY BOUNDARY (SEE NOTE 3)
  - x- FENCELINE
  - EXISTING CONTOUR LINE
  - == ROADWAY
  - ==== EXISTING RAILROAD
  - - - - EDGE OF WATER
  - - - - DRAINAGE DITCH AND DIRECTION OF FLOW
  - - - - SURFACE COVER SWALE
  - - - - SURFACE COVER ANCHOR TRENCH DISCHARGE PIPE
  - - - - SURFACE COVER ANCHOR TRENCH WITH DRAINAGE PIPE
  - - - - SURFACE COVER ANCHOR TRENCH WITHOUT DRAINAGE PIPE
  - x- CULVERT
  - RIPRAP
  - "COAL TAR" AREA (SEE TABLE 2)

- NOTES:**
- SITE FEATURES AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY IN SEPTEMBER 2001 AND SURVEY DATA PROVIDED BY ENGINEERING DESIGN SOURCE, INC. IN JANUARY 2004, AND BASED ON AERIAL PHOTOGRAPHY PROVIDED BY LOCKWOOD MAPPING, INC. TAKEN ON NOVEMBER 22, 1996 AT AN APPROXIMATE SCALE OF 1"=500'. TOPOGRAPHY IN THE EASTERN SOUTHERN DRAINAGE DITCHES AREA BASED ON TOPOGRAPHIC FIELD SURVEY CONDUCTED IN AUGUST 2007. TOPOGRAPHY WEST OF NORTH MARION STREET, IN THE WESTERN PORTION OF TRACT B, AND IN THE EASTERN PORTION OF THE FORMER LAGOON AREA ARE BASED ON TOPOGRAPHIC FIELD SURVEY CONDUCTED IN APRIL 2010 BY SHAWNEE SURVEY AND CONSULTING, INC. TOPOGRAPHY FOR THE BORROW AREA BASED ON TOPOGRAPHIC FIELD SURVEY PERFORMED IN SEPTEMBER 2006 BY SHAWNEE SURVEY AND CONSULTING, INC.
  - TOPOGRAPHY IN THE CAMU BASED ON TOPOGRAPHIC FIELD SURVEY PERFORMED IN OCTOBER 2010 BY SHAWNEE SURVEY AND CONSULTING, INC.
  - PROPERTY BOUNDARY IS APPROXIMATE; OBTAINED FROM A COMBINATION OF SITE SURVEY DATA, HISTORICAL MAPS AND TAX MAPS.
  - THE CORRECTIVE ACTION MANAGEMENT UNIT (CAMU) WAS CONSTRUCTED ON TOP OF THE CLOSED SURFACE IMPOUNDMENTS. THE CAMU WAS OPENED IN 2004; INTERIM COVERS WERE INSTALLED AT THE END OF THE 2004, 2005 AND 2006 CONSTRUCTION SEASONS; AND THE FINAL CAMU COVER SYSTEM WAS INSTALLED IN 2010.
  - GLADE CREEK SEDIMENT REMOVAL AREA EXTEND DOWNSTREAM TO THE CONFLUENCE WITH PILES FORK (APPROXIMATELY 2300 FEET OF THIS REMEDIATION AREA IS NOT SHOWN ON THIS DRAWING).



BEAZER EAST, INC. FORMER KOPPERS WOOD TREATING SITE  
 CARBONDALE, ILLINOIS  
**FINAL DOCUMENTATION REPORT**

**REMEDIAL COMPONENTS SITE PLAN**





**Appendices**



**Appendix A**

Record Drawings

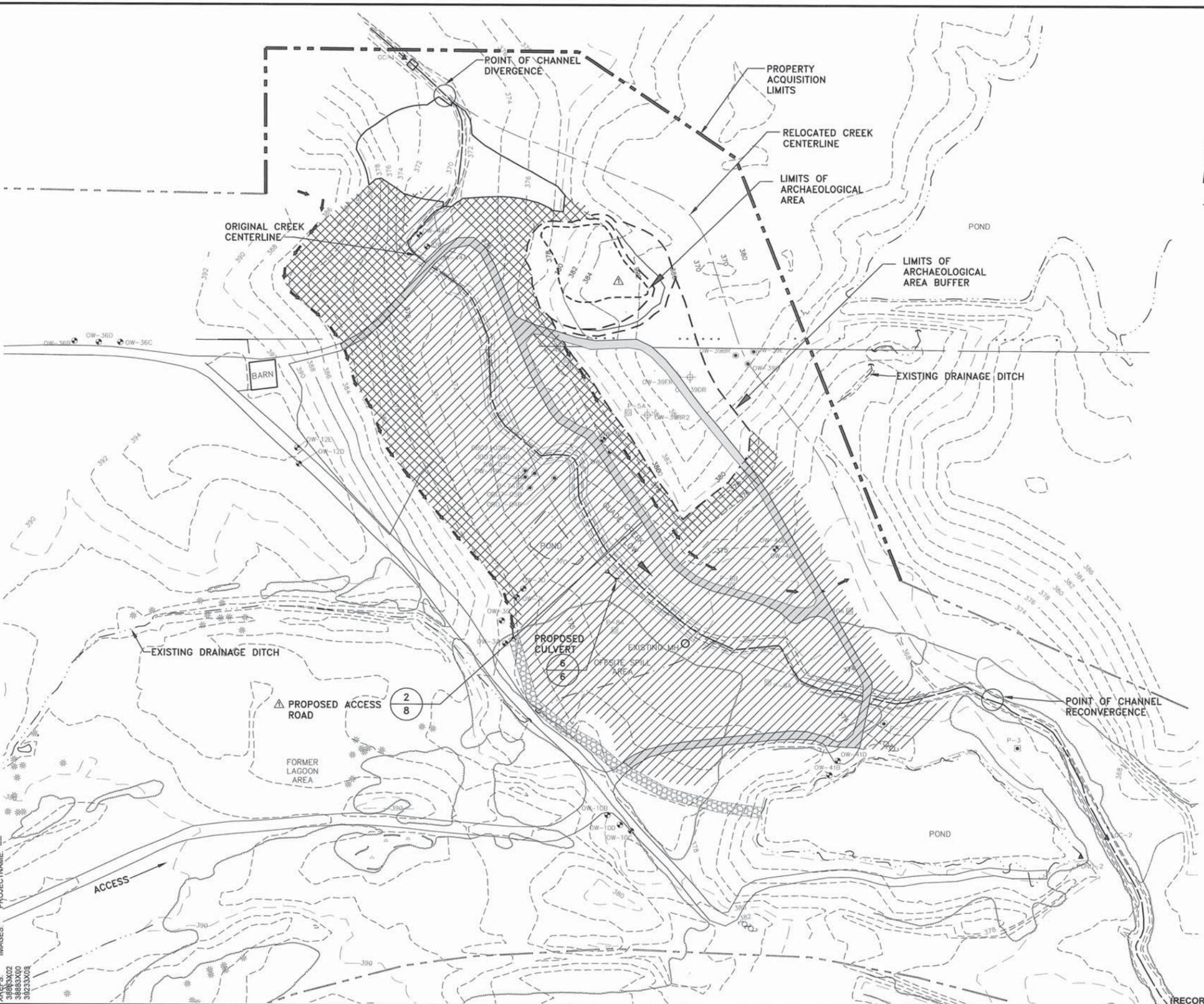


**Glade Creek Channel  
Relocation Record Drawings**





CITY: SYR DIV/GROUP: ENV141 DB: SJK B.GEITTS PIC: R. ANDERSON PM: J. HOLDEN TM: E. DIEVENDORF LYN: ON+OFF=REF- G:\ENV\CAD\SYR\ACU\ACT\B03023300000001\RECORD\CD\CREEK-RELO\3885G02.DWG LAYOUT: 2B SAVED: 8/30/2011 10:55 AM ACADVER: 18.05 (LMS TECH) PAGES: 18 PLOTTED: 8/30/2011 10:55 AM BY: DECLERCO, BRIAN



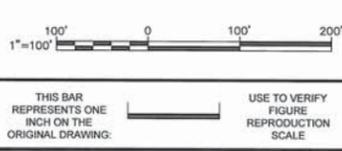
- LEGEND:**
- RW-07 ● EXISTING WELL TO BE DECOMMISSIONED (SEE NOTE 3)
  - OW-40B ● EXISTING MONITORING WELL (SEE NOTE 3)
  - P-3 □ EXISTING PIEZOMETER (SEE NOTE 3)
  - P-9A □ NEW PIEZOMETER (9 TOTAL) (SEE NOTE 3)
  - OW-39ER ● REPLACEMENT MONITORING WELL (4 TOTAL) (SEE NOTE 3)
  - GC-2 ▲ NEW STAFF GAUGE
  - - - - - EXISTING PROPERTY LINE
  - - - - - EXISTING GRADE
  - ▨ STREAMBANK WHEAT GRASS
  - ▩ SHEEP FESCUE/BUFFALO GRASS MIX
  - ○ ○ EXISTING UTILITY POLE
  - ⑥ DETAIL REFERENCE NUMBER
  - ⑥ DRAWING REFERENCE NUMBER

- NOTES:**
- REFER TO DRAWING 1 FOR BASE MAP INFORMATION.
  - CONTOUR INTERVAL IS 2 FEET.
  - TREES WILL BE PLANTED AND GRASS SEED APPLIED THROUGHOUT THE DISTURBED AREAS ASSOCIATED WITH THE CREEK RELOCATION IN ACCORDANCE WITH A DOCUMENT ENTITLED "INSTALLATION OF VEGETATION AT THE FORMER KOPPERS WOOD-TREATING SITE, CARBONDALE, ILLINOIS" (PHYTOKINETICS, INC., SEPTEMBER 2003).

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE,  
 INFORMATION AND BELIEF, THESE RECORD  
 DRAWINGS SUBSTANTIALLY REPRESENT THE  
 PROJECT AS CONSTRUCTED.

DATE 8/31/11 BY MDC

RECORD DRAWING: MADE FROM DRAWING NO. 2, TRACER NO. 38857030/GENREV/3885G02.DWG, DATED 8/31/2011



THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.

USE TO VERIFY FIGURE REPRODUCTION SCALE

Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State  
 ILLINOIS  
 Date Signed  
 Project Mgr.  
 JSH  
 Drawn by  
 PHB/CAA  
 Checked by  
 SLM

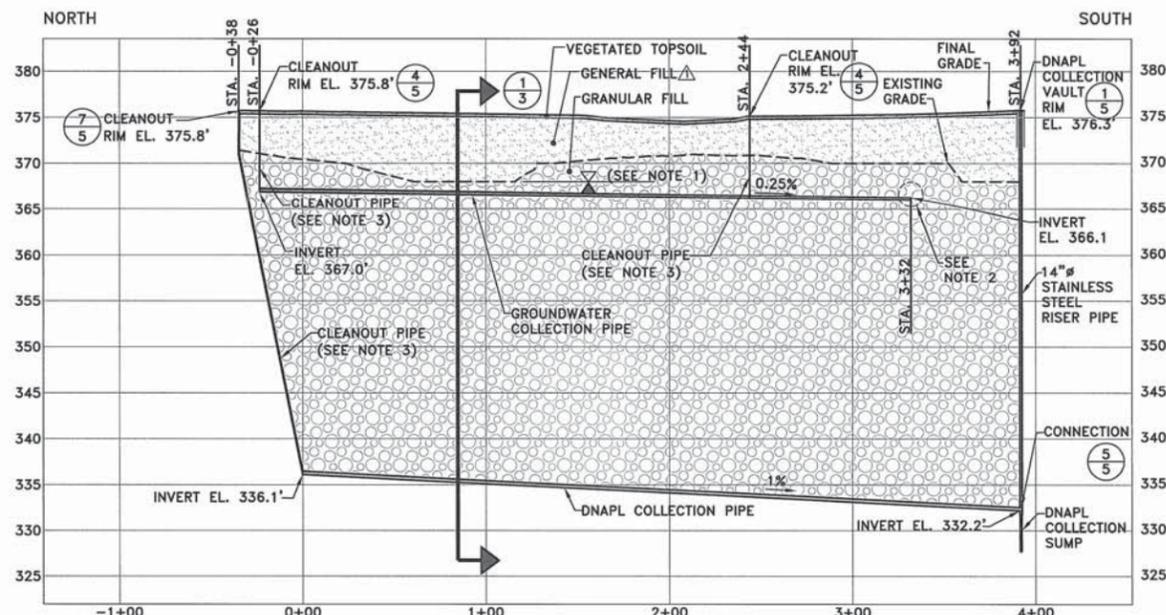


BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
 GLADE CREEK CHANNEL RELOCATION RECORD DRAWINGS

**SITE SEEDING PLAN**

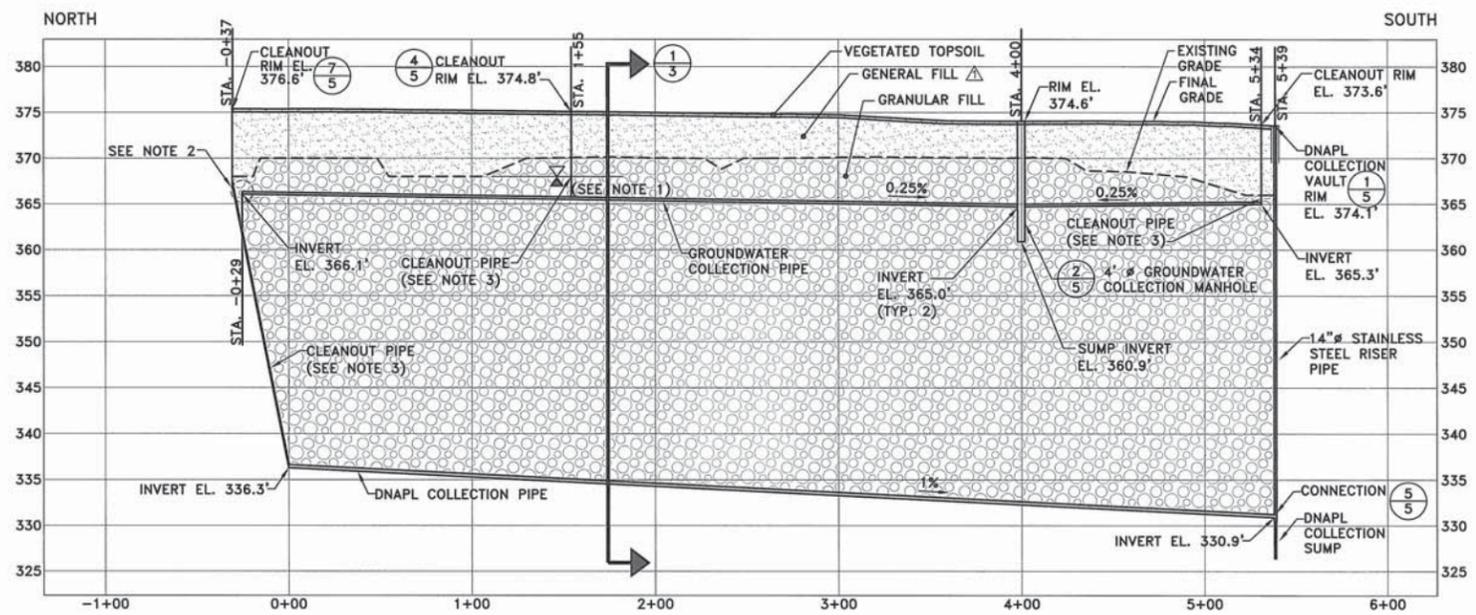
ARCADIS Project No.  
 388.83  
 Date  
 AUGUST 2011  
 ARCADIS U.S., INC.  
 CORPORATE HEADQUARTERS  
 6723 TOWPATH ROAD  
 SYRACUSE, NY 13214  
 315-446-9120

CITY: SYR DIV/GRP: ENV141 DB: SJK BGETTS PIC: R. ANDERSON PM: J. HOLDEN TM: E. DIEVENDORF LYRON: OFF=REF- G:\ENVCAD\SYRACUSE\PROJECTS\233000000001\RECORD\GRCR\K-RELOC\3885G04.DWG LAYOUT: 3 SAVED: 8/30/2011 10:55 AM ACADVER: 18.05 (LMS TECH) PAGES: 18.05 (LMS TECH) PLOT: PLOT: CTB PLOTTED: 8/30/2011 10:57 AM BY: DECLERCQ, BRIAN



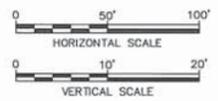
- NOTES:**
- GROUNDWATER SURFACE ASSUMED TO BE EQUAL TO BOTTOM OF EXISTING CREEK BED.
  - GROUNDWATER COLLECTION PIPE CONTINUES ON SOUTHERN TRENCH PROFILE AS SHOWN ON DETAIL 3 ON SHEET 8.
  - CLEANOUT PIPES SHALL BE 4" SDR-11 SOLID HDPE. (SEE DETAILS 4 AND 7 ON SHEET 5)
  - ALL PIPE CONNECTIONS AND FITTINGS SHALL BE FUSED HDPE EXCEPT AS NOTED ON SHEET 5.

### NORTHERN TRENCH PROFILE

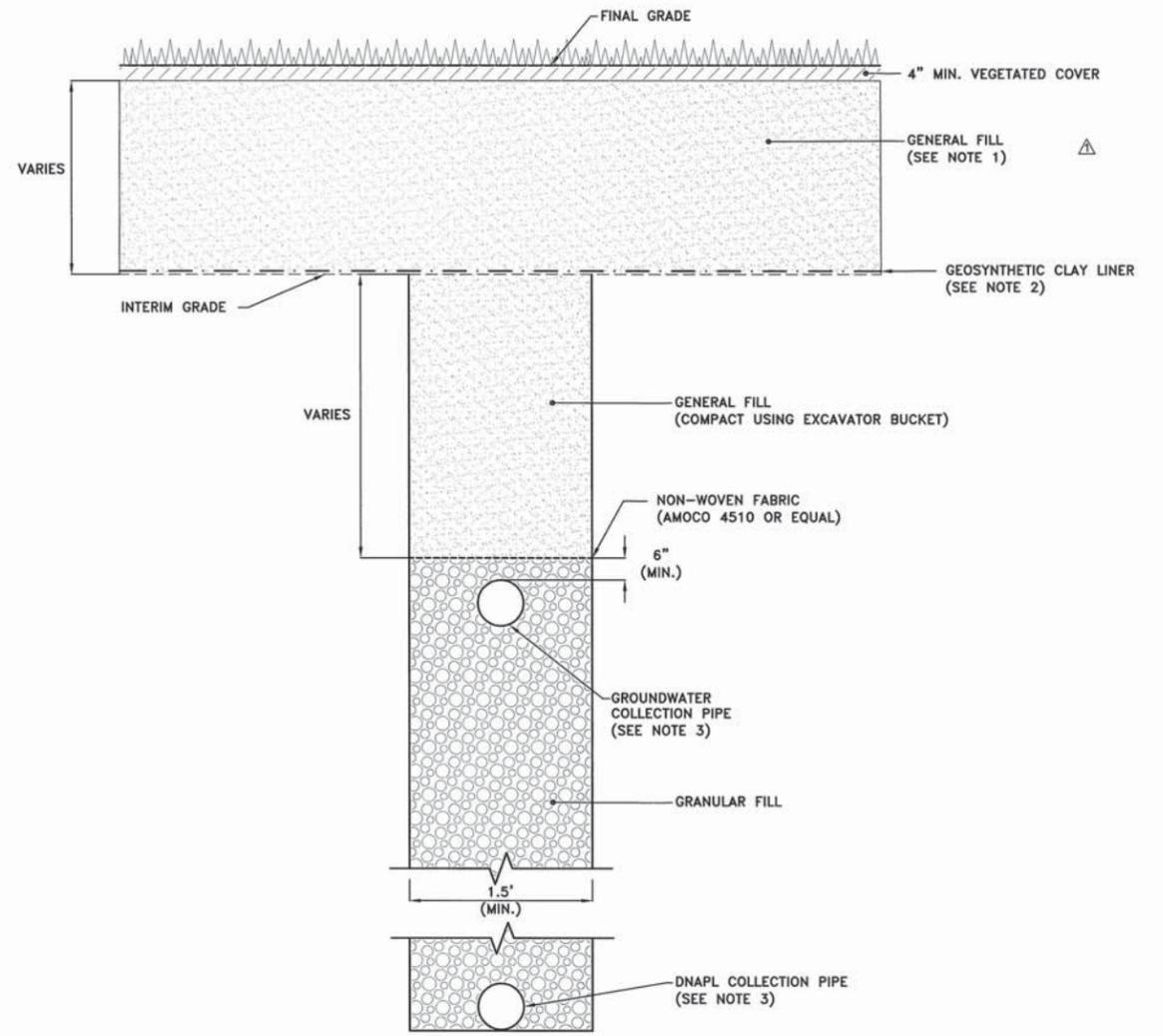


- NOTES:**
- GROUNDWATER SURFACE ASSUMED TO BE EQUAL TO BOTTOM OF EXISTING CREEK BED.
  - GROUNDWATER COLLECTION PIPE CONTINUES ON NORTHERN TRENCH PROFILE AS SHOWN ON DETAIL 3 ON SHEET 8.
  - CLEANOUT PIPES SHALL BE 4" SDR-11 SOLID HDPE. (SEE DETAILS 4 AND 7 ON SHEET 5)
  - ALL PIPE CONNECTIONS AND FITTINGS SHALL BE FUSED HDPE EXCEPT AS NOTED ON SHEET 5.

### SOUTHERN TRENCH PROFILE



(RECORD DRAWING: MADE FROM DRAWING NO. 3, TRACER NO. 38857030/38875M11.DWG, DATED 8/31/2011) DATE 8/31/11 BY AOH



- NOTES:**
- SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.
  - REFER TO SPECIFICATION SECTION 02413 OF BASIS OF DESIGN: CAMU CONTAINMENT CELL FOR MORE DETAILS. CETCO BENTOMAT DN OR EQUAL.
  - 4" SDR-11 HDPE 90-SLOT SCREEN.

### GROUNDWATER COLLECTION TRENCH DETAIL 1

NOT TO SCALE

- GENERAL NOTES:**
- SOILS EXCAVATED FOR TRENCH CONSTRUCTION AND GLADE CREEK GROUT BLANKET COMPONENTS (INCLUDING PIPING AND GRANULAR BEDDING MATERIAL) TO BE TEMPORARILY STAGED IN THE CAMU AREA FOR SUBSEQUENT PLACEMENT INTO THE CAMU CONTAINMENT CELL. FREE PRODUCT WILL BE COLLECTED AND CONTAINERIZED FOR OFFSITE DISPOSAL.
  - EXISTING GROUND SURFACE TO BE GRADED TO PROVIDE SUITABLE BASE FOR TRENCH CONSTRUCTION USING ONE PASS TECHNIQUE (AS PROVIDED BY DEWIND ONE-PASS TRENCHING LLC, OR APPROVED ALTERNATE) TO ACHIEVE SPECIFIED INVERT ELEVATIONS FOR DNAPL COLLECTION PIPE.

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

SCALE AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.

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No.	Date	Revisions	By	Ckd
6/14/11		RECORD DRAWINGS - REVISED TRENCH MATERIALS AND NOTES	ESD	MOG

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Professional Engineer's Name  
**MARK OWEN GRAVELDING**

Professional Engineer's No.  
062059378

State  
ILLINOIS

Date Signed  
JSH

Project Mgr.  
JSH

Designed by  
KAW

Checked by  
SLM

**ARCADIS**

ARCADIS U.S., INC.

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GLADE CREEK CHANNEL RELOCATION RECORD DRAWINGS

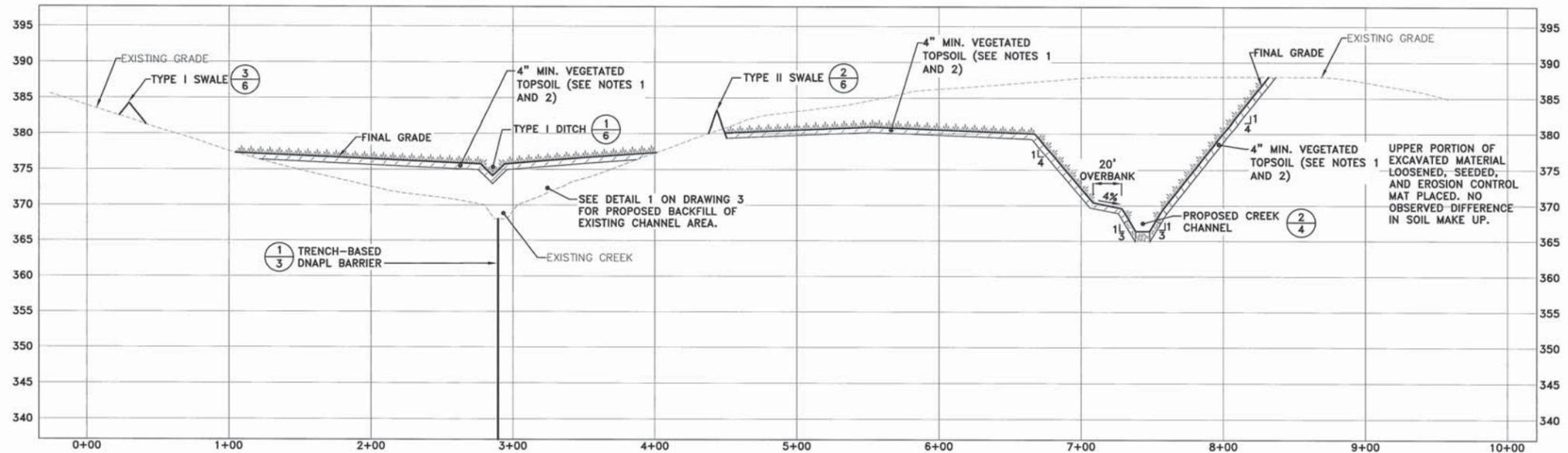
### TRENCH-BASED DNAPL BARRIER

ARCADIS Project No.  
388.83

Date  
AUGUST 2011

ARCADIS US, INC.  
CORPORATE HEADQUARTERS  
6723 TOWPATH ROAD  
SYRACUSE, NY 13214  
315-446-9120

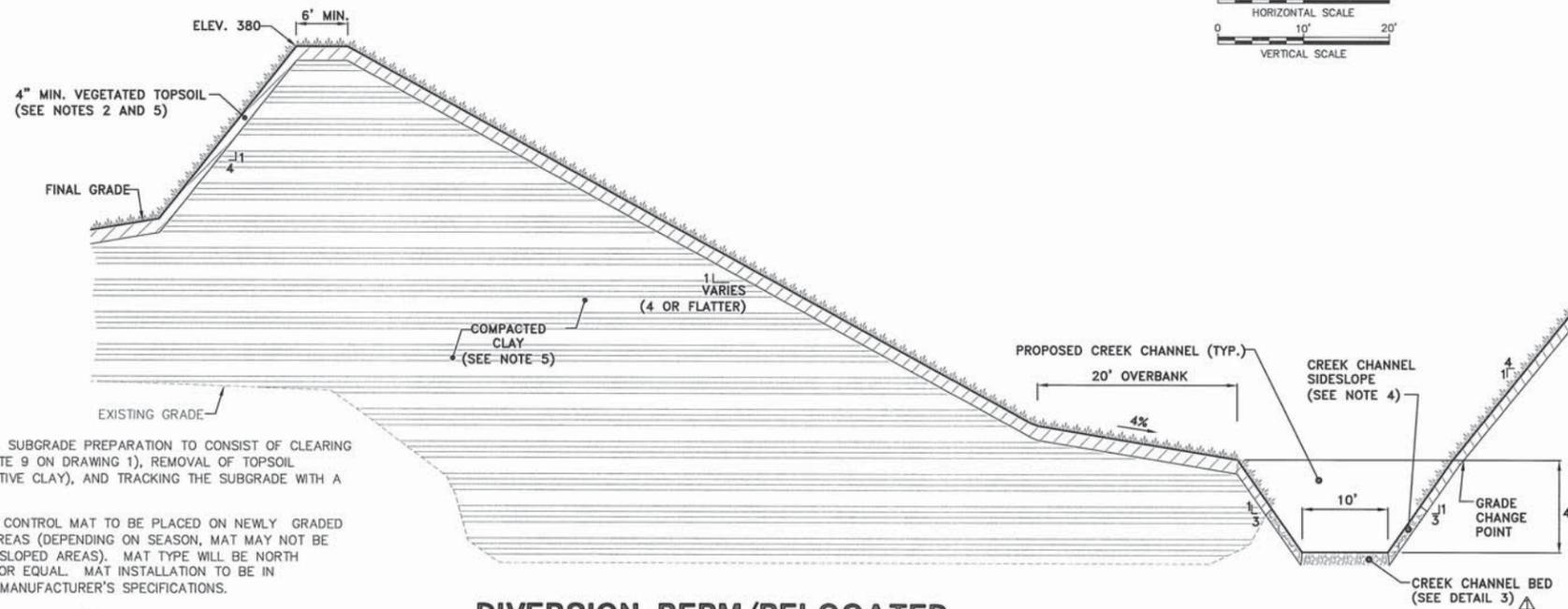
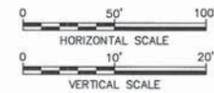
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**NOTES:**

1. TEMPORARY EROSION CONTROL MAT TO BE PLACED ON NEWLY GRADED AND SEEDED TOPSOIL AREAS (DEPENDING ON SEASON, MAT MAY NOT BE REQUIRED ON SHALLOW SLOPED AREAS). MAT TYPE WILL BE NORTH AMERICAN GREEN C125 OR EQUAL. MAT INSTALLATION TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
2. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.

**SITE CROSS SECTION 1**

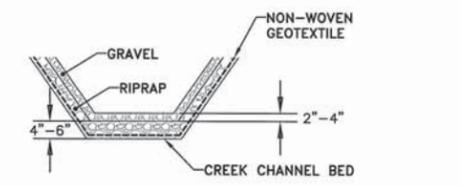


**NOTES:**

1. FOR THE BERM AREA, SUBGRADE PREPARATION TO CONSIST OF CLEARING AND GRUBBING (SEE NOTE 9 ON DRAWING 1), REMOVAL OF TOPSOIL MATERIAL (DOWN TO NATIVE CLAY), AND TRACKING THE SUBGRADE WITH A DOZER.
2. TEMPORARY EROSION CONTROL MAT TO BE PLACED ON NEWLY GRADED AND SEEDED TOPSOIL AREAS (DEPENDING ON SEASON, MAT MAY NOT BE REQUIRED ON SHALLOW SLOPED AREAS). MAT TYPE WILL BE NORTH AMERICAN GREEN C125 OR EQUAL. MAT INSTALLATION TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
3. BOTTOM HALF (I.E., LOWER 2 FEET) OF 3:1 SIDESLOPES ALONG BOTH SIDES OF NEW CHANNEL AND ENTIRE 3:1 SIDESLOPE ALONG OUTER BENDS OF NEW CHANNEL (SEE NOTE 12 ON DRAWING 2) WILL CONSIST OF A 9-INCH-THICK LAYER OF RIPRAP (SEE NOTE 5) UNDERLAIN BY NON-WOVEN GEOTEXTILE (AMOCO 4510, OR EQUAL). REMAINING PORTIONS OF 3:1 SIDESLOPES WILL CONSIST OF 4" MIN. VEGETATED TOPSOIL (SEE NOTE 5).
5. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.

**DIVERSION BERM/RELOCATED CREEK CROSS SECTION 2**

NOT TO SCALE



**CREEK CROSS SECTION 3**

NOT TO SCALE

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No.	Date	Revisions	ESD	MOG
6/14/11		RECORD DRAWINGS-ADDED CREEK CROSS SECTION		

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Professional Engineer's Name <b>MARK OWEN GRAVELDING</b>	
Professional Engineer's No. 062059378	
State ILLINOIS	Date Signed Project Mgr. JSH
Designed by PHB/CAA	Checked by NES

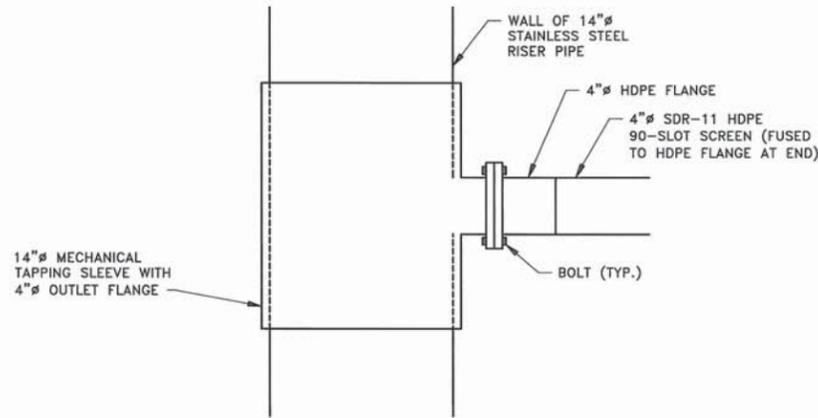
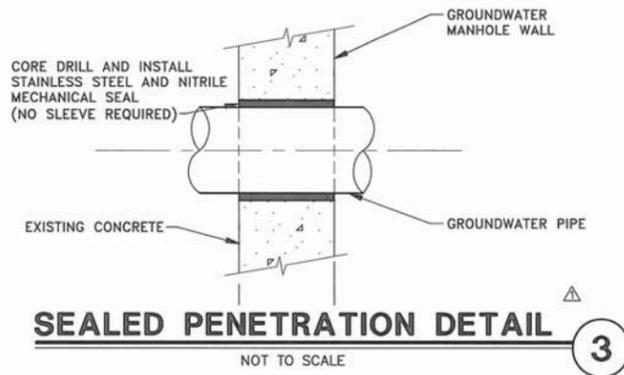


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GLADE CREEK CHANNEL RELOCATION RECORD DRAWINGS

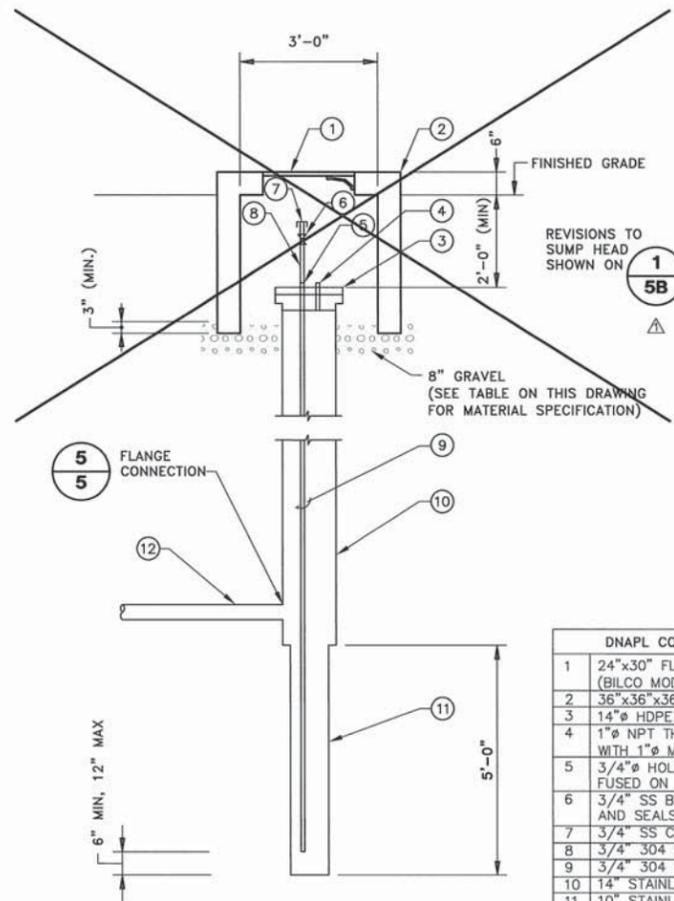
**SECTIONS**

ARCADIS Project No. 388.83
Date AUGUST 2011
ARCADIS US, INC. CORPORATE HEADQUARTERS 6723 TOWPATH ROAD SYRACUSE, NY 13214 315-446-9120

SYR DIV/GROUP: ENV/141 DB, SJK, K.SARTORI PIC; R. ANDERSON PM, J. HOLDEN TM; E. DIEVENDORF LYRON="OFF=REF"  
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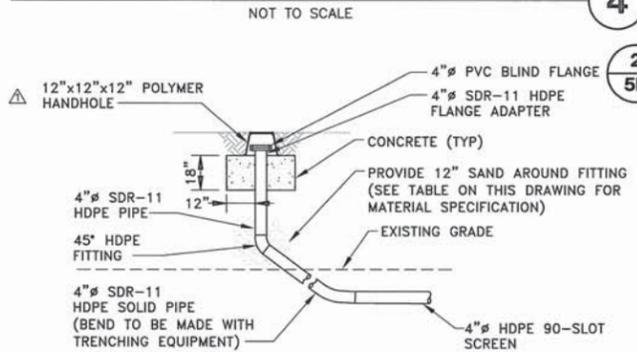
**CONNECTION OF DNAPL COLLECTION PIPE TO RISER PIPE**



DNAPL COLLECTION SUMP/VAULT TABLE	
1	24"x30" FLOOD TIGHT ACCESS DOOR (BILCO MODEL WT. OR EQUAL)
2	36"x36"x36" CONCRETE VAULT
3	14" HDPE BLIND FLANGE
4	1" NPT THREADED TAP ON BLIND FLANGE WITH 1" MNPT PLUG
5	3/4" HOLE WITH 3/4" FEMALE NPT FITTING FUSED ON BOTH SIDES OF FLANGE
6	3/4" SS BALL VALVE WITH TEFLON SEATS AND SEALS
7	3/4" SS CAM LOCK FITTING
8	3/4" 304 SS PIPE
9	3/4" 304 SS TUBING
10	14" STAINLESS STEEL RISER PIPE
11	10" STAINLESS STEEL SUMP EXTENSION
12	4" SDR-11 HDPE 90-SLOT SCREEN

**DNAPL COLLECTION SUMP/VAULT DETAIL**

**TYPICAL CLEANOUT DETAIL FOR GROUNDWATER COLLECTION PIPE**

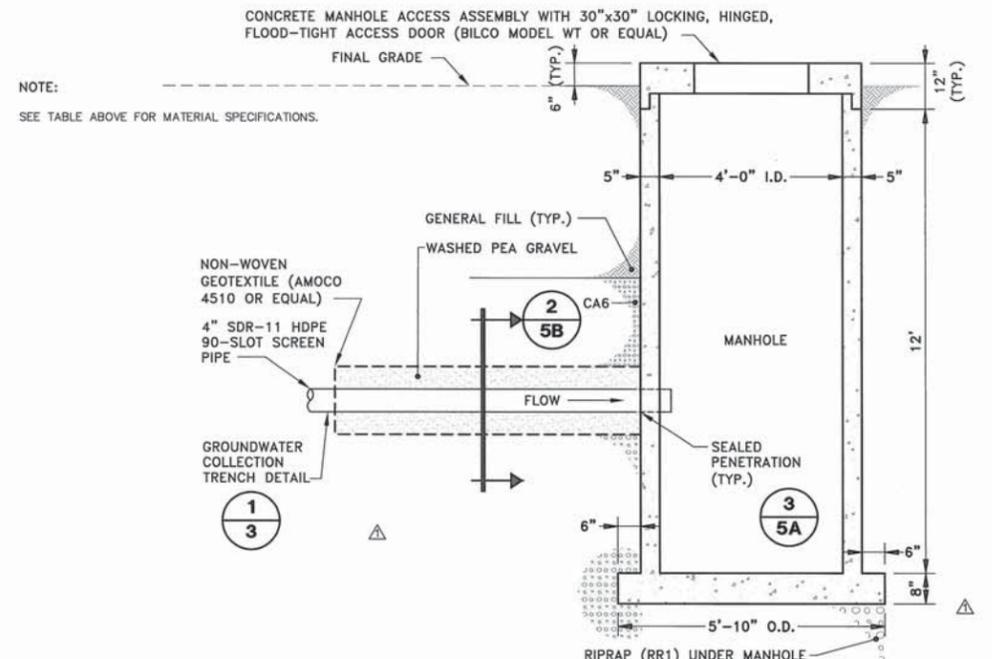


**TYPICAL CLEANOUT DETAIL FOR DNAPL COLLECTION PIPE**



FILL MATERIAL SPECIFICATIONS			
MATERIAL TYPE	USE (DRAWING REFERENCE)	MATERIAL DESCRIPTION	PLACEMENT AND COMPACTION SPECIFICATION
TOPSOIL	THROUGHOUT AFFECTED WORK AREAS (2,3,4,8); TYPE I DITCH, TYPE I SWALE, TYPE II SWALE (6)	SANDY/SILTY LOAM MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE	MATERIAL TO BE PLACED IN SINGLE LOOSE LIFT OF 4 INCHES (MIN.). NO COMPACTION REQUIRED.
GENERAL FILL	EXISTING CHANNEL AREA (3)	NATIVE CLAY MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE SOURCE	MATERIAL TO BE PLACED IN 8-INCH THICK LOOSE LIFTS AND COMPACTION WITH A MINIMUM 3 PASSES OF A SUITABLY SIZED ROLLER OR DOZER.
	TYPE I SWALE, TYPE II SWALE (6)	NATIVE CLAY MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE SOURCE	MATERIAL TO BE PLACED AND COMPACTION USING A SUITABLY SIZED ROLLER OR DOZER (OR OTHER APPROVED METHOD).
COMPACTED CLAY	BARRIER WALL (2); ABOVE TRENCH-BASED DNAPL BARRIER (3,8); DIVERSION BERM (4)	NATIVE CLAY MATERIAL FREE OF LARGE ROCKS (3 INCH MAX.), WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE SOURCE	MATERIAL TO BE PLACED IN 8-INCH THICK LOOSE LIFTS AND COMPACTION TO 95% STANDARD PROCTOR (ASTM D-698). IN-PLACE DENSITY TESTS (ASTM D-2922) TO BE PERFORMED AT MIN. FREQUENCY OF 3 TESTS PER LIFT.
GRANULAR FILL	TRENCH-BASED DNAPL BARRIER (3,8)	WASHED PEA STONE, 1/2- TO 1- INCH DIAMETER	PLACEMENT REQUIREMENTS PER TRENCHING CONTRACTOR.
GRAVEL	NEW CREEK CHANNEL BED (4)	ILLINOIS DOT COARSE AGGREGATE GRADATION NUMBER CA1	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE IN-PLACE LIFT THICKNESS OF 8 INCHES AND COMPACTION WITH A MINIMUM 1 PASS OF A SUITABLY SIZED ROLLER OR DOZER. (COMPACTION REQUIREMENTS MAY VARY BASED ON FIELD CONDITIONS AT TIME OF CONSTRUCTION.)
	BEDDING FOR DNAPL COLLECTION VAULT (5); BEDDING FOR CULVERTS (6,8)	ILLINOIS DOT RIPRAP GRADATION NUMBER RR1	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE IN-PLACE COMPACTED LIFT THICKNESS OF 6 INCHES. MATERIAL TO BE COMPACTION WITH A MINIMUM 3 PASSES OF A VIBRATORY COMPACTOR.
CRUSHER RUN	BENEATH AND SURROUNDING BOX CULVERTS (7); ACCESS ROAD (8)	ILLINOIS DOT AGGREGATE SUBBASE TYPE B	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE IN-PLACE COMPACTED LIFT THICKNESS OF 6 INCHES. MATERIAL TO BE COMPACTION TO 100% STANDARD PROCTOR (ASTM D-698). IN-PLACE DENSITY TESTING TO BE PERFORMED AT MIN. FREQUENCY OF 3 TEST PER LIFT (BOX CULVERTS) AND 1 TEST PER 100 LINEAR FEET (ACCESS ROAD).
SAND	AROUND FITTINGS FOR CLEANOUT PIPES (5)	ILLINOIS DOT FINE AGGREGATE GRADATION NUMBER FA1	NO COMPACTION REQUIRED.
RIPRAP	NEW CREEK CHANNEL SIDESLOPES (2,4); RIPRAP APRON (6); TYPE II DITCH (6); CULVERT CROSSINGS (6,8)	ILLINOIS DOT QUALITY DESIGNATION C; D <sub>50</sub> = 4 INCHES, D <sub>90</sub> = 6 INCHES, D <sub>max</sub> = 9 INCHES	NO COMPACTION REQUIRED.
	GABIONS (7)	ILLINOIS DOT QUALITY DESIGNATION C; D <sub>50</sub> = 3 INCHES, D <sub>max</sub> = 6 INCHES	NO COMPACTION REQUIRED.

NOTE: ADDITIONAL DENSITY TESTING MAY BE REQUIRED BASED ON FIELD CONDITIONS AT TIME OF CONSTRUCTION.



RECORD DRAWINGS TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

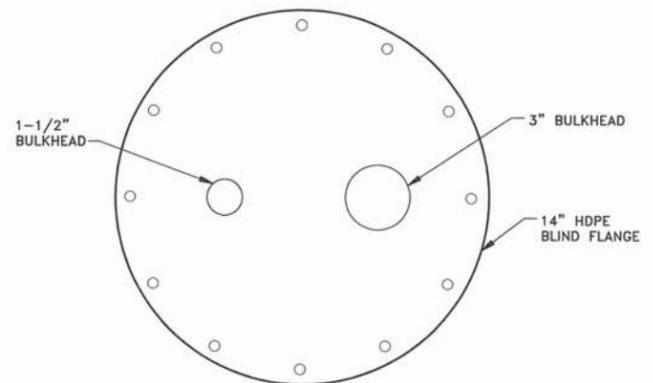
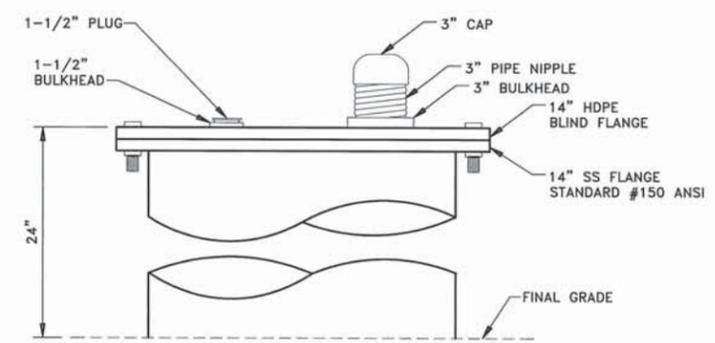
**GROUNDWATER MANHOLE INSTALLATION DETAIL**

(RECORD DRAWING: MADE FROM DRAWING NO. 5, TRACER NO. 38857030/38875G07.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOA

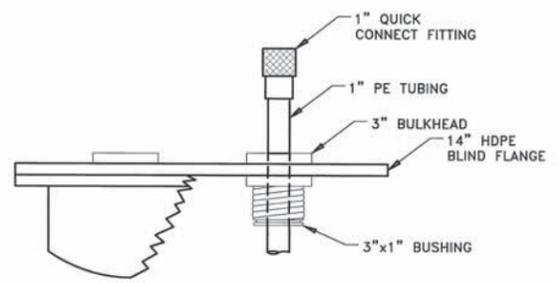
NOT TO SCALE THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.	6/14/11 RECORD DRAWINGS-REVISED PENETRATION DETAIL, SUMP/VAULT DETAIL, POLYMER HANDHOLE DIMENSIONS, BEDDING MATERIAL, AND MANHOLE INSTALLATION DETAIL.	ESD MOG No. Date Revisions By Ckd	Professional Engineer's Name <b>MARK OWEN GRAVELDING</b> Professional Engineer's No. 062059376			BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS GLADE CREEK CHANNEL RELOCATION RECORD DRAWINGS	ARCADIS Project No. 388.83
	THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.	State Date Signed Project Mgr. ILLINOIS Drawn by PHB/CAA Checked by SDL	Date AUGUST 2011 ARCADIS US, INC. CORPORATE HEADQUARTERS 6723 TOWPATH ROAD SYRACUSE, NY 13214 315-446-9120				<b>5A</b>

**SUMP/CLEANOUT DETAILS**

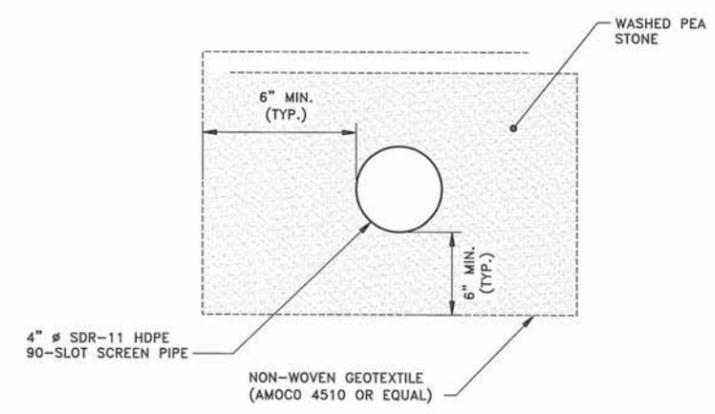
CITY: SYR DIV/GRUP: ENV/141 DB: SJK K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TM: E. DIEVENDORF LYRON: OFF=REF: G:\ENV\CAD\SYRACUSE\ACT1\B003923\0000000001\RECORD\DCREEK-RELO\3885310.DWG LAYOUT: 5B SAVED: 8/30/2011 11:01 AM ACADVER: 18.05 (LMS TECH) PAGESETUP: PLOTSTYLETABLE: PLOTCONT.CTB PLOTTED: 8/30/2011 11:01 AM BY: DECLERCO, BRIAN  
 XREFS: 38853000 PROJECTNAME:



**SUMP HEAD DESIGN** 1  
NOT TO SCALE



**NOTE:**  
 WHEN NOT IN USE, THE 1" QUICK CONNECT FITTING WILL NEST INSIDE THE 3" BULKHEAD, IT WILL NOT FALL THROUGH BECAUSE OF THE 3"x1" BUSHING; ALSO, THE PIPE NIPPLE AND CAP WILL ENCLOSE IT. WHEN IN USE, THE NIPPLE AND CAP WILL BE REMOVED, THE 1" QUICK CONNECT FITTING WILL BE PULLED OUT AND CONNECTED TO THE DNAPL REMOVAL PUMP.



**PIPE COVER SECTION** 2  
NOT TO SCALE

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 5, TRACER NO. 38857030/38875G07.DWG, DATED 8/31/2011) DATE 8/31/11 BY M.O.G.

NOT TO SCALE

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USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	ESD	MOG
1	6/14/11	RECORD DRAWINGS - NEW DRAWING		

THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.

Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State  
 ILLINOIS  
 Date Signed  
 Project Mgr.  
 JSH  
 Designed by  
 PHB/CAA  
 Drawn by  
 Checked by  
 SDL



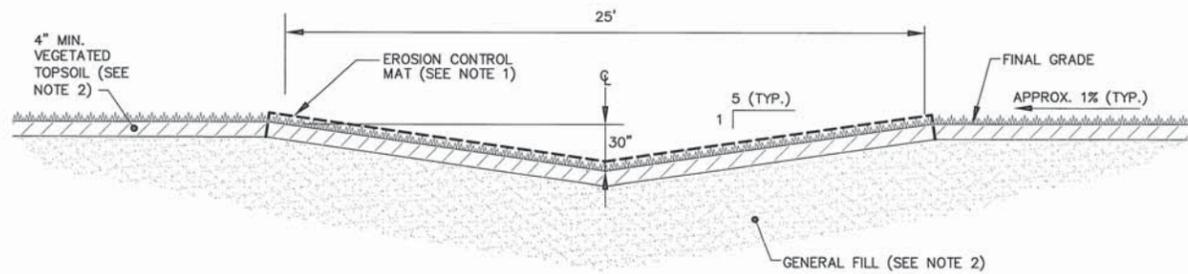
BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
 GLADE CREEK CHANNEL RELOCATION RECORD DRAWINGS

**SUMP/CLEANOUT DETAILS**

ARCADIS Project No.  
 388.83  
 Date  
 AUGUST 2011  
 ARCADIS US, INC.  
 CORPORATE HEADQUARTERS  
 6723 TOWPATH ROAD  
 SYRACUSE, NY 13214  
 315-446-9120

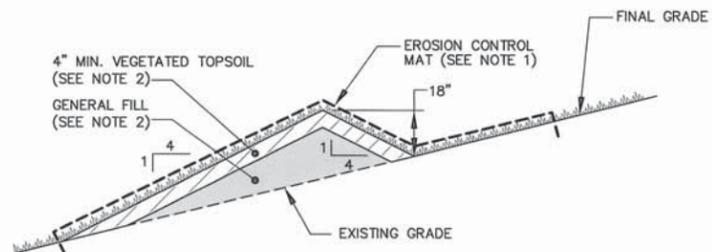
**5B**

CITY: SYR DIV/GRUP: ENV141 DB: SJK K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TM: E. DIEVENDORF LVR: ON\*OFF\*REF\*  
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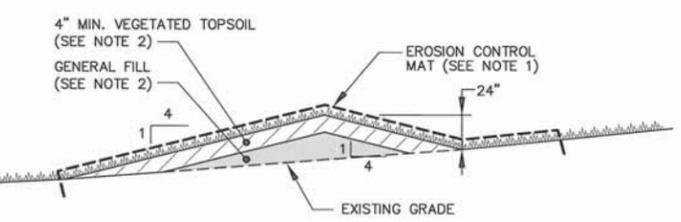
- NOTE:**
1. EROSION CONTROL MAT SHALL BE NORTH AMERICAN GREEN C125 OR EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
  2. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.

**TYPE I DITCH** 1  
NOT TO SCALE



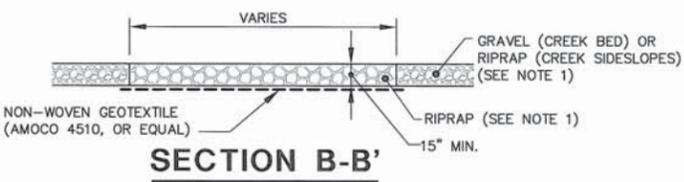
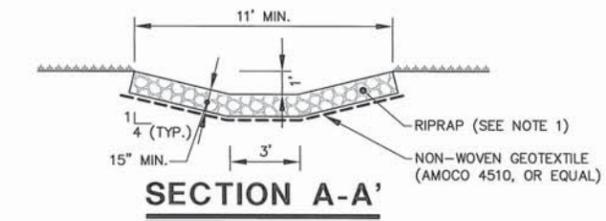
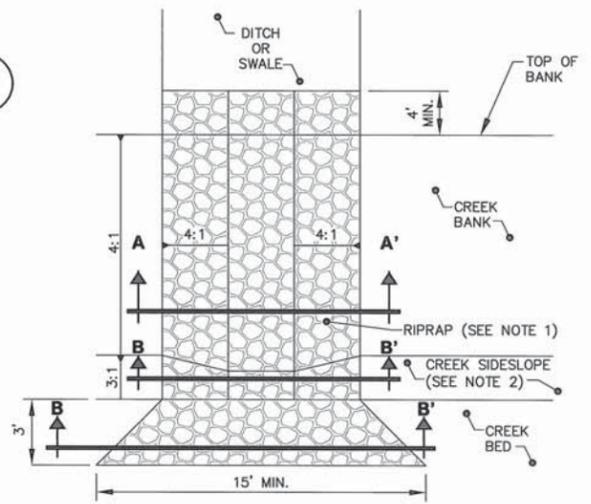
- NOTES:**
1. EROSION CONTROL MAT SHALL BE NORTH AMERICAN GREEN C125 OR EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
  2. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.

**TYPE II SWALE** 2  
NOT TO SCALE



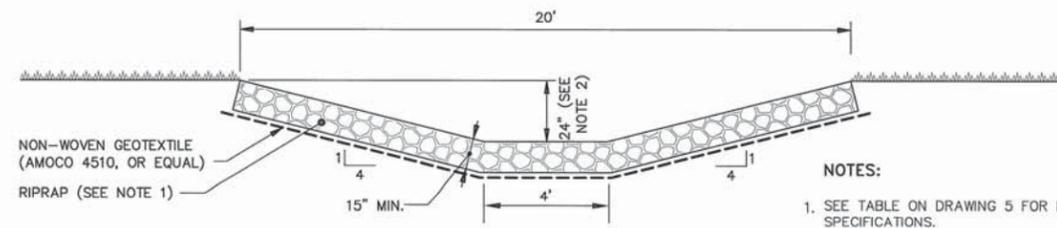
- NOTES:**
1. EROSION CONTROL MAT SHALL BE NORTH AMERICAN GREEN C125 OR EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
  2. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.

**TYPE I SWALE** 3  
NOT TO SCALE



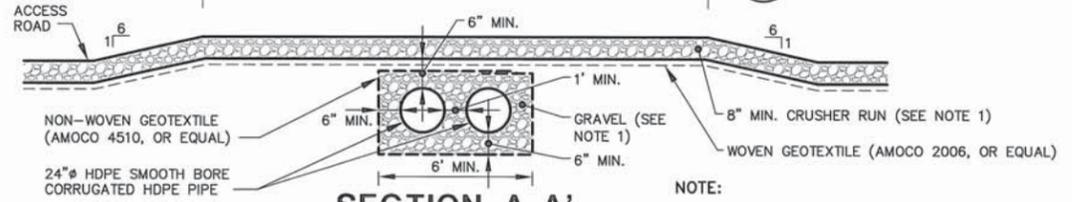
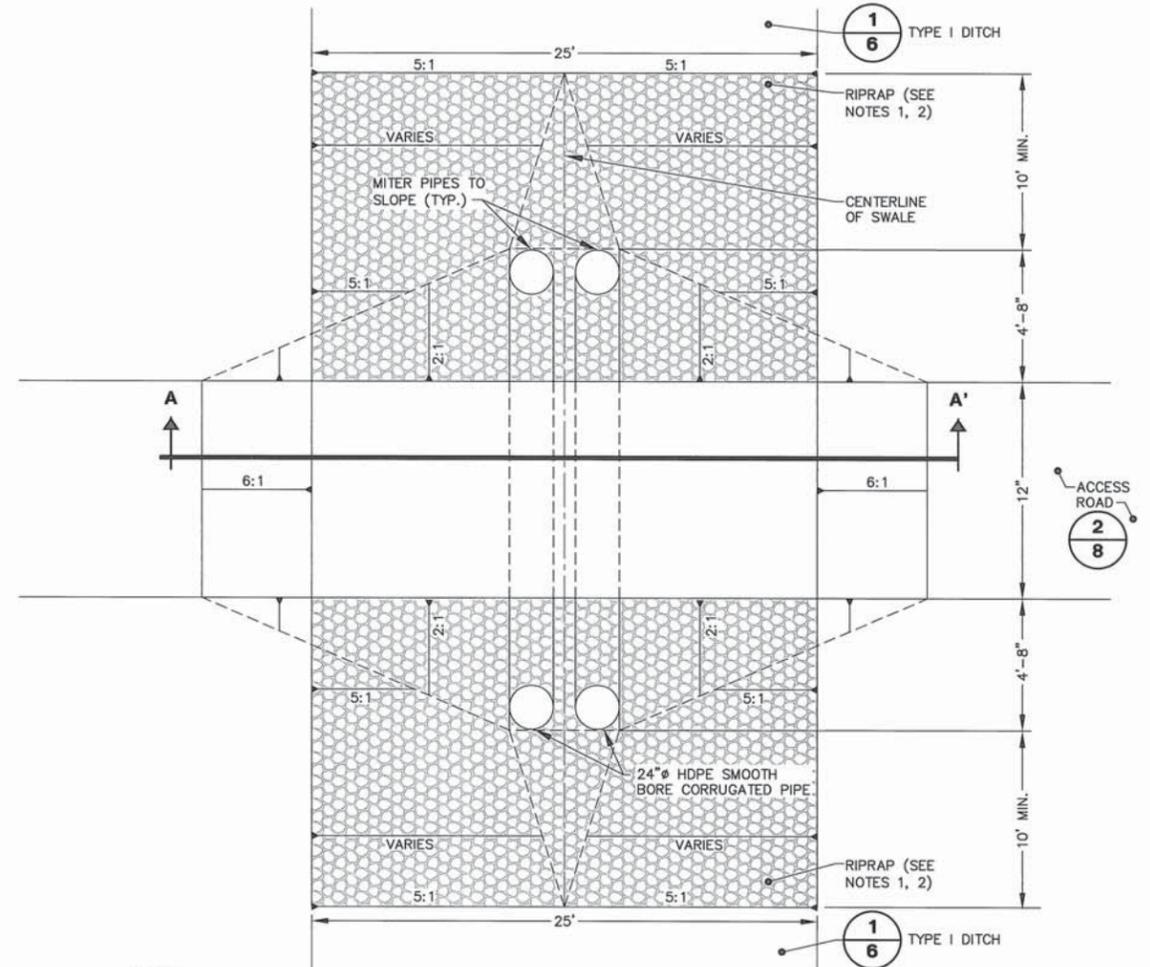
- NOTES:**
1. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.
  2. RIPRAP APRON TO EXTEND ACROSS CREEK OVERBANK AREA FOR INSTALLATION ON WEST SIDE OF RELOCATED CREEK. APRON CONSTRUCTED IN OVERBANK AREA TO HAVE SAME DIMENSIONS SHOWN IN SECTION A-A'.

**RIPRAP APRON** 5  
NOT TO SCALE



- NOTES:**
1. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.
  2. DEPTH OF DITCH SHALL BE MEASURED AT THE LOWEST BANK.

**TYPE II DITCH** 4  
NOT TO SCALE



- NOTE:**
1. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.
  2. RIPRAP TO BE PLACED AT A MINIMUM THICKNESS OF 12 INCHES AND UNDERLAIN WITH NON-WOVEN GEOTEXTILE (AMOCO 4510, OR EQUAL).

**CULVERT DETAIL** 6  
NOT TO SCALE

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 6, TRACER NO. 38857030/38875M01.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOG

NOT TO SCALE				
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.	USE TO VERIFY FIGURE REPRODUCTION SCALE			
No.	Date	Revisions	By	Ckd

Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
Professional Engineer's No.  
062059378  
State  
ILLINOIS  
Date Signed  
Project Mgr.  
JSH  
Designed by  
CAA/PHB  
Checked by  
SLM

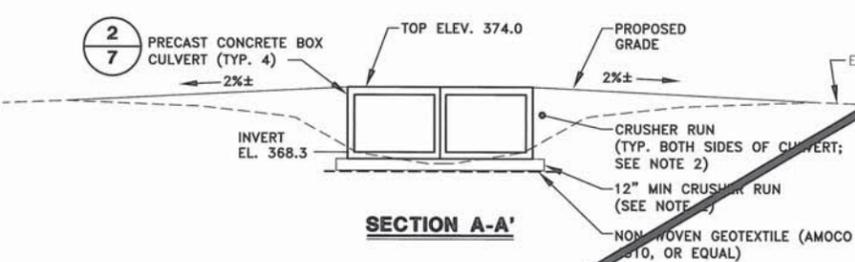
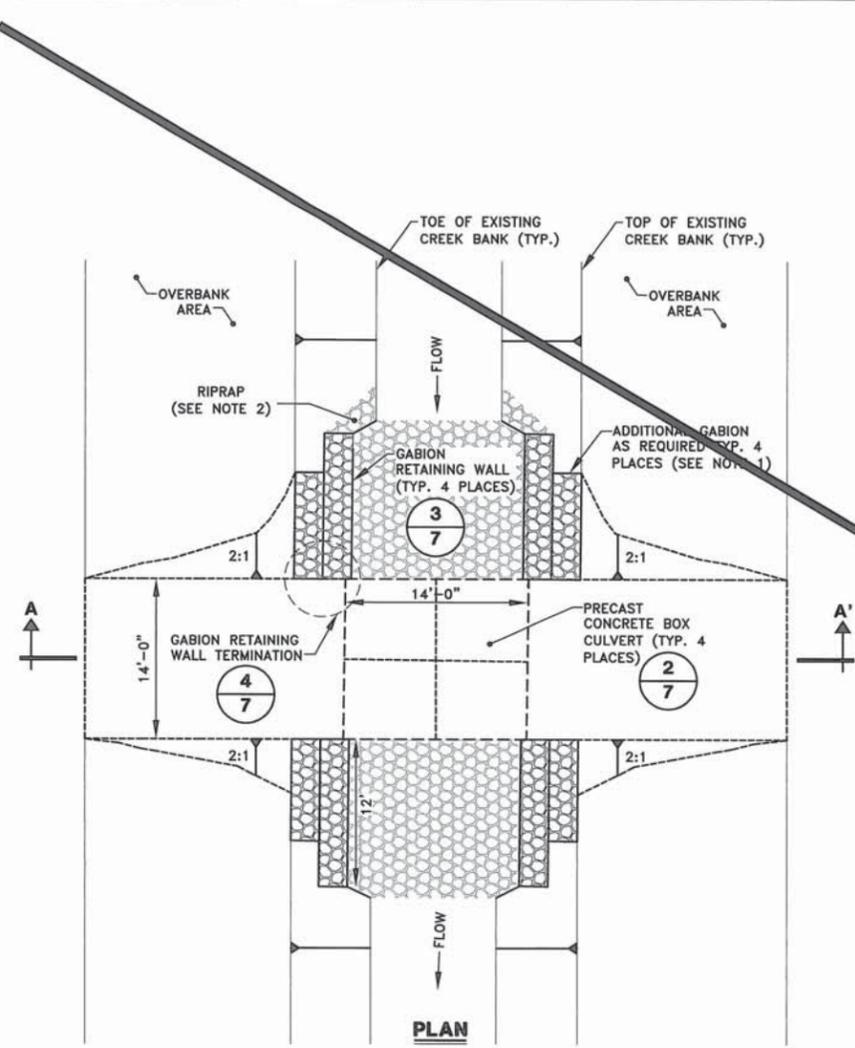


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GLADE CREEK CHANNEL RELOCATION RECORD DRAWINGS

**STORMWATER CONTROL MEASURE DETAILS**

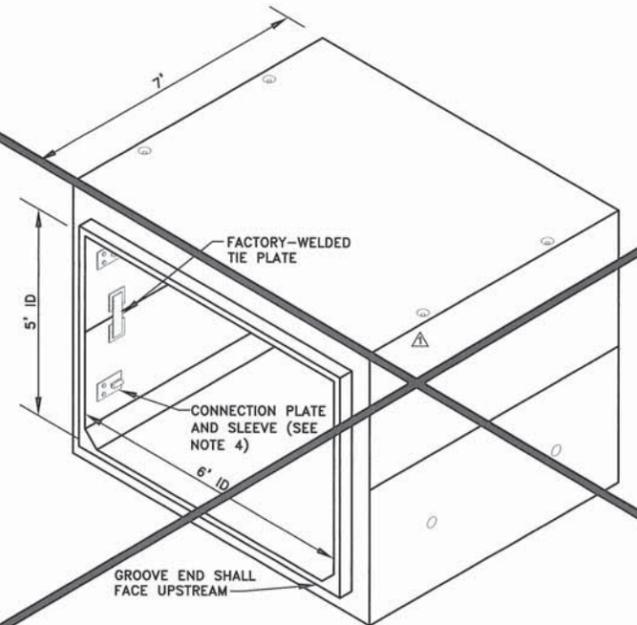
ARCADIS Project No.  
388.83  
Date  
AUGUST 2011  
ARCADIS US, INC.  
CORPORATE HEADQUARTERS  
6723 TOWPATH ROAD  
SYRACUSE, NY 13214  
315-446-9120

CITY: SYR DIV/GROUP: ENV141 DB: SJK K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TM: E. DIEVENDORF LYRON="OFF=REF"  
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 XREFS: 38853000  
 IMAGES: PROJECTNAME:



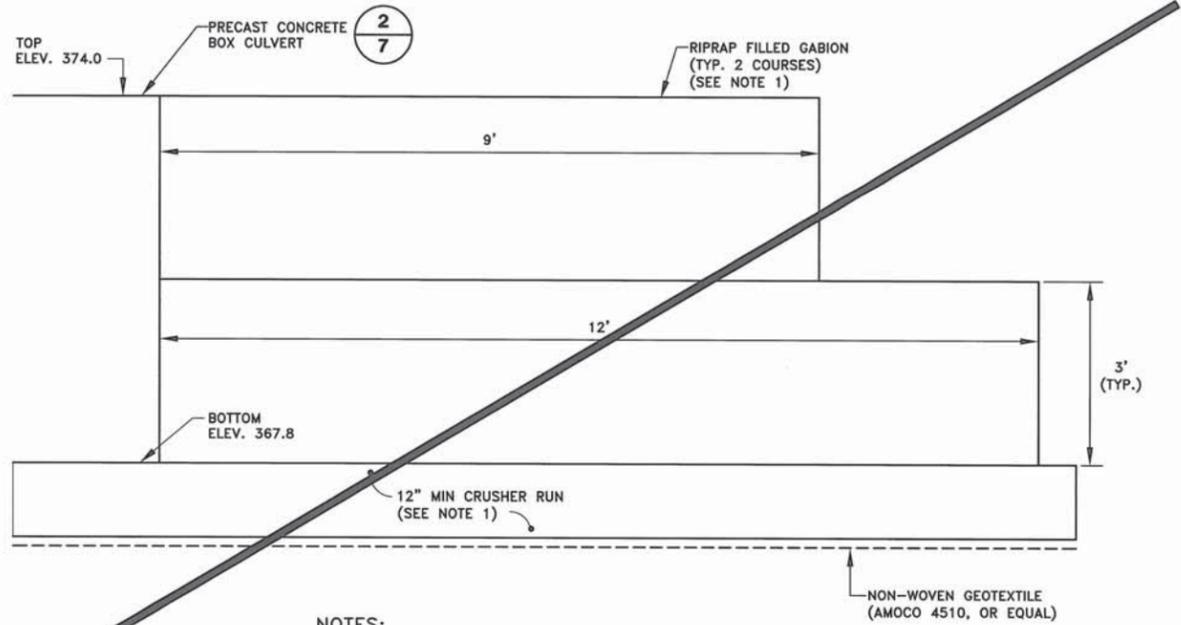
- NOTES:**
1. BASED ON FIELD CONDITIONS, ADDITIONAL GABIONS TO BE PLACED AS NECESSARY TO MEET THE TOP OF THE EXISTING CREEK BANK.
  2. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.

**BOX CULVERT STREAM CROSSING** 1  
NOT TO SCALE



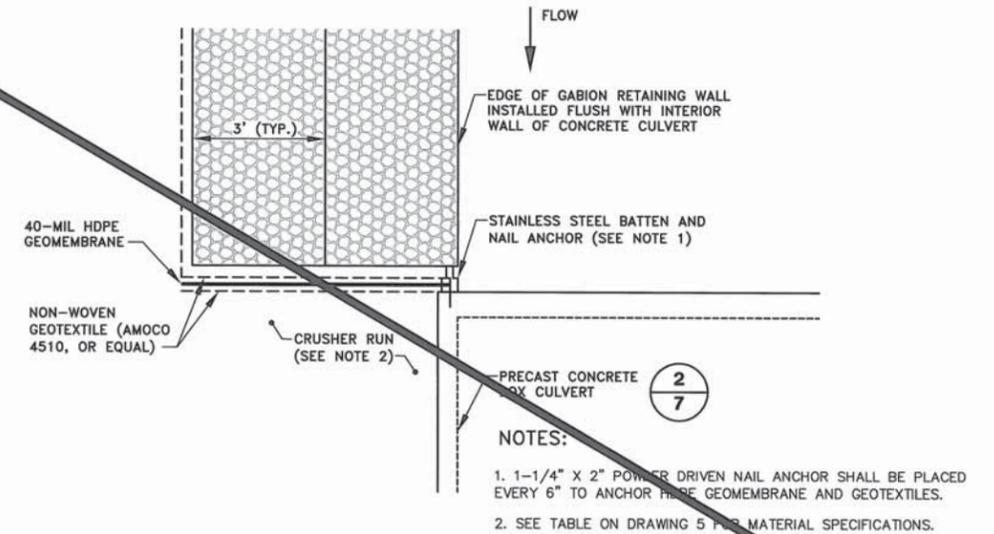
- NOTES:**
1. PRECAST CONCRETE BOX CULVERTS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  2. PRECAST CONCRETE BOX CULVERTS SHALL BE PROVIDED WITH SMOOTH INTERIOR SURFACES FREE FROM HANGERS OR OTHER PROTRUSIONS OR RECESSES.
  3. SIDEWALL THICKNESS SHALL BE 6-INCHES MINIMUM. TOP AND BOTTOM THICKNESS SHALL BE 8-INCHES AND 7-INCHES MINIMUM, RESPECTIVELY. PRECAST CONCRETE BOX CULVERTS SHALL BE DESIGNED AND CONSTRUCTED TO WITHSTAND H2O LOADING.
  4. PRECAST CONCRETE BOX CULVERTS INSTALLED END-TO-END SHALL BE FIELD-CONNECTED USING FACTORY-INSTALLED CONNECTION PLATES AND SLEEVES AND THREADED RODS. CONNECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

**PRECAST CONCRETE BOX CULVERT** 2  
NOT TO SCALE



- NOTES:**
1. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.
  2. GABIONS SHALL BE MACCAFERRI, LANE ENTERPRISES, OR APPROVED EQUAL HAVING CROSS-SECTION DIMENSIONS OF 3' WIDE BY 3' HIGH.
  3. NON-WOVEN GEOTEXTILE SHALL BE PLACED BEHIND RETAINING WALL (SEE DETAIL 4 OF THIS DRAWING).

**GABION RETAINING WALL** 3  
NOT TO SCALE



- NOTES:**
1. 1-1/4" X 2" POWER DRIVEN NAIL ANCHOR SHALL BE PLACED EVERY 6" TO ANCHOR THE GEOMEMBRANE AND GEOTEXTILES.
  2. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.

**GABION RETAINING WALL TERMINATION** 4  
NOT TO SCALE

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 7, TRACER NO. 38857030/38875M09.DWG, DATED 8/31/2011) DATE 8/31/11 BY MDS

NOT TO SCALE

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USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
6/14/11		RECORD DRAWINGS - DRAWING NOT USED		

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Professional Engineer's Name  
**MARK OWEN GRAVELDING**

Professional Engineer's No.  
062059378

State  
ILLINOIS

Date Signed  
JSH

Project Mgr.  
JSH

Designed by  
LKB/CAA

Drawn by  
SLM

Checked by  
SLM



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
GLADE CREEK CHANNEL RELOCATION RECORD DRAWINGS

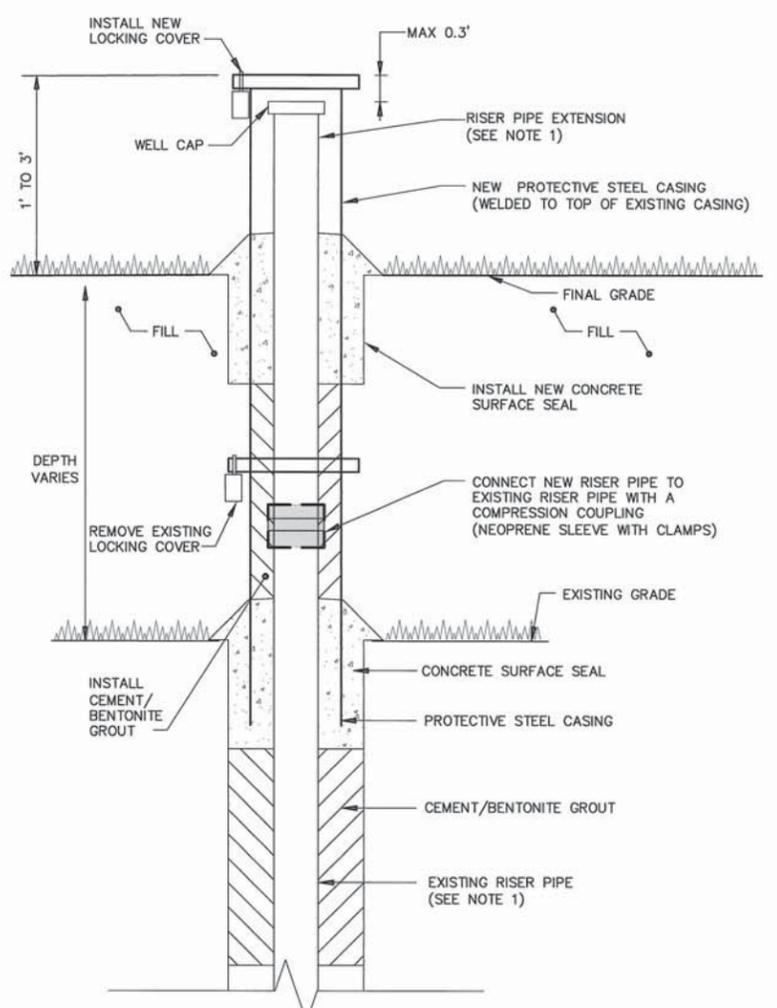
**BOX CULVERT DETAILS**

ARCADIS Project No.  
388.83

Date  
AUGUST 2011

ARCADIS US, INC.  
CORPORATE HEADQUARTERS  
6723 TOWPATH ROAD  
SYRACUSE, NY 13214  
315-446-9120

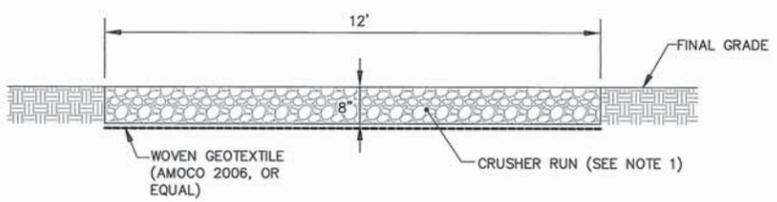
CITY: SYR DIV/GRUP: ENV141 DB: SJK K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TM: E. DIEVENDORF LYR: ON\*OFF=REF-  
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 XREFS: 38883000  
 IMAGES: PROJECTNAME:



NOTE:  
 1. RISER PIPE AND STEEL CASING SIZES AND TYPES MAY DIFFER FOR EACH WELL. NEW WELL EXTENSION MATERIALS TO BE OF THE SAME SIZE AND TYPE AS EXISTING.

**MONITORING WELL EXTENSION** 1

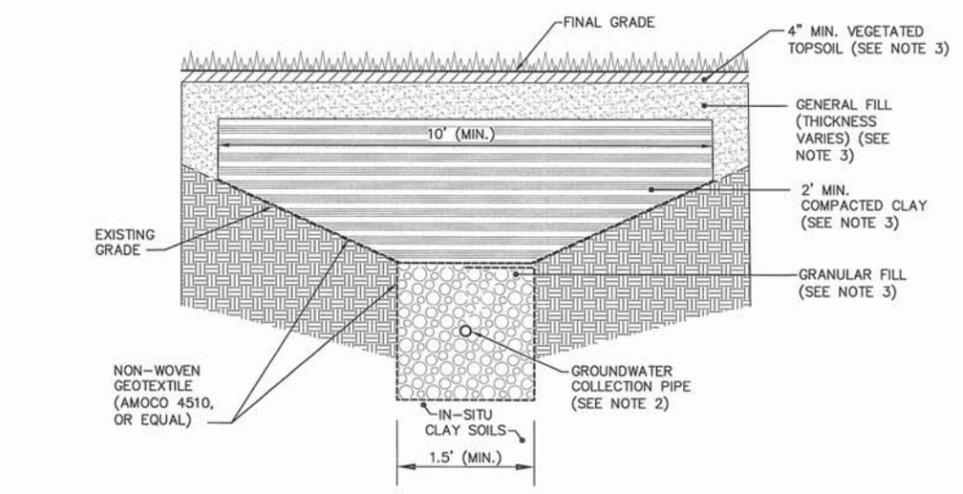
NOT TO SCALE



NOTE:  
 1. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.

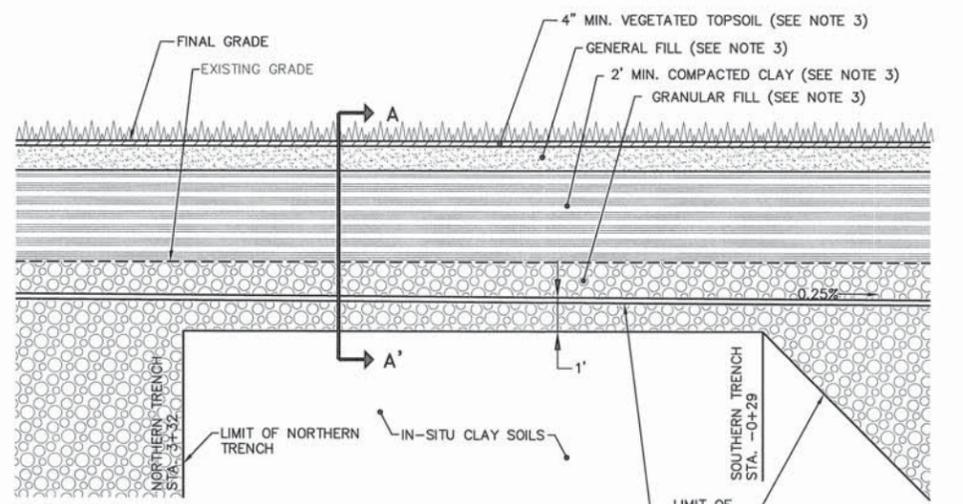
**ACCESS ROAD CROSS SECTION** 2

NOT TO SCALE



**SECTION A-A'**

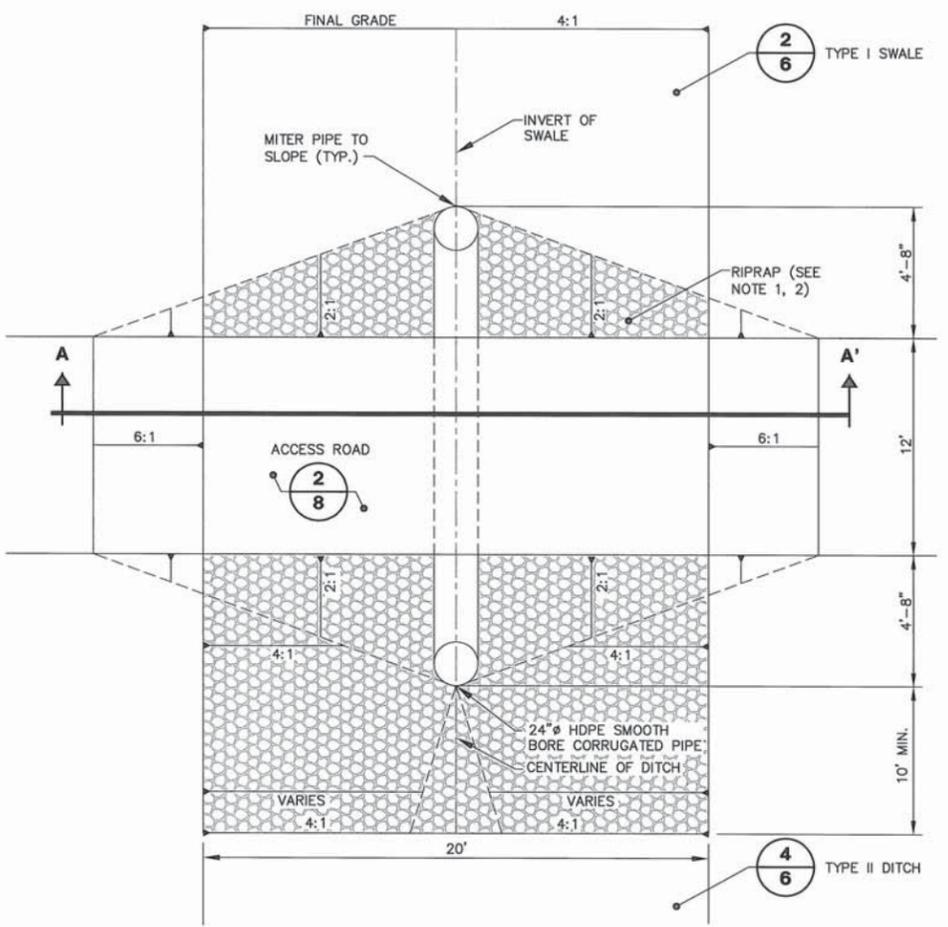
NOT TO SCALE



NOTES:  
 1. TRENCH WILL BE INSTALLED TO CONNECT GROUNDWATER COLLECTION PIPE BETWEEN THE NORTHERN AND SOUTHERN TRENCH-BASED DNAPL BARRIERS (SEE DRAWING 3).  
 2. GROUNDWATER COLLECTION PIPE WILL BE 4" Ø SDR-11 HDPE 90-SLOT SCREEN.  
 3. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.

**GROUNDWATER COLLECTION PIPE TRENCH DETAIL** 3

NOT TO SCALE



**SECTION A-A'**

**CULVERT DETAIL** 4

NOT TO SCALE

RECORD DRAWINGS  
 TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

NOTES:  
 1. SEE TABLE ON DRAWING 5 FOR MATERIAL SPECIFICATIONS.  
 2. RIPRAP TO BE PLACED AT A MINIMUM THICKNESS OF 12 INCHES AND UNDERLAIN WITH NON-WOVEN GEOTEXTILE (AMOCO 4510, OR EQUAL).

(RECORD DRAWING: MADE FROM DRAWING NO. 8, TRACER NO. 38857030/38857M04DWG, DATED 8/31/2011) DATE 8/31/11 BY M06

SCALE AS INDICATED					
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING	USE TO VERIFY FIGURE REPRODUCTION SCALE	No.	Date	Revisions	By
THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.					

Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State  
 ILLINOIS  
 Date Signed  
 Project Mgr.  
 JSH  
 Designed by  
 DGB/CAA  
 Checked by  
 LAF



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
 GLADE CREEK CHANNEL RELOCATION RECORD DRAWINGS

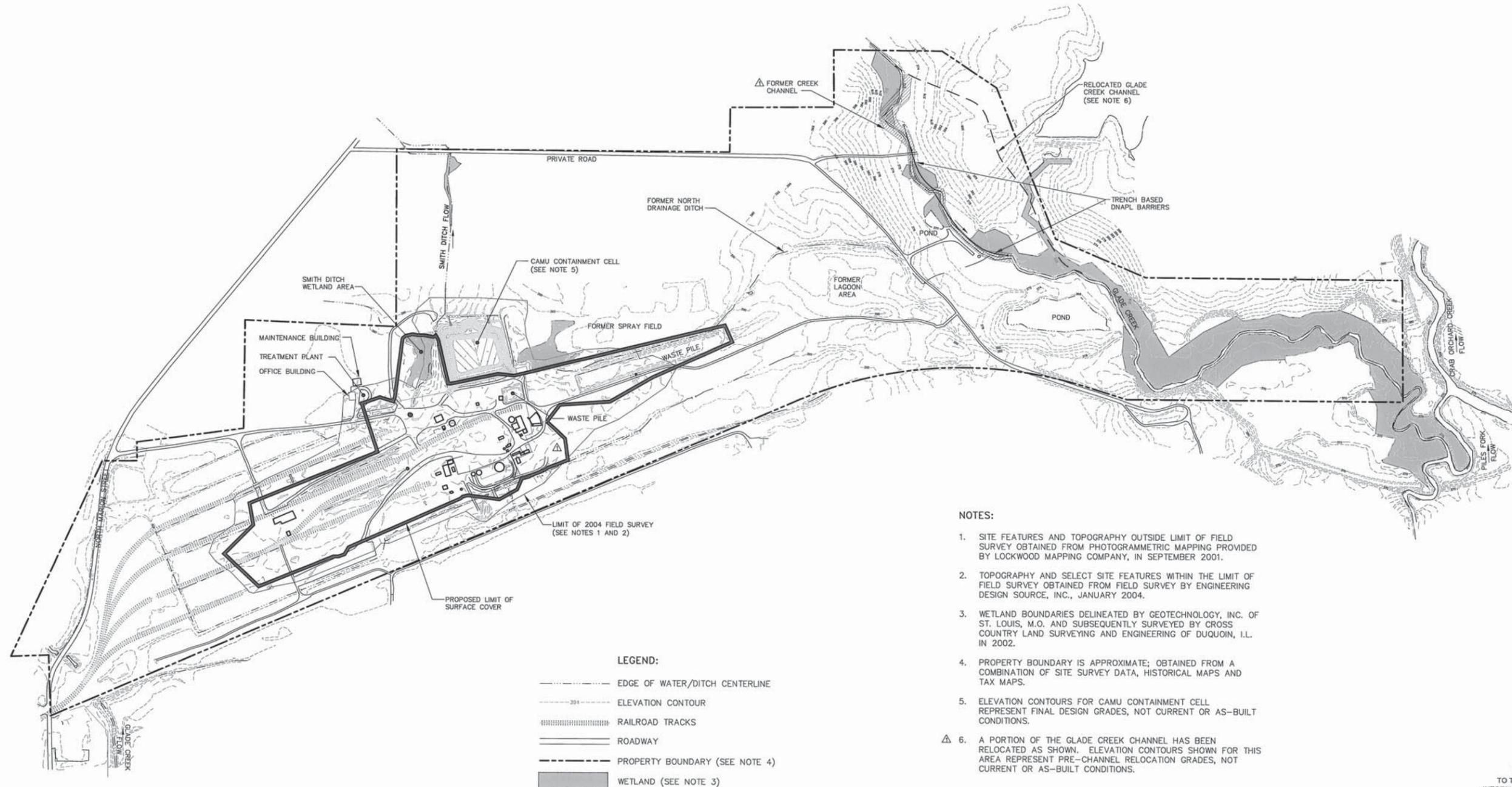
**MISCELLANEOUS DETAILS**

ARCADIS Project No.  
 388.83  
 Date  
 AUGUST 2011  
 ARCADIS US, INC.  
 CORPORATE HEADQUARTERS  
 6723 TOWPATH ROAD  
 SYRACUSE, NY 13214  
 315-446-9120



**Former Process Area Surface  
Cover Record Drawings**

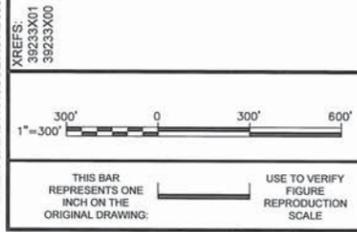
CITY: SYRACUSE DIV/GRP: ENVCAD DB: N. SMITHGALL L. FORAKER K. DAVIS LD: PIC: R. ANDERSON PM: J. HOLDEN TM: E. DIEVENDORF LVR: ONI="OFF" REF: G:\ENVCAD\SYRACUSE\ACT\B0039233\0000000001\RECORDS\SURFACE COVER\39233G01.DWG LAYOUT: 1. SAVED: 8/30/2011 11:07 AM ACADVER: 18.05 (LMS TECH) PAGES: 18.05 (LMS TECH) PAGES SETUP: --- PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/30/2011 11:07 AM BY: DECLERCQ, BRIAN



- NOTES:**
1. SITE FEATURES AND TOPOGRAPHY OUTSIDE LIMIT OF FIELD SURVEY OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY, IN SEPTEMBER 2001.
  2. TOPOGRAPHY AND SELECT SITE FEATURES WITHIN THE LIMIT OF FIELD SURVEY OBTAINED FROM FIELD SURVEY BY ENGINEERING DESIGN SOURCE, INC., JANUARY 2004.
  3. WETLAND BOUNDARIES DELINEATED BY GEOTECHNOLOGY, INC. OF ST. LOUIS, M.O. AND SUBSEQUENTLY SURVEYED BY CROSS COUNTRY LAND SURVEYING AND ENGINEERING OF DUQUOIN, ILL. IN 2002.
  4. PROPERTY BOUNDARY IS APPROXIMATE; OBTAINED FROM A COMBINATION OF SITE SURVEY DATA, HISTORICAL MAPS AND TAX MAPS.
  5. ELEVATION CONTOURS FOR CAMU CONTAINMENT CELL REPRESENT FINAL DESIGN GRADES, NOT CURRENT OR AS-BUILT CONDITIONS.
  6. A PORTION OF THE GLADE CREEK CHANNEL HAS BEEN RELOCATED AS SHOWN. ELEVATION CONTOURS SHOWN FOR THIS AREA REPRESENT PRE-CHANNEL RELOCATION GRADES, NOT CURRENT OR AS-BUILT CONDITIONS.

**LEGEND:**

-----	EDGE OF WATER/DITCH CENTERLINE
-----	ELEVATION CONTOUR
	RAILROAD TRACKS
====	ROADWAY
-----	PROPERTY BOUNDARY (SEE NOTE 4)
■	WETLAND (SEE NOTE 3)



No.	Date	Revisions	By	Ckd
1	6/16/11	RECORD DRAWING-ADDED CHANNEL RELOCATION LIMITS, REVISED SURFACE COVER LIMITS	ESD	MOG

Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
Professional Engineer's No.  
062059378  
State  
ILLINOIS  
Date Signed  
Project Mgr.  
MOG  
Designed by  
ESD  
Drawn by  
KMD  
Checked by  
(CHK)



(RECORD DRAWING: MADE FROM DRAWING 1 TRACER NO. 38884010/REVISION/38884G01.DWG, DATED 8/31/2011)

BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
FORMER PROCESS AREA SURFACE COVER RECORD DRAWINGS

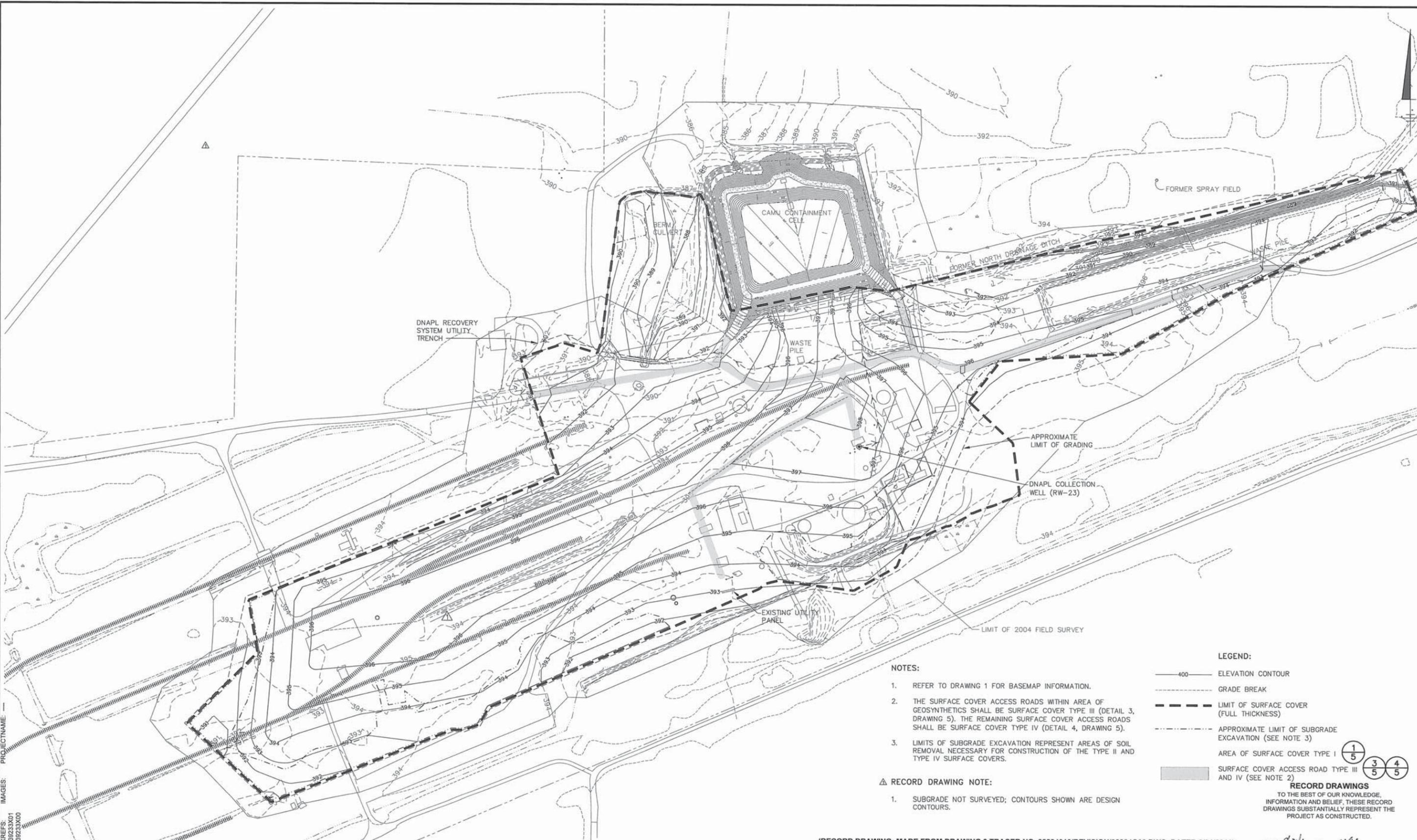
**PRE-CONSTRUCTION SITE PLAN**

DATE 8/31/11 BY MOG

ARCADIS Project No. B0039233.0000.00001	<b>1</b>
Date AUGUST 2011	
ARCADIS 6723 TOWPATH ROAD P.O. BOX 55 SYRACUSE, NY 13214-0066 315.446.9120	



CITY: SYRACUSE DIV: GROUP: ENV: CAD: DB: N. SMITHGALL L. FORAKER K. DAVIS LD: PIC: R. ANDERSON PM: J. HOLDEN TM: E. DEIVENDORF LYRON: OFF: REF: G:\ENVCAD\SYRACUSE\ACT\B0039233\0000000001\RECORDS\SURFACE COVER\38884010.DWG LAYOUT: 3 SAVED: 8/30/2011 11:08 AM ACADVER: 18.05 (LMS TECH) PAGES: 3 PLOT: 8/30/2011 11:10 AM BY: DECLERCQ, BRIAN



**NOTES:**

- REFER TO DRAWING 1 FOR BASEMAP INFORMATION.
- THE SURFACE COVER ACCESS ROADS WITHIN AREA OF GEOSYNTHETICS SHALL BE SURFACE COVER TYPE III (DETAIL 3, DRAWING 5). THE REMAINING SURFACE COVER ACCESS ROADS SHALL BE SURFACE COVER TYPE IV (DETAIL 4, DRAWING 5).
- LIMITS OF SUBGRADE EXCAVATION REPRESENT AREAS OF SOIL REMOVAL NECESSARY FOR CONSTRUCTION OF THE TYPE II AND TYPE IV SURFACE COVERS.

**RECORD DRAWING NOTE:**

- SUBGRADE NOT SURVEYED; CONTOURS SHOWN ARE DESIGN CONTOURS.

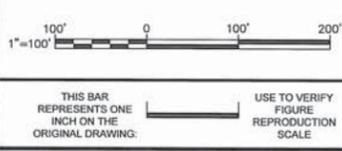
**LEGEND:**

- 400 ELEVATION CONTOUR
- GRADE BREAK
- LIMIT OF SURFACE COVER (FULL THICKNESS)
- APPROXIMATE LIMIT OF SUBGRADE EXCAVATION (SEE NOTE 3)
- AREA OF SURFACE COVER TYPE I
- SURFACE COVER ACCESS ROAD TYPE III AND IV (SEE NOTE 2)

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

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DATE 8/31/11 BY MOG



No.	Date	Revisions	By	Ckd
1	6/16/11	RECORD DRAWING-REMOVED CONTROL POINTS, ADDED RECORD DRAWING NOTE, AND REVISED SURFACE COVER LIMITS	ESD	MOG

Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State  
 ILLINOIS  
 Date Signed  
 Project Mgr.  
 MOG  
 Designed by  
 ESD  
 Drawn by  
 KMD  
 Checked by  
 (CHK)

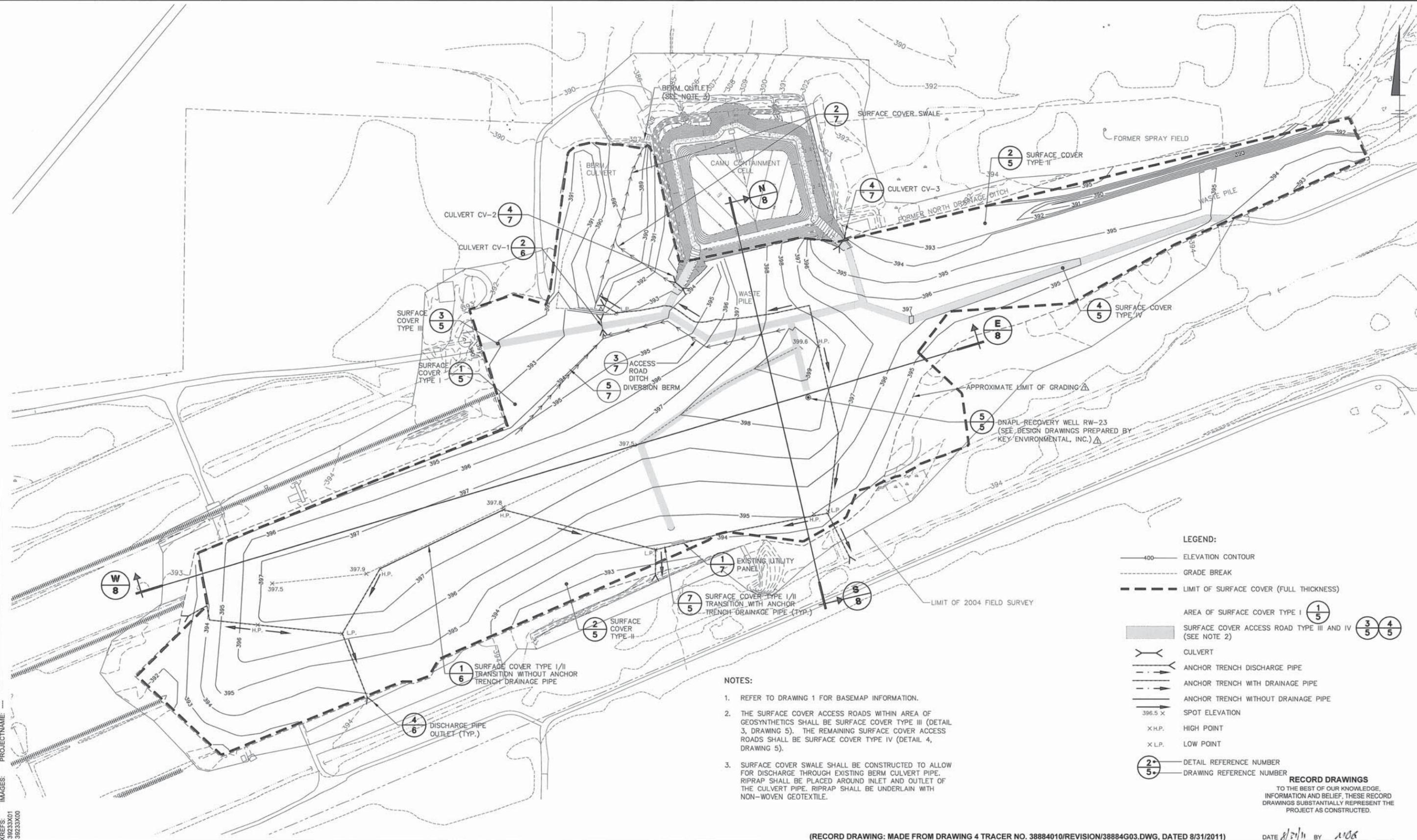


BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
 FORMER PROCESS AREA SURFACE COVER RECORD DRAWINGS

**SUBGRADE GRADING PLAN**

ARCADIS Project No.  
 B0039233.0000.00001  
 Date  
 AUGUST 2011  
 ARCADIS  
 6723 TOWPATH ROAD  
 P.O. BOX 55  
 SYRACUSE, NY 13214-0066  
 315.446.9120

CITY: SYRACUSE DIV/GRP: ENVCAD DB: N. SMITHGALL, L. FORAKER, K. DAVIS LD: PIC: R. ANDERSON PM: J. HOLDEN TM: E. DIEVENDORF LYRON: OFF: REF: G:\ENVCAD\SYRACUSE\ACT\190039233\00000001\RECORD\DSURFACE COVER\38884G03.DWG LAYOUT: 4 SAVED: 8/30/2011 11:10 AM ACADVER: 18.05 (LMS TECH) PAGES: 5  
 PROJECT NAME: BEAZER EAST, INC. - FORMER KOPPERS WOOD-TREATING SITE - CARBONDALE, ILLINOIS  
 XREFS: 382333001 382333000



**LEGEND:**

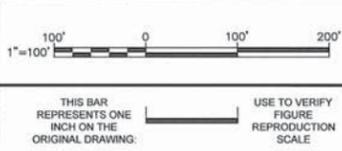
- 400 — ELEVATION CONTOUR
- - - GRADE BREAK
- - - - - LIMIT OF SURFACE COVER (FULL THICKNESS)
- AREA OF SURFACE COVER TYPE I (1/5)
- SURFACE COVER ACCESS ROAD TYPE III AND IV (SEE NOTE 2)
- — — — — CULVERT
- — — — — ANCHOR TRENCH DISCHARGE PIPE
- — — — — ANCHOR TRENCH WITH DRAINAGE PIPE
- — — — — ANCHOR TRENCH WITHOUT DRAINAGE PIPE
- 396.5 x SPOT ELEVATION
- x H.P. HIGH POINT
- x L.P. LOW POINT
- (2/5) DETAIL REFERENCE NUMBER
- (5/5) DRAWING REFERENCE NUMBER

- NOTES:**
- REFER TO DRAWING 1 FOR BASEMAP INFORMATION.
  - THE SURFACE COVER ACCESS ROADS WITHIN AREA OF GEOSYNTHETICS SHALL BE SURFACE COVER TYPE III (DETAIL 3, DRAWING 5). THE REMAINING SURFACE COVER ACCESS ROADS SHALL BE SURFACE COVER TYPE IV (DETAIL 4, DRAWING 5).
  - SURFACE COVER SWALE SHALL BE CONSTRUCTED TO ALLOW FOR DISCHARGE THROUGH EXISTING BERM CULVERT PIPE. RIPRAP SHALL BE PLACED AROUND INLET AND OUTLET OF THE CULVERT PIPE. RIPRAP SHALL BE UNDERLAIN WITH NON-WOVEN GEOTEXTILE.

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

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DATE 8/31/11 BY AOS



No.	Date	Revisions	ESD	MOG
1	6/16/11	RECORD DRAWING-REVISED SURFACE COVER LIMITS	ESD	MOG

Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State  
 ILLINOIS  
 Date Signed  
 Project Mgr.  
 MOG  
 Designed by  
 ESD  
 Drawn by  
 KMD  
 Checked by  
 (CHK)

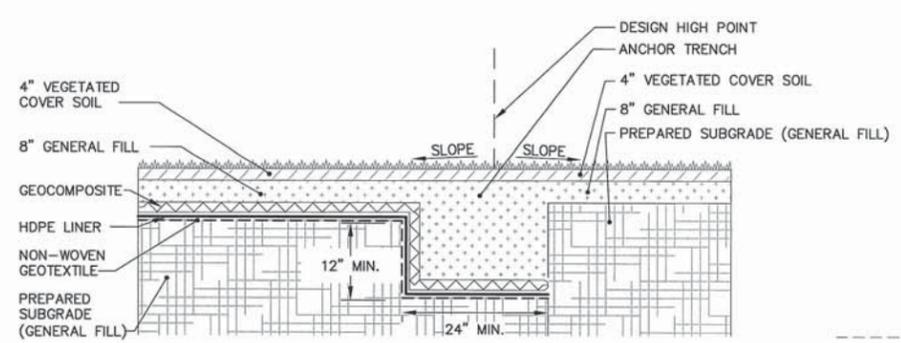


BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
**FORMER PROCESS AREA SURFACE COVER RECORD DRAWINGS**  
**FINAL GRADING AND STORMWATER MANAGEMENT PLAN**

ARCADIS Project No.  
 B0039233.0000.00001  
 Date  
 AUGUST 2011  
 ARCADIS  
 6723 TOWPATH ROAD  
 P.O. BOX 55  
 SYRACUSE, NY 13214-0066  
 315.446.9120

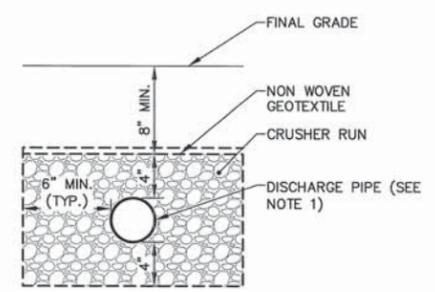


CITY: SYRACUSE DIV/GRUP: ENVCAD DB: N. SMITHGALL, L. FORAKER K. DAVIS LD. PIC: R. ANDERSON PM: J. HOLDEN TM: E. DIEVENDORF LYRON: OFF-REF  
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 PROJECTNAME: PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/30/2011 11:12 AM



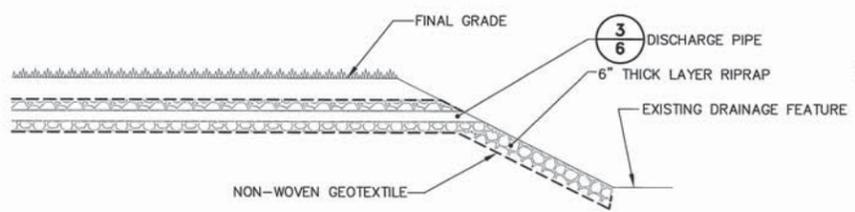
**SURFACE COVER TYPE I/II  
TRANSITION WITHOUT ANCHOR  
TRENCH DRAINAGE PIPE** 1  
NOT TO SCALE

- GENERAL NOTES:
- GEOSYNTHETICS ARE SHOWN AT AN EXAGGERATED SCALE FOR CLARITY.
  - SEE DRAWING 7 FOR MATERIAL SPECIFICATIONS.

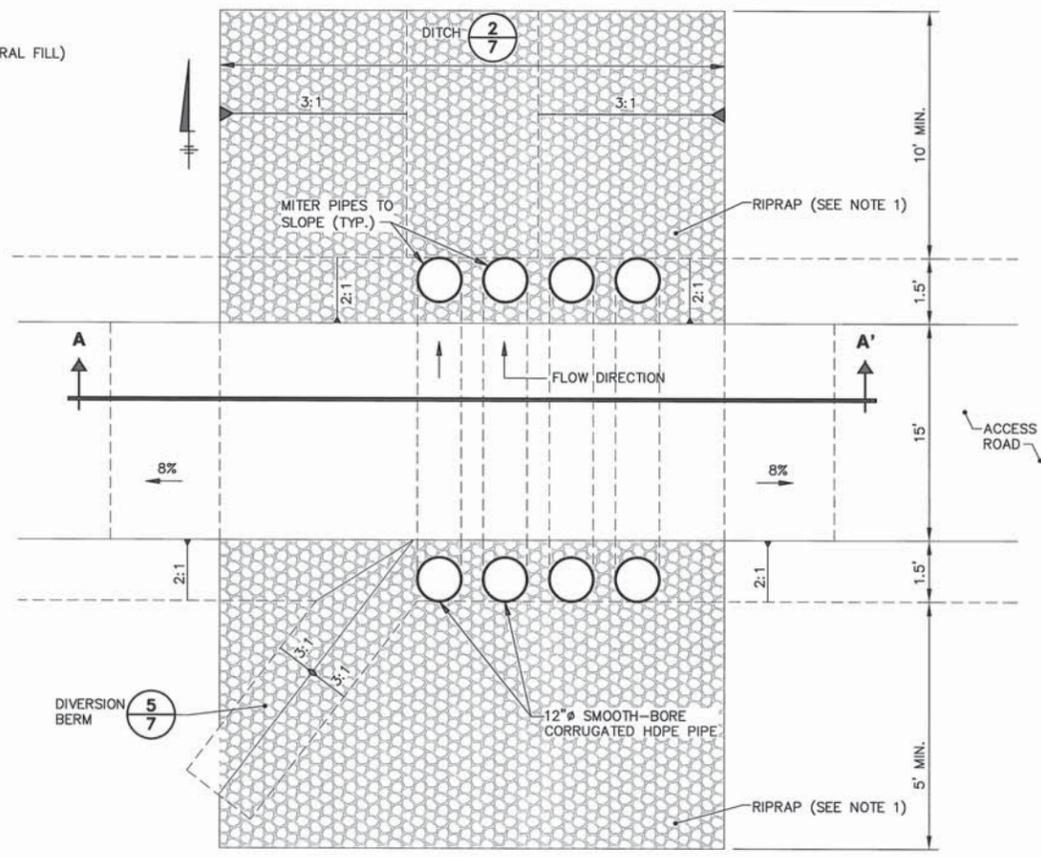


- NOTE:
- DISCHARGE PIPE SHALL BE 6" Ø CORRUGATED HDPE AND SHALL HAVE A MINIMUM SLOPE OF 0.5%. DISCHARGE PIPE SHALL TEE INTO THE COLLECTION PIPE.
  - TRENCH SHALL BE BACKFILLED WITH CRUSHER RUN WRAPPED IN NON-WOVEN GEOTEXTILE. GEOTEXTILE AT TOP OF TRENCH SHALL BE OVERLAPPED AS SHOWN. OVERLYING MATERIAL TO BE PLACED ABOVE OVERLAP IN A MANNER WHICH MAINTAINS CONTACT BETWEEN OVERLAPPED GEOTEXTILES.

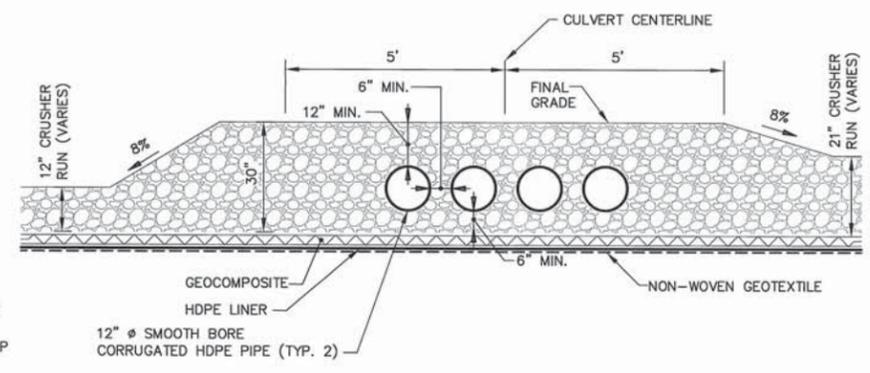
**DISCHARGE PIPE TRENCH SECTION** 3  
NOT TO SCALE



**DISCHARGE PIPE OUTLET** 4  
NOT TO SCALE



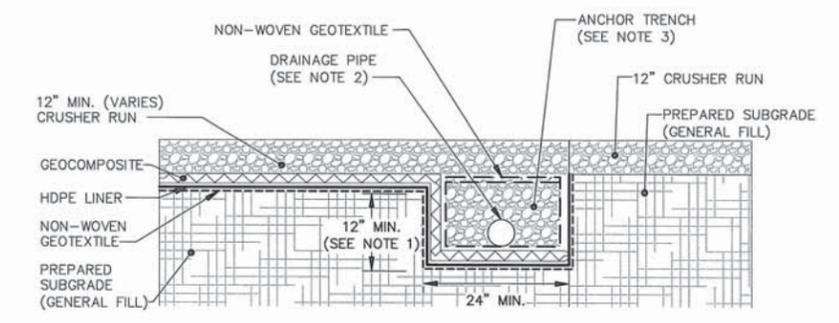
**PLAN**



**SECTION A-A'**

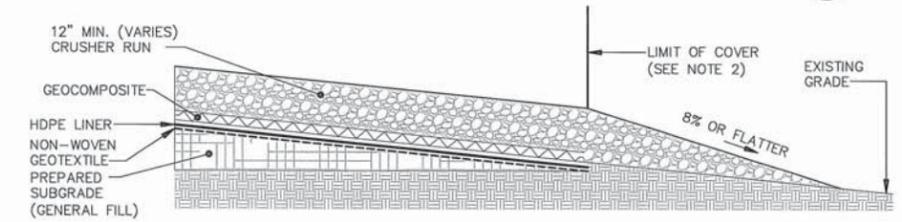
- NOTE:
- RIPRAP TO BE PLACED AT A MINIMUM THICKNESS OF 12 INCHES AND UNDERLAIN WITH NON-WOVEN GEOTEXTILE.

**CULVERT CV-1** 2  
NOT TO SCALE



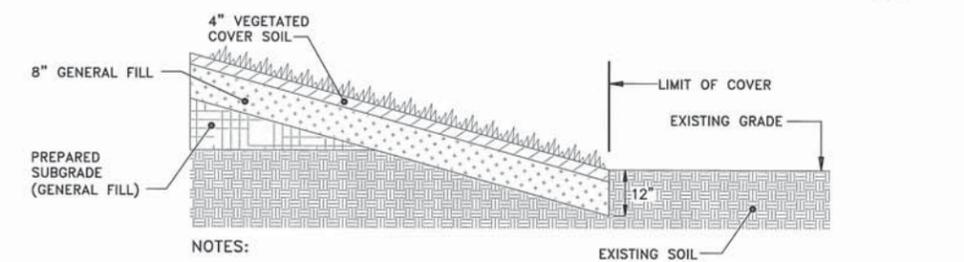
- NOTES:
- ANCHOR TRENCH DEPTH MAY VARY AS NECESSARY TO ACHIEVE COLLECTION PIPE MINIMUM SLOPES.
  - DRAINAGE PIPE SHALL BE 4" Ø PERFORATED CORRUGATED HDPE AND SHALL HAVE A MINIMUM SLOPE OF 0.5%. DRAINAGE PIPE SHALL DISCHARGE AT THE LOCATIONS SHOWN ON DRAWING 4.
  - ANCHOR TRENCH SHALL BE BACKFILLED WITH DRAINAGE STONE WRAPPED IN NON-WOVEN GEOTEXTILE. GEOTEXTILE AT TOP OF ANCHOR TRENCH TO BE OVERLAPPED AS SHOWN. OVERLYING MATERIAL TO BE PLACED ABOVE OVERLAP IN A MANNER WHICH MAINTAINS CONTACT BETWEEN OVERLAPPED GEOTEXTILES.

**SURFACE COVER TYPE III/IV TRANSITION  
WITH ANCHOR TRENCH DRAINAGE PIPE** 5  
NOT TO SCALE



- NOTES:
- THIS DETAIL APPLICABLE TO GEOSYNTHETIC COVER TERMINATIONS WHICH DO NOT REQUIRE A COVER TRANSITION.
  - OVERLYING CRUSHER RUN MATERIAL TO BE PLACED ABOVE GEOSYNTHETICS IN A MANNER THAT MINIMIZES DISTURBANCE/DISLOCATION OF GEOSYNTHETICS.

**SURFACE COVER TYPE III TERMINATION** 6  
NOT TO SCALE



- NOTES:
- EXISTING SOIL REMOVED TO CONSTRUCT SURFACE COVER TERMINATION SHALL BE PLACED WITHIN LIMITS OF SUBGRADE GRADING AND BENEATH GENERAL FILL MATERIAL USED TO CONSTRUCT PREPARED SUBGRADE.

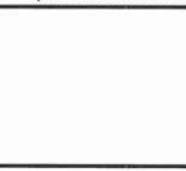
**SURFACE COVER TYPE II TERMINATION** 7  
NOT TO SCALE

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Professional Engineer's Name <b>MARK OWEN GRAVELDING</b>			
Professional Engineer's No. 062059378			
State	Date Signed	Project Mgr.	MOG
ILLINOIS		Checked by	(CHK)
Designed by	Drawn by		
ESD	KMD		



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
FORMER PROCESS AREA SURFACE COVER RECORD DRAWINGS

**MISCELLANEOUS DETAILS**

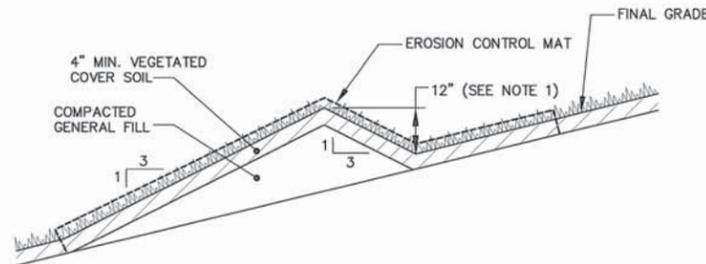
ARCADIS Project No. B0039233.0000.00001	
Date	AUGUST 2011
ARCADIS 6723 TOWPATH ROAD P.O. BOX 55 SYRACUSE, NY 13214-0066 315.446.9120	

**MATERIAL SPECIFICATIONS**

MATERIAL TYPE	USE (DRAWING REFERENCE)	MATERIAL DESCRIPTION	PLACEMENT AND COMPACTION SPECIFICATION
VEGETATED COVER SOIL (SEE NOTE 2)	SURFACE COVER TYPE I AND II (5)	SANDY/SILTY LOAM MATERIAL (CAPABLE OF ESTABLISHING AND SUPPORTING DENSE VEGETATIVE GROWTH) FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE. SEED MIX SHALL BE COMPOSED OF 30 LB/ACRE TALL FESCUE (KENTUCKY 31 BLEND) AND 1/2 LB/ACRE LIDINO CLOVER.	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE A MINIMUM IN-PLACE THICKNESS OF 4". COMPACTION TO BE ACHIEVED BY SPREADING EQUIPMENT.
DRAINAGE STONE	COLLECTION PIPE BACKFILL (5)	IL DOT COARSE AGGREGATE, GRAVEL GRADATION NUMBER CA1	SEE DETAIL FOR PLACEMENT DIMENSIONS.
GENERAL FILL (SEE NOTES 2 AND 3) $\Delta$	PREPARED SUBGRADE FOR SURFACE COVER TYPE I AND II (3)	SOIL MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE. MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 6".	MATERIAL TO BE PLACED IN 12-INCH-THICK LOOSE LIFTS. MATERIAL TO BE COMPACTED WITH A MINIMUM 3 PASSES OF A SUITABLY-SIZED ROLLER.
	PREPARED SUBGRADE FOR SURFACE COVER TYPE III AND IV (5) $\Delta$	SOIL MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE. MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3". MATERIAL SHALL HAVE A CL OR CH SOIL CLASSIFICATION.	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE IN-PLACE COMPACTED LIFT THICKNESS OF 6 INCHES. MATERIAL TO BE COMPACTED TO 95% STANDARD PROCTOR (ASTM D-698). IN-PLACE DENSITY TESTING TO BE PERFORMED AT A MINIMUM FREQUENCY OF 1 TEST PER LIFT PER 100 LINEAR FEET OF ROAD LENGTH. COMPACTED SURFACES SHALL BE ROUGHENED PRIOR TO PLACEMENT OF SUCCESSIVE LIFT. $\Delta$
	SURFACE COVER TYPE I AND II (5)		MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE IN-PLACE COMPACTED LIFT THICKNESS OF 8 INCHES. COMPACTION TO BE ACHIEVED BY SPREADING EQUIPMENT.
RIPRAP	COVER TERMINATION (5)	IL DOT BEDDING MATERIAL, GRADATION NO. 1 (RR1)	SEE DETAILS FOR PLACEMENT DIMENSIONS.
HDPE PIPE	DRAINAGE PIPE (4)	4" DIA. PERFORATED, SDR-13.5	PLACE AS REQUIRED
	DISCHARGE PIPE (4)	6" DIA. SOLID, SDR-13.5	PLACE AS REQUIRED
EROSION CONTROL MAT	DITCH (7) DIVERSION BERM (7)	NORTH AMERICAN GREEN, SC150	PLACE PER MANUFACTURER'S SPECIFICATIONS
HDPE LINER	SURFACE COVER TYPE I AND III (4)	40 MIL. SMOOTH HDPE	REFER TO SPECIFICATION SECTION 02234
GEOCOMPOSITE	SURFACE COVER TYPE I AND III (4)	DOUBLE SIDED	REFER TO SPECIFICATION SECTION 02219
NON-WOVEN GEOTEXTILE	SURFACE COVER TYPE I AND III (4), COLLECTION PIPE ANCHOR TRENCH (5,6)	AMOCO 4510 OR AN APPROVED EQUAL	REFER TO SPECIFICATION SECTION 02232
CRUSHER RUN	SURFACE COVER TYPE III AND IV (4), DISCHARGE PIPE TRENCH (6)	IL DOT AGGREGATE SUBBASE TYPE B, COARSE AGGREGATE GRADATION NUMBER CA6 $\Delta$	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE IN-PLACE COMPACTED LIFT THICKNESS OF 12 INCHES MINIMUM. MATERIAL TO BE COMPACTED WITH A MINIMUM 3 PASSES OF A SUITABLY-SIZED ROLLER.
POURED CONCRETE	UTILITY PANEL COLLAR (7)	IL DOT PORTLAND CEMENT TYPE IIA	PLACE AS REQUIRED

**NOTES:**

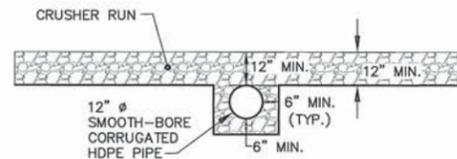
- WHERE INDICATED, MATERIAL DESCRIPTION AND PLACEMENT REQUIREMENTS NOTED ABOVE BASED ON "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION (IL DOT)", DATED JAN. 1, 2002.
- MATERIAL OBTAINED FROM OFF SITE SOURCES TO BE ANALYZED FOR SVOCs, VOCs, AND RCRA METALS (8) AT A FREQUENCY OF 1 SAMPLE PER SOURCE FOR EACH MATERIAL TYPE.
- EXISTING GROUND SURFACE BENEATH PROPOSED ACCESS ROADS TO BE PROOF ROLLED USING APPROPRIATELY SIZED EQUIPMENT. AREAS DETERMINED BY THE CONSTRUCTION QUALITY ASSURANCE ENGINEER TO HAVE INSUFFICIENT DENSITY AS EVIDENCED BY RUTTING, DEFLECTING, AND/OR PUMPING WILL BE REPAIRED BY REPLACING EXISTING SUBSTANDARD MATERIAL WITH NEW SOIL MATERIAL AND COMPACTED UNTIL SUFFICIENT DENSITY IS ACHIEVED.



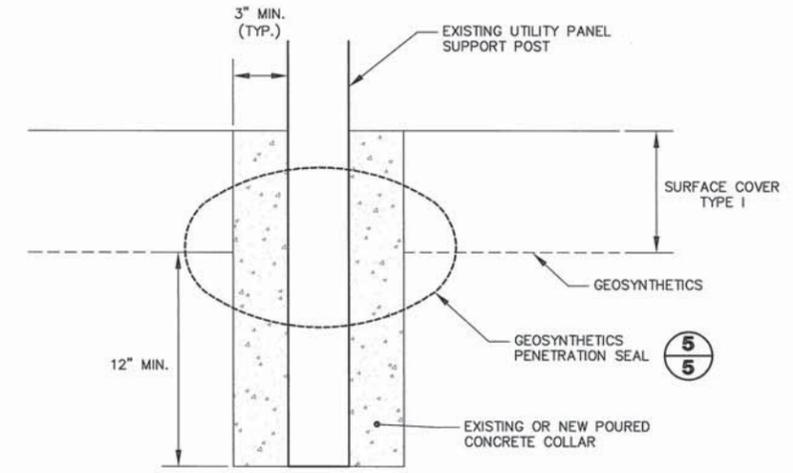
**NOTE:**

- HEIGHT OF BERM TO MATCH TOP OF ACCESS ROAD ELEVATION AT DOWNGRADE END (i.e., 24-INCH). EXTEND 24-INCH HEIGHT BACK APPROXIMATELY 50-FT. THEN TAPER TO 12-INCHES.

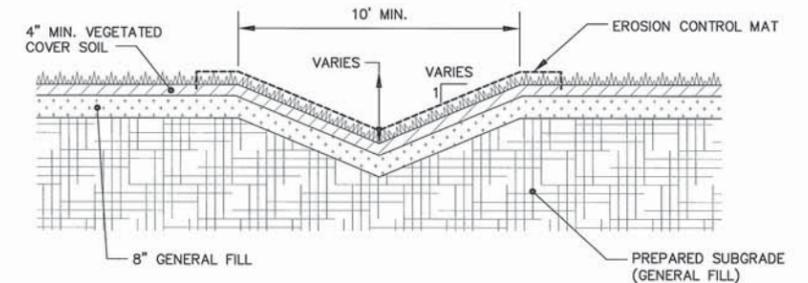
**DIVERSION BERM** 5  
NOT TO SCALE



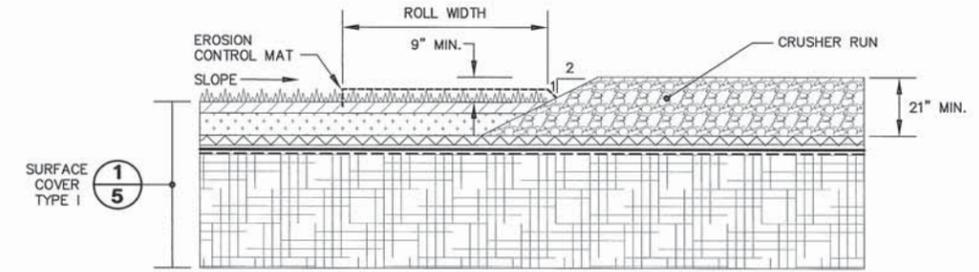
**CULVERT CV-2 AND CV-3** 4  
NOT TO SCALE



**UTILITY PANEL COLLAR** 1  
NOT TO SCALE



**SURFACE COVER SWALE** 2  
NOT TO SCALE



**NOTE:**

- ACCESS ROAD DITCH TO EXTEND FROM CULVERT CV-1 TO DNAPL COLLECTION WELL RW-23 ACCESS ROAD.

**ACCESS ROAD DITCH** 3  
NOT TO SCALE

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

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No.	Date	Revisions	ESD	MOG
1	6/11/11	RECORD DRAWINGS - MATERIAL CHANGED	ESD	MOG

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Professional Engineer's Name  
**MARK OWEN GRAVELDING**

Professional Engineer's No.  
062059378

State  
ILLINOIS

Designed by  
ESD

Date Signed  
MOG

Project Mgr.  
MOG

Drawn by  
KMD

Checked by  
(CHK)



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
FORMER PROCESS AREA SURFACE COVER RECORD DRAWINGS

**MISCELLANEOUS DETAILS AND MATERIAL SPECIFICATIONS**

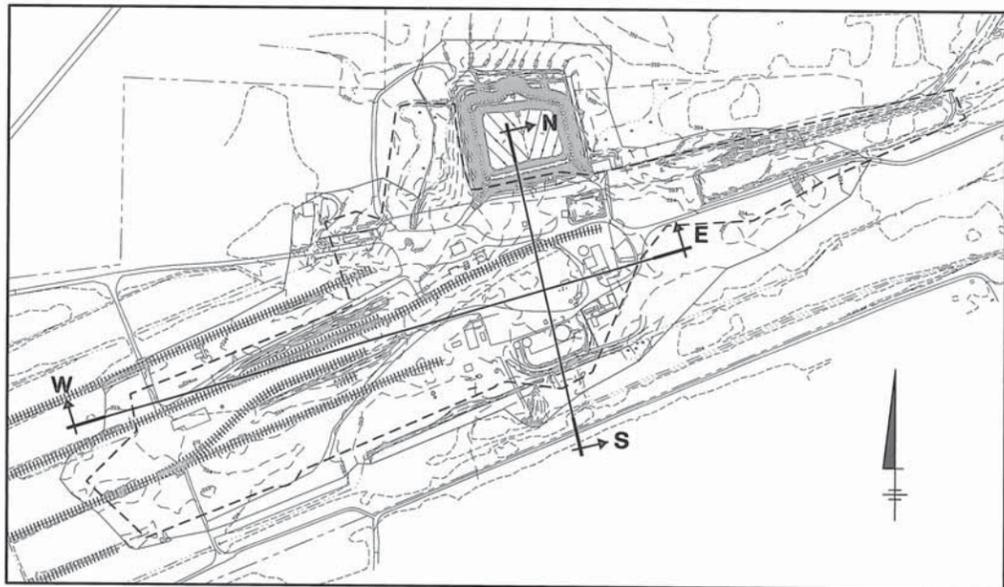
ARCADIS Project No.  
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Date  
AUGUST 2011

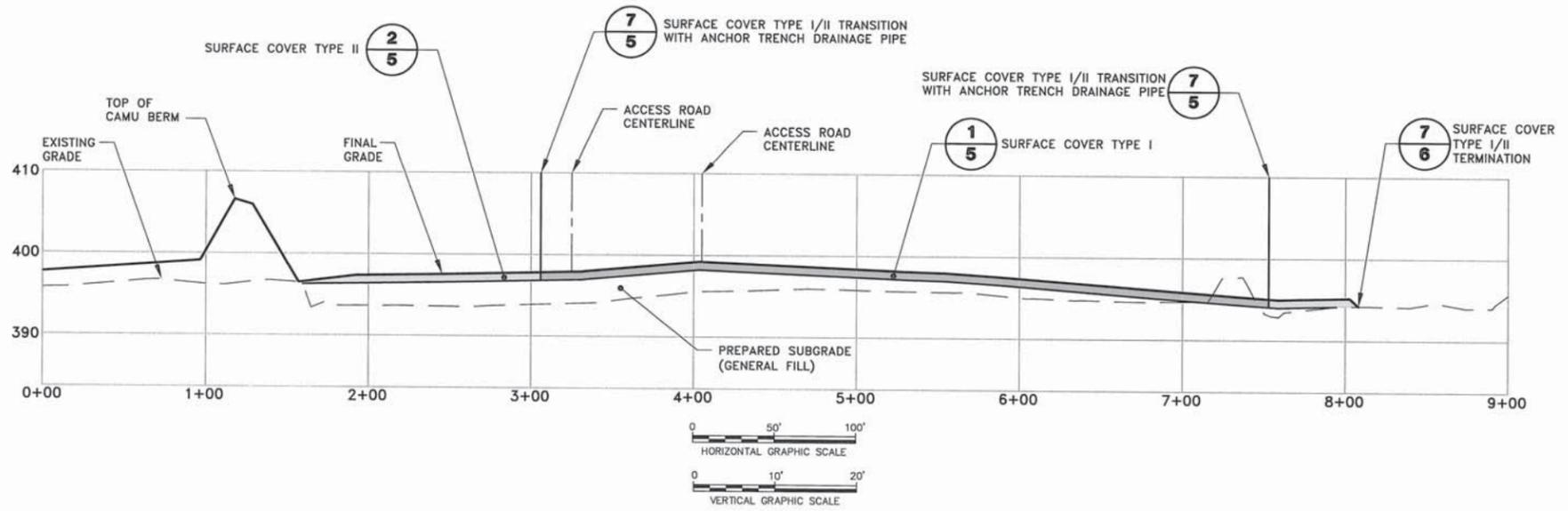
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P.O. BOX 55  
SYRACUSE, NY 13214-0066  
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CITY: SYRACUSE DIV/GROUP: ENVCAD DR: N. SMITHGALL, L. FORAKER, K. DAVIS, LD: PIC: R. ANDERSON, PM: J. HOLDEN, TM: E. DIEVENDORF, LYR: ON: "OFF" REF: G: ENVCAD/SYRACUSE/ENVCAD/ACT/B0039233/00000001/RECORD/SURFACE COVER/38884M02.DWG LAYOUT: 7 SAVER: 8/30/2011 11:13 AM ACADVER: 18.05 (LMS TECH) PAGES: 7 PLOTSETUP: PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/30/2011 11:13 AM BY: DECLERCO, BRIAN

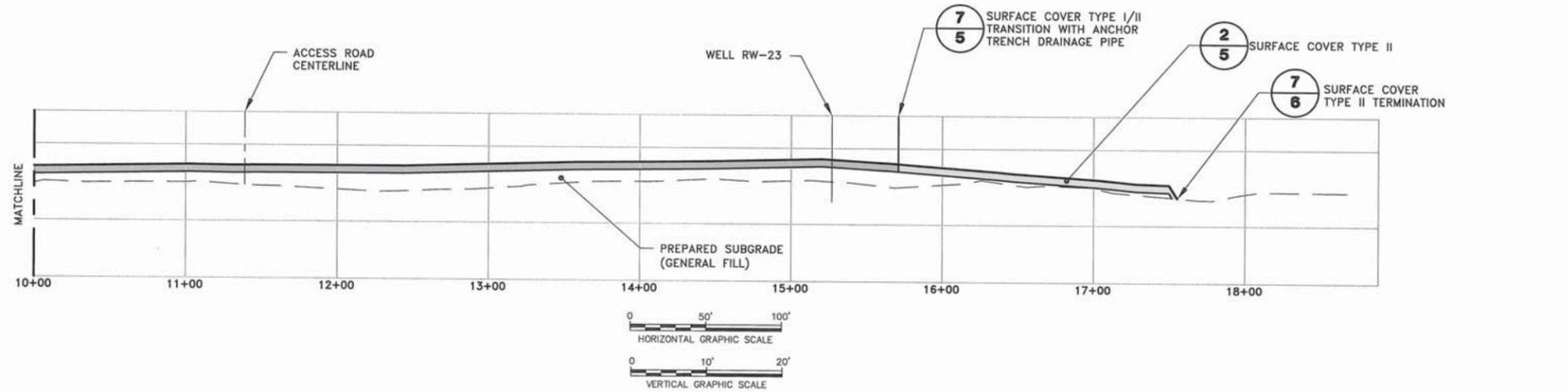
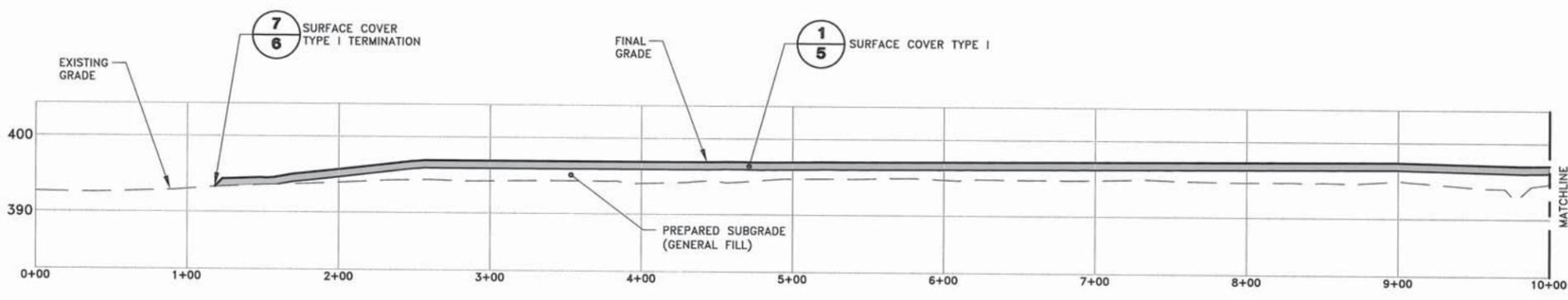
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**KEY MAP**  
NOT TO SCALE



NOTE:  
1. REFER TO DRAWING 1 FOR BASEMAP INFORMATION.



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DATE 8/31/11 BY MOG

AS NOTED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

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Professional Engineer's Name  
**MARK OWEN GRAVELDING**

Professional Engineer's No.  
062059378

State  
ILLINOIS

Date Signed  
Project Mgr.  
MOG

Designed by  
Drawn by  
ESD  
KMD

Checked by  
(CHK)



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
FORMER PROCESS AREA SURFACE COVER RECORD DRAWINGS

**SURFACE COVER CROSS SECTIONS**

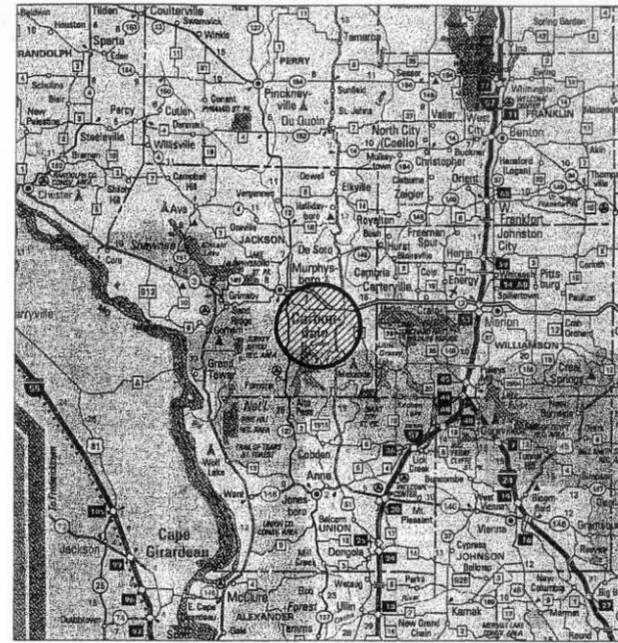
ARCADIS Project No.  
B0039233.0000.00001

Date  
AUGUST 2011

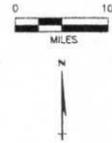
ARCADIS  
8723 TOWPATH ROAD  
P.O. BOX 55  
SYRACUSE, NY 13214-0066  
315.446.9120



**RW-23 DNAPL Recovery  
System Record Drawings**



VICINITY MAP



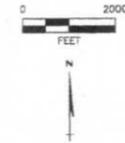
# DNAPL RECOVERY SYSTEM REMEDIAL DESIGN DRAWINGS FORMER KOPPERS WOOD TREATING FACILITY CARBONDALE, ILLINOIS

Prepared for:

# Beazer



LOCATION MAP



<u>NO.</u>	<u>TITLE</u>
T001	TITLE SHEET
R001	DNAPL RECOVERY SYSTEM PLAN
R002	PROCESS AND INSTRUMENTATION DIAGRAM/ MISCELLANEOUS PIPING DETAILS
R003	MISCELLANEOUS DETAILS I
E001	ELECTRICAL SITE PLAN
E002	SINGLE LINE DIAGRAM/PANEL LAYOUT
E003	MISCELLANEOUS DETAILS II



BEAZER EAST, INC.  
PITTSBURGH, PENNSYLVANIA

DRWN: BJS	DATE: 1/14/05	<b>KEY</b> ENVIRONMENTAL INCORPORATED
CHKD: RFD	DATE: 1/14/05	
APPD: NJM	DATE: 1/14/05	
SCALE: AS SHOWN		

DNAPL RECOVERY SYSTEM REMEDIAL DESIGN  
FORMER KOPPERS WOOD TREATING SITE  
CARBONDALE, ILLINOIS

TITLE SHEET

DRAWING NUMBER  
04-915  
T001

REFERENCES: 1. AAA ROAD ATLAS OF ILLINOIS, 2004

2. USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLES:  
- CARBONDALE, IL 1996, AND DE SOTO, IL 1978

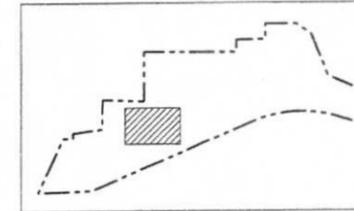
ISSUE DATE:  
1/05

ROSSLYN FARMS  
INDUSTRIAL PARK  
1200 ARCH ST., SUITE 200  
CARNEGIE, PA 15106

△			
△	1/05	FOR CONSTRUCTION	RJS
△	9/04	FOR REVIEW BY U.S. EPA	RFD
REV #	DATE	DESCRIPTION	APPD



### LOCATION KEY

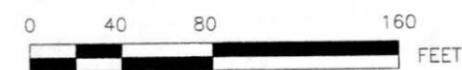


### LEGEND

- EXISTING TOPOGRAPHIC CONTOURS (FT-MSL)
- EXISTING DITCH/CHANNEL
- EXISTING RAILROAD
- EXISTING STRUCTURE
- EXISTING DNAPL RECOVERY WELL LOCATION
- PROPOSED GROUNDWATER DISCHARGE PIPE

**P1** 1, 1" SDR 11 HDPE GROUNDWATER DISCHARGE PIPE

**NOTES:**  
1. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE UNKNOWN. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.



**BEAZER EAST, INC.**  
PITTSBURGH, PENNSYLVANIA

DRWN: BJ/S	DATE: 1/14/05	
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SCALE: AS SHOWN		

DNAPL RECOVERY SYSTEM REMEDIAL DESIGN  
FORMER KOPPERS WOOD TREATING SITE  
CARBONDALE, ILLINOIS

DNAPL RECOVERY SYSTEM PLAN	DRAWING NUMBER <b>R001</b>
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APPROXIMATE LOCATION OF EXISTING TREATMENT PLANT

**1**  
R003  
UTILITY TRENCH

**2** **3**  
R003 R003  
WELL HEAD DETAILS

**P1**

DATE: 1/14/05  
DRAWN BY: BJ/S  
CHECKED BY: RFD  
APPD BY: NJM  
FILE: Y:\BAS\_CAD\CARBONDALE\2004 DESIGN\R001.DWG  
PERSON: ACAD 2000  
MACH: CDS

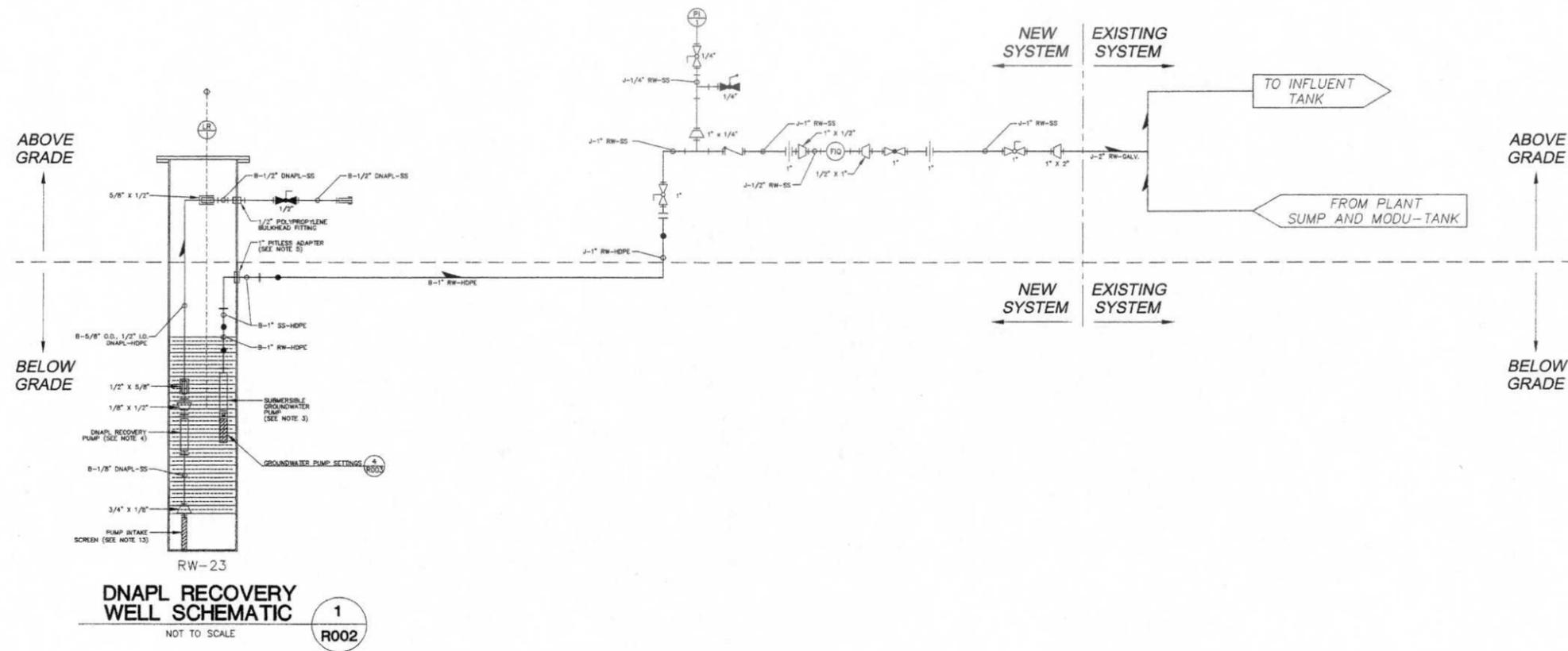
REV #	DATE	DESCRIPTION	APPD
1/05		FOR CONSTRUCTION	RJS
9/04		FOR REVIEW BY U.S. EPA	RFD

REFERENCE: BASEMAP AND TOPOGRAPHIC FEATURES PROVIDED BY BB&L, INC., 2004.

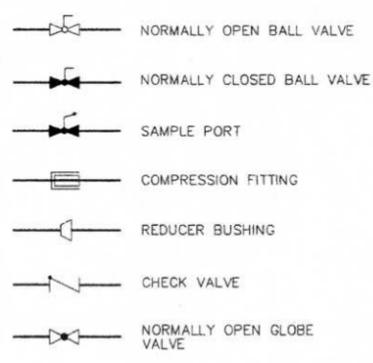
ISSUE DATE:  
**1/05**  
ROSSLYN FARMS  
INDUSTRIAL PARK  
1200 ARCH ST., SUITE 200  
CARNEGIE, PA 15106

**NOTES:**

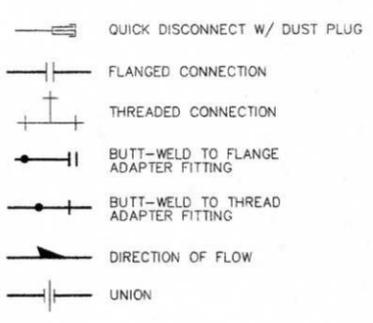
- HDPE PIPE AND FITTINGS SHALL BE SDR 11 AND SHALL BE RATED AT 180 PSI. HDPE PIPE AND FITTINGS SHALL BE BUTT FUSION WELDED. HDPE FLANGE CONNECTIONS (I.E. BUTT FUSION TO FLANGED) SHALL BE MOLDED ADAPTERS WITH CONVOLUTED STAINLESS STEEL BACK-UP RINGS. HDPE PIPE SHALL BE THE SIZES SHOWN ON THE DRAWINGS. HDPE THREADED TRANSITION FITTINGS (I.E. BUTT FUSION TO MALE PIPE THREAD) SHALL BE HDPE TO STAINLESS STEEL.
- STAINLESS STEEL PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND SHALL BE CONSTRUCTED OF TYPE 316 STAINLESS STEEL. STAINLESS STEEL PIPE SHALL BE THE SIZES SHOWN ON THE DRAWINGS.
- SUBMERSIBLE WELL PUMPS SHALL BE ENVIRONMENTAL DUTY 4-INCH PUMPS. SUBMERSIBLE PUMPS SHALL BE REDI-FLO4 MODEL 5E3 AS MANUFACTURED BY GRUNDFOS PUMP CORPORATION. PUMP MOTORS SHALL BE ENVIRONMENTAL DUTY 1/2 HP, 230V, SINGLE PHASE MOTORS. MOTORS SHALL BE MANUFACTURED BY FRANKLIN MOTOR OR GRUNDFOS PUMP CORPORATION, OR ENGINEER APPROVED EQUAL. SUBMERSIBLE WELL PUMPS SHALL BE FITTED WITH SHROUDS CONSTRUCTED OF 4-INCH SDR 26 HDPE. SHROUDS SHALL HAVE AN INSIDE DIAMETER OF 4.15 INCHES. SUBMERSIBLE WELL PUMPS SHALL INCLUDE STAINLESS STEEL LIFTING CABLES.
- DNAPL PUMPS SHALL INCLUDE 1/8-INCH INLET AND OUTLET PORTS, CROSS-LINK POLYETHYLENE CABLE, AND SHALL BE EPOXY-ENCAPSULATED. DNAPL RECOVERY PUMPS SHALL BE MODEL LPC G-ES0 AS MANUFACTURED BY LINEAR PUMP CORPORATION, OR ENGINEER APPROVED EQUAL.
- PITLESS ADAPTERS SHALL BE OF BRASS CONSTRUCTION AND SHALL INCLUDE TEFON COATED O-RING SEALS, FUNNEL-TOP FEMALE CASTINGS, AND TAPERED MALE SLIDES. PITLESS ADAPTERS SHALL BE FITTED WITH A 1-INCH VERTICAL RISER PIPE WITH TEE HANDLE FOR EASY REMOVAL. PITLESS ADAPTER SHALL BE MODEL B-BOX AS MANUFACTURED BY CAMPBELL MANUFACTURING, INC. OR ENGINEER APPROVED EQUAL.
- GLOBE VALVES SHALL BE RATED FOR A MINIMUM OF 200 PSI AND SHALL BE CONSTRUCTED OF 316 STAINLESS STEEL WITH TEFON PACKING. GLOBE VALVES SHALL BE THE RISING STEM TYPE.
- CHECK VALVES SHALL BE SPRING LOADED BALL-CONE TYPE CONSTRUCTED OF 316 STAINLESS STEEL WITH TEFON BALLS. CHECK VALVES SHALL BE RATED AT A MINIMUM OF 200 PSI.
- BALL VALVES SHALL FULL-PORT 316 STAINLESS STEEL CONSTRUCTION WITH TEFON TRIM AND LOCKABLE LEVER-STYLE HANDLE.
- SAMPLE PORTS SHALL BE CONSTRUCTED OF 316 STAINLESS STEEL BALL VALVES AND 1/4-INCH STAINLESS STEEL HOSE BARB.
- PRESSURE GAUGES SHALL BE 2 1/2-INCH DUAL SCALE LIQUID FILLED GAUGES WITH 304 STAINLESS STEEL CASES AND 1/4-INCH MALE NPT BOTTOM CONNECTIONS. PRESSURE GAUGES SHALL BE RATED FOR 0-30 PSI.
- QUICK CONNECTS FOR DNAPL TRANSFER LINES SHALL BE CAM AND GROOVE TYPE COUPLINGS CONSTRUCTED OF 316 STAINLESS STEEL WITH VITON GASKETS. QUICK CONNECTS SHALL INCLUDE COUPLERS WITH MALE NPT CONNECTIONS. ALL QUICK CONNECTS WILL BE SUPPLIED WITH DUST PLUGS OF THE SAME MATERIAL TYPE.
- COMPRESSION FITTINGS SHALL BE MALE STRAIGHT ADAPTERS CONSTRUCTED OF TYPE 316 STAINLESS STEEL WITH TUBE SUPPORTS OF THE SAME MATERIAL AS THE FITTING.
- INTAKE SCREENS SHALL BE ALL-METAL BUSHING-MOUNT SUCTION STRAINERS WITH 30 MESH STAINLESS STEEL SCREENS. BUSHING-MOUNTS SHALL HAVE 3/4 INCH FPT CONNECTIONS AND SHALL BE MANUFACTURED WITH CAST IRON.
- ALL BURIED BUTT-FUSION WELDED HDPE SHALL BE HYDROSTATICALLY PRESSURE TESTED AND VISUALLY INSPECTED PRIOR TO BACKFILLING. PRESSURE TESTING SHALL BE PERFORMED AT 100 PSI FOR A MINIMUM OF 15 MINUTES.
- FLOWMETERS SHALL BE 1/2-INCH DIGITAL METERS WITH 316 STAINLESS STEEL BODY AND FEMALE NPT CONNECTIONS. FLOWMETERS SHALL BE CAPABLE OF MEASURING INSTANTANEOUS FLOW AND RECORDING TOTAL FLOW. FLOWMETERS SHALL HAVE A RANGE OF 1-10 GPM. FLOWMETERS SHALL BE INSTALLED WITH A 10-INCH RUN OF STRAIGHT PIPE UPSTREAM AND A 5-INCH RUN OF PIPE DOWNSTREAM. FLOWMETERS SHALL BE MODEL S05 AS MANUFACTURED BY GREAT PLAINS INDUSTRIES OR ENGINEER APPROVED EQUAL.



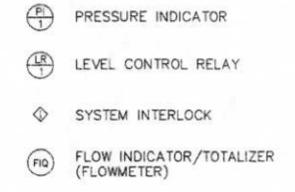
**VALVE SYMBOLS**



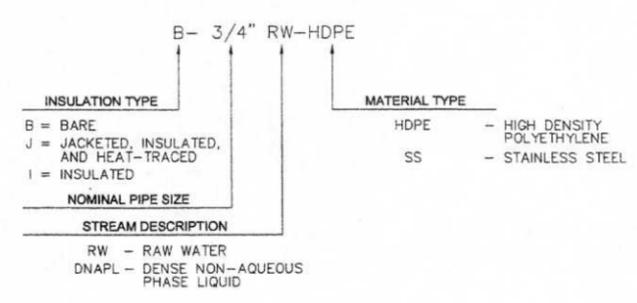
**PIPING SYMBOLS**



**INSTRUMENTATION SYMBOLS**



**PROCESS LINE DESCRIPTION**



BEAZER EAST, INC.  
PITTSBURGH, PENNSYLVANIA

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APPD: NJM	DATE: 1/14/05	
SCALE: AS SHOWN		

DNAPL RECOVERY SYSTEM REMEDIATION DESIGN  
FORMER KOPPERS WOOD TREATING SITE  
CARBONDALE, ILLINOIS

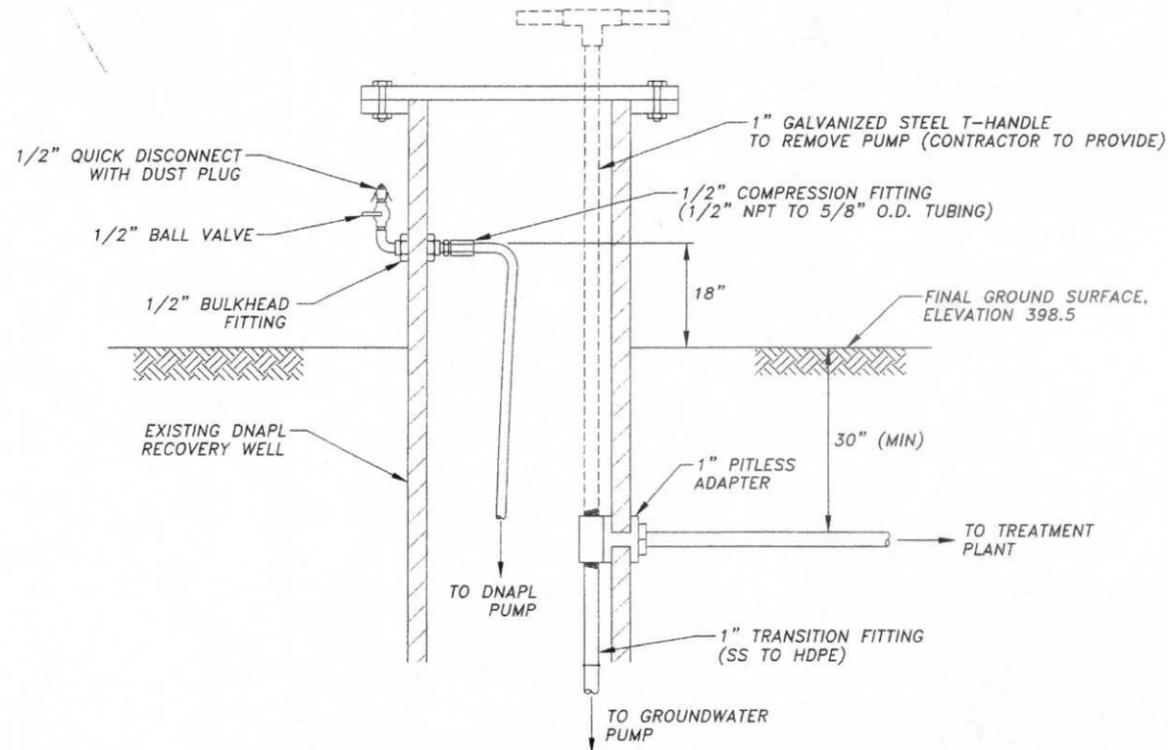
ISSUE DATE:  
1/05

ROSSLYN FARMS  
INDUSTRIAL PARK  
1200 ARCH ST., SUITE 200  
CARNEGIE, PA 15106

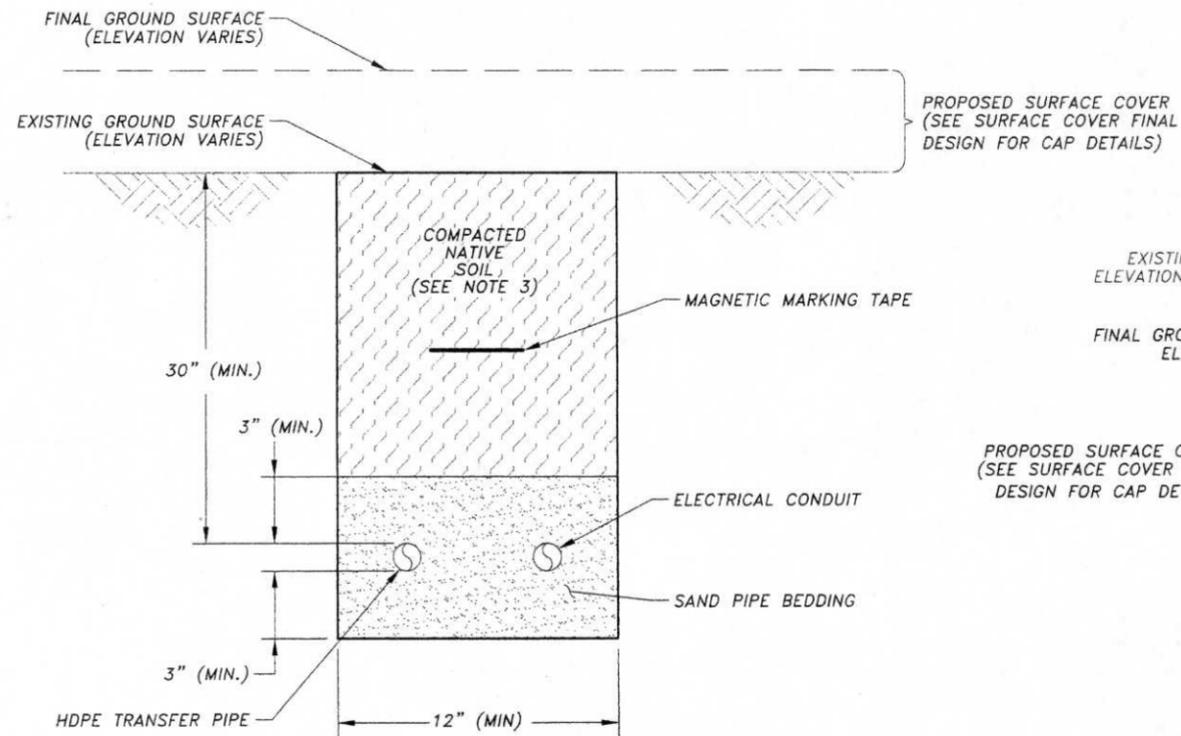
PROCESS AND INSTRUMENTATION DIAGRAM/ MISCELLANEOUS PIPING DETAILS	DRAWING NUMBER 04-915 <b>R002</b>
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DATE: 1/14/05  
 TIME: 10:00 AM  
 VERSION: ACAD 1.4  
 MACH: ETB  
 CDS: BJS\_CAD/CARBONDALE\_2004 DESIGN R002.DWG

REV #	DATE	DESCRIPTION	APPD
1	1/05	FOR CONSTRUCTION	RFD
2	9/04	FOR REVIEW BY U.S. EPA	RFD
3			



**WELL HEAD DETAIL** 3  
NOT TO SCALE  
R003



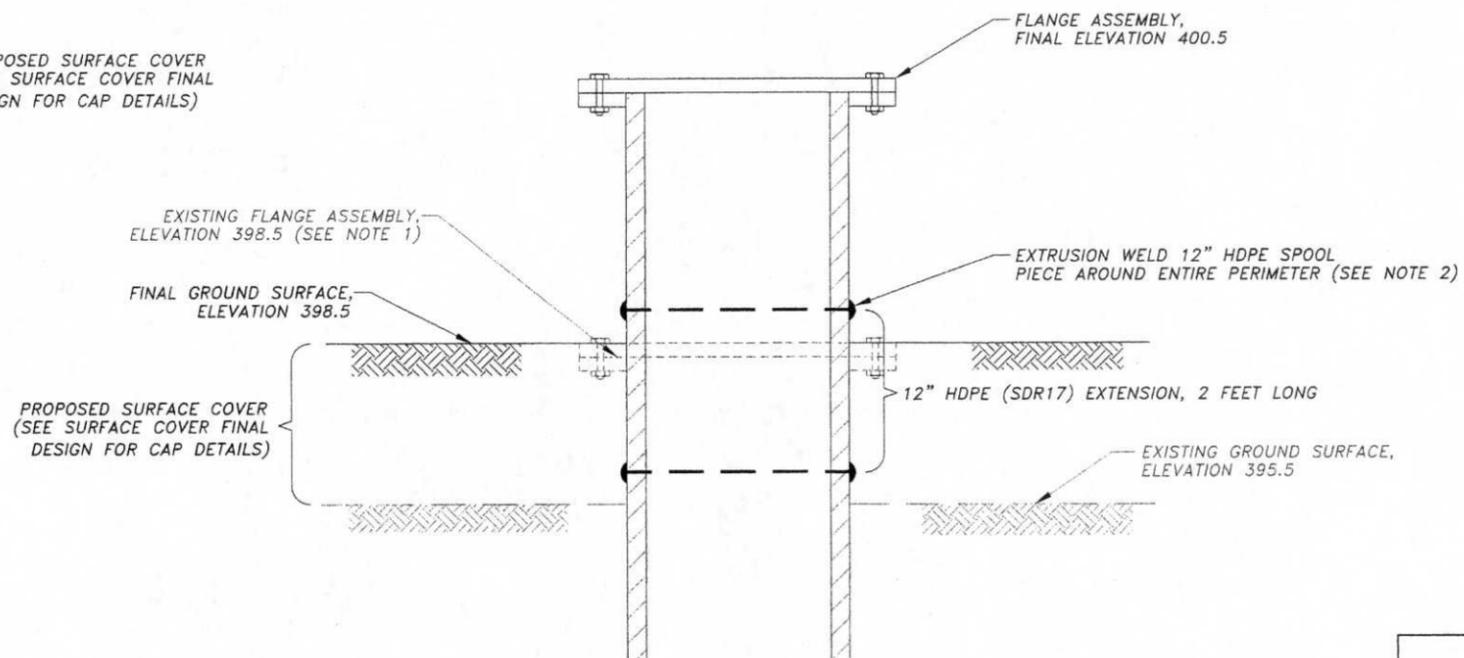
**UTILITY TRENCH DETAIL** 1  
NOT TO SCALE  
R003

	DEPTH (FT-BTOC)	ELEVATION (FT-MSL)
TOP OF PUMP	41.5	359.0
LOW LEVEL PROBE (PUMP OFF)	40.5	360.0
HIGH LEVEL PROBE (PUMP ON)	39.5	361.0
MONITORING POINT (TOP OF HDPE CASING)	0	400.5

**GROUNDWATER PUMP SETTINGS** 4  
NOT TO SCALE  
R003

**NOTES:**

1. THE EXISTING 12-INCH HDPE WELL CASING AND FLANGE ASSEMBLY SHALL BE REMOVED (I.E., CUT) APPROXIMATELY 1 FOOT FROM THE GROUND SURFACE TO PERMIT INSTALLATION OF A 2-FOOT LONG EXTENSION PIECE. THE EXISTING HDPE WELL CASING AND FLANGE ASSEMBLY THAT IS REMOVED SHALL BE USED ON TOP OF THE EXTENSION TO COMPLETE THE WELL TO THE FINAL ELEVATION.
2. THE EXTRUSION WELD SHALL BE COMPLETED AROUND THE ENTIRE PERIMETER OF THE WELL, ON BOTH THE TOP AND BOTTOM JOINTS. IN LIEU OF EXTRUSION WELDING, THE CONTRACTOR MAY BUT FUSION WELD THE SPOOL PIECE TO EXTEND THE WELL PIPE. UNDER NO CIRCUMSTANCES WILL THE SPOOL PIECE BE MECHANICALLY CONNECTED.
3. BACKFILL WITHIN THE PIPE TRENCHES SHALL BE THE NATIVE SOIL EXCAVATED DURING TRENCHING ACTIVITIES. IF THE OVERSIGHT ENGINEER DETERMINES THAT THE NATIVE SOIL IS IMPACTED AND/OR UNSUITABLE FOR USE AS BACKFILL, CLEAN BACKFILL SHALL BE IMPORTED AND USED. ANY IMPACTED NATIVE SOIL NOT SUITABLE FOR BACKFILLING PURPOSES SHALL BE TRANSPORTED AND CONTAINED WITHIN THE CORRECTIVE ACTION MANAGEMENT UNIT (CAMU). IF CLEAN BACKFILL IS REQUIRED, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A SAMPLE OF THE MATERIAL AND A GRAIN SIZE DISTRIBUTION ANALYSIS PRIOR TO PLACEMENT.



**WELL HEAD MODIFICATION DETAIL** 2  
NOT TO SCALE  
R003



BEAZER EAST, INC.  
PITTSBURGH, PENNSYLVANIA

DRWN: BJS	DATE: 1/14/05	<b>KEY</b> ENVIRONMENTAL INCORPORATED
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APPD: NJM	DATE: 1/14/05	
SCALE: AS SHOWN		

DNAPL RECOVERY SYSTEM REMEDIAL DESIGN  
FORMER KOPPERS WOOD TREATING SITE  
CARBONDALE, ILLINOIS

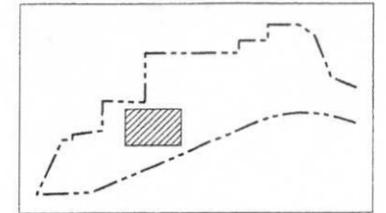
MISCELLANEOUS DETAILS I  
DRAWING NUMBER  
R003

ISSUE DATE:  
1/05  
ROSSLYN FARMS  
INDUSTRIAL PARK  
1200 ARCH ST., SUITE 200  
CARNEGIE, PA 15106

REV #	DATE	DESCRIPTION	APPD
1/05		FOR CONSTRUCTION	RJD
9/04		FOR REVIEW BY U.S. EPA	RFD
			APPD

FILE: Y:\BGC\_LOAD\CARBONDALE\2004 DESIGN\W003.DWG  
VERSION: ACAD 2000  
MACR: CDS  
DATE:

**LOCATION KEY**



**LEGEND**

- 392 --- EXISTING TOPOGRAPHIC CONTOURS (FT-MSL)
- - - - - EXISTING DITCH/CHANNEL
- ||||| EXISTING RAILROAD
- ▨ EXISTING STRUCTURE
- RW-23 EXISTING DNAPL RECOVERY WELL LOCATION
- - - - - PROPOSED CONDUIT
- PROPOSED PULL-BOX

APPROXIMATE LOCATION OF EXISTING TREATMENT PLANT

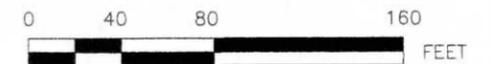
ELECTRICAL PULL-BOX (TYP. OF 6)

**CONDUIT/CABLE SCHEDULE**

E1	1" SCH. 40 PVC, (3) #10 THWN, (1) #12 GROUND, (1) SIGNAL CABLE
----	--

**NOTES:**

1. ALL UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC CONDUIT WITH BELL AND SPIGOT ENDS (EXCEPT SEE NOTE 2).
2. ALL BURIED 90° ELBOWS SHALL BE MADE WITH PVC COATED RIGID GALVANIZED STEEL FITTINGS. TRANSITIONS FROM PVC CONDUIT TO RIGID GALVANIZED STEEL ELBOWS SHALL BE MADE WITH APPROPRIATELY SIZED PVC FEMALE TERMINAL ADAPTERS.
3. THE CONTRACTOR SHALL LEAVE A POLY PULL CORD, 240 POUNDS MINIMUM BREAKING STRENGTH, WITHIN EACH CONDUIT RUN.
4. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE UNKNOWN. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.



BEAZER EAST, INC.  
PITTSBURGH, PENNSYLVANIA

DRWN: BJS	DATE: 1/14/05
CHKD: RFD	DATE: 1/14/05
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SCALE: AS SHOWN	



DNAPL RECOVERY SYSTEM REMEDIAL DESIGN  
FORMER KOPPERS WOOD TREATING SITE  
CARBONDALE, ILLINOIS

ELECTRICAL SITE PLAN

DRAWING NUMBER

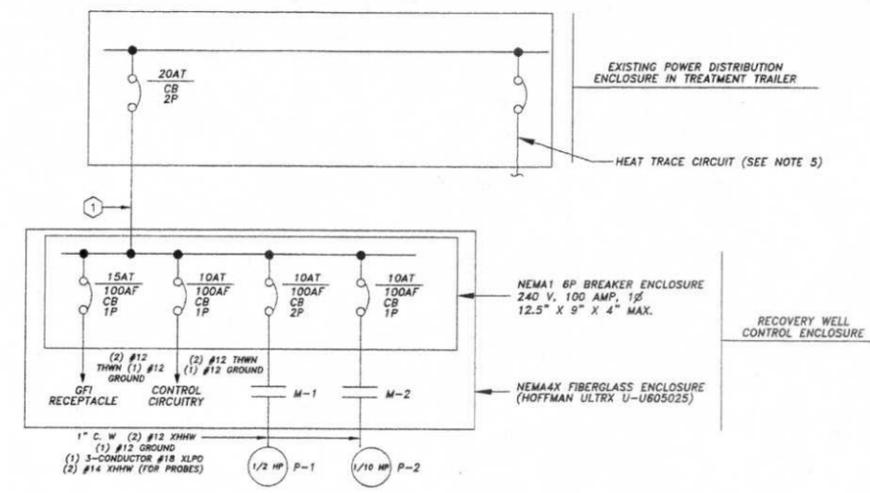
E001

DATE: 1/14/05  
 DESIGNED BY: NJM  
 CHECKED BY: RFD  
 APPROVED BY: NJM  
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 VERSION: ACAD 2000  
 PLOT: 05

REV #	DATE	DESCRIPTION	APPD
1	1/05	FOR CONSTRUCTION	RJD
2	9/04	FOR REVIEW BY U.S. EPA	RFD

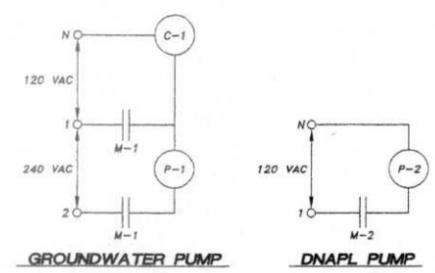
REFERENCE: BASEMAP AND TOPOGRAPHIC FEATURES PROVIDED BY BB&L, INC., 2004.

ISSUE DATE:  
1/05  
ROSSLYN FARMS  
INDUSTRIAL PARK  
1200 ARCH ST., SUITE 200  
CARNEGIE, PA 15106



**SINGLE LINE DIAGRAM**  
NOT TO SCALE

1  
E002

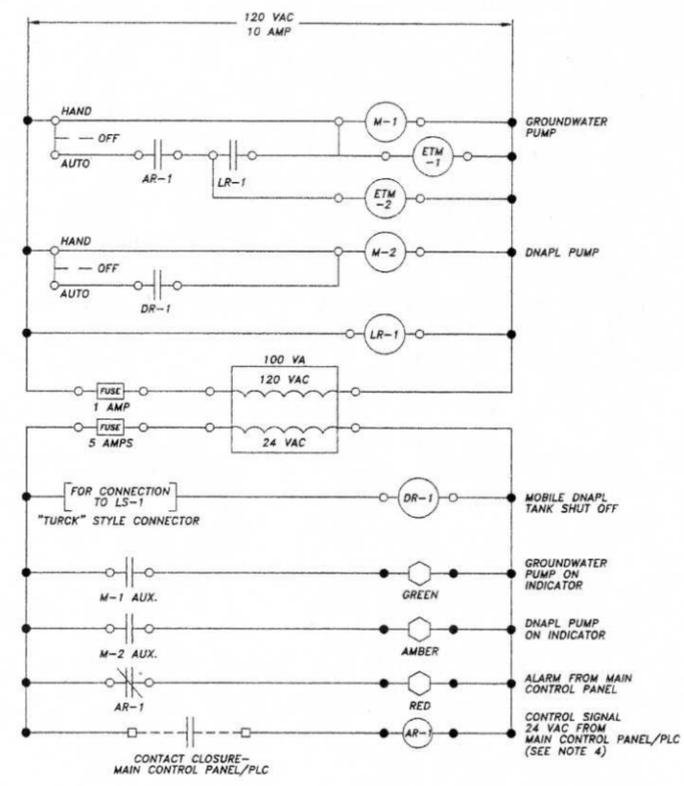


**RECOVERY WELL PUMP CONTACTOR DIAGRAMS**  
NOT TO SCALE

4  
E002

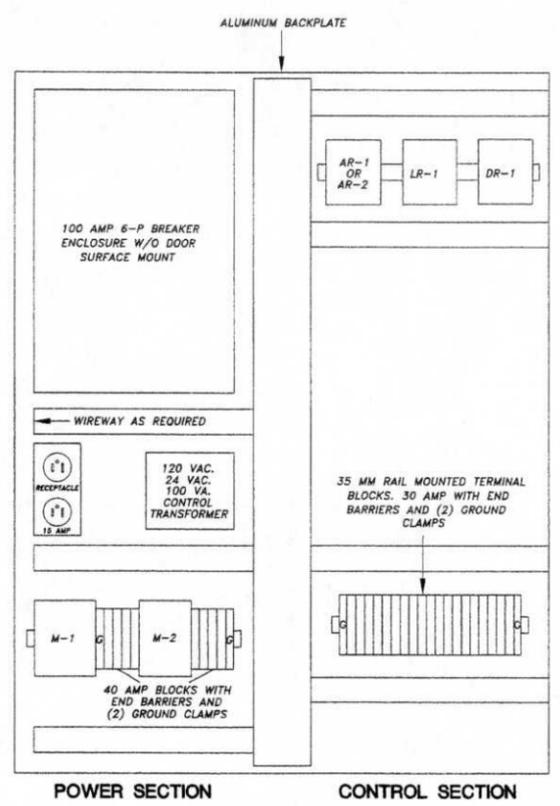
**LEGEND**

- LR-1 - SSAC MODEL LLC544A LIQUID LEVEL CONTROL 8-PIN OCTAL SOCKET
- INDICATORS AND SWITCHES - 30 MM. HEAVY DUTY-SQUARE D CLASS 9001
- LS-1 - SQUARE D CLASS 9034 LLY56 (INSTALL IN MOBILE DNAPL TANK)
- M-1 - 3-POLE CONTACTOR, SQUARE D DPA13V02 OR EQUAL
- M-2 - 2-POLE CONTACTOR, SQUARE D DP12V02 OR EQUAL
- P-1 - GRUNDFOS POLLUTION DUTY SUBMERSIBLE GROUNDWATER PUMP AS INDICATED ON DRAWING R001
- P-2 - LINEAR PUMP CO. LPCG-E50 DNAPL PUMP
- CB - CIRCUIT BREAKER
- ① - SEE SHEET E001 FOR CONDUIT SCHEDULE
- AR-1 - SQUARE D RS42P14V14 WITH NR42 SOCKET AND RETAINER CLIP
- DR-1 - SQUARE D RS42P14V14 WITH NR42 SOCKET AND RETAINER CLIP
- ETM-1 - HOBBS 20017
- ETM-2 - HOBBS 20017
- C-1 - REDINGTON 3301-2000, OR EQUAL
- FUSE - CLASS CC TIME DELAY FUSE



**RECOVERY WELL CONTROL PANEL LADDER LOGIC DIAGRAM**  
NOT TO SCALE

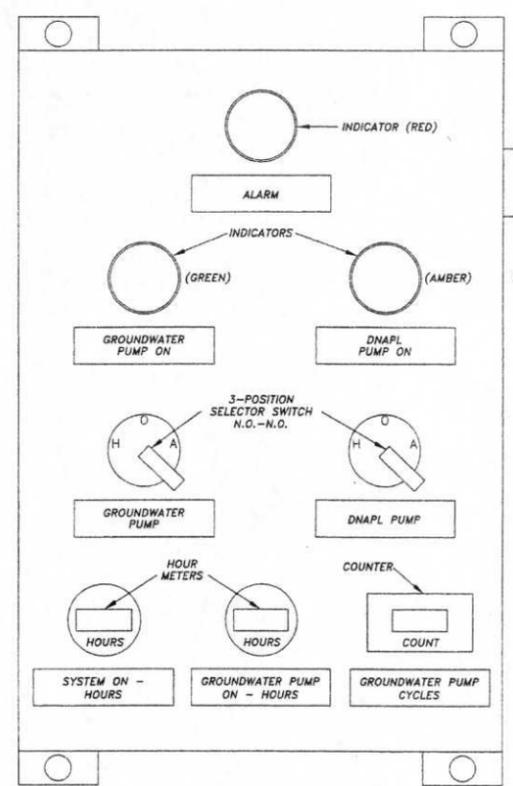
2  
E002



**Back View**

**RECOVERY WELL CONTROL PANEL LAYOUT**  
NOT TO SCALE

3  
E002



**Front View**

**NOTES:**

1. ALL CONTROL PANEL WIRING TO BE 12 GAUGE MTW OR THHN.
2. ALL WIRING TO PANEL MUST BE STRANDED WIRE WHERE FLEXURE OCCURS.
3. ALL CONNECTIONS INTO CONTROL PANEL SHALL BE MADE WATERTIGHT.
4. THE RECOVERY WELL CONTROL RELAY AR-1 WILL RECEIVE A SIGNAL FROM THE MAIN CONTROL PANEL/PLC TO SHUT THE GROUNDWATER PUMP OFF IN THE EVENT OF AN ALARM CONDITION.
5. ALL EXPOSED PROCESS PIPING IN THE EXISTING TREATMENT PLANT SHALL BE HEAT TRACED AND INSULATED USING RAYCHEM WINTERGUARD WET 6 WATT/FT SELF REGULATING HEAT TRACE AND THERMA-CEL 1/2" WALL POLYETHYLENE INSULATION.



BEAZER EAST, INC.  
PITTSBURGH, PENNSYLVANIA

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APPD: NJM	DATE: 1/14/05
SCALE:	AS SHOWN



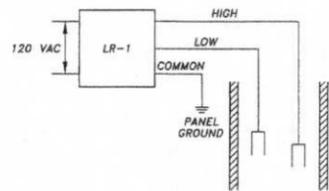
DNAPL RECOVERY SYSTEM REMEDIAL DESIGN  
FORMER KOPPERS WOOD TREATING SITE  
CARBONDALE, ILLINOIS

SINGLE LINE DIAGRAM/PANEL LAYOUT  
DRAWING NUMBER  
E002

ISSUE DATE:  
1/05  
ROSSLYN FARMS  
INDUSTRIAL PARK  
1200 ARCH ST., SUITE 200  
CARNEGIE, PA 15106

△	1/05	FOR CONSTRUCTION	R30.
△	9/04	FOR REVIEW BY U.S. EPA	RFD
REV #	DATE	DESCRIPTION	APPD

DATE: 1/17/05  
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 VERSION: ACAD 2000  
 MACH: CDS  
 EDITED BY:



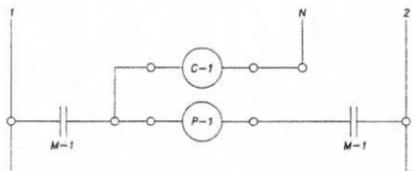
**RECOVERY WELL LEVEL CONTROL DETAIL**

NOT TO SCALE

1  
E003

**NOTE:**

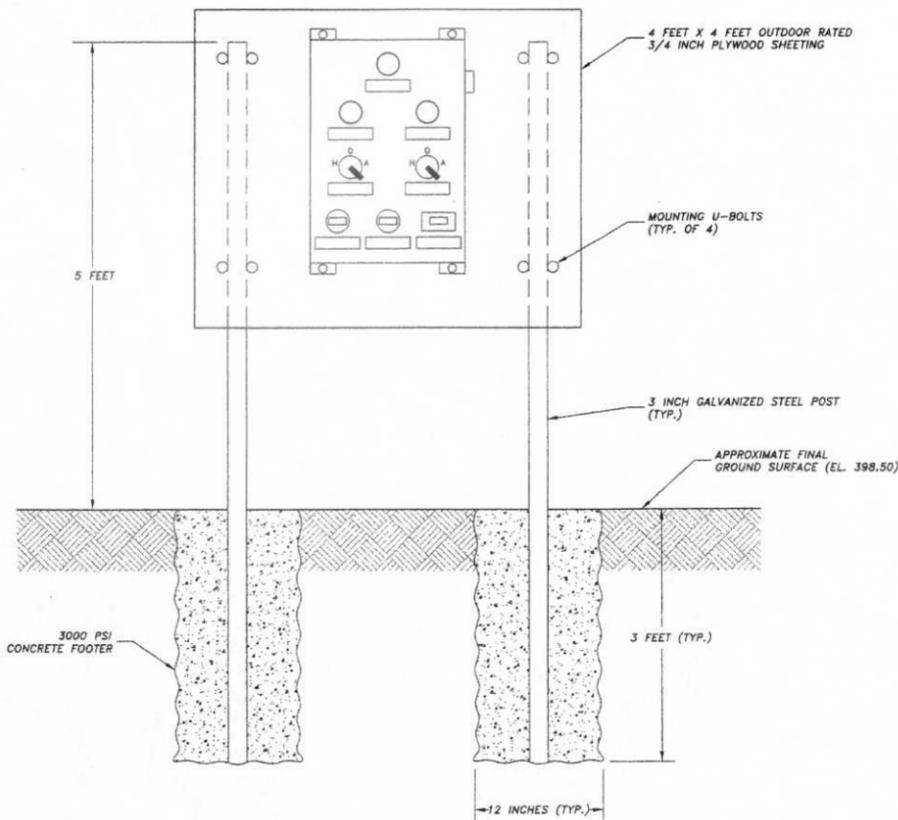
HIGH/LOW PROBES SHALL BE STAINLESS STEEL (WARRICK MODEL 3W2) WITH #14 XHHW WIRING TO LR-1.



**COUNTER C-1 WIRING DIAGRAM**

NOT TO SCALE

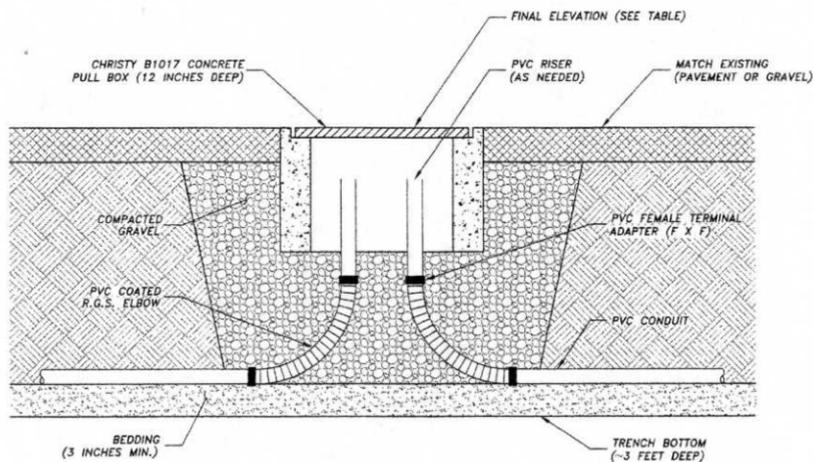
2  
E003



**CONTROL PANEL MOUNTING DETAIL**

NOT TO SCALE

4  
E003



**CROSS-SECTION VIEW**

**NOTE:** PROTECT PULL BOXES AND/OR CONDUIT STUB-UPS DURING SURFACE COVER CONSTRUCTION ACTIVITIES.

**PULL BOX DETAILS**

NOT TO SCALE

3  
E003

PULL BOX NO.	FINAL ELEV.
PB-1	398.50
PB-2	398.20
PB-3	396.00
PB-4	393.10
PB-5	390.10
PB-6	391.00

**ELEVATION TABLE**



BEAZER EAST, INC.  
PITTSBURGH, PENNSYLVANIA

DRWN: BJS DATE: 1/14/05  
CHKD: RFD DATE: 1/14/05  
APPD: NJM DATE: 1/14/05  
SCALE: AS SHOWN



DNAPL RECOVERY SYSTEM REMEDIAL DESIGN  
FORMER KOPPERS WOOD TREATING SITE  
CARBONDALE, ILLINOIS

MISCELLANEOUS DETAILS II

DRAWING NUMBER

E003

ISSUE DATE:  
1/05  
ROSSLYN FARMS  
INDUSTRIAL PARK  
1200 ARCH ST., SUITE 200  
CARNEGIE, PA 15106

REV #	DATE	DESCRIPTION	APPD
1	1/05	FOR CONSTRUCTION	RJD
2	9/04	FOR REVIEW BY U.S. EPA	RFD

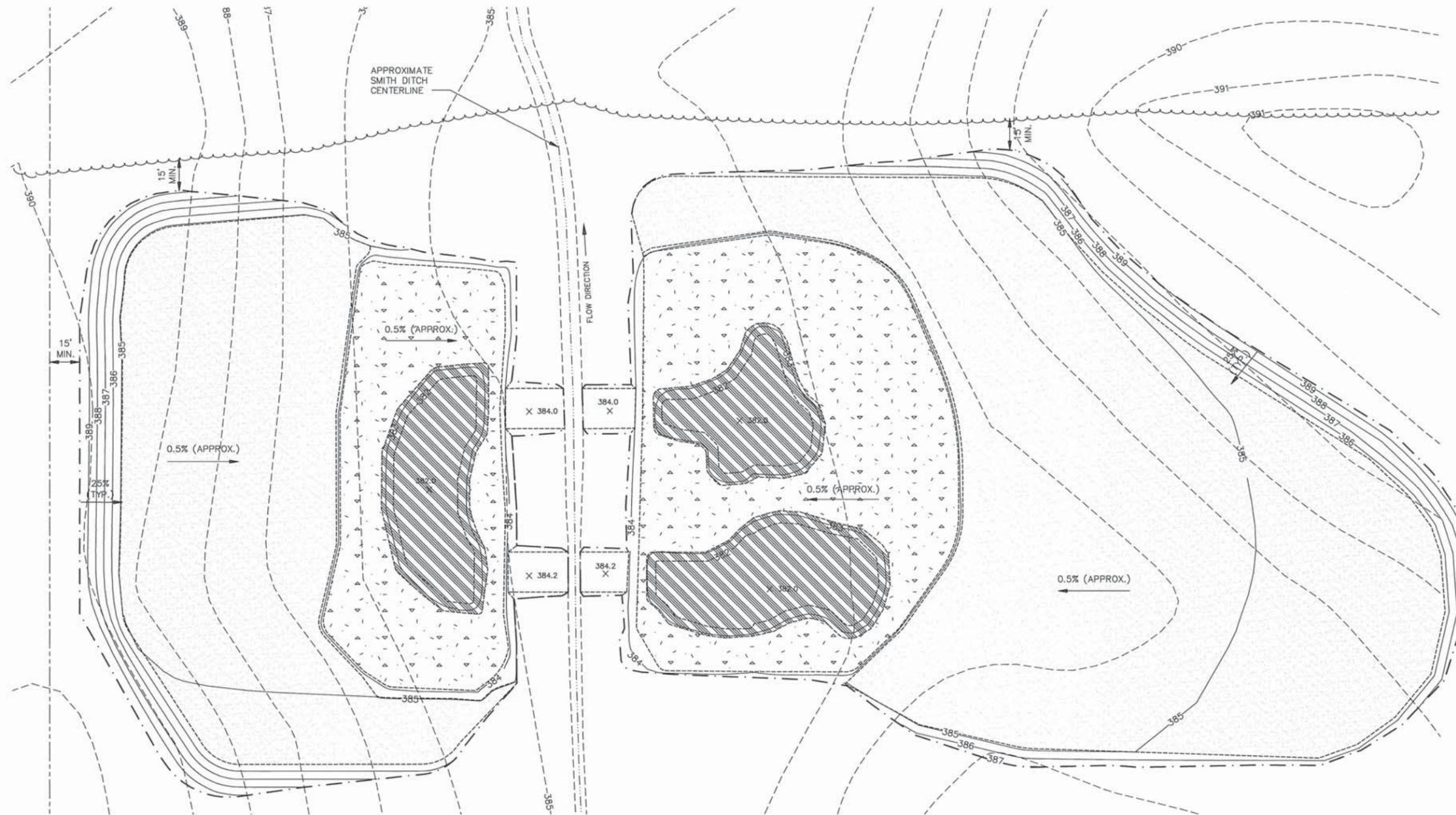
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 VERSION: ACAD 2000  
 MACH: CDS  
 DATE:



**Mitigation Wetlands Record  
Drawing**

CITY: SYRACUSE, NY DIV/GRUP: ENV/CAD DB/KMD/GHS/LAF K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TM: E. DIEVENDORF LVR: ONI-OFF-REF  
 G:\ENVCAD\SYRACUSE\PROJECTS\WETLANDS\WETLANDS\DWG\38233X01.DWG LAYOUT: 1 SAVED: 8/30/2011 10:15 AM ACADVER: 18.05 (LMS TECH) PAGES: 1 PLOT: 1 PLOTTED: 8/30/2011 10:15 AM BY: DECLERCO, BRIAN

PROJECTNAME: 38233X01  
 XREFS: 38233X01  
 38233X00



**LEGEND:**

- 385— PROPOSED ELEVATION CONTOUR (SEE NOTE 5)
- PROPOSED GRADE BREAK
- - - - -385- - - - - EXISTING ELEVATION CONTOUR
- x382.0 PROPOSED SPOT ELEVATION (SEE NOTE 5)
- PROPERTY LINE
- - - - - EXISTING DRAINAGE FEATURE
- . - . - . APPROXIMATE LIMIT OF GRADING
- [Pattern] PROPOSED EMERGENT WETLAND
- [Pattern] PROPOSED FORESTED WETLAND
- [Pattern] PROPOSED DEEP WATERPOOL
- [Pattern] EXISTING EDGE OF WOODS

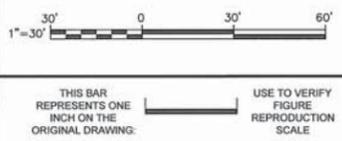
**NOTES:**

1. BASEMAP INFORMATION BASED ON FIELD SURVEY PERFORMED BY SHAWNEE SURVEYING AND CONSULTING, INC., DATED AUGUST 2, 2005.
2. EXISTING AND PROPOSED CONTOUR INTERVAL EQUALS 1 FOOT.
3. REFER TO THE "FINAL WETLAND MITIGATION PLAN - FORMER KOPPERS WOOD-TREATING SITE-CARBONDALE, ILLINOIS" PREPARED BY SCI ENGINEERING, INC. AND BLASLAND, BOUCK AND LEE, INC., DATED OCTOBER 2005, FOR ADDITIONAL DESIGN/CONSTRUCTION INFORMATION (E.G., SECTION, PLANTING SCHEDULES, FIGURES).
4. FOLLOWING EXCAVATION, THE BOTTOM OF THE CONSTRUCTED WETLAND AREAS SHALL BE GRADED TO CONTAIN A ROLLING OR UNDULATING TOPOGRAPHY WITH ELEVATIONS VARYING BETWEEN 4 AND 8 INCHES ABOVE THE EXCAVATED SURFACE. THE UNDULATING LOCATIONS SHALL BE RANDOMLY SPACED THROUGHOUT THE WETLAND AREAS.
5. DESIGN ELEVATIONS SHOWN ON THIS DRAWING REPRESENT FINAL GRADE (I.E., TOP OF VEGETATED TOPSOIL). CONTRACTOR TO EXCAVATE A DEPTH OF 12 INCHES BELOW FINAL GRADE (I.E., TO SUBGRADE) PRIOR TO PLACING 12 INCHES OF VEGETATED TOPSOIL TO ACHIEVE FINAL GRADE.
6. CHANNELS BETWEEN SMITH DITCH AND THE MITIGATION WETLANDS ARE TO BE BLOCKED WITH SANDBAGS FOLLOWING COMPLETED CONSTRUCTION. SANDBAGS ARE TO REMAIN IN PLACE UNTIL WETLAND VEGETATION IS ESTABLISHED. WHEN APPROPRIATE, SANDBAGS SHALL BE REMOVED AND ALL DISTURBED AREAS, INCLUDING BENEATH SANDBAGS, SHALL BE VEGETATED IN ACCORDANCE WITH FINAL WETLAND MITIGATION PLAN (SEE NOTE 3).

**RECORD DRAWING NOTE:**

1. FINAL GRADES NOT SURVEYED; CONTOUR SHOWN ARE DESIGN CONTOURS.

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.



6/14/11	RECORD DRAWINGS - REMOVED CONTROL POINTS & ADDED RECORD DRAWING NOTES	ESD	MOG
No.	Date	Revisions	By
THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.			

Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State  
 ILLINOIS  
 Date Signed  
 Project Mgr.  
 MOG  
 Designed by  
 RLP  
 Drawn by  
 TJR  
 Checked by  
 CAA



(RECORD DRAWING: MADE FROM DRAWING NO. 1, TRACER NO. 38883003/38883G03.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOG

BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
 MITIGATION WETLANDS RECORD DRAWINGS

**WETLAND GRADING PLAN**

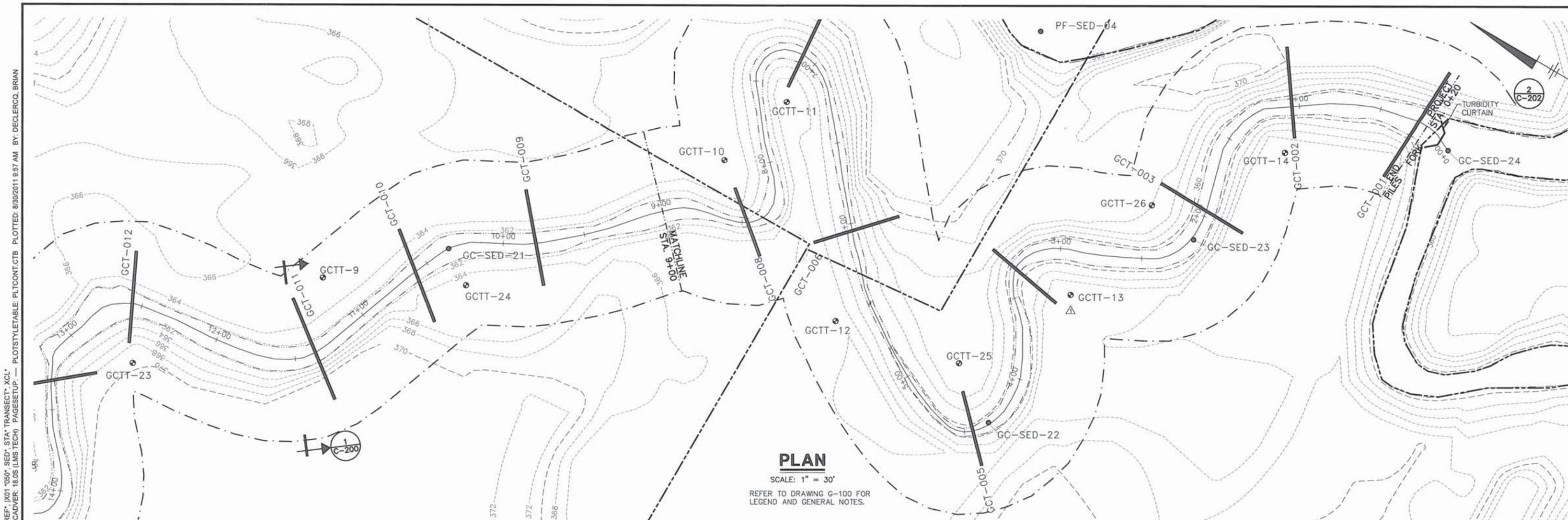
ARCADIS Project No.  
 B0039233.0000.00001  
 Date  
 AUGUST 2011  
 ARCADIS  
 6723 TOWPATH ROAD  
 P.O. BOX 55  
 SYRACUSE, NY 13214-0066  
 315.446.9120



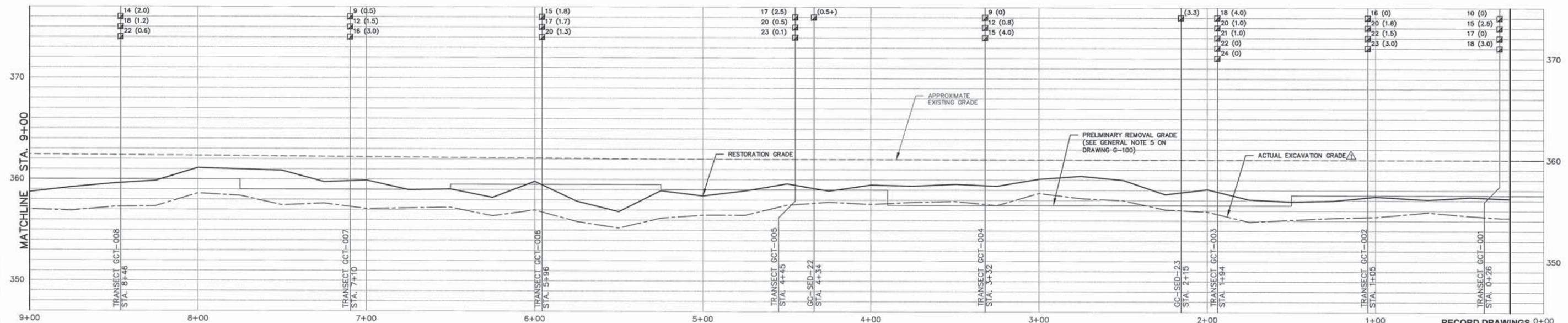
**Glade Creek Sediment  
Removal Record Drawings**







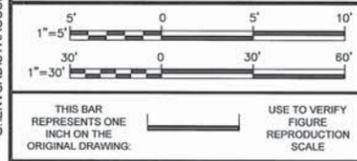
**PLAN**  
SCALE: 1" = 30'  
REFER TO DRAWING G-100 FOR LEGEND AND GENERAL NOTES.



**PROFILE**  
SCALE: 1" = 30' HORIZ.  
1" = 5' VERT.

RECORD DRAWINGS 0+00 TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

CITY: SYRACUSE NY DIV/GROUP: ENV/CAD DB:KMD GMS KLS PIC: R.J. ANDERSON PW: J.HOLDEN TM: E.DIEVENDORF LYRON: OFF=REF\* [X01 050\* SED\* STA\* TRANSECT\* XCL\* G:\ENVCAD\SYRACUSE\ACT\B003923\390000000\RECORD\SED\_REMOVAL\DWG\39233904.DWG LAYOUT: C-100 SAVED: 8/30/2011 9:55 AM ACADVER: 18.05 (LMS TECH) PAGESSETUP: PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/30/2011 9:57 AM BY: DECLERCO, BRIAN



No.	Date	Revisions	ESD	MOG
1	6/15/11	ADDED ACTUAL EXCAVATION GRADE AND TEST TRENCH LOCATIONS		

THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.

Professional Engineer's Name  
**MARK OWEN GRAVELDING**

Professional Engineer's No.  
062059378

State  
ILLINOIS

Date Signed  
Date

Project Mgr.  
MOG

Designed by  
ESD

Drawn by  
KMD

Checked by  
(CHK)

ARCADIS U.S., INC.

(RECORD DRAWING: MADE FROM DRAWING C-100 TRACER NO. 3901103/39011G04.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOG

BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
GLADE CREEK SEDIMENT REMOVAL RECORD DRAWINGS

**PLAN AND PROFILE STA. 0+00 TO 9+00**

MECHANICAL

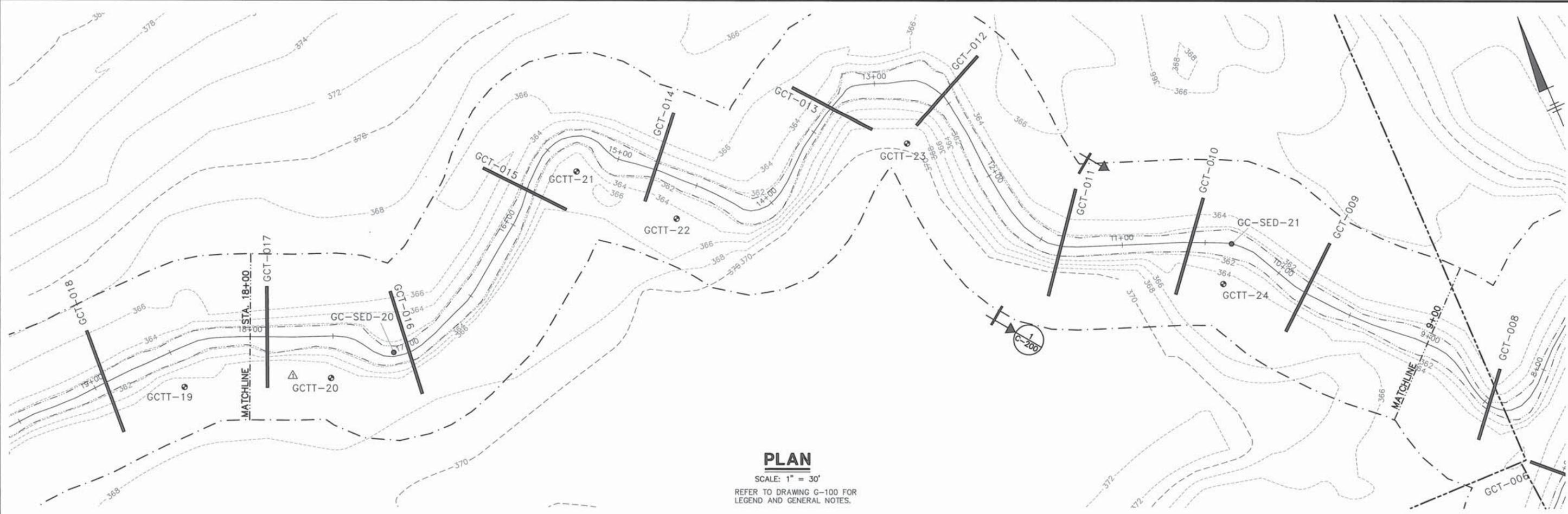
ARCADIS Project No.  
390.11

Date  
AUGUST 2011

ARCADIS  
6723 Towpath Road  
Syracuse, NY 13214  
315-446-9120

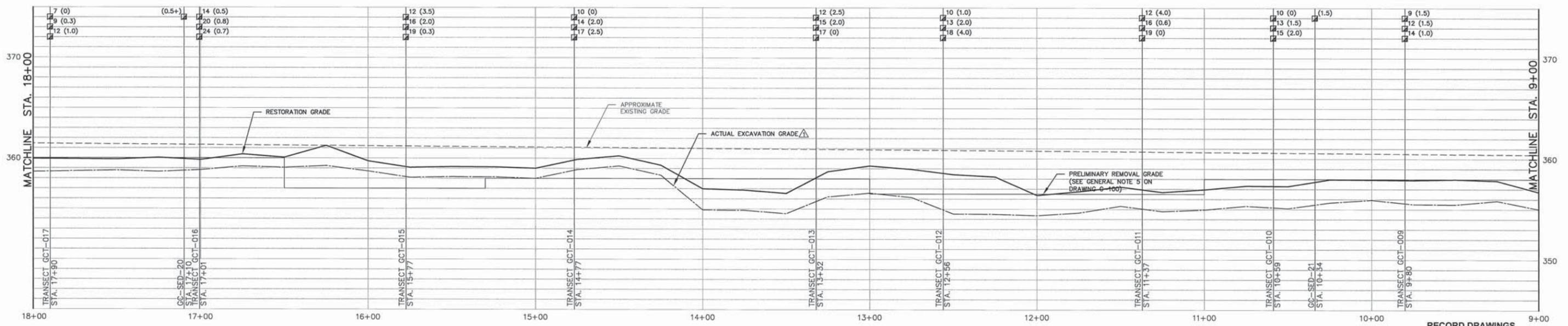
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**PLAN**

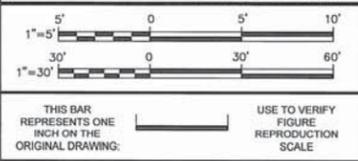
SCALE: 1" = 30'  
 REFER TO DRAWING G-100 FOR LEGEND AND GENERAL NOTES.



**PROFILE**

SCALE: 1" = 30' HORIZ.  
 1" = 5' VERT.

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE,  
 INFORMATION AND BELIEF, THESE RECORD  
 DRAWINGS SUBSTANTIALLY REPRESENT THE  
 PROJECT AS CONSTRUCTED.



No.	Date	Revisions	ESD	MOG
1	6/15/11	ADDED ACTUAL EXCAVATION GRADE AND TEST TRENCH LOCATIONS		

THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.

Professional Engineer's Name <b>MARK OWEN GRAVELDING</b>	
Professional Engineer's No. 062059378	
State ILLINOIS	Date Signed
Designed by ESD	Project Mgr. MOG
Drawn by KMD	Checked by



(RECORD DRAWING: MADE FROM DRAWING C-101 TRACER NO. 39011003/39011G05.DWG, DATED 8/31/2011)

BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
 GLADE CREEK SEDIMENT REMOVAL RECORD DRAWINGS

**PLAN AND PROFILE STA. 9+00 TO 18+00**

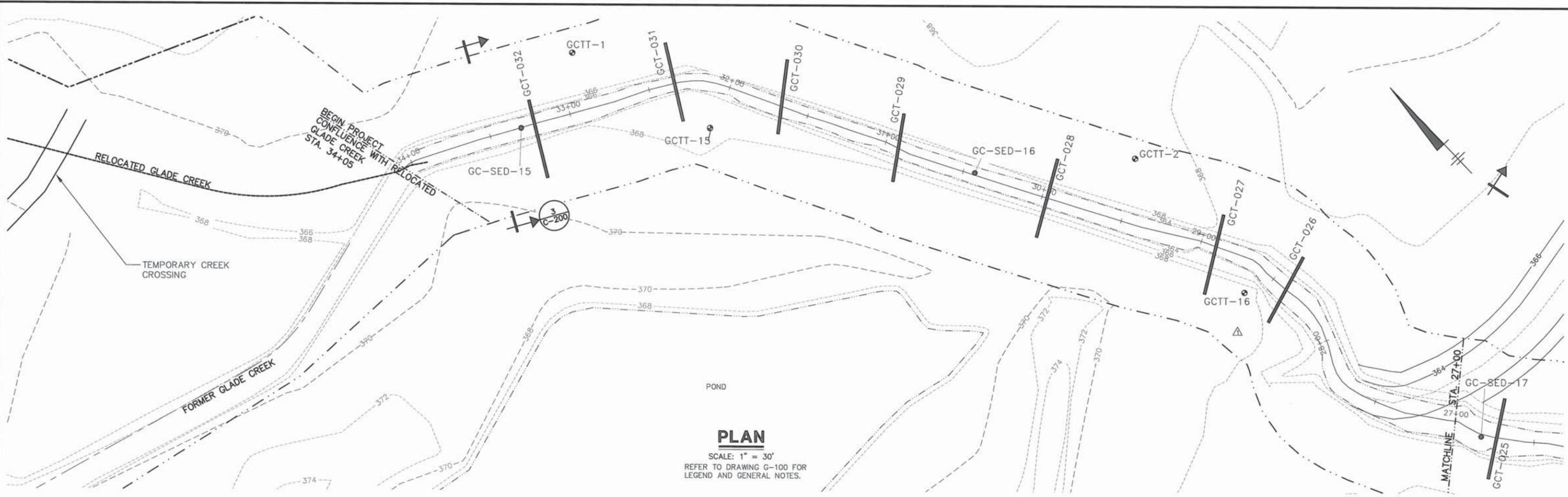
MECHANICAL

DATE: 8/31/11 BY: MOG
ARCADIS Project No. 390.11
Date AUGUST 2011
ARCADIS 6723 Towpath Road Syracuse, NY 13214 315-446-9120

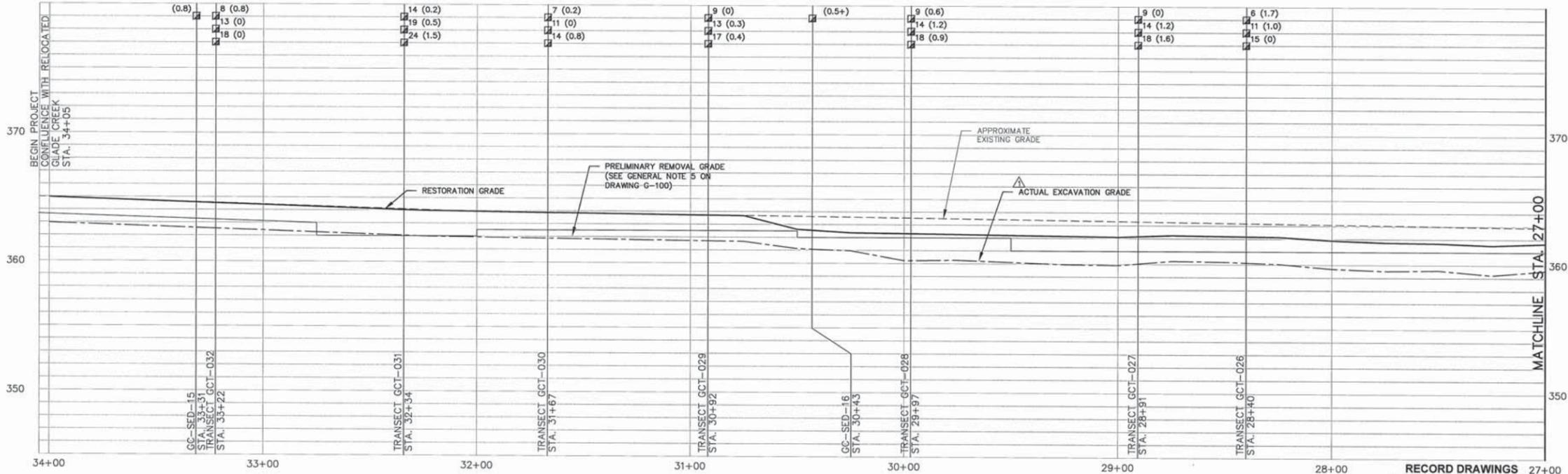
**C-101**



CITY: SYRACUSE NY DIV/GROUP: ENV/CAD DB/KMD KLS/LJP PIC: R.J. ANDERSON PM: J.HOLDEN TM: E.DIEVENDORF LYR/ON\*, OFF-REF\*, X01\*050\*, SED\*, STA\*TRANSSECT\*. XCL\*  
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 39233X01

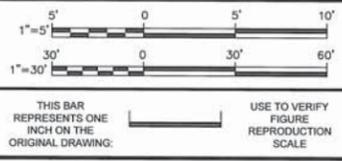


**PLAN**  
 SCALE: 1" = 30'  
 REFER TO DRAWING G-100 FOR LEGEND AND GENERAL NOTES.



**PROFILE**  
 SCALE: 1" = 30' HORIZ.  
 1" = 5' VERT.

RECORD DRAWINGS TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.



No.	Date	Description	By	Ckd
6/15/11		RECORD DRAWINGS		
		ADDED ACTUAL EXCAVATION GRADE AND TEST TRENCH LOCATIONS	ESD	MOG

Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State  
 ILLINOIS  
 Date Signed  
 Project Mgr.  
 MOG  
 Designed by  
 ESD  
 Drawn by  
 KMD  
 Checked by



(RECORD DRAWING: MADE FROM DRAWING C-103 TRACER NO. 39011003/39011G07 .DWG, DATED 8/31/11) DATE 8/31/11 BY MOG

BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
 GLADE CREEK SEDIMENT REMOVAL RECORD DRAWINGS

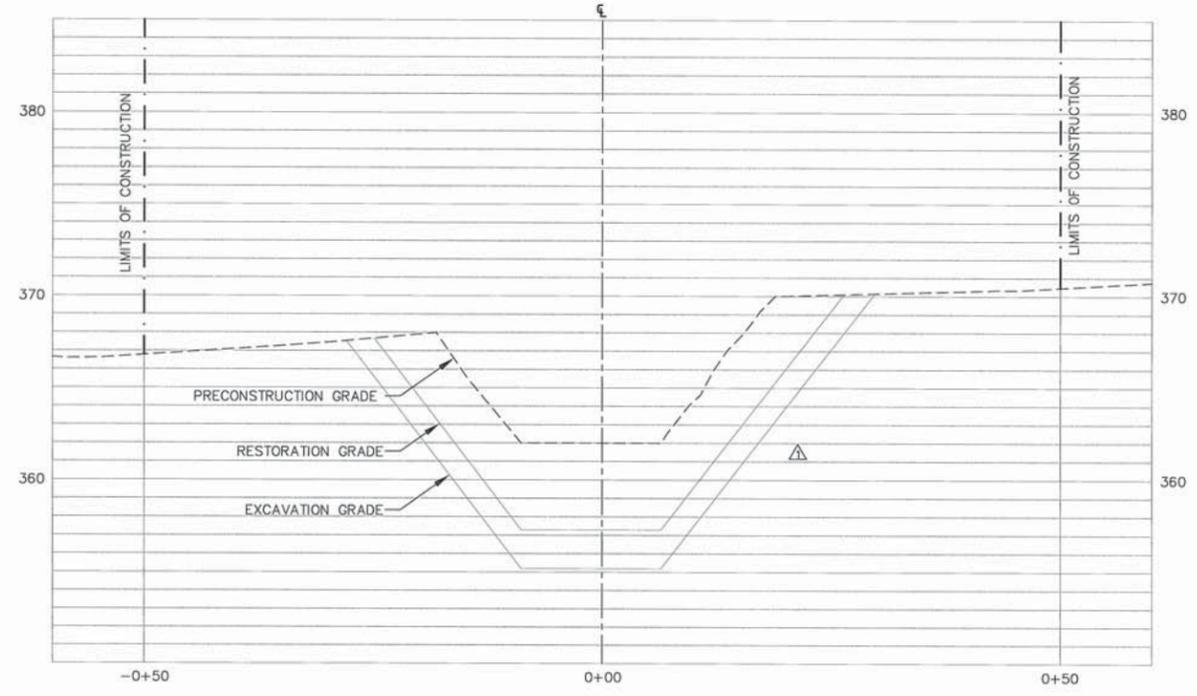
**PLAN AND PROFILE STA. 27+00 TO 34+05**

ARCADIS Project No.  
 390.11  
 Date  
 AUGUST 2011  
 ARCADIS  
 6723 Towpath Road  
 Syracuse, NY 13214  
 315-446-9120

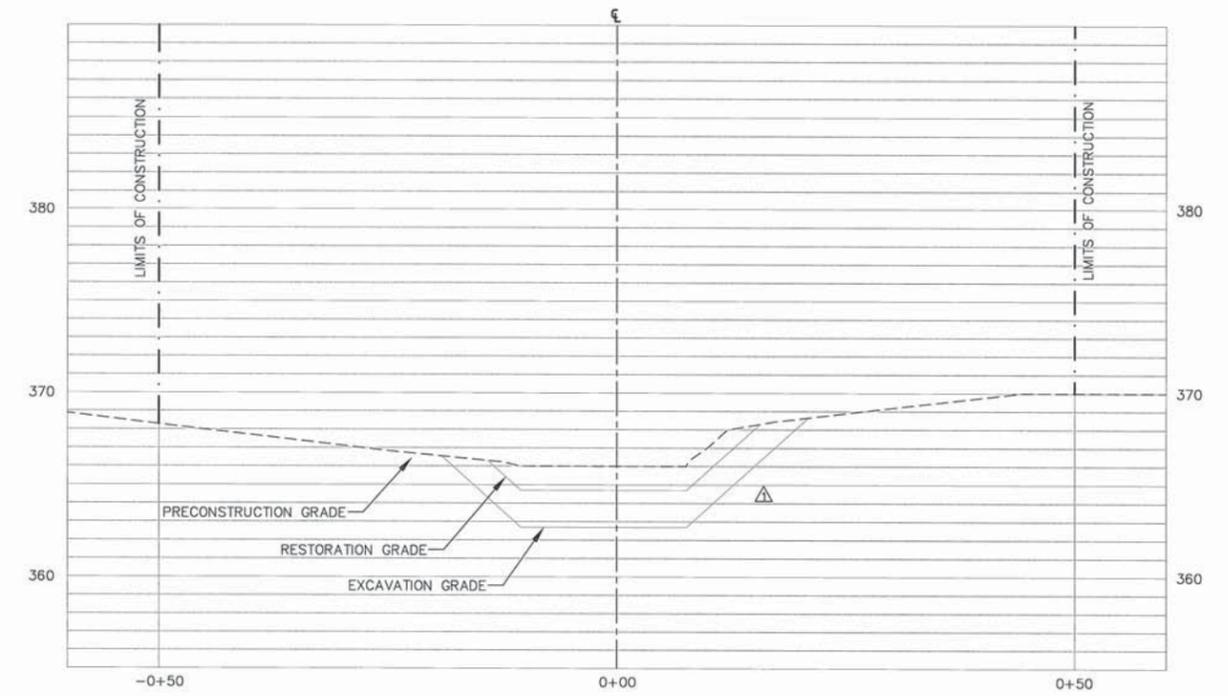
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MECHANICAL

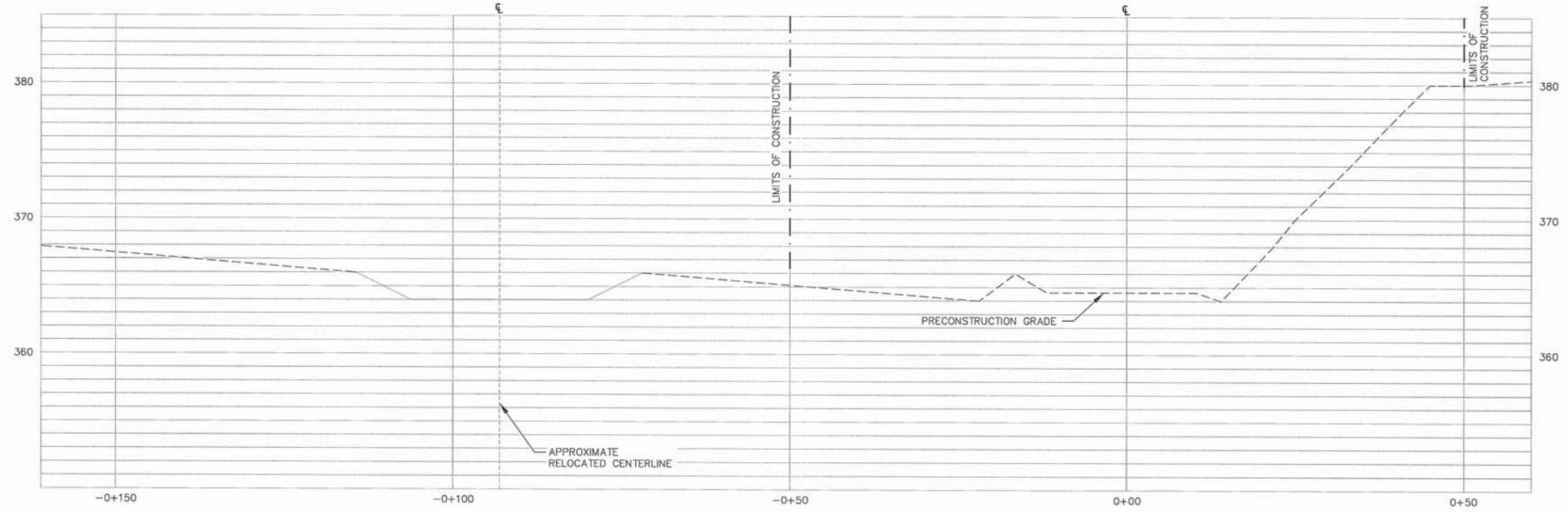
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 PROJECTNAME: PLTCONT.CTB PLOTTED: 8/30/2011 10:10 AM BY: DECLERCO, BRIAN



**SECTION 1**  
 SCALE: 1" = 10' HORIZ.  
 1" = 5' VERT.  
 SECTION TAKEN AT STATION 11+50  
 (TYPICAL SECTION A)



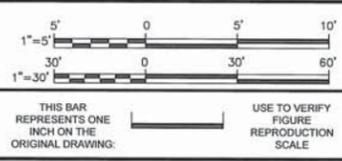
**SECTION 3**  
 SCALE: 1" = 10' HORIZ.  
 1" = 5' VERT.  
 SECTION TAKEN AT STATION 33+50  
 (TYPICAL SECTION C)



**SECTION 2**  
 SCALE: 1" = 10' HORIZ.  
 1" = 5' VERT.  
 SECTION TAKEN AT STATION 25+50  
 (TYPICAL SECTION B)

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE,  
 INFORMATION AND BELIEF, THESE RECORD  
 DRAWINGS SUBSTANTIALLY REPRESENT THE  
 PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING C-200 TRACER NO. 39011003/39011G08.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOS



No.	Date	Revisions	By	Ckd
1	6/15/11	RECORD DRAWINGS-ADDED EXCAVATION AND RESTORATION GRADES	ESD	MOG

Professional Engineer's Name <b>MARK OWEN GRAVELDING</b>	
Professional Engineer's No. 062059378	
State ILLINOIS	Date Signed
Designed by ESD	Project Mgr. MOG
Drawn by KMD	Checked by



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
**GLADE CREEK SEDIMENT REMOVAL RECORD DRAWINGS**

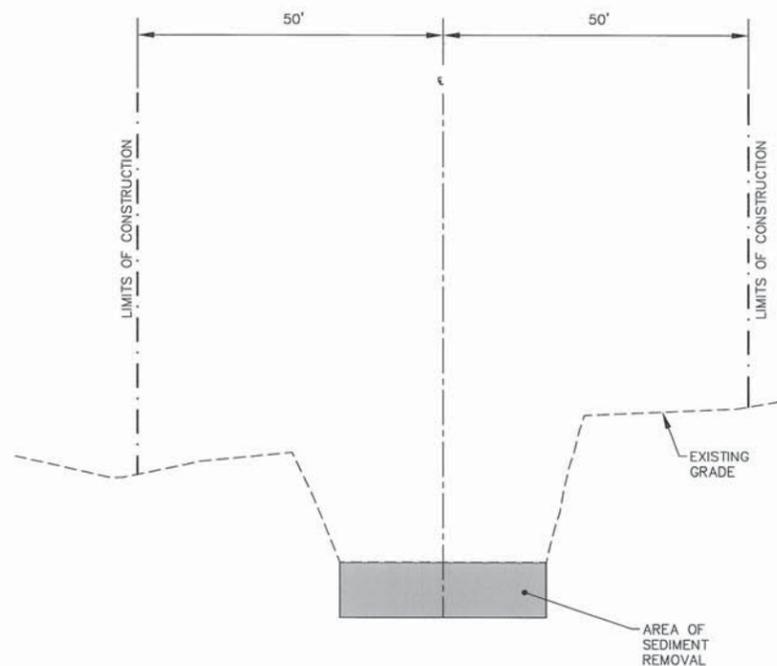
**SELECTED SECTIONS**

MECHANICAL

ARCADIS Project No. 390.11
Date AUGUST 2011
ARCADIS 6723 Towpath Road Syracuse, NY 13214 315-446-9120

**C-200**

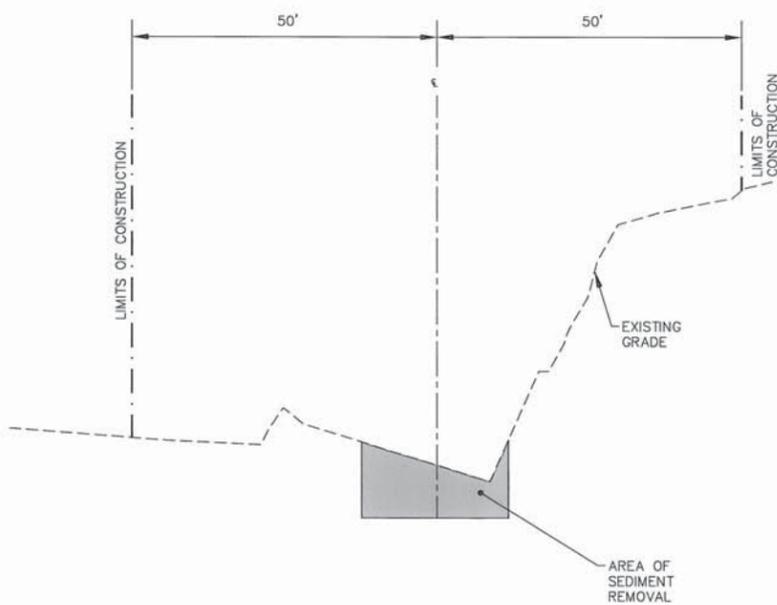
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**NOTE:**  
 THE ACTUAL EXTENT OF REMOVAL WILL BE BASED ON VISUAL OBSERVATION OF IMPACTS PLUS, AS REQUESTED BY USEPA, UP TO AN ADDITIONAL 6 INCHES (AS PRACTICABLE) OF MATERIAL BENEATH THE VISUALLY IMPACTED MATERIALS.

**TYPICAL REMOVAL SECTION A**

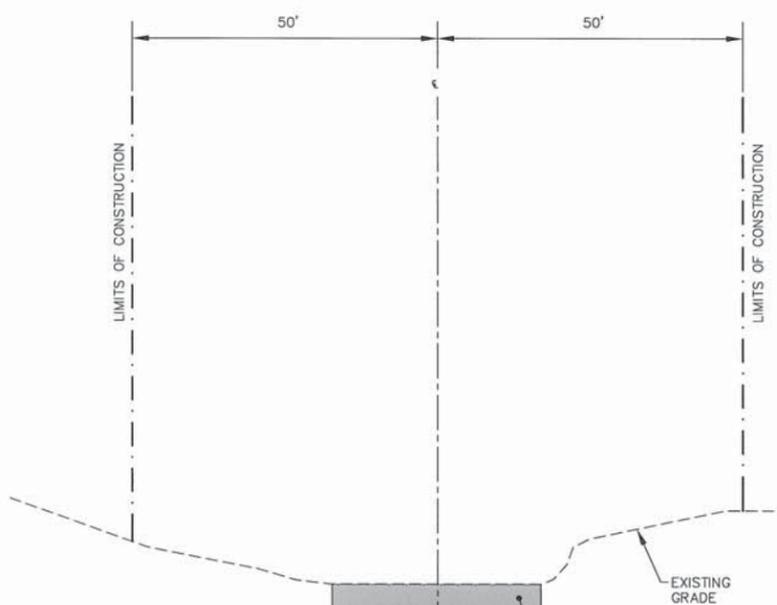
NOT TO SCALE



**NOTE:**  
 THE ACTUAL EXTENT OF REMOVAL WILL BE BASED ON VISUAL OBSERVATION OF IMPACTS PLUS, AS REQUESTED BY USEPA, UP TO AN ADDITIONAL 6 INCHES (AS PRACTICABLE) OF MATERIAL BENEATH THE VISUALLY IMPACTED MATERIALS.

**TYPICAL REMOVAL SECTION B**

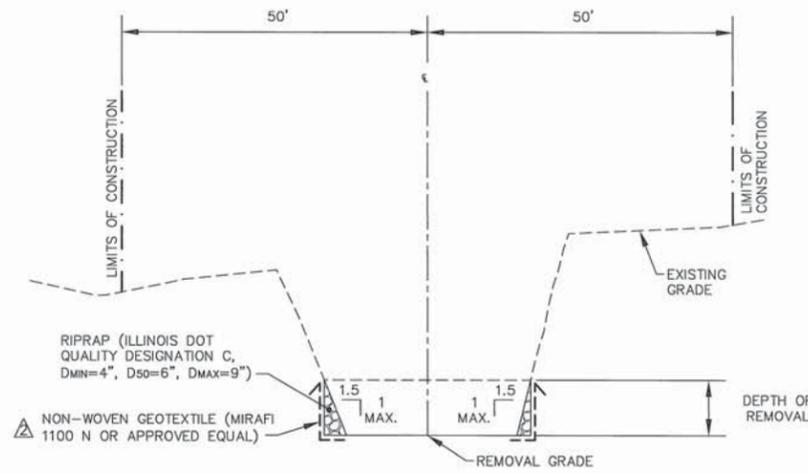
NOT TO SCALE



**NOTE:**  
 THE ACTUAL EXTENT OF REMOVAL WILL BE BASED ON VISUAL OBSERVATION OF IMPACTS PLUS, AS REQUESTED BY USEPA, UP TO AN ADDITIONAL 6 INCHES (AS PRACTICABLE) OF MATERIAL BENEATH THE VISUALLY IMPACTED MATERIALS.

**TYPICAL REMOVAL SECTION C**

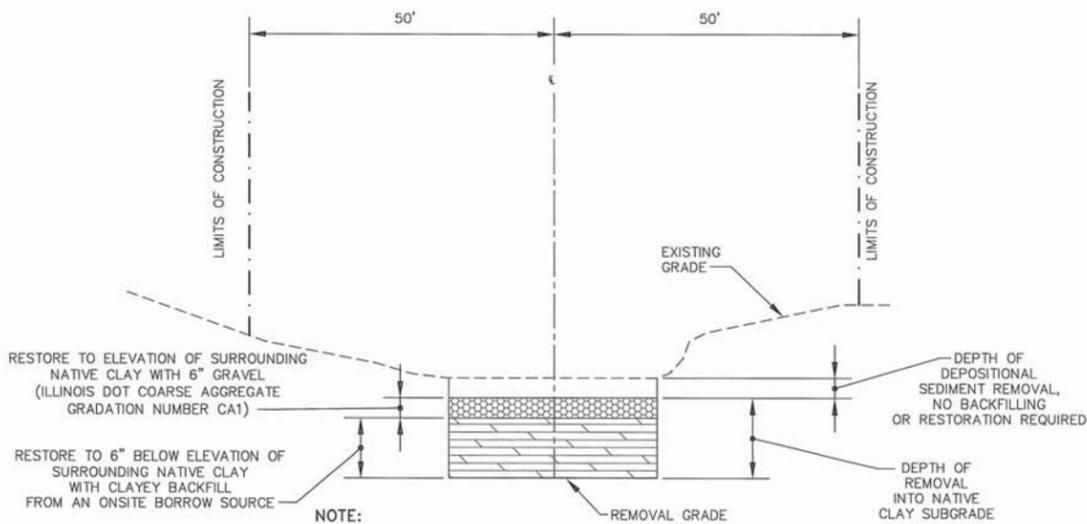
NOT TO SCALE



**NOTE:**  
 TOE STABILIZATION WITH RIPRAP IS REQUIRED FOR REMOVAL GREATER THAN 2 FEET.

**TOE STABILIZATION RESTORATION SECTION D**

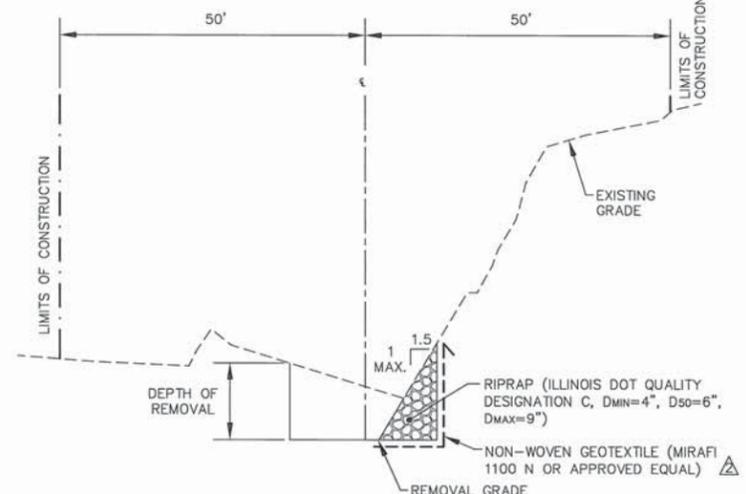
NOT TO SCALE



**NOTE:**  
 CONTINGENT CLAY SUBGRADE RESTORATION IS REQUIRED ONLY IN AREAS WHERE REMOVAL EXTENDS 2 FEET INTO THE NATIVE CLAY AND VISUAL IMPACTS REMAIN.

**CONTINGENT CLAY SUBGRADE RESTORATION SECTION E**

NOT TO SCALE



**NOTE:**  
 PLACE RIPRAP AT A 1.5:1 MAX. SLOPE ALONG THE SOUTH CREEK BANK BETWEEN STA 23+50 AND STA 26+00. THE TOP OF RIPRAP SHALL MATCH THE OPPOSING TOP OF BANK.

**SLOPE STABILIZATION RESTORATION SECTION F**

NOT TO SCALE

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING C-201 TRACER NO. 39011003/39011G09.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOG

NOT TO SCALE

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

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Professional Engineer's Name  
**MARK OWEN GRAVELDING**

Professional Engineer's No.  
 062059378

State  
 ILLINOIS

Designed by  
 ESD

Date Signed  
 MOG

Project Mgr.  
 MOG

Drawn by  
 KMD

Checked by  
 MOG



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
 GLADE CREEK SEDIMENT REMOVAL RECORD DRAWINGS

**TYPICAL REMOVAL AND RESTORATION SECTIONS**

MECHANICAL

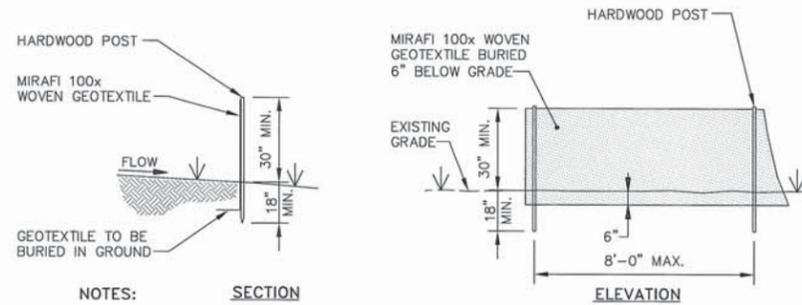
ARCADIS Project No.  
 390.11

Date  
 AUGUST 2011

ARCADIS  
 6723 Towpath Road  
 Syracuse, NY 13214  
 315-446-9120

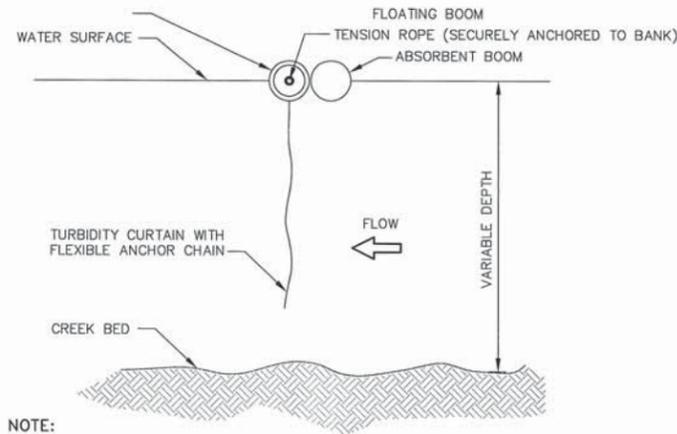
**C-201**

CITY: SYRACUSE NY DIV/GROUP: ENV/CAD DB:KMD GJD SLD PIC: R.J. ANDERSON PM: J.HOLDEN TM: EDIEVENDORF LVR:ONR OFF=REF: JX01 050 SED STA TRASECT XCL  
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 PLOTSTYLETABLE: PLTCONT.CTB PLOTTED: 8/30/2011 10:12 AM BY: DECLERCO, BRIAN



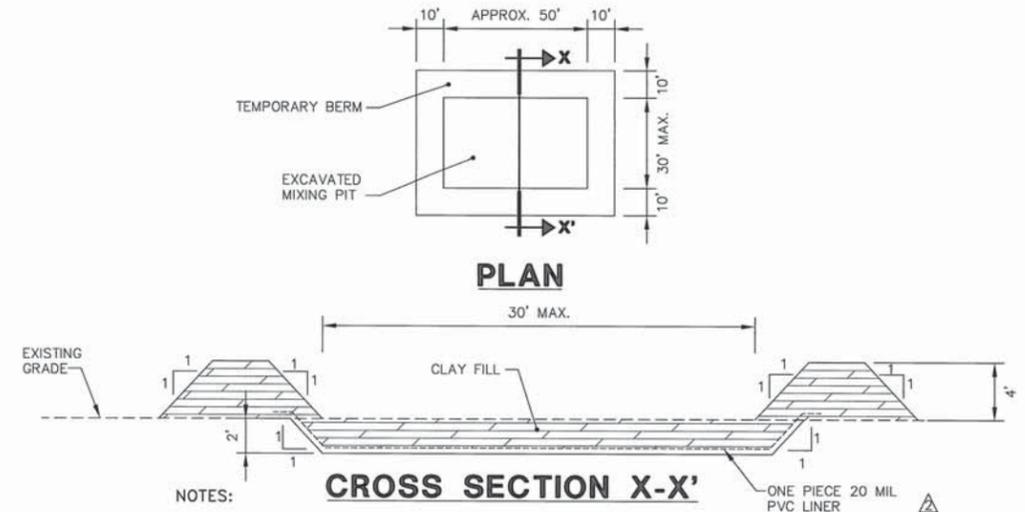
- NOTES:**
1. ACCUMULATIONS OF SEDIMENT ADJACENT TO SILT FENCES WILL BE PERIODICALLY REMOVED THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
  2. SILT ACCUMULATIONS SHALL BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF OF THE HEIGHT OF SILT FENCE.
  3. THE INTEGRITY OF SILT FENCING WILL BE MAINTAINED UNTIL ADEQUATE VEGETATIVE GROWTH IS ESTABLISHED.

**SILT FENCE 1**  
NOT TO SCALE



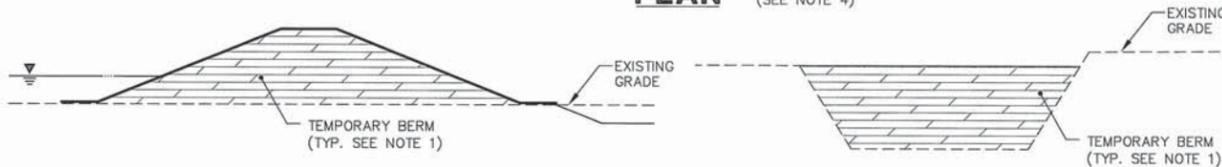
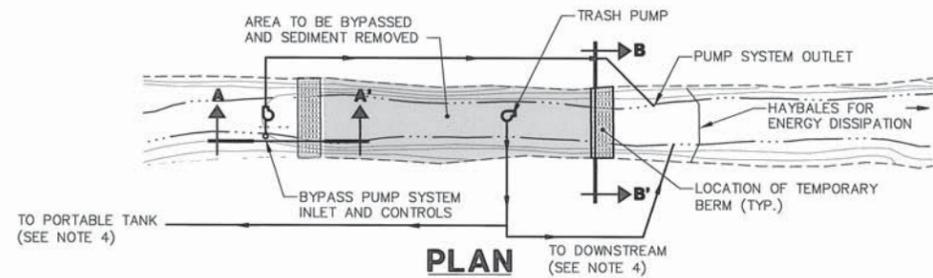
- NOTE:**
1. TO BE INSTALLED AT THE CONFLUENCE OF GLADE CREEK AND PILES FORK.

**TURBIDITY CURTAIN AND ABSORBENT BOOM 2**  
NOT TO SCALE



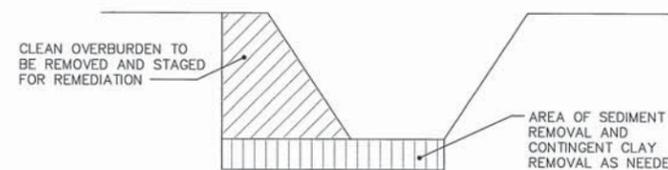
- NOTES:**
1. EXCAVATE 2' BELOW EXISTING GRADE OVER AN APPROXIMATELY 30' X 50' AREA. ENSURE AREA TO BE LINED IS FREE OF DEBRIS, STONES, AND SHARP OBJECTS.
  2. PLACE PVC LINER IN AND OVER THE SIDES OF THE EXCAVATED AREA TO BE ANCHORED IN PLACE BY TEMPORARY BERMS.
  3. PLACE A 2"-THICK LAYER OF CLAY FILL OVER THE EXCAVATED AREA. THE CLAY WILL BE FROM AN ON-SITE SOURCE AND PLACED IN APPROXIMATELY 8-INCH LIFTS AND WILL BE COMPACTED WITH A MINIMUM OF THREE PASSES OF THE COMPACTION EQUIPMENT.
  4. PLACE CLAY AS SHOWN TO FORM BERMS.
  5. TEMPORARY SEDIMENT PROCESSING AREA SHOULD BE SLOPED TO DRAIN TO A LOW POINT SUCH THAT ANY ACCUMULATED WATER CAN BE COLLECTED.

**TEMPORARY SEDIMENT PROCESSING AREA 3**  
NOT TO SCALE



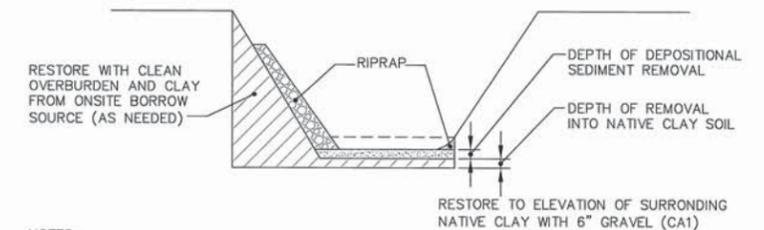
- NOTES:**
1. TEMPORARY BERM TO BE CONSTRUCTED OF EARTHEN MATERIAL FROM AN ONSITE SOURCE. HEIGHT OF BERM TO BE EQUAL TO THE FULL HEIGHT OF THE LOWEST BANK.
  2. INSTALLATION, REMOVAL, AND RELOCATION ACTIVITIES (IF NECESSARY) ASSOCIATED WITH THE TEMPORARY BERMS SHALL BE PERFORMED IN A MANNER THAT PREVENTS RECONTAMINATION OF REMEDIATED OR NON-REMEDIATED AREAS AND THAT MINIMIZES THE POTENTIAL FOR DISTURBANCE AND MIGRATION OF CREEK BED AND STREAM BANK SOILS.
  3. THE BYPASS PUMP SYSTEM INLETS AND OUTLETS ARE TO BE CONSTRUCTED AND OPERATED IN A MANNER THAT PROVIDES FOR SCOUR AND EROSION PROTECTION OF THE CREEK BED AND STREAM BANK SOILS.
  4. WATER REMOVED FROM DEWATERED AREAS WILL BE EITHER PUMPED INTO NEARBY PORTABLE TANKS FOR LATER DISCHARGE TO FRAC TANK NEAR SEDIMENT PROCESSING AREA (IF WATER IS REMOVED FROM DISTURBED AREAS), OR WILL BE PUMPED DOWNSTREAM IF NO VISIBLE IMPACTS ARE OBSERVED. THIS DETERMINATION WILL BE MADE IN THE FIELD BY THE RPR. FRAC TANKS TO BE EMPTIED VIA PUMPING TO THE ONSITE WATER TREATMENT FACILITY, AS NECESSARY.

**TYPICAL BYPASS PUMPING CONFIGURATION 4**  
NOT TO SCALE



- NOTE:**
- REMOVAL MAY BE NECESSARY FOR BOTH BANKS IN SOME AREAS.

**TYPICAL BANK REMOVAL SECTION G**  
NOT TO SCALE



- NOTES:**
1. FOR REMOVALS IN PREVIOUSLY RESTORED SECTIONS, REMOVE RIPRAP AND STAGE FOR REUSE WHERE PRACTICAL, REMOVE AND STOCKPILE CLEAN OVERBURDEN, REMOVE RESTORED CLAY AND IMPACTED MATERIAL FROM SIDESLOPE FOR PLACEMENT IN CAMU. RESTORE SIDESLOPE USING STOCKPILED OVERBURDEN, NON-WOVEN FABRIC, AND RIPRAP.
  2. TREES WILL BE CLEARED AS NEEDED. STUMPS AND ROOTS WILL BE REMOVED AS NEEDED. ROOTS THAT EXTEND INTO IMPACTED MATERIAL WILL BE CU AT THE OVERBURDEN-IMPACTED INTERFACE AND HAULED TO THE CAMU. NON-IMPACTED STUMPS AND ROOTS WILL BE STOCKPILED FOR ATURAL DEGRADATION.

**TYPICAL BANK RESTORATION SECTION H**  
NOT TO SCALE

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING C-202 TRACER NO. 39011003/39011G10.DWG, DATED 8/31/2011) DATE 8/31/11 BY M06

NOT TO SCALE	
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No.	Date
6/15/11	RECORD DRAWINGS-ADDED TYPICAL SECTIONS
ESD	MOG
By	Ckd

Professional Engineer's Name <b>MARK OWEN GRAVELDING</b>	
Professional Engineer's No. 062059378	
State ILLINOIS	Date Signed Project Mgr. MOG
Designed by ESD	Checked by KMD



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
**GLADE CREEK SEDIMENT REMOVAL RECORD DRAWINGS**

**MISCELLANEOUS DETAILS**

MECHANICAL

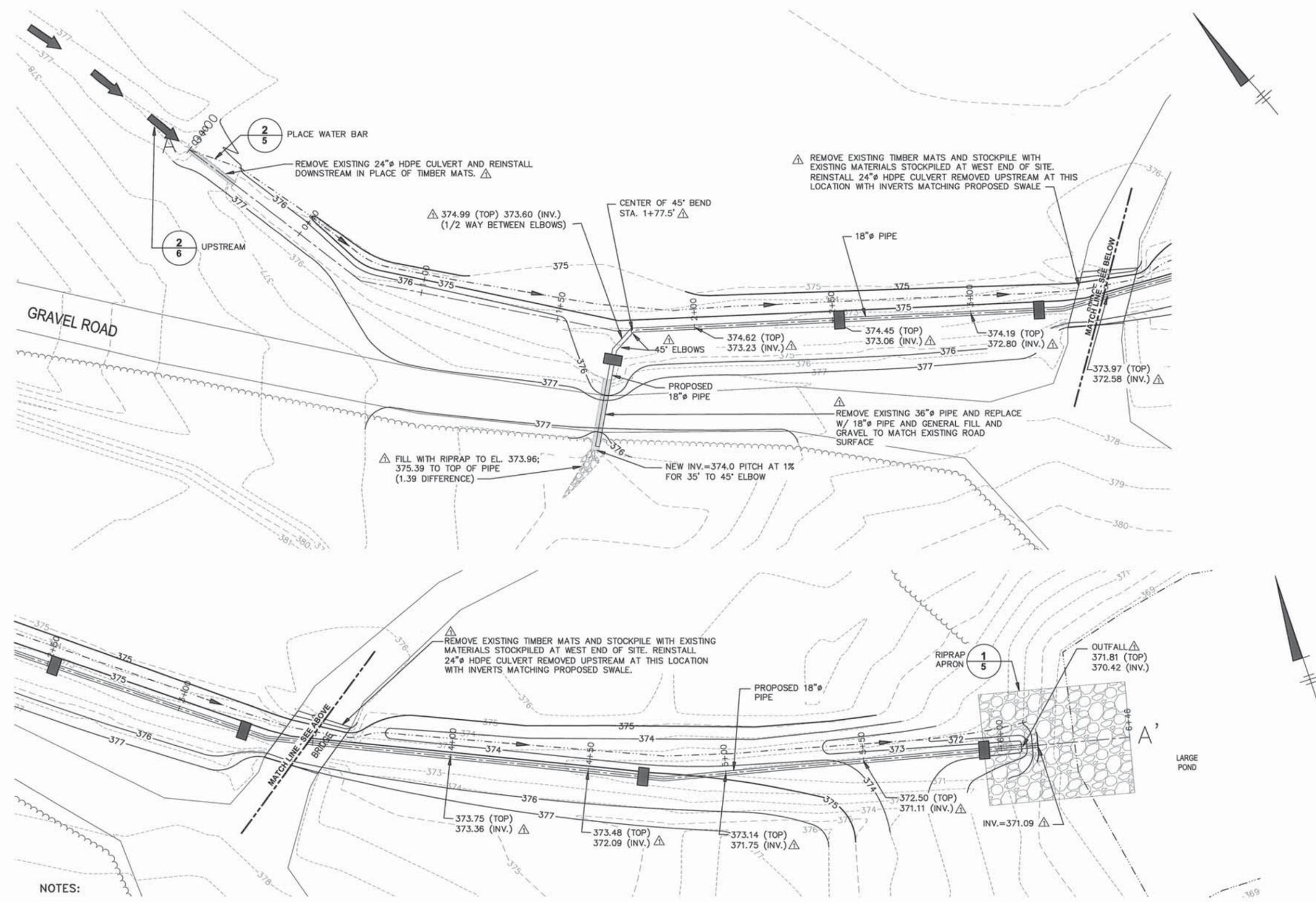
ARCADIS Project No. 390.11	<b>C-202</b>
Date AUGUST 2011	
ARCADIS 6723 Towpath Road Syracuse, NY 13214 315-446-9120	



**Ditch Construction Record  
Drawings**



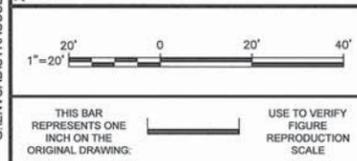
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 XREFS: 39233X00 39233X03  
 PLOT STYLE TABLE: PLTCONT1.CTB PLOTTED: 8/30/2011 9:40 AM BY: DECLERCO, BRIAN



- LEGEND:**
- EDGE OF WATER
  - DRAINAGE SWALE AND DIRECTION OF FLOW
  - - - - - EXISTING INDEX CONTOUR
  - - - - - EXISTING INTERMEDIATE CONTOUR
  - PROPOSED INDEX CONTOUR
  - PROPOSED INTERMEDIATE CONTOUR
  - EXISTING CULVERT
  - PROPOSED PIPE AND CENTERLINE STATIONING
  - PROPOSED ANTI-SEEP COLLAR
- ABBREVIATIONS:**
- ⊕ CENTERLINE
  - ∅ DIAMETER
  - HDPE HIGH-DENSITY POLYETHYLENE
  - INV. INVERT
  - MAX. MAXIMUM
  - MIN. MINIMUM
  - RCP REINFORCED CONCRETE PIPE
  - TYP. TYPICAL

- NOTES:**
- EXISTING SITE FEATURES AND TOPOGRAPHY BASED ON 8/21/2007 SURVEY BY SHAWNEE SURVEY & CONSULTING, INC.
  - REFER TO DRAWING 5 FOR CONSTRUCTION SPECIFICATIONS.
  - PLACE REMOVED MATERIALS WITH VISUAL IMPACTS IN A LINED HOLDING AREA IN ACCORDANCE WITH DETAIL 1 ON DRAWING 6.

(RECORD DRAWING: MADE FROM DRAWING NO. 2, TRACER NO. B0039123/0000/00001/G04.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOG



No.	Date	Revisions	ESD	MOG
1	6/10/11	RECORD DRAWINGS - Revised Inverts & Notes, Added Elbow	ESD	MOG

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Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State: ILLINOIS  
 Date Signed: \_\_\_\_\_  
 Project Mgr.: LSK  
 Designed by: ESD  
 Drawn by: AGS  
 Checked by: \_\_\_\_\_



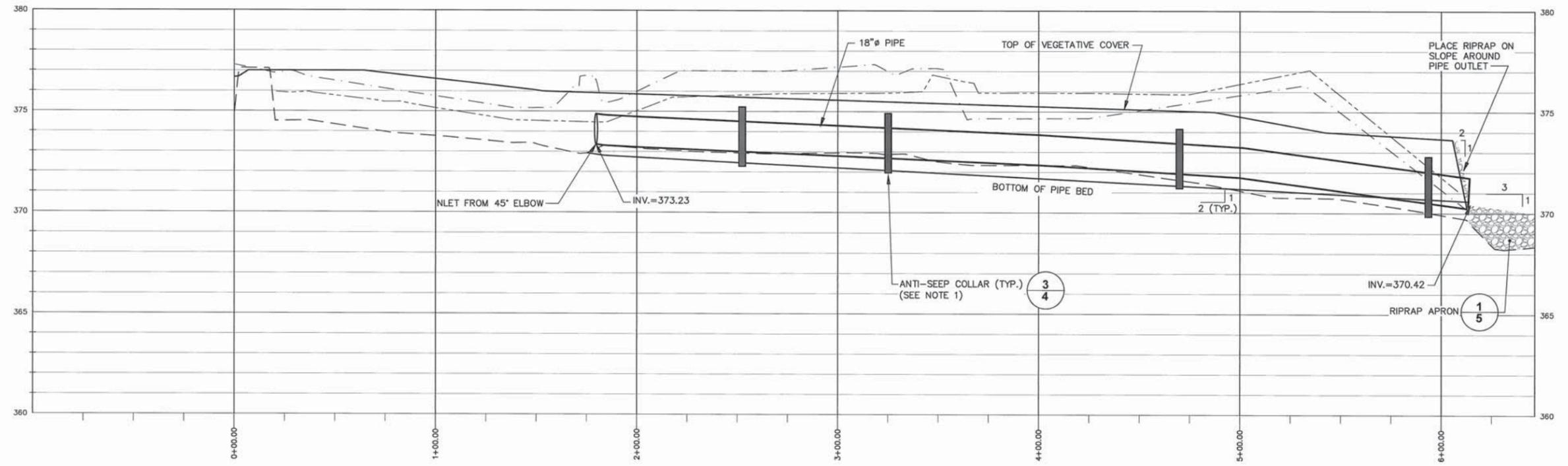
BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
 DITCH CONSTRUCTION RECORD DRAWINGS

## GRADING PLAN

ARCADIS U.S., INC.

ARCADIS Project No.  
 B0039233.0000.00001  
 Date  
 AUGUST 2011  
 ARCADIS US, INC.  
 6723 TOWPATH ROAD,  
 PO BOX 66  
 SYRACUSE, NY 13214-0066  
 TEL: 315.446.9120

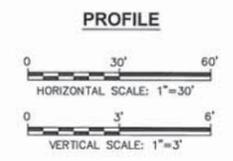
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**LEGEND:**

—	PROPOSED PIPE
- - - -	EXISTING CHANNEL INVERT
- · - · -	TOP OF BANK (NORTH)
- · - · -	TOP OF BANK (SOUTH)

- NOTES:**
- ANTI-SEEP COLLARS SHALL EXTEND A MINIMUM OF 6" BELOW BOTTOM OF PIPE BED AND A MINIMUM OF 6" ABOVE PIPE CROWN.
  - PLACE REMOVED MATERIALS WITH VISUAL IMPACTS IN A LINED HOLDING AREA IN ACCORDANCE WITH DETAIL 1 ON DRAWING 6.



**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 3, TRACER NO. B0039123/0000/00001/G01.DWG, DATED 8/31/2011) DATE 8/31/11 BY MEG

SCALES AS INDICATED

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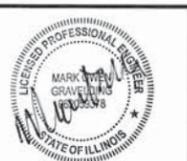
USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	ESD By	MOG Ckd
1	6/10/11	RECORD DRAWINGS - UPDATED PROFILE	ESD	MOG

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Professional Engineer's Name  
**MARK OWEN GRAVELDING**  
 Professional Engineer's No.  
 062059378

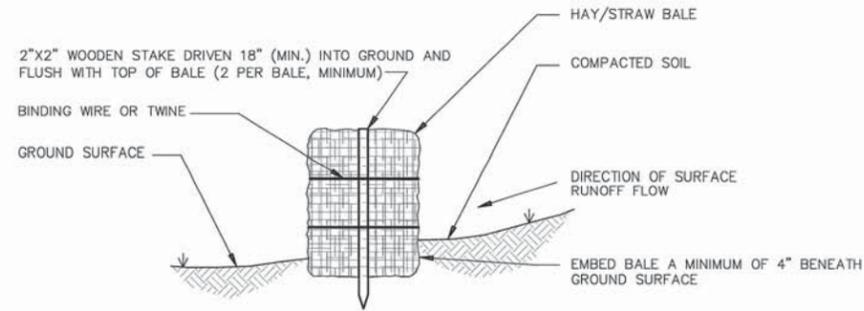
State: ILLINOIS Date Signed: Project Mgr: LSK  
 Designed by: ESD Drawn by: AGS Checked by:



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 DITCH CONSTRUCTION RECORD DRAWINGS

**PROFILE AND CROSS SECTIONS**

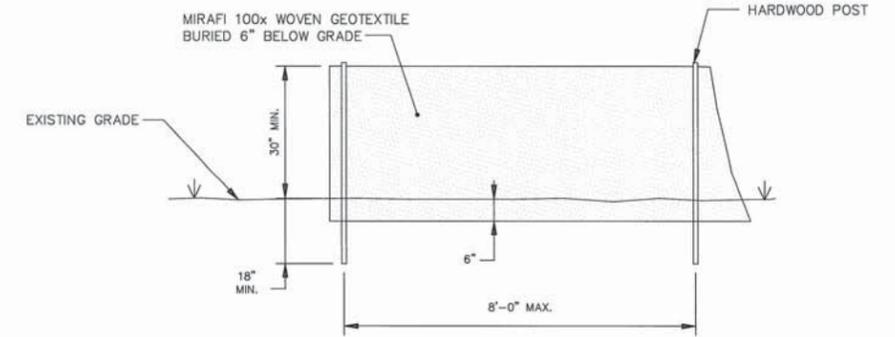
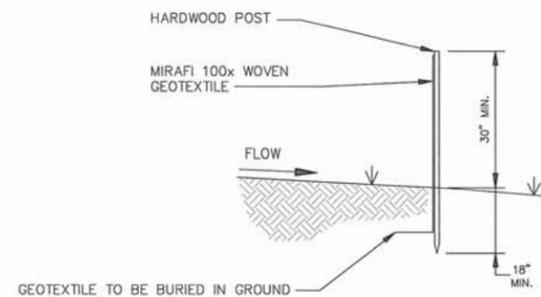
ARCADIS Project No. B0039233.0000.00001  
 Date: AUGUST 2011  
 ARCADIS US, INC.  
 6723 TOWPATH ROAD,  
 PO BOX 66  
 SYRACUSE, NY 13214-0066  
 TEL: 315.446.9120



**NOTES:**

- HAY/STRAW BALES SHALL ONLY BE USED AS REQUIRED.
- BALES SHALL BE PLACED TIGHTLY TOGETHER, END TO END, TO FORM A CONTINUOUS BARRIER IN SELECTED AREAS.
- THE INTEGRITY OF THE HAY/STRAW BALES WILL BE MAINTAINED FOR THE PROJECT DURATION AND UNTIL ADEQUATE VEGETATIVE GROWTH IS ESTABLISHED.
- STOCKPILE ANY EXCAVATED MATERIAL ONSITE FOR USE AS BACKFILL UPON COMPLETION.

**HAY/STRAW BALE** ①  
NOT TO SCALE



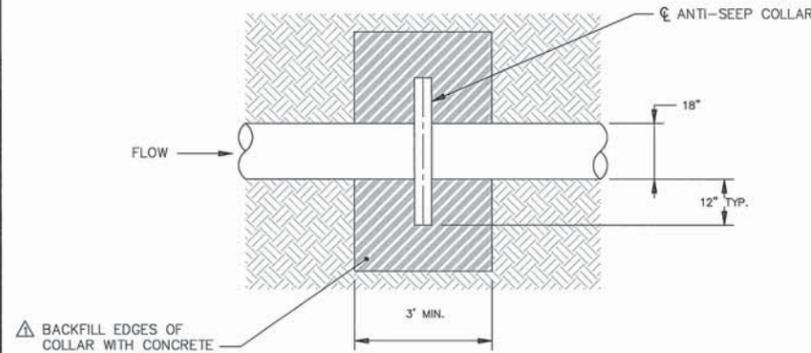
**SECTION**

**ELEVATION**

**NOTES:**

- ACCUMULATIONS OF SEDIMENT ADJACENT TO SILT FENCES WILL BE PERIODICALLY REMOVED THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
- SILT ACCUMULATIONS SHALL BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF OF THE HEIGHT OF SILT FENCE.
- THE INTEGRITY OF SILT FENCING WILL BE MAINTAINED FOR THE PROJECT DURATION AND UNTIL ADEQUATE VEGETATIVE GROWTH IS ESTABLISHED.

**SILT FENCE** ②  
NOT TO SCALE

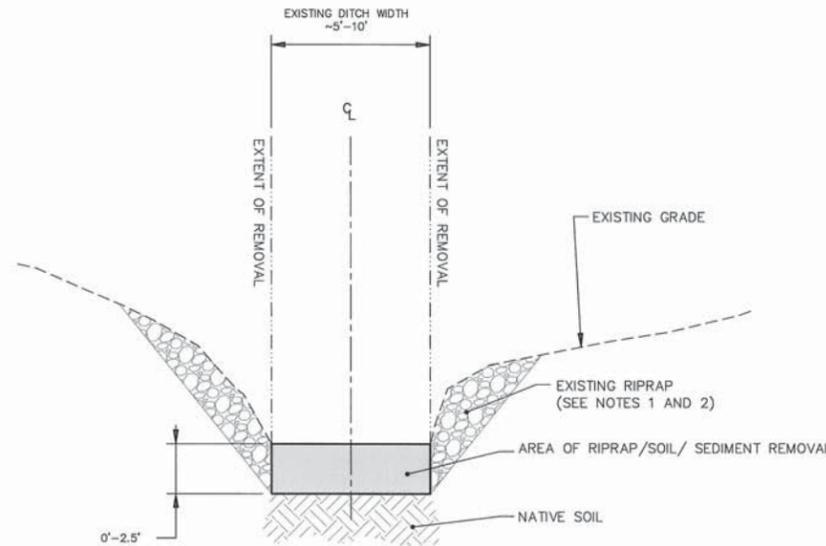


**PLAN VIEW**

**NOTES:**

- ANTI-SEEP COLLAR SHALL BE INSTALLED WITH A WATER TIGHT SEAL AROUND THE PIPE AT LEAST 3 FEET AWAY FROM ANY JOINT.
- ANTI-SEEP COLLARS SHALL BE INSTALLED AT THE LOCATIONS INDICATED ON THE PLAN.
- ANTI-SEEP COLLARS SHALL EXTEND A MINIMUM OF 6" INTO NATIVE SOIL BELOW THE PIPE BED.

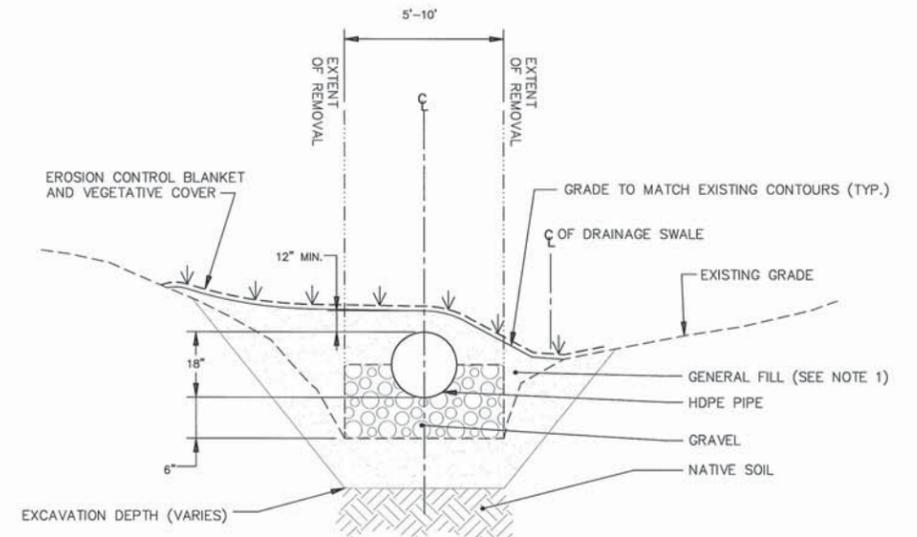
**ANTI-SEEP COLLAR** ③  
NOT TO SCALE



**NOTES:**

- REMOVE EXISTING RIPRAP ABOVE WATERLINE PRIOR TO OTHER CONSTRUCTION FOR REUSE IN RIPRAP APRONS AND OTHER AREAS AS APPROPRIATE OR STOCKPILE, IF APPLICABLE.
- REMOVE EXISTING RIPRAP BELOW WATERLINE. RIPRAP THAT IS NOT VISUALLY IMPACTED WILL BE REUSED OR STOCKPILED. RIPRAP WITH VISUAL IMPACTS WILL BE PLACED IN A LINED HOLDING AREA IN ACCORDANCE WITH DETAIL 1 ON DRAWING 6.

**TYPICAL REMOVAL SECTION** ④  
NOT TO SCALE



**NOTES:**

- PLACE AND GRADE GENERAL FILL TO ACHIEVE FINAL GRADES AS SHOWN ON DRAWING 2. COMPACT AS SPECIFIED IN THE TABLE ON DRAWING 5.
- PLACE GRAVEL A MINIMUM OF 6" UNDER THE PIPE UP TO THE PIPE SPRINGLINE

**TYPICAL RESTORATION SECTION** ⑤  
NOT TO SCALE

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE,  
INFORMATION AND BELIEF, THESE RECORD  
DRAWINGS SUBSTANTIALLY REPRESENT THE  
PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 4, TRACER NO. B0039123/0000/00001/G02.DWG, DATED 8/31/2011) DATE *8/31/11* BY *MOB*

CITY: SYRACUSE, NY DIV: GROUP: ENVICAD DBTJR BGP KFS K SARTORI PIC: R. ANDERSON TME: DIEVENDORF LVR: (OPT) ON: OFF: REF: G: ENVICAD: SYRACUSE: SEACT: B0039233/0000/00001/RECORD: DITCH\_CULVERT: 39233X03 DWG LAYOUT: 4 SAVED: 8/30/2011 9:41 AM ACADVER: 18.05 (LMS TECH) PAGES: 18 PAGES SETUP: PLOTSTYLE: TABLE: PLTCONT1.CTB PLOTTED: 8/30/2011 9:44 AM BY: DECLERCO, BRIAN

PROJECT NAME: XREFS: 39233X04 39233X00 39233X03

NOT TO SCALE	USE TO VERIFY FIGURE REPRODUCTION SCALE	6/10/11 RECORD DRAWINGS - REVISED MATERIAL	By	Ckd
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Professional Engineer's Name <b>MARK OWEN GRAVELDING</b>			
Professional Engineer's No. 062059378			
State ILLINOIS	Date Signed	Project Mgr. LSK	
Designed by ESD	Drawn by AGS	Checked by	



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DITCH CONSTRUCTION RECORD DRAWINGS

**MISCELLANEOUS DETAILS**

ARCADIS Project No. B0039233.0000.00001	4
Date AUGUST 2011	
ARCADIS US, INC. 6723 TOWPATH ROAD, PO BOX 66 SYRACUSE, NY 13214-0066 TEL: 315.446.9120	





CITY: SYRACUSE, NY DIV: GROUP/EN/CAD DB: TJB BGP KFS AGS K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TME: DIEVENDORF LVR: (OPTION) - OFF - REF -  
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 XREFS: IMAGES: PROJECTNAME: ---  
 30233X00

**GENERAL:**

1. VERIFY THE PRESENCE AND LOCATION OF ALL ABOVEGROUND SITE FEATURES IN THE VICINITY OF PROPOSED CONSTRUCTION ACTIVITIES AND COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES TO TEMPORARILY REMOVE, RELOCATE, OR REPLACE ANY EXISTING UTILITIES.
2. VERIFY THE PRESENCE AND LOCATION OF ALL UNDERGROUND UTILITIES IN THE VICINITY OF PROPOSED CONSTRUCTION ACTIVITIES AND COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES TO TEMPORARILY REMOVE, RELOCATE, OR REPLACE ANY EXISTING UTILITIES.
3. ESTABLISH AND VERIFY CONTROL IN THE FIELD THROUGHOUT CONSTRUCTION.
4. COORDINATE WITH CONSTRUCTION OVERSIGHT PERSONNEL TO ADHERE TO APPLICABLE PROJECT PERMITS.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SAFETY PROGRAMS FOR THEIR EMPLOYEES, SUBCONTRACTORS, AND OTHER SITE PERSONNEL. THIS INCLUDES PREPARATION OF A SITE-SPECIFIC HEALTH AND SAFETY PLAN (HASP).
6. ESTABLISH AND MAINTAIN SEDIMENT AND EROSION CONTROLS AROUND AND IMMEDIATELY DOWNGRADIENT OF THE WORK AREA. AT A MINIMUM, SITE EROSION AND SEDIMENT CONTROLS SHALL CONSIST OF SILT FENCE AND OR HAY/STRAW BALES IN ACCORDANCE WITH DETAILS 1 AND 2, RESPECTIVELY, ON DRAWING 4.
7. PLACE CONSTRUCTION FENCE AROUND LIMITS OF WORK.
8. MINIMIZE DUST IN AND AROUND THE WORK AREA WITH WATER.

**REMOVAL:**

9. CONDUCT REMOVAL TO THE GRADES SPECIFIED ON DRAWING 3 AND IN ACCORDANCE WITH DETAIL 4 ON DRAWING 4 OR AS SPECIFIED BY THE CONSTRUCTION OVERSIGHT PERSONNEL.
10. REMOVE AND PROPERLY DISPOSE OF ALL ABOVEGROUND DEBRIS, BRUSH, LOGS, TREES, STUMPS, REFUSE, AND RUBBISH FROM WITHIN THE WORK AREA AT APPROVED ONSITE AREAS PRIOR TO CONSTRUCTION.
11. PLACE REMOVED SOIL MATERIALS IN A LINED HOLDING AREA IN THE CAMU AREA IN ACCORDANCE WITH DETAIL 1 ON DRAWING 6. WHEN CONSTRUCTION IS COMPLETE, COVER THE HOLDING AREA UNTIL FINAL PLACEMENT IN THE CAMU IS FEASIBLE.
12. WATER COLLECTED IN THE EXCAVATION AREA WILL BE CONTAINERIZED AND TREATED AT THE ONSITE WATER TREATMENT FACILITY, AS DIRECTED BY CONSTRUCTION OVERSIGHT PERSONNEL.

**BACKFILL AND RESTORATION:**

13. PLACE BACKFILL MATERIALS TO THE GRADES SPECIFIED ON DRAWINGS 2 AND 3, AND IN ACCORDANCE WITH DETAIL 5 ON DRAWING 4 OR AS SPECIFIED BY THE CONSTRUCTION OVERSIGHT PERSONNEL.
14. PLACE BACKFILL MATERIALS, INCLUDING GRAVEL AND RIPRAP, IN ACCORDANCE WITH DETAIL 5 ON DRAWING 4, DETAILS 1 AND 2 ON DRAWING 5, AND THE MATERIALS SPECIFICATION TABLE ON DRAWING 5.
15. RESTORE ALL CONSTRUCTION STAGING AND SUPPORT AREAS TO PRE-CONSTRUCTION CONDITION. THESE AREAS INCLUDE, BUT ARE NOT LIMITED TO, EQUIPMENT/MATERIAL STORAGE AREAS, MATERIAL LOADING/STAGING AREAS, AND ACCESS ROADS/AREAS.
16. RESTORE ALL SURFACES DAMAGED OR DESTROYED AS A RESULT OF THE WORK TO PRE-CONSTRUCTION CONDITIONS PRIOR TO DEMOBILIZATION.

**PIPE AND APPURTENANCE PLACEMENT:**

17. PLACE PIPE AT THE LOCATIONS AND GRADES SHOWN ON DRAWINGS 1, 2, AND 3 AND IN ACCORDANCE WITH THE MATERIALS SPECIFICATION TABLE ON DRAWING 5.
18. PLACE ANTI-SEEP COLLARS AT THE LOCATIONS AND GRADES ON DRAWINGS 1, 2, AND 3 AND IN ACCORDANCE WITH DETAIL 3 ON DRAWING 4 AND THE MATERIALS SPECIFICATION TABLE ON DRAWING 5.

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE,  
 INFORMATION AND BELIEF, THESE RECORD  
 DRAWINGS SUBSTANTIALLY REPRESENT THE  
 PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 7, TRACER NO. B0039123/0000/00001/G03.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOG

<p>THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.</p>	<p>USE TO VERIFY FIGURE REPRODUCTION SCALE</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Date</th> <th>Revisions</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No.	Date	Revisions				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>ESD</td> <td>MOG</td> </tr> <tr> <td>By</td> <td>Ckd</td> </tr> </table>	ESD	MOG	By	Ckd	<p>Professional Engineer's Name <b>MARK OWEN GRAVELDING</b></p> <p>Professional Engineer's No. 062059378</p> <p>State ILLINOIS</p> <p>Date Signed  </p> <p>Project Mgr. LSK</p> <p>Designed by ESD</p> <p>Drawn by AGS</p> <p>Checked by  </p>		<p>ARCADIS U.S., INC.</p>	<p>BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS</p> <p><b>DITCH CONSTRUCTION RECORD DRAWINGS</b></p> <p><b>GENERAL NOTES</b></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>ARCADIS Project No. B0039233.0000.00001</td> </tr> <tr> <td>Date AUGUST 2011</td> </tr> <tr> <td>ARCADIS US, INC. 6723 TOWPATH ROAD, PO BOX 66 SYRACUSE, NY 13214-0066 TEL: 315.446.9120</td> </tr> </table>	ARCADIS Project No. B0039233.0000.00001	Date AUGUST 2011	ARCADIS US, INC. 6723 TOWPATH ROAD, PO BOX 66 SYRACUSE, NY 13214-0066 TEL: 315.446.9120	<b>7</b>
No.	Date	Revisions																				
ESD	MOG																					
By	Ckd																					
ARCADIS Project No. B0039233.0000.00001																						
Date AUGUST 2011																						
ARCADIS US, INC. 6723 TOWPATH ROAD, PO BOX 66 SYRACUSE, NY 13214-0066 TEL: 315.446.9120																						

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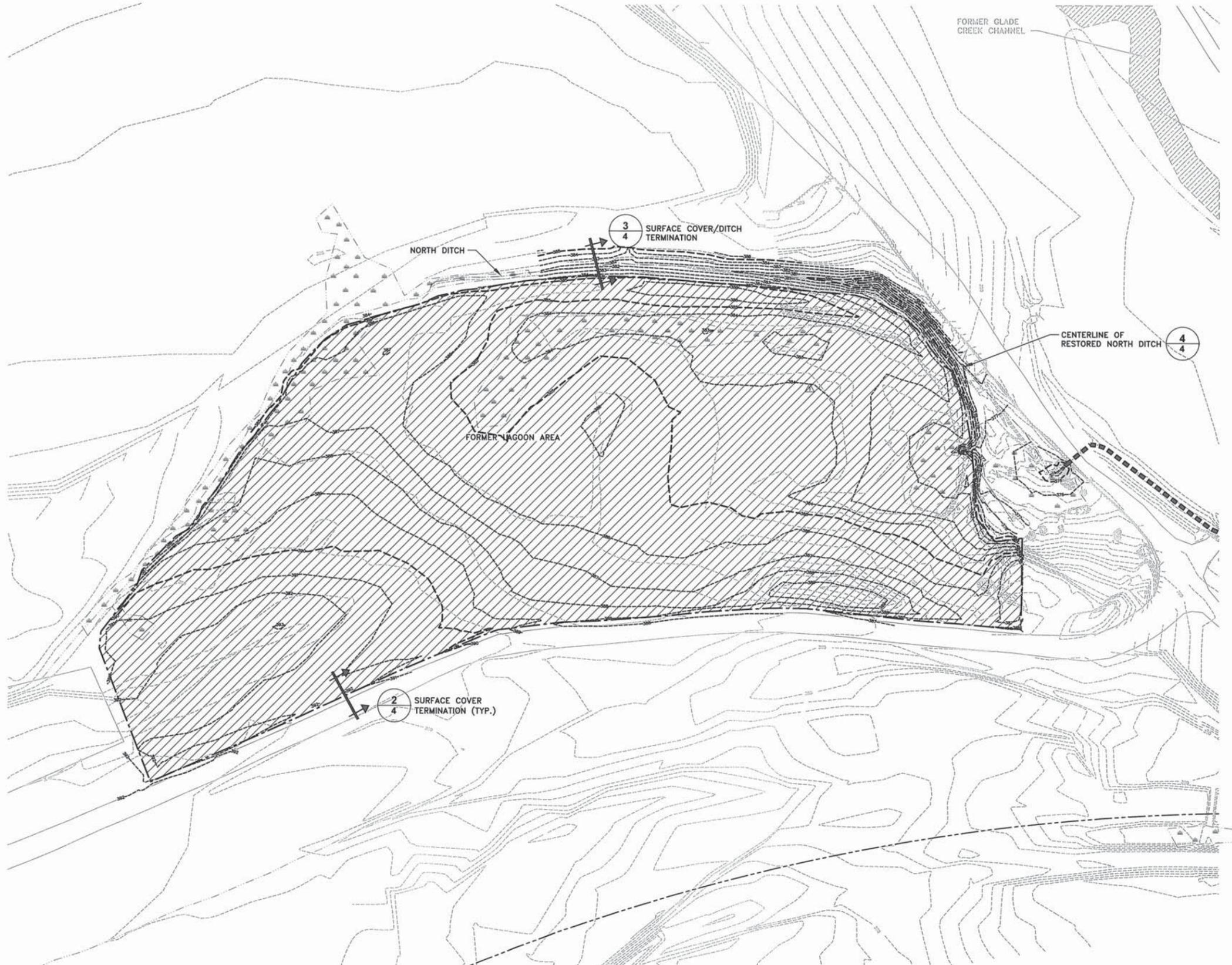
**Former Lagoon Area, North  
Drainage Ditch, and Railroad  
Right-of-Way Record Drawings**





CITY: SYRACUSE DIV/GROUP: ENV/CAD DB: L. FORAKER K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TM: D. BESSINGPAS LVR: ON+ OFF=REF  
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PROJECT NAME: \_\_\_\_\_  
 XREFS: 39208X01  
 39208X03  
 39233X00  
 39233X04

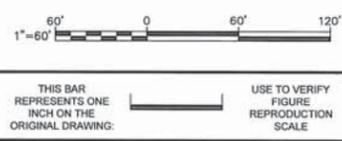


- LEGEND:**
- PROPERTY BOUNDARY
  - - - EXISTING CONTOUR LINE
  - ==== ROADWAY
  - DRAINAGE DITCH AND DIRECTION OF FLOW
  - WETLAND AREA
  - - - PREVIOUS LOCATION OF GLADE CREEK
  - PROPOSED SURFACE COVER AREA (SEE NOTE 3) 1/4
  - FINAL CONTOURS 1 FT.
  - FINAL CONTOURS 5 FT.

- NOTES:**
1. SEE DRAWING 1 FOR BASEMAP INFORMATION.
  2. TREES, SHRUBS, AND OTHER DENSE VEGETATION WITHIN THE PROPOSED SURFACE COVER AREA, WILL BE REMOVED TO GROUND SURFACE. TREES AND SHRUBS WILL BE STOCKPILED ON-SITE.
  3. SURFACE COVER SOILS SHALL BE PLACED AND GRADED IN ORDER TO MINIMIZE LOCALIZED DEPRESSIONS AND TO PROMOTE RUNOFF TOWARDS THE NORTH DITCH.

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE,  
 INFORMATION AND BELIEF, THESE RECORD  
 DRAWINGS SUBSTANTIALLY REPRESENT THE  
 PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 3, TRACER NO. B0039208\0000\00002\DWG\REPORT\39208G03.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOG



USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	6/15/11	RECORD DRAWINGS - ADDED FINAL GRADES	ESD	MOG

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Professional Engineer's Name  
**MARK O. GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State  
 ILLINOIS  
 Date Signed  
 Project Mgr.  
 Designed by  
 LAF  
 Drawn by  
 Checked by

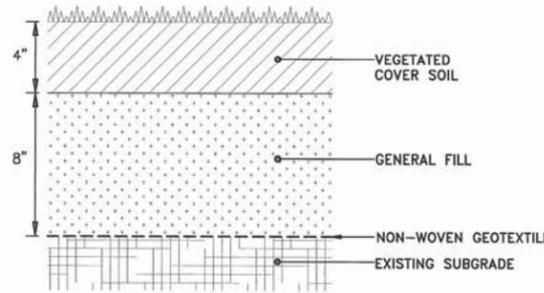


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 FORMER LAGOON AREA, NORTH DRAINAGE DITCH, AND RAILROAD RIGHT-OF-WAY RECORD DRAWINGS

**PROPOSED SURFACE COVER PLAN**

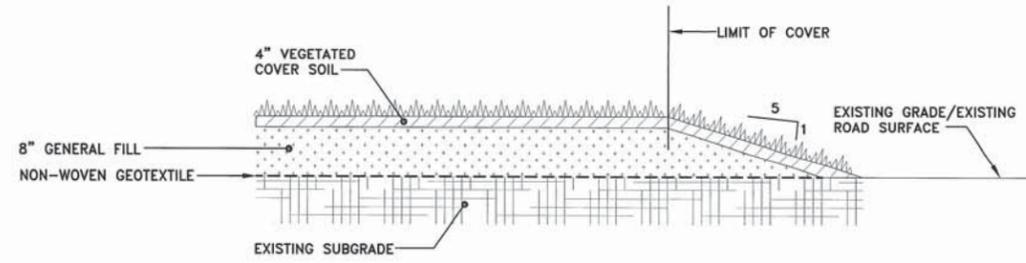
ARCADIS Project No.  
 B0039233.0000.00001  
 Date  
 AUGUST 2011  
 ARCADIS U.S., INC.  
 6723 TOWPATH ROAD  
 P.O. BOX 66  
 SYRACUSE, NY 13214-0066  
 TEL. 315.446.9120

CITY: SYRACUSE DIV: GROUP: ENV: CAD: DB: L. FORAKER LD: PIC: R. ANDERSON PM: J. HOLDEN TM: D. BESSINGPAS LYR: ON: OFF: REF: G:\ENVCAD\SYRACUSE\BEBEACT\B0039208\0000\00002\DWG\REPORT\39208G04.DWG LAYOUT: 4 SAVED: 8/30/2011 10:50 AM ACADVER: 18.05 (LMS TECH) PAGES: 4 PLOT: 8/30/2011 10:50 AM BY: DECLERCO, BRIAN



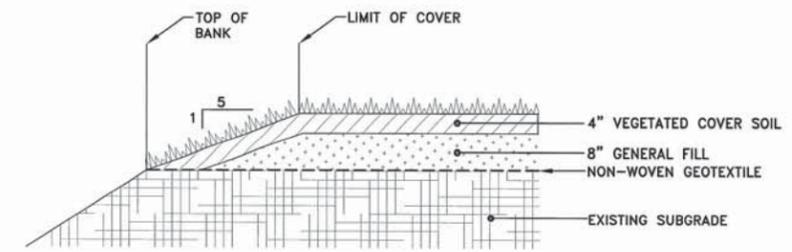
**SURFACE COVER**  
NOT TO SCALE

1



**SURFACE COVER TERMINATION**  
NOT TO SCALE

2



**SURFACE COVER/DITCH TERMINATION**  
NOT TO SCALE

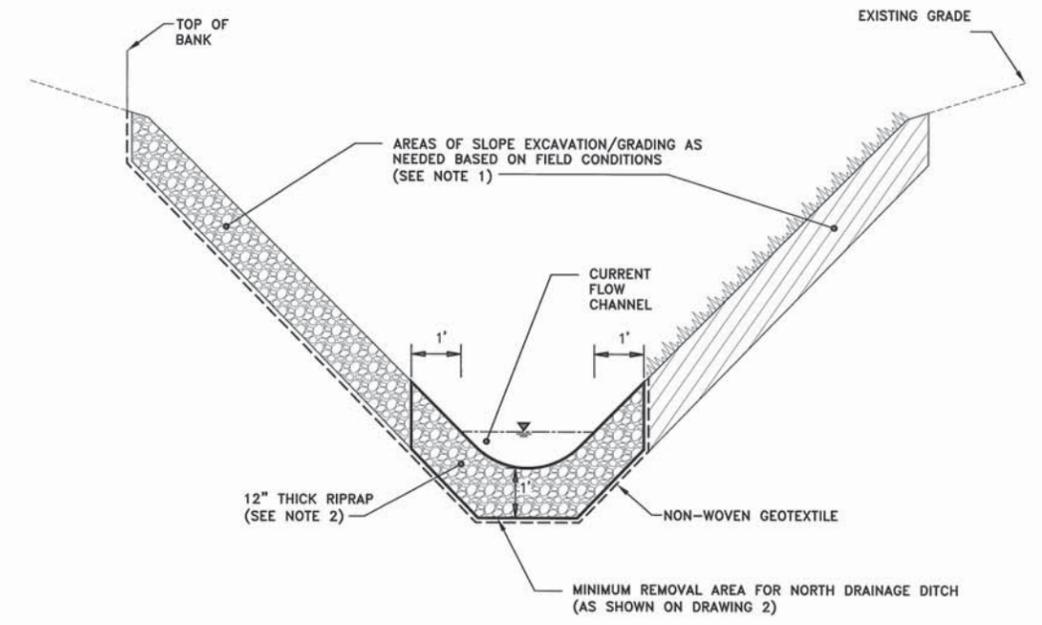
3

**GENERAL NOTE:**

- VEGETATION WILL BE RESTORED IN SOIL COVER AREAS AND OTHER DISTURBED AREAS USING SEED MIXES APPROPRIATE FOR THE DISTURBED HABITAT. HABITATS WILL BE CHARACTERIZED PRIOR TO CONSTRUCTION. UPLANDS WILL BE SEEDED WITH THE UPLAND SEED MIX (TABLE 1, OR EQUIVALENT), GRASS/SEDGE WETLAND AREAS WILL BE SEEDED WITH A GRASS/SEDGE WETLAND SEED MIX (TABLE 2 OR EQUIVALENT).

TABLE 1 - UPLAND SEED MIX	
IDOT CLASS 4 NATIVE GRASS MIXTURE	
SPECIES	lbs / acre
Big Blue Stem (Andropogon Gerardi)	4
Little Bluestem (Andropogon Scoparius)	5
Side-Oats Grama (Bouteloua Curtipendula)	5
Canada Wild Rye (Elymus Canadensis)	1
Switchgrass (Panicum Virgatum)	1
Indian Grass (Sorghastrum Nutans)	2
Annual Ryegrass	25
Oats, Spring	25
Perennial Ryegrass	15
<b>Total</b>	<b>83</b>

TABLE 2 - GRASS/SEDGE WETLAND SEED MIX	
WETLAND GRASSES	
SPECIES	% by Weight
Annual Ryegrass	25 lbs / acre
Spring Oats	25 lbs / acre
Wetland Grasses (below)	6 lbs / acre
<b>Total</b>	<b>56 lbs / acre</b>
Blue Joint Grass	12%
Lake-Bank Sedge	6%
Awl-Fruited Sedge	6%
Tussock Sedge	6%
Fox Sedge	6%
Needle Spike Rush	3%
Blunt Spike Rush	3%
Fowl Manna Grass	14%
Common Rush	6%
Slender Rush	6%
Torrey's Rush	6%
Rice Cut Grass	10%
Hard-Stemmed Bulrush	3%
Dark Green Rush	3%
River Bulrush	3%
Softstem Bulrush	3%
Cord Grass	4%



**NOTES:**

- SOILS SHALL BE REMOVED TO REGRADE/RESTORE ANY VISUALLY EVIDENT EROSIONAL AREAS AND VISUALLY OBSERVED AREAS WHERE OVERBANK FLOW HAS CAUSED EROSION AND OVERLAND FLOW BETWEEN THE NORTH DRAINAGE DITCH AND ACCESS ROAD. BASED ON FIELD CONDITIONS, AREAS OF SLOPE EXCAVATION/GRADING SHALL BE RESTORED EITHER WITH SOIL FILL AND SEEDING OR WITH 12"-THICK RIPRAP UNDERLAIN WITH NON-WOVEN GEOTEXTILE.
- RIPRAP SHALL BE ILLINOIS DOT QUALITY DESIGNATION C; D<sub>MIN</sub> = 4-INCHES, D<sub>50</sub> = 6-INCHES, D<sub>MAX</sub> = 9-INCHES.

**RESTORED NORTH DITCH**  
NOT TO SCALE

4

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

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Professional Engineer's Name  
**MARK O. GRAVELDING**  
Professional Engineer's No.  
062059378  
State  
ILLINOIS  
Date Signed  
Project Mgr.  
Designed by  
LAF  
Drawn by  
Checked by



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FORMER LAGOON AREA, NORTH DRAINAGE DITCH, AND RAILROAD RIGHT-OF-WAY RECORD DRAWINGS

**SECTIONS AND DETAILS**

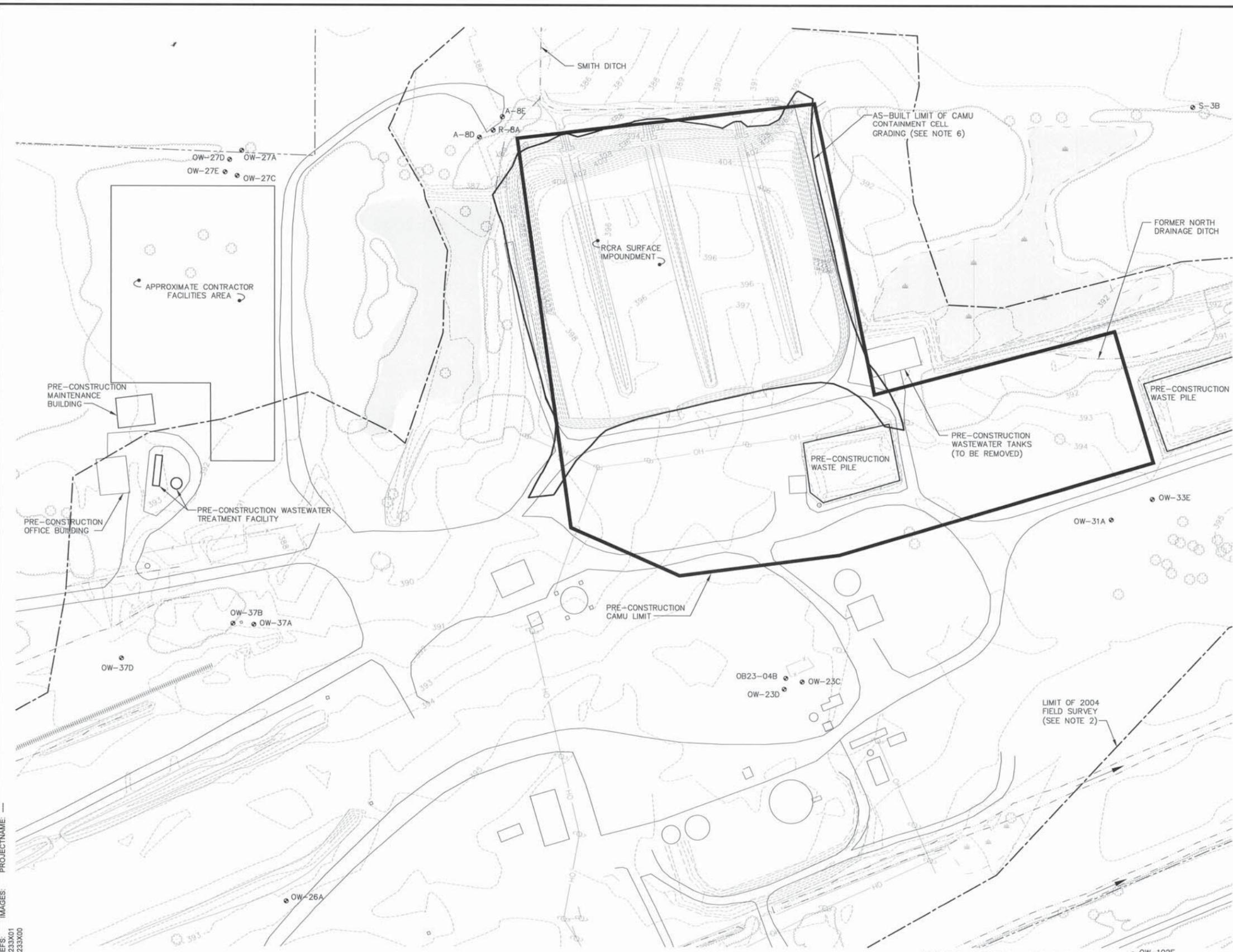
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P.O. BOX 66  
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TEL. 315.446.9120

4



**CAMU Containment Cell  
Record Drawing**

CITY: SYRACUSE DIV/GROUP: ENVCAD DB L FORAKER T RITSCHHEL L FORAKER K SARTORI PIC R ANDERSON PM J HOLDEN TM D BESSINGPAS LYRON+ OFF=REF\*  
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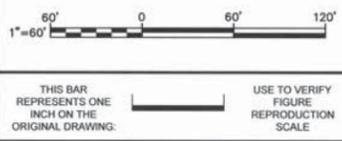
**LEGEND:**

- PRE-CONSTRUCTION HYDRANT
- PRE-CONSTRUCTION UTILITY POLE
- PRE-CONSTRUCTION TREE/TREELINE
- PRE-CONSTRUCTION MONITORING WELL LOCATION
- PRE-CONSTRUCTION EDGE OF WATER/DITCH CENTERLINE
- PRE-CONSTRUCTION OVERHEAD POWER LINE
- PRE-CONSTRUCTION ELEVATION CONTOUR
- PRE-CONSTRUCTION RAILROAD TRACKS
- PRE-CONSTRUCTION ROADWAY
- PRE-CONSTRUCTION WETLAND LOCATION (SEE NOTE 3)
- PROPERTY BOUNDARY

**NOTES:**

1. SITE FEATURES AND TOPOGRAPHY OUTSIDE LIMIT OF FIELD SURVEY LINE OBTAINED FROM PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING COMPANY, SEPTEMBER 2001.
2. TOPOGRAPHY AND SELECT SITE FEATURES WITHIN THE LIMIT OF FIELD SURVEY OBTAINED FROM FIELD SURVEY BY ENGINEERING DESIGN SOURCE, INC., JANUARY 2004.
3. WETLAND BOUNDARIES DELINEATED BY GEOTECHNOLOGY, INC. OF ST. LOUIS, MO. AND SUBSEQUENTLY SURVEYED BY CROSS COUNTRY LAND SURVEYING AND ENGINEERING OF DUQUOIN, IL. IN 2002.
4. CONTOUR INTERVAL EQUALS 1-FOOT.
5. HORIZONTAL SURVEY COORDINATE SYSTEM IS SITE SPECIFIC. VERTICAL SURVEY DATUM IS NAVD 88.
6. AS-BUILT LIMIT OF GRADING IS BASED ON AS-BUILT SURVEY DRAWING PREPARED BY SHAWNEE SURVEY & CONSULTING, INC. DATED NOVEMBER 10, 2010.

(RECORD DRAWING: MADE FROM DRAWING NO. 1, TRACER NO. 38865010/38865G01.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOG



No.	Date	Revisions	By	Ckd

Professional Engineer's Name  
**MARK O. GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State: IL Date Signed: Project Mgr: PHB  
 Designed by: CAA/RLP Drawn by: LAF Checked by: CAA

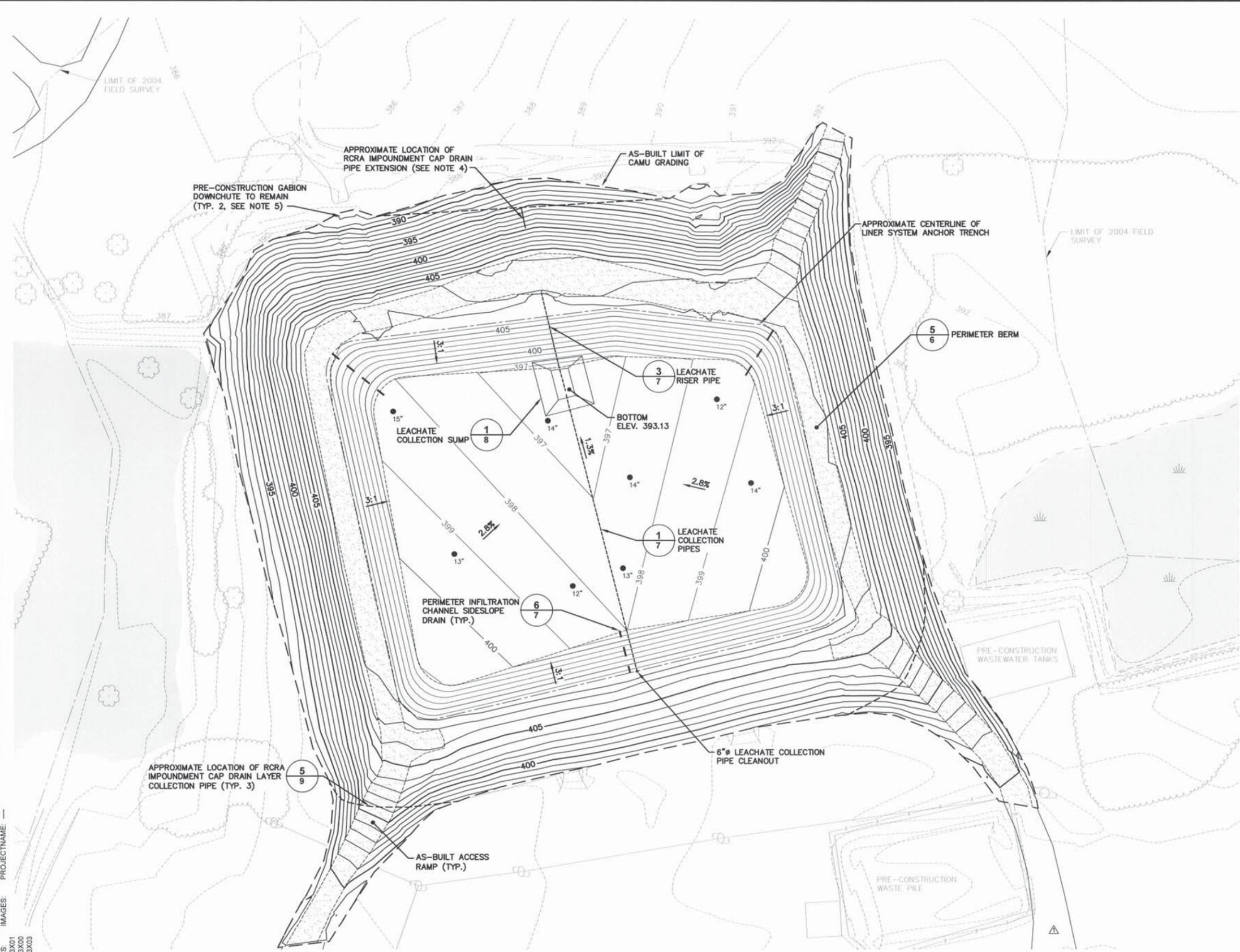


**PRE-CONSTRUCTION SITE PLAN**

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

ARCADIS Project No.  
 B0039233.0000.00001  
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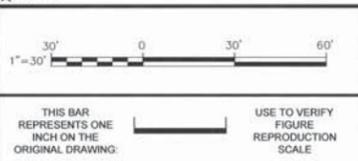
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 XREFS: 382333001  
 382333000  
 382333003



- LEGEND:**
- DESIGN INTERMEDIATE CONTOUR (SEE NOTE 2)
  - 400 —— DESIGN INDEX CONTOUR (SEE NOTE 2)
  - - - - GRADE BREAK (SEE NOTE 2)
  - 5 / 6 ○ DETAIL REFERENCE NUMBER
  - 6 / 6 ○ DRAWING REFERENCE NUMBER
  - AS-BUILT CONTAINMENT CELL ACCESS ROAD (SEE NOTE 2)
  - OPERATIONS LAYER TEST PIT
  - AS-BUILT INTERMEDIATE CONTOUR (SEE NOTE 9)
  - 400 —— AS-BUILT INDEX CONTOUR (SEE NOTE 9)

- NOTES:**
1. REFER TO DRAWING 1 FOR BASEMAP INFORMATION.
  2. GRADES, PIPE ALIGNMENTS, AND TEST PIT LOCATIONS SHOWN WITHIN THE APPROXIMATE CENTERLINE OF THE LINER SYSTEM ANCHOR TRENCH ARE BASED ON DESIGN INFORMATION AS SHOWN ON CONSTRUCTION DRAWING 3 TITLED CONSOLIDATION GRADING PLAN PREPARED BY ARCADIS DATED JULY 2006.
  3. REFER TO DRAWING 4 FOR STORMWATER MANAGEMENT AND EROSION CONTROL INFORMATION.
  4. PRE-CONSTRUCTION RCRA IMPOUNDMENT CAP DRAIN PIPE SHALL BE EXTENDED AS REQUIRED TO CONNECT WITH THE DRAIN LAYER COLLECTION PIPE. THE CONNECTION SHALL BE MADE USING A TEE FITTING AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  5. THE CENTER PRE-CONSTRUCTION GABION DOWNCHUTE (NOT VISIBLE) LOCATED IN THE AREA OF THE BERM EXTENSION TO BE REMOVED PRIOR TO CONTAINMENT CELL CONSTRUCTION.
  6. PERFORATED PIPE TO BE INSTALLED WITHIN PERIMETER INFILTRATION CHANNEL AT LOCATIONS OF TEMPORARY ACCESS ROADS INTO CONTAINMENT CELL. PIPE SHALL BE RIGID 6-INCH-DIAMETER HDPE CORRUGATED PIPE SURROUNDED BY DRAINAGE STONE. PIPES TO BE REMOVED PRIOR TO FINAL COVER INSTALLATION.
  7. MID-SLOPE SWALES AND CULVERTS TO BE INSTALLED AT TIME OF PERIMETER BERM CONSTRUCTION. (REFER TO DRAWING 4 FOR LOCATIONS.)
  8. PRE-CONSTRUCTION TOPSOIL WITHIN OUTBOARD CREST OF RCRA SURFACE IMPOUNDMENT TO BE REMOVED (APPROXIMATE 6 INCH DEPTH) PRIOR TO CAMU CONTAINMENT CELL CONSTRUCTION.
  9. INFORMATION SHOWN OUTSIDE OF THE APPROXIMATE CENTERLINE OF THE LINER SYSTEM ANCHOR TRENCH IS BASED ON AN AS-BUILT SURVEY DRAWING PREPARED BY SHAWNEE SURVEY & CONSULTING, INC. DATED NOVEMBER 10, 2010.

(RECORD DRAWING: MADE FROM DRAWING NO. 2, TRACER NO. 38865010/38865G02.DWG, DATED 8/31/2011) DATE: 8/31/11 BY: MGS



No.	Date	Revisions	By	Ckd
6/17/11		RECORD DRAWINGS - ADDED NEW ROADS AND AS-BUILT GRADES	ESD	MOG

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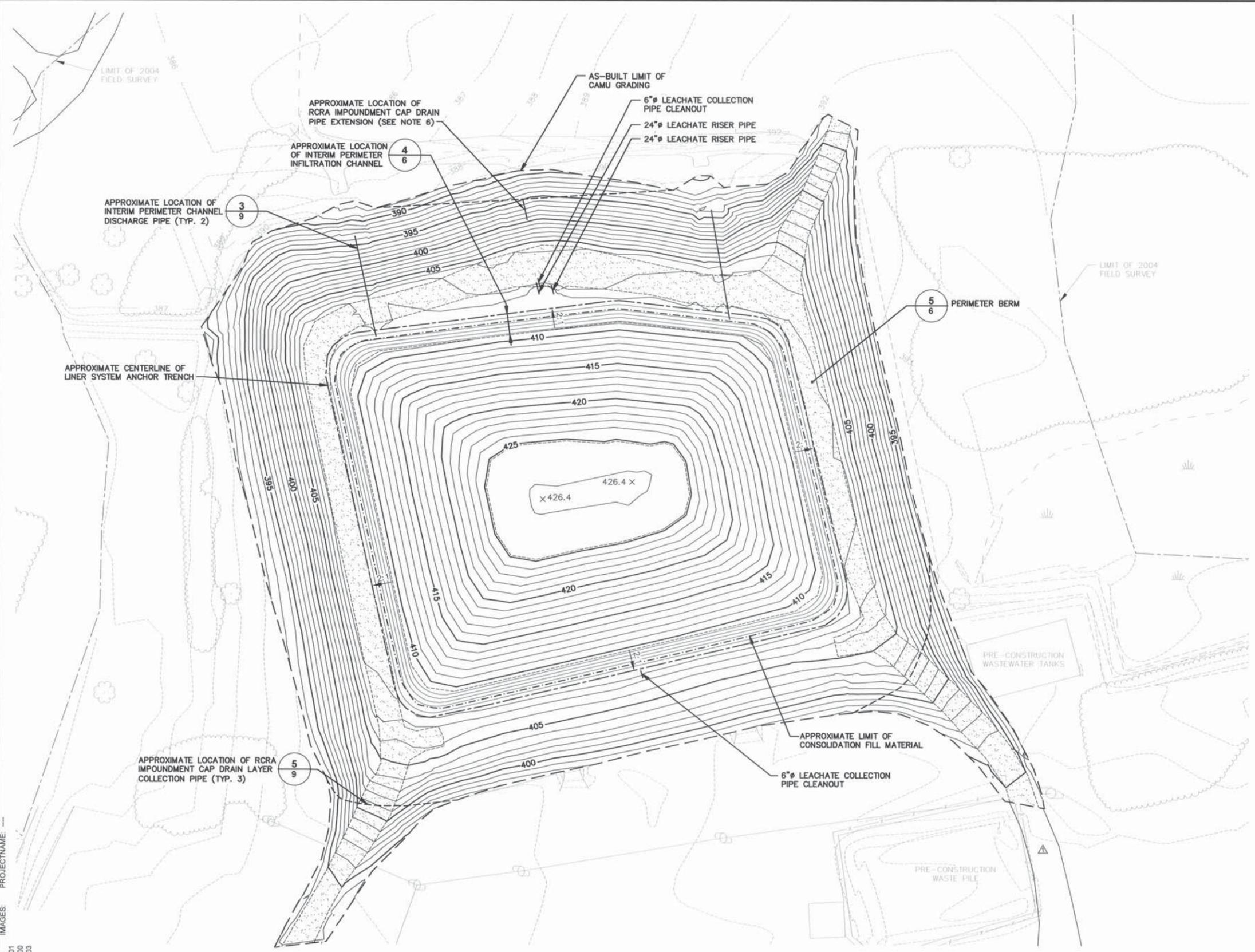
Professional Engineer's Name  
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BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
**CAMU CONTAINMENT CELL RECORD DRAWINGS**  
**LINER SYSTEM GRADING PLAN**

ARCADIS Project No.  
 B0039233.0000.00001  
 Date  
 AUGUST 2011  
 ARCADIS U.S., INC.  
 6723 TOWPATH ROAD  
 P.O. BOX 66  
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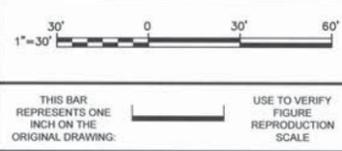
CITY: SYRACUSE DIV/GRP: ENVCAD DB: L. FORAKER T. RITSCHEL L. FORAKER K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TM: D. BESSINGPAS LYNON+ OFF: REF\*  
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 XREFS: 39233X01 39233X00 39233X03  
 IMAGES: PROJECTNAME: ---



- LEGEND:**
- AS-BUILT INTERMEDIATE CONTOUR
  - - - 420 AS-BUILT INDEX CONTOUR
  - - - AS-BUILT GRADE BREAK
  - 5 6 DETAIL REFERENCE NUMBER
  - 5 6 DRAWING REFERENCE NUMBER
  - AS-BUILT CONTAINMENT CELL ACCESS ROAD
  - x 426.4 AS-BUILT SPOT ELEVATION
  - DESIGN CONTOUR (SEE NOTE 5)

- NOTES:**
1. REFER TO DRAWING 1 FOR BASE MAP INFORMATION.
  2. CONTOUR INTERVAL EQUALS 1-FOOT.
  3. REFER TO DRAWING 2 FOR ADDITIONAL DESIGN INFORMATION.
  4. AS-BUILT INFORMATION SHOWN IS BASED ON AS-BUILT SURVEY DRAWING PREPARED BY SHAWNEE SURVEY & CONSULTING, INC. DATED NOVEMBER 10, 2010.
  5. DESIGN CONTOURS SHOWN WITHIN THE APPROXIMATE CENTERLINE OF THE LINER SYSTEM ANCHOR TRENCH AND THE AS-BUILT GRADE BREAK ARE BASED ON CONSTRUCTION DRAWING 3 TITLED CONSOLIDATION GRADING PLAN PREPARED BY ARCADIS DATED JULY 2006.
  6. PRE-CONSTRUCTION RCRA IMPOUNDMENT CAP DRAIN PIPE SHALL BE EXTENDED AS REQUIRED TO CONNECT WITH THE DRAIN LAYER COLLECTION PIPE. THE CONNECTION SHALL BE MADE USING A TEE FITTING AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

(RECORD DRAWING: MADE FROM DRAWING NO. 3, TRACER NO. B0039221/0000/00002/DWG/CONTRACT/CAMU/G02.DWG, DATED 8/31/2011) DATE 8/31/11 BY M.O.G.



No.	Date	Revisions	By	Ckd
1	6/17/11	RECORD DRAWINGS - ADDED NEW ROADS AND AS-BUILT GRADES	ESD	MOG

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 State Date Signed Project Mgr.  
 IL PHB  
 Designed by Drawn by Checked by  
 CAARLP LAF CAA



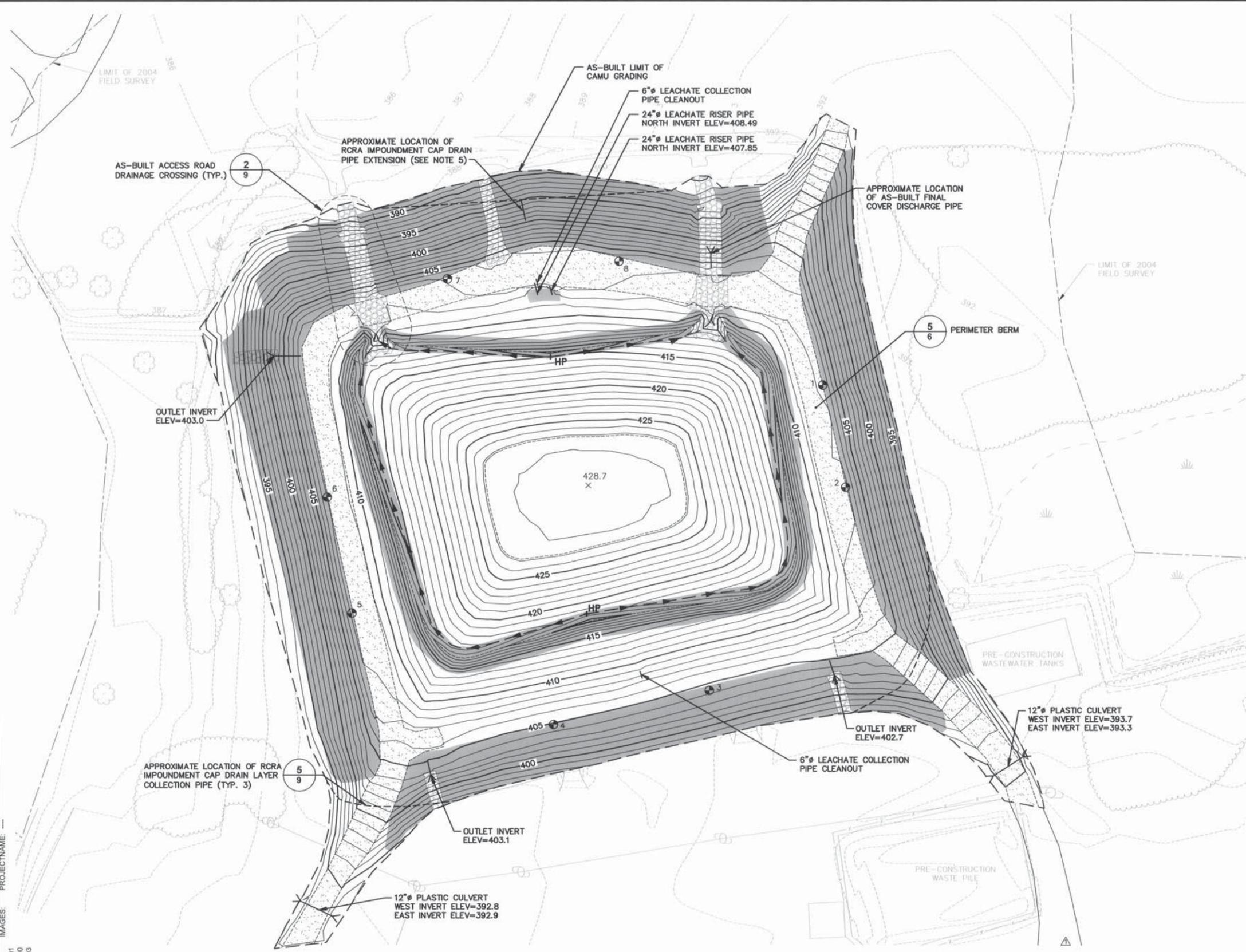
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 CAMU CONTAINMENT CELL RECORD DRAWINGS

## CONSOLIDATION GRADING PLAN

ARCADIS Project No.  
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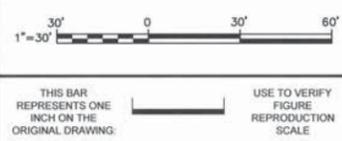


- LEGEND:**
- AS-BUILT INTERMEDIATE CONTOUR
  - 420- AS-BUILT INDEX CONTOUR
  - - - AS-BUILT GRADE BREAK
  - AS-BUILT MID-SLOPE SWALE (ARROWS INDICATE FLOW DIRECTION)
  - ① 11 AS-BUILT TEMPORARY EROSION CONTROL MAT
  - ② AS-BUILT RIPRAP (SEE DETAILS)
  - + HP AS-BUILT HIGH POINT
  - ③ AS-BUILT CONTAINMENT CELL ACCESS ROAD
  - x 428.7 AS-BUILT SPOT ELEVATION
  - ④ AS-BUILT FINAL COVER DISCHARGE PIPE
  - ⑤ AS-BUILT MONITORING MONUMENT

- NOTES:**
- REFER TO DRAWING 1 FOR BASE MAP INFORMATION.
  - CONTOUR INTERVAL EQUALS 1-FOOT.
  - REFER TO DRAWING 2 FOR ADDITIONAL DESIGN INFORMATION.
  - AS-BUILT INFORMATION IS BASED ON AS-BUILT SURVEY DRAWING PREPARED BY SHAWNEE SURVEY & CONSULTING, INC. DATED NOVEMBER 10, 2010.
  - PRE-CONSTRUCTION RCRA IMPOUNDMENT CAP DRAIN PIPE SHALL BE EXTENDED AS REQUIRED TO CONNECT WITH THE DRAIN LAYER COLLECTION PIPE. THE CONNECTION SHALL BE MADE USING A TEE FITTING AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE,  
 INFORMATION AND BELIEF, THESE RECORD  
 DRAWINGS SUBSTANTIALLY REPRESENT THE  
 PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 4, TRACER NO. B0039221/0000/00002/DWG/CONTRACT/CAMU/G01.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOG



No.	Date	Revisions	By	Ckd
6/17/11		RECORD DRAWINGS - ADDED NEW ROADS AND AS-BUILT GRADES	ESD	MOG

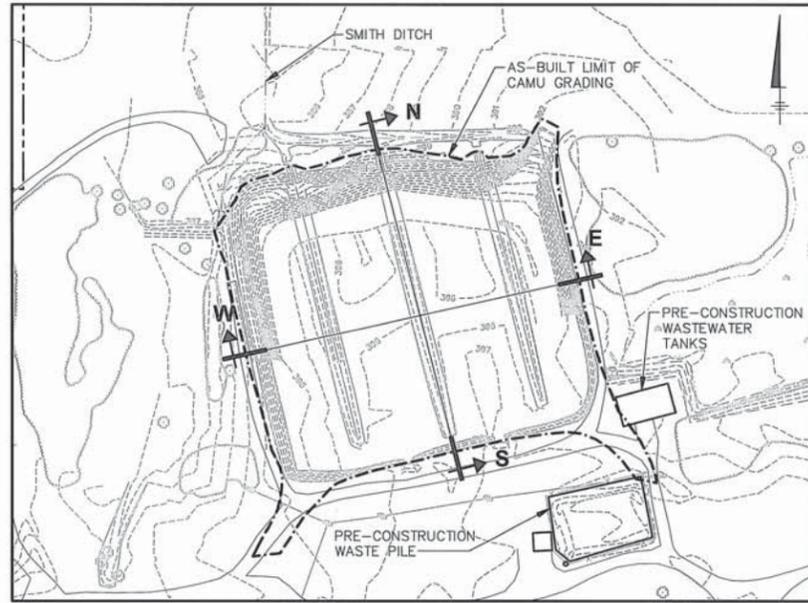
Professional Engineer's Name  
**MARK O. GRAVELDING**  
 Professional Engineer's No.  
 062059378  
 State Date Signed Project Mgr.  
 IL 8/31/11 PHB  
 Designed by Checked by  
 CAARLP LAF CAA



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
**FINAL COVER SYSTEM GRADING AND STORMWATER MANAGEMENT PLAN**

ARCADIS Project No.  
 B0039233.0000.00001  
 Date  
 AUGUST 2011  
 ARCADIS U.S., INC.  
 6723 TOWPATH ROAD  
 P.O. BOX 66  
 SYRACUSE, NY 13214-0066  
 TEL. 315.446.9120

CITY: SYRACUSE DIV/GROUP: ENV/CAD DB: L. FORAKER, T. RITSCHEL, L. FORAKER, K. SARTORI, PIC: R. ANDERSON, PM: J. HOLDEN, TM: D. BESSINGPAS, LYRCON: OFF-REF: G:\ENV\CAD\SYRACUSE\PROJECTS\000000001\RECORD\CAMU\039233\039233.DWG LAYOUT: S SAVER: 8/30/2011 10:22 AM ACADVER: 18.05 (LMS TECH) PAGESETUP: PLOTSTYLETABLE: PLTCONT1.CTB PLOTTED: 8/30/2011 10:23 AM BY: DEGLERCO, BRIAN



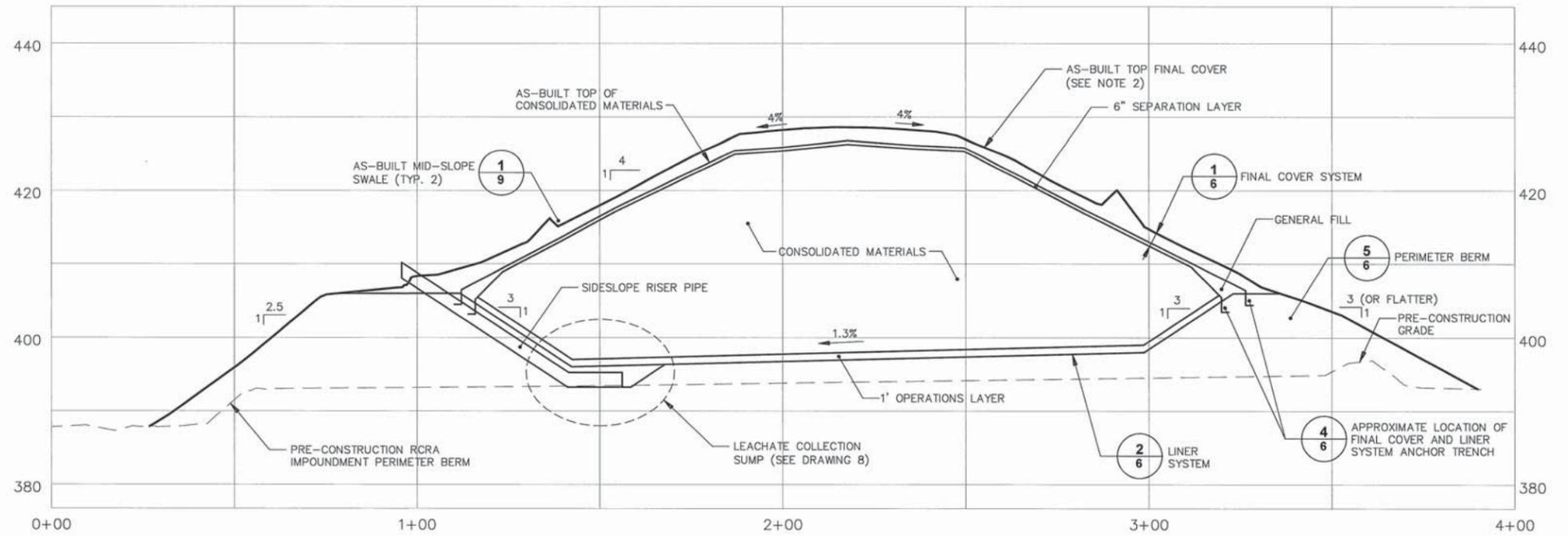
**KEY MAP**  
NOT TO SCALE

**NOTES:**

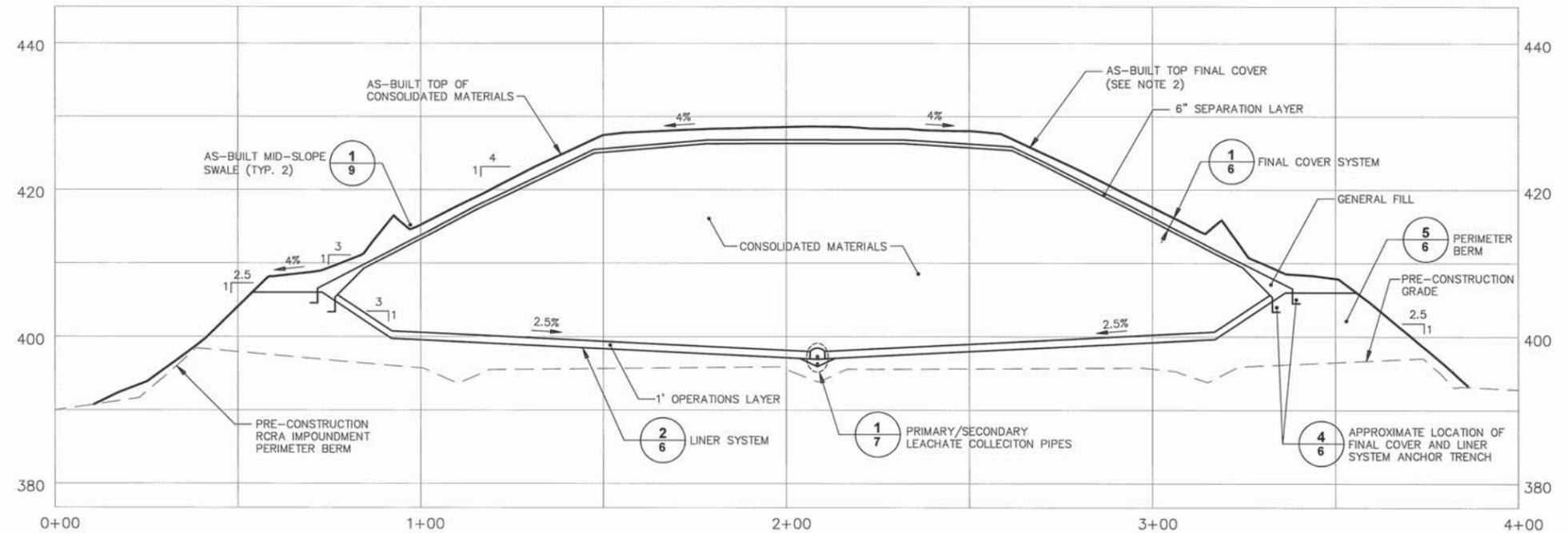
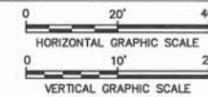
- REFER TO DRAWING 1 FOR BASEMAP INFORMATION.
- AS-BUILT INFORMATION IS BASED ON AS-BUILT SURVEY DRAWING PREPARED BY SHAWNEE SURVEY & CONSULTING, INC. DATED NOVEMBER 10, 2010.
- LINER SYSTEM INFORMATION (I.E., ELEVATIONS, SLOPE GRADIENTS, SUMP/PIPE/ANCHOR TRENCH LOCATIONS, ETC.) ARE BASED ON DESIGN INFORMATION AS SHOWN ON CONSTRUCTION DRAWING 5 TITLED CAMU CONTAINMENT CELL CROSS SECTIONS PREPARED BY ARCADIS DATED SEPTEMBER 29, 2010.

**RECORD DRAWING NOTE:**

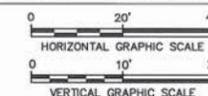
- SLOPE GRADIENTS SHOWN ON THIS DRAWING ARE APPROXIMATE.



**NORTH-SOUTH SECTION**



**WEST-EAST SECTION**



**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 5, TRACER NO. B0039221/0000/00002/DWG/CONTRACT/CAMU/G03.DWG, DATED 8/31/2011) DATE 8/31/11 BY MGG

SCALE(S) AS INDICATED					
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING	USE TO VERIFY FIGURE REPRODUCTION SCALE	No.	Date	Revisions	By
THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.					

Professional Engineer's Name  
**MARK O. GRAVELDING**  
Professional Engineer's No.  
062059378

State IL Date Signed Project Mgr. PHB  
Designed by CAA/RLP Drawn by LAF Checked by CAA

ARCADIS U.S., INC.

BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
CAMU CONTAINMENT CELL RECORD DRAWINGS

**CAMU CONTAINMENT CELL CROSS SECTIONS**

ARCADIS Project No.  
B0039233.0000.00001

Date  
AUGUST 2011

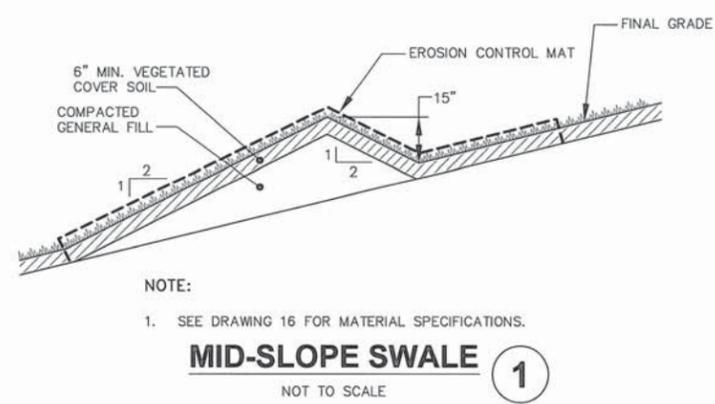
ARCADIS U.S., INC.  
6723 TOWPATH ROAD  
P.O. BOX 66  
SYRACUSE, NY 13214-0066  
TEL. 315.446.9120



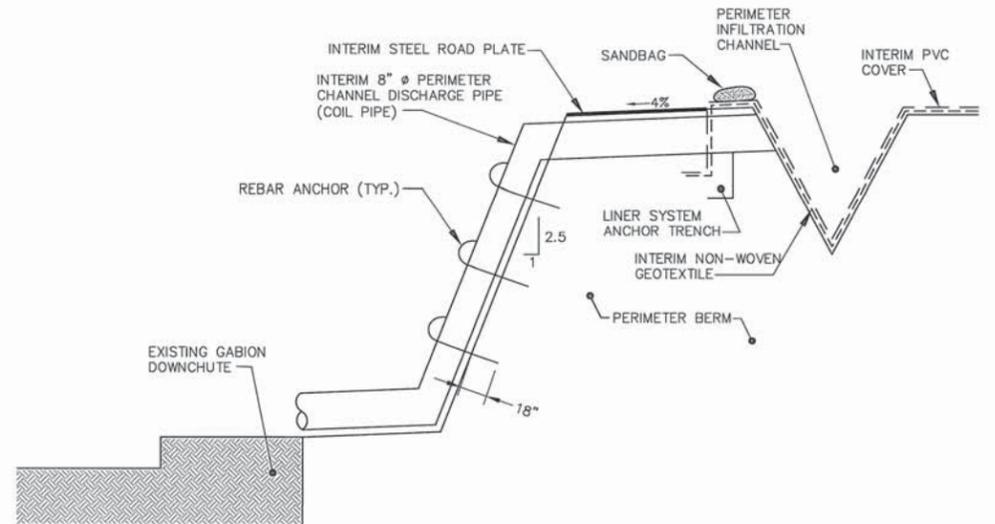




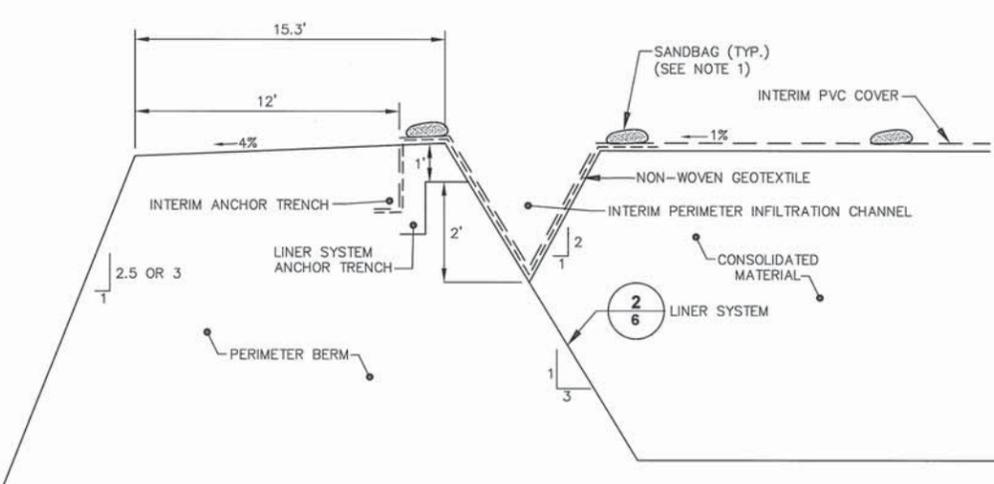
CITY: SYRACUSE DIV/GROUP: ENVCAD DBL L FORAKER T. RITSCHL L FORAKER K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TM: D. BESSINGPAS LYN ON\* OFF: REF\*  
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 REFS: 39233000



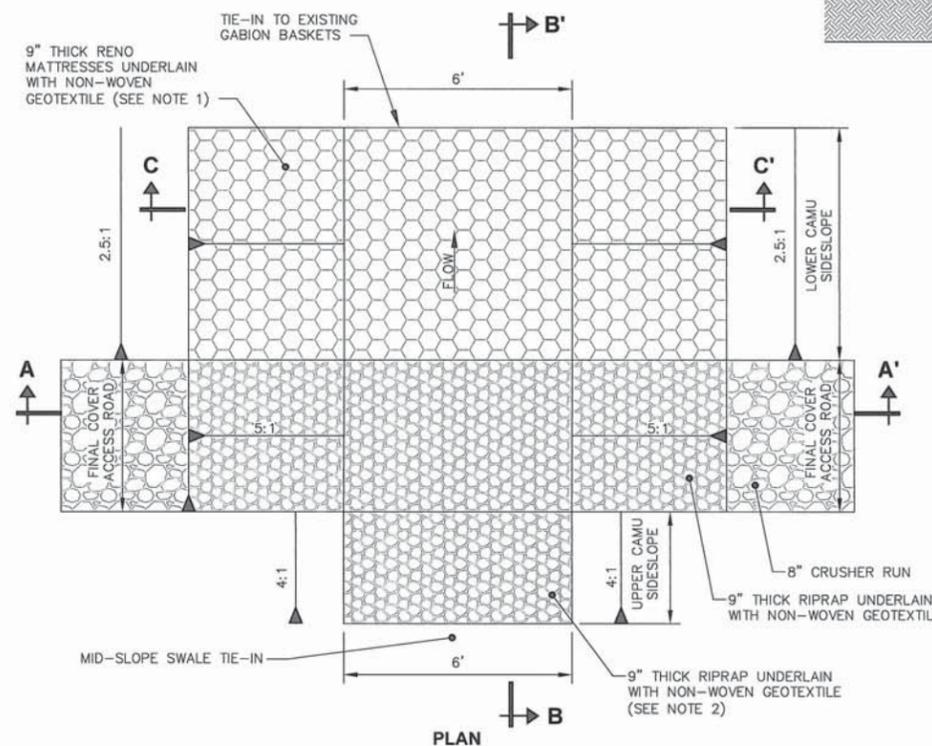
NOTE:  
1. SEE DRAWING 16 FOR MATERIAL SPECIFICATIONS.  
**MID-SLOPE SWALE**  
NOT TO SCALE



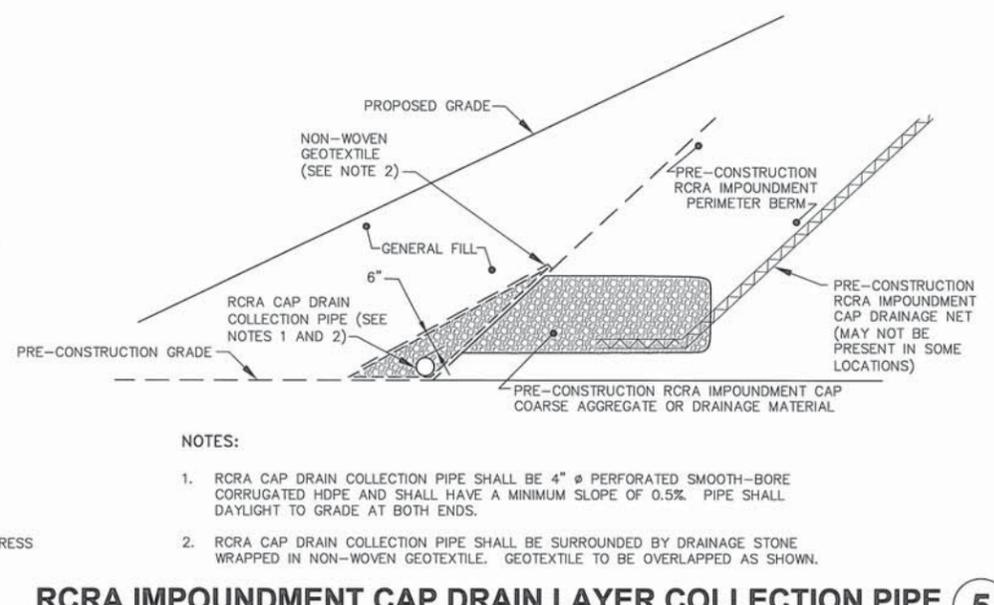
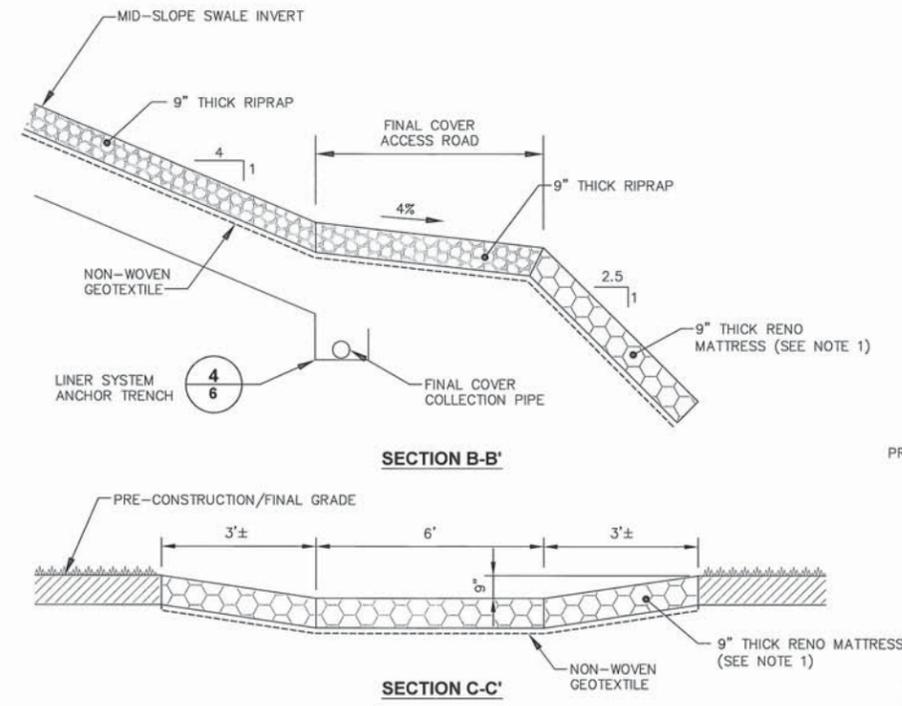
**INTERIM PERIMETER CHANNEL DISCHARGE PIPE AT PERIMETER BERM**  
NOT TO SCALE



NOTE:  
1. SAND BAGS SHALL BE PLACED AS REQUIRED TO PREVENT WIND UPLIFT.  
**INTERIM COVER AT PERIMETER BERM**  
NOT TO SCALE



**ACCESS ROAD DRAINAGE CROSSING**  
NOT TO SCALE

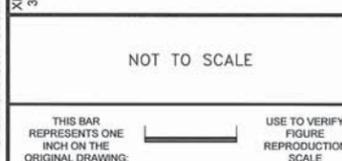


NOTES:  
1. RCRA CAP DRAIN COLLECTION PIPE SHALL BE 4" PERFORATED SMOOTH-BORE CORRUGATED HDPE AND SHALL HAVE A MINIMUM SLOPE OF 0.5%. PIPE SHALL DAYLIGHT TO GRADE AT BOTH ENDS.  
2. RCRA CAP DRAIN COLLECTION PIPE SHALL BE SURROUNDED BY DRAINAGE STONE WRAPPED IN NON-WOVEN GEOTEXTILE. GEOTEXTILE TO BE OVERLAPPED AS SHOWN.  
**RCRA IMPOUNDMENT CAP DRAIN LAYER COLLECTION PIPE**  
NOT TO SCALE

- NOTES:  
1. RENO MATTRESS DIMENSIONS SHALL BE 12' LONG X 6' WIDE X 9" HIGH. RENO MATTRESSES TO BE MANUFACTURED BY MACCAFERRI OR EQUAL PRODUCT. RENO MATTRESSES SHALL BE INSTALLED AND LACED PER MANUFACTURER'S RECOMMENDATIONS/SPECIFICATIONS. PLACEMENT SHALL BE WITH THE LONG DIMENSION PERPENDICULAR TO CAMU BERM SIDESLOPE.  
2. RIPRAP AND NON-WOVEN GEOTEXTILE TO BE EXTENDED A MINIMUM OF 10' UP GRADIENT OF MID-SLOPE SWALE CONVERGENCE.

RECORD DRAWING NOTE:  
1. SLOPE GRADIENTS AND DIMENSIONS SHOWN ON THIS DRAWING ARE APPROXIMATE.

RECORD DRAWINGS TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.



No.	Date	Revisions	By	Ckd

Professional Engineer's Name  
**MARK O. GRAVELDING**  
Professional Engineer's No.  
062059378  
State  
IL  
Date Signed  
Project Mgr.  
PHB  
Designed by  
CAA/RLP  
Drawn by  
LAF  
Checked by  
CAA



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
CAMU CONTAINMENT CELL RECORD DRAWINGS  
**STORMWATER MANAGEMENT DETAILS**

ARCADIS Project No.  
B0039233.0000.00001  
Date  
AUGUST 2011  
ARCADIS U.S., INC.  
6723 TOWPATH ROAD  
P.O. BOX 66  
SYRACUSE, NY 13214-0066  
TEL. 315.446.9120

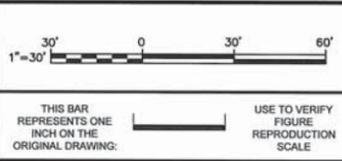
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- LEGEND:**
- EXISTING HYDRANT
  - EXISTING UTILITY POLE
  - EXISTING TREE/TREELINE
  - EXISTING EDGE OF WATER/DITCH
  - EXISTING OVERHEAD POWER LINE
  - EXISTING ELEVATION CONTOUR
  - EXISTING RAILROAD TRACKS
  - EXISTING ROADWAY
  - EXISTING WETLAND
  - UNDERGROUND CONDUIT
  - ELECTRICAL PULLING HAND HOLE
  - CONSTRUCTION FACILITIES AREA
  - 2" HDPE SDR-11 PIPING (ABOVE-GROUND)
- ABBREVIATIONS:**
- GRD GROUND
  - SP SPARE
  - PVC POLYVINYL CHLORIDE
  - SCH SCHEDULE

- NOTES:**
- REFER TO DRAWING 1 FOR BASEMAP INFORMATION.
  - FURNISH ONE 40A, 3POLE, 480 VOLT CIRCUIT BREAKER TO FEED THE LEACHATE SYSTEM.

(RECORD DRAWING: MADE FROM DRAWING NO. 10, TRACER NO. 38865010/38865G10.DWG, DATED 8/31/2011) DATE 8/31/11 BY M.O.G.



No.	Date	Revisions	CAA	MOG
1	6/1/11	RECORD DRAWINGS - DRAWING NOT USED	CAA	MOG

Professional Engineer's Name  
**MARK O. GRAVELDING**  
Professional Engineer's No.  
062059378



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CAMU CONTAINMENT CELL RECORD DRAWINGS

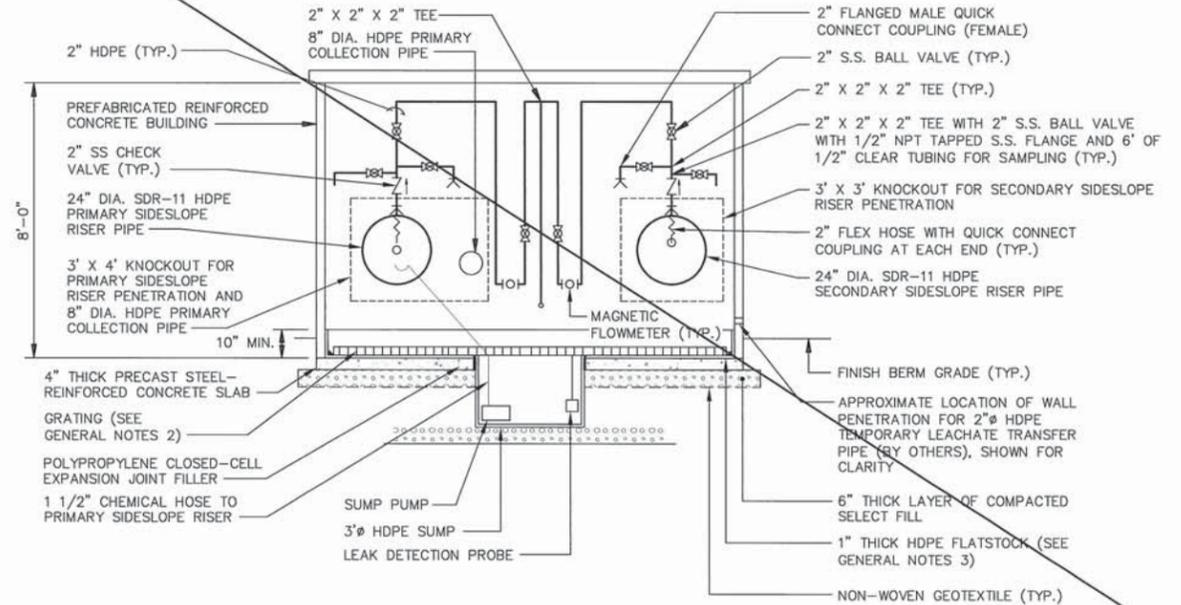
## LEACHATE MANAGEMENT SYSTEM PLAN

ARCADIS Project No.  
B0039233.0000.00001

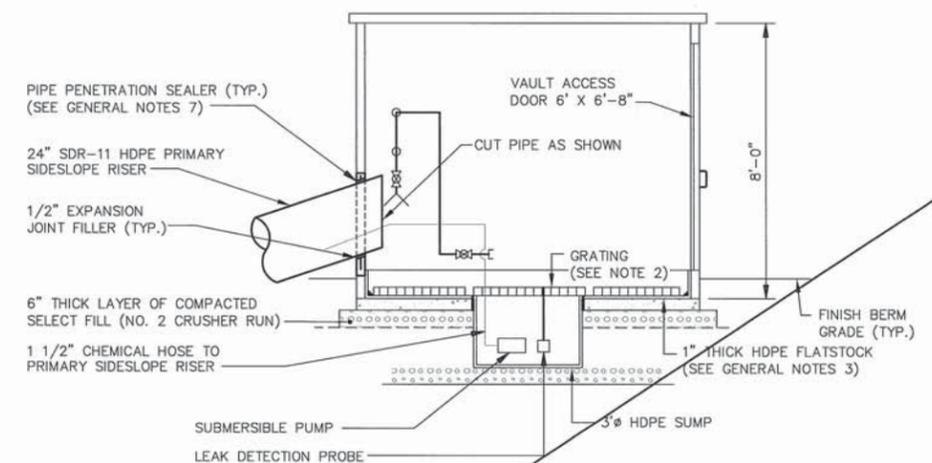
Date  
AUGUST 2011

ARCADIS U.S., INC.  
6723 TOWPATH ROAD  
P.O. BOX 66  
SYRACUSE, NY 13214-0066  
TEL. 315.446.9120

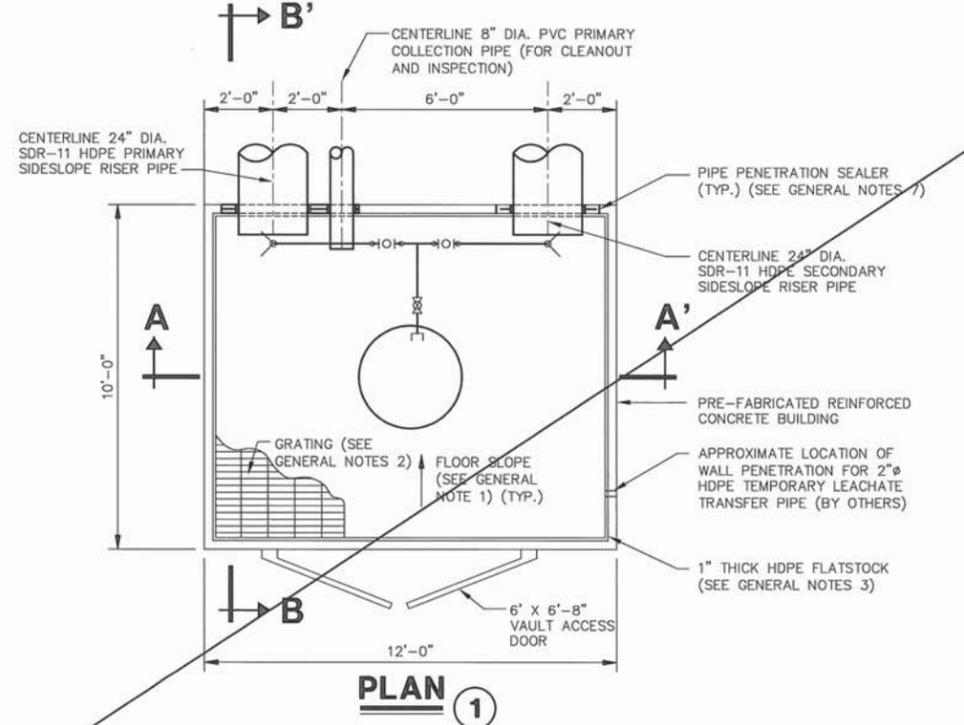
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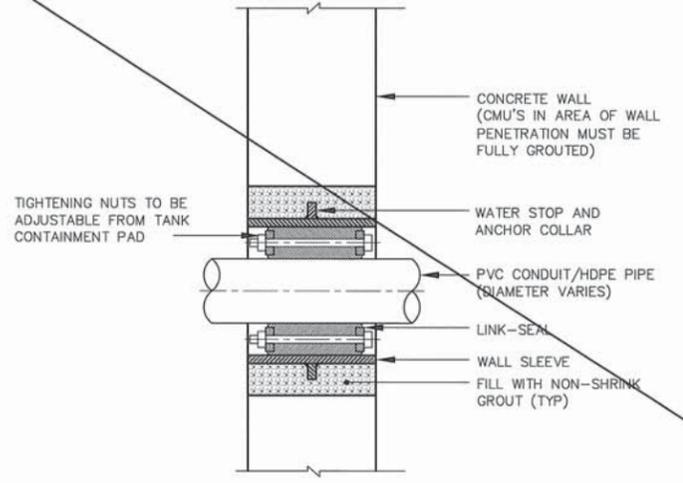
**SECTION A-A'**



**SECTION B-B'**



**PLAN 1**



**CONCRETE WALL PENETRATION DETAIL 2**  
NOT TO SCALE

**MECHANICAL/INSTRUMENTATION/EQUIPMENT SPECIFICATIONS.**

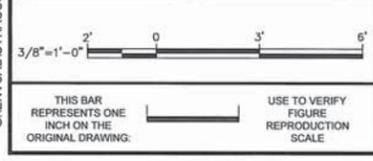
1. PRECAST CONCRETE BUILDING SHALL BE UNITED CONCRETE PRODUCT, INC. EASI-SET MODEL 1012, OR EQUAL.
2. ALL HDPE PIPE SHALL BE BUTT-FUSED, ELECTROFUSED, OR EXTRUSION WELDED (AS SPECIFIED) PER MANUFACTURER'S SPECIFICATIONS.
3. ALL HDPE TRANSFER (PRESSURE) PIPE SHALL BE INSTALLED AND PRESSURE-TESTED AS PER MANUFACTURER'S SPECIFICATIONS. ZERO LEAKAGE IS ALLOWED FOR ALL JOINTS.
4. ALL PIPE SHALL BE SUPPORTED AT 7'-0" O.C. (MAX.) AND LOCATED AT 2'-0" FOR JOINT LOCATIONS.
5. PRESSURE GAUGES SHALL BE TRERICE MODEL 700LFSSG60FSL500PSI110 LIQUID-FILLED, WITH DIAL RANGE OF 0 TO 100 PSI, OR EQUAL.
6. BALL VALVES (1/2") SHALL BE APOLLO 76-100 SERIES, THREADED STAINLESS STEEL WITH RPTFE SEATS AND PACKING, OR EQUAL.
7. BALL VALVES (2") SHALL BE APOLLO 87A-200 SERIES, FLANGED STAINLESS STEEL WITH RPTFE SEATS AND PACKING, OR EQUAL.
8. CHECK VALVES (2") SHALL BE TECHNO-CHECK 5003 SERIES, 304 STAINLESS STEEL WITH TEFLON SEALS, OR EQUAL.
9. FLOW METERS SHALL BE ENDRESS+HAUSER PROMAG MODEL 50P-ALGA1RA0BAAA, STAINLESS STEEL WITH TEFLON LINER, OR EQUAL.
10. ALL FLOW METERS SHALL HAVE STRAIGHT PIPE AT A MINIMUM OF 10 PIPE DIAMETERS PRECEDING AND 5 PIPE DIAMETERS FOLLOWING, OR AS RECOMMENDED BY MANUFACTURER.
11. RISER VAULT SUMP PUMP (P-3) SHALL BE GOULDS MODEL LSP03, STAINLESS STEEL SUBMERSIBLE SUMP PUMP WITH 20-FOOT POWER CORD AND 1/3 HP, 115V, 1 PHASE, 3450 RPM MOTOR, CAPABLE OF 28 GPM AT 10 FEET TDH, OR EQUAL.
12. LEACHATE COLLECTION PUMPS (P-1 AND P-2) SHALL BE STANCOR MODEL SS-300 STAINLESS STEEL SUBMERSIBLE PUMP EQUIPPED WITH VITON O-RINGS AND SEALS, AND A 3 HP, 460V, 3 PHASE MOTOR, MOUNTED ON A WHEELED STAINLESS STEEL CARRIAGE CAPABLE OF 47 GPM AT 59 FEET TDH, OR EQUAL.
13. THE LEACHATE COLLECTION PUMPS SHALL BE EQUIPPED WITH 80-FOOT LENGTH, FACTORY-INSTALLED, SEALED, HEAVY-DUTY, TEFLON-COATED ELECTRICAL SERVICE CABLE.
14. THE LEACHATE COLLECTION PUMPS SHALL BE EQUIPPED WITH 80-FOOT LENGTH 3/4-INCH STAINLESS STEEL PULL-OUT CABLE ATTACHED TO THE MOUNTING CARRIAGE. ATTACH PUMP POWER CABLE AND STEEL PULL-OUT CABLE AT 5-FOOT INTERVALS WITH NYLON TIES.
15. QUICK CONNECT COUPLINGS SHALL BE KAMLOK STAINLESS STEEL WITH TEFLON OR VITON GASKETS, OR EQUAL.
16. LEAK DETECTION PROBE (LSH-3) SHALL BE WARRICK SERIES 3R5C5 PROBE WITH 3E2C FITTING, OR EQUAL.
17. LEACHATE PUMPS LEVEL SWITCHES (LSH-1, LSL-1, LSH-2, AND LSL-2) SHALL BE WARRICK MODEL 3Y3C8, STAINLESS STEEL WITH TEFLON SHIELDING, AND 80-FOOT TEFLON-COATED CABLE.
18. LEACHATE PUMPS LEVEL SWITCHES (LSLL-1 AND LSLL-2) SHALL BE ANCHOR SCIENTIFIC ROTO-FLOAT-SST, TYPE P (PIPE-MOUNTED), NORMALLY OPEN FLOAT SWITCHES, WITH STAINLESS STEEL, TEFLON COATED FLOAT HOUSING AND 80-FOOT TEFLON COATED CABLE.

**GENERAL NOTES:**

1. VAULT FLOOR TO SLOPE TOWARDS HDPE SUMP AT A MINIMUM OF 1/8" PER FOOT.
2. GRATING TO BE FIBERGLASS CONSTRUCTION, PLACED LOOSE, WITH REMOVABLE SECTION OVER SUMP TO FACILITATE ACCESS.
3. 1" THICK HDPE FLATSTOCK WITHIN VAULT TO BE CONTINUOUS, HEAT FUSED AT ALL SEAMS, AND TO TOP EDGE OF HDPE SUMP.
4. ALL TRANSFER PIPING WITHIN RISER VAULT TO BE 2" HDPE SDR-11.
5. RISER VAULT PIPING CONFIGURATIONS MAY VARY WITH FIELD CONDITIONS.
6. SEE DRAWING NO. 13 FOR ELECTRICAL DETAILS.
7. PIPE PENETRATION SEALER TO BE 80-MIL TEXTURED HDPE ANTI-SEEP SKIRT EXTRUSION WELDED (BOTH SIDES, ALL AROUND) TO 24-INCH-DIAMETER SIDESLOPE RISER PIPE AND WRAPPED ON BOTH SIDES BY 1/2-INCH-THICK POLYPROPYLENE CLOSED-CELL EXPANSION JOINT FILLER. PIPE KNOCKOUT TO BE FILLED WITH CONCRETE GROUT IN THE FIELD.
8. ANY PROPOSED ALTERNATE BUILDING DESIGNS TO BE APPROVED BY ENGINEER.
9. LEAK TEST HDPE PIPING PER MANUFACTURER'S SPECIFICATIONS.

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 11, TRACER NO. 38865010/38865G11DWG, DATED 8/31/2011) DATE 8/31/11 BY M. OG



No.	Date	Revisions	CAA	MOG
1	6/1/11	RECORD DRAWINGS - DRAWING NOT USED		

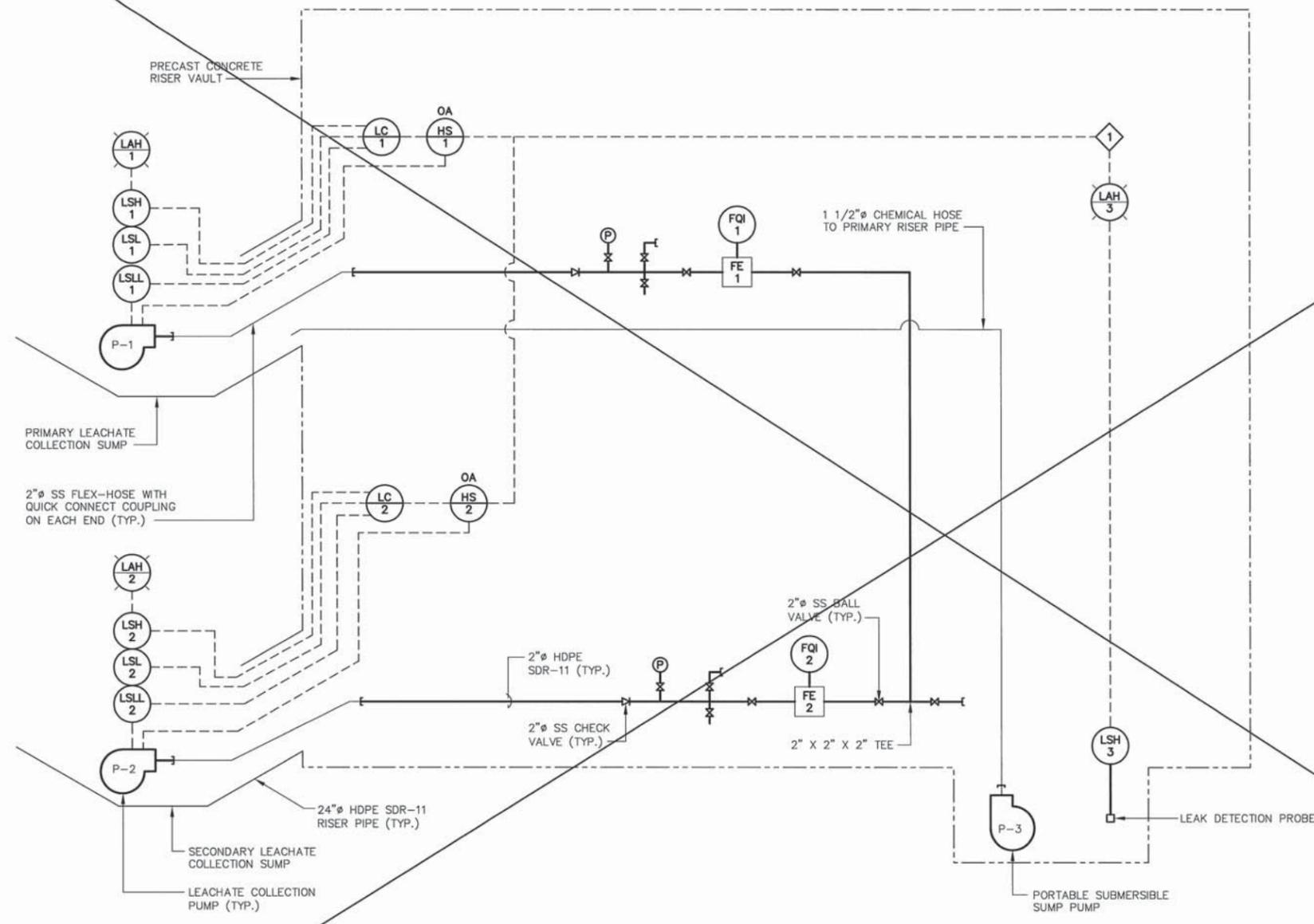
Professional Engineer's Name  
**MARK O. GRAVELDING**  
Professional Engineer's No.  
062059378  
State  
IL  
Date Signed  
Project Mgr.  
PHB  
Designed by  
CAA/RLP  
Drawn by  
LAF  
Checked by  
CAA



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
CAMU CONTAINMENT CELL RECORD DRAWINGS  
**RISER VAULT PLAN AND SECTIONS**

ARCADIS Project No.  
80039233.0000.00001  
Date  
AUGUST 2011  
ARCADIS U.S., INC.  
6723 TOWPATH ROAD  
P.O. BOX 66  
SYRACUSE, NY 13214-0066  
TEL. 315.446.9120

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: L. FORAKER, T. RITSCHER, L. FORAKER LD: PIC: R. ANDERSON PM: J. HOLDEN TM: D. BESSINGPAS LYN: ON+ OFF: REF\*  
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 PROJECTNAME: PLTCONT1.CTB PLOTTED: 8/30/2011 10:31 AM BY: DECLERCQ, BRIAN  
 XREFS: IMAGES: 39233X00



- LEGEND:**
- PROCESS PIPING
  - HOSE
  - - - INSTRUMENTATION SIGNAL
  - RISER VAULT
  - ⊘ BALL VALVE
  - ⊘ CHECK VALVE
  - QUICK-CONNECT COUPLING
  - ⊘ SAMPLE TAP
  - BLIND FLANGE
  - ⊘ LEVEL PROBE
  - FE 1 FLOW ELEMENT
  - FQI 2 TOTALIZED FLOW INDICATOR
  - P PRESSURE GAUGE
  - LOCAL, FIELD MOUNT
  - MAIN CONTROL PANEL MOUNT

- ⊘ ALARM LIGHT
- OA HS 2 OFF-AUTO SWITCH
- LSH 1 LEVEL SWITCH
- ◇ CONTROL LOGIC INTERLOCK
- ⊘ P-1 PUMP
- LC 1 LEVEL CONTROL

**INTERLOCK SCHEDULE:**

- ◇ HIGH LEVEL AT RISER VAULT SUMP; TURN OFF P-1 AND P-2

**ALARM SCHEDULE:**

- LAH-1 HIGH LEVEL AT PRIMARY LEACHATE COLLECTION SUMP; SIGNAL MAIN CONTROL PANEL ALARM AND ALARM BEACON
- LAH-2 HIGH LEVEL AT SECONDARY LEACHATE COLLECTION SUMP; SIGNAL MAIN CONTROL PANEL ALARM AND ALARM BEACON
- LAH-3 HIGH LEVEL AT RISER VAULT SUMP; SIGNAL MAIN CONTROL PANEL ALARM AND ALARM BEACON

**ABBREVIATIONS:**

- ∅ DIAMETER
- FE FLOW ELEMENT
- FQI TOTALIZED FLOW INDICATOR
- HDPE HIGH DENSITY POLYETHYLENE
- HS HAND SWITCH
- LAH LEVEL ALARM HIGH
- LC LEVEL CONTROL
- LSH LEVEL SWITCH HIGH
- LSL LEVEL SWITCH LOW
- HOA OFF-AUTO
- SDR STANDARD DIMENSION RATIO
- SS STAINLESS STEEL
- TYP. TYPICAL

**RECORD DRAWINGS**  
 TO THE BEST OF OUR KNOWLEDGE,  
 INFORMATION AND BELIEF, THESE RECORD  
 DRAWINGS SUBSTANTIALLY REPRESENT THE  
 PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 12, TRACER NO. 38865010/38865G12.DWG, DATED 8/31/2011) DATE 8/31/11 BY M06

NOT TO SCALE

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.

USE TO VERIFY FIGURE REPRODUCTION SCALE.

No.	Date	Revisions	CAA	MOG
1	6/1/11	RECORD DRAWINGS - DRAWING NOT USED	CAA	MOG

Professional Engineer's Name  
**MARK O. GRAVELDING**  
 Professional Engineer's No.  
 062059378

State: IL Date Signed: Project Mgr: PHB

Designed by: CAA/RLP Drawn by: LAF Checked by: CAA



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 CAMU CONTAINMENT CELL RECORD DRAWINGS

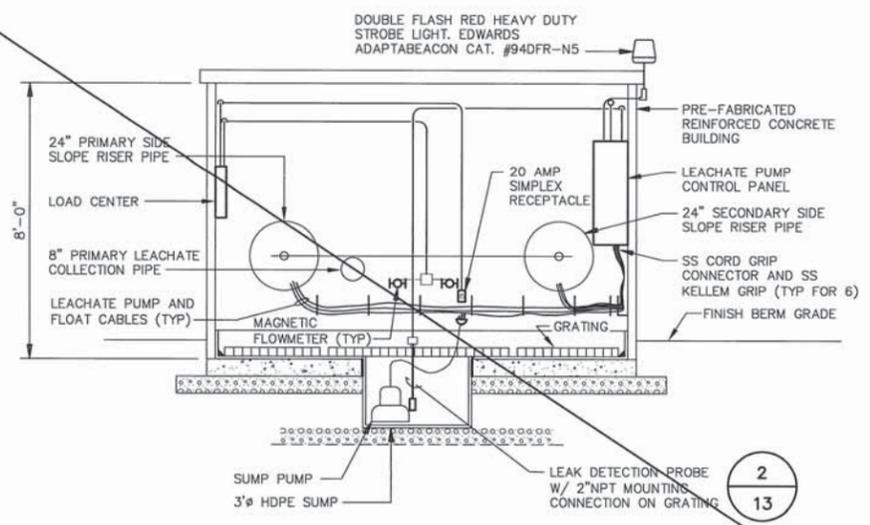
**LEACHATE TRANSFER SYSTEM PIPING AND INSTRUMENTATION DIAGRAM**

ARCADIS Project No.  
 B0039233.0000.00001

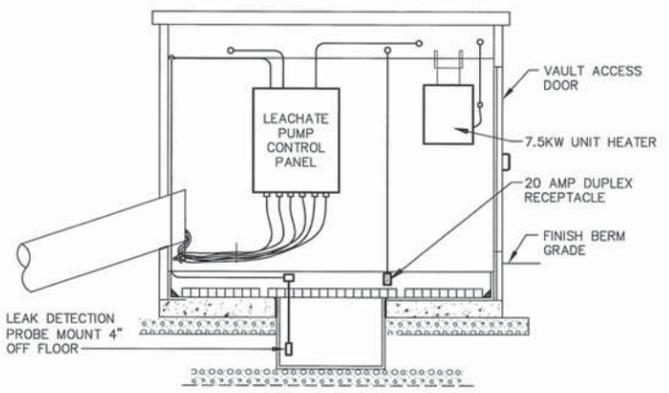
Date  
 AUGUST 2011

ARCADIS U.S., INC.  
 6723 TOWPATH ROAD  
 P.O. BOX 66  
 SYRACUSE, NY 13214-0066  
 TEL. 315.446.9120

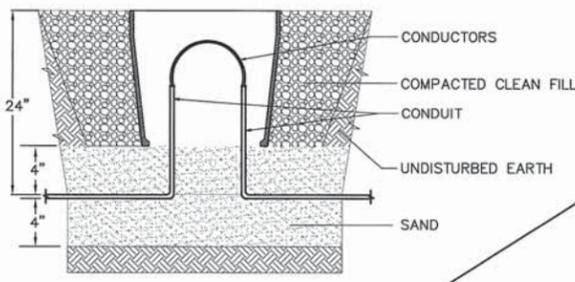
CITY: SYRACUSE DIV/GROUP: ENVCAD DE: L. FORAKER LD: PIC: R. ANDERSON PM: J. HOLDEN TM: D. BESSINGRAS LYRON\*, OFF-REF\*  
 G:\ENVCAD\SYRACUSE\ENVCAD\PROJECTS\CAMU\392233\DWG LAYOUT: 13 SAVED: 8/30/2011 10:31 AM ACADVER: 18.05 (LMS TECH) PAGES: 13 PLOTSTYLETABLE: PLTCONT1.CTB PLOTTED: 8/30/2011 10:32 AM BY: DECLERCQ, BRIAN  
 XREFS: 392233X00 PROJECTNAME:



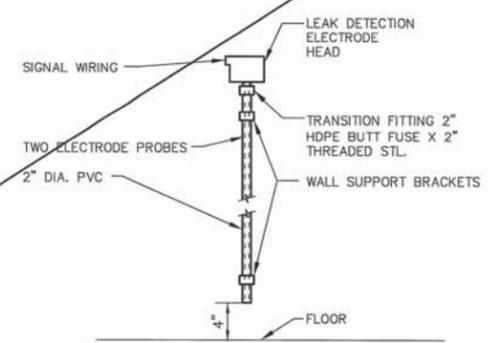
**SECTION A-A'**  
SCALE: 3/8" = 1'-0"



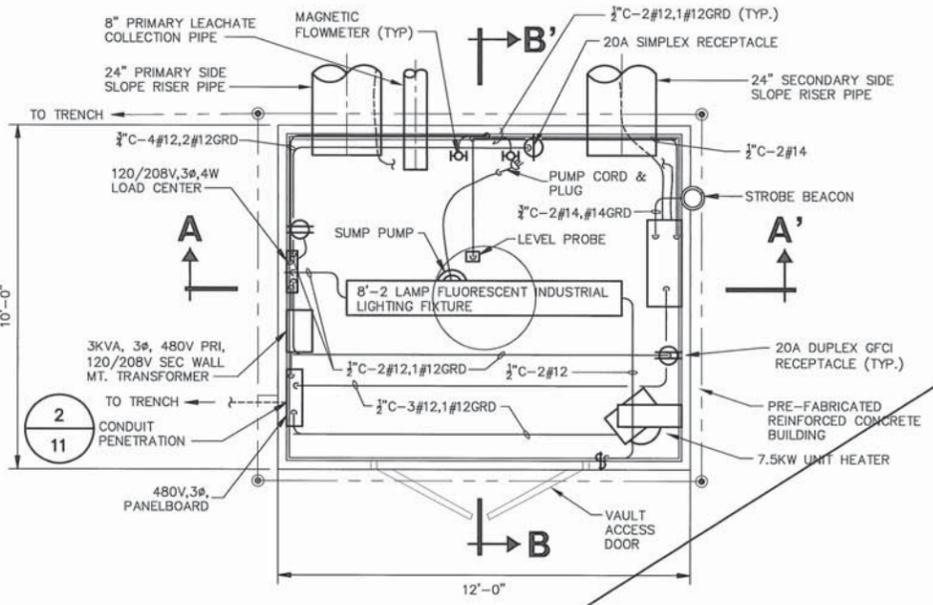
**SECTION B-B'**  
SCALE: 3/8" = 1'-0"



**HAND HOLE DETAIL**  
NOT TO SCALE



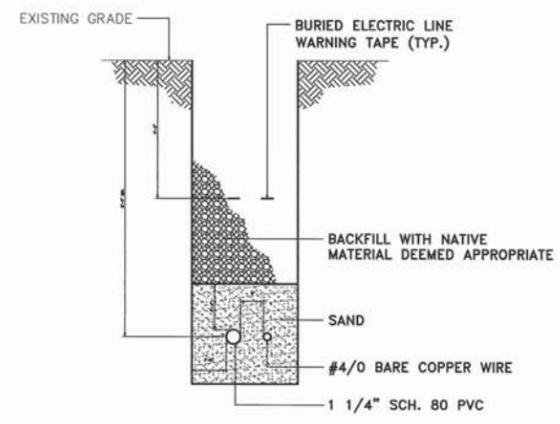
**RISER VAULT LEAK DETECTION DETAIL**  
NOT TO SCALE



**PLAN**  
SCALE: 3/8" = 1'-0"

**ELECTRICAL SPECIFICATIONS:**

- CONDUIT IN GRADE SHALL BE PVC SCH. 80; CONDUIT IN THE BUILDING SHALL BE HOT DIPPED RIGID GALVANIZED STEEL.
- ALL JUNCTION BOXES WITHIN THE BUILDING SHALL BE NEMA 12.
- ALL WIRE, EXCEPT MANUFACTURE FURNISHED FLOAT CABLE AND PUMP CABLE, SHALL BE XHHW STRANDED. MINIMUM CONTROL WIRE SIZE SHALL BE #14 AWG, PLUS ONE ADDITIONAL A.O. AND ONE ADDITIONAL N.C. CONTACT.
- LEACHATE PUMP CONTROL PANEL:
  - ENCLOSURE - NEMA 12 METAL - HOFFMAN A-36302LP WITH A-36P30 PANEL OR LARGER AS MAY BE REQUIRED.
  - MOTOR CIRCUIT PROTECTORS - SQUARE D CLASS 680 CATALOG #FAL3600311M.
  - STARTERS - NEMA SIZE D WITH 120 VAC COIL, SQUARE D CLASS 8536 TYPE SB02V02342 WITH REQUIRED AUXILIARY CONTACT FOR LOGIC PLUS ONE ADDITIONAL A.O. AND ONE ADDITIONAL N.C. CONTACT.
  - RELAYS - "ICE CUBE" TYPE, 11 PIN, 3POT 10A RATED CONTACTS, 120 VAC COIL, PILOT LIGHT AND 2 TIER 11 PIN RELAY SOCKET. SQUARE D CLASS 8501 TYPE KP13P14V20 WITH.
  - CONTROL TRANSFORMER - 500 VA, SINGLE PHASE WITH 480/240V FUSED PRIMARY AND 120V FUSED SECONDARY. SQUARE D CLASS 9070 TYPE T50001. PRIMARY FUSE BLOCK - SQUARE D CLASS 9080 TYPE FB2611. SECONDARY FUSE BLOCK - TYPE FB1211.
  - INDUCTION RELAYS FOR CONDUCTANCE LEVEL PROBES IN THE BLDG. - PLUG-IN OCTAL BASE FOR 120 VAC SUPPLY VOLTAGE, DIRECT READING, 10K OHMS SENSITIVITY, 10 SECOND TIME DELAY INCREASING, 10A RATED FORM C CONTACT - GEMS SENSOR WARRICK SERIES 16M CATALOG #16MBA1010 WITH SQUARE D CLASS 8501 TYPE NRE2 SOCKET.
  - INDUCTION RELAYS FOR CONDUCTANCE LEVEL PROBES IN THE LEACHATE PUMP TUBES - FOR 120 VAC SUPPLY VOLTAGE, DIRECT READING, DUAL FUNCTION, 10K OHMS SENSITIVITY, 10A RATED FORM C CONTACTS - GEMS SENSOR WARRICK SERIES OF CATALOG #DFN10.
  - PILOT LIGHTS - GREEN "RUNNING" AND RED ALARM LIGHTS ENGRAVED AS INDICATED ON THE CONTRACT WIRING DIAGRAM. PILOT LIGHTS SHALL BE HEAVY DUTY OIL TIGHT LED TYPE WITH FRESNEL LENS. SQUARE D CLASS 9001 CATALOG #KP38LGG31 FOR THE GREEN PILOT LIGHTS AND #KP38LRR31 FOR THE RED PILOT LIGHTS WITH ENGRAVED KN100BP SERIES LEGEND PLATES.
  - PUSHBUTTONS - STOP BUTTON SHALL BE HEAVY DUTY OIL TIGHT NORMALLY CLOSED MOMENTARY CONTACT TYPE, RED WITH P.O. GUARD, SQUARE D CLASS 9001 CATALOG #KR1RH6 WITH ENGRAVED KN00BP SERIES LEGEND PLATES. START BUTTON SHALL BE HEAVY DUTY OIL TIGHT NORMALLY OPEN MOMENTARY CONTACT TYPE, GREEN WITH NO GUARD, SQUARE D CLASS 9001 CATALOG #KR3GH5 WITH ENGRAVED KN00BP SERIES LEGEND PLATES.
  - TERMINAL STRIP SHALL BE HEAVY DUTY SOLDERLESS BOX LUG 600V TYPE CAPABLE OF RECEIVING #22 TO #8 AWG WIRES.
- THE 480V, 3Φ, MAIN LUGS ONLY, 125 AMP COPPER BUS, 18 SPACE TYPE PANELBOARD WITH A 30A, 3 POLE BACKFEED MAIN BREAKER AND AN EQUIPMENT GROUND BAR. THE BRANCH BREAKERS SHALL BE AS INDICATED ON THE CONTRACT DRAWINGS. THE PANEL BOARD SHALL BE A SQUARE D CLASS 1670 CATALOG #NF18L1C INTERIOR IN CATALOG #MH26WP ENCLOSURE AND A PK12GTA COPPER GROUND BAR KIT.
- THE TRANSFORMER SHALL BE A WALL MOUNTED, COPPER WOUND, 480V-3Φ-DELTA PRIMARY, 120/208V-3Φ-WYE SECONDARY WITH A 115°C RISE AND 2-5%CBN TAPS. THE TRANSFORMER SHALL BE SQUARE D CLASS 7400 CATALOG #372F.
- THE LOAD CENTER SHALL BE 120/208V, 3Φ, 4W, MAIN LUGS ONLY, 125 COPPER BUS, 12 SPACE UNIT WITH A 25A BACKFEED MAIN, BACKFEED MAIN MOUNTING KIT AND A GROUND BAR KIT. NO TANDEM BREAKERS ARE ACCEPTABLE. BRANCH BREAKER SIZES SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS. THE LOAD CENTER SHALL BE A SQUARE D QO SERIES CLASS 1130 CATALOG #QO312L125GRB.
- RECEPTACLES AND LIGHT SWITCH - ALL DEVICES SHALL BE 20A INDUSTRIAL HEAVY DUTY SPECIFICATION GRADE. SWITCHES AND RECEPTACLES SHALL BE MANUFACTURED BY HUBBELL. SIMPLEX RECT - CATALOG #5361; DUPLEX GFCI - GF5362; LIGHT SWITCH - HBL1221. DEVICE BOXES CAST METAL, DEEP TYPE. PLATES SHALL BE STAINLESS STEEL.
- GROUND SYSTEM - THE SYSTEM SHALL BE AS SHOWN ON THE DESIGN DRAWINGS. THE #4/0 BARE COPPER GROUND CABLE SHALL BE CONNECTED TO THE EXISTING OFFICE BUILDING GROUND SYSTEM. ALL CONNECTIONS TO THE GROUND SYSTEM SHALL BE MADE USING THE CRUCIBLE WELD METHOD. PIGTAIL CABLES TO THE PANELBOARD AND THE LEACHATE PUMP CONTROL PANEL FROM THE GROUND SYSTEM SHALL BE #4 BARE COPPER. GROUND RODS SHALL BE 3/4" BY 10' COPPER CLAD STEEL.

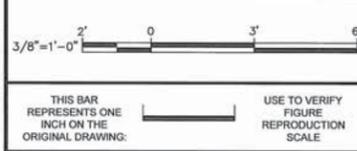


**TRENCH DETAIL**  
NOT TO SCALE

- NOTES:**
- CONDUIT TO REST ON 4" MIN. SAND BEDDING.
  - 4" MIN. SAND COVER ABOVE CONDUITS.
  - CONDUITS TO BE MIN. 3" FROM TRENCH WALL.
  - CONDUITS TO BE SPACED AT MIN. OF 2".

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE,  
INFORMATION AND BELIEF, THESE RECORD  
DRAWINGS SUBSTANTIALLY REPRESENT THE  
PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 13, TRACER NO. 38865010/38865E01.DWG, DATED 8/31/2011) DATE 8/31/11 BY MOC



No.	Date	Revisions	CAA	MOC
6/1/11	RECORD DRAWINGS - DRAWING NOT USED			

Professional Engineer's Name  
**MARK O. GRAVELDING**  
Professional Engineer's No.  
062059378  
State  
IL  
Date Signed  
Project Mgr.  
PHB  
Designed by  
CAA/RLP  
Drawn by  
LAF  
Checked by  
CAA

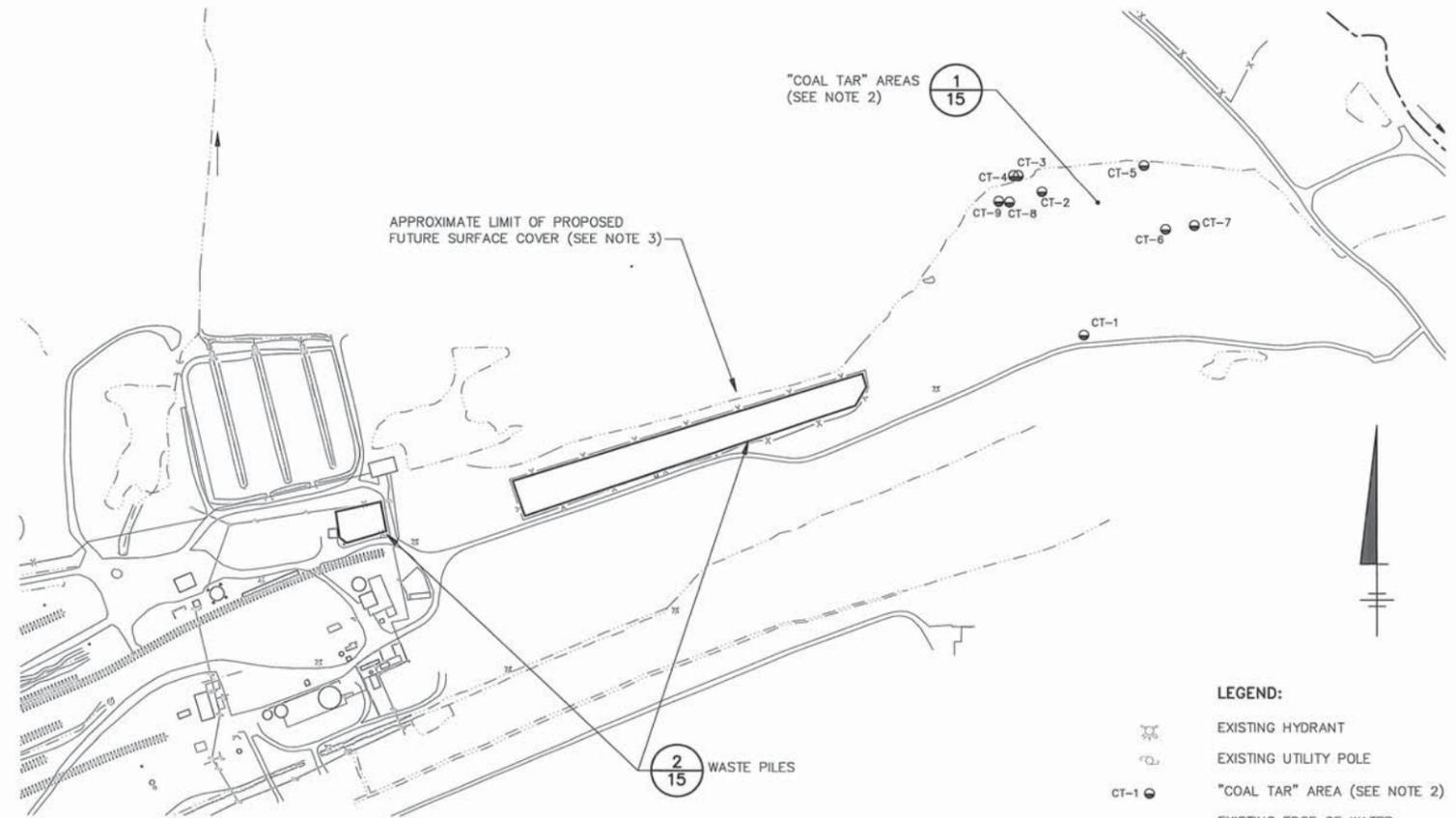


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CAMU CONTAINMENT CELL RECORD DRAWINGS  
**RISER VAULT ELECTRICAL DIAGRAM AND DETAILS**

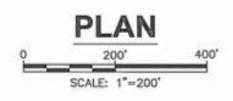
ARCADIS Project No.  
B0039233.0000.00001  
Date  
AUGUST 2011  
ARCADIS U.S., INC.  
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CITY: SYRACUSE DIV/GROUP: ENVCAD DB: L. FORAKER T. RITSCHHEL L. FORAKER K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TM: D. BESSINGPAS LYNON: OFF: REF: G:\ENVCAD\SYRACUSE\PROJECTS\CAMU\RECORD\CAMU1382333\15.DWG LAYOUT: 15 SAVED: 8/30/2011 10:33 AM ACADVER: 18.05 (LMS TECH) PAGES: 15 PLOTTABLE: PLTCONT1.CTB PLOTTED: 8/30/2011 10:34 AM BY: DECLERCO, BRIAN



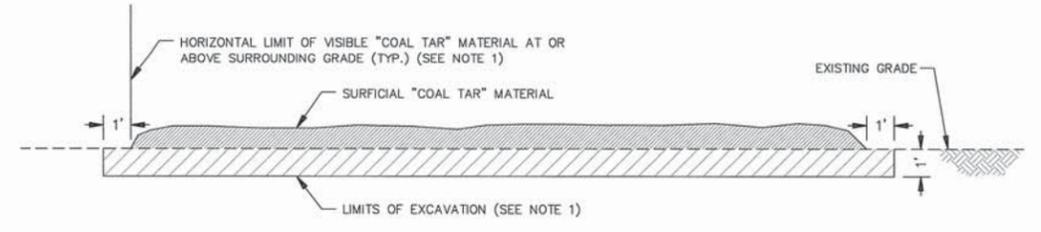
- NOTES:**
- SITE FEATURES AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY, (SEPTEMBER 2001) AND SURVEY BY ENGINEERING DESIGN SOURCE, INC. (JANUARY, 2004).
  - "COAL TAR" AREAS IDENTIFIED AND STAKED BY RETEC IN APRIL 2001. LOCATIONS SURVEYED BY CROSS COUNTRY LAND SURVEYING AND ENGINEERING.
  - LIMITS OF PROPOSED FUTURE SURFACE COVER SHOWN HAVE BEEN EXPANDED RELATIVE TO PREVIOUSLY PROPOSED LIMITS TO INCLUDE THE ENTIRE WASTE PILE FOOTPRINT.



- LEGEND:**
- EXISTING HYDRANT
  - EXISTING UTILITY POLE
  - "COAL TAR" AREA (SEE NOTE 2)
  - EXISTING EDGE OF WATER
  - EXISTING OVERHEAD POWER LINE
  - EXISTING RAILROAD TRACKS
  - EXISTING ROADWAY
  - EXISTING FENCE

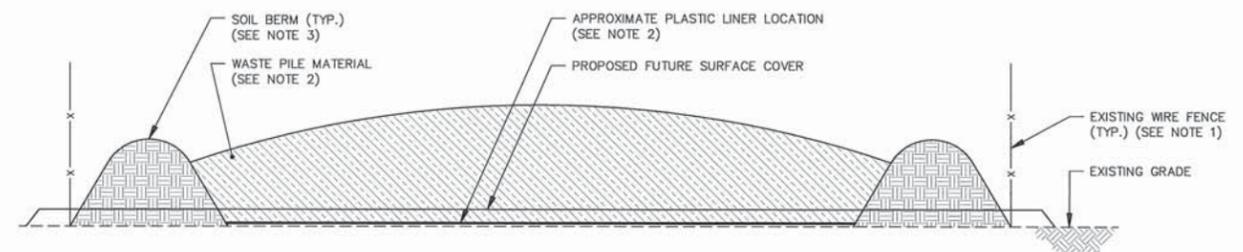
"COAL TAR" AREA INFORMATION			
ID	NORTHING	EASTING	APPROXIMATE DIMENSIONS
CT-1	5451.04	7275.35	8' X 9'
CT-2	5773.75	7180.42	72' X 82'
CT-3	5810.61	7126.98	8' X 11'
CT-4	5810.61	7116.04	6' X 12'
CT-5	5833.20	7411.49	6' X 9'
CT-6	5689.62	7460.31	16' X 18'
CT-7	5698.29	7525.54	45' X 67'
CT-8	5750.76	7107.05	21' X 24'
CT-9	5752.26	7082.94	5' X 10'

- NOTES:**
- NORTHING AND EASTING CORRESPOND TO CENTER OF EACH "COAL TAR" AREA AND ARE BASED ON SITE SPECIFIC COORDINATE SYSTEM.
  - DIMENSIONS BASED ON APRIL 2001 FIELD MEASUREMENTS.
  - "COAL TAR" AREAS EXCAVATED WITHIN THE LISTED DIMENSIONS TO A DEPTH OF 1 FOOT.
  - EXCAVATED AREAS OVERFILLED WITH BACKFILL FOR DRAINAGE.



- NOTES:**
- SURFICIAL "COAL TAR" MATERIALS AND UNDERLYING SOILS TO BE REMOVED AND CONSOLIDATED IN THE CAMU CONTAINMENT CELL. EXCAVATION LIMITS FOR UNDERLYING SOILS TO EXTEND VERTICALLY TO A MAXIMUM OF ONE FOOT BELOW EXISTING GRADE AND HORIZONTALLY TO A MAXIMUM OF ONE FOOT BEYOND THE APPROXIMATE DIMENSIONS FOR EACH AREA INDICATED ON THE "COAL TAR" AREA INFORMATION TABLE; THIS DRAWING.
  - FOLLOWING REMOVAL, EXCAVATIONS WILL BE BACKFILLED WITH UP TO 8 INCHES OF COMPACTED GENERAL FILL AND 4 INCHES OF VEGETATED COVER SOIL, BASED ON REMOVAL DEPTH AND AS NECESSARY TO MATCH SURROUNDING GRADE.
  - SEE DRAWING 16 FOR MATERIAL SPECIFICATIONS.

**"COAL TAR" AREAS REMOVAL/RESTORATION DETAIL 1**  
NOT TO SCALE

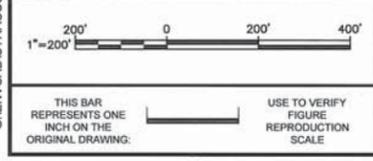


- NOTES:**
- EXISTING FENCE TO BE DISMANTLED AND STAGED ONSITE PRIOR TO REMOVAL OF WASTE PILES.
  - WASTE PILE MATERIALS AND PLASTIC LINER TO BE REMOVED AND CONSOLIDATED IN THE CAMU CONTAINMENT CELL.
  - SOIL BERM MATERIAL TO REMAIN FOR POSSIBLE FUTURE USE DURING SUBGRADE PREPARATION FOR THE PROPOSED SURFACE COVER. UNUSED BERM MATERIAL TO BE REMOVED AND CONSOLIDATED IN THE CAMU CONTAINMENT CELL.

**WASTE PILES REMOVAL/RESTORATION DETAIL 2**  
NOT TO SCALE

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 15, TRACER NO. 38865010/38865G13.DWG, DATED 8/31/2011) DATE 8/31/11 BY M06



No.	Date	Revisions	By	Ckd

Professional Engineer's Name  
**MARK O. GRAVELDING**  
Professional Engineer's No.  
062059378  
State  
IL  
Date Signed  
Project Mgr.  
PHB  
Designed by  
CAA/RLP  
Drawn by  
LAF  
Checked by  
CAA



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CAMU CONTAINMENT CELL RECORD DRAWINGS  
**WASTE PILES AND "COAL TAR" AREAS  
REMOVAL/RESTORATION PLAN AND DETAILS**

ARCADIS Project No.  
B0039233.0000.00001  
Date  
AUGUST 2011  
ARCADIS U.S., INC.  
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P.O. BOX 66  
SYRACUSE, NY 13214-0066  
TEL. 315.446.9120

**MATERIAL SPECIFICATIONS**

MATERIAL TYPE	USE (DRAWING REFERENCE)	MATERIAL DESCRIPTION	PLACEMENT AND COMPACTION SPECIFICATION
VEGETATED COVER SOIL (SEE NOTE 5)	THROUGHOUT AFFECTED WORK AREAS (2-6,9)	SANDY/SILTY LOAM MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE. SEED MIX SHALL BE COMPOSED OF 30 LB/ACRE TALL FESCUE (KENTUCKY 31 BLEND) AND 1/2 LB/ACRE LIDINO CLOVER. UPLAND SEED MIX SHALL CONSIST OF 4 LBS/ACRE BIG BLUE STEM, 5 LBS/ACRE LITTLE BLUE STEM, 5 LBS/ACRE SIDE-OATS GRAMA, 2 LBS/ACRE CANADA WILD RYE, 1 LB/ACRE SWITCHGRASS, 2 LBS/ACRE INDIAN GRASS, 50 LBS/ACRE ANNUAL RYEGRASS, 25 LBS/ACRE OATS (SPRING), AND 30 LBS/ACRE PERENNIAL RYEGRASS.	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE A MINIMUM IN-PLACE THICKNESS OF 6". NO COMPACTION IS REQUIRED OTHER THAN THAT ACHIEVED BY SPREADING EQUIPMENT.
DRAINAGE STONE (SEE NOTE 2)	SUMP BACKFILL, FINAL COVER COLLECTION PIPE BACKFILL, LEACHATE COLLECTION PIPE BACKFILL, RCRA CAP DRAIN COLLECTION PIPE BACKFILL, INFILTRATION CHANNEL SIDESLOPE DRAIN (6,7,8,9)	IL DOT COARSE AGGREGATE, GRAVEL GRADATION NUMBER CA1 OR IL DOT RIPRAP GRADATION NUMBER RR1	NO COMPACTION REQUIRED. SEE DETAIL FOR PLACEMENT DIMENSIONS.
GENERAL FILL (SEE NOTE 5)	LINER SUBBASE (6)	MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE. MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3". MATERIAL SHALL HAVE A CL OR CH SOIL CLASSIFICATION.	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE IN-PLACE COMPACTED LIFT THICKNESS OF 12 INCHES. MATERIAL TO BE COMPACTED WITH A MINIMUM 3 PASSES OF A SUITABLY-SIZED ROLLER. MATERIAL SHALL BE COMPACTED TO 90% MODIFIED PROCTOR (ASTM D-1557). IN PLACE DENSITY TESTING TO BE PERFORMED AT A MINIMUM FREQUENCY OF 9 PER ACRE PER LIFT WITH A MINIMUM OF 3 TESTS PER LIFT.
	PERIMETER BERM (6)	MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE. MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3".	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE IN-PLACE COMPACTED LIFT THICKNESS OF 6 INCHES. MATERIAL TO BE COMPACTED TO 90% MODIFIED PROCTOR (ASTM D-1557). IN-PLACE DENSITY TESTING TO BE PERFORMED AT A MINIMUM FREQUENCY OF 9 TESTS PER ACRE PER LIFT WITH A MINIMUM OF 3 TESTS PER LIFT. COMPACTED SURFACES SHALL BE ROUGHENED PRIOR TO PLACEMENT OF SUCCESSIVE LIFTS.
	FINAL COVER (6)	MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE. MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3". MATERIAL SHALL HAVE A CL OR CH SOIL CLASSIFICATION.	MATERIAL TO BE PLACED IN 12-INCH-THICK LOOSE LIFTS. NO COMPACTION IS REQUIRED OTHER THAN THAT ACHIEVED BY SPREADING EQUIPMENT.
	INTERIM PERIMETER INFILTRATION AREAS, MID-SLOPE SWALES, RCRA CAP DRAIN COLLECTION PIPE (6,9)	MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE. MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3".	MATERIAL TO BE PLACED AND COMPACTED USING A SUITABLY SIZED ROLLER (OR OTHER APPROVED METHOD).
RIPRAP (SEE NOTE 2)	ACCESS ROAD DRAINAGE CROSSING (9)	RIPRAP SHALL CONSIST OF CRUSHED STONE FREE FROM DELETERIOUS MATERIALS AND HAVE D <sub>50</sub> =6", D <sub>max</sub> =9", AND D <sub>min</sub> =4".	NO COMPACTION REQUIRED. MATERIAL TO BE PLACED IN A 12-INCH-THICK LAYER.
CRUSHER RUN/ GRAVEL (SEE NOTE 2)	ACCESS ROAD, SIDESLOPE RISER PIPES TRENCH BACKFILL (6,7,9)	IL DOT AGGREGATE SUBBASE TYPE B	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE IN-PLACE COMPACTED LIFT THICKNESS OF 8 INCHES. MATERIAL TO BE COMPACTED TO 95% STANDARD PROCTOR (ASTM D-698). IN-PLACE DENSITY TESTING TO BE PERFORMED AT A MINIMUM FREQUENCY OF 1 TEST PER 5,000 FT <sup>2</sup> WITH A MINIMUM OF 3 TESTS WITHIN EACH AREA.
CONTAINMENT CELL HDPE PIPE	LEACHATE COLLECTION PIPE (2,7)	6" DIA. PERFORATED, SDR-13.5	REFER TO DRAWING 7 DETAIL 7 FOR PIPE PERFORATION DETAILS, PLACE AS REQUIRED.
	LEACHATE COLLECTION PIPE CLEANOUT (2,4,7,8)	6" DIA. SOLID, SDR-13.5	PLACE AS REQUIRED
	LEACHATE SIDESLOPE RISER PIPE (2,4,7,8)	24" DIA. (SOLID ON SIDESLOPES, PERFORATED IN SUMP), SDR-11 HDPE	REFER TO DRAWING 8 DETAIL 5 FOR PIPE PERFORATION DETAILS, PLACE AS REQUIRED.
EROSION CONTROL MAT	MID-SLOPE SWALES, BERM SIDESLOPES (4,6,9)	TEMPORARY EROSION CONTROL MAT SHALL BE NORTH AMERICAN GREEN SC150 (OR AN APPROVED EQUAL). PERMANENT EROSION CONTROL MAT SHALL BE NORTH AMERICAN GREEN SC250 (OR APPROVED EQUAL).	PLACE PER MANUFACTURER'S SPECIFICATIONS
PVC GEOMEMBRANE	INTERIM PVC COVER (9)	20 mil	ALL SEAMS TO BE JOINED BY CHEMICAL BONDING. INSTALLATION AND SEAM BONDING TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
GCL	FINAL COVER, LINER (6)	GEOTEXTILE ENCAPSULATED BENTONITE	REFER TO SPECIFICATION SECTION 02413
FML	FINAL COVER, LINER (6)	40 AND 60 MIL. TEXTURED HDPE	REFER TO SPECIFICATION SECTION 02234
GEOCOMPOSITE	FINAL COVER, LINER (6)	DOUBLE SIDED	REFER TO SPECIFICATION SECTION 02219
NON-WOVEN GEOTEXTILE	SUMP, RISER PIPE TRENCH, COLLECTION PIPES, PERIMETER INFILTRATION CHANNEL, ACCESS ROAD DRAINAGE CROSSING (8,6,9,7)	AMOCO 4516, REFER TO SPECIFICATION SECTION 02232	REFER TO SPECIFICATION SECTION 02232
WOVEN GEOTEXTILE	BENEATH CRUSHER RUN (6,9)	AMOCO 2006 OR AN APPROVED EQUAL	REFER TO SPECIFICATION SECTION 02232
SELECT CONSOLIDATION OR FILL MATERIAL	LINER SYSTEM OPERATIONS LAYER (6)	MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE. MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3".	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE AN IN-PLACE THICKNESS OF 12 INCHES AND COMPACTED USING A SUITABLY SIZED ROLLER (OR OTHER APPROVED METHOD).
	COVER SYSTEM SEPARATION LAYER (6)	MATERIAL FREE OF LARGE ROCKS, WOOD, AND OTHER DELETERIOUS DEBRIS; OBTAINED FROM ONSITE OR OFFSITE SOURCE. MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3".	MATERIAL TO BE PLACED AS REQUIRED TO ACHIEVE AN IN-PLACE THICKNESS OF 6 INCHES AND COMPACTED USING A SUITABLY SIZED ROLLER (OR OTHER APPROVED METHOD).

**NOTES:**

- WHERE INDICATED, MATERIAL DESCRIPTION/PLACEMENT REQUIREMENTS BASED ON "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION BY THE ILLINOIS DEPARTMENT OF TRANSPORTATION (IL DOT), DATED JAN. 1, 2002.
- DRAINAGE STONE, GRAVEL, STRUCTURAL FILL, AND RIPRAP TO BE TESTED FOR CONFORMANCE WITH MATERIAL DESCRIPTIONS USING ASTM C-136 (SIEVE ANALYSIS OF FINE AND COARSE AGGREGATE). TESTING TO BE PERFORMED AT A MINIMUM FREQUENCY OF TWO TESTS PER MATERIAL TYPE FROM A GIVEN SOURCE.
- ADDITIONAL DENSITY TESTING MAY BE REQUIRED BASED ON FIELD CONDITIONS AT TIME OF CONSTRUCTION.
- ALTERNATIVE FILL COMPACTION METHODS MAY BE UTILIZED BASED ON ACTUAL FIELD CONDITIONS AT TIME OF CONSTRUCTION AS APPROVED BY THE ENGINEER.
- MATERIAL OBTAINED FROM OFFSITE SOURCES TO BE ANALYZED FOR SVOCs, VOCs, AND RCRA METALS (8) AT A FREQUENCY OF 1 SAMPLE PER SOURCE FOR EACH MATERIAL TYPE.

**RECORD DRAWINGS**  
TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, THESE RECORD DRAWINGS SUBSTANTIALLY REPRESENT THE PROJECT AS CONSTRUCTED.

(RECORD DRAWING: MADE FROM DRAWING NO. 16, TRACER NO. 38865010/38865G14.DWG, DATED 8/31/2011) DATE 8/31/11 BY M. OG

CITY: SYRACUSE DIV/GROUP: ENVCAD DB: L. FORAKER T. RITSCHL L. FORAKER K.SARTORI PIC: R. ANDERSON PM: J. HOLDEN TM: D. BESSINGPAS LYRON+ OFF=REF= PLOT: 8/30/2011 10:34 AM BY: DECLERCQ, BRIAN  
 G:\ENVCAD\SYRACUSE\ENVCAD\0000000001\RECORD\CAMU\39233G16.DWG LAYOUT: 16 SAVED: 8/30/2011 10:34 AM ACADVER: 18.05 (LMS TECH) PAGES: 18 PLOTSTYLETABLE: PLTCONT1.CTB PLOTTED: 8/30/2011 10:34 AM BY: DECLERCQ, BRIAN  
 XREFS: IMAGES: PROJECTNAME: 39233A00

NOT TO SCALE

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.

Professional Engineer's Name  
**MARK O. GRAVELDING**  
Professional Engineer's No.  
062059378

State: IL Date Signed: Project Mgr: PHB

Designed by: CAA/RLP Drawn by: LAF Checked by: CAA




ARCADIS U.S., INC.

BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
CAMU CONTAINMENT CELL RECORD DRAWINGS

**MATERIAL SPECIFICATIONS**

ARCADIS Project No.  
B0039233.0000.00001

Date  
AUGUST 2011

ARCADIS U.S., INC.  
6723 TOWPATH ROAD  
P.O. BOX 66  
SYRACUSE, NY 13214-0066  
TEL. 315.446.9120



**Appendix B**

Project Permits



City of Carbondale Floodplain  
Development Permit



200 South Illinois Avenue  
P.O. Box 2047  
Carbondale, Illinois 62902-2047  
Telephone 618-549-5302  
Fax 618-457-3283  
www.ci.carbondale.il.us

December 17, 2003

David Bessingpass  
Blasland, Bouck & Lee, Inc.  
6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214-0066

RE: FDP 03-02, Glade Creek Channel Relocation

Dear Mr. Bessingpass:

On November 3, 2003 the City of Carbondale Planning Services Division received the joint permit application for environmental remediation activities that include relocation of a portion of the Glade Creek Stream Channel.

In a letter dated November 21, 2003, we informed you that a City of Carbondale floodplain development permit (FDP) would be issued following issuance of the appropriate permits by the Illinois Department of Natural Resources. On December 11, 2003 the Planning Services Division received a copy of IDNR Office of Water Resources Permit number DS2003224.

Based on the attached IDNR permit, the joint application for the RCRA Corrective Action project is APPROVED as FDP 03-02.

Thank you for your cooperation with the City of Carbondale's development review process. If you have any questions, please contact our office.

Sincerely,

Tom Redmond,  
Development Services Director

cc: IDNR Office of Water Resources; Fire; Police; Public Works--Engineering; Public Works--Water & Sewer; Building & Neighborhood Services.



PERMIT NO. DS2003224

DATE: December 9, 2003

**State of Illinois**  
**Department of Natural Resources, Office of Water Resources**

Permission is hereby granted to:

**BEAZER EAST, INC.**  
**ONE OXFORD CENTRE, SUITE 3000**  
**PITTSBURGH, PENNSYLVANIA 15219**

to relocate 1500 ft. of the Glade Creek channel in the Southeast  $\frac{1}{4}$  of Section 10, Township 9 South, Range 1 West of the 3<sup>rd</sup> Principal Meridian in Jackson County,

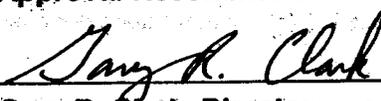
In accordance with an application dated October 28, 2003, and the plans and specifications entitled:

**PROPOSED SITE PLAN (GRADING PLAN), BBL PROJECT NO. 388.57, DATED: OCTOBER 2003, SHEET 2, DATE RECEIVED: OCTOBER 29, 2003; SECTIONS, BBL PROJECT NO. 388.57, DATED: OCTOBER 2003, SHEET 4, DATE RECEIVED: OCTOBER 29, 2003.**

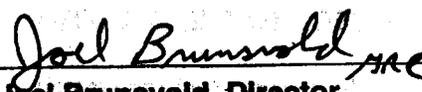
Examined and Recommended:

  
Martin J. Stralow, Division Manager  
Division of Resource Management

Approval Recommended:

  
Gary R. Clark, Director  
Office of Water Resources

Approved:

  
Joel Brunsvold, Director  
Department of Natural Resources

This PERMIT is subject to the terms and special conditions contained herein.

**THIS PERMIT IS SUBJECT TO THE FOLLOWING CONDITIONS:**

- 1) This permit is granted in accordance with the Rivers, Lakes and Streams Act "615 ILCS 5."
- 2) This permit does not convey title to the permittee or recognize title of the permittee to any submerged or other lands, and furthermore, does not convey, lease or provide any right or rights of occupancy or use of the public or private property on which the activity or any part thereof will be located, or otherwise grant to the permittee any right or interest in or to the property, whether the property is owned or possessed by the State of Illinois or by any private or public party or parties.
- 3) This permit does not release the permittee from liability for damage to persons or property resulting from the work covered by this permit, and does not authorize any injury to private property or invasion of private rights.
- 4) This permit does not relieve the permittee of the responsibility to obtain other federal, state or local authorizations required for the construction of the permitted activity; and if the permittee is required by law to obtain approvals from any federal or state agency to do the work, this permit is not effective until the federal and state approvals are obtained.
- 5) The permittee shall, at the permittee's own expense, remove all temporary piling, cofferdams, false work, and material incidental to the construction of the project. If the permittee fails to remove such structures or materials, the Department may have removal made at the expense of the permittee.
- 6) In public waters, if future need for public navigation or other public interest by the state or federal government necessitates changes in any part of the structure or structures, such changes shall be made by and at the expense of the permittee or the permittee's successors as required by the Department or other properly constituted agency, within sixty (60) days from receipt of written notice of the necessity from the Department or other agency, unless a longer period of time is specifically authorized.
- 7) The execution and details of the work authorized shall be subject to the review and approval of the Department. Department personnel shall have the right of access to accomplish this purpose.
- 8) Starting work on the activity authorized will be considered full acceptance by the permittee of the terms and conditions of the permit.
- 9) The Department in issuing this permit has relied upon the statements and representations made by the permittee; if any substantive statement or representation made by the permittee is found to be false, this permit will be revoked; and when revoked, all rights of the permittee under the permit are voided.
- 10) In public waters, the permittee and the permittee's successors shall make no claim whatsoever to any interest in any accretions caused by the activity.
- 11) In issuing this permit, the Department does not ensure the adequacy of the design or structural strength of the structure or improvement.
- 12) Noncompliance with the conditions of this permit will be considered grounds for revocation.
- 13) If the construction activity permitted is not completed on or before December 31, 2006, this permit shall cease and be null and void. When all work is constructed, the permittee shall notify the Department so that a final inspection can be completed.

**THIS PERMIT IS SUBJECT TO THE FOLLOWING SPECIAL CONDITIONS:**

- a. The physical characteristics of the relocated channel shall match as closely as practical those of the existing channel in length, cross section, bottom profile and sinuosity.
- b. Hydraulically effective transitions shall be provided at both ends of the project, designed to minimize erosion.
- c. Earthen channel banks shall be constructed with not less than 2:1 side slopes.
- d. Disturbance of streamside vegetation shall be kept to a minimum during construction to prevent erosion and sedimentation. All disturbed areas shall be seeded or otherwise stabilized upon completion of construction.



IDNR Permit



# Illinois Department of Natural Resources

One Natural Resources Way • Springfield, Illinois 62702-1271  
<http://dnr.state.il.us>

Rod R. Blagojevich, Governor

Joel Brunsvold, Director

December 9, 2003

SUBJECT: Permit No. DS2003224  
Proposed Channel Relocation  
Glade Creek  
City of Carbondale, Jackson County

Beazer East, Inc.  
One Oxford Centre, Suite 3000  
Pittsburgh, Pennsylvania 15219

ATTENTION: Mr. Robert Markwell, Vice President

Dear Mr. Markwell :

Enclosed is Illinois Department of Natural Resources, Office of Water Resources Permit No. DS2003224 authorizing the subject project. This permit does not supersede any other federal, state or local authorizations that may be required for the project. Also, since the City of Carbondale participates in the National Flood Insurance Program, you should contact the City of Carbondale Planner to ensure that local requirements are met.

In addition to the general conditions of the permit, this approval is subject to the following special conditions:

- a. The physical characteristics of the relocated channel shall match as closely as practical those of the existing channel in length, cross section, bottom profile and sinuosity;
- b. Hydraulically effective transitions shall be provided at both ends of the project, designed to minimize erosion;
- c. Earthen channel banks shall be constructed with not less than 2:1 side slopes; and
- d. Disturbance of streamside vegetation shall be kept to a minimum during construction to prevent erosion and sedimentation. All disturbed areas shall be seeded or otherwise stabilized upon completion of construction.

Beazer East, Inc.  
Page 2  
December 9, 2003

Please be advised that the Illinois Department of Natural Resources, Office of Realty and Environmental Planning (OREP) participates in the regulatory programs of the U.S. Army, Corps of Engineers (USCOE) and may review this project if a USCOE Section 10 or 404 permit is required. Issuance of a permit by the Office of Water Resources does not preclude OREP's provision of comments and/or recommendations, primarily related to biological effects of the proposed action, to the USCOE and other federal agencies concerning your project.

If any changes in the plans or location of the work are found necessary, revised plans should be submitted promptly to this office so that they may receive approval before work thereon is begun. When the work is done, please provide written notification that the project has been completed in accordance with the approved plans and conditions of the permit.

Please feel free to contact Rod Johnson of my staff at 217/782-3863 if you have any questions concerning this authorization.

Sincerely,



Martin J. Stralow, P.E.  
Division Manager, Div. Of Resource Management

MJS:RLJ:cw  
Enclosure

cc: U.S. Army Corps of Engineers, St. Louis District  
Illinois Environmental Protection Agency  
IDNR/OREP (Bob Schanzle)  
City of Carbondale Planner (Bob Mahrt)  
Blasland, Bouck, & Lee, Inc. (Jeffrey S. Holden) ✓



PERMIT NO. DS2003224

DATE: December 9, 2003

## State of Illinois

### Department of Natural Resources, Office of Water Resources

Permission is hereby granted to:

BEAZER EAST, INC.  
ONE OXFORD CENTRE, SUITE 3000  
PITTSBURGH, PENNSYLVANIA 15219

to relocate 1500 ft. of the Glade Creek channel in the Southeast  $\frac{1}{4}$  of Section 10, Township 9 South, Range 1 West of the 3<sup>rd</sup> Principal Meridian in Jackson County,

in accordance with an application dated October 28, 2003, and the plans and specifications entitled:

PROPOSED SITE PLAN (GRADING PLAN), BBL PROJECT NO. 388.57, DATED: OCTOBER 2003, SHEET 2, DATE RECEIVED: OCTOBER 29, 2003; SECTIONS, BBL PROJECT NO. 388.57, DATED: OCTOBER 2003, SHEET 4, DATE RECEIVED: OCTOBER 29, 2003.

Examined and Recommended:

Martin J. Stralow, Division Manager  
Division of Resource Management

Approval Recommended:

Gary R. Clark, Director  
Office of Water Resources

Approved:

Joel Brunsvold, Director  
Department of Natural Resources

PERMIT NO. DS2003224

**THIS PERMIT IS SUBJECT TO THE FOLLOWING CONDITIONS:**

- 1) This permit is granted in accordance with the Rivers, Lakes and Streams Act "615 ILCS 5."
- 2) This permit does not convey title to the permittee or recognize title of the permittee to any submerged or other lands, and furthermore, does not convey, lease or provide any right or rights of occupancy or use of the public or private property on which the activity or any part thereof will be located, or otherwise grant to the permittee any right or interest in or to the property, whether the property is owned or possessed by the State of Illinois or by any private or public party or parties.
- 3) This permit does not release the permittee from liability for damage to persons or property resulting from the work covered by this permit, and does not authorize any injury to private property or invasion of private rights.
- 4) This permit does not relieve the permittee of the responsibility to obtain other federal, state or local authorizations required for the construction of the permitted activity; and if the permittee is required by law to obtain approvals from any federal or state agency to do the work, this permit is not effective until the federal and state approvals are obtained.
- 5) The permittee shall, at the permittee's own expense, remove all temporary piling, cofferdams, false work, and material incidental to the construction of the project. If the permittee fails to remove such structures or materials, the Department may have removal made at the expense of the permittee.
- 6) In public waters, if future need for public navigation or other public interest by the state or federal government necessitates changes in any part of the structure or structures, such changes shall be made by and at the expense of the permittee or the permittee's successors as required by the Department or other properly constituted agency, within sixty (60) days from receipt of written notice of the necessity from the Department or other agency, unless a longer period of time is specifically authorized.
- 7) The execution and details of the work authorized shall be subject to the review and approval of the Department. Department personnel shall have the right of access to accomplish this purpose.
- 8) Starting work on the activity authorized will be considered full acceptance by the permittee of the terms and conditions of the permit.
- 9) The Department in issuing this permit has relied upon the statements and representations made by the permittee; if any substantive statement or representation made by the permittee is found to be false, this permit will be revoked; and when revoked, all rights of the permittee under the permit are voided.
- 10) In public waters, the permittee and the permittee's successors shall make no claim whatsoever to any interest in any accretions caused by the activity.
- 11) In issuing this permit, the Department does not ensure the adequacy of the design or structural strength of the structure or improvement.
- 12) Noncompliance with the conditions of this permit will be considered grounds for revocation.
- 13) If the construction activity permitted is not completed on or before December 31, 2006, this permit shall cease and be null and void. When all work is constructed, the permittee shall notify the Department so that a final inspection can be completed.

**THIS PERMIT IS SUBJECT TO THE FOLLOWING SPECIAL CONDITIONS:**

- a. The physical characteristics of the relocated channel shall match as closely as practical those of the existing channel in length, cross section, bottom profile and sinuosity.
- b. Hydraulically effective transitions shall be provided at both ends of the project, designed to minimize erosion.
- c. Earthen channel banks shall be constructed with not less than 2:1 side slopes.
- d. Disturbance of streamside vegetation shall be kept to a minimum during construction to prevent erosion and sedimentation. All disturbed areas shall be seeded or otherwise stabilized upon completion of construction.



# Illinois Department of Natural Resources

One Natural Resources Way • Springfield, Illinois 62702-1271  
http://dnr.state.il.us

Rod R. Blagojevich, Governor

Sam Flood, Acting Director

**FAX MEMO**  
# PAGES 2 DATE 5/5 FAX # 217-829-4667  
TO DAVE BESSENGAS  
FROM ROD JOHNSON  
CO. IDNR  
PH # 217-785-1662 FAX # \_\_\_\_\_

May 2, 2006

SUBJECT: Permit Revision, Permit No. DS2003224  
Proposed Channel Modification  
Glade Creek  
City of Carbondale, Jackson County

Beazer East, Inc.  
One Oxford Centre, Suite 3000  
Pittsburgh, Pennsylvania 15219

ATTENTION: Mr. Mike Slenska

Dear Mr. Slenska:

In accordance with letter dated April 13, 2006 submitted on your behalf by David Bessingpas Blasland, Bouck & Lee, Inc., revised plans for that work authorized by the subject permit are hereby approved.

The revised plans are entitled:

**GLADE CREEK REROUTE, FORMER KOPPERS WOOD-TREATING SITE  
PROJECT NO. 38883.003, FIGURE 1, DATED: 10/31/05  
(Plan & profile sheet received with April 13, 2006 transmittal letter).**

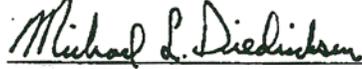
The revised plans show that an additional reach of Glade Creek will be relocated in association with site cleanup efforts. Approximately 380 ft. of new channel will be constructed as much as 100 ft. north of the existing channel. The relocated channel will retain the existing channel geometry and will be stabilized with RR1 and RR3 riprap to prevent the erosion of the channel bed.

The general and special conditions of the permit remain in full force and effect. This authorization is based on the fact that the additional channel relocation will not have adverse impacts to the Glade Creek floodway. This authorization does not supersede any other federal, state or local authorizations that may be required for the project.

Beazer East, Inc.  
Page 2  
May 2, 2006

Please feel free to contact Rod Johnson at 217/785-1662 if you have any questions or comments concerning this approval.

EXAMINED AND RECOMMENDED:



Michael L. Diedrichsen, Acting Manager  
Downstate Regulatory Programs

APPROVAL RECOMMENDED:



Gary R. Clark, Director  
Office of Water Resources

APPROVED:



Sam Flood, Acting Director  
Department of Natural Resources

SF:GRC:MLD:RLJ:crw

cc: Blasland, Bouck & Lee, Inc. (David Bessingpas)  
City of Carbondale (Bob Mahrt)  
U.S. Army Corps of Engineers, St. Louis District (Regulatory Branch)



IEPA – WPCP (WWTP Discharge  
to POTW)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
WATER POLLUTION CONTROL PERMIT

DEC 15 2003

LOG NUMBERS: 5249-03

PERMIT NO.: 2003-EE-5249

FINAL PLANS, SPECIFICATIONS, APPLICATION  
AND SUPPORTING DOCUMENTS  
PREPARED BY:

DATE ISSUED: **DEC 12 2003**

**SUBJECT:** BEAZER EAST, INC. -- Pretreatment of Creosote Contaminated Groundwater and Stormwater -- Tributary to the City of Carbondale Northwest STP

PERMITTEE TO OWN AND OPERATE

Beazer East, Inc.  
One Oxford Centre, Suite 3000  
Pittsburgh, Pennsylvania 15219

Permit is hereby granted to the above designated permittee to operate water pollution control facilities described as follows:

A 500,000 gallon stormwater collection tank, a 6,000 gallon influent holding tank, a 200 gallon coalescing oil/water separator, a 120 gallon product recovery tank, a 6,000 gallon product storage tank, two sand filters, two bag filters, and two granular activated carbon units in series, a 6,000 effluent tank and all necessary piping, pumps and appurtenances to treat an average of 18,500 gpd of groundwater and stormwater contaminated by the industrial process of pressure treating railroad ties and telephone poles with pretreated water directed to the City of Carbondale Northwest Sewage Treatment Plant.

Oil/water separator, filters, and GAC units of treatment system will be capable of treating up to 50 gallons per minute with a minimum flow rate of 10 gallons per minute. The design flow rate of system will be maintained at 12.5 gallons per minute.

This operating permit expires on November 30, 2008.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1:

- A. Accumulation of hazardous waste at this facility (if generated) shall be carried out in accordance with 35 Ill. Adm. Code, Chapter 1, Subtitle G, Part 722: Standards Applicable to Generators of Hazardous Waste.
- B. Transport of all special waste to a permitted treatment, storage or disposal site shall be carried out in accordance with Title 35 Ill. Adm. Code, Chapter 1, Subtitle G, Part 809: Special Waste Hauling.

Page 1 of 3

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

TDF:JMC:524903.jmc

DIVISION OF WATER POLLUTION CONTROL

cc: EPA - Marion FOS  
Records - Industrial  
Binds  
City of Carbondale  
Beazer East, Inc.

*Toby Frevert*  
Toby Frevert, P.E.  
Manager

*ly M. Kelke*

**READ ALL CONDITIONS CAREFULLY:  
STANDARD CONDITIONS**

The Illinois Environmental Protection Act (Illinois Revised Statutes Chapter 111-12, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.
  2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.
  3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.
  4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:
    - a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;
    - b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;
    - c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;
    - d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;
    - e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity,
- discharge, or emission authorized by this permit.
5. The issuance of this permit:
    - a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;
    - b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;
    - c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;
    - d. does not take into consideration or attest to the structural stability of any units or parts of the project;
    - e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.
  6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the agency before the facility or equipment covered by this permit is placed into operation.
  7. These standard conditions shall prevail unless modified by special conditions.
  8. The Agency may file a complaint with the Board for suspension or revocation of a permit:
    - a. upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed; or
    - b. upon finding that any standard or special conditions have been violated; or
    - c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 5249-03

PERMIT NO.: 2003-EE-5249

FINAL PLANS, SPECIFICATIONS, APPLICATION  
AND SUPPORTING DOCUMENTS  
PREPARED BY:

DATE ISSUED: **DEC 12 2003**

**SUBJECT:** BEAZER EAST, INC. -- Pretreatment of Creosote Contaminated Groundwater and Stormwater -- Tributary to the City of Carbondale Northwest STP

SPECIAL CONDITION 2: The operation of the pretreatment facilities must be under the direct and active field supervision of a certified industrial treatment plant operator in accordance with the State of Illinois Rules and Regulations, Title 35, Subtitle C, Chapter 1, Part 312

SPECIAL CONDITION 3: The issuance of this permit does not relieve the permittee of the responsibility of complying with 35 Ill. Adm. Code, Part 307 and/or the General Pretreatment Regulations (40 CFR 403) and any guidelines developed pursuant to Section 301, 306, or 307 of the Federal Clean Water Act of 1977.

SPECIAL CONDITION 4: The issuance of this permit does not relieve the permittee of the responsibility of complying with any limitations and provisions imposed by the City of Carbondale.

SPECIAL CONDITION 5: MONITORING REQUIREMENTS

1. The influent to the pretreatment facility and the discharge from the pretreatment facility shall be sampled and analyzed as follows:

a. The following parameters shall be sampled once per month:

Flow, gpd (measure daily)

pH

Oil & Grease

COD

TOC

Oil & Grease, COD and TOC shall be reported in mg/l, pH shall be reported in standard units.

b. The following priority pollutant PNA's shall be sampled once per quarter (four times per year):

Acenaphthene

Acenaphthylene

Anthracene

Benzo(a)anthracene

Chrysene

Fluoranthene

Fluorene

Naphthalene

Phenanthrene

Pyrene

Results shall be reported in ug/l.

c. The following acid compounds shall be sampled once per quarter (four times per year):

2-chlorophenol

2,4-dimethylphenol

2,4-dinitrophenol

p-chloro-m-cresol

pentachlorophenol

phenol

2,4,6-trichlorophenol

Results shall be reported in ug/l.

**READ ALL CONDITIONS CAREFULLY:  
STANDARD CONDITIONS**

The Illinois Environmental Protection Act (Illinois Revised Statutes Chapter 111-12, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.
2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.
3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.
4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:
  - a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;
  - b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;
  - c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;
  - d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;
  - e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.
5. The issuance of this permit:
  - a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;
  - b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;
  - c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;
  - d. does not take into consideration or attest to the structural stability of any units or parts of the project;
  - e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.
6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the agency before the facility or equipment covered by this permit is placed into operation.
7. These standard conditions shall prevail unless modified by special conditions.
8. The Agency may file a complaint with the Board for suspension or revocation of a permit:
  - a. upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed; or
  - b. upon finding that any standard or special conditions have been violated; or
  - c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 5249-03

PERMIT NO.: 2003-EE-5249

FINAL PLANS, SPECIFICATIONS, APPLICATION  
AND SUPPORTING DOCUMENTS  
PREPARED BY:

DATE ISSUED: **DEC 12 2003**

**SUBJECT:** BEAZER EAST, INC. -- Pretreatment of Creosote Contaminated Groundwater and Stormwater -- Tributary to the City of Carbondale Northwest STP

d. The following volatile compounds shall be sampled once per quarter (four times per year).

Benzene  
Ethylbenzene  
Toluene  
Xylenes, Total (includes ortho-, meta-, and para- xylene)

Results shall be reported in ug/l.

2. During the first four weeks of operation the Permittee shall be required to monitor the influent and effluent of parameters listed in part 1a once per week. In addition the effluent shall be tested for all parameters listed in parts 1b, 1c, and 1d during the first and third weeks of operation. If system is shut down for more than two weeks the monitoring frequency shall be the same as the first four weeks of operation.
3. Test methods as described in 40 CFR 136 shall be used when analyzing wastewater.
4. Monitoring results shall be submitted every six months during the months of June and December to the following addresses:

Illinois Environmental Protection Agency  
Division of Water Pollution Control  
Compliance Assurance Section  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

Illinois Environmental Protection Agency  
DWPC-Marion Region  
2309 West Main Street  
Marion, Illinois 62959

5. Monitoring results shall be summarized and submitted with the renewal application for this permit.

**READ ALL CONDITIONS CAREFULLY:  
STANDARD CONDITIONS**

The Illinois Environmental Protection Act (Illinois Revised Statutes Chapter 111-12, Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.
  2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.
  3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.
  4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:
    - a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;
    - b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;
    - c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;
    - d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;
    - e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity,
  5. The issuance of this permit:
    - a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;
    - b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;
    - c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;
    - d. does not take into consideration or attest to the structural stability of any units or parts of the project;
    - e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.
  6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the agency before the facility or equipment covered by this permit is placed into operation.
  7. These standard conditions shall prevail unless modified by special conditions.
  8. The Agency may file a complaint with the Board for suspension or revocation of a permit:
    - a. upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed; or
    - b. upon finding that any standard or special conditions have been violated; or
    - c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.
- discharge, or emission authorized by this permit.



IHPA MOA

**MEMORANDUM OF AGREEMENT**

**AMONG THE U.S. ARMY CORPS OF ENGINEERS-ST LOUIS DISTRICT, ~~THE U.S.~~**

**~~ENVIRONMENTAL PROTECTION AGENCY AND~~**

**THE ILLINOIS STATE HISTORIC PRESERVATION OFFICER ("SIGNATORIES"),**

**BEAZER EAST, INC. ("CONCURRING PARTY")**

**REGARDING**

**FORMER KOPPERS WOOD-TREATING SITE**

**CORPS NUMBER 200108160; IHPA NUMBER 007112103**

**AT CARBONDALE, JACKSON COUNTY, ILLINOIS**

**17 June 2004**

WHEREAS, in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, the U.S. Army Corps of Engineers-St. Louis District (District) is granting a permit in accordance with Section 404 of the Clean Water Act of 1972 (33 U.S.C. 1344), File No. 200108160 (permit) relating to certain stream relocation work associated with Resource Conservation and Recovery Act (RCRA) Corrective Action at the former Koppers Wood-Treating Site (project) in Carbondale, Jackson County, Illinois, proposed by Beazer East, Inc. (applicant); and

WHEREAS, the Illinois Historic Preservation Agency (IHPA) has determined that the proposed project's area of potential effects, as defined in 36 CFR 800.16(d), includes the entire remediation area as defined in Appendix A; and

**WHEREAS, the DISTRICT has determined that the remediation project will be undertaken in accordance with the Phased Plan in Appendix B; and**

**WHEREAS, with the exception of the area of proposed channel relocation, potential borrow areas, spoil deposition areas, access road construction and the Impacted Material Areas (as defined in Section I.B. below), cultural resource surveys have not been completed by qualified, professional archaeologists of the entire area of potential effects to locate, identify and inventory the cultural resources that are present and, therefore, the IHPA has not been able to determine whether the remediation project will have an adverse effect on any historic property which is considered eligible for inclusion in the National Register of Historic Places and that may be located within the former Koppers Wood-Treating Site; and**

**WHEREAS, the DISTRICT has consulted with the Illinois State Historic Preservation Officer (SHPO) in accordance with Section 106 of the National Historic Preservation Act, 16 U.S.C. Section 470 (NHPA), and its implementing regulations (36 CFR Part 800) to resolve any adverse effects of the historic properties that may be present in the area of potential effects; and**

**WHEREAS, the United States Environmental Protection Agency (USEPA) will participate in the remediation project through approval of the applicant's Corrective Measures final design in accordance with RCRA, and**

**WHEREAS, the APPLICANT has participated in this consultation and has agreed to be a concurring party to the Agreement; and**

**WHEREAS, no standing structures exist within the area of potential effects that may be eligible for the National Register of Historic Places; and**

**WHEREAS, to the best of our knowledge and belief, no human remains, associated or unassociated funerary objects or sacred objects, or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (25 USC 3001-13 [PL 101-601]) are expected to be encountered in archaeological investigations within the area of potential effects.**

**NOW, THEREFORE, the DISTRICT and the SHPO agree that the DISTRICT shall ensure that the following stipulations are implemented in order to take into account any adverse effects of the remediation of the former Koppers Wood-Treating site to any historic properties that are located within the area of potential effect that may be considered eligible for inclusion in the National Register of Historic Places.**

### **Stipulations**

**DISTRICT will ensure that the following measures are carried out.**

#### **I. IDENTIFICATION AND EVALUATION OF ARCHAEOLOGICAL RESOURCES**

**A. The Applicant and SHPO shall consult on a timely basis throughout the cultural resource investigation process outlined in these stipulations to ensure that all**

archaeological investigations are performed to adequately take into account Applicant's project construction phasing.

B. Except for the Impacted Material Areas (as defined below), prior to the commencement of any ground disturbance or construction activities within the boundaries of the former Koppers Wood-treatment site proper, the Applicant shall consult with IHPA as to the need for a Phase I archaeological survey and if required the Phase I survey shall be conducted in consultation with the SHPO in coordination with the project construction schedule as provided in Appendix B hereto, and a report of the survey (scope of which is described in Appendix C) shall be submitted to the SHPO for review and comment. Upon acceptance of the Phase I report SHPO shall issue written notification of clearance for construction activities on those parts of the surveyed area where no archaeological sites were discovered. In light of the project schedule identified above, the SHPO shall provide its review and input within ten (10) days of receiving applicant's materials. For purposes of this Agreement, the Impacted Material Areas shall include the Corrective Action Management Unit (CAMU area), the waste piles, and Coal Tar areas as depicted on Appendix A, and for those Impacted Material Areas, work can commence immediately without further archeological investigations being required.

C. Archaeological site 11-J-1193, a site potentially eligible for inclusion in the National Register of Historic Places as identified in the Archaeological Survey Short Report (American Resources Group, Ltd., April 2004 (the "April 2004 Survey")), will be avoided. The site area plus a 50 foot buffer, except on the creek side where a 10 foot buffer will be established, will be avoided. Work can

commence immediately without further archeological investigations in all other areas surveyed by ARG in the April 2004 Survey.

D. If other potentially eligible historic properties can not be avoided, an archaeological Phase II investigation will be performed at all archaeological properties determined to be potentially eligible by the Signatories to evaluate their National Register eligibility. Phase II investigation methodologies shall be formulated in consultation with the Illinois SHPO. A report of the Phase II findings shall be submitted to the SHPO for twenty (20) day review and comment.

E. The Phase I and Phase II surveys will be conducted in a manner consistent with the approaches of the Secretary of the Interior's Standards and Guidelines for Identification (48FR 44720-23) and taking into account the National Park Service publication The Archaeological Survey: Methods and Uses (1978), the Illinois State Historic Preservation Office Guidelines for Archaeological Reconnaissance Surveys/Reports and Appendix C. The Phase I and Phase II surveys will be implemented by the Applicant and monitored by the SHPO.

F. SHPO shall evaluate properties identified through the Phase II investigation against the National Register criteria (36 CFR part 60.4). DISTRICT, and the Applicant shall be notified of the results of this review within the timeframe identified in Section I.D. above.

G. For those properties which the Signatories agree are not eligible for inclusion in the National Register, no further archaeological investigations will be required, and the proposed project may proceed in those areas. Those properties identified

in the survey, and agreed upon by the Signatories to be eligible for the National Register shall be treated in accordance with Stipulation II below.

H. If burials are discovered during the investigations covered by this Agreement, required notifications (20 ILCS 3440, 17 IAC 4170) of the discovery will be made to the county coroner, then following authorization under the Human Skeletal Remains Protection Act (20 ILCS 3440, 17 IAC 4170) and its Rules, it and any associated burial artifacts will be removed following procedures for recordation and reporting that are similar to those established under the Act. No excavation of human remains will be performed except under the direction of a Certified Skeletal Analyst (17 IAC 4170.300(f)). Disposition of human remains and burial artifacts will be accomplished as determined under the provisions of the Act and its Rules.

## **II. ARCHAEOLOGICAL MITIGATION (Phase III)**

A. Those sites which the Signatories and the applicant agree are considered eligible for listing on the National Register of Historic Places shall be treated in the following manner:

1. The Applicant shall consult with SHPO regarding development of a plan for avoidance of the historic property by means of a preservation covenant (Appendix D).
2. If, after consultation with SHPO, SHPO and the Applicant agree that avoidance is not feasible, Applicant shall do a Phase III investigation in accordance with a

Data Recovery Plan that is approved by SHPO within twenty (20) days of Applicant's submission of the Plan.

3. Applicant shall ensure that a data recovery plan addressing substantive research questions is developed in consultation with the Illinois SHPO for the recovery of relevant archaeological data. The plan shall be consistent with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48FR 44734-37) and take into account the Council's publication, Treatment of Archaeological Properties. It shall specify, at a minimum, the following:

- the property or portion thereof where data recovery is to be carried out

- the research questions to be addressed through the data recovery, with an explanation of their relevance and importance;

- the methods to be used, with an explanation of their relevance to the research questions;

- proposed methods of disseminating results of the work in the interest of the public; and

- a proposed schedule for the submission of reports to the SHPO.

4. The data recovery plan shall be submitted by the Applicant to the SHPO for thirty (30) days review and comment. After receipt of the SHPO's comments, the Applicant shall ensure that the data recovery plan is implemented. The SHPO shall monitor this implementation.

**B. APPLICANT shall ensure that the data recovery plan is carried out by or under the direct supervision of an archaeologist who meets, at a minimum, the Secretary of the Interior's Professional Qualifications Standards (48FR 44738k-9).**

**C. APPLICANT shall ensure that adequate laboratory time and space are available for analysis of osteological, cultural, and biological materials recovered from the excavations.**

**D. APPLICANT shall submit a written Annual Progress Report to SHPO and the District by September 1<sup>st</sup> every year until the Signatories agree that the terms of this MOA are fulfilled.**

**E. APPLICANT shall ensure that an adequate program of site security from vandalism during data recovery is developed in consultation with the Illinois SHPO, and implemented.**

### **III. CURATION AND DISSEMINATION OF INFORMATION**

**A. In consultation with the SHPO, Applicant shall ensure that all materials and records resulting from archaeological survey and data recovery conducted for the project pursuant to Stipulation II are curated at a repository within the State of Illinois and in accordance with 36 CFR Part 79. If human remains are recovered, the signatories to this Agreement shall proceed according to stipulation 1.H. to determine the appropriate disposition of the remains.**

B. Applicant shall ensure that all final archaeological reports resulting from actions pursuant to this agreement will be provided in a format acceptable to the SHPO and the National Park Service for possible peer review and submission to the National Technical Information Service (NTIS). The agency official shall ensure that all such reports are responsive to contemporary standards, and to the Department of the Interior's Format Standards for Final Reports of Data Recovery Programs (42FR 5377-79). Precise locational data may be provided only in a separate appendix if it appears that its release could jeopardize archaeological data.

#### IV. DISPUTE RESOLUTION

Disputes regarding the completion of the terms of this Memorandum of Agreement shall be resolved by the signatories. If the signatories cannot agree regarding a dispute, any one of the signatories may request the participation of the Advisory Council on Historic Preservation to assist in resolving the dispute.

#### V. Modification or Termination

Modification, amendment, or termination of this agreement as necessary shall be accomplished by the signatories in writing in the same manner as the original agreement.

Execution of this Memorandum of Agreement by DISTRICT and the SHPO, and implementation of its terms, shall constitute evidence that DISTRICT has taken into account the effects of the undertaking on historic properties as required by Section 106 of the National Historic Preservation Act of 1966, as amended. By executing this Agreement, Applicant does not admit the determinations made by IHPA hereunder or that the proposed activities under the permit or the corrective measures under RCRA will have adverse effects on historic or cultural resources, or are otherwise subject to the requirements of the IHPA.

IN WITNESS WHEREOF, each of the parties identified below have executed this Memorandum of Agreement by their duly authorized officers or officials on the date first written above.

=====

U.S. Army Corps of Engineers-St. Louis District (*signatory*)

By: Joseph D. Tyron Date: 6-27-04  
Joseph D. Tyron  
Major, U.S. Army  
Acting District Engineer

~~U.S. Environmental Protection Agency (*signatory*)~~

~~By: \_\_\_\_\_ Date: \_\_\_\_\_~~

Illinois State Historic Preservation Officer (*signatory*)

By: Anne E. H. [Signature] Date: 8/19/04

Beazer East, Inc. (*concurring party*)

By: \_\_\_\_\_ Date: \_\_\_\_\_

IN WITNESS WHEREOF, each of the parties identified below have executed this Memorandum of Agreement by their duly authorized officers or officials on the date first written above.

=====

U.S. Army Corps of Engineers-St. Louis District (*signatory*)

By: \_\_\_\_\_ Date: \_\_\_\_\_

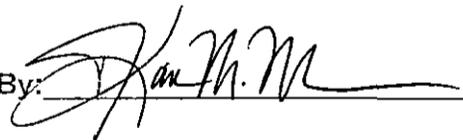
U.S. Environmental Protection Agency (*signatory*)

By: \_\_\_\_\_ Date: \_\_\_\_\_

Illinois State Historic Preservation Officer (*signatory*)

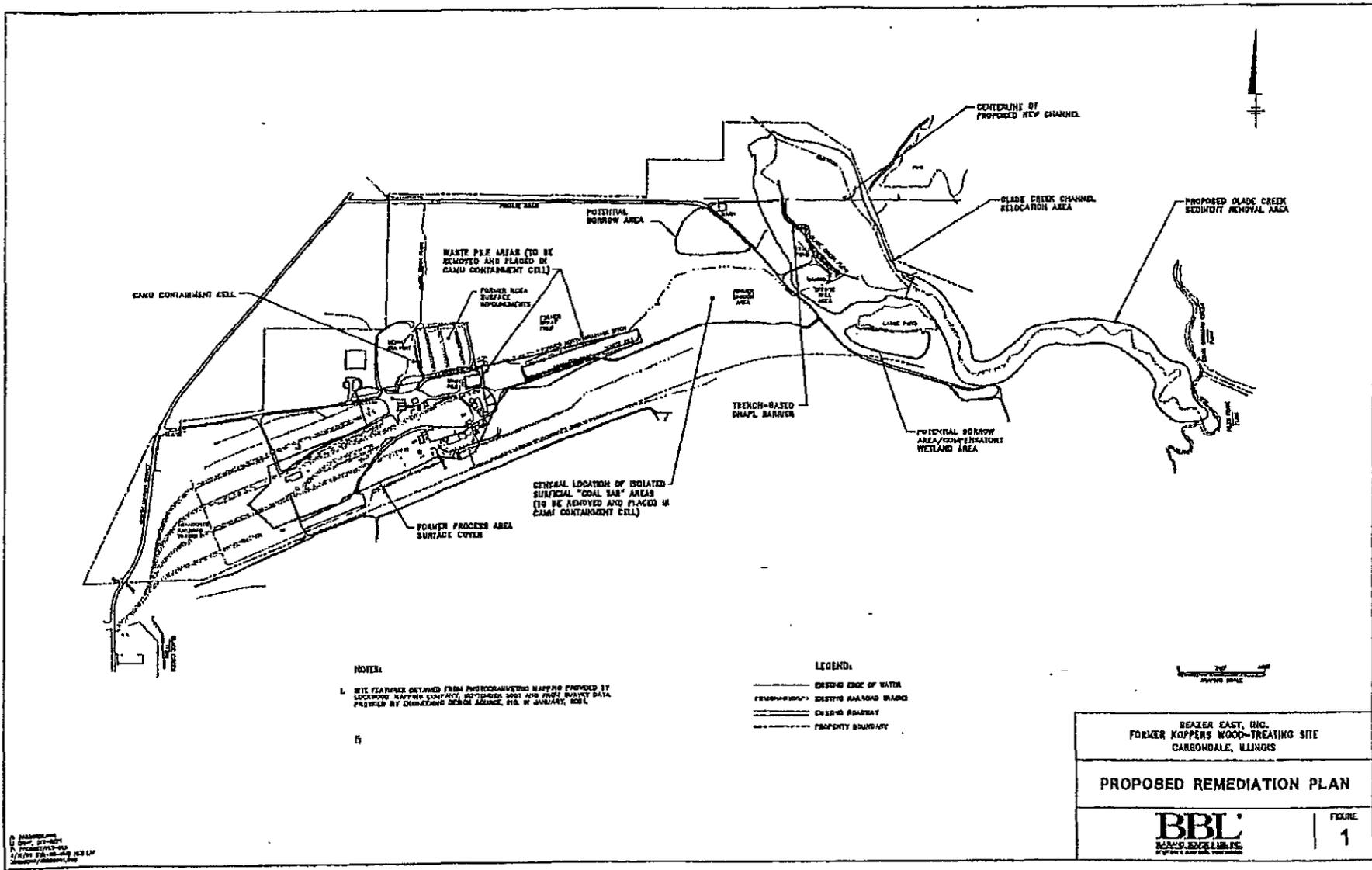
By: \_\_\_\_\_ Date: \_\_\_\_\_

Beazer East, Inc. (*concurring party*)

By:  \_\_\_\_\_ Date: 6-17-2004

# Appendix A to the Memorandum of Agreement

*Army Corps Permit No. 200108160; IHPA No. 007112103*



DAM CONTAINMENT CELL

WASTE PILE AREAS (TO BE REMOVED AND PLACED IN DAM CONTAINMENT CELL)

FORMER SOCA IMPROVEMENTS

GENERAL LOCATION OF ISOLATED SURFICIAL "COAL TAR" AREAS (TO BE REMOVED AND PLACED IN DAM CONTAINMENT CELL)

FORMER PROCESS AREA SURFACE COVERS

TRENCH-BASED DIAPHRAGM BARRIER

CENTERLINE OF PROPOSED NEW CHANNEL

GLADE CREEK CHANNEL RELOCATION AREA

PROPOSED GLADE CREEK SEDIMENT REMOVAL AREA

LAKE POND

POTENTIAL BORROW AREA/COMPENSATION WETLAND AREA

**NOTES:**

- 1. SITE FEATURES OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD GREENE COMPANY, CHICAGO, ILL. AND AERIAL SURVEY DATA PROVIDED BY CARBONALE DESIGN ASSOCIATES, INC. IN JANUARY, 2001.

IS

**LEGEND:**

- EXISTING EDGE OF WATER
- EXISTING ROAD/RAILROAD TRACKS
- EXISTING ROADS
- PROPERTY BOUNDARY



BEAZER EAST, INC. FORMER KOPPERS WOOD-TREATING SITE CARBONALE, ILLINOIS	
<b>PROPOSED REMEDIATION PLAN</b>	
	FIGURE <b>1</b>

BBL  
 BAKER BROTHERS & COMPANY  
 1000 N. WASHINGTON ST. #100  
 CHICAGO, ILLINOIS 60610  
 TEL: 312.467.1000  
 FAX: 312.467.1001  
 WWW.BBL.COM

# Appendix B to the Memorandum of Agreement

*Army Corps Permit No. 200108160; IHPA No. 007112103*

**APPENDIX B**  
**Phased Remedial Construction Schedule for the Koppers Wood-Treating Site**  
**Carbondale, Jackson County, Illinois**

Construction Start Date	Remedial Component	Description	Phase I Survey Report Submittal Date
June 16, 2004	Glade Creek channel relocation & Trench-based DNAPL barrier	Relocate a 1,500-foot section of Glade Creek east of its current location to circumvent a zone of DNAPL present adjacent to a portion of the existing channel; Construct a 35-foot deep trench along the path of the existing Glade Creek channel to minimize the potential for DNAPL migration to the east of the trench.	April 30, 2004
June 16, 2004	CAMU containment cell	Construct a containment cell to provide an area for long-term consolidation and management of soil, sediment, and debris removed from various areas of the site.	N/A
August 2, 2004	Waste pile removal	Remove soil from two waste piles and consolidate in the containment cell.	N/A
August 11, 2004	Former process area surface cover	Construct a low-permeability surface cover over a portion of the former process area.	July 16, 2004
September 7, 2004	Coal tar area removal	Remove surficial coal tar deposits and consolidate in the containment cell.	N/A
July 2005	Glade Creek sediment removal	Remove visibly impacted sediments and consolidate in the containment cell.	June 2005

Note: The locations of the remedial components identified above are shown on the figure in Appendix A.

Appendix C to the Memorandum of  
Agreement

*Army Corps Permit No. 200108160; IHPA No. 007112103*

Additional Phase I Cultural Resources Investigation of the  
Former Process Area at the Koppers Wood-Treating Site, Carbondale, Jackson County, Illinois

As agreed to during consultation with the Illinois Historic Preservation Agency (IHPA) on June 9, 2004, the additional Phase I investigation and assessment American Resources Group (ARG) is proposing for the former Koppers Wood-Treating Site shown on Attachment 1 will consist primarily of archival research on the history of the wood-treatment facility. This research will be supplemented with limited fieldwork involving photographic documentation and visual inspection of the current condition of the abandoned site. In view of the severity of previous disturbance and the extent of environmental impacts known to have occurred at the facility, it is anticipated that limited fieldwork will be necessary to support the evaluation. Requirements for hand and mechanical excavation at the site will be precluded in light of the risks entailed in possible exposure to hazardous materials.

The archival research to be conducted during the proposed investigation will include each of the following: (1) preparation of a chain of title for the project area based on deed records on file at the Jackson County courthouse; (2) a review of historic maps and photographs of the former facility; (3) interviews with local informants, specifically individuals who have worked at the facility; (4) a review of local and company-specific published histories; and, (5) a review of available literature on rural industrial sites of this property type. A synthesis of the information derived from the foregoing will be used to prepare a concise historic context for the site, presented in narrative form and accompanied by any maps and photographs that contribute to this context.

A Phase I report describing the results of the field investigation and the archival research described above will be prepared for submittal to the IHPA. The significance and National Register of Historic Places (NRHP) eligibility of the wood-treatment site will be evaluated within the historic context established for the site through historic research, and the integrity of the site will be assessed in light of the conditions observed during the on-site inspection. The report will conclude with a site management recommendation, which – based on agreements reached during consultation with IHPA – is expected to consist of a recommendation that the proposed undertaking be allowed to proceed without further archaeological investigation of the site.

# Appendix D to the Memorandum of Agreement

*Army Corps Permit No. 200109160; IHPA No. 007112103*

PRESERVATION COVENANT

*approved*

In consideration of the conveyance of certain real property, hereinafter referred to as the \_\_\_\_\_ (name of property), located in \_\_\_\_\_ County, Illinois, which is more fully described as:

(INSERT LEGAL DESCRIPTION OF PROPERTY)

The \_\_\_\_\_ (owner/recipient) hereby covenants on behalf of itself, its successors, and assigns at all times to the Illinois Historic Preservation Agency to maintain and preserve archaeological site(s)

(INSERT STATE SITE NUMBER(S)) as follows:

(INSERT LEGAL DESCRIPTION OF SITE(S))

1. The \_\_\_\_\_ (owner/recipient) shall preserve and maintain archaeological site(s) \_\_\_\_\_ (INSERT STATE SITE NUMBER(S)) in their present condition in order to preserve and enhance those qualities that make these archaeological sites (potentially eligible) eligible for inclusion in the National Register of Historic Places.

2. No construction, alteration or disturbance of the ground surface or any other thing shall be undertaken or permitted to be undertaken on archaeological sites \_\_\_\_\_ (INSERT STATE SITE NUMBER(S)) which would affect the integrity or the archaeological value of these sites without the express prior written permission of the Illinois Historic Preservation Agency signed by a fully authorized representative thereof.

3. The Illinois Historic Preservation Agency shall be permitted at all reasonable times to inspect this/these archaeological site(s) in order to ascertain if the above conditions are being observed.

4. In the event of a violation of this covenant, and in addition to any remedy now or hereafter provided by law, the Illinois Historic Preservation Agency may, following reasonable notice to the \_\_\_\_\_ (owner/recipient), institute suit to enjoin said violation or to require the restoration of the archaeological site(s). The successful party shall be entitled to recover all costs or expenses incurred in connection with such a suit, including all court costs and attorney's fees.

5. The \_\_\_\_\_ (owner/recipient) agrees that the Illinois Historic Preservation Agency may at its discretion, without prior notice to the \_\_\_\_\_ (owner/recipient), convey and assign all or part of its rights and responsibilities contained herein to a third party.

6. This covenant is binding on the \_\_\_\_\_ (owner/recipient), its heirs, successors, and assigns in perpetuity. All restrictions, stipulations, and covenants contained herein shall be inserted by the \_\_\_\_\_ (owner/recipient) verbatim or by express reference in any deed or other legal instrument by which it divests itself of either the fee simple title or any other lesser estate in the \_\_\_\_\_ (name of property) or any part thereof.

7. The failure of the Illinois Historic Preservation Agency to exercise any right or remedy granted under this instrument shall not have the effect of waiving or limiting the exercise of any other right or remedy or the use of such right or remedy at any other time.

The covenant shall be a binding servitude upon the \_\_\_\_\_ (name of property) and shall be deemed to run with the land. Execution of this covenant shall constitute conclusive evidence that the \_\_\_\_\_ (owner/recipient) agrees to be bound by the foregoing conditions and restrictions and to perform the obligations herein set forth.



NPDES Permit



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276, 217-782-3397  
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601, 312-814-6026

217/782-0610

ROD R. BLAGOJEVICH, GOVERNOR

RENEE CIPRIANO, DIRECTOR

June 4, 2004

Beazer East, Inc.  
One Oxford Centre, Suite 3000  
Pittsburgh, PA 15219

Re: Beazer East, Inc.  
Beazer East, Inc. - Carbondale Facility  
NPDES Permit No. IL0000400  
Final Permit

Gentlemen:

Attached is the final NPDES Permit for your discharge. The Permit as issued covers discharge limitations, monitoring, and reporting requirements. The failure of you to meet any portion of the Permit could result in civil and/or criminal penalties. The Illinois Environmental Protection Agency is ready and willing to assist you in interpreting any of the conditions of the Permit as they relate specifically to your discharge.

The Permit as issued is effective as of the date indicated on the first page of the Permit. You have the right to appeal any condition of the Permit to the Illinois Pollution Control Board within a 35 day period following the issuance date.

To assist you in meeting the self-monitoring and reporting requirements of your reissued NPDES permit, a supply of preprinted Discharge Monitoring Report (DMR) forms for your facility is being prepared. These forms will be sent to you prior to the initiation of DMR reporting under the reissued permit. Additional information and instructions will accompany the preprinted DMRs upon their arrival.

Should you have questions concerning the Permit, please contact Jamie Cowles at the telephone number indicated above.

Sincerely,

Alan Keller, P.E.  
Manager, Permit Section  
Division of Water Pollution Control

SAK:BAK:JMC:02080802.bah

Attachment: Final Permit

cc: Records  
Compliance Assurance Section  
Marion Region  
GERPDC



NPDES Permit No. IL0000400

Illinois Environmental Protection Agency

Division of Water Pollution Control

1021 North Grand Avenue East

Post Office Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Reissued (NPDES) Permit

Expiration Date: June 30, 2009

Issue Date: June 4, 2004

Effective Date: July 1, 2004

Name and Address of Permittee:

Beazer East, Inc.  
One Oxford Centre, Suite 3000  
Pittsburgh, PA 15219

Facility Name and Address:

Beazer East, Inc. - Carbondale Facility  
Route One  
Carbondale, Illinois 62901  
(Jackson County)

Discharge Number and Name:

001 Stormwater Associated with Industrial Activity  
002 Stormwater Associated with Industrial Activity  
003 Stormwater Associated with Industrial Activity  
005 Stormwater Associated with Industrial Activity

Receiving Waters:

001 Northeast Drainage Ditch to Glade Creek  
002 Northwest Drainage Ditch to Glade Creek  
003 North Drainage Ditch to Glade Creek  
005 Glade Creek

In compliance with the provisions of the Illinois Environmental Protection Act, Title 35 of Ill. Adm. Code, Subtitle C and/or Subtitle D, Chapter 1, and the Clean Water Act (CWA), the above-named permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the standard conditions and attachments herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.



Alan Keller, P.E.  
Manager, Permit Section  
Division of Water Pollution Control

SAK:JMC:02080802.bah

NPDES Permit No. IL0000400

Effluent Limitations and Monitoring Prior to Construction and Remediation Activities

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:						
Outfall(s): 001*, 002*, and 003*						
Flow						Measure When Monitoring
Total Suspended Solids					1/Quarter**	**
Chemical Oxygen Demand (COD)					1/Quarter**	**
BOD <sub>5</sub>					1/Quarter**	**
Oil and Grease					1/Quarter**	**
Phenols					1/Quarter**	**
Arsenic					1/Quarter**	**
Zinc					1/Quarter**	**

\*See General Special Condition.

\*\*See Special Condition 6 on page 3.

NPDES Permit No. IL000400

Special Conditions Prior to Construction and Remediation Activities

SPECIAL CONDITION 1. All parameters shall be reported as 30 day average and daily maximum on the DMR form. Flow shall be reported as million gallons per day (MGD), all other parameters shall be reported as milligrams per liter (mg/L).

SPECIAL CONDITION 2. For the purpose of this permit, this discharge is limited to storm water, free from process and other wastewater discharges.

SPECIAL CONDITION 3. Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge, but prior to entry into the receiving stream.

SPECIAL CONDITION 4. If an applicable effluent standard or limitation is promulgated under Section 301(b)(2)(c) and (d), 304(b)(2), and 307(a)(2) of the Clean Water Act and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit, the Agency shall revise or modify the permit in accordance with the more stringent standard or prohibition and shall so notify the permittee.

SPECIAL CONDITION 5. The Permittee shall record monitoring results on Discharge Monitoring Report forms using one such form for each discharge each quarter. If there is no discharge during a reporting period, a Discharge Monitoring Report shall be submitted stating that no discharge occurred during that particular quarter. The completed Discharge Monitoring Report form shall be submitted to IEPA, by the 15th of the following month in which sample was taken, unless otherwise specified by the IEPA, to the following address:

Illinois Environmental Protection Agency  
Bureau of Water  
Compliance Assurance Section, Mail Code #19  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

Quarters are as follows January-March; April-June; July-September; October-December

SPECIAL CONDITION 6. Sampling Requirements

Prior to remediation activities all pollutants shall be grab sampled during first 30 minutes (or as soon thereafter as practical) of the discharge.

All samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches and at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event.

NPDES Permit No. IL000400

Effluent Limitations and Monitoring During Construction and Remediation Activities

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall(s): 001\*, 002\*, 003\*, and 005\*.

Flow	Measure When Monitoring
Total Suspended Solids	1/Month**
Chemical Oxygen Demand (COD)	1/Month**
BOD <sub>5</sub>	1/Month**
Oil and Grease	1/Month**
Phenols	1/Month**
Arsenic	1/Month**
Zinc	1/Month**

\*See General Special Conditions.

\*\*See Special Condition 8 on page 5.

NPDES Permit No. IL000400

Special Conditions During Construction and Remediation Activities

SPECIAL CONDITION 1. All parameters shall be reported as 30 day average and daily maximum on the DMR form. Flow shall be reported as million gallons per day (MGD), all other parameters shall be reported as milligrams per liter (mg/L).

SPECIAL CONDITION 2. For the purpose of this permit, this discharge is limited to storm water, free from process and other wastewater discharges.

SPECIAL CONDITION 3. Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge, but prior to entry into the receiving stream.

SPECIAL CONDITION 4. If an applicable effluent standard or limitation is promulgated under Section 301(b)(2)(c) and (d), 304(b)(2), and 307(a)(2) of the Clean Water Act and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit, the Agency shall revise or modify the permit in accordance with the more stringent standard or prohibition and shall so notify the permittee.

SPECIAL CONDITION 5. The Permittee shall record monitoring results on Discharge Monitoring Report forms using one such form for each discharge each month. If there is no discharge during a reporting period, a Discharge Monitoring Report shall be submitted stating that no discharge occurred during that particular month. The completed Discharge Monitoring Report form shall be submitted monthly to IEPA, by the 15th of the following month in which sample was taken, unless otherwise specified by the IEPA, to the following address:

Illinois Environmental Protection Agency  
Bureau of Water  
Compliance Assurance Section, Mail Code #19  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

SPECIAL CONDITION 6. Prior to remediation activities the permittee shall notify the Illinois EPA by letter the expected start date of the remediation activities. All letters shall be sent to address in Special Condition 5. In addition the Permittee shall notify the Illinois EPA Compliance Assurance Section upon start of construction of Outfall 005, and once Outfall 005 is fully constructed and an active discharge.

SPECIAL CONDITION 7. If the permittee performs any new operations not mentioned in permit modification that will disturb soil on-site, the permittee shall be required to contact the Agency no less than one week prior to operations. At the time of notification the Agency shall determine if additional monitoring is required, or if the permit may be required to be reopened and modified to accommodate for new operations.

SPECIAL CONDITION 8. Sampling Requirements

During remediation (ground disturbance), samples shall be taken during the first 30 minutes (or as soon thereafter as practicable) of the discharge and analyzed for the parameters listed on page 4 of this permit. In addition, a flow-weighted composite shall be taken for the entire event or for the first three hours of the event. The composite sample shall be analyzed for all parameters listed on page 4 except for phenols, and oil & grease.

All samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches and at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event.

Grab and composite samples are defined as follows:

**Grab sample:** An individual sample of at least 100 milliliters collected during the first thirty minutes (or as soon thereafter as practicable) of the discharge. This sample is to be analyzed separately from the composite sample.

**Flow Weighted Composite sample:** A flow-weighted composite sample may be taken with a continuous sampler that proportions the amount of sample collected with the flow rate or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire event or for the first three hours of the event, with each aliquot being at least 100 milliliters and collected with a minimum period of fifteen minutes between aliquot collections. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the wastestream flow at the time of sampling or the total wastestream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

SPECIAL CONDITION 9. Upon completion of Outfall 005 the permittee may submit letter to request modification of the permit to remove Outfall 001. If approved by the Illinois EPA, modification of the permit shall follow public notice and opportunity for public hearing.

NPDES Permit No. IL000400

Effluent Limitations and Monitoring After Construction and Remediation Activities

PARAMETER	LOAD LIMITS lbs/day DAF (DMF)		CONCENTRATION LIMITS mg/l		SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM		
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:						
Outfall(s): 001*, 002*, 003*, and 005*.						
Flow						Measure When Monitoring
Total Suspended Solids					1/Quarter**	**
Chemical Oxygen Demand (COD)					1/Quarter**	**
BOD <sub>5</sub>					1/Quarter**	**
Oil and Grease					1/Quarter**	**
Phenols					1/Quarter**	**
Arsenic					1/Quarter**	**
Zinc					1/Quarter**	**

\*See General Special Conditions.  
 \*\*See Special Condition 7 on page 7.

NPDES Permit No. IL000400

Special Conditions After Construction and Remediation Activities

SPECIAL CONDITION 1. All parameters shall be reported as 30 day average and daily maximum on the DMR form. Flow shall be reported as million gallons per day (MGD), all other parameters shall be reported as milligrams per liter (mg/L).

SPECIAL CONDITION 2. For the purpose of this permit, this discharge is limited to storm water, free from process and other wastewater discharges.

SPECIAL CONDITION 3. Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge, but prior to entry into the receiving stream.

SPECIAL CONDITION 4. If an applicable effluent standard or limitation is promulgated under Section 301(b)(2)(c) and (d), 304(b)(2), and 307(a)(2) of the Clean Water Act and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit, the Agency shall revise or modify the permit in accordance with the more stringent standard or prohibition and shall so notify the permittee.

SPECIAL CONDITION 5. The Permittee shall record monitoring results on Discharge Monitoring Report forms using one such form for each discharge each quarter. If there is no discharge during a reporting period, a Discharge Monitoring Report shall be submitted stating that no discharge occurred during that particular quarter. The completed Discharge Monitoring Report form shall be submitted to IEPA, by the 15th of the following month in which sample was taken, unless otherwise specified by the IEPA, to the following address:

Illinois Environmental Protection Agency  
Bureau of Water  
Compliance Assurance Section, Mail Code #19  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276

SPECIAL CONDITION 6.

If the permittee performs any new operations not mentioned in permit modification that will disturb soil on-site, the permittee shall be required to contact the Agency no less than one week prior to operations. At the time of notification the Agency shall determine if additional monitoring is required. In addition the permit may be required to be reopened and modified to accommodate for new operations.

SPECIAL CONDITION 7. Sampling Requirements

After construction and remediation activities have been completed the Permittee shall continue to Monitor according to Special Condition 7 under Special Conditions During Construction and Remediation Activities for six months. At this time the Permittee shall also notify the Illinois EPA that construction and remediation activities have been completed by letter to address in Special Condition 5.

After the six months of sampling have been completed and with consent from the Agency the monitoring requirements shall be as follows:

The Permittee shall only be required to monitor for flow, BOD<sub>5</sub>, and Chemical Oxygen Demand. All pollutants shall be grab sampled during first 30 minutes (or as soon thereafter as practical) of the discharge.

All samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches and at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event.

Sampling shall be once per quarter. The completed Discharge Monitoring Report form shall be submitted to IEPA, by the 15th of the following month in which sample was taken, unless otherwise specified by the IEPA, to the address in Special Condition 5.

Quarters are as follows January-March; April-June; July-September; October-December

NPDES Permit No. IL000400

General Special Conditions

SPECIAL CONDITION 1.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

- A. A storm water pollution prevention plan shall be developed by the permittee for the storm water associated with industrial activity at this facility. The plan shall identify potential sources of pollution which may be expected to affect the quality of storm water discharges associated with the industrial activity at the facility. In addition, the plan shall describe and ensure the implementation of practices which are to be used to reduce the pollutants in storm water discharges associated with industrial activity at the facility and to assure compliance with the terms and conditions of this permit.
- B. The plan shall be completed within 180 days of the effective date of this permit. Plans shall provide for compliance with the terms of the plan within 365 days of the effective date of this permit. The owner or operator of the facility shall make a copy of the plan available to the Agency at any reasonable time upon request. [Note: If the plan has already been developed and implemented it shall be maintained in accordance with all requirements of this special condition.]
- C. The permittee may be notified by the Agency at any time that the plan does not meet the requirements of this condition. After such notification, the permittee shall make changes to the plan and shall submit a written certification that the requested changes have been made. Unless otherwise provided, the permittee shall have 30 days after such notification to make the changes.
- D. The discharger shall amend the plan whenever there is a change in construction, operation, or maintenance which may affect the discharge of significant quantities of pollutants to the waters of the State or if a facility inspection required by paragraph G of this condition indicates that an amendment is needed. The plan should also be amended if the discharger is in violation of any conditions of this permit, or has not achieved the general objective of controlling pollutants in storm water discharges. Amendments to the plan shall be made within the shortest reasonable period of time, and shall be provided to the Agency for review upon request.
- E. The plan shall provide a description of potential sources which may be expected to add significant quantities of pollutants to storm water discharges, or which may result in non-storm water discharges from storm water outfalls at the facility. The plan shall include, at a minimum, the following items:
  - 1. A topographic map extending one-quarter mile beyond the property boundaries of the facility, showing: the facility, surface water bodies, wells (including injection wells), seepage pits, infiltration ponds, and the discharge points where the facility's storm water discharges to a municipal storm drain system or other water body. The requirements of this paragraph may be included on the site map if appropriate.
  - 2. A site map showing:
    - I. The storm water conveyance and discharge structures;
    - ii. An outline of the storm water drainage areas for each storm water discharge point;
    - iii. Paved areas and buildings;
    - iv. Areas used for outdoor manufacturing, storage, or disposal of significant materials, including activities that generate significant quantities of dust or particulates.
    - v. Location of existing storm water structural control measures (dikes, coverings, detention facilities, etc.);
    - vi. Surface water locations and/or municipal storm drain locations
    - vii. Areas of existing and potential soil erosion;
    - viii. Vehicle service areas;
    - ix. Material loading, unloading, and access areas.
  - 3. A narrative description of the following:
    - I. The nature of the industrial activities conducted at the site, including a description of significant materials that are treated, stored or disposed of in a manner to allow exposure to storm water;
    - ii. Materials, equipment, and vehicle management practices employed to minimize contact of significant materials with storm water discharges;

- iii. Existing structural and non-structural control measures to reduce pollutants in storm water discharges;
  - iv. Industrial storm water discharge treatment facilities;
  - v. Methods of onsite storage and disposal of significant materials;
4. A list of the types of pollutants that have a reasonable potential to be present in storm water discharges in significant quantities.
  5. An estimate of the size of the facility in acres or square feet, and the percent of the facility that has impervious areas such as pavement or buildings.
  6. A summary of existing sampling data describing pollutants in storm water discharges.
- F. The plan shall describe the storm water management controls which will be implemented by the facility. The appropriate controls shall reflect identified existing and potential sources of pollutants at the facility. The description of the storm water management controls shall include:
1. Storm Water Pollution Prevention Personnel - Identification by job titles of the individuals who are responsible for developing, implementing, and revising the plan.
  2. Preventive Maintenance - Procedures for inspection and maintenance of storm water conveyance system devices such as oil/water separators, catch basins, etc., and inspection and testing of plant equipment and systems that could fail and result in discharges of pollutants to storm water.
  3. Good Housekeeping - Good housekeeping requires the maintenance of clean, orderly facility areas that discharge storm water. Material handling areas shall be inspected and cleaned to reduce the potential for pollutants to enter the storm water conveyance system.
  4. Spill Prevention and Response - Identification of areas where significant materials can spill into or otherwise enter the storm water conveyance systems and their accompanying drainage points. Specific material handling procedures, storage requirements, spill clean up equipment and procedures should be identified, as appropriate. Internal notification procedures for spills of significant materials should be established.
  5. Storm Water Management Practices - Storm water management practices are practices other than those which control the source of pollutants. They include measures such as installing oil and grit separators, diverting storm water into retention basins, etc. Based on assessment of the potential of various sources to contribute pollutants, measures to remove pollutants from storm water discharge shall be implemented. In developing the plan, the following management practices shall be considered:
    - i. Containment - Storage within berms or other secondary containment devices to prevent leaks and spills from entering storm water runoff;
    - ii. Oil & Grease Separation - Oil/water separators, booms, skimmers or other methods to minimize oil contaminated storm water discharges;
    - iii. Debris & Sediment Control - Screens, booms, sediment ponds or other methods to reduce debris and sediment in storm water discharges;
    - iv. Waste Chemical Disposal - Waste chemicals such as antifreeze, degreasers and used oils shall be recycled or disposed of in an approved manner and in a way which prevents them from entering storm water discharges.
    - v. Storm Water Diversion - Storm water diversion away from materials manufacturing, storage and other areas of potential storm water contamination;
    - vi. Covered Storage or Manufacturing Areas - Covered fueling operations, materials manufacturing and storage areas to prevent contact with storm water.
  6. Sediment and Erosion Prevention - The plan shall identify areas which due to topography, activities, or other factors, have a high potential for significant soil erosion and describe measures to limit erosion.
  7. Employee Training - Employee training programs shall inform personnel at all levels of responsibility of the components and goals of the storm water pollution control plan. Training should address topics such as spill response, good housekeeping and

material management practices. The plan shall identify periodic dates for such training.

8. Inspection Procedures - Qualified plant personnel shall be identified to inspect designated equipment and plant areas. A tracking or follow-up procedure shall be used to ensure appropriate response has been taken in response to an inspection. Inspections and maintenance activities shall be documented and recorded.
- G. The permittee shall conduct an annual facility inspection to verify that all elements of the plan, including the site map, potential pollutant sources, and structural and non-structural controls to reduce pollutants in industrial storm water discharges are accurate. Observations that require a response and the appropriate response to the observation shall be retained as part of the plan. Records documenting significant observations made during the site inspection shall be submitted to the Agency in accordance with the reporting requirements of this permit.
- H. This plan should briefly describe the appropriate elements of other program requirements, including Spill Prevention Control and Countermeasures (SPCC) plans required under Section 311 of the CWA and the regulations promulgated thereunder, and Best Management Programs under 40 CFR 125.100.
- I. The plan is considered a report that shall be available to the public under Section 308(b) of the CWA. The permittee may claim portions of the plan as confidential business information, including any portion describing facility security measures.
- J. The plan shall include the signature and title of the person responsible for preparation of the plan and include the date of initial preparation and each amendment thereto.

#### Construction Authorization

- K. Authorization is hereby granted to construct treatment works and related equipment that may be required by the Storm Water Pollution Prevention developed pursuant to this permit.

This Authorization is issued subject to the following condition(s).

1. If any statement or representation is found to be incorrect, this authorization may be revoked and the permittee there upon waives all rights thereunder.
2. The issuance of this authorization (a) does not release the permittee from any liability for damage to persons or property caused by or resulting from the installation, maintenance or operation of the proposed facilities; (b) does not take into consideration the structural stability of any units or part of this project; and (c) does not release the permittee from compliance with other applicable statutes of the State of Illinois, or other applicable local law, regulations or ordinances.
3. Plans and specifications of all treatment equipment being included as part of the stormwater management practice shall be included in the SWPPP.
4. Construction activities which result from treatment equipment installation, including clearing, grading and excavation activities which result in the disturbance of one acre or more of land area, are not covered by this authorization. The permittee shall contact the IEPA regarding the required permit(s).

#### REPORTING

- L. The facility shall submit an annual inspection report to the Illinois Environmental Protection Agency. The report shall include results of the annual facility inspection which is required by Part G of the Storm Water Pollution Prevention Plan of this permit. The report shall also include documentation of any event (spill, treatment unit malfunction, etc.) which would require an inspection, results of the inspection, and any subsequent corrective maintenance activity. The report shall be completed and signed by the authorized facility employee(s) who conducted the inspection(s).
- M. The first report shall contain information gathered during the one year time period beginning with the effective date of coverage under this permit and shall be submitted no later than 60 days after this one year period has expired. Each subsequent report shall contain the previous year's information and shall be submitted no later than one year after the previous year's report was due.
- N. Annual inspection reports shall be mailed to the following address:  
Illinois Environmental Protection Agency  
BOW-Compliance Assurance Section, Mail Code #19  
Annual Inspection Report  
1021 North Grand Avenue East  
Post Office Box 19276  
Springfield, Illinois 62794-9276
- O. If the facility performs inspections more frequently than required by this permit, the results shall be included as additional information in the annual report.

## Attachment H

## Standard Conditions

## Definitions

**Act** means the Illinois Environmental Protection Act, 415 ILCS 5 as Amended.

**Agency** means the Illinois Environmental Protection Agency.

**Board** means the Illinois Pollution Control Board.

**Clean Water Act** (formerly referred to as the Federal Water Pollution Control Act) means Pub. L. 92-500, as amended. 33 U.S.C. 1251 et seq.

**NPDES** (National Pollutant Discharge Elimination System) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318 and 405 of the Clean Water Act.

**USEPA** means the United States Environmental Protection Agency.

**Daily Discharge** means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

**Maximum Daily Discharge Limitation** (daily maximum) means the highest allowable daily discharge.

**Average Monthly Discharge Limitation** (30 day average) means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

**Average Weekly Discharge Limitation** (7 day average) means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

**Best Management Practices (BMPs)** means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**Aliquot** means a sample of specified volume used to make up a total composite sample.

**Grab Sample** means an individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

**24 Hour Composite Sample** means a combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24-hour period.

**8 Hour Composite Sample** means a combination of at least 3 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over an 8-hour period.

**Flow Proportional Composite Sample** means a combination of sample aliquots of at least 100 milliliters collected at periodic intervals such that either the time interval between each aliquot or the volume of each aliquot is proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot.

(1) **Duty to comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

(2) **Duty to reapply.** If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. If the permittee submits a proper application as required by the Agency no later than 180 days prior to the expiration date, this permit shall continue in full force and effect until the final Agency decision on the application has been made.

(3) **Need to halt or reduce activity not a defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(4) **Duty to mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

(5) **Proper operation and maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up, or auxiliary facilities, or similar systems only when necessary to achieve compliance with the conditions of the permit.

(6) **Permit actions.** This permit may be modified, revoked and reissued, or terminated for cause by the Agency pursuant to 40 CFR 122.62. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

(7) **Property rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.

(8) **Duty to provide information.** The permittee shall furnish to the Agency within a reasonable time, any information which the Agency may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also furnish to the Agency, upon request, copies of records required to be kept by this permit.

(9) **Inspection and entry.** The permittee shall allow an authorized representative of the Agency, upon the presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor at reasonable times, for the purpose of assuring permit compliance, or as otherwise authorized by the Act, any substances or parameters at any location.

(10) **Monitoring and records.**

(a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(b) The permittee shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of this permit, measurement, report or application. This period may be extended by request of the Agency at any time.

(c) Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;

(2) The individual(s) who performed the sampling or measurements;

(3) The date(s) analyses were performed;

(4) The individual(s) who performed the analyses;

(5) The analytical techniques or methods used; and

(6) The results of such analyses.

(d) Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. Where no test procedure under 40 CFR Part 136 has been approved, the permittee must submit to the Agency a test method for approval. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals to ensure accuracy of measurements.

(11) **Signatory requirement.** All applications, reports or information submitted to the Agency shall be signed and certified.

(a) **Application.** All permit applications shall be signed as follows:

(1) **For a corporation:** by a principal executive officer of at least the level of vice president or a person or position having overall responsibility for environmental matters for the corporation;

(2) **For a partnership or sole proprietorship:** by a general partner or the proprietor, respectively; or

(3) **For a municipality, State, Federal, or other public agency:** by either a principal executive officer or ranking elected official.

(b) **Reports.** All reports required by permits, or other information requested by the Agency shall be signed by a person described in paragraph (a) or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a); and

(2) The authorization specifies either an individual or a position responsible for the overall operation of the facility, from which the discharge originates, such as a plant manager, superintendent or person of equivalent responsibility; and

(3) The written authorization is submitted to the Agency.

- (c) **Changes of Authorization.** If an authorization under (b) is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of (b) must be submitted to the Agency prior to or together with any reports, information, or applications to be signed by an authorized representative.
- (12) **Reporting requirements.**
- (a) **Planned changes.** The permittee shall give notice to the Agency as soon as possible of any planned physical alterations or additions to the permitted facility.
- (b) **Anticipated noncompliance.** The permittee shall give advance notice to the Agency of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- (c) **Compliance schedules.** Reports of compliance or noncompliance with, or any progress reports on, Interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
- (d) **Monitoring reports.** Monitoring results shall be reported at the intervals specified elsewhere in this permit.
- (1) Monitoring results must be reported on a Discharge Monitoring Report (DMR).
- (2) If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
- (3) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Agency in the permit.
- (e) **Twenty-four hour reporting.** The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and time; and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The following shall be included as information which must be reported within 24 hours:
- (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;
- (2) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Agency in the permit to be reported within 24 hours.
- The Agency may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.
- (f) **Other noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs (12)(c), (d), or (e), at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (12)(e).
- (g) **Other information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to the Agency, it shall promptly submit such facts or information.
- (13) **Transfer of permits.** A permit may be automatically transferred to a new permittee if:
- (a) The current permittee notifies the Agency at least 30 days in advance of the proposed transfer date;
- (b) The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage and liability between the current and new permittees; and
- (c) The Agency does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement.
- (14) All manufacturing, commercial, mining, and silvicultural dischargers must notify the Agency as soon as they know or have reason to believe:
- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant identified under Section 307 of the Clean Water Act which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:
- (1) One hundred micrograms per liter (100 ug/l);
- (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony.
- (3) Five (5) times the maximum concentration value reported for that pollutant in the NPDES permit application; or
- (4) The level established by the Agency in this permit.
- (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the NPDES permit application.
- (15) All Publicly Owned Treatment Works (POTWs) must provide adequate notice to the Agency of the following:
- (a) Any new introduction of pollutants into that POTW from an indirect discharge which would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants; and
- (b) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
- (c) For purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
- (16) If the permit is issued to a publicly owned or publicly regulated treatment works, the permittee shall require any industrial user of such treatment works to comply with federal requirements concerning:
- (a) User charges pursuant to Section 204(b) of the Clean Water Act, and applicable regulations appearing in 40 CFR 35;
- (b) Toxic pollutant effluent standards and pretreatment standards pursuant to Section 307 of the Clean Water Act; and
- (c) Inspection, monitoring and entry pursuant to Section 308 of the Clean Water Act.
- (17) If an applicable standard or limitation is promulgated under Section 301(b)(2)(C) and (D), 304(b)(2), or 307(a)(2) and that effluent standard or limitation is more stringent than any effluent limitation in the permit, or controls a pollutant not limited in the permit, the permit shall be promptly modified or revoked, and reissued to conform to that effluent standard or limitation.
- (18) Any authorization to construct issued to the permittee pursuant to 35 Ill. Adm. Code 309.154 is hereby incorporated by reference as a condition of this permit.
- (19) The permittee shall not make any false statement, representation or certification in any application, record, report, plan or other document submitted to the Agency or the USEPA, or required to be maintained under this permit.
- (20) The Clean Water Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307, or 308 of the Clean Water Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both.
- (21) The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- (22) The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit shall, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
- (23) Collected screening, slurries, sludges, and other solids shall be disposed of in such a manner as to prevent entry of those wastes (or runoff from the wastes) into waters of the State. The proper authorization for such disposal shall be obtained from the Agency and is incorporated as part hereof by reference.
- (24) In case of conflict between these standard conditions and any other condition(s) included in this permit, the other condition(s) shall govern.
- (25) The permittee shall comply with, in addition to the requirements of the permit, all applicable provisions of 35 Ill. Adm. Code, Subtitle C, Subtitle D, Subtitle E, and all applicable orders of the Board.
- (26) The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit is held invalid, the remaining provisions of this permit shall continue in full force and effect.



USACE NWP-38



DEPARTMENT OF THE ARMY

ST. LOUIS DISTRICT, CORPS OF ENGINEERS  
1222 SPRUCE STREET  
ST. LOUIS, MISSOURI 63103-2833

RECEIVED NOV 21 2003

November 13, 2003

REPLY TO  
ATTENTION OF

Regulatory Branch  
File Number: 200108160

Beazer East, Incorporated  
One Oxford Centre, Suite 3000  
Pittsburgh, Pennsylvania 15219

Dear Beazer East, Incorporated:

We have reviewed your application, Wetland Delineation Final Report, Statement of Basis and Supplemental Information concerning a proposal to perform environmental remediation activities at the former Koppers Wood-Treating site near Glade Creek on the north side of Carbondale, Jackson County, Illinois. Glade Creek is a secondary tributary to the Big Muddy River.

Based upon a review of the U.S. Geological Survey 7.5-minute topographical map, soil survey, National Wetland Inventory maps as well as the submitted Wetland Delineation Final Report, we concur that portions of the site to be reclaimed are jurisdictional wetland. Therefore, the placement of fill material requires a permit from this office.

The Corps of Engineers has determined that this activity will have no affect on endangered species, and is authorized under Section 404 of the Clean Water Act by an existing Department of the Army nationwide permit as described in the January 15, 2002, Federal Register, Issuance of Nationwide Permits; Notice (67 FR 2085), Appendix A (B)(38). This **permit verification** is valid for two years from the date of this letter. Enclosed is a copy of the nationwide permit and conditions and management practices with which you must comply.

In accordance with General Condition number 14 of the Nationwide Permit, a compliance certification (Attachment A of this package) must be completed within 30 days of project completion or the permit issuance may be revoked and considered null and void.

The Illinois Environmental Protection Agency (IEPA) has issued Section 401 water quality certification for these permits subject to the following conditions:

a. The applicant shall not cause: (1) violation of applicable water quality standards of the Illinois Pollution Control Board, Title 35, Subtitle C: Water Pollution Rules and Regulations; (2) water pollution as defined and prohibited by the Illinois Environmental Protection Act; or (3) interference with water use practices near public recreation areas or water supply intakes.

b. The applicant shall notify the Illinois EPA, Bureau of Water, with the specifics of this project. The notification shall include information concerning the orders and approvals that have been or will be obtained from the Illinois EPA Bureau of Land (BOL), for all cleanup activities under BOL jurisdiction or for which authorization or approval is sought from BOL for no further remedial action.

c. This permit is not valid for activities that do not require or will not receive authorization or approval from the BOL.

This determination is applicable only to the permit program administered by the Corps of Engineers. It does not eliminate the need to obtain other Federal, state or local approvals before beginning work.

You are reminded that the **permit** is based on submitted plans. Variations from these plans shall constitute a violation of Federal law and may result in the revocation of the permit. If this nationwide permit is modified, reissued, or revoked during this period, the provisions described at 33 CFR 330.6(b) will apply.

The **jurisdictional determination** for this project is considered a **preliminary jurisdictional determination** in accordance with final regulations published on March 28, 2000 (65 FR 16485-16503). Enclosed is a *Notification of Administrative Appeal Options and Process and Request for Appeal* for your consideration and use. This determination cannot be appealed. The **jurisdictional determination** is valid for a period of five years from the date of this letter unless new information warrants revision of this determination before the expiration date.

If you have any questions please contact me at  
(314) 331-8582. Please refer to file number 200108160.

Sincerely,



Keith A. McMullen  
Assistant Chief  
Regulatory Branch

Enclosures

Copy Furnished: (w/o enclosures)

Martindale, IDNR  
Ginder, IEPA

Mr. Jeffrey Holden, P.E.  
Blasland, Bouck & Lee, Inc.  
334 Ella Grasso Turnpike, Suite 265  
Windsor Locks, Connecticut 06096

# **ATTACHMENT A**

## **COMPLETED WORK CERTIFICATION**

Date of Issuance: November 13, 2003

File Number: 200108160

Name of Permittee: Beazer East, Inc.

River Basin/County/State: Big Muddy River/Jackson Co./IL

Upon completion of this activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

**U.S. Army Corps of Engineers  
Attn: Regulatory Branch (CO-F)  
1222 Spruce Street  
St. Louis, Missouri 63103-2833**

(Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification or revocation.)

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

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**Signature of Permittee**

---

**Date**

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND  
REQUEST FOR APPEAL**

Applicant: Beazer East, Inc.	File Number: 200108160	Date: 11-13-03
Attached is:		See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D
<input checked="" type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

**SECTION I** - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://usacc.army.mil/mef/functions/cw/ceewo/reg> or Corps regulations at 33 CFR Part 331.

**A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.**

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

**B: PROFFERED PERMIT: You may accept or appeal the permit**

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.**

**D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.**

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.**

**SECTION II REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT**

**REASONS FOR APPEAL OR OBJECTIONS:** (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

**ADDITIONAL INFORMATION:** The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

**POINT OF CONTACT FOR QUESTIONS OR INFORMATION**

If you have questions regarding this decision and/or the appeal process you may contact:

Keith A. McMullen  
Asst. Chief, Regulatory Branch  
(314) 331-8582

If you only have questions regarding the appeal process you may also contact:

Martha S. Chieply, Administrative Appeals Review Officer  
Mississippi Valley Division  
P.O. Box 80  
Vicksburg, MS 39181-0080  
Phone: (601) 634-5820 Fax: (601) 634-5816

**RIGHT OF ENTRY:** Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:
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U.S. Army Corps  
Of Engineers  
St. Louis District

# Nationwide Permit Summary

## No. 38, CLEANUP OF HAZARDOUS AND TOXIC WASTE (NWP Final Notice, 67 FR 2085)

Specific activities required to effect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority provided the permittee notifies the District Engineer in accordance with the "Notification" general condition. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands. Court ordered remedial action plans or related settlements are also authorized by this NWP. This NWP does not authorize the establishment of new disposal sites or the expansion of existing sites used for the disposal of hazardous or toxic waste. Activities undertaken entirely on a CERCLA site by authority of CERCLA as approved or required by EPA, are not required to obtain permits under section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. (Sections 10 and 404)

### NATIONWIDE PERMIT CONDITIONS

**General Conditions:** The following general conditions must be followed in order for any authorization by a NWP to be valid:

- 1. Navigation.** No activity may cause more than a minimal adverse effect on navigation.
- 2. Proper Maintenance.** Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.
- 3. Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.
- 4. Aquatic Life Movements.** No activity may substantially disrupt the life-cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. *Culverts placed in streams must be installed to maintain low flow conditions.*
- 5. Equipment.** Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil

disturbance.

**6. Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions, which may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state or tribe in its Section 401 Water Quality Certification and Coastal Zone Management Act consistency determination.

**7. Wild and Scenic Rivers.** No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible mix inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, US Forest Service, Bureau of Land Management, US Fish and Wildlife Service).

**8. Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

**9. Water Quality.** (a) In certain States and tribal lands an individual 401 water quality certification must be obtained or waived (See 33 CFR 330.4(c)).

(b) For NWPs 12, 14, 17, 18, 32, 39, 40, 42, 43, and 44, where the State or tribal 401 certification (either generically or individually) does not require or approve a water quality management measures, the permittee must provide water quality management measures that will ensure that the authorized work does not result in more than minimal degradation of water quality (or the Corps determines that compliance with state or local standards, where applicable, will ensure no more than minimal adverse effect on water quality). An important component of a water quality management plan includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality (Refer to General Condition 21 for stormwater management requirements). Another important component of a water quality management plan is the establishment and maintenance of vegetated buffers next to open waters, including streams (Refer to General Condition 19 for vegetated buffer requirements for the NWPs). This condition is only applicable to projects that have the potential to affect water quality. While appropriate measures must be taken, in most cases it is not necessary to conduct detailed studies to identify such measures or to require monitoring.

**10. Coastal Zone Management.** In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see 33 CFR 330.4(d)).

**11. Endangered Species.** (a) No activity is authorized under any NWP, which is likely to jeopardize the continued existence of a threatened or endangered species, or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which will destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or is located in the designated critical habitat and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. For activities that may affect Federally-listed endangered or threatened species or designated critical habitat, the notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. As a result of formal or informal consultation with the FWS or NMFS, the District Engineer may add species-specific regional endangered species conditions to the NWPs.

(b) Authorization of an activity by a nationwide permit does not authorize the 'take' of a threatened or endangered species as defined under the Federal Endangered Species Act. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with 'incidental take' provisions, etc.) from the US Fish and Wildlife Service or the National Marine Fisheries Service, both lethal and non-lethal 'takes' of protected species are in violation of the Endangered Species Act. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the US Fish and Wildlife Service and National Marine Fisheries Service or their World Wide Web pages at <http://www.fws.gov/r9endspp/endspp.html> and [http://www.nfms.noaa.gov/prot\\_res/overview/es.html](http://www.nfms.noaa.gov/prot_res/overview/es.html), respectively.

**12. Historic Properties.** No activity, which may affect historic properties, listed, or eligible for listing, in the National Register of Historic Places is authorized, until the DE has complied with the provisions of 33 CFR part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)). For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

**13. Notification.** (a) Timing: Where required by the terms of the NWP,

the prospective permittee must notify the District Engineer with a preconstruction notification (PCN) as early as possible. The District Engineer must determine if the PCN is complete within 30 days of the date of receipt and can request the additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the District Engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the District Engineer. The prospective permittee shall not begin the activity:

(1) Until notified in writing by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the District or Division Engineer; or

(2) If notified in writing by the District or Division Engineer that an individual permit is required; or

(3) Unless 45 days have passed from the District Engineer's receipt of the complete notification and the prospective permittee has not received written notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Notification: The notification must be in writing and include the following information:

(1) Name, address, and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) Used or intended to be Used to authorize any part of the proposed project or any related activity. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP (Sketches usually clarify the project and when provided result in a quicker decision); and

(4) For NWPs 7, 12, 14, 18, 21, 34, 38, 39, 40, 41, 42, and 43, the PCN must also include a delineation of affected special aquatic sites, including wetlands, vegetated shallows (e.g., submerged aquatic vegetation, seagrass beds), and riffle and pool complexes (see paragraph 13(f));

(5) For NWP 7, Outfall Structures and Maintenance, the PCN must include information regarding the original design capacities and configurations of those areas of the facility where maintenance dredging or excavation is proposed.

(6) For NWP 14, Linear Transportation Projects, the PCN must include a compensatory mitigation proposal to offset permanent losses of waters of the US and a statement describing how temporary losses of waters of the US will be minimized to the maximum extent practicable.

(7) For NWP 21, Surface Coal Mining Activities, the PCN must include an Office of Surface Mining (OSM) or state-approved mitigation plan. To be authorized by this NWP, the District Engineer must determine that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are minimal both individually and cumulatively and must notify the project sponsor of this determination in writing;

(8) For NWP 27, Stream and Wetland Restoration Activities, the PCN must include documentation of the prior condition of the site that

will be reverted by the permittee.

(9) For NWP 29, Single-Family Housing, the PCN must also include:

- (i) Any past use of this NWP by the individual permittee and/or the permittee's spouse;
- (ii) A statement that the single-family housing activity is for a personal residence of the permittee;
- (iii) A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring 1/4 acre or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exists on the property. For parcels greater than 1/4 acre in size, a formal wetland delineation must be prepared in accordance with the current method required by the Corps. (See paragraph 13(f));
- (iv) A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;

(10) For NWP 31, Maintenance of Existing Flood Control Facilities, the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or submit a five year (or less) maintenance plan. In addition, the PCN must include all of the following:

- (i) Sufficient baseline information so as to identify the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided the approved flood control protection or drainage is not increased;
- (ii) A delineation of any affected special aquatic sites, including wetlands; and,
- (iii) Location of the dredged material disposal site.

(11) For NWP 33, Temporary Construction, Access, and Dewatering, the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources.

(12) For NWP's 39, 43, and 44, the PCN must also include a written statement to the District Engineer explaining how avoidance and minimization of losses of waters of the US were achieved on the project site.

(13) For NWP 39 and NWP 42, the PCN must include a compensatory mitigation proposal that offsets unavoidable losses of waters of the US or justification explaining why compensatory mitigation should not be required. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;

(14) For NWP 40 (Agricultural Activities), the PCN must include a compensatory mitigation proposal to offset losses of waters of the US. This NWP does not authorize the relocation of greater than 300 linear-feet of existing serviceable drainage ditches constructed in non-tidal streams unless, for drainage ditches constructed in intermittent non-tidal streams, the District Engineer waives this criterion in writing, and the District Engineer has determined that the project complies with

all terms and conditions of this NWP, and that any adverse impacts of the project on the aquatic environment are minimal, both individually and cumulatively;

(15) For NWP 43 (Stormwater Management Facilities), the PCN must include, for the construction of new stormwater management facilities, a maintenance plan (in accordance with state and local requirements, if applicable) and a compensatory mitigation proposal to offset losses of waters of the US. For discharges that cause the loss of greater than 300 linear feet of an intermittent streambed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;

(16) For NWP 44, Mining Activities, the PCN must include a description of all waters of the US adversely affected by the project, a description of measures taken to minimize adverse effects to waters of the US, a description of measures taken to comply with the criteria of the NWP, and a reclamation plan (for aggregate mining activities in isolated waters and non-tidal wetlands adjacent to headwaters and any hard rock/mineral mining activities).

(17) For activities that may adversely affect Federally-listed endangered or threatened species, the PCN must include the name(s) of those endangered or threatened species that may be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work.

(18) For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the PCN must state which historic property may be affected by the proposed work or include vicinity map indicating the location of the historic property.

(c) Form of Notification: The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(19) of General Condition 13. A letter containing the requisite information may also be used.

(d) District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may, optionally, submit a proposed mitigation plan with the PCN to expedite the process and the District Engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary. Any compensatory mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the District Engineer will expeditiously review the proposed compensatory mitigation plan. The District Engineer must review the plan within 45 days of receiving a complete PCN and determine whether the conceptual or specific proposed mitigation would ensure no more than minimal adverse effects on the aquatic

environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant stating that the project can proceed under the terms and conditions of the nationwide permit. If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then he will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the District Engineer determines that mitigation is required in order to ensure no more than minimal adverse effects on the aquatic environment, the activity will be authorized within the 45-day PCN period, including the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level. When conceptual mitigation is included, or a mitigation plan is required under item (2) above, no work in waters of the US will occur until the District Engineer has approved a specific mitigation plan.

(e) **Agency Coordination:** The District Engineer will consider any comments from Federal and State agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse effects on the aquatic environment to a minimal level.

For activities requiring notification to the District Engineer that result in the loss of greater than 1/2 acre of waters of the US, the District Engineer will, upon receipt of a notification, provide immediately (e.g., via facsimile transmission, overnight mail, or other expeditious manner), a copy to the appropriate offices of the Fish and Wildlife Service, State natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO), and, if appropriate, the National Marine Fisheries Service. With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 15 calendar days before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. As required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act, the District Engineer will provide a response to National Marine Fisheries Service within 30 days of receipt of any Essential Fish Habitat conservation recommendations. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification.

(f) **Wetlands Delineations:** Wetland delineations must be prepared in accordance with the current method required by the Corps. For NWP 29 see paragraph (b)(9)(iii) for parcels less than 1/4 acre in size. The permittee may ask the Corps to delineate the special aquatic site.

There may be some delay if the Corps does the delineation. Furthermore, the 45-day period will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

**14. Compliance Certification.** Every permittee who has received a nationwide permit verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter. The certification will include: (a) A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions; (b) A statement that any required mitigation was completed in accordance with the permit conditions; and (c) The signature of the permittee certifying the completion of the work and mitigation.

**15. Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the US authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the US for the total project cannot exceed 1/3 acre.

**16. Water Supply Intakes.** No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may occur in the proximity of a public water supply intake except where the activity is for repair of the public water supply intake structures or adjacent bank stabilization.

**17. Shellfish Beds.** No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4.

**18. Suitable Material.** No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may consist of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

**19. Mitigation.** The District Engineer will consider the factors discussed below when determining the acceptability of appropriate and practicable mitigation necessary to offset adverse effects on the aquatic environment that are more than minimal.

(a) The project must be designed and constructed to avoid and minimize adverse effects to waters of the US to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland impacts requiring a PCN, unless the District Engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. Consistent with National policy, the

District Engineer will establish a preference for restoration of wetlands as compensatory mitigation, with preservation used only in exceptional circumstances.

(d) Compensatory mitigation (i.e., replacement or substitution of aquatic resources for those impacted) will not be used to increase the acreage losses allowed by the acreage limits of some of the NWP's. For example, 1/4 -acre of wetlands cannot be created to change a 3/4 -acre loss of wetlands to a 1/2 -acre loss associated with NWP 39 verification. However, 1/2 -acre of created wetlands can be used to reduce the impacts of a 1/2 -acre loss of wetlands to the minimum impact level in order to meet the minimal impact requirement associated with NWP's.

(e) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., easements, deed restrictions) of vegetated buffers to open waters. In many cases, vegetated buffers will be the only compensatory mitigation required. Vegetated buffers should consist of native species. The width of the vegetated buffers required will address documented water quality or aquatic habitat loss concerns. Normally, the vegetated buffer will be 25 to 50 feet wide on each side of the stream, but the District Engineers may require slightly wider vegetated buffers to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the Corps will determine the appropriate compensatory mitigation (e.g., stream buffers or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where vegetated buffers are determined to be the most appropriate form of compensatory mitigation, the District Engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland impacts.

(g) Compensatory mitigation proposals submitted with the "notification" may be either conceptual or detailed. If conceptual plans are approved under the verification, then the Corps will condition the verification to require detailed plans be submitted and approved by the Corps prior to construction of the authorized activity in waters of the US.

(h) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases that require compensatory mitigation, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

**20. Spawning Areas.** Activities, including structures and work in navigable waters of the US or discharges of dredged or fill material, in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.

**21. Management of Water Flows.** To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and provide for not

increasing water flows from the project site, relocating water, or redirecting water flow beyond preconstruction conditions. Stream channelizing will be reduced to the minimal amount necessary, and the activity must, to the maximum extent practicable, reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows. In most cases, it will not be a requirement to conduct detailed studies and monitoring of water flow.

This condition is only applicable to projects that have the potential to affect waterflows. While appropriate measures must be taken, it is not necessary to conduct detailed studies to identify such measures or require monitoring to ensure their effectiveness. Normally, the Corps will defer to state and local authorities regarding management of water flow.

**22. Adverse Effects From Impoundments.** If the activity, including structures and work in navigable waters of the US or discharge of dredged or fill material, creates an impoundment of water, adverse effects on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.

**23. Waterfowl Breeding Areas.** Activities, including structures and work in navigable waters of the US or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

**24. Removal of Temporary Fills.** Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

**25. Designated Critical Resource Waters.** Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, National Wild and Scenic Rivers, critical habitat for Federally listed threatened and endangered species, coral reefs, State natural heritage sites, and outstanding national resource waters or other waters officially designated by a State as having particular environmental or ecological significance and identified by the District Engineer after notice and opportunity for public comment. The District Engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Except as noted below, discharges of dredged or fill material into waters of the US are not authorized by NWP's 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, and 44 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. Discharges of dredged or fill materials into waters of the US may be authorized by the above NWP's in National Wild and Scenic Rivers if the activity complies with General Condition 7. Further, such discharges may be authorized in designated critical habitat for Federally listed threatened or endangered species if the activity complies with General Condition 11 and the US Fish and Wildlife Service or the National Marine Fisheries Service has concurred in a determination of compliance with this condition.

(b) For NWP's 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with General Condition 13, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The District Engineer may authorize activities under these NWP's only after he determines that the impacts to the critical resource waters will be no more than minimal.

26. **Fills Within 100-Year Floodplains.** For purposes of this General Condition, 100-year floodplains will be identified through the existing Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or FEMA-approved local floodplain maps.

(a) *Discharges in Floodplain; Below Headwaters.* Discharges of dredged or fill material into waters of the US within the mapped 100-year floodplain, below headwaters (i.e. five cfs), resulting in permanent above-grade fills, are not authorized by NWP's 39, 40, 42, 43, and 44.

(b) *Discharges in Floodway; Above Headwaters.* Discharges of dredged or fill material into waters of the US within the FEMA or locally mapped floodway, resulting in permanent above-grade fills, are not authorized by NWP's 39, 40, 42, and 44.

(c) The permittee must comply with any applicable FEMA-approved state or local floodplain management requirements.

27. **Construction Period.** For activities the Corps has not verified that and the project were commenced or under contract to commence by the expiration date of the NWP (or modification or revocation date), the work must be completed within 12- months after such date (including any modification that affects the project).

For activities that have been verified and the project was commenced or under contract to commence within the verification period, the work must be completed by the date determined by the Corps.

For projects that have been verified by the Corps, an extension of a Corps approved completion date maybe requested. This request must be submitted at least one month before the previously approved completion date.

#### D. Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWP's do not obviate the need to obtain other Federal, State, or local permits, approvals, or authorizations required by law.
3. NWP's do not grant any property rights or exclusive privileges.
4. NWP's do not authorize any injury to the property or rights of others.
5. NWP's do not authorize interference with any existing or proposed Federal project.

**Section 10 Special Condition:** The permittee understands and agrees that, if future operations by the US require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or is authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structure work or obstructions caused thereby, without expense to the US. No claim shall be made against the US on account of any such removal or alteration.

#### DEFINITIONS

**Best management practices:** Best Management Practices (BMPs) are policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural. A BMP policy may affect the limits on a development.

**Compensatory mitigation:** For purposes of Section 10/404, compensatory mitigation is the restoration, creation, enhancement, or

in exceptional circumstances, preservation of wetlands and/or other aquatic resources for the purpose of compensating for unavoidable adverse impacts, which remain, after all appropriate and practicable avoidance and minimization has been achieved.

**Creation:** The establishment of a wetland or other aquatic resource where one did not formerly exist.

**Enhancement:** Activities conducted in existing wetlands or other aquatic resources, which increase one or more aquatic functions.

**Ephemeral stream:** An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

**Farm tract:** A unit of contiguous land under one ownership which is operated as a farm or part of a farm.

**Flood Fringe:** That portion of the 100-year floodplain outside of the floodway (often referred to as "floodway fringe."

**Floodway:** The area regulated by Federal, state, or local requirements to provide for the discharge of the base flood so the cumulative increase in water surface elevation is no more than a designated amount (not to exceed one foot as set by the National Flood Insurance Program) within the 100-year floodplain.

**Independent utility:** A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi- phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases are not built can be considered as separate single and complete projects with independent utility.

**Intermittent stream:** An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

**Loss of waters of the US:** Waters of the US that include the filled area and other waters that are permanently adversely affected by flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent above-grade, at-grade, or below-grade fills that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the US is the threshold measurement of the impact to existing waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and values. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the US temporarily filled, flooded, excavated, or drained, but restored to preconstruction contours and elevations after construction, are not included in the measurement of loss of waters of the US. Impacts to ephemeral waters are only not included in the acreage or linear foot measurements of loss of waters of the US or loss of stream bed, for the purpose of determining compliance with the threshold limits of the NWP's.

**Non-tidal wetland:** A non-tidal wetland is a wetland (i.e., a water of the US) that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., the spring high tide line).

**Open water:** An area that, during a year with normal

patterns of precipitation, has standing or flowing water for sufficient duration to establish an ordinary high water mark. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. The term 'open water' includes rivers, streams, lakes, and ponds. For the purposes of the NWP's, this term does not include ephemeral waters.

**Perennial stream:** A perennial stream has flowing water year-round during a typical year. The water table is located above the streambed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

**Permanent above-grade fill:** A discharge of dredged or fill material into waters of the US, including wetlands, that results in a substantial increase in ground elevation and permanently converts part or all of the waterbody to dry land. Structural fills authorized by NWP's 3, 25, 36, etc. are not included.

**Preservation:** The protection of ecologically important wetlands or other aquatic resources in perpetuity through the implementation of appropriate legal and physical mechanisms. Preservation may include protection of upland areas adjacent to wetlands as necessary to ensure protection and/or enhancement of the overall aquatic ecosystem.

**Restoration:** Re-establishment of wetland and/or other aquatic resource characteristics and function(s) at a site where they have ceased to exist, or exist in a substantially degraded state

**Riffle and pool complex:** Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. Pools are characterized by a slower stream velocity, a streaming flow, a smooth surface, and a finer substrate.

**Single and complete project:** The term 'single and complete project' is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers (see definition of independent utility). For linear projects, the 'single and complete project' (i.e., a single and complete crossing) will apply to each crossing of a separate water of the US (i.e., a single waterbody) at that location. An exception is for linear projects crossing a single waterbody several times at separate and distant locations: each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies.

**Stormwater management:** Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

**Stormwater management facilities:** Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and BMPs, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous

substances and other pollutants) of stormwater runoff.

**Streambed:** The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the ordinary high water marks, are not considered part of the streambed.

**Stream channelization:** The manipulation of a stream channel to increase the rate of water flow through the stream channel. Manipulation may include deepening, widening, straightening, armoring, or other activities that change the stream cross-section or other aspects of stream channel geometry to increase the rate of water flow through the stream channel. A channelized stream remains a water of the US, despite the modifications to increase the rate of water flow.

**Tidal wetland:** A tidal wetland is a wetland (i.e., a water of the US) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line (i.e., spring high tide line) and are inundated by tidal waters two times per lunar month, during spring high tides.

**Vegetated buffer:** A vegetated upland or wetland area next to rivers, streams, lakes, or other open waters, which separates the open water from developed areas, including agricultural land. Vegetated buffers provide a variety of aquatic habitat functions and values (e.g., aquatic habitat for fish and other aquatic organisms, moderation of water temperature changes, and detritus for aquatic food webs) and help improve or maintain local water quality. A vegetated buffer can be established by maintaining an existing vegetated area or planting native trees, shrubs, and herbaceous plants on land next to open waters. Mowed lawns are not considered vegetated buffers because they provide little or no aquatic habitat functions and values. The establishment and maintenance of vegetated buffers is a method of compensatory mitigation that can be used in conjunction with the restoration, creation, enhancement, or preservation of aquatic habitats to ensure that activities authorized by NWP's result in minimal adverse effects to the aquatic environment. (See General Condition 19.)

**Vegetated shallow:** Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

**Waterbody:** A waterbody is any area that in a normal year has water flowing or standing above ground to the extent that evidence of an ordinary high water mark is established. Wetlands contiguous to the waterbody are considered part of the waterbody.



DEPARTMENT OF THE ARMY  
ST. LOUIS DISTRICT, CORPS OF ENGINEERS  
1222 SPRUCE STREET  
ST. LOUIS, MISSOURI 63103-2833  
September 30, 2005

REPLY TO  
ATTENTION OF:

Regulatory Branch  
File Number: 200108160

Mr. Paul Alessio, P.E.  
Beazer East, Incorporated  
One Oxford Centre, Suite 3000  
Pittsburgh, Pennsylvania 15219

Dear Mr. Alessio:

We have reviewed the information submitted to our office concerning a small modification to a previously authorized permit for a proposal to perform environmental remediation activities at the former Koppers Wood-Treating site near Glade Creek on the north side of Carbondale, Jackson County, Illinois. Glade Creek will be relocated approximately 50 feet to the north to alleviate concerns with existing conditions along the steep bank portion of Glade Creek. Glade Creek is a secondary tributary to the Big Muddy River.

Based upon a review of the U.S. Geological Survey 7.5-minute topographical map, we determined that Glade Creek would possess an ordinary high water mark at this location and would be considered jurisdictional waters of the United States. Therefore, the placement of fill material below the ordinary high water elevation requires a permit from this office.

The Corps of Engineers has determined that this activity will have no affect on endangered species, and is authorized under Section 404 of the Clean Water Act by an existing Department of the Army nationwide permit as described in the January 15, 2002, Federal Register, Issuance of Nationwide Permits; Notice (67 FR 2085), Appendix A (B)(38). This permit verification is valid until the nationwide permit (NWP) is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 18, 2007. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. Enclosed is a copy of the nationwide permit and conditions and management practices with which you must comply.

In accordance with General Condition number 14 of the Nationwide Permit, a compliance certification (Attachment A of this package) must be completed within 30 days of project completion or the permit issuance may be revoked and considered null and void.

The Illinois Environmental Protection Agency (IEPA) has issued Section 401 water quality certification for these permits subject to the following conditions:

a. The applicant shall not cause: (1) violation of applicable water quality standards of the Illinois Pollution Control Board, Title 35, Subtitle C: Water Pollution Rules and Regulations; (2) water pollution as defined and prohibited by the Illinois Environmental Protection Act; or (3) interference with water use practices near public recreation areas or water supply intakes.

b. The applicant shall notify the Illinois EPA, Bureau of Water, with the specifics of this project. The notification shall include information concerning the orders and approvals that have been or will be obtained from the Illinois EPA Bureau of Land (BOL), for all cleanup activities under BOL jurisdiction or for which authorization or approval is sought from BOL for no further remedial action.

c. This permit is not valid for activities that do not require or will not receive authorization or approval from the BOL.

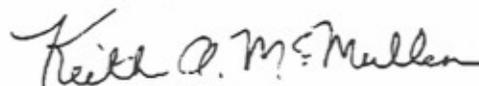
This determination is applicable only to the permit program administered by the Corps of Engineers. It does not eliminate the need to obtain other Federal, state or local approvals before beginning work.

You are reminded that the **permit** is based on submitted plans. Variations from these plans shall constitute a violation of Federal law and may result in the revocation of the permit. If this nationwide permit is modified, reissued, or revoked during this period, the provisions described at 33 CFR 330.6(b) will apply.

The **jurisdictional determination** for this project is considered an **approved jurisdictional determination** in accordance with final regulations published on March 28, 2000 (65 FR 16485-16503). Enclosed is a *Notification of Administrative Appeal Options and Process and Request for Appeal* for your consideration and use. The **jurisdictional determination** is valid for a period of five years from the date of this letter unless new information warrants revision of this determination before the expiration date.

If you have any questions please contact me at (314) 331-8582. Please refer to file number 200108160.

Sincerely,



Keith A. McMullen  
Assistant Chief  
Regulatory Branch

Enclosures

Copy Furnished: (w/o enclosures)

Mauer, IDNR  
Allison, IEPA

Mr. Gary Cygan  
U.S. Environmental Protection Agency, Region V  
77 West Jackson Boulevard  
Mail Code DE-9J  
Chicago, Illinois 60604-3590

Mr. Mark Graveling, P.E.  
Blasland, Bouck & Lee, Inc.  
6723 Towpath Road  
PO Box 66  
Syracuse, New York 13214-0066

# ATTACHMENT A

## COMPLETED WORK CERTIFICATION

Date of Issuance: September 30, 2005

File Number: 200108160

Name of Permittee: Beazer East, Incorporated

River Basin/County/State: Big Muddy/Jackson Co./IL

Upon completion of this activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

**U.S. Army Corps of Engineers  
Attn: Regulatory Branch (OD-F)  
1222 Spruce Street  
St. Louis, Missouri 63103-2833**

(Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification or revocation.)

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date



DEPARTMENT OF THE ARMY  
ST. LOUIS DISTRICT CORPS OF ENGINEERS  
1222 SPRUCE STREET  
ST. LOUIS, MISSOURI 63103-2833

REPLY TO  
ATTENTION OF:

September 10, 2010

Regulatory Branch  
File Number: MVS-2001-8160

Ms. Jane Patarcity  
Beazer East, Incorporated  
One Oxford Centre, Suite 3000  
Pittsburgh, Pennsylvania 15219

Dear Ms. Patarcity:

We have reviewed your application dated August 18, 2010 relative to the removal of contaminated soils from portions of wetlands on the former Koppers Wood-Treating site in Carbondale, Jackson County, Illinois. More specifically the project is located in Sections 9, 10, 15 and 16, Township 9 South, Range 1 West of the 3<sup>rd</sup> Principal Meridian. The wetlands on site are connected to a tributary to Glade Creek, a secondary tributary to the Big Muddy River.

Based upon a review of the U.S. Geological Survey 7.5-minute topographical map as well as wetland information supplied to us by the consultants on the job, Arcadis, we determined that the wetlands associated with the tributary to Glade Creek would be considered jurisdictional wetlands, therefore waters of the United States. Therefore, the placement of fill material into these wetlands requires a permit from this office.

The Corps of Engineers has determined that this activity will have no affect on endangered species, and is authorized under Section 404 of the Clean Water Act by an existing Department of the Army nationwide permit for cleanup of hazardous and toxic waste, as described in the March 12, 2007, Federal Register, Reissuance of Nationwide Permits; Notice (72 FR 11188), Appendix A (B)(38).

**This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 18, 2012. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued.**

**Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. Enclosed is a copy of the nationwide permit and conditions and management practices with which you must comply.**

In accordance with General Condition number 26 of the Nationwide Permit, a compliance certification (Attachment A of this package) must be completed within 30 days of project completion or the permit issuance will be revoked and considered null and void.

The Illinois Environmental Protection Agency (IEPA) has issued Section 401 water quality certification for this permit subject to the following conditions:

a. The applicant shall not cause: (1) violation of applicable provisions of the Illinois Environmental Protection Act; (2) water pollution defined and prohibited by the Illinois Environmental Protection Act; (3) violation of applicable water quality standards of the Illinois Pollution Control Board, Title 35, Subtitle C: Water Pollution Rules and Regulation; or (4) interference with water use practices near public recreation areas or water supply intakes.

b. In addition to any actions required of the NWP applicant with respect to the "Notification" General Condition 27, the applicant shall notify the Illinois EPA, Bureau of Water, of the specific activity. This notification shall include information concerning the orders and approvals that have been or will be obtained from the Illinois EPA Bureau of Land (BOL), for all cleanup activities under BOL jurisdiction or for which authorization or approval is sought from BOS for no further remedial action.

c. This certification for Nationwide Permit 38 is not valid for activities that do not require or will not receive authorization or approval from BOL.

Furthermore, to ensure projects authorized by this Nationwide Permit will result in minimal adverse effects to the aquatic environment, the following Regional Conditions were developed for projects proposed within the state of Illinois:

1. Bank stabilization projects involving armoring of the streambank with riprap or the construction of retaining walls within High Value Subwatersheds exceeding 250 feet will require a PCN to the Corps of Engineers in accordance with General Condition No. 27.
2. A proposed activity to be authorized under Nationwide Permits 12 or 14 within the Cache River Wetlands Areas (Alexander and Pulaski Counties), Kaskaskia River (Clinton, St. Clair, and Washington Counties), or Wabash River (Gallatin and White Counties) will require a PCN to the Corps of Engineers in accordance with General Condition No. 27.
3. Stormwater management facilities shall not be located within an intermittent stream, except for NWP's 21, 49, or 50.
4. For newly constructed channels through areas that are unvegetated, native grass filter strips, or a riparian buffer with native trees or shrubs a minimum of 25 feet wide from the top of bank must be planted along both sides of the new channel.

In addition, the District Engineer has further conditioned this permit to include the following:

1. The applicant shall purchase wetland credits from an approved wetland mitigation bank serving the Big Muddy River watershed. Approximately 0.87 acres of wetlands were proposed to be filled as a result of this project. Therefore, the applicant shall purchase wetland credits at a replacement ratio of 1.5:1 or a total of 1.305 acres.
2. The applicant shall contact the Corps of Engineers immediately should any change in wetland impacts occur that would result in a larger amount of required mitigation.
3. The applicant continue to coordinate with the Corps of Engineers and other resource agencies relative to future plans for additional work at this site.

This determination is applicable only to the permit program administered by the Corps of Engineers. It does not eliminate the need to obtain other federal, state or local approvals before beginning work.

You are reminded that the **permit** is based on submitted plans. Variations from these plans shall constitute a violation of Federal law and may result in the revocation of the permit. If this nationwide permit is modified, reissued, or revoked during this period, the provisions described at 33 CFR 330.6 (b) will apply.

The **jurisdictional determination** for this project is considered a **preliminary jurisdictional determination** in accordance with Corps regulations at 33 CFR Part 331. A preliminary determination is not appealable. If you wish, you may request an approved jurisdictional determination (which may be appealed) by contacting our office for further instruction.

The St. Louis District Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete the enclosed postage paid card or go to our Customer Service Survey found on our web site at <http://per2.nwp.usace.army.mil/survey.html>.

If you have any questions please contact me at (314) 331-8582. Please refer to file number MVS-2001-8160.

Sincerely,



Keith A. McMullen  
Illinois Section Chief  
Regulatory Branch

Enclosures

Copies Furnished: (w/out enclosures)

Mauer, IDNR  
Heacock, IEPA  
Bury, USEPA

# ATTACHMENT A

## COMPLETED WORK CERTIFICATION

Date of Issuance: September 10, 2010

File Number: MVS-2001-8160

Name of Permittee: Beazer East, Inc.

River Basin/County/State: Big Muddy/Jackson Co./IL

Project Manager: McMullen

Upon completion of this activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

**U.S. Army Corps of Engineers  
Attn: Regulatory Branch (OD-F)  
1222 Spruce Street  
St. Louis, Missouri 63103-2833**

(Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification or revocation.)

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

\_\_\_\_\_  
**Signature of Permittee**

\_\_\_\_\_  
**Date**



**Appendix C**

Field Orders

**Appendix C  
Field Order Summary**

**Former Koppers Wood-Treating Facility  
Beazer East, Inc.  
Carbondale, Illinois**

<b>FO #</b>	<b>Field Order Description</b>
FO-001	Survey control and mobilization items
FO-002	Archaeological area coordinates and creek relocation clearing limits
FO-003	Grade control for trench platform and haul road
FO-003R	Revised 8-11-04
FO-004	Grade control for Glade Creek channel relocation
FO-005	Containment cell and surface cover clearing limits
FO-005R	Revised 8-3-04
FO-007	Stockpiling of cleared materials
FO-008	Creek relocation cross sections
FO-009	Creek relocation excavation areas
FO-010	Revised grading plan - archaeological area
FO-011	CAMU - survey control for perimeter berm, liner subgrade, and anchor trench
FO-012	Miscellaneous
FO-013	Groundwater collection pipe profile
FO-014	Survey control for ditches and swales
FO-015	Survey control for surface cover subgrades
FO-016	Monitoring well survey
FO-017	Miscellaneous - surveying, seeding, etc.
FO-018	Survey control for trench-based DNAPL barrier
FO-019	Miscellaneous survey work
FO-020	Gator maintenance and high-speed internet
FO-021	Miscellaneous FPA
FO-022	Grade control for archaeological area and plateau
FO-023	Groundwater collection pipe and manhole
FO-024	Glade Creek relocation grass planting
FO-025	Expanded borrow area
FO-026	Glade Creek sediment restoration
FO-027	Surficial asphalt removal areas
FO-028	Wetland mitigation survey
FO-029	Glade Creek test trenches
FO-030	TYPE 2 cover expansion in southeast corner of FPA
FO-031	Additional Glade Creek sediment removal
FO-032	Transition between 12-inch and 24-inch FPA soil cover
FO-033	Glade Creek re-route
FO-034	2005 interim CAMU cover
FO-035	Revised Wetland Grading Plan
FO-036	Miscellaneous items from 2006
FO-037	CAMU Consolidated Material Grade Control
FO-038	Miscellaneous items from 2006
FO-039	ModuTank removal
FO-040	Low spot drainage
FO-041	Grade control for top of general fill layer in CAMU cover
FO-042	Repair activities at the Site outfalls
FO-043	Erosion repair
FO-044	Miscellaneous activities for the ditch culvert and temporary holding areas
FO 2010-01	Scrap geomembrane placement
FO 2010-02	Temporary survey monuments in CAMU

**Appendix C  
Field Order Summary**

**Former Koppers Wood-Treating Facility  
Beazer East, Inc.  
Carbondale, Illinois**

<b>FO #</b>	<b>Field Order Description</b>
FO 2010-03	Erosion control and vegetation requirements for CAMU
FO 2010-04	Maximum build-out condition for CAMU
FO 2010-05	CAMU final cover anchor trench
FO 2010-06	CAMU final cover as-built survey requirements
FO 2010-07	CAMU perimeter road grade control
FO 2010-08	CAMU mid-slope swale grade control





**FIELD ORDER NO. 001: May 20, 2004**

**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information relative to the establishment of survey control and other activities associated with mobilization for the above referenced project.

Items associated with this Field Order are as follows:

1. In accordance with conference calls during the week of May 10, 2004, Severson was authorized to retain Shawnee Survey & Consulting, Inc. to perform survey activities to re-establish site survey control due to non-cooperation by the former surveyor used for design activities. It is also recognized that Severson incurred additional indirect costs due to this delay.
2. Survey control re-establishment procedures outlined in the attached letter from Shawnee Survey & Consulting, Inc. dated May 18, 2004 have been reviewed by Blasland, Bouck, & Lee, Inc. (BBL) and horizontal and vertical accuracies have been determined to be within acceptable limits.
3. It is recognized that Severson incurred additional charges for utilities setup.
4. It is recognized that Severson incurred charges for activities associated with installation of the modular storage tank sub-pad as requested by Retec. Activities included clearing, grubbing, and grading.

5. Severson is authorized to pay charges associated with the phone in the conference trailer.

**ISSUED BY:** Jeremy Neighbors, BBL      **DATE:** May 20, 2004



**Shawnee Survey &  
Consulting, Inc.  
Surveyors & Engineers**

Mitchell R. Garrett, PLS  
Jason A. May, PLS  
Billy J. Abernathy, PLS

May 18, 2004

Mr. Phil Batten  
Blasland, Bouck & Lee, Inc  
6723 Towpath Road  
Syracuse, NY 13214-0066

RE: Control Points at Former Koppers Facility in Carbondale, Illinois

Mr. Batten,

Per the conference call on Thursday, our firm is trying to recreate a control network to allow construction staking on the above referenced project. The purpose of this letter is to inform you of the results of our measurements taken over the past three work days.

The horizontal coordinates have been re-established by finding the existing property corner monuments along the northeasterly boundary of the subject property and periodically checking this information verse the supplied coordinates for various monitor wells at the site. Horizontal accuracy appears to be +/-0.3 feet.

The vertical coordinates have been re-established with the use of the supplied casing elevations of the existing monitoring wells. Vertical accuracy appears to be +/- 0.1 feet.

Please let me know if you think these accuracies will be sufficient at your earliest convenience.

Thank you,

Bill Abernathy, PLS  
Shawnee Survey & Consulting, Inc.

Cc: Bob Braden, Severson Environmental



**FIELD ORDER NO. 002: May 19, 2004**

**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information relative to survey control for the archaeological area and clearing limits associated with the above referenced project.

The following items are attached to this Field Order:

- Tables (2) providing coordinates (northing and easting) of points delineating the limits of the archaeological site, and clearing limits.
- Figures (2) showing the locations for survey control points.

**ISSUED BY:** Phil Batten, BBL      **DATE:** May 19, 2004

Blasland Bouck & Lee, Inc.  
6723 Towpath Road  
Syracuse, New York 13214-0066, USA  
1-315-446-2570  
Wednesday, May 19, 2004 9:46:58 AM

GLADE CREEK/CARBONDALE, ILLINOIS  
LIMIT OF ARCHEOLOGICAL AREA LOCATION CONTROL

PROJECT: F:\TMPROJ\388\38857\38857009\TM\38857009.pro

-----  
Point Coordinates Listing

Point	North	East	Name
300	6548.42	7893.56	Archeological Area Limits
301	6554.23	7900.83	Archeological Area Limits
302	6555.33	7916.19	Archeological Area Limits
303	6553.65	7950.82	Archeological Area Limits
304	6557.17	7970.84	Archeological Area Limits
305	6560.04	7993.64	Archeological Area Limits
306	6559.46	8002.36	Archeological Area Limits
307	6555.10	8010.79	Archeological Area Limits
308	6540.21	8021.33	Archeological Area Limits
309	6520.42	8030.15	Archeological Area Limits
310	6503.29	8039.26	Archeological Area Limits
311	6489.63	8046.82	Archeological Area Limits
312	6462.63	8071.23	Archeological Area Limits
313	6451.88	8082.28	Archeological Area Limits
314	6440.27	8091.29	Archeological Area Limits
315	6428.65	8090.71	Archeological Area Limits
316	6422.55	8077.63	Archeological Area Limits
317	6422.26	8054.14	Archeological Area Limits
318	6422.35	8033.87	Archeological Area Limits
319	6421.10	8016.88	Archeological Area Limits
320	6412.88	7990.20	Archeological Area Limits
321	6413.17	7962.83	Archeological Area Limits
322	6416.95	7950.01	Archeological Area Limits
323	6423.06	7939.82	Archeological Area Limits
324	6430.33	7931.96	Archeological Area Limits
325	6454.72	7924.07	Archeological Area Limits
326	6481.20	7922.33	Archeological Area Limits
327	6504.14	7912.04	Archeological Area Limits
328	6536.77	7890.58	Archeological Area Limits

Blasland Bouck & Lee, Inc.  
6723 Towpath Road  
Syracuse, New York 13214-0066, USA  
1-315-446-2570  
Wednesday, May 19, 2004 9:47:26 AM

GLADE CREEK/CARBONDALE, ILLINOIS  
LIMIT OF CLEARING LOCATION CONTROL

PROJECT: F:\TMPROJ\388\38857\38857009\TM\38857009.pro

-----  
Point Coordinates Listing

Point	North	East	Name
500	6698.81	7550.70	LIMIT OF CLEARING
501	6718.18	7557.69	LIMIT OF CLEARING
502	6767.27	7630.55	LIMIT OF CLEARING
503	6775.96	7669.09	LIMIT OF CLEARING
504	6772.01	7686.36	LIMIT OF CLEARING
505	6815.72	7718.08	LIMIT OF CLEARING
506	6814.47	7729.92	LIMIT OF CLEARING
507	6780.45	7790.68	LIMIT OF CLEARING
508	6754.85	7874.52	LIMIT OF CLEARING
509	6747.84	7943.83	LIMIT OF CLEARING
510	6727.57	8054.36	LIMIT OF CLEARING
511	6694.81	8146.74	LIMIT OF CLEARING
512	6657.06	8217.86	LIMIT OF CLEARING
513	6574.36	8279.83	LIMIT OF CLEARING
514	6441.73	8324.58	LIMIT OF CLEARING
515	6320.57	8351.66	LIMIT OF CLEARING
516	6231.86	8389.29	LIMIT OF CLEARING
517	6133.69	8446.69	LIMIT OF CLEARING
518	6010.89	8496.51	LIMIT OF CLEARING
519	5898.39	8542.48	LIMIT OF CLEARING
520	5827.29	8584.44	LIMIT OF CLEARING
521	5751.63	8643.25	LIMIT OF CLEARING
522	5716.46	8704.92	LIMIT OF CLEARING
523	5694.59	8719.78	LIMIT OF CLEARING
524	5671.91	8719.12	LIMIT OF CLEARING
525	5675.93	8703.78	LIMIT OF CLEARING
526	5665.24	8659.19	LIMIT OF CLEARING
527	5620.70	8723.12	LIMIT OF CLEARING
528	5559.66	8788.79	LIMIT OF CLEARING
529	5513.17	8851.97	LIMIT OF CLEARING
530	5409.75	8921.11	LIMIT OF CLEARING
531	5423.70	8949.58	LIMIT OF CLEARING
532	5406.301	8959.11	LIMIT OF CLEARING
533	5379.66	8905.26	LIMIT OF CLEARING
534	5491.81	8830.39	LIMIT OF CLEARING
535	5536.52	8769.62	LIMIT OF CLEARING
536	5597.29	8704.27	LIMIT OF CLEARING
537	5642.39	8639.51	LIMIT OF CLEARING
538	5615.75	8612.70	LIMIT OF CLEARING
539	5580.57	8569.18	LIMIT OF CLEARING
540	5581.38	8498.95	LIMIT OF CLEARING
541	5585.46	8391.04	LIMIT OF CLEARING
542	5585.02	8304.21	LIMIT OF CLEARING

543	5555.23	8240.25	LIMIT OF CLEARING
544	5510.06	8191.56	LIMIT OF CLEARING
545	5520.55	8121.52	LIMIT OF CLEARING
546	5489.99	8228.45	LIMIT OF CLEARING
547	5478.59	8312.76	LIMIT OF CLEARING
548	6607.04	7879.52	LIMIT OF CLEARING
549	6589.45	7927.07	LIMIT OF CLEARING
550	6553.08	7959.75	LIMIT OF CLEARING
551	6487.84	7933.33	LIMIT OF CLEARING
552	6417.77	7906.38	LIMIT OF CLEARING
553	6355.47	7936.18	LIMIT OF CLEARING
554	6289.10	7982.23	LIMIT OF CLEARING
555	6232.22	8024.21	LIMIT OF CLEARING
556	6156.34	8077.49	LIMIT OF CLEARING
557	6075.98	8125.84	LIMIT OF CLEARING
558	6022.07	8157.99	LIMIT OF CLEARING
559	6080.22	8224.48	LIMIT OF CLEARING
560	6126.70	8259.92	LIMIT OF CLEARING
561	6180.21	8272.97	LIMIT OF CLEARING
562	6120.85	8342.06	LIMIT OF CLEARING
563	6050.73	8292.38	LIMIT OF CLEARING
564	5998.23	8225.60	LIMIT OF CLEARING
565	5982.09	8218.68	LIMIT OF CLEARING
566	5981.93	8205.01	LIMIT OF CLEARING
567	5947.61	8174.31	LIMIT OF CLEARING
568	5981.36	8142.54	LIMIT OF CLEARING
569	6004.22	8114.68	LIMIT OF CLEARING
570	6079.72	8067.63	LIMIT OF CLEARING
571	6145.33	8004.26	LIMIT OF CLEARING
572	6212.45	7975.53	LIMIT OF CLEARING
573	6264.86	7947.95	LIMIT OF CLEARING
574	6278.10	7926.75	LIMIT OF CLEARING
575	6335.70	7884.32	LIMIT OF CLEARING
576	6377.69	7861.77	LIMIT OF CLEARING
577	6438.07	7846.22	LIMIT OF CLEARING
578	6494.59	7870.02	LIMIT OF CLEARING
579	6546.52	7886.12	LIMIT OF CLEARING
580	5449.14	8306.70	LIMIT OF CLEARING
581	5460.50	8222.68	LIMIT OF CLEARING
582	5483.64	8119.99	LIMIT OF CLEARING
583	5537.58	8028.55	LIMIT OF CLEARING
584	5577.97	7981.95	LIMIT OF CLEARING
585	5606.58	7928.93	LIMIT OF CLEARING
586	5657.35	7869.32	LIMIT OF CLEARING
587	5782.79	7831.35	LIMIT OF CLEARING
588	5843.39	7822.68	LIMIT OF CLEARING
589	5873.54	7806.45	LIMIT OF CLEARING
590	5946.04	7746.59	LIMIT OF CLEARING
591	6053.51	7657.85	LIMIT OF CLEARING
592	6126.33	7597.73	LIMIT OF CLEARING
593	6198.22	7561.78	LIMIT OF CLEARING
594	6270.11	7525.84	LIMIT OF CLEARING
595	6330.41	7507.28	LIMIT OF CLEARING
596	6386.07	7460.90	LIMIT OF CLEARING
597	6418.54	7414.52	LIMIT OF CLEARING
598	6469.56	7393.64	LIMIT OF CLEARING
599	6506.66	7414.52	LIMIT OF CLEARING

600	6555.37	7456.26	LIMIT OF CLEARING
601	6590.15	7470.18	LIMIT OF CLEARING
602	6613.34	7423.79	LIMIT OF CLEARING
603	6642.22	7438.23	LIMIT OF CLEARING
604	6603.55	7507.84	LIMIT OF CLEARING
605	6539.94	7482.40	LIMIT OF CLEARING
606	6489.06	7439.04	LIMIT OF CLEARING
607	6465.58	7425.83	LIMIT OF CLEARING
608	6439.08	7437.48	LIMIT OF CLEARING
609	6409.14	7480.26	LIMIT OF CLEARING
610	6379.86	7509.54	LIMIT OF CLEARING
611	6343.67	7534.59	LIMIT OF CLEARING
612	6281.31	7553.78	LIMIT OF CLEARING
613	6212.05	7588.41	LIMIT OF CLEARING
614	6142.80	7623.04	LIMIT OF CLEARING
615	6072.62	7680.98	LIMIT OF CLEARING
616	5965.14	7769.72	LIMIT OF CLEARING
617	5890.36	7831.46	LIMIT OF CLEARING
618	5829.95	7854.91	LIMIT OF CLEARING
619	5858.90	7855.52	LIMIT OF CLEARING
620	5952.76	7799.88	LIMIT OF CLEARING
621	6023.30	7753.97	LIMIT OF CLEARING
622	6118.15	7709.44	LIMIT OF CLEARING
623	6206.82	7663.92	LIMIT OF CLEARING
624	6289.59	7628.86	LIMIT OF CLEARING
625	6374.34	7606.93	LIMIT OF CLEARING
626	6451.28	7592.86	LIMIT OF CLEARING
627	6529.38	7600.11	LIMIT OF CLEARING
628	6629.94	7601.03	LIMIT OF CLEARING
629	6650.26	7592.38	LIMIT OF CLEARING
630	6642.49	7572.56	LIMIT OF CLEARING



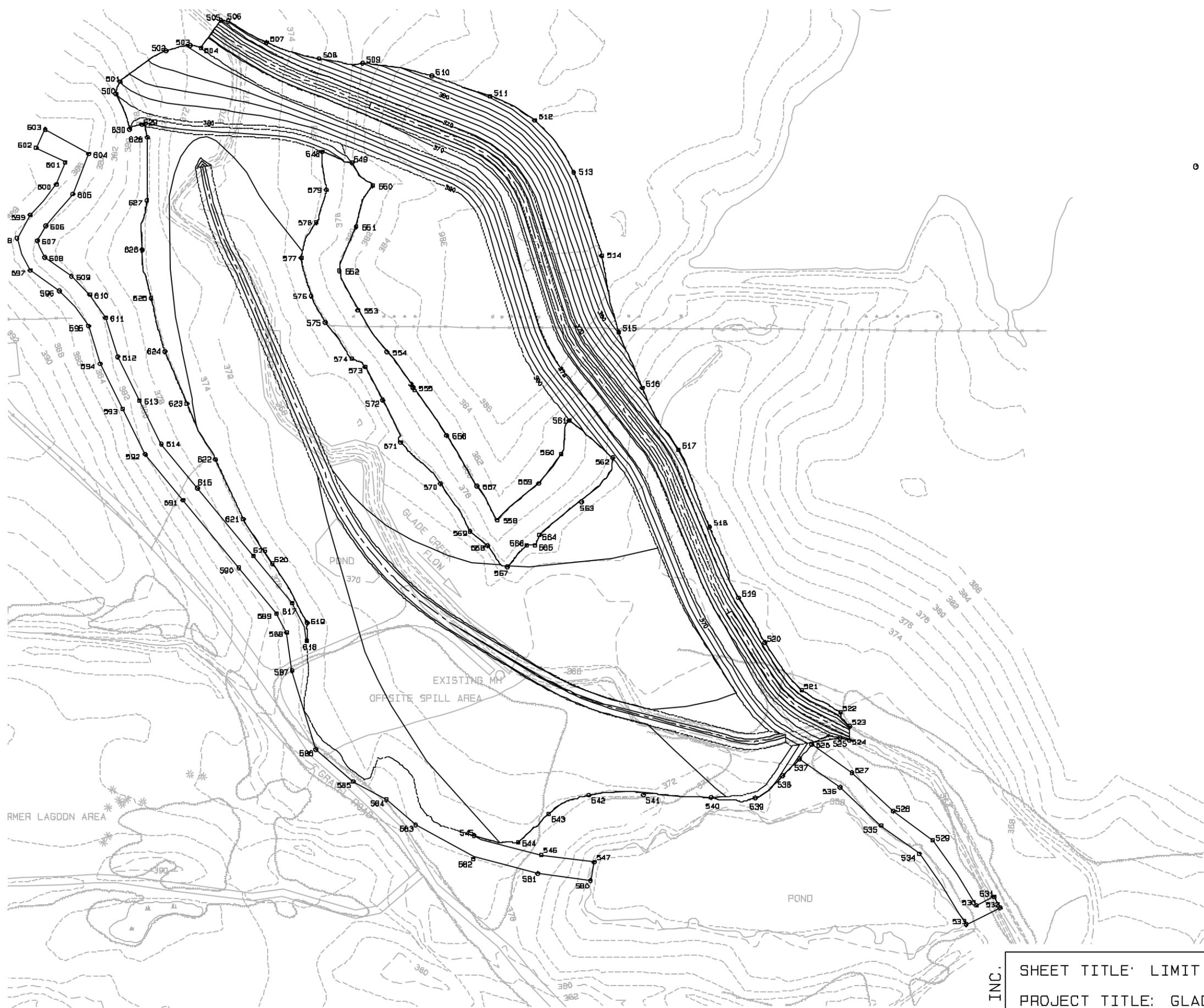
# LEGEND

◉ GRADE CONTROL POINT

NORTH ↑

SCALE IN FEET  
 0 100 200

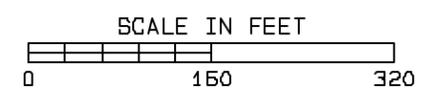
BBL, INC	SHEET TITLE: EXTENT OF THE POTENTIAL		FIGURE
	ARCHEOLOGICAL AREA LOCATION CONTROL		
	PROJECT TITLE: GLADE CREEK RELOCATION		
	PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS		
	PROJECT NO: 38857.100		
DATE: 05/19/04	BY: CAA	FILE: 38857009 PRO	1



# LEGEND

o GRADE CONTROL POINT

NORTH ↑



BBL, INC.

SHEET TITLE: LIMIT OF CLEARING  
 LOCATION CONTROL  
 PROJECT TITLE: GLADE CREEK RELOCATION  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: 38857.100  
 DATE: 05/19/04 BY: CAA FILE: 38857009 PRO

FIGURE  
 2



**FIELD ORDER NO. 003R: August 11, 2004**

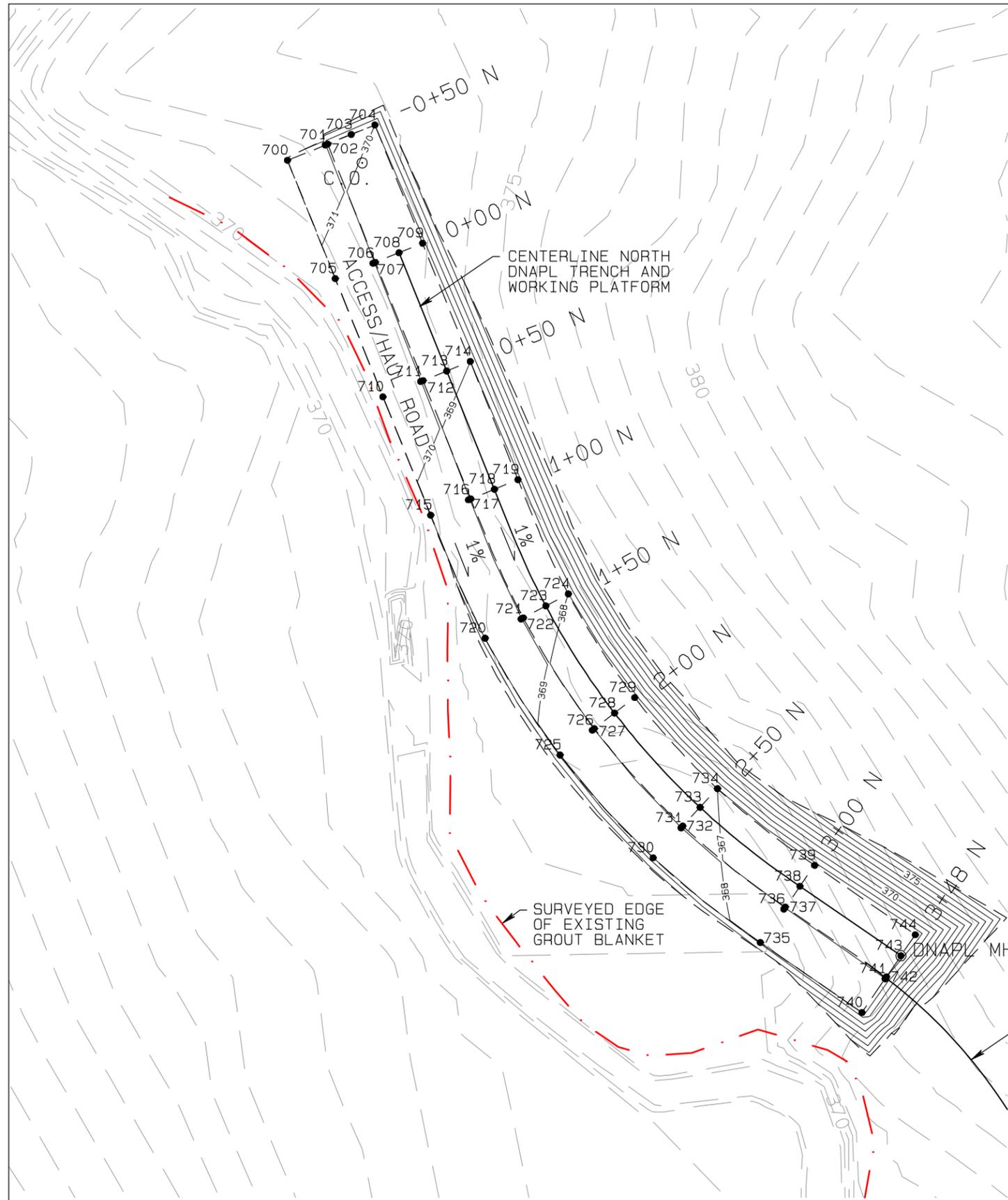
**PROJECT:** Glade Creek Channel relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information related to survey control for the trench-based DNAPL barrier working platform and access/haul road.

The following items are attached to this Field Order:

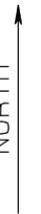
- Printouts (3 pages) providing coordinates (northing, easting, and elevation) or points delineating the layout of the working platform and access/haul road.
- Figures (4) showing the locations for survey control points, profiles and sections of the working platform and access/haul road, and general notes and material specifications related to the construction of the working platform and access/haul road.

**ISSUED BY:** \_\_\_\_\_ **DATE:** August 11, 2004  
Mark O. Gravelding, BBL

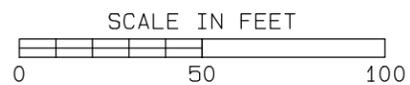


LEGEND

- 700 GRADE CONTROL POINT
- PROPOSED GRADE BREAK
- PROPOSED CONTOUR (1 FOOT INTERVAL)
- - - - EXISTING CONTOUR (1 FOOT INTERVAL)



NORTH TRENCH WORKING PLATFORM AND ACCESS/HAUL ROAD



CENTERLINE SOUTH  
DNAPL TRENCH AND  
WORKING PLATFORM

BBL, INC.

SHEET TITLE: FINAL GRADING PLAN NORTH TRENCH WORKING  
PLATFORM AND ACCESS/HAUL ROAD  
PROJECT TITLE: TRENCH-BASED DNAPL BARRIER  
PROJECT LOCATION: GLADE CREEK / CARBONDALE, ILLINOIS  
PROJECT NO: 38883.008  
DATE: 08/10/04 BY: TAS FILE: 38857009.PRO

FIGURE

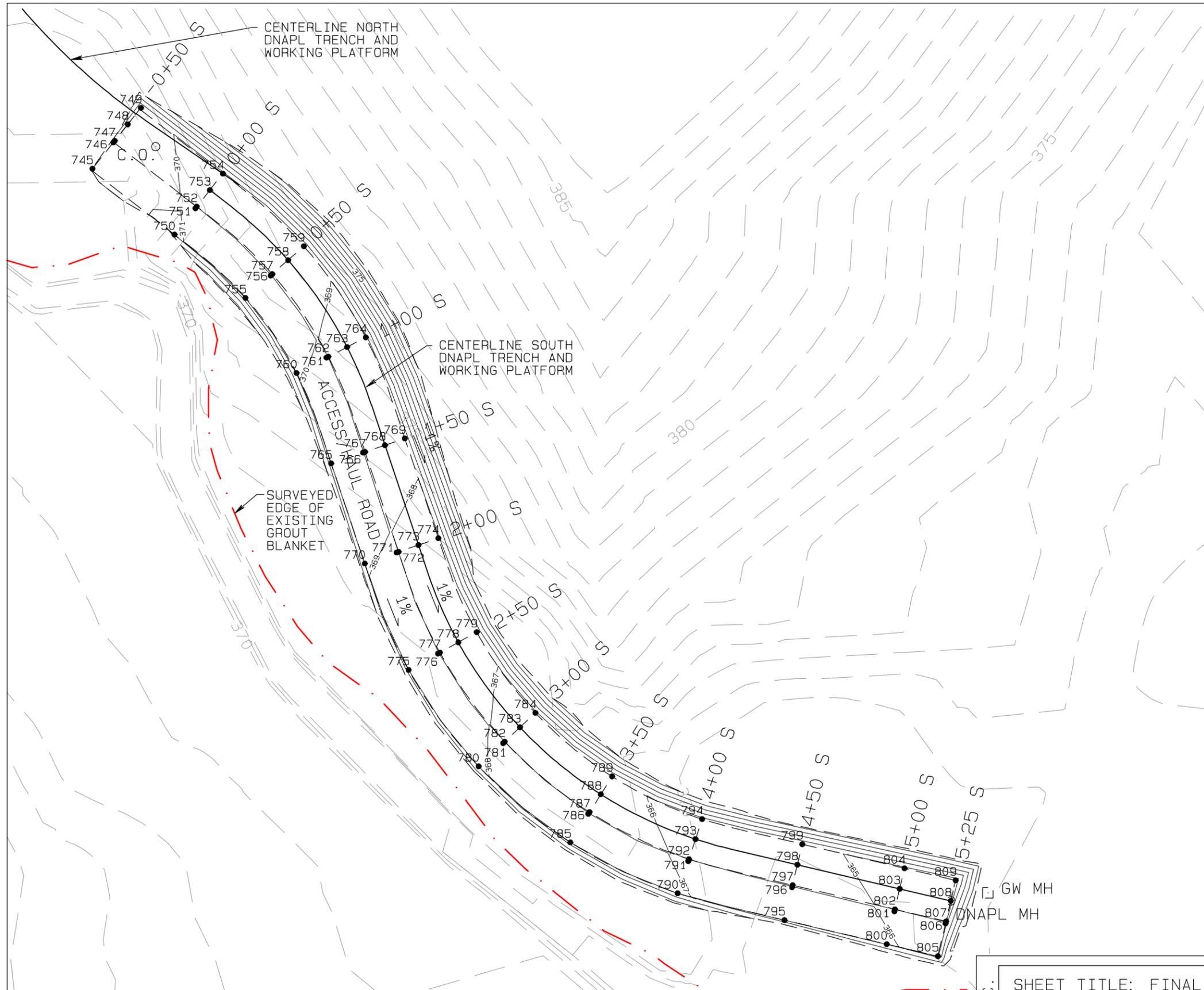
1

Blasland, Bouck & Lee, Inc.  
6723 Towpath Road, Box 66  
Syracuse, New York 13214-066  
315/446-9120  
Tuesday, August 10, 2004

PROJECT: F:\TMPROJ\388\38857\38857009\TM\38857009.pro

Point Coordinates Listing

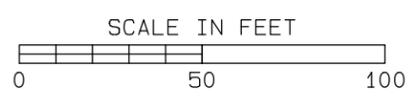
Point	North	East	Elev	Name
700	6490.5243	7749.7979	371.36	EDGE N HAUL RD
701	6496.5234	7764.6306	371.20	EDGE N HAUL RD
702	6496.8983	7765.5577	370.20	EDGE N PLATFORM
703	6500.6478	7774.8281	370.10	CL N PLATFORM
704	6504.3972	7784.0986	370.00	EDGE N PLATFORM
705	6444.1719	7768.5451	370.86	EDGE N HAUL RD
706	6450.1710	7783.3779	370.70	EDGE N HAUL RD
707	6450.5460	7784.3049	369.70	EDGE N PLATFORM
708	6454.2954	7793.5754	369.60	CL N PLATFORM/TRENCH
709	6458.0449	7802.8459	369.50	EDGE N PLATFORM
710	6397.8196	7787.2924	370.36	EDGE N HAUL RD
711	6403.8187	7802.1251	370.20	EDGE N HAUL RD
712	6404.1936	7803.0522	369.20	EDGE N PLATFORM
713	6407.9431	7812.3227	369.10	CL N PLATFORM/TRENCH
714	6411.6925	7821.5931	369.00	EDGE N PLATFORM
715	6351.4367	7806.0520	369.86	EDGE N HAUL RD
716	6357.4539	7820.8774	369.70	EDGE N HAUL RD
717	6357.8300	7821.8040	368.70	EDGE N PLATFORM
718	6361.5907	7831.0699	368.60	CL N PLATFORM/TRENCH
719	6365.3515	7840.3358	368.50	EDGE N PLATFORM
720	6303.2254	7827.4134	369.36	EDGE N HAUL RD
721	6310.7313	7841.5593	369.20	EDGE N HAUL RD
722	6311.2004	7842.4434	368.20	EDGE N PLATFORM
723	6315.8916	7851.2846	368.10	CL N PLATFORM/TRENCH
724	6320.5828	7860.1257	368.00	EDGE N PLATFORM
725	6257.4259	7856.8449	368.86	EDGE N HAUL RD
726	6267.1746	7869.5495	368.70	EDGE N HAUL RD
727	6267.7839	7870.3436	367.70	EDGE N PLATFORM
728	6273.8768	7878.2840	367.60	CL N PLATFORM/TRENCH
729	6279.9697	7886.2244	367.50	EDGE N PLATFORM
730	6217.1436	7893.4665	368.36	EDGE N HAUL RD
731	6228.8648	7904.3778	368.20	EDGE N HAUL RD
732	6229.5974	7905.0598	367.20	EDGE N PLATFORM
733	6236.9232	7911.8794	367.10	CL N PLATFORM/TRENCH
734	6244.2490	7918.6990	367.00	EDGE N PLATFORM
735	6183.9459	7935.5441	367.86	EDGE N HAUL RD
736	6197.0210	7944.7680	367.70	EDGE N HAUL RD
737	6197.8382	7945.3445	366.70	EDGE N PLATFORM
738	6206.0102	7951.1094	366.60	CL N PLATFORM/TRENCH
739	6214.1822	7956.8743	366.50	EDGE N PLATFORM
740	6156.5016	7975.4917	367.38	EDGE N HAUL RD
741	6169.6893	7984.5518	367.22	EDGE N HAUL RD
742	6170.5135	7985.1180	366.22	EDGE N PLATFORM
743	6178.7558	7990.7806	366.12	CL N PLATFORM/TRENCH
744	6186.9982	7996.4431	366.02	EDGE N PLATFORM



**LEGEND**

- 700 GRADE CONTROL POINT
- PROPOSED GRADE BREAK
- PROPOSED CONTOUR (1 FOOT INTERVAL)
- - - - - EXISTING CONTOUR (1 FOOT INTERVAL)

SOUTH TRENCH WORKING PLATFORM AND ACCESS/HAUL ROAD



BBL, INC.

SHEET TITLE: FINAL GRADING PLAN SOUTH TRENCH WORKING PLATFORM AND ACCESS/HAUL ROAD  
 PROJECT TITLE: TRENCH-BASED DNAPL BARRIER  
 PROJECT LOCATION: GLADE CREEK / CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.008  
 DATE: 08/10/04 BY: TAS FILE: 38857009.PRO

FIGURE  
 2

Blasland, Bouck & Lee, Inc.  
 6723 Towpath Road, Box 66  
 Syracuse, New York 13214-066  
 315/446-9120  
 Tuesday, August 10, 2004

PROJECT: F:\TMPROJ\388\38857\38857009\TM\38857009.pro

Point Coordinates Listing

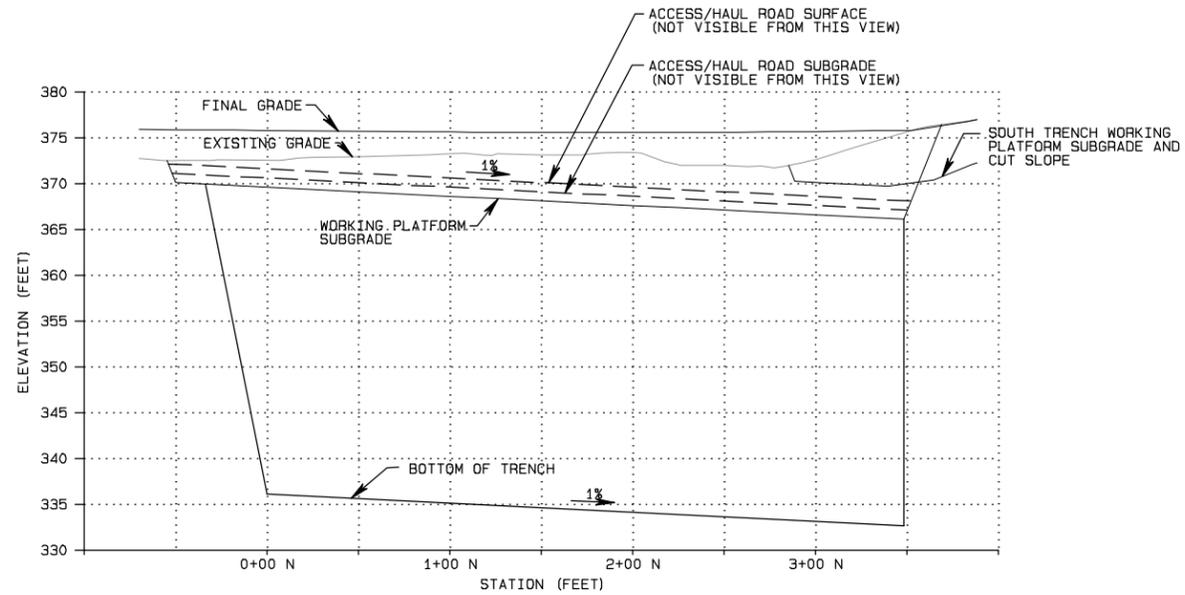
Point	North	East	Elev	Name
745	6186.3462	7921.0161	370.26	EDGE S HAUL RD
746	6198.8447	7931.0056	370.40	EDGE S HAUL RD
747	6199.6258	7931.6299	370.40	EDGE S PLATFORM
748	6207.4373	7937.8733	370.30	CL S PLATFORM
749	6215.2489	7944.1167	370.20	EDGE S PLATFORM
750	6155.1292	7960.0737	371.06	EDGE S HAUL RD
751	6167.6276	7970.0632	370.90	EDGE S HAUL RD
752	6168.4088	7970.6875	369.90	EDGE S PLATFORM
753	6176.2203	7976.9309	369.80	CL S PLATFORM/TRENCH
754	6184.0318	7983.1743	369.70	EDGE S PLATFORM
755	6125.0507	7993.8531	370.56	EDGE S HAUL RD
756	6135.6625	8005.8694	370.40	EDGE S HAUL RD
757	6136.3258	8006.6204	369.40	EDGE S PLATFORM
758	6142.9582	8014.1306	369.30	CL S PLATFORM/TRENCH
759	6149.5906	8021.6408	369.20	EDGE S PLATFORM
760	6089.4201	8018.1464	370.06	EDGE S HAUL RD
761	6096.7291	8032.4145	369.90	EDGE S HAUL RD
762	6097.1860	8033.3063	368.90	EDGE S PLATFORM
763	6101.7541	8042.2239	368.80	CL S PLATFORM/TRENCH
764	6106.3223	8051.1415	368.70	EDGE S PLATFORM
765	6046.5304	8034.6561	369.56	EDGE S HAUL RD
766	6051.6535	8049.8137	369.40	EDGE S HAUL RD
767	6051.9737	8050.7611	368.40	EDGE S PLATFORM
768	6055.1756	8060.2346	368.30	CL S PLATFORM/TRENCH
769	6058.3775	8069.7081	368.20	EDGE S PLATFORM
770	5999.0192	8050.6553	369.06	EDGE S HAUL RD
771	6004.2168	8065.7879	368.90	EDGE S HAUL RD
772	6004.5417	8066.7336	367.90	EDGE S PLATFORM
773	6007.7902	8076.1915	367.80	CL S PLATFORM/TRENCH
774	6011.0387	8085.6493	367.70	EDGE S PLATFORM
775	5948.5368	8071.4658	368.56	EDGE S HAUL RD
776	5956.2889	8085.4982	368.40	EDGE S HAUL RD
777	5956.7734	8086.3752	367.40	EDGE S PLATFORM
778	5961.6185	8095.1455	367.30	CL S PLATFORM/TRENCH
779	5966.4636	8103.9157	367.20	EDGE S PLATFORM
780	5902.7805	8104.8078	368.06	EDGE S HAUL RD
781	5913.7633	8116.4860	367.90	EDGE S HAUL RD
782	5914.4498	8117.2159	366.90	EDGE S PLATFORM
783	5921.3140	8124.5147	366.80	CL S PLATFORM/TRENCH
784	5928.1783	8131.8136	366.70	EDGE S PLATFORM
785	5866.6957	8148.4334	367.56	EDGE S HAUL RD
786	5880.2263	8157.0314	367.40	EDGE S HAUL RD
787	5881.0720	8157.5688	366.40	EDGE S PLATFORM
788	5889.5286	8162.9425	366.30	CL S PLATFORM/TRENCH
789	5897.9852	8168.3162	366.20	EDGE S PLATFORM
790	5842.5575	8199.5508	367.06	EDGE S HAUL RD
791	5857.7758	8204.5811	366.90	EDGE S HAUL RD
792	5858.7270	8204.8955	365.90	EDGE S PLATFORM
793	5868.2385	8208.0395	365.80	CL S PLATFORM/TRENCH
794	5877.7500	8211.1835	365.70	EDGE S PLATFORM
795	5829.8127	8250.3494	366.56	EDGE S HAUL RD
796	5845.3882	8254.0102	366.40	EDGE S HAUL RD
797	5846.3617	8254.2390	365.40	EDGE S PLATFORM
798	5856.0965	8256.5270	365.30	CL S PLATFORM/TRENCH
799	5865.8312	8258.8150	365.20	EDGE S PLATFORM

Blasland, Bouck \_Lee, Inc.  
6723 Towpath Road, Box 66  
Syracuse, New York 13214-066  
315/446-9120  
Tuesday, August 10, 2004 6:40:47 PM

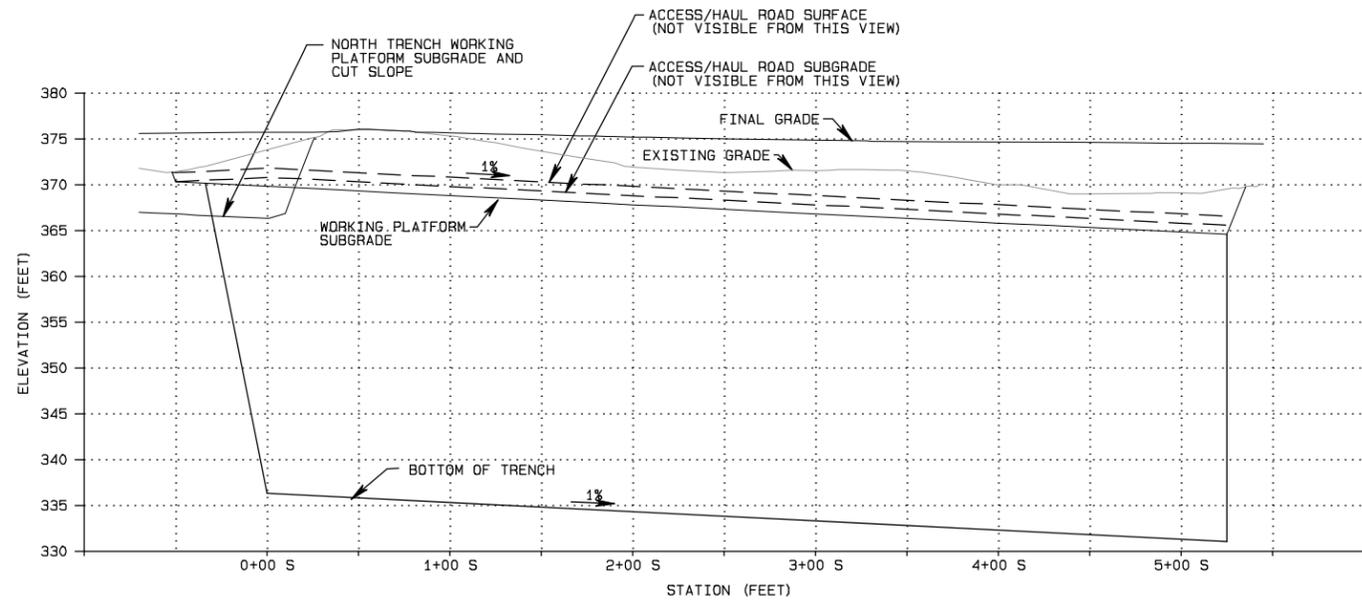
PROJECT: F:\TMPROJ\388\38857\38857009\TM\38857009.pro

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Point Coordinates Listing

Point	North	East	Elev	Name
800	5818.3727	8299.0231	366.06	EDGE S HAUL RD
801	5833.9483	8302.6838	365.90	EDGE S HAUL RD
802	5834.9217	8302.9126	364.90	EDGE S PLATFORM
803	5844.6565	8305.2006	364.80	CL S PLATFORM/TRENCH
804	5854.3912	8307.4886	364.70	EDGE S PLATFORM
805	5812.6527	8323.3599	365.81	EDGE S HAUL RD
806	5828.2283	8327.0207	365.65	EDGE S HAUL RD
807	5829.2017	8327.2495	364.65	EDGE S PLATFORM
808	5838.9365	8329.5375	364.55	CL S PLATFORM/TRENCH
809	5848.6712	8331.8255	364.45	EDGE S PLATFORM



PROFILE ALONG CENTERLINE OF NORTH TRENCH



PROFILE ALONG CENTERLINE OF SOUTH TRENCH

NOTES:

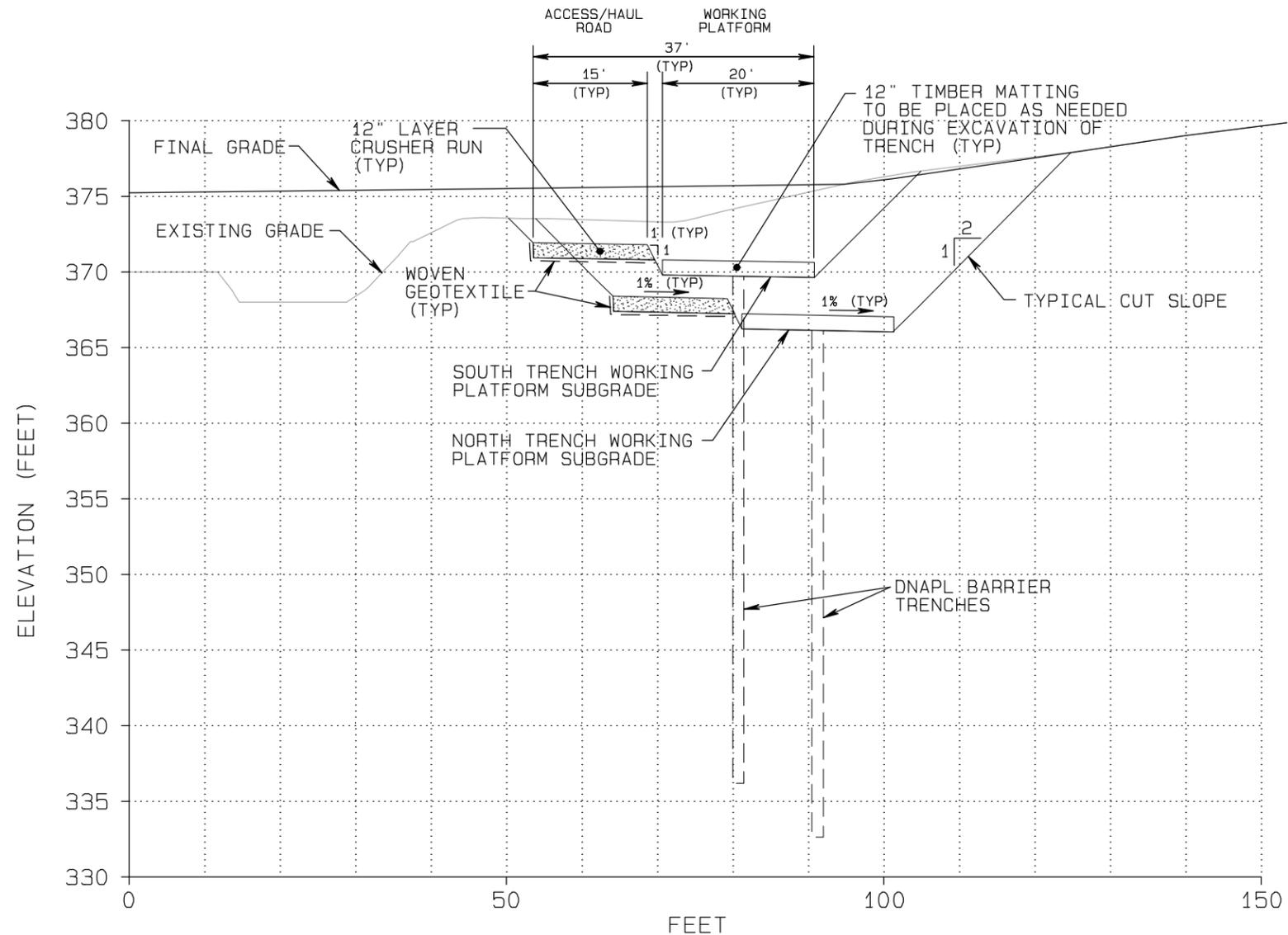
1. SEE FIGURE 4 FOR GENERAL NOTES AND MATERIAL SPECIFICATIONS.

BBL, INC.

SHEET TITLE: NORTH AND SOUTH TRENCH PROFILES  
 PROJECT TITLE: TRENCH-BASED DNAPL BARRIER  
 PROJECT LOCATION: GLADE CREEK / CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.008  
 DATE: 08/10/04 BY: TAS FILE: 38857009.PRO

FIGURE

3



CROSS SECTION THROUGH APPROXIMATE  
LOCATION OF MAXIMUM CUT  
(STATION 3+46 N)

GENERAL NOTES:

1. SEQUENCING OF CONSTRUCTION ACTIVITIES AS NECESSARY TO DEAL WITH OVERLAP OF NORTH AND SOUTH TRENCH WORKING PLATFORMS TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION AND EXCAVATION ACTIVITIES TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. MANAGEMENT OF SURFACE WATER RUNOFF AND GROUNDWATER SEEPAGE DURING CONSTRUCTION AND EXCAVATION ACTIVITIES TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

MATERIAL TYPE	MATERIAL DESCRIPTION	PLACEMENT AND COMPACTION REQUIREMENTS
CRUSHER RUN	IL DOT CA6 SUBBASE TYPE B (ACCESS/HAUL ROAD)	MATERIAL SHALL BE PLACED AS REQUIRED TO ACHIEVE IN-PLACE COMPACTED LIFT THICKNESS OF 6 INCHES. MATERIAL TO BE COMPACTED WITH 3 PASSES OF A SUITABLY SIZED ROLLER OR DOZER.
GEOTEXTILE	MIRAFI 600X OR EQUIVALENT (ACCESS/HAUL ROAD SUBGRADE)	N/A
TIMBER MATTING	TIMBERS TO BE SUPPLIED BY CONTRACTOR	PLACEMENT, SEQUENCING, AND REMOVAL OF TIMBER MATTING TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

BBL, INC.

SHEET TITLE: TYPICAL CROSS SECTION THROUGH  
NORTH AND SOUTH TRENCHES  
PROJECT TITLE: TRENCH-BASED DNAPL BARRIER  
PROJECT LOCATION: GLADE CREEK / CARBONDALE, ILLINOIS  
PROJECT NO: 38883.008  
DATE: 08/10/04 BY: TAS FILE: 38857009.PRO

FIGURE  
4



**FIELD ORDER NO. 004: May 28, 2004**

**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes survey stakeout information relative to the Glade Creek relocation design.

The following items are attached to this Field Order:

- Table providing coordinates (northing, easting) and elevations of points delineating the grades of the proposed creek.
- Figures (3) showing the locations for survey stakeout points.

**ISSUED BY:** Phil Batten, BBL      **DATE:** May 28, 2004

Blasland Bouck & Lee, Inc.  
6723 Towpath Road  
Syracuse, New York 13214-0066, USA  
1-315-446-2570  
Friday, May 28, 2004 4:05:16 PM

GLADE CREEK/CARBONDALE, ILLINOIS  
GLADE CREEK GRADE CONTROL

PROJECT: F:\TMPROJ\388\38857\38857009\TM\38857009.pro

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Point	Coordinates	Listing		
Point	North	East	Elev	
1000	6772.01	7686.36	371.33	Note: Elevations represent final grade.
1001	6788.20	7698.10	370.53	
1002	6797.91	7705.15	366.53	
1003	6806.01	7711.03	366.53	
1004	6756.88	7707.21	371.29	
1005	6773.31	7718.62	370.49	
1006	6783.17	7725.47	366.49	
1007	6791.38	7731.17	366.49	
1008	6801.24	7738.02	370.49	
1009	6742.20	7729.32	371.24	
1010	6759.09	7740.04	370.44	
1011	6769.22	7746.47	366.44	
1012	6777.67	7751.83	366.44	
1013	6787.81	7758.26	370.44	
1014	6728.45	7752.02	371.19	
1015	6745.77	7762.03	370.39	
1016	6756.17	7768.03	366.39	
1017	6764.83	7773.03	366.39	
1018	6775.22	7779.03	370.39	
1019	6715.66	7775.28	371.14	
1020	6733.39	7784.55	370.34	
1021	6744.02	7790.12	366.34	
1022	6752.88	7794.75	366.34	
1023	6763.52	7800.32	370.34	
1024	6703.85	7799.05	371.09	
1025	6721.95	7807.57	370.29	
1026	6732.81	7812.69	366.29	
1027	6741.85	7816.95	366.29	
1028	6752.71	7822.07	370.29	
1029	6698.44	7811.17	371.07	
1030	6716.71	7819.32	370.27	
1031	6727.67	7824.21	366.27	
1032	6736.80	7828.28	366.27	
1033	6747.76	7833.17	370.27	
1034	6693.04	7823.29	371.04	
1035	6711.48	7831.05	370.24	
1036	6722.54	7835.71	366.24	
1037	6731.76	7839.59	366.24	
1038	6742.82	7844.25	370.24	
1039	6674.77	7870.44	370.95	
1040	6693.85	7878.13	370.14	
1041	6704.98	7882.61	366.15	
1042	6714.25	7886.35	366.15	

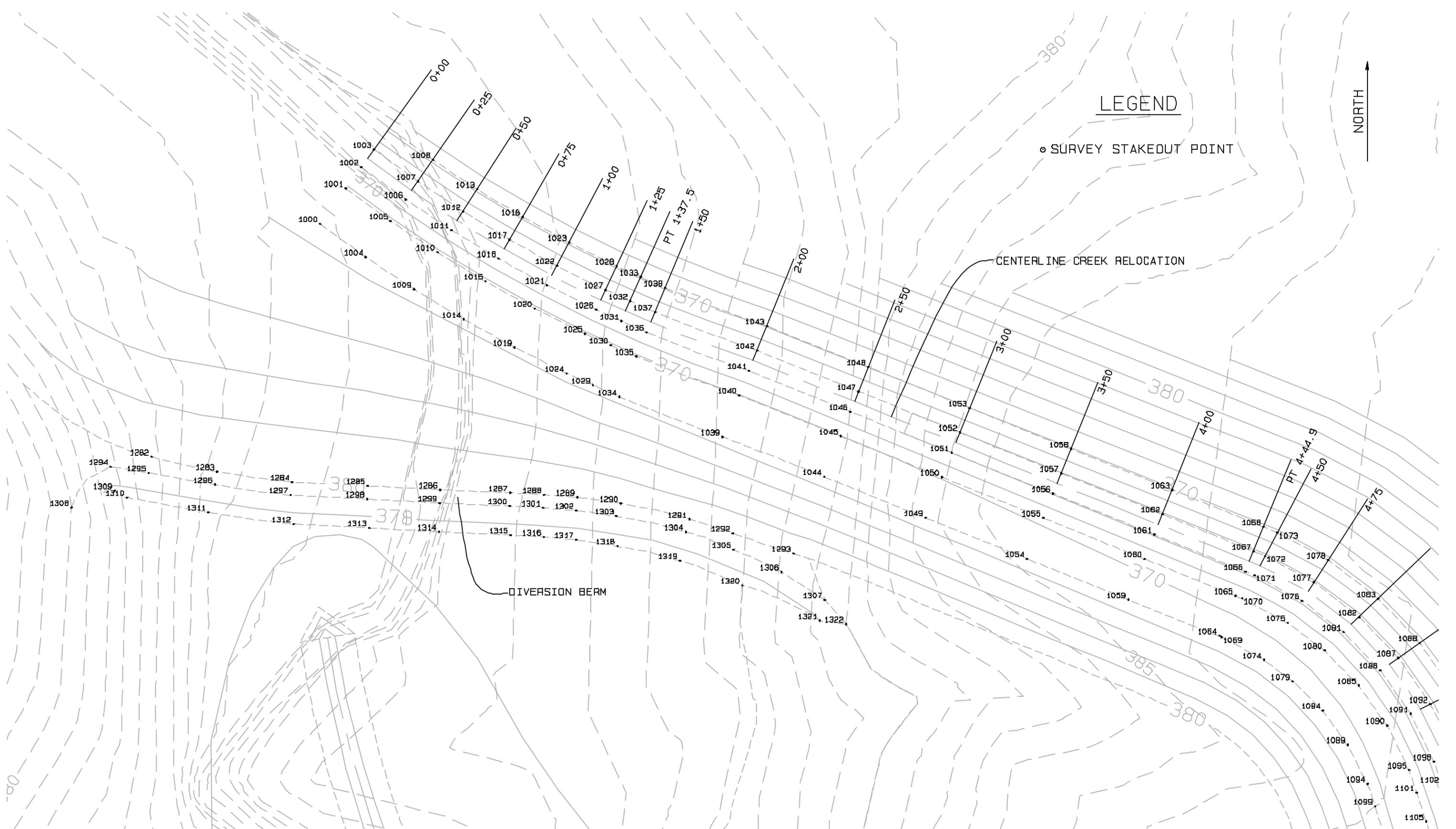
1043	6725.38	7890.83	370.15
1044	6656.62	7917.02	370.85
1045	6675.17	7924.49	370.05
1046	6686.30	7928.97	366.05
1047	6695.57	7932.71	366.05
1048	6706.70	7937.20	370.05
1049	6637.93	7963.39	370.75
1050	6656.48	7970.87	369.95
1051	6667.61	7975.35	365.95
1052	6676.89	7979.09	365.95
1053	6688.02	7983.57	369.95
1054	6619.25	8009.77	370.66
1055	6637.80	8017.24	369.86
1056	6648.93	8021.73	365.86
1057	6658.20	8025.47	365.86
1058	6669.33	8029.95	369.86
1059	6600.56	8056.15	370.56
1060	6619.11	8063.62	369.76
1061	6630.24	8068.11	365.76
1062	6639.52	8071.84	365.76
1063	6650.65	8076.33	369.76
1064	6584.07	8097.81	370.46
1065	6602.29	8105.22	369.67
1066	6613.40	8109.74	365.67
1067	6622.67	8113.50	365.68
1068	6633.78	8118.02	369.68
1069	6583.51	8098.84	370.46
1070	6601.14	8108.30	369.64
1071	6611.71	8113.97	365.67
1072	6620.52	8118.70	365.66
1073	6631.10	8124.37	369.66
1074	6573.08	8118.28	370.42
1075	6589.96	8129.12	369.62
1076	6600.09	8135.62	365.62
1077	6608.54	8141.04	365.62
1078	6618.67	8147.54	369.62
1079	6563.22	8131.28	370.38
1080	6577.39	8146.02	369.51
1081	6585.71	8154.67	365.57
1082	6592.64	8161.88	365.57
1083	6600.96	8170.53	369.57
1084	6549.97	8145.26	370.31
1085	6561.42	8161.65	369.46
1086	6568.29	8171.49	365.52
1087	6574.01	8179.69	365.52
1088	6580.88	8189.53	369.52
1089	6534.44	8156.63	370.26
1090	6543.20	8174.61	369.41
1091	6548.45	8185.39	365.47
1092	6552.83	8194.38	365.47
1093	6558.09	8205.17	369.47
1094	6516.52	8165.70	370.22
1095	6522.81	8184.68	369.38
1096	6526.59	8196.07	365.42
1097	6529.73	8205.57	365.42
1098	6533.51	8216.96	369.42
1099	6506.28	8169.09	370.21

1100	6523.27	8220.35	369.40
1101	6512.57	8188.07	369.40
1102	6516.35	8199.47	365.40
1103	6519.49	8208.96	365.40
1104	6493.26	8173.41	370.18
1105	6499.30	8192.47	369.38
1106	6502.92	8203.91	365.38
1107	6505.94	8213.45	365.38
1108	6509.56	8224.89	369.38
1109	6445.59	8188.50	370.08
1110	6451.63	8207.57	369.28
1111	6455.25	8219.01	365.28
1112	6458.27	8228.54	365.28
1113	6461.89	8239.98	369.28
1114	6397.92	8203.59	369.98
1115	6403.96	8222.66	369.18
1116	6407.58	8234.10	365.18
1117	6410.60	8243.63	365.18
1118	6414.22	8255.07	369.18
1119	6349.96	8218.78	369.89
1120	6356.15	8237.80	369.09
1121	6359.87	8249.20	365.09
1122	6362.97	8258.71	365.09
1123	6366.69	8270.12	369.09
1124	6336.79	8223.07	369.86
1125	6342.99	8242.09	369.06
1126	6346.71	8253.50	365.06
1127	6349.81	8263.00	365.06
1128	6353.52	8274.41	369.06
1129	6322.88	8227.80	369.83
1130	6330.87	8246.14	369.04
1131	6335.66	8257.14	365.04
1132	6339.66	8266.30	365.04
1133	6344.45	8277.30	369.02
1134	6296.04	8239.80	369.79
1135	6306.16	8257.06	368.99
1136	6312.22	8267.41	364.99
1137	6317.28	8276.04	364.99
1138	6323.35	8286.39	368.96
1139	6270.83	8254.91	369.74
1140	6282.92	8270.84	368.94
1141	6290.17	8280.40	364.94
1142	6296.22	8288.37	364.94
1143	6303.47	8297.93	368.91
1144	6259.52	8263.49	369.71
1145	6271.61	8279.42	368.91
1146	6278.87	8288.98	364.91
1147	6284.91	8296.95	364.91
1148	6292.17	8306.51	368.91
1149	6250.04	8270.71	369.69
1150	6262.60	8286.28	368.89
1151	6270.14	8295.61	364.89
1152	6276.42	8303.39	364.89
1153	6283.96	8312.73	368.89
1154	6211.32	8301.52	369.60
1155	6223.67	8317.26	368.80
1156	6231.07	8326.70	364.80

1157	6237.24	8334.57	364.80
1158	6244.65	8344.01	368.80
1159	6171.98	8332.38	369.50
1160	6184.33	8348.12	368.70
1161	6191.73	8357.56	364.70
1162	6197.90	8365.43	364.70
1163	6205.31	8374.87	368.70
1164	6132.67	8363.22	369.40
1165	6145.00	8378.97	368.60
1166	6152.39	8388.41	364.60
1167	6158.56	8396.29	364.60
1168	6165.95	8405.74	368.60
1169	6125.25	8369.02	369.38
1170	6137.58	8384.77	368.58
1171	6144.98	8394.22	364.58
1172	6151.14	8402.09	364.58
1173	6158.54	8411.54	368.59
1174	6115.99	8376.48	369.35
1175	6126.69	8393.38	368.53
1176	6133.10	8403.52	364.55
1177	6138.45	8411.97	364.55
1178	6144.87	8422.11	368.55
1179	6097.95	8388.08	369.30
1180	6106.97	8405.93	368.49
1181	6112.39	8416.64	364.51
1182	6116.90	8425.56	364.51
1183	6122.32	8436.27	368.50
1184	6075.85	8399.25	369.25
1185	6084.03	8417.53	368.40
1186	6088.94	8428.50	364.45
1187	6093.03	8437.63	364.51
1188	6097.93	8448.60	368.50
1189	6073.58	8399.96	369.25
1190	6080.85	8418.59	368.45
1191	6085.22	8429.77	364.45
1192	6088.85	8439.08	364.45
1193	6093.21	8450.26	368.45
1194	6055.17	8407.15	369.21
1195	6062.66	8425.69	368.41
1196	6067.16	8436.82	364.41
1197	6070.91	8446.09	364.41
1198	6075.41	8457.21	368.41
1199	6008.63	8426.17	369.11
1200	6016.27	8444.65	368.31
1201	6020.85	8455.75	364.31
1202	6024.66	8464.99	364.31
1203	6029.24	8476.08	368.31
1204	5962.42	8445.25	369.02
1205	5970.05	8463.74	368.22
1206	5974.63	8474.83	364.22
1207	5978.45	8484.07	364.22
1208	5983.03	8495.16	368.22
1209	5929.01	8459.04	368.96
1210	5936.76	8477.54	368.15
1211	5941.40	8488.61	364.15
1212	5945.26	8497.84	364.15
1213	5949.90	8508.90	368.15

1214	5914.63	8465.13	368.93
1215	5923.14	8483.25	368.12
1216	5928.25	8494.12	364.12
1217	5932.50	8503.18	364.12
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1226	5883.04	8516.79	364.03
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1228	5894.68	8535.51	368.02
1229	5848.52	8500.60	368.78
1230	5859.08	8517.59	367.98
1231	5865.42	8527.78	363.98
1232	5870.70	8536.27	363.98
1233	5877.04	8546.46	367.98
1234	5844.77	8502.93	368.77
1235	5855.42	8519.87	367.98
1236	5861.80	8530.03	363.98
1237	5867.12	8538.49	363.98
1238	5873.51	8548.65	367.98
1239	5823.61	8516.24	368.73
1240	5834.25	8533.17	367.93
1241	5840.64	8543.33	363.93
1242	5845.96	8551.80	363.93
1243	5852.34	8561.96	367.93
1244	5781.28	8542.85	368.63
1245	5791.92	8559.78	367.83
1246	5798.30	8569.94	363.83
1247	5803.63	8578.41	363.83
1248	5810.01	8588.57	367.83
1249	5747.13	8564.31	368.57
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1251	5766.59	8589.88	363.75
1252	5772.67	8597.87	363.75
1253	5779.97	8607.45	367.75
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1256	5756.22	8597.69	363.73
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1262	5744.35	8621.73	363.68
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1265	5711.03	8628.38	367.63
1266	5721.02	8635.03	363.63
1267	5729.35	8640.56	363.63
1268	5739.34	8647.21	367.63
1269	5681.86	8638.42	368.38

1270	5699.67	8647.30	367.58
1271	5710.41	8652.65	363.59
1272	5719.35	8657.12	363.59
1273	5730.09	8662.47	367.59
1274	5686.30	8674.29	367.53
1275	5697.07	8679.57	363.53
1276	5706.05	8683.98	363.53
1277	5716.82	8689.26	367.53
1278	5680.64	8685.83	367.50
1279	5711.17	8700.79	367.50
1280	5689.71	8719.11	364.00
1281	5678.40	8716.92	363.65
1282	6665.72	7609.21	380.00
1283	6659.00	7639.24	380.00
1284	6654.17	7673.48	380.00
1285	6652.47	7708.15	380.00
1286	6650.68	7741.29	380.00
1287	6649.29	7773.34	380.00
1288	6648.39	7788.85	380.00
1289	6647.33	7804.03	379.98
1290	6644.43	7823.96	380.00
1291	6637.25	7855.33	380.00
1292	6630.87	7875.15	380.00
1293	6621.61	7902.91	380.00
1294	6661.18	7590.47	380.00
1295	6658.40	7607.89	380.00
1296	6653.07	7638.27	380.00
1297	6648.33	7672.85	380.00
1298	6646.48	7707.81	380.00
1299	6644.69	7741.00	380.00
1300	6643.29	7773.10	380.00
1301	6642.41	7788.38	380.00
1302	6641.21	7803.55	380.00
1303	6638.69	7821.94	380.00
1304	6631.48	7853.68	380.00
1305	6623.40	7875.52	380.00
1306	6613.20	7897.47	380.00
1307	6600.41	7917.24	380.00
1308	6642.62	7572.63	379.99
1309	6650.26	7592.38	377.36
1310	6647.16	7598.01	376.80
1311	6640.47	7635.28	376.77
1312	6635.10	7674.17	376.75
1313	6633.31	7708.79	376.73
1314	6631.53	7740.77	376.71
1315	6630.04	7773.56	376.69
1316	6629.08	7788.75	376.69
1317	6627.89	7803.49	376.68
1318	6625.05	7822.38	376.70
1319	6618.30	7850.99	376.65
1320	6607.04	7879.52	376.62
1321	6590.95	7914.98	378.00
1322	6589.45	7927.07	380.00

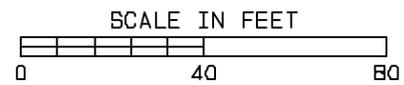


BBL, INC.	SHEET TITLE: GLADE CREEK GRADE SURVEY		FIGURE <b>1</b>
	STAKEOUT POINTS		
	PROJECT TITLE: GLADE CREEK RELOCATION		
	PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS		
	PROJECT NO: 38857.100	DATE: 05/26/04	BY: CAA

LEGEND



○ SURVEY STAKEOUT POINT



CENTERLINE CREEK RELOCATION

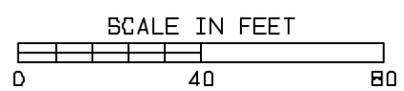
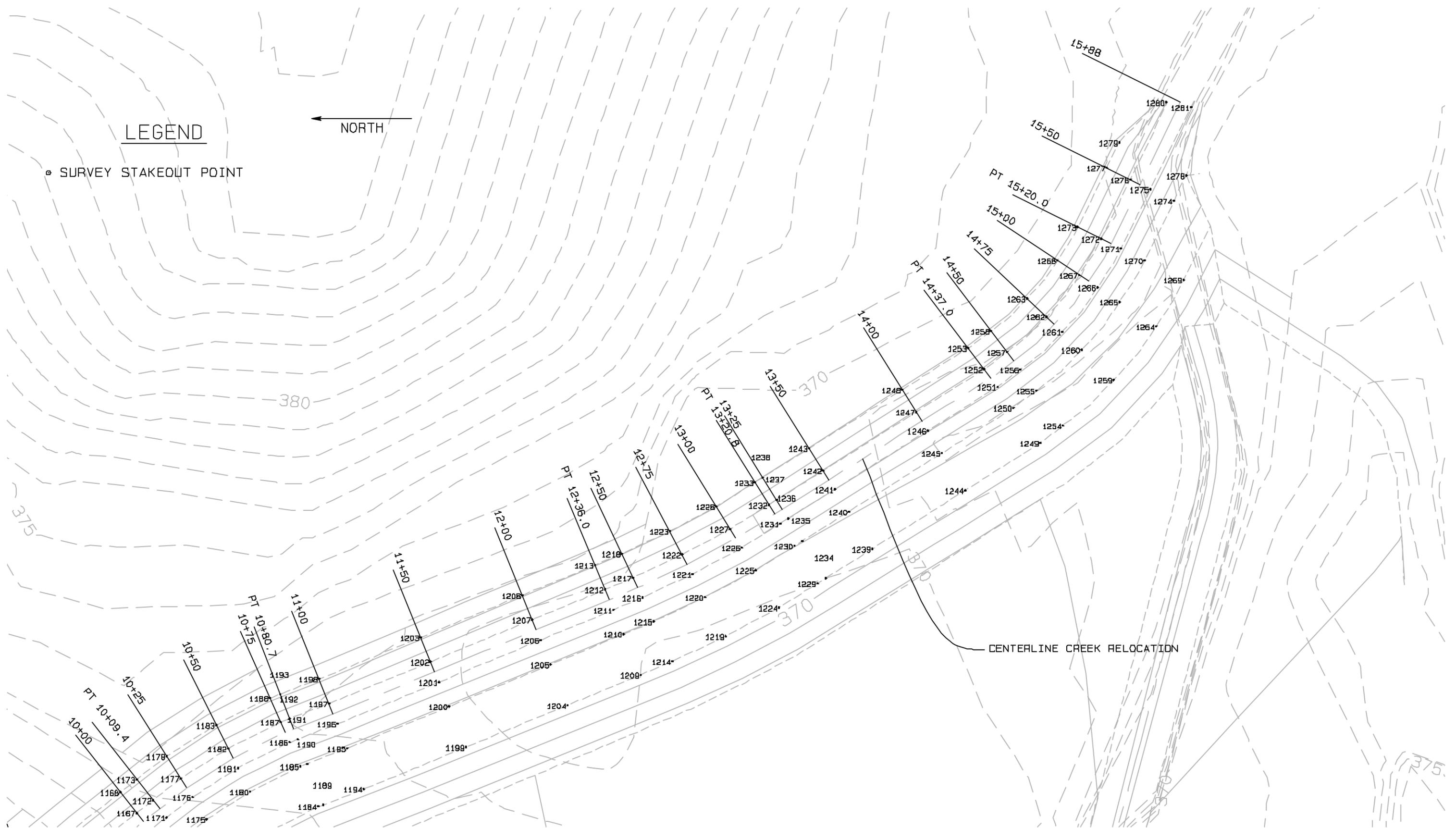
BBL, INC.

SHEET TITLE: GLADE CREEK GRADE  
 SURVEY STAKEOUT POINTS  
 PROJECT TITLE: GLADE CREEK RELOCATION  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: 38857.100  
 DATE: 05/26/04 BY: CAA FILE: 38857009 PRO

FIGURE  
 2

LEGEND

⊙ SURVEY STAKEOUT POINT



BBL, INC	SHEET TITLE: GLADE CREEK GRADE		FIGURE <b>3</b>
	SURVEY STAKEOUT POINTS		
	PROJECT TITLE: GLADE CREEK RELOCATION		
	PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS		
	PROJECT NO: 38857.100		
DATE: 05/26/04	BY: CAA	FILE: 38857009 PRO	



**FIELD ORDER NO. 005: August 3, 2004**

**PROJECT:** Former Process Area Surface Cover/CAMU Containment Cell Construction  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information relative to the CAMU containment cell and former process area surface cover clearing limits. Please note that additional area beyond limits given may be required based on final design conditions for surface cover area and for construction access.

The following items are attached to this Field Order:

- Table providing coordinates (northing and easting) of points delineating the limits of the CAMU containment cell and former process area surface cover.
- Figures (2) showing the locations for survey stakeout points.

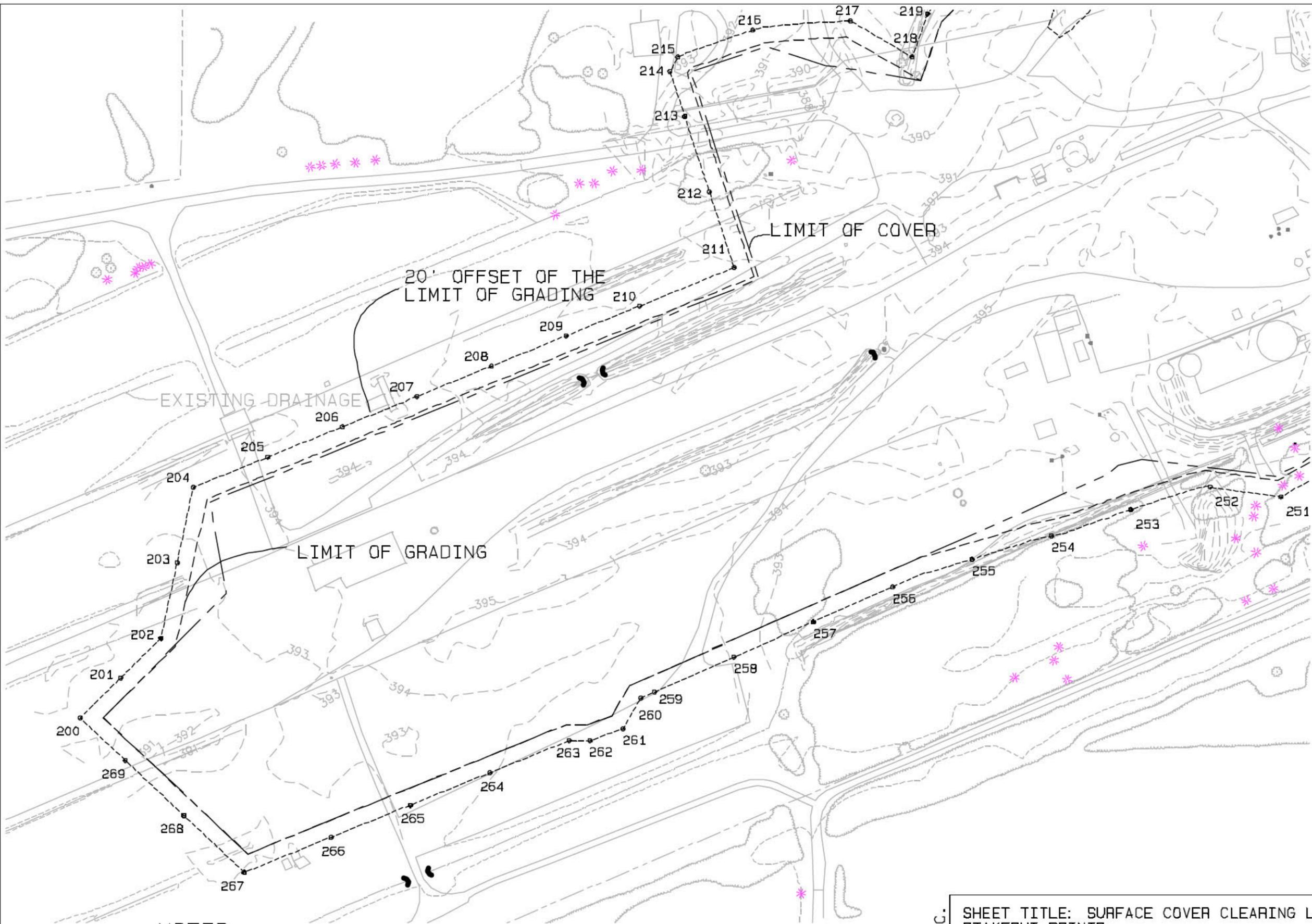
**ISSUED BY:** Phil Batten, BBL      **DATE:** June 3, 2004  
**REVISED:** August 3, 2004

Blasland Bouck & Lee, Inc.  
 6723 Towpath Road  
 Syracuse, New York 13214-0066, USA  
 1-315-446-2570  
 Tuesday, August 03, 2004 9:34:40 AM

PROJECT: F:\TMPROJ\388\38884\TM\38884.pro

Point	Coordinates	Listing	Name
Point	North	East	
122	5108.98	5302.15	Approx Limit of CAMU
123	5175.97	5286.85	Approx Limit of CAMU
124	5243.58	5272.26	Approx Limit of CAMU
125	5309.78	5256.49	Approx Limit of CAMU
126	5336.27	5252.33	Approx Limit of CAMU
127	5373.96	5246.28	20' Offset - Approx Limit of CAMU
128	5392.69	5270.19	20' Offset - Approx Limit of CAMU
129	5398.67	5288.39	20' Offset - Approx Limit of CAMU
130	5410.22	5307.40	20' Offset - Approx Limit of CAMU
131	5402.25	5324.11	20' Offset - Approx Limit of CAMU
132	5401.67	5337.90	20' Offset - Approx Limit of CAMU
133	5413.23	5331.30	20' Offset - Approx Limit of CAMU
134	5445.75	5383.88	20' Offset - Approx Limit of CAMU
135	5451.25	5420.75	20' Offset - Approx Limit of CAMU
136	5430.51	5469.06	20' Offset - Approx Limit of CAMU
137	5415.31	5485.32	20' Offset - Approx Limit of CAMU
138	5414.53	5501.42	20' Offset - Approx Limit of CAMU
139	5423.79	5514.70	20' Offset - Approx Limit of CAMU
140	5409.47	5534.24	20' Offset - Approx Limit of CAMU
141	5402.36	5563.68	20' Offset - Approx Limit of CAMU
142	5384.84	5590.88	20' Offset - Approx Limit of CAMU
143	5355.21	5608.40	20' Offset - Approx Limit of CAMU
144	5306.89	5620.16	20' Offset - Approx Limit of CAMU
145	5249.42	5633.59	20' Offset - Approx Limit of CAMU
146	5206.04	5643.32	20' Offset - Approx Limit of CAMU
147	5206.77	5647.29	20' Offset - Approx Limit of CAMU
148	5166.17	5669.46	20' Offset - Approx Limit of CAMU
200	4157.19	4061.47	20' OFFSET - LIMIT OF GRADING
201	4207.34	4112.40	20' OFFSET - LIMIT OF GRADING
202	4257.49	4163.34	20' OFFSET - LIMIT OF GRADING
203	4352.16	4183.60	20' OFFSET - LIMIT OF GRADING
204	4446.84	4203.87	20' OFFSET - LIMIT OF GRADING
205	4485.11	4297.83	20' OFFSET - LIMIT OF GRADING
206	4522.86	4391.69	20' OFFSET - LIMIT OF GRADING
207	4561.27	4485.63	20' OFFSET - LIMIT OF GRADING
208	4599.28	4579.65	20' OFFSET - LIMIT OF GRADING
209	4637.41	4673.65	20' OFFSET - LIMIT OF GRADING
210	4675.03	4766.39	20' OFFSET - LIMIT OF GRADING
211	4723.26	4885.29	20' OFFSET - LIMIT OF GRADING
212	4818.39	4854.12	20' OFFSET - LIMIT OF GRADING
213	4913.52	4822.95	20' OFFSET - LIMIT OF GRADING
214	4969.69	4804.55	20' OFFSET - LIMIT OF GRADING
215	4987.77	4814.40	20' OFFSET - LIMIT OF GRADING
216	5021.68	4908.67	20' OFFSET - LIMIT OF GRADING
217	5033.17	5031.99	20' OFFSET - LIMIT OF GRADING
218	4987.98	5109.58	20' OFFSET - LIMIT OF GRADING

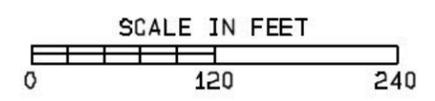
219	5042.54	5128.63	20'	OFFSET	-	LIMIT	OF	GRADING
220	5078.12	5165.60	20'	OFFSET	-	LIMIT	OF	GRADING
221	5092.97	5265.57	20'	OFFSET	-	LIMIT	OF	GRADING
222	5157.67	5702.22	20'	OFFSET	-	LIMIT	OF	GRADING
223	5180.82	5800.17	20'	OFFSET	-	LIMIT	OF	GRADING
224	5203.58	5897.58	20'	OFFSET	-	LIMIT	OF	GRADING
225	5226.86	5994.85	20'	OFFSET	-	LIMIT	OF	GRADING
226	5259.16	6089.78	20'	OFFSET	-	LIMIT	OF	GRADING
227	5287.56	6185.72	20'	OFFSET	-	LIMIT	OF	GRADING
228	5306.79	6284.04	20'	OFFSET	-	LIMIT	OF	GRADING
229	5325.66	6382.46	20'	OFFSET	-	LIMIT	OF	GRADING
230	5344.53	6480.87	20'	OFFSET	-	LIMIT	OF	GRADING
231	5370.17	6577.53	20'	OFFSET	-	LIMIT	OF	GRADING
232	5399.51	6666.23	20'	OFFSET	-	LIMIT	OF	GRADING
233	5392.72	6698.26	20'	OFFSET	-	LIMIT	OF	GRADING
234	5416.98	6797.17	20'	OFFSET	-	LIMIT	OF	GRADING
235	5358.84	6823.08	20'	OFFSET	-	LIMIT	OF	GRADING
236	5300.69	6848.99	20'	OFFSET	-	LIMIT	OF	GRADING
237	5259.87	6757.44	20'	OFFSET	-	LIMIT	OF	GRADING
238	5219.07	6665.94	20'	OFFSET	-	LIMIT	OF	GRADING
239	5178.28	6574.45	20'	OFFSET	-	LIMIT	OF	GRADING
240	5137.48	6482.96	20'	OFFSET	-	LIMIT	OF	GRADING
241	5095.24	6392.21	20'	OFFSET	-	LIMIT	OF	GRADING
242	5045.91	6305.15	20'	OFFSET	-	LIMIT	OF	GRADING
243	4971.45	6173.75	20'	OFFSET	-	LIMIT	OF	GRADING
244	4928.15	6053.68	20'	OFFSET	-	LIMIT	OF	GRADING
245	4905.45	5962.87	20'	OFFSET	-	LIMIT	OF	GRADING
246	4887.11	5920.34	20'	OFFSET	-	LIMIT	OF	GRADING
247	4815.58	5845.00	20'	OFFSET	-	LIMIT	OF	GRADING
248	4696.80	5791.06	20'	OFFSET	-	LIMIT	OF	GRADING
249	4591.40	5760.94	20'	OFFSET	-	LIMIT	OF	GRADING
250	4493.34	5677.87	20'	OFFSET	-	LIMIT	OF	GRADING
251	4435.13	5574.17	20'	OFFSET	-	LIMIT	OF	GRADING
252	4447.66	5484.99	20'	OFFSET	-	LIMIT	OF	GRADING
253	4418.93	5384.95	20'	OFFSET	-	LIMIT	OF	GRADING
254	4385.81	5284.91	20'	OFFSET	-	LIMIT	OF	GRADING
255	4356.56	5184.87	20'	OFFSET	-	LIMIT	OF	GRADING
256	4321.68	5084.83	20'	OFFSET	-	LIMIT	OF	GRADING
257	4277.74	4984.93	20'	OFFSET	-	LIMIT	OF	GRADING
258	4233.75	4884.95	20'	OFFSET	-	LIMIT	OF	GRADING
259	4189.73	4784.89	20'	OFFSET	-	LIMIT	OF	GRADING
260	4182.21	4767.80	20'	OFFSET	-	LIMIT	OF	GRADING
261	4143.43	4745.12	20'	OFFSET	-	LIMIT	OF	GRADING
262	4128.65	4703.72	20'	OFFSET	-	LIMIT	OF	GRADING
263	4128.65	4677.35	20'	OFFSET	-	LIMIT	OF	GRADING
264	4088.11	4577.34	20'	OFFSET	-	LIMIT	OF	GRADING
265	4047.56	4477.33	20'	OFFSET	-	LIMIT	OF	GRADING
266	4007.02	4377.32	20'	OFFSET	-	LIMIT	OF	GRADING
267	3962.85	4268.37	20'	OFFSET	-	LIMIT	OF	GRADING
268	4034.58	4192.01	20'	OFFSET	-	LIMIT	OF	GRADING
269	4103.68	4118.44	20'	OFFSET	-	LIMIT	OF	GRADING



NORTH ↑

**LEGEND**

⊙ SURVEY STAKEOUT POINT

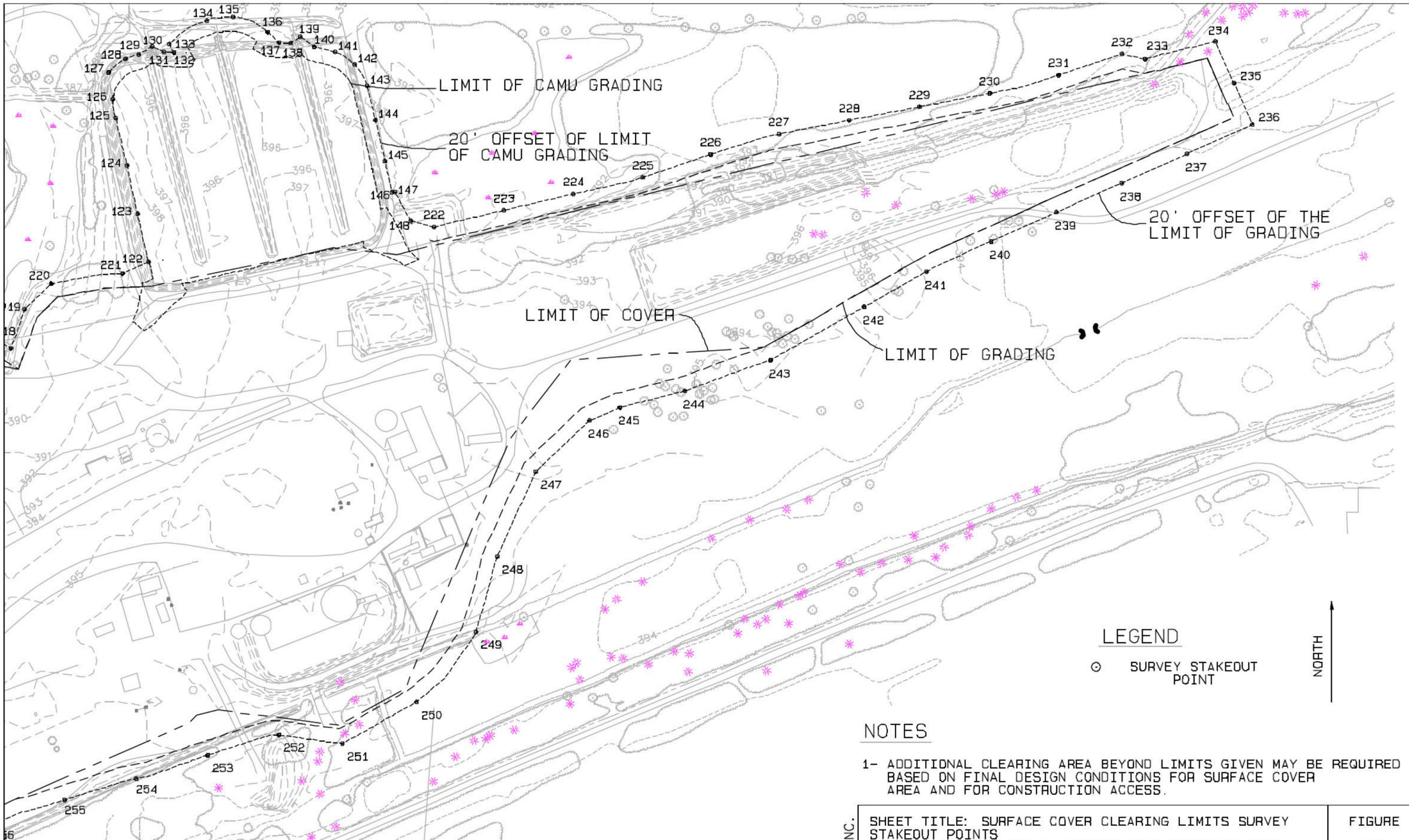


**NOTES**

1- ADDITIONAL CLEARING AREA BEYOND LIMITS GIVEN MAY BE REQUIRED BASED ON FINAL DESIGN CONDITIONS FOR SURFACE COVER AREA AND FOR CONSTRUCTION ACCESS.

BBL, INC.  
 SHEET TITLE: SURFACE COVER CLEARING LIMITS SURVEY  
 STAKEOUT POINTS  
 PROJECT TITLE: FORMER KOPPERS WOOD TREATING SITE  
 PROJECT LOCATION: CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.010  
 DATE: 08/03/2004 BY: RLP FILE: 38884.PRO

FIGURE  
 1



**NOTES**

1- ADDITIONAL CLEARING AREA BEYOND LIMITS GIVEN MAY BE REQUIRED BASED ON FINAL DESIGN CONDITIONS FOR SURFACE COVER AREA AND FOR CONSTRUCTION ACCESS.

BBL, INC.	SHEET TITLE: SURFACE COVER CLEARING LIMITS SURVEY		FIGURE	
	STAKEOUT POINTS			2
	PROJECT TITLE: FORMER KOPPERS WOOD TREATING SITE			
	PROJECT LOCATION: CARBONDALE, ILLINOIS			
	PROJECT NO: 38883.010			
DATE: 08/03/2004	BY: RLP	FILE: 38884.PRO		



**FIELD ORDER NO. 007: June 7, 2004**

**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information pertaining to stockpiling/disposal of cleared materials.

Items associated with this Field Order are as follows:

1. Trees, brush, and other vegetation, and grubbed root structures removed from unimpacted areas during clearing activities will be stockpiled onsite in accordance with the *Materials Management Plan* (BBL, 2004) and allowed to biologically degrade. This represents a change from the original Glade Creek channel relocation design (see Note 8 on Design Drawing No. 1), which called for chipping of trees, shrubs, and other dense vegetation to provide mulch for site restoration activities. The location of the stockpile will be determined during clearing activities and approved by the Owner and Engineer prior to stockpiling activities commencing.
2. In accordance with the *Materials Management Plan* (BBL, 2004), grubbed root structures removed from impacted areas during clearing activities will be placed in the containment cell. Materials will be chipped and processed through a tub grinder prior to being blended, graded, and compacted with other consolidated materials within the containment cell.
3. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Jeremy Neighbors, BBL **DATE:** June 7, 2004



**FIELD ORDER NO. 008: June 4, 2004**

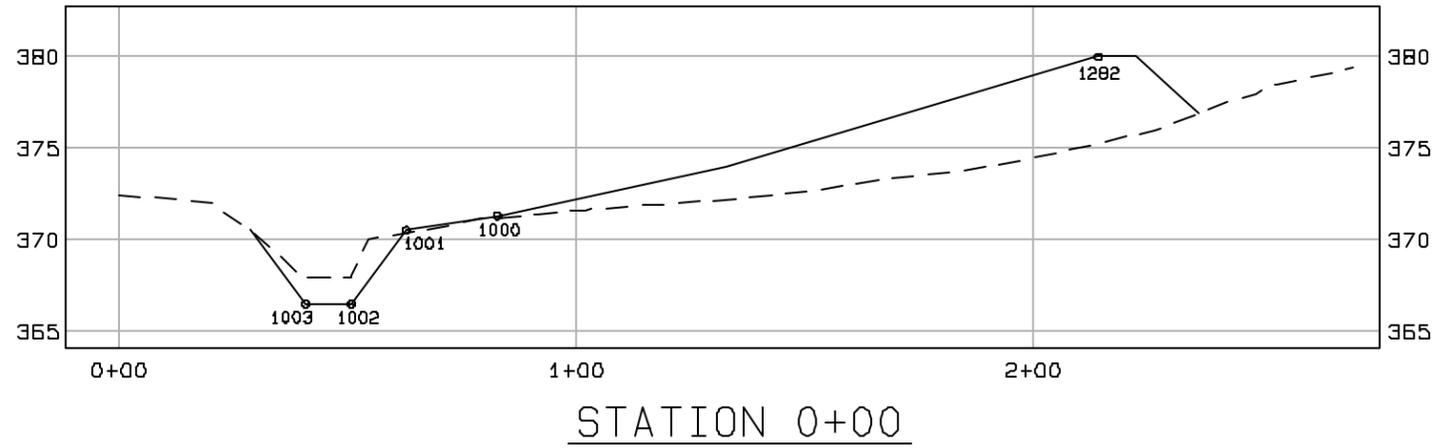
**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes cross sections along various stations of the Glade Creek relocation design.

The following items are attached to this Field Order:

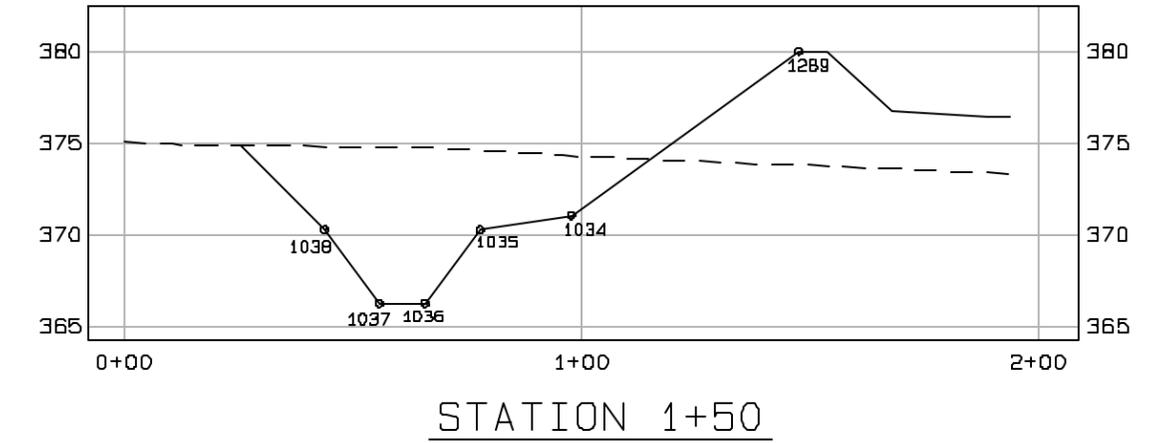
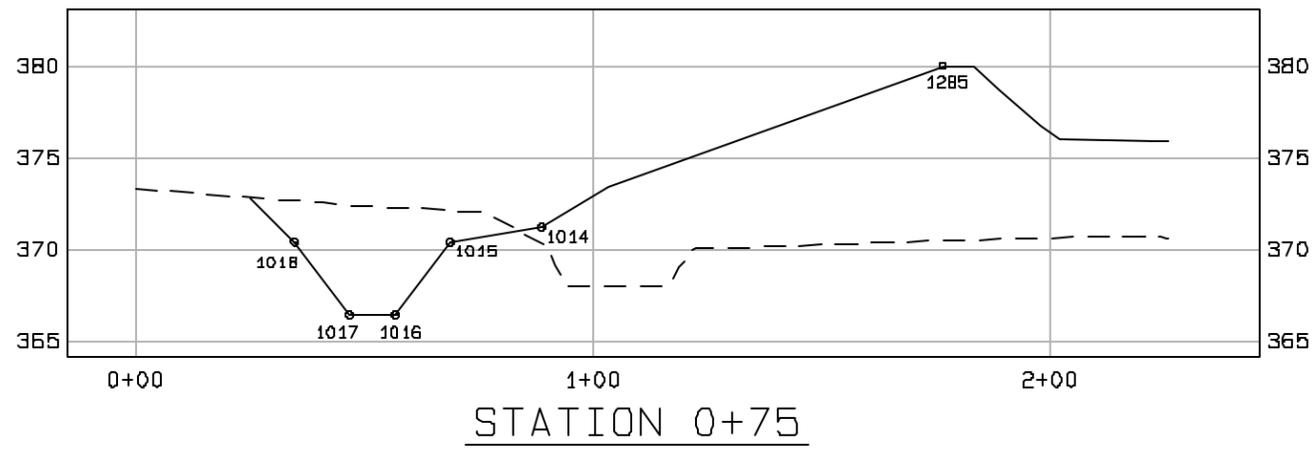
- Figures (2) showing the cross sections for various stations along the Glade Creek relocation design.

**ISSUED BY:** Phil Batten, BBL **DATE:** June 4, 2004



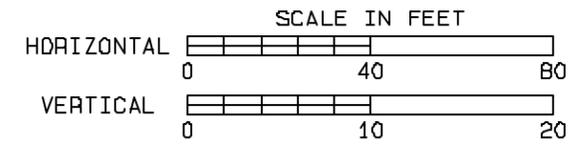
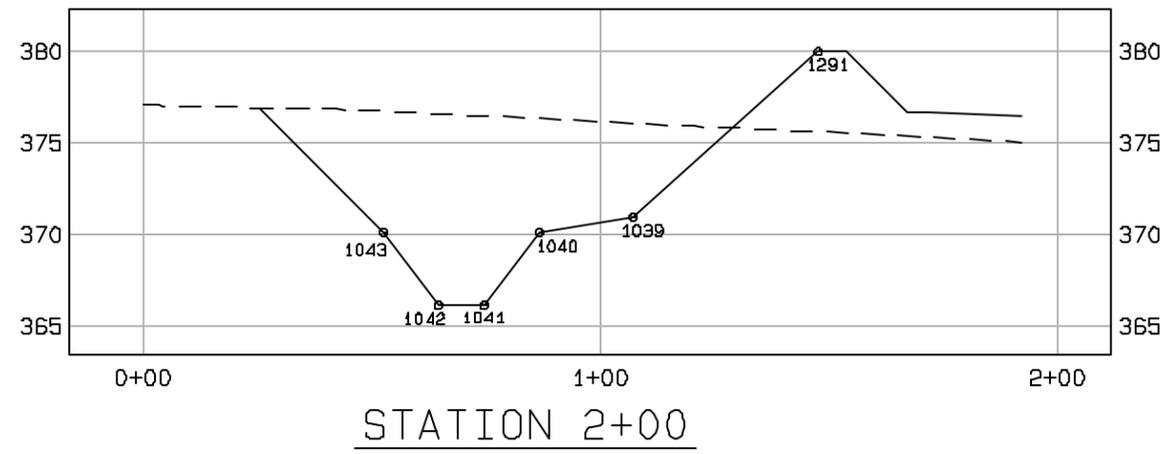
LEGEND

- ◻ SURVEY STAKEOUT POINT (SEE NOTE 1)
- PROPOSED FINAL GRADE
- - - EXISTING GRADE



NOTES

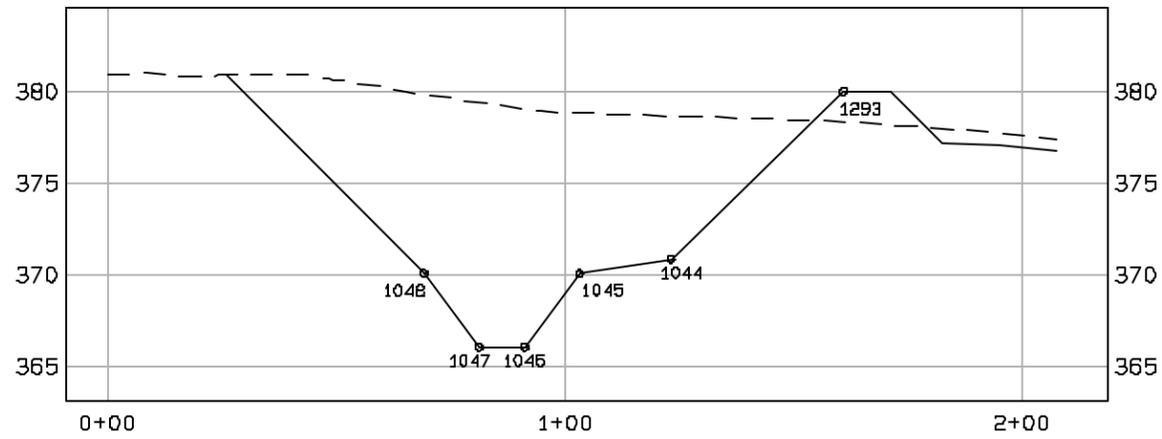
1- SURVEY STAKEOUT POINT COORESponds TO FIELD ORDER NO. 004.



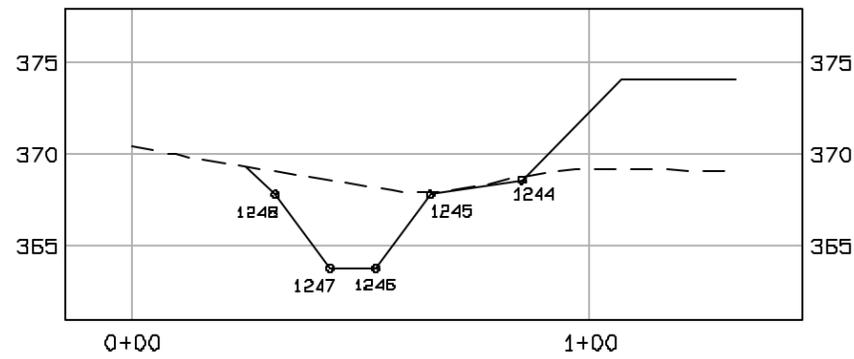
BBL, INC

SHEET TITLE: GLADE CREEK CROSS SECTIONS  
 PROJECT TITLE: GLADE CREEK RELOCATION  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.003  
 DATE: 06/04/04 BY: CAA FILE: 38857009.PRO

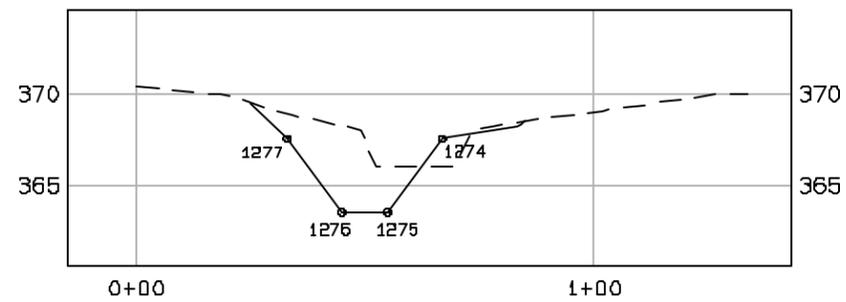
FIGURE  
1



STATION 2+50



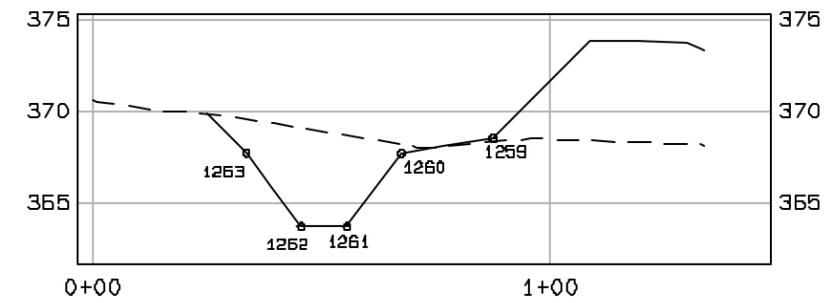
STATION 14+00



STATION 15+50

LEGEND

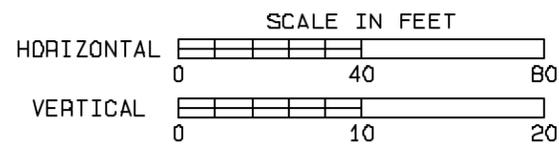
- ◻ SURVEY STAKEOUT POINT (SEE NOTE 1)
- PROPOSED FINAL GRADE
- - - EXISTING GRADE



STATION 14+75

NOTES

1- SURVEY STAKEOUT POINT COORESponds TO FIELD ORDER NO. 004.



BBL, INC

SHEET TITLE: GLADE CREEK CROSS SECTIONS  
 PROJECT TITLE: GLADE CREEK RELOCATION  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.003  
 DATE: 06/04/04 BY: CAA FILE: 38857009.PRO

FIGURE  
 2



**FIELD ORDER NO. 009: June 10, 2004**

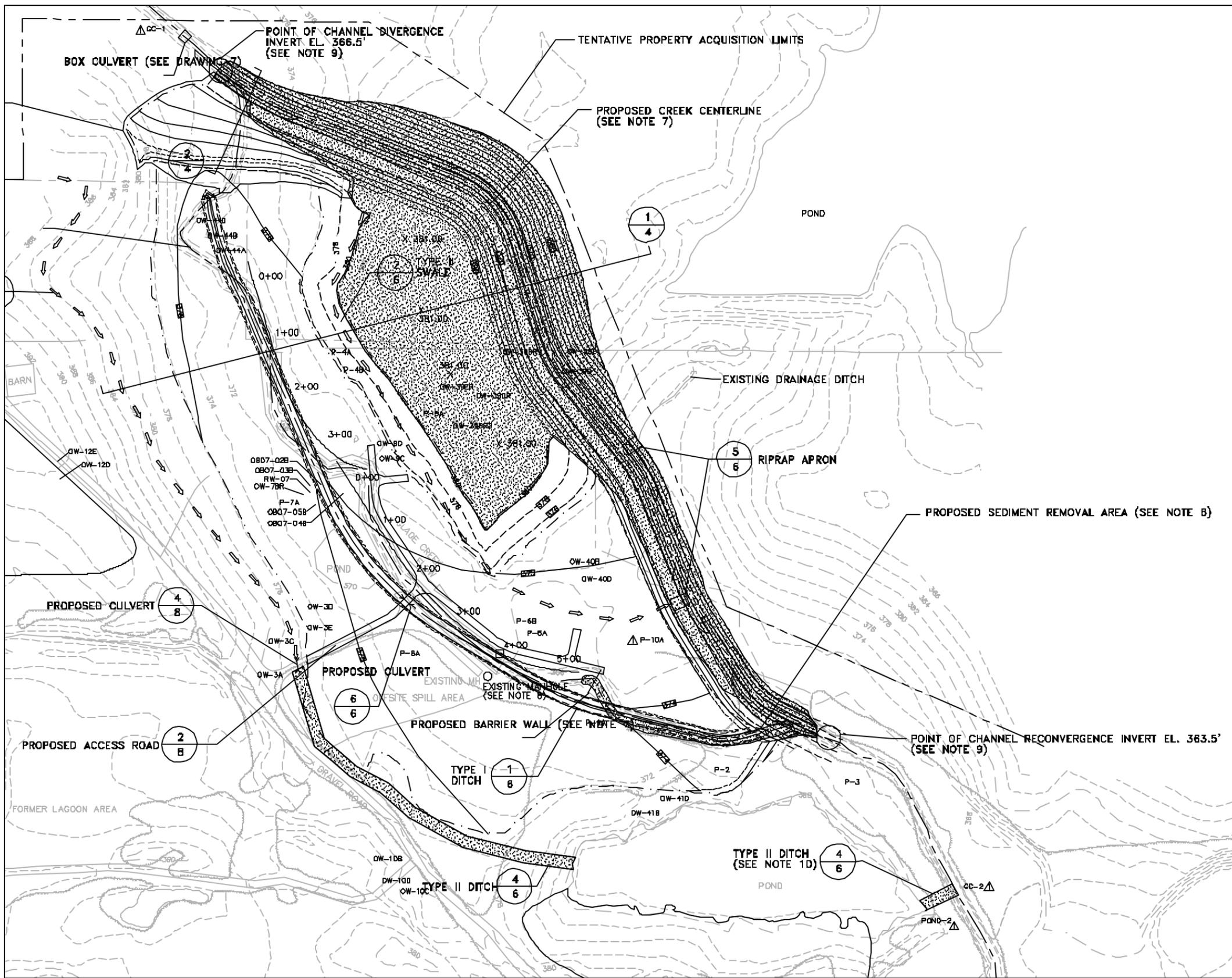
**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order depicts the approximate excavation areas associated with the Glade Creek relocation design.

The following items are attached to this Field Order:

- Figure 1- Glade Creek Excavation Areas.

**ISSUED BY:** Phil Batten, BBL      **DATE:** June 10, 2004

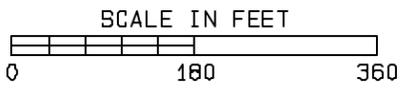


**LEGEND**

 APPROXIMATE EXCAVATION AREA

**NOTES**

- 1- REFER TO DRAWING 2 CONTAINED WITHIN THE GLADE CREEK RELOCATION BASIS OF DESIGN REPORT FOR BASE MAP, INFORMATION REGARDING NOTES, AND ADDITIONAL REFERENCES
- 2- REQUIREMENTS ASSOCIATED WITH THE PRESERVATION OF THE ARCHEOLOGICAL AREA NOT SHOWN ON THIS FIGURE. REFER TO FIELD ORDER NO 002 FOR ARCHEOLOGICAL AREA LIMITS.



BBL, INC

SHEET TITLE: GLADE CREEK EXCAVATION AREAS  
 PROJECT TITLE: GLADE CREEK RELOCATION  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.003  
 DATE: 06/07/04 BY: CAA FILE: FO 009.PRO

FIGURE  
 1



**FIELD ORDER NO. 010: July 12, 2004**

**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

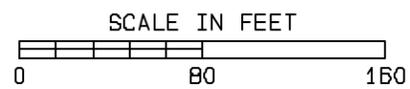
**TO THE CONTRACTOR:** This Field Order includes the revised grades adjacent to the Glade Creek Channel Relocation associated with the archaeological area.

**ISSUED BY:** Phil Batten, BBL      **DATE:** July 12, 2004



LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- GRADE BREAK
- 380 SPOT ELEVATION



BBL, INC

SHEET TITLE: ARCHAEOLOGICAL AREA GRADES  
 PROJECT TITLE: GLADE CREEK RELOCATION  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.003  
 DATE: 07/12/04 BY: CAA FILE: 38857009.PRO

FIGURE

1



**FIELD ORDER NO. 011: July 19, 2004**

**PROJECT:** CAMU Containment Cell Construction  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information relative to survey control for the CAMU containment cell perimeter berm, liner subgrade, and anchor trench.

The following items are attached to this Field Order:

- Table providing coordinates (northing, easting, and elevation) of points delineating the grades of the CAMU containment cell perimeter berm and liner subgrade.
- Figure showing the locations for the subgrade grade control.
- Table providing coordinates (northing and easting) of points delineating the centerline of the CAMU liner system anchor trench.
- Figure showing the locations for the liner system anchor trench survey control.

**ISSUED BY:** Phil Batten, BBL **DATE:** July 19, 2004

Blasland Bouck & Lee, Inc.  
 6723 Towpath Road  
 Syracuse, New York 13214-0066, USA  
 1-315-446-2570  
 Monday, July 19, 2004 12:18:19 PM

**CAMU LINER SUBGRADE GRADE CONTROL**

PROJECT: F:\TMPROJ\388\38865\TM\38865.pro

Point	Coordinates	Listing		
Point	North	East	Elev	Name
200	5129.98	5316.44	406.00	EXTERIOR CREST OF BERM
201	5178.77	5305.53	406.00	EXTERIOR CREST OF BERM
202	5227.57	5294.63	406.00	EXTERIOR CREST OF BERM
203	5276.36	5283.72	406.00	EXTERIOR CREST OF BERM
204	5327.35	5272.32	406.00	EXTERIOR CREST OF BERM
205	5343.28	5275.53	406.00	EXTERIOR CREST OF BERM
206	5351.58	5289.51	406.00	EXTERIOR CREST OF BERM
207	5356.16	5328.56	406.00	EXTERIOR CREST OF BERM
208	5360.68	5367.12	406.00	EXTERIOR CREST OF BERM
209	5364.03	5376.08	406.00	EXTERIOR CREST OF BERM
210	5370.57	5382.29	406.00	EXTERIOR CREST OF BERM
211	5378.45	5387.76	406.00	EXTERIOR CREST OF BERM
212	5383.40	5396.91	406.00	EXTERIOR CREST OF BERM
213	5385.86	5407.28	406.00	EXTERIOR CREST OF BERM
214	5388.32	5417.64	406.00	EXTERIOR CREST OF BERM
215	5388.44	5426.34	406.00	EXTERIOR CREST OF BERM
216	5384.42	5434.87	406.00	EXTERIOR CREST OF BERM
217	5372.18	5459.34	406.00	EXTERIOR CREST OF BERM
218	5370.94	5462.52	406.00	EXTERIOR CREST OF BERM
219	5370.27	5465.86	406.00	EXTERIOR CREST OF BERM
220	5367.42	5490.69	406.00	EXTERIOR CREST OF BERM
221	5361.71	5540.37	406.00	EXTERIOR CREST OF BERM
222	5360.57	5550.26	406.00	EXTERIOR CREST OF BERM
223	5355.67	5561.24	406.00	EXTERIOR CREST OF BERM
224	5345.36	5567.43	406.00	EXTERIOR CREST OF BERM
225	5330.16	5571.06	406.00	EXTERIOR CREST OF BERM
226	5281.53	5582.70	406.00	EXTERIOR CREST OF BERM
227	5232.91	5594.34	406.00	EXTERIOR CREST OF BERM
228	5187.35	5605.24	406.00	EXTERIOR CREST OF BERM
229	5163.24	5590.41	406.00	EXTERIOR CREST OF BERM
230	5152.43	5544.93	406.00	EXTERIOR CREST OF BERM
231	5140.88	5496.29	406.00	EXTERIOR CREST OF BERM
232	5129.32	5447.64	406.00	EXTERIOR CREST OF BERM
233	5117.76	5398.99	406.00	EXTERIOR CREST OF BERM
234	5104.44	5342.91	406.00	EXTERIOR CREST OF BERM
235	5119.54	5318.77	406.00	EXTERIOR CREST OF BERM
236	5181.96	5319.81	406.61	INTERIOR CREST OF BERM
237	5230.77	5308.94	406.61	INTERIOR CREST OF BERM
238	5279.57	5298.07	406.61	INTERIOR CREST OF BERM
239	5312.27	5290.80	406.61	INTERIOR CREST OF BERM
240	5328.12	5293.96	406.61	INTERIOR CREST OF BERM
241	5339.32	5330.54	406.61	INTERIOR CREST OF BERM
242	5345.57	5380.15	406.61	INTERIOR CREST OF BERM
243	5351.82	5429.76	406.61	INTERIOR CREST OF BERM

244	5354.72	5452.78	406.61	INTERIOR CREST OF BERM
245	5354.98	5457.66	406.61	INTERIOR CREST OF BERM
246	5354.77	5460.91	406.61	INTERIOR CREST OF BERM
247	5351.60	5488.88	406.61	INTERIOR CREST OF BERM
248	5346.03	5538.06	406.61	INTERIOR CREST OF BERM
249	5341.14	5549.05	406.61	INTERIOR CREST OF BERM
250	5330.83	5555.25	406.61	INTERIOR CREST OF BERM
251	5278.00	5567.95	406.61	INTERIOR CREST OF BERM
252	5229.39	5579.64	406.61	INTERIOR CREST OF BERM
253	5197.59	5587.28	406.61	INTERIOR CREST OF BERM
254	5182.04	5587.07	406.61	INTERIOR CREST OF BERM
255	5170.25	5573.22	406.61	INTERIOR CREST OF BERM
256	5162.94	5542.44	406.61	INTERIOR CREST OF BERM
257	5151.38	5493.79	406.61	INTERIOR CREST OF BERM
258	5139.83	5445.15	406.61	INTERIOR CREST OF BERM
259	5128.27	5396.50	406.61	INTERIOR CREST OF BERM
260	5118.36	5354.75	406.61	INTERIOR CREST OF BERM
261	5122.75	5336.98	406.61	INTERIOR CREST OF BERM
262	5136.11	5330.02	406.61	INTERIOR CREST OF BERM
263	5153.93	5342.14	401.00	INTERIOR TOE OF BERM
264	5203.18	5333.48	400.13	INTERIOR TOE OF BERM
265	5252.42	5324.83	399.26	INTERIOR TOE OF BERM
266	5292.11	5317.85	398.56	INTERIOR TOE OF BERM
267	5307.98	5321.86	398.41	INTERIOR TOE OF BERM
268	5315.54	5336.38	398.24	INTERIOR TOE OF BERM
269	5319.98	5412.26	396.34	INTERIOR TOE OF BERM
270	5320.74	5425.37	396.01	INTERIOR TOE OF BERM
271	5323.14	5437.00	396.31	INTERIOR TOE OF BERM
272	5326.43	5453.00	396.73	INTERIOR TOE OF BERM
273	5327.06	5457.68	396.85	INTERIOR TOE OF BERM
274	5327.11	5460.83	396.93	INTERIOR TOE OF BERM
275	5325.64	5511.59	398.52	INTERIOR TOE OF BERM
276	5325.40	5519.93	398.78	INTERIOR TOE OF BERM
277	5321.19	5531.63	398.91	INTERIOR TOE OF BERM
278	5310.88	5538.59	399.01	INTERIOR TOE OF BERM
279	5271.08	5549.92	399.68	INTERIOR TOE OF BERM
280	5222.99	5563.61	400.49	INTERIOR TOE OF BERM
281	5208.08	5567.85	400.74	INTERIOR TOE OF BERM
282	5191.81	5565.46	400.76	INTERIOR TOE OF BERM
283	5182.84	5551.68	400.63	INTERIOR TOE OF BERM
284	5175.07	5501.63	399.13	INTERIOR TOE OF BERM
285	5171.24	5476.93	398.39	INTERIOR TOE OF BERM
286	5169.21	5463.85	397.99	INTERIOR TOE OF BERM
287	5165.60	5452.65	398.33	INTERIOR TOE OF BERM
288	5150.29	5405.05	399.78	INTERIOR TOE OF BERM
289	5138.36	5367.96	400.90	INTERIOR TOE OF BERM
290	5140.27	5351.51	401.03	INTERIOR TOE OF BERM
291	5300.00	5325.00	398.45	FLOOR
292	5300.00	5375.00	397.42	FLOOR
293	5300.00	5425.00	396.41	FLOOR
294	5300.00	5450.00	396.81	FLOOR
295	5300.00	5500.00	398.10	FLOOR
296	5250.00	5350.00	398.80	FLOOR
297	5250.00	5400.00	397.84	FLOOR
298	5250.00	5500.00	398.41	FLOOR
299	5250.00	5550.00	399.86	FLOOR
300	5200.00	5375.00	399.31	FLOOR

301	5200.00	5425.00	398.32	FLOOR
302	5200.00	5475.00	398.09	FLOOR
303	5200.00	5525.00	399.54	FLOOR
304	5150.00	5375.00	400.42	FLOOR
305	5296.51	5431.52	396.32	FLOOR CENTERLINE
306	5272.28	5437.68	396.64	FLOOR CENTERLINE
307	5248.05	5443.83	396.96	FLOOR CENTERLINE
308	5223.82	5449.98	397.28	FLOOR CENTERLINE
309	5199.59	5456.14	397.60	FLOOR CENTERLINE
310	5318.86	5253.90	398.24	EXTERIOR TOE OF BERM
311	5336.27	5252.33	398.12	EXTERIOR TOE OF BERM
312	5355.67	5258.07	397.47	EXTERIOR TOE OF BERM
313	5374.85	5279.24	396.06	EXTERIOR TOE OF BERM
314	5380.31	5296.69	395.31	EXTERIOR TOE OF BERM
315	5387.52	5308.55	392.74	EXTERIOR TOE OF BERM
316	5382.64	5318.77	394.78	EXTERIOR TOE OF BERM
317	5380.74	5357.15	397.01	EXTERIOR TOE OF BERM
318	5383.92	5364.12	396.63	EXTERIOR TOE OF BERM
319	5392.12	5367.07	396.19	EXTERIOR TOE OF BERM
320	5409.73	5356.33	388.26	EXTERIOR TOE OF BERM
321	5420.14	5371.13	388.46	EXTERIOR TOE OF BERM
322	5428.56	5394.14	388.17	EXTERIOR TOE OF BERM
323	5431.31	5413.13	388.77	EXTERIOR TOE OF BERM
324	5428.38	5434.66	389.69	EXTERIOR TOE OF BERM
325	5417.26	5453.93	390.86	EXTERIOR TOE OF BERM
326	5406.30	5448.30	395.74	EXTERIOR TOE OF BERM
327	5395.96	5469.77	395.62	EXTERIOR TOE OF BERM
328	5395.11	5487.58	395.24	EXTERIOR TOE OF BERM
329	5394.20	5506.50	394.83	EXTERIOR TOE OF BERM
330	5399.21	5514.41	392.87	EXTERIOR TOE OF BERM
331	5390.91	5525.72	395.20	EXTERIOR TOE OF BERM
332	5385.25	5551.03	396.12	EXTERIOR TOE OF BERM
333	5375.79	5571.08	396.74	EXTERIOR TOE OF BERM
334	5360.37	5584.43	397.08	EXTERIOR TOE OF BERM
335	5347.71	5589.64	397.14	EXTERIOR TOE OF BERM
336	5025.43	5280.37	391.68	EDGE OF ACCESS ROAD
337	5038.77	5291.60	394.32	EDGE OF ACCESS ROAD
338	5063.02	5304.78	398.19	EDGE OF ACCESS ROAD
339	5085.22	5316.28	401.94	EDGE OF ACCESS ROAD
340	5111.52	5322.63	406.00	EDGE OF ACCESS ROAD
341	5012.61	5295.78	391.71	EDGE OF ACCESS ROAD
342	5030.19	5310.10	394.44	EDGE OF ACCESS ROAD
343	5053.77	5322.51	398.19	EDGE OF ACCESS ROAD
344	5077.87	5334.97	401.94	EDGE OF ACCESS ROAD
345	5104.15	5341.45	406.00	EDGE OF ACCESS ROAD
346	5103.27	5660.62	393.66	EDGE OF ACCESS ROAD
347	5124.44	5637.71	397.11	EDGE OF ACCESS ROAD
348	5141.39	5619.33	400.86	EDGE OF ACCESS ROAD
349	5164.59	5594.17	406.00	EDGE OF ACCESS ROAD
350	5111.99	5680.75	393.48	EDGE OF ACCESS ROAD
351	5140.99	5649.26	397.11	EDGE OF ACCESS ROAD
352	5157.94	5630.88	400.86	EDGE OF ACCESS ROAD
353	5181.14	5605.72	406.00	EDGE OF ACCESS ROAD

AREAS OF ADDITIONAL SOIL-FILL  
PER CONSTRUCTION DETAIL 5,  
DRAWING 6.

AREAS OF ADDITIONAL SOIL FILL  
PER CONSTRUCTION DETAIL 5,  
DRAWING 6.

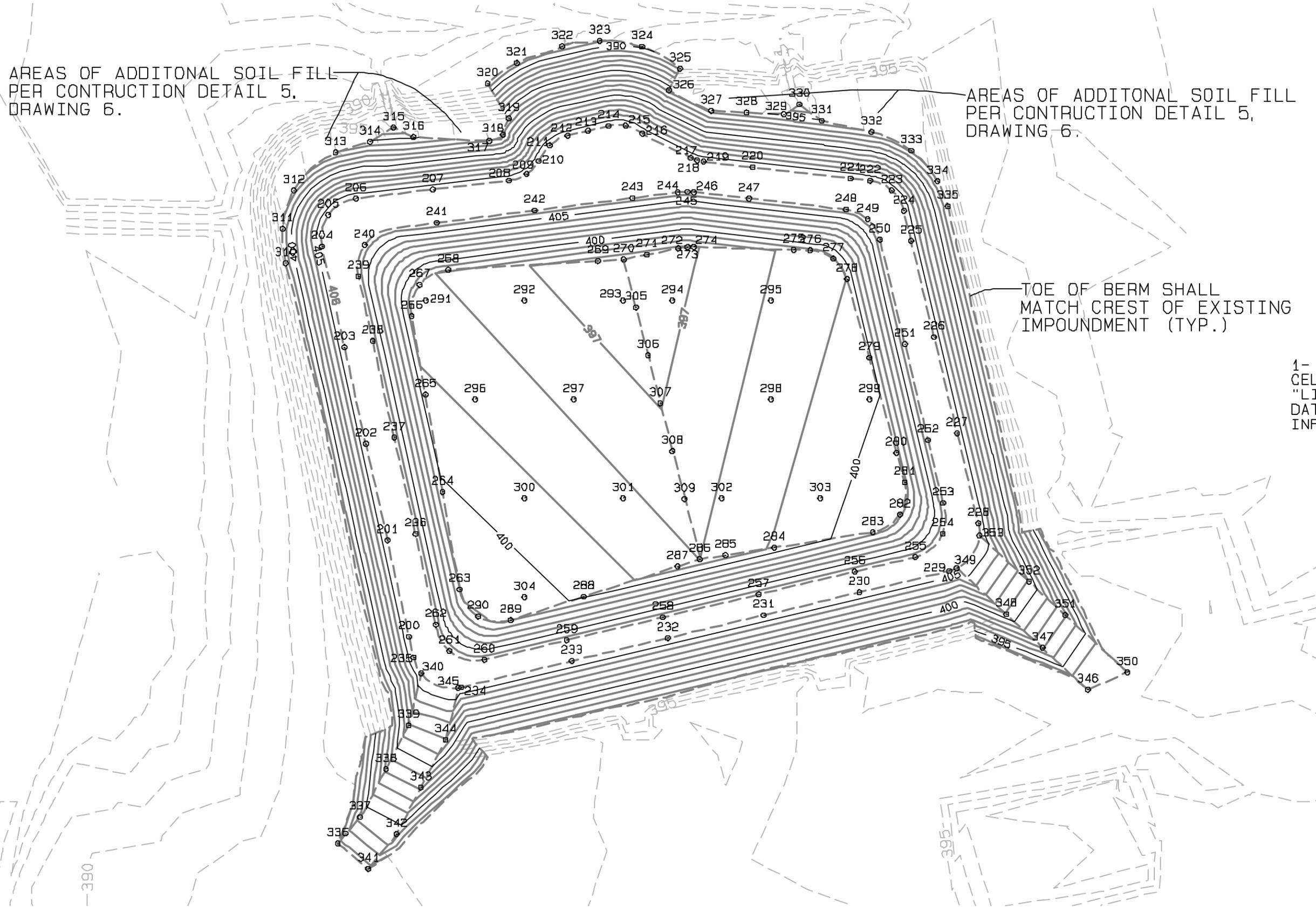
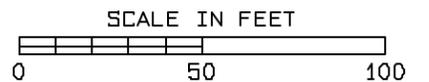
LEGEND

- 224 GRADE CONTROL POINT
- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED GRADE BREAK

TOE OF BERM SHALL  
MATCH CREST OF EXISTING  
IMPOUNDMENT (TYP.)

NOTES

1- REFER TO CAMU CONTAINMENT  
CELL DESIGN DRAWING 2 ENTITLED  
"LINER SYSTEM GRADING PLAN,"  
DATED MAY 2004 FOR ADDITIONAL  
INFORMATION.



BBL, INC.	SHEET TITLE: CAMU LINER SUBGRADE GRADE CONTROL POINTS	FIGURE
	PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE	1
	PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS	
	PROJECT NO. 38883.	
	DATE: 07/19/04	
	BY: CAA	
	FILE: 38865.PRO	

Blasland Bouck & Lee, Inc.  
6723 Towpath Road  
Syracuse, New York 13214-0066, USA  
1-315-446-2570  
Monday, July 19, 2004 1:01:45 PM

**CAMU LINER SYSTEM ANCHOR TRENCH ALIGNMENT GRADE CONTROL**

PROJECT: F:\TMPROJ\388\38865\TM\38865.pro

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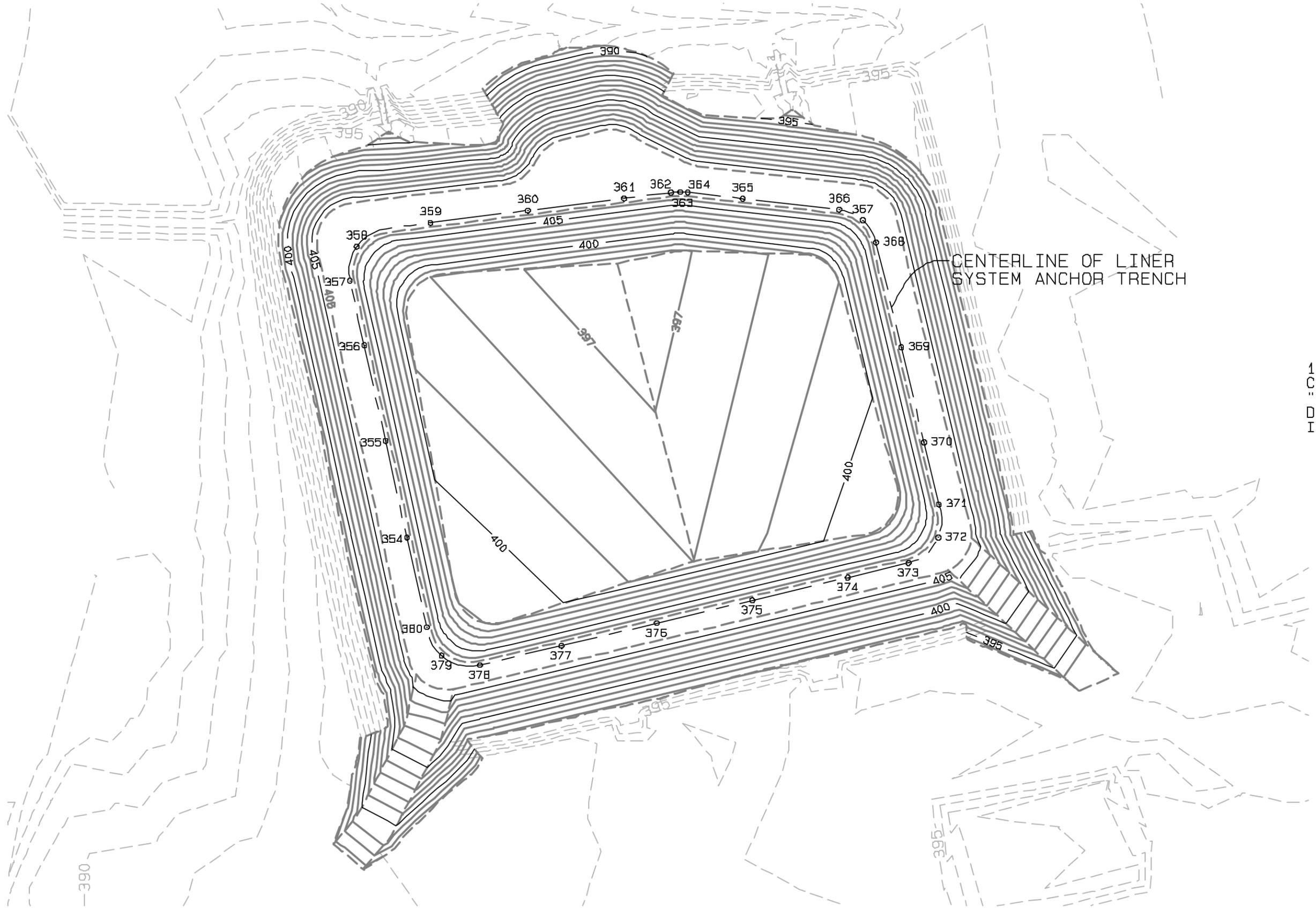
Point	Coordinates	Listing	Name
Point	North	East	
354	5181.25	5317.87	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
355	5230.37	5306.93	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
356	5279.10	5296.08	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
357	5311.90	5288.78	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
358	5329.31	5292.28	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
359	5341.30	5329.91	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
360	5347.56	5379.54	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
361	5353.75	5428.67	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
362	5356.76	5452.55	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
363	5357.02	5457.30	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
364	5356.81	5461.10	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
365	5353.63	5489.19	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
366	5348.06	5538.35	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
367	5342.68	5550.41	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
368	5331.37	5557.23	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
369	5278.06	5570.05	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
370	5229.69	5581.67	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
371	5198.07	5589.27	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
372	5181.26	5588.97	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
373	5168.28	5573.78	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
374	5160.91	5542.78	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
375	5149.35	5494.08	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
376	5137.77	5445.33	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
377	5126.20	5396.64	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
378	5116.34	5355.15	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
379	5121.20	5335.62	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH
380	5135.66	5328.02	CENTERLINE OF LINER SYSTEM ANCHOR TRENCH

LEGEND

- ⊕ SURVEY CONTROL POINT
- - - - EXISTING GRADE
- PROPOSED GRADE
- - - - PROPOSED GRADE BREAK

NOTES

1- REFER TO CAMU CONTAINMENT CELL DESIGN DRAWING 2 ENTITLED "LINER SYSTEM GRADING PLAN," DATED MAY 2004 FOR ADDITIONAL INFORMATION.



BBL, INC.  
 SHEET TITLE: CAMU LINER SYSTEM ANCHOR TRENCH  
 SURVEY CONTROL POINTS  
 PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: 38883  
 DATE: 07/19/04 BY: CAA FILE: 38865.PRO

FIGURE  
 2



**FIELD ORDER NO. 012: August 25, 2004**

**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information pertaining to additional surveying, additional clearing, monitoring well removal during creek excavation, additional surface cover material and area, borrow area test pits, Site access signage, and CAMU drawing set omission.

Items associated with this Field Order are as follows:

1. In-place stabilization using portland cement of residual materials remaining in small pond following dewatering activities. Following stabilization activities, contractor is to decontaminate equipment parts that come in contact with residual materials to visually clean.
2. It is recognized that additional clearing activities beyond those estimated in the gray book have been performed and will continue to be performed by Severson.
3. During excavation of Glade Creek, materials from decommissioned monitoring wells OW-39BR, OW-39D, and OW-39E and surrounding soils are to be carefully excavated to a depth of at least two feet below final grade. The borehole is to be filled with concrete and/or other finish material(s) compatible with the surrounding surface or subsurface construction (e.g., gravel or topsoil).

4. In accordance with the discussion during the July 7, 2004 site visit by Beazer and BBL personnel, Severson was authorized to obtain survey coordinates of the east edge of the Glade Creek grout blanket to facilitate the design for the DNAPL collection trench relocation.
5. It is recognized that additional borrow material beyond those estimated in the gray book will need to be excavated, hauled, and graded to perform fill activities associated with the surface cover. It is also recognized that the area of the surface cover has been extended from 22.5 acres as estimated in the gray book to 26.5 acres. The additional area includes cover of the waste pile area and the Smith's Ditch wetland area.
6. It is recognized that testing of CAMU liner materials was not covered in the gray book.
7. In accordance with the July 21 conference call, Severson was authorized to dig test pits in the borrow area to determine if former dump area extended into the borrow area.
8. It is recognized that two access signs were installed near the Site entrance.
9. Non-woven geotextile is to be placed around the trench backfill material in the leachate riser pipe trench. Detail 3 on Sheet 7 of the CAMU Containment Cell Design drawing set has non-woven fabric depicted, however, labeling was inadvertently omitted.
10. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Jeremy Neighbors      **DATE:** August 25, 2004



**FIELD ORDER NO. 013: August 11, 2004**

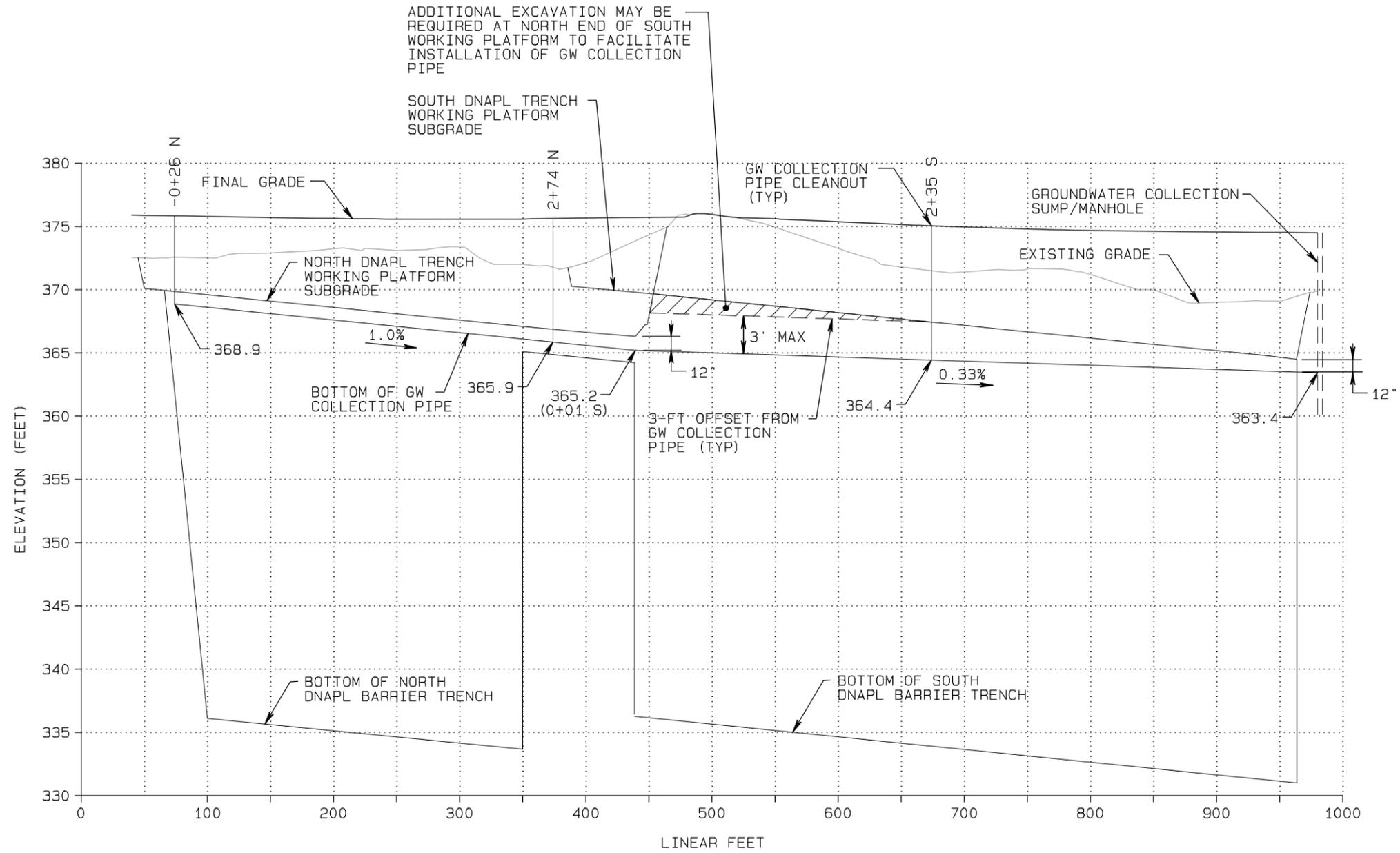
**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information relating to groundwater collection for the Glade Creek Channel Relocation project.

The following items are attached to this Field Order:

- Figure showing the profile of the groundwater collection pipe.

**ISSUED BY:** Mark O. Gravelding, BBL      **DATE:** August 11, 2004



GROUNDWATER COLLECTION PIPE PROFILE  
SCALE AS SHOWN

BBL, INC.	SHEET TITLE: GROUNDWATER COLLECTION PIPE PROFILE	FIGURE <b>1</b>
	PROJECT TITLE: FORMER KOPPERS WOOD TREATING SITE	
	PROJECT LOCATION: CARBONDALE, ILLINOIS	
	PROJECT NO: 38883.008	
DATE: 08/03/2004	BY: TAS	FILE: 38857009.PRO



**FIELD ORDER NO. 014: August 31, 2004**

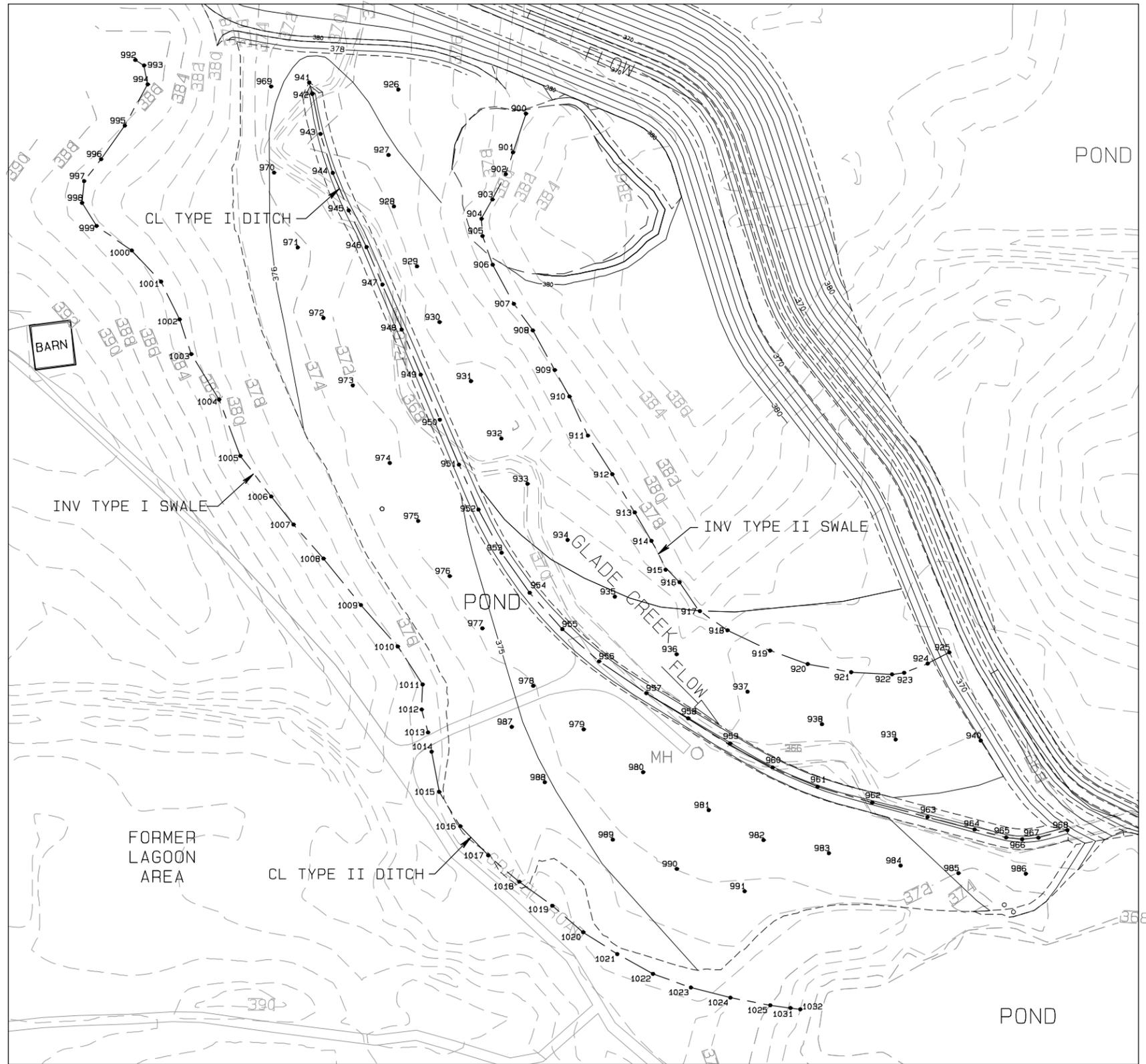
**PROJECT:** Glade Creek Channel relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information related to survey control for the Type I and II ditches and swales.

The following items are attached to this Field Order:

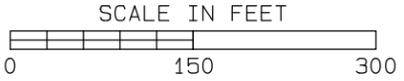
- Figure (1 page) showing the locations for survey control points.
- Printout (3 pages) providing coordinates (northing, easting, and elevation) of survey control points.

**ISSUED BY:** Philip H. Batten, BBL **DATE:** August 31, 2004



LEGEND

○ GRADE CONTROL POINT



BBL, INC.

SHEET TITLE: GRADE CONTROL FOR DITCHES AND SWALES  
 PROJECT TITLE: GLADE CREEK RELOCATION  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: 38883  
 DATE: 08/31/04 BY: TAS FILE: 38857009.PRO

FIGURE  
 1

Blasland, Bouck & Lee, Inc.  
 6723 Towpath Road, Box 66  
 Syracuse, New York 13214-066  
 315/446-9120  
 Tuesday, August 31, 2004

GLADE CREEK / CARBONDALE, ILLINOIS  
 GRADE CONTROL FOR DITCHES AND SWALES

PROJECT: F:\TMPROJ\388\38857\38857009\TM\38857009. pro

Point	Coordinates Listing	North	East	El ev	Name
900		6559.21	7951.93	380.00	INV TYPE II SWALE
901		6511.70	7936.09	379.84	INV TYPE II SWALE
902		6485.04	7927.21	379.59	INV TYPE II SWALE
903		6454.02	7910.84	379.43	INV TYPE II SWALE
904		6430.29	7897.39	379.37	INV TYPE II SWALE
905		6409.19	7898.65	379.25	INV TYPE II SWALE
906		6373.98	7911.20	378.98	INV TYPE II SWALE
907		6326.16	7937.05	378.85	INV TYPE II SWALE
908		6293.58	7960.43	378.62	INV TYPE II SWALE
909		6244.99	7987.38	378.12	INV TYPE II SWALE
910		6212.48	8005.41	377.95	INV TYPE II SWALE
911		6164.66	8028.07	377.47	INV TYPE II SWALE
912		6117.33	8058.05	376.94	INV TYPE II SWALE
913		6070.56	8085.66	376.46	INV TYPE II SWALE
914		6035.69	8106.24	376.00	INV TYPE II SWALE
915		6000.33	8123.70	375.70	INV TYPE II SWALE
916		5985.10	8140.70	375.46	INV TYPE II SWALE
917		5949.63	8165.68	375.00	INV TYPE II SWALE
918		5926.18	8199.55	374.89	INV TYPE II SWALE
919		5901.21	8251.91	374.78	INV TYPE II SWALE
920		5884.73	8298.17	374.69	INV TYPE II SWALE
921		5874.77	8351.58	374.64	INV TYPE II SWALE
922		5872.16	8401.81	374.59	INV TYPE II SWALE
923		5874.07	8416.72	374.59	INV TYPE II SWALE
924		5885.29	8445.57	374.62	INV TYPE II SWALE
925		5899.05	8472.01	369.00	INV TYPE II SWALE
926		6588.79	7795.10	376.33	INTERMEDIATE GRADE
927		6508.58	7783.18	375.93	INTERMEDIATE GRADE
928		6445.41	7789.79	375.74	INTERMEDIATE GRADE
929		6372.06	7818.15	375.60	INTERMEDIATE GRADE
930		6303.76	7845.85	375.50	INTERMEDIATE GRADE
931		6231.34	7884.39	375.43	INTERMEDIATE GRADE
932		6161.08	7921.77	375.36	INTERMEDIATE GRADE
933		6105.57	7953.92	375.31	INTERMEDIATE GRADE
934		6036.76	8003.23	375.18	INTERMEDIATE GRADE
935		5967.21	8061.27	374.96	INTERMEDIATE GRADE
936		5896.69	8137.14	374.71	INTERMEDIATE GRADE
937		5850.86	8224.24	374.57	INTERMEDIATE GRADE
938		5810.99	8315.73	374.40	INTERMEDIATE GRADE
939		5792.22	8406.19	374.27	INTERMEDIATE GRADE
940		5790.89	8510.71	374.20	INTERMEDIATE GRADE
941		6597.35	7685.78	375.82	CL TYPE I DITCH
942		6583.29	7689.73	373.29	CL TYPE I DITCH
943		6534.31	7699.66	373.21	CL TYPE I DITCH
944		6486.64	7714.62	373.14	CL TYPE I DITCH
945		6440.65	7734.17	373.06	CL TYPE I DITCH
946		6395.72	7756.00	372.99	CL TYPE I DITCH
947		6349.73	7775.62	372.91	CL TYPE I DITCH
948		6294.54	7799.16	372.82	CL TYPE I DITCH
949		6239.35	7822.70	372.73	CL TYPE I DITCH

950	6184.16	7846.24	372.64	CL TYPE I DITCH
951	6128.97	7869.77	372.55	CL TYPE I DITCH
952	6073.97	7893.74	372.46	CL TYPE I DITCH
953	6021.16	7922.10	372.37	CL TYPE I DITCH
954	5972.11	7956.57	372.28	CL TYPE I DITCH
955	5927.54	7996.66	372.19	CL TYPE I DITCH
956	5888.06	8041.79	372.10	CL TYPE I DITCH
957	5849.09	8099.88	372.00	CL TYPE I DITCH
958	5818.24	8151.34	371.91	CL TYPE I DITCH
959	5787.38	8202.80	371.82	CL TYPE I DITCH
960	5757.93	8255.05	371.73	CL TYPE I DITCH
961	5734.28	8310.15	371.64	CL TYPE I DITCH
962	5714.88	8377.37	371.53	CL TYPE I DITCH
963	5697.18	8445.09	371.43	CL TYPE I DITCH
964	5682.01	8503.14	371.34	CL TYPE I DITCH
965	5672.20	8541.92	371.28	CL TYPE I DITCH
966	5670.05	8561.75	371.25	CL TYPE I DITCH
967	5671.85	8581.62	371.22	CL TYPE I DITCH
968	5681.18	8617.27	371.16	CL TYPE I DITCH
969	6592.55	7638.92	376.12	INTERMEDIATE GRADE
970	6486.95	7642.50	375.97	INTERMEDIATE GRADE
971	6395.22	7671.53	375.85	INTERMEDIATE GRADE
972	6308.75	7703.29	375.75	INTERMEDIATE GRADE
973	6226.17	7739.28	375.63	INTERMEDIATE GRADE
974	6131.13	7784.73	375.46	INTERMEDIATE GRADE
975	6060.06	7819.52	375.33	INTERMEDIATE GRADE
976	5992.50	7858.32	375.20	INTERMEDIATE GRADE
977	5928.51	7898.45	375.08	INTERMEDIATE GRADE
978	5858.04	7960.94	374.88	INTERMEDIATE GRADE
979	5804.68	8022.90	374.77	INTERMEDIATE GRADE
980	5752.19	8095.97	374.65	INTERMEDIATE GRADE
981	5705.77	8176.59	374.52	INTERMEDIATE GRADE
982	5668.98	8243.90	374.43	INTERMEDIATE GRADE
983	5652.94	8324.10	374.27	INTERMEDIATE GRADE
984	5637.70	8412.27	374.11	INTERMEDIATE GRADE
985	5628.46	8483.36	373.97	INTERMEDIATE GRADE
986	5627.81	8566.07	373.83	INTERMEDIATE GRADE
987	5807.73	7934.53	375.08	INTERMEDIATE GRADE
988	5739.87	7975.12	375.03	INTERMEDIATE GRADE
989	5669.48	8058.74	374.91	INTERMEDIATE GRADE
990	5633.67	8137.31	374.78	INTERMEDIATE GRADE
991	5606.33	8220.63	374.64	INTERMEDIATE GRADE
992	6624.90	7472.15	386.85	INV TYPE I SWALE
993	6618.22	7482.82	386.73	INV TYPE I SWALE
994	6595.14	7487.34	386.48	INV TYPE I SWALE
995	6544.38	7459.09	385.89	INV TYPE I SWALE
996	6503.42	7430.03	385.39	INV TYPE I SWALE
997	6476.55	7409.20	385.06	INV TYPE I SWALE
998	6449.87	7406.65	384.81	INV TYPE I SWALE
999	6421.64	7424.46	384.48	INV TYPE I SWALE
1000	6391.45	7467.79	383.96	INV TYPE I SWALE
1001	6353.28	7503.75	383.43	INV TYPE I SWALE
1002	6307.02	7526.43	382.90	INV TYPE I SWALE
1003	6264.55	7540.90	382.46	INV TYPE I SWALE
1004	6208.73	7575.17	381.80	INV TYPE I SWALE
1005	6139.74	7601.07	381.06	INV TYPE I SWALE
1006	6089.98	7639.03	380.44	INV TYPE I SWALE
1007	6055.63	7666.49	380.00	INV TYPE I SWALE
1008	6013.95	7703.35	379.44	INV TYPE I SWALE
1009	5957.05	7749.27	378.71	INV TYPE I SWALE
1010	5906.20	7794.46	378.03	INV TYPE I SWALE
1011	5859.69	7825.12	377.48	INV TYPE I SWALE
1012	5829.00	7823.94	377.17	INV TYPE I SWALE
1013	5800.89	7831.74	376.88	INV TYPE I SWALE

1014	5777.29	7836.15	*373.69 CL TYPE II DITCH
1015	5728.15	7845.40	*372.92 CL TYPE II DITCH
1016	5686.00	7871.37	*372.48 CL TYPE II DITCH
1017	5650.28	7905.77	*372.19 CL TYPE II DITCH
1018	5617.89	7943.81	*371.89 CL TYPE II DITCH
1019	5588.62	7984.35	*371.75 CL TYPE II DITCH
1020	5556.17	8022.37	*371.64 CL TYPE II DITCH
1021	5529.30	8064.25	*371.52 CL TYPE II DITCH
1022	5505.15	8108.03	*371.41 CL TYPE II DITCH
1023	5488.34	8154.73	*371.30 CL TYPE II DITCH
1024	5475.86	8203.15	*371.19 CL TYPE II DITCH
1025	5466.60	8252.19	*371.08 CL TYPE II DITCH
1031	5463.25	8276.97	*371.02 CL TYPE II DITCH
1032	5461.62	8289.05	*370.00 CL TYPE II DITCH

\* "CL TYPE II DITCH" ELEVATIONS REPRESENT FINAL INVERT ELEVATION AT CENTERLINE OF DITCH. ADDITIONAL EXCAVATION WILL BE REQUIRED TO PLACE RIPRAP, AS INDICATED IN DETAIL 4 ON CONSTRUCTION DRAWING 6.



**FIELD ORDER NO. 015: September 15, 2004**

**PROJECT:** Surface Cover Design  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Byron Best, Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information relative to subgrade survey control for the geosynthetic portion of the Surface Cover within the Former Process Area.

The following items are attached to this Field Order:

- Figure showing the grade control locations within the area of geosynthetic cover.
- Table providing the coordinates (northing, easting and elevation) of subgrade survey control points within the geosynthetic portion of the surface cover.

**ISSUED BY:** Mark O. Gravelding, BBL      **DATE:** September 15, 2004



APPROXIMATE  
LIMIT OF GRADING

DNAPL COLLECTION  
WELL (RW-23)

EXISTING UTILITY  
PANEL

LIMIT OF 2004 FIELD SURVEY

**LEGEND:**

- 400 — ELEVATION CONTOUR
- - - - - GRADE BREAK
- — — — — LIMIT OF SURFACE COVER  
(FULL THICKNESS)
- SURVEY CONTROL POINT (SEE TABLE)
- AREA OF GEOSYNTHETIC COVER
- SURFACE COVER ACCESS ROAD

Geosynthetic Grade Control Points.txt

Blasland, Bouck & Lee, Inc.  
 6723 Towpath Road, P. O. Box 66  
 Syracuse, NY 13214  
 315-446-9120  
 Tue Sep 14 12: 22: 34 2004

PROJECT: F:\TMPROJ\388\38884\TM\38884.pro

Point	Coordinates Listing	North	East	El ev	Name
13		4300.00	4300.00	394.64	GEOSYNTHETI C SUBGRADE
14		4300.00	4400.00	396.04	GEOSYNTHETI C SUBGRADE
15		4300.00	4500.00	396.03	GEOSYNTHETI C SUBGRADE
20		4400.00	4300.00	394.48	GEOSYNTHETI C SUBGRADE
21		4400.00	4400.00	396.23	GEOSYNTHETI C SUBGRADE
22		4400.00	4500.00	396.51	GEOSYNTHETI C SUBGRADE
23		4400.00	4600.00	396.77	GEOSYNTHETI C SUBGRADE
30		4500.00	4500.00	395.22	GEOSYNTHETI C SUBGRADE
31		4500.00	4600.00	395.73	GEOSYNTHETI C SUBGRADE
32		4500.00	4700.00	396.26	GEOSYNTHETI C SUBGRADE
33		4500.00	4800.00	396.67	GEOSYNTHETI C SUBGRADE
36		4500.00	5100.00	394.56	GEOSYNTHETI C SUBGRADE
37		4500.00	5200.00	394.00	GEOSYNTHETI C SUBGRADE
38		4500.00	5300.00	393.83	GEOSYNTHETI C SUBGRADE
39		4500.00	5400.00	393.89	GEOSYNTHETI C SUBGRADE
40		4500.00	5500.00	393.93	GEOSYNTHETI C SUBGRADE
42		4600.00	4700.00	394.40	GEOSYNTHETI C SUBGRADE
43		4600.00	4800.00	395.33	GEOSYNTHETI C SUBGRADE
44		4600.00	4900.00	396.00	GEOSYNTHETI C SUBGRADE
45		4600.00	5000.00	396.30	GEOSYNTHETI C SUBGRADE
46		4600.00	5100.00	396.13	GEOSYNTHETI C SUBGRADE
47		4600.00	5200.00	395.54	GEOSYNTHETI C SUBGRADE
48		4600.00	5300.00	395.22	GEOSYNTHETI C SUBGRADE
49		4600.00	5400.00	395.20	GEOSYNTHETI C SUBGRADE
50		4600.00	5500.00	395.29	GEOSYNTHETI C SUBGRADE
51		4600.00	5600.00	395.10	GEOSYNTHETI C SUBGRADE
53		4700.00	5300.00	396.50	GEOSYNTHETI C SUBGRADE
54		4700.00	5400.00	396.64	GEOSYNTHETI C SUBGRADE
55		4700.00	5500.00	396.81	GEOSYNTHETI C SUBGRADE
56		4700.00	5600.00	396.87	GEOSYNTHETI C SUBGRADE
58		4800.00	5400.00	397.47	GEOSYNTHETI C SUBGRADE
59		4800.00	5500.00	397.71	GEOSYNTHETI C SUBGRADE
60		4800.00	5600.00	397.52	GEOSYNTHETI C SUBGRADE
63		4900.00	5400.00	395.81	GEOSYNTHETI C SUBGRADE
64		4900.00	5500.00	397.62	GEOSYNTHETI C SUBGRADE
65		4900.00	5600.00	397.92	GEOSYNTHETI C SUBGRADE
125		4482.03	5399.43	393.95	GEOSYNTHETI C SUBGRADE
126		4474.83	5369.59	393.43	GEOSYNTHETI C SUBGRADE
145		4313.31	4245.53	393.00	GEOSYNTHETI C SUBGRADE
146		4428.53	4225.22	393.58	GEOSYNTHETI C SUBGRADE
147		4466.19	4318.06	394.31	GEOSYNTHETI C SUBGRADE
148		4503.85	4410.90	394.25	GEOSYNTHETI C SUBGRADE
149		4541.51	4503.74	394.41	GEOSYNTHETI C SUBGRADE
150		4579.17	4596.58	393.98	GEOSYNTHETI C SUBGRADE
151		4616.83	4689.42	393.44	GEOSYNTHETI C SUBGRADE
152		4654.49	4782.26	393.25	GEOSYNTHETI C SUBGRADE
153		4692.15	4875.10	393.48	GEOSYNTHETI C SUBGRADE
154		4708.87	4916.31	392.98	GEOSYNTHETI C SUBGRADE
155		4803.92	4885.17	391.61	GEOSYNTHETI C SUBGRADE
156		4898.96	4854.03	390.76	GEOSYNTHETI C SUBGRADE

Geosynthetic Grade Control Points.txt

157	4969.26	4831.00	390.95	GEOSYNTHETI C	SUBGRADE
158	5000.81	4924.33	390.95	GEOSYNTHETI C	SUBGRADE
159	4978.99	4995.61	390.65	GEOSYNTHETI C	SUBGRADE
168	4700.00	5000.00	394.67	GEOSYNTHETI C	SUBGRADE
169	4700.00	5100.00	395.46	GEOSYNTHETI C	SUBGRADE
170	4700.00	5200.00	396.18	GEOSYNTHETI C	SUBGRADE
171	4800.00	4900.00	391.87	GEOSYNTHETI C	SUBGRADE
172	4800.00	5000.00	392.86	GEOSYNTHETI C	SUBGRADE
173	4800.00	5100.00	394.20	GEOSYNTHETI C	SUBGRADE
174	4800.00	5200.00	394.88	GEOSYNTHETI C	SUBGRADE
175	4800.00	5300.00	395.92	GEOSYNTHETI C	SUBGRADE
176	4900.00	4900.00	391.05	GEOSYNTHETI C	SUBGRADE
177	4900.00	5000.00	391.77	GEOSYNTHETI C	SUBGRADE
178	4900.00	5100.00	392.82	GEOSYNTHETI C	SUBGRADE
179	4900.00	5200.00	393.50	GEOSYNTHETI C	SUBGRADE
180	4900.00	5300.00	394.17	GEOSYNTHETI C	SUBGRADE
197	4532.21	4900.92	395.80	GEOSYNTHETI C	SUBGRADE
198	4363.20	4385.68	395.56	GEOSYNTHETI C	SUBGRADE
199	4384.74	4595.72	395.92	GEOSYNTHETI C	SUBGRADE
200	4671.35	5199.76	395.50	GEOSYNTHETI C	SUBGRADE
201	4887.79	5555.87	398.64	GEOSYNTHETI C	SUBGRADE
202	4286.25	4250.30	394.30	GEOSYNTHETI C	SUBGRADE
203	4257.76	4536.68	396.30	GEOSYNTHETI C	SUBGRADE
204	4443.74	5240.65	394.00	GEOSYNTHETI C	SUBGRADE
205	4524.11	5621.94	394.70	GEOSYNTHETI C	SUBGRADE
206	4692.56	5643.06	397.00	GEOSYNTHETI C	SUBGRADE
207	4975.42	5580.54	397.70	GEOSYNTHETI C	SUBGRADE
208	4939.53	5328.29	394.90	GEOSYNTHETI C	SUBGRADE
209	4973.92	5278.75	394.00	GEOSYNTHETI C	SUBGRADE
210	4959.36	5116.48	393.40	GEOSYNTHETI C	SUBGRADE



**FIELD ORDER NO. 016: SEPTEMBER 22, 2004**

**PROJECT:** Miscellaneous  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL  
Bill Abernathy, Shawnee

**TO THE CONTRACTOR:** This Field Order identifies the scope of work for monitoring well survey activities. Survey work is to be conducted by Severson's survey subcontractor, Shawnee Survey and Consulting, Inc. (Shawnee). A copy of this field order is being provided via email to Bill Abernathy of Shawnee.

- For each well (including new wells OW-202A, OW-202B, and OW-202D), piezometer, and surface water gauge shown on the attached Figure 1 (63 total points), Shawnee will survey the location (northing and easting) and elevation (both ground and top of inner well casing/top of surface water gauge). The survey work shall be conducted using the horizontal coordinate system and vertical datum previously established for the site.
- Upon completion of the field survey work, Shawnee will provide BBL a site plan (electronic AutoCAD file) showing the surveyed locations of each well, piezometer, and surface water gauge. In addition, Shawnee will provide BBL a tabulated summary (electronic spreadsheet file) of the survey data (northing, easting, and elevations) for each surveyed well, piezometer, and surface water gauge.

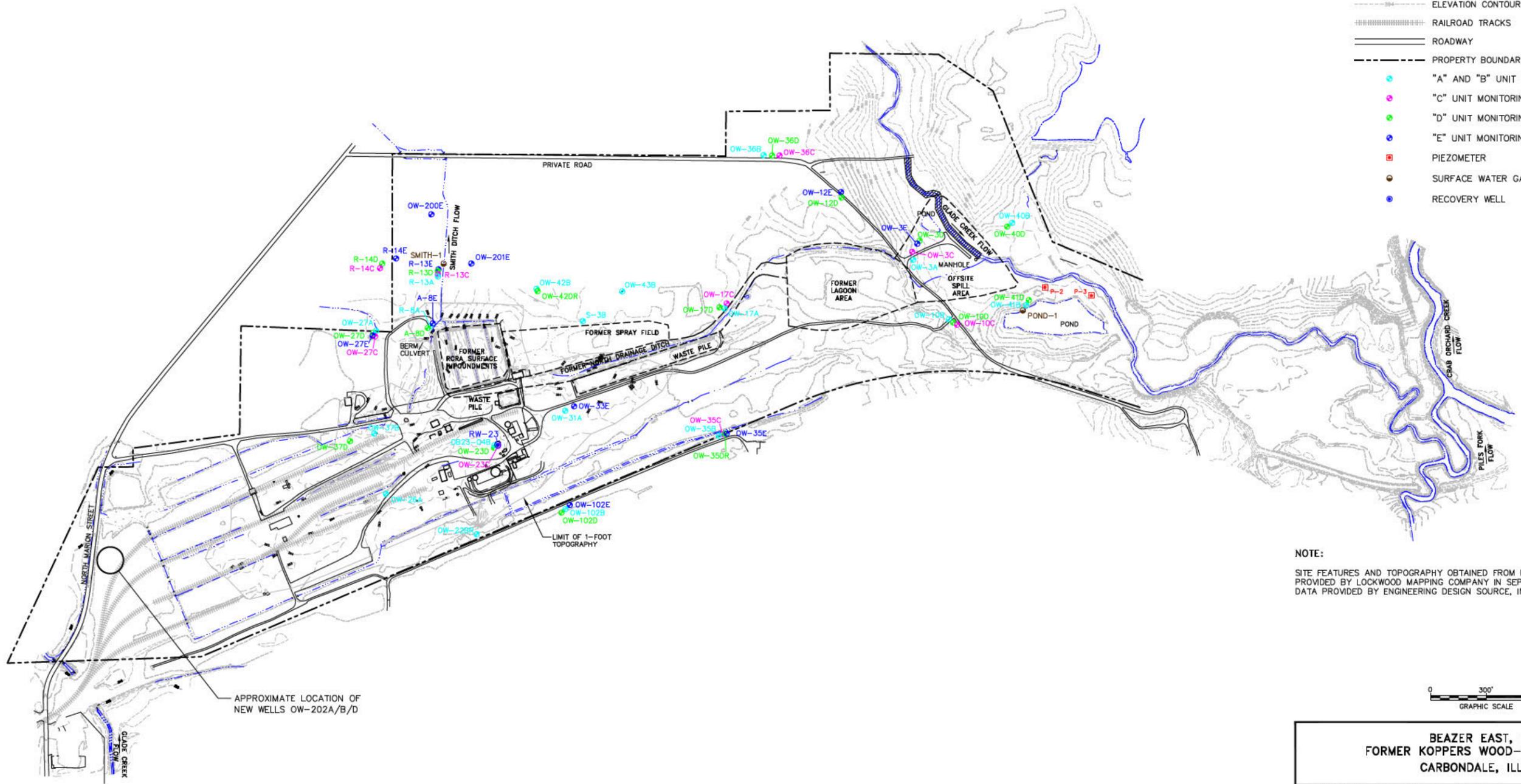
- The survey work shall be performed as “filler” in conjunction with other survey work being performed for Severson (i.e., will not involve a separate mobilization).
- It is recognized that this Field Order may affect Severson’s costs (per email from Shawnee dated September 10, 2004, estimated cost for the work described above will be \$2,700).

**ISSUED BY:** David Bessingpas, BBL      **DATE:** September 22, 2004



LEGEND:

- EDGE OF WATER
- ELEVATION CONTOUR
- RAILROAD TRACKS
- ROADWAY
- PROPERTY BOUNDARY
- "A" AND "B" UNIT MONITORING WELL
- "C" UNIT MONITORING WELL
- "D" UNIT MONITORING WELL
- "E" UNIT MONITORING WELL
- PIEZOMETER
- SURFACE WATER GAUGE
- RECOVERY WELL



NOTE:  
 SITE FEATURES AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY IN SEPTEMBER 2001 AND SURVEY DATA PROVIDED BY ENGINEERING DESIGN SOURCE, INC. IN JANUARY 2004.



BEAZER EAST, INC.  
 FORMER KOPPERS WOOD-TREATING SITE  
 CARBONDALE, ILLINOIS

**MONITORING WELL, PIEZOMETER,  
 AND SURFACE WATER GAUGE  
 LOCATIONS**



FIGURE  
**1**

X: 38851X01.DWG  
 L: ON=\*, OFF=REF\*, \*TREE\*  
 P: PAGESET/PLT-DL  
 9/3/04 SYR-85-KMD LAF RCA  
 38886001/38886001.DWG



**FIELD ORDER NO. 018: October 20, 2004**

**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information related to survey control for the trench-based DNAPL barrier.

The following items are attached to this Field Order:

- Printout (1 page) providing coordinates (northing, easting, and elevation) for points delineating the centerline bottom of the north and south DNAPL barrier trenches.
- Figure showing the locations for survey control points and the north and south trench alignments.

**ISSUED BY:**

  
Mark O. Gravelding, BBL

**DATE:** October 20, 2004

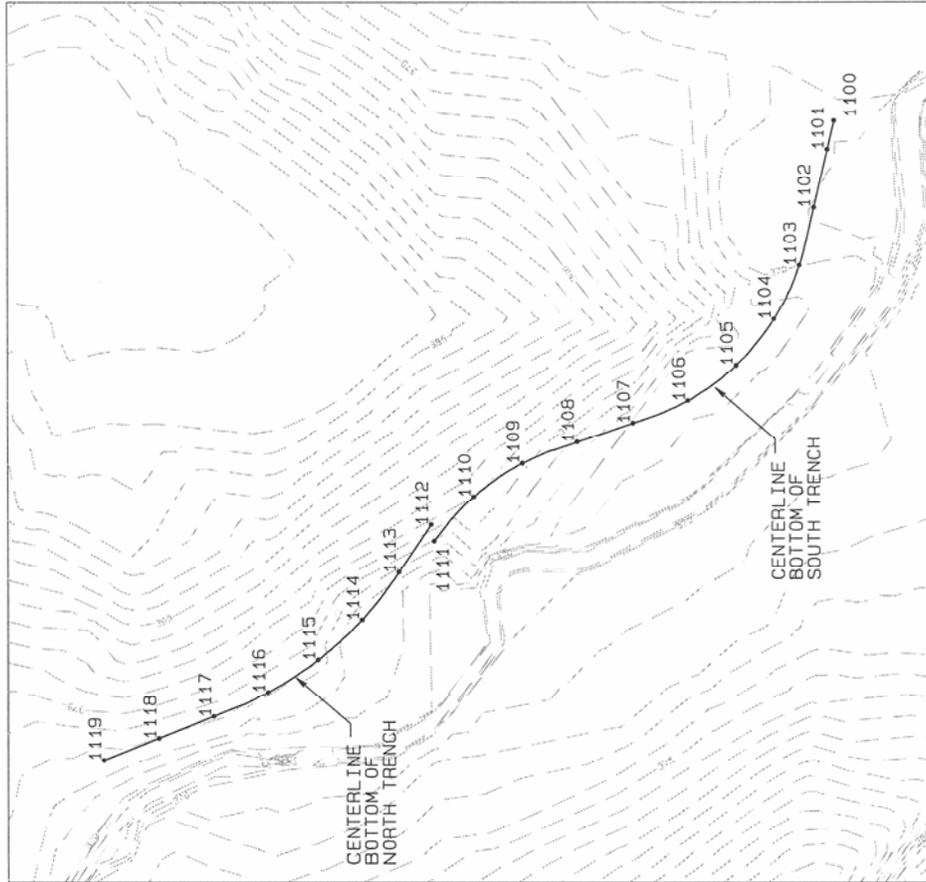


LEGEND

• 1100

GRADE CONTROL POINT

— CENTERLINE OF TRENCH



**FINAL**

FIGURE

1

SHEET TITLE: SURVEY GRADE CONTROL FOR CENTERLINE  
INVERT OF DNAPL COLLECTION TRENCH  
PROJECT TITLE: TRENCH-BASED DNAPL BARRIER  
PROJECT LOCATION: GLADE CREEK / CARBONDALE, ILLINOIS  
PROJECT NO: 38883.008  
DATE: 10/20/04 BY: TAS FILE: 38857009.PRO

BBL, INC.

NORTH AND SOUTH TRENCH ALIGNMENTS



DNAPL Trench Grade Ctrl 102004.txt

Blasland, Bouck & Lee, Inc.  
 6723 Towpath Road, Box 66  
 Syracuse, New York 13214-066  
 315/446-9120  
 Wednesday, October 20, 2004

PROJECT: F:\TMPROJ\388\38857\38857009\TM\38857009.pro

Point Coordinates Listing							
Point	North	East	Elev	Name			
1100	5838.94	8329.54	331.10	CL	BOT	S	TRENCH
1101	5844.66	8305.20	331.30	CL	BOT	S	TRENCH
1102	5856.10	8256.53	331.80	CL	BOT	S	TRENCH
1103	5868.24	8208.04	332.30	CL	BOT	S	TRENCH
1104	5889.53	8162.94	332.80	CL	BOT	S	TRENCH
1105	5921.31	8124.51	333.30	CL	BOT	S	TRENCH
1106	5961.62	8095.15	333.80	CL	BOT	S	TRENCH
1107	6007.79	8076.19	334.30	CL	BOT	S	TRENCH
1108	6055.18	8060.23	334.80	CL	BOT	S	TRENCH
1109	6101.75	8042.22	335.30	CL	BOT	S	TRENCH
1110	6142.96	8014.13	335.80	CL	BOT	S	TRENCH
1111	6176.22	7976.93	336.30	CL	BOT	S	TRENCH
1112	6178.76	7990.78	332.60	CL	BOT	N	TRENCH
1113	6206.01	7951.11	333.10	CL	BOT	N	TRENCH
1114	6236.92	7911.88	333.60	CL	BOT	N	TRENCH
1115	6273.88	7878.28	334.10	CL	BOT	N	TRENCH
1116	6315.89	7851.28	334.60	CL	BOT	N	TRENCH
1117	6361.59	7831.07	335.10	CL	BOT	N	TRENCH
1118	6407.94	7812.32	335.60	CL	BOT	N	TRENCH
1119	6454.30	7793.58	336.10	CL	BOT	N	TRENCH

NOTE: ELEVATIONS REPRESENT BOTTOM OF DNAPL TRENCHES.



**FIELD ORDER NO. 019: DECEMBER 22, 2004**

**PROJECT:** Miscellaneous  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL  
Bill Abernathy, Shawnee

**TO THE CONTRACTOR:** This Field Order identifies the scope of work for additional surveying activities to be conducted by Severson's survey subcontractor, Shawnee Survey and Consulting, Inc. (Shawnee). A copy of this field order is being provided via email to Bill Abernathy of Shawnee.

- Shawnee will survey the location (northing and easting) and elevation (ground and top-of-casing) of 12 new temporary piezometers.
- Shawnee will provide materials for and install three surface water gauges and survey the location (northing and easting) and elevation (top-of-gauge) of each surface water gauge.
- Shawnee will stake the locations of three RI soil sample locations and survey the extent of asphalt materials along the southern property boundary (as delineated by BBL).
- The survey work shall be conducted using the horizontal coordinate system and vertical datum previously established for the site.

- Upon completion of the survey work, Shawnee will provide BBL a site plan (electronic AutoCAD file) showing the surveyed locations of each point. In addition, Shawnee will provide BBL a tabulated summary (electronic spreadsheet file) of the survey data (northing, easting, and elevations) for each surveyed point.
- It is recognized that this Field Order will affect the Severson's costs (per proposals from Shawnee dated October 22, 2004 and November 18, 2004, cost for the work described above will be approximately \$3,000).

**ISSUED BY:** David Bessingpas, BBL      **DATE:** December 22, 2004





**FIELD ORDER NO. 017: August 23, 2005**

**PROJECT:** Glade Creek Channel Relocation/Former Process Area Surface Cover/CAMU Containment Cell Construction

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck and Lee, Inc.

**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order includes information pertaining to survey activities, vegetating disturbed areas, divergence point sediment removals, CAMU dewatering, and downstream clearing.

Items associated with this Field Order are as follows:

1. Performing an as-built survey of the CAMU following installation of the operations layer. Survey should include the outboard crest of perimeter berm, horizontal limits of operations layer material, inboard crest of liner anchor trench, leachate riser pipes, and leachate collection pipe and cleanouts both ends.
2. Performing an as-built survey of the CAMU following placement of all waste materials and final grading.
3. Performing pre-excavation and post-excavation surveys of the large and small waste piles.
4. Hydroseeding of disturbed areas with an annual wheatgrass before the end of growing season. Disturbed areas may include surface cover area stockpiles, borrow area, and graded materials in the Glade Creek area that are not to final grade.

5. Installing a Y-fitting on the water transfer pipe to facilitate dewatering activities at the CAMU.
6. Clearing a path along the downstream portion of Glade Creek from the reconvergence point to the former landfill to allow access for off-road field vehicles.
7. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Jeremy Neighbors, BBL    **DATE:** August 23, 2005



**FIELD ORDER NO. 020: June 7, 2005**

**PROJECT:** Glade Creek Sediment Removal  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order provides for routine maintenance of the Gator and high-speed internet service to BBL's trailer.

Items associated with this Field Order are as follows:

1. Performing routine maintenance on the Gator including oil changes, air filter replacement, minor repairs (e.g., tire repair/replacement), and providing fuel.
2. Providing ROPS certified roll-bar and seatbelts for the Gator.
3. Providing and maintaining high-speed internet service to BBL's trailer.
4. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Jeremy Neighbors, BBL **DATE:** June 7, 2005



**FIELD ORDER NO. 021: October 11, 2005**

**PROJECT:** Former Process Area Surface Cover

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck and Lee, Inc.

**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Ben Huggins, BBL

**TO THE CONTRACTOR:** This Field Order contains additional activities associated with the Former Process Area Surface Cover.

Items associated with this Field Order presented below:

The following items were included in the final design plan but were identified by SES as not being in their estimate.

1. Punch holes in all concrete slabs greater than 4' by 4'.
2. Remove liquids from existing drainage structures and properly dispose of liquids prior to filling the drainage structure with grout.
3. Extend the liner and associated geosynthetics 4 feet to 5 feet beyond the field stakes that are delineating the extent of the liner on the Final Cover Drawing (Drawing 4) as these stakes are showing the extent of the liner with full cover thickness and not the where it daylight.
4. Extend the non-woven geotextile, where the liner and geocomposite daylight, to beyond the outside edge and wrap it up over the geocomposite / liner and heat bond it to the geocomposite.

The following items represent field modifications to the final design plan:

5. Spray a masking agent, when needed, during excavation activities within the Former Process Area.
6. Remove three waste piles along the southern property line. Limits of waste piles and disposition of contents are shown on the attached Figure 1
7. Clear vegetation to facilitate the removal of the southern waste piles
8. Install a 6 foot high chainlink fence with a double gate along the southern property line.
9. Excavate test pits adjacent to the former large tank.
10. Detail (Drawing 6, Detail 2) for culvert CV-1 revised – see attached sketch.
11. Culverts CV-2 and CV-3 shall be a field fit and have erosion control mat extend a minimum of 10 feet down gradient of the pipe outlets.
12. Move anchor trench location at Panel Outlet and power pole approximately 15 feet to the north so that it will pass on the northern side of them
13. Move Control Point 157 on the Subgrade Grading Plan (Drawing 3) to south approximately 15 feet to accommodate traffic to and from the site
14. Move Control Point 158 on the Subgrade Grading Plan (Drawing 3) to the south approximately 25 feet to accommodate traffic to and from the site
15. Change the anchor trench outlet pipes to 4 inch solid HDPE instead of the 6 inch corrugated HDPE.
16. Modify the anchor trench outlet to the west of the utility panel to contain two 4 inch discharge pipes instead of one 6 inch pipe.
17. Backfill the two anchor trench pipe outlets located in the south east area of the Type 1 Cover to be backfilled with flowable fill, for a distance of 15 feet from the anchor trench wall, and extrusion weld the discharge pipes to the geomembrane on the outside wall of the anchor trench.
18. The easternmost anchor trench pipe outlet will discharge to the east drainage ditch instead of to the southernmost drainage at the southern property line due to differences between survey data and field conditions.
19. Change the anchor trench discharge pipe at the southwestern most section of the Type 1 Cover to discharge to the west instead of the south to accommodate differences between survey data and field conditions.
20. Modify the crusher run roads to provide equipment access and turnarounds.

**FINAL**

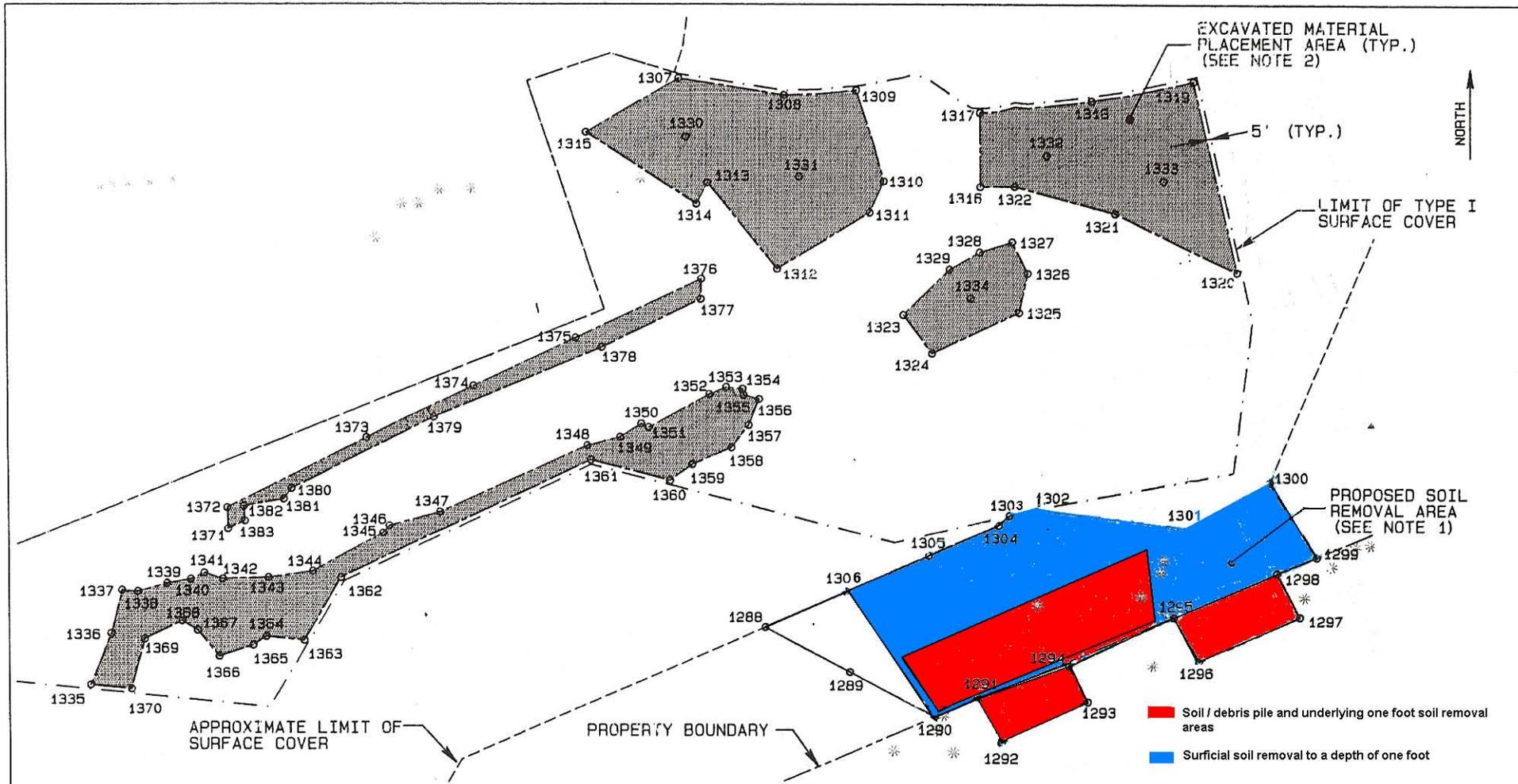
FO-021

October 11, 2005

Page 3 of 3

21. The geocomposite that is in the section of the anchor trench that is backfilled with RR1 stone does not need to have the geotextile folded under.
22. A drawing showing the panel layout of the geotextile and the geocomposite will not be required.
23. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Ben Huggins **DATE:** October 11, 2005



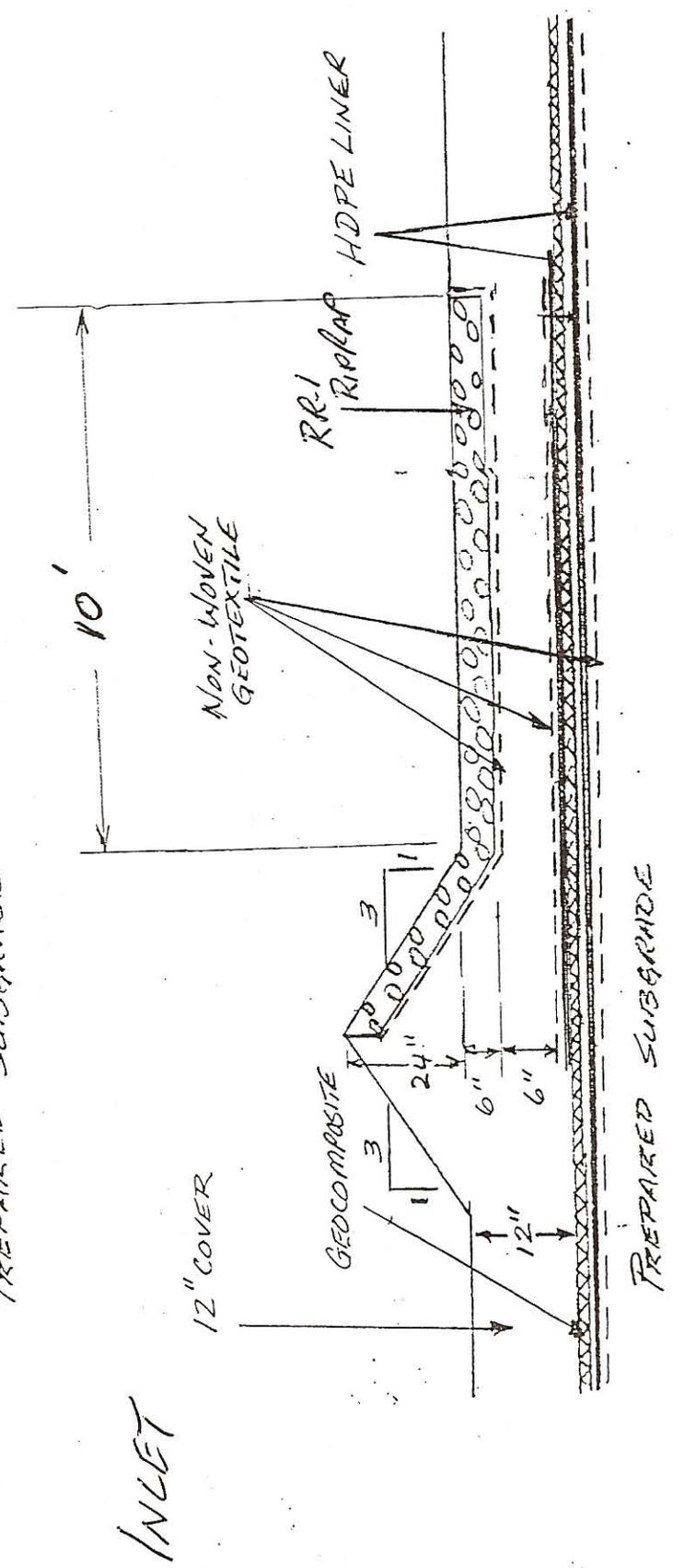
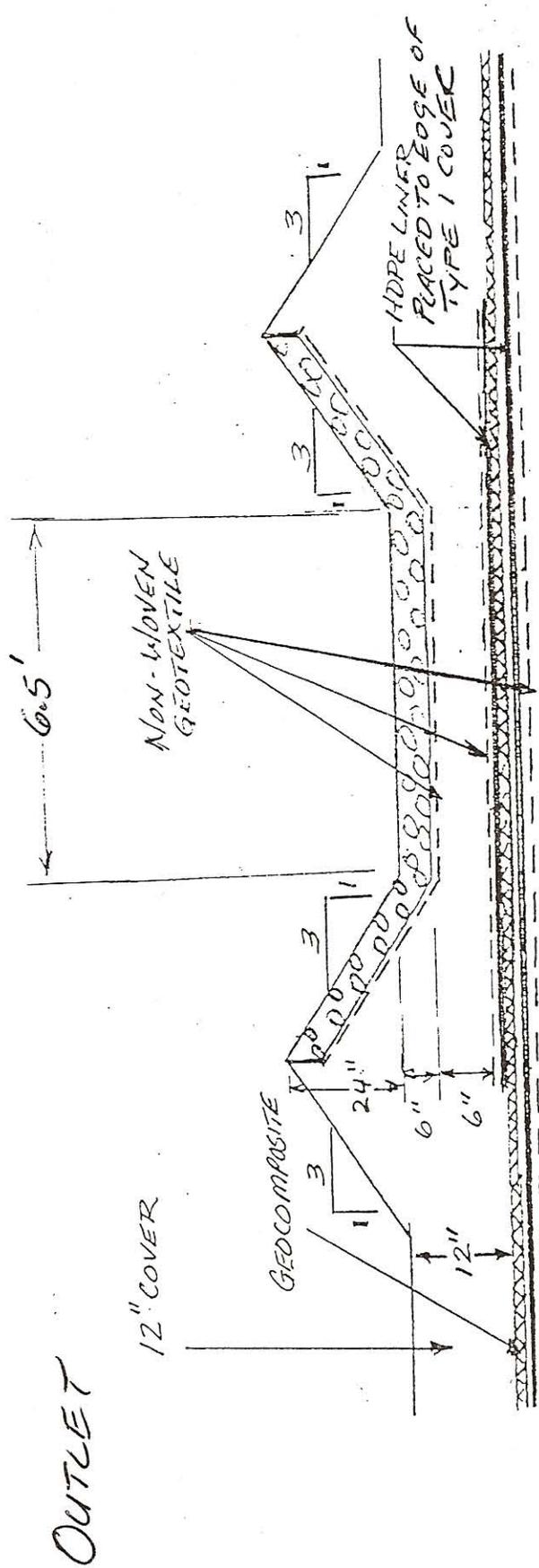
NOTES:

1. SURVEY CONTROL POINT NUMBERS 1291-1294 DELINEATE THE LIMITS OF MATERIAL TO BE REMOVED AND PLACED IN THE CAMU. REMAINING SURVEY CONTROL POINT NUMBERS 1288-1290 AND 1295-1306 DELINEATE THE LIMIT OF SOIL TO BE REMOVED AND USED AS SUBGRADE MATERIAL FOR THE TYPE I SURFACE COVER. ANY DEBRIS (E.G., CONCRETE, WOOD, METAL, ETC.) WITHIN THIS LIMIT SHALL BE DISPOSED OF OFF-SITE.
2. SURVEY CONTROL POINT NUMBERS 1307-1383 (SHADED AREAS) DELINEATE THE PLACEMENT OF MATERIAL REMOVED AS DESCRIBED IN NOTE 1 ABOVE. REMOVED MATERIAL TO BE PLACED AT A MINIMUM OF 1-FOOT BELOW THE TOP OF FINAL SUBGRADE.
3. SURVEY CONTROL POINT NUMBERS 1330-1334 (WITHIN SHADED AREAS) ARE PROVIDED TO GIVE ADDITIONAL ELEVATION CONTROL FOR THE PLACEMENT OF REMOVED MATERIAL.

LEGEND  
 ○ SURVEY CONTROL POINT

SHEET TITLE: MATERIAL REMOVAL AREA SURVEY  
 CONTROL POINTS  
 PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.003  
 DATE: 06/16/05 BY: RLP FILE: 38865.PRO

FIGURE  
 1





**FIELD ORDER NO. 022: May 13, 2005**

**PROJECT:** Glade Creek Channel Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL  
Andy Johnson, BBL

**TO THE CONTRACTOR:** This Field Order includes grade control for the revised grades presented in FO-010 adjacent to the Glade Creek Channel Relocation associated with the archeological area and adjacent plateau area. Also, a discussion pertaining to the proposed culvert and Type II Swale locations follow.

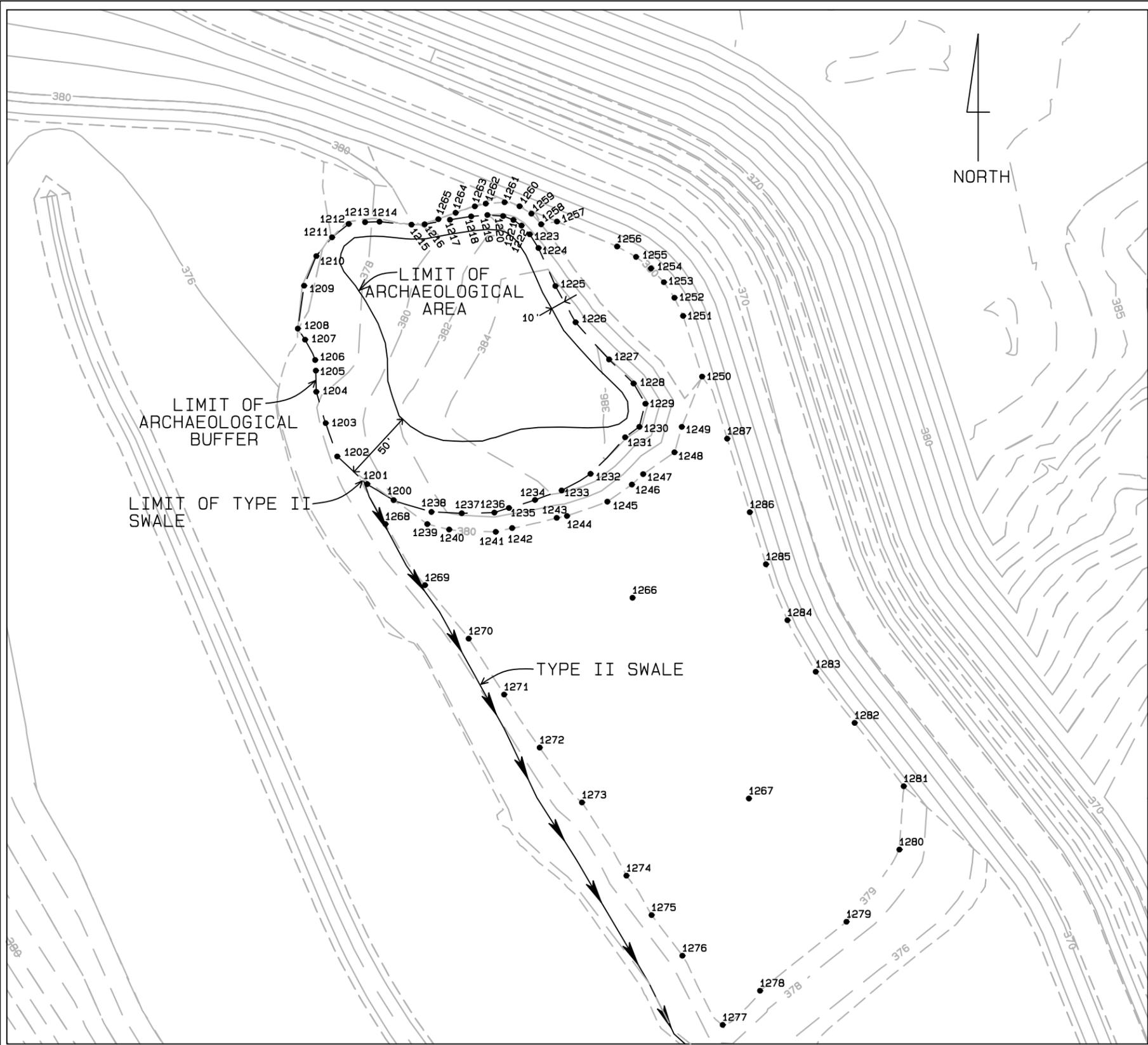
The following items are attached to this Field Order:

- Figure showing the grade control locations.
- Table providing the coordinates (northing, easting and elevation) of final grade.

In addition to these attachments, it should be noted that the proposed culvert which passes under the proposed access road along the invert of the Type I Ditch, should be installed beneath the proposed access road, rather than south of the road as shown on Drawing No. 2 entitled, "Proposed Site Plan (Grading Plan)," BBL, October 2003, last revised 8/20/04.

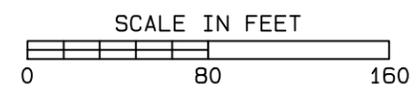
Finally, Drawing No. 2 (referenced above) shows the Type II Swale constructed within the limits of the archaeological area and buffer area. To avoid construction within these areas, the Type II Swale shall be truncated against the limit of the archaeological buffer as shown on the attached figure.

**ISSUED BY:** Mark O. Gravelding, BBL **DATE:** May 13, 2005



LEGEND

-  385 EXISTING GRADE
-  380 PROPOSED GRADE
-  GRADE BREAK
-  1247 GRADE CONTROL



BBL, INC. SHEET TITLE: ARCHAEOLOGICAL AREA (ARG-2) GRADE CONTROL  
 PROJECT TITLE: GLADE CREEK RELOCATION  
 PROJECT LOCATION: CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.003  
 DATE: 05/13/05 BY: RLP FILE: 38857009.PRO

FIGURE  
 1

Blasland, Bouck & Lee, Inc.  
6723 Towpath Road, P.O. Box 66  
Syracuse, NY 13214  
1-315-446-9120

Friday, May 13, 2005 09:50:04 2005  
Glade Creek/Carbondale, Illinois

PROJECT: F:\TMPROJ\388\38857\38857009\TM\38857009.pro

---

Point	Coordinates Listing North	East	Elev	Name
1200	6371.70	7928.16	380.0	ARG-2 - Top of Slope
1201	6382.84	7909.67	379.2	ARG-2 - Top of Slope
1202	6402.11	7888.84	378.4	ARG-2 - Top of Slope
1203	6425.26	7880.78	378.3	ARG-2 - Top of Slope
1204	6447.07	7874.21	377.7	ARG-2 - Top of Slope
1205	6461.79	7873.93	377.2	ARG-2 - Top of Slope
1206	6469.19	7873.46	376.9	ARG-2 - Top of Slope
1207	6483.33	7866.40	376.3	ARG-2 - Top of Slope
1208	6491.04	7861.36	376.0	ARG-2 - Top of Slope
1209	6520.87	7865.73	375.7	ARG-2 - Top of Slope
1210	6541.53	7874.28	375.9	ARG-2 - Top of Slope
1211	6554.55	7885.22	376.5	ARG-2 - Top of Slope
1212	6563.86	7896.87	377.4	ARG-2 - Top of Slope
1213	6565.08	7908.27	378.3	ARG-2 - Top of Slope
1214	6565.41	7918.32	379.0	ARG-2 - Top of Slope
1215	6563.37	7940.62	379.8	ARG-2 - Top of Slope
1216	6563.62	7949.79	380.1	ARG-2 - Top of Slope
1217	6566.76	7967.44	380.9	ARG-2 - Top of Slope
1218	6569.10	7982.26	381.5	ARG-2 - Top of Slope
1219	6570.06	7993.54	382.0	ARG-2 - Top of Slope
1220	6569.34	8004.49	382.4	ARG-2 - Top of Slope
1221	6566.64	8011.68	382.6	ARG-2 - Top of Slope
1222	6562.72	8017.35	382.7	ARG-2 - Top of Slope
1223	6556.63	8023.06	382.7	ARG-2 - Top of Slope
1224	6547.12	8029.18	383.0	ARG-2 - Top of Slope
1225	6520.66	8040.96	384.6	ARG-2 - Top of Slope
1226	6495.44	8055.04	385.7	ARG-2 - Top of Slope
1227	6469.61	8078.40	386.1	ARG-2 - Top of Slope
1228	6452.84	8095.47	386.3	ARG-2 - Top of Slope
1229	6438.77	8103.72	386.5	ARG-2 - Top of Slope
1230	6422.73	8099.53	386.4	ARG-2 - Top of Slope
1231	6415.42	8089.60	386.2	ARG-2 - Top of Slope
1232	6390.01	8065.48	385.5	ARG-2 - Top of Slope
1233	6378.40	8045.30	384.4	ARG-2 - Top of Slope
1234	6371.82	8026.76	383.7	ARG-2 - Top of Slope
1235	6366.25	8008.58	383.1	ARG-2 - Top of Slope
1236	6363.04	7998.41	382.8	ARG-2 - Top of Slope

1237	6362.56	7975.66	382.4	ARG-2 - Top of Slope
1238	6363.48	7954.54	381.4	ARG-2 - Top of Slope
1239	6355.04	7951.64	380.0	ARG-2 - Bottom of Slope
1240	6351.25	7966.89	380.0	ARG-2 - Bottom of Slope
1241	6349.62	7999.38	380.0	ARG-2 - Bottom of Slope
1242	6352.29	8010.79	380.0	ARG-2 - Bottom of Slope
1243	6359.37	8041.86	380.0	ARG-2 - Bottom of Slope
1244	6360.67	8049.03	380.0	ARG-2 - Bottom of Slope
1245	6370.63	8077.20	380.0	ARG-2 - Bottom of Slope
1246	6382.52	8094.29	380.0	ARG-2 - Bottom of Slope
1247	6389.80	8102.16	380.0	ARG-2 - Bottom of Slope
1248	6404.98	8124.02	380.0	ARG-2 - Bottom of Slope
1249	6422.68	8129.11	380.0	ARG-2 - Bottom of Slope
1250	6457.65	8143.26	380.0	ARG-2 - Bottom of Slope
1251	6499.88	8130.00	380.0	ARG-2 - Bottom of Slope
1252	6512.50	8124.00	380.0	ARG-2 - Bottom of Slope
1253	6523.32	8116.61	380.0	ARG-2 - Bottom of Slope
1254	6532.88	8107.60	380.0	ARG-2 - Bottom of Slope
1255	6540.93	8097.20	380.0	ARG-2 - Bottom of Slope
1256	6548.17	8084.01	380.0	ARG-2 - Bottom of Slope
1257	6565.54	8042.04	380.0	ARG-2 - Bottom of Slope
1258	6563.61	8031.02	380.0	ARG-2 - Bottom of Slope
1259	6571.00	8024.23	380.0	ARG-2 - Bottom of Slope
1260	6576.18	8015.96	380.0	ARG-2 - Bottom of Slope
1261	6578.94	8005.52	380.0	ARG-2 - Bottom of Slope
1262	6578.00	7992.42	380.0	ARG-2 - Bottom of Slope
1263	6576.10	7984.79	380.0	ARG-2 - Bottom of Slope
1264	6571.62	7971.39	380.4	ARG-2 - Bottom of Slope
1265	6567.18	7959.34	380.1	ARG-2 - Bottom of Slope
1266	6303.75	8094.76	380.0	Spot Elevation
1267	6164.13	8175.90	380.0	Spot Elevation
1268	6355.05	7922.44	379.0	Grade Break
1269	6312.53	7950.05	379.0	Grade Break
1270	6275.33	7980.48	379.0	Grade Break
1271	6236.45	8005.23	379.0	Grade Break
1272	6199.54	8030.01	379.0	Grade Break
1273	6161.37	8059.50	379.0	Grade Break
1274	6110.42	8090.49	379.0	Grade Break
1275	6083.01	8108.04	379.0	Grade Break
1276	6054.73	8129.53	379.0	Grade Break
1277	6006.60	8157.60	379.0	Grade Break
1278	6030.36	8183.64	379.0	Grade Break
1279	6078.37	8243.92	379.0	Grade Break
1280	6128.62	8280.85	379.0	Grade Break
1281	6172.66	8283.85	379.0	Grade Break
1282	6216.72	8249.63	379.0	Grade Break
1283	6252.31	8222.49	379.0	Grade Break
1284	6288.17	8202.78	379.0	Grade Break
1285	6327.07	8187.80	379.0	Grade Break
1286	6363.31	8176.51	379.0	Grade Break
1287	6414.47	8160.75	379.0	Grade Break



**FIELD ORDER NO. 023: July 15, 2005**

**PROJECT:** Glade Creek Relocation  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

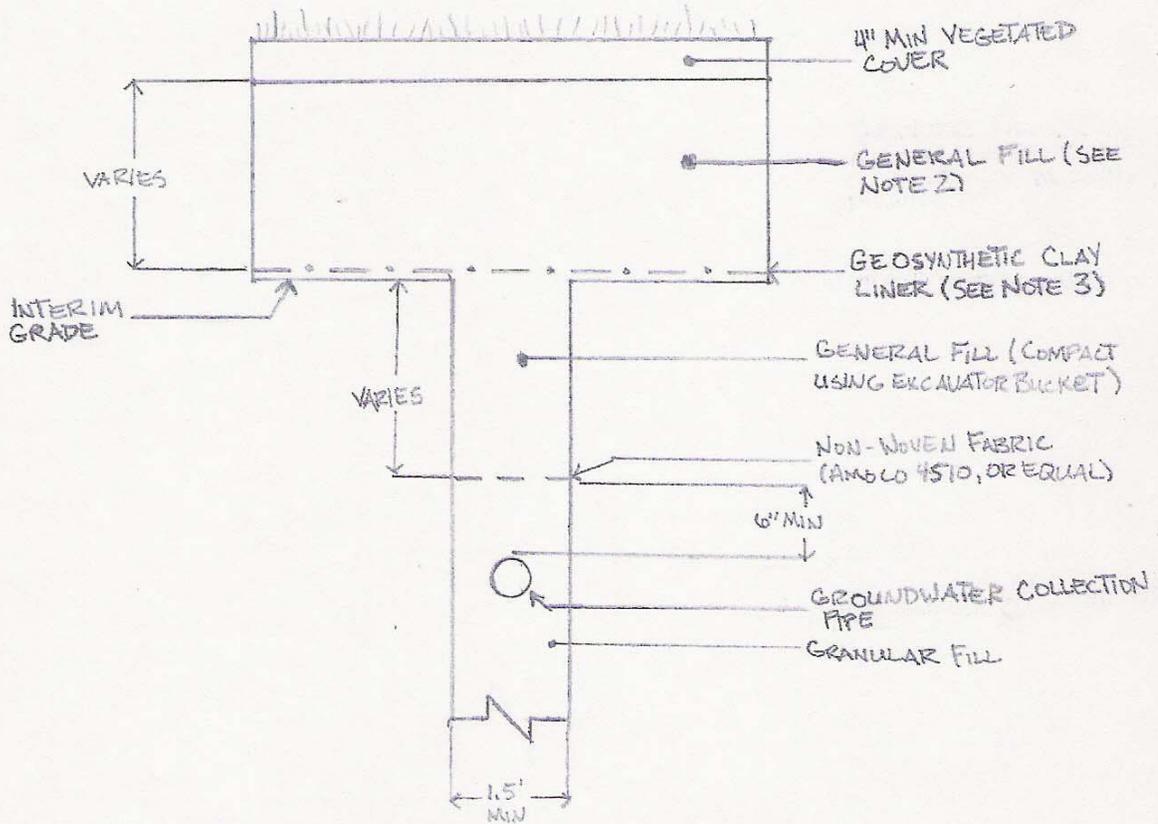
**TO THE CONTRACTOR:** This Field Order provides a detail for the groundwater collection pipe trench and groundwater manhole installation.

1. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Jeremy Neighbors **DATE:** July 15, 2005

NOTES:

1. SEE GLADE CREEK CHANNEL RELOCATION DESIGN DRAWINGS FOR MORE DETAILS.
2. SEE MATERIAL SPECIFICATIONS ON SHEET 5 OF DESIGN DRAWINGS.
3. REFER TO SPECIFICATION SECTION 02413 OF BASIS OF DESIGN: CANAL CONTAINMENT CELL FOR MORE DETAILS, CETCO BENTOMAT D10, OR EQUAL.



① GROUNDWATER COLLECTION TRENCH DETAIL  
NOT TO SCALE





**FIELD ORDER NO. 024: June 7, 2005**

**PROJECT:** Glade Creek Relocation

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck and Lee, Inc.

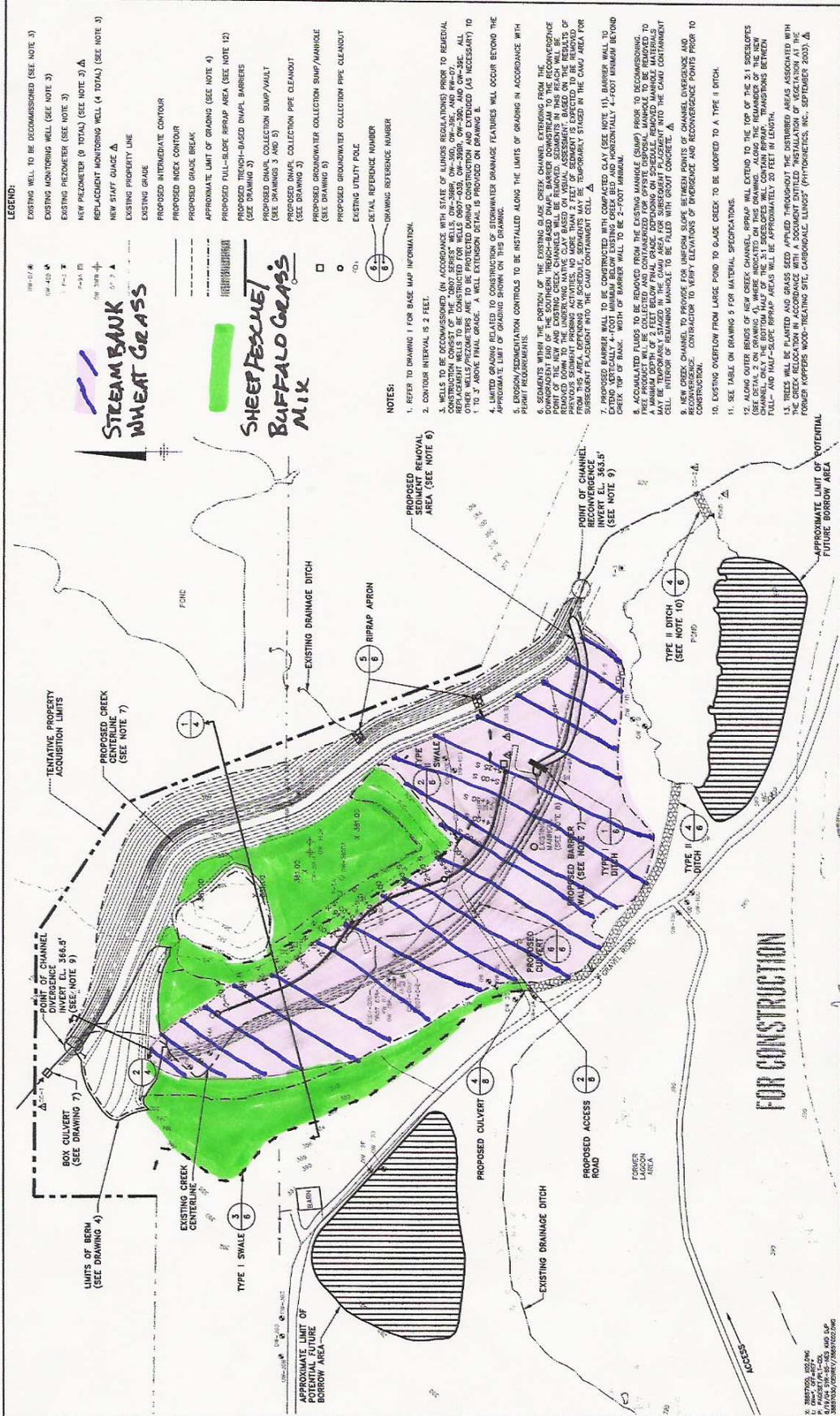
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order provides for changes in the Phytoremediation Plan.

Items associated with this Field Order are as follows:

1. Streambank wheatgrass will be planted in area A. Area A is defined by the Phytoremediation Plan (Plan) to be the re-graded floodplain of the original Glade Creek (bounded approximately by the 376 ft contour. Zones B and C will be planted with a sheep fescue and buffalo grass mixture in accordance with the Plan. Zone B is defined by the Plan to be a transitional zone between the floodplain (376 ft contour) and the more upland area (demarcated by the 378 ft contour). Zone C is defined by the Plan to be the more upland area (greater than the 378 ft contour). A seeding plan is attached.
2. Undisturbed, vegetated areas do not need to be seeded.
3. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Jeremy Neighbors, BBL      **DATE:** June 7, 2005



- LEGEND:**
- EXISTING WELL TO BE DECOMMISSIONED (SEE NOTE 3)
  - EXISTING MONITORING WELL (SEE NOTE 3)
  - EXISTING PEZOMETER (SEE NOTE 3)
  - NEW PEZOMETER (9 TOTAL) (SEE NOTE 3) Δ
  - REPLACEMENT MONITORING WELL (4 TOTAL) (SEE NOTE 3) Δ
  - NEW START GUAGE Δ
  - EXISTING PROPERTY LINE
  - EXISTING GRADE
  - PROPOSED INTERMEDIATE CONTOUR
  - PROPOSED INDEX CONTOUR
  - PROPOSED GRADE BREAK
  - APPROXIMATE LIMIT OF GRADING (SEE NOTE 4)
  - PROPOSED FULL-SLOPE RIPRAP AREA (SEE NOTE 12)
  - PROPOSED TRENCH-BASED DNAPL BARRIERS (SEE DRAWING 3)
  - PROPOSED DNAPL COLLECTION SUMP/VAULT (SEE DRAWINGS 3 AND 5)
  - PROPOSED DNAPL COLLECTION PIPE CLEANOUT (SEE DRAWING 3)
  - PROPOSED GROUNDWATER COLLECTION SUMP/MANHOLE (SEE DRAWING 5)
  - PROPOSED GROUNDWATER COLLECTION PIPE CLEANOUT (SEE DRAWING 5)
  - EXISTING UTILITY POLE
  - DETAIL REFERENCE NUMBER
  - DRAWING REFERENCE NUMBER

**STREAM BANK WHEAT GRASS**

**SHEEP FESCUE BUFFALO GRASS**

**MIK**

- NOTES:**
1. REFER TO DRAWING 1 FOR BASE MAP INFORMATION.
  2. CONTOUR INTERVAL IS 2 FEET.
  3. WELLS TO BE DECOMMISSIONED (IN ACCORDANCE WITH STATE OF ILLINOIS REGULATIONS) PRIOR TO REMEDIAL REPLACEMENT WELLS TO BE CONSTRUCTED FOR WELLS 0907-033, 09-309, 09-350, AND 09-351. ALL OTHER WELLS/PEZOMETERS ARE TO BE PROTECTED DURING CONSTRUCTION AND EXTENDED (AS NECESSARY) TO 10 FEET ABOVE FINAL GRADE. A WELL EXTENSION SIGNAL IS PROVIDED ON DRAWING 8.
  4. APPROXIMATE LIMIT OF GRADING SHOWN ON THIS DRAWING.
  5. EROSION/SEDIMENTATION CONTROLS TO BE INSTALLED ALONG THE LIMITS OF GRADING IN ACCORDANCE WITH PLANT RECOMMENDATIONS.
  6. SEDIMENTS WITHIN THE PORTION OF THE EXISTING GLAZE CREEK CHANNEL EXTENDING FROM THE DOWNSTREAM END OF THE SOUTHERN TRENCH-BASED DNAPL BARRIER DOWNSTREAM TO THE RECONVERGENCE POINT OF CHANNEL SHALL BE REMOVED TO A MINIMUM DEPTH OF 2 FEET BELOW FINAL GRADE. REMOVED MATERIALS TO BE PLACED IN A CONTAINMENT CELL. INTERIOR OF REMAINING MANHOLE TO BE FILLED WITH GROUT CONCRETE.
  7. PROPOSED BARRIER WALL TO BE CONSTRUCTED WITH COMPACTED CLAY (SEE NOTE 11). BARRIER WALL TO EXTEND VERTICALLY 4-FOOT MINIMUM BELOW EXISTING CREEK BED AND HORIZONTALLY 4-FOOT MINIMUM BEYOND CREEK TOP OF BANK.
  8. ACCUMULATED FLUIDS TO BE REMOVED FROM THE EXISTING MANHOLE (SUMP) PRIOR TO RECOMMISSIONING TO A MINIMUM DEPTH OF 2 FEET BELOW FINAL GRADE. REMOVED MATERIALS TO BE PLACED IN A CONTAINMENT CELL. INTERIOR OF REMAINING MANHOLE TO BE FILLED WITH GROUT CONCRETE.
  9. NEW CREEK CHANNEL TO PROVIDE FOR UNIFORM SLOPES BETWEEN POINTS OF CHANNEL DIVERGENCES AND RECONVERGENCES. CONTRACTOR TO VERIFY ELEVATIONS OF DIVERGENCE AND RECONVERGENCE POINTS PRIOR TO CONSTRUCTION.
  10. EXISTING OVERFLOW FROM LARGE POND TO GLAZE CREEK TO BE MODIFIED TO A TYPE II DITCH.
  11. SEE TABLE ON DRAWING 3 FOR MATERIAL SPECIFICATIONS.
  12. ALONG OUTER BORDERS OF NEW CREEK CHANNEL, RIPRAP APRON WILL EXTEND TO THE TOP OF THE 3:1 SLOPES (SEE DETAIL 2 ON DRAWING 4), WHERE INDICATED ON THIS DRAWING. ALONG THE PERIMETERS OF THE NEW FULL- AND HALF-SLOPE RIPRAP AREAS WILL BE APPROXIMATELY 20 FEET IN LENGTH.
  13. TREES WILL BE PLANTED AND GRASS SEED APPLIED THROUGHOUT THE DISTURBED AREAS ASSOCIATED WITH THE CREEK RELOCATION IN ACCORDANCE WITH A DOCUMENT ENTITLED 'INSTALLATION OF VEGETATION AT THE FORMER KOPPERS WOOD-TREATING SITE, CARBONDALE, ILLINOIS' (HYDROKINETICS, INC., SEPTEMBER 2003).

<p>SCAZER LIGHT, INC. • PITTSBURGH, PENNSYLVANIA</p> <p>FORMER KOPPERS WOOD-TREATING SITE CARBONDALE, ILLINOIS</p> <p><b>PROPOSED SITE PLAN (GRADING PLAN)</b></p> <p><b>BBL</b> BENTON &amp; BELL PITTSBURGH, PENNSYLVANIA</p>		<p>2</p>
<p>DATE: 10/20/03</p> <p>PROJECT NO.: 030703</p> <p>REVISION: 01</p> <p>BY: [Signature]</p> <p>CHECKED: [Signature]</p> <p>DATE: 10/20/03</p>		<p>100' = 1" Scale</p> <p>Graphic Scale</p>
<p>FOR CONSTRUCTION</p>		<p>100' = 1" Scale</p> <p>Graphic Scale</p>
<p>APPROXIMATE LIMIT OF POTENTIAL FUTURE BORROW AREA</p>		<p>100' = 1" Scale</p> <p>Graphic Scale</p>
<p>POINT OF CHANNEL INVERT EL. 363.3' (SEE NOTE 9)</p>		<p>100' = 1" Scale</p> <p>Graphic Scale</p>
<p>POINT OF CHANNEL RECONVERGENCE INVERT EL. 363.8' (SEE NOTE 9)</p>		<p>100' = 1" Scale</p> <p>Graphic Scale</p>
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<p>PROPOSED CHANNEL INVERT EL. 363.3' (SEE NOTE 9)</p>		<p>100' = 1" Scale</p> <p>Graphic Scale</p>
<p>PROPOSED CHANNEL RECONVERGENCE INVERT EL. 363.8' (SEE NOTE 9)</p>		<p>100' = 1" Scale</p> <p>Graphic Scale</p>
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<p>PROPOSED CHANNEL RECONVERGENCE INVERT EL. 363.8' (SEE NOTE 9)</p>		<p>100' = 1" Scale</p> <p>Graphic Scale</p>
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<p>PROPOSED CHANNEL INVERT EL. 363.3' (SEE NOTE 9)</p>		<p>100' = 1" Scale</p> <p>Graphic Scale</p>
<p>PROPOSED CHANNEL RECONVERGENCE INVERT EL. 363.8' (SEE NOTE 9)</p>		



**FIELD ORDER NO. 025: August 29, 2005**

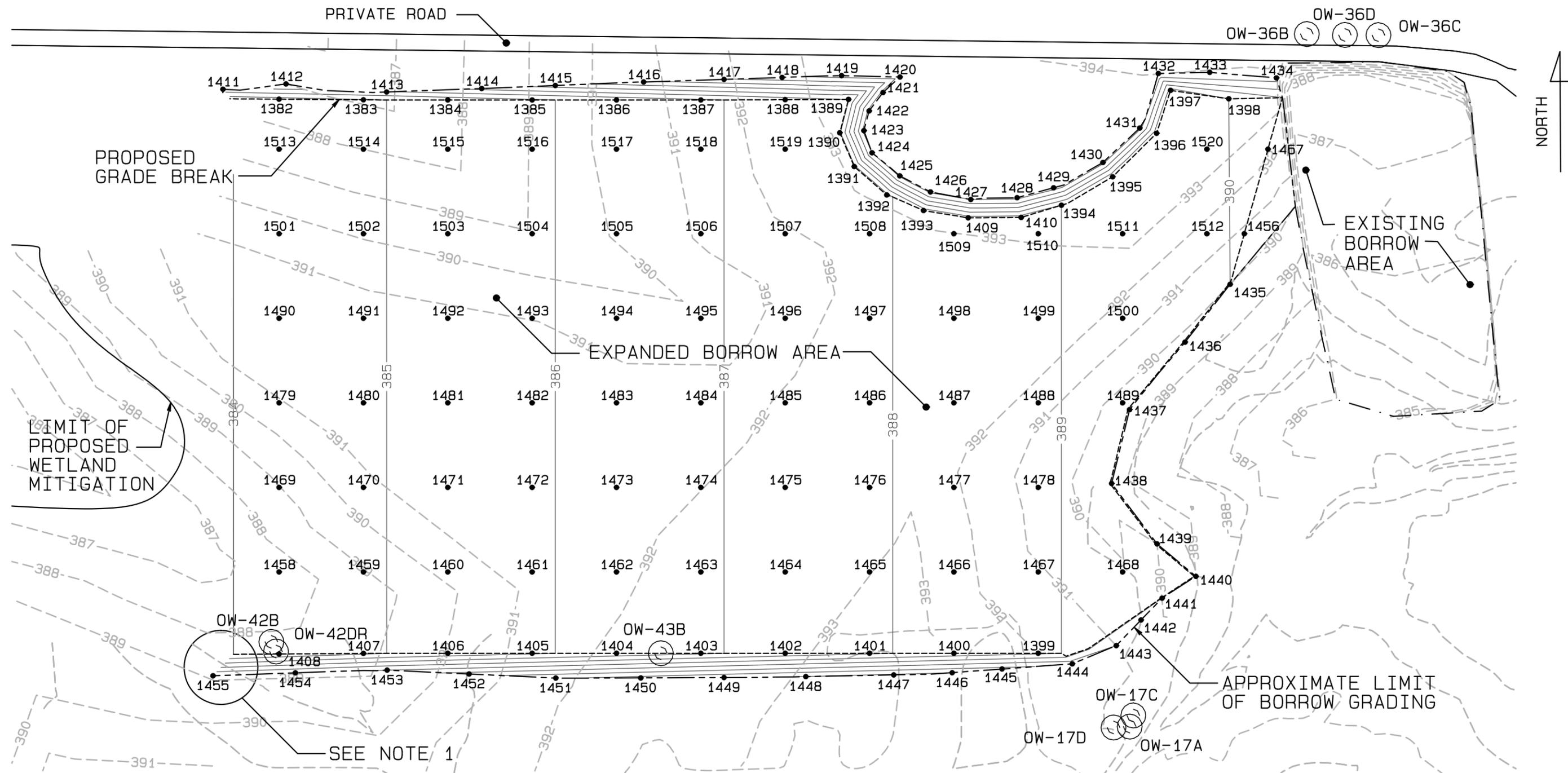
**PROJECT:** Expanded Borrow Area  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Graveling, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL  
Andy Johnson, BBL

**TO THE CONTRACTOR:** This Field Order includes information relative to the expanded borrow area located west of the existing borrow area.

The following items are attached to this Field Order:

- Figure showing the expanded borrow area grading and associated survey grade control.
- Table providing coordinates (northing, easting and elevations) for survey grade control points associated with the expanded borrow area.
- Table presenting estimated fill material quantities associated with various remedial construction activities.

**ISSUED BY:**  **DATE:** August 29, 2005

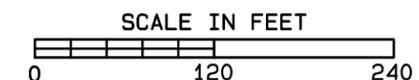


**NOTES**

1. PROPOSED GRADES TO THE WEST OF THE EXPANDED BORROW AREA SHALL BE TRANSITIONED INTO THE GRADING ASSOCIATED WITH THE WETLAND MITIGATION.
2. PROPOSED GRADES FOR THE EXPANDED BORROW AREA ARE SHOWN FOR CONCEPTUAL PURPOSES ONLY. ACTUAL GRADES NECESSARY TO ACHIEVE REQUIRED SOIL FILL VOLUMES MAY VARY FROM THOSE SHOWN. FINAL, AS-BUILT GRADES SHALL ALLOW FOR POSITIVE DRAINAGE FROM THE BORROW AREAS.
3. PROPOSED GRADES WERE DEVELOPED FROM LIMITED SURVEY DATA AND ARE BASED ON FILL VOLUME ESTIMATES FOR THE VARIOUS REMEDIAL CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL CONFIRM REQUIRED PROJECT FILL VOLUME AND AVAILABLE BORROW VOLUME ASSOCIATED WITH THE PROPOSED GRADES TO DETERMINE IF FIELD ADJUSTMENTS OF THE PROPOSED GRADES ARE NEEDED.
4. PROPOSED GRADES SHOWN REPRESENT APPROXIMATE COMPLETED EXCAVATION SURFACE. RESTORATION OF THE EXPANDED BORROW AREA MAY INCLUDE PLACEMENT OF APPROXIMATELY 4 INCHES OF VEGETATED SOIL MATERIAL (IF NECESSARY).
5. A MINIMUM SEPARATION DISTANCE OF 10 FEET SHALL BE MAINTAINED BETWEEN THE LIMITS OF EXPANDED BORROW EXCAVATION AND EXISTING MONITORING WELLS.

**LEGEND**

- 390 --- EXISTING ELEVATION CONTOUR
- 387 — PROPOSED ELEVATION CONTOUR
- OW-17A EXISTING MONITORING WELL



BBL, INC.

SHEET TITLE: EXPANDED BORROW AREA  
 PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE  
 PROJECT LOCATION: CARBONDALE, IL.  
 PROJECT NO: 38883.003  
 DATE: 08/29/05 BY: CAA/RLP FILE: 38883.PRO

FIGURE  
 1

Blasland, Bouck & Lee, Inc.  
6723 Towpath Road, P.O. Box 66  
Syracuse, NY 13214  
315-446-9120

August 29, 2005

PROJECT: F:\TMPROJ\388\38883\TM\38883.pro

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Point	Coordinates	Listing		
Point	North	East	Elev	Name
1382	6259.15	5800.00	384.6	TOE OF SLOPE
1383	6258.42	5900.00	384.9	TOE OF SLOPE
1384	6258.23	6000.00	385.4	TOE OF SLOPE
1385	6258.23	6100.00	385.9	TOE OF SLOPE
1386	6258.23	6200.00	386.4	TOE OF SLOPE
1387	6258.23	6300.00	386.9	TOE OF SLOPE
1388	6258.56	6400.00	387.5	TOE OF SLOPE
1389	6258.90	6475.12	387.9	TOE OF SLOPE
1390	6219.42	6464.74	387.8	TOE OF SLOPE
1391	6179.49	6481.89	387.8	TOE OF SLOPE
1392	6145.88	6520.46	388.0	TOE OF SLOPE
1393	6127.43	6564.01	388.5	TOE OF SLOPE
1394	6133.70	6727.52	389.0	TOE OF SLOPE
1395	6167.35	6788.26	389.3	TOE OF SLOPE
1396	6218.80	6840.39	389.3	TOE OF SLOPE
1397	6269.55	6856.85	389.5	TOE OF SLOPE
1398	6259.60	6925.90	390.0	TOE OF SLOPE
1399	5603.87	6700.00	388.9	TOE OF SLOPE
1400	5603.87	6600.00	388.4	TOE OF SLOPE
1401	5603.87	6500.00	387.9	TOE OF SLOPE
1402	5603.87	6400.00	387.4	TOE OF SLOPE
1403	5603.87	6300.00	386.9	TOE OF SLOPE
1404	5603.87	6200.00	386.4	TOE OF SLOPE
1405	5603.87	6100.00	385.9	TOE OF SLOPE
1406	5603.87	6000.00	385.4	TOE OF SLOPE
1407	5603.67	5900.00	384.9	TOE OF SLOPE
1408	5602.97	5800.00	384.3	TOE OF SLOPE
1409	6118.83	6616.94	388.6	TOE OF SLOPE
1410	6119.26	6679.76	388.8	TOE OF SLOPE
1411	6270.90	5733.47	*	LIMIT OF GRADING
1412	6277.17	5808.19	*	LIMIT OF GRADING
1413	6267.63	5927.52	*	LIMIT OF GRADING
1414	6271.76	6040.24	*	LIMIT OF GRADING
1415	6275.31	6127.52	*	LIMIT OF GRADING
1416	6279.47	6232.23	*	LIMIT OF GRADING
1417	6282.50	6327.52	*	LIMIT OF GRADING
1418	6284.85	6396.36	*	LIMIT OF GRADING
1419	6287.02	6466.83	*	LIMIT OF GRADING
1420	6285.29	6536.10	*	LIMIT OF GRADING
1421	6266.89	6515.96	*	LIMIT OF GRADING
1422	6245.22	6499.48	*	LIMIT OF GRADING
1423	6221.93	6493.34	*	LIMIT OF GRADING
1424	6195.73	6503.00	*	LIMIT OF GRADING
1425	6168.44	6535.83	*	LIMIT OF GRADING
1426	6149.46	6572.24	*	LIMIT OF GRADING

8/29/2005

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1427	6140.49	6620.08	*	LIMIT OF GRADING
1428	6142.59	6674.98	*	LIMIT OF GRADING
1429	6154.33	6718.24	*	LIMIT OF GRADING
1430	6184.30	6776.72	*	LIMIT OF GRADING
1431	6224.97	6820.35	*	LIMIT OF GRADING
1432	6289.53	6842.38	*	LIMIT OF GRADING
1433	6290.86	6903.32	*	LIMIT OF GRADING
1434	6284.28	6982.43	*	LIMIT OF GRADING
1435	6040.19	6927.52	*	LIMIT OF GRADING
1436	5971.76	6874.05	*	LIMIT OF GRADING
1437	5891.94	6808.30	*	LIMIT OF GRADING
1438	5804.62	6787.02	*	LIMIT OF GRADING
1439	5733.20	6840.91	*	LIMIT OF GRADING
1440	5694.83	6886.89	*	LIMIT OF GRADING
1441	5668.99	6846.83	*	LIMIT OF GRADING
1442	5643.21	6821.95	*	LIMIT OF GRADING
1443	5612.86	6792.54	*	LIMIT OF GRADING
1444	5591.32	6740.39	*	LIMIT OF GRADING
1445	5585.25	6657.07	*	LIMIT OF GRADING
1446	5580.81	6598.04	*	LIMIT OF GRADING
1447	5578.24	6528.74	*	LIMIT OF GRADING
1448	5576.23	6424.50	*	LIMIT OF GRADING
1449	5575.15	6327.52	*	LIMIT OF GRADING
1450	5574.65	6228.79	*	LIMIT OF GRADING
1451	5574.51	6128.06	*	LIMIT OF GRADING
1452	5579.33	6025.21	*	LIMIT OF GRADING
1453	5583.88	5928.13	*	LIMIT OF GRADING
1454	5580.68	5819.31	*	LIMIT OF GRADING
1455	5577.22	5721.69	*	LIMIT OF GRADING
1456	6100.00	6944.31	390.2	SPOT ELEVATION
1457	6200.00	6972.38	390.6	SPOT ELEVATION
1458	5700.00	5800.00	384.3	SPOT ELEVATION
1459	5700.00	5900.00	384.9	SPOT ELEVATION
1460	5700.00	6000.00	385.4	SPOT ELEVATION
1461	5700.00	6100.00	385.9	SPOT ELEVATION
1462	5700.00	6200.00	386.4	SPOT ELEVATION
1463	5700.00	6300.00	386.9	SPOT ELEVATION
1464	5700.00	6400.00	387.4	SPOT ELEVATION
1465	5700.00	6500.00	387.9	SPOT ELEVATION
1466	5700.00	6600.00	388.4	SPOT ELEVATION
1467	5700.00	6700.00	388.9	SPOT ELEVATION
1468	5700.00	6800.00	389.6	SPOT ELEVATION
1469	5800.00	5800.00	384.3	SPOT ELEVATION
1470	5800.00	5900.00	384.9	SPOT ELEVATION
1471	5800.00	6000.00	385.4	SPOT ELEVATION
1472	5800.00	6100.00	385.9	SPOT ELEVATION
1473	5800.00	6200.00	386.4	SPOT ELEVATION
1474	5800.00	6300.00	386.9	SPOT ELEVATION
1475	5800.00	6400.00	387.4	SPOT ELEVATION
1476	5800.00	6500.00	387.9	SPOT ELEVATION
1477	5800.00	6600.00	388.4	SPOT ELEVATION
1478	5800.00	6700.00	388.9	SPOT ELEVATION
1479	5900.00	5800.00	384.3	SPOT ELEVATION
1480	5900.00	5900.00	384.9	SPOT ELEVATION
1481	5900.00	6000.00	385.4	SPOT ELEVATION
1482	5900.00	6100.00	385.9	SPOT ELEVATION

1483	5900.00	6200.00	386.4	SPOT	ELEVATION
1484	5900.00	6300.00	386.9	SPOT	ELEVATION
1485	5900.00	6400.00	387.4	SPOT	ELEVATION
1486	5900.00	6500.00	387.9	SPOT	ELEVATION
1487	5900.00	6600.00	388.4	SPOT	ELEVATION
1488	5900.00	6700.00	388.9	SPOT	ELEVATION
1489	5900.00	6800.00	389.6	SPOT	ELEVATION
1490	6000.00	5800.00	384.3	SPOT	ELEVATION
1491	6000.00	5900.00	384.9	SPOT	ELEVATION
1492	6000.00	6000.00	385.4	SPOT	ELEVATION
1493	6000.00	6100.00	385.9	SPOT	ELEVATION
1494	6000.00	6200.00	386.4	SPOT	ELEVATION
1495	6000.00	6300.00	386.9	SPOT	ELEVATION
1496	6000.00	6400.00	387.4	SPOT	ELEVATION
1497	6000.00	6500.00	387.9	SPOT	ELEVATION
1498	6000.00	6600.00	388.4	SPOT	ELEVATION
1499	6000.00	6700.00	388.9	SPOT	ELEVATION
1500	6000.00	6800.00	389.5	SPOT	ELEVATION
1501	6100.00	5800.00	384.3	SPOT	ELEVATION
1502	6100.00	5900.00	384.9	SPOT	ELEVATION
1503	6100.00	6000.00	385.4	SPOT	ELEVATION
1504	6100.00	6100.00	385.9	SPOT	ELEVATION
1505	6100.00	6200.00	386.4	SPOT	ELEVATION
1506	6100.00	6300.00	386.9	SPOT	ELEVATION
1507	6100.00	6400.00	387.4	SPOT	ELEVATION
1508	6100.00	6500.00	387.9	SPOT	ELEVATION
1509	6100.00	6600.00	388.4	SPOT	ELEVATION
1510	6100.00	6700.00	388.9	SPOT	ELEVATION
1511	6100.00	6800.00	389.4	SPOT	ELEVATION
1512	6100.00	6900.00	389.8	SPOT	ELEVATION
1513	6200.00	5800.00	384.3	SPOT	ELEVATION
1514	6200.00	5900.00	384.9	SPOT	ELEVATION
1515	6200.00	6000.00	385.4	SPOT	ELEVATION
1516	6200.00	6100.00	385.9	SPOT	ELEVATION
1517	6200.00	6200.00	386.4	SPOT	ELEVATION
1518	6200.00	6300.00	386.9	SPOT	ELEVATION
1519	6200.00	6400.00	387.4	SPOT	ELEVATION
1520	6200.00	6900.00	389.8	SPOT	ELEVATION

**Beazer East, Inc.**  
**Former Koppers Wood-Treating Site**  
**Carbondale, Illinois**

FINAL

**Estimated Fill Material Quantities**

Item Description	Volumes of Fill Needed			Volumes of Fill Available		
	Subgrade (cy)	General Fill (cy)	Vegetated Cover Soil (cy)	Subgrade (cy)	General Fill (cy)	Vegetated Cover Soil <sup>8</sup> (cy)
FPA Surface Cover <sup>1</sup>	-42,300	-29,100	-14,600	7,800		-
CAMU Final Cover <sup>2</sup>	-	-3,700	-1,300	-	-	-
Glade Creek Relocation <sup>3</sup>	-	-53,200	-8,200	-	-	-
Existing Borrow Area <sup>3</sup>	-	-	-	-	7,300	4,300
Expanded Borrow Area	-	-	-	-	87,600	30,400
Stockpile Within Surface Cover Area <sup>4</sup>	-	-	-	19,200		-
Stockpile North of CAMU <sup>4</sup>	-	-	-	-	-	3,000
Soil/Debris Pile <sup>5</sup>	-	-2,960	-	2,960		-
Wetland Mitigation <sup>6</sup>	-	-	-	-	-	4,840
Borrow Area Restoration <sup>7</sup>	-	-	-11,600	-	-	-
<b>Totals</b>	<b>-42,300</b>	<b>-88,960</b>	<b>-35,700</b>	<b>29,960</b>	<b>94,900</b>	<b>42,540</b>

<b>Net Resulting Subgrade Volume</b>	<b>-12,340</b>
<b>Net Resulting General Fill<sup>9</sup></b>	<b>5,940</b>
<b>Net Resulting Vegetated Cover Soil<sup>10</sup></b>	<b>6,840</b>

Notes -

- 1 - Surface Cover volumes are based on BBL and SES estimates summarized in e-mail dated 5/18/05 from BBL to SES.
- 2 - CAMU final cover is composed of 18" of general fill and 6" of vegetated cover soil (1.5 acre surface area).
- 3- Volumes presented for Glade Creek Relocation and Existing Borrow Area are from the Glade Creek BODR.
- 4- Volumes presented for the stockpiles within the FPA Surface Cover and north of the CAMU are based on discussions with BBL and SES.
- 5- Volume presented for soil/debris piles includes the volume of soil below native grade to be excavated and placed as subgrade for the FPA Surface Cover. Other soil/debris pile material above native grade will be placed in the CAMU.
- 6- Volumes presented for wetland mitigation are based on an assumed excavation of 1 foot of soil over approximately 3 acres of mitigation area.
- 7- Volume for the borrow area restoration is assumed to be 4 inches of vegetated cover soil over the entire surface of the existing and expanded borrow areas.
- 8 - Existing vegetated cover soil is assumed to be 12" thick. The actual thickness of available material may vary.
- 9- General fill material may be used for subgrade material.
- 10- Vegetated cover soil material may be used for general fill.
- 11- A negative number denotes a volume of fill needed. A positive number denotes a volume of fill available.
- 12- Volumes represent an in-place measurement and do not include adjustments for in-place shrinkage or swelling.
- 13- Volumes are estimated based on limited field survey information. Actual volumes may vary.



**FIELD ORDER NO. 026: July 15, 2005**

**PROJECT:** Glade Creek Sediment Removals  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, Illinois  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order pertains to regrading of Glade Creek following sediment removals.

1. Placement of clay and gravel according to the design drawings as needed.
2. Placement of non-woven fabric and riprap along the creek sideslopes according to the design drawings as needed.
3. Additional horizontal removal of up to two feet of impacted material based on visual observation. Following removals, the areas will be backfilled with clay and covered with non-woven fabric and riprap.
4. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Jeremy Neighbors **DATE:** July 15, 2005



**FIELD ORDER NO. 027: October 4, 2005**

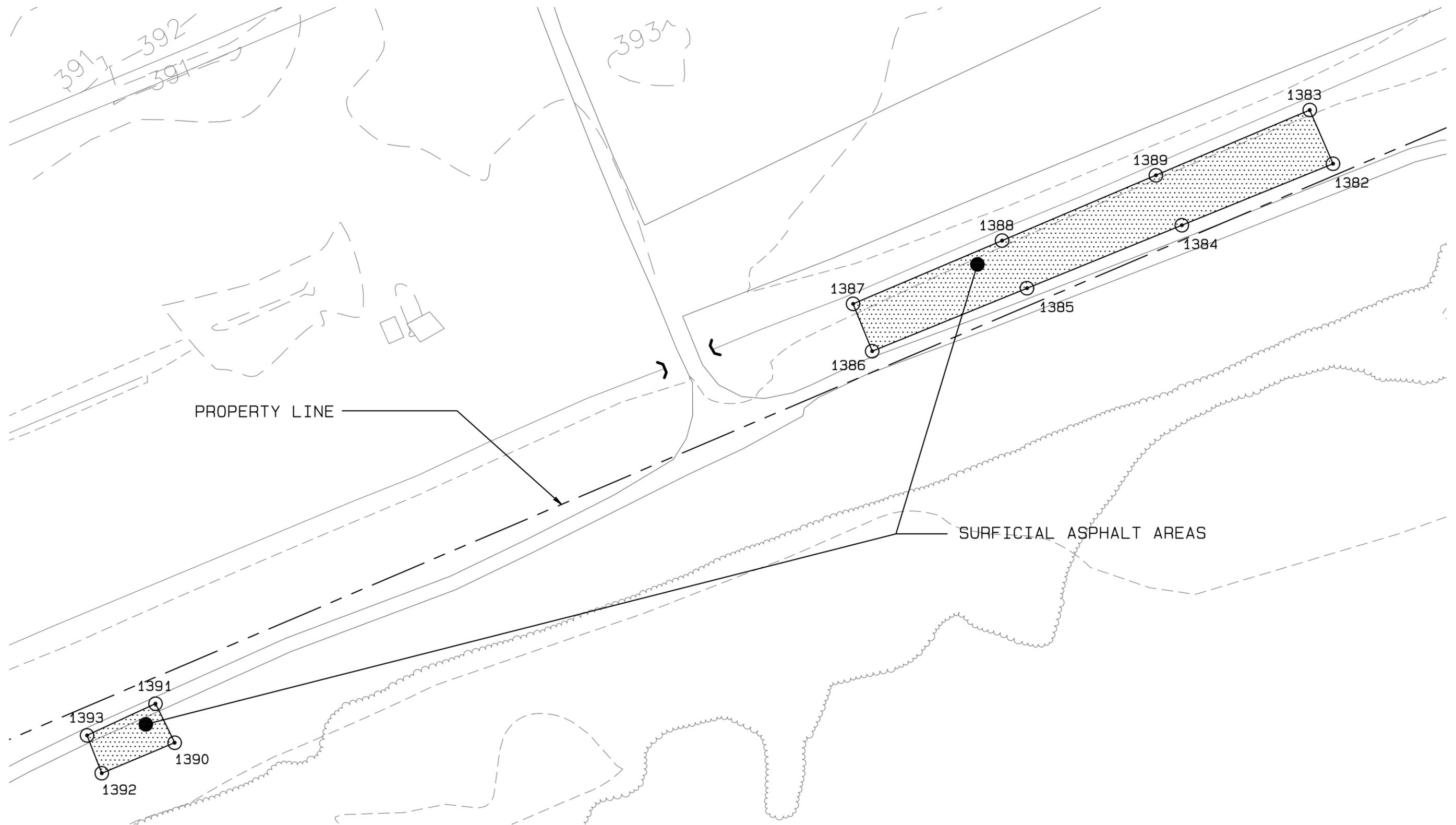
**PROJECT:** Surficial Asphalt Areas  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL  
Andy Johnson, BBL

**TO THE CONTRACTOR:** This Field Order includes information relative to two surficial asphalt removal areas located to the south of the Former Process Area surface cover.

The following items are attached to this Field Order:

- Figure depicting the limits of the surficial asphalt removal areas and associated survey control points.
- Table providing coordinates (northing, and easting) for survey control points associated with the surficial asphalt removal areas.

**ISSUED BY:**  **DATE:** October 4, 2005

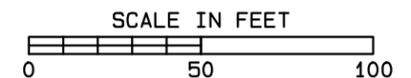


NOTES:

1. EXISTING SURFICIAL ASPHALT WITHIN THE LIMITS DELINEATED BY SURVEY CONTROL POINT NUMBERS 1382-1393 TO BE REMOVED AND USED AS SUBGRADE FILL WITHIN THE TYPE I SURFACE COVER. SOIL BENEATH SURFICIAL ASPHALT MATERIAL TO BE EXCAVATED TO A DEPTH OF 1-FOOT AND USED AS SUBGRADE FILL WITHIN THE TYPE I SURFACE COVER.
2. REFER TO FIELD ORDER NO. 025 FOR SUBGRADE FILL AREAS/LIMITS WITHIN THE TYPE I SURFACE COVER.

LEGEND

⊙ SURVEY CONTROL POINT



BBL, INC.

SHEET TITLE: SURFICIAL ASPHALT REMOVAL AREA SURVEY  
 CONTROL POINTS  
 PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.003  
 DATE: 10/04/05 BY: RWP FILE: 38865.PRO

FIGURE  
 1

Blasland, Bouck & Lee, Inc.  
6723 Towpath Road, P.O. Box 66  
Syracuse, NY 13214  
315-446-9120  
Tuesday, October 4, 2005

PROJECT: F:TMPROJ\388\38865\TM\38865.pro

-----  
Point Coordinates List

Point	Northing	Easting	Name
1382	4066.09	4845.81	SURFICIAL ASPHALT LIMIT
1383	4095.93	4832.85	SURFICIAL ASPHALT LIMIT
1384	4031.94	4761.62	SURFICIAL ASPHALT LIMIT
1385	3996.98	4675.44	SURFICIAL ASPHALT LIMIT
1386	3962.01	4589.26	SURFICIAL ASPHALT LIMIT
1387	3988.30	4578.62	SURFICIAL ASPHALT LIMIT
1388	4023.42	4661.57	SURFICIAL ASPHALT LIMIT
1389	4059.68	4747.21	SURFICIAL ASPHALT LIMIT
1390	3744.62	4200.93	SURFICIAL ASPHALT LIMIT
1391	3766.31	4190.24	SURFICIAL ASPHALT LIMIT
1392	3727.70	4160.33	SURFICIAL ASPHALT LIMIT
1393	3748.70	4152.13	SURFICIAL ASPHALT LIMIT



**FIELD ORDER NO. 028: August 16, 2005**

**PROJECT:** Wetland Mitigation

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck and Lee, Inc.

**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

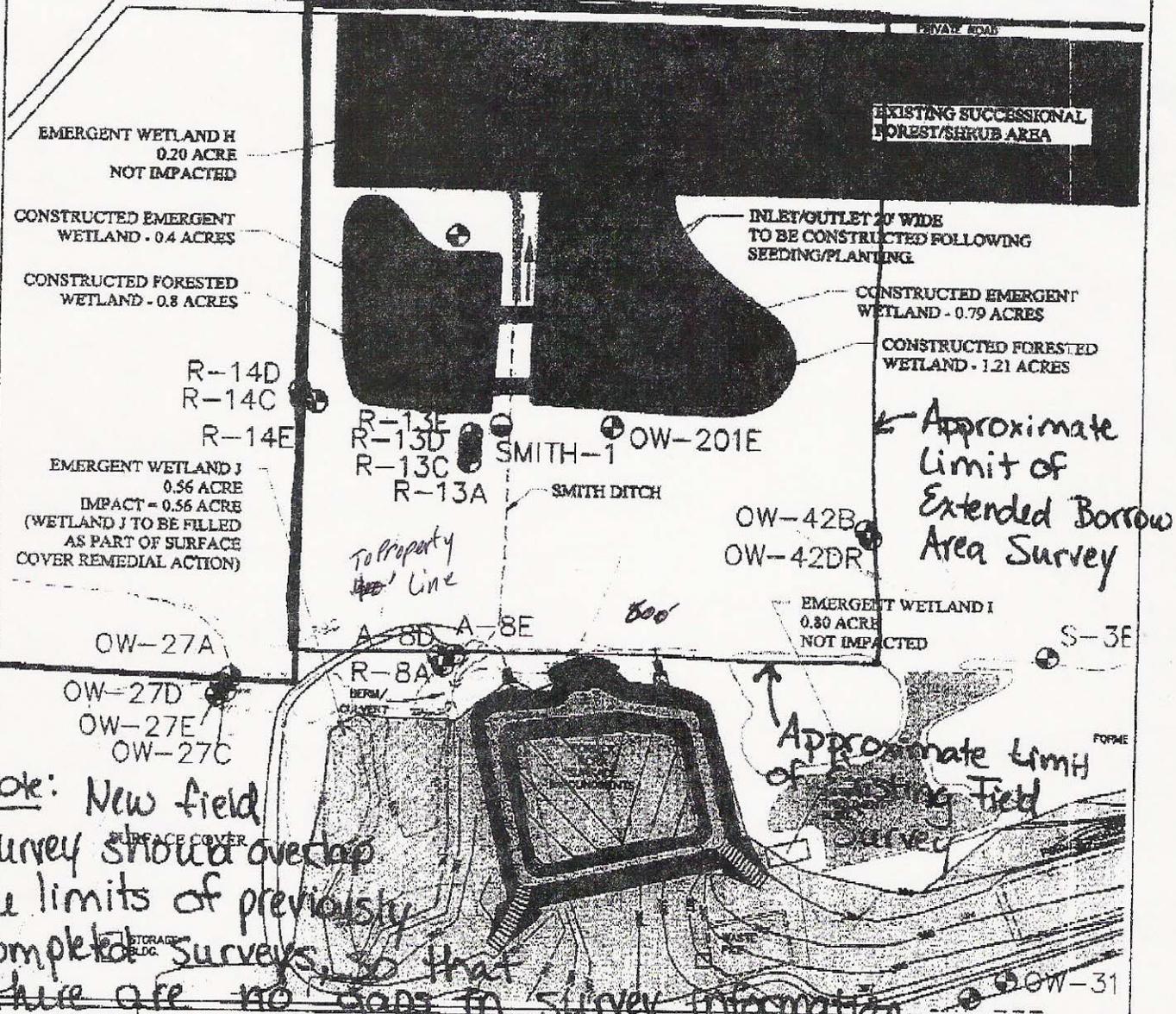
**TO THE CONTRACTOR:** This Field Order is for survey of the proposed wetland mitigation area.

1. Perform survey in the proposed wetland mitigation area according to the attached figure. Survey limits should extend from the ditch just north of the CAMU to the private road, from Smith Ditch west to the property line, and from Smith Ditch east 600 feet.
2. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Jeremy Neighbors **DATE:** August 16, 2005

LEGEND

<p>EXISTING SUCCESSIONAL FOREST/SHRUB AREA</p> <p>EXISTING EMERGENT WETLAND</p> <p>PROPOSED CONSTRUCTED FORESTED WETLAND - 2.01 ACRES          MIXED NATIVE WETLAND (FACW- OR WETTER)          TREE &amp; SHRUB SPECIES: 20'X20' SPACING          (109 PLANTINGS/ACRE, = 219 PLANTINGS)          3-GALLON CONTAINERIZED STOCK          GROUND COVER ESTABLISHED THROUGH SEEDING          WITH MIX OF NATIVE WETLAND (FACW- OR WETTER)          SEDGES, GRASSES, AND FORBS AT NURSERY          RECOMMENDED SEEDING RATE</p>	<p>PROPOSED CONSTRUCTED WETLAND DEEP WATER POOL</p> <p>PROPOSED CONSTRUCTED EMERGENT WETLAND - 1.19 ACRES          SEEDED WITH MIX OF NATIVE WETLAND          (FACW- OR WETTER) SEDGES, GRASSES, AND FORBS AT          NURSERY RECOMMENDED SEEDING RATE</p> <p>FORMER PROCESS AREA SURFACE COVER</p>
--	--



Note: New field Survey should overlap the limits of previously completed surveys, so that there are no gaps in survey information.



PROJECT NAME		
KOPPERS PLANT CARBONDALE, ILLINOIS		
MITIGATION PLAN - SMITH DITCH CONSTRUCTED WETLAND		
DRAWN BY	DATE	JOB NUMBER
EES	05/2005	2005-3001.33
CHECKED BY		
MSS		

**General Note:**  
 BASED ON UNDATED PLAN PROVIDED ELECTRONICALLY ON MARCH 23, 2005 FROM BLASLAND, BOUCK & LEE, INC. AS WELL AS JANUARY 15, 2003 WETLAND DELINEATION PREPARED BY GEOTECHNOLOGY, INC. DIMENSIONS AND LOCATIONS ARE APPROXIMATE. ACTUAL MAY VARY. WETLANDS SHOWN REFLECT PRE-EXISTING CONDITIONS. CURRENT WETLAND CONDITIONS MAY VARY. DRAWING SHALL NOT BE USED OUTSIDE THE CONTEXT OF THE REPORT FOR WHICH IT WAS GENERATED.





**FIELD ORDER NO. 029: September 27, 2005**

**PROJECT:** Glade Creek Sediment Removal

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck and Lee, Inc.

**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Jeremy Neighbors, BBL

**TO THE CONTRACTOR:** This Field Order details the process and locations of test trenches dug adjacent to Glade Creek.

1. Test trenches were excavated starting as close to the creek bed as possible without impacting stability of the bank and perpendicular to the creek channel until impacts were no longer observed, or until additional excavation was no longer feasible (i.e., due to stability considerations or excessive groundwater infiltration). Test trenches were excavated to depth at which potential site-related impacts were no longer observed, or until additional excavation was no longer feasible (i.e., due to stability considerations or excessive groundwater infiltration). The excavation depth was between 2 and 7 feet. At each location, the clean surficial soils were removed and staged separately. Visual impacts were assessed and recorded. Upon completion, the subsurface soils were backfilled and compacted in 24-inch lifts using the excavator bucket, and the vegetated surface soils were re-placed on top of the excavation area.
2. BBL staked each test trench following backfilling.
3. Clearing was performed as necessary to access test trench locations.
4. The attached figure shows actual test trench locations.
5. It is recognized that this field order may affect the Contractor's costs.

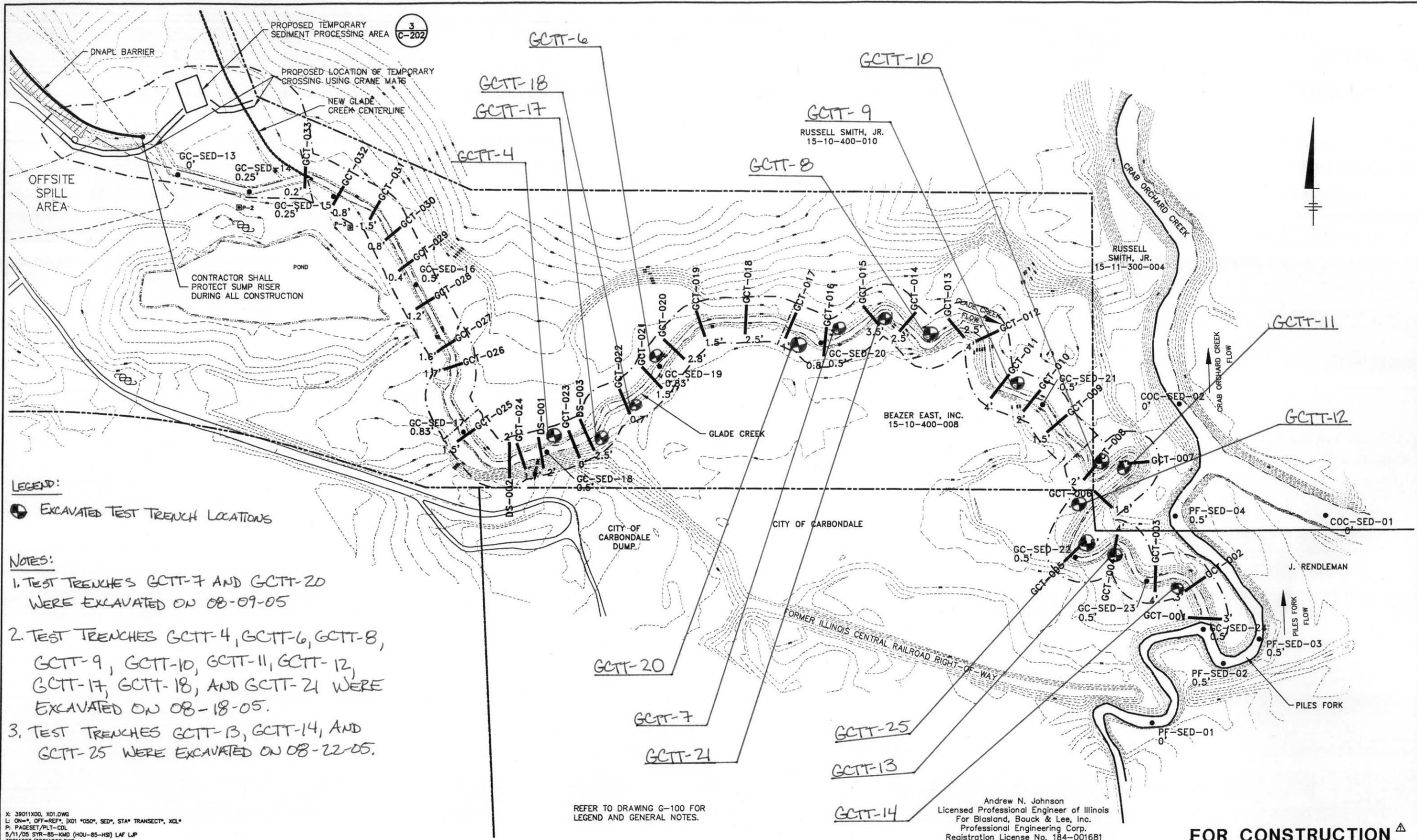
**FINAL**

FO-029

September 27, 2005

Page 2 of 2

**ISSUED BY:** Ben Huggins **DATE:** September 27, 2005



**LEGEND:**  
 ● EXCAVATED TEST TRENCH LOCATIONS

**NOTES:**  
 1. TEST TRENCHES GCTT-7 AND GCTT-20 WERE EXCAVATED ON 08-09-05  
 2. TEST TRENCHES GCTT-4, GCTT-6, GCTT-8, GCTT-9, GCTT-10, GCTT-11, GCTT-12, GCTT-17, GCTT-18, AND GCTT-21 WERE EXCAVATED ON 08-18-05.  
 3. TEST TRENCHES GCTT-13, GCTT-14, AND GCTT-25 WERE EXCAVATED ON 08-22-05.

X: 39011X00, X01.DWG  
 L: DN=\*, OFF=REF\*, [X01 \*050\*, SED\*, STA\* TRANSECT\*, XCL\*  
 P: PAGESET/PLT-CDL  
 5/11/05 SYR-85-KMD (HOU-85-HS) LAF L/P  
 39011003/39011002.DWG

Graphic Scale  
 1"=100'  
 100' 0 100' 200'

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

No.	Date	Revisions
1	5/11/05	ISSUED FOR CONSTRUCTION
0	4/01/05	FOR REVIEW BY U.S.E.P.A

Professional Engineer's Name  
**ANDREW N. JOHNSON**  
 Professional Engineer's No.  
 062-050750  
 Date Signed  
 05/11/05  
 Project Mgr. Designed by Drawn by  
 MOG ESD KMD



**HISTORICAL SAMPLING LOCATIONS AND DEEPEST OBSERVED DEPTHS OF IMPACTED SEDIMENTS**

Andrew N. Johnson  
 Licensed Professional Engineer of Illinois  
 For Blasland, Bouck & Lee, Inc.  
 Professional Engineering Corp.  
 Registration License No. 184-001681

BEAZER EAST, INC. • CARBONDALE, ILLINOIS  
 GLADE CREEK SEDIMENT REMOVAL

**FOR CONSTRUCTION**

BBL Project No.  
 390.11  
 Date  
 MAY 2005  
 Blasland, Bouck & Lee, Inc.  
 Corporate Headquarters  
 6723 Towpath Road  
 Syracuse, NY 13214  
 315-446-9120

**G-101**



**FIELD ORDER NO. 030: October 20, 2005**

**PROJECT:** Former Process Area Surface Cover

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck & Lee, Inc.

**COPIES TO:**

Bob Braden, Severson	Phil Batten, BBL
Mason Wheeler, Sr., Severson	Jeff Holden, BBL
Paul Alessio, Beazer	Dave Bessingpas, BBL
Mark Gravelding, BBL	Ben Huggins, BBL
Troy Hopper, BBL	Leslie Halliday, BBL

**TO THE CONTRACTOR:** This Field Order contains additional activities conducted in the southeast corner of the Former Process Area.

Items associated with this Field Order are as follows:

1. Impacted material from the drainage ditch area that runs east from the southeast corner of the TYPE 1 cover anchor trench was excavated and placed in the CAMU. The area was excavated to a depth of approximately 2 feet for a distance of approximately 15 feet to the north and 15 feet to the south and 150 feet east. Due to the presence of steel piping at the eastern end of the ditch the excavation was extended north by approximately 20 feet (20 feet wide by 20 feet long by 3 feet deep). The anchor trench outlet pipe was extended beyond the excavation limits and the ditch was backfilled with onsite borrow material.
2. The area where impacted material was emanating through the 1 foot surface clay cover southeast of the DNAPL recovery well and east of TYPE 1 cover anchor trench was excavated (see attached sketch). The excavated area was approximately 16 feet wide by 18 feet long by 3.5 feet deep. Excavated material was placed in the CAMU. The area was backfilled with onsite borrow material.
3. The TYPE 2 cover was extended as shown outlined in purple in the attached figure due to the presence of a soft area and surface staining near the ditch excavation. The area north of the extended cover will be graded to prevent ponding of water.
4. A very soft area with surface staining was observed at the southwest corner of the soft spot shown in the attached figure. This area was excavated (12 x 12 x 3 ft) to provide a more stable subgrade for cap material. Excavated material was placed in the CAMU. Woven

**FINAL**

FO-030

October 20, 2005

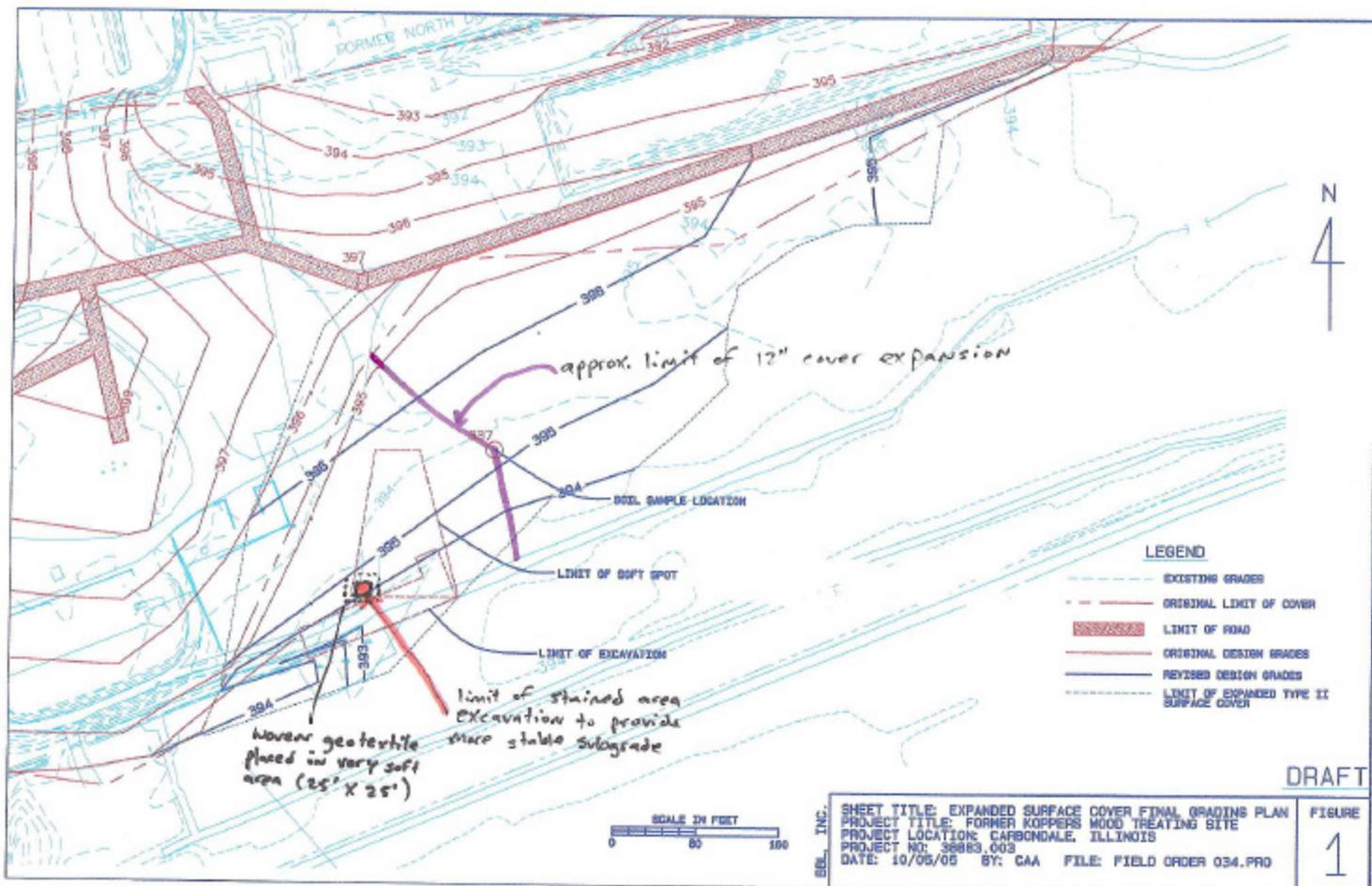
Page 2 of 2

geotextile was placed between the excavation backfill and the cover soil as shown in the attached figure.

5. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Ben Huggins **DATE:** October 20, 2005

# Field Order 030





**FIELD ORDER NO. 031: October 4, 2005**

**PROJECT:** Glade Creek Sediment Removal

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck and Lee, Inc.

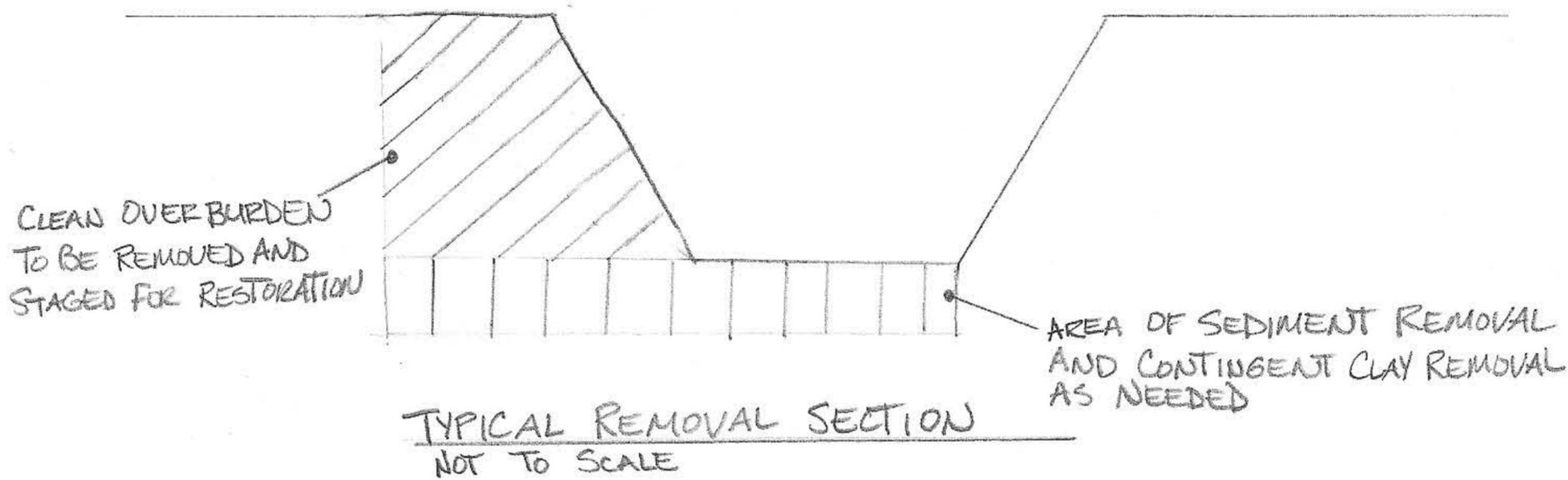
<b>COPIES TO:</b>	Bob Braden, Severson	Phil Batten, BBL
	Mason Wheeler, Sr., Severson	Jeff Holden, BBL
	Paul Alessio, Beazer	Dave Bessingpas, BBL
	Mark Gravelding, BBL	Ben Huggins, BBL
	Troy Hopper, BBL	Leslie Halliday, BBL

**TO THE CONTRACTOR:** This Field Order contains additional activities to be conducted in Glade Creek

Items associated with this Field Order are as follows:

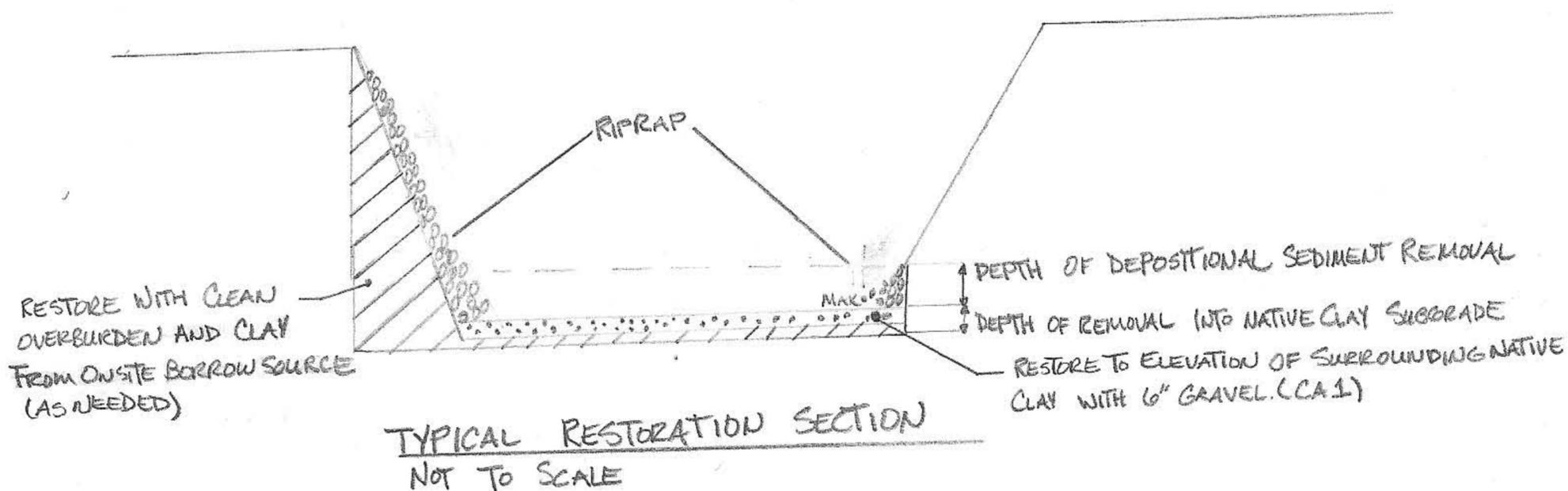
1. Based on test trenching described in Field Order 029 and visual observations additional material will be removed from the banks of Glade Creek from Station 19+80 to 0+00. It is expected that removal will be from 0-16 feet into the banks. Clean overburden will be excavated and segregated for use as backfill. Stained material will be placed in the CAMU.
2. Disturbed banks will be restored with clay borrow and overburden. The overburden will be placed upon the clay borrow material. Non-woven geotextile and rip-rap will be placed from the toe of disturbed bank slopes approximately half way up the slopes. The top of the slopes will be seeded and protected against erosion using straw or an erosion blanket as needed.
3. The attached figure shows the typical removal section and typical restoration section.
4. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:** Ben Huggins **DATE:** October 4, 2005



NOTES:

1. REMOVAL MAY BE NECESSARY FOR BOTH BANKS IN SOME AREAS.



NOTES:

1. FOR REMOVALS IN PREVIOUSLY RESTORED SECTIONS, REMOVE RIPRAP AND STAGE FOR REUSE WHERE PRACTICABLE, REMOVE AND STOCKPILE CLEAN OVERBURDEN, REMOVE RESTORED CLAY AND IMPACTED MATERIAL FROM SIDESLOPE FOR PLACEMENT IN CAMU. RESTORE SIDESLOPE USING STOCKPILED OVERBURDEN, NON-WOVEN FABRIC, AND RIPRAP.
2. TREES WILL BE CLEARED AS NEEDED. STUMPS & ROOTS WILL BE REMOVED AS NEEDED, ROOTS THAT EXTEND INTO IMPACTED MATERIAL WILL BE CUT AT THE OVERBURDEN-IMPACTED MATERIAL INTERFACE AND HAULED TO THE CAMU. NON-IMPACTED STUMPS & ROOTS WILL BE STOCKPILED FOR NATURAL DEGRADATION.



**FIELD ORDER NO. 032: October 4, 2005**

**PROJECT:** Revised Surface Cover Grades and Details  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Graveling, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Les Halliday, BBL  
Andy Johnson, BBL

**TO THE CONTRACTOR:** This Field Order includes information regarding the revised grading within portions of the Type I Surface Cover area to account for an additional 12-inches of general fill over the geosynthetics.

The following items are attached to this Field Order:

- Figure showing the Type I Surface Cover revised grading, associated sections, and survey grade control.
- Table providing the coordinates (nothing, easting, and elevations) for survey grade control associated with the Type I Surface Cover revised grading.

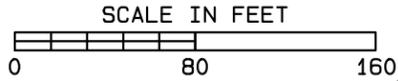
**ISSUED BY:** \_\_\_\_\_

A handwritten signature in blue ink, appearing to read "J. M. [unclear]", is written over a horizontal line.

**DATE:** October 4, 2005

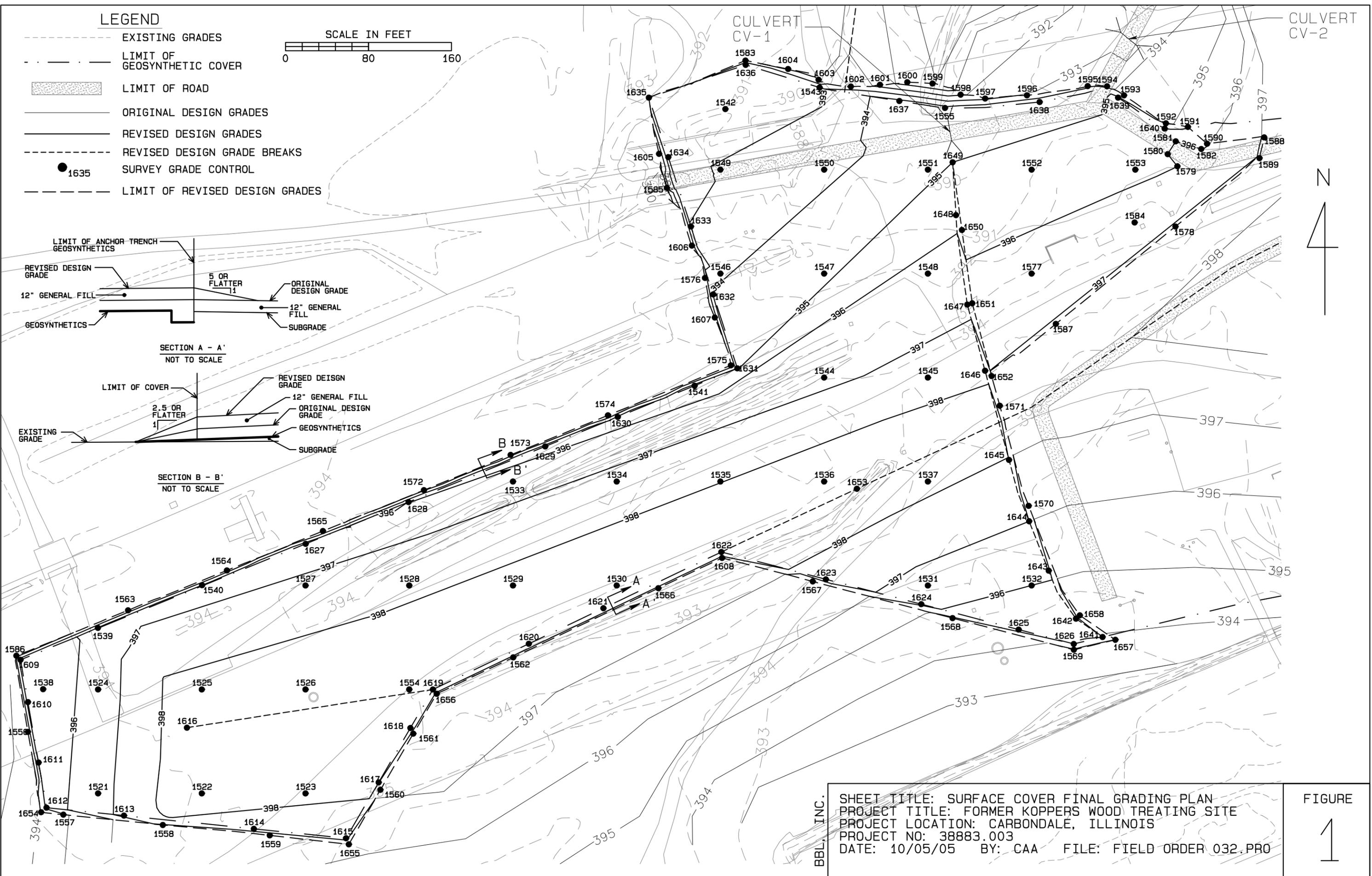
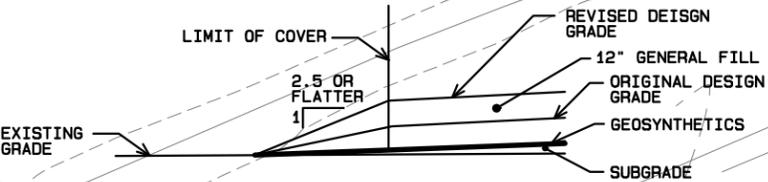
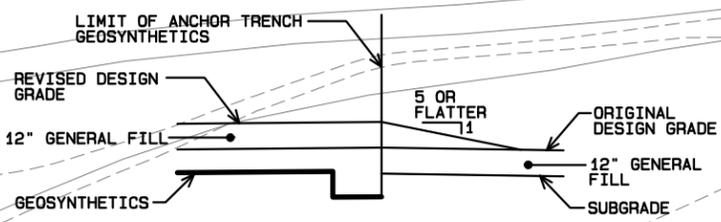
**LEGEND**

- - - - - EXISTING GRADES
- . - . - LIMIT OF GEOSYNTHETIC COVER
- [Hatched Box] LIMIT OF ROAD
- ORIGINAL DESIGN GRADES
- REVISED DESIGN GRADES
- - - - - REVISED DESIGN GRADE BREAKS
- 1635 SURVEY GRADE CONTROL
- - - - - LIMIT OF REVISED DESIGN GRADES



CULVERT  
CV-1

CULVERT  
CV-2



BBL, INC.

SHEET TITLE: SURFACE COVER FINAL GRADING PLAN  
 PROJECT TITLE: FORMER KOPPERS WOOD TREATING SITE  
 PROJECT LOCATION: CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.003  
 DATE: 10/05/05 BY: CAA FILE: FIELD ORDER 032.PRO

FIGURE  
1

Blasland, Bouck & Lee, Inc.  
 6723 Towpath Road, P.O. Box 66  
 Syracuse, NY 13214  
 315-446-9120

October 4, 2005

PROJECT: F:\TMPROJ\388\38883\TM\Field Order 032.pro

Point	Coordinates Listing			
Point North	East	Elev	Name	
1521	4300.00	4300.00	396.7	SURVEY GRADE CONTROL
1522	4300.00	4400.00	398.1	SURVEY GRADE CONTROL
1523	4300.00	4500.00	398.1	SURVEY GRADE CONTROL
1524	4400.00	4300.00	396.5	SURVEY GRADE CONTROL
1525	4400.00	4400.00	398.2	SURVEY GRADE CONTROL
1526	4400.00	4500.00	398.2	SURVEY GRADE CONTROL
1527	4500.00	4500.00	397.2	SURVEY GRADE CONTROL
1528	4500.00	4600.00	397.7	SURVEY GRADE CONTROL
1529	4500.00	4700.00	398.3	SURVEY GRADE CONTROL
1530	4500.00	4800.00	398.7	SURVEY GRADE CONTROL
1531	4500.00	5100.00	396.6	SURVEY GRADE CONTROL
1532	4500.00	5200.00	396.0	SURVEY GRADE CONTROL
1533	4600.00	4700.00	396.4	SURVEY GRADE CONTROL
1534	4600.00	4800.00	397.3	SURVEY GRADE CONTROL
1535	4600.00	4900.00	398.0	SURVEY GRADE CONTROL
1536	4600.00	5000.00	398.4	SURVEY GRADE CONTROL
1537	4600.00	5100.00	398.2	SURVEY GRADE CONTROL
1538	4400.26	4247.02	395.6	SURVEY GRADE CONTROL
1539	4459.20	4299.83	396.1	LIMIT OF GEOSYNTHETICS
1540	4500.29	4400.29	396.0	LIMIT OF GEOSYNTHETICS
1541	4692.15	4875.10	395.5	LIMIT OF GEOSYNTHETICS
1542	4958.28	4904.77	392.9	SURVEY GRADE CONTROL
1543	4978.99	4995.61	392.7	LIMIT OF GEOSYNTHETICS
1544	4700.00	5000.00	396.7	SURVEY GRADE CONTROL
1545	4700.00	5100.00	397.5	SURVEY GRADE CONTROL
1546	4800.00	4900.00	393.9	SURVEY GRADE CONTROL
1547	4800.00	5000.00	394.9	SURVEY GRADE CONTROL
1548	4800.00	5100.00	396.2	SURVEY GRADE CONTROL
1549	4900.00	4900.00	393.1	SURVEY GRADE CONTROL
1550	4900.00	5000.00	393.8	SURVEY GRADE CONTROL
1551	4900.00	5100.00	394.8	SURVEY GRADE CONTROL
1552	4900.00	5200.00	395.4	SURVEY GRADE CONTROL
1553	4900.00	5300.00	395.8	SURVEY GRADE CONTROL
1554	4400.00	4600.00	398.8	SURVEY GRADE CONTROL
1555	4959.36	5116.48	394.4	LIMIT OF GEOSYNTHETICS
1556	4359.17	4232.37	393.2	LIMIT OF GRADING
1557	4279.56	4266.54	394.9	LIMIT OF GRADING
1558	4269.60	4362.45	396.9	LIMIT OF GRADING
1559	4259.62	4465.51	396.5	LIMIT OF GRADING
1560	4303.48	4572.16	397.0	LIMIT OF GRADING
1561	4357.46	4603.87	397.6	LIMIT OF GRADING
1562	4430.86	4700.27	397.7	LIMIT OF GRADING
1563	4476.10	4328.94	394.3	LIMIT OF GRADING
1564	4514.46	4424.23	394.4	LIMIT OF GRADING
1565	4552.38	4516.79	394.1	LIMIT OF GRADING

10/6/2005

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1566	4497.40	4840.20	397.7	LIMIT OF GRADING
1567	4503.88	4989.06	396.7	LIMIT OF GRADING
1568	4468.61	5123.82	394.8	LIMIT OF GRADING
1569	4438.17	5240.72	393.9	LIMIT OF GRADING
1570	4576.62	5197.17	396.3	LIMIT OF GRADING
1571	4672.95	5169.33	397.4	LIMIT OF GRADING
1572	4591.70	4614.16	393.9	LIMIT OF GRADING
1573	4625.59	4697.72	393.6	LIMIT OF GRADING
1574	4663.67	4791.57	393.0	LIMIT OF GRADING
1575	4711.76	4910.10	393.4	LIMIT OF GRADING
1576	4795.82	4885.11	392.2	LIMIT OF GRADING
1577	4800.00	5200.00	396.4	SURVEY GRADE CONTROL
1578	4845.29	5338.70	396.7	LIMIT OF GRADING
1579	4903.26	5340.55	396.0	SURVEY GRADE CONTROL
1580	4914.92	5331.24	396.0	SURVEY GRADE CONTROL
1581	4927.26	5338.99	396.0	SURVEY GRADE CONTROL
1582	4919.87	5363.56	396.0	SURVEY GRADE CONTROL
1583	5004.96	4924.15	391.2	SURVEY GRADE CONTROL
1584	4849.19	5299.34	396.5	SURVEY GRADE CONTROL
1585	4882.45	4848.35	389.7	LIMIT OF GRADING
1586	4432.45	4221.24	393.6	LIMIT OF GRADING
1587	4751.62	5223.37	396.8	LIMIT OF GRADING
1588	4931.05	5424.24	397.0	LIMIT OF GRADING
1589	4911.08	5419.70	397.1	LIMIT OF GRADING
1590	4924.96	5369.21	396.0	LIMIT OF GRADING
1591	4941.12	5350.74	395.4	LIMIT OF GRADING
1592	4944.58	5329.48	394.9	LIMIT OF GRADING
1593	4971.47	5289.10	394.2	LIMIT OF GRADING
1594	4980.16	5272.78	393.8	LIMIT OF GRADING
1595	4980.36	5254.09	393.7	LIMIT OF GRADING
1596	4971.51	5195.56	393.2	LIMIT OF GRADING
1597	4968.41	5155.25	392.8	LIMIT OF GRADING
1598	4972.14	5131.57	391.9	LIMIT OF GRADING
1599	4982.86	5104.47	390.1	LIMIT OF GRADING
1600	4984.14	5080.16	390.5	LIMIT OF GRADING
1601	4981.65	5053.85	391.6	LIMIT OF GRADING
1602	4979.94	5025.79	392.4	LIMIT OF GRADING
1603	4986.45	4994.63	391.3	LIMIT OF GRADING
1604	4996.82	4965.28	390.8	LIMIT OF GRADING
1605	4915.24	4840.83	390.3	LIMIT OF GRADING
1606	4826.93	4872.50	391.2	LIMIT OF GRADING
1607	4757.76	4894.59	392.4	LIMIT OF GRADING
1608	4526.52	4901.65	397.7	LIMIT OF GRADING
1609	4428.53	4225.22	395.6	LIMIT OF GEOSYNTHETICS
1610	4387.85	4232.39	395.4	LIMIT OF GEOSYNTHETICS
1611	4329.69	4242.64	395.0	LIMIT OF GEOSYNTHETICS
1612	4286.25	4250.30	395.3	LIMIT OF GEOSYNTHETICS
1613	4278.65	4324.98	397.3	LIMIT OF GEOSYNTHETICS
1614	4265.90	4450.20	397.5	LIMIT OF GEOSYNTHETICS
1615	4256.85	4539.06	397.3	LIMIT OF GEOSYNTHETICS
1616	4363.20	4385.68	398.6	GRADE BREAK
1617	4310.59	4570.50	398.1	LIMIT OF GEOSYNTHETICS
1618	4362.90	4601.11	398.7	LIMIT OF GEOSYNTHETICS
1619	4399.93	4622.77	398.8	LIMIT OF GEOSYNTHETICS
1620	4443.92	4715.27	398.8	LIMIT OF GEOSYNTHETICS
1621	4478.13	4787.19	398.8	LIMIT OF GEOSYNTHETICS
1622	4532.21	4900.92	398.8	LIMIT OF GEOSYNTHETICS

1623	4505.88	5001.67	397.5	LIMIT OF GEOSYNTHETICS
1624	4482.03	5093.63	396.2	LIMIT OF GEOSYNTHETICS
1625	4457.57	5187.54	395.4	LIMIT OF GEOSYNTHETICS
1626	4443.74	5240.65	395.0	LIMIT OF GEOSYNTHETICS
1627	4540.05	4500.13	396.5	LIMIT OF GEOSYNTHETICS
1628	4580.26	4599.27	396.0	LIMIT OF GEOSYNTHETICS
1629	4633.74	4731.11	395.6	LIMIT OF GEOSYNTHETICS
1630	4662.12	4801.07	395.2	LIMIT OF GEOSYNTHETICS
1631	4708.87	4916.31	395.0	LIMIT OF GEOSYNTHETICS
1632	4779.97	4893.01	394.1	LIMIT OF GEOSYNTHETICS
1633	4845.31	4871.61	393.0	LIMIT OF GEOSYNTHETICS
1634	4912.05	4849.74	392.8	LIMIT OF GEOSYNTHETICS
1635	4969.26	4831.00	393.0	SURVEY GRADE CONTROL
1636	5000.81	4924.33	393.0	LIMIT OF GEOSYNTHETICS
1637	4966.04	5072.53	394.2	LIMIT OF GEOSYNTHETICS
1638	4965.07	5207.77	394.8	LIMIT OF GEOSYNTHETICS
1639	4969.28	5283.40	395.1	LIMIT OF GEOSYNTHETICS
1640	4939.53	5328.29	395.9	LIMIT OF GEOSYNTHETICS
1641	4450.44	5268.45	395.0	LIMIT OF GEOSYNTHETICS
1642	4468.07	5242.81	395.3	GRADE BREAK
1643	4514.28	5216.49	396.2	GRADE BREAK
1644	4561.79	5197.64	397.0	GRADE BREAK
1645	4620.81	5178.22	398.0	GRADE BREAK
1646	4706.58	5155.16	397.7	GRADE BREAK
1647	4770.20	5138.05	396.8	GRADE BREAK
1648	4856.26	5127.14	395.7	GRADE BREAK
1649	4907.08	5123.87	395.0	GRADE BREAK
1650	4841.97	5132.85	395.7	GRADE BREAK
1651	4771.46	5142.79	396.6	GRADE BREAK
1652	4701.44	5161.48	397.1	LIMIT OF GRADING
1653	4593.03	5031.56	398.7	GRADE BREAK
1654	4281.91	4245.11	394.1	LIMIT OF GRADING
1655	4251.01	4541.77	396.2	LIMIT OF GRADING
1656	4395.86	4626.48	397.8	LIMIT OF GRADING
1657	4447.75	5280.79	394.0	LIMIT OF GRADING
1658	4471.28	5246.50	394.4	LIMIT OF GRADING



**FIELD ORDER NO. 033: October 31, 2005**

**PROJECT:** Glade Creek Rerouting  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Sevenson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Sevenson  
Mason Wheeler, Sr., Sevenson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Les Halliday, BBL  
Andy Johnson, BBL

**TO THE CONTRACTOR:** This Field Order includes information regarding the rerouting of a southerly portion of Glade Creek (portion of creek between approximately GCT-022 to GCT-026 as shown on Glade Creek Final Remedial Design, Drawing No. G-101).

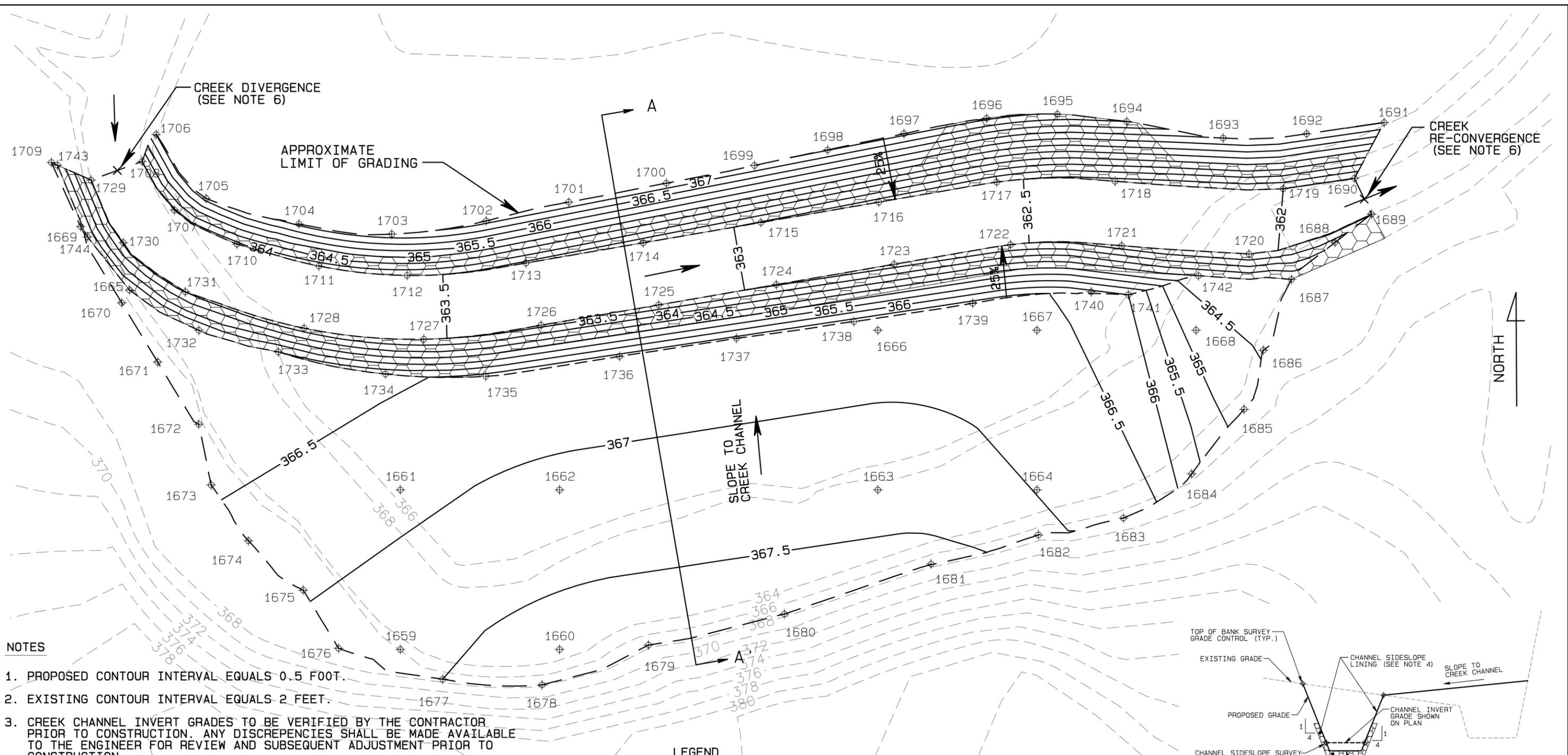
The following items are attached to this Field Order:

- Figure showing grading for the Glade Creek reroute and associated survey grade control information.
- Table providing the coordinates (nothing, easting, and elevations) for survey grade control for the Glade Creek reroute.

**ISSUED BY:**

A handwritten signature in black ink, appearing to read "M. Alessio", is written over a horizontal line.

**DATE:** October 31, 2005

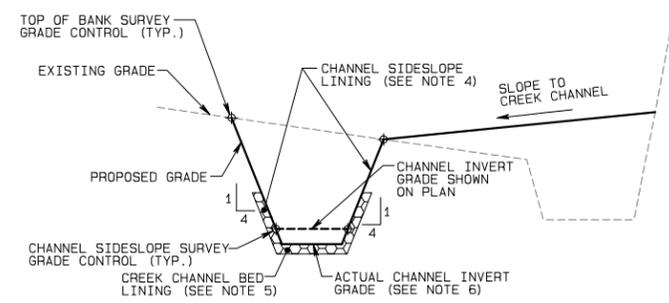


**NOTES**

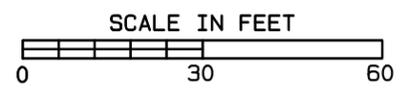
1. PROPOSED CONTOUR INTERVAL EQUALS 0.5 FOOT.
2. EXISTING CONTOUR INTERVAL EQUALS 2 FEET.
3. CREEK CHANNEL INVERT GRADES TO BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE MADE AVAILABLE TO THE ENGINEER FOR REVIEW AND SUBSEQUENT ADJUSTMENT PRIOR TO CONSTRUCTION.
4. OUTER BENDS OF NEW CREEK CHANNEL SHALL BE LINED WITH A 9-INCH-THICK (MINIMUM) LAYER OF RR3 MATERIAL. RIPRAP SHALL EXTEND TO THE TOP OF THE 4:1 SIDESLOPES, WHERE INDICATED ON THIS DRAWING. THE BOTTOM HALF OF THE REMAINING CHANNEL SIDESLOPES TO BE LINED WITH RR3 MATERIAL. ALL OTHER CHANNEL SLOPE AREAS AND ADJACENT DISTURBED AREAS SHALL BE SEEDED. SEED MIX TO BE CONSISTENT WITH MIX USED FOR UPPER GLADE CREEK RELOCATION.
5. PROPOSED CREEK CHANNEL BED TO CONSIST OF A MINIMUM 8-INCH-THICK LAYER OF RR1 MATERIAL.
6. ACTUAL (TO BE CONSTRUCTED) CHANNEL INVERT AND GRADIENT TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR, IN COORDINATION WITH THE ENGINEER, AT TIME OF CONSTRUCTION. CONSTRUCTED CHANNEL INVERT GRADIENT TO BE DETERMINED BASED ON EXISTING ELEVATION DROP FROM CREEK DIVERGENCE AND CREEK RE-CONVERGENCE DIVIDED BY CREEK REROUTE LENGTH (412 FEET).
7. BASEMAP INFORMATION BASED ON PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY IN SEPTEMBER 2001 AND SURVEY DATA PROVIDED BY ENGINEERING DESIGN SOURCE, INC. IN JANUARY 2004.

**LEGEND**

- 368 --- EXISTING ELEVATION CONTOUR
- 367 — PROPOSED ELEVATION CONTOUR
- - - - - PROPOSED GRADE BREAK
- FLOW DIRECTION
- ⊕ 1659 SURVEY GRADE CONTROL
- [RIPRAP SYMBOL] PROPOSED SIDESLOPE RIPRAP LOCATION (SEE NOTE 4)



SECTION A-A'  
NOT TO SCALE



BBL, INC. SHEET TITLE: GLADE CREEK REROUTE  
 PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE  
 PROJECT LOCATION: CARBONDALE, IL.  
 PROJECT NO: 38883.003  
 DATE: 10/31/05 BY: CAA/RLP FILE: CREEK REROUTE.PRO

FIGURE  
1



**FIELD ORDER NO. 034: December 6, 2005**

**PROJECT:** 2005 Interim CAMU Cover  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck & Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Paul Alessio, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Les Halliday, BBL  
Andy Johnson, BBL

**TO THE CONTRACTOR:** This Field Order includes information regarding the placement of an interim cover (PVC liner) on the CAMU during the 2005 winter shutdown period.

The items associated with this Field Order are a listing of recommendations for the preparation and placement of the 20 mil PVC liner as follows:

1. The maximum grade of the waste within the CAMU is 33%. Steeper slopes (up to 50%) may be allowed adjacent to the perimeter berm. These steeper slopes however, shall be no greater than ten feet in length.
2. The minimum grade of waste within the CAMU shall be 1% towards the perimeter berm (i.e., towards the interim ditch at the edge of waste placement).
3. Perimeter ditches formed along the interim edge of the perimeter berm shall have a minimum depth of 2 feet (measured from the outboard crest of the liner system to the contact of waste material with the liner system geocomposite).
4. Perimeter ditches shall have maximum sideslopes of 50% (i.e., waste sideslope – see item 1 above).
5. A sufficient number of sandbags shall be placed on top of the PVC to prevent wind uplift of the liner material.

6. The PVC liner shall be anchored within the perimeter ditch using sandbags placed at an interval sufficient to resist wind uplift of the liner. The PVC liner is to be terminated along the top edge of the perimeter berm (i.e., adjacent to the perimeter ditch) by sandbagging or placement of the liner within an anchor trench constructed outside of the CAMU liner system anchor trench.
7. The PVC liner seams shall be heat bonded. Testing of the completed liner bonds is not required.
8. The waste surface on which the PVC liner is to be placed shall be free of deleterious material (e.g., brick, steel, sharp stones, wood, etc.).
9. Interim perimeter channel discharge pipes (2) shall be installed as shown on Drawing 9 of the CAMU Containment Cell Design. The PVC liner shall be sealed to the discharge pipes with a PVC boot, gasket, and steel band clamps. It is recommended that the discharge pipes have smooth exterior end segments that allow for continuous contact between the pipe and PVC boot.
10. Interim stormwater management features shall be installed per the details shown on CAMU Containment Cell Design Drawing 9 unless otherwise noted above.

ISSUED BY:



DATE: December 6, 2005





**FIELD ORDER NO. 035: May 16, 2006**

**PROJECT:** Wetland Mitigation

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck & Lee, Inc.

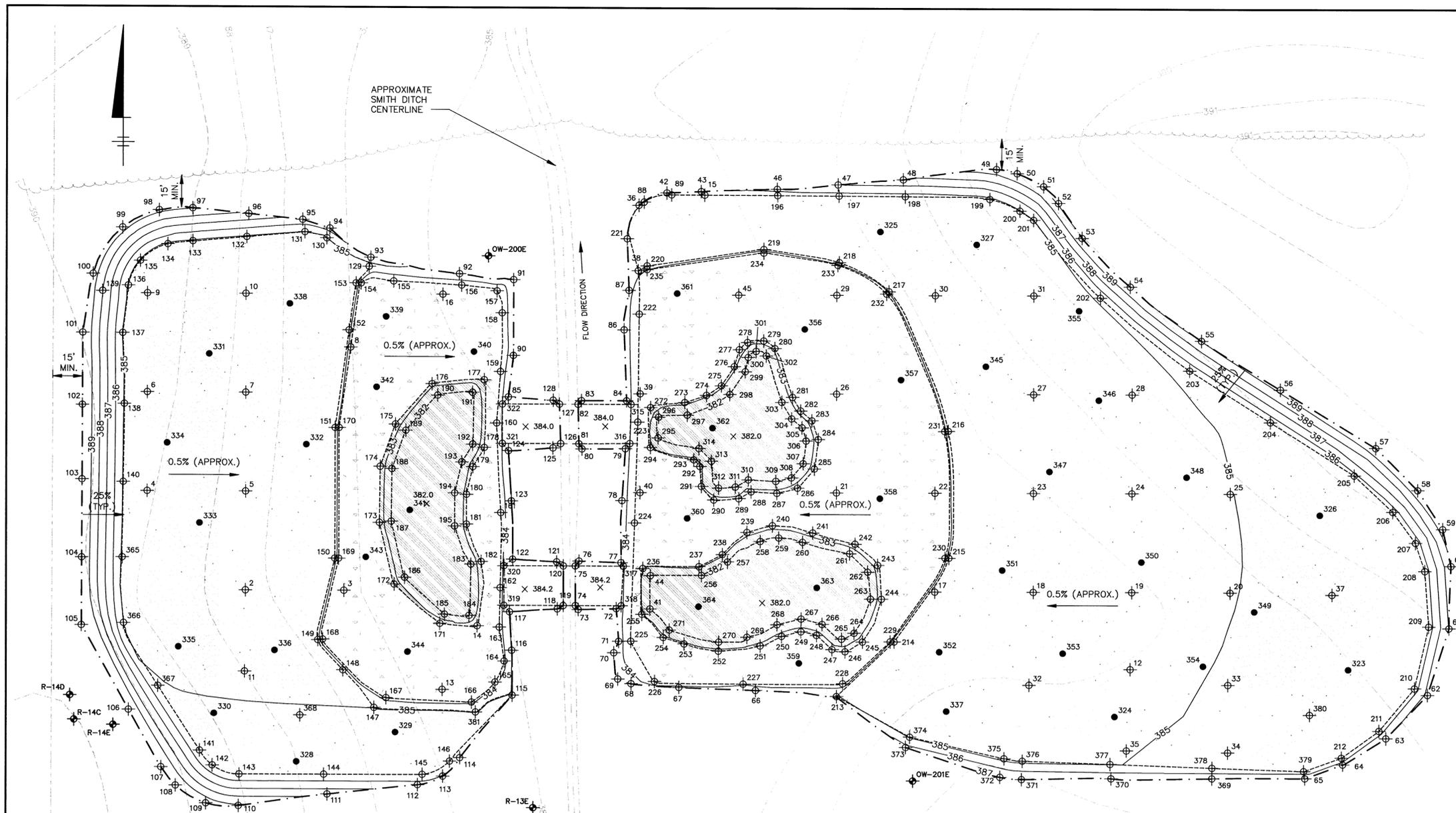
**COPIES TO:**

Bob Braden, Severson	Phil Batten, BBL
Mason Wheeler, Sr., Severson	Jeff Holden, BBL
Mike Slenska, Beazer	Dave Bessingpas, BBL
Mark Gravelding, BBL	Ben Huggins, BBL
Troy Hopper, BBL	Leslie Halliday, BBL

**TO THE CONTRACTOR:** This Field Order provides a revised "For Construction" Wetland Grading Plan (Drawing No. 1) and covers survey of a portion of the site property line and treeline adjacent to the wetland mitigation area.

- A revised "For Construction" Wetland Grading Plan (Drawing No. 1) is attached to this Field Order. The grading plan was revised to include a 15' buffer between the western edge of wetland and Beazer's property line and between the northern edge of wetland and the existing treeline. Hard copies of the revised grading plan were mailed on 5/9/06.
- This Field Order also covers survey work completed on April 17, 2006, including stakeout survey of a portion of Beazer's property line west of the proposed wetland mitigation area, location survey of the treeline at the northern end of the proposed wetland mitigation area, and partial stakeout survey of the wetland grading limits near the property line and treeline.
- It is recognized that this Field Order may affect the Contractor's costs.

**ISSUED BY:** David Bessingpas **DATE:** 5/16/06



SURVEY GRADE CONTROL POINTS														
Point	North	East	Elev.	Desc.	Point	North	East	Elev.	Desc.	Point	North	East	Elev.	Desc.
1	5880.00	5100.00	384.9	GC	131	6031.32	5129.88	385.0	GC	260	5875.01	5392.85	382.0	GC
2	5850.00	5100.00	384.6	GC	132	6028.74	5100.38	384.9	GC	261	5869.31	5406.75	382.0	GC
3	5850.00	5100.00	384.9	GC	133	6028.46	5073.98	384.9	GC	262	5859.92	5415.91	382.0	GC
4	5900.00	5100.00	384.9	GC	134	6024.90	5060.28	384.9	GC	263	5846.29	5417.37	382.0	GC
5	5950.00	5100.00	384.9	GC	135	6016.47	5046.40	384.9	GC	264	5829.02	5409.98	382.0	GC
6	5950.00	5100.00	384.7	GC	136	6003.90	5040.30	384.9	GC	265	5825.98	5403.73	382.0	GC
7	5950.00	5100.00	384.9	GC	137	5979.88	5037.51	384.9	GC	266	5833.42	5392.86	382.0	GC
8	5950.00	5100.00	384.9	GC	138	5944.04	5038.41	384.9	GC	267	5836.13	5382.19	382.0	GC
9	5950.00	5100.00	384.8	GC	139	6003.13	5037.25	385.0	GC	268	5833.03	5369.89	382.0	GC
10	5950.00	5100.00	384.9	GC	140	5904.57	5037.88	384.9	GC	269	5826.88	5354.70	382.0	GC
11	5808.90	5095.64	384.8	GC	141	5768.75	5076.82	385.1	GC	270	5824.44	5340.38	382.0	GC
12	5810.00	5049.27	384.8	GC	142	5766.23	5073.20	385.1	GC	271	5830.50	5335.23	382.0	GC
13	5850.00	5030.00	384.8	GC	143	5756.77	5096.95	385.2	GC	272	5843.05	5305.58	383.0	GC
14	5832.31	5217.72	383.6	GC	144	5796.85	5139.93	385.1	GC	273	5945.68	5322.92	383.1	GC
15	6050.00	5332.88	384.4	GC	145	5799.00	5189.93	385.1	GC	274	5949.33	5333.94	383.1	GC
16	6050.00	5330.00	384.2	GC	146	5763.74	5203.83	385.1	GC	275	5954.15	5341.51	383.2	GC
17	5850.00	5450.00	384.3	GC	147	5790.78	5185.37	385.0	GC	276	5963.79	5348.09	383.3	GC
18	5850.00	5500.00	384.5	GC	148	6001.13	5149.86	384.9	GC	277	5972.40	5350.99	383.3	GC
19	5850.00	5500.00	384.8	GC	149	5874.94	5136.83	384.4	GC	278	5976.02	5354.74	383.3	GC
20	5900.00	5400.00	383.5	GC	150	5866.18	5145.33	384.4	GC	279	5976.80	5362.96	383.3	GC
21	5900.00	5400.00	383.8	GC	151	5832.27	5145.44	384.3	GC	280	5972.99	5368.61	383.4	GC
22	5900.00	5500.00	384.5	GC	152	5981.74	5152.42	384.2	GC	281	5948.30	5377.66	383.4	GC
23	5900.00	5500.00	384.8	GC	153	6005.52	5155.92	384.1	GC	282	5941.41	5381.80	383.4	GC
24	5900.00	5400.00	383.5	GC	154	6000.52	5148.47	383.5	GC	283	5936.99	5387.47	383.3	GC
25	5950.00	5400.00	383.5	GC	155	6006.57	5175.00	383.5	GC	284	5926.95	5390.75	383.5	GC
26	5950.00	5400.00	384.5	GC	156	6004.65	5209.53	383.1	GC	285	5912.10	5386.79	383.5	GC
27	5950.00	5500.00	384.9	GC	157	6001.79	5227.43	383.1	GC	286	5902.03	5392.09	383.1	GC
28	6000.00	5400.00	383.5	GC	158	5990.66	5250.13	383.3	GC	287	5899.75	5369.75	383.4	GC
29	6000.00	5400.00	384.3	GC	159	5960.99	5229.32	383.2	GC	288	5900.44	5366.66	383.3	GC
30	6000.00	5500.00	384.9	GC	160	5954.92	5227.43	383.1	GC	289	5892.33	5359.44	383.1	GC
31	5802.95	5497.94	384.5	GC	161	5889.60	5229.58	383.5	GC	290	5896.40	5337.71	383.3	GC
32	5802.26	5598.97	385.2	GC	162	5881.65	5229.36	383.6	GC	291	5903.74	5331.44	383.2	GC
33	5769.09	5598.92	385.2	GC	163	5831.66	5229.95	383.6	GC	292	5922.69	5325.94	382.0	GC
34	5769.92	5547.42	385.0	GC	164	5814.49	5231.45	383.7	GC	293	5916.71	5327.57	383.3	GC
35	5769.92	5547.42	385.0	GC	165	5803.82	5226.83	383.8	GC	294	5922.82	5306.50	383.3	GC
36	6045.35	5299.46	384.4	LOC	166	5793.69	5214.90	383.8	GC	295	5927.69	5304.34	382.0	GC
37	5848.98	5651.73	385.2	GC	167	5795.72	5171.48	383.7	GC	296	5938.19	5309.63	382.0	GC
38	6012.26	5299.13	384.0	GC	168	5825.26	5139.28	383.9	GC	297	5939.26	5324.17	382.0	GC
39	5950.00	5300.21	383.0	GC	169	5868.49	5123.97	383.0	GC	298	5949.76	5325.09	382.0	GC
40	5841.20	5305.44	382.0	GC	170	5932.30	5147.46	383.9	GC	299	5961.23	5353.57	382.0	GC
41	6051.89	5313.63	384.6	LOC	171	5833.47	5198.74	383.6	GC	300	5968.49	5359.09	382.0	GC
42	6051.89	5313.63	384.6	LOC	172	5825.47	5176.05	383.5	GC	301	5971.44	5350.07	382.0	GC
43	6051.89	5313.63	384.8	LOC	173	5844.44	5167.96	383.6	GC	302	5969.25	5364.28	382.0	GC
44	5858.01	5305.99	382.0	GC	174	5917.79	5168.32	383.5	GC	303	5945.78	5371.18	382.0	GC
45	6000.00	5350.21	383.3	GC	175	5937.44	5176.05	383.7	GC	304	5947.44	5371.78	382.0	GC
46	6051.89	5313.63	384.8	LOC	176	5954.69	5194.61	383.3	GC	305	5932.90	5382.47	382.0	GC
47	6051.89	5313.63	386.7	LOC	177	5958.82	5221.07	383.4	GC	306	5926.21	5384.54	382.0	GC
48	6051.89	5313.63	386.7	LOC	178	5958.82	5221.07	383.4	GC	307	5926.21	5384.54	382.0	GC
49	6051.89	5313.63	386.7	LOC	179	5912.83	5215.40	383.5	GC	308	5907.58	5377.17	382.0	GC
50	6051.89	5313.63	386.7	LOC	180	5898.83	5212.17	383.3	GC	309	5906.79	5363.22	382.0	GC
51	6051.89	5313.63	386.7	LOC	181	5898.83	5212.17	383.3	GC	310	5906.79	5363.22	382.0	GC
52	6051.89	5313.63	386.7	LOC	182	5864.82	5219.68	383.5	GC	311	5902.41	5340.14	382.0	GC
53	6051.89	5313.63	386.7	LOC	183	5864.82	5219.68	383.5	GC	312	5902.41	5340.14	382.0	GC
54	6051.89	5313.63	386.7	LOC	184	5864.82	5219.68	383.5	GC	313	5902.41	5340.14	382.0	GC
55	6051.89	5313.63	386.7	LOC	185	5864.82	5219.68	383.5	GC	314	5922.41	5330.18	382.0	GC
56	6051.89	5313.63	386.7	LOC	186	5864.82	5219.68	383.5	GC	315	5944.56	5295.59	384.0	GC
57	6051.89	5313.63	386.7	LOC	187	5864.82	5219.68	383.5	GC	316	5924.79	5295.09	384.0	GC
58	6051.89	5313.63	386.7	LOC	188	5864.82	5219.68	383.5	GC	317	5862.73	5291.86	384.1	GC
59	6051.89	5313.63	386.7	LOC	189	5864.82	5219.68	383.5	GC	318	5842.73	5290.77	384.2	GC
60	6051.89	5313.63	386.7	LOC	190	5864.82	5219.68	383.5	GC	319	5842.73	5290.77	384.2	GC
61	6051.89	5313.63	386.7	LOC	191	5864.82	5219.68	383.5	GC	320	5842.73	5290.77	384.2	GC
62	6051.89	5313.63	386.7	LOC	192	5864.82	5219.68	383.5	GC	321	5842.73	5290.77	384.2	GC
63	6051.89	5313.63	386.7	LOC	193	5864.82	5219.68	383.5	GC	322	5842.73	5290.77	384.2	GC
64	6051.89	5313.63	386.7	LOC	194	5864.82	5219.68	383.5	GC	323	5842.73	5290.77	384.2	GC
65	6051.89	5313.63	386.7	LOC	195	5864.82	5219.68	383.5	GC	324	5842.73	5290.77	384.2	GC
66	6051.89	5313.63	386.7	LOC	196	5864.82	5219.68	383.5	GC	325	5842.73	5290.77	384.2	GC
67	6051.89	5313.63	386.7	LOC	197	5864.82	5219.68	383.5	GC	326	5842.73	5290.77	384.2	GC
68	6051.89	5313.63	386.7	LOC	198	5864.82	5219.68	383.5	GC	327	5842.73	5290.77	384.2	GC
69	6051.89	5313.63	386.7	LOC	199	5864.82	5219.68	383.5	GC	328	5842.73	5290.77	384.2	GC
70	6051.89	5313.63	386.7	LOC	200	5864.82	5219.68	383.5	GC	329	5842.73	5290.77	384.2	GC
71	6051.89	5313.63	386.7	LOC	201	5864.82	5219.68	383.5	GC	330	5842.73	5290.77	384.2	GC
72	6051.89	5313.63	386.7	LOC	202	5864.82	5219.68	383.5	GC	331	5842.73	5290.77	384.2	GC
73	6051.89	5313.63	386.7	LOC	203	5864.82	5219.68	383.5	GC	332	5842.73	5290.77	384.2	GC
74	6051.89	5313.63	386.7	LOC	204	5864.82	5219.68	383.5	GC	333	5842.73	5290.77	384.2	GC
75	6051.89	5313.63	386.7	LOC	205	5864.82	5219.68	383.5	GC	334	5842.73	5290.77	384.2	GC
76	6051.89	5313.63	386.7	LOC	206	5864.82	5219.68	383.5	GC	335	5842.73	5290.77	384.2	GC
77	6051.89	5313.63	386.7	LOC	207	5864.82	5219.68	383.5	GC	336	5842.73	5290.77	384.2	GC
78	6051.89	5313.63	386.7	LOC	208	5864.82	5219.68	383.5	GC	337	5842.73	5290.77	384.2	GC
79	6051.89	5313.63	386.7	LOC	209	5864.82	5219.68	383.5	GC	338	5842.73	5290.77	384.2	GC



**FIELD ORDER NO. 036: May 23, 2006**

**PROJECT:** Glade Creek Sediment Removal/Former Process Area Surface Cover/CAMU Containment Cell Construction

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck & Lee, Inc.

**COPIES TO:**

Bob Braden, Severson	Phil Batten, BBL
Mason Wheeler, Sr., Severson	Jeff Holden, BBL
Mike Slenska, Beazer	Dave Bessingpas, BBL
Mark Gravelding, BBL	Ben Huggins, BBL
Troy Hopper, BBL	Leslie Halliday, BBL

**TO THE CONTRACTOR:** This Field Order contains miscellaneous activities to be performed at Glade Creek, the CAMU, the FPA, the wetland, and along property lines.

Items associated with this Field Order are as follows:

1. Construct a gravel access road over the west end of the surface cover leading to the southern gate. The access road shall not impact drainage from the surface cover.
2. Fill the abandoned the manhole north of the main access road with flowable fill.
3. Excavated one test trench near GCTT-17 upland of the southern bank of Glade Creek. An additional test trench may be required following completion of the re-route around the city dump.
4. The access bridge (wooden mats) near the pond may be left in place following construction per Beazer. Side rails and reflectors have been added to the bridge. The access road near the channel relocation will also be modified to maintain access and create a loop for one way traffic.
5. A small rip-rap berm was placed along the west property line near the wetland. Rip-rap will also be placed along the north property line access road and gate to limit access to the property following construction.
6. The low spots at the northwest end of the surface cover, near the main access road, were surveyed to identify potential drainage outlets.

**FINAL**

FO-036

May 23, 2006

7. Slopes in the borrow area (along the access road) were flattened to approximately 3 H: 1 V. These slopes will be seeded during this construction season. Erosion fabric will be added as necessary.
8. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:**

Ben Huggins

**DATE:** 5/23/06



**FIELD ORDER NO. 037: August 4, 2006**

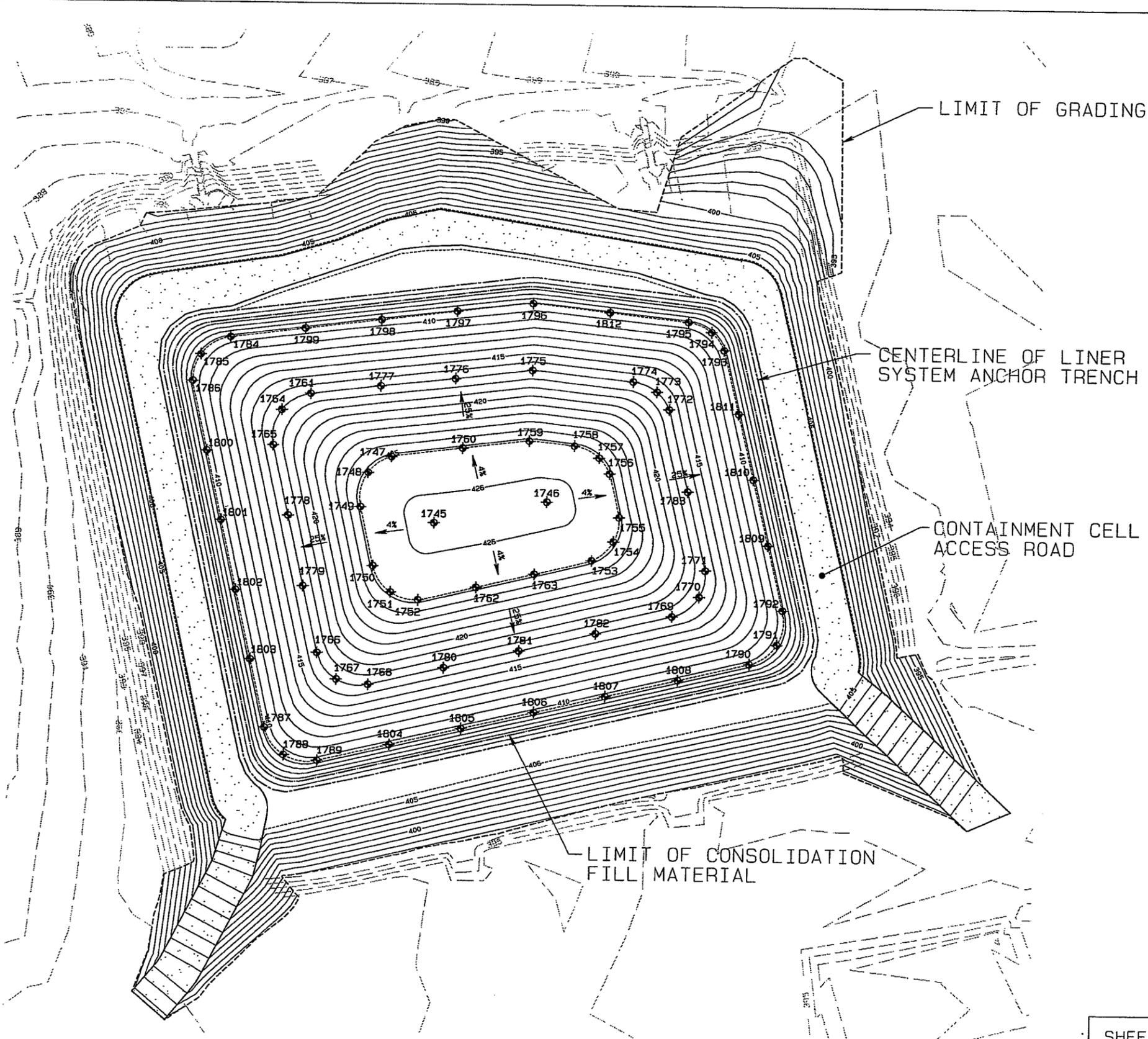
**PROJECT:** CAMU Containment Cell  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbonale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Mike Slenska, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Les Halliday, BBL  
Ben Huggins, BBL  
Andy Johnson, BBL

**TO THE CONTRACTOR:** This Field Order includes survey grade control information associated with the top of waste grades for the CAMU Containment Cell design.

The following items are attached to this Field Order:

- Figure showing consolidation grading for the CAMU Containment Cell and top of waste survey grade control information.
- Table providing coordinates (northing and easting) and elevations for survey grade control associated with the top of waste grades for the CAMU Containment Cell. The grade control point elevations represent the top of waste prior to placement of the 6-inch thick separation layer (i.e., liner elevations). It should be noted that the elevations provided in the attached table are 6-inches lower than the grades shown on the attached consolidation grading figure.

**ISSUED BY:** \_\_\_\_\_ **DATE:** August 4, 2006

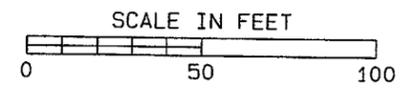


**LEGEND**

- ◆ 1746 GRADE CONTROL POINT
- - - 384 - - - EXISTING GRADE
- 415 — PROPOSED GRADE
- - - - - PROPOSED GRADE BREAK

**NOTES:**

1. PROPOSED AND EXISTING CONTOUR INTERVALS EQUAL 1-FOOT.
2. PROPOSED GRADES DEPICTED ON THIS DRAWING REPRESENT TOP OF LINER ELEVATIONS.



BBL, INC.

SHEET TITLE: CAMU TOP OF WASTE GRADE CONTROL POINTS  
 PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE  
 PROJECT LOCATION: CARBONDALE, ILLINOIS  
 PROJECT NO: 38883.003  
 DATE: 08/03/06 BY: RLP FILE: 38865.PRO

FIGURE  
 1

## Grade Control.txt

Blasland, Bouck & Lee, Inc.  
6723 Towpath Rd., P.O. Box 66  
Syracuse, NY 13224  
Thursday, August 03, 2006 3:59:51 PM

PROJECT: F:\TMPROJ\388\38865\TM\38865.pro

## Point Coordinates Listing

Point	North	East	Elev	Name
1745	5241.95	5414.58	426.0	TOP OF WASTE
1746	5251.92	5465.66	426.0	TOP OF WASTE
1747	5272.09	5394.89	424.8	TOP OF WASTE
1748	5264.66	5384.46	424.8	TOP OF WASTE
1749	5248.90	5381.21	424.8	TOP OF WASTE
1750	5222.03	5387.18	424.8	TOP OF WASTE
1751	5210.05	5395.34	424.8	TOP OF WASTE
1752	5206.64	5407.88	424.8	TOP OF WASTE
1753	5225.39	5486.83	424.8	TOP OF WASTE
1754	5234.09	5496.52	424.8	TOP OF WASTE
1755	5245.16	5498.97	424.8	TOP OF WASTE
1756	5265.18	5494.26	424.8	TOP OF WASTE
1757	5272.40	5489.49	424.8	TOP OF WASTE
1758	5277.85	5478.02	424.8	TOP OF WASTE
1759	5279.85	5457.26	424.8	TOP OF WASTE
1760	5276.34	5427.16	424.8	TOP OF WASTE
1761	5300.78	5357.96	416.5	TOP OF WASTE
1762	5212.64	5434.21	424.8	TOP OF WASTE
1763	5218.88	5460.48	424.8	TOP OF WASTE
1764	5293.22	5344.95	416.5	TOP OF WASTE
1765	5276.88	5341.27	416.5	TOP OF WASTE
1766	5181.95	5362.53	416.5	TOP OF WASTE
1767	5169.79	5371.44	416.5	TOP OF WASTE
1768	5167.50	5385.93	416.5	TOP OF WASTE
1769	5200.20	5523.65	416.5	TOP OF WASTE
1770	5209.23	5535.91	416.5	TOP OF WASTE
1771	5221.33	5538.52	416.5	TOP OF WASTE
1772	5295.05	5520.77	416.5	TOP OF WASTE
1773	5303.16	5515.09	416.5	TOP OF WASTE
1774	5307.77	5504.35	416.5	TOP OF WASTE
1775	5312.52	5458.16	416.5	TOP OF WASTE
1776	5308.33	5423.35	416.5	TOP OF WASTE
1777	5304.62	5389.56	416.5	TOP OF WASTE
1778	5244.67	5348.46	416.5	TOP OF WASTE
1779	5212.45	5355.65	416.5	TOP OF WASTE
1780	5175.61	5420.09	416.5	TOP OF WASTE
1781	5183.70	5454.17	416.5	TOP OF WASTE
1782	5192.02	5489.22	416.5	TOP OF WASTE
1783	5257.30	5529.86	416.5	TOP OF WASTE
1784	5326.65	5321.17	408.9	TOP OF WASTE
1785	5318.50	5307.63	408.9	TOP OF WASTE
1786	5306.23	5304.10	408.9	TOP OF WASTE
1787	5147.23	5339.22	408.9	TOP OF WASTE
1788	5134.65	5348.10	409.1	TOP OF WASTE
1789	5132.12	5363.39	409.1	TOP OF WASTE
1790	5178.70	5559.47	409.1	TOP OF WASTE

## Grade Control.txt

1791	5187.72	5571.90	409.0 TOP OF WASTE
1792	5203.49	5574.19	408.8 TOP OF WASTE
1793	5322.74	5545.32	408.8 TOP OF WASTE
1794	5331.02	5539.44	408.9 TOP OF WASTE
1795	5335.60	5528.84	408.8 TOP OF WASTE
1796	5343.42	5457.99	408.7 TOP OF WASTE
1797	5339.56	5423.68	408.7 TOP OF WASTE
1798	5335.25	5389.42	408.8 TOP OF WASTE
1799	5330.92	5355.05	408.9 TOP OF WASTE
1800	5274.09	5310.97	408.9 TOP OF WASTE
1801	5242.26	5318.06	408.9 TOP OF WASTE
1802	5210.43	5325.15	408.9 TOP OF WASTE
1803	5178.68	5332.22	408.9 TOP OF WASTE
1804	5139.86	5395.96	409.1 TOP OF WASTE
1805	5147.61	5428.56	409.1 TOP OF WASTE
1806	5155.39	5461.35	409.1 TOP OF WASTE
1807	5163.16	5494.02	409.1 TOP OF WASTE
1808	5170.95	5526.83	409.1 TOP OF WASTE
1809	5233.01	5567.04	408.8 TOP OF WASTE
1810	5263.19	5559.79	408.8 TOP OF WASTE
1811	5293.37	5552.53	408.8 TOP OF WASTE
1812	5339.64	5493.20	408.8 TOP OF WASTE



**FIELD ORDER NO. 038: July 17, 2006**

**PROJECT:** Former Process Area Surface Cover/CAMU Containment Cell Construction/Glade Creek Channel Relocation (2004)/Wetland Mitigation Area

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck & Lee, Inc.

**COPIES TO:**

Bob Braden, Severson	Phil Batten, BBL
Mason Wheeler, Sr., Severson	Jeff Holden, BBL
Mike Slenska, Beazer	Dave Bessingpas, BBL
Mark Gravelding, BBL	Ben Huggins, BBL
Troy Hopper, BBL	Leslie Halliday, BBL

**TO THE CONTRACTOR:** This Field Order contains miscellaneous activities to be performed at the FPA, the CAMU, the channel relocation (2004), and the wetland.

Items associated with this Field Order are as follows:

1. Mulch, tackifier, fertilizer (10/10/10 mixture), and hydrogel were added to the hydroseed mixture for wetland planting over the 4 acre area.
2. The northern berm of the CAMU and the leachate riser pipes were surveyed in June 2006. The information was used during the design of the CAMU final cover under the maximum fill volume scenario.
3. Additional access roads will be constructed to access wells northeast of the CAMU, north of the pond, and in the channel relocation area (2004) to eliminate travel over fill or cover areas during O&M activities. The roads will be constructed with woven geotextile and 6 inches of crusher run. The access road shall be constructed so as not to impact drainage. Following construction the access roads will be surveyed.
4. The monitoring wells installed in June and July of 2006 in the Glade Creek channel relocation area will be surveyed. Well installation and decommissioning were performed by others and are not covered under this field order.
5. It is recognized that this field order may affect the Contractor's costs.

**FINAL**  
FO-038  
July 17, 2006

**ISSUED BY:**

Ben Huggins

**DATE:** 7/17/06



**FIELD ORDER NO. 039: August 4, 2006**

**PROJECT:** ModuTank/CAMU Containment Cell

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, Illinois

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** Blasland, Bouck & Lee, Inc.

**COPIES TO:**

Bob Braden, Severson	Phil Batten, BBL
Mason Wheeler, Sr., Severson	Jeff Holden, BBL
Mike Slenska, Beazer	Dave Bessingpas, BBL
Mark Gravelding, BBL	Ben Huggins, BBL
Troy Hopper, BBL	Leslie Halliday, BBL

**TO THE CONTRACTOR:** This Field Order contains activities to be performed at the Mod-U Tank and the CAMU

Items associated with this Field Order are as follows:

1. In preparation for ModuTank material stabilization and removal, the ModuTank will be bypassed by pumping water directly from the CAMU into the treatment system or into frac tanks.
2. ModuTank material which cannot be pumped and treated will be stabilized and transported to the CAMU.
3. ModuTank material will be stabilized with general fill and/or ash prior to transport to the CAMU. The stabilized material shall have no free liquids and shall be suitable for placement and compaction in the CAMU. Stabilization will be performed using an excavator. A squeegee may be used to work material to one side of the ModuTank to limit the area that equipment will be working on the liner.
4. Care will be taken during stabilization not to damage the underlying liner. If the liner is damaged during stabilization, efforts will be made to minimize impacts to the underlying soils. In damaged areas, a small sump may be excavated into the underlying soils to collect and isolate ModuTank materials so that they can be quickly stabilized and transported to the CAMU.
5. Stabilized ModuTank material will be placed in the CAMU in thin lifts and compacted using a dozer.

**FINAL**

FO-039

August 4, 2006

6. The ModuTank liner will be cut up into manageable sections and placed either flat in the CAMU or in shallow pits excavated into the consolidated material.
7. The ModuTank shell will be dismantled and stored on pallets onsite for possible future use.
8. If the liner is damaged during material stabilization and/or impacted materials are observed beneath the liner, the underlying soils will be excavated and taken to the CAMU.
9. It is recognized that this field order may affect the Contractor's costs.

**ISSUED BY:**

Ben Huggins

**DATE:** 8/4/06



**FIELD ORDER NO. 040: July 26, 2006**

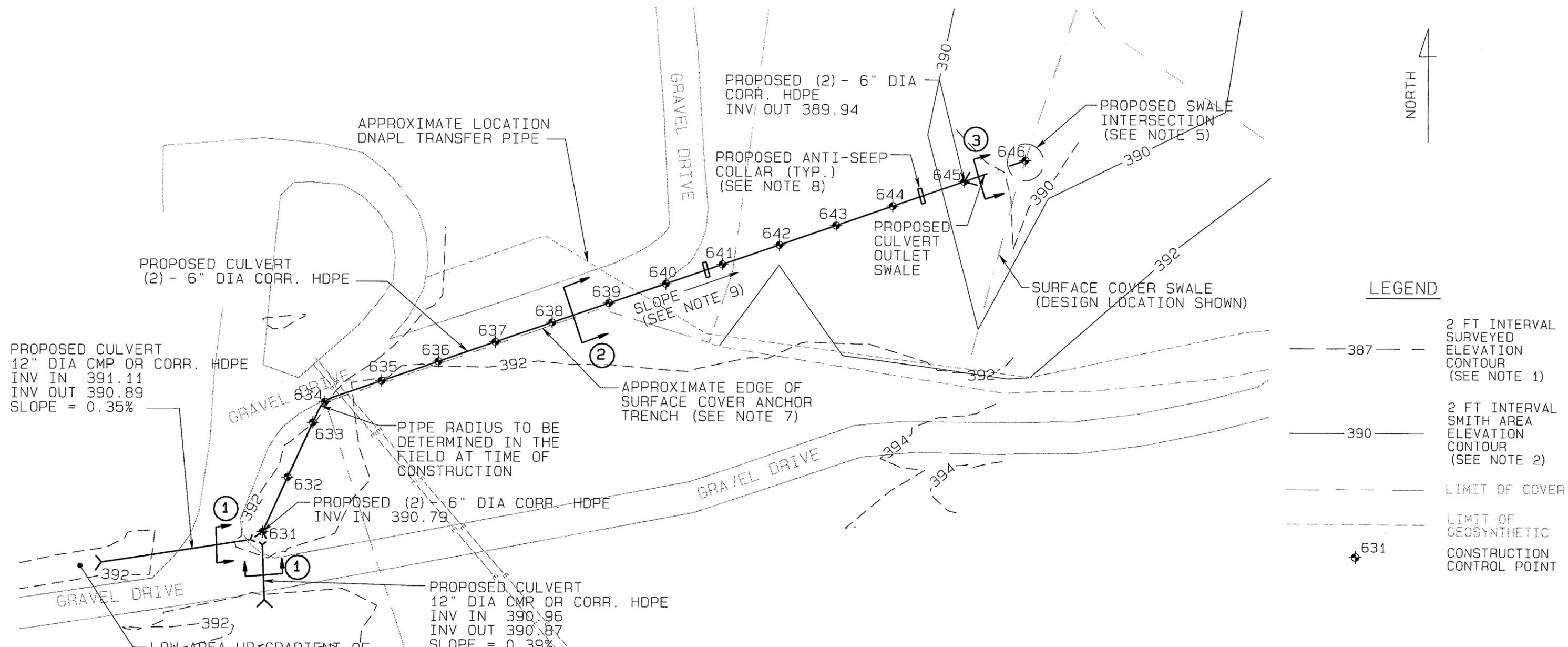
**PROJECT:** Surface Cover Low Point Drainage Improvements  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** BBL, an ARCADIS company (BBL)  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Mike Slenska, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Les Halliday, BBL  
Ben Huggins, BBL  
Andy Johnson, BBL

**TO THE CONTRACTOR:** This Field Order includes information addressing low point drainage conditions along the northwest perimeter of the Former Process Area surface cover.

Items associated with Field Order No. 040 include:

1. Figure 1 - presents plan view of proposed drainage improvements.
2. Figure 2 - shows cross section of proposed 12-inch CMP or corrugated HDPE pipe trench.
3. Figure 3 - shows cross section of proposed 6-inch corrugated HDPE pipe trench.
4. Figure 4 - shows cross section of proposed culvert outlet swale.
5. Construction control points listing.
6. It is recognized that this field order may affect the contractor's costs.

**ISSUED BY:** Phil Batten **DATE:** July 26, 2006



**LEGEND**

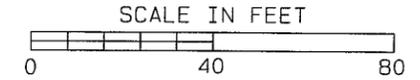
- 387 — 2 FT INTERVAL SURVEYED ELEVATION CONTOUR (SEE NOTE 1)
- 390 — 2 FT INTERVAL SMITH AREA ELEVATION CONTOUR (SEE NOTE 2)
- LIMIT OF COVER
- LIMIT OF GEOSYNTHETIC
- ◆ 631 CONSTRUCTION CONTROL POINT

**NOTES**

1. SURVEY INFORMATION OBTAINED FROM SHAWNEE MAY 2006.
2. ELEVATION CONTOURS WITHIN SMITH DITCH AREA REPRESENT DESIGN CONDITIONS AS DEPICTED ON THE SURFACE COVER CONSTRUCTION DRAWINGS DATED AUGUST 2004.
3. EXISTING UTILITY LOCATIONS SHOWN ON THIS FIGURE ARE APPROXIMATE ONLY. A UTILITY LOCATOR SERVICE MAY BE USED TO LOCATE EXISTING UTILITIES ALONG THE ALIGNMENT OF THE PROPOSED DRAINAGE PIPES PRIOR TO EXCAVATION WORK. TRENCH EXCAVATION WORK SHALL BE PERFORMED WITH UTILITIES TURNED OFF/DISCONNECTED AND IN A SLOW AND CAREFUL MANNER TO MINIMIZE THE POTENTIAL FOR DAMAGING EXISTING UTILITIES. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AND/OR REROUTED AS NECESSARY TO RESTORE SERVICE.
4. THE (2) 6-INCH DIAMETER CORRUGATED HDPE PIPES SHALL HAVE A MINIMUM 12-INCH OVERBURDEN DEPTH WHERE POSSIBLE OTHERWISE, PIPE OVERBURDEN DEPTH SHALL BE NO LESS THAN 6-INCHES.
5. THE PROPOSED CULVERT OUTLET SWALE SHALL BE A SMOOTH TRANSITION THAT PROVIDES FOR UNINTERRUPTED DRAINAGE FROM THE (2) 6-INCH DIAMETER CORRUGATED HDPE PIPES TO THE EXISTING SURFACE COVER SWALE.
6. FOR AREAS WHERE THE 6-INCH DIAMETER CORRUGATED HDPE PIPES ARE LOCATED WITHIN ROADWAYS, THE PIPES SHALL BE ENCASED IN CONCRETE. THE PURPOSE OF ENCASEMENT IS TO ALLOW FOR VEHICLE LOADING.
7. FINAL LOCATION OF PROPOSED DRAINAGE PIPES MAY VARY FROM THAT SHOWN ON THIS FIGURE BASED ON SITE CONDITIONS ENCOUNTERED AT TIME OF CONSTRUCTION (E.G., ACTUAL LOCATIONS OF ANCHOR TRENCHES, UTILITIES, ETC.). FIELD-BASED ADJUSTMENTS SHALL PROVIDE FOR CONTINUOUS, POSITIVE DRAINAGE TO PIPE OUTLET POINTS.

8. ANTI-SEEP COLLARS SHALL BE INSTALLED ON EACH OF THE (2) 6-INCH DIAMETER CORRUGATED HDPE PIPES AT THE TWO LOCATIONS SHOWN. ANTI-SEEP COLLARS SHALL CONSIST OF CONCRETE PLACED WITHIN TRENCH EXCAVATION THAT IS A MINIMUM OF 1-FOOT WIDER AND DEEPER THAN THE UP GRADIENT AND DOWN GRADIENT TRENCH DIMENSIONS.
9. THE (2) 6-INCH DIAMETER CORRUGATED HDPE PIPES SHALL BE INSTALLED AT THE MAXIMUM GRADIENT PERMISSABLE TO ALLOW FOR POSITIVE DRAINAGE.
10. TRENCH EXCAVATION SPOIL SHALL BE PLACED IN THE CAMU.
11. WHERE EXISTING TOPSOIL AND VEGETATION IS DISTURBED BY TRENCH EXCAVATION ACTIVITIES, A MINIMUM OF 4-INCHES OF TOPSOIL AND SEED SHALL BE REPLACED.
12. CONSTRUCTION CONTROL POINTS PROVIDED SEPARATELY.

**FINAL**

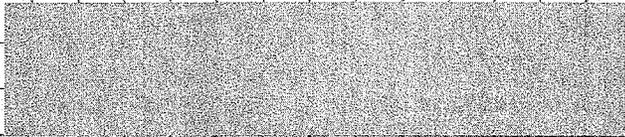
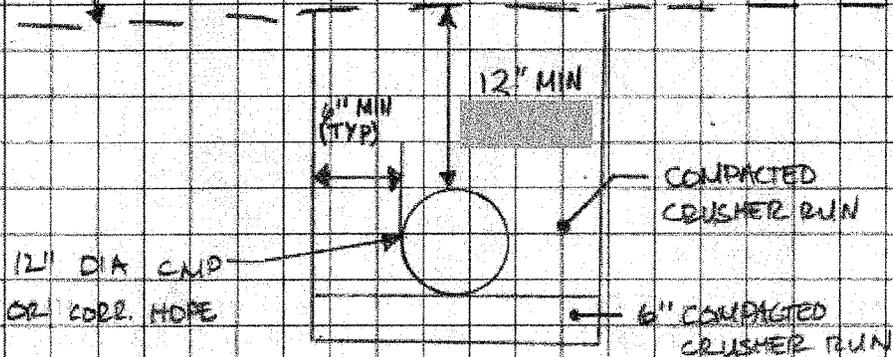


BBL, INC.	SHEET TITLE: LOW POINT DRAINAGE IMPROVEMENTS	FIGURE
	PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE	1
	PROJECT LOCATION: CARBONDALE, IL.	
	PROJECT NO: 38883.003	
	DATE: 07/24/06 BY: GNG FILE: 38883_LOWPOINT.PRO	

SUBJECT <b>FIGURE 2</b>	PROJ. NO. <b>38883</b>	BY <b>GNG</b>	DATE <b>7/12/06</b>	SHEET
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CALCS. BY \_\_\_\_\_ ; DATE \_\_\_\_\_ CHECKED BY **PMB** ; DATE **7/12/06**

EXISTING  
ROAD SURFACE



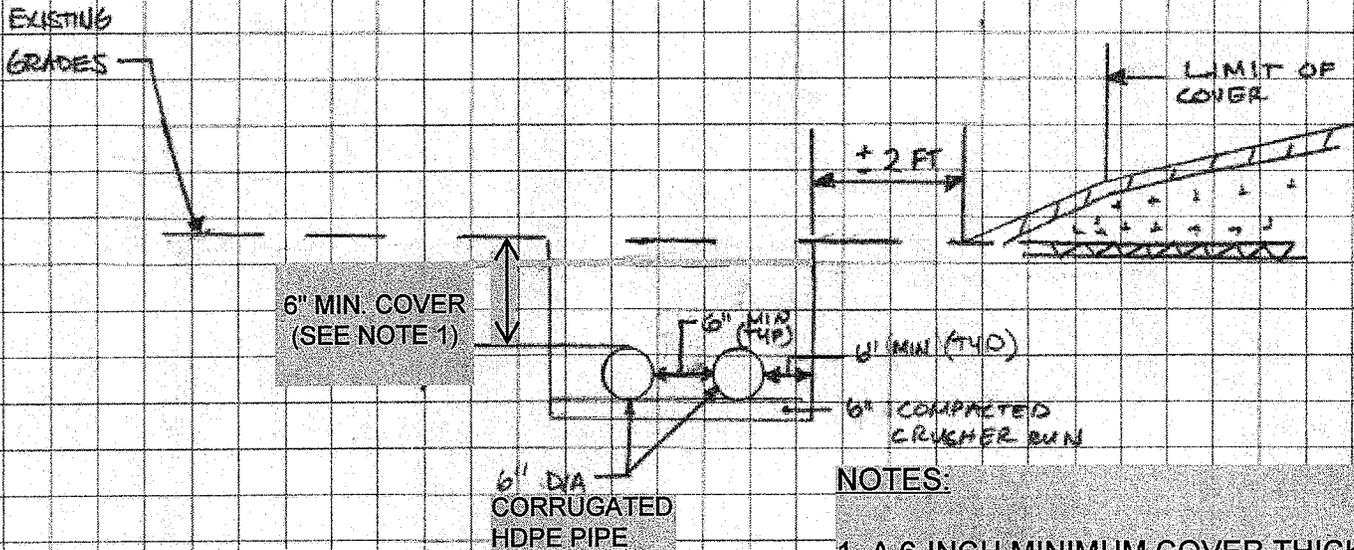
PIPE SECTION (12" DIA) ①  
(NOT TO SCALE)

**FINAL**

SUBJECT <b>FIGURE 3</b>	PROJ. NO. <b>38883</b>	BY <b>GNG</b>	DATE <b>7/12/06</b>	SHEET
----------------------------	---------------------------	------------------	------------------------	-------

CALCS. BY \_\_\_\_\_ ; DATE \_\_\_\_\_

CHECKED BY **PHB** ; DATE **7/12/06**



### NOTES:

1. A 6-INCH MINIMUM COVER THICKNESS IS REQUIRED IN AREAS WHERE VEHICLE TRAFFIC IS NOT EXPECTED. FOR AREAS WHERE VEHICLE TRAFFIC IS EXPECTED (E.G., ROADWAYS), CONCRETE SHALL BE PLACED A MINIMUM OF 6-INCHES ALONG THE SIDES OF THE PIPES AND ABOVE THE PIPE CROWNS. CONCRETE THICKNESS SHALL BE INCREASED ABOVE THE PIPES AS REQUIRED TO RESTORE ROADWAY SURFACE ELEVATIONS TO PRE-TRENCH GRADES.

PIPE SECTION (6" DIA.)

(NOT TO SCALE)

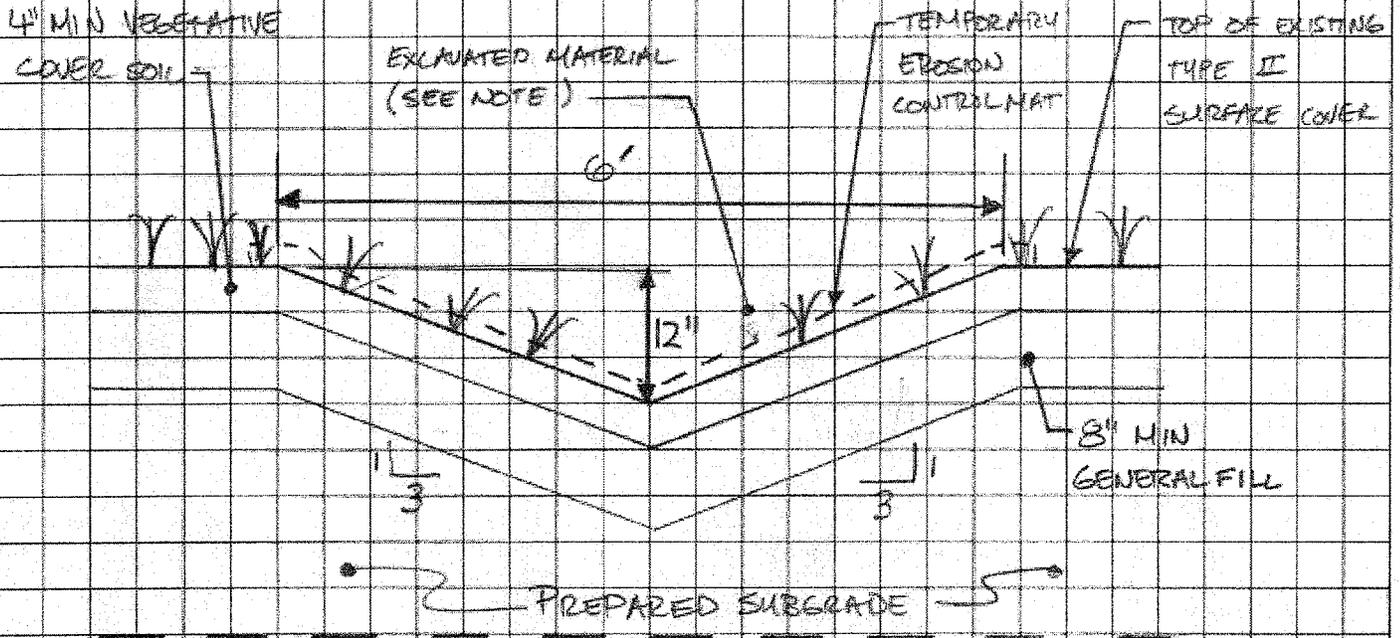
②

**FINAL**

SUBJECT	FIGURE 4	PROJ. NO.	38883	BY	GNB	DATE	7/12/06	SHEET	
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CALCS. BY \_\_\_\_\_ : DATE \_\_\_\_\_

CHECKED BY PHB : DATE 7/12/06



**CULVERT  
 OUTLET SWALE DETAIL ③**  
 (NOT TO SCALE)

- NOTES:**
- EXCAVATED MATERIAL IS TO BE PLACED ONSITE. IMPACTED MATERIAL WILL BE SENT TO THE CAMU.
  - A 8-INCH THICK LAYER OF RIPRAP (RR3) SHALL BE PLACED TO A MINIMUM OF 5- FEET DOWN GRADIENT OF THE CULVERT OUTLET. RIPRAP SHALL ALSO BE PLACED WITHIN THE EXISTING SURFACE COVER SWALE AND PROPOSED CULVERT OUTLET SWALE A MINIMUM OF 5- FEET UP GRADIENT AND DOWN GRADIENT OF THE SWALE INTERSECTION.

**FINAL**

Blasland, Bouck & Lee, Inc.  
6723 Towpath Rd., P.O. Box 66  
Syracuse, NY 13224  
Thursday, July 20, 2006 11:17:27 AM

PROJECT: F:\TMPROJ\388\38883\TM\38883\_Low Point.pro

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Point Coordinates Listing

Point	North	East	Elev	Name
631	4899.54	4810.38	390.79	Proposed Culvert Invert
632	4922.31	4820.71	390.73	Proposed Culvert Invert
633	4945.07	4831.04	390.67	Proposed Culvert Invert
634	4953.68	4835.94	390.64	Proposed Culvert Invert
635	4962.55	4859.33	390.58	Proposed Culvert Invert
636	4970.74	4882.95	390.52	Proposed Culvert Invert
637	4978.93	4906.57	390.45	Proposed Culvert Invert
638	4987.13	4930.19	390.39	Proposed Culvert Invert
639	4995.32	4953.81	390.33	Proposed Culvert Invert
640	5003.51	4977.43	390.27	Proposed Culvert Invert
641	5011.70	5001.06	390.20	Proposed Culvert Invert
642	5019.89	5024.68	390.14	Proposed Culvert Invert
643	5028.09	5048.33	390.08	Proposed Culvert Invert
644	5036.28	5071.92	390.02	Proposed Culvert Invert
645	5046.55	5101.54	389.94	Proposed Culvert Invert
646	5055.41	5127.09	389.87	Proposed Culvert Invert

# BBL<sup>®</sup>

 an **ARCADIS** company

**FIELD ORDER NO. 041: August 28, 2006**

**PROJECT:** CAMU Containment Cell  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbonale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** Blasland, Bouck and Lee, Inc.  
**COPIES TO:** Bob Braden, Severson  
Mason Wheeler, Sr., Severson  
Mike Slenska, Beazer  
Mark Gravelding, BBL  
Troy Hopper, BBL  
Phil Batten, BBL  
Jeff Holden, BBL  
Dave Bessingpas, BBL  
Les Halliday, BBL  
Ben Huggins, BBL  
Andy Johnson, BBL

**TO THE CONTRACTOR:** This Field Order includes survey grade control information for the CAMU top of general fill layer.

The following items are attached to this Field Order:

- Table providing the coordinates (northing and easting) and elevations for survey grade control for the CAMU top of general fill layer. The grade control point elevations represent the top of the minimum 6-inch thick general fill/separation layer (i.e., cover system liner elevations).

**ISSUED BY:**



**DATE:** August 28, 2006

Blasland, Bouck & Lee, Inc.  
 6723 Towpath Rd., P.O. Box 66  
 Syracuse, NY 13224  
 Monday, August 28, 2006 10:26:05 AM

PROJECT: F:\TMPROJ\388\38865\TM\38865.pro

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 Point Coordinates Listing

Point	North	East	Elev	Name
1813	5241.95	5414.58	425.00	TOP OF GEN. FILL
1814	5251.92	5465.66	425.00	TOP OF GEN. FILL
1815	5272.09	5394.89	423.30	TOP OF GEN. FILL
1816	5264.66	5384.46	423.30	TOP OF GEN. FILL
1817	5248.90	5381.21	423.30	TOP OF GEN. FILL
1818	5222.03	5387.18	423.30	TOP OF GEN. FILL
1819	5210.05	5395.34	423.30	TOP OF GEN. FILL
1820	5206.64	5407.88	423.30	TOP OF GEN. FILL
1821	5225.39	5486.83	423.30	TOP OF GEN. FILL
1822	5234.09	5496.52	423.30	TOP OF GEN. FILL
1823	5245.16	5498.97	423.30	TOP OF GEN. FILL
1824	5265.18	5494.26	423.30	TOP OF GEN. FILL
1825	5272.40	5489.49	423.30	TOP OF GEN. FILL
1826	5277.85	5478.02	423.30	TOP OF GEN. FILL
1827	5279.85	5457.26	423.30	TOP OF GEN. FILL
1828	5276.34	5427.16	423.30	TOP OF GEN. FILL
1829	5300.78	5357.96	415.80	TOP OF GEN. FILL
1830	5212.64	5434.21	423.30	TOP OF GEN. FILL
1831	5218.88	5460.48	423.30	TOP OF GEN. FILL
1832	5293.22	5344.95	415.80	TOP OF GEN. FILL
1833	5276.88	5341.27	415.80	TOP OF GEN. FILL
1834	5181.95	5362.53	415.80	TOP OF GEN. FILL
1835	5169.79	5371.44	415.80	TOP OF GEN. FILL
1836	5167.50	5385.93	415.80	TOP OF GEN. FILL
1837	5200.20	5523.65	415.80	TOP OF GEN. FILL
1838	5209.23	5535.91	415.80	TOP OF GEN. FILL
1839	5221.33	5538.52	415.80	TOP OF GEN. FILL
1840	5295.05	5520.77	415.80	TOP OF GEN. FILL
1841	5303.16	5515.09	415.80	TOP OF GEN. FILL
1842	5307.77	5504.35	415.80	TOP OF GEN. FILL
1843	5312.52	5458.16	415.80	TOP OF GEN. FILL
1844	5308.33	5423.35	415.80	TOP OF GEN. FILL
1845	5304.62	5389.56	415.80	TOP OF GEN. FILL
1846	5244.67	5348.46	415.80	TOP OF GEN. FILL
1847	5212.45	5355.65	415.80	TOP OF GEN. FILL
1848	5175.61	5420.09	415.80	TOP OF GEN. FILL
1849	5183.70	5454.17	415.80	TOP OF GEN. FILL
1850	5192.02	5489.22	415.80	TOP OF GEN. FILL
1851	5257.30	5529.86	415.80	TOP OF GEN. FILL
1852	5326.65	5321.17	409.40	TOP OF GEN. FILL
1853	5318.50	5307.63	409.40	TOP OF GEN. FILL
1854	5306.23	5304.10	409.40	TOP OF GEN. FILL
1855	5147.23	5339.22	409.40	TOP OF GEN. FILL
1856	5134.65	5348.10	409.60	TOP OF GEN. FILL
1857	5132.12	5363.39	409.60	TOP OF GEN. FILL
1858	5178.70	5559.47	409.60	TOP OF GEN. FILL
1859	5187.72	5571.90	409.50	TOP OF GEN. FILL

**FINAL**

1860	5203.49	5574.19	409.30 TOP OF GEN. FILL
1861	5322.74	5545.32	409.30 TOP OF GEN. FILL
1862	5331.02	5539.44	409.40 TOP OF GEN. FILL
1863	5335.60	5528.84	409.30 TOP OF GEN. FILL
1864	5343.42	5457.99	409.20 TOP OF GEN. FILL
1865	5339.56	5423.68	409.20 TOP OF GEN. FILL
1866	5335.25	5389.42	409.30 TOP OF GEN. FILL
1867	5330.92	5355.05	409.40 TOP OF GEN. FILL
1868	5274.09	5310.97	409.40 TOP OF GEN. FILL
1869	5242.26	5318.06	409.40 TOP OF GEN. FILL
1870	5210.43	5325.15	409.40 TOP OF GEN. FILL
1871	5178.68	5332.22	409.40 TOP OF GEN. FILL
1872	5139.86	5395.96	409.60 TOP OF GEN. FILL
1873	5147.61	5428.56	409.60 TOP OF GEN. FILL
1874	5155.39	5461.35	409.60 TOP OF GEN. FILL
1875	5163.16	5494.02	409.60 TOP OF GEN. FILL
1876	5170.95	5526.83	409.60 TOP OF GEN. FILL
1877	5233.01	5567.04	409.30 TOP OF GEN. FILL
1878	5263.19	5559.79	409.30 TOP OF GEN. FILL
1879	5293.37	5552.53	409.30 TOP OF GEN. FILL
1880	5339.64	5493.20	409.30 TOP OF GEN. FILL



**FIELD ORDER NO. 042: October 6, 2008 (REV. 1)**

**PROJECT:** Drainage Ditch Design  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** ARCADIS

**COPIES TO:** Mike Slenska, Beazer  
Mason Wheeler, Sr., SES  
Larry Hunt, SES  
Mark Graveling, ARCADIS  
Jason Davenport, ARCADIS  
Eric Dievendorf, ARCADIS

**TO THE CONTRACTOR:** Beazer East, Inc. has requested the Contractor to review the following additions to the original scope of work. Changes in cost or schedule should be noted immediately to Beazer. The following summarizes activities related to **Repair Activities at the Site Outfalls:**

- Outfall 002 – Clear trees and overgrowth; remove silt, tires, and other debris; and restore to original design grades. Add riprap as necessary.



- Outfall 003 – Clear trees and overgrowth; fill ponded area at discharge with riprap; and grade swale away from discharge.



- Outfall 003 Downstream Weir – Clear trees and overgrowth.



- Outfall 005 – Clear trees and overgrowth; repair leak beneath V-notch weir by removing weir, placing compacted clay, and replacing weir into clay. Alternatively, a new, deeper weir could be placed further into

existing grade. Fill upstream/downstream of V-notch weir with riprap to design fill elevation.



**ISSUED BY:** \_\_\_\_\_  
Lance Ketcham, ARCADIS

**DATE:** 10-08-08

**FIELD ORDER NO. 043: October 6, 2008**

**PROJECT:** Drainage Ditch Design  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbondale, IL  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** ARCADIS

**COPIES TO:** Mike Slenska, Beazer  
Mason Wheeler, Sr., SES  
Larry Hunt, SES  
Mark Gravelding, ARCADIS  
Jason Davenport, ARCADIS  
Eric Dievendorf, ARCADIS

**TO THE CONTRACTOR:** Beazer East, Inc. has requested the Contractor to review the following additions to the original scope of work. Changes in cost or schedule should be noted immediately to Beazer. Refer to attached Figure 1 and the following information summarizing activities related to **Erosion Repair**:

- Area 1 West – Install new 1-foot thick rip rap spill way in area of concentrated erosion and grade such that flow is diverted to new spill way. Riprap shall be obtained from onsite stockpile. Regrade eroded areas.



- Area 2 – Regrade eroded areas, install erosion control blanket, and fertilize and seed soil using Upland Seed Mix to extent of existing erosion on the slopes.



- Area 3 Borrow Pit – Non-Cap Area – Place riprap in deep rill inside of curve off access road.



- Area 4A – Fertilize and seed soil using Wetland Seed Mix (within the stream channel) or Upland Seed Mix (beyond the top of bank) to extents of existing erosion where stabilization fabric is already installed. Regrade eroded areas where stabilization fabric is not installed, install erosion control blanket.



- Area 4B – Overseed stream banks with Upland Seed Mix and fertilize.



- Area 5 – Stabilize deep rills adjacent to the access road with geotextile and riprap. Fill riprap with finer stone in roadway areas. Regrade driveway and access ramps to protect roadway.



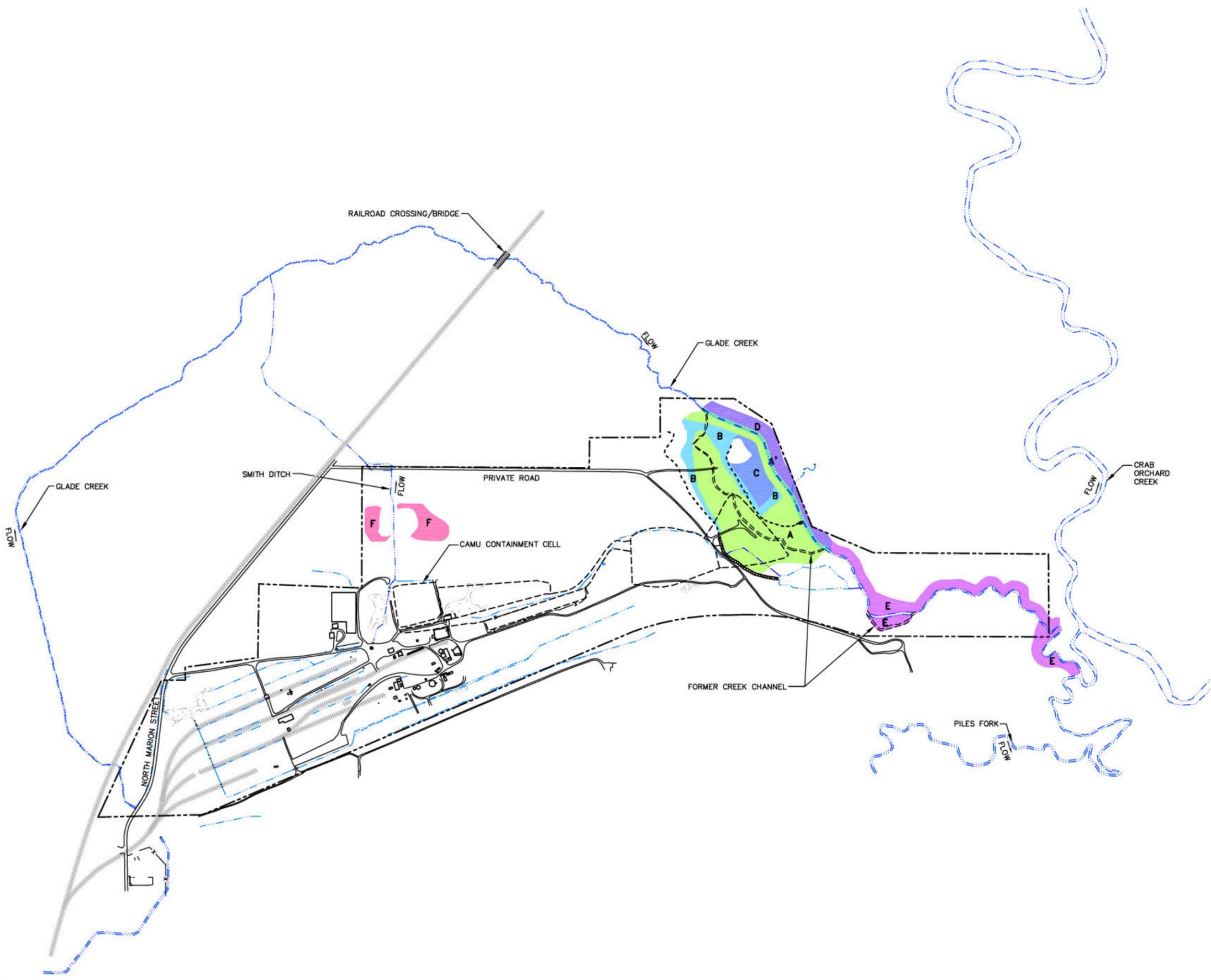
The following item is attached to this field order:

- Figure 1, entitled, “Planting Areas”

ISSUED BY: \_\_\_\_\_  
Lance Ketcham, ARCADIS

DATE: 10-08-08

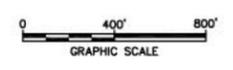
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 PROJECT NAME: 38883003  
 PROCESS: IMAGES: 38883010



**LEGEND:**

	PROPERTY BOUNDARY (SEE NOTE 2)
	PLANTING AREA A
	PLANTING AREA A'
	PLANTING AREA B
	PLANTING AREA C
	PLANTING AREA D
	PLANTING AREA E
	PLANTING AREA F
	SWALE
	DRAINAGE DITCH

- NOTES:**
- SITE FEATURES BASED ON PHOTOGRAMMETRIC MAPPING PROVIDED BY LOCKWOOD MAPPING COMPANY IN SEPTEMBER 2001 AND SURVEY DATA PROVIDED BY ENGINEERING DESIGN SOURCE, INC. IN JANUARY 2004, AND BASED ON AERIAL PHOTOGRAPHY PROVIDED BY LOCKWOOD MAPPING, INC. TAKEN ON NOVEMBER 22, 1996 AT AN APPROXIMATE SCALE OF 1"=500'.
  - PROPERTY BOUNDARY IS APPROXIMATE; OBTAINED FROM A COMBINATION OF SITE SURVEY DATA, HISTORICAL MAPS AND TAX MAPS.



BEAZER EAST, INC. FORMER KOPPERS WOOD-TREATING SITE CARBONDALE, ILLINOIS	
<b>PLANTING AREAS</b>	
 	FIGURE <b>1</b>



**FIELD ORDER NO. 044: October 7, 2008**

**PROJECT:** Drainage Ditch Design

**SITE:** Former Koppers Wood-Treating Site

**LOCATION:** Carbondale, IL

**OWNER:** Beazer East, Inc.

**CONTRACTOR:** Severson Environmental Services, Inc.

**ENGINEER:** ARCADIS

**COPIES TO:** Mike Slenska, Beazer  
Mason Wheeler, Sr., SES  
Larry Hunt, SES  
Mark Graveling, ARCADIS  
Lance Ketcham, ARCADIS  
Eric Dievendorf, ARCADIS

**TO THE CONTRACTOR:** Beazer East, Inc. has requested the Contractor to review the following additions to the original scope of work. Changes in cost or schedule should be noted immediately to Beazer. The following summarizes activities related to **Miscellaneous Activities:**

- Move temporary lined holding area berm to reduce storage capacity as necessary to contain actual quantity of stored material.
- Cover contents of temporary lined holding area with 6-inches (min.) of clay fill to protect HDPE cap from puncture.
- Cover temporary lined holding area HDPE cap with 6-inches (min.) of fill material and seed capped holding area with Upland Seed Mix.
- Regrade area immediately east of temporary lined holding area to prevent water from ponding against east berm.
- Construct swale along south edge of new HDPE pipe from STA 4+00 to outfall as necessary to intercept stormwater from upstream 12-inch-diameter RCP culvert. Reseed and install erosion control blanket consistent with other work in this area.

**ISSUED BY:**   
Lance Ketcham, ARCADIS

**DATE:** 10-07-08





**FIELD ORDER NO. 2010-001: September 15, 2010**

**PROJECT:** CAMU Containment Cell  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbonale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** ARCADIS  
**COPIES TO:** Mike Slenska, Beazer  
Bob Braden, SES  
Mason Wheeler, Sr., SES  
Mark Gravelding, ARCADIS  
Phil Batten, ARCADIS  
Jeff Holden, ARCADIS  
Dave Bessingpas, ARCADIS  
Chad Krieter, ARCADIS

**TO THE CONTRACTOR:** This Field Order provides clarification/guidance for placement of scrap geomembrane material previously used for covering the soil waste stockpile located adjacent (south) to the CAMU.

The following information provides clarification/guidance for placement of scrap geomembrane materials within the CAMU prior to final cover installation.

- All scrap geomembrane material shall be placed on the plateau area of the CAMU (i.e., top area of the CAMU where slope gradients are equal to approximately 4 percent).
- Scrap geomembrane material shall be reduced in size to no greater than approximately 10 foot by 5 foot strips.
- Scrap geomembrane strips shall be placed no less than 2 feet from the edge of the plateau grade break (i.e., grade break from 4 percent to 25 percent).
- Scrap geomembrane strips shall be placed with a minimum of 6 inches of horizontal separation between adjacent strips.
- A minimum of 6 inches of soil waste material shall be placed on top of the scrap geomembrane strips prior to placement of additional scrap geomembrane (provides a 6 inch vertical separation between underlying and overlying scrap geomembrane).

- Scrap geomembrane shall be placed no less than 6 inches below the final cover system subgrade (i.e., at least 6 inches below the cover system geosynthetic clay liner).

**REMARKS:**

1. This Field Order was prepared for purposes of clarification and guidance and is not an indication of approval of any change in cost.

**ISSUED  
BY:**



**DATE:** September 15, 2010



**FIELD ORDER NO. 2010-002: September 20, 2010**

**PROJECT:** CAMU Containment Cell  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbonale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** ARCADIS  
**COPIES TO:** Mike Slenska, Beazer  
Bob Braden, SES  
Mason Wheeler, Sr., SES  
Mark Gravelding, ARCADIS  
Phil Batten, ARCADIS  
Jeff Holden, ARCADIS  
Dave Bessingpas, ARCADIS  
Chad Krieter, ARCADIS

**TO THE CONTRACTOR:** This Field Order includes information pertaining to the establishment of temporary survey monuments on the CAMU containment cell.

The following information provides guidance for the establishment of temporary survey monuments on the CAMU containment cell.

- The purpose for the survey monuments is to allow for monitoring of potential movement of the CAMU that could result from waste material consolidation and subsequent settlement during on-going waste material filling and final cover subgrade preparation activities.
- The monuments are to be established at eight locations along top outside edge of the CAMU perimeter berm. The monuments are to be positioned approximately 1-foot down-slope of the outside berm crest. (See the attached figure and point listing for monument locations.)
- All survey monuments are to be composed of wood or plastic hubs (with center survey point) of sufficient dimension and size to remain intact and competent during the monitoring period.

- All survey monuments shall be clearly marked and protected from potential damage or disturbance as a result of on-going construction activities. (It should be noted that the monument locations shown on the attached figure may be adjusted in the field based on site conditions and/or construction access needs identified at the time of the monument installation.)
- All survey monuments shall be surveyed at a frequency of once per week and include acquisition of coordinate position (reported to the nearest 0.0000) and elevation (reported to the nearest 0.000). The acquired survey data shall be transmitted to ARCADIS in text file format within 24 hours from the surveyed date.

**REMARKS:**

**ISSUED  
BY:**



**DATE:** September 20, 2010



**FIELD ORDER NO. 2010-003: September 28, 2010**

**PROJECT:** CAMU Containment Cell  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbonale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** ARCADIS  
**COPIES TO:** Mike Slenska, Beazer  
Bob Braden, SES  
Mason Wheeler, Sr., SES  
Mark Gravelding, ARCADIS  
Phil Batten, ARCADIS  
Jeff Holden, ARCADIS  
Dave Bessingpas, ARCADIS  
Chad Krieter, ARCADIS

**TO THE CONTRACTOR:** This Field Order includes information pertaining to erosion control and vegetation requirements for the CAMU containment cell.

The following information provides guidance on erosion control and vegetation requirements for the CAMU containment cell.

- Place erosion control mat in the areas noted on Figure 1 (attached).
- Erosion control mat shall be North American Green SC-150, AEC Premier Straw/Coconut, or approved equal.
- The previously-specified seed mix for both CAMU and surface cover restoration was 30 lb/ac tall fescue (Kentucky 31 blend) and 0.5 lb/ac lidino clover. Upland Seed Mix also is acceptable, as specified on the attached Table 1. Note that the rye content has been increased from the original specification to promote faster growth prior to winter weather.

**REMARKS:**

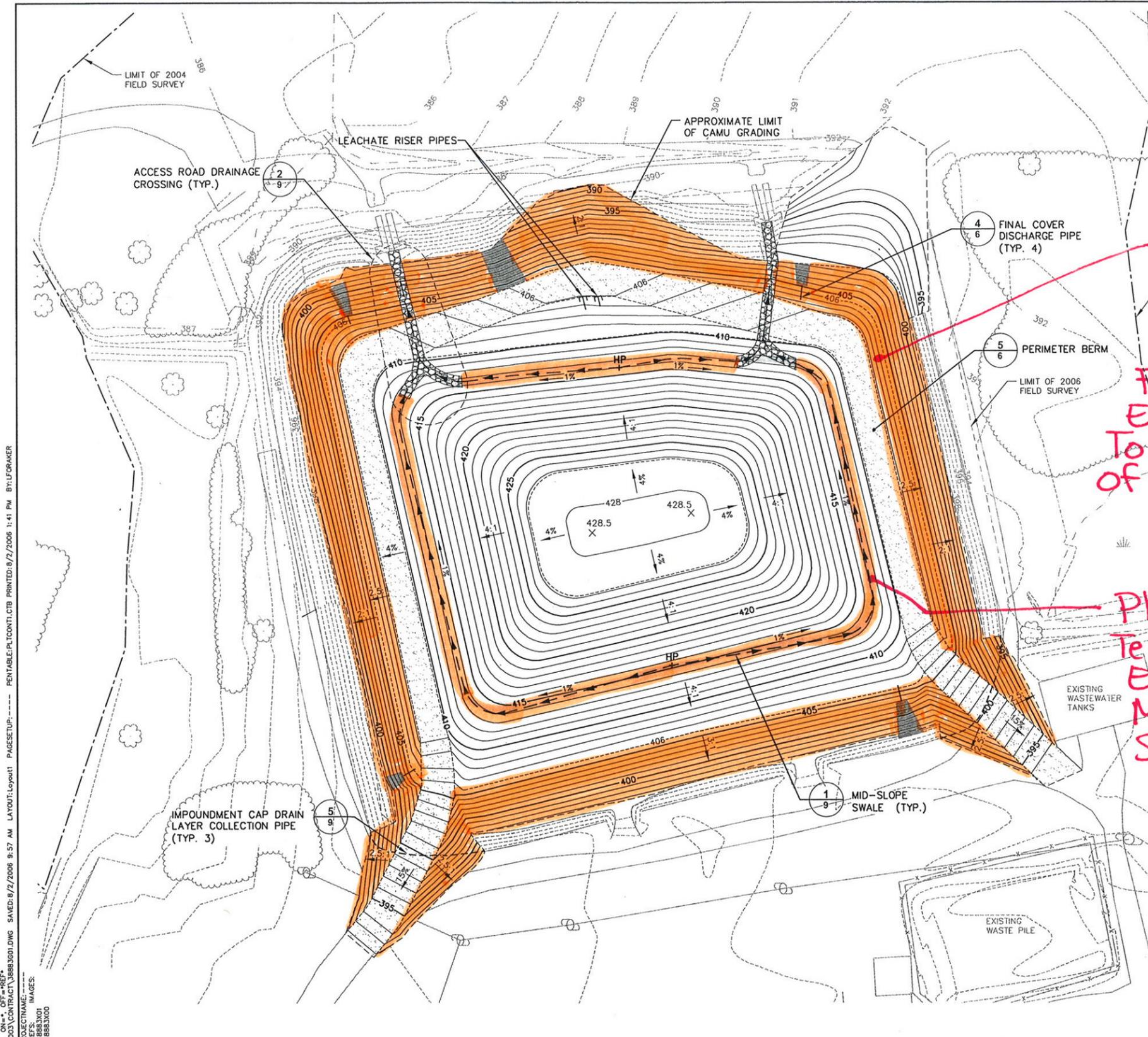
**ISSUED BY:**  **DATE:** 09/28/10

Placement of Additional Temporary Control Mat From Outside Edge of Road To the Limit of Disturbance

Placement of Temporary Erosion Control Mat on Mid-Slope Swale Per the Original Design

- LEGEND:
- INTERMEDIATE CONTOUR
  - 420— INDEX CONTOUR
  - - - GRADE BREAK
  - ← MID-SLOPE SWALE (ARROWS INDICATE FLOW DIRECTION)
  - ① 11 DETAIL REFERENCE NUMBER
  - ① 11 DRAWING REFERENCE NUMBER
  - PERMANENT EROSION CONTROL MAT
  - ⊠ RIPRAP (SEE DETAILS)
  - + HP HIGH POINT
  - CONTAINMENT CELL ACCESS ROAD
  - X 428.5 SPOT ELEVATION

- NOTES:
1. REFER TO DRAWING 1 FOR BASE MAP INFORMATION
  2. FINAL COVER GRADES DEPICTED ON THIS DRAWING ARE BASED ON A xxxxxx CUBIC YARD AIRSPACE WASTE GRADING PLAN. FINAL COVER GRADES MAY BE ADJUSTED IN THE FIELD AS DESCRIBED IN NOTE 3 ON DRAWING 3.
  3. CONTOUR INTERVAL EQUALS 1-FOOT.
  4. REFER TO DRAWING 2 FOR ADDITIONAL DESIGN INFORMATION.



PROJECT NAME: BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
 DRAWING TITLE: CAMU CONTAINMENT CELL DESIGN  
 DATE: JULY 2006  
 PROJECT NO: 0062-050750  
 DRAWN BY: LAF  
 CHECKED BY: CAA/RLP  
 DESIGNED BY: PHB  
 PROJECT MGR: PHB  
 STATE: ILLINOIS  
 PROFESSIONAL ENGINEER'S NO: 0062-050750  
 PROFESSIONAL ENGINEER'S NAME: ANDREW N. JOHNSON  
 ORIGINAL SCALE APPLIES TO 22"x34" DRAWING  
 1" = 30'  
 1 7/13/06 REVISED FINAL COVER GRADES, MID-SLOPE SWALE ALIGNMENT, DRAINAGE TRANSITIONS, NOTE 2.  
 THIS DRAWING WAS PREPARED AT THE SCALE(S) INDICATED. INACCURACIES IN THE STATED SCALE(S) MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED. USE THE GRAPHIC SCALE BAR(S) TO DETERMINE THE ACTUAL SCALE(S) OF THIS DRAWING.  
 THIS DRAWING IS THE PROPERTY OF BLASLAND, BOUCK & LEE, INC. AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF BLASLAND, BOUCK & LEE, INC.

**DRAFT**  
NOT FOR CONSTRUCTION



BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS  
**CAMU CONTAINMENT CELL DESIGN**  
**FINAL COVER SYSTEM GRADING AND STORMWATER MANAGEMENT PLAN**

Project Number 388.83
Date JULY 2006
Blasland, Bouck & Lee, Inc. an Arcadis company 6723 Towpath Road Syracuse, NY 13214 315-446-9120

**TABLE 1 - UPLAND SEED MIX**

<b>SPECIES</b>	<b>LBS/ACRE</b>
Big Blue Stem (Andropogon Gerardi)	4
Little Blue Stem (Andropogon Scoparius)	5
Side-Oats Grama (Bouteloua Curtipendula)	5
Canada Wild Rye (Elymus Canadensis)	2
Switchgrass (Panicum Virgatum)	1
Indian Grass (Sorghastrum Nutans)	2
Annual Ryegrass	50
Oats, Spring	25
Perennial Ryegrass	30
<b>Total</b>	<b>124</b>



**FIELD ORDER NO. 2010-004: September 29, 2010**

**PROJECT:** CAMU Containment Cell  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbonale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** ARCADIS  
**COPIES TO:** Mike Slenska, Beazer  
Bob Braden, SES  
Mason Wheeler, Sr., SES  
Mark Gravelding, ARCADIS  
Phil Batten, ARCADIS  
Jeff Holden, ARCADIS  
Dave Bessingpas, ARCADIS  
Chad Krieter, ARCADIS

**TO THE CONTRACTOR:** This Field Order includes revised design drawings reflecting the maximum build-out condition for the CAMU containment cell.

The following item is included as an attachment to this Field Order.

- CAMU Containment Cell design drawings (Drawing Nos. 3-7, and 9).

**REMARKS:**

**ISSUED  
BY:**

**DATE:** September 29, 2010

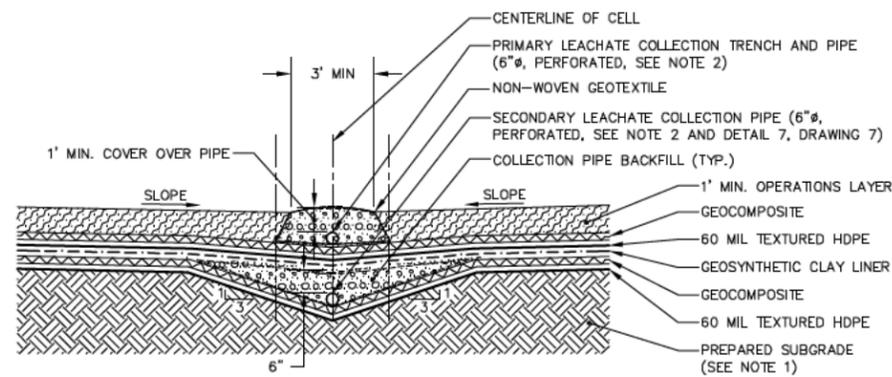






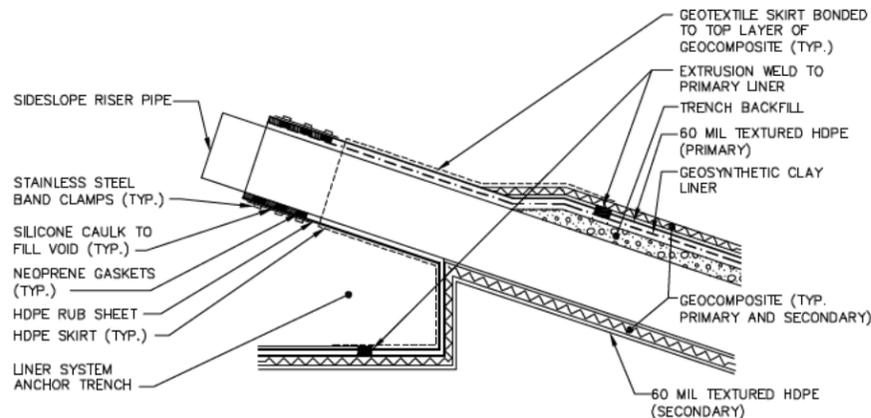


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 PROJECT NAME: CAMU CONTAINMENT CELL DESIGN

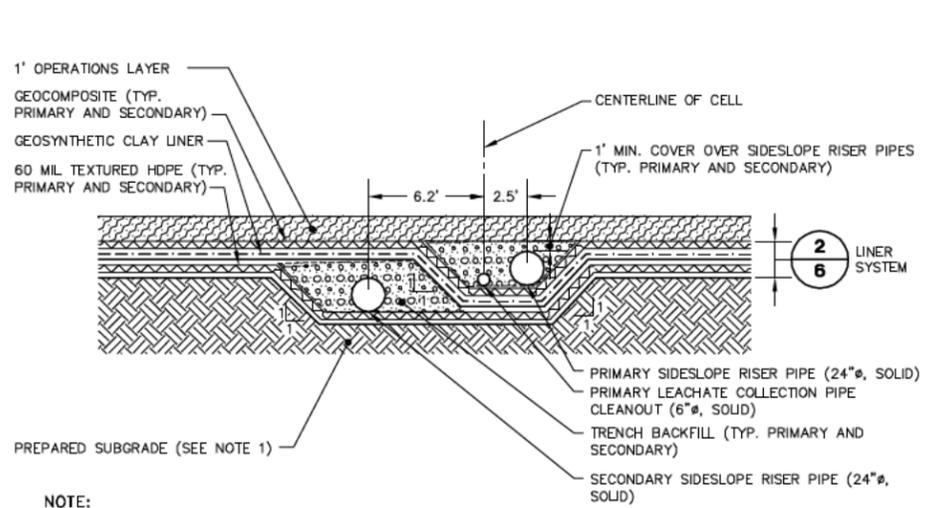


- NOTES:**
1. PREPARED SUBGRADE SHALL CONSIST OF EITHER THE EXISTING RCRA IMPOUNDMENT COVER SOIL OR GENERAL FILL. EXISTING VEGETATED TOPSOIL MATERIAL WITHIN OUTBOARD CREST OF EXISTING IMPOUNDMENT TO BE REMOVED AND STOCKPILED FOR POSSIBLE REUSE.
  2. COLLECTION TRENCH TO BE BACKFILLED WITH DRAINAGE STONE WRAPPED IN NON-WOVEN GEOTEXTILE. GEOTEXTILE TO BE OVERLAPPED A MINIMUM OF 3 FEET. COLLECTION PIPE BACKFILL MATERIAL TO BE PLACED ABOVE OVERLAP IN A MANNER WHICH MAINTAINS CONTACT BETWEEN OVERLAPPED GEOTEXTILES.

**PRIMARY/SECONDARY LEACHATE COLLECTION PIPES 1**

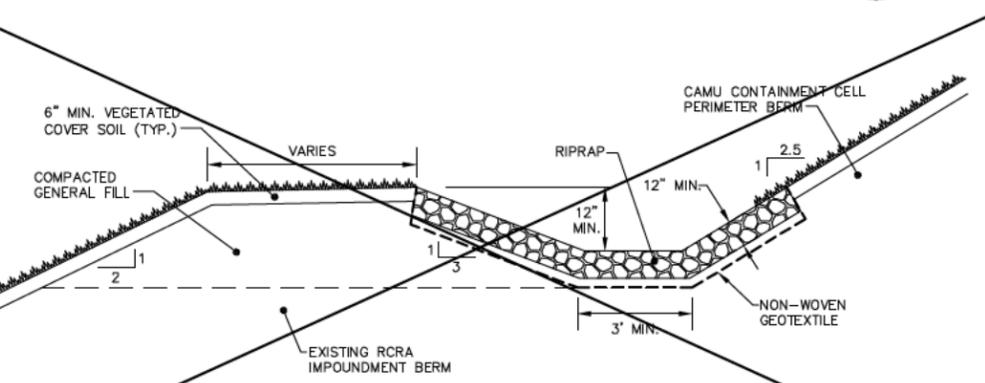


**LINER SYSTEM PIPE PENETRATION 2**

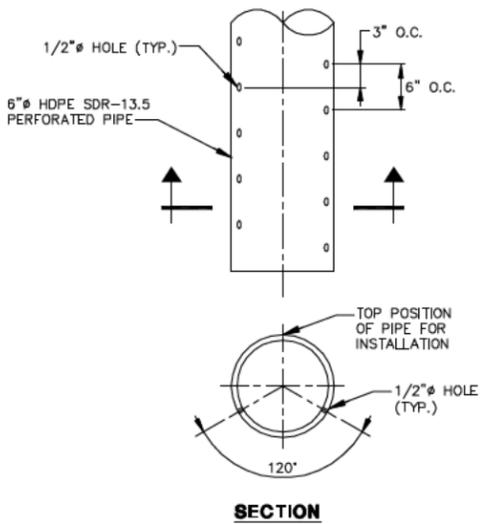


- NOTE:**
1. PREPARED SUBGRADE SHALL CONSIST OF EITHER THE EXISTING RCRA IMPOUNDMENT CAP OR PERIMETER BERM GENERAL FILL.

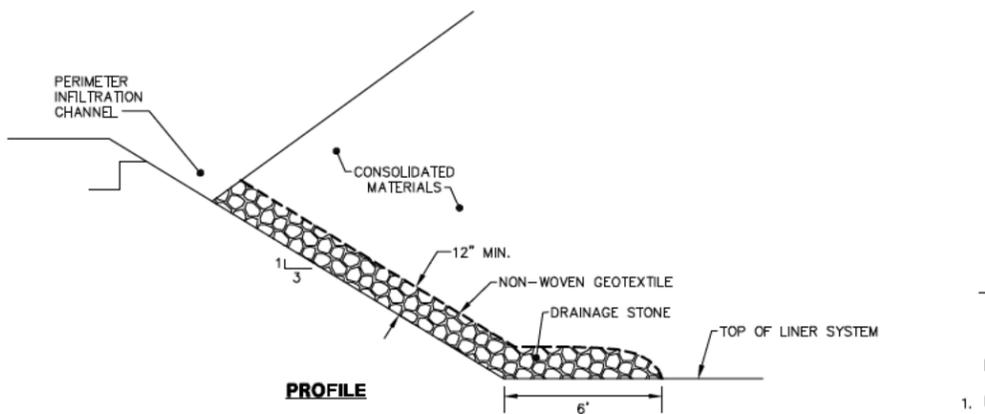
**LEACHATE RISER PIPE TRENCH 3**



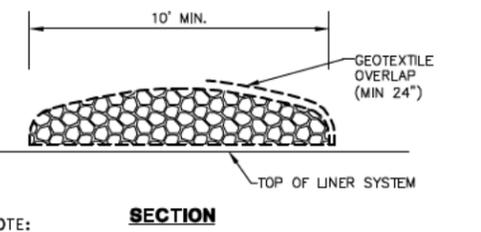
**BERM SWALE 4**



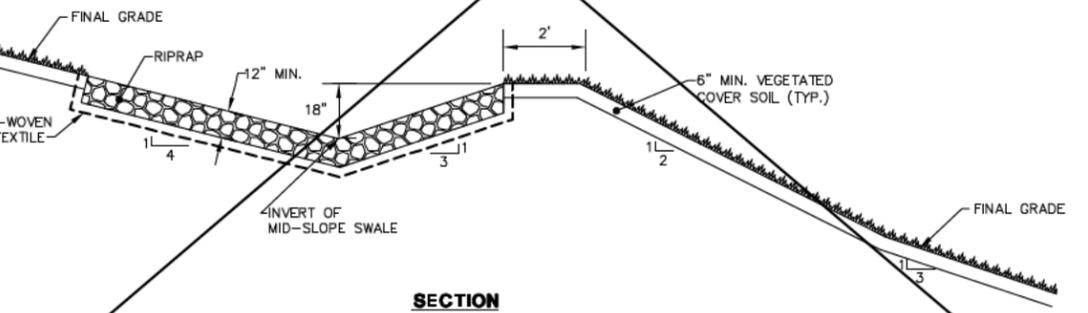
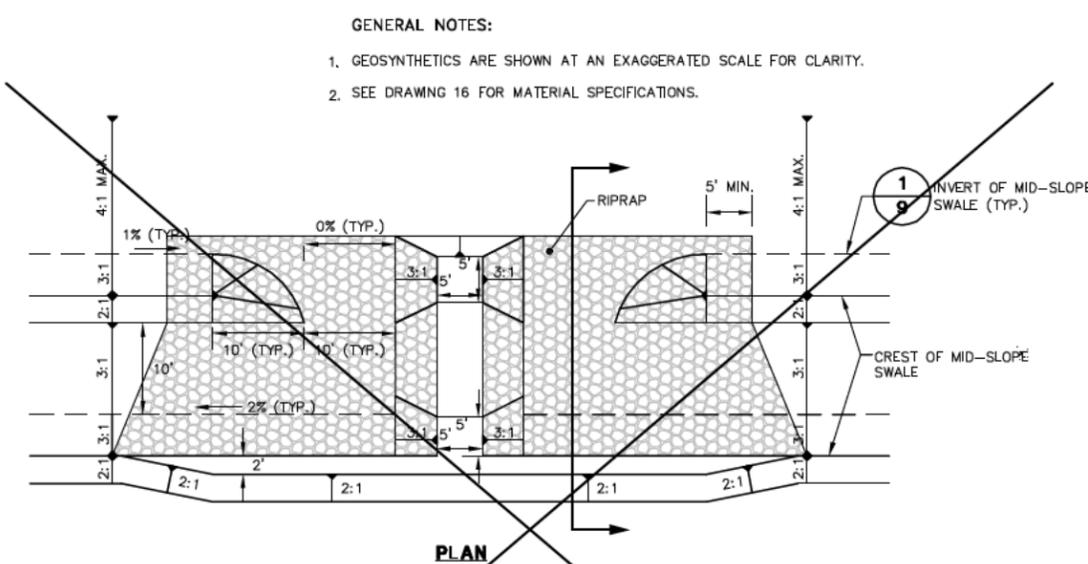
**LEACHATE COLLECTION PIPE DETAIL 7**



**PERIMETER INFILTRATION CHANNEL SIDESLOPE DRAIN 6**



**MID-SLOPE SWALE TRANSITION 5**



- GENERAL NOTES:**
1. GEOSYNTHETICS ARE SHOWN AT AN EXAGGERATED SCALE FOR CLARITY.
  2. SEE DRAWING 16 FOR MATERIAL SPECIFICATIONS.

**FOR CONSTRUCTION**

NOT TO SCALE THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.	USE TO VERIFY FIGURE REPRODUCTION SCALE.	1 7/13/06 ELIMINATED DETAILS 4 AND 5 RLP	Professional Engineer's Name <b>MARK O. GRAVELDING</b> Professional Engineer's No. 062059378	 BEAZER EAST, INC. • FORMER KOPPERS WOOD-TREATING SITE • CARBONDALE, ILLINOIS <b>CAMU CONTAINMENT CELL DESIGN</b>	ARCADIS Project No. B0039221.0000.00002 Date JULY 2006 ARCADIS of New York, Inc. 6723 TOWPATH ROAD P.O. BOX 66 SYRACUSE, NY 13214-0066 TEL.: 315.446.9120	<b>7</b>
		THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.	State L.			
		Designed by CAA/RLP	ARCADIS U.S., INC.			





**FIELD ORDER NO. 2010-005: October 4, 2010**

**PROJECT:** CAMU Containment Cell  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbonale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** ARCADIS  
**COPIES TO:** Mike Slenska, Beazer  
Bob Braden, SES  
Mason Wheeler, Sr., SES  
Mark Gravelding, ARCADIS  
Phil Batten, ARCADIS  
Jeff Holden, ARCADIS  
Dave Bessingpas, ARCADIS  
Chad Krieter, ARCADIS

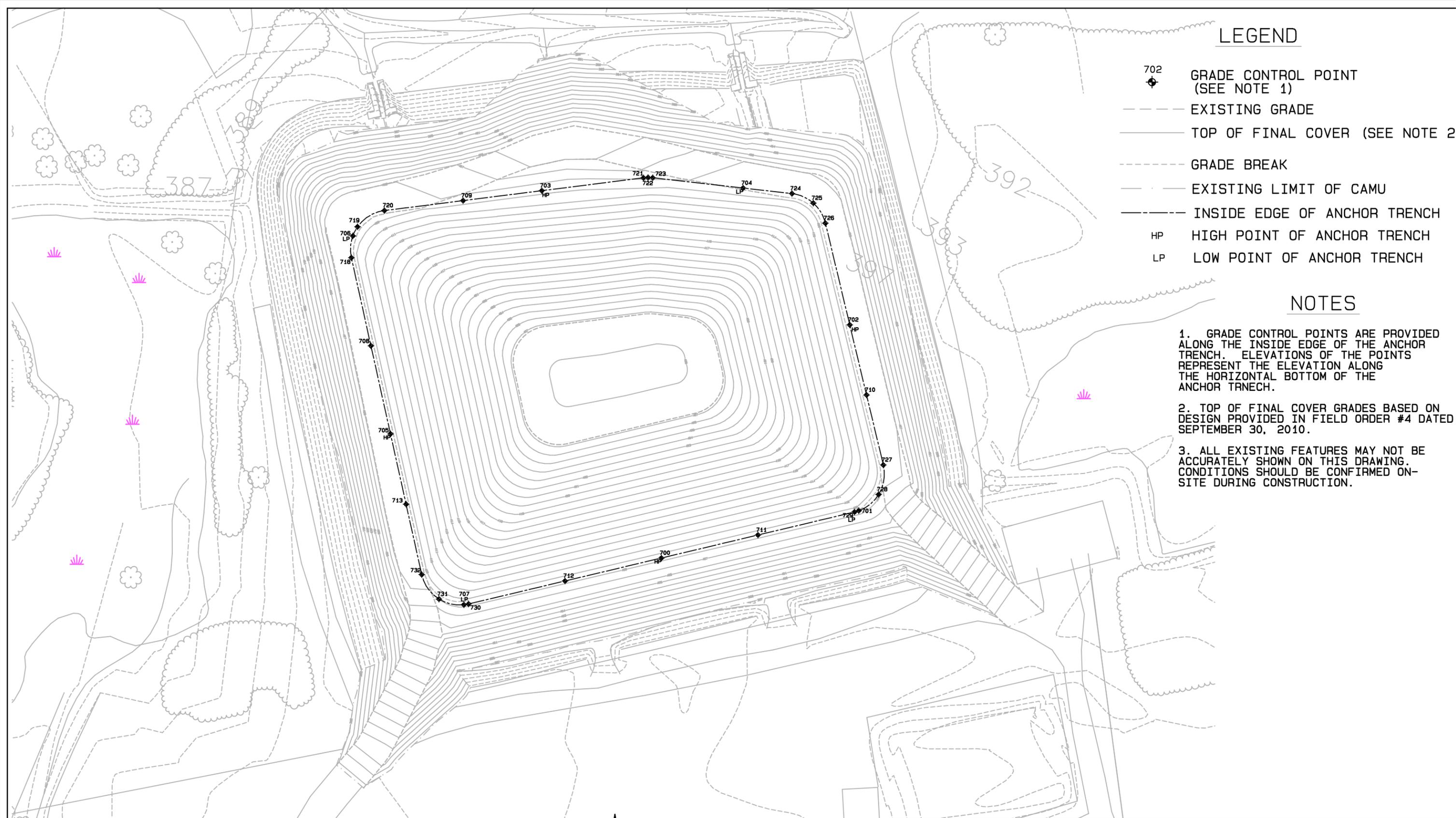
**TO THE CONTRACTOR:** This Field Order includes information pertaining to the establishment of the final cover anchor trench for the CAMU containment cell.

The attached information provides the horizontal and vertical coordinates needed to establish the final cover anchor trench for the CAMU containment cell.

**REMARKS:**

**ISSUED  
BY:**

**DATE:** October 4, 2010



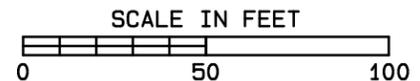
**LEGEND**

- 702 GRADE CONTROL POINT (SEE NOTE 1)
- EXISTING GRADE
- TOP OF FINAL COVER (SEE NOTE 2)
- ... GRADE BREAK
- EXISTING LIMIT OF CAMU
- INSIDE EDGE OF ANCHOR TRENCH
- HP HIGH POINT OF ANCHOR TRENCH
- LP LOW POINT OF ANCHOR TRENCH

**NOTES**

1. GRADE CONTROL POINTS ARE PROVIDED ALONG THE INSIDE EDGE OF THE ANCHOR TRENCH. ELEVATIONS OF THE POINTS REPRESENT THE ELEVATION ALONG THE HORIZONTAL BOTTOM OF THE ANCHOR TRNECH.
2. TOP OF FINAL COVER GRADES BASED ON DESIGN PROVIDED IN FIELD ORDER #4 DATED SEPTEMBER 30, 2010.
3. ALL EXISTING FEATURES MAY NOT BE ACCURATELY SHOWN ON THIS DRAWING. CONDITIONS SHOULD BE CONFIRMED ON-SITE DURING CONSTRUCTION.

NORTH ↑



ARCADIS  
 SHEET TITLE: FINAL COVER ANCHOR TRENCH GRADE CONTROL  
 PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: B0039208.0000.00002  
 DATE: 10/01/2010 BY: CAA  
 FILE: CDALE 2010/CAMU CLOSURE DESIGN.PRO

FIGURE  
1

ARCADIS  
6723 TOWPATH ROAD  
SYRACUSE NY 13214  
1-315-446-9120  
Friday, October 01, 2010 4:52:33 PM

PROJECT: G:\TMProj\388\C'Dale 2010\TM\CAMU Closure Design.pro

-----  
Point Coordinates Listing

Point	North	East	Elev	Name
700	5142.29	5464.37	404.0	HP
701	5169.03	5576.10	403.4	LP
702	5273.93	5571.04	404.0	HP
703	5349.71	5396.65	404.3	HP
704	5351.20	5510.64	403.5	LP
705	5212.39	5310.93	404.0	HP
706	5324.16	5289.67	403.4	LP
707	5115.93	5352.52	403.4	LP
708	5262.13	5299.86	403.7	
709	5344.10	5352.08	403.9	
710	5234.37	5580.55	403.8	
711	5155.28	5519.06	403.7	
712	5129.32	5409.77	403.7	
713	5172.67	5319.78	403.8	
718	5311.87	5288.78	403.5	
719	5329.32	5292.26	403.4	
720	5338.48	5307.51	403.5	
721	5356.97	5454.22	402.9	
722	5357.14	5456.83	402.9	
723	5357.00	5459.44	402.8	
724	5348.06	5538.32	403.6	
725	5342.69	5550.42	403.7	
726	5331.34	5557.24	403.7	
727	5194.82	5590.05	403.6	
728	5178.16	5587.41	403.5	
729	5168.27	5573.75	403.4	
730	5116.35	5355.18	403.4	
731	5119.10	5338.42	403.5	
732	5132.97	5328.62	403.6	



**FIELD ORDER NO. 2010-006: October 5, 2010**

**PROJECT:** CAMU Containment Cell  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbonale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** ARCADIS  
**COPIES TO:** Mike Slenska, Beazer  
Bob Braden, SES  
Mason Wheeler, Sr., SES  
Mark Gravelding, ARCADIS  
Phil Batten, ARCADIS  
Jeff Holden, ARCADIS  
Dave Bessingpas, ARCADIS  
Chad Krieter, ARCADIS

**TO THE CONTRACTOR:** This Field Order provides a description of “as-built” survey information that shall be collected during and following completion of the CAMU final cover and Surface cover construction work.

The following is a description of the “as-built” surveys to be performed.

- Final cover system anchor trench. This survey shall included survey shots at the following locations:
  1. Center line of excavated trench subgrade (i.e., prior to geosynthetics installation) at all high points and low points and at 25 foot minimum intervals;
  2. Top of drain pipe installed within cover system anchor trench at all high points and low points and at 25 foot minimum intervals;
  3. Top of completed cover system subgrade (i.e., surface prior to GCL placement) which includes topographic contours and spot elevations at high/low points and open areas (survey shall be of sufficient density to allow for accurate contouring and engineering evaluation);
  4. Top of completed cover system vegetated cover soil (i.e., following placement, compaction and fine grading) which includes topographic contours and spot elevations at high/low points and open areas (survey shall be of sufficient density to allow for accurate contouring and engineering evaluation);

5. Top of completed surfaces and features (e.g., access roads/ramps, perimeter berm slopes, leachate riser/cleanout pipes) beyond the limits of the CAMU cover system; and
6. Completed drainage features including mid-slope swales (invert, crest, side slope), riprap drainage crossings/channels, cover system drain pipe outlets.
7. Topographic survey of the restored Northern Ditch & Former Lagoon Area Surface Cover areas. The survey shall include topographic contours, grade breaks and spot elevations at high/low points and open areas (survey shall be of sufficient density to allow for accurate contouring and engineering evaluation).

As-built Items 1 through 3 above shall be shown on separate site plans prepared by the surveyor. As-built Items 4 through 6 above shall be complied by the surveyor and all surveyed information shown on a single site plan prepared by the surveyor. As-built Item 7 above shall be complied by the surveyor and all surveyed information shown on a single site plan prepared by the surveyor.

All site plans shall be developed in electronic AutoCAD format on appropriately sized drawings. All survey plans, inclusive of survey points and TINs, shall be provided to ARCADIS in a timely manner. Note that as-built Items 1 through 3 are to be submitted to ARCADIS for review as soon as possible following survey, to allow for review and acceptance prior to overburden material placement.

**REMARKS:**

**ISSUED  
BY:**



**DATE:** October 5, 2010



**FIELD ORDER NO. 2010-007: October 13, 2010**

**PROJECT:** CAMU Containment Cell  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbonale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** ARCADIS  
**COPIES TO:** Mike Slenska, Beazer  
Bob Braden, SES  
Mason Wheeler, Sr., SES  
Mark Gravelding, ARCADIS  
Phil Batten, ARCADIS  
Jeff Holden, ARCADIS  
Dave Bessingpas, ARCADIS  
Chad Krieter, ARCADIS

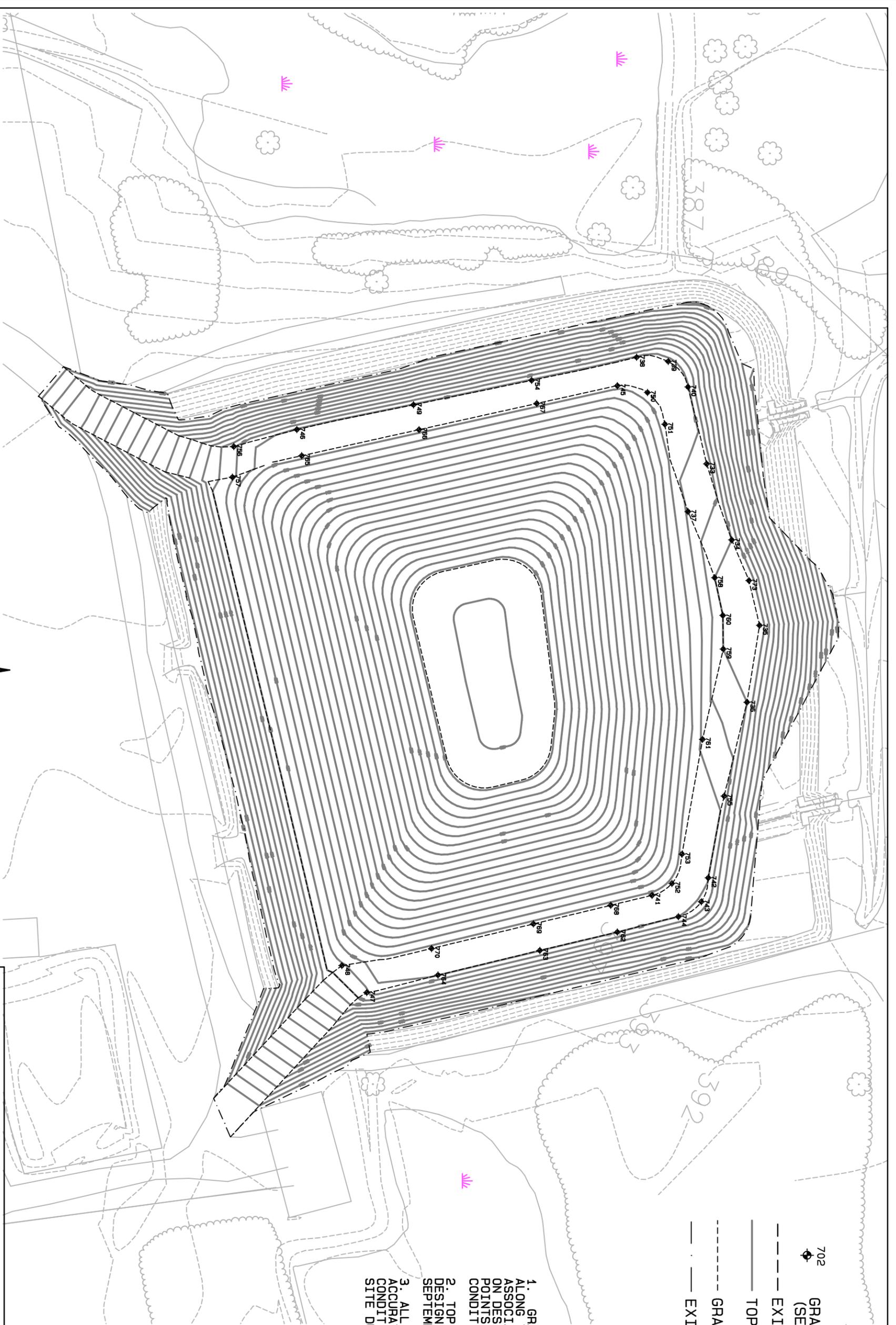
**TO THE CONTRACTOR:** This Field Order includes information pertaining to construction grade control associated with the CAMU perimeter access road (final condition).

The attached information provides the survey construction points (coordinates and elevations) allowing for establishment of the CAMU perimeter access road for the final condition. Please note the construction points provided in this Field Order are intended for reference purposes and may require adjustment based on actual grade conditions encountered in the field at the time of construction (i.e., adjacent final grades associated with the CAMU perimeter berm and final cover system).

**REMARKS:**

**ISSUED  
BY:**

**DATE:** October 12, 2010



**LEGEND**

- 702 ● GRADE CONTROL POINT (SEE NOTE 1)
- EXISTING GRADE
- TOP OF FINAL COVER (SEE NOTE 2)
- - - - GRADE BREAK
- EXISTING LIMIT OF CAMU

**NOTES**

1. GRADE CONTROL POINTS ARE PROVIDED ALONG THE GRADE BREAK OF THE FINAL COVER ASSOCIATED WITH THE ACCESS ROAD BASED ON DESIGN CONDITIONS. LOCATIONS OF THESE POINTS MAY BE ADJUSTED BASED ON AS-BUILT CONDITIONS.
2. TOP OF FINAL COVER GRADES BASED ON DESIGN PROVIDED IN FIELD ORDER #4 DATED SEPTEMBER 30, 2010.
3. ALL EXISTING FEATURES MAY NOT BE ACCURATELY SHOWN ON THIS DRAWING. CONDITIONS SHOULD BE CONFIRMED ON-SITE DURING CONSTRUCTION.

NORTH



ARCADIS

SHEET TITLE: FINAL COVER ACCESS ROAD GRADE CONTROL  
 PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE  
 PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
 PROJECT NO: B0039208.0000.00002  
 DATE: 10/12/2010 BY: CAA  
 FILE: CDALE 2010/CAMU CLOSURE DESIGN.PRO

FIGURE

1





**FIELD ORDER NO. 2010-008: October 29, 2010**

**PROJECT:** CAMU Containment Cell  
**SITE:** Former Koppers Wood-Treating Site  
**LOCATION:** Carbonale, IL.  
**OWNER:** Beazer East, Inc.  
**CONTRACTOR:** Severson Environmental Services, Inc.  
**ENGINEER:** ARCADIS  
**COPIES TO:** Mike Slenska, Beazer  
Bob Braden, SES  
Mason Wheeler, Sr., SES  
Mark Gravelding, ARCADIS  
Phil Batten, ARCADIS  
Jeff Holden, ARCADIS  
Dave Bessingpas, ARCADIS  
Chad Krieter, ARCADIS

**TO THE CONTRACTOR:** This Field Order includes information pertaining to construction grade control associated with the CAMU mid-slope swale.

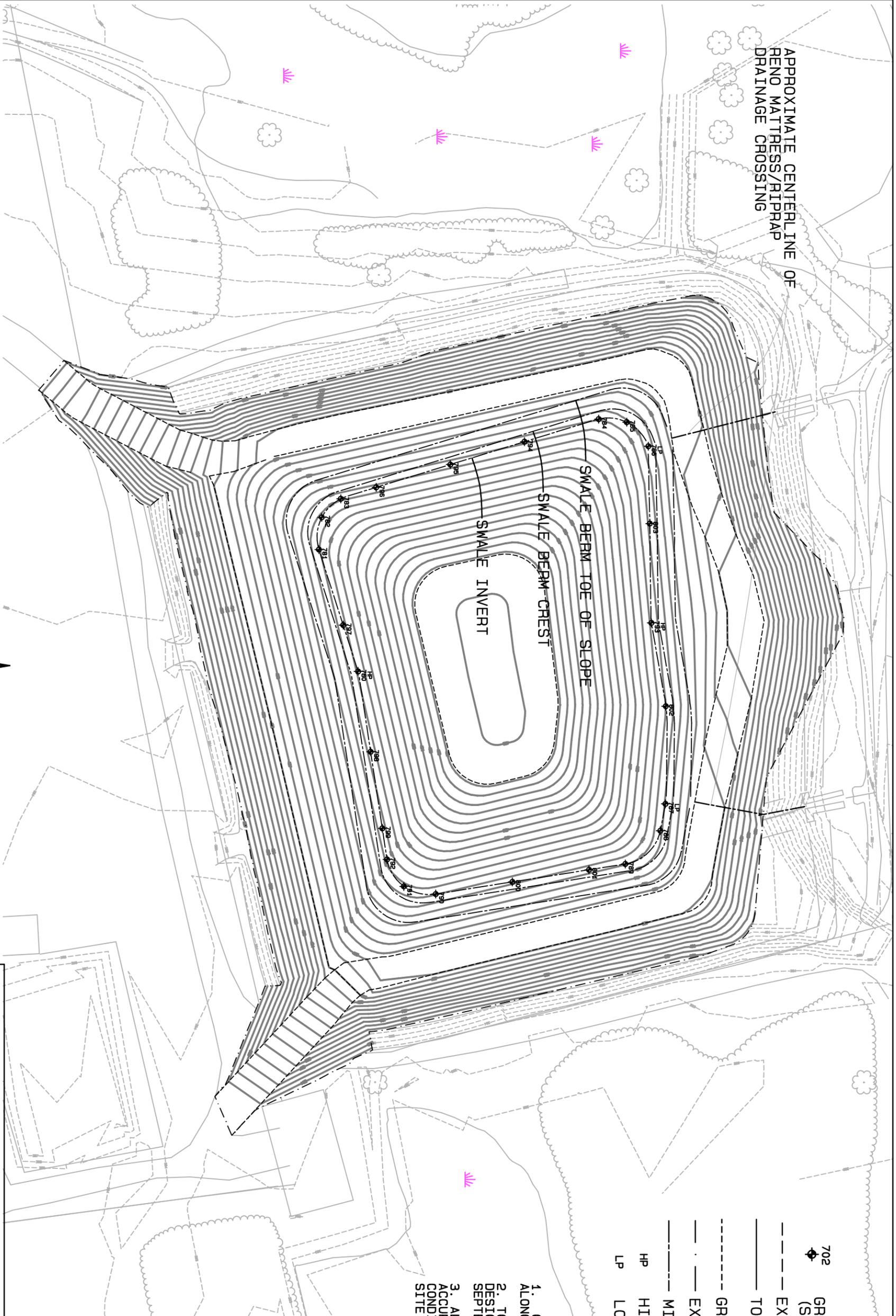
The attached information provides the survey construction points (coordinates and elevations) for establishment of the invert of the CAMU mid-slope swale. Please note the construction points provided in this Field Order are intended for reference purposes and may require adjustment based on actual grade conditions encountered in the field at the time of construction. Also included is a sketch showing the cross sectional geometry and slope gradient conditions of mid-slope swale for your reference.

**REMARKS:**

**ISSUED  
BY:**

**DATE:** October 29, 2010

APPROXIMATE CENTERLINE OF  
RENO MATTRESS/RIPRAP  
DRAINAGE CROSSING



**LEGEND**

- 702 GRADE CONTROL POINT  
(SEE NOTE 1)
- EXISTING GRADE
- TOP OF FINAL COVER (SEE NOTE 2)
- - - - - GRADE BREAK
- · - · - EXISTING LIMIT OF CAMU
- MID-SLOPE SWALE GRADE BREAK
- HP HIGH POINT OF MID-SLOPE SWALE
- LP LOW POINT OF MIDSLOPE SWALE

**NOTES**

1. GRADE CONTROL POINTS ARE PROVIDED ALONG THE INVERT OF THE MID-SLOPE SWALE
2. TOP OF FINAL COVER GRADES BASED ON DESIGN PROVIDED IN FIELD ORDER #4 DATED SEPTEMBER 30, 2010.
3. ALL EXISTING FEATURES MAY NOT BE ACCURATELY SHOWN ON THIS DRAWING. CONDITIONS SHOULD BE CONFIRMED ON-SITE DURING CONSTRUCTION.

SHEET TITLE: MID-SLOPE SWALE GRADE CONTROL  
PROJECT TITLE: FORMER KOPPERS WOOD-TREATING SITE  
PROJECT LOCATION: GLADE CREEK/CARBONDALE, ILLINOIS  
PROJECT NO: B0039208.0000.00002  
DATE: 10/29/2010 BY: CAA  
FILE: CDALE 2010/CAMU CLOSURE DESIGN.PRO

FIGURE

1



ARCADIS

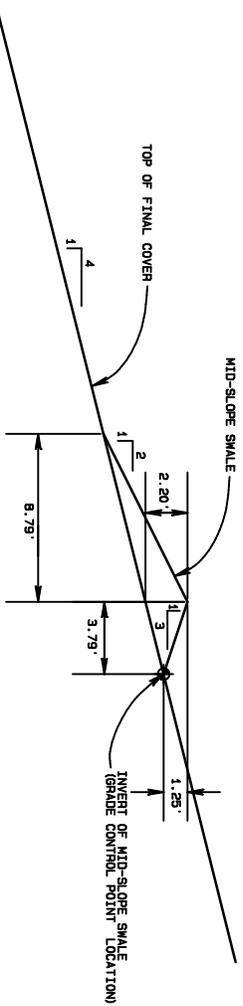
POINT LIST.txt

ARCADIS  
6723 TOWPATH ROAD  
SYRACUSE NY 13214  
1-315-446-9120

Thursday, October 28, 2010 10:36:13 PM

PROJECT: G:\TMProj\388\C'Dale 2010\TM\CAMU Closure Design.pro

Point	Coordinates Listing	North	East	Elev
780		5177.10	5441.09	418.2
781		5156.90	5378.11	416.9
782		5158.39	5361.44	416.3
783		5168.18	5351.87	415.8
784		5301.11	5310.70	412.9
785		5315.59	5312.29	412.2
786		5326.72	5324.69	411.5
787		5335.54	5509.48	411.9
788		5332.88	5523.36	412.2
789		5314.83	5540.55	413.1
790		5217.12	5556.07	415.1
791		5200.69	5552.10	415.7
792		5192.05	5538.18	416.3
793		5328.27	5416.00	413.8
794		5262.85	5322.38	413.7
795		5224.63	5334.17	414.5
796		5186.40	5345.96	415.3
797		5169.40	5417.10	417.7
798		5183.56	5482.59	417.4
799		5189.57	5522.14	416.6
800		5256.63	5549.79	414.3
801		5296.13	5543.52	413.5
802		5335.72	5459.03	413.0
803		5327.48	5364.68	412.8



### MID-SLOPE SWALE CROSS SECTION

NOTES:  
 1- DIMENSIONS ARE SHOWN FOR TYPICAL CROSS SECTION.  
 ACTUAL CONSTRUCTED DIMENSIONS MAY VARY AROUND CURVES.  
 2- THE INVERT OF THE MID-SLOPE SWALE SHALL BE MINIMUM.  
 THE INBOARD AND OUTBOARD CREST OF THE MID-SLOPE SWALE SHALL HAVE  
 MAXIMUM SLOPES OF 3:1 AND 2:1, RESPECTIVELY.



## **Appendix D**

QA/QC Testing Results



CAMU Liner System

**Transmittal**

Transmitted via Federal Express

Blasland, Bouck & Lee, Inc.  
 6723 Towpath Road, PO Box 66  
 Syracuse, New York 13214-0066  
 (315) 446-9120

To: Bob Braden  
 1555 Marion Street  
 Carbondale, IL 62901

Date: October 7, 2004

File: 388.83

Re: Carbondale CAMU  
 Submittals

We are sending you:  herewith  under separate cover  
 drawings  letters  other \_\_\_\_\_

If material received is not as listed, please notify us at once.

Quantity	Identifying Number	Title	Action*
1	1	Geomembrane and GCL Record Drawings	R
1	1	GCL Laboratory Data	R
1	1	Certification of Acceptance of Subgrade	R
1	1	Field and Laboratory QA/QC Logs	R
1	1	Certification that GCL Installation is in Accordance with Specifications	R

\*Action letter code: R – for your review    N - reviewed and noted    I - for your information  
 S - resubmit                                    J - rejected                                    Y - for your approval

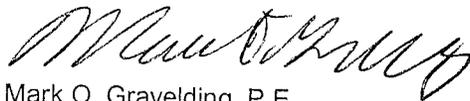
Remarks:

Submittals have been review for conformance with the project specifications. Please provide warranties as you receive them.

Sincerely,

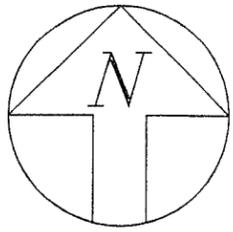
BLASLAND, BOUCK & LEE, INC.

cc:

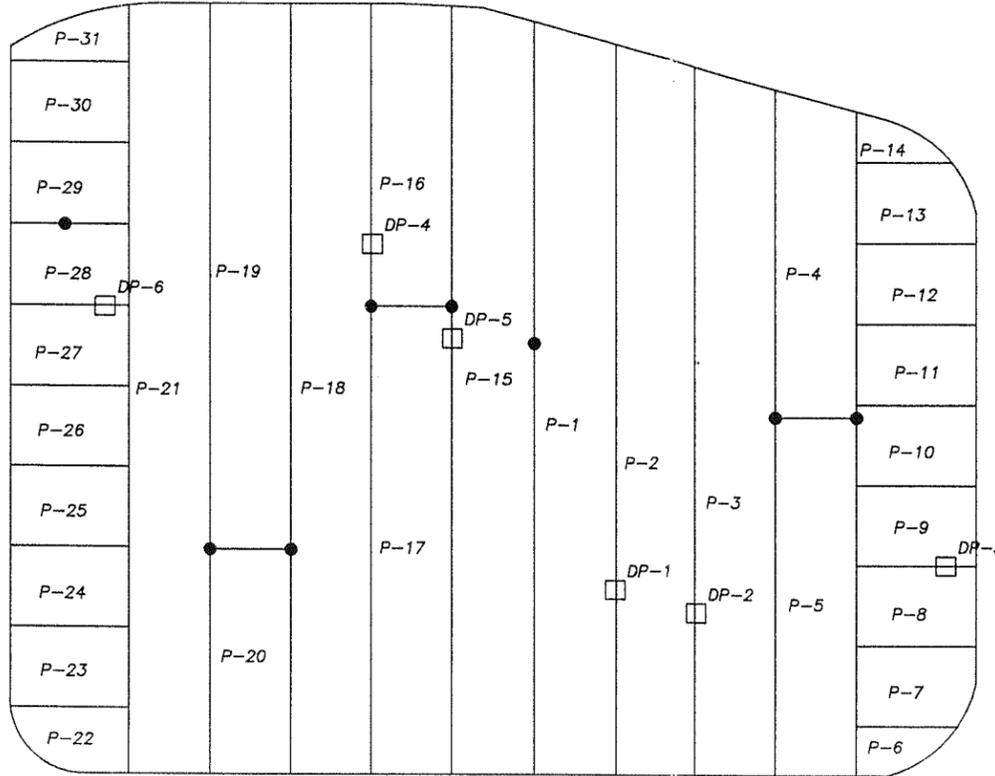


Mark O. Gravelding, P.E.  
 Associate

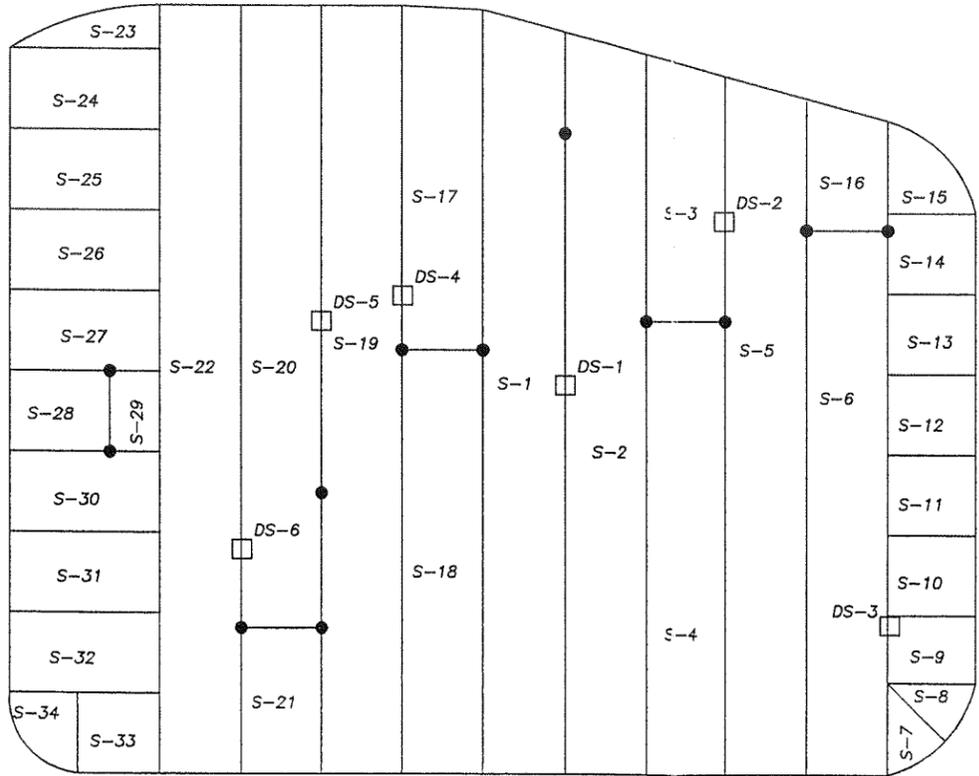




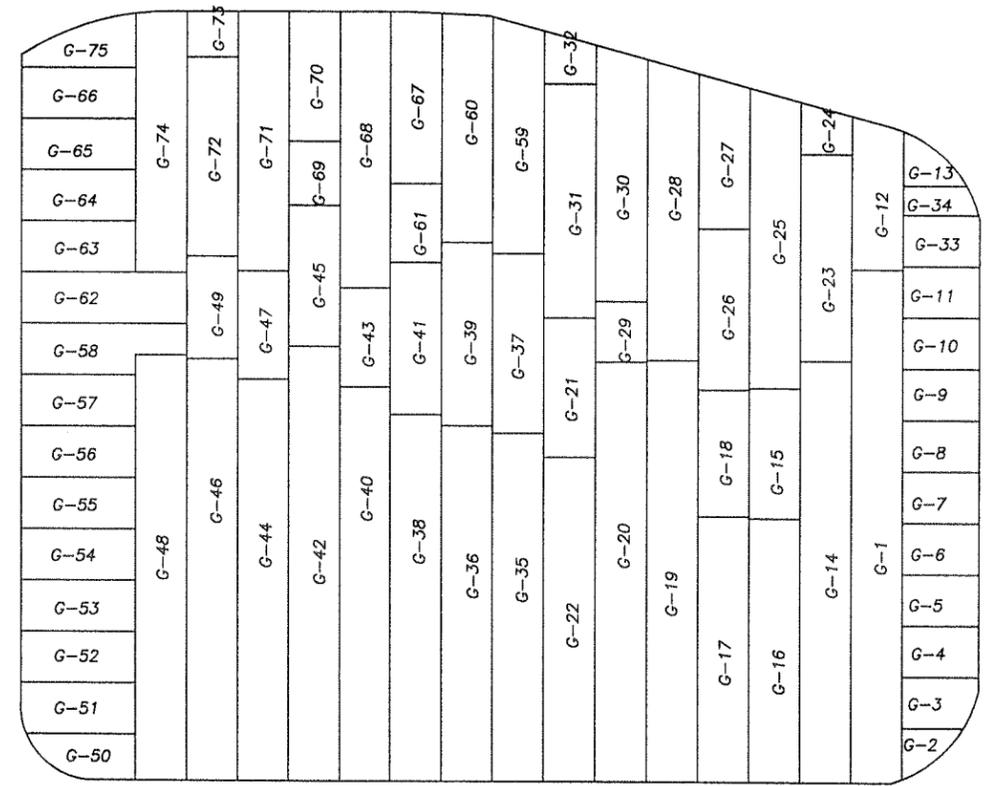
<input checked="" type="checkbox"/> REVIEWED	<input type="checkbox"/> REVIEWED & NOTED
REVIEWED SOLELY FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS	
BLASLAND, BOUCK & LEE, INC.	
<i>[Signature]</i>	
SIGNATURE	
10/7/04	Syracuse
Date	Office Location
<input type="checkbox"/> RESUBMIT	<input type="checkbox"/> REJECTED



PRIMARY LINER



SECONDARY LINER

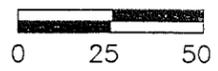


GCL LAYER

LEGEND

- CELL OUTLINE
- PANEL LOCATION
- P# PRIMARY LINER PANEL NUMBER
- S# SECONDARY LINER PANEL NUMBER
- G# GCL PANEL NUMBER
- PATCH
- DP# DESTRUCTIVE TEST - PRIMARY
- DS# DESTRUCTIVE TEST - SECONDARY

SCALE



DRAWN BY: ESW	DATE: 09/23/04
CHKD BY:	DATE:
SCALE: 1" = 50'-0"	
JOB #: 24052	EST #:

NO.	REVISION DESCRIPTION	DATE	BY
1	RECORD DRAWING	09/24/04	TH



GEO-SYNTHETICS, INC.  
 W239 N428 PEWAUKEE ROAD  
 WAUKESHA, WI 53188  
 262-524-7979

RECORD DRAWING  
 PRIMARY, SECONDARY, & GCL LAYERS  
 KOPPERS CAMU - CARBONDALE  
 CARBONDALE, IL

FILENAME
CARBONDALE RECORD
DRAWING #
RD-1

02234 Flexible Membrane Liner  
3.02.A  
SUBMITTAL DESCRIPTION  
Record Drawing



**02413 Geosynthetic Clay Liner**

**1.05.A.4.a**

**SUBMITTAL DESCRIPTION**

**Record Drawing**

**See Section 02234-3.02.A**

**02413 Geosynthetic Clay Liner**  
**1.05.A.4.b**  
**SUBMITTAL DESCRIPTION**  
**Laboratory Data**

**INTERFACE SHEAR TEST RESULTS**  
ASTM D-6243

REVIEWED  REVIEWED & NOTED

REVIEWED SOLELY FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS  
**BLASLAND, BOUCK & LEE, INC.**

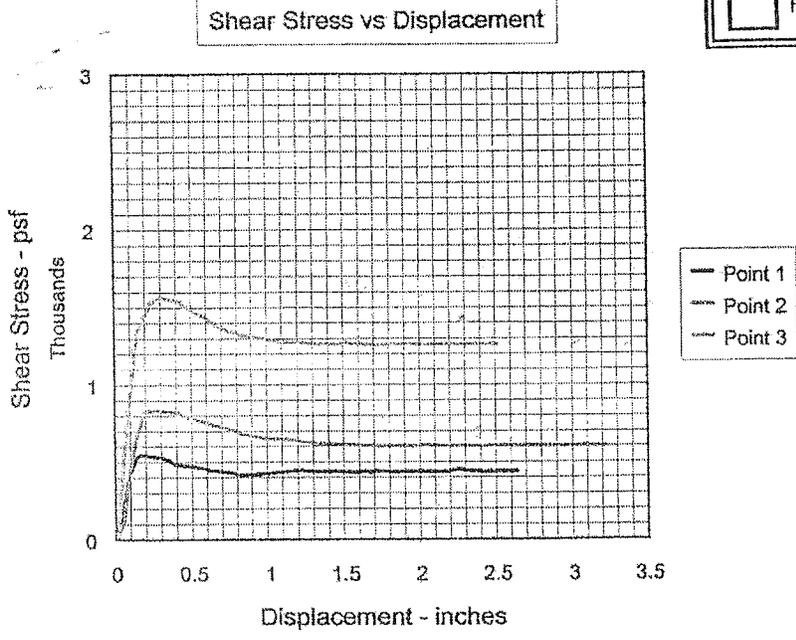


Client: Severson Environmental  
Project: Koppers Carbondale CAMU, Illinois  
Material Description: GCL - Bentomat DN vs GSE Textured Geomembrane

Signature: [Signature]  
Date: 10/7/04  
Perf'd By: HT/MLB  
Chk'd By: [Signature]  
Office Location: [Blank]

RESUBMIT  REJECTED  
Top Box: GCL - Bentomat DN  
MD: Virgin Material  
Roll: 3074

Bottom Box : GSE 40 mil Textured GM  
Machine Direction-Virgin Material  
Roll : 103124654



Soil Properties	Density	Moisture
	pcf	%

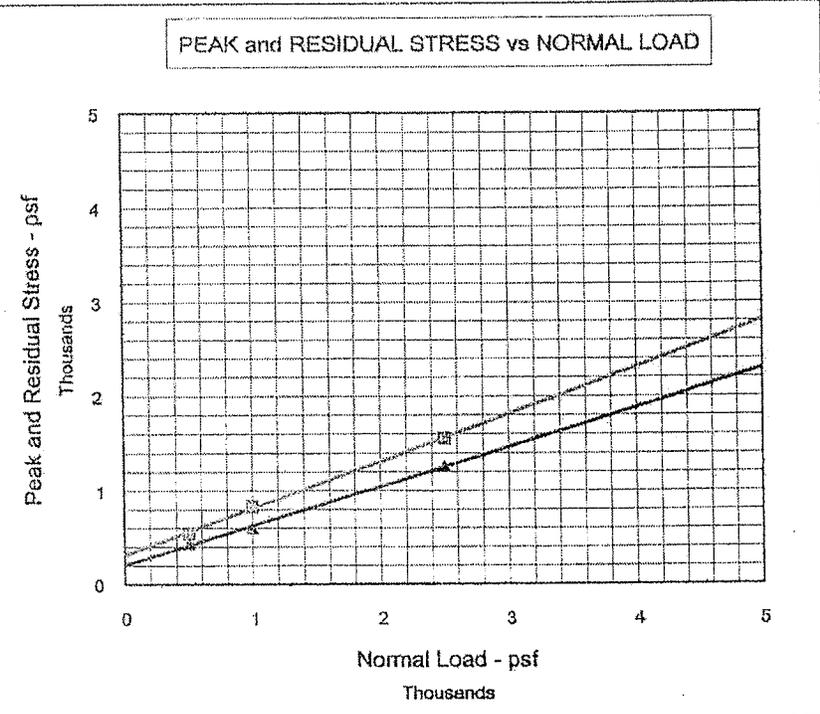
Point	Normal Load	Peak Strength	Residual Strength
	psf	psf	psf
1	500	548	437
2	1000	834	602
3	2500	1558	1261
4			

Displacement Rate: 0.2 in/min  
Inundation: Yes 1 day

STRENGTH DATA			
Best Fit Linear Regression			
		Peak	Residual
Adhesion	psf	314	209
Friction	Degrees	26.5	22.7

Comments:

- Inundated under Normal Load for 24+ hrs prior to shearing.



Specification Criteria - Cover System		
Normal Load	Peak Rqrd	Test Peak
psf	psf	psf
500	150	548
1000	290	834
2500	720	1558

FIGURE GCL-DN - GMx

Sevenson Environmental  
 Koppers Carbondale CAMU, Illinois  
 GCL - Bentomat DN  
 vs  
 GSE Textured Geomembrane

Date: 07-30-04  
 Project No.: 04LG447.01  
 Perf'd By: HT/MLB  
 Chk'd By: JB

UPPER GRAPH

Displacement inches	Point 1 Load lbs	Point 2 Load lbs	Point 3 Load lbs	Point 4 Load lbs	Point 5 Load lbs
0.000	0	0	0		
0.011	7	8	18		
0.021	50	44	97		
0.032	97	70	230		
0.043	142	94	372		
0.053	177	118	501		
0.064	245	201	602		
0.075	309	282	711		
0.085	382	372	819		
0.096	436	445	914		
0.107	455	496	1001		
0.118	482	544	1088		
0.128	502	599	1169		
0.139	528	641	1262		
0.150	539	699	1340		
0.160	542	722	1366		
0.171	546	752	1388		
0.182	547	784	1415		
0.192	548	816	1440		
0.203	545	821	1461		
0.214	542	828	1481		
0.224	540	832	1502		
0.235	538	834	1527		
0.246	537	834	1540		
0.256	535	833	1549		
0.267	534	832	1555		
0.288	532	831	1557		
0.310	529	830	1558		
0.331	518	828	1558		
0.353	507	826	1557		
0.374	489	823	1553		
0.395	484	822	1550		
0.417	480	814	1538		
0.438	479	804	1520		
0.459	476	798	1506		
0.481	472	790	1492		
0.502	471	784	1480		
0.524	466	778	1470		
0.545	462	769	1457		
0.566	459	765	1443		
0.588	454	756	1429		
0.609	450	752	1420		
0.630	442	746	1407		
0.652	446	738	1396		
0.673	439	732	1377		
0.694	438	727	1366		
0.716	430	720	1367		
0.737	435	715	1349		
0.759	430	711	1344		
0.780	424	704	1336		
0.801	422	697	1328		
0.823	420	682	1325		

LOWER GRAPH

Pn	Peak	Residual
500	548	437
1000	834	602
2500	1558	1261

Engineering Properties

Best Fit via Engineering Interpretation		
	Peak	Residual
S2	1560	1260
P2	2500	2500
S1	500	400
P1	500	500
Slope, m	0.505	0.41
Cohesion	297.5	235
Phi, degrees	26.7937756	22.2936292

Engineering Properties

Best Fit via Linear Regression		
	Peak	Residual
Slope, m	0.5	0.418
Cohesion	314	209
Phi, degrees	23.5660512	22.6849275

GCL - Bentomat DN  
 vs  
 GSE Textured Geomembrane  
 Page 1



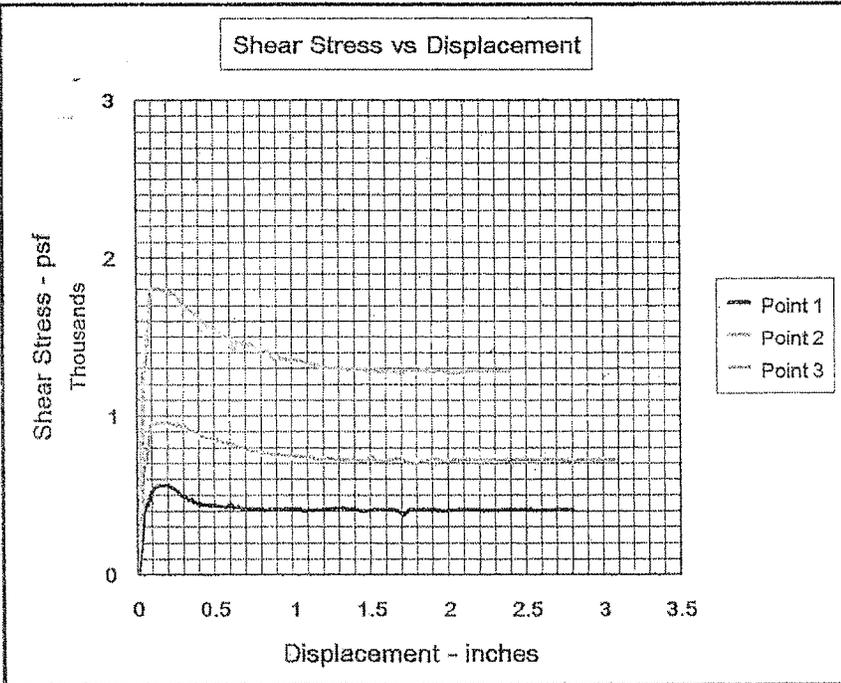
# INTERFACE SHEAR TEST RESULTS

## ASTM D-6243



Client: Severson Environmental  
 Project: Koppers Carbondale CAMU, III.  
 Material Description: Processed Stone  
 vs  
 GCL - Bentomat DN

Date: 08-01-04  
 Project No.: 04LG447.01  
 Per'f'd By: HT/MLB  
 Chk'd By: JB



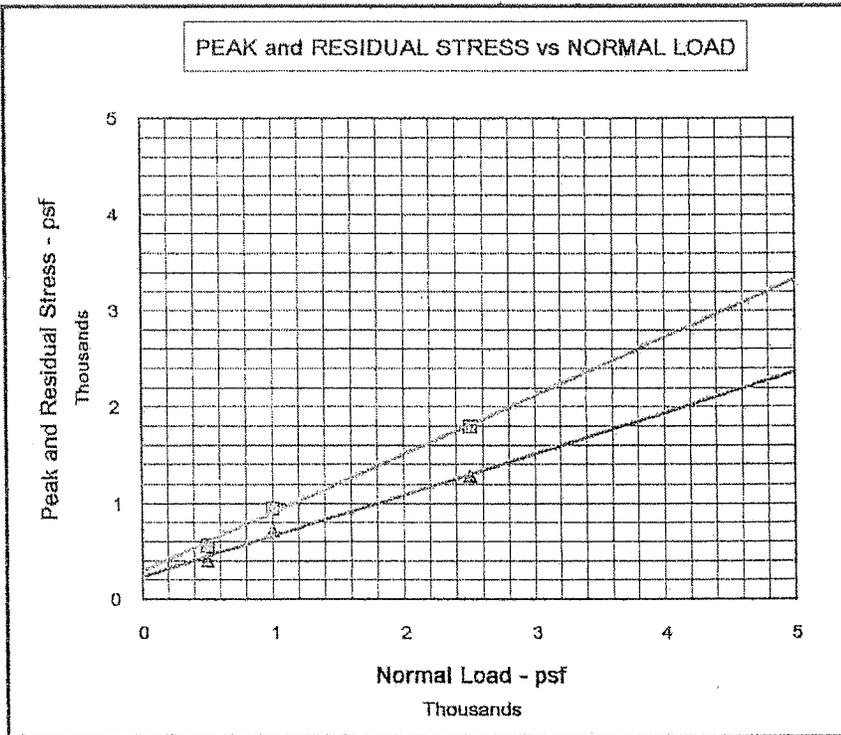
Top Box : Processed Crusher Run  
 Compacted using 80% of  
 the Standard Proctor Energy  
 to simulate dozer placement

Bottom Box : GCL - Bentomat DN  
 MD : Virgin Material  
 Roll : 3074

Comments: Due to stone size a 0.75"  
 gap was set between  
 shear boxes

CURVE DATA			
Point	Normal Load psf	Peak Strength psf	Residual Strength psf
1	500	563	405
2	1000	954	718
3	2500	1802	1285
4			

Displacement Rate: 0.2 in/min  
 Inundation: Yes 1 day



STRENGTH DATA			
<i>Best Fit Linear Regression</i>			
	psf	Peak Degrees	Residual Degrees
Adhesion		297	236
Friction		31.3	23.0

**Comments:**

1. Inundated under Normal Load for 24+ hrs  
 prior to shearing.

Specification Criteria - Cover System		
Normal Load psf	Peak Rqr'd psf	Test Peak psf
500	150	563
1000	290	954
2500	720	1802

FIGURE GCL-DN - Crusher Run

Sevenson Environmental  
 Koppers Carbondale CAMU, III.  
 Processed Stone  
 vs  
 GCL - Bentomat DN

Date: 08-01-04  
 Project No.: 04LG447.01  
 Perf'd By: HT/MLB  
 Chk'd By: JB

UPPER GRAPH

Displacement inches	Point 1 Load lbs	Point 2 Load lbs	Point 3 Load lbs	Point 4 Load lbs	Point 5 Load lbs
0.000	0	0	0		
0.011	20	111	146		
0.023	148	227	388		
0.034	267	496	845		
0.045	388	644	1251		
0.057	420	705	1362		
0.068	451	771	1474		
0.080	477	849	1599		
0.091	510	942	1788		
0.102	538	950	1794		
0.114	544	951	1800		
0.125	548	953	1802		
0.136	556	954	1800		
0.148	560	954	1794		
0.159	561	953	1790		
0.170	562	953	1789		
0.182	563	952	1791		
0.193	561	951	1788		
0.205	560	950	1788		
0.216	554	948	1782		
0.227	544	947	1770		
0.239	537	943	1764		
0.250	531	942	1758		
0.261	521	940	1742		
0.273	508	937	1725		
0.284	492	935	1704		
0.307	494	933	1694		
0.329	472	918	1677		
0.352	467	902	1658		
0.375	454	891	1635		
0.398	444	877	1611		
0.420	443	870	1597		
0.443	440	862	1580		
0.466	439	858	1566		
0.489	437	853	1551		
0.511	436	848	1539		
0.534	432	842	1531		
0.557	428	834	1510		
0.579	425	828	1501		
0.602	446	823	1496		
0.625	421	814	1408		
0.648	433	804	1462		
0.670	418	797	1470		
0.693	417	788	1461		
0.716	416	784	1450		
0.738	415	778	1452		
0.761	412	774	1430		
0.784	411	770	1405		
0.807	410	767	1411		
0.829	404	763	1410		
0.852	414	760	1400		
0.875	412	756	1332		

LOWER GRAPH		
Pn	Peak	Residual
500	563	405
1000	954	718
2500	1802	1285

Engineering Properties		
Best Fit via Engineering Interpretation		
	Peak	Residual
S2	1800	1280
P2	2500	2500
S1	563	405
P1	500	500
Slope, m	0.6176	0.4375
Cohesion	256.25	186.25
Phi, degrees	31.8963302	23.6293777

Engineering Properties		
Best Fit via Linear Regression		
	Peak	Residual
Slope, m	0.607	0.424
Cohesion	297	236
Phi, degrees	31.2577508	22.9769445

Processed Stone  
 vs  
 GCL - Bentomat DN  
 Page 1



# INTERFACE SHEAR TEST RESULTS

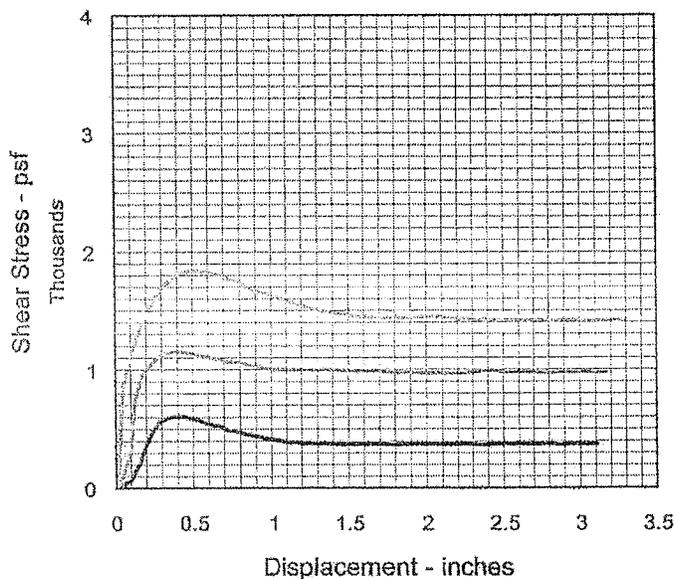
## ASTM D-6243



Client: Severson Environmental  
 Project: Koppers Carbondale CAMU, Illinois  
 Material Description: GCL CETCO Bentomat DN  
 vs  
 GSE Geocomposite

Date: 07-28-04  
 Project No.: 04LG447.01  
 Perf'd By: HT/MLB  
 Chk'd By: JB

Shear Stress vs Displacement



Top Box : GCL - Bentomat DN  
 MD : Virgin Material  
 Roll: 3074  
 Bottom Box : GSE Geocomposite  
 Machine Direction-Virgin Material  
 Roll : 131143457

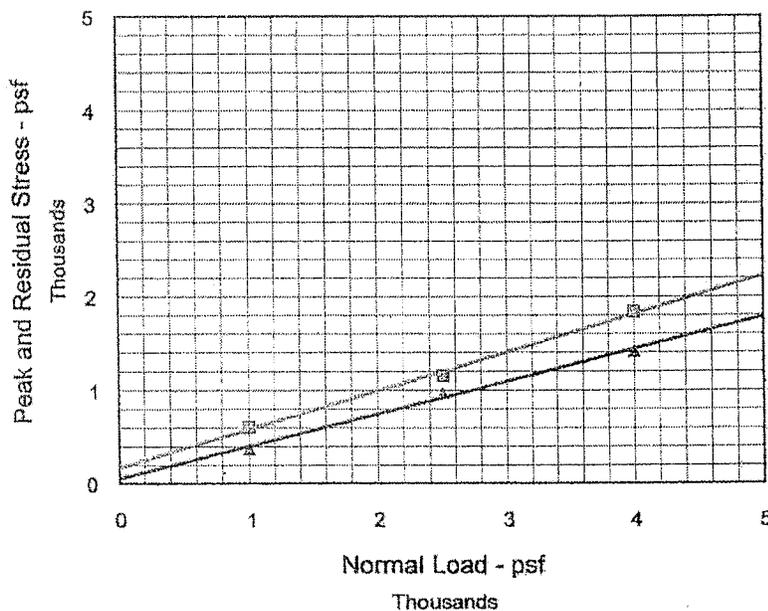
Soil Properties	Density	Moisture
	pcf	%

CURVE DATA

Point	Normal Load	Peak Strength	Residual Strength
	psf	psf	psf
1	1000	605	376
2	2500	1156	974
3	4000	1838	1415
4			

Displacement Rate: 0.2 in/min  
 Inundation: Yes 24+ hrs

PEAK and RESIDUAL STRESS vs NORMAL LOAD



STRENGTH DATA

Linear Regression

		Peak	Residual
		psf	psf
Adhesion	psf	172	56
Friction	Degrees	22.3	19.1

Comments:

- Inundated under Normal Load for 24+ hrs prior to shearing.

Specification Criteria - Liner System

Normal Load	Peak Rq'd	Test Peak
psf	psf	psf
1000	290	621
2500	720	1476
4000	1150	1892

FIGURE GCL-DN - GC

Sevenson Environmental  
 Koppers Carbondale CAMU, Illinois  
 GCL  
 vs  
 GSE Geocomposite

Date: 07-28-04  
 Project No.: 04LG447.01  
 Perf'd By: HT/MLB  
 Chk'd By: JB

UPPER GRAPH

Displacement inches	Point 1 Load lbs	Point 2 Load lbs	Point 3 Load lbs	Point 4 Load lbs	Point 5 Load lbs
0.000	0	0	0		
0.010	7	0	20		
0.020	11	2	144		
0.030	14	44	388		
0.040	19	76	631		
0.051	22	111	866		
0.061	33	152	912		
0.071	46	196	964		
0.081	57	234	1012		
0.091	70	277	1066		
0.101	81	314	1110		
0.111	105	527	1150		
0.121	131	712	1197		
0.132	155	760	1233		
0.142	181	815	1282		
0.152	201	851	1319		
0.162	238	911	1352		
0.172	281	957	1388		
0.182	314	979	1417		
0.192	352	990	1452		
0.202	382	1001	1481		
0.213	409	1016	1509		
0.223	430	1031	1531		
0.233	462	1044	1561		
0.243	488	1062	1574		
0.253	514	1072	1600		
0.273	544	1094	1642		
0.294	568	1114	1677		
0.314	575	1122	1702		
0.334	589	1133	1729		
0.354	598	1144	1751		
0.375	600	1156	1782		
0.395	602	1155	1809		
0.415	605	1151	1818		
0.435	605	1147	1826		
0.456	601	1141	1830		
0.476	596	1137	1834		
0.496	591	1134	1837		
0.516	582	1129	1838		
0.537	574	1122	1834		
0.557	560	1112	1830		
0.577	548	1106	1827		
0.597	542	1102	1826		
0.618	535	1095	1810		
0.638	527	1090	1805		
0.658	531	1087	1805		
0.678	529	1084	1799		
0.699	504	1080	1792		
0.719	492	1071	1781		
0.739	487	1063	1766		
0.759	481	1064	1754		
0.780	475	1058	1741		

LOWER GRAPH

Pn	Peak	Residual
1000	605	376
2500	1156	974
4000	1838	1415

Engineering Properties		
Best Fit via Engineering Interpretation		
	Peak	Residual
S2	1840	1415
P2	4000	4000
S1	805	375
P1	1000	1000
Slope, m	0.41180567	0.34656667
Cohesion	193.333333	28.3333333
Phi, degrees	22.375332	19.1197263

Engineering Properties		
Best Fit via Linear Regression		
	Peak	Residual
Slope, m	0.411	0.346
Cohesion	172	55.8
Phi, degrees	22.3426623	19.0856201

GCL  
 vs  
 GSE Geocomposite  
 Page 1





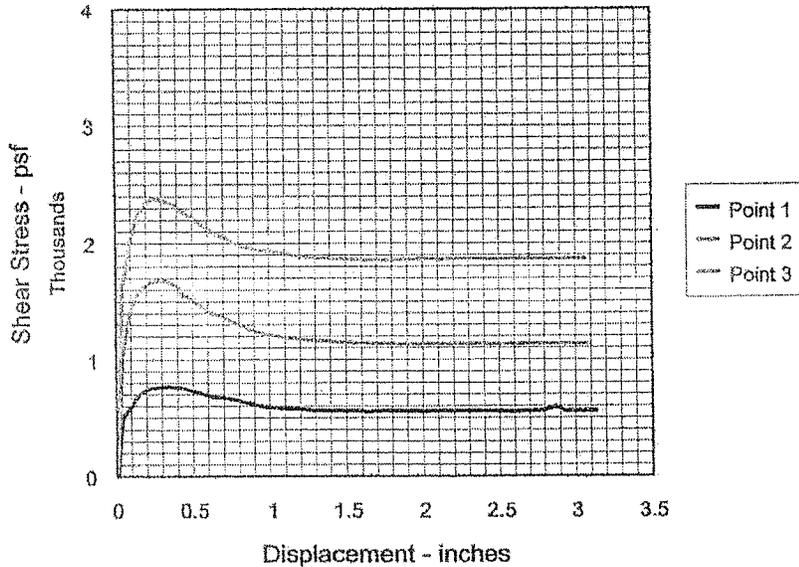
# INTERFACE SHEAR TEST RESULTS

## ASTM D-6243

Client: Severson Environmental  
 Project: Koppers Carbondale CAMU, Illinois  
 Material Description: GCL - Bentomat DN  
 vs  
 Textured Geomembrane

Date: 07-29-04  
 Project No.: 04LG447.01  
 Perf'd By: HT/MLB  
 Chk'd By: JB

Shear Stress vs Displacement



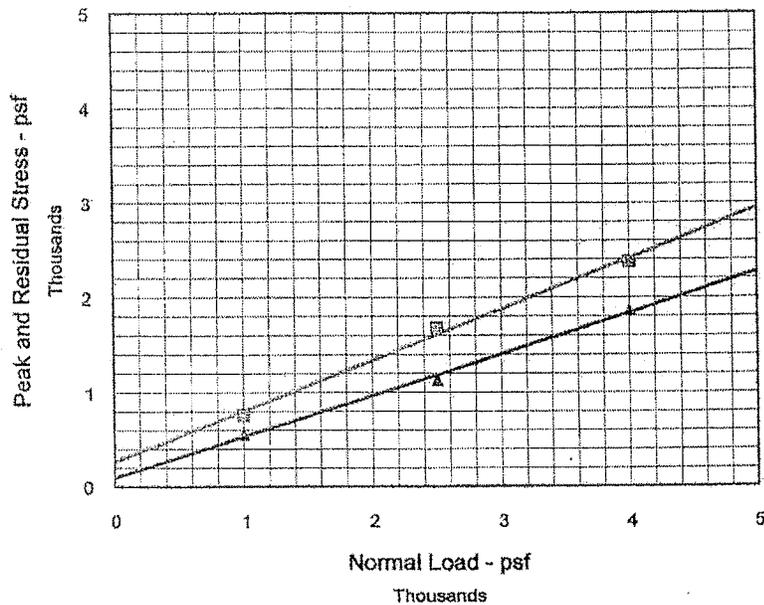
Top Box : GCL - Bentomat DN  
 MD : Virgin Material  
 Roll : 3074  
 Bottom Box : GSE 60 mil Textured GM  
 Machine Direction-Virgin Material  
 Roll : 103123377

Soil Properties	Density	Moisture
	pcf	%

Point	Normal Load	Peak Strength	Residual Strength
	psf	psf	psf
1	1000	768	559
2	2500	1661	1133
3	4000	2378	1864
4			

Displacement Rate: 0.2 in/min  
 Inundation: Yes 2 days

PEAK and RESIDUAL STRESS vs NORMAL LOAD



STRENGTH DATA			
<i>Best Fit Linear Regression</i>			
		Peak	Residual
Adhesion	psf	267	98
Friction	Degrees	28.2	23.5

Comments:

- Inundated under Normal Load for 48+ hrs prior to shearing.

Specification Criteria - Liner System		
Normal Load	Peak Rqr'd	Test Peak
psf	psf	psf
1000	290	635
2500	720	1498
4000	1150	2224

FIGURE GCL-DN - GMx

Sevenson Environmental  
 Koppers Carbondale CAMU, Illinois  
 GCL - Bentomat DN  
 vs  
 Textured Geomembrane

Date: 07-29-04  
 Project No.: 04LG447.01  
 Perf'd By: HT/MLB  
 Chk'd By: JB

UPPER GRAPH

Displacement inches	Point 1 Load lbs	Point 2 Load lbs	Point 3 Load lbs	Point 4 Load lbs	Point 5 Load lbs
0.000	0	0	0		
0.011	0	44	80		
0.023	200	389	441		
0.034	376	717	1088		
0.045	511	1036	1621		
0.057	529	1117	1704		
0.068	550	1199	1788		
0.079	567	1282	1852		
0.091	588	1366	1951		
0.102	601	1439	2037		
0.113	624	1477	2097		
0.124	651	1505	2152		
0.136	675	1539	2202		
0.147	698	1570	2256		
0.158	710	1594	2277		
0.170	721	1614	2288		
0.181	729	1627	2311		
0.192	740	1642	2331		
0.204	747	1652	2344		
0.215	749	1659	2355		
0.226	750	1664	2362		
0.238	754	1671	2376		
0.249	756	1674	2378		
0.260	759	1677	2375		
0.272	763	1680	2372		
0.283	766	1681	2370		
0.305	766	1680	2368		
0.328	768	1674	2355		
0.351	768	1662	2341		
0.373	766	1645	2324		
0.396	762	1624	2302		
0.419	760	1599	2284		
0.441	756	1538	2260		
0.464	742	1544	2242		
0.487	736	1520	2227		
0.509	728	1502	2206		
0.532	722	1481	2184		
0.554	711	1460	2158		
0.577	702	1434	2134		
0.600	690	1414	2115		
0.622	681	1403	2102		
0.645	679	1390	2084		
0.668	674	1384	2074		
0.690	673	1364	2054		
0.713	670	1358	2043		
0.735	667	1344	2028		
0.758	660	1326	2006		
0.781	654	1314	1992		
0.803	644	1297	1981		
0.826	638	1285	1974		
0.849	631	1274	1965		
0.871	628	1256	1958		

LOWER GRAPH

Pn	Peak	Residual
1000	768	559
2500	1681	1133
4000	2378	1864

Engineering Properties

Best Fit via Engineering Interpretation

	Peak	Residual
S2	2380	1865
P2	4000	4000
S1	770	560
P1	1000	1000
Slope, m	0.52686667	0.435
Cohesion	233.302332	125
Phi, degrees	28.2209726	23.5090402

Engineering Properties

Best Fit via Linear Regression

	Peak	Residual
Slope, m	0.537	0.435
Cohesion	257	97.8
Phi, degrees	28.2367985	23.5090402

GCL - Bentomat DN  
 vs  
 Textured Geomembrane  
 Page 1



**02413 Geosynthetic Clay Liner**  
**1.05.A.4.c**  
**SUBMITTAL DESCRIPTION**  
**Field Logs**

**CERTIFICATE OF ACCEPTANCE OF SUBGRADE  
SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION**

PROJECT NAME: KOPPERS  
 LOCATION: CARROLLDALE, ILL  
 Job #: 24552 Owner: SEVENSON  
 AREA ACCEPTED: AREA COVERED BY POWERS 1 THRU 16

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR: SKY HANTON

CERTIFICATE APPROVED AND ACCEPTED BY:

Jason Sperry  
Signature

9/13/04  
Date

Project Engineer - In Training  
Title

BIBL  
Company

<input checked="" type="checkbox"/> REVIEWED	<input type="checkbox"/> REVIEWED & NOTED
REVIEWED SOLELY FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS BLASLAND, BOUCK & LEE, INC.	
<u>[Signature]</u> SIGNATURE	
<u>10/7/04</u> Date	<u>Syracuse</u> Office Location
<input type="checkbox"/> RESUBMIT	<input type="checkbox"/> REJECTED

**CERTIFICATE OF ACCEPTANCE OF SUBGRADE  
SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION**

PROJECT NAME: KADVERS  
 LOCATION: GREENWICH, Ill.  
 Job #: 20002 Owner: EMERSON  
 AREA ACCEPTED: Completed by PENCE 10/15/04

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR: Steve Hutton

CERTIFICATE APPROVED AND ACCEPTED BY:

[Signature] 9/13/04  
 Signature Date  
Project Engineer - In Training  
 Title  
BBL  
 Company

<input checked="" type="checkbox"/> REVIEWED	<input type="checkbox"/> REVIEWED & NOTED
REVIEWED SOLELY FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS	
BLASLAND, BOUCK & LEE, INC.	
<u>[Signature]</u> SIGNATURE	
<u>10/7/04</u> Date	<u>Syracuse</u> Office Location
<input type="checkbox"/> RESUBMIT	<input type="checkbox"/> REJECTED



















GSI  
PANEL PLACEMENT FORM

PROJECT NAME: <i>Railcars</i>				JOB NUMBER: <i>71002</i>		MAT'L TYPE: <i>G.I. 15000</i>	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	ROLL NO.	COMMENTS
<i>12-11-97</i>		<i>1</i>	<i>140</i>	<i>14'</i>		<i>2000</i>	
		<i>2</i>	<i>566</i>	<i>NOTE</i>		<i>2000</i>	
		<i>3</i>	<i>21</i>	<i>14'</i>			
		<i>4</i>	<i>21</i>				
		<i>5</i>	<i>21</i>				
		<i>6</i>	<i>21</i>				
		<i>7</i>	<i>21</i>				
		<i>8</i>	<i>21</i>				
		<i>9</i>	<i>21</i>				
		<i>10</i>	<i>21</i>				
		<i>11</i>	<i>21</i>				
		<i>12</i>	<i>40</i>				
		<i>13</i>	<i>566</i>	<i>NOTE</i>			
		<i>14</i>	<i>110</i>	<i>14'</i>		<i>2000</i>	
		<i>15</i>	<i>36</i>			<i>2000</i>	
		<i>16</i>	<i>73</i>			<i>2000</i>	
		<i>17</i>	<i>74</i>			<i>2000</i>	
		<i>18</i>	<i>35</i>			<i>2000</i>	
		<i>19</i>	<i>115</i>				





GSI  
PANEL PLACEMENT FORM

PROJECT NAME: <i>10/17/07</i>			JOB NUMBER: <i>112</i>			MAT'L TYPE: <i>60 MIL 2K 30</i>	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	ROLL NO.	COMMENTS
<i>9-17-07</i>		<i>17</i>	<i>94</i>	<i>22</i>		<i>6000</i>	
		<i>18</i>	<i>115</i>			<i>6000</i>	
		<i>19</i>	<i>207</i>			<i>6000</i>	
		<i>20</i>	<i>170</i>			<i>6000</i>	
		<i>21</i>	<i>40</i>			<i>6000</i>	
		<i>22</i>	<i>211</i>				
		<i>23</i>	<i>36</i>				
		<i>24</i>	<i>31</i>				
		<i>25</i>	<i>36</i>				
		<i>26</i>	<i>37</i>				
		<i>27</i>	<i>37</i>				
		<i>28</i>	<i>25</i>				
		<i>29</i>	<i>12</i>				
		<i>30</i>	<i>38</i>				
		<i>31</i>	<i>34</i>				
		<i>32</i>	<i>34</i>				
		<i>33</i>	<i>21</i>				
		<i>34</i>	<i>21</i>				

GSI  
PANEL PLACEMENT FORM

PROJECT NAME: <i>R. M. G. S.</i>			JOB NUMBER: _____			MAT'L TYPE: <i>G. L. L.</i>	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	ROLL NO.	COMMENTS
<i>9-14-04</i>		<i>35</i>	<i>96</i>	<i>14</i>			
		<i>36</i>	<i>98</i>				
		<i>37</i>	<i>89</i>				
		<i>38</i>	<i>100</i>				
		<i>39</i>	<i>81</i>				
		<i>40</i>	<i>103</i>				
		<i>41</i>	<i>92</i>				
		<i>42</i>	<i>74</i>				
		<i>43</i>	<i>78</i>				
		<i>44</i>	<i>110</i>				
		<i>45</i>	<i>84</i>				
		<i>46</i>	<i>113</i>				
		<i>47</i>	<i>85</i>				
		<i>48</i>	<i>106</i>				
		<i>49</i>	<i>84</i>				
		<i>50</i>	<i>108</i>				
		<i>51</i>	<i>78</i>				
		<i>52</i>	<i>78</i>				
		<i>53</i>	<i>77</i>				

GSI  
 PANEL PLACEMENT FORM

PROJECT NAME: <u>KOPPERS</u>				JOB NUMBER: _____		MAT'L TYPE: <u>G.I.I.</u>	
DATE	TIME	PANEL NO.	PANEL LENGTH (FT)	PANEL WIDTH (FT)	WEATHER WIND/TEMP (MPH/°F)	ROLL NO.	COMMENTS
<u>7-19-04</u>		<u>54</u>	<u>28</u>	<u>14</u>		<u>176</u>	
		<u>55</u>	<u>29</u>			<u>173</u>	
		<u>56</u>	<u>29</u>			<u>173</u>	
		<u>57</u>	<u>29</u>			<u>173</u>	
		<u>58</u>	<u>40</u>			<u>174</u>	
		<u>59</u>	<u>62</u>			<u>174</u>	
		<u>60</u>	<u>60</u>			<u>174</u>	
		<u>61</u>	<u>28</u>			<u>175</u>	
		<u>62</u>	<u>40</u>			<u>175</u>	
		<u>63</u>	<u>29</u>			<u>179</u>	
		<u>64</u>	<u>29</u>			<u>179</u>	
		<u>65</u>	<u>29</u>			<u>179</u>	
		<u>66</u>	<u>29</u>			<u>179</u>	
		<u>67</u>	<u>49</u>			<u>175</u>	
		<u>68</u>	<u>72</u>			<u>175</u>	
		<u>69</u>	<u>28</u>			<u>175</u>	
		<u>70</u>	<u>25</u>			<u>171</u>	
		<u>71</u>	<u>65</u>			<u>171</u>	
		<u>72</u>	<u>55</u>			<u>171</u>	





**GSI  
TRIAL WELD TESTING REPORT FORM**

JUN 11, 2001 7:53AM GSI

PROJECT NAME:								JOB NUMBER:				MAT'L TYPE:				COMMENTS
TENSIO METER ID:								EXTRUSION	FUSION	FIELD VALUES						
DATE	SAMPLE I.D. (TW/ST)	TIME	AMB TEMP (F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)			SHEAR (PPD)	PF		
9/14		3:30 PM		Cloudy		MX5	DK	B:	W: 250/4	115				160/165 P		
								P:	S: 112							
9/15		8:00				MX5	KCK	B:	W:	113				162/160 P		
								P:	S: 250/200	120						
9/15		8:00		Cloudy		01624	SS	B:	W: 250	130			170		P	
								P:	S: 210	128			168			
9/15		1:00		Sunny		01624	SS	B:	W: 250	125			158		P	
								P:	S: 210	130			160			
9/16		7:49		Sunny		363	SS	B:	W: 250	135			172			
								P:	S: 236	135			173			
								B:	W:							
								P:	S:							
								B:	W:							
								P:	S:							
								B:	W:							
								P:	S:							

NO. 4587 P. 5

**GSI  
TRIAL WELD TESTING REPORT FORM**

PROJECT NAME:								JOB NUMBER:				MAT'L TYPE:				
TENSIO METER ID:								EXTRUSION	FUSION	FIELD VALUES						COMMENTS
DATE	SAMPLE I.D. (TWR)	TIME	AMB. TEMP (F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)			SHEAR (PPD)		PF	
9/11		11:30	75	SUNNY	SH	M-5	KT	B:	W: 200	135	126			163		P
								P:	S: 6	126	131			160		
9/11		3:00		CL		M-5	DK	B:	W:	140	142			130	135	P
								P:	S:							
9/13		7:30		SUNNY		M-5	DK	B:	W: 7	140	113			135	135	P
								P:	S:							
9/13		8:00		SUNNY		M-5	KT	B:	W: 200	147	142			170		P
								P:	S: 5	142	138			174		
								B:	W:	147	138			174		P
								P:	S:							
9/13		1:15 Pm		SUNNY		M-5	KT	B:	W: 200	125	128			153		P
								P:	S: 5.5	132	130			167		
9/13		1:20 Pm		SUNNY		M-5		B:	W: <del>200</del>	112	145			155	160	P
								P:	S: 2.50/4							
9/14		9:55		CLOUDY		M-5	KT	B:	W: 200	145	138			175		P
								P:	S: 5	147	148			175		
9/14		11:20		CLOUDY		SS	SS	B:	W: 250	139	146			180	175	P
						W#4		P:	S: 3.5	147	147					

JUN 11, 2001 7:53AM GSI

NO. 4587 P. 5

**GSI  
TRIAL WELD TESTING REPORT FORM**

PROJECT NAME: <i>Koppers</i>								JOB NUMBER:				MAT'L TYPE: <i>60 ML TX</i>				COMMENTS
TENSIO METER ID:								EXTRUSION	FUSION	FIELD VALUES						
DATE	SAMPLE ID (TYPE)	TIME	AIR TEMP (F)	WEATHER (CLOUDY / SUNNY)	QC INT	MACH NO.	SEAMER INT	BARREL / PREHEAT	WEDGE / SET SPEED	PEEL (PPI)			SHEAR (PPI)		P/F	
9/10		8:30 AM	60F	Sunny			KT	B:	W: 800	132	142			173		P
								P:	S: 5.5	141	152			182		
9/10		8:30	65F	Sunny			KT	B:	W: 800	144	148			172		P
								P:	S: 5.0	145	145			177		
9/10	D/S #1	4:00 AM	70F	Sunny			KT	B:	W: 800	143	131					
								P:	S: 5.0	140						
9/10		1:10 PM	70F	Sunny			KT	B:	W: 800	128	126			164		P
								P:	S: 6.0	139	134			164		
9/10		1:05	70F	Sunny			D-K	B:	W: 250-254	130	133			152		P
								P:	S:	129	147			156		
								B:	W:							
								P:	S:							
								B:	W:							
								P:	S:							
								B:	W:							
								P:	S:							
								B:	W:							
								P:	S:							

JUN 11 2001 7:53AM GSI

NO. 4587 P. 5





**GSI  
PANEL SEAMING FORM**

PROJECT NAME: <i>Koppets</i>				JOB NUMBER: <i>24052</i>				MAT'L TYPE: <i>60/41 3rd S.C.C.</i>			
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
9/24	2:05	19/19		24	AT	300	5	11-5			
	8:00	20/1		24	AT	↓	↓	↓			
	9:00	20/23		24	AT	↓	↓	↓			
	9:03	20/1		24	AT	↓	↓	↓			
	9:06	20/21		24	SS	350	6	11-41			
	9:23	20/17		24	AT	300	5	11-5			
	9:35	20/21		24	SS	300	6	11-41			
	10:00	20/22		24	AT	300	5	11-5			
	10:12	20/24		24	SS	350	6	11-41			
	10:18	20/25		24	SS	↓	↓	↓			
	10:30	20/26		24	SS	↓	↓	↓			
	10:47	20/27		24	SS	↓	↓	↓			
	10:55	20/28		24	AT	300	5	11-5			
	10:57	20/29		24	AT	↓	↓	↓			
	11:10	20/29		24	AT	↓	↓	↓			
	11:20	20/31		24	AT	↓	↓	↓			
	11:35	21/32		24	AT	↓	↓	↓			
✓	1:35	B376-14		24	AT	↓	↓	↓			
	2:30	22/33		24	AT	↓	↓	↓			



**GSI  
PANEL SEAMING FORM**

PROJECT NAME: <i>Road 215</i>				JOB NUMBER: <i>24082</i>				MAT'L TYPE: <i>6" x 12" 262 121</i>			
DATE	TIME	SEAM NO.	PANEL NO.	SEAM LENGTH	SEAMER INT	SET TEMP	SET SPEED	MACH. NO.	WEATHER WIND/TEMP (MPH/°F)	BEGINNING SAMPLE TEST RESULT	ENDING SAMPLE TEST RESULT
<i>7-14</i>	<i>1:00</i>	<i>22/23</i>		<i>32</i>	<i>K7</i>	<i>300</i>	<i>5</i>	<i>10-5</i>			
	<i>1:10</i>	<i>24/24</i>		<i>32</i>							
	<i>1:25</i>	<i>24/25</i>		<i>32</i>							
	<i>1:35</i>	<i>24/26</i>		<i>32</i>							
	<i>1:45</i>	<i>26/27</i>		<i>32</i>							
	<i>2:15</i>	<i>11/27</i>		<i>31</i>							
	<i>2:40</i>	<i>15/27</i>		<i>31</i>	<i>SS</i>	<i>250</i>	<i>6</i>	<i>10-5</i>			
	<i>2:50</i>	<i>16/27</i>		<i>31</i>	<i>K7</i>	<i>200</i>	<i>5</i>	<i>10-5</i>			
	<i>3:00</i>	<i>17/27</i>		<i>31</i>	<i>K7</i>	<i>300</i>	<i>6</i>	<i>10-5</i>			
	<i>3:10</i>	<i>18/27/18</i>		<i>31</i>	<i>SS</i>	<i>250</i>	<i>6</i>	<i>10-5</i>			
	<i>3:20</i>	<i>21/28</i>		<i>31</i>	<i>K7</i>	<i>200</i>	<i>5</i>	<i>10-5</i>			
	<i>3:30</i>	<i>23/27</i>		<i>31</i>							
	<i>3:40</i>	<i>24/27</i>		<i>31</i>							
	<i>3:50</i>	<i>24/28</i>		<i>31</i>							
	<i>3:55</i>	<i>26/31</i>		<i>31</i>							
	<i>4:05</i>	<i>18/27/21</i>		<i>31</i>							
	<i>4:15</i>	<i>21/27, 27</i>		<i>31</i>	<i>SS</i>	<i>300</i>	<i>6</i>	<i>21-5</i>			
	<i>4:20</i>	<i>11/27</i>		<i>31</i>	<i>SS</i>	<i>300</i>	<i>6</i>	<i>21-5</i>			
<i>✓</i>	<i>4:17</i>	<i>18/27/27</i>		<i>31</i>	<i>K7</i>	<i>300</i>	<i>5</i>	<i>10-5</i>			

GSi NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: <i>KOPPEL</i>			JOB NUMBER: <i>24052</i>			MAT'L TYPE: <i>COMPLEX</i>				
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INITIAL	AIR PRESSURE TEST					VACUUM TEST P/F	COMMENTS
				TIME		PRESSURE (PSI)		P/F		
				START	END	START	END			
<i>9-10</i>	<i>105</i>	<i>1/2</i>	<i>S.H.</i>	<i>9:23</i>	<i>9:28</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>50</i>	<i>1/2</i>		<i>9:30</i>	<i>9:35</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>32</i>	<i>3/4</i>		<i>10:22</i>	<i>10:25</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>72</i>	<i>2/3</i>		<i>10:25</i>	<i>10:25</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>105</i>	<i>1/2</i>		<i>10:25</i>	<i>10:25</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>52</i>	<i>1/2</i>		<i>10:25</i>	<i>10:25</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>125</i>	<i>4/8</i>		<i>10:30</i>	<i>10:35</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>150</i>	<i>2/3</i>		<i>11:37</i>	<i>11:42</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>32</i>	<i>5/10</i>		<i>11:40</i>	<i>11:45</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>32</i>	<i>2/12</i>		<i>1:05</i>	<i>1:10</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>27</i>	<i>10/15</i>		<i>1:30</i>	<i>1:35</i>	<i>30</i>	<i>29</i>	<i>P</i>		
	<i>28</i>	<i>12/14</i>		<i>1:37</i>	<i>1:42</i>	<i>31</i>	<i>31</i>	<i>P</i>		
	<i>24</i>	<i>13/13</i>		<i>1:43</i>	<i>1:48</i>	<i>31</i>	<i>30</i>	<i>P</i>		
	<i>24</i>	<i>14/12</i>		<i>1:55</i>	<i>2:00</i>	<i>32</i>	<i>30</i>	<i>P</i>		
	<i>24</i>	<i>15/11</i>		<i>2:00</i>	<i>2:05</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>24</i>	<i>16/10</i>		<i>2:12</i>	<i>2:15</i>	<i>30</i>	<i>30</i>	<i>P</i>		
	<i>24</i>	<i>17/8</i>		<i>2:18</i>	<i>2:22</i>	<i>32</i>	<i>32</i>	<i>P</i>		
<i>Y</i>	<i>24</i>	<i>18/7</i>	<i>Y</i>	<i>2:27</i>	<i>2:32</i>	<i>30</i>	<i>30</i>	<i>Y</i>		



GSI NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: <u>W-2-E</u>			JOB NUMBER: <u>24052</u>			MAT'L TYPE: <u>COALTY SBL</u>				
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INITIAL	AIR PRESSURE TEST					VACUUM TEST P/F	COMMENTS
				TIME		PRESSURE (PSI)		P/F		
				START	END	START	END			
9-17-34	94	17/16	SH	8:35	8:48	35	34	D		
	52	17/18		9:03	9:07	31	30			
	42	17/1		8:55	9:07	35	30			
	27	17/12		9:27	9:42	30	30			
	30			9:55	9:57	30	30			
	25	17/14		9:55	10:00	30	30			
	115	17/10		9:55	9:55	31	30			
	170	19/20		10:00	10:05	30	29			
	40	19/21		10:30	10:35	30	30			
	40	21/22		10:50	10:55	30	30			
	170	23/22		10:50	10:55	30	30			
	22	20/21		10:50	10:55	30	29			
	36	23/24		11:05	11:05	30	30			
	36	24/25		11:13	11:13	30	30			
	36	25/26		11:13	11:12	30	29			
	36	26/27		11:25	11:25	30	30			
	25	27/22		11:37	11:42	30	30			
	12	27/29		11:37	11:42	30	30			
	22	28/29		11:43	11:42	30	30			
	25	28/30		11:43	11:44	30	30			
	12	29/30		11:49	11:54	32	32			
	32	30/31		11:55	12:10	30	30			



GS1 NON-DESTRUCTIVE TESTING FORM

PROJECT NAME: <i>6022-25</i>				JOB NUMBER: <i>24502</i>				MAT'L TYPE: <i>2592 52</i>		
DATE TESTED	SEAM LENGTH TESTED	SEAM#	TESTER INITIAL	AIR PRESSURE TEST					VACUUM TEST P/F	COMMENTS
				TIME		PRESSURE (PSI)		P/F		
				START	END	START	END			
<i>02-21-20</i>	<i>117</i>	<i>11/15</i>	<i>SH</i>	<i>2:27</i>	<i>2:32</i>	<i>33</i>	<i>33</i>	<i>0</i>		
	<i>90</i>	<i>11/15</i>		<i>2:27</i>	<i>2:32</i>	<i>33</i>	<i>33</i>			
	<i>124</i>	<i>15/17</i>		<i>2:40</i>	<i>2:45</i>	<i>33</i>	<i>33</i>			
	<i>81</i>	<i>15/13</i>		<i>2:20</i>	<i>2:25</i>	<i>33</i>	<i>33</i>			
	<i>50</i>	<i>15/13</i>		<i>2:25</i>	<i>2:30</i>	<i>33</i>	<i>33</i>			
	<i>50</i>	<i>15/13</i>		<i>2:25</i>	<i>2:30</i>	<i>33</i>	<i>33</i>			
	<i>50</i>	<i>15/13</i>		<i>2:25</i>	<i>2:30</i>	<i>33</i>	<i>33</i>			
	<i>33</i>	<i>23/23</i>		<i>2:15</i>	<i>2:20</i>	<i>33</i>	<i>33</i>			
	<i>35</i>	<i>27/24</i>		<i>2:25</i>	<i>2:30</i>	<i>33</i>	<i>33</i>			
	<i>33</i>	<i>28/25</i>		<i>2:25</i>	<i>2:30</i>	<i>33</i>	<i>33</i>			
	<i>33</i>	<i>28/26</i>		<i>2:29</i>	<i>2:34</i>	<i>33</i>	<i>33</i>			
	<i>32</i>	<i>28/27</i>		<i>2:40</i>	<i>2:45</i>	<i>33</i>	<i>33</i>			
	<i>33</i>	<i>29/23</i>		<i>2:22</i>	<i>2:27</i>	<i>33</i>	<i>33</i>			
	<i>14</i>	<i>23/22</i>		<i>2:30</i>	<i>2:35</i>	<i>33</i>	<i>33</i>			
	<i>22</i>	<i>24/23</i>		<i>2:30</i>	<i>2:35</i>	<i>33</i>	<i>33</i>			
	<i>27</i>	<i>27/21</i>		<i>2:22</i>	<i>2:27</i>	<i>33</i>	<i>33</i>			
	<i>14</i>	<i>23/22</i>		<i>2:30</i>	<i>2:35</i>	<i>33</i>	<i>33</i>			
	<i>51</i>	<i>18/13</i>		<i>2:30</i>	<i>2:35</i>	<i>33</i>	<i>33</i>			
	<i>151</i>	<i>10/12</i>		<i>2:00</i>	<i>2:05</i>	<i>33</i>	<i>33</i>			
	<i>151</i>	<i>10/11</i>		<i>2:15</i>	<i>2:20</i>	<i>33</i>	<i>33</i>			
	<i>31</i>	<i>22/21</i>		<i>2:25</i>	<i>2:30</i>	<i>33</i>	<i>33</i>			
<i>✓</i>	<i>22</i>	<i>12/25</i>	<i>✓</i>	<i>2:15</i>	<i>2:20</i>	<i>33</i>	<i>33</i>	<i>✓</i>		



**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 6382 & 4437 w/NSF 04



CLIENT: BLASLAND, BOUCK & LEE, INC.  
 CLIENT PROJECT: BEAZER CARBONDALE  
 CLIENT PROJ. NO.: 38883.002  
 PROJECT NO.: L04178-03  
 LAB ID NO.: L04178-03-01  
 MATERIAL: 60 MIL HDPE  
 SEAM TYPE: DOUBLE FUSION  
 SAMPLE I.D.: DS-1

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	118.3	FTB-AD-BRK	50
2	135.9	FTB-SE1	<10
3	125.5	FTB-AD-BRK	25
4	133.8	FTB-SE1	<10
5	127.9	FTB-SE1	<10
<b>AVERAGE</b>		<b>128.3</b>	
<b>STD. DEV.</b>		<b>7.00</b>	
<i>INSIDE TRACK (WELD "B")</i>			
1	142.1	FTB-SE1	<10
2	143.2	FTB-SE1	<10
3	144.9	FTB-SE1	<10
4	138.1	FTB-SE1	<10
5	139.7	FTB-SE1	<10
<b>AVERAGE</b>		<b>141.6</b>	
<b>STD. DEV.</b>		<b>2.72</b>	

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	162.5	FTB-BRK
2	162.7	FTB-BRK
3	163.4	FTB-BRK
4	162.8	FTB-BRK
5	163.1	FTB-BRK
<b>AVERAGE</b>		<b>162.9</b>
<b>STD. DEV.</b>		<b>0.35</b>

CHECKED BY: *[Signature]* DATE: 9-11-04



**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 6382 & 4437 w/NSF 54



CLIENT: BLASLAND, BOUCK & LEE, INC.  
 CLIENT PROJECT: BEAZER CARBONDALE  
 CLIENT PROJ. NO.: 38883.002  
 PROJECT NO.: L04178-03  
 LAB ID NO.: L04178-03-03  
 MATERIAL: 60 MIL HDPE  
 SEAM TYPE: DOUBLE FUSION  
 SAMPLE I.D.: DS-3

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	152.8	FTB-SE1	<10
2	146.3	FTB-SE1	<10
3	141.2	FTB-SE1	<10
4	125.1	FTB-AD-BRK	10
5	149.6	FTB-SE1	<10
<b>AVERAGE</b>		<b>143.0</b>	
<b>STD. DEV.</b>		<b>10.89</b>	
<i>INSIDE TRACK (WELD "B")</i>			
1	153.5	FTB-SE1	<10
2	146.8	FTB-SE1	<10
3	146.1	FTB-SE1	<10
4	148.0	FTB-SE1	<10
5	148.2	FTB-SE1	<10
<b>AVERAGE</b>		<b>148.5</b>	
<b>STD. DEV.</b>		<b>2.91</b>	

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	165.4	FTB-BRK
2	166.5	FTB-BRK
3	164.4	FTB-BRK
4	164.0	FTB-BRK
5	164.0	FTB-BRK
<b>AVERAGE</b>		<b>164.9</b>
<b>STD. DEV.</b>		<b>1.08</b>

CHECKED BY:                      DATE: 9-11-04

**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 8302 & 4437 W/NSF 54



CLIENT: BLASLAND, BOUCK & LEE, INC.  
 CLIENT PROJECT: BEAZER CARBONDALE  
 CLIENT PROJ. NO.: 38883.002  
 PROJECT NO.: L04178-05  
 LAB ID NO.: L04178-05-01  
 MATERIAL: 60 MIL HDPE  
 SEAM TYPE: DOUBLE FUSION  
 SAMPLE I.D.: DSP-1

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	144.8	FTB-SE1	<10
2	143.4	FTB-SE1	<10
3	141.0	FTB-SE1	<10
4	143.2	FTB-SE1	<10
5	141.9	FTB-SE1	<10
<b>AVERAGE</b>	<b>142.8</b>		
<b>STD. DEV.</b>	<b>1.40</b>		
<i>INSIDE TRACK (WELD "B")</i>			
1	150.9	FTB-SE1	<10
2	152.2	FTB-SE1	<10
3	137.9	FTB-SE1	<10
4	140.3	FTB-SE1	<10
5	149.1	FTB-SE1	<10
<b>AVERAGE</b>	<b>146.1</b>		
<b>STD. DEV.</b>	<b>6.52</b>		

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	169.7	FTB-BRK
2	168.5	FTB-BRK
3	169.5	FTB-BRK
4	170.2	FTB-BRK
5	169.9	FTB-BRK
<b>AVERAGE</b>	<b>169.6</b>	
<b>STD. DEV.</b>	<b>0.65</b>	

CHECKED BY: JM DATE: 7-14-04

**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 8392 & 4437 W/NSF 64



CLIENT: BLASLAND, BOUCK & LEE, INC.  
 CLIENT PROJECT: BEAZER CARBONDALE  
 CLIENT PROJ. NO.: 38883.002  
 PROJECT NO.: L04178-05  
 LAB ID NO.: L04178-05-02  
 MATERIAL: 60 MIL HDPE  
 SEAM TYPE: DOUBLE FUSION  
 SAMPLE I.D.: DSP-2

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	139.0	FTB-SE1	<10
2	117.9	FTB-SE1	<10
3	148.2	FTB-SE1	<10
4	142.0	FTB-SE1	<10
5	147.6	FTB-SE1	<10
<b>AVERAGE</b>	<b>138.9</b>		
<b>STD. DEV.</b>	<b>12.38</b>		
<i>INSIDE TRACK (WELD "B")</i>			
1	144.1	FTB-SE1	<10
2	143.5	FTB-SE1	<10
3	145.4	FTB-SE1	<10
4	143.8	FTB-SE1	<10
5	143.9	FTB-SE1	<10
<b>AVERAGE</b>	<b>144.1</b>		
<b>STD. DEV.</b>	<b>0.74</b>		

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	175.2	FTB-BRK
2	173.8	FTB-BRK
3	173.9	FTB-BRK
4	174.2	FTB-BRK
5	175.6	FTB-BRK
<b>AVERAGE</b>	<b>174.5</b>	
<b>STD. DEV.</b>	<b>0.81</b>	

CHECKED BY: *JM* DATE: *9-14-05*

**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 6392 & 4437 W/NSF 54



CLIENT: BLASLAND, BOUCK & LEE, INC.  
 CLIENT PROJECT: BEAZER CARBONDALE  
 CLIENT PROJ. NO.: 38883.002  
 PROJECT NO.: L04178-05  
 LAB ID NO.: L04178-05-03  
 MATERIAL: 60 MIL HDPE  
 SEAM TYPE: DOUBLE FUSION  
 SAMPLE I.D.: DSP-3

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	137.3	FTB-SE1	<10
2	135.1	FTB-SE1	<10
3	137.2	FTB-SE1	<10
4	137.9	FTB-SE1	<10
5	137.0	FTB-SE1	<10
<b>AVERAGE</b>	<b>136.9</b>		
<b>STD. DEV.</b>	<b>1.06</b>		
<i>INSIDE TRACK (WELD "B")</i>			
1	133.1	FTB-SE1	<10
2	127.5	FTB-SE1	<10
3	120.1	FTB-SE1	<10
4	124.5	FTB-SE1	<10
5	150.9	FTB-SE1	<10
<b>AVERAGE</b>	<b>131.2</b>		
<b>STD. DEV.</b>	<b>11.97</b>		

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	166.4	FTB-BRK
2	166.1	FTB-BRK
3	165.9	FTB-BRK
4	164.3	FTB-BRK
5	166.2	FTB-BRK
<b>AVERAGE</b>	<b>165.8</b>	
<b>STD. DEV.</b>	<b>0.85</b>	

CHECKED BY: [Signature] DATE: 9-14-04

**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 6392 & 4437 w/NSF 64



CLIENT: BLASLAND, BOUCK & LEE, INC.  
CLIENT PROJECT: BEAZER CARBONDALE  
CLIENT PROJ. NO.: 38883.002  
PROJECT NO.: L04178-05  
LAB ID NO.: L04178-05-04  
MATERIAL: 60 MIL HDPE  
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DSS-4

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	136.4	FTB-SE1	<10
2	141.9	FTB-SE1	<10
3	138.2	FTB-SE1	<10
4	139.8	FTB-SE1	<10
5	137.9	FTB-SE1	<10
<b>AVERAGE</b>	<b>138.8</b>		
<b>STD. DEV.</b>	<b>2.07</b>		
<i>INSIDE TRACK (WELD "B")</i>			
1	149.1	FTB-SE1	<10
2	141.4	FTB-SE1	<10
3	149.9	FTB-SE1	<10
4	144.5	FTB-SE1	<10
5	151.9	FTB-SE1	<10
<b>AVERAGE</b>	<b>147.4</b>		
<b>STD. DEV.</b>	<b>4.30</b>		

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	164.4	FTB-BRK
2	165.6	FTB-BRK
3	166.2	FTB-BRK
4	165.4	FTB-BRK
5	164.9	FTB-BRK
<b>AVERAGE</b>	<b>165.3</b>	
<b>STD. DEV.</b>	<b>0.89</b>	

CHECKED BY: JM DATE: 9-14-04

**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 8392 & 4437 w/NSF 54



CLIENT: BLASLAND, BOUCK & LEE, INC.  
 CLIENT PROJECT: BEAZER CARBONDALE  
 CLIENT PROJ. NO.: 38883.002  
 PROJECT NO.: L04178-05  
 LAB ID NO.: L04178-05-05  
 MATERIAL: 60 MIL HDPE  
 SEAM TYPE: DOUBLE FUSION  
 SAMPLE I.D.: DSS-5

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	144.4	FTB-SE1	<10
2	143.1	FTB-SE1	<10
3	142.3	FTB-SE1	<10
4	131.8	FTB-SE1	<10
5	121.5	FTB-SE1	<10
<b>AVERAGE</b>	<b>136.6</b>		
<b>STD. DEV.</b>	<b>9.83</b>		
<i>INSIDE TRACK (WELD "B")</i>			
1	150.1	FTB-SE1	<10
2	149.4	FTB-SE1	<10
3	129.7	FTB-SE1	<10
4	138.0	FTB-SE1	<10
5	134.2	FTB-SE1	<10
<b>AVERAGE</b>	<b>140.3</b>		
<b>STD. DEV.</b>	<b>9.13</b>		

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	170.4	FTB-BRK
2	170.9	FTB-BRK
3	169.2	FTB-BRK
4	169.2	FTB-BRK
5	169.9	FTB-BRK
<b>AVERAGE</b>	<b>169.9</b>	
<b>STD. DEV.</b>	<b>0.75</b>	

CHECKED BY: JM DATE: 9-14-04

**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 6382 & 4437 w/NSF 54



CLIENT: BLASLAND, BOUCK & LEE, INC.  
CLIENT PROJECT: BEAZER CARBONDALE  
CLIENT PROJ. NO.: 38883.002  
PROJECT NO.: L04178-05  
LAB ID NO.: L04178-05-06  
MATERIAL: 60 MIL HDPE  
SEAM TYPE: DOUBLE FUSION

SAMPLE I.D.: DSS-6

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	143.4	FTB-SE1	<10
2	129.1	FTB-SE1	<10
3	127.7	FTB-SE1	<10
4	128.6	FTB-SE1	<10
5	132.1	FTB-SE1	<10
<b>AVERAGE</b>	<b>132.2</b>		
<b>STD. DEV.</b>	<b>6.49</b>		
<i>INSIDE TRACK (WELD "B")</i>			
1	128.3	FTB-SE1	<10
2	139.9	FTB-SE1	<10
3	143.7	FTB-SE1	<10
4	139.9	FTB-SE1	<10
5	137.4	FTB-SE1	<10
<b>AVERAGE</b>	<b>137.8</b>		
<b>STD. DEV.</b>	<b>5.79</b>		

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	167.0	FTB-BRK
2	168.0	FTB-BRK
3	168.2	FTB-BRK
4	168.1	FTB-BRK
5	167.0	FTB-BRK
<b>AVERAGE</b>	<b>167.7</b>	
<b>STD. DEV.</b>	<b>0.61</b>	

CHECKED BY: *[Signature]* DATE: 9-14-08

**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 8302 & 4437 W/NSF 54



CLIENT: BLASLAND, BOUCK & LEE, INC.  
 CLIENT PROJECT: BEAZER CARBONDALE  
 CLIENT PROJ. NO.: 38883.002  
 PROJECT NO.: L04178-06  
 LAB ID NO.: L04178-06-01  
 MATERIAL: 60 MIL HDPE  
 SEAM TYPE: DOUBLE FUSION  
 SAMPLE I.D.: DP-4

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	131.8	FTB-SE1	<10
2	131.3	FTB-SE1	<10
3	137.6	FTB-SE1	<10
4	131.7	FTB-SE1	<10
5	154.0	FTB-SE1	<10
<b>AVERAGE</b>	<b>137.3</b>		
<b>STD. DEV.</b>	<b>9.70</b>		
<i>INSIDE TRACK (WELD "B")</i>			
1	141.0	FTB-SE1	<10
2	119.2	FTB-SE1	<10
3	122.6	FTB-SE1	<10
4	118.8	FTB-SE1	<10
5	122.7	FTB-SE1	<10
<b>AVERAGE</b>	<b>124.9</b>		
<b>STD. DEV.</b>	<b>9.21</b>		

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	164.5	FTB-SE1
2	165.1	FTB-SE1
3	164.8	FTB-SE1
4	154.2	FTB-SE1
5	164.1	FTB-SE1
<b>AVERAGE</b>	<b>162.5</b>	
<b>STD. DEV.</b>	<b>4.68</b>	

CHECKED BY: BF DATE: 9-15-04

**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 6382 & 4457 w/NSF 54



CLIENT: BLASLAND, BOUCK & LEE, INC.  
 CLIENT PROJECT: BEAZER CARBONDALE  
 CLIENT PROJ. NO.: 38883.002  
 PROJECT NO.: L04178-06  
 LAB ID NO.: L04178-06-02  
 MATERIAL: 60 MIL HDPE  
 SEAM TYPE: DOUBLE FUSION  
  
 SAMPLE I.D.: DP-5

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	139.3	FTB-SE1	<10
2	139.6	FTB-SE1	<10
3	139.7	FTB-SE1	<10
4	138.3	FTB-SE1	<10
5	142.3	FTB-SE1	<10
<b>AVERAGE</b>	<b>139.8</b>		
<b>STD. DEV.</b>	<b>1.48</b>		
<i>INSIDE TRACK (WELD "B")</i>			
1	149.3	FTB-SE1	<10
2	132.8	FTB-SE1	<10
3	147.7	FTB-SE1	<10
4	146.8	FTB-SE1	<10
5	150.0	FTB-SE1	<10
<b>AVERAGE</b>	<b>145.3</b>		
<b>STD. DEV.</b>	<b>7.11</b>		

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	165.8	FTB-SE1
2	166.1	FTB-SE1
3	165.4	FTB-SE1
4	167.0	FTB-SE1
5	165.1	FTB-SE1
<b>AVERAGE</b>	<b>165.9</b>	
<b>STD. DEV.</b>	<b>0.73</b>	

CHECKED BY: BF DATE: 9-15-04

**PEEL AND SHEAR TEST RESULTS  
DESTRUCTIVE SEAM TESTING**

ASTM D 8302 & 4437 W/NGF 84



CLIENT: BLASLAND, BOUCK & LEE, INC.  
 CLIENT PROJECT: BEAZER CARBONDALE  
 CLIENT PROJ. NO.: 38883.002  
 PROJECT NO.: L04178-06  
 LAB ID NO.: L04178-06-03  
 MATERIAL: 60 MIL HDPE  
 SEAM TYPE: DOUBLE FUSION  
 SAMPLE I.D.: DP-6

**PEEL ADHESION**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE	PEEL INCURSION (%)
<i>OUTSIDE TRACK (WELD "A")</i>			
1	141.9	FTB-SE1	<10
2	123.7	FTB-SE1	<10
3	144.0	FTB-SE1	<10
4	139.6	FTB-SE1	<10
5	139.1	FTB-SE1	<10
<b>AVERAGE</b>	<b>137.7</b>		
<b>STD. DEV.</b>	<b>8.05</b>		
<i>INSIDE TRACK (WELD "B")</i>			
1	140.8	FTB-SE1	<10
2	139.6	FTB-SE1	<10
3	141.5	FTB-SE1	<10
4	137.2	FTB-SE1	<10
5	138.9	FTB-SE1	<10
<b>AVERAGE</b>	<b>139.6</b>		
<b>STD. DEV.</b>	<b>1.68</b>		

**BONDED SEAM (SHEAR) STRENGTH**

REPLICATE No.	PEAK LOAD (lbs/in)	EPA BREAK CLASSIFICATION CODE
1	165.7	FTB-SE1
2	166.5	FTB-SE1
3	166.2	FTB-SE1
4	166.5	FTB-SE1
5	167.5	FTB-SE1
<b>AVERAGE</b>	<b>166.5</b>	
<b>STD. DEV.</b>	<b>0.66</b>	

CHECKED BY: BF DATE: 9-15-04



GSI  
GEOMEMBRANE REPAIR REPORT

PROJECT NAME: <i>KOPPERE</i>				JOB NUMBER:			MAT'L TYPE: <i>COOL TX SEC</i>			
FIELD SEAM	PANEL NO.	REPAIR CREW	MACH NO.	TEST DATE	TESTER INT	REPAIR DESCRIPTION AND SIZE (Patch, Bead, Ext Weld, Cap Strip, DT)	REPAIR DATE	LOCATION OF REPAIR		V BOX PASS
<i>1/2</i>		<i>D.K.</i>	<i>G-5</i>	<i>9-10</i>	<i>D.S.</i>	<i>4x2</i>		<i>77' N</i>	<i>DS-1</i>	
<i>1/2</i>						<i>2x1</i>		<i>77' N</i>		
<i>2/4</i>						<i>1x1</i>		<i>125' N</i>		
<i>4/5</i>						<i>1x1</i>		<i>125' N</i>		
<i>3/5</i>						<i>5x2</i>		<i>23' N</i>	<i>DS-2</i>	
<i>2/6</i>						<i>2x2</i>		<i>150' N</i>		
<i>4/9</i>						<i>5x2</i>		<i>41' N</i>	<i>DS-3</i>	
<i>6/14</i>						<i>1x1</i>		<i>130' N</i>		
<i>19/20</i>				<i>9-13</i>		<i>1x1</i>	<i>9-13</i>	<i>79' N</i>		
<i>1/18</i>						<i>1x2</i>		<i>125' N</i>		
<i>13/19</i>						<i>2x2</i>		<i>115' N</i>		
<i>17/19</i>						<i>5x2</i>		<i>11' N</i>	<i>DS-4</i>	
<i>19/20</i>						<i>5x2</i>		<i>32' N</i>	<i>DS-5</i>	
<i>10/21</i>						<i>1x1</i>		<i>77' N</i>		
<i>21/22</i>						<i>1x1</i>		<i>50' N</i>		
<i>20/22</i>						<i>5x2</i>		<i>18' N</i>	<i>DS-6</i>	
<i>21/23</i>						<i>1x2</i>		<i>15' N</i>		
<i>30/23</i>						<i>1x2</i>		<i>15' N</i>		

**02413 Geosynthetic Clay Liner**  
**1.05.A.4.d**  
**SUBMITTAL DESCRIPTION**  
**Certification Letter**



September 30, 2004

Bob Braden  
Sevenson Environmental Services  
1555 N. Marion St.  
Carbondale, IL 62901

RE: 24052 Koppers Carbondale CAMU

<input checked="" type="checkbox"/> REVIEWED	<input type="checkbox"/> REVIEWED & NOTED
<b>REVIEWED SOLELY FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS</b>	
<b>BLASLAND, BOUCK &amp; LEE, INC.</b>	
 SIGNATURE	
<u>09/17/04</u> Date	<u>Syracuse</u> Office Location
<input type="checkbox"/> RESUBMIT	<input type="checkbox"/> REJECTED

CHICAGO  
MILWAUKEE  
MINNEAPOLIS  
PHOENIX  
CHARLESTON  
CHARLOTTE  
RALEIGH

Certification of Compliance

The undersigned, being qualified and authorized to do so, hereby certifies that the Geosynthetic Clay Liner was installed to meet the intent of the Project Specifications, Drawings and CQA Plan.

Sincerely,



Thomas Heasley  
Quality Control Coordinator

**02413 Geosynthetic Clay Liner**

**1.05.A.4.e**

**SUBMITTAL DESCRIPTION**

**Warranty**

**Provided Under Separate Cover**



Former Process Area Surface  
Cover

**NONDESTRUCTIVE TESTING SUMMARY**

PAGE: 1 of 6

DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

####

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP 0 F4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/FAIL	TECH ID	PASS/FAIL	
				START	STOP	START	STOP				
P21P3	8/10/05	COMPLETE SEAM 22'	KN	0720	0725	30	28	P			
P11P2	8/10/05	382'	TT	0833	0838	30	29	P			
↓ 1 ↓	8/12/05	382' N SEOS TO SEOS (131)							SC	P	EXT. WELD
P11P3	8/10/05	76' SEAM COMPLETE SEAM	HL	1005	1010	30	29	P			
P31P4	8/10/05	76' SEAM COMPLETE SEAM	HL	1015	1020	30	27	P			
P41P6	8/10/05	53' SEAM COMPLETE SEAM	KN	1112	1117	30	26	P			
P21P4	8/10/05	361'	KN	1300	1305	30	29	P			
P21P4			<del>KN</del>								STILL TO BE DONE
P41P5	8/10/05	26' N SEOS TO NEOS (319)	KN	1307	1312	30	30	P			
P51P6	8/10/05	22'	KN	1309	1314	30	28	P			
P61P7	8/10/05	53'	KN	1310	1315	30	28	P			COMPL. SEAM
P41P5	8/10/05	16'	KN	1312	1317	30	30	P			10' N, SEOS TO 76' N SEOS
P21P4	8/10/05	33'	KN	1314	1319	30	30	P			361' S, SEOS TO SEOS.
P71P8	8/10/05	237'	KN	1315	1320	30	29	P			COMPL. SEAM
P81P9	8/10/05	22'	KN	1317	1322	30	30	P			CS.
P71P9	8/10/05	223'	KN	1318	1323	30	28	P			8' N SEOS TO SEOS

N, SEOS (NORTH SOUTH END OF SEAM)  
 S, SEOS (SOUTH NORTH END OF SEAM)

C. S. (COMPLETE SEAM)

**NONDESTRUCTIVE TESTING SUMMARY**

PAGE: 2 of 10  
 DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

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BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/FAIL	TECH ID	PASS/FAIL	
				START	STOP	START	STOP				
P51P7	8/10/05	319'	KN	1320	1325	30	29	F			C.S.
P81P10	8/10/05	187'	KN	1327	1332	30	30	F			DI-6 TO SEOS
P101P12	8/10/05	54'	KN	1330	1335	30	28	F			26' SNEOS TO DI-7 (86')
P101P12	8/10/05	12'	KN	1331	1336	30	30	P			14' SNEOS TO 26' SNEOS
P111P12	8/10/05	12'	KN	1333	1338	30	30	P			NEOS TO 12' EWEO'S
P101P11	8/10/05	60'	KN	1335	1340	30	29	P			C.S.
P101P12	8/10/05	14'	KN	1337	1342	30	30	P			NEOS TO 14' SEOS
P111P12	8/10/05	10'	KN	1339	1344	30	30	P			12' EWEO'S TO EEO'S
P111P14	8/10/05	129	KN	1340	1345	30	28	P			SEOS TO 129' NSEOS
P121P14	8/10/05	58'	KN	1343	1348	30	29	P			184' NSEOS TO NEOS
P101P13	8/10/05	27'	KN	1346	1351	30	30	P			C.S.
P111P13	8/10/05	22'	KN	1350	1355	30	30	P			C.S.
P131P14	8/10/05	27'	KN	1352	1357	30	30	P			C.S.
P111P14	8/10/05	32'	KN	1354	1359	30	30	P			199' NSEOS TO NEOS
P141P16	8/10/05	61'	KN	1415	1420	30	30	P			C.S.
P141P18	8/10/05	36'	KN	1417	1422	30	30	F			C.S.

**NONDESTRUCTIVE TESTING SUMMARY**

PROJECT LOCATION:

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME:

DATA INPUT: \_\_\_\_\_

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BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/FAIL	TECH ID	PASS/FAIL	
				START	STOP	START	STOP				
P181P19	8/10/05	9'	KN	1420	1425	30	30	P			C.S.
→ P141P15	8/10/05	112'	KN	1459	1504	31	31	P			C.S.
P151P19	8/10/05	14'	KN	1518	1523	30	30	P			C.S.
P141P19	8/10/05	45'	KN	1530	1535	30	28	P			SEOS TO 46' N SEOS
P121P14	8/10/05	184'	KN	1533	1538	30	29	P			SEOS TO 184' N SEOS
P101P12	8/10/05	197'	KN	1535	1540	30	29	P			DT-7 TO (80') SEOS
P141P19	8/10/05	26'	KN	1540	1545	30	30	P			45' N SEOS TO NEOS
P81P10	8/10/05	48'	KN	1542	1547	30	30	P			NEOS TO DT-6 48' S NEOS
P91P10	8/10/05	224'	KN	1555	1600	30	29	P			7' SNEOS TO SEOS
P11P20	8/10/05	222'	TT	0800	0805	30	30	P			6' SNEOS TO 228' SNEOS
P11P20	8/10/05	244'	TT	0818	0823	30	28	P			228' SNEOS TO SEOS
P201P21	8/10/05	295'	TT	0835	0840	30	29	P			NEOS TO 295' SNEOS
P201P22	8/11/05	162'	TT	0842	0847	30	30	P			8' SNEOS TO SEOS
P211P22	8/11/05	22'	TT	0900	0905	31	30	P			C.S.
P221P23	8/11/05	170'	TT	0920	0925	30	28	P			C.S.
P211P23	8/11/05	50'	TT	1000	1005	30	30	P			NEOS TO 50' SNEOS

**NONDESTRUCTIVE TESTING SUMMARY**

PAGE: 4 of 16  
 DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

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BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/ FAIL	TECH ID	PASS/ FAIL	
				START	STOP	START	STOP				
P21/P23	8/11/05	230'	TT	1335	1340	30	30	P			65'S NEOS TO 295'S NEOS
P71/P9	8/11/05	8'							SC	P	NEOS TO EXT 8'S NEOS W.
P9/P10	8/11/05	7'							SC	P	EXT WELD NEOS TO 7'S NEOS
P24/P25	8/11/05	17'	TT	1345	1350	31	29	P			5' NEOS TO WEEB
P16/P17	8/11/05	4'							SC	P	C.S.
P17/P18	8/11/05	5'							SC	P	C.S.
P231/P24	8/11/05	222	T.T	1415	1420	30	30	P			NEOS TO 222'S NEOS
P14/P17	8/11/05	22'							SC	P	C.S.
P231/P24	8/11/05	6'							SC	P	EXT WELD ONE 222'S NEOS TO SEOS
P23/P25	8/11/05	31'	T.T.	1527	1532	30	30	P			7'S NEOS TO 38'S NEOS
P23/P25	8/11/05	195'	TT	1520	1525	30	29	P			50'S NEOS TO SEOS
P25/P26	8/11/05	139'	TT	1535	1540	30	28	P			8'S NEOS TO 147'S NEOS
P25/P26	8/11/05	23'	TT	1541	1546	31	30	P			147'S NEOS TO 170'S NEOS
P25/P26	8/11/05	82'	TT	1547	1552	30	30	P			180'S NEOS TO SEOS
P24/P26	8/11/05	228'	TT	1553	1558	31	29	P			C.S.
P26/P28	8/12/05	399'	TT	0830	0835	31	28	P			7'S NEOS TO SEOS

**NONDESTRUCTIVE TESTING SUMMARY**

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PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

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BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/FAIL	TECH ID	PASS/FAIL	
				START	STOP	START	STOP				
P271P28	8/12/05	17'	TT	0840	0845	30	30	P			5' WEESTO WEOS
P261P27	8/12/05	106'	TT	0907	0912	32	30	P			C.S.
P271P29	8/12/05	97'	TT	0925	0930	30	29	P			NEOS TO 97'S NEOS
P281P30	8/12/05	52'	TT	0945	0950	30	28	P			7'S NEOS TO SEOS
P11P20	8/12/05	6'							SC	P	NEOS TO 6'S EXT. W.
P291P30	8/12/05	22'	TT	1005	1010	30	30	P			C.S.
P301P31	8/12/05	53'	TT	1011	1016	30	30	P			8'S NEOS TO SEOS.
1		W	CRINKLE REPAIR ↓								
RP11P1	8/12/05	60'	TT	1045	1050	30	29	P			54'S TO 114'S
RP11P20	8/12/05	60'	TT	1051	1056	31	31	P			54'S TO 114'S
RP21P1	8/12/05	60'	TT	1057	1102	30	30	P			
RP24P20	8/12/05	60'	TT	1103	1108	30	29	P			114'S TO 174'S
RP31RP1	8/12/05	61'	TT	1105	1110	30	29	P			174'S TO 235'S
RP31P20	8/12/05	61'	TT	1112	1117	30	30	P			174'S TO 235'S
P71WR	8/12/05	35'	TT	1305	1310	30	28	P			171'S ACCESS TO 252'S
PS1WR	8/12/05	36'	TT	1312	1317	30	30	P			

**NONDESTRUCTIVE TESTING SUMMARY**

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PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

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BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/ FAIL	TECH ID	PASS/ FAIL	
				START	STOP	START	STOP				
RP4 P20	8/12/05	57'	TT	1330	1335	30	29	P			366'S TO 425'S
RP4 P1	8/12/05	57'	TT	1336	1341	31	30	P			366'S TO 425'S
RP5 P1	8/12/05	43'	TT	1342	1347	30	29	P			423'S to 446'S
RP5 P20	8/12/05	43'	TT	1348	1353	32	32	P			
P28 P29	8/12/05	48'	TT	1530	1535	30	30	P			C.S.
P29 P31	8/12/05	<del>440'</del> 15'	TT	1536	1541	30	30	P			560'S TO 15' N SEOS
P29 P31	8/12/05	440'	TT	1550	1555	30	28	P			NEOS TO 440'S NEOS
P4 P5	8/12/05	10'							SC	P	360'S TO 10' N SEOS
P1 P2	8/12/05	13'							SC	P	360'S TO 13' N SEOS
P20 P21	8/12/05	7'							SC	P	295'S NEOS TO SEOS
P21 P23	8/12/05	8'							SC	P	295'S NEOS TO SEOS
P31 P33	8/13/05	225'	TT	0900	0905	30	30	P			10'S NEOS TO SEOS
P32 P33	8/13/05	22'	TT	0906	0911	3	30	P			C.S.
P31 P32	8/13/05	282'	TT	1000	1005	31	29	P			C.S.
P33 P34	8/13/05	229'	TT	1007	1012	30	30	P			5'S NEOS TO SEOS
P32 P34	8/13/05	283'	TT	1020	1025	30	30	P			NEOS TO 283'S NEOS

**NONDESTRUCTIVE TESTING SUMMARY**

PAGE: 7 of 10

PROJECT LOCATION:

DATE: \_\_\_\_\_

PROJECT NAME:

CQA MONITOR(S): \_\_\_\_\_

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DATA INPUT: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/ FAIL	TECH ID	PASS/ FAIL	
				START	STOP	START	STOP				
P201 P22	8/13/05	8'							SC	P	NEOS TO 8'S NEOS
P211 P23	8/13/05	15'							SC	P	50'S NEOS TO 65'S NEOS
P241 P25	8/13/05	5'							SC	P	EEOS TO 5' W EEOS
P231 P25	8/13/05	7'							SC	P	NEOS TO 7'S NEOS
P231 P25	8/13/05	18'							SC	P	38'S NEOS 50'S NEOS
P251 P26	8/13/05	8'							SC	P	NEOS TO 8'S NEOS
P251 P26	8/13/05	10'							SC	P	170'S NEOS TO 180'S NEOS
P261 P28	8/13/05	7'							SC	P	NEOS TO 7'S NEOS
P271 P28	8/13/05	5'							SC	P	EEOS TO 5' W EEOS
P281 P30	8/13/05	7'							SC	P	NEOS TO 7'S NEOS
RP1 RP2	8/13/05	2'							SC	P	
RP2 RP3	8/13/05	2'							SC	P	
<del>P35</del> P37	8/18/05	205'	TT	1410	1415	30	28	P			C.S.
P351 P36	8/18/05	315'	TT	1425	1430	30	29	P			NEOS TO 315'S NEOS
P361 P37	8/18/05	8'	TT	1432	1437	30	30	P			5' W EEOS TO 13' W EEOS
P361 P37	8/18/05	9'	TT	1438	1443	30	30	P			13' W EEOS TO 15' EEOS

**NONDESTRUCTIVE TESTING SUMMARY**

PAGE: 8 of 10  
 DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

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BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/FAIL	TECH ID	PASS/FAIL	
				START	STOP	START	STOP				
P371P38	8/18/05	212'	TT	1445	1450	30	29			C.S.	
P271P29	8/19/05	5'						SC	P	97'S NEOS TO SEOS	
P331 P34	8/19/05	5'						SC	P	NEOS TO 5'S NEOS	
P361 P37	8/19/05	5'						SC	P	NEOS TO 5'W NEOS	
P341 P35	8/19/05		TT	0725	0730	30	29	P		21'S NEOS TO SEOS	
P341 P35	8/19/05	21'						SC	P	NEOS TO 21'S	
<sup>36</sup> P371 P38	8/19/05	130'	TT	0815	0820	30	30	P		NEOS TO DT-22	
<sup>34</sup> P371 P38	8/19/05	121'	TT	0821	0826	30	30	P		DT-22 TO 251'S NEOS	
<sup>36</sup> P371 P38	8/19/05		TT	0827	0832	31	30	P		251'S NEOS TO SEOS	
P381 P39	8/19/05	113'	TT	0845	0850	30	30	P		NEOS TO 113'S NEOS	
P381 P40	8/19/05	385'	TT	0900	0905	30	30	P		C.B.	
P391 P40	8/19/05	22'	TT	0907	0912	30	28	P		C.S.	
P391 P41	8/19/05	115'	TT	0913	0918	30	30	P		NEOS TO 115'S NEOS	
P401 P41	8/19/05	342'	TT	0920	0925	30	29	P		13'S NEOS TO SEOS	
P401 P42	8/19/05	5'	<del>TT</del>	<del>0926</del>	<del>0931</del>				SC	NEOS TO 5'S NEOS	
P401 P42	8/19/05	32'	TT	0926	0931	31	31	P		5'S NEOS TO SEOS	

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**NONDESTRUCTIVE TESTING SUMMARY**

PAGE: 9 of 16

PROJECT LOCATION:

DATE: \_\_\_\_\_

PROJECT NAME:

CQA MONITOR(S): \_\_\_\_\_

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DATA INPUT: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/ FAIL	TECH ID	PASS/ FAIL	
				START	STOP	START	STOP				
P41 1P42	8/19/05	32'	TT	0932	0937	31	29	P			C.S.
P42 1P43	8/19/05	42'	TT	0938	0943	30	27	P			C.S.
P41 1P43	8/19/05	33'	TT	0944	0949	31	29	P			SEOS TO 33' NSEOS
P41 1P43	8/19/05	226'	TT	0954	0959	30	28	P			33' NSEOS TO 259' NSEOS
P41 1P43	8/19/05	194'	TT	1003	1008	30	29	P			259' NSEOS TO 453' NSEOS
P41 1P43	8/19/05	11'	TT	1020	1025	30	29	P			11' SNEOS TO NEOS
P43 1P45	8/19/05	79'	TT	1030	1035	31	31	P			NEOS TO 79' S NEOS
P43 1P45	8/19/05	27'	TT	1036	1041	30	30	P			79' S NEOS TO 106' SNEOS
P43 1P45	8/19/05	77'	TT	1043	1048	30	30	P			106' SNEOS TO SEOS
P44 1P45	8/19/05	22'	TT	1050	1055	30	28	P			C.S.
P43 1P44	8/19/05	317'	TT	1105	1110	30	30	P			C.S.
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**NONDESTRUCTIVE TESTING SUMMARY**

PAGE: 10 of 16  
 DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

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BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/ FAIL	TECH ID	PASS/ FAIL	
				START	STOP	START	STOP				
P451P50	8/20/05	18'	TT	1000	1005	30	30	P			C.S.
P461P50	8/20/05	22'	TT	1006	1011	30	30	P			C.S.
P471P50	8/20/05	25'	TT	1012	1017	31	31	P			C.S.
P451P46	8/20/05	176'	TT	1018	1023	30	28	P			C.S.
P441P46	8/20/05	309'	TT	1025	1030	31	29	P			C.S.
P461P47	8/20/05	159'	TT	1032	1037	30	30	P			C.S.
P461P48	8/20/05	314'	TT	1040	1045	30	30	P			C.S.
P471P48	8/20/05	22'	TT	1135	1140	30	29	P			C.S.
P481P49	8/20/05	305'	TT	1141	1146	31	29	P			C.S.
P471P49	8/20/05	86'	TT	1240	1245	30	28	P			C.S.
P491P51	8/20/05	423	TT	1305	1310	30	28	P			SEDS TO DT-31
P491P51	8/20/05	59'	TT	1306	1311	31	30	P			DT-31 TO NEOS
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1											
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**NONDESTRUCTIVE TESTING SUMMARY**

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

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BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST					VACUUM BOX TEST		COMMENTS	
			TECH ID	TIME		PSI		PASS/ FAIL	TECH ID		PASS/ FAIL
				START	STOP	START	STOP				
1 P511P53	8/23/05	88'	TT	0640	0645	30	29			8'N SEOS TO 96'N SEOS	
2 P511P53	8/23/05	23'	TT	0646	0651	30	30			96'N SEOS TO NEOS	
3 P521P53	8/23/05	22'	TT	0652	0657	31	31			C.S.	
4 P531P54	8/23/05	106'	TT	0658	0702	30	29			NEOS TO 106'S NEOS	
5 P511P52	8/23/05	276'	TT	0705	0710	31	30			SEOS TO 276'N SEOS	
6 P511P52	8/23/05	52'	T.T.	0711	0716	31	31			276'N SEOS TO 328'N SEOS	
7 P511P52	8/23/05	38'	T.T.	0717	0722	30	30			328'N SEOS TO NEOS	
8 P521P54	8/23/05	140'	T.T.	0725	0730	30	30			NEOS TO 140'S NEOS	
9 P531P54	8/23/05	223'	T.T.	0731	0736	30	30			140'S NEOS TO SEOS	
10 P551P59	8/23/05	58'	T.T.	0740	0745	31	31			NEOS TO 58'S NEOS	
11 P551P59	8/23/05	21'	T.T.	0746	0751	31	31			58'S NEOS TO SEOS	
12 P571P59	8/23/05	11'	TT	0752	0757	30	30			C.S.	
13 P551P59	8/23/05	83'	T.T.	0800	0805	30	30			C.S.	
14 P541P55	8/23/05	276'	T.T.	0807	0812	30	28			C.S.	
15 P541P56	8/23/05	183'	T.T.	0813	0818	30	29			C.S.	
16 P551P56	8/23/05	22'	T.T.	0819	0824	30	30			C.S.	

**NONDESTRUCTIVE TESTING SUMMARY**

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DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

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BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/ FAIL	TECH ID	PASS/ FAIL	
				START	STOP	START	STOP				
P551P58	8/23/05	13'	T.T.	0826	0831	30	29	P			C.S.
P321P34	8/23/05	5'		<del>0832</del>	<del>0837</del>	<del>30</del>	<del>30</del>		SC	P	283' SNEOS TO SEOS 5'
P561P58	8/23/05	173'	-	0832	0857	30	30	P			C.S.
P351P36	8/23/05	5'							SC	P	315' SNEOS TO SEOS
P581P60	8/23/05	173'	TT	0840	0845	30	30	P			C.S.
P381P39	8/23/05	7'							SC	P	113' SNEOS TO SEOS
P601P61	8/23/05	173'	TT	0850	0855	31	30				C.S.
P391P41	8/23/05	5'	-						SC	P	115' SNEOS TO SEOS
P401P41	8/23/05	13'							SC	P	SNEOS TO 13' SNEOS
P621P63	8/23/05	22'	TT	0859	0904	30	29	P			C.S.
P611P62	8/23/05	82'	TT	0905	0910	31	31	P			C.S.
P611P63	8/23/05	90'	TT	0911	0916	30	30	P			
P511P53	8/23/05	8'							SC	P	SEOS TO 8' SNEOS
P621P64	8/23/05	74'	TT	0918	0923	30	30	P			C.S.
P631P64	8/23/05	96'	TT	0924	0929	30	29	P			C.S.
P641P65	8/23/05	175'	TT	0945	0950	30	29	P			C.S.

**NONDESTRUCTIVE TESTING SUMMARY**

PAGE: 130/16<sup>3</sup>  
 DATE: 9

PROJECT LOCATION:

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME:

DATA INPUT: \_\_\_\_\_

####

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/ FAIL	TECH ID	PASS/ FAIL	
				START	STOP	START	STOP				
P651P66	8/23/05	178'	TT	0951	0956	30	30	P			C.S.
P661P67	8/23/05	178'	TT	0958	1003	30	28	P			C.S.
P531P54	8/23/05	5'							SC	P	106' SNEOS TO SEOS
P671P68	8/23/05	60'	TT	1015	1020	30	30	P			C.S.
P671P69	8/23/05	118'	TT	1006	1011	30	29	P			C.S.
P681P69	8/23/05	22'	TT	1025	1030	31	28	P			C.S.
P681P70	8/23/05	55'	TT	1035	1040	30	30	P			C.S.
P691P70	8/23/05	125'	TT	1041	1046	30	29	P			C.S.
P701P71	8/23/05	180'	TT	1055	1100	30	30	P			C.S.
P711P72	8/23/05	180'	TT	1102	1107	30	30	P			C.S.
P721P73	8/23/05	180'	TT	1115	1120	30	30	P			C.S.
P731P74	8/23/05	181'	TT	1123	1128	31	30	P			C.S.
P741P75	8/23/05	183'	TT	1245	1250	31	29	P			C.S.
P751P76	8/23/05	183'	TT	1300	1305	30	30	P			C.S.
P761P83	8/23/05	189'	TT	1430	1435	30	28	P			C.S.
P831P84	8/23/05	211'	TT	1528	1533	30	30	P			C.S.

**NONDESTRUCTIVE TESTING SUMMARY**

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

####

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/ FAIL	TECH ID	PASS/ FAIL	
				START	STOP	START	STOP				
P84/P85	8/23/05	188'	TT	1535	1540	30	29	P			C.S.
P77/P85	8/23/05	170'	TT	1542	1547	31	30	P			C.S.
P77/P86	8/23/05	284'	TT	1548	1553	30	30	P			C.S.
P82/P85	8/23/05	26'	TT	1600	1605	31	29	P			C.S.
P82/P84	8/23/05	27'	TT	1606	1611	30	29	P			C.S.
P82/P83	8/23/05	17'	TT	1615	1620	30	30	P			C.S.
P81/P82	8/23/05	52'	TT	1622	1627	30	28	P			C.S.
P80/P81	8/23/05	39'	TT	1628	1633	31	31	P			C.S.
P79/P80	8/23/05	26'	TT	1635	1640	30	30	P			C.S.
P78/P79	8/23/05	13'	TT	1641	1646	30	29	P			C.S.
P77/P78	8/23/05	23'	TT	1648	1653	31	30	P			C.S.
P77/P79	8/23/05	26'	TT	1654	1659	30	30	P			C.S.
P77/P80	8/23/05	26'	TT	1700	1705	30	30	P			C.S.
P77/P81	8/23/05	26'	TT	1706	1711	31	31	P			C.S.
P77/P82	8/23/05	26'	TT	1712	1717	31	30	P			C.S.
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**NONDESTRUCTIVE TESTING SUMMARY**

PROJECT LOCATION:

DATE: \_\_\_\_\_

PROJECT NAME:

CQA MONITOR(S): \_\_\_\_\_

####

DATA INPUT: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/ FAIL	TECH ID	PASS/ FAIL	
				START	STOP	START	STOP				
P861 P87	8/24/05	274'	TT	0640	0645	31	30	P			C.S.
P871 P88	8/24/05	266'	TT	0646	0651	30	30	P			C.S.
P881 P89	8/24/05	253'	TT	0653	0658	30	30	P			C.S.
P901 P91	8/24/05	22'	TT	0900	0905	30	29	P			C.S.
P891 P90	8/24/05	44'	TT	0906	0911	30	30	P			C.S.
P891 P91	8/24/05	200'	TT	0912	0917	30	30	P			C.S.
P901 P92	8/24/05	39'	TT	0920	0925	30	30	P			C.S.
P911 P92	8/24/05	196'	TT	0927	0932	30	28	P			C.S.
P931 P94	8/24/05	22'	TT	0935	0940	30	29	P			C.S.
P921 P93	8/24/05	179'	TT	0942	0947	31	28	P			C.S.
P921 P94	8/24/05	42'	TT	0948	0953	31	29	P			C.S.
P931 P95	8/24/05	173'	TT	1015	1020	30	30	P			C.S.
P941 P95	8/24/05	38'	TT	1022	1026	31	31	P			C.S.
P951 P96	8/24/05	203'	TT	1209	1214	30	30	P			C.S.
P961 P97	8/24/05	188'	TT	1215	1220	30	30	P			C.S.
P971 P98	8/24/05	180'	TT	1221	1226	31	31	P			C.S.

**NONDESTRUCTIVE TESTING SUMMARY**

PROJECT LOCATION:

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME:

DATA INPUT: \_\_\_\_\_

####

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: AIR PRESSURE TEST - MINIMUM PRESSURE OF 24 PSI, MAXIMUM PRESSURE DROP OF 4 PSI IN A 5 MINUTE PERIOD

SEAM ID	DATE TESTED	LENGTH OF SEAM TESTED	AIR PRESSURE TEST						VACUUM BOX TEST		COMMENTS
			TECH ID	TIME		PSI		PASS/FAIL	TECH ID	PASS/FAIL	
				START	STOP	START	STOP				
P981P99	8/24/05	170'	TT	1228	1233	31	31	P			C.S.
P1001P101	8/24/05	11'	TT	1235	1240	30	30	P			C.S.
P991P101	8/24/05	87'	TT	1241	1246	30	30	P			C.S.
P991P100	8/24/05	75'	TT	1247	1252	31	30	P			C.S.
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PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)					FIELD TEST RESULTS SHEAR (ppi)					P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
	P21P3	8/9/05	HL	288		88	79								P	TT			
	↓1↓					81	83								P	TT			
	P11P3	8/9/05	YN	3		91	90								P	TT			
	↓1↓					87	90								P	TT			
	P11P2	8/9/05	YN	5		77	82								P	TT			
	↓1↓					77	81								P	TT			
	P31P4	8/9/05	HL	288		81	83								P	TT			
	↓1↓					77	83								P	TT			
	P21P4	8/9/05	HL	288		90	88								P	TT			
	↓1↓					87	87	88	(ALB)						P	TT			
	P41P5	8/9/05	YN	3		76	83								P	TT			
	↓1↓					81	77								P	TT			
	P51P6	8/9/05	YN	3		77	81								P	TT			
	↓1↓					78	83								P	TT			
	P41P6	8/9/05	YN	3		79	80								P	TT			
	↓1↓					83	80								P	TT			
	P61P7	8/9/05	HL	288		83	85								P	TT			
	↓1↓					81	82								P	TT			
	P51P7	8/9/05	HL	288		90	88								P	TT			
	↓1↓					83	85								P	TT			

**DESTRUCTIVE TESTING FIELD** - SEAM ENDS

PAGE: 2/10

DATE: \_\_\_\_\_

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)				FIELD TEST RESULTS SHEAR (ppi)				P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
	P71P9	8/9/05	YN	3		81	90	93	88					P	TT		
	P81P9	8/9/05	YN	3		86	77	81	86					P	TT		
	P71P8	8/9/05	YN	3		81	80	83	80					P	TT		
	P91P10	8/9/05	HL	288		93	92	89	91					P	TT		
	P81P10	8/9/05	YN	3		84	83	81	83					P	TY		
	P111P13	8/10/05	YN	3		83	83	80	87					P	TT		
	P101P13	8/10/05	YN	3		82	80	85	80					P	TT		
	P101P11	8/10/05	YN	3		87	88	83	86					P	TT		
	P111P12	8/10/05	YN	3		76	81	82	76					P	TT		
	P101P12	8/10/05	YN	3		76	84	77	81					P	TT		
	P141P18	8/10/05	YN	205		80	77	81	79					P	TT		
	P141P17	8/10/05	YN	205		77	80	76	83					P	TT		
	P141P16	8/10/05	YN	205		81	79	84	78					P	TT		
	P121P14	8/10/05	YN	3		83	88	87	86					P	TT		
	P111P14	8/10/05	YN	3		85	91	83	89					P	TT		
	P131P14	8/10/05	YN	3		81	88	89	79					P	TT		
	P151P19	8/10/05	YN	205		84	87	81	86					P	TT		
	P141P15	8/10/05	YN	205		92	83	89	80					P	TT		
	P141P19	8/10/05	YN	205		82	88	81	88					P	TT		
	P181P19	8/10/05	YN	205		80	86	79	86					P	TY		

**DESTRUCTIVE TESTING FIELD** - SEAMENS

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	PANEL SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)				FIELD TEST RESULTS SHEAR (ppi)				P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
	1120	8/10/05	YN	205		82	90	83	90					P	TT		
	21122	8/10/05	YN	205		81	89	80	87					P	TT		
	20122	8/10/05	YN	3		91	85	85	91					P	TT		
	20121	8/10/05	YN	3		82	92	88	90					P	TT		
	22125	8/10/05	YN	205		83	88	81	86					P	TT		
	21123	8/10/05	YN	205		84	80	84	86					P	TT		
	23125	8/10/05	YN	205		88	81	83	86					P	TT		
	24125	8/10/05	YN	205		80	86	81	86					P	TT		
	23124	8/10/05	YN	205		83	89	82	90					P	TT		
	25126	8/10/05	YN	205		88	81	83	87					P	TT		
	24126	8/10/05	YN	205		80	87	89	83					P	TT		
	27128	8/10/05	YN	205		82	86	81	89					P	TT		
	26128	8/10/05	YN	205		83	88	84	86					P	TT		
	26127	8/10/05	YN	205		81	86	83	86					P	TT		
	29130	8/11/05	YN	3		90	82	83	90					P	TT		
	28130	8/11/05	YN	3		93	88	92	83					P	TT		
	28129	8/11/05	YN	3		89	90	89	92					P	TT		
	29127	8/11/05	YN	3		92	87	87	91					P	TT		
	30131	8/11/05	YN	3		90	81	89	83					P	TT		
	29131	8/11/05	YN	3		81	89	88	83					P	TT		

**DESTRUCTIVE TESTING FIELD - SEAM ENDS**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	PANEL SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)				FIELD TEST RESULTS SHEAR (ppi)				P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
	31132	8/11/05	YN	3		87	78	86	80					P	TT		
	31133	8/11/05	YN	3		85	83	87	74					P	TT		
	32133	8/11/05	YN	3		78	84	69	83					P	TT		
	33134	8/11/05	YN	3		78	82	81	83					P	TT		
	32134	8/11/05	YN	3		81	88	82	86					P	TT		
	RP31P20	8/12/05	YN	205		77	81	76	83					P	TT		
	RP21P20	8/12/05	YN	205		79	83	81	75					P	TT		
	RP11P20	8/12/05	YN	205		76	89	79	81					P	TT		
	RP31P1	8/12/05	YN	205		81	83	78	81					P	TT		
	RP21P1	8/12/05	YN	205		78	86	79	86					P	TT		
	RP11P1	8/12/05	YN	205		80	79	83	78					P	TT		
	RP11RP20	8/12/05	YN	205		86	78	79	83					P	TT		
	RP41P20	8/12/05	YN	205		81	79	83	72					P	TT		
	RP51P20	8/12/05	YN	205		73	84	83	86					P	TT		
	RP51P1	8/12/05	YN	205		81	86	83	78					P	TT		
	RP41P1	8/12/05	YN	205		69	76	70	76					P	TT		
	RP71WR	8/12/05	YN	205		79	86	81	87					P	TT		
	RP51WR	8/12/05	YN	205		83	81	79	83					P	TT		
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	1																

**DESTRUCTIVE TESTING FIELD - SEAM ENDS**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	PANEL SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)				FIELD TEST RESULTS SHEAR (ppi)				P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
	35137	8/18/05	YN <sup>Ⓞ</sup>	3		71	69	73	71					P	TT		
	36137	8/18/05	YN <sup>Ⓞ</sup>	3		70	71	69	72					P	TT		
	35136	8/18/05	YN <sup>Ⓞ</sup>	3		76	74	75	73					P	TT		
	37138	8/18/05	YNE	205		80	79	78	81					P	TT		
	36138	8/18/05	YN <sup>Ⓞ</sup>	205		83	80	84	78					P	TT		
	38140	8/18/05	YN <sup>Ⓞ</sup>	3		68	73	72	71					P	TT		
	38139	8/18/05	YN <sup>Ⓞ</sup>	3		70	74	73	72					P	TT		
	39140	8/18/05	YN <sup>Ⓞ</sup>	205		81	79	85	71					P	TT		
	41142	8/18/05	YN <sup>Ⓞ</sup>	205		83	82	80	81					P	TT		
	40142	8/18/05	YN <sup>Ⓞ</sup>	3		73	76	71	73					P	TT		
	40141	8/18/05	YN <sup>Ⓞ</sup>	3		76	71	73	76					P	TT		
	39141	8/18/05	YN <sup>Ⓞ</sup>	3		75	69	73	70					P	TT		
	41143	8/18/05	YN <sup>Ⓞ</sup>	3		71	73	73	74					P	TT		
	42143	8/18/05	YN <sup>Ⓞ</sup>	3		79	73	76	73					P	TT		
	43145	8/18/05	YN <sup>Ⓞ</sup>	3		78	69	73	75					P	TT		
	44145	8/18/05	YN <sup>Ⓞ</sup>	3		71	76	72	76					P	TT		
	43144	8/18/05	YN <sup>Ⓞ</sup>	3		70	73	73	68					P	TT		
	34135	8/18/05	YN <sup>Ⓞ</sup>	3		73	77	78	72					P	TT		
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**DESTRUCTIVE TESTING FIELD** - SEAM ENDS

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	PANEL SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)				FIELD TEST RESULTS SHEAR (ppi)				P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
	45146	8/20/05	YN②	3		72	78	73	76					P	TT		
	44146	8/20/05	YN②	3		79	76	78	77					A	TT		
	47148	8/20/05	YN②	3		78	81	80	79					P	TT		
	46150	8/20/05	YN②	3		79	80	76	81					F	TT		
	45150	8/20/05	YN②	3		79	83	81	80					P	TT		
	47150	8/20/05	YN②	3		81	79	78	83					P	TT		
	46147	8/20/05	YN②	3		78	83	81	78					P	TT		
	46148	8/20/05	YN②	3		79	81	80	79					P	TT		
	48149	8/20/05	YN②	3		83	77	83	<del>78</del>					P	TT		
	47149	8/20/05	YN②	3		78	81	81	79					P	TT		
	49151	8/20/05	YN②	3		80	70	79	82					P	TT		
	52153	8/22/05	YN②	3		81	83	79	83					P	TT		
	51153	8/22/05	YN②	3		82	81	76	81					P	TT		
	51152	8/22/05	YN②	3		86	79	78	82					P	TT		
	52154	8/22/05	YN②	3		78	83	81	83					P	TT		
	53154	8/22/05	YN②	3		76	71	78	72					P	TT		
	54156	8/22/05	YN②	3		79	81	76	78					P	TT		
	55156	8/22/05	YN②	3		81	80	79	80					P	TT		
	54155	8/22/05	YN②	3		83	86	83	80					P	TT		
	55159	8/22/05	YN②	3		87	89	87	86					P	TT		

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	PANEL SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)				FIELD TEST RESULTS SHEAR (ppi)				P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
	57159	8/22/05	YN②	3		83	80	81	83					P	TT		
	55157	8/22/05	YN②	3		83	79	82	80					P	TT		
	55158	8/22/05	YN②	3		81	83	82	81					P	TT		
	56158	8/22/05	YN②	3		82	78	79	82					P	TT		
	58160	8/22/05	YN②	3		89	83	83	76					P	TT		
	60161	8/22/05	YN②	3		76	81	83	77					P	TT		
	61163	8/22/05	YN②	3		83	80	86	81					P	TT		
	62163	8/22/05	YN②	3		83	81	79	83					P	TT		
	61162	8/22/05	YN②	3		89	83	88	79					P	TT		
	62164	8/22/05	YN②	3		79	86	83	86					P	TT		
	63164	8/22/05	YN②	3		79	81	83	81					P	TT		
	64165	8/23/05	YN②	3		80	78	81	80					P	TT		
	65166	8/23/05	YN②	3		83	80	82	80					P	TT		
	66167	8/23/05	YN②	3		81	80	81	78					P	TT		
	67169	8/23/05	YN②	3		79	83	80	82					P	TT		
	68169	8/23/05	YN②	3		81	78	78	80					P	TT		
	67168	8/23/05	YN②	3		79	83	80	83					P	TT		
	68170	8/23/05	YN②	3		81	78	79	81					P	TT		
	69170	8/23/05	YN②	3		83	81	82	80					P	TT		
	70171	8/23/05	YN②	3		83	79	81	82					P	TT		

**DESTRUCTIVE TESTING FIELD** ✓ BEAM ENDS

PAGE: 8 of 10

DATE: \_\_\_\_\_

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)				FIELD TEST RESULTS SHEAR (ppi)				P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
	71172	8/23/05	YN②	3		81	83	84	80					P	YY		
	72173	8/23/05	YN②	3		82	83	80	78					P	YY		
	73174	8/23/05	YN②	3		81	79	78	51					P	YY		
	74175	8/23/05	YN②	3		80	78	80	79					P	YY		
	75176	8/23/05	YN②	3		76	81	80	78					P	YY		
	79180	8/23/05	YN②	3		79	83	84	79					P	YY		
	80181	8/23/05	YN②	3		81	80	80	78					P	YY		
	78179	8/23/05	YN②	3		83	86	79	86					P	YY		
	76183	8/23/05	YN②	3		77	83	83	76					P	YY		
	81182	8/23/05	YN②	3		83	80	81	83					P	YY		
	83184	8/23/05	YN②	3		80	81	81	79					P	YY		
	84185	8/23/05	YN②	3		78	83	84	81					P	YY		
	82185	8/23/05	YN②	3		83	80	83	78					P	YY		
	82184	8/23/05	YN②	3		86	81	80	79					P	YY		
	82183	8/23/05	YN②	3		81	79	78	80					P	YY		
	77185	8/23/05	YN②	3		80	79	83	81					P	YY		
	77182	8/23/05	YN②	3		76	80	79	80					P	YY		
	77181	8/23/05	YN②	3		83	80	83	78					P	YY		
	77180	8/23/05	YN②	3		78	86	79	81					P	YY		
	77179	8/23/05	YN②	3		89	83	83	86					P	YY		

**DESTRUCTIVE TESTING FIELD**

- SEAM END 3

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

QCA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)					FIELD TEST RESULTS SHEAR (ppi)					P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
	77178	8/23/05	YN@	3		81	80	80	83					P	TT				
	77186	8/23/05	YN@	3		81	81	80	79					P	TT				
	86187	8/23/05	YN@	3		83	82	83	78					P	TT				
	87188	8/23/05	YN2	3		78	81	80	76					P	TT				
	88189	8/23/05	YN@	3		79	80	80	82					P	TT				
	90191	8/24/05	YN@	3		81	86	90	83					P	TT				
	89190	8/24/05	YN@	3		79	88	83	86					P	TT				
	89191	8/24/05	YN@	3		81	89	88	92					P	TT				
	91192	8/24/05	YN@	3		90	86	89	83					P	TT				
	90192	8/24/05	YN@	3		81	79	83	87					P	TT				
	92193	8/24/05	YN@	3		78	87	81	79					P	TT				
	93194	8/24/05	YN@	3		79	83	78	81					P	TT				
	92194	8/24/05	YN@	3		80	81	83	80					P	TT				
	94195	8/24/05	YN@	3		86	82	80	85					P	TT				
	93195	8/24/05	YN@	3		83	86	81	80					P	TT				
	95196	8/24/05	YN@	3		79	86	78	86					P	TT				
	96197	8/24/05	YN@	3		83	82	80	83					P	TT				
	97198	8/24/05	YN@	3		81	84	85	83					P	TT				
	98199	8/24/05	YN@	3		83	77	81	89					P	TT				
	1001101	8/24/05	YN@	3		76	88	79	86					P	TT				

**DESTRUCTIVE TESTING FIELD** - SEAM ENDS

PAGE: 10/10

DATE: \_\_\_\_\_

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	PANEL SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/STATION	FIELD TEST RESULTS PEEL (ppi)				FIELD TEST RESULTS SHEAR (ppi)				P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
	991101	8/24/05	YN①	3		79	83	82	86					P	TC		
	991100	8/24/05	YN②	3		81	89	83	88					P	TC		
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**PANEL SEAMING SUMMARY**

PAGE: 18/10  
 DATE: \_\_\_\_\_

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

SEAM ID (PANELS)	DATE SEAMED	AMBIENT TEMP. (°F)	TIME		SEAMER INIT.	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	SEAM LENGTH	SEAMING DIRECT.	COMMENTS
			START	STOP							
P2 1 P3	8/9/05	98	1450		HL	288	750/7.5	FUSION	22'	E	X SEAM
P1 1 P3	8/9/05	98	1450	→	YN	3	750/8.0	↓	76'	S	
P1 1 P2	8/9/05	98	←		YN	3	750/8.0	↓	397'	S	
P3 1 P4	8/9/05	98	1520	→	HL	288	750/7.5	↓	76'	S	
P2 1 P4	8/9/05	98	↗		HL	288	750/7.5	↓	397'	S	
P4 1 P5	8/9/05	98	1530		YN	3	750/8.0	↓	320'	N	
P5 1 P6	8/9/05	99	1606	1603	YN	3	750/8.0	↓	22'	E	X SEAM
P4 1 P6	8/9/05	99	1610		YN	3	750/8.0	↓	153'	N	
P6 1 P7	8/9/05	99	1615		HL	288	750/7.5	↓	153'	N	
P5 1 P7	8/9/05	99			HL	288	750/7.5	↓	318'	N	
P7 1 P9	8/9/05	98	1646		YN	3	750/8.0	↓	233'	S	
P8 1 P9	8/9/05	98	1705	1708	YN	3	750/8.0	↓	22'	S	X SEAM
P7 1 P8	8/9/05	98	1708		YN	3	750/8.0	↓	234'	E	
P9 1 P10	8/9/05	97	1720		HL	288	750/7.5	↓	230'	S	
P8 1 P10	8/9/05	97	1730		YN	3	750/8.0	↓	236'	S	
P11 1 P13	8/10/05	85	0740		YN	3	750/8.0	↓	22'	E	X SEAM
P10 1 P13	8/10/05	85	0800		YN	3	750/8.0	↓	27'	S	
<b>TOTAL SEAM LENGTH</b>											

**PANEL SEAMING SUMMARY**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

SEAM ID (PANELS)	DATE SEAMED	AMBIENT TEMP. (°F)	TIME		SEAMER INIT.	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	SEAM LENGTH	SEAMING DIRECT.	COMMENTS
			START	STOP							
P101/P11	8/10/05	86		0822	YN	3	750/8	FUSION	161'	S	
P111/P12	8/10/05	86	0825	8	YN	3	↓	↓	22'	E	X SEAM
P101/P12	↓	86	0835		↓	↓	↓	↓	277'	S	
P141/P18	8/10/05	86	0850		YN2	205	730/8	↓	36'	N	
P141/P17	↓		↓		YN2	205	↓	↓	22'	N	<del>XXXXXXXXXX</del>
P141/P16	↓				↓	↓	↓	↓	61'	N	
P121/P14	↓	87	0900		YN	3	750/8	↓	242'	N	
P111/P14	↓				↓	↓	↓	↓	161'	N	
P131/P14	↓				↓	↓	↓	↓	27'	N	
P151/P19	↓	87	0915	0917	YN2	205	730/8	↓	14'	E	
P141/P15	↓	87	0920	7	YN2	205	730/8	↓	112'	N	
P141/P19	↓			0934	↓	↓	↓	↓	71'	N	
P181/P19	↓	88	0935		YN2	205	730/8	↓	9'	E	
P11/P20	↓	88	1000	1043	YN2	205	730/8	↓	472'	S	
P21/P22	↓	89	1046	1048	YN2	205	730/8	↓	22'	W	
P201/P22	↓	89	1048	70	YN	3	750/8	↓	170'	S	
P201/P21	↓			↓	↓	↓	↓	↓	302'	S	
<b>TOTAL SEAM LENGTH</b>											

**PANEL SEAMING SUMMARY**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

SEAM ID (PANELS)	DATE SEAMED	AMBIENT TEMP. (°F)	TIME		SEAMER INIT.	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	SEAM LENGTH	SEAMING DIRECT.	COMMENTS
			START	STOP							
P221/P23	8/10/05	90	1100		YN2	205	730/8.5	FUSION	170'	S	
P211/P23	8/10/05			1150	↓	↓	↓	↓	303	S	
P231/P25	↓	96	1343		YN2	↓	↓	↓	245'	S	
P251/P26	↓		<del>1447</del> 1407		↓	↓	↓	↓	262'	S	X SEAM
P241/P26	↓				↓	↓	↓	↓	228'	S	
P241/P25	↓		1509	1510	↓	↓	↓	↓	22'	W	X SEAM
P271/P28	↓		1510	1512	↓	↓	↓	↓	22'	W	X SEAM
P231/P24	↓		1514		↓	↓	↓	↓	228'	S	
P261/P28	↓		1620		↓	↓	↓	↓	406'	S	
P261/P27	↓				↓	↓	↓	↓	106'	S	
P291/P30	8/11/05	85	0800	0802	YN	3	730/8.5	↓	22'	W	X SEAM
P281/P30	8/11/05	85	0805		↓	↓	↓	↓	59'	S	
P281/P29	↓				↓	↓	↓	↓	348	S	
P291/P27	↓				↓	↓	↓	↓	102'	S	
P301/P31	↓	88	0858		↓	↓	↓	↓	66'	S	
P291/P31	↓				↓	↓	↓	↓	456'	S	
P311/P32	↓	91	0943	1018	YN	3	730/8.5	↓	282'	N	
TOTAL SEAM LENGTH											

**PANEL SEAMING SUMMARY**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

SEAM ID (PANELS)	DATE SEAMED	AMBIENT TEMP. (°F)	TIME		SEAMER INIT.	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	SEAM LENGTH	SEAMING DIRECT.	COMMENTS
			START	STOP							
P31/P33	8/11/05	92	1018	1037	YN	3	730/8.5	FUSION	235'	N	
P32/P33	8/11/05	93	1038	1040	YN	3	730/8.5	↓	22'	W	X SEAM
P33/P34	↓	95	1011	1132	YN	3	730/8.5	↓	234		
P32/P34	↓	98	1300	1327	YN	3	730/8.5	↓	288'		
RP3/P20	8/12/05	90	0920		YNZ	205	730/8.5	↓	61'		
RP2/P20	↓				↓	↓	↓	↓	60'		
RP1/P20	↓				↓	↓	↓	↓	60'		
RP3/P1	↓	92	0955		YNZ	205	730/8.5	↓	61'		
RP2/P1	↓		1		↓	↓	↓	↓	60'		
RP1/P1	↓				↓	↓	↓	↓	60'		
RP1/APP20	↓	92	1015		YNZ	205	730/8.5	↓	131'		
RP1/RP2	↓						COVER BY PATCH		2'		
RP2/RP3	↓						COVER BY PATCH		2'		
RP4/P20	↓	94	1045		YNZ	205	730/8.5	FUSION	57'		
RP5/P20	↓				↓	↓	↓	↓	43'		
RP6/P1	↓	95	1105		YNZ	↓	↓	↓	43'		
RP4/P1	↓				↓	↓	↓	↓	57'		
<b>TOTAL SEAM LENGTH</b>											

**PANEL SEAMING SUMMARY**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

SEAM ID (PANELS)	DATE SEAMED	AMBIENT TEMP. (°F)	TIME		SEAMER INIT.	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	SEAM LENGTH	SEAMING DIRECT.	COMMENTS
			START	STOP							
P71WR	8/12/05	90	1240		YN2	205	730/8.5	FUS	35'	NF	
P51WR	8/12/05	90	1248		YN2	205	730/8.5	FUS	36'	NE	
P351P37	8/18/05	87	0817		YN1	3	730/8.5	FUS	205	S	
P361P37	8/18/05	87	0835		YN	3	730/8.5	FUS	22'	W	X SEAM
<del>P351P36</del>	↓	87	0839		YN	3	730/8.5	FUS	320'	S	
P371P38	8/18/05	88	0840	↗	YN2	205	730/8.5	FUS	212'	S	
P361P38	↓		↘		↓	↓	↓	FUS	309	S	
P381P40	8/18/05	89	0940	↗	YN①	3	730/8.5	FUS	385'	S	
P381P39	"		↖		"	"	"	FUS	130'	S	
P391P40	8/18/05	89	0951		YN②	205	730/8.5	FUS	22'	W	X SEAM
P411P42	8/18/05	91	1040		YN③	205	730/8.5	FUS	22'	W	
P401P42	8/18/05	91	1041	↗	YN①	3	730/8.5	FUS	37'	S	
P401P41	"		"	↖	"	"	"	FUS	355'	S	
P391P41	"		↖		"	"	"	FUS	120'	S	
P411P43	8/18/05	90	1110		YN①	3	730/8.5	FUS	464'	N	
P421P43	8/18/05	92	1315		YN①	3	730/8.5	FUS	42'	N	
P431P45	8/18/05		1344		YN②	3	730/8.5	FUS	183'	S	
TOTAL SEAM LENGTH											

**PANEL SEAMING SUMMARY**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

SEAM ID (PANELS)	DATE SEAMED	AMBIENT TEMP. (°F)	TIME		SEAMER INIT.	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	SEAM LENGTH	SEAMING DIRECT.	COMMENTS
			START	STOP							
P44   P45	8/18/05	1	1405		YN①	3	730/8.5	Fu	22'	W	X SEAM
P43   P44	8/18/05		1408		YN①	3	730/8.5	Fu	517'	S	
P34   P35	8/18/05		1505		YN①	3	730/8.5	Fu	526'	S	
P45   P46	8/20/05	86	0900	↗	YN②	3	730/7.0	Fu	176'	S	
P44   P46	"		↖		YN②	3	730/7.0	Fu	309'	S	
P47   P48	8/20/05	87	0930		YN②	3	730/7.0	Fu	22'	W	X SEAM
P46   P50	8/20/05	87	0933		YN②	3	730/7.0	Fu	22'	W	X SEAM
P45   P50	8/20/05	88	0940		YN②	3	730/7.0	Fu	18'	N	
P47   P50	8/20/05	88	0948	↗	YN②	3	730/7.0	Fu	25'	S	
P46   P47	8/20/05			↖				Fu	159'	S	
P46   P48				↖				Fu	314'	S	
P48   P49	8/20/05	89	1026	↗	YN②	3	730/7.0	Fu	305'	N	
P47   P49				↖				Fu	186'	N	
P49   P51	8/20/05	90	1105		YN②	3	730/7.0	Fu	482'	S	
P52   P53	8/22/05	92	1307		YN②	3	730/7.5	Fu	22'	W	X SEAM
P51   P53	8/22/05	92	1310	↗	YN②	3	730/7.5	Fu	119'	N	
P51   P52	8/22/05			↖	YN②	3	730/7.5	Fu	366'	N	
<b>TOTAL SEAM LENGTH</b>											

**PANEL SEAMING SUMMARY**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

SEAM ID (PANELS)	DATE SEAMED	AMBIENT TEMP. (°F)	TIME		SEAMER INIT.	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	SEAM LENGTH	SEAMING DIRECT.	COMMENTS
			START	STOP							
P521P54	8/22/05	93	1400		YN②	3	730/7.5	Fu	363'	S	
P531P54	8/22/05	93			"	"	"	Fu	111'	S	
P541P56	8/22/05	94	1445		YN②	3	730/7.5	Fu	183'	N	
P551P56	8/22/05	94	1500		YN②	3	730/7.5	Fu	22'	W	X SEAM
P541P55	8/22/05	94	1505		YN②	3	730/7.5	Fu	276'	N	
P581P59	8/22/05	95	1525		YN②	3	730/7.5	Fu	79'	S	
P571P59	8/22/05	95	1537		YN②	3	730/7.5	Fu	11'	W	X SEAM
P551P57	8/22/05	95	1540		YN②	3	730/7.5	Fu	83'	S	
P551P58	8/22/05	95	1550		YN②	3	730/7.5	Fu	13'	N	
P561P58	8/22/05	95			YN②	3	730/7.5	Fu	173'	N	
P581P60	8/22/05	94	<del>1605</del>		YN②	3	730/7.5	Fu	173'	N	
P601P61	8/22/05	94	1615		YN②	3	730/7.5	Fu	173'	S	
P611P63	8/22/05	94	1625		YN②	3	730/7.5	Fu	90'	N	
P621P63	8/22/05	94	1636		YN②	3	730/7.5	Fu	22'	W	X SEAM
P611P62	8/22/05	93	1640		YN②	3	730/7.5	Fu	82'	N	
P621P64	8/22/05	93	1644		YN②	3	730/7.5	Fu	78'	S	
P631P64	8/22/05	93	1653		YN②	3	730/7.5	Fu	96'	S	
<b>TOTAL SEAM LENGTH</b>											

**PANEL SEAMING SUMMARY**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

SEAM ID (PANELS)	DATE SEAMED	AMBIENT TEMP. (°F)	TIME		SEAMER INIT.	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	SEAM LENGTH	SEAMING DIRECT.	COMMENTS
			START	STOP							
P64/P65	8/23/05	78	0710		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	175'	S	
P65/P66	8/23/05	78	0726		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	178'	N	
P66/P67	8/23/05	79	0741		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	178'	S	
P67/P69	8/23/05	79	0759		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	118'	N.	
P68/P69	8/23/05	79	0812		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	<del>82</del> 22'	W	
P67/P68	8/23/05	79	0816		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	60'	N	
P68/P70	8/23/05	79	0822		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	55'	S	
P69/P70					U				125'	S	
P70/P71	8/23/05	80	0837		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	180'	N	
P71/P72	8/23/05	80	0853		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	180'	S	
P72/P73	8/23/05	80	0908		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	180'	N	
P73/P74	8/23/05	81	0925		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	181'	S	
P74/P75	8/23/05	81	0941		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	183'	N	
P75/P76	8/23/05	82	1003		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	183'	S	
P79/P80	8/23/05	85	1114		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	26'	SE	
P80/P81	8/23/05	85	1120		YN <sup>Ⓢ</sup>	3	730/7.5	Fu	39'	NW	
P78/P79	8/23/05	86	1250		YN	3	730/7.5	Fu	13'	SE	
<b>TOTAL SEAM LENGTH</b>											

**PANEL SEAMING SUMMARY**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

SEAM ID (PANELS)	DATE SEAMED	AMBIENT TEMP. (°F)	TIME		SEAMER INIT.	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	SEAM LENGTH	SEAMING DIRECT.	COMMENTS
			START	STOP							
P761P83	8/23/05	86	1255		YN <sup>(2)</sup>	3	730/8.5	Fu	189'	N	
P811P82	8/23/05	86	1310		YN <sup>(2)</sup>	3	730/8.5	Fu	52'	SE	
P831P84	8/23/05	86	1325		YN <sup>(2)</sup>	3	730/8.5	Fu	211	N	
P841P85	8/23/05	86	1344		YN <sup>(2)</sup>	3	730/8.5	Fu	188	N	
P821P85	8/23/05	87	1416		YN <sup>(2)</sup>	3	730/8.5	Fu	26'	SE	
P821P84								Fu	27'	SE	
P821P83								Fu	17'	SE	
P771P85	8/23/05	87	1425		YN <sup>(2)</sup>	3	730/8.5	Fu	170'	S	
P771P82					"	"	"	Fu	26'	S	
P771P81					"	4	"	Fu	26'	S	
P771P80					"	4	"	Fu	26'	S	
P771P79					"	4	"	Fu	26'	S	
P771P78					"	4	"	Fu	23'	S	
P771P86	8/23/05	87	1455		YN <sup>(2)</sup>	3	730/8.5	Fu	284'	N	
P861P87	8/23/05	88	1517		YN <sup>(2)</sup>	3	730/8.5	Fu	274'	S	
P871P88	8/23/05	88	1537		YN <sup>(2)</sup>	3	730/8.5	Fu	266'	N	
P881P89	8/23/05	88	1600		YN <sup>(2)</sup>	3	730/8.5		253'	N	
<b>TOTAL SEAM LENGTH</b>											

**PANEL SEAMING SUMMARY**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

SEAM ID (PANELS)	DATE SEAMED	AMBIENT TEMP. (°F)	TIME		SEAMER INIT.	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	SEAM LENGTH	SEAMING DIRECT.	COMMENTS
			START	STOP							
P901 P91	8/24/05	80	0750		YN②	3	730/7.5	Fu	22'	W	X SEAM
P891 P90	8/24/05	80	0800		YN②	3	730/7.5	Fu	44'	S	
P891 P91	8/24/05				YN②	3	730/7.5	Fu	200'	S	
P911 P92	8/24/05	81	0820		YN②	3	730/7.5	Fu	196'	N	
P901 P92	8/24/05				YN②	3	730/7.5	Fu	39'	N	
P921 P93	8/24/05	83	0842		YN②	3	730/7.5	Fu	179'	S	
P931 P94	8/24/05	83	0856		YN②	3	730/7.5	Fu	22'	W	X SEAM
P921 P94	8/24/05	83	0900		YN②	3	730/7.5	Fu	42'	S	
P941 P95	8/24/05	83	0910		YN②	3	730/7.5	Fu	38'	N	
P931 P95	8/24/05				Y			Fu	173'	N	
P951 P96	8/24/05	84	0928		YN②	3	730/7.5	Fu	203'	N	
P961 P97	8/24/05	85	0947		YN②	3	730/7.5	Fu	188'	N	
P971 P98	8/24/05	86	1005		YN②	3	730/7.5	Fu	180'	N	
P981 P99	8/24/05	86	1020		YN②	3	730/7.5	Fu	170'	N	
P1001 P101	8/24/05	88	1115		YN	3	730/7.5	Fu	11'	W	
P991101	8/24/05	88	1117		YN	3	730/7.5	Fu	87'	N	
P991 P100					YN	3	730/7.5	Fu	75'	N	
<b>SEAMING COMPLETE</b>								TOTAL SEAM LENGTH			

**REPAIR SUMMARY**

PAGE: 1 of 14  
 DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

QCA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								TRW DATE TESTED	PASS/FAIL	
	8/11/05	0900	KN	4	P14-P17-P18	PATCH	3'x7'	8/11/05 SC	P	T. INTER
	8/11/05		KN	4	P14-P16-P17	PATCH	2'x4'	8/11/05 SC	P	T. INTER
	8/11/05		KN	4	P14-P18-P19	PATCH	2'x5'	8/11/05 SC	P	T. INTER
	8/11/05		KN	4	P14-P19 45' N SEOS	PATCH	1'x2'	8/11/05 SC	P	-
	8/11/05		KN	4	P14-P15-P19	PATCH	1'x2'	8/11/05 SC	P	T. INTER
	8/11/05		KN	4	P14 EXTENSION S. EOS	PATCH	5'x16'	8/12/05 SC	P	
	8/11/05		KN	4	P11-P14 129' N SEOS	PATCH	3'x6'	8/11/05 SC	P	
	8/11/05		KN	4	P11-P13-P14	PATCH	1'x1'	8/11/05 SC	P	T. INTER
	8/11/05		KN	4	P10 EXTENSION N END P.	EXTENSION	5'x22'	8/11/05 SC	P	
	8/11/05		KN	4	P9-P10 7' SNEOS	PATCH	1'x2'	8/11/05 SC	P	
	8/11/05		KN	4	P7-P9 NEOS TO 8' SNEOS	EXTENSION WELD		8/11/05 SC	P	
	8/11/05		KN	4	P7-P9 8' SNEOS	PATCH	1'x2'	8/11/05 SC	P	
	8/11/05		KN	4	P1-P3 NEOS TO SEOS	EXTENSION WELD		8/11/05 SC	P	
	8/11/05		KN	4	P1-P3 7' SNEOS	PATCH	1'x1'	8/11/05 SC	P	
	8/11/05		YN	4	P20-P21 295' SNEOS	PATCH	1'x1'	8/12/05 SC	P	
	8/11/05		YN	4	P20-P21 295' SNEOS TO SEOS	EXTENSION WELD		8/12/05 SC	P	
	8/11/05		YN	4	P21-P23 295' SNEOS	PATCH	<del>1'x2'</del>	8/12/05 SC	P	

REPAIR SUMMARY

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/FAIL	
	8/11/05		YN	4	P21 - P23 275' SNEEDS TO SEOS	EXT. WELD		8/12/05 SC	P	
	8/11/05		YN	4	P23 - P24 222' SNEEDS	PATCH	1' x 1'	8/11/05 SC	P	
	8/11/05		YN	4	P23 - P24 222' SNEEDS TO SEOS	EXTRUSION WELD		8/11/05 SC	P	
	8/11/05		YN	4	P23 - P24 EXTENSION ON SEOS	EXTENSION PATCH	5' x 17'	8/11/05 SC	P	
	8/11/05		YN	4	P24 - P25 ON SEOS	EXTENSION	5' x 20'	8/11/05 SC	P	
	8/11/05		YN	4	210' S OF P24 - P25 11' W OF P25	PATCH	2' x 5'	8/11/05 SC	P	
	8/12/05		KN	4	P11 - P12 - P14	PATCH	1' x 1'	8/12/05 SC	P	T INTER
	8/12/05		KN	4	P11 - P12 12' W OF SEOS	PATCH	2' x 8'	8/12/05 SC	P	
	8/12/05		KN	4	P11 - P12 - P10	PATCH	2' x 3'	8/12/05 SC	P	T INTER
	8/12/05		KN	4		PATCH	8' x 9'	8/12/05 SC	P	BOOT
	8/12/05		KN	4	P12	PATCH	5' x 5'	8/12/05 SC	P	BOOT
	8/12/05		KN	4	P10	PATCH	4' x 11'	8/12/05 SC	P	BOOT
	8/12/05		KN	4	P10	PATCH	4' x 14'	8/12/05 SC	P	BOOT
	8/12/05		KN	4	P10 - P12 30' SNEEDS	PATCH	2' x 5'	8/12/05 SC	P	DT-8

**REPAIR SUMMARY**

PAGE: 3 of 4  
 DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/ FAIL	
	8/12/05		KN	4	P8-P9-P10	PATCH	3'x3'	8/12/05 SC	P	T. INTER
	8/12/05		KN	4	P7-P8-P9	PATCH	3'x5'	8/12/05 SC	P	T. INTER
	8/12/05		KN	4	P7-P8 12'S SNEOS	PATCH	2'x5'	8/12/05 SC	P	DT-5
	8/12/05		YN	4	P7-P8 171'S SNEOS	PATCH	2'x3'	8/12/05 SC	P	
	8/12/05		KN	4	P5-P6-P7	PATCH	2'x4'	8/12/05 SC	P	T. INTER
	8/12/05		KN	4	P4-P5-P6	PATCH	2'x3'	8/12/05 SC	P	T. INTER
	8/12/05		KN	4	P4-P5 235'S N SNEOS	PATCH	2'x5'	8/12/05 SC	P	DT-3
	8/12/05		KN	4	P2-P4 129'S SNEOS	PATCH	2'x5'	8/12/05 SC	P	DT-2
	8/12/05		KN	4	P2-P3-P4	PATCH	1'x7'	8/12/05 SC	P	T. INTER
	8/12/05		KN	4	P1-P2-P3	PATCH	2'x4'	8/12/05 SC	P	T. INTER
	8/12/05		KN	4	P1-P20 NEOS TO 6'S SNEOS	EXTRUSION WELD		8/12/05 SC	P	
	8/12/05		KN	4	P1-P20 6'S SNEOS	PATCH	1'x1'	8/12/05 SC	P	
	8/12/05		KN	4	P1-P2 102'S SNEOS	PATCH	2'x5'	8/12/05 SC	P	DT-1
	8/12/05		YN	4	P12-P14 184'S SNEOS	PATCH	2'x5'	8/12/05 SC	P	DT-8
	8/12/05		YN	4	P8-P10 48'S SNEOS	PATCH	2'x5'	8/12/05 SC	P	DT-6
	8/12/05		YN	4	P7-P8 171'S SNEOS	PATCH	2'x3'	8/12/05 SC	P	
	8/12/05		YN	4	P5-P7 282'S SNEOS	PATCH	2'x3'	8/12/05 SC	P	

**REPAIR SUMMARY**

PROJECT LOCATION:  
 PROJECT NAME:  
 PROJECT NUMBER:

CQA MONITOR(S): \_\_\_\_\_  
 DATA INPUT: \_\_\_\_\_  
 BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/FAIL	
	8/12/05		YN	4	P5 - P7 85' N SNEOS	PATCH	2' x 5'	8/12/05 SC	P	DT-4
	8/12/05		YN	4	P4 - P5 26' N SNEOS	PATCH	2' x 3'	8/12/05 SC	P	
	8/12/05		YN	4	P4 - P5 5605 TO 10' N SNEOS	EXPANSION WELD		8/12/05 SC	P	
	8/12/05		YN	4	P4 - P5 10' N SNEOS	PATCH	2' x 4'	8/12/05 SC	P	
	8/12/05		YN	4	P2 - P4 34' SNEOS	PATCH	1' x 1'	8/12/05 SC	P	
	8/12/05		YN	4	P1 - P2 352' SNEOS TO SNEOS	PATCH	2' x 15'	8/12/05 SC	P	
	8/12/05		YN	4	358' N OF P1 - P2 AND 7' W IN P1	PATCH	1' x 1'	8/12/05 SC	P	
	8/12/05		YN	4		PATCH	2' x 5'	8/12/05 SC	P	DT-9
	8/12/05		YN	4	RP5 - P1 - P2 466' SNEOS TO SNEOS	WRINKLE REPAIR PATCH	7' x 10'	8/12/05 SC	P	
	8/12/05		YN	4	RP-4 - RP5 - P1 - P20	WRINKLE PATCH	3' x 3'	8/12/05 SC	P	T-INTER
	8/12/05		YN	4	P20 - P21 47' SNEOS	PATCH	2' x 5'	8/13/05 SC	P	DT-10
	8/12/05		YN	4	P21 - P23 50' SNEOS TO 65' SNEOS	PATCH	2' x 15'	8/13/05 SC	P	
	8/12/05		YN	4	P21 - P23 75' SNEOS	PATCH	2' x 5'	8/13/05 SC	P	DT-11
	8/12/05		YN	4	P23 - P24 10' SNEOS	PATCH	2' x 5'	8/13/05 SC	P	DT-12
	8/12/05		YN	4	P23 - P24 - P25	PATCH	5' x 7'	8/13/05 SC	P	T-INTER
	8/12/05		YN	4	RP-3 - P1 - P20	WRINKLE PATCH	3' x 4'	8/12/05 SC	P	T-INTER
	8/12/05		YN	4	RP-4 - P1 - P20	WRINKLE PATCH	3' x 4'	8/12/05 SC	P	T-INTER
	8/12/05		YN	4	P12 - P14 S END SE CORNER OF COVER	BOOT	3' x 3'	8/12/05 SC	P	BOOT ANCHOR TRENCH DRAIN OUTLET 8/12/2005

REPAIR SUMMARY

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

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PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/FAIL	
	8/13/05		YN	28	RP1-PI-P20 54'S SNEOS	WRINKLE REP. PATCH	5'x6'	8/13/05 SC	P	T INTER
	8/13/05		YN	28	RP1-P20 29'S SNEOS	PATCH	2'x5'	8/13/05 SC	P	DT-19
	8/13/05		YN	28	RP1-RP2-PI- P20	PATCH	3'x3'	8/13/05 SL	P	T INTER
	8/13/05		YN	28	RP2-RP3-PI- P20	PATCH	3'x4'	8/13/05 SL	P	INTER.
	<del>8/13/05</del>		<del>YN</del>	<del>28</del>	<del>RP4-PI</del> RP-4/PI			<del>8</del>		<del>T INTER</del>
	8/13/05		YN	28	RP4-PI 10'S SNEOS	PATCH	2'x5'	8/13/05 SL	P	DT-20
	8/13/05		YN	28	P20-P21-P22	PATCH	1'x1'	8/13/05 SC	P	T. INTER
	8/13/05		YN	28	P20-P22 NEOS TO 8'S SNEOS	EXTRUSION WELD		8/13/05 SL	P	
	8/13/05		YN	28	P20-P21 8'S SNEOS	PATCH	1'x1'	8/13/05 SC	P	
	8/13/05		YN	28	P21-P22-P23	PATCH	1'x1'	8/13/05 SC	P	T INTER
	8/13/05		YN	28	P23-P25 35'S SNEOS TO 50'S SNEOS	PATCH	2'x12'	8/13/05 SL	P	
	8/13/05		YN	28	P23-P25 NEOS TO 7'S SNEOS	EXTRUSION WELD		8/13/05 SC	P	
	8/13/05		YN	28	P23-P25 7'S SNEOS	PATCH	1'x1'	8/13/05 SL	P	
	8/13/05		YN	28	P25-P26 NEOS TO 8'S SNEOS	EXTRUSION WELD		8/13/05 SL	P	
	8/13/05		YN	28	P25-P26 8'S SNEOS	PATCH	1'x1'	8/13/05 SC	P	
	8/13/05		YN	28	P25-P26 14'S SNEOS	PATCH	2'x4'	8/13/05 SC	P	
	8/13/05		YN	28	P25-P26 170'S SNEOS	PATCH	1'x1'	8/13/05	P	

**REPAIR SUMMARY**

PAGE: 6 of 14  
 DATE: \_\_\_\_\_

PROJECT LOCATION:  
 PROJECT NAME:  
 PROJECT NUMBER:

CQA MONITOR(S): \_\_\_\_\_  
 DATA INPUT: \_\_\_\_\_  
 BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/FAIL	
	8/13/05		YN	28	P25-P26 170'SNEOS TO 180'SNEOS	EXTRUSION WELD		8/13/05 SC	P	
	8/13/05		YN	28	P25-P26 180'SNEOS	PATCH	1'x1'	8/13/05 SC	P	
	8/13/05		YN	28	P24-P25-P26	PATCH	1'x2'	8/13/05 SC	P	T. INTER
	8/13/05		YN	28	P26-P27-P28	PATCH	2'-7'	8/13/05 SC	P	T. INTER
	8/13/05		YN	28	P26-28 270'SNEOS	PATCH	2'x5'	8/13/05 SC	P	DT-14
	8/13/05		YN	28	P26-P28 NEOS TO 7'SNEOS	EXTENSION WELD		8/13/05 SC	P	
	8/13/05		YN	28	P26-P28 7'SNEOS	PATCH	1'x2'	8/13/05 SC	P	
	8/13/05		YN	28	P28-P30 NEOS TO 8'SNEOS	EXTR. WELD		8/13/05 SC	P	
	8/13/05		YN	28	P28-P30 8'SNEOS	PATCH	1'x2'	8/13/05 SC	P	
	8/13/05		YN	28	P28-P29-P30	PATCH	2'x3'	8/13/05 SC	P	T. INTER.
	8/13/05		YN	28	P28-P29 177'SNEOS	PATCH	3'x5'	8/13/05 SC	P	DT-15
	8/13/05		YN	28	P27-P28-P29	PATCH	2'x3'	8/13/05 SC	P	T. INTER
	8/13/05		YN	28	P29-P30 166'SNEOS	PATCH	2'x5'	8/13/05 SC	P	DT-16
	8/13/05		YN	28	P29-P30-P31	PATCH	2'x6'	8/13/05 SL	P	T. INTER
	8/13/05		YN	28	P30-P31 NEOS TO 8'SNEOS	EXTR. WELD		8/19/05 SC	P	
	8/13/05		YN	28	P30-P31 8'SNEOS	PATCH	1'x1'	8/19/05 SL	P	
	8/13/05		YN	28	P33-P34 172'SNEOS	PATCH	2'x5'	8/19/05 SC	P	DT-18

**REPAIR SUMMARY**

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/FAIL	
	8/13/05		YN	28	P32-P33-P34	PATCH	2'x5'	8/19/05 SC	P	T. INTER
	8/19/05		YN	28	P27-P29 97'S NEOS	PATCH	1'x1'	8/19/05 SC	P	
	8/19/05		YN	28	P27-P29 97'S NEOS TO S603	EXTR WELD		8/19/05 SC	P	
	8/19/05		YN	28	P31-P32 211'S NEOS	PATCH	2'x5'	8/19/05 SC	P	DT-17
	8/19/05		YN	28	P31-P32-P33	PATCH	2'x5'	8/19/05 SC	P	T. INTER
	8/19/05		YN	28	P31-P33, NEOS TO 10'S NEOS	EXTRUSION WELD		8/19/05 SC	P	
	8/19/05		YN	28	P31-P33 10'S NEOS	PATCH	1'x1'	8/19/05 SC	P	
	8/19/05		YN	28	P33-P34 NEOS-5'S NEOS	EXTR. WELD		8/19/05 SC	P	
	8/19/05		YN	28	P33-P34 5'S NEOS	PATCH	1'x2'	8/19/05 SC	P	
	8/19/05		YN	28	P29-P31 440'S NEOS	PATCH	2'x3'	8/19/05 SC	P	
	8/19/05		YN	28	P34-P35 NEOS TO 21'S NEOS	EXT WELD		8/19/05 SC	P	
	8/19/05		YN	28	P34-P35 21'S NEOS	PATCH	1'x2'	8/19/05 SC	P	
	8/19/05		YN	28	P34-P35 362'S NEOS	PATCH	2'x5'	8/19/05 SC	P	DT-27
	8/19/05		YN	28	P35 510'S P34/P35 & 3W IN P35	PATCH	1'x1'	8/19/05 SC	P	
	8/19/05		YN	28	445'S OF P29-P31 AND 9'E IN P29	PATCH	3'x3'	8/19/05 SC	P	BOOT
	8/19/05		YN	28	P35-P36-P37	PATCH	2'x4'	8/19/05 SC	P	T. INTER
	8/19/05		YN	28	11' N OF P35-P37 AND 2' W IN P37	PATCH	1'x1'	8/19/05 SC	P	

**REPAIR SUMMARY**

PAGE: 8 of 14  
 DATE: \_\_\_\_\_

PROJECT LOCATION:  
 PROJECT NAME:  
 PROJECT NUMBER:

CQA MONITOR(S): \_\_\_\_\_  
 DATA INPUT: \_\_\_\_\_  
 BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/FAIL	
	8/19/05		YN	28	5' N OF P35-P37 4'6" W IN P37	PATCH	1'x1'	8/19/05 SC	P	
	8/19/05		YN	28	P36-P37 FEEDS TO S WELDS	EXTR. WELD		8/19/05 SC	P	
	8/19/05		YN	28	P36-P37 5' N FEEDS	PATCH	2'x3'	8/19/05 SC	P	
	8/19/05		YN	28	P35-P36 155' S NEOS	PATCH	2'x5'	8/19/05 SC	P	DT-21
	8/19/05		YN	28	P36-P37 13' W FEEDS	PATCH	1' x 1'	8/19/05 SC	P	
	8/19/05		YN	28	11' N OF P37-P38 AND 2' E IN P37	PATCH	1'x1'	8/19/05 SC	P	
	8/19/05		YN	28	P37-P38 5' N SEOS	PATCH	1'x1'	8/19/05 SC	P	
	8/19/05		YN	28	P36-P37-P38	PATCH	2'x3'	8/19/05 SC	P	T INTER.
	8/19/05		YN	28	P37-P38 130' S NEOS	PATCH	2'x5'	8/19/05 SC	P	DT-22
	8/19/05		YN	28	287' S OF P37-P38 AND 2' W IN P38.	PATCH	1'x1'	8/23/05 SC	P	
	8/19/05		YN	28	297' S OF P37-P38 AND 2' E IN P37	PATCH	1'x1'	8/23/05 SC	P	
	8/19/05		YN	28	297' S OF P35-P37 AND 3' W IN P37	PATCH	1'x1'	8/23/05 SC	P	
	8/19/05		YN	28	301' S OF P35-P37 AND 3' E IN P35	PATCH	1'x1'	8/23/05 SC	P	
	8/19/05		YN	28	P38-P39 113' S NEOS	PATCH	2'x7'	8/23/05 SC	P	
	8/19/05		YN	28	P38-P39 113' S NEOS TO SEOS	EXTRUSION WELD		8/23/05 SC	P	
	8/22/05		KN	1	P32-P34 283' S TO S SEOS	EXTRUSION WELD		8/23/05 SC	P	
	8/22/05		KN	1	P32-P34 283' S NEOS	PATCH	1'x2'	8/23/05 SC	P	

REPAIR SUMMARY

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/FAIL	
	8/22/05		KN	1	P35 - P36 315'S NEOS	PATCH	1'x1'	8/23/05 SC	P	
	8/22/05		KN	1	P35 - P36 315'S NEOS TO SEOS	EXTRUSION WELD		8/25/05 SC	P	
	8/22/05		KN	1	P37 - P38 251'S NEOS	PATCH	2'x3'	8/23/05 SC	P	
	8/22/05		KN	1	P38 - P39 164'S NEOS	PATCH	2'x5'	8/23/05 SC	P	DT-23
	8/22/05		KN	1	P38-P39-P40	PATCH	2'x2'	8/23/05 SC	P	T INTER
	8/22/05		KN	1	P40 - P42 NEOS TO 5'S NEOS	EXTR. WELD		8/23/05 SC	P	
	8/22/05		KN	1	P40 - P42 5'S NEOS	PATCH	1'x1'	8/23/05 SC	P	
	8/22/05		KN	1	P40 - P41 - P42	PATCH	2'x3'	8/23/05 SC	P	
	8/22/05		KN	1	P41 - P42 - P43	PATCH	4'x6'	8/23/05 SC	P	T INTER.
	8/22/05		KN	1	P40 - P41 NEOS TO 13'S NEOS	<del>PATCH</del> EXTRUSION WELD		8/23/05 SC	P	
	8/22/05		KN	1	P40 - P41 13'S NEOS	PATCH	2'x2'	8/23/05 SC	P	
	8/22/05		KN	1	P41 - P43 205' N SEOS	PATCH	2'x3'	8/23/05 SC	P	
	8/22/05		KN	1	P40 - P41 16' N AND 8' E IN P40	PATCH	2'x3'	8/23/05 SC	P	
	8/22/05		KN	1	P39 - P41 10'S NEOS	PATCH	2'x5'	8/23/05 SC	P	
	8/22/05		KN	1	P39 - P41 115'S NEOS	PATCH	1'x1'	8/23/05 SC	P	
	8/22/05		KN	1	P39 - P41 115'S NEOS TO SEOS	EXTRUSION WELD		8/23/05 SC	P	
	8/22/05		KN	1	P41 - P43 11' N SEOS	PATCH	2'x4'	8/23/05 SC	P	

**REPAIR SUMMARY**

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/ FAIL	
	8/22/05		KN	1	P43-P45 79'S NEOS	PATCH	2'x3'	8/23/05 SC	P	
	8/22/05		KN	1	P43-P44-P45	PATCH	2'x3'	8/23/05 SC	P	
	8/22/05		KN	1	P43-P44 179'S NEOS	PATCH	2'x5'	8/23/05 SC	P	DT-26
	8/22/05		KN	1	P44-P43 297'S AND 11'W IN P44	PATCH	2'x2'	8/23/05 SC	P	
	8/22/05		KN	1	P43-P44 11'N AND 12'E IN P43	PATCH	2'x2'	8/23/05 SC	P	
	8/22/05		KN	1	P44-P45-P46	PATCH	1'x2'	8/23/05 SC	P	TINTER
	8/22/05		KN	1	P45-P46 5'N AND 2'E IN P45	PATCH	1'x1'	8/23/05 SC	P	
	8/22/05		KN	1	P45-P46-P50	PATCH	2'x4'	8/23/05 SC	P	
	8/22/05		KN	1	P45-P46 95'S NEOS	PATCH	2'x5'	8/23/05 SC	P	
	8/22/05		KN	1	P46-P45-P47	PATCH	1'x1'	8/23/05 SC	P	
	8/22/05		KN	1	P46-P47 23'S NEOS	PATCH	2'x5'	8/23/05 SC	P	DT-27
	8/22/05		KN	1	P46-P47-P50	PATCH	2'x2'	8/23/05 SC	P	
	8/22/05		KN	1	P44-P51 59'S NEOS	PATCH	2'x5'	8/23/05 SC	P	DT-31
	8/22/05		KN	1	P47-P48-P49	PATCH	1'x1'	8/23/05 SC	P	TINTER
	8/23/05		KN	1	P41-P43 390' N SEOS	PATCH	2'x5'	8/23/05 SC	P	DT-25
	8/23/05		KN	1	P43-P45 106'S NEOS	PATCH	2'x2'	8/23/05 SC	P	
	8/23/05		KN	1	P41-P43 431' N SEOS	PATCH	2'x4'	8/23/05 SC	P	

**REPAIR SUMMARY**

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/FAIL	
	8/23/05		KN	1	20'N P44-P46 AND 3'W P46	PATCH	2'x3'	8/23/05 SC	P	
	8/23/05		KN	1	20'N P44-P46 AND 8'W IN P46	PATCH	2'x3'	8/23/05 SC	P	
	8/23/05		KN	1	20'N P44-P46 AND 12'W IN P46	PATCH	2'x5'	8/23/05 SC	P	
	8/23/05		KN	1	20'N P44-P46 AND 17'W IN P46	PATCH	2'x3'	8/23/05 SC	P	
	8/23/05		KN	1	P48-P49 50'N OF SEOS	PATCH	2'x5'	8/23/05 SC	P	DT-30
	8/23/05		KN	1	P51-P53 55'N SEOS	PATCH	2'x5'	8/23/05 SC	P	DT-32
	8/23/05		KN	1	P51-P53 46'N SEOS	PATCH	2'x4'	8/23/05 SC	P	
	8/23/05		KN	1	P32-P34	BOOT PATCH	4'x5'	8/23/05 SC	P	ANCHOR TRENCH DRAINAGE OUTLET
										2 4" HOPE PIPES
	8/23/05		KN	1	P51-P52-P53	PATCH	2'x4'	8/23/05 SC	P	T-INTER
	8/23/05		KN	1	P51-P52 328'N SEOS	PATCH	2'x3'	8/23/05 SC	P	
	8/23/05		KN	1	P51-P52 276'N SEOS	PATCH	2'x5'	8/23/05 SC	P	
	8/23/05		KN	1	P51-P53 SEOS TO 8'N SEOS	<del>BEAD WELD</del> PATCH	2	8/23/05 SC	P	
	8/23/05		KN	1	P51-P53 8'N SEOS	PATCH	1'x1'	8/23/05 SC	P	
	8/23/05		KN	1	P52-P54 70'N SEOS	PATCH	2'x5'	8/23/05 SC	P	DT-33
	8/23/05		KN	1	P52-P54 140'N SEOS	PATCH/BOOT	5'x6'	8/23/05 SC	P	BOOT OUTLET
	8/23/05		KN	1	P55-P59 58'N SEOS	PATCH	2'x3'	8/23/05 SC	P	

**REPAIR SUMMARY**

PAGE: 12 of 14  
 DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/FAIL	
	8/23/05		KN	1	P55-P57-P59	PATCH	2'x5'	8/23/05 SC	P	T. INTER.
	8/23/05		KN	1	P55-P57 25' SNEOS	PATCH	2'x5'	8/23/05 SC	P	DT-35
	8/23/05		KN	1	P54-P55-P56	PATCH	3'x4'	8/23/05 SC	P	T. INTER
	8/23/05		KN	1	P55-P56-P58	PATCH	2'x2'	8/23/05 SC	P	T. INTER
	8/23/05		KN	1	P54-P56 96' NSEOS	PATCH	2'x5'	8/23/05 SC	P	DT-34
	8/23/05		KN	1	P52-P53-P54	PATCH	2'x2'	8/23/05 SC	P	T. INTER
	8/23/05		KN	1	P53-P54 106' SNEOS	PATCH	1'x1'	8/23/05 SC	N	
	8/23/05		KN	1	P53-P54 106' SNEOS TO SEOS	EXTRUSION WELD		8/23/05 SC	P	
	8/23/05		KN	1	5' N OF P53-P54 S. END AND 10' E IN P53	PATCH	5'x5'	8/23/05 SC	P	BOOT DW-26A
	8/24/05		KN	1	P60-P61 83' SNEOS	PATCH	2'x5'	8/25/05 VL	P	DT-36
	8/24/05		KN	1	P61-P62-P63	PATCH	2'x2'	8/25/05 VL	P	T. INTER.
	8/24/05		KN	1	P62-P63-P64	PATCH	2'x2'	8/25/05 VL	P	T. INTER
	8/24/05		KN	1	P64-P65 42' SNEOS	PATCH	2'x5'	8/25/05 VL	P	DT-37
	8/24/05		KN	1	P67-P68-P69	PATCH	2'x4'	8/25/05 VL	P	
	8/24/05		KN	1	P68-P69-P70	PATCH	2'x2'	8/25/05 VL	P	T. INTER
	8/24/05		KN	1	P70-P71 140' NSEOS	PATCH	2'x5'	8/25/05 VL	P	DT-39
	8/24/05		KN	1	P67-P69 20' NSEOS	PATCH	2'x5'	8/25/05 VL	P	DT-38

**REPAIR SUMMARY**

PROJECT LOCATION: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REPAIR NUMBER	DATE	TIME	WELDER ID	MACHINE NUMBER	REPAIR LOCATION	REPAIR TYPE (BEAD/PATCH)	REPAIR SIZE	VACUUM BOX TEST		COMMENTS
								DATE TESTED	PASS/ FAIL	
	8/24/05		KN	1	P73-P74 100' SNEOS	PATCH	2'x5'	8/25/05 VL	P	DT-40
	8/24/05		KN	1	P84-P85 21' NSEOS	PATCH	2'x5'	8/25/05 VL	P	DT-41
	8/24/05		KN	1	P82-P84-P85	PATCH	1'x2'	8/25/05 VL	P	T. INTER
	8/24/05		KN	1	P82-P83-P84	PATCH	2'x2'	8/25/05 VL	P	T. INTER
	8/24/05		KN	1	P77-P82-P83	PATCH	2'x2'	8/25/05 VL	P	T. INTER
	8/24/05		KN	1	P77-P81-P82	PATCH	5'x4'	8/25/05 VL	P	T
	8/24/05		KN	1	P77-P80-P81	PATCH	1'x1'	8/25/05 VL	P	T
	8/24/05		KN	1	P77-P79-P80	PATCH	1'x1'	8/25/05 VL	P	T
	8/24/05		KN	1	P77-P78-P79	PATCH	1'x2'	8/25/05 VL	P	T
	8/24/05		KN	1	P77-P79 15' SNEOS	PATCH	2'x5'	8/25/05 VL	P	DT-43
	8/24/05		KN	1	P84-P85 21' NSEOS	PATCH	2'x5'	8/25/05 VL	P	DT-42
	8/25/05		KN	1	P86-P87 192' SNEOS	PATCH	2'x5'	8/25/05 VL	P	DT-44
	8/25/05		KN	1	P88-P89 142' NSEOS	PATCH	2'x5'	8/25/05 VL	P	DT-45
	8/25/05		KN	1	P89/P90-P91	PATCH	1'x1'	8/25/05 VL	P	T INTER
	8/25/05		KN	1	P90-P91-P92	PATCH	1'x1'	8/25/05 VL	P	T
	8/25/05		KN	1	P91-P92 123' NSEOS	PATCH	2'x5'	8/25/05 VL	P	DT-46
	8/25/05		KN	1	P92-P93-P94	PATCH	2'x4'	8/25/05 VL	P	T



**DESTRUCTIVE TESTING FIELD DESTRUCTS**

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)					FIELD TEST RESULTS SHEAR (ppi)					P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
DT-1	P11P2	8/9/05	YN	3	102'SNEOS	83	94	77	77	92						P	TT	PASS	
↓	1				↓	90	88	90	90	99						P	TT		
DT-2	P21P4	8/9/05	HL	288	129'SNEOS	76	76									P	TT	PASS	
↓	1					81	86									P	TT		
DT-3	P41P5	8/9/05	YN	3	235'NSEOS	78	79									P	TT	PASS	
↓	1					87	91									P	TT		
DT-4	P51P7	8/9/05	HL	288	86'NSEOS	84	82									P	TT	PASS	
↓	1					84	84									P	TT		
DT-5	P71P8	8/9/05	YN	3	12'SNEOS	86	90									P	TT	PASS	
↓	1					96	87									P	TT		
DT-6	P81P10	8/9/05	YN	3	48'NSEOS	82	94									P	TT	PASS	
↓	1					80	91									P	TT		
DT-7	P101P12	8/10/05	YN	3	80'SNEOS	75	77									P	TT	PASS	
↓	1					80	71									P	TT		
DT-8	P121P14	8/10/05	YN	3	184'NSEOS	79	82									P	TT	PASS	
↓	1					79	93									P	TT		
DT-9	P11P20	8/10/05	YN	203	211'SNEOS	83	86									P	TT	PASS	
↓	1					69	83									P	TT		
DT-10	P201P21	8/10/05	YN	3	61'SNEOS	88	95									P	TT	PASS	
↓	1					85	91									P	TT		

**DESTRUCTIVE TESTING FIELD** *DESTRUCTS*

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

QCA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	PANEL SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)					FIELD TEST RESULTS SHEAR (ppi)					P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
DT-11	21 123	8/10/05	YN	3	75' SNEOS	75	64								P	TT	PASS		
↓	1					84	72								P	TT			
DT-12	23 124	8/10/05	YN	3	10' SNEOS	74	80								P	TT	PASS		
↓	1					70	69								P	TT			
DT-13	24 126	8/10/05	YN	3	20' SNEOS	74	75								P	TT	PASS		
↓	1					71	71								P	TT			
DT-14	26 128	8/10/05	YN	3	270' SNEOS	68	72								P	TT	PASS		
↓	1					84	80								P	TT			
DT-15	28 129	8/11/05	YN	3	177' SNEOS	87	85								P	TT	PASS		
↓	1					74	80								P	TT			
DT-16	29 131	8/11/05	YN	3	166' SNEOS	73	83								P	TT	PASS		
↓	1					81	91								P	TT			
DT-17	31 132	8/11/05	YN	3	211' SNEOS	96	85								P	TT	PASS		
↓	1					102	88								P	TT			
DT-18	33 134	8/11/05	YN	3	172' SNEOS	73	90								P	TT	PASS		
↓	1					96	91								P	TT			
DT-19	RP1 1P20	8/12/05	YN	3	29' N SEOS	73	62								P	TT	PASS		
↓	1					70	76								P	TT			
DT-20	RP4 1P1	8/12/05	YN	3	10' N SEOS	79	63								P	TT	PASS		
↓	1					65	72								P	TT			

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)					FIELD TEST RESULTS SHEAR (ppi)					P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
DT-21	P351P36	8/13/05	YN①	3	155' SNEOS	71	73								P	TT	PASS		
↓	1		YS			78	75								P	TT			
DT-22	P361P38	8/13/05	YN①	20S	130' SNEOS	79	76								P	TT	PASS		
↓	1					73	73								P	TT			
DT-23	P381P39	8/18/05	YN①	3	64' SNEOS	65	68								P	TT	PASS		
↓	1					72	75								P	TT			
DT-24	P39141	8/18/05	YN①	3	10' SNEOS	80	91								P	TT	PASS		
↓	1					89	75								P	TT			
DT-25	P411P43	8/18/05	YN①	3	390' NSEOS	70	73								P	TT	PASS		
↓	1					81	70								P	TT			
DT-26	P431P44	8/18/05	YN①	3	179' SNEOS	72	70								P	TT	PASS		
↓	1					87	86								P	TT			
DT-27	P441P35	8/18/05	YN①	3	362' SNEOS	71	77								P	TT	PASS		
↓	1					74	76								P	TT			
DT-28	P451P46	8/20/05	YN①	3	95' SNEOS	81	79								P	TT	PASS		
↓	1					83	81								P	TT			
DT-29	P461P47	8/20/05	YN①	3	23' SNEOS	78	73								P	TT	PASS		
↓	1					76	79								P	TT			
DT-30	P481P49	8/20/05	YN①	3	56' NSEOS	78	80								P	TT	PASS		
↓	1					71	70								P	TT			

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: Former Process Area Surface Cover

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: 38883.002

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	PANEL SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)					FIELD TEST RESULTS SHEAR (ppi)					P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
DT-31	49151	8/22/05	YN	3	59' SNEOS	81	80								P	TT	PASS		
↓	1					76	76								P	TT			
DT-32	51153	8/22/05	YN	3	55' NSEOS	97	79								P	TT	PASS		
↓	1					82	81								P	TT			
DT-33	52154	8/22/05	YN	3	70' SNEOS	92	91								P	TT	PASS		
↓	1					89	87								P	TT			
DT-34	54156	8/22/05	YN	3	96' NSEOS	92	91								P	TT	PASS		
↓	1					91	89								P	TT			
DT-35	55157	8/22/05	YN	3	25' SNEOS	80	83								P	TT	PASS		
↓	1					101	99								P	TT			
DT-36	60161	8/22/05	YN	3	83' SNEOS	80	81								P	TT	PASS		
↓	1					95	98								P	TT			
DT-37	64165	8/23/05	YN	3	42' SNEOS	89	88								P	TT	PASS		
↓	1					98	92								P	TT			
DT-38	67169	8/23/05	YN	3	26' NSEOS	81	80								P	TT	PASS		
↓	1					93	91								P	TT			
DT-39	70171	8/23/05	YN	3	146' NSEOS	88	79								P	TT	PASS		
↓	1					81	86								P	TT			
DT-40	73174	8/23/05	YN	3	100' SNEOS	78	78								P	TT	PASS		
↓	1					76	71								P	TT			

**DESTRUCTIVE TESTING FIELD** *DESTRUCTIVE*

PROJECT LOCATION: Former Koppers Wood Treating Facility, Carbondale, IL

PROJECT NAME: Former Process Area Surface Cover

PROJECT NUMBER: 38883.002

CQA MONITOR(S): \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REQUIREMENTS: PEEL - 60 PPI AND 0-10% INCURSION, SHEAR -80 PPI (FOR PEEL ONLY ONE OF FIVE CAN BE 80% OF VALUE WITH 0-50% INCURSION)

SAMPLE NUMBER	PANEL SEAM ID	DATE SEAMED	WELDER ID	MACH No.	LOCATION/ STATION	FIELD TEST RESULTS PEEL (ppi)					FIELD TEST RESULTS SHEAR (ppi)					P/F	QC INIT	LABORATORY TEST RESULTS PASS/FAIL	COMMENTS
DT-41	80181	8/23/05	YN <sup>Ⓢ</sup>	3	12' W SEOS	76	79								P	TT	PASS		
↓	1					87	80								P	TT			
DT-42	84185	8/23/05	YN <sup>Ⓢ</sup>	3	21' N SEOS	73	81								P	TT	PASS		
↓	1					86	90								P	TT			
DT-43	77179	8/23/05	YN <sup>Ⓢ</sup>	3	15' S NEOS	77	75								P	TT	PASS		
↓	1					81	83								P	TT			
DT-44	86187	8/23/05	YN <sup>Ⓢ</sup>	3	182' S NEOS	88	89								P	TT	PASS		
↓	1					94	91								P	TT			
DT-45	88189	8/23/05	YN <sup>Ⓢ</sup>	3	142' N SEOS	80	83								P	TT	PASS		
↓	1					78	81								P	TT			
DT-46	91192	8/24/05	YN <sup>Ⓢ</sup>	3	123' N SEOS	82	79								P	TT	PASS		
↓	1					81	83								P	TT			
DT-47	93195	8/24/05	YN <sup>Ⓢ</sup>	3	103' N SEOS	78	88								P	TT	PASS		
↓	1					83	79								P	TT			
DT-48	97198	8/24/05	YN <sup>Ⓢ</sup>	3	39' N SEOS	81	83								P	TT	PASS		
↓	1					86	81								P	TT			
DT-49	99101	8/24/05	YN <sup>Ⓢ</sup>	3	75' N SEOS	89	87								P	TT	PASS		
↓	1					84	83												
	1																		
	1																		

## TRIAL WELD SUMMARY

PAGE: \_\_\_\_\_

DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REQUIRED FREQUENCY: ALL STARTUPS AND AT LEAST ONCE EVERY SIX HOURS; REQUIRED MINIMUM VALUES: PEEL - 44 PPI, SHEAR - 53 PPI

TEST NUMBER	DATE	TIME	WEATHER	AMBIENT TEMP. (°F)	WELDER ID	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	PEEL (PPI)				SHEAR (PPI)	TEST RESULT (P/F)	COMMENTS	
									INSIDE TRACK		OUTSIDE TRACK					
1	8/9/05	1420	V. HOT CLEAR	98°	YN	3	750/8	F	88	81	94	94	99/102	P		
2	8/9/05	1420	V. HOT CLEAR	98°	HL	288	750/8.5	F	91	91	92	92	97/98	P		
3	8/10/05	0755	CLEAR Humid	85°	YN	3	750/8	F	94	93	93	88	103/101	P		
4	8/10/05	0800	CLEAR Humid	85°	YN	205	730/8	F	90	89	93	91	100/100	P		
5	8/10/05	1245	HOT Humid	96°	YN	205	730/8.5	F	89	88	91	90	98/99	P		
6	8/10/05	1250	HOT Humid	96°	YN	3	750/8	F	88	86	92	96	97/101	P		
7	8/10/05	0730	HOT Humid	83°	YN	3	730/8.5	F	88	90	93	91	93/100	P		
8	8/11/05	0800	HOT Humid	85°	KN	4	500/5	E	<del>88</del>	<del>83</del>	83	81	83	98/99	P	
9	8/11/05	1250	V. HOT Humid	98°	YN	3	730/8.5	F	81	80	83	86	99/101	P		
10	8/11/05	1325	V. HOT Humid	98°	KN	4	500/5	E	<del>88</del>	<del>91</del>	89	91	100/100	P		
11	8/11/05	1400	V. HOT Humid	98°	YN	2	250/5	E			78	81	98/99	P		
12	8/12/05	0830	CLEAR Humid	88°	YN	205	730/8.5	F	81	84	83	83	102/101	P		
13	8/12/05	0900	CLEAR Humid	90°	KN	4	500/5	E			90	89	102/100	P		
14	8/12/05	1240	HOT Humid	96°	YN	205	730/8.5	F	87	87	81	78	101/100	P		
15	8/12/05	1330	HOT Humid	98°	KN	4	500/5	E			83	88	99/97	P		
16	8/12/05	1400	HOT Humid	99°	YN	28	250/5	E			79	81	96/96	P		
17	8/13/05	0700	CLEAR Humid	85°	YN	28	250/5	E			89	91	104/101	P		

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**TRIAL WELD SUMMARY**

PAGE: \_\_\_\_\_

DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

BACKCHECK: \_\_\_\_\_

REQUIRED FREQUENCY: ALL STARTUPS AND AT LEAST ONCE EVERY SIX HOURS; REQUIRED MINIMUM VALUES: PEEL - 44 PPI, SHEAR - 53 PPI

TEST NUMBER	DATE	TIME	WEATHER	AMBIENT TEMP. (°F)	WELDER ID	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	PEEL (PPI)		SHEAR (PPI)	TEST RESULT (P/F)	COMMENTS	
									INSIDE TRACK	OUTSIDE TRACK				
18	8/13/05	1250	V HOT Humid	99°	YN①	28	250/5	E			78 80	96/95	P	
19	8/18/05	0800	OVERCAST LIGHT SHOWER	85°	YN①	3	730/8.5	F	76	73	78 76	100/101	P	
20	8/18/05	0810	"	86°	YN②	205	730/8.5	F	76	76	79 78	98/100	P	
21	8/18/05	1300	OVERCAST Humid	92°	YN①	3	730/7.0	F	76	73	78 78	99/99	P	
22	8/19/05	0700	P.C. Humid	80°	YN①	28	250/5	E	1		102 100	108/110	P	
23	8/19/05	1310	CLEAR Humid	93°	YN①	28	250/5	E			91 89	97/100	P	
24	8/20/05	0840	CLEAR Humid	84°	YN②	3	730/7.0	F	79	80	81 89	103/101	P	
25	8/22/05	0800	P.C. Humid	85°	KN	1	500/5	E			98 101	102/102	P	
26	8/22/05	1300	P.C. Humid	92°	YN②	3	730/7.5	F	73	73	76 78	98/99	P	
27	8/22/05	1310	"	92°	KN	1	500/5	E			88 86	97/99	P	
28	8/23/05	0705	P.C. Humid	78°	YN②	3	730/7.5	F	86	81	88 83	103/101	P	
29	8/23/05	0715	"	78°	KN	1	500/5	E			101 99	106/107	P	
30	8/23/05	1230	CLEAR HOT	86°	YN①	3	730/8.5	F	80	80	83 91	100/102	P	
31	8/23/05	1235	CLEAR HOT	86°	KN	1	500/5.0	E			99 98	101/100	P	
32	8/23/05	1630	CLEAR HOT	88°	KN	1	500/5.0	E			89 91	100/100	P	
33	8/24/05	0730	CLEAR HOT	80°	YN②	3	730/7.5	F	88	89	91 90	106/109	P	
34	8/24/05	0805	"	80°	KN	1	500/5	E			96 93	101/102	P	

TRIAL WELD SUMMARY

PAGE: \_\_\_\_\_

DATE: \_\_\_\_\_

PROJECT LOCATION:

CQA MONITOR(S): \_\_\_\_\_

PROJECT NAME:

DATA INPUT: \_\_\_\_\_

PROJECT NUMBER:

BACKCHECK: \_\_\_\_\_

REQUIRED FREQUENCY: ALL STARTUPS AND AT LEAST ONCE EVERY SIX HOURS; REQUIRED MINIMUM VALUES: PEEL - 44 PPI, SHEAR - 53 PPI

TEST NUMBER	DATE	TIME	WEATHER	AMBIENT TEMP. (°F)	WELDER ID	MACHINE NUMBER	TEMP SETTING/ SPEED	WELD TYPE (FUSION/ EXTRUSION)	PEEL (PPI)		SHEAR (PPI)	TEST RESULT (P/F)	COMMENTS
									INSIDE TRACK	OUTSIDE TRACK			
35	8/24/05	1250	P.C. HOT	88°	KN	1	500/5.0	E			91/89	99/101	P
36	8/24/05	1640	P.C. HOT	88°	KN	1	300/5.0	E			97/98	99/100	T
37	8/25/05	0740	OVERCAST	74°	KN	1	500/5.0	E			100/98	109/110	P

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CAMU Final Cover System

TRIAL WELD TEST RESULTS

CLIENT Beazer East  
DATE 10/6/10

PROJECT Camu  
PROJECT # B6039221

TECH R. Parini  
PAGE 1 OF 1

Sample ID Number	Thickness (mil)	Peel (lbs.)	Location of Break	Seam Separation	Shear (lbs.)	Location of Break	Pass/Fail (P/F)	Comments
Operator - BS	40 mil	95/93	FTB	-	99	-	P	T/T
Machine - 77	↓	112/97	↓	-	111	-	↓	
Time - 336p								
Temp - 750								
Speed - 6.0								
Operator - ST	40 mil	98/68	FTB	-	117	-	P	T/T
Machine - 101	↓	128/89	↓	-	111	-	↓	
Time - 328p								
Temp - 750								
Speed - 7.5								
Operator - BS	40 mil	100/93	FTB	-	112	-	P	T/T
Machine - 79	↓	94/86	↓	-	119	-	↓	
Time - 500p								
Temp - 750								
Speed - 6.0								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								

TRIAL WELD TEST RESULTS

CLIENT Beazer East  
DATE 10/7/10

PROJECT Camu  
PROJECT # 80039201

TECH R. Parini  
PAGE 1 OF     

Sample ID Number	Thickness (mil)	Peel (lbs.)	Location of Break	Seam Separation	Shear (lbs.)	Location of Break	Pass/Fail (P/F)	Comments
Operator - ST	40 mil	97/100	FTB	—	142	—	P	T/T
Machine - 101	↓	114/101	↓	—	142	—	↓	
Time - 757A								
Temp - 750								
Speed - 7.5								
Operator - BS	40 mil	93/101	FTB	—	148	—	P	T/T
Machine - 79	↓	93/98	↓	—	141	—	↓	
Time - 805A								
Temp - 750								
Speed - 8.0								
Operator - ST	40 mil	75	FTB	—	133	—	P	Extrusion - T/T
Machine - 53	↓	101	↓	—	132	—	↓	
Time - 1013A								
Temp - 250								
Speed - 250								
Operator - ST	40 mil	101/122	FTB	—	118	—	P	T/T
Machine - 101	↓	110/112	↓	—	120	—	↓	
Time - 1000								
Temp - 750								
Speed - 7.5								
Operator - BS	40 mil	91/101	FTB	—	130	—	P	T/T
Machine - 79	↓	97/97	↓	—	131	—	↓	
Time - 1000								
Temp - 750								
Speed - 7.0								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								

TRIAL WELD TEST RESULTS

CLIENT Beazer East  
DATE 10/8/10

PROJECT Camu  
PROJECT # B0039221

TECH R. Parini  
PAGE 1 OF 1

Sample ID Number	Thickness (mil)	Peel (lbs.)	Location of Break	Seam Separation	Shear (lbs.)	Location of Break	Pass/Fail (P/F)	Comments
Operator - ST	40 mil	82/104	FTB	-	133	-	P	T/T
Machine - 101	↓	102/114	↓	-	125	-	↓	
Time - 800A								
Temp - 750								
Speed - 7.5								
Operator - BS	40 mil	96/88	FTB	-	121	-	P	T/T
Machine - 79	↓	93/89	↓	-	119	-	↓	
Time - 905A								
Temp - 750								
Speed - 7.5								
Operator - ST	40 mil	98/99	FTB	-	95	-	P	T/T
Machine - 101	↓	104/99	↓	-	160	-	↓	
Time - 135p								
Temp - 750								
Speed - 7.5								
Operator - BS	40 mil	92/87	FTB	-	121	-	P	T/T
Machine - 79	↓	84/95	↓	-	113	-	↓	
Time - 545								
Temp - 750								
Speed - 7.5								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								

TRIAL WELD TEST RESULTS

CLIENT Beazer East  
DATE 10/9/10

PROJECT Camu  
PROJECT # B0089221

TECH R. Parini  
PAGE 1 OF 2

Sample ID Number	Thickness (mil)	Peel (lbs.)	Location of Break	Seam Separation	Shear (lbs.)	Location of Break	Pass/Fail (P/F)	Comments
Operator - <u>ST</u>	<u>40 mil</u>	<u>94/87</u>	<u>FTB</u>	<u>=</u>	<u>141</u>	<u>=</u>	<u>P</u>	<u>T/T</u>
Machine - <u>101</u>	<u>↓</u>	<u>95/87</u>	<u>↓</u>	<u>=</u>	<u>140</u>	<u>=</u>	<u>↓</u>	
Time - <u>730 A</u>								
Temp - <u>750</u>								
Speed - <u>7.5</u>								
Operator - <u>ST</u>	<u>40 mil</u>	<u>96</u>	<u>FTB</u>	<u>=</u>	<u>127</u>	<u>=</u>	<u>P</u>	<u>Extrusion</u>
Machine - <u>57</u>	<u>↓</u>	<u>105</u>	<u>↓</u>	<u>=</u>	<u>126</u>	<u>=</u>	<u>↓</u>	
Time - <u>800 A</u>								
Temp - <u>265</u>								
Speed - <u>250</u>								
Operator - <u>DV</u>	<u>40 mil</u>	<u>124</u>	<u>FTB</u>	<u>=</u>	<u>125</u>	<u>=</u>	<u>P</u>	<u>Extrusion</u>
Machine - <u>57</u>		<u>71</u>	<u>↓</u>	<u>=</u>	<u>125</u>	<u>=</u>	<u>↓</u>	
Time - <u>830 A</u>								
Temp - <u>255</u>								
Speed - <u>250</u>								
Operator - <u>FS</u>	<u>40 mil</u>	<u>95</u>	<u>FTB</u>	<u>=</u>	<u>125</u>	<u>=</u>	<u>P</u>	<u>Extrusion</u>
Machine - <u>53</u>	<u>↓</u>	<u>86</u>	<u>↓</u>	<u>=</u>	<u>124</u>	<u>=</u>	<u>↓</u>	
Time - <u>914 A</u>								
Temp - <u>250</u>								
Speed - <u>250</u>								
Operator - <u>VL</u>	<u>40 mil</u>	<u>108</u>	<u>FTB</u>	<u>=</u>	<u>113</u>	<u>=</u>	<u>P</u>	<u>Extrusion</u>
Machine - <u>4</u>	<u>↓</u>	<u>105</u>	<u>↓</u>	<u>=</u>	<u>104</u>	<u>=</u>	<u>↓</u>	
Time - <u>109 p</u>								
Temp - <u>280</u>								
Speed - <u>240</u>								
Operator - <u>FS</u>	<u>40 mil</u>	<u>103</u>	<u>FTB</u>	<u>=</u>	<u>104</u>	<u>=</u>	<u>P</u>	<u>Extrusion</u>
Machine - <u>53</u>	<u>↓</u>	<u>85</u>	<u>↓</u>	<u>=</u>	<u>110</u>	<u>=</u>	<u>↓</u>	
Time - <u>114 p</u>								
Temp - <u>250</u>								
Speed - <u>250</u>								

CLIENT Beazer East  
DATE 10/9/10

PROJECT CAMU  
PROJECT # B5639221

TECH R. Parini  
PAGE 2 OF 2

Sample ID Number	Thickness (mil)	Peel (lbs.)	Location of Break	Seam Separation	Shear (lbs.)	Location of Break	Pass/Fail (P/F)	Comments
Operator - <u>ST</u>	<u>40 mil</u>	<u>104/103</u>	<u>FTB</u>	<u>=</u>	<u>113</u>	<u>=</u>	<u>P</u>	<u>T/T</u>
Machine - <u>101</u>	<u>↓</u>	<u>100/114</u>	<u>↓</u>	<u>=</u>	<u>97</u>	<u>=</u>	<u>↓</u>	
Time - <u>340 p</u>								
Temp - <u>750</u>								
Speed - <u>7.5</u>								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								



TRIAL WELD TEST RESULTS

CLIENT Beazer East  
 DATE 10/10/10

PROJECT CAMU  
 PROJECT # B0039221

TECH R. Parini  
 PAGE 1 OF 1

Sample ID Number	Thickness (mil)	Peel (lbs.)	Location of Break	Seam Separation	Shear (lbs.)	Location of Break	Pass/Fail (P/F)	Comments
Operator - <u>ST</u>	<u>40 mil</u>	<u>122</u>	<u>FTB</u>	<u>-</u>	<u>124</u>	<u>-</u>	<u>P</u>	<u>Extrusion</u>
Machine - <u>57</u>	<u>↓</u>	<u>124</u>	<u>↓</u>	<u>-</u>	<u>127</u>	<u>-</u>	<u>↓</u>	
Time - <u>730A</u>								
Temp - <u>250</u>								
Speed - <u>250</u>								
Operator - <u>PP</u>	<u>40 mil</u>	<u>105</u>	<u>FTB</u>	<u>-</u>	<u>142</u>	<u>-</u>	<u>P</u>	<u>Extrusion</u>
Machine - <u>4</u>	<u>↓</u>	<u>127</u>	<u>↓</u>	<u>-</u>	<u>139</u>	<u>-</u>	<u>↓</u>	
Time - <u>754A</u>								
Temp - <u>262</u>								
Speed - <u>250</u>								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								

TRIAL WELD TEST RESULTS

CLIENT Beazer East  
DATE 10/11/10

PROJECT Camu  
PROJECT # 30039221

TECH R. Parini  
PAGE 1 OF 1

Sample ID Number	Thickness (mil)	Peel (lbs.)	Location of Break	Seam Separation	Shear (lbs.)	Location of Break	Pass/Fail (P/F)	Comments
Operator - VL	40 mil	108	FTB	-	112	-	P	Extrusion
Machine - 4	↓	113	↓	-	126	-	↓	
Time - 830A								
Temp - 270								
Speed - 240								
Operator - VL	40 mil	110	FTB	-	113	-	P	Extrusion
Machine - 4	↓	108	↓	-	118	-	↓	
Time - 130p								
Temp - 270								
Speed - 240								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								



TRIAL WELD TEST RESULTS

CLIENT Beazer East  
 DATE 10/12/10

PROJECT CIAMU  
 PROJECT # B0039251

TECH R. Parini  
 PAGE 1 OF 1

Sample ID Number	Thickness (mil)	Peel (lbs.)	Location of Break	Seam Separation	Shear (lbs.)	Location of Break	Pass/Fail (P/F)	Comments
Operator - VL	40 mil	105	FTB	=	113	=	P	Extrusion
Machine - 70	↓	103	↓	=	123	=	↓	
Time - 10 <sup>00</sup> A								
Temp - 270								
Speed - 250								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								
Operator -								
Machine -								
Time -								
Temp -								
Speed -								





CLIENT Beazer East  
DATE 10/8/10

PROJECT CAMU  
PROJECT # B0039251

TECH R. Farini  
PAGE 1 OF 1

Panel Number	Panel Width (ft)	Panel Length (ft)	Panel Area (sf)	Roll Number	Visual Panel Inspection	Inspector	Remarks
P27	138	22	3,036	7383	OK	RP	
P28	137		3,014	7384			
P29	135		2,970				
P30	133		2,926				
P31	88		1,936				
P32	91		2,002				
P33	38		836				
P34	26		572	↓			
P35	71		1,562	7383			
P36	44	↓	968	7384			
P37	30	20	600				
P38	78	22	1,716				
P39	50		1,100				
P40	35		770				
P41	81		1,782				
P42	57		1,254				
P43	35	↓	770	↓	↓	↓	

27,814 sf.



GEOMEMBRANE SEAM TESTING

CLIENT Beazer East  
DATE 10/16/10

PROJECT Camu  
PROJECT # B0039221

TECH R. Parini  
PAGE 1 OF 1

Seam	Seam Length	Seamer ID - Machine	Air or Vacuum Test (A or V)	Start Pressure (psi)	Pressure Drop (psi)	Start Time	End Time	Tech ID	Inspector	Results	Remarks
1/2	95	ST-101	A	25	24	7 <sup>50</sup> A	7 <sup>55</sup> A	BS	RP	P	
2/3	84	BS-77		25	24	8 <sup>04</sup> A	8 <sup>09</sup> A				DS-1
3/4	63	ST-101		25	24	8 <sup>24</sup> A	8 <sup>29</sup> A				
4/5	41	BS-77		25	23	8 <sup>31</sup> A	8 <sup>36</sup> A				
5/6	20	ST-101		25	23	8 <sup>53</sup> A	8 <sup>58</sup> A				
7/8	85	↓		25	24	8 <sup>12</sup> A	8 <sup>17</sup> A				DS-2
8/9	60	BS-79		25	24	8 <sup>26</sup> A	8 <sup>31</sup> A				DS-3
9/10	31	ST-101		25	24	8 <sup>37</sup> A	8 <sup>42</sup> A				
2/7	18			25	25	9 <sup>23</sup> A	9 <sup>28</sup> A				
3/8	31			25	25	9 <sup>11</sup> A	9 <sup>16</sup> A				
5/9	8			25	25	9 <sup>00</sup> A	9 <sup>05</sup> A				
5/10	23			25	22	8 <sup>55</sup> A	9 <sup>00</sup> A				
6/10	15			25	25	8 <sup>51</sup> A	8 <sup>56</sup> A				
4/9	26	↓	↓	25	23	9 <sup>02</sup> A	9 <sup>07</sup> A	↓	↓	↓	

CLIENT Beazer East  
DATE 10/7/10

PROJECT CHMU  
PROJECT # B0039221

TECH R. Parini  
PAGE 1 OF 1

Seam	Seam Length	Seamer ID - Machine	Air or Vacuum Test (A or V)	Start Pressure (psi)	Pressure Drop (psi)	Start Time	End Time	Tech ID	Inspector	Results	Remarks
1/11	96	ST-101	A	25	24	351 <sub>p</sub>	356 <sub>p</sub>	BS	RP	P	
11/12	95	BS-79		25	22	358 <sub>p</sub>	403 <sub>p</sub>				
12/13	71	↓		25	25	405 <sub>p</sub>	410 <sub>p</sub>				
13/14	54	ST-101		25	21	409 <sub>p</sub>	414 <sub>p</sub>				
14/15	28	↓		25	25	414 <sub>p</sub>	419 <sub>p</sub>				
16/17	101	BS-79		25	25	448 <sub>p</sub>	453 <sub>p</sub>				
17/18	161	ST-101		25	25	454 <sub>p</sub>	459 <sub>p</sub>				DS-4
16/19	89	BS-79		25	24	445 <sub>p</sub>	480 <sub>p</sub>				
18/20	100	ST-101		25	21	458 <sub>p</sub>	503 <sub>p</sub>				
19/21	61	BS-79		25	24	440 <sub>p</sub>	445 <sub>p</sub>				DS-5
21/22	41	↓		25	25	436 <sub>p</sub>	441 <sub>p</sub>				
22/23	17	↓		25	24	431 <sub>p</sub>	436 <sub>p</sub>				
20/24	100	ST-101		25	25	524 <sub>p</sub>	531 <sub>p</sub>				
24/25	86	↓		25	21	530 <sub>p</sub>	535 <sub>p</sub>				
25/26	70	↓	↓	25	25	535 <sub>p</sub>	540 <sub>p</sub>	↓	↓	↓	



CLIENT Beazer East  
DATE 10/9/10

PROJECT CHMU  
PROJECT # 30039221

TECH R. Parini  
PAGE 1 OF 3

Seam	Seam Length	Seamer ID Machine	Air or Vacuum Test (A or V)	Start Pressure (psi)	Pressure Drop (psi)	Start Time	End Time	Tech ID	Inspector	Results	Remarks
27 1	100	ST-101	A	25	25	9:30 A	9:35 A	BS	RP	P	
28 27	92			25	24	10:10 A	10:15 A				
28 27	46			25	25	10:38 A	10:43 A				
28 29	136			25	25	11:13 A	11:18 A				DS-6
29 30	134			25	25	11:37 A	11:42 A				
16 27	6			25	24	2:00 P	2:05 P				
17 27	16			25	25	2:06 P	2:11 P				
17 28	6			25	24	2:13 P	2:18 P				
18 28	16			25	25	2:14 P	2:19 P				
18 29	7			25	25	2:20 P	2:25 P				
20 29	15			25	25	2:21 P	2:26 P				
20 30	7			25	25	2:25 P	2:30 P				
24 30	8			25	22	2:26 P	2:31 P				
31 32	91			25	25	2:46 P	2:51 P				DS-9
31 35	78			25	24	3:26 P	3:31 P				
35 36	57			25	23	3:44 P	3:49 P				
36 37	30			25	23	3:55 P	4:00 P				
24 33	50			25	24	3:06 P	3:11 P				
33 34	26	✓	✓	25	24	3:14 P	3:19 P	✓	✓	✓	

CLIENT Beazer East  
DATE 10/9/10

PROJECT Camu  
PROJECT # BOB.39221

TECH R. Parini  
PAGE 2 OF 3

Seam	Seam Length	Seamer ID - Machine	Air or Vacuum Test (A or V)	Start Pressure (psi)	Pressure Drop (psi)	Start Time	End Time	Tech ID	Inspector	Results	Remarks
30/31	16	ST-101	A	25	24	4:21 P	4:26 P	BS	RP	P	
30/32	22			25	25	4:23 P	4:28 P				
24/31	10			25	25	4:32 P	4:37 P				
34/37	20			25	23	5:29 P	5:34 P				
33/37	13			25	25	5:28 P	5:33 P				
33/34	15			25	24	5:19 P	5:24 P				
26/34	22			25	25	5:05 P	5:10 P				
26/35	7			25	24	5:00 P	5:05 P				
25/35	30			25	25	4:55 P	5:00 P				
32/38	91			25	24	5:30 P	5:41 P				
30/41	94			25	25	6:21 P	6:26 P				DS-7
41/42	68			25	25	10:07 A	10:14 A				
42/43	46			25	25	10:32 A	10:37 A				
38/39	64	BS-79		25	25	10:14 A	10:19 A				DS-8
38/42	5	ST-101		25	23	10:17 A	10:22 A				
38/41	26			25	24	10:08 A	10:13 A				
39/42	21			25	24	10:35 A	10:35 A				
39/43	13			25	24	10:41 A	10:46 A				
40/43	13			25	25	10:43 A	10:48 A				











CLIENT Beazer East  
DATE 10/7/10

PROJECT CAMU  
PROJECT # B00.39221

TECH R. Parini  
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Repair Numbers	Seam ID/Panel(s)	Description of Damage	Type/Size of Repair	Repair Crew	Date Tested	Tested by Tech#	Observed By	Comments
1	2/3/7/8	T-Seam	2x2	ST	10/10/10	VL	RP	
2	3/4/8/9	↓	3x10	↓	↓	↓	↓	
3	4/5/9	↓	2x2	↓	↓	↓	↓	
4	5/9/10	↓	5x4	↓	↓	↓	↓	
5	5/6/10	↓	2x2	↓	↓	↓	↓	
6	2/3	Destruct	2x8	↓	↓	↓	↓	
7	7/8	↓	2x8	↓	↓	↓	↓	
8	8/9	↓	2x8	↓	↓	↓	↓	
9	17/18	↓	2x8	↓	↓	↓	↓	
10	19/21	↓	2x8	FS	↓	↓	↓	

CLIENT Beazer East  
DATE 10/9/10

PROJECT Camu  
PROJECT # B0039221

TECH R. Parini  
PAGE 1 OF 3

Repair Numbers	Seam ID/Panel(s)	Description of Damage	Type/Size of Repair	Repair Crew	Date Tested	Tested by Tech#	Observed By	Comments			
11	12/16/19	Patch	3x10	ST	10/10/10	VL	RP				
12	12/13/19/21	T-Seam	2x5	FS	↓	↓	↓				
13	13/14/21/22	↓	2x10	↓							
14	14/15/22	↓	2x2	↓							
15	22/23/15	↓	2x2	↓							
16	28/29	Destruct	2x8	DV							DS-6
17	24/30/31	T-Seam	3x3	PP							
18	20/24/30	↓	2x3	↓							
19	20/29/30	↓	2x2	↓							
20	18/20/29	↓	2x2	ST							
21	18/28/29	↓	2x2	↓							
22	17/18/28	↓	2x2	↓							
23	17/27/28	↓	2x2	↓							
24	16/17/27	↓	2x2	DV							
25	27/28	Patch	3x3	↓							
26	30/31/32	T-Seam	3x3	ST							
27	24/25/31/32	↓	4x10	PP							
28	25/26/35	↓	2x2	↓							
29	26/35/34	↓	2x2	↓							

CLIENT Beazer East  
DATE 10/9/10

PROJECT CLMU  
PROJECT # B0039221

TECH R. Parini  
PAGE 2 OF 3

Repair Numbers	Seam ID/Panel(s)	Description of Damage	Type/Size of Repair	Repair Crew	Date Tested	Tested by Tech#	Observed By	Comments
30	26/33/36	T-Seam	2x2	PP	10/10/10	VL	RP	
31	33/36/37	↓	2x2	↓	↓	↓	↓	
32	33/34/37	↓	2x2	↓	↓	↓	↓	
33	30/32/38/41	↓	2x3	ST	↓	↓	↓	
34	38/41/42	↓	2x2	↓	↓	↓	↓	
35	38/39/42	↓	2x2	↓	↓	↓	↓	
36	39/42/43	↓	2x2	↓	↓	↓	↓	
37	39/40/43	↓	2x2	↓	↓	↓	↓	
38	40/43/44	Patch	3x3	↓	↓	↓	↓	
39	20/24	↓	2x6	FS	10/9/10	↓	↓	
40	18	Boot	Boot	VL	10/12/10	↓	↓	
41	14/15	Patch	2x2	↓	10/9/10	PP	↓	
42	30/41	Destruct	2x8	ST	10/10/10	VL	↓	DS-7
43	38/39	↓	2x8	↓	↓	↓	↓	DS-8
44	31/32	↓	2x8	↓	↓	↓	↓	DS-9
45	11/16/45	T-Seam	3x3	↓	↓	↓	↓	
46	1/11/45	↓	2x2	↓	↓	↓	↓	
47	1/2/45	↓	2x2	↓	↓	↓	↓	
48	2/7/45	↓	4x4	↓	↓	↓	↓	











**GSI**  
**DESTRUCTIVE TEST FORM**

PROJECT NAME:	Koppers Closure	Test Criteria	mil	mil	mil
PROJECT NO.:	30073	Fusion Peel			
MATERIAL TYPE	40 mil Textured	Extrus Peel			
MATERIAL LAYER:	PRIMARY Cap	Peel Sep.			
QC NAME:	DANTE' WILEY	Shear			
		% Elongation			

SAMPLE I.D.	SEAM NO.	Q.C. INT.	MACH NO.	SEAMER INT	FIELD VALUES										PASS / FAIL	SAMPLE LOCATION
					PEEL (ppi)					SHEAR (ppi)						
DS-01	P-02/03	DW	W77	BS	79	95	84	83	82	127	131	122	126	120	P	50EAST
					87	86	93	86	78							
DS-02	P-07/08	DW	W101	ST	95	79	86	73	94	119	124	116	127	119	P	20S
					77	89	82	93	75							
DS-03	P-08/09	DW	W79	BS	76	79	82	83	93	115	111	119	121	113	P	20N
					93	84	89	90	70							
DS-04	P-17/18	DW	W101	ST	77	73	81	81	93	99	101	90	97	96	P	25S
					92	96	81	83	91							
DS-05	P-19/21	DW	W79	BS	80	78	81	78	86	99	100	102	96	97	P	15N
					86	76	83	88	79							
DS-06	P-28/29	DW	W101	ST	79	79	77	77	88	99	94	96	90	101	P	30N
					80	88	74	71	85							
DS-07	P-30/41	DW	W101	ST	86	87	78	86	83	99	101	100	89	93	P	20N
					81	80	84	83	86							
DS-08	P-38/39	DW	W79	BS	77	70	74	75	76	95	116	105	100	96	P	35East
					74	76	83	81	71							
DS-09	P-31/32	DW	W101	ST	82	79	90	85	85	104	99	116	102	97	P	15W
					88	83	86	88	87							

**GSI  
END OF SEAM TRIAL WELD FORM**

<b>PROJECT NAME:</b>	Koppers Closure	<b>Test Criteria</b>	<b>Fusion mil</b>	<b>Extrusion mil</b>
<b>PROJECT NO.:</b>	30073	<b>Time</b>		
<b>MATERIAL TYPE:</b>	40 mil Textured	<b>Number</b>		
<b>MATERIAL LAYER</b>	PRIMARY Cap	<b>Peel - ppi</b>		
<b>QC NAME:</b>	DANTE WILEY	<b>Shear - ppi</b>		

Seam No.	Date	Air Temp	Mater Type	Tech Initials	Machn No.	Wedge Barrel	Speed Preheat	Peel (ppi)					Shear (ppi)					Pass Fail				
								1	2	3	4	5	1	2	3	4	5					
1/2	10/06/10	75	T/T	ST	W101	750	7.5	86	80								116					
2/3	10/06/10	75	T/T	BS	W77	750	6	72	78								120					
3/4	10/06/10	75	T/T	ST	W101	750	7.5	84	79								127					
4/5	10/06/10	75	T/T	BS	W77	750	6	88	74								122					
5/6	10/06/10	75	T/T	ST	W101	750	7.5	82	73								122					
7/8	10/06/10	75	T/T	ST	W101	750	7.5	84	87								139					
8/9	10/06/10	77	T/T	BS	W79	750	6	89	92								129					
9/10	10/06/10	75	T/T	ST	W101	750	7.5	87	85								138					
6/10	10/07/10	75	T/T	ST	W101	750	7.5	89	93								133					
11/12	10/07/10	77	T/T	BS	W79	750	6	88	83								112					
1/11	10/07/10	75	T/T	ST	W101	750	7.5	90	88								123					

**GSI  
END OF SEAM TRIAL WELD FORM**

<b>PROJECT NAME:</b>	Koppers Closure	<b>Test Criteria</b>	<b>Fusion mil</b>	<b>Extrusion mil</b>
<b>PROJECT NO.:</b>	30073	<b>Time</b>		
<b>MATERIAL TYPE:</b>	40 mil Textured	<b>Number</b>		
<b>MATERIAL LAYER</b>	PRIMARY Cap	<b>Peel - ppi</b>		
<b>QC NAME:</b>	DANTE WILEY	<b>Shear - ppi</b>		

Seam No.	Date	Air Temp	Mater Type	Tech Initials	Machn No.	Wedge Barrel	Speed Preheat	Peel (ppi)					Shear (ppi)					Pass Fail		
								1	2	3	4	5	1	2	3	4	5			
12/13	10/07/10	77	T/T	BS	W79	750	6	78	78						111					
13/14	10/07/10	75	T/T	ST	W101	750	7.5	90	83						106					
14/15	10/07/10	77	T/T	BS	W79	750	6	97	86						106					
16/17	10/07/10	77	T/T	BS	W79	750	6	73	87						106					
17/18	10/07/10	75	T/T	ST	W101	750	7.5	99	81						114					
16/19	10/07/10	77	T/T	BS	W79	750	6	93	85						108					
19/21	10/07/10	77	T/T	BS	W79	750	6	77	83						116					
18/20	10/07/10	75	T/T	ST	W101	750	7.5	88	94						129					
21/22	10/07/10	77	T/T	BS	W79	750	6	84	83						119					
22/23	10/07/10	77	T/T	BS	W79	750	6	78	77						114					
20/24	10/07/10	75	T/T	ST	W101	750	7.5	82	89						125					

**GSI  
END OF SEAM TRIAL WELD FORM**

<b>PROJECT NAME:</b> Koppers Closure	<b>Test Criteria</b>	<b>Fusion mil</b>	<b>Extrusion mil</b>
<b>PROJECT NO.:</b> 30073	<b>Time</b>		
<b>MATERIAL TYPE:</b> 40 mil Textured	<b>Number</b>		
<b>MATERIAL LAYER</b> PRIMARY Cap	<b>Peel - ppi</b>		
<b>QC NAME:</b> DANTE WILEY	<b>Shear - ppi</b>		

Seam No.	Date	Air Temp	Mater Type	Tech Initials	Machn No.	Wedge Barrel	Speed Preheat	Peel (ppi)					Shear (ppi)					Pass Fail			
								1	2	3	4	5	1	2	3	4	5				
24/25	10/07/10	75	T/T	ST	W101	750	7.5	80	94						120						
25/26	10/07/10	75	T/T	ST	W101	750	7.5	90	81						120						
15/23	10/8/2010	54	T/T	ST	W101	750	7.5	95	92						130						P
7/27	10/8/2010	54	T/T	ST	W101	750	7.5	86	88						140						P
27/28	10/8/2010	54	T/T	ST	W101	750	7.5	83	86						111						P
28/29	10/8/2010	73	T/T	ST	W101	750	7.5	79	82						96						P
29/30	10/8/2010	73	T/T	ST	W101	750	7.5	100	79						112						P
16/27	10/8/2010	81	T/T	ST	W101	750	7.5	96	114						103						P
31/32	10/8/2010	84	T/T	ST	W101	750	7.5	82	84						95						P
26/33	10/8/2010	84	T/T	ST	W101	750	7.5	97	86						104						P
33/34	10/8/2010	84	T/T	ST	W101	750	7.5	75	86						107						P

**GSI  
END OF SEAM TRIAL WELD FORM**

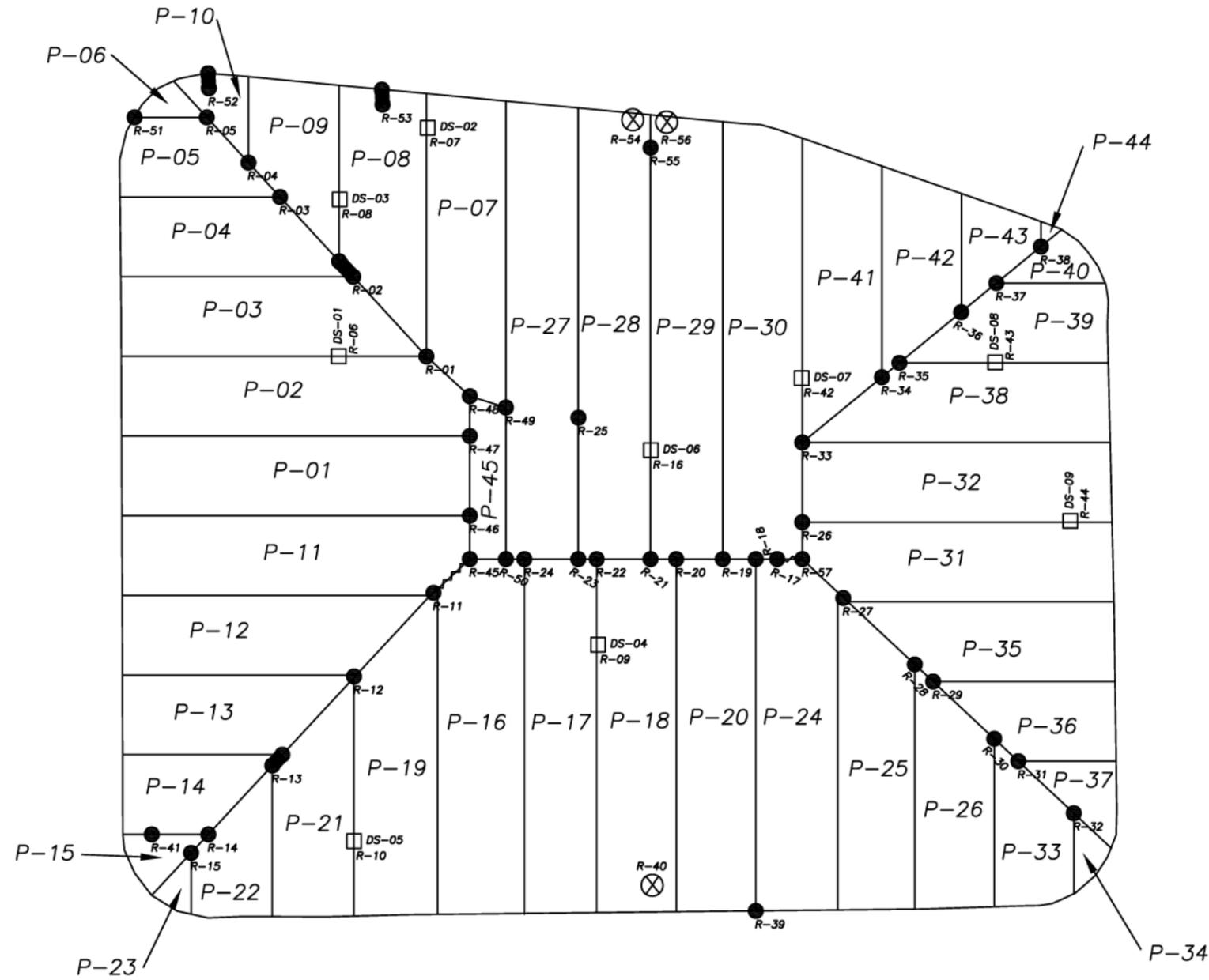
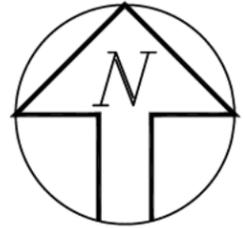
<b>PROJECT NAME:</b>	Koppers Closure	<b>Test Criteria</b>	<b>Fusion mil</b>	<b>Extrusion mil</b>
<b>PROJECT NO.:</b>	30073	<b>Time</b>		
<b>MATERIAL TYPE:</b>	40 mil Textured	<b>Number</b>		
<b>MATERIAL LAYER</b>	PRIMARY Cap	<b>Peel - ppi</b>		
<b>QC NAME:</b>	DANTE WILEY	<b>Shear - ppi</b>		

Seam No.	Date	Air Temp	Mater Type	Tech Initials	Machn No.	Wedge Barrel	Speed Preheat	Peel (ppi)					Shear (ppi)					Pass Fail						
								1	2	3	4	5	1	2	3	4	5							
31/35	10/8/2010	84	T/T	ST	W101	750	7.5	77	86									101					P	
35/36	10/8/2010	84	T/T	ST	W101	750	7.5	75	82										107					P
36/37	10/8/2010	84	T/T	ST	W101	750	7.5	74	83										108					P
24/31	10/8/2010	84	T/T	ST	W101	750	7.5	84	79										101					P
30/31	10/8/2010	84	T/T	ST	W101	750	7.5	90	90										107					P
34/37	10/8/2010	84	T/T	ST	W101	750	7.5	84	98										104					P
32/38	10/8/2010	80	T/T	ST	W101	750	7.5	85	93										114					P
30/41	10/8/2010	80	T/T	ST	W101	750	7.5	78	85										122					P
41/42	10/8/2010	80	T/T	ST	W101	750	7.5	97	86										124					P
38/39	10/8/2010	66	T/T	BS	W79	750	7	86	80										128					P
39/40	10/8/2010	66	T/T	BS	W79	750	7	93	78										127					P

**GSI  
END OF SEAM TRIAL WELD FORM**

<b>PROJECT NAME:</b>	Koppers Closure	<b>Test Criteria</b>	<b>Fusion mil</b>	<b>Extrusion mil</b>
<b>PROJECT NO.:</b>	30073	<b>Time</b>		
<b>MATERIAL TYPE:</b>	40 mil Textured	<b>Number</b>		
<b>MATERIAL LAYER</b>	PRIMARY Cap	<b>Peel - ppi</b>		
<b>QC NAME:</b>	DANTE WILEY	<b>Shear - ppi</b>		

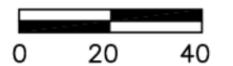
Seam No.	Date	Air Temp	Mater Type	Tech Initials	Machn No.	Wedge Barrel	Speed Preheat	Peel (ppi)					Shear (ppi)					Pass Fail										
								1	2	3	4	5	1	2	3	4	5											
42/43	10/8/2010	66	T/T	ST	W101	750	7.5	90	100													P						
40/43	10/09/10	50	T/T	ST	W101	750	7.5	90	91														P					
7/45	10/09/10	86	T/T	ST	W101	750	7.5	93	91															P				
2/45	10/09/10	86	T/T	ST	W101	750	7.5	78	103															P				
27/45	10/09/10	86	T/T	ST	W101	750	7.5	86	87																P			
16/45	10/09/10	86	T/T	ST	W101	750	7.5	93	96																P			
43/44	10/09/10	86	T/T	ST	W101	750	7.5	81	93																	P		
40/44	10/09/10	86	T/T	ST	W101	750	7.5	74	88																	P		
24/30	10/10/10	87	T/T	PP	X4	262	250	120	115																		P	
11/16	10/10/10	87	T/T	ST	X57	250	250	121	116																		P	



**LEGEND**

- PANEL OUTLINE
- P# PANEL NUMBER
- R# REPAIR NUMBER
- PATCH
- DS# DESTRUCTIVE TEST
- ⊗ PIPE BOOT
- ▬ CAP PATCH
- ~~~~~ EXTRUSION WELD

SCALE



DRAWN BY: DPW    DATE: 10/11/10  
 CHKD BY: MAR    DATE: 12/16/10  
 SCALE: 1" = 40'-0"  
 JOB #: 30063 EST #: L100296

NO.	REVISION DESCRIPTION	DATE	BY



GEO-SYNTHETICS, LLC.  
 2401 PEWAUKEE ROAD  
 WAUKESHA, WI 53188  
 262-524-7979

PROJECT INFORMATION:  
 40 MIL TEXTURED HDPE GEOMEMBRANE  
 RECORD DRAWING  
 FORMER KOPPERS CAMU CLOSURE  
 CARBONDALE, IL

FILENAME  
 KOPPERS  
 CAMU  
 DRAWING #  
 RD-1



December 17, 2010

Robert Braden  
Sevenson Environmental Services, Inc.  
2749 Lockport Road  
Niagara Falls, NY 14305  
716-284-0431

RE: 30063 Koppers CAMU Closure, Carbondale, IL

**Certification of Compliance**

The undersigned, being qualified and authorized to do so, hereby certifies that the geosynthetic liners were installed to meet the intent of the Project Specifications, Drawings and CQA Plan.

Sincerely,

Mackay Riemenschneider  
Quality Control Associate



**1 YEAR INSTALLATION WARRANTY FOR  
GEO-SYNTHETICS, INC. MEMBRANE LINERS**

PROJECT:

Koppers CAMU Closure

30063

Subject to the terms and conditions set forth below, Geo-Synthetics, Inc., warrants to Purchaser, Severson Environmental Services that the HDPE Geomembrane installed at the Koppers CAMU Closure facility in Carbondale, Illinois, was installed by Geo-Synthetics, Inc., in accordance with specifications in a good and workmanlike manner and that the installation of the liner is free from defects in workmanship for a period of 1 year effective from October 12, 2010.

This warranty covers only defects in workmanship occurring during the installation of the liner. This warranty does not cover any damage to, or defects in the liner found to have been a result of misuse, abuse or conditions existing after it was installed, including, but not limited to, rough handling; malicious mischief; vandalism; sabotage; fire; acts of God; acts of the public enemy; acts of war, public rebellion, severe weather conditions of all types; damage due to ice; excessive stress from any source; floating debris; damage due to machinery; foreign objects or animals. Nor does this warranty cover any defects which are found to have been a result of improper or defective design or engineering unless the design or engineering was performed by Geo-Synthetics, Inc.

In the event circumstances are found to exist which purchaser believes may give rise to a claim under this warranty, the following procedure shall be followed.

- a) Purchaser shall give Geo-Synthetics, Inc. written notice of the facts and circumstances of said claim within ten (10) days of becoming aware of said facts and circumstances.

Said notice shall be by registered or certified mail, return receipt requested, postage prepaid, addressed to Construction Manager, Geo-Synthetics, Inc., 4201 Pewaukee Road, Waukesha, WI 53188. The words "WARRANTY CLAIM" shall be clearly marked on the face of envelope in the lower right hand corner. Said notice shall contain, at a minimum, the name and address of the owner, the name and address of the installation, the name and address of the installer, the date upon which the material was purchased and the facts known to Purchaser upon which the claim is based. Failure to strictly comply with all the requirements of this paragraph shall void this warranty.

- b) Within twenty days after receipt of the notice described in paragraph a., above, Geo-Synthetics, Inc. shall notify Purchaser either that it will send a representative to inspect the allegedly defective liner or that it does not wish to do so. Purchaser shall pay the expenses incurred by Geo-Synthetics, Inc. in

making the inspection, including current per diem rates for personnel involved in making the inspection, in the event Geo-Synthetics, Inc. determines that the claim is not covered by this warranty.

- c) Purchaser SHALL NOT REPAIR, REPLACE, REMOVE, ALTER OR DISTURB ANY LINER, NOR SHALL Purchaser ALLOW ANYONE ELSE TO REPAIR, REPLACE, REMOVE, ALTER, OR DISTURB ANY LINER PRIOR TO SUCH INSPECTION OR RECEIPT OF GEO-SYNTHETICS INC.'S NOTICE THAT IT ELECTS NOT TO INSPECT. A FAILURE TO STRICTLY COMPLY WITH THIS PARAGRAPH SHALL VOID THIS WARRANTY OR MAY LEAD TO A DETERMINATION THAT THE ALLEGED DEFECTS ARE NOT WITHIN THE SCOPE OF THIS WARRANTY.
- d) If Geo-Synthetics, Inc. determines that the alleged defects are covered by this warranty, Geo-Synthetics, Inc. shall, in its sole discretion, either repair the defective liner or provide Purchaser with replacement liner. THE REMEDIES PROVIDED HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS WARRANTY. Any determination as to whether a particular defect is covered by this warranty will be made by Geo-Synthetics, Inc. in its sole and complete discretion.
- e) Purchaser agrees that it shall provide Geo-Synthetics, Inc. with clean, dry and unobstructed access to the liner in order for Geo-Synthetics, Inc. to perform the inspections and warranty work which may be required pursuant to this warranty.

THE REMEDIES PROVIDED TO Purchaser HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS WARRANTY AND ARE INTENDED FOR THE SOLE BENEFIT OF Purchaser. NEITHER THIS WARRANTY NOR ANY RIGHTS HEREUNDER SHALL BE ASSIGNABLE. GEO-SYNTHETICS, INC. SHALL HAVE NO LIABILITY UNDER THIS WARRANTY TO THIRD PARTIES OR STRANGERS TO THIS AGREEMENT. THE WARRANTY SET FORTH ABOVE IS THE ONLY WARRANTY APPLICABLE TO THE LINER AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL GEO-SYNTHETICS, INC. BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES FOR, RESULTING FROM, OR IN CONNECTION WITH, ANY LOSS RESULTING FROM THE USE OF THE LINER. IN THE EVENT THE EXCLUSIVE REMEDY PROVIDED HEREIN FAILS IN IT ESSENTIAL PURPOSE, AND IN THAT EVENT ONLY, Purchaser SHALL BE ENTITLED TO RETURN OF THE PURCHASE PRICE FOR SO MUCH OF THE MATERIAL AS GEO-SYNTHETICS, INC. DETERMINES IN ITS SOLE DISCRETION, TO HAVE VIOLATED THE WARRANTY PROVIDED HEREIN. EXCEPT FOR THE WARRANTY SET FORTH ABOVE, NO REPRESENTATION OR WARRANTY MADE BY ANY SALES OR OTHER REPRESENTATIVE GEO-SYNTHETICS, INC., OR ANY OTHER PERSON, CONCERNING THE LINER SHALL BE BINDING UPON GEO-SYNTHETICS, INC.

Any waiver of the terms and conditions of this warranty shall be in writing signed by GEO-SYNTHETICS, INC. the failure to insist upon strict compliance with any of the terms and conditions contained herein shall not act as a waiver of strict compliance with all of the remaining terms and conditions or this warranty and shall not operate as a waiver as to any of the terms and conditions of this warranty as to future claims under this warranty.

GEO-SYNTHETICS INC

BY:   
Robert Groh / President

Date 12-17-10

I have read and agree to be bound  
by the terms and conditions of the  
foregoing warranty.

By: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Date: \_\_\_\_\_



**GSI  
NON-DESTRUCTIVE TESTING FORM**

<b>PROJECT NAME:</b> Koppers Closure	<b>Test Criteria</b>	<b>AIR TEST</b>	<b>Test Criteria</b>	<b>Vacuum Test</b>
<b>PROJECT NO.:</b> 30073	<b>Start Pressure</b>		<b>Vac. Time</b>	
<b>MATERIAL TYPE:</b> 40 mil Textured	<b>Test Time</b>		<b>Vac. Pres.</b>	
<b>MATERIAL LAYER:</b> PRIMARY Cap	<b>Accept. Drop</b>			
<b>QC NAME:</b> DANTE' WILEY				

Seam Number	Test Date	Tech Initials	Test Type (A or V)	Air Pressure Test		Time		Test Result (P or F)	Test Locations
				psi start	psi finish	Start	End		
P-01/02	10/07/10	BS	A	25	24	750	755	P	ELOS
P-01/11	10/07/10	BS	A	25	24	1551	1556	P	ELOS
P-01/45	10/09/10	BS	A	25	25	1710	1715	P	ELOS
P-02/03	10/07/10	BS	A	25	24	804	809	P	ELOS
P-02/07	10/07/10	BS	A	25	25	923	928	P	ELOS
P-02/45	10/09/10	BS	A	25	25	1709	1714	P	ELOS
P-03/04	10/07/10	BS	A	25	24	824	829	P	ELOS
P-03/08	10/07/10	BS	A	25	25	911	916	P	ELOS
P-04/05	10/07/10	BS	A	25	23	831	836	P	ELOS
P-04/08	10/10/10	VL	V	R-02				P	ELOS
P-04/09	10/07/10	BS	A	25	23	902	907	P	ELOS
P-05/06	10/07/10	BS	A	25	23	853	858	P	ELOS
P-05/09	10/07/10	BS	A	25	25	900	905	P	ELOS
P-05/10	10/07/10	BS	A	25	22	855	900	P	6 N to NEOS
P-05/10	10/10/10	VL	V	R-04				P	SEOS to 6 N
P-06/10	10/07/10	BS	A	25	25	851	856	P	ELOS
P-07/08	10/07/10	BS	A	25	24	812	817	P	ELOS
P-07/27	10/08/10	BS	A	25	25	930	935	P	ELOS
P-07/45	10/09/10	BS	A	25	23	1708	1713	P	ELOS



**GSI  
NON-DESTRUCTIVE TESTING FORM**

<b>PROJECT NAME:</b> Koppers Closure	<b>Test Criteria</b>	<b>AIR TEST</b>	<b>Test Criteria</b>	<b>Vacuum Test</b>
<b>PROJECT NO.:</b> 30073	<b>Start Pressure</b>		<b>Vac. Time</b>	
<b>MATERIAL TYPE:</b> 40 mil Textured	<b>Test Time</b>		<b>Vac. Pres.</b>	
<b>MATERIAL LAYER:</b> PRIMARY Cap	<b>Accept. Drop</b>			
<b>QC NAME:</b> DANTE' WILEY				

Seam Number	Test Date	Tech Initials	Test Type (A or V)	Air Pressure Test		Time		Test Result (P or F)	Test Locations
				psi start	psi finish	Start	End		
P-08/09	10/07/10	BS	A	25	24	826	831	P	ELOS
P-09/10	10/07/10	BS	A	25	24	837	842	P	ELOS
P-11/12	10/07/10	BS	A	25	22	1558	1603	P	ELOS
P-11/16	10/10/10	VL	V					P	ELOS
P-11/45	10-9-10	BS	A	25	25	1712	1717	P	ELOS
P-12/13	10-7-10	BS	A	25	25	1605	1610	P	ELOS
P-12/19	10/10/10	VL	V	R-11				P	NEOS to 5 S
P-12/19	10-8-10	BS	A	25	25	842	847	P	5 S to SEOS
P-13/14	10-7-10	BS	A	25	21	1609	1614	P	ELOS
P-13/19	10/10/10	VL	V	R12				P	ELOS
P-13/21	10-8-10	BS	A	25	25	844	849	P	ELOS
P-14/15	10-7-10	BS	A	25	25	1614	1619	P	ELOS
P-14/21	10-8-10	BS	V						ELOS R-13
P-14/22	10-8-10	BS	A	25	25	846	851	P	ELOS
P-15/22	10-8-10	BS	A	25	22	849	854	P	ELOS
P-15/23	10-8-10	BS	A	25	25	851	856	P	ELOS
P-16/17	10-7-10	BS	A	25	25	1648	1653	P	ELOS
P-16/19	10-7-10	BS	A	25	24	1645	1650	P	ELOS
P-16/27	10-8-10	BS	A	25	24	1400	1405	P	ELOS



**GSI**  
**NON-DESTRUCTIVE TESTING FORM**

<b>PROJECT NAME:</b> Koppers Closure	<b>Test Criteria</b>	<b>AIR TEST</b>	<b>Test Criteria</b>	<b>Vacuum Test</b>
<b>PROJECT NO.:</b> 30073	<b>Start Pressure</b>		<b>Vac. Time</b>	
<b>MATERIAL TYPE:</b> 40 mil Textured	<b>Test Time</b>		<b>Vac. Pres.</b>	
<b>MATERIAL LAYER:</b> PRIMARY Cap	<b>Accept. Drop</b>			
<b>QC NAME:</b> DANTE' WILEY				

Seam Number	Test Date	Tech Initials	Test Type (A or V)	Air Pressure Test		Time		Test Result (P or F)	Test Locations
				psi start	psi finish	Start	End		
P-16/45	10-9-10	BS	A	25	25	1714	1719	P	ELOS
P-17/18	10-7-10	BS	A	25	25	1654	1659	P	ELOS
P-17/27	10-8-10	BS	A	25	25	1406	1411	P	ELOS
P-17/28	10-8-10	BS	A	25	24	1413	1418	P	ELOS
P-18/20	10-7-10	BS	A	25	21	1658	1703	P	ELOS
P-18/28	10-8-10	BS	A	25	25	1414	1419	P	ELOS
P-18/29	10-8-10	BS	A	25	25	1420	1425	P	ELOS
P-19/21	10-7-10	BS	A	25	24	1640	1645	P	ELOS
P-20/24	10-7-10	BS	A	25	25	1726	1781	P	ELOS
P-20/29	10-8-10	BS	A	25	25	1421	1426	P	ELOS
P-20/30	10-8-10	BS	A	25	25	1425	1430	P	ELOS
P-21/22	10-7-10	BS	A	25	25	1636	1641	P	ELOS
P-22/23	10-7-10	BS	A	25	24	1631	1636	P	ELOS
P-24/25	10-7-10	BS	A	25	21	1730	1735	P	ELOS
P-24/30	10-8-10	BS	A	25	22	1426	1431	P	WEOS to 8 E
P-24/30	10/10/10	BS	V					P	8 E to EEOS
P-24/31	10-8-10	BS	A	25	29	1632	1638	P	ELOS
P-25/26	10-7-10	BS	A	25	25	1735	1740	P	ELOS
P-25/35	10/10/10	VL	V	R-27				P	NEOS to 8 S



**GSI  
NON-DESTRUCTIVE TESTING FORM**

<b>PROJECT NAME:</b> Koppers Closure	<b>Test Criteria</b>	<b>AIR TEST</b>	<b>Test Criteria</b>	<b>Vacuum Test</b>
<b>PROJECT NO.:</b> 30073	<b>Start Pressure</b>		<b>Vac. Time</b>	
<b>MATERIAL TYPE:</b> 40 mil Textured	<b>Test Time</b>		<b>Vac. Pres.</b>	
<b>MATERIAL LAYER:</b> PRIMARY Cap	<b>Accept. Drop</b>			
<b>QC NAME:</b> DANTE' WILEY				

Seam Number	Test Date	Tech Initials	Test Type (A or V)	Air Pressure Test		Time		Test Result (P or F)	Test Locations
				psi start	psi finish	Start	End		
P-25/35	10-8-10	BS	A	25	25	1655	1700	P	8 S to SEOS
P-26/33	10-8-10	BS	A	25	24	1506	1511	P	ELOS
P-26/35	10-8-10	BS	A	25	24	1700	1705	P	ELOS
P-26/36	10-8-10	BS	A	25	25	1705	1710	P	ELOS
P-27/28	10-8-10	BS	A	25	24	1010	1015	P	NEOS to 92 S
P-27/28	10-8-10	BS	A	25	25	1038	1043	P	92 S to SEOS
P-27/45	10-9-10	BS	A	25	24	1707	1712	P	ELOS
P-28/29	10-8-10	BS	A	25	25	1113	1118	P	ELOS
P-29/30	10-8-10	BS	A	25	25	1137	1142	P	ELOS
P-30/31	10-8-10	BS	A	25	25	1623	1628	P	ELOS
P-30/32	10-8-10	BS	A	25	24	1621	1626	P	ELOS
P-30/41	10-8-10	BS	A	25	25	1821	1826	P	ELOS
P-31/32	10-8-10	BS	A	25	25	1446	1451	P	ELOS
P-31/35	10-8-10	BS	A	25	24	1526	1531	P	ELOS
P-32/38	10-8-10	BS	A	25	24	1736	1741	P	ELOS
P-33/34	10-8-10	BS	A	25	24	1514	1519	P	ELOS
P-33/36	10-8-10	BS	A	25	24	1719	1724	P	ELOS
P-33/37	10-8-10	BS	A	25	25	1728	1733	P	ELOS
P-34/37	10-8-10	BS	A	25	23	1729	1734	P	ELOS



**GSI  
NON-DESTRUCTIVE TESTING FORM**

<b>PROJECT NAME:</b> Koppers Closure	<b>Test Criteria</b>	<b>AIR TEST</b>	<b>Test Criteria</b>	<b>Vacuum Test</b>
<b>PROJECT NO.:</b> 30073	<b>Start Pressure</b>		<b>Vac. Time</b>	
<b>MATERIAL TYPE:</b> 40 mil Textured	<b>Test Time</b>		<b>Vac. Pres.</b>	
<b>MATERIAL LAYER:</b> PRIMARY Cap	<b>Accept. Drop</b>			
<b>QC NAME:</b> DANTE' WILEY				

Seam Number	Test Date	Tech Initials	Test Type (A or V)	Air Pressure Test		Time		Test Result (P or F)	Test Locations
				psi start	psi finish	Start	End		
P-35/36	10-8-10	BS	A	25	23	1544	1549	P	ELOS
P-36/37	10-8-10	BS	A	25	23	1555	1600	P	ELOS
P-38/39	10-9-10	BS	A	25	25	1014	1019	P	ELOS
P-38/41	10-9-10	BS	A	25	24	1008	1013	P	ELOS
P-38/42	10-9-10	BS	A	25	23	1017	1022	P	ELOS
P-39/40	10-9-10	BS	A	25	24	1042	1047	P	ELOS
P-39/42	10-9-10	BS	A	25	24	1030	1035	P	ELOS
P-39/43	10-9-10	BS	A	25	24	1041	1046	P	ELOS
P-40/43	10-9-10	BS	A	25	25	1043	1048	P	ELOS
P-40/44	10-9-10	BS	A	25	25	1722	1727	P	ELOS
P-41/42	10-9-10	BS	A	25	25	1009	1014	P	ELOS
P-42/43	10-9-10	BS	A	25	22	1032	1037	P	ELOS
P-43/44	10-9-10	BS	A	25	25	1721	1726	P	ELOS



GSI  
 PANEL PLACEMENT FORM

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MATERIAL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

PANEL NO.	ROLL NO.	PLACEMENT DATE	PANEL LENGTH (FT)	PANEL WIDTH (FT)	COMMENTS
P-01	7380	10-6-10	96	22	2112
P-02	7380	10-6-10	95	22	2090
P-03	7380	10-6-10	74	22	1628
P-04	7380	10-6-10	52	22	1144
P-05	7380	10-6-10	30	22	660
P-06	7380	10-6-10	20	18	180
P-07	7380	10-6-10	92	22	2024
P-08	7380	10-6-10	73	22	1606
P-09	7380	10-6-10	46	22	1012
P-10	7380	10-6-10	31	22	341
P-11	7382	10-7-10	96	22	2112
P-12	7382	10-7-10	83	22	1826
P-13	7382	10-7-10	61	22	1342
P-14	7382	10-7-10	40	22	880
P-15	7382	10-7-10	28	22	308
P-16	7382	10-7-10	101	22	2222
P-17	7382	10-7-10	101	22	2222
P-18	7382	10-7-10	101	22	2222
P-19	7382	10-7-10	75	22	1650



GSI  
 PANEL PLACEMENT FORM

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MATERIAL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

PANEL NO.	ROLL NO.	PLACEMENT DATE	PANEL LENGTH (FT)	PANEL WIDTH (FT)	COMMENTS
P-20	7383	10-7-10	100	22	2200
P-21	7383	10-7-10	51	22	1122
P-22	7383	10-7-10	29	22	638
P-23	7383	10-7-10	17	16	136
P-24	7383	10-7-10	68	22	1496
P-25	7383	10-7-10	53	22	1166
P-26	7383	10-7-10	60	22	1320
P-27	7383	10-8-10	138	22	3036
P-28	7384	10-8-10	137	22	3014
P-29	7384	10-8-10	135	22	2970
P-30	7384	10-8-10	133	22	2926
P-31	7384	10-8-10	88	22	1936
P-32	7384	10-8-10	91	22	2002
P-33	7384	10-8-10	38	22	836
P-34	7384	10-8-10	26	22	286
P-35	7383	10-8-10	71	22	1562
P-36	7384	10-8-10	44	22	968
P-37	7384	10-8-10	30	20	300
P-38	7384	10-8-10	78	22	1716



GSI  
PANEL PLACEMENT FORM

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MATERIAL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

PANEL NO.	ROLL NO.	PLACEMENT DATE	PANEL LENGTH (FT)	PANEL WIDTH (FT)	COMMENTS
P-39	7384	10-8-10	50	22	1100
P-40	7384	10-8-10	35	22	385
P-41	7384	10-8-10	81	22	1782
P-42	7384	10-8-10	57	22	1254
P-43	7384	10-8-10	35	22	770
P-44	7381	10-9-10	23	22	253
P-45	7381	10-9-10	42	15	630



GSI  
PANEL SEAMING FORM

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MTL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

SEAM NO.	DATE	TIME	SEAM LENGTH	SEAMER INT	MACHINE NO.	Wedge / Barrel	Speed / Preheat	Comments
P-01/02	10/06/10	1539	95	ST	W101	750	7.5	
P-01/11	10/07/10	1328	96	ST	W101	750	7.5	
P-01/45	10/09/10	1600	22	ST	W101	750	7.5	
P-02/03	10/06/10	1548	84	BS	W77	750	6	DS-01
P-02/07	10/07/10	808	18	ST	W101	750	7.5	
P-02/45	10/09/10	1603	11	ST	W101	750	7.5	
P-03/04	10/06/10	1600	63	ST	W101	750	7.5	
P-03/08	10/07/10	810	31	ST	W101	750	7.5	
P-04/05	10/06/10	1613	41	BS	W77	750	6	
P-04/08	10/07/10	R-02	5	ST				ELOS
P-04/09	10/07/10	816	26	ST	W101	750	7.5	
P-05/06	10/06/10	1649	20	ST	W101	750	7.5	
P-05/09	10/07/10	821	8	ST	W101	750	7.5	
P-05/10	10/07/10	825	17	ST	W101	750	7.5	6 N to NEOS
P-05/10	10/07/10	R-04	6	ST				SEOS to 6 N
P-06/10	10/07/10	828	15	ST	W101	750	7.5	
P-07/08	10/06/10	1750	85	ST	W101	750	7.5	DS-02
P-07/27	10/08/10	910	100	ST	W101	750	7.5	
P-07/45	10/09/10	1625	14	ST	W101	750	7.5	



GSI  
 PANEL SEAMING FORM

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MTL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

SEAM NO.	DATE	TIME	SEAM LENGTH	SEAMER INT	MACHINE NO.	Wedge / Barrel	Speed / Preheat	Comments
P-08/09	10/06/10	1755	60	BS	W77	750	6	DS-03
P-09/10	10/06/10	1811	31	ST	W101	750	7.5	
P-11/12	10/07/10	1330	95	BS	W79	750	7	
P-11/16	10/10/10	815	12	ST	X57	250	250	ELOS
P-11/45	10/09/10	1558	12	ST	W101	750	7.5	
P-12/13	10/07/10	1349	71	BS	W79	750	7	
P-12/19	10/08/10	820	33	ST	W101	750	7.5	5 S to SEOS
P-12/19	10/10/10	R-11	5	ST				NEOS to 5 S
P-13/14	10/07/10	1357	51	ST	W101	750	7.5	
P-13/19	10/09/10	R-12	2	FS				ELOS
P-13/21	10/08/10	824	29	ST	W101	750	7.5	
P-14/15	10/07/10	1409	28	ST	W101	750	7.5	
P-14/21	10/09/10	R-13	4	FS				ELOS
P-14/22	10/08/10	830	26	ST	W101	750	7.5	
P-15/22	10/08/10	832	7	ST	W101	750	7.5	
P-15/23	10/08/10	833	16	ST	W101	750	7.5	
P-16/17	10/07/10	1419	101	BS	W79	750	7	
P-16/19	10/07/10	1449	89	BS	W79	750	7	
P-16/27	10/08/10	1401	6	ST	W101	750	7.5	



GSI  
PANEL SEAMING FORM

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MTL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

SEAM NO.	DATE	TIME	SEAM LENGTH	SEAMER INT	MACHINE NO.	Wedge / Barrel	Speed / Preheat	Comments
P-16/45	10/09/10	1617	15	ST	W101	750	7.5	
P-17/18	10/07/10	1429	101	ST	W101	750	7.5	DS-04
P-17/27	10/08/10	1359	16	ST	W101	750	7.5	
P-17/28	10/08/10	1358	6	ST	W101	750	7.5	
P-18/20	10/07/10	1520	100	ST	W101	750	7.5	
P-18/28	10/08/10	1356	16	ST	W101	750	7.5	
P-18/29	10/08/10	1355	7	ST	W101	750	7.5	
P-19/21	10/07/10	1515	61	BS	W79	750	7	DS-05
P-20/24	10/07/10	1633	100	ST	W101	750	7.5	
P-20/29	10/08/10	1353	15	ST	W101	750	7.5	
P-20/30	10/08/10	1352	7	ST	W101	750	7.5	
P-21/22	10/07/10	1531	41	BS	W79	750	7	
P-22/23	10/07/10	1540	17	BS	W79	750	7	
P-24/25	10/07/10	1649	86	ST	W101	750	7.5	
P-24/30	10/08/10	1351	8	ST	W101	750	7.5	WEOS to 8 E
P-24/30	10/10/10	819	7	PP	X4	262	250	8 E to EEOS
P-24/31	10/08/10	1620	10	ST	W101	750	7.5	
P-25/26	10/07/10	1710	70	ST	W101	750	7.5	
P-25/35	10/08/10	1638	22	ST	W101	750	7.5	8 S to SEOS



GSI  
PANEL SEAMING FORM

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MTL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

SEAM NO.	DATE	TIME	SEAM LENGTH	SEAMER INT	MACHINE NO.	Wedge / Barrel	Speed / Preheat	Comments
P-25/35	10/10/10	R-27	8	PP				NEOS to 8 S
P-26/33	10/08/10	1437	50	ST	W101	750	7.5	
P-26/35	10/08/10	1641	7	ST	W101	750	7.5	
P-26/36	10/08/10	1642	22	ST	W101	750	7.5	
P-27/28	10/08/10	950	92	ST	W101	750	7.5	NEOS to 92 S
P-27/28	10/08/10	1026	45	ST	W101	750	7.5	92 S to SEOS
P-27/45	10/09/10	1607	38	ST	W101	750	7.5	
P-28/29	10/08/10	1046	136	ST	W101	750	7.5	DS-06
P-29/30	10/08/10	1111	134	ST	W101	750	7.5	
P-30/31	10/08/10	1614	16	ST	W101	750	7.5	
P-30/32	10/08/10	1610	22	ST	W101	750	7.5	
P-30/41	10/08/10	1723	94	ST	W101	750	7.5	DS-07
P-31/32	10/08/10	1419	91	ST	W101	750	7.5	DS-09
P-31/35	10/08/10	1503	78	ST	W101	750	7.5	
P-32/38	10/08/10	1707	91	ST	W101	750	7.5	
P-33/34	10/08/10	1450	26	ST	W101	750	7.5	
P-33/36	10/08/10	1645	15	ST	W101	750	7.5	
P-33/37	10/08/10	1647	13	ST	W101	750	7.5	
P-34/37	10/08/10	1649	20	ST	W101	750	7.5	



GSI  
 PANEL SEAMING FORM

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MTL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

SEAM NO.	DATE	TIME	SEAM LENGTH	SEAMER INT	MACHINE NO.	Wedge / Barrel	Speed / Preheat	Comments
P-35/36	10/08/10	1530	57	ST	W101	750	7.5	
P-36/37	10/08/10	1550	30	ST	W101	750	7.5	
P-38/39	10/08/10	1749	64	BS	W79	750	7	DS-08
P-38/41	10/09/10	800	26	ST	W101	750	7.5	
P-38/42	10/09/10	804	5	ST	W101	750	7.5	
P-39/40	10/08/10	1802	35	BS	W79	750	7	
P-39/42	10/09/10	805	21	ST	W101	750	7.5	
P-39/43	10/09/10	808	13	ST	W101	750	7.5	
P-40/43	10/09/10	811	13	ST	W101	750	7.5	
P-40/44	10/09/10	1653	22	ST	W101	750	7.5	
P-41/42	10/08/10	1742	68	ST	W101	750	7.5	
P-42/43	10/08/10	1800	46	ST	W101	750	7.5	
P-43/44	10/09/10	1641	23	ST	W101	750	7.5	



**GSI  
REPAIR FORM**

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MATERIAL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

Repair No.	Seam / Panel No.	Location of Repairs	Repair Date	Repair Tech	Repair Type*	Repair Size	Vacuum Test Date	Test Tech	Test P/F
R-01	P-02/03/07/08	T	10-7-10	ST	P	2x2	10-10-10	VL	P
R-02	P-03/04/08/09	T	10-7-10	ST	P	3x10	10-10-10	VL	P
R-03	P-04/05/09	T	10-7-10	ST	P	2x2	10-10-10	VL	P
R-04	P-05/09/10	T	10-7-10	ST	P	5x6	10-10-10	VL	P
R-05	P-05/06/10	T	10-7-10	ST	P	2x2	10-10-10	VL	P
R-06	P-02/03	50E	10-7-10	ST	DS-01	2x8	10-10-10	VL	P
R-07	P-07/08	20S	10-7-10	ST	DS-02	2x8	10-10-10	VL	P
R-08	P-08/09	20N	10-7-10	ST	DS-03	2x8	10-10-10	VL	P
R-09	P-17/18	25S	10-10-10	ST	DS-04	2x8	10-10-10	VL	P
R-10	P-19/21	15N	10-9-10	FS	DS-05	2x8	10-10-10	VL	P
R-11	P-11/12/16/19	T	10/10/10	ST	P	3x10	10-10-10	VL	P
R-12	P-12/13/19/21	T	10-9-10	FS	P	2x5	10-10-10	VL	P
R-13	P-13/14/21/22	T	10-9-10	FS	P	2x10	10-10-10	VL	P
R-14	P-14/15/22	T	10-9-10	FS	P	2x2	10-10-10	VL	P
R-15	P-15/22/23	T	10-9-10	FS	P	2x2	10-10-10	VL	P
R-16	P-28/29	30N	10-6-10	DV	DS-06	2x8	10-10-10	VL	P
R-17	P-24/30	T	10-10-10	PP	P	3x3	10-10-10	VL	P
R-18	P-20/24/30	T	10-10-10	PP	P	2x3	10-10-10	VL	P
R-19	P-20/29/30	T	10-10-10	PP	P	2x2	10-10-10	VL	P
R-20	P-18/20/29	T	10-10-10	ST	P	2x2	10-10-10	VL	P

\* Repair Type: P=Patch, C=Cap, B=Boot, DT=Destruct (with number), W= Weld, (explain any additional repairs)



**GSI  
REPAIR FORM**

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MATERIAL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

Repair No.	Seam / Panel No.	Location of Repairs	Repair Date	Repair Tech	Repair Type*	Repair Size	Vacuum Test Date	Test Tech	Test P/F
R-21	P-18/28/29	T	10-10-10	ST	P	2x2	10-10-10	VL	P
R-22	P-17/18/28	T	10-10-10	ST	P	2x2	10-10-10	VL	P
R-23	P-17/27/28	T	10-10-10	ST	P	2x2	10-10-10	VL	P
R-24	P-16/17/27	T	10-09-10	DV	P	2x2	10-10-10	VL	P
R-25	P-27/28	92S	10-09-10	DV	P	3x3	10-10-10	VL	P
R-26	P-30/31/32	T	10-9-10	ST	P	3x3	10-10-10	VL	P
R-27	P-24/25/31/35	T	10-10-10	PP	P	4x10	10-10-10	VL	P
R-28	P-25/26/35	T	10-10-10	PP	P	2x2	10-10-10	VL	P
R-29	P-26/35/36	T	10-10-10	PP	P	2x2	10-10-10	VL	P
R-30	P-26/33/36	T	10-10-10	PP	P	2x2	10-10-10	VL	P
R-31	P-33/36/37	T	10-10-10	PP	P	2x2	10-10-10	VL	P
R-32	P-33/34/37	T	10-10-10	PP	P	2x2	10-10-10	VL	P
R-33	P-30/32/38/41	T	10-10-10	ST	P	2x3	10-10-10	VL	P
R-34	P-38/41/42	T	10-10-10	ST	P	2x2	10-10-10	VL	P
R-35	P-38/39/42	T	10-10-10	ST	P	2x2	10-10-10	VL	P
R-36	P-39/42/43	T	10-10-10	ST	P	2x2	10-10-10	VL	P
P-37	P-39/40/43	T	10-10-10	ST	P	2x2	10-10-10	VL	P
R-38	P-40/43/44	T	10-10-10	ST	P	3x3	10-10-10	VL	P
R-39	P-20/24	0-9N	10-9-10	FS	P	2x6	10-10-10	VL	P
R-40	P-18	8N 5W	10/12/10	VL	Boot	3x10	10/12/10	VL	P

\* Repair Type: P=Patch, C=Cap, B=Boot, DT=Destruct (with number), W= Weld, (explain any additional repairs)



**GSI  
REPAIR FORM**

<b>PROJECT NAME:</b>	<b>Koppers Closure</b>
<b>PROJECT NO.:</b>	<b>30073</b>
<b>MATERIAL TYPE:</b>	<b>40 mil Textured</b>
<b>MATERIAL LAYER:</b>	<b>PRIMARY Cap</b>
<b>QC NAME:</b>	<b>DANTE' WILEY</b>

Repair No.	Seam / Panel No.	Location of Repairs	Repair Date	Repair Tech	Repair Type*	Repair Size	Vacuum Test Date	Test Tech	Test P/F
P-41	P-14/15	8E	10-9-10	VL	P	2x2	10-9-10	PP	P
R-42	P-30/41	20N	10-10-10	ST	DS-07	2x8	10-10-10	VL	P
R-43	P-38/39	35E	10-10-10	ST	DS-08	2x8	10-10-10	VL	P
R-44	P-31/32	15W	10-10-10	ST	DS-09	2x8	10-10-10	VL	P
R-45	P-11/16/45	T	10-10-10	ST	P	3x3	10-10-10	VL	P
R-46	P-01/11/45	T	10-10-10	ST	P	2x2	10-10-10	VL	P
R-47	P-01/02/45	T	10-10-10	ST	P	2x2	10-10-10	VL	P
R-48	P-02/07/45	T	10-10-10	ST	P	4x14	10-10-10	VL	P
R-49	P-07/27/45	T	10-10-10	ST	P	3x3	10-10-10	VL	P
R-50	P-16/27/45	T	10-10-10	ST	P	3x3	10-10-10	VL	P
R-51	P-05/06	0-9E	10-9-10	VL	P	2x10	10-9-10	VL	P
R-52	P-10	11E 0-8S	10-9-10	VL	P	2x10	10-9-10	VL	P
R-53	P-08	13E 0-10S	10-9-10	VL	P	2x10	10-9-10	VL	P
R-54	P-28	0-6S	10/11/10	VL	Boot	8x8	10/11/10	VL	P
R-55	P-28/29	9S	10/11/10	VL	P	2x2	10/11/10	VL	P
R-56	P-29	0-6S	10/11/10	VL	Boot	8x8	10/11/10	VL	P
R-57	P-24/30/31	T	10-10-10	PP	P	2x4	10-9-10	VL	P

\* Repair Type: P=Patch, C=Cap, B=Boot, DT=Destruct (with number), W= Weld, (explain any additional repairs)

**GSI  
TRIAL WELD FORM**

<b>PROJECT NAME:</b>	Koppers Closure	<b>Test Criteria</b>	<b>Fusion mil</b>	<b>Extrusion mil</b>
<b>PROJECT NO.:</b>	30073	<b>Time</b>		
<b>MATERIAL TYPE:</b>	40 mil Textured	<b>Number</b>		
<b>MATERIAL LAYER</b>	PRIMARY Cap	<b>Peel - ppi</b>		
<b>QC NAME:</b>	DANTE' WILEY	<b>Shear - ppi</b>		

Trial No.	Date	Sample Time	Mater Type	Tech Initials	Tech Initials	Machn No.	Wedge Barrel	Speed Preheat	Peel (ppi)										Shear (ppi)					Pass	
									1	2	3	4	5	1	2	3	4	5	Fail						
1	10/06/10	1405	75	T/T	ST	W101	750	8.5	107	88														F	
2	10/06/10	1510	75	T/T	BS	W77	750	9.5																	F
3	10/06/10	1528	75	T/T	ST	W101	750	7.5	98	68	128	89							117	111					P
4	10/06/10	1536	75	T/T	BS	W77	750	6	95	93	112	97							99	111					P
5	10/06/10	1700	77	T/T	BS	W79	750	6	100	93	94	86							112	119					P
1	10/07/10	757	58	T/T	ST	W101	750	7.5	97	106	114	101							142	142					P
2	10/07/10	805	58	T/T	BS	W79	750	8	93	101	93	98							148	141					P
3	10/07/10	1013	68	T/T	ST	X53	250	250	75		107								133	132					P
4	10/07/10	1300	72	T/T	ST	W101	750	7.5	101	122	110	112							118	120					P
5	10/07/10	1306	72	T/T	BS	W79	750	7	91	101	97	97							130	131					P

**GSI  
TRIAL WELD FORM**

<b>PROJECT NAME:</b> Koppers Closure	<b>Test Criteria</b>	<b>Fusion mil</b>	<b>Extrusion mil</b>
<b>PROJECT NO.:</b> 30073	<b>Time</b>		
<b>MATERIAL TYPE:</b> 40 mil Textured	<b>Number</b>		
<b>MATERIAL LAYER</b> PRIMARY Cap	<b>Peel - ppi</b>		
<b>QC NAME:</b> DANTE' WILEY	<b>Shear - ppi</b>		

Trial No.	Date	Sample Time	Mater Type	Tech Initials	Tech Initials	Machn No.	Wedge Barrel	Speed Preheat	Peel (ppi)										Shear (ppi)					Pass	
									1	2	3	4	5	1	2	3	4	5	Fail						
1	10/08/10	800	54	T/T	ST	W101	750	7.5	82	104	102	114								133	125				P
2	10/08/10	905	57	T/T	BS	W79	750	7.5	96	88	93	89								121	119				P
3	10/08/10	1335	84	T/T	ST	W101	750	7.5	97	99	104	99								95	100				P
4	10/08/10	1745	80	T/T	BS	W79	750	7	92	87	84	95								121	113				P
1	10/09/10	730	50	T/T	ST	W101	750	7.5	97	87	95	87								141	140				P
2	10/09/10	850	57	T/T	ST	X57	265	250	96		105									127	126				P
3	10/09/10	855	57	T/T	DV	X57	255	250	124		71									125	125				P
4	10/09/10	914	57	T/T	FS	X53	250	250	95		86									125	124				P
5	10/09/10	1309	82	T/T	VL	X4	280	240	108		105									113	104				P
6	10/09/10	1314	82	T/T	FS	X53	250	250	103		85									104	110				P
7	10/09/10	1540	86	T/T	ST	W101	750	7.5	104	103	100	114								113	97				P

**GSI  
TRIAL WELD FORM**

<b>PROJECT NAME:</b> Koppers Closure	<b>Test Criteria</b>	<b>Fusion mil</b>	<b>Extrusion mil</b>
<b>PROJECT NO.:</b> 30073	<b>Time</b>		
<b>MATERIAL TYPE:</b> 40 mil Textured	<b>Number</b>		
<b>MATERIAL LAYER</b> PRIMARY Cap	<b>Peel - ppi</b>		
<b>QC NAME:</b> DANTE' WILEY	<b>Shear - ppi</b>		

Trial No.	Date	Sample Time	Mater Type	Tech Initials	Tech Initials	Machn No.	Wedge Barrel	Speed Preheat	Peel (ppi)					Shear (ppi)					Pass				
									1	2	3	4	5	1	2	3	4	5	Fail				
1	10/10/10	730	55	T/T	ST	X57	250	250	122		124							124	127				P
2	10/10/10	756	55	T/T	PP	X4	262	250	127		105							142	139				P
1	10/11/10	830	60	T/T	VL	X4	270	240	108		113							112	126				P
2	10/11/10	1330	82	T/T	VL	X4	270	240	110		108							113	118				P
1	10/12/10	1000	72	T/T	VL	X70	270	240	103		105							113	123				P



**Appendix E**

Weekly Project Summaries



Photos

Text

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Photo 1



Photo 2



Photo 3



**Distribution:**

Paul Alessio E.J. Suardini  
Mike Slenska Carolyn Bury  
Mike Bollinger  
Troy Hopper  
Mark Graveling  
Mason Wheeler  
Jeremy Neighbors

**Weekly Project Summary No.**

**1**

**Work Performed Dates:**

**May 24-27, 2004**

Photo 4



Photo 5



Photo 6



**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

- \* SURVEYING OF THE ARCHEOLOGICAL AREA ARG-2
- \* SURVEYING OF THE CREEK RELOCATION CLEARING LIMITS
- \* HELD THE ON-SITE KICK OFF MEETING WITH THE OPERATING ENGINEERS AND THE LABORER LOCALS
- \* SITE HAD A SEVERE STORM WITH HAIL AND HEAVY RAINS
- \* ORDERING MATERIALS FOR THE CONSTRUCTION WORK

Photos

Text

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Photo 1



Photo 2



Photo 3



**Distribution:**

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Mike Slenska Carolyn Bury  
Mike Bollinger  
Troy Hopper  
Mark Graveling  
Mason Wheeler  
Jeremy Neighbors

**Weekly Project Summary No.**

**2**

**Work Performed Dates:**

**June 2-5, 2004**

Photo 4



Photo 5



Photo 6



**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

- \* **ORDERING MATERIALS FOR THE CONSTRUCTION WORK**
- \* **GRADING OF THE SUBGRADE FOR THE MODUTANK**
- \* **LIGHT CLEARING AROUND ARG-2 AREA, NEW CREEK RELOCATION AREA, AND LIGHT WOODED AREAS**
- \* **WORKER'S PHYSICALS**
- \* **PREPARING TO CLEAR LARGER VEGETATION ON NORTH HALF OF GLADE CREEK**
- \* **CONTINUED TO RECEIVE HEAVY EQUIPMENT**

Photos

Text

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Mike Bollinger  
Troy Hopper  
Mark Gravelding  
Mason Wheeler  
Jeremy Neighbors  
E.J. Suardini  
Carolyn Bury

**Weekly Project Summary No.**

**3**

**Work Performed Dates:**

**June 7-12, 2004**

**Text**

Photo 1



**INSTALLING THE MODU TANK**

Photo 2



**PLACING WATER INTO THE MODU TANK TO ANCHOR THE LINE**

Photo 3



**STAGING NON-WOVEN FABRIC**

Photo 4



**DROPPING THE TIMBER ONLY NO GRUBBING**

Photo 5



**CONTINUE TO CLEAR THE HEAVY TIMBER**

Photo 6



**LOADING THE CLEARED TREES TO BE STAGED**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

- \* SURVEYING THE CAMU CLEARING LIMITS
- \* SURVEYING OF THE UPPER HALF OF THE RELOCATION EXCAVATION AREA
- \* INSTALLING THE MODU TANK
- \* CLEARING THE LARGER TIMBER NORTH OF THE CREEK CROSSING - NO GRUBBING
- \* CLEARING THE LARGER TIMBER NEAR THE DNAPL COLLECTION PIPE - NO GRUBBING
- \* PLACING THE CUT TIMBER IN THE LAY DOWN AREA
- \* CONTINUE TO RECEIVE AND STAGE EQUIPMENT AND MATERIAL

Photos

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Mason Wheeler  
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E.J. Suardini  
Carolyn Bury

**Weekly Project Summary No.**  
**4**

**Work Performed Dates:**  
**June 14-20, 2004**

Text

**Photo 1**



**INSTALLATION OF BOOM IN GLADE CREEK**

**Photo 2**



**MARKING STUMPS TO BE GRUBBED ALONG THE COLLECTION PIPELINE**

**Photo 3**



**EXCESSIVE WATER FLOODING AND FLOW IN GLADE CREEK FROM OVERNIGHT RAINS**

**Photo 4**



**INSTALLATION OF SILT FENCE AT NORTH END OF GLADE CREEK**

**Photo 5**



**DRESSING UP THE HAUL ROAD FOR THE CLEARING CONTRACTOR**

**Photo 6**



**LOADING CUT TREES FOR TRANSPORT TO TREE PILE AREA**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

- \* SURVEYING OF THE NORTHERN COLLECTION PIPE
- \* CONTINUE TO SET OFFSET SURVEY FOR THE FIRST CUT OF THE NEW CREEK LOCATION
- \* GRUBBING ALONG NORTH COLLECTION PIPELINE
- \* CLEARING FOR PATH TO SOUTH POND FOR DUST CONTROL WATER
- \* CONTINUED SITE CLEARING BETWEEN GLADE CREEK AND THE ACCESS ROAD
- \* CONTINUE TO CLEAR AND STAGE MATERIAL IN THE LAY DOWN AREA
- \* CONTINUE TO RECEIVE STONE AND STAGE STONE
- \* INSTALLATION OF SILT FENCE
- \* DEPLOYMENT OF BOOM IN GLADE CREEK

Photos

Text

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Mark Gravelding  
Mason Wheeler  
Jeremy Neighbors  
E.J. Suardini  
Carolyn Bury

**Weekly Project Summary No.**

**5**

**Work Performed Dates:**

**June 21-27, 2004**

**Text**

Photo 1



EXCAVATION OF NEW GLADE CREEK NEAR STATION 12+30

Photo 2



STOCKPILING CA6 STONE

Photo 3



LOADING CUT TREES FOR TRANSPORT TO PILING AREA

Photo 4



INSTALLING SILT FENCE ALONG GLADE CREEK

Photo 5



REPLACING CULVERTS FOR CROSSING TO RELOCATED CREEK EXCAVATION AREA FOR HEAVY CONSTRUCTION TRAFFIC

Photo 6



INSTALLING ACCESS ROAD TO SOUTH POND FOR DUST CONTROL WATER

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

- \* EXCAVATING THE CREEK RELOCATION NEAR STA 12+50 WORKING NORTH
- \* RECEIVING AND STOCKPILING CA6 STONE
- \* STUMP REMOVAL ALONG NORTH COLLECTION LINE
- \* CLEARING TREES AND PILING
- \* CLEAR AND GRUB THE SOUTH END OF THE COLLECTION PIPE AREA
- \* SILT FENCE INSTALLATION
- \* REPLACEMENT OF CULVERT AT GLADE CREEK CROSSING
- \* INSTALLATION OF SOUTH POND ACCESS ROAD FOR DUST CONTROL WATER
- \* INSTALLING STONE ON THE ACCESS ROAD TO SOUTH POND
- \* LAYOUT OF 4" HDPE PIPE FOR THE TAINTED WATER RECOVERY BY THE COLLECTION PIPE AREA.
- \* EROSION AND SEDIMENTATION CONTROLS REVIEWED DAILY

Photos

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Mark Gravelding  
Mason Wheeler  
Jeremy Neighbors  
E.J. Suardini  
Carolyn Bury

**Weekly Project Summary No.**

**6**

**Work Performed Dates:**

**June 28-July 4, 2004**

**Text**

Photo 1



WELDING THE 4" WASTE WATER TRANSFER LINE

Photo 2



COMPLETE 125 FOOT SECTION OF RELOCATED CREEK

Photo 3



GLADE CREEK RELOCATION STATION 15+20 COMPLETE

Photo 4



EXCAVATING THE CREEK RELOCATION NEAR STATION 9+00

Photo 5



EXCAVATING THE CREEK RELOCATION NEAR STATION 9+00

Photo 6



RELOCATED CREEK BED CONSTRUCTED TO APPROXIMATELY STATION 13+50

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

- \* WELDING THE 4" HDPE DISCHARGE LINE, LEADING TO THE MODU TANK
- \* LAY OUT OF THE NORTH BERM BY THE SURVEYORS AND THE SOUTH END OF THE CREEK LOCATION.
- \* LIGHT CLEARING AT THE CAMU
- \* INSTALLING GRASS SEED, EROSION MATTING, RIP RAP AND NON-WOVEN FABRIC ON THE RELOCATION OF GLADE CREEK SOUTH-END
- \* WELL ABANDONMENT THROUGH B.B.L.
- \* CONTINUING TO STOCK CA-6 STONE
- \* CONTINUING TO EXCAVATE THE CREEK FOR RELOCATION AS PER DRAWINGS
- \* CONTINUING TO PLACE EXCAVATION SPOILS ALONG THE EAST HALF OF THE BERM OVER GLADE CREEK
- \* STRIPPING AND STOCKPILING OF TOPSOIL FROM THE CAMU AREA
- \* IMPROVEMENT OF DRAINAGE DITCH FROM SMITH PROPERTY LINE TO RELOCATED CREEK
- \* EXAMINE EROSION AND SEDIMENTATION CONTROLS ON A DAILY BASIS AND MAINTAIN IF NECESSARY.

Photos

Text

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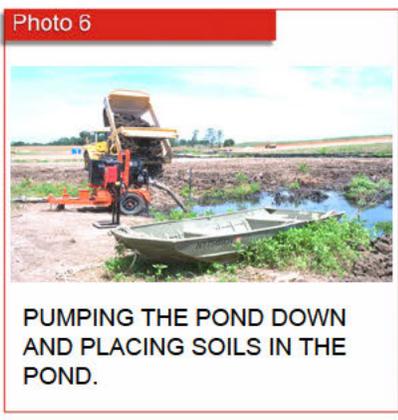
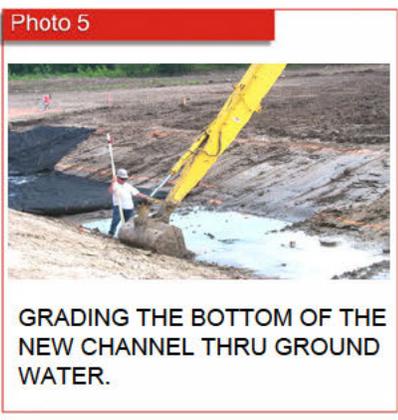
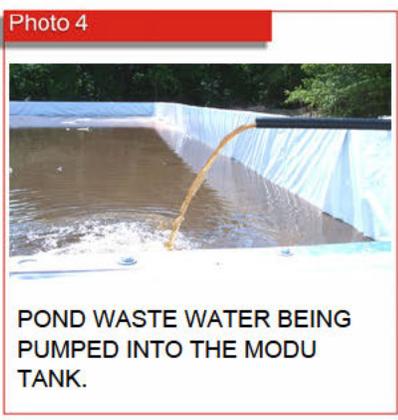
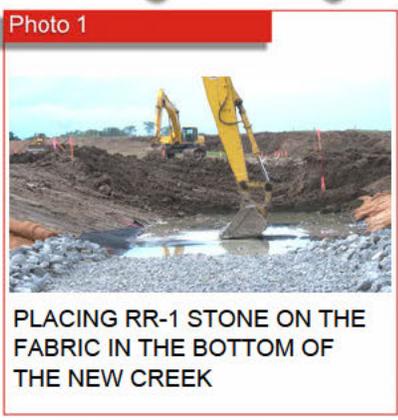


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Paul Alessio  
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Troy Hopper  
Mark Gravelding  
Mason Wheeler  
Jeremy Neighbors  
E.J. Suardini  
Carolyn Bury

**Weekly Project Summary No.**  
**7**

**Work Performed Dates:**  
**July 5-July 11, 2004**

Text



General Comments:

- THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**
- \* COMMENCED STAGING THE TOP SOIL, NORTH EAST OF THE CAMU.
  - \* CONTINUING TO REMOVE THE TOP SOIL FROM THE CAMU DURING CLEARING & GRUBBING ACTIVITIES.
  - \* CONTINUING TO EXCAVATE THE CREEK RELOCATION AND BACK FILL WITH FABRIC AND STONE.
  - \* CONTINUING TO PLACE EXCAVATED SOILS IN THE POND AND GRADE FOR POSITIVE FLOW.
  - \* STARTED PUMPING WASTE WATER FROM THE POND NORTH OF THE MAN HOLE AT THE SOUTH END OF THE GROUT BLANKET DITCH TO MODU TANK.
  - \* CONTINUING TO SURVEY THE EXCAVATION OF THE NEW CREEK LOCATION.
  - \* EXAMINE EROSION AND SEDIMENTATION CONTROLS ON A DAILY BASIS AND MAINTAIN IF NECESSARY.

Photos

Text

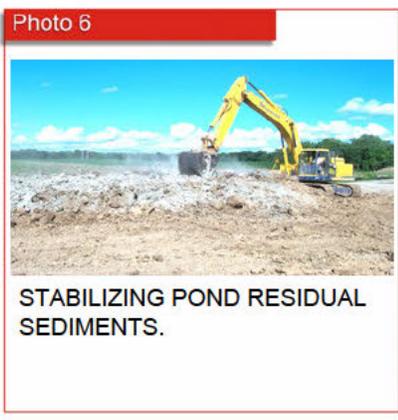
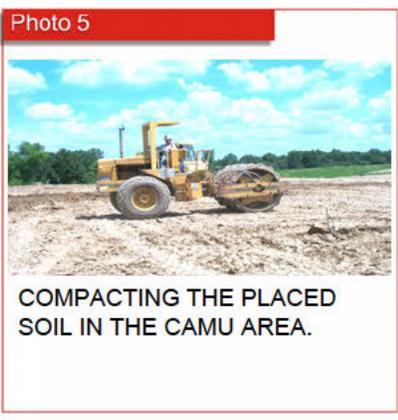
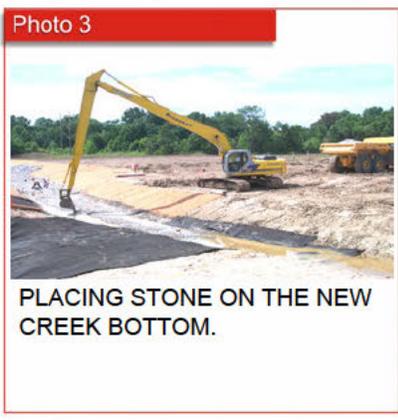
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Mark Gravelding  
Mason Wheeler  
Jeremy Neighbors  
E.J. Suardini  
Carolyn Bury

**Weekly Project Summary No.**  
**8**

**Work Performed Dates:**  
**July 12-July 17, 2004**



Text

General Comments:

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

GLADE CREEK RELOCATION

- \* COMMENCED STABILIZING POND RESIDUAL SEDIMENTS.
- \* COMMENCED USING LONGSTICK EXCAVATOR.
- \* CONTINUING TO EXCAVATE ALONG THE EAST AND WEST SLOPE.
- \* CONTINUING TO PLACE FABRIC AND STONE IN THE CREEK BOTTOM.

CAMU

- \* COMMENCED SURVEY LAYOUT OF THE WESTERN HALF.
- \* COMMENCED PLACING, GRADING AND COMPACTING SOIL FOR THE BERMS AND BASE.
- \* COMMENCED DENSITY TESTING.

MISCELLANEOUS

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

Photos

Text

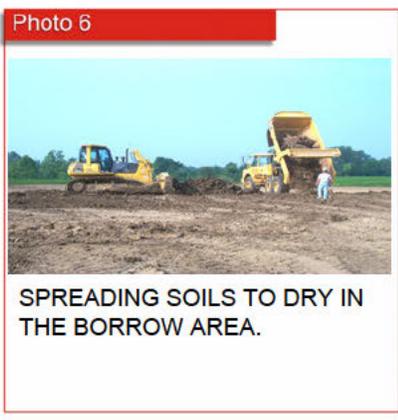
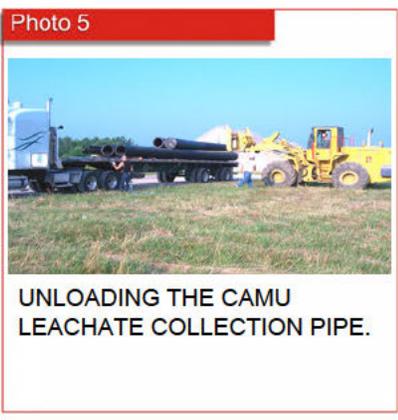
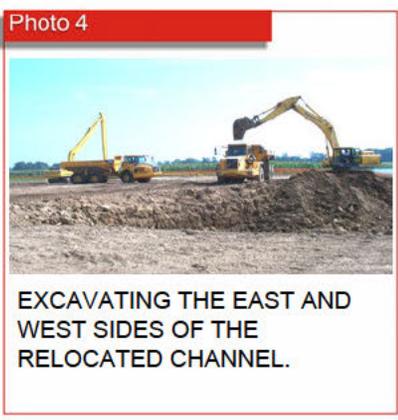
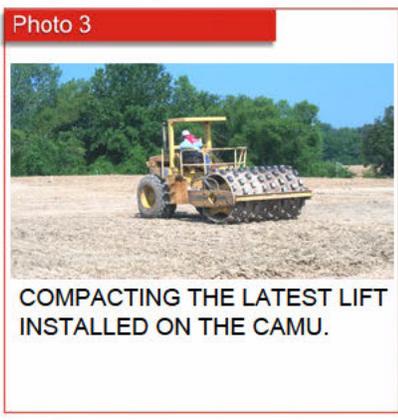
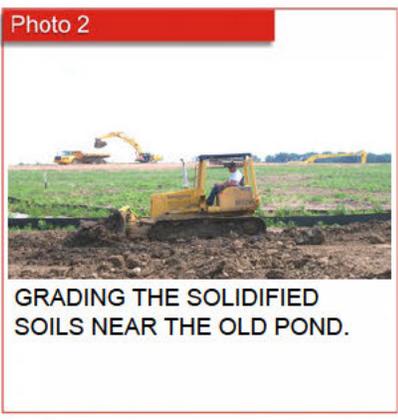
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Mike Bollinger  
Troy Hopper  
Mark Gravelding  
Mason Wheeler  
Jeremy Neighbors  
E.J. Suardini  
Carolyn Bury

**Weekly Project Summary No.**  
**9**

**Work Performed Dates:**  
**July 19-July 23, 2004**



Text

General Comments:

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

GLADE CREEK RELOCATION

- \* SURVEYORS COMMENCED LAYOUT OF THE OFFSETS OF THE SLOPE FOR THE NEW CREEK LOCATION.
- \* CONTINUED TO EXCAVATE THE CREEK RELOCATION.
- \* CONTINUED TO PLACE EROSION FABRIC AND STONE ON THE CREEK BOTTOM.
- \* CONTINUED TO STOCKPILE THE SOILS IN THE BORROW AREA.

CAMU

- \* COMMENCED AND CONTINUED TO SURVEY THE EAST HALF OF THE CAMU.
- \* CONTINUED TO COMPACT THE TOP LAYER ON THE CAMU.
- \* CONTINUED TO RUN DENSITY TESTS ON THE CAMU.

MISCELLANEOUS

- \* COMMENCED PUMPING STANDING WATER TO HELP DRY SITE.
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

**Photos**

**Text**

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Carolyn Bury

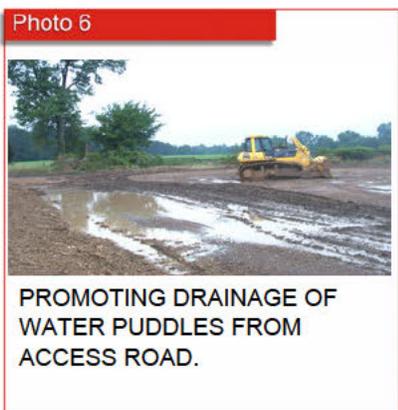
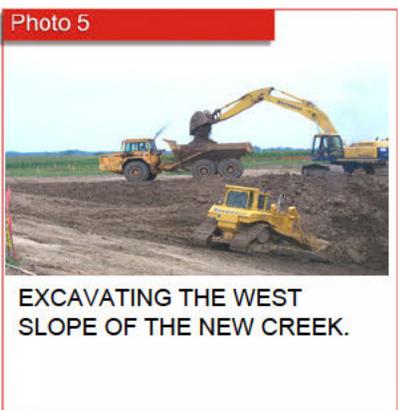
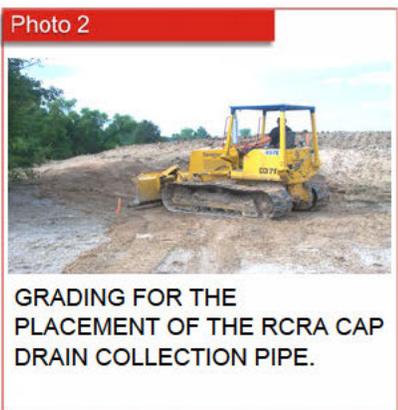
**Weekly Project Summary No.**

**10**

**Work Performed Dates:**

**July 26-July 31, 2004**

**Text**



**General Comments:**

**THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK RELOCATION**

- \* CONTINUED TO EXCAVATE THE NEW CREEK.
- \* CONTINUED TO PLACE FABRIC AND ROCK IN THE NEW CREEK.

**CAMU**

- \* COMMENCED USING A DISC TO DRY THE SOILS IN THE CAMU.
- \* COMMENCED PREPARING THE 2 RAMPS OF THE CAMU TO RECEIVE THE IMPOUNDMENT CAP DRAIN LAYER COLLECTION PIPE.
- \* CONTINUED DENSITY TESTING ON THE CAMU LINER SUBBASE AND BERM

**MISCELLANEOUS**

- \* CONTINUED TO STOCKPILE EXCAVATED SOILS IN THE BORROW AREA.
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.
- \* HEAVY RAIN ON FRIDAY REQUIRED DRAINING OF STANDING WATER ON THE ACCESS ROADS.

Photos

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- Troy Hopper
- Mark Gravelding
- Mason Wheeler
- Jeremy Neighbors
- E.J. Suardini
- Carolyn Bury

**Weekly Project Summary No.**

# 11

**Work Performed Dates:**

**August 2-7, 2004**

**Text**

Photo 1



DISCING THE TOP OF THE CAMU.

Photo 2



DENSITY TESTING ON THE CAMU.

Photo 3



COMPACTING SOILS WITH THE SHEEPSFOOT ON CAMU.

Photo 4



INSTALLATION OF EROSION CONTROL MAT IN THE RELOCATED CREEK.

Photo 5



SURVEYING FOR CLEARING AND GRUBBING LIMITS OF THE CAP AREA.

Photo 6



INSTALLING SILT FENCE NORTH END OF CAMU FOR RUNOFF CONTROL.

General Comments:

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

GLADE CREEK RELOCATION

- \* CONTINUED TO EXCAVATE THE NEW CREEK.
- \* CONTINUED TO INSTALL EROSION CONTROL MAT AND STONE IN THE RELOCATED CREEK.

CAMU

- \* CONTINUED TO DISC THE SOIL IN THE CAMU AREA.
- \* CONTINUED CAMU CONSTRUCTION.
- \* COMPLETED INSTALLING SILT FENCE AT NORTH END OF CAMU.
- \* CONTINUED DENSITY TESTING OF THE CAMU LINER SUBBASE AND BERMS.

FORMER PROCESS AREA SURFACE COVER

- \* COMMENCED SURVEYING FOR THE CLEARING LIMITS OF THE CAP.

MISCELLANEOUS

- \* CONTINUED TO STOCKPILE IN THE BORROW AREA.
- \* CONTINUED ACCESS ROAD AND SITE MAINTENANCE.
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

**Photos** **Text**

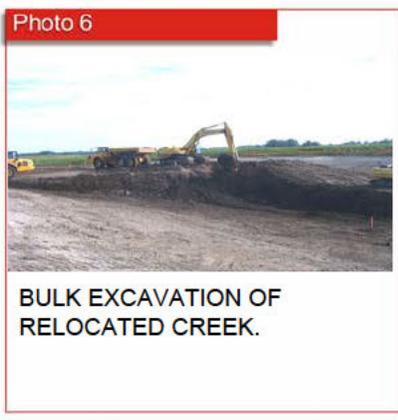
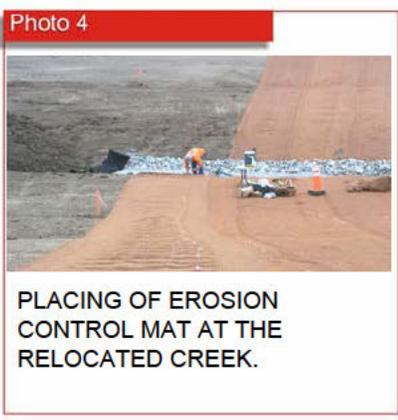
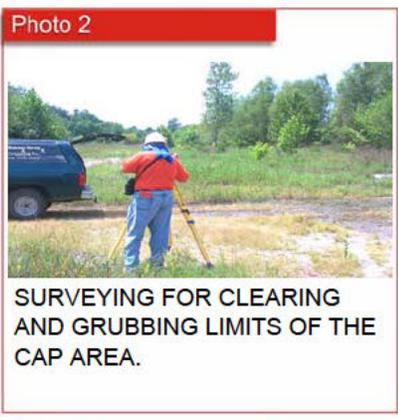
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Mark Gravelding  
Mason Wheeler  
Jeremy Neighbors  
Carolyn Bury

**Weekly Project Summary No.**  
**12**

**Work Performed Dates:**  
**August 9-14, 2004**



**Text**

General Comments:

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

GLADE CREEK RELOCATION  
\* CONTINUED EXCAVATION OF THE RELOCATED CREEK.

CAMU  
\* CONTINUED CONSTRUCTION OF THE CAMU.  
\* CONTINUED DENSITY TESTING OF THE CAMU LINER SUBBASE AND BERMS.  
\* COMPLETED CAMU WEST BERM AND FLOOR TO GRADE.

FORMER PROCESS AREA SURFACE COVER  
\* CONTINUED AND COMPLETED SURVEYING OF THE CLEARING AND GRUBBING LIMITS OF THE CAP AREA.

MISCELLANEOUS  
\* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.  
\* SILT FENCE WAS OBSERVED TO BE DOWN NEAR THE GLADE CREEK POINT OF DIVERGENCE. SEDIMENTS WERE REMOVED FROM THE SILT FENCE AND THE SILT FENCE WAS REPAIRED.

**Photos**

**Text**

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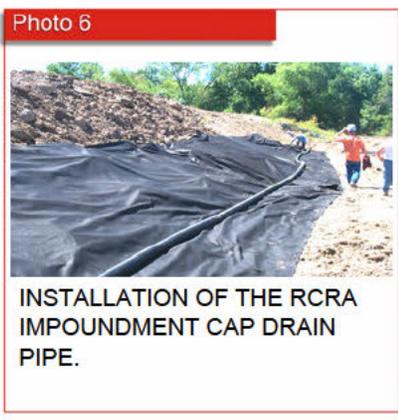
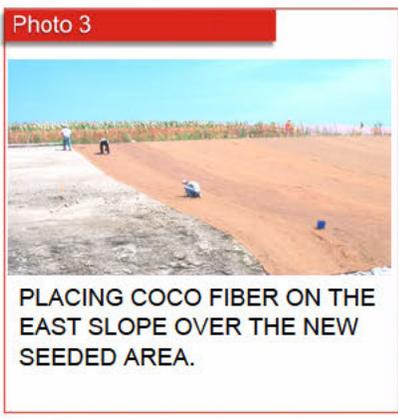
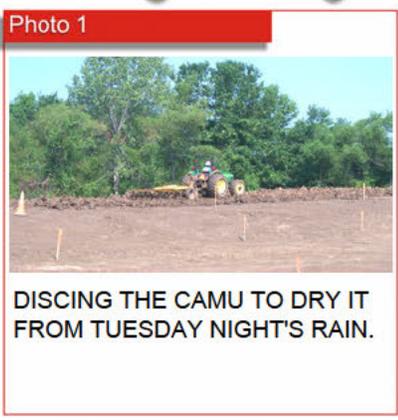


**Distribution:**  
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Mike Bollinger  
Troy Hopper  
Mark Gravelding  
Mason Wheeler  
Jeremy Neighbors  
Carolyn Bury

**Weekly Project Summary No.**  
**13**

**Work Performed Dates:**  
**August 16-21, 2004**

**Text**



General Comments:

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

GLADE CREEK RELOCATION

- \* CONTINUED EXCAVATION OF THE RELOCATED CREEK.

CAMU

- \* CONTINUED DENSITY TESTING OF THE CAMU LINER SUBBASE AND BERMS.
- \* COMMENCED FINAL ROLLING WITH THE SMOOTH DRUM ON THE WEST HALF OF THE CAMU.
- \* CONTINUED TO PLACE, GRADE AND COMPACT SOIL IN THE CAMU AREA.
- \* COMMENCED AND COMPLETED INSTALLING THE DRAINAGE SWALE FOR THE LEACHATE COLLECTION PIPES IN THE CAMU FLOOR.

FORMER PROCESS AREA SURFACE COVER

- \* CONTINUED AND COMPLETED SURVEYING OF THE CLEARING AND GRUBBING LIMITS OF THE CAP AREA.
- \* COMMENCED PLACING EXCAVATED SOILS IN THE FORMER PROCESS AREA SURFACE COVER.

MISCELLANEOUS

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

Photos

Text

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Carolyn Bury

**Weekly Project Summary No.**  
**14**

**Work Performed Dates:**  
**August 23-28, 2004**

Text

**Photo 1**



SEALING THE SOIL ON THE BERM IN THE CAMU.

**Photo 2**



SHOOTING GRADE ON THE STONE IN THE BOTTOM OF THE NEW CREEK.

**Photo 3**



PUMPING WATER FROM THE SUMP AREA OF THE CAMU.

**Photo 4**



PLACING EROSION CONTROL FABRIC ON THE WEST SLOPE OF THE NEW CREEK.

**Photo 5**



WELDING THE 24" HDPE PIPE TOGETHER.

**Photo 6**



FINAL GRADING OF THE SOUTH EAST INSIDE CORNER OF THE CAMU.

General Comments:

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

GLADE CREEK RELOCATION

- \* CONTINUED TO EXCAVATE THE NEW CREEK.
- \* CONTINUED TO PLACE STONE ON THE FABRIC IN THE NEW CREEK.

CAMU

- \* CONTINUED TO PLACE, GRADE AND COMPACT SOIL IN THE CAMU.
- \* COMMENCED AND CONTINUED PUMPING WATER FROM THE CAMU.
- \* COMMENCED THE FINAL GRADING OF THE INSIDE OF THE CAMU IN PREPARATION FOR THE PLACEMENT OF GEO SYNTHETIC'S ON THE SOUTH, EAST AND PART OF THE NORTH SLOPES.

FORMER PROCESS AREA SURFACE COVER

- \* COMMENCED CLEARING IN THE PROCESS COVER AREA ON THE WEST SIDE.
- \* CONTINUED TO STOCKPILE SOIL IN THE WESTERN SIDE OF THE PROCESS COVER AREA.

MISCELLANEOUS

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.
- \* COMPLETED WELDING OF THE 24" HDPE PIPE.
- \* COMMENCED UNLOADING 4 LOADS OF GCL.

**Photos**

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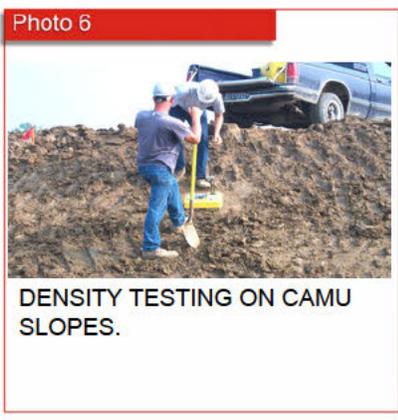
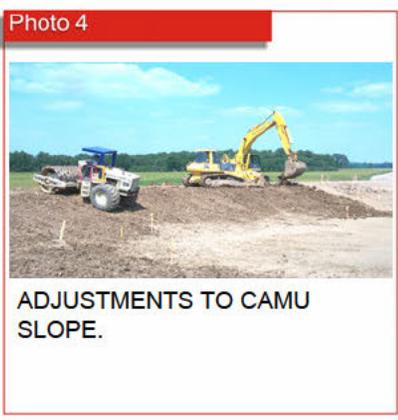
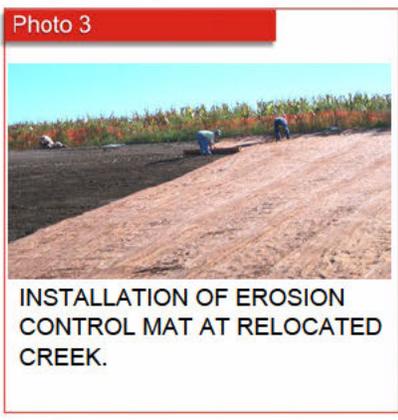
Weekly Project Summary No.

**15**

Work Performed Dates:

**Aug. 30-Sept. 3, 2004**

**Text**



General Comments:

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

GLADE CREEK RELOCATION

- \* CONTINUED EXCAVATION OF RELOCATED CREEK.

CAMU

- \* COMMENCED DEWATERING RAIN WATER FROM THE CAMU SUMP AREA.
- \* COMMENCED STAKEOUT FOR ANCHOR TRENCH ON THE CAMU.
- \* CONTINUED ADJUSTMENTS TO THE CAMU SLOPE/CREST.
- \* CONTINUED DENSITY TESTING OF SOIL LIFT PLACEMENT ON THE CAMU.

FORMER PROCESS AREA SURFACE COVER

- \* CONTINUED STOCKPILING SOIL IN THE CAP AREA.

MISCELLANEOUS

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

**Photos**

**Text**

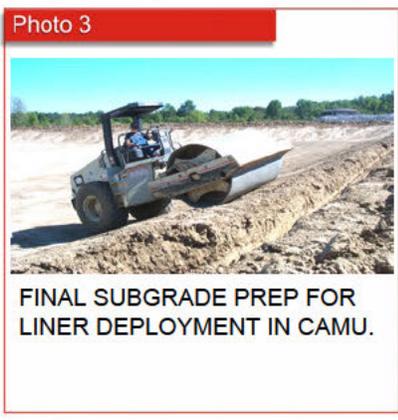
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**Weekly Project Summary No.**  
**16**

**Work Performed Dates:**  
**September 8-11, 2004**



**Text**

General Comments:

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

GLADE CREEK RELOCATION

- \* CONTINUED EXCAVATION OF RELOCATED CREEK.
- \* CONTINUED TO PLACE STONE ON THE NON-WOVEN FABRIC IN THE RELOCATED CREEK.
- \* CONTINUED INSTALLATION OF EROSION CONTROL MAT AT RELOCATED CREEK.

CAMU

- \* COMMENCED AND COMPLETED EXCAVATION OF THE SUMP.
- \* COMMENCED EXCAVATION OF THE ANCHOR TRENCH.
- \* COMPLETED FINAL SUBGRADE PREP FOR LINER.
- \* COMMENCED AND CONTINUED INSTALLING FML & GEOSYNTHETICS COMPOSITE.
- \* COMMENCED AND CONTINUED PREPARATION FOR SECONDARY LEACHATE COLLECTION SYSTEM.
- \* COMMENCED DESTRUCTIVE AND NON-DESTRUCTIVE SEAM TESTING FOR THE HDPE FML CAMU LINER.

FORMER PROCESS AREA SURFACE COVER

- \* CONTINUED STOCKPILING SOIL IN THE CAP AREA.
- \* CONTINUED CLEARING ACTIVITIES IN THE SURFACE COVER AREA.

MISCELLANEOUS

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

Photos

Text

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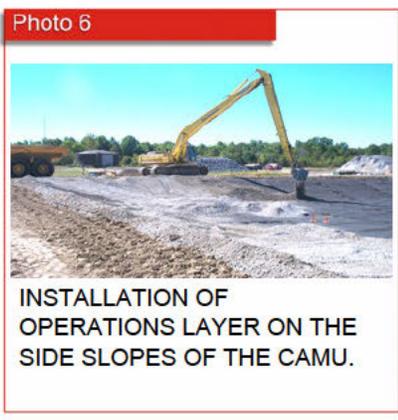
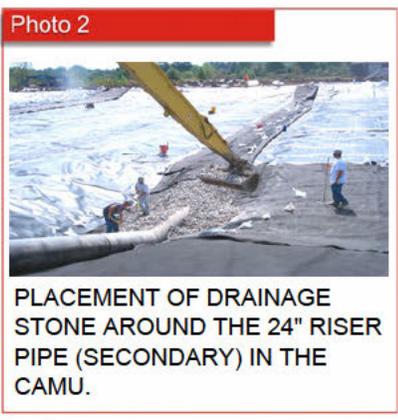


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Mason Wheeler  
Jeremy Neighbors  
Carolyn Bury

**Weekly Project Summary No.**  
**17**

**Work Performed Dates:**  
**September 13-18, 2004**

Text



**General Comments:**

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

**GLADE CREEK RELOCATION**

- \* CONTINUED EXCAVATION OF RELOCATED CREEK.
- \* CONTINUED TO PLACE STONE ON THE NON-WOVEN FABRIC IN THE RELOCATED CREEK.
- \* CONTINUED INSTALLATION OF EROSION CONTROL MAT AT RELOCATED CREEK.
- \* COMMENCED AND COMPLETED THE SURVEY OF THE LINER PORTION OF THE SURFACE CAP AREA.

**CAMU**

- \* COMMENCED STAKEOUT OF THE DNAPL TRENCH ACCESS ROAD.
- \* CONTINUED AND COMPLETED INSTALLING THE GEOSYNTHETICS COMPOSITE.
- \* COMPLETED INSTALLATION OF THE SECONDARY LEACHATE COLLECTION PIPE.
- \* COMMENCED BACKFILL OF THE CAMU ANCHOR TRENCH.
- \* COMMENCED INSTALLATION OF THE CAMU OPERATIONS LAYER.
- \* CONTINUED DESTRUCTIVE AND NON-DESTRUCTIVE SEAM TESTING FOR THE HDPE FML CAMU LINER.

**FORMER PROCESS AREA SURFACE COVER**

- \* CONTINUED STOCKPILING SOIL IN THE CAP AREA.
- \* CONTINUED CLEARING ACTIVITIES IN THE SURFACE COVER AREA.
- \* COMMENCED AND COMPLETED THE SURVEY STAKEOUT OF THE SMITH'S DITCH PORTION OF THE SURFACE CAP AREA FOR CLEARING.

**COAL TAR AREAS SOIL REMOVAL/CONSOLIDATION**

- \* COMMENCED AND COMPLETED THE SURVEY STAKEOUT OF THE COAL TAR EXCAVATION AREAS

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

**Photos**

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**Weekly Project Summary No.**  
**18**

**Work Performed Dates:**  
**September 20-25, 2004**

**Photo 1**



**INSTALLATION OF OPERATIONS LAYER ON THE SIDE SLOPES OF THE CAMU.**

**Photo 2**



**INSTALLATION OF THE 24" LEACHATE PIPE IN THE CAMU.**

**Photo 3**



**PLACING CLAY ON CAMU BERM.**

**Photo 4**



**CLEARING OF EXISTING CREEK BOTTOM.**

**Photo 5**



**PLACING COCO MAT IN FINISHED BERM AREA.**

**Photo 6**



**COMPACTING 1ST LIFT WEST OF EXISTING GLADE CREEK.**

**Text**

**General Comments:**

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

**GLADE CREEK RELOCATION**

- \* CONTINUED AND COMPLETED EXCAVATION OF RELOCATED CREEK.
- \* CONTINUED AND COMPLETED PLACEMENT OF RIPRAP ON THE NON-WOVEN FABRIC IN THE RELOCATED CREEK.
- \* COMMENCED AND COMPLETED CONSTRUCTION OF THE BERM THROUGH THE ORIGINAL GLADE CREEK.
- \* CONTINUED SEEDING AND COCO MAT ON THE SIDE SLOPES OF THE NEW CREEK.
- \* COMPLETED CLEARING OUT EXISTING CREEK BOTTOM UP STREAM OF DIVERGENCE POINT.
- \* COMMENCED PLACING OF FILL MATERIAL WEST OF EXISTING GLADE CREEK.
- \* CONTINUED AND COMPLETED DENSITY TESTING ON DIVERSION BERM LIFTS.

**CAMU**

- \* COMMENCED AND COMPLETED INSTALLATION OF THE 24" AND THE 6" LEACHATE PIPE.
- \* CONTINUED AND COMPLETED PLACEMENT AND GRADING OF THE CAMU OPERATIONS LAYER.
- \* COMMENCED PERIMETER INFILTRATION SIDE SLOPE DRAINS.
- \* COMMENCED 1' LIFTS ON CAMU BERM FOR INTERIM DRAIN LINER ELEVATION.

**FORMER PROCESS AREA SURFACE COVER**

- \* CONTINUED STOCKPILING SOIL IN THE CAP AREA.
- \* CONTINUED CLEARING ACTIVITIES IN THE SURFACE COVER AREA.

**COAL TAR AREAS SOIL REMOVAL/CONSOLIDATION**

- \* COMMENCED EXCAVATING COAL TAR AREA AND PLACING IMPACTED MATERIAL IN CAMU.

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

**Photos**

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**Weekly Project Summary No.**  
**19**

**Work Performed Dates:**  
**Sept. 27 - Oct. 2, 2004**

**Text**

**Photo 1**



**IMPACTED MATERIAL FROM COAL TAR AREA IN CAMU.**

**Photo 2**



**STARTED EXCAVATING THE COLLECTION TRENCH PLATFORM AND ACCESS ROAD.**

**Photo 3**



**GRADING FOR THE ACCESS ROAD AND WORK PLATFORM FOR THE COLLECTION PIPE.**

**Photo 4**



**REMOVING THE GROUT BLANKET IN THE OLD DITCH.**

**Photo 5**



**CONTINUE TO EXCAVATE THE COLLECTION PIPE WORK PLATFORM AND ACCESS ROAD.**

**Photo 6**



**EXCAVATING APPROXIMATELY THE TOP 2 FEET OF THE OLD POND TO PLACE CLEAN COVER SOIL.**

**General Comments:**

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

**GLADE CREEK RELOCATION / BACK OF OLD CREEK AREA**

- \* COMMENCED AND CONTINUED TO EXCAVATE AND PLACE IN CAMU THE OLD CREEK GROUT BLANKET.
- \* COMMENCED REMOVING THE ORANGE SAFETY FENCE ALONG THE EAST SIDE OF THE NEW CREEK.
- \* CONTINUED PLACING OF FILL MATERIAL WEST OF EXISTING GLADE CREEK.
- \* COMPLETED THE REMOVAL OF CLEARING DEBRIS NEAR THE NORTH ENDS OF THE LARGE POND.

**COLLECTION TRENCH INSTALLATION**

- \* COMMENCED AND CONTINUED EXCAVATING THE COLLECTION PIPE WORK PLATFORM AND ACCESS ROAD.

**CAMU**

- \* CONTINUED PLACING AND GRADE IMPACTED MATERIALS.

**WASTE PILE SEDIMENT REMOVAL**

- \* COMMENCED EXCAVATION OF THE WASTE PILE WORKING WEST TO EAST.

**COAL TAR AREAS SOIL REMOVAL/CONSOLIDATION**

- \* COMPLETED REMOVAL OF IMPACTED MATERIAL FROM COAL TAR AREA.

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

**Photos**

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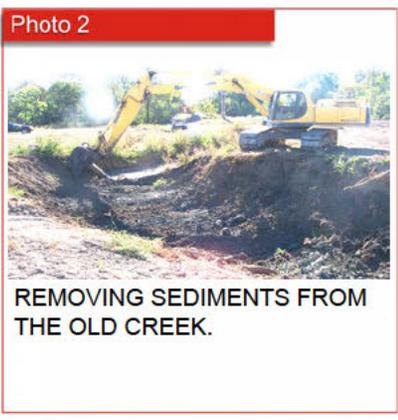
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**Work Performed Dates:**

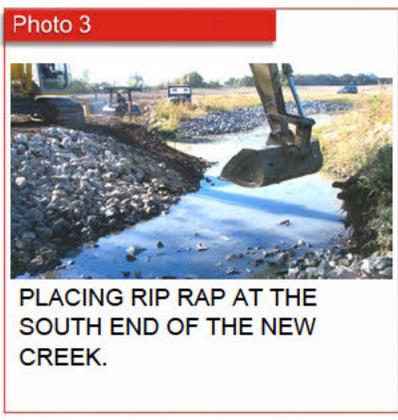
**October 4 - 9, 2004**



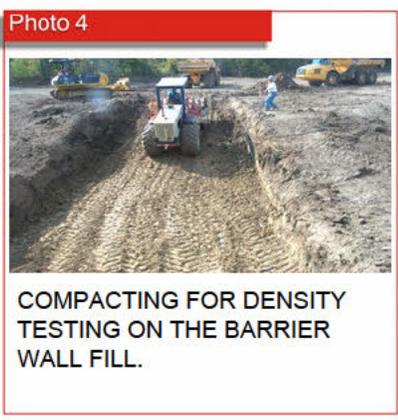
GRADING STONE OVER FABRIC ON THE ACCESS ROAD FOR THE COLLECTION PIPE.



REMOVING SEDIMENTS FROM THE OLD CREEK.



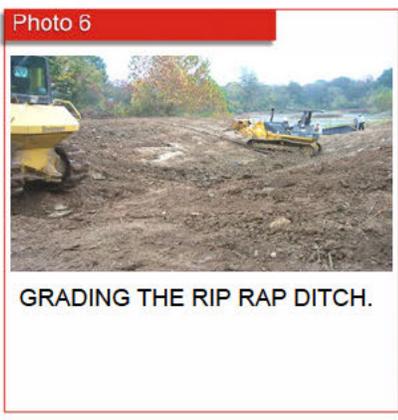
PLACING RIP RAP AT THE SOUTH END OF THE NEW CREEK.



COMPACTING FOR DENSITY TESTING ON THE BARRIER WALL FILL.



PLACING, GRADING AND COMPACTING GENERAL FILL.



GRADING THE RIP RAP DITCH.

**Text**

General Comments:

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

GLADE CREEK RELOCATION / BACK OF OLD CREEK AREA

- \* COMMENCED AND COMPLETED REMOVING SEDIMENTS DOWN STREAM OF THE CREEK GROUT BLANKET.
- \* COMMENCED FILLING THE MANHOLE AT THE SOUTH END OF THE GROUT BLANKET WITH GROUT.
- \* CONTINUED TO REMOVE SOIL FROM THE BORROW AREA AND PLACE AND COMPACT BETWEEN THE OLD CREEK AND ACCESS ROAD.
- \* COMPLETED PLACING RIP RAP AT THE SOUTH END OF THE NEW CREEK.
- \* COMPLETED EXCAVATION AND BACKFILL OF THE BARRIER WALL.

COLLECTION TRENCH INSTALLATION

- \* CONTINUED TO INSTALL THE ACCESS ROAD FOR THE COLLECTION PIPE.
- \* COMPLETED PLACING STONE ALONG THE EAST SIDE OF THE COLLECTION PIPE WORK PLATFORM.

CAMU

- \* CONTINUED TO PLACE SOILS AND DEBRIS IN THE CAMU.

WASTE PILE SEDIMENT REMOVAL

- \* COMMENCED EXCAVATION OF THE WASTE PILE WORKING WEST TO EAST.

MISCELLANEOUS

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

Photos

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**Weekly Project Summary No.**

**21**

**Work Performed Dates:**

**October 11 - 16, 2004**

**Text**

Photo 1



PLACING RIP RAP IN TYPE 2 DITCH.

Photo 2



MONDAY NIGHT 10/11/2004 RAINFALL IS FLOWING NICELY THROUGH THE NEW CREEK LOCATION.

Photo 3



PLACING GRAVEL OVER THE CULVERT FOR THE ACCESS ROAD TO THE COLLECTION PIPE WELL.

Photo 4



INSTALLING FABRIC AND RIP RAP IN THE TYPE 2 DITCH SOUTH OF WELL OW-3A.

Photo 5



PLACING WASTE SOIL IN THE CAMU.

Photo 6



PREPARING TO HOOK UP THE DISCHARGE PUMP AND PIPE TO THE FRAC TANK.

General Comments:

THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:

**GLADE CREEK RELOCATION / BACK OF OLD CREEK AREA**

- \* CONTINUED TO PLACE GENERAL FILL TO FINAL GRADE WEST OF OLD CREEK.
- \* COMMENCED AND CONTINUED TO INSTALL FABRIC AND RIP RAP IN THE TYPE 2 DITCH.

**COLLECTION TRENCH INSTALLATION**

- \* COMPLETED INSTALLATING THE CULVERT UNDER THE ACCESS ROAD TO THE COLLECTION PIPE WELLS.

**CAMU**

- \* CONTINUED TO PLACE SOILS AND DEBRIS IN THE CAMU.
- \* RETEC USED THE ADDED DISCHARGE LINE TO THE MODU-TANK TO DEWATER THE CAMU.

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

Photos

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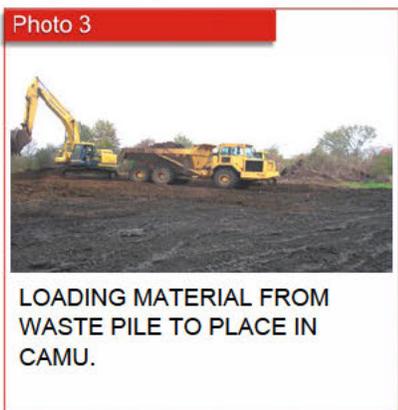
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Carolyn Bury

**Weekly Project Summary No.**  
**22**

**Work Performed Dates:**  
**October 18 - 24, 2004**



Text

General Comments:

**THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK RELOCATION / BACK OF OLD CREEK AREA**  
\* CONTINUED TO GRADE HAUL ROADS FOR STONE DELIVERY.

**COLLECTION TRENCH INSTALLATION**  
\* COMMENCED INSTALLATION OF THE ACCESS ROAD FOR THE SUPPORT OF THE INSTALLATION OF THE COLLECTION PIPE.  
\* COMMENCED INSTALLATION OF THE STAINLESS RISER PIPE AND COLLECTION PIPE.  
\* DEWIND INSTALLED SUMP IN THE RECOVERY WELL AND PUMPED FROM IT TO THE FRAC TANKS.

**CAMU**  
\* CONTINUED TO PLACE SOILS AND DEBRIS IN THE CAMU.  
\* CONTINUED TO TRANSPORT MIXED WASTE FROM STEEL TANK TO THE CAMU.

**MISCELLANEOUS**  
\* CONTINUED TO PUMP STANDING SURFACE WATER FROM THE COLLECTION PIPE PLATFORM FROM 10/18/2004 RAIN SHOWERS.  
\* DEWIND MOBILIZED AND ASSEMBLE THE ONE STEP EQUIPMENT.  
\* COMMENCED CLEANING EQUIPMENT FOR DEMOBILIZATION.  
\* CONTINUING TO EXAMINE WATER TRANSFER PIPE.  
\* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

**Photos**

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**Weekly Project Summary No.**  
**23**

**Work Performed Dates:**  
**October 25 - 30, 2004**

**Text**

**Photo 1**



**INSTALLING COLLECTION PIPE TO THE NORTH OF THE SOUTH COLLECTION SUMP & VAULT.**

**Photo 2**



**DUMPING AND SPREADING THE STABILIZED MATERIAL FROM THE LARGE TANK INTO THE CAMU.**

**Photo 3**



**DEWIND INSTALLING THE COLLECTION PIPE.**

**Photo 4**



**THE 4" PERFORATED PIPE BEING FED INTO THE ONE PASS TRENCHER.**

**Photo 5**



**PLACING A LOAD OF TRENCH SPOILS ON THE CAMU TO BE GRADED.**

**Photo 6**



**EXCAVATING THE SOUTH END OF THE NORTH COLLECTION PIPE PLATFORM.**

**General Comments:**

**THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:**

**COLLECTION TRENCH INSTALLATION**

- \* CONTINUED TO PUMP WATER FROM THE FRAC TANKS TO THE MODU TANK.
- \* COMMENCED AND COMPLETED TRENCHING AND INSTALLING COLLECTION PIPE FOR SOUTH BARRIER WALL.
- \* COMMENCED SURVEYING IN 6 LOCATIONS FOR THE COLLECTION PIPE PLACEMENT.
- \* COMMENCED EXCAVATING AND GRADING THE SOUTH END OF THE NORTH COLLECTION PLATFORM.
- \* COMMENCED INSTALLING THE WELL AND SUMP TO THE NORTH COLLECTION SYSTEM.

**CAMU**

- \* CONTINUED TO PLACE SOILS AND DEBRIS IN THE CAMU.
- \* COMMENCED AND CONTINUED HAULING BARRIER WALL SPOILS TO THE CAMU.
- \* CONTINUED AND COMPLETED STABILIZING MATERIAL FROM THE LARGE STEEL TANK AND PLACING IN THE CAMU.
- \* CONTINUED TO GRADE THE CAMU FOR PLACEMENT OF THE INTERIM COVER.

**MISCELLANEOUS**

- \* CONTINUING TO MAINTAIN AND IMPROVE HAUL AND ACCESS ROADS.
- \* CONTINUING TO CLEAN EQUIPMENT FOR DEMOBILIZATION.
- \* CONTINUING TO EXAMINE WATER TRANSFER PIPE.
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

**Photos**

**Text**

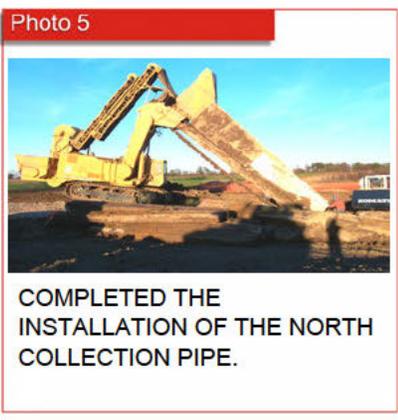
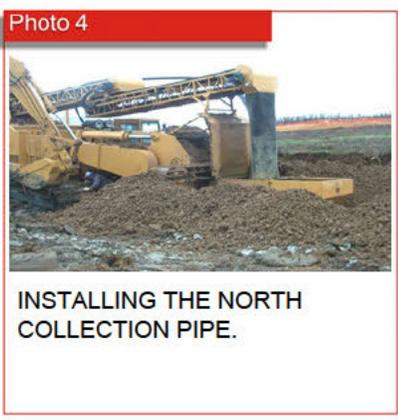
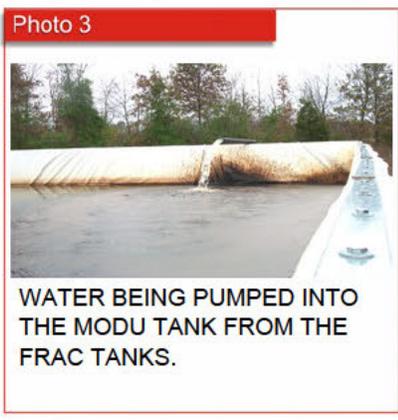
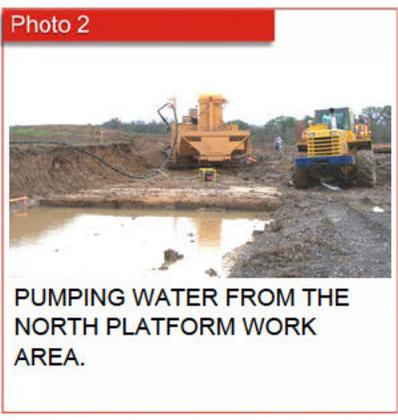
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**Weekly Project Summary No.**  
**24**

**Work Performed Dates:**  
**November 1 - 6, 2004**



**Text**

General Comments:

**THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:**

**COLLECTION TRENCH INSTALLATION**

- \* CONTINUED TO PUMP WATER FROM THE FRAC TANKS TO THE MODU TANK.
- \* CONTINUED AND COMPLETED MOVING MATS FOR THE ONE STEP TRENCHER AND THEN REMOVAL FOR DEMOBILIZATION.
- \* COMPLETED INSTALLING THE SUMP TO THE NORTH COLLECTION SYSTEM.
- \* CONTINUED AND COMPLETED INSTALLING THE NORTH COLLECTION PIPE.

**CAMU**

- \* CONTINUED TO PLACE SPOILS IN THE CAMU FROM THE TRENCHER.
- \* CONTINUED TO GRADE THE CAMU FOR PLACEMENT OF THE TEMPORARY COVER.

**MISCELLANEOUS**

- \* COMMENCED HAULING CONCRETE STRUCTURES FROM THE SMITH DITCH WETLAND AREA FOR OFFSITE DISPOSAL.
- \* COMPLETED INSTALLING AN ACCESS ROAD FOR THE LOADER HAULING PEA STONE TO THE TRENCHER PLACING THE NORTH COLLECTION PIPE.
- \* CONTINUING TO CLEAN EQUIPMENT FOR DEMOBILIZATION.
- \* COMMENCED CLEANING THE ONE PASS TRENCHER FOR DEMOBILIZATION.
- \* COMMENCED PREPARING THE FRAC TANKS FOR DEMOBILIZATION.
- \* CONTINUING TO EXAMINE WATER TRANSFER PIPE.
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

Photos

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Weekly Project Summary No.  
**25**

Work Performed Dates:  
**November 8 - 13, 2004**

Text

**Photo 1**



LOADING OLD RAIL ROAD TIES FOR OFF SITE DISPOSAL.

**Photo 2**



GRADING THE TOP OF THE CAMU IN PREPARATION FOR THE TEMPORARY COVER.

**Photo 3**



GRADING THE COLLECTION PIPE WORK PLATFORM TO DRAIN THE SURFACE WATER DURING THE WINTER SHUT DOWN.

**Photo 4**



DISCHARGE PIPE FROM THE INTERIM COVER ON THE CAMU.

**Photo 5**



EXCAVATING THE ANCHOR TRENCH FOR THE INTERIM COVER.

**Photo 6**



INSTALLING THE INTERIM COVER OVER THE CAMU.

General Comments:

**THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:**

**COLLECTION TRENCH INSTALLATION**

- \* COMPLETED EXCAVATING THE ANCHOR TRENCH AND INSTALLING THE DRAIN PIPE OFF THE CAMU.
- \* COMMENCED PUMPING WATER FROM THE ANCHOR TRENCHES.

**CAMU**

- \* COMMENCED THE FINAL GRADING OF THE CAMU.
- \* COMMENCED INSTALLING THE INTERIM COVER OVER THE CAMU.

**MISCELLANEOUS**

- \* COMMENCED SERVICE OF SOME EQUIPMENT.
- \* CONTINUING TO CLEAN EQUIPMENT FOR DEMOBILIZATION.
- \* COMMENCED AND CONTINUED OFFSITE DISPOSAL OF RAIL ROAD TIES, EAST OF THE LARGE WASTE PILE.
- \* COMPLETED DEWIND DEMOBILIZATION .
- \* CONTINUED TO GRADE ALL WORK AREA'S TO DRAIN DURING THE SHUT DOWN.
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS.

Photos

Text

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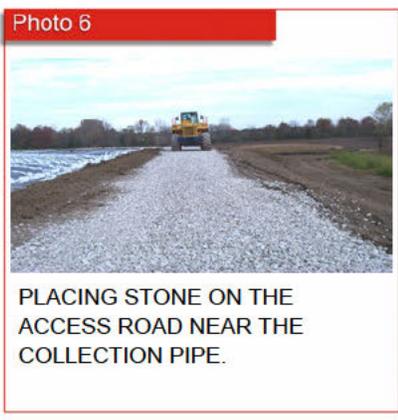
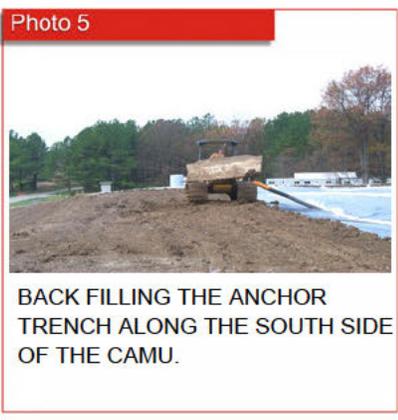
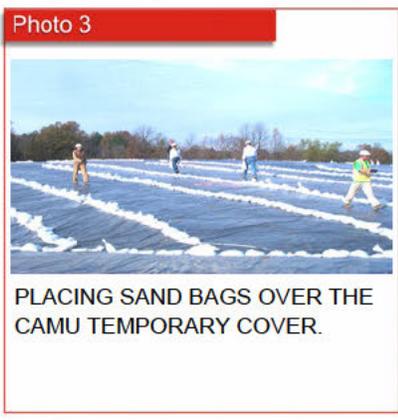
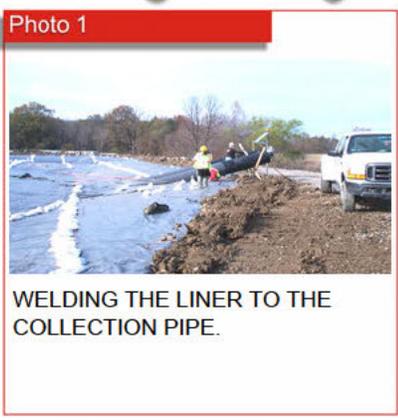
Weekly Project Summary No.

**26**

Work Performed Dates:

**November 15&16, 2004**

Text



General Comments:

**THIS WEEK'S SUMMARY OF WORK ACTIVITIES INCLUDE:**

**CAMU**

- \* COMMENCED BACKFILLING THE CAMU COVER ANCHOR TRENCH.
- \* CONTINUED TO PLACE SAND BAGS ON THE CAMU COVER.
- \* CONTINUED TO PLACE STONE AND GRADE THE CAMU BERMS.

**MISCELLANEOUS**

- \* CONTINUING TO CLEAN EQUIPMENT FOR DEMOBILIZATION.
- \* COMMENCED PACKING THE TOOL TRAILER FOR DEMOBILIZATION.
- \* COMPLETED DRESSING THE ACCESS ROAD AROUND THE TOP OF THE CAMU.
- \* TUESDAY 11/16/2004 WAS THE LAST DAILY DPR BEFORE THE WINTER SHUT DOWN.
- \* THIS WILL BE THE LAST WEEKLY RECAP FOR THE WINTER SHUT DOWN.



Photos

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**Weekly Project Summary No.**

**27**

**Work Performed Dates:**

**May 10-14, 2005**

**Text**

Photo 1



**LOADING SOIL FROM THE BORROW PIT**

Photo 2



**PLACING AND GRADING BORROW SOIL TO FINAL GRADE**

Photo 3



**COMPACTING THE SOIL PRIOR TO ANOTHER LIFT BEING PLACED**

Photo 4



**PLACING AND GRADING BORROW SOIL TO FINAL GRADE**

Photo 5



**CONTINUING TO LOAD BORROW SOIL INTO A HAUL TRUCK**

Photo 6



**BORROW PIT DEVELOPMENT**

**General Comments:**

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**BACKFILL OF THE FORMER CREEK CHANNEL**

- \* COMMENCED EXCAVATION OF SOIL FROM THE BORROW AREA.
- \* COMMENCED HAULING, PLACING AND COMPACTING THE BORROW SOIL BETWEEN THE OLD AND NEW GLADE CREEK

**FORMER PROCESS AREA SURFACE COVER**

- \* SURVEYORS LAID OUT THE EAST AND NORTH SIDES OF THE SURFACE COVER.

**MISCELLANEOUS**

- \* COMMENCED GRADING HAUL ROADS
- \* COMMENCED WATERING HAUL ROADS FOR DUST CONTROL
- \* PERFORMED SERVICING OF EQUIPMENT
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS
- \* HEAVY RAIN CANCELED PRODUCTION ON SATURDAY, MAY 14, 2005.

**Photos**

**Text**

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**Weekly Project Summary No.**  
**28**

**Work Performed Dates:**  
**May 16 - 21, 2005**

**Text**

**Photo 1**

**PLACING THE GCL OVER THE GROUND WATER PIPE TRENCH**

**Photo 2**

**HAULING SOIL FOR FINAL GRADE NEAR THE NORTH END OF THE GWP**

**Photo 3**

**BACKFILLING THE GROUND WATER TRENCH BEFORE PLACING THE GCL**

**Photo 4**

**EXCAVATING THE CUT AREA SOUTH OF THE ARG 2 AREA**

**Photo 5**

**DEMOLISHING CONCRETE SLAB ON FORMER PROCESS AREA**

**Photo 6**

**PLACING ROCK FOR THE RAMPS TO THE BRIDGE**

**General Comments:**

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

BACKFILL OF THE FORMER GLADE CREEK CHANNEL

- \* COMMENCED WELDING & INSTALLING THE HDPE GROUND WATER PIPE
- \* CONTINUED HAULING, PLACING AND COMPACTING THE BORROW SOIL BETWEEN THE OLD AND NEW GLADE CREEK

FORMER PROCESS AREA SURFACE COVER

- \* DEMOLISHED CONCRETE CONCRETE SLABS OVER AREA

CREEK SEDIMENT REMOVAL

- \* COMMENCED INSTALLING PART OF ACCESS ROAD TO SERVICE WELLS AND CLEAN OUT
- \* COMPLETED INSTALLING 2 BRIDGES TO ACCESS SEDIMENT REMOVAL
- \* INSTALLED LINER IN TEMPORARY SEDIMENT PROCESSING AREA

MISCELLANEOUS

- \* RETEC COMPLETED INSTALLING LINES FROM WELL #23 TO TREATMENT PLANT
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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**Weekly Project Summary No.**  
**29**

**Work Performed Dates:**  
**May 23 - 29, 2005**

Text

**Photo 1**



STARTED CLEARING SOME OF THE TREES FOR THE SEDIMENT REMOVAL

**Photo 2**



PLACING A ROLL OF EROSION FABRIC ALONG THE EAST SIDE OF THE FILL AREA

**Photo 3**



CLEARING MORE OF THE TREES ALONG THE GLADE CREEK SEDIMENT REMOVAL

**Photo 4**



GRADING FILL ALONG THE CENTERLINE OF THE DITCH

**Photo 5**



EXCAVATING TO GRADE THE AREA SOUTH OF ARG 2 AREA

**Photo 6**



CLEARING TREES ALONG THE SEDIMENT REMOVAL AREA OF GLADE CREEK

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**BACKFILL OF THE FORMER GLADE CREEK CHANNEL**

- \* CONTINUED HAULING, PLACING AND COMPACTING THE BORROW SOIL BETWEEN THE OLD AND NEW GLADE CREEK
- \* CONTINUED TO INSTALL GCL OVER GROUND WATER PIPE

**FORMER PROCESSING AREA SURFACE COVER**

- \* COMPLETED BREAKING OF THE CONCRETE SLABS LOCATED UNDER THE CAP
- \* COMMENCED PLACING GROUT INTO THE MANHOLES
- \* COMMENCED CLEARING FOR THE REMOVAL OF THE WASTE PILES ALONG THE SOUTH SIDE

**CREEK SEDIMENT REMOVAL**

- \* COMMENCED CLEARING SELECTED TREES ALONG GLADE CREEK FOR THE SEDIMENT REMOVAL

**MISCELLANEOUS**

- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUED TO DO SITE AIR MONITORING

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Carolyn Bury

**Weekly Project Summary No.**

**30**

**Work Performed Dates:**

**May30-June5,2005**

**Text**

Photo 1



TAKING PERIMETER AIR MONITORING AROUND THE WORK SITE

Photo 2



PLACING A COVER BOX OVER THE NORTH CLEAN OUT TO THE GROUND WATER PIPE

Photo 3



GRADING AND COMPACTING BORROW SOIL TO FINAL GRADE AND CUTTING THE WEST DRAINAGE SWALE

Photo 4



CLEARING FOR THE 3 SOIL PILE REMOVAL SOUTH OF THE FORMER PROCESS AREA SURFACE COVER

Photo 5



INSTALLING PART OF THE EROSION MATTING ALONG THE WEST SWALE

Photo 6



INSTALLING PART OF THE WELL MONITORING ACCESS ROAD

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**BACKFILL OF THE FORMER GLADE CREEK CHANNEL**

- \* CONTINUED HAULING, PLACING AND COMPACTING THE BORROW SOIL BETWEEN THE OLD AND NEW GLADE CREEK
- \* COMMENCED INSTALLING THE ACCESS ROAD FOR WELL MONITORING
- \* COMMENCED CUTTING OF THE EAST AND WEST SWALE
- \* CONTINUING TO GRADE THE WEST SWALE TO FINISH GRADE
- \* CONTINUING TO INSTALL COVER BOXES OVER CLEAN OUT PIPES

**FORMER PROCESSING AREA SURFACE COVER**

- \* CONTINUED CLEARING FOR THE REMOVAL OF THE WASTE PILES ALONG THE SOUTH SIDE
- \* COMMENCED CLEARING VEGETATION NEAR THE SOUTH END OF LINER CAP

**MISCELLANEOUS**

- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUED TO DO SITE AIR MONITORING

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**Weekly Project Summary No.**

**31**

**Work Performed Dates:**

**June 6 - 12, 2005**

**Text**

Photo 1



GRADING THE EAST DRAINAGE SWALE

Photo 2



REMOVAL OF THE OVER BURDEN SOIL ON THE TANK BOTTOM

Photo 3



INSTALLING EROSION CONTROL FABRIC ON THE EAST SWALE

Photo 4



REMOVING A PORTION OF THE TEMP COVER ON THE CAMU

Photo 5



LOADING STOCKPILED SOIL NEAR THE WEST END OF THE FORMER PROCESS AREA SURFACE COVER

Photo 6



CONTINUING TO PLACE, GRADE AND COMPACT SUB GRADE SOIL IN THE FORMER PROCESS AREA SURFACE COVER

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**BACKFILL OF THE FORMER GLADE CREEK CHANNEL**

- \* COMPLETED GRADING OF THE SWALES TYPES I AND II
- \* COMPLETED INSTALLING EROSION CONTROL FABRIC IN THE TWO SWALES

**CAMU**

**FORMER PROCESSING AREA SURFACE COVER**

- \* COMMENCED REMOVAL OF THE OUTER EDGE OF THE TEMPORARY PVC LINER
- \* COMMENCED PLACING, GRADING AND COMPACTING GENERAL FILL TO SUB GRADE
- \* COMMENCED REMOVAL OF THE OVER BURDEN SOIL ON THE TANK BOTTOM LOCATED NEAR WELL RW-23

**MISCELLANEOUS**

- \* CONTINUED TO DO DAILY SITE AIR MONITORING
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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**Weekly Project Summary No.**

**32**

**Work Performed Dates:**

**June 13 - 19, 2005**

**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**BACKFILL OF THE FORMER GLADE CREEK CHANNEL**

- \* CONTINUING TO PLACE, GRADE AND COMPACT SOIL TO FINAL GRADE NEAR OLD CREEK
- \* COMPLETED INSTALLING THE GROUND WATER PIPE
- \* COMPLETED INSTALLING THE MANHOLE FOR THE GROUND WATER PIPE

**FORMER PROCESSING AREA SURFACE COVER**

- \* CONTINUING TO PLACE, GRADE AND COMPACT GENERAL FILL TO SUB GRADE
- \* COMPLETED REMOVAL OF THE TANK BOTTOM LOCATED NEAR WELL RW-23

**MISCELLANEOUS**

- \* CONTINUED TO DO SITE AIR MONITORING AS NEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

Photo 1



STARTING THE SHEET PILE FOR THE MANHOLE INSTALLATION

Photo 2



GRADING THE SOIL FOR SUB GRADE TO THE LINER

Photo 3



INSTALLING THE SHEET PILE

Photo 4



WATERING HAUL ROADS FOR DUST CONTROL

Photo 5



PREPARING TO INSTALL THE GROUND WATER PIPE INTO THE MANHOLE

Photo 6



TAKING A DENSITY TEST ON THE BARRIER WALL

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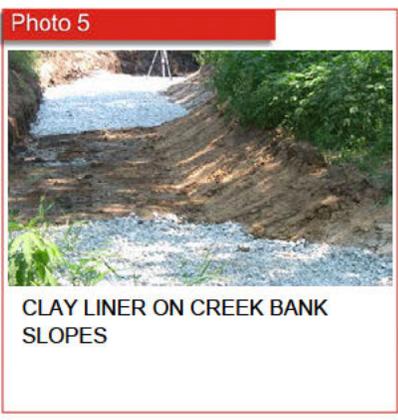


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Carolyn Bury

**Weekly Project Summary No.**  
**33**

**Work Performed Dates:**  
**June 20 - 26, 2005**

Text



General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**BACKFILL OF THE FORMER GLADE CREEK CHANNEL**

- \* CONTINUING TO PLACE, GRADE AND COMPACT SOIL TO FINAL GRADE NEAR OLD CREEK

**FORMER PROCESSING AREA SURFACE COVER**

- \* CONTINUING TO PLACE, GRADE AND COMPACT GENERAL FILL TO SUB GRADE
- \* CONTINUING TO PLACE AND GRADE FILL OVER REMOVED TANK BOTTOM AREA

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* COMMENCED EXCAVATING CREEK BED SEDIMENTS AND REPLACING WITH CLAY LINING AND STONE AS NEEDED

**MISCELLANEOUS**

- \* CONTINUED TO DO DAILY CONTINUOUS PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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**Weekly Project Summary No.**

**34**

**Work Performed Dates:**

**June 27 - July 3, 2005**

Photo 1



PLACING AND GRADING FILL IN LINER AREA OF SURFACE COVER

Photo 2



LONG REACH EXCAVATING GLADE CREEK

Photo 3



REMOVING ONE OF THE WASTE PILES SOUTH OF THE FORMER PROCESS AREA

Photo 4



PLACING THE NON-WOVEN FABRIC ON THE EAST END OF THE CAP AREA

Photo 5



EXCAVATING SEDIMENT IN GLADE CREEK

Photo 6



COMPLETED SECTION OF GLADE CREEK NEAR STATION 31+00

Text

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESSING AREA SURFACE COVER**

- \* COMMENCED PLACING NON-WOVEN FABRIC ON THE SUB GRADE TYPE II
- \* CONTINUING TO PLACE, GRADE AND COMPACT GENERAL FILL TO SUB GRADE
- \* COMPLETED REMOVAL OF WASTE PILES ALONG SOUTHERN EDGE

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUING EXCAVATING AND STABILIZING CREEK BED SEDIMENTS
- \* CONTINUING REPLACING EXCAVATED SEDIMENTS WITH CLAY LINING AND STONE AS NEEDED

**MISCELLANEOUS**

- \* CONTINUED TO DO PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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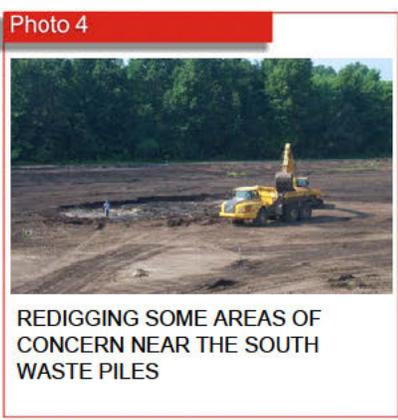
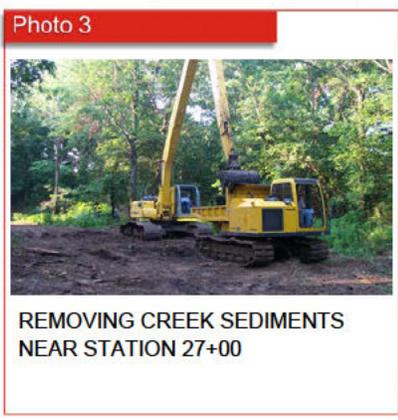
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- Mark Gravelding
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- Carolyn Bury

**Weekly Project Summary No.**

**35**

**Work Performed Dates:**

**July 4 - 10, 2005**



**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESSING AREA SURFACE COVER**

- \* COMMENCED BACKFILLING OF THE SOUTH WASTE PILE AREA
- \* COMMENCED PLACING CA-6 STONE OVER FABRIC FOR THE ACCESS ROAD
- \* CONTINUING PLACING NON-WOVEN FABRIC ON THE SUB GRADE TYPE II
- \* CONTINUING TO PLACE, GRADE AND COMPACT GENERAL FILL TO SUB GRADE

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUING EXCAVATING AND STABILIZING CREEK BED SEDIMENTS AND TRANSPORTING TO CAMU FOR DISPOSAL
- \* CONTINUING REPLACING EXCAVATED SEDIMENTS WITH CLAY LINING AND STONE AS NEEDED

**MISCELLANEOUS**

- \* CONTINUED TO DO PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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**Weekly Project Summary No.**

**36**

**Work Performed Dates:**

**July 11 - 17, 2005**

Text



PLACING GRAVEL ON HAUL ROADS



MOVING PUMPING EQUIPMENT TO HIGH GROUND



STANDING WATER NEAR RW-23



SETTING UP PUMP TO DEWATER PART OF THE FORMER PROCESS AREA SURFACE COVER



DRAINING THE SURFACE WATER HOLES WEST OF THE CAMU



PREPARING TO SET AND PUMP STANDING WATER

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESSING AREA SURFACE COVER**

- \* COMMENCED AND CONTINUED TO PUMP AND REMOVE STANDING WATER

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* PREPARE CREEK FOR FORECASTED RAIN AND FLOOD WARNINGS

**MISCELLANEOUS**

- \* COMMENCED AND CONTINUED SERVICE OF EQUIPMENT BETWEEN SHOWERS
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION CONTROLS
- \* CONTINUING TO GRADE AND PLACE GRAVEL ON THE HAUL ROADS
- \* DUE TO HEAVY RAIN THROUGHOUT THE WEEK, EXCAVATION WAS BROUGHT TO A STANDSTILL

**Photos**

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**Weekly Project Summary No.**  
**37**

**Work Performed Dates:**  
**July 18 - 24, 2005**



**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESSING AREA SURFACE COVER**

- \* CONTINUING TO PUMP AND REMOVE STANDING WATER
- \* CONTINUING TO PLACE, GRADE AND COMPACT SUB GRADE FOR F.P.A.S.C.
- \* CONTINUING TO PLACE NON-WOVEN FABRIC ON F.P.A.S.C.

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUING TO REMOVE, STABILIZE AND TRANSPORT GLADE CREEK SEDIMENTS TO THE CAMU
- \* COMMENCED REINSTALLING THE BY-PASS PUMP, EARTH DAM AND DEWATERING THE CREEK

**MISCELLANEOUS**

- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION CONTROLS
- \* CONTINUED TO GRADE, PLACE GRAVEL AND WATER HAUL ROADS FOR DUST CONTROL AND TO STRENGTHEN ROADS AND SHOULDERS
- \* DUE TO EXCESSIVE HEAT INDEX, SEVERAL DAYS WERE SHORTENED

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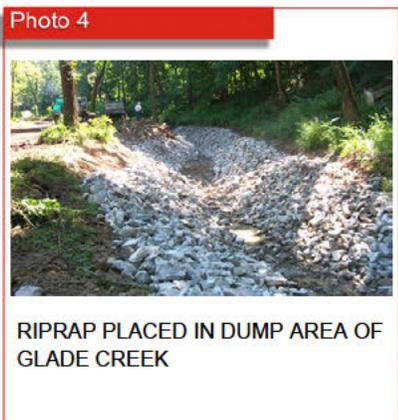
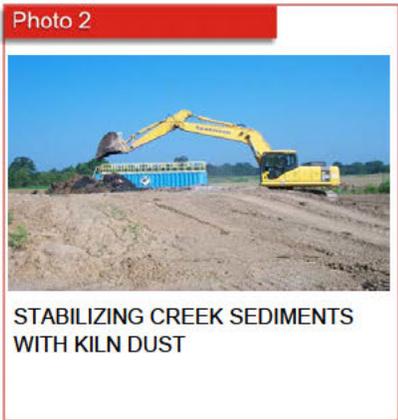


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Mason Wheeler  
Jeremy Neighbors  
Carolyn Bury

**Weekly Project Summary No.**  
**38**

**Work Performed Dates:**  
**July 25 - 31, 2005**

Text



General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESSING AREA SURFACE COVER**

- \* CONTINUING TO PLACE, GRADE AND COMPACT SUB GRADE FOR F.P.A.S.C.
- \* CONTINUING TO PLACE NON-WOVEN FABRIC ON F.P.A.S.C.
- \* CONTINUING INSTALLING COVER TYPE II BY PLACING BORROW PIT SOIL OVER THE NON-WOVEN FABRIC ON F.P.A.S.C.

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUING TO REMOVE, STABILIZE AND TRANSPORT GLADE CREEK SEDIMENTS TO THE CAMU
- \* CONTINUING REPLACING EXCAVATED SEDIMENTS WITH CLAY LINING, FABRIC LINING AND STONE AS NEEDED
- \* EVACUATED STORMWATER FROM THE EXCAVATION FOR TREATMENT IN THE ONSITE WASTEWATER TREATMENT SYSTEM

**MISCELLANEOUS**

- \* CONTINUED TO DO PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL

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**Weekly Project Summary No.**  
**39**

**Work Performed Dates:**  
**August 1 - 7, 2005**

**Text**

**Photo 1**



EXCAVATING BOTTOM OF GLADE CREEK

**Photo 2**



PLACING NON-WOVEN FABRIC OVER SUB GRADE OF TYPE II COVER

**Photo 3**



EXCAVATING CREEK SEDIMENTS AND PLACING THEM IN THE ALLTRACK TRUCK

**Photo 4**



PREPARING TO INSTALL FENCE TO POSTS ALONG THE SOUTH EDGE OF THE FORMER PROCESS AREA SURFACE COVER

**Photo 5**



EXCAVATING THE ANCHOR TRENCH FOR THE TYPE I COVER

**Photo 6**



PLACING THE FINAL COVER SOIL OVER THE NON-WOVEN FABRIC FOR SURFACE COVER TYPE II

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESSING AREA SURFACE COVER**

- \* COMMENCED EXCAVATION OF ANCHOR TRENCH FOR TYPE I COVER
- \* COMMENCED INSTALLING FENCING ALONG SOUTH PROPERTY LINE
- \* CONTINUING TO PLACE, GRADE AND COMPACT SUB GRADE
- \* CONTINUING INSTALLING COVER TYPE II BY PLACING BORROW PIT SOIL OVER THE NON-WOVEN FABRIC

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUING TO REMOVE, STABILIZE AND TRANSPORT GLADE CREEK SEDIMENTS TO THE CAMU
- \* CONTINUING REPLACING EXCAVATED SEDIMENTS WITH CLAY LINING, FABRIC LINING AND STONE AS NEEDED

**MISCELLANEOUS**

- \* CONTINUED TO DO PERIMETER DAILY SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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**Distribution:**

- Paul Alessio
- Mike Slenska
- Mark Gravelding
- Mason Wheeler
- Jeremy Neighbors
- Carolyn Bury/Gary Cygan

**Weekly Project Summary No.**

**40**

**Work Performed Dates:**

**August 8-14, 2005**

**Text**

**Photo 1**

PLACING ROCK ALONG SIDE WALLS OF THE GLADE CREEK SEDIMENT REMOVAL

**Photo 2**

STARTING TO DEPLOY THE FIRST LAYER OF THE GEOSYNTHETICS ON THE TYPE I COVER AREA

**Photo 3**

G.S.I. DEPLOYING GEO COMPOSITE FABRIC ON FORMER PROCESS AREA SURFACE COVER CAP AREA

**Photo 4**

WELDING THE SEAMS OF THE HDPE LINER

**Photo 5**

LAYING OUT CORRUGATED PIPE FOR ANCHOR TRENCH

**Photo 6**

PLACING AND GRADING BORROW PIT SOIL TO FINAL GRADE IN TYPE II COVER AREA

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESSING AREA SURFACE COVER**

- \* CONTINUING EXCAVATION OF ANCHOR TRENCH FOR TYPE I COVER
- \* COMPLETED INSTALLING FENCING ALONG SOUTH PROPERTY LINE
- \* CONTINUING TO PLACE, GRADE AND COMPACT SUB GRADE
- \* CONTINUING INSTALLING COVER TYPE II BY PLACING BORROW PIT SOIL OVER THE NON-WOVEN FABRIC
- \* COMMENCED DEPLOYING THE TYPE I COVER

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUING REPLACING EXCAVATED SEDIMENTS WITH CLAY LINING, FABRIC LINING AND STONE AS NEEDED

**MISCELLANEOUS**

- \* CONTINUED TO DO PERIMETER DAILY SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO REPAIR THE HAUL ROADS AND WATER THEM FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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Paul Alessio  
Mike Slenska  
Mark Graveling  
Mason Wheeler  
Jeremy Neighbors  
Carolyn Bury

**Weekly Project Summary No.**  
**41**

**Work Performed Dates:**  
**August 15-21, 2005**

**Text**

**Photo 1**



**PUMPING SURFACE WATER FROM THE FORMER PROCESS AREA SURFACE COVER**

**Photo 2**



**REMOVING WATER FROM DRAINAGE DITCH AT ANCHOR TRENCH DISCHARGE PIPE OUTLET**

**Photo 3**



**DIGGING AND BACKFILLING TEST HOLES ALONG GLADE CREEK NEAR STATION 8+00**

**Photo 4**



**INSTALLING THE ANCHOR TRENCH DRAIN PIPE**

**Photo 5**



**CONTINUE TO CLEAR ALONG GLADE CREEK NEAR STATION 2+00**

**Photo 6**



**PLACING THE FINAL SOIL LAYER ON THE EAST EDGE OF THE TYPE I COVER AREA**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**  
**FORMER PROCESSING AREA SURFACE COVER**

- \* DUE TO RAIN, PUMPED SURFACE WATER FROM AREA AROUND CAP AND ASSOCIATED DRAINAGE DITCHES TO FACILITATE DISCHARGE OF WATER FROM ANCHOR TRENCH
- \* CONTINUING INSTALLING COVER TYPE II BY PLACING BORROW PIT SOIL OVER THE NON-WOVEN FABRIC
- \* CONTINUING DEPLOYING THE TYPE I COVER
- \* CONTINUING TO PLACE BORROW SOIL OVER TYPE I COVER AREA

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUING TO CLEAR TREES AND BRUSH TO ACCESS CREEK FOR SEDIMENT REMOVAL
- \* COMMENCED DIGGING TEST HOLES ALONG CREEK NEAR STATION 8+00

**MISCELLANEOUS**

- \* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO REPAIR AND WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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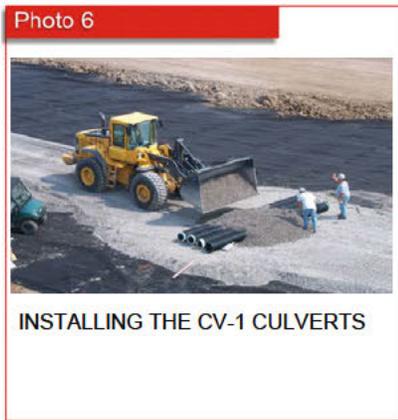
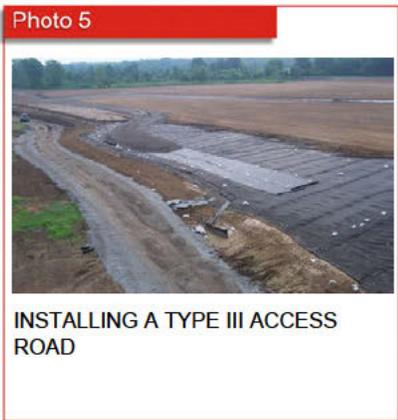
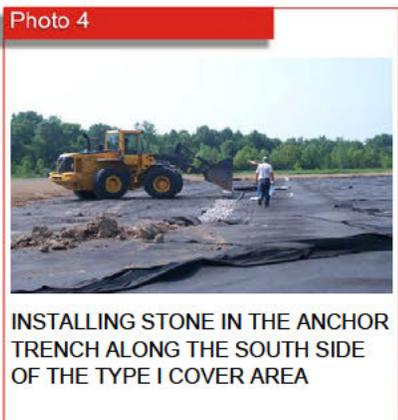
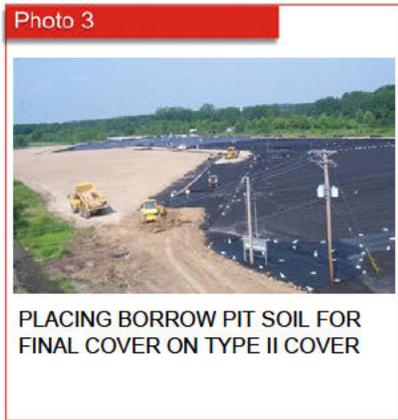
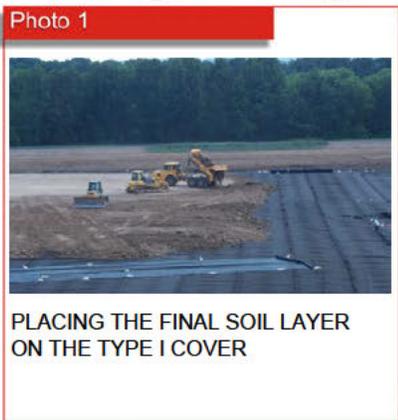
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Paul Alessio  
Mike Slenska  
Mark Graveling  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**42**

**Work Performed Dates:**  
**August 22-28, 2005**



**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**  
**FORMER PROCESSING AREA SURFACE COVER**

- \* CONTINUED INSTALLING FINAL COVER TYPE II BY PLACING BORROW PIT SOIL OVER NON-WOVEN FABRIC
- \* CONTINUED TO PLACE BORROW PIT SOIL OVER TYPE I COVER AREA
- \* COMPLETED DEPLOYING TYPE I SYNTHETICS
- \* CONTINUED TO INSTALL TYPE III ACCESS ROADS
- \* COMPLETED INSTALLING CV-1 CULVERTS

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* COMMENCED REDIG OF GLADE CREEK FROM STATION NEAR 19+50
- \* CONTINUED EXCAVATING IMPACTED SEDIMENTS FROM GLADE CREEK
- \* COMPLETED DIGGING TEST HOLES ALONG THE CREEK

**MISCELLANEOUS**

- \* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO REPAIR AND WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

**Photos** **Text**

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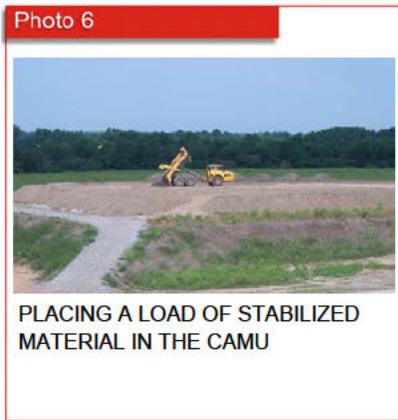
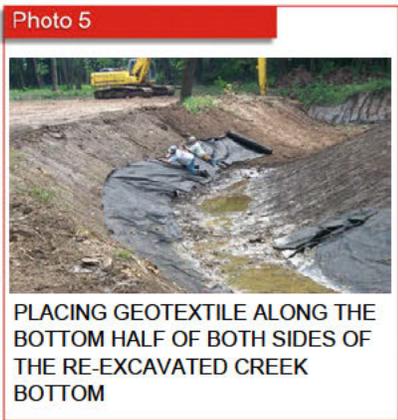
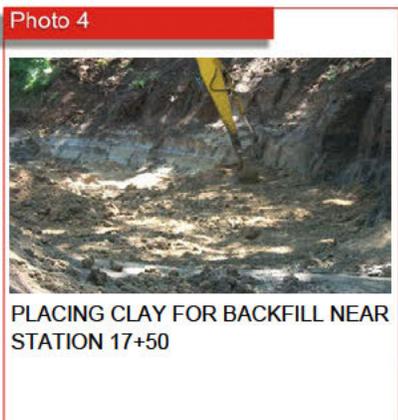
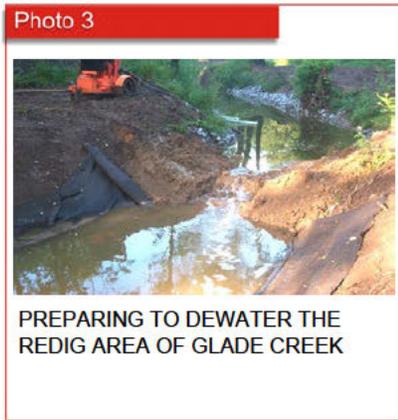
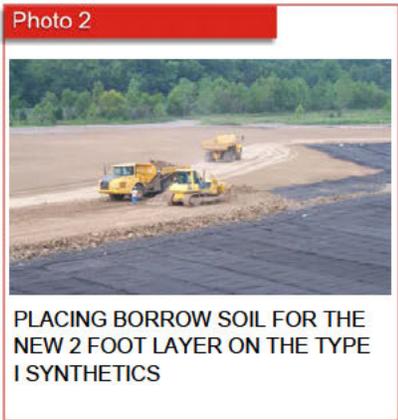


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Mike Slenska  
Mark Graveling  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**43**

**Work Performed Dates:**  
**Aug. 29-Sept. 4,05**

**Text**



General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESSING AREA SURFACE COVER**

- \* COMMENCED PLACING BORROW PIT SOIL 2 FOOT THICK ON THE TYPE I COVER AREA

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUED REDIG OF GLADE CREEK
- \* CONTINUED EXCAVATING IMPACTED SEDIMENTS FROM GLADE CREEK
- \* CONTINUED TO STABILIZE IMPACTED SEDIMENTS AND PLACE IN CAMU
- \* CONTINUED TO BACKFILL GLADE CREEK IN THE REDIG AREAS

**MISCELLANEOUS**

- \* RAIN OUT - TUESDAY, 8-30
- \* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO REPAIR AND WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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Mike Slenska  
Mark Graveling  
Mason Wheeler  
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Carolyn Bury

**Weekly Project Summary No.**  
**44**

**Work Performed Dates:**  
**Sept. 5-11, 2005**

**Text**

**Photo 1**



REMOVING OVERBURDEN ALONG THE BANKS OF GLADE CREEK NEAR STATION 16+20

**Photo 2**



PLACING A LOAD OF STABILIZED CREEK SEDIMENTS ON THE CAMU

**Photo 3**



GRADING THE FINAL 2 FOOT LIFT OVER THE WEST END OF THE TYPE I COVER AREA OF THE F.P.A.S.C.

**Photo 4**



AREA OF GLADE CREEK READY FOR GRAVEL BOTTOM AND RIPRAP SIDES

**Photo 5**



PLACING AND GRADING THE 2 FOOT SOIL LAYER ON THE TYPE I COVER AREA OF THE F.P.A.S.C.

**Photo 6**



EXCAVATING THE REDIG NEAR STATION 14+80 OF GLADE CREEK

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESSING AREA SURFACE COVER**

- \* CONTINUED PLACING BORROW PIT SOIL 2 FOOT THICK ON THE TYPE I COVER AREA
- \* COMPLETED PLACING STONE FOR THE ACCESS ROADS ON TYPE I COVER AREA

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUED REDIG OF GLADE CREEK
- \* CONTINUED EXCAVATING IMPACTED SEDIMENTS FROM GLADE CREEK
- \* CONTINUED TO STABILIZE IMPACTED SEDIMENTS AND PLACE IN CAMU

**MISCELLANEOUS**

- \* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

**Photos** **Text**

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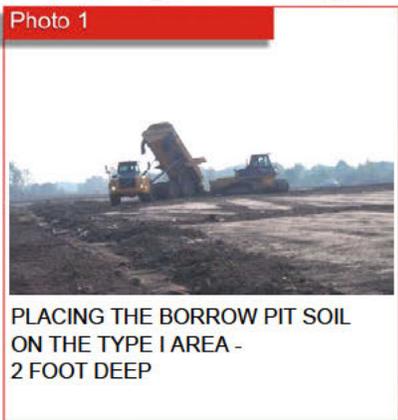


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Mike Slenska  
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Mason Wheeler  
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Carolyn Bury

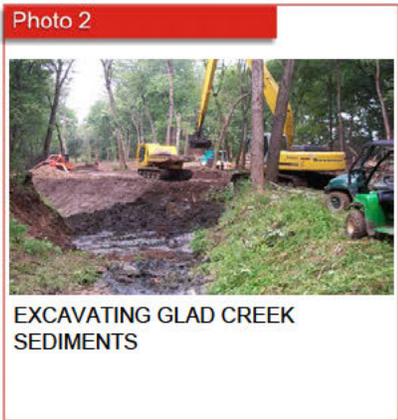
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**45**

**Work Performed Dates:**  
**Sept. 12-18, 2005**

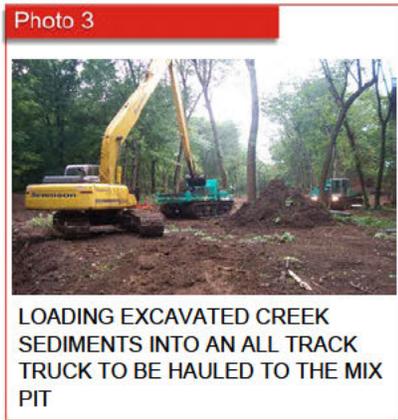
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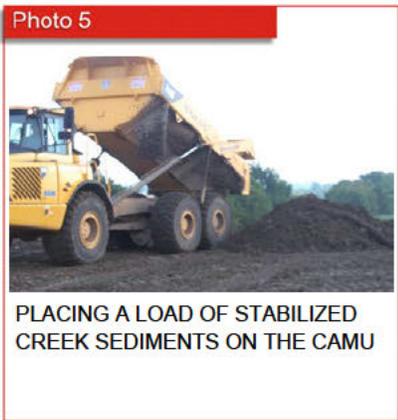
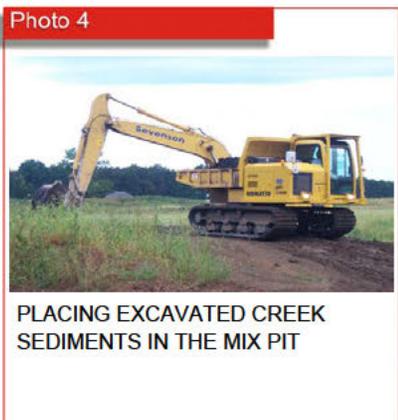
**Photo 1**  
PLACING THE BORROW PIT SOIL ON THE TYPE I AREA - 2 FOOT DEEP



**Photo 2**  
EXCAVATING GLAD CREEK SEDIMENTS



**Photo 3**  
LOADING EXCAVATED CREEK SEDIMENTS INTO AN ALL TRACK TRUCK TO BE HAULED TO THE MIX PIT



General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESS AREA SURFACE COVER**

- \* CONTINUED PLACING AND GRADING BORROW PIT SOIL 2 FOOT THICK ON THE TYPE I COVER AREA

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUED REDIG OF GLADE CREEK
- \* CONTINUED EXCAVATING IMPACTED SEDIMENTS FROM GLADE CREEK
- \* CONTINUED TO STABILIZE IMPACTED SEDIMENTS AND PLACE IN CAMU

**MISCELLANEOUS**

- \* NO WORK ON THURSDAY, 9/15/05, DUE TO RAIN STORM EVENT
- \* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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**Distribution:**  
Paul Alessio  
Mike Slenska  
Mark Graveling  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**46**

Work Performed Dates:  
**Sept. 19-25, 2005**

Text

**Photo 1**



PLACING EROSION FABRIC ALONG THE FLOW LINE OF THE ACCESS ROAD DITCH AND THE TYPE III COVER AREA

**Photo 2**



EXCAVATING CREEK SEDIMENTS NEAR STATION 12+50

**Photo 3**



DEWATERING THE GLADE CREEK EXCAVATION AREA

**Photo 4**



PLACING AND GRADING TYPE I COVER SOIL

**Photo 5**



PLACING STONE ALONG THE TYPE I COVER AREA ALONG THE EDGE WITH NO ANCHOR TRENCH

**Photo 6**



EXTENDING THE DRAIN PIPE FROM THE SOUTHEAST CORNER OF THE TYPE I COVER AREA

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESS AREA SURFACE COVER**

- \* CONTINUED PLACING, GRADING AND COMPACTING BORROW PIT SOIL 2 FOOT THICK ON THE TYPE I COVER AREA
- \* COMPLETED INSTALLING EXTENSION OF THE S.E. DRAIN PIPE
- \* COMPLETED PLACING SEED AND EROSION FABRIC ALONG FLOW LINE OF THE ACCESS ROAD DITCH AND TYPE III COVER AREA, WHERE REQUIRED

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUED REDIG OF GLADE CREEK
- \* CONTINUED EXCAVATING IMPACTED SEDIMENTS FROM GLADE CREEK
- \* CONTINUED TO STABILIZE IMPACTED SEDIMENTS AND PLACE IN CAMU
- \* CONTINUED TO DEWATER GLADE CREEK WORKING AREA AND ACCESS ROADS

**MISCELLANEOUS**

- \* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

**Photos** **Text**

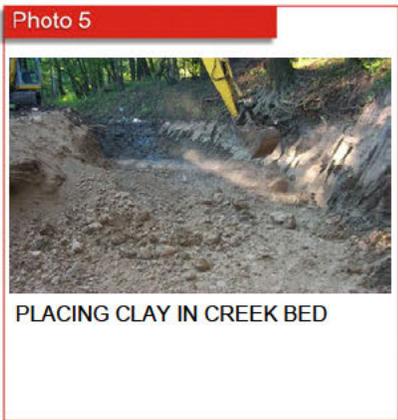
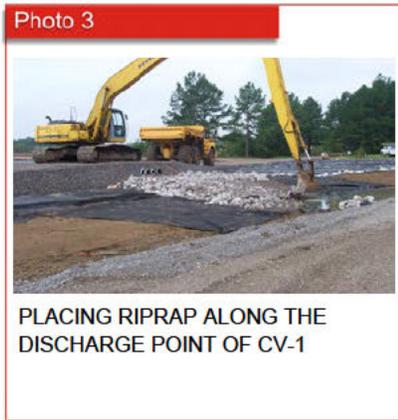
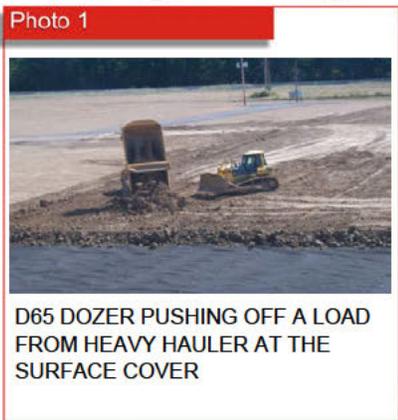
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Paul Alessio  
Mike Slenska  
Mark Graveling  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**47**

**Work Performed Dates:**  
**Sept. 26-Oct. 2, 2005**



**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESS AREA SURFACE COVER**

- \* CONTINUED PLACING, GRADING AND COMPACTING BORROW PIT SOIL 2 FOOT THICK ON THE TYPE I COVER AREA
- \* COMPLETED INSTALLING THE GRAVEL BASE ON THE DOWN SIDE OF THE CV-1

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUED REDIG OF GLADE CREEK
- \* CONTINUED EXCAVATING IMPACTED SEDIMENTS FROM GLADE CREEK
- \* CONTINUED TO STABILIZE IMPACTED SEDIMENTS AND PLACE IN CAMU
- \* CONTINUED TO DEWATER GLADE CREEK WORKING AREA AND ACCESS ROADS

**MISCELLANEOUS**

- \* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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Mark Graveling  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**

**48**

**Work Performed Dates:**

**October 3 - 9, 2005**

**Text**

**Photo 1**



**EXCAVATING GLADE CREEK SEDIMENTS NEAR STATION NEAR STATION 9+75**

**Photo 2**



**GRADING THE DIVERSION BERM ON THE TYPE I COVER**

**Photo 3**



**SEEDING THE FORMER PROCESS AREA SURFACE COVER**

**Photo 4**



**PLACING AND GRADING STABILIZED CREEK SEDIMENTS ON THE CAMU**

**Photo 5**



**DIVERSION BERM COVERED WITH EROSION CONTROL FABRIC**

**Photo 6**



**PLACING AND GRADING STONE IN GLADE CREEK**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESS AREA SURFACE COVER**

- \* CONTINUED PLACING, GRADING AND COMPACTING BORROW PIT SOIL 2 FOOT THICK ON THE TYPE I COVER AREA
- \* CONTINUED SEEDING AND MULCHING ON THE COVER AREA
- \* CONTINUED TO INSTALL ACCESS ROADS

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUED REDIG OF GLADE CREEK
- \* CONTINUED EXCAVATING IMPACTED SEDIMENTS FROM GLADE CREEK
- \* CONTINUED TO STABILIZE IMPACTED SEDIMENTS AND PLACE IN CAMU
- \* COMMENCED INSTALLING ROCK BACKFILL OF GLADE CREEK REDIG AREA

**MISCELLANEOUS**

- \* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

**Photos** **Text**

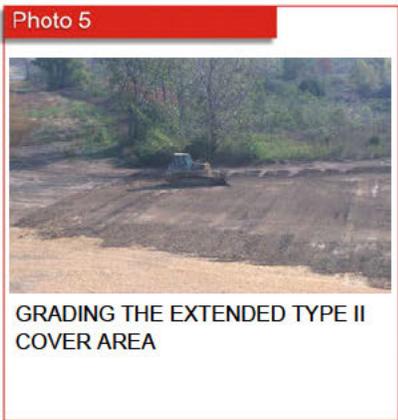
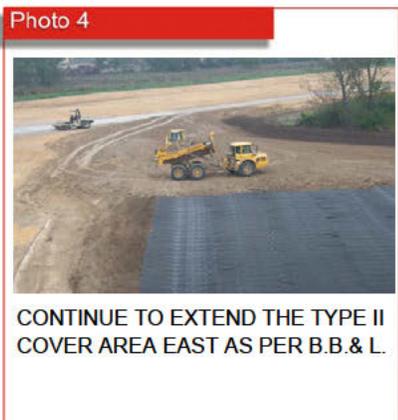
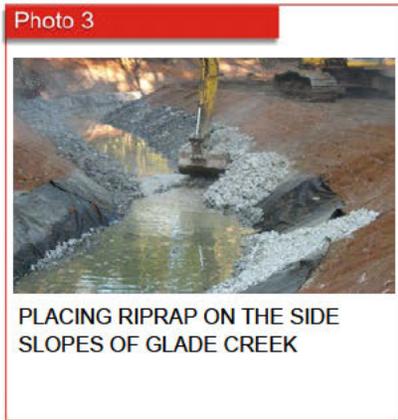
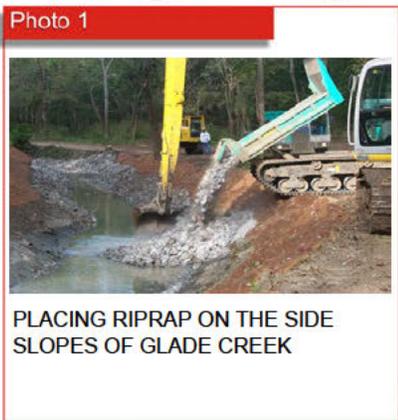
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Paul Alessio  
Mike Slenska  
Mark Graveling  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**49**

**Work Performed Dates:**  
**October 10 - 16, 2005**



**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESS AREA SURFACE COVER**

- \* CONTINUED INSTALLING NON-WOVEN FABRIC ON EXTENDED TYPE II COVER AREA IN THE SOUTHEASTERN MOST CORNER OF THE FORMER PROCESS AREA
- \* CONTINUED PLACING, GRADING AND COMPACTING BORROW PIT SOIL ON THE EXTENDED TYPE II COVER AREA

**SEDIMENT REMOVAL IN GLADE CREEK**

- \* CONTINUED INSTALLING STONE AND RIPRAP BACKFILL IN GLADE CREEK SEDIMENT REMOVAL AREA

**MISCELLANEOUS**

- \* CONTINUED TO PREPARE CAMU FOR WINTER SHUTDOWN
- \* CONTINUED TO CLEAN AND SERVICE EQUIPMENT FOR DEMOBILIZATION
- \* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED
- \* CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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Mark Gravelding  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**50**

Work Performed Dates:  
**October 17 - 23, 2005**

**Text**

**Photo 1**



CONTINUE TO SUB GRADE THE CAMU FOR THE TEMPORARY LINER

**Photo 2**



ROLLING THE CAMU TO FLATTEN THE SURFACE FOR THE LINER

**Photo 3**



CLEARING FOR THE REROUTE OF GLADE CREEK

**Photo 4**



SEEDING THE RELOCATION OF GLADE CREEK AREA

**Photo 5**



FINAL CLEANING SK220 FOR SHIPPING

**Photo 6**



MOVING MATS FROM THE TEMPORARY BRIDGE OVER GLADE CREEK

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**CAMU**  
\* CONTINUED TO GRADE FOR TEMPORARY LINER COVER INSTALLATION

**SEDIMENT REMOVAL IN GLADE CREEK**  
\* COMPLETED CLEARING FOR REROUTE OF GLADE CREEK  
\* COMPLETED SEEDING OF THE RELOCATION AREA WITH WINTER WHEAT AND OATS

**FORMER PROCESS AREA SURFACE COVER**  
\* COMPLETED SEEDING OF THE EXTENDED TYPE II COVER AREA WITH WINTER WHEAT AND OATS

**MISCELLANEOUS**  
\* CONTINUED TO CLEAN AND SERVICE EQUIPMENT FOR DEMOBILIZATION  
\* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED  
\* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS

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Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**51**

**Work Performed Dates:**  
**October 24 - 30, 2005**

**Text**

**Photo 1**



**CLEANING EQUIPMENT**

**Photo 2**



**RECEIVING A LOCKABLE STORAGE BOX FOR WINTER SHUTDOWN STORAGE**

**Photo 3**



**CONTINUE TO EXCAVATE THE ANCHOR TRENCH FOR THE CAMU LINER**

**Photo 4**



**G.S.I. INSTALLERS MAKING SANDBAGS**

**Photo 5**



**GLUING A SEAM OF THE 20MIL PVC LINER COVER**

**Photo 6**



**PULLING A LINER PANEL ON THE CAMU**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**CAMU**  
\* CONTINUED INSTALLATION OF 20MIL PVC LINER COVER

**FORMER PROCESS AREA SURFACE COVER**  
\* CONTINUED CLEARING RIGHT-OF-WAY ALONG SOUTH DITCH

**MISCELLANEOUS**  
\* CONTINUED TO CLEAN AND SERVICE EQUIPMENT FOR DEMOBILIZATION  
\* CONTINUED TO DO DAILY PERIMETER SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED  
\* CONTINUED TO EXAMINE AND MAINTAIN THE EROSION AND SEDIMENTATION CONTROLS



Photos

Text

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**Distribution:**

Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**

**52**

**Work Performed Dates:**

**April 24 - 30, 2006**

**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**CAMU**

- \* COMMENCED REMOVAL OF THE TEMPORARY LINER COVER

**GLADE CREEK SEDIMENT REMOVAL**

- \* COMMENCED INSTALLATION OF CROSS OVER BRIDGE AND GUIDE RAILS
- \* COMPLETED INSTALLATION OF THE STABILIZATION MIX PIT

**WETLAND AREA**

- \* COMMENCED WALKING DOWN THE TALL VEGETATION
- \* COMMENCED EXCAVATION OF THE TOP 1 FOOT OF SOIL

**FORMER PROCESS AREA SURFACE COVER**

- \* CONTINUING TO SURVEY AREA SOUTH OF THE CAMU

**MISCELLANEOUS**

- \* CONTINUED TO RECEIVE EQUIPMENT
- \* CONTINUED TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* COMPLETED 2006 PROJECT KICK-OFF MEETING ON TUESDAY, APRIL 25TH
- \* COMPLETED COMMUNITY INFORMATIONAL MEETING ON TUESDAY, APRIL 25TH

Photo 1



REMOVING THE CAMU'S TEMPORARY COVER

Photo 2



INSTALLING THE GLADE CREEK CROSS OVER BRIDGE

Photo 3



INSTALLING A GUIDE RAIL ALONG THE TIMBER MAT BRIDGE

Photo 4



CONSTRUCTING THE BERMS OF THE STABILIZATION PIT

Photo 5



PLACING A BORDER OF STONE ALONG THE PROPERTY LINE WEST OF THE WETLAND AREA

Photo 6



REMOVING THE TOP 1 FOOT OF SOIL FROM THE WETLAND AREA

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Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**53**

**Work Performed Dates:**  
**May 1 - 7, 2006**

**Text**

**Photo 1**



CHECKING EQUIPMENT FLUID LEVELS

**Photo 2**



INSTALLING THE 8" BY-PASS PUMP ON GLADE CREEK

**Photo 3**



MIXING KILN DUST WITH EXCAVATED CREEK SEDIMENTS

**Photo 4**



REMOVING THE TOP 1 FOOT OF SOIL ON THE EAST SIDE OF THE NEW WETLAND AREA

**Photo 5**



EXCAVATING CREEK SEDIMENTS NEAR STATION 7+50

**Photo 6**



BY-PASS PUMPING OF GLADE CREEK

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK SEDIMENT REMOVAL**

- \* COMMENCED EXCAVATING, STABILIZING AND PLACING GLADE CREEK SEDIMENTS IN THE CAMU

**WETLAND AREA**

- \* COMMENCED SURVEYING WEST SIDE OF AREA
- \* CONTINUING TO EXCAVATE AND STOCKPILE TOP 1 FOOT OF SOIL ON EAST SIDE

**MISCELLANEOUS**

- \* CONTINUED TO RECEIVE EQUIPMENT
- \* CONTINUED TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* COMMENCED DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Distribution:**  
Mike Slenska  
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Mason Wheeler  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**54**

Work Performed Dates:  
**May 8 - 14, 2006**

**Text**

**Photo 1**



SURVEYORS MARKING THE LAYOUT OF THE WEST HALF OF THE NEW WETLAND AREA

**Photo 2**



PLACING BORROW PIT MATERIAL TO BACKFILL THE CREEK SEDIMENT EXCAVATION

**Photo 3**



PLACING BORROW PIT SOIL INTO HEAVY HAULER TO BE TRANSPORTED TO GLADE CREEK FOR BACKFILL

**Photo 4**



INSTALLING THE WEST CULVERT IN FRONT OF THE CAMU

**Photo 5**



GLADE CREEK UPSTREAM OF STATION 33+50

**Photo 6**



WATER CROSSING THE ACCESS ROAD TO THE POND

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK SEDIMENT REMOVAL**

- \* CONTINUING TO EXCAVATE, STABILIZE AND PLACE GLADE CREEK SEDIMENTS IN THE CAMU

**WETLAND AREA**

- \* CONTINUING TO SURVEY WEST HALF OF AREA
- \* CONTINUING TO EXCAVATE AND STOCKPILE TOP 1 FOOT OF SOIL ON EAST HALF

**MISCELLANEOUS**

- \* DUE TO THE AMOUNT OF RAIN RECEIVED, GLADE CREEK EXCAVATION & BACKFILL WAS SUSPENDED ON WEDNESDAY, MAY 10TH
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Distribution:**  
Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**55**

**Work Performed Dates:**  
**May 15 - 21, 2006**

**Text**



General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESS AREA SURFACE COVER**

- \* FILL, GRADE, INSTALL CULVERTS AND PLACE NON-WOVEN FABRIC ALONG THE AREA SOUTH OF THE CAMU IN PERPERATION FOR PLACEMENT OF THE FINAL COVER

**GLADE CREEK SEDIMENT REMOVAL**

- \* CONTINUING TO DEWATER AND PREPARE AREA EFFECTED BY LAST WEEKS FLASH FLOOD IN ORDER TO RESUME EXCAVATING, STABILIZING AND BACKFILLING

**WETLAND AREA**

- \* CONTINUING TO EXCAVATE ONE FOOT BELOW FINISHED GRADE ON WEST HALF

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Distribution:**  
Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**56**

Work Performed Dates:  
**May 22 - 28, 2006**

**Text**

**Photo 1**



EXCAVATING THE WEST WETLAND AREA

**Photo 2**



PLACING RIP RAP ON GLADE CREEK SIDE SLOPES

**Photo 3**



CHECKING GRADE IN THE NORTH POND ON THE EAST WETLAND AREA

**Photo 4**



INSTALLING COCO FIBER ALONG THE TOP OF GLADE CREEK NEAR STATION 6+60

**Photo 5**



EXCAVATING THE NORTH HALF OF THE EAST WETLAND AREA

**Photo 6**



PLACING STONE OVER WOVEN FABRIC FOR THE WEST ACCESS RAMP TO THE CAMU

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESS AREA SURFACE COVER**

- \* COMPLETED INSTALLING THE NON-WOVEN FABRIC FOR THE TYPE 2 COVER ALONG THE SOUTH EDGE OF THE CAMU

**GLADE CREEK SEDIMENT REMOVAL**

- \* CONTINUING TO EXCAVATE, STABILIZE AND PLACE GLADE CREEK SEDIMENTS INTO THE CAMU
- \* COMPLETED THE CREEK BACKFILL TO STATION 6+00

**WETLAND AREA**

- \* COMPLETED EXCAVATION AND BACKFILL OF THE VEGETATIVE SOIL ON WEST AREA
- \* COMMENCED EXCAVATION ON THE EAST AREA

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Distribution:**  
Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**57**

**Work Performed Dates:**  
**May 29-June 4, 2006**

**Text**

**Photo 1**



**EXCAVATING THE EAST WETLAND TO SUB GRADE**

**Photo 2**



**WATERING ROADS FOR DUST CONTROL, FINISH GRADING WETLANDS AND STOCKPILING VEGETATIVE SOIL**

**Photo 3**



**SHOT OF THE WETLAND AREA AFTER THE 2 PREVIOUS DAYS OF RAIN; THE PONDS HAVE FILLED WITH WATER**

**Photo 4**



**EXCAVATING CREEK SEDIMENT FROM GLADE CREEK**

**Photo 5**



**STABILIZING CREEK SEDIMENTS IN THE MIX PIT**

**Photo 6**



**MOXY HAULER PLACING STABILIZED CREEK SEDIMENT INTO THE CAMU**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK SEDIMENT REMOVAL**

- \* CONTINUING TO EXCAVATE, STABILIZE AND PLACE GLADE CREEK SEDIMENTS INTO THE CAMU
- \* COMPLETED THE CREEK EXCAVATION TO STATION 4+25

**WETLAND AREA**

- \* COMPLETED EXCAVATION AND BACKFILL OF THE VEGETATIVE SOIL ON EAST AREA

**MISCELLANEOUS**

- \* DUE TO RAIN ON THURSDAY AND FRIDAY, SITE ACTIVITIES WERE SUSPENDED
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Distribution:**  
Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**58**

**Work Performed Dates:**  
**June 5 - 11, 2006**

**Photo 1**



D61 FINISH GRADES SOUTH SIDE OF CAMU

**Photo 2**



EXCAVATING GLADE CREEK SEDIMENTS

**Photo 3**



ADDING CLAY BACKFILL TO GLADE CREEK

**Photo 4**



CONTINUING TO PLACE CA-6 STONE FOR ACCESS ROAD

**Photo 5**



LABORERS PLACING COCO FIBER ALONG THE BORROW SLOPES

**Photo 6**



INLET FOR CULVERT IS COMPLETED

**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK SEDIMENT REMOVAL**

- \* CONTINUING TO EXCAVATE, STABILIZE AND PLACE GLADE CREEK SEDIMENTS INTO THE CAMU
- \* COMPLETED THE CREEK EXCAVATION TO STATION 3+25
- \* COMPLETED THE CREEK BACKFILL TO STATION 3+50

**CAMU**

- \* COMPLETED INSTALLATION OF CULVERT AND ACCESS ROAD ON EAST SIDE OF CAMU

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Photo 1**



D61 FINISH GRADES SOUTH OF CAMU

**Photo 2**



D61 GRADES FILL ALONG THE SWALE NEAR THE MIX AREA

**Photo 3**



PLACING BACKFILL STONE OVER NON-WOVEN FABRIC NEAR STATION 2+85

**Photo 4**



SURVEYING LOCATIONS OF NEW MONITORING WELLS IN THE GLADE CREEK RELOCATION AREA

**Photo 5**



PLACING A LOAD OF STABILIZED CREEK SEDIMENTS ON THE CAMU

**Photo 6**



EXCAVATING GLADE CREEK SEDIMENTS NEAR STATION 1+35

**Distribution:**

- Mike Slenska
- Mark Gravelding
- Mason Wheeler
- Ben Huggins
- Carolyn Bury

**Weekly Project Summary No.**

**59**

**Work Performed Dates:**

**June 12 - 18, 2006**

**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK SEDIMENT REMOVAL**

- \* CONTINUING TO EXCAVATE, STABILIZE AND PLACE GLADE CREEK SEDIMENTS INTO THE CAMU
- \* COMPLETED THE CREEK EXCAVATION TO STATION 1+30
- \* COMPLETED THE CREEK BACKFILL TO STATION 1+80

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Photo 1**



SEEDING OF THE WEST WETLAND AREA

**Photo 2**



PLACING, STABILIZING AND LOADING CREEK SEDIMENTS FOR THE CAMU

**Photo 3**



INSTALLING FABRIC ALONG THE SLOPES OF GLADE CREEK BEFORE INSTALLING RIP RAP

**Photo 4**



PREPARING TO INSTALL STONE NEAR STATION 8+50 ON GLADE CREEK AFTER CROSSOVER REMOVAL

**Photo 5**



INSTALLING A NEW WELL NEAR THE TYPE I DRAINAGE DITCH

**Photo 6**



PLACING GENERAL FILL TO FINAL GRADE FOR THE WELL DRILLERS

**Distribution:**

- Mike Slenska
- Mark Gravelding
- Mason Wheeler
- Les Halliday
- Ben Huggins
- Carolyn Bury

**Weekly Project Summary No.**

**60**

**Work Performed Dates:**

**June 19 - 25, 2006**

**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK SEDIMENT REMOVAL**

- \* CONTINUING TO EXCAVATE, STABILIZE AND PLACE GLADE CREEK SEDIMENTS INTO THE CAMU
- \* COMPLETED THE CREEK EXCAVATION AND BACKFILL TO STATION 0+20

**WETLAND AREA**

- \* COMPLETED HYDRO-SEEDING USING NATIVE WETLAND SEED MIX
- \* CONTINUING TO WATER NEWLY SEEDER AREA FOR OPTIMAL ESTABLISHMENT

**GLADE CREEK CHANNEL RELOCATION**

- \* COMMENCED INSTALLING NEW WELLS IN THE TYPE I DRAINAGE DITCH AREA

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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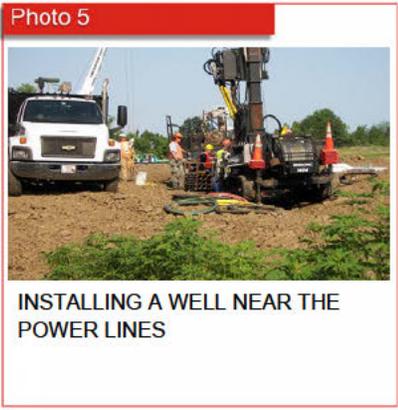
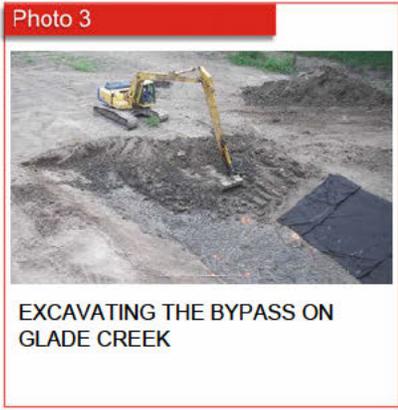
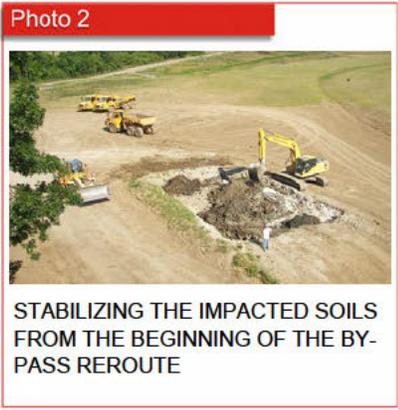


**Distribution:**  
Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Les Halliday  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**61**

**Work Performed Dates:**  
**June 26 - July 2, 2006**

**Text**



General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**WETLAND AREA**

- \* CONTINUING TO WATER NEWLY SEEDED AREA FOR OPTIMAL ESTABLISHMENT

**GLADE CREEK CHANNEL BY-PASS**

- \* COMMENCED EXCAVATION OF CHANNEL REROUTE AND BACKFILL OF ORIGINAL CHANNEL

**GLADE CREEK CHANNEL RELOCATION**

- \* CONTINUING TO INSTALL NEW WELLS IN THE TYPE I DRAINAGE DITCH AREA
- \* CONTINUING TO BACKFILL TO FINAL GRADE IN FORMER MIX PIT AREA

**CAMU**

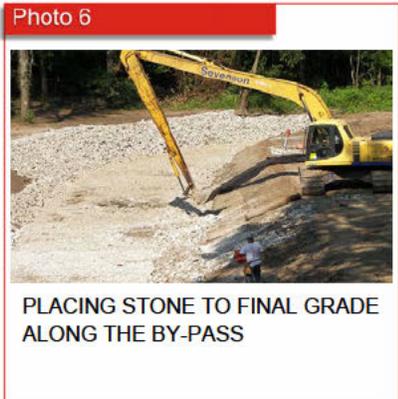
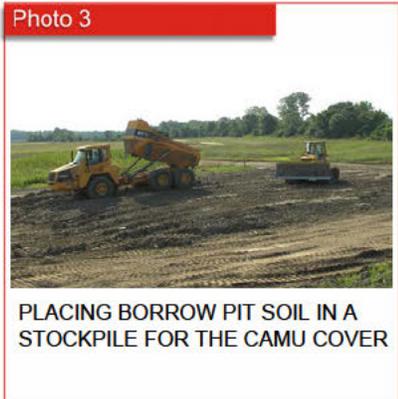
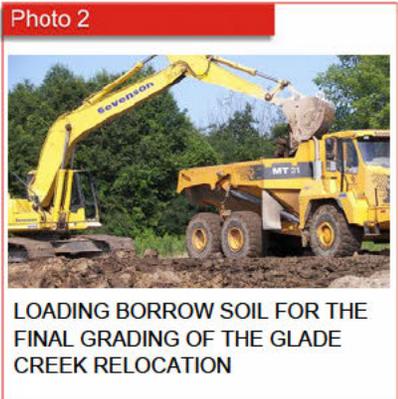
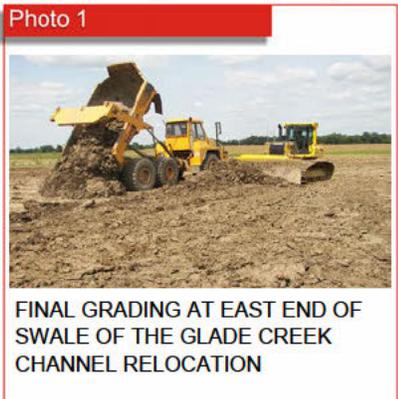
- \* COMPLETED NEW DISCHARGE LINE TO TREATMENT PLANT

**MISCELLANEOUS**

- \* CONTINUING TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Distribution:**  
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Mark Gravelding  
Mason Wheeler  
Les Halliday  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**62**

Work Performed Dates:  
**July 3 - 9, 2006**

**Text**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK CHANNEL BY-PASS**

- \* CONTINUING EXCAVATION AND BACKFILL OF CHANNEL REROUTE
- \* CONTINUING BACKFILL OF ORIGINAL CHANNEL

**CAMU**

- \* CONTINUING TO STOCKPILE SOIL FOR CAMU COVER

**MISCELLANEOUS**

- \* CONTINUING TO WATER HAUL ROADS FOR DUST CONTROL
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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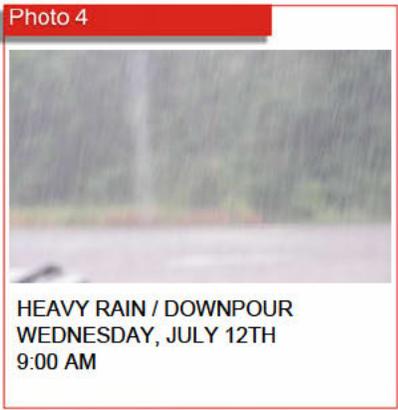
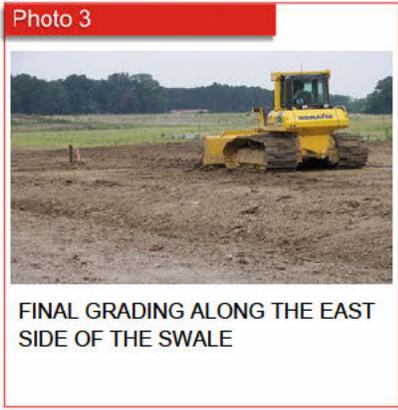


**Distribution:**  
Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Les Halliday  
Ben Huggins  
Carolyn Bury

**Weekly Project Summary No.**  
**63**

**Work Performed Dates:**  
**July 10 - 16, 2006**

**Text**



**General Comments:**

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK CHANNEL BY-PASS**

- \* CONTINUING EXCAVATION OF CHANNEL REROUTE
- \* CONTINUING BACKFILL OF ORIGINAL CHANNEL

**CAMU**

- \* CONTINUING TO STOCKPILE SOIL FOR CAMU COVER

**MISCELLANEOUS**

- \* SEVERAL RAIN EVENTS DURING THE WEEK DELAYED WORK ACTIVITIES
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY PERIMETER AND WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Distribution:**  
Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Les Halliday  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**64**

Work Performed Dates:  
**July 17 - 23, 2006**

**Text**

**Photo 1**



PLACING COCO FIBER EROSION CONTROL FABRIC ALONG THE SIDES AND BOTTOM OF THE TYPE I SWALE

**Photo 2**



RECEIVED FRAC TANKS IN PREPARATION OF MOD-U-TANK DECOMMISSIONING

**Photo 3**



MONITORING THE LEACHATE COLLECTION SYSTEMS OF THE CAMU

**Photo 4**



REBUILDING THE ACCESS BRIDGE OVER GLADE CREEK FOR ACCESS TO THE BY-PASS AREA

**Photo 5**



COMPLETED SECTION OF ACCESS ROAD NEAR ORIGINAL CREEK RELOCATION

**Photo 6**



WEST WETLAND FOLLOWING RAIN THE PRIOR DAY

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK CHANNEL RELOCATION BY-PASS**

- \* COMPLETED REBUILDING OF THE BRIDGE OVER GLADE CREEK FOR ACCESS TO THE BY-PASS AREA (HAD BEEN WASHED OUT DUE TO FLOODING)

**GLADE CREEK CHANNEL RELOCATION**

- \* CONTINUING TO CONSTRUCT NEW ACCESS ROADS TO NEW WELLS

**CAMU**

- \* REMOVAL OF LEACHATE FROM THE LINER COLLECTION SYSTEMS
- \* CONDUCTED INTEGRITY TESTING OF THE OUTSIDE EDGE OF THE CAMU IN PREPARATION OF FINAL COVER PLACEMENT

**MISCELLANEOUS**

- \* BEGAN WATER REMOVAL FROM THE MOD-U-TANK TO ALLOW DECOMMISSIONING
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Distribution:**  
Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Les Halliday  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**65**

Work Performed Dates:  
**July 24 - 30, 2006**

**Text**

**Photo 1**



PLACING STONE FOR EROSION CONTROL NEAR THE RECENTLY INSTALLED MONITORING WELLS

**Photo 2**



SURVEYING THE LOCATION OF THE 2 - 6" DRAIN PIPES SOUTH OF THE TREATMENT PLANT

**Photo 3**



COMPACTING THE ACCESS ROADS TO THE MONITORING WELLS

**Photo 4**



COMPLETED TIE-IN OF THE TYPE I DITCH AND GLADE CREEK

**Photo 5**



INSTALLING AN ACCESS ROAD TO THE WELLS BY THE WEST WETLAND

**Photo 6**



RESTORING THE SIDE BANKS OF GLADE CREEK WHERE THE BRIDGE USED TO BE LOCATED

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**GLADE CREEK CHANNEL RELOCATION BY-PASS**

- \* COMPLETED REMOVAL OF THE WOODEN MAT BRIDGE
- \* COMPLETED THE EXCAVATION AND BACKFILL OF THE RELOCATION BY-PASS OF GLADE CREEK

**GLADE CREEK CHANNEL RELOCATION**

- \* CONTINUING TO CONSTRUCT NEW ACCESS ROADS TO NEW MONITORING WELLS

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Les Halliday  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**66**

Work Performed Dates:  
**July 31 - August 6, 2006**

**Text**

**Photo 1**



PLACING CA-6 STONE OVER THE NEW EAST-WEST CULVERT ALONG THE ENTRANCE ROAD

**Photo 2**



EXCAVATING FOR THE 2 - 6 INCH DRAIN PIPES

**Photo 3**



DISASSEMBLY OF MOD-U-TANK

**Photo 4**



LOADING OUT CUT UP PIECES OF MOD-U-TANK LINER

**Photo 5**



PLACING AND FLATTENING OUT CUT UP PIECES OF MOD-U-TANK LINER ON TOP OF THE CAMU

**Photo 6**



LABORERS STACKING MOD-U-TANK HARDWARE ONTO PALLETS FOR DEMOB

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**FORMER PROCESS AREA SURFACE COVER**

- \* COMPLETED INSTALLATION OF NEW EAST-WEST CULVERT IN LOW AREA ALONG NORTH EDGE OF FORMER PROCESS AREA SURFACE COVER

**MOD-U-TANK**

- \* CONTINUING DISASSEMBLY OF MOD-U-TANK
- \* CONTINUING STABILIZATION OF FREE LIQUIDS AND TANK LINER AND PLACING ON CAMU

**MISCELLANEOUS**

- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

Photos

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**Distribution:**

Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Les Halliday  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.

# 67

Work Performed Dates:

**August 7 - 13, 2006**

Text

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**CAMU**

- \* COMPLETED GRADING THE MOD-U-TANK STABILIZED MATERIAL AND PLACING OF LINER ON THE CAMU
- \* COMMENCED GRADING OF CONSOLIDATED MATERIAL LAYER TO THE PRE GENERAL FILL SEPARATION LAYER ON CAMU

**MOD-U-TANK**

- \* COMPLETED DISASSEMBLY OF MOD-U-TANK
- \* COMPLETED STABILIZATION OF MOD-U-TANK MATERIAL AND LINER AND PLACING ON CAMU
- \* COMPLETED GRADING OF THE MOD-U-TANK AREA

**MISCELLANEOUS**

- \* CONTINUING TO BUILD ACCESS ROADS TO MONITORING WELLS
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

Photo 1



LOADING STABILIZED MATERIAL FROM MOD-U-TANK FOR TRANSPORT TO CAMU

Photo 2



BANDING OF MOD-U-TANK COMPONENTS

Photo 3



SURVEYOR'S LAYING OUT LIMITS OF STABILIZED MATERIAL ON CAMU

Photo 4



GRADING MOD-U-TANK AREA WITH DOZER

Photo 5



ADDING BORROW SOIL TO BUILD GRADE ON THE CAMU

Photo 6



RECEIVING PEA GRAVEL

**Photos** **Text**

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**Distribution:**  
Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Les Halliday  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**68**

Work Performed Dates:  
**August 14 - 20, 2006**

**Text**

**Photo 1**



**IMPROVING ACCESS ROADS TO THE MONITORING WELLS**

**Photo 2**



**SURVEYING CAMU**

**Photo 3**



**PLACING GENERAL FILL ALONG THE OUTSIDE OF THE CAMU**

**Photo 4**



**PLACING GENERAL FILL ON THE CAMU**

**Photo 5**



**GRADING THE CAMU**

**Photo 6**



**WASHING EQUIPMENT FOR DEMOB**

General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**CAMU**

- \* CONTINUING TO HAUL, PLACE AND GRADE GENERAL FILL ON CAMU TO ACHIEVE ELEVATION SPECIFICATIONS FOR BUFFER LAYER

**MISCELLANEOUS**

- \* CONTINUING TO CLEAR AND GRADE EXISTING ACCESS ROADS TO MONITORING WELLS
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

**Photos** **Text**

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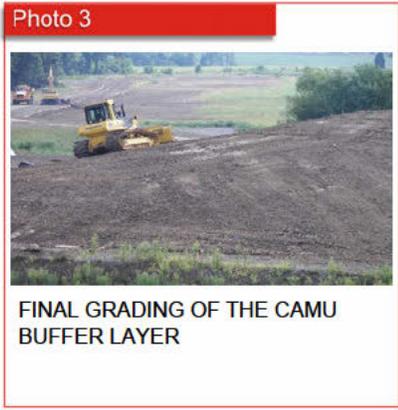


**Distribution:**  
 Mike Slenska  
 Mark Gravelding  
 Mason Wheeler  
 Les Halliday  
 Ben Huggins  
 Carolyn Bury

**Weekly Project Summary No.**  
**69**

**Work Performed Dates:**  
**August 21 - 27, 2006**

**Text**



General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**CAMU**

- \* COMPLETED LAYING OUT TOE OF SLOPE AND ANCHOR TRENCH FOR THE CAMU
- \* COMPLETED SURVEY OF THE CAMU BUFFER LAYER
- \* COMPLETED ROLLING CAMU BUFFER LAYER

**MISCELLANEOUS**

- \* CONTINUING TO PLACE RIP RAP ALONG NORTH SIDE OF PROPERTY TO BLOCK ENTRANCES
- \* CONTINUING TO INSTALL NEW ACCESS ROADS TO MONITORING WELLS
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

Photos Text

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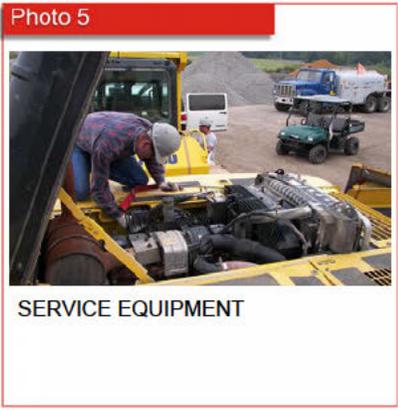
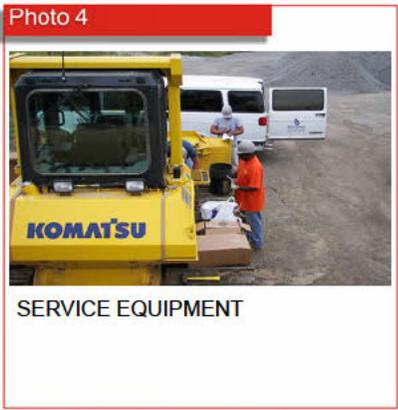
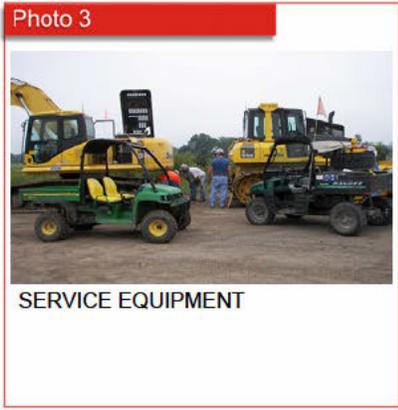


**Distribution:**  
Mike Slenska  
Mark Graveling  
Mason Wheeler  
Les Halliday  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**70**

Work Performed Dates:  
**August 28 - Sept 3, 2006**

Text



General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**MISCELLANEOUS**

- \* NO WORK FOR 3 DAYS DUE TO RAIN AND WET GROUND CONDITIONS
- \* POSTPONED SEEDING OF RELOCATION OF GLADE CREEK AND THE FORMER PROCESS AREA SURFACE COVER UNTIL NEXT WEEK
- \* COMPLETED SERVICE ON DOZER AND EXCAVATOR
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO DAILY WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED

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**Photos** **Text**

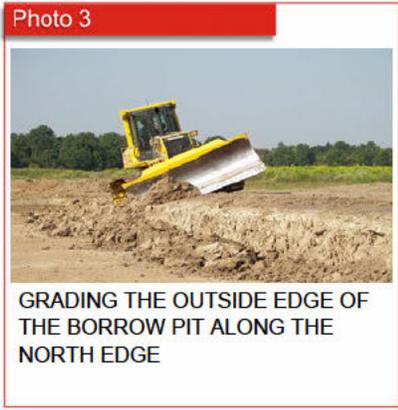


**Distribution:**  
Mike Slenska  
Mark Gravelding  
Mason Wheeler  
Les Halliday  
Ben Huggins  
Carolyn Bury

Weekly Project Summary No.  
**71**

Work Performed Dates:  
**September 4 - 10, 2006**

**Text**



General Comments:

**THIS WEEKS SUMMARY OF WORK ACTIVITIES INCLUDE:**

**CAMU**

- \* COMMENCED INSTALLING SILT FENCE ALONG THE CAP

**MISCELLANEOUS**

- \* COMMENCED SURVEYING OF THE ON SITE ACCESS ROADS
- \* COMMENCED HYDRO SEEDING OF RELOCATION OF GLADE CREEK AND THE FORMER PROCESS AREA SURFACE COVER SOUTH OF THE CAMU
- \* CONTINUING TO CLEAN EQUIPMENT FOR DEMOB
- \* CONTINUING TO EXAMINE AND MAINTAIN EROSION AND SEDIMENTATION CONTROLS
- \* CONTINUING TO DO PERIODIC WORK SITE AIR MONITORING TO INSURE NO ACTION LEVELS ARE EXCEEDED





Report No.

Project No.

Work Dates:

01

E-991

9/16/08 - 9/20/08



Weekly Progress Report

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1 STRIPPING TOP SOIL FROM BORROW AREA



2 BEGINNING CONSTRUCTION OF LINED HOLDING AREA.



3 HDPE LINER INSTALLED IN CONSTRUCTED LINED HOLDING AREA.



4 OFF LOADING HDPE DRAIN PIPE ON SITE.

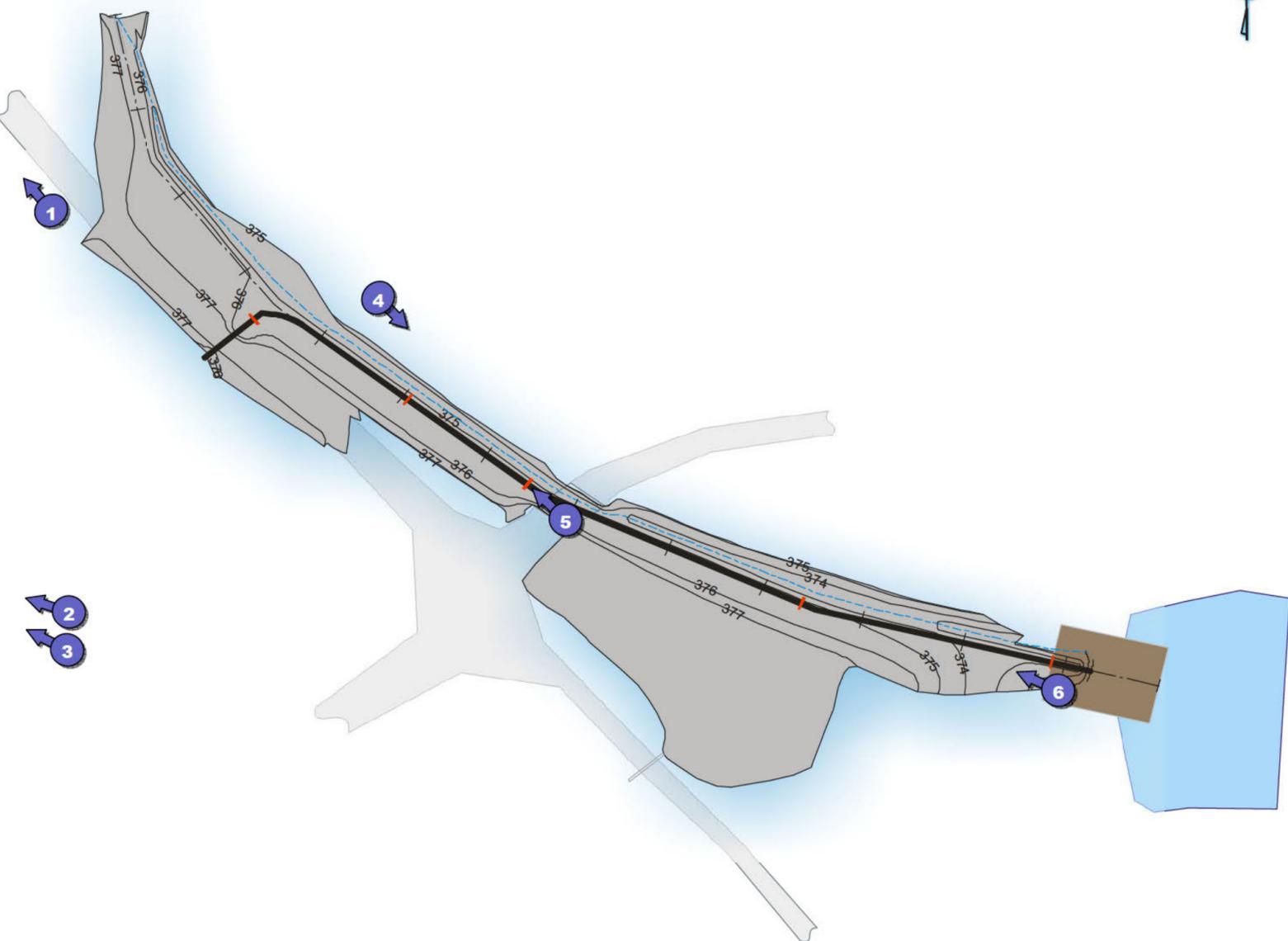


5 REMOVING NON IMPACTED RIP RAP FROM DRAINAGE DITCH AREA.



6 DRAINAGE DITCH AFTER NON IMPACTED RIP RAP REMOVED FROM SLOPE AREAS.

PLAN VIEW



GENERAL COMMENTS

THIS WEEK'S SUMMARY OF WORK ACTIVITIES:

- COMMENCED AND COMPLETED SUBCONTRACTOR MOBILIZATION.
- COMMENCED AND COMPLETED INSTALLATION OF EROSION CONTROL AND CONSTRUCTION FENCING.
- COMMENCED AND COMPLETED CLEARING AND GRUBBING OF DRAINAGE DITCH AREA.
- COMMENCED AND COMPLETED CONSTRUCTION OF LINED HOLDING AREA.
- COMMENCED AND CONTINUING REMOVAL OF NON-IMPACTED RIP RAP MATERIAL FROM DRAINAGE DITCH AREA.
- RECEIVED HDPE DRAINAGE PIPE ON SITE.



Report No.

Project No.

Work Dates:

02

E-991

9/22/08 - 9/27/08



Weekly Progress Report

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1 REMOVING EXISTING 36 INCH CONCRETE PIPE FROM ROAD CROSSING AREA.



2 FUSING HDPE DRAINAGE PIPE PRIOR TO INSTALLATION



3 INSTALLED HDPE PIPE IN ROAD CROSSING AREA AND INTO ORIGINAL DRAINAGE DITCH.



4 BACKFILLING HDPE DRAINAGE PIPE WITH GRAVEL.

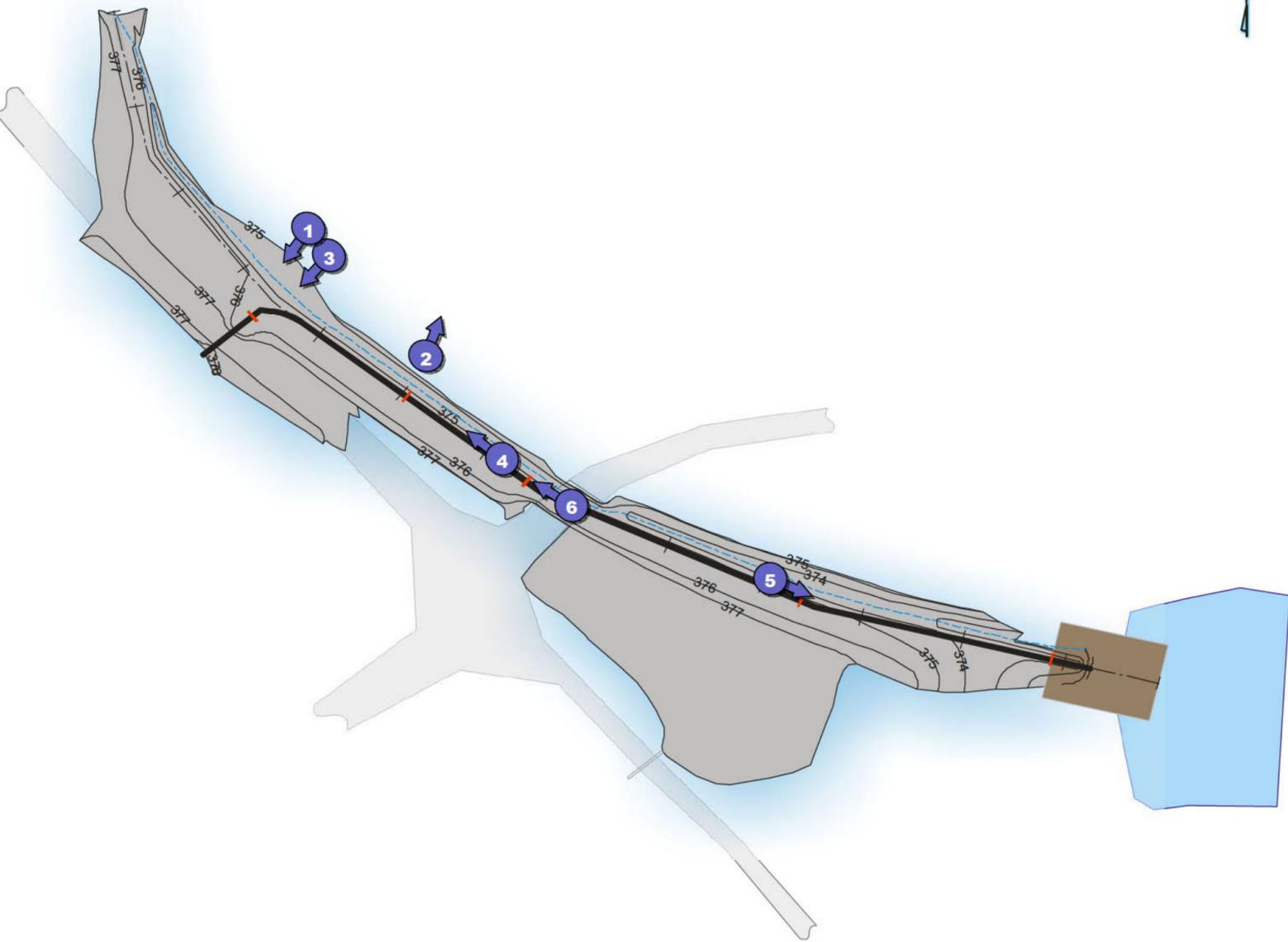


5 EXCAVATING EXISTING DRAINAGE DITCH TO SUB GRADE.



6 CONCRETE BACKFILL AROUND ANTI-SEEP COLLARS

PLAN VIEW



GENERAL COMMENTS

THIS WEEK'S SUMMARY OF WORK ACTIVITIES:

- COMPLETED REMOVAL OF NON-IMPACTED MATERIAL FROM DRAINAGE DITCH AREA
- COMMENCED AND COMPLETED REMOVAL OF IMPACTED MATERIALS FROM DRAINAGE DITCH AREA TO LINED HOLDING AREA.
- COMMENCED AND COMPLETED FUSING OF HDPE DRAIN PIPE.
- COMMENCED AND COMPLETED HDPE PIPE INSTALLATION.
- COMMENCED AND COMPLETED BACKFILLING OF HDPE PIPE.
- COMMENCED AND COMPLETED ANTI-SEEP COLLAR BACKFILL INSTALLATION.
- COMMENCED CONSTRUCTION OF DRAINAGE SWALE.



Report No.

Project No.

Work Dates:

03

E-991

9/29/08 - 10/04/08



Weekly Progress Report

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1 BACKFILLING OF HDPE DRAIN PIPE COMPLETE.



2 CONSTRUCTION OF OUTFALL RIP RAP APRON.



3 FINISH GRADING OF UPPER SWALE AREA.



4 INSTALLATION OF EROSION CONTROL BLANKET IN LOWER SWALE AREA.

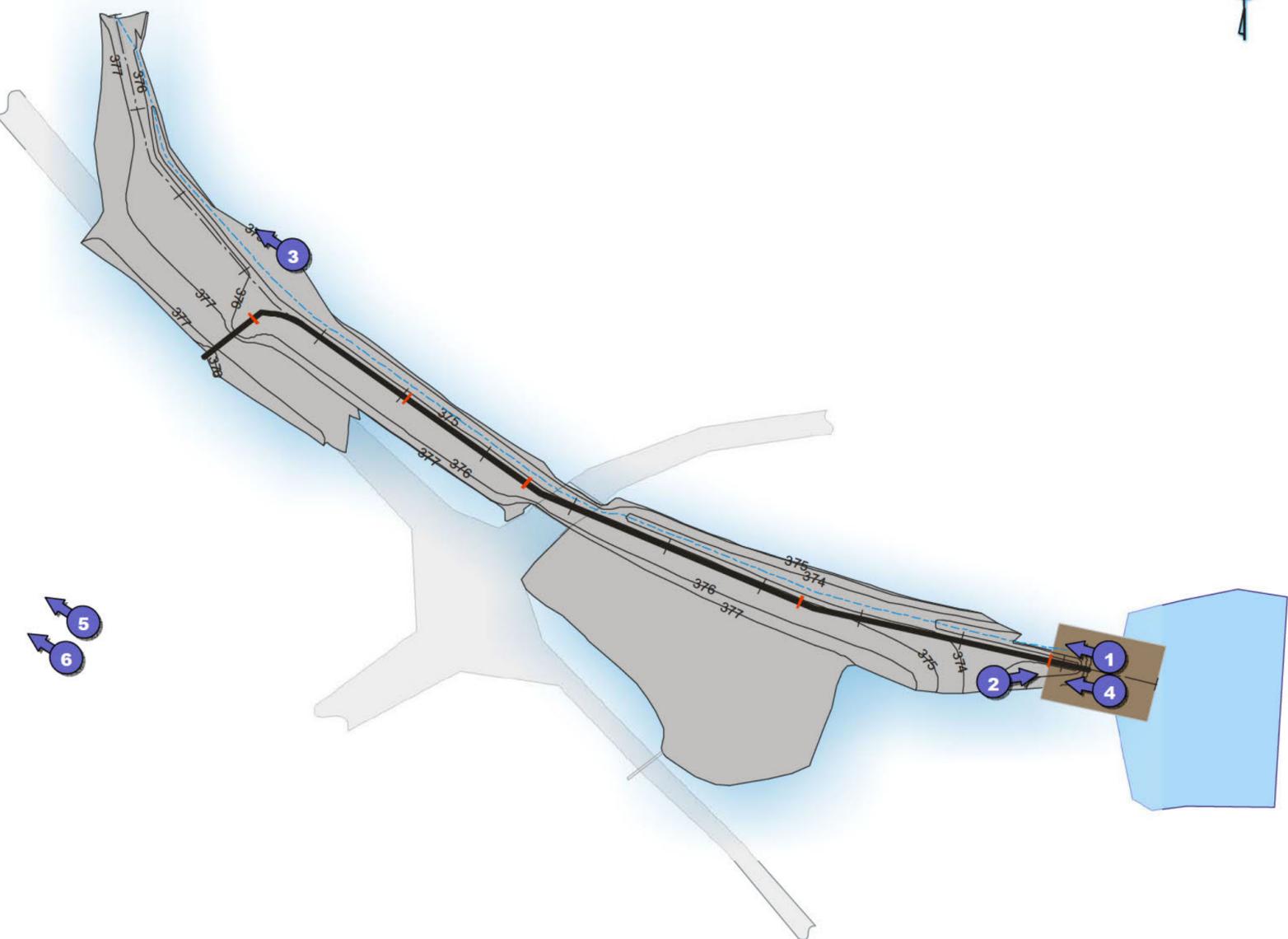


5 GRADING OF MATERIAL IN LINED HOLDING AREA PRIOR TO HDPE COVER LINER INSTALLATION.



6 GRADING OF CAP MATERIAL IN LINED HOLDING AREA.

PLAN VIEW



GENERAL COMMENTS

THIS WEEK'S SUMMARY OF WORK ACTIVITIES:

- COMPLETED HDPE DRAINAGE PIPE BACKFILL OPERATIONS.
- COMMENCED AND COMPLETED CONSTRUCTION OF HDPE PIPE INLET AND OUTLET RIP RAP APRONS
- COMMENCED AND COMPLETED CONSTRUCTION AND GRADING OF DRAINAGE SWALE.
- COMMENCED AND COMPLETED INSTALLATION OF WATER BAR AND OLD BRIDGE AREA SWALE CROSSINGS.
- COMMENCED AND COMPLETED RESIZING OF LINED HOLDING AREA.
- COMMENCED AND COMPLETED INSTALLATION OF HDPE COVER LINER ON LINED HOLDING AREA.
- COMMENCED AND COMPLETED PLACEMENT AND GRADING OF LINE HOLDING AREA CAP MATERIAL.
- COMMENCED AND COMPLETED INSTALLATION OF EROSION CONTROL BLANKET IN DRAINAGE SWALE AREA.
- COMMENCED AND COMPLETED SEEDING AND MULCHING OPERATIONS IN DRAINAGE DITCH WORK AREAS.
- COMMENCED GRADING AND EROSION REPAIR ACTIVITIES AROUND SITE.



Report No.

Project No.

Work Dates:

04

E-991

10/6/08 - 10/10/08



Weekly Progress Report

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1 COMPLETED LOWER DRAINAGE DITCH AREA.



2 COMPLETED DRAINAGE SWALE AREA.



3 FINISH GRADING BORROW AREA.



4 EAST SIDE DITCH EROSION REPAIR OPERATIONS.

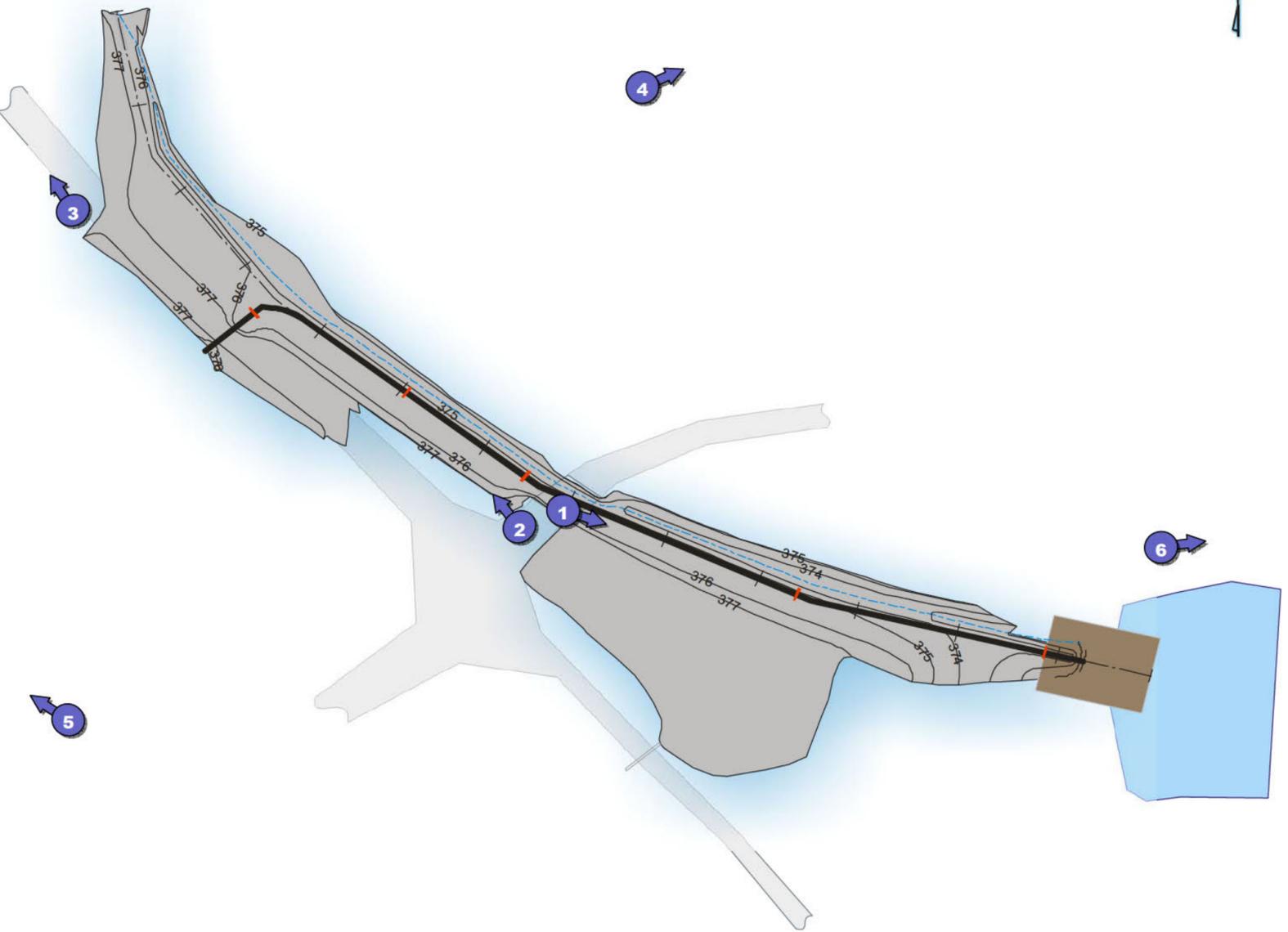


5 LINED HOLDING AREA CAP MULCHING OPERATIONS.



6 COMPLETED REPAIRS TO OUTFALL #5 AREA

PLAN VIEW



GENERAL COMMENTS

THIS WEEK'S SUMMARY OF WORK ACTIVITIES:

- COMPLETED ALL GRADING AND EROSION REPAIR ACTIVITIES AROUND SITE.
- COMMENCED AND COMPLETED REPAIRS TO OUTFALL AREAS #2, #3 AND #5.
- COMMENCED AND COMPLETED INSTALLATION OF EROSION CONTROL BLANKET IN EROSION REPAIR AREAS.
- COMMENCED AND COMPLETED SEEDING AND MULCHING OPERATIONS IN ALL WORK AREAS.
- COMMENCED DEMOBILIZATION OPERATIONS.





Report No.

Project No.

Work Dates:

01

E-1047

8-23-10 to 8-28-10

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1 CLEARING THE FORMER LAGOON AREA.



2 TEST HOLE ON TOP OF THE CAMU.



3 PLACING TREES IN THE LAYDOWN AREA.



4 CAMU SURVEYED FOR EXCAVATION TO WASTE ELEVATION.

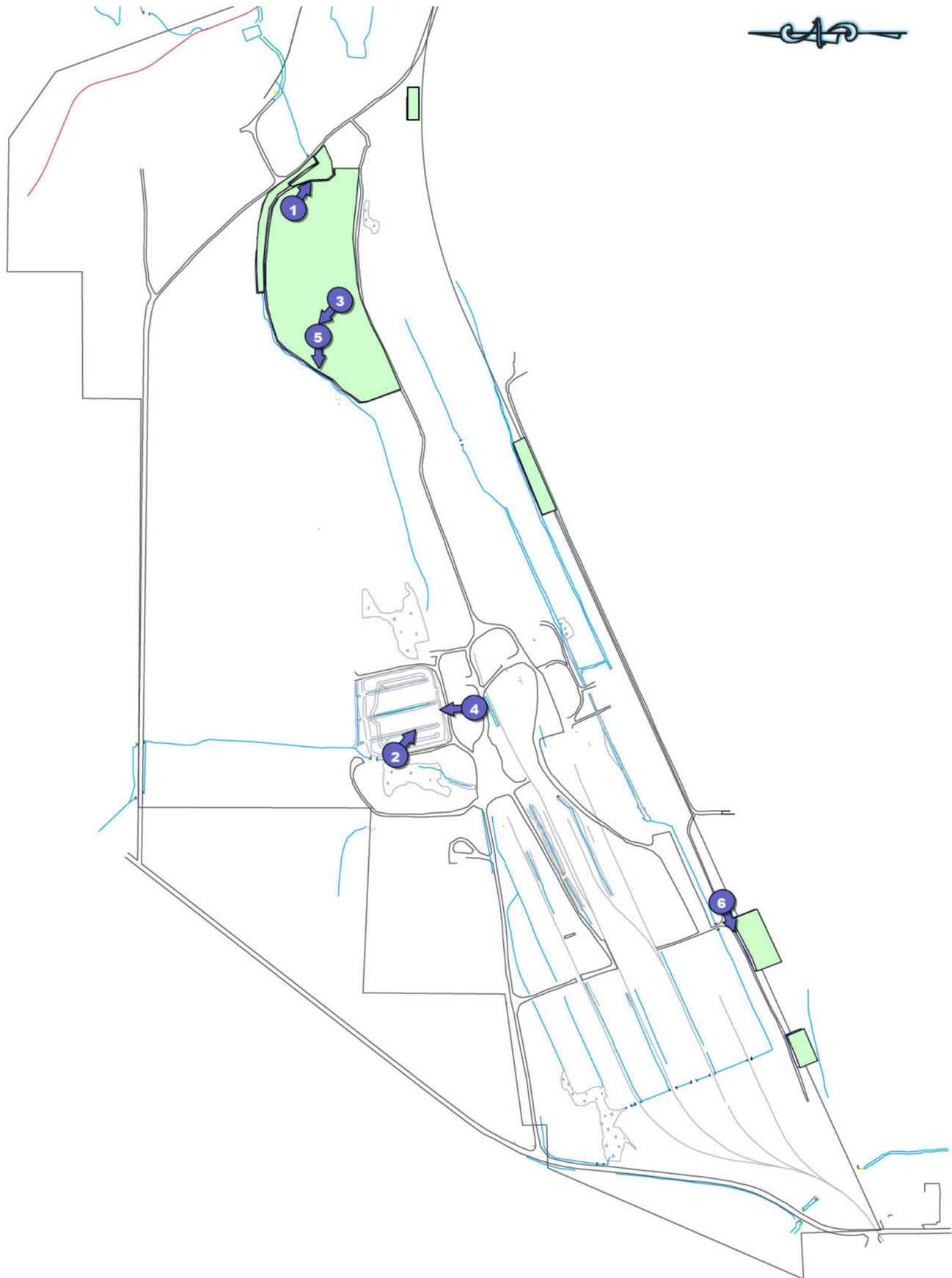


5 CUTTING TREE STUMPS CLOSER TO THE SURFACE.



6 REMOVING OLD PLASTIC FENCE ALONG THE SOUTH SIDE OF THE PROPERTY.

### PLAN VIEW



### GENERAL COMMENTS

- COMMENCED AND CONTINUED CONTRACTOR CLEARING.



Report No.

Project No.

Work Dates:

02

E-1047

8-30-10 to 9-02-10



Weekly

Progress Report

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1 CLEARING OF AREA 2 COMPLETED.



2 DUST CONTROL.



3 REMOVAL OF GENERAL FILL ON CAMU TOP.



4 CLEARING VEGETATION FROM DISCHARGE CHANNEL.

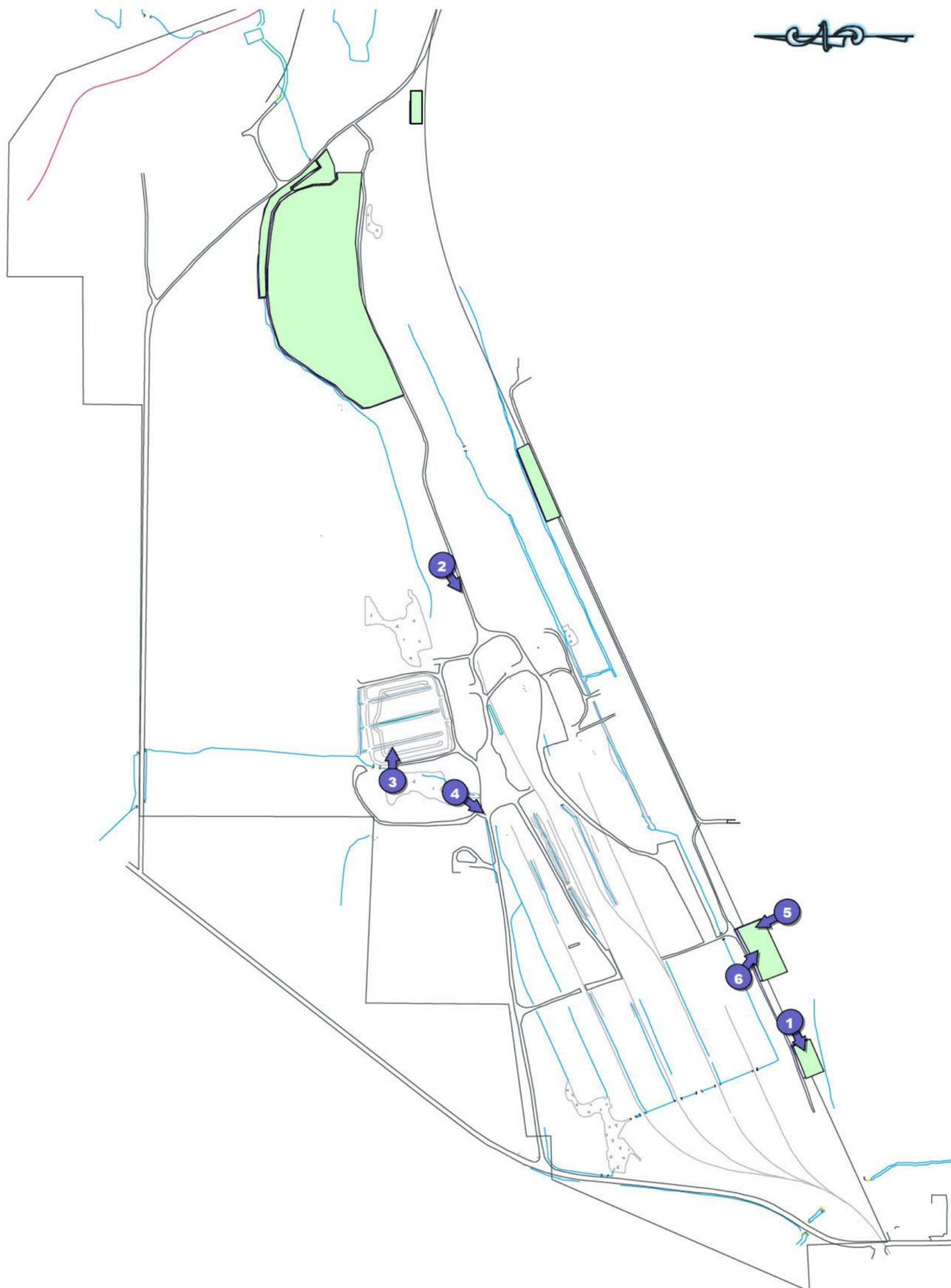


5 CLEARING IN AREA 5.



6 LOADING MATERIAL FROM CLEARING AREA 5.

## PLAN VIEW



## GENERAL COMMENTS

- CONTINUED TO WATER HAUL ROADS FOR DUST CONTROL.
- COMPLETED CLEARING AREA 2.
- COMMENCED AND CONTINUED CLEARING AREA 4
- COMMENCED AND CONTINUED CLEARING AREA 5 AND STAGE BRUSH & TREES IN THE LAYDOWN AREA.
- COMMENCED AND CONTINUED REMOVAL OF GENERAL FILL ON CAMU.



Report No.

Project No.

Work Dates:

03

E-1047

9-08-10 to 9-10-10



Weekly

Progress Report

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1 REMOVING CLEAN COVER SOIL FROM TEMPORARY SOIL STOCKPILE FROM 2008 DITCH CULVERTING PROJECT.



2 LOADING CLEAN FILL TO LEVEL AREAS IN THE 8 ACRE CAP.



3 SURVEYING LINER ELEVATIONS ON CAMU.



4 PREPARING TO EXCAVATE THE FAR EAST END OF THE NORTH DITCH.

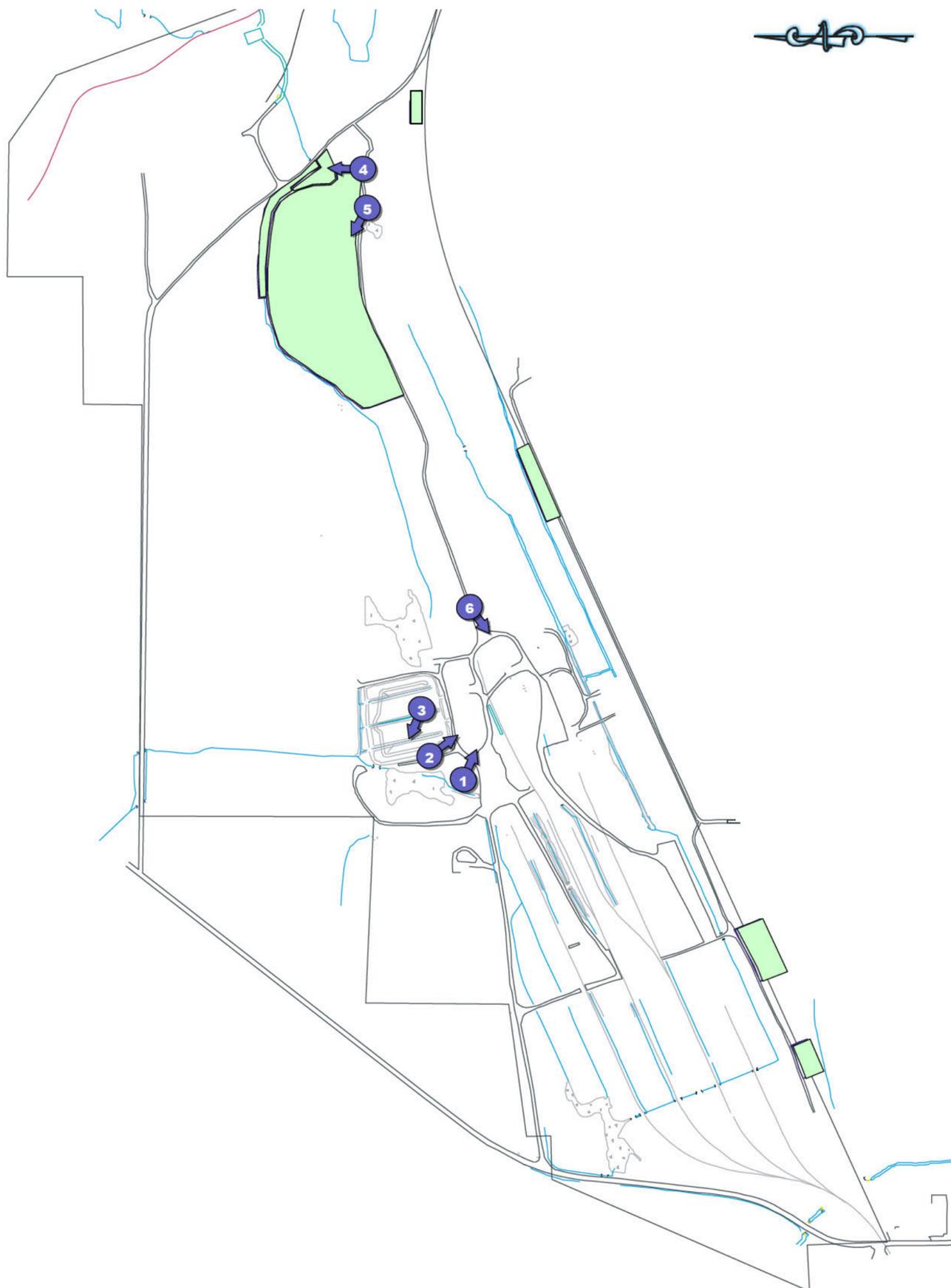


5 LEVELING 8 ACRE CAP AREA, EAST END.



6 EQUIPMENT MAINTENANCE.

## PLAN VIEW



## GENERAL COMMENTS

- CONTINUING TO HAVE HEALTH & SAFETY MEETINGS BEFORE START OF WORK.
- CONTINUING SERVICE OF EQUIPMENT.
- COMPLETED SURVEY AND LAYOUT OF LINER ELEVATIONS OF CAMU.
- COMMENCED LEVELING OF 8 ACRE CAP AREA.
- COMMENCED EXCAVATING AND BACKFILLING THE EAST END OF THE NORTH DITCH.
- COMMENCED AND CONTINUING TO REMOVE GENERAL FILL ON THE SMALL IMPACTED SOIL PILE ON THE SOUTH SIDE OF THE CAMU.



Report No.  
**04**

Project No.  
**E-1047**

Work Dates:  
**9-13-10 to 9-18-10**

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1 BEGINNING REMOVAL OF 2008 DITCH SOIL STOCKPILE SOUTH OF THE CAMU.



2 REMOVAL OF SOIL FROM THE NORTH DITCH.



3 PLACING LINER, FROM 2008 DITCH SOIL STOCKPILE, ON TOP OF CAMU.



4 PLACING LINER, FROM 2008 DITCH SOIL STOCKPILE, ON TOP OF CAMU.

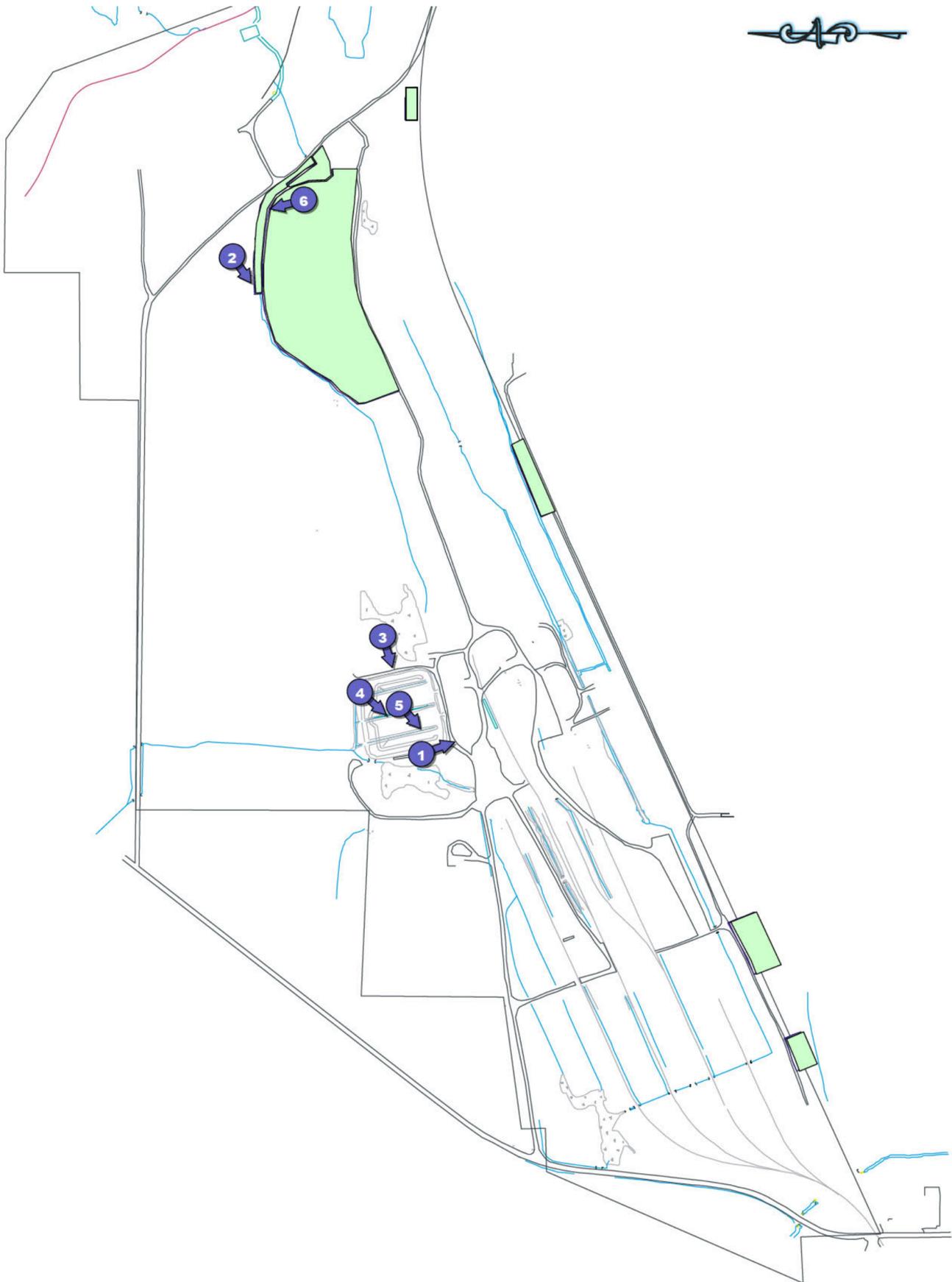


5 PLACING AND COMPACTING LIFTS OF IMPACTED SOILS ON THE CAMU.



6 INSTALLING GEOTEXTILE FABRIC IN EXCAVATED PORTION OF THE NORTH DITCH.

## PLAN VIEW



## GENERAL COMMENTS

- CONTINUING TO HAVE HEALTH & SAFETY MEETINGS BEFORE START OF WORK.
- CONTINUING TO WATER HAUL ROADS FOR DUST CONTROL.
- COMMENCED AND COMPLETED REMOVAL OF THE 2008 DITCH SOIL STOCKPILE SOUTH OF THE CAMU, AND PLACEMENT OF SOIL AND LINER MATERIALS ON THE CAMU.
- CONTINUING TO PLACE, GRADE AND COMPACT SOIL ON THE CAMU.
- COMPLETED STAGING OF THE REMAINDER OF THE CLEARED BRUSH PILES.
- CONTINUING TO EXCAVATING THE NORTH DITCH.
- COMPLETED EXCAVATION OF THE AREA SOUTH OF THE NORTH DITCH.
- COMMENCED AND COMPLETED EXCAVATING OF AREA 3.



Report No.

Project No.

Work Dates:

05

E-1047

9-20-10 to 9-25-10



Weekly

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1 GRADING BACKFILL IN THE NORTH DITCH.



2 GRADING AND COMPACTING THE CAMU.



3 EXCAVATION OF AREA 5.



4 LOADING STOCKPILED MATERIAL FOR BACKFILL.

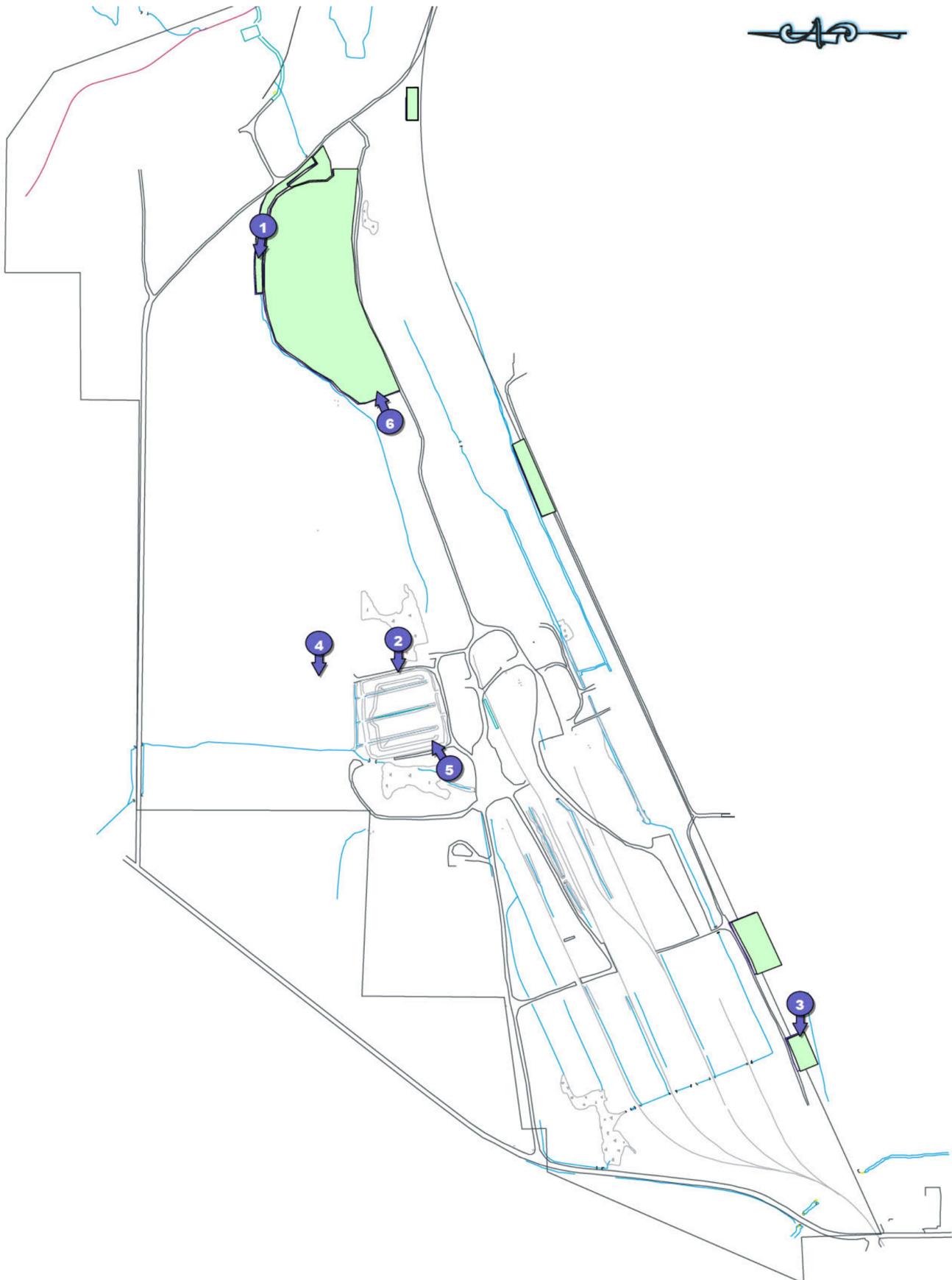


5 COMPACTING CLEAN COVER OVER CAMU AREA.



6 BEGIN FABRIC INSTALLATION AND 1 FT. COVER OVER 8 ACRE SURFACE COVER AREA.

## PLAN VIEW



## GENERAL COMMENTS

- CONTINUING TO HAVE HEALTH & SAFETY MEETINGS BEFORE START OF WORK.
- CONTINUING TO WATER HAUL ROADS FOR DUST CONTROL.
- COMMENCED BACKFILL OF RIP RAP ON STEEP SLOPES OF THE NORTH DITCH.
- COMPLETED BACKFILL OF THE NORTH DITCH, AREA SOUTH OF THE EAST END OF THE NORTH DITCH AND AREA 3.
- CONTINUED AND COMPLETED GRADING AND COMPACTION OF WASTE MATERIAL IN CAMU.
- COMMENCED AND COMPLETED EXCAVATION, BACKFILL AND COMPACTION OF AREAS 2, 4 & 5.
- COMMENCED AND COMPLETED PLACEMENT OF 6 IN. CLEAN COVER OVER CAMU WASTE MATERIAL.
- COMMENCED FABRIC INSTALLATION AND PLACEMENT OF 1 FT. COVER OVER 8 ACRE SURFACE COVER AREA.

**CAMU Closure at Carbondale, Illinois**



Report No. **06**

Project No. **E-1047**

Work Dates: **9-27-10 to 10-02-10**

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**1** GRADING THE WESTERN BERM OF CAMU.



**2** LOADING CLEAN FILL FROM THE BORROW PIT.



**3** GRADING AND COMPACTING THE SOUTH SLOPE OF THE CAMU.



**4** GEOTEXTILE BEING DEPLOYED OVER THE 8 ACRE SURFACE COVER AREA.

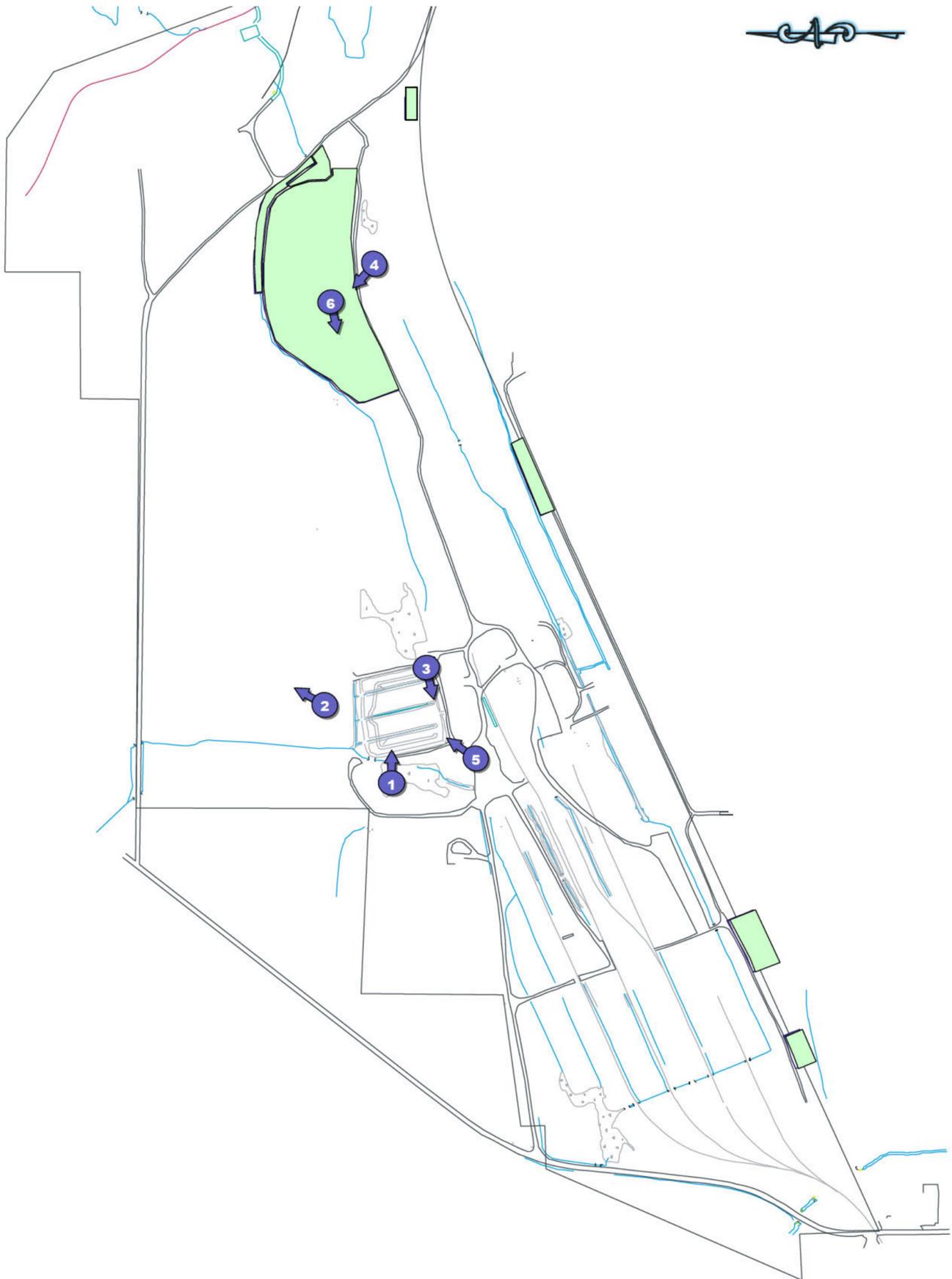


**5** GRADING AND COMPACTING THE CAMU.



**6** PLACING FILL ON THE GEOTEXTILE IN THE 8 ACRE SURFACE COVER AREA.

**PLAN VIEW**



**GENERAL COMMENTS**

- CONTINUING TO HAVE HEALTH & SAFETY MEETINGS BEFORE START OF WORK.
- CONTINUING TO WATER HAUL ROADS FOR DUST CONTROL.
- CONTINUED EXCAVATION OF BORROW MATERIAL.
- CONTINUED INSTALL GEOTEXTILE AND GENERAL FILL OVER 8 ACRE SURFACE COVER AREA.
- COMPLETED GRADING AND COMPACTION OF THE 6 INCH CLEAN SOIL LAYER OVER THE CAMU.

# CAMU Closure at Carbondale, Illinois



Report No. **07**

Project No. **E-1047**

Work Dates: **10-04-10 to 10-10-10**

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1 LOADING CLEAN FILL FROM THE BORROW PIT.



2 SURVEYING CAMU BEFORE G.C.L. PLACEMENT.



3 DEPLOYING G.C.L. ON CAMU.



4 EXCAVATING ANCHOR TRENCH.

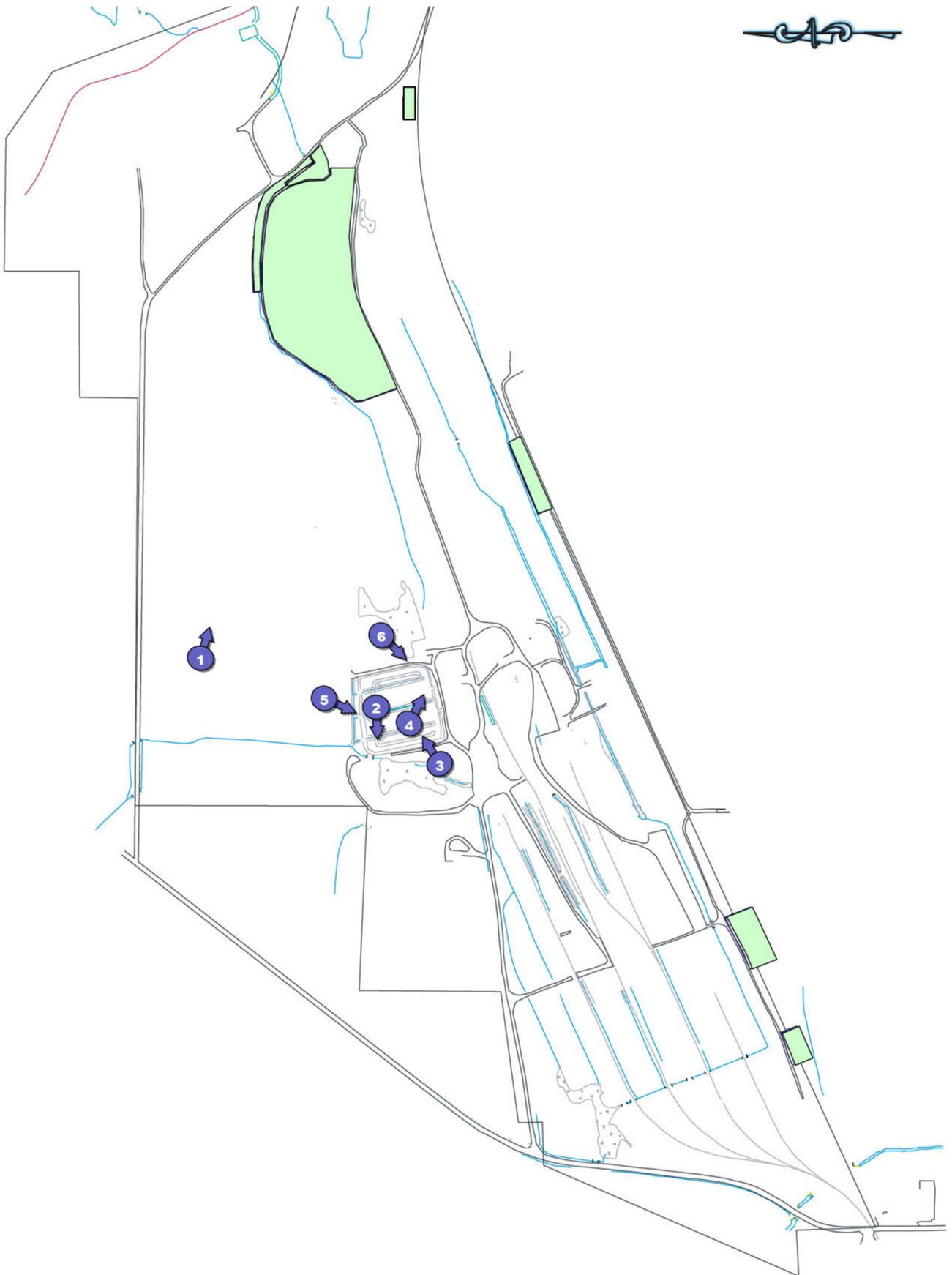


5 INSTALLING G.C.L. ON THE NORTH SIDE OF THE CAMU.



6 STONE PLACED OVER DRAIN PIPE IN ANCHOR TRENCH.

## PLAN VIEW



## GENERAL COMMENTS

- CONTINUING TO HAVE HEALTH & SAFETY MEETINGS BEFORE START OF WORK.
- CONTINUING TO WATER HAUL ROADS FOR DUST CONTROL.
- CONTINUED EXCAVATION OF BORROW MATERIAL.
- CONTINUED TO COVER THE FORMER LAGOON AREA WITH 1' OF SOIL FROM THE BORROW PIT.
- COMPLETED SURVEY OF THE CAMU BEFORE PLACEMENT OF THE LINER SYSTEM.
- COMMENCED INSTALLATION OF THE CAMU COVER LINER SYSTEM (G.C.L. AND HDPE LINER) AND ANCHOR TRENCHES.



Report No. 08

Project No. E-1047

Work Dates: 10-10-10 to 10-16-10

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1 VACUUM TEST ON A PATCH ON THE HDPE LINER.



2 INSTALLING DRAIN PIPE IN ANCHOR TRENCH.



3 INSTALLING COMPOSITE GEOTEXTILE ON THE CAMU.



4 GRADING COVER MATERIAL OVER THE CAMU.

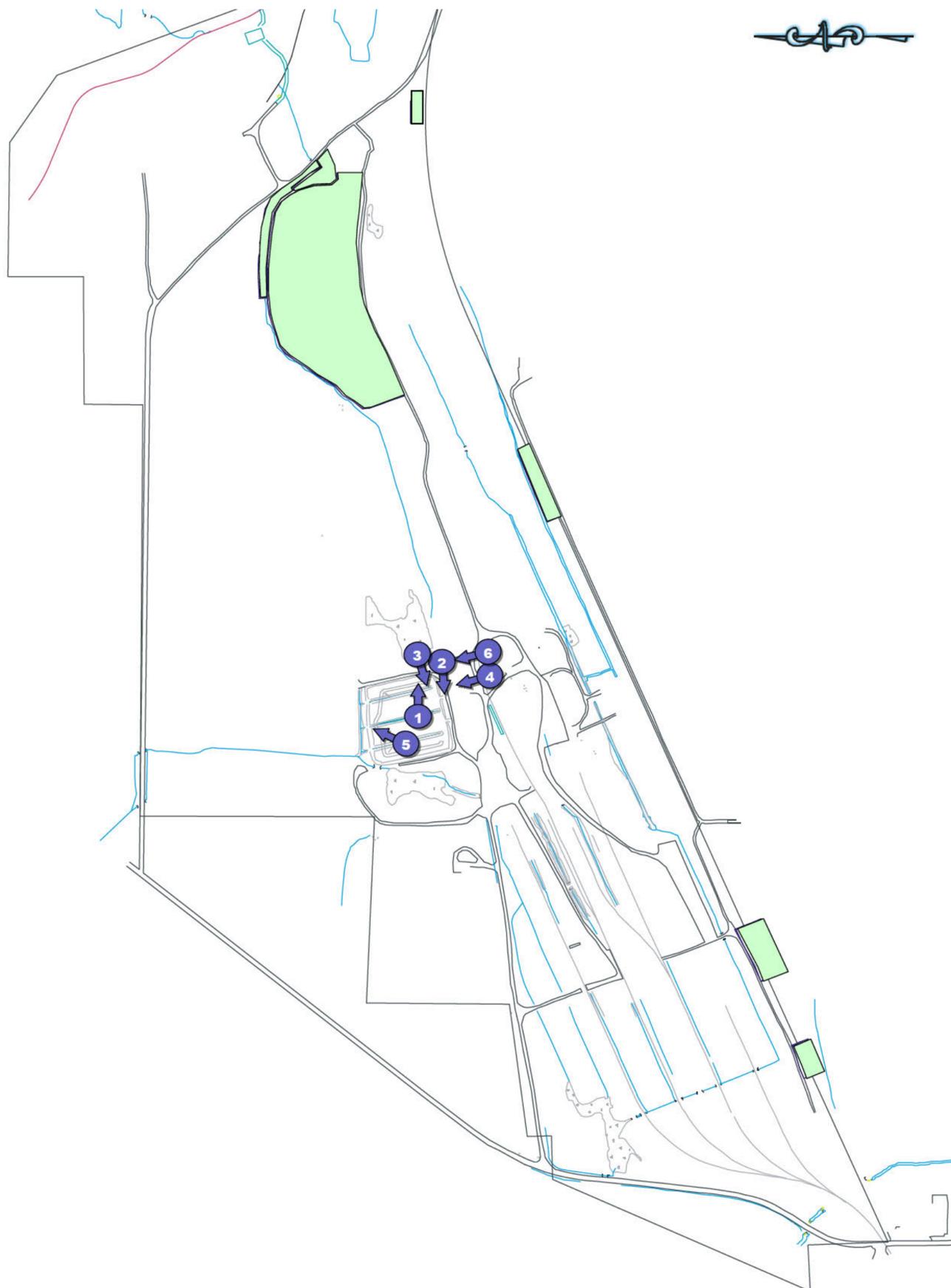


5 GRADING COVER MATERIAL ON THE NORTH SLOPE OF THE CAMU.



6 PLACING AND GRADING THE ACCESS ROAD AREA.

## PLAN VIEW



## GENERAL COMMENTS

- CONTINUING TO HAVE HEALTH & SAFETY MEETINGS BEFORE START OF WORK.
- CONTINUING TO WATER HAUL ROADS FOR DUST CONTROL.
- CONTINUED EXCAVATION OF BORROW MATERIAL.
- CONTINUED TO TEST-WELD-AND PATCH LINER ON THE CAMU.
- COMPLETED INSTALLATION OF THE CAMU COVER LINER SYSTEM GEOSYNTHETICS.
- CONTINUED TO GRADE THE 1 FOOT COVER OVER THE FORMER LAGOON AREA.
- COMPLETED INSTALLATION OF PIPING AND BACKFILL IN THE CAMU COVER LINER SYSTEM ANCHOR TRENCHES.
- COMMENCED PLACING CLEAN FILL FROM THE STOCKPILE ON THE CAMU AND GRADING.
- COMMENCED PLACING GENERAL FILL ON THE CAMU ACCESS ROAD AREA.

**CAMU Closure at Carbondale, Illinois**



Report No. **09**

Project No. **E-1047**

Work Dates: **10-18-10 to 10-23-10**

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**1** PLACING AND GRADING THE CAMU COVER MATERIAL.



**2** SURVEYING THE ACCESS ROAD ON THE CAMU.



**3** INSTALLING THE SOUTH WEST ANCHOR TRENCH DISCHARGE PIPE.



**4** PLACING WOVEN FABRIC FOR CAMU ACCESS ROAD.

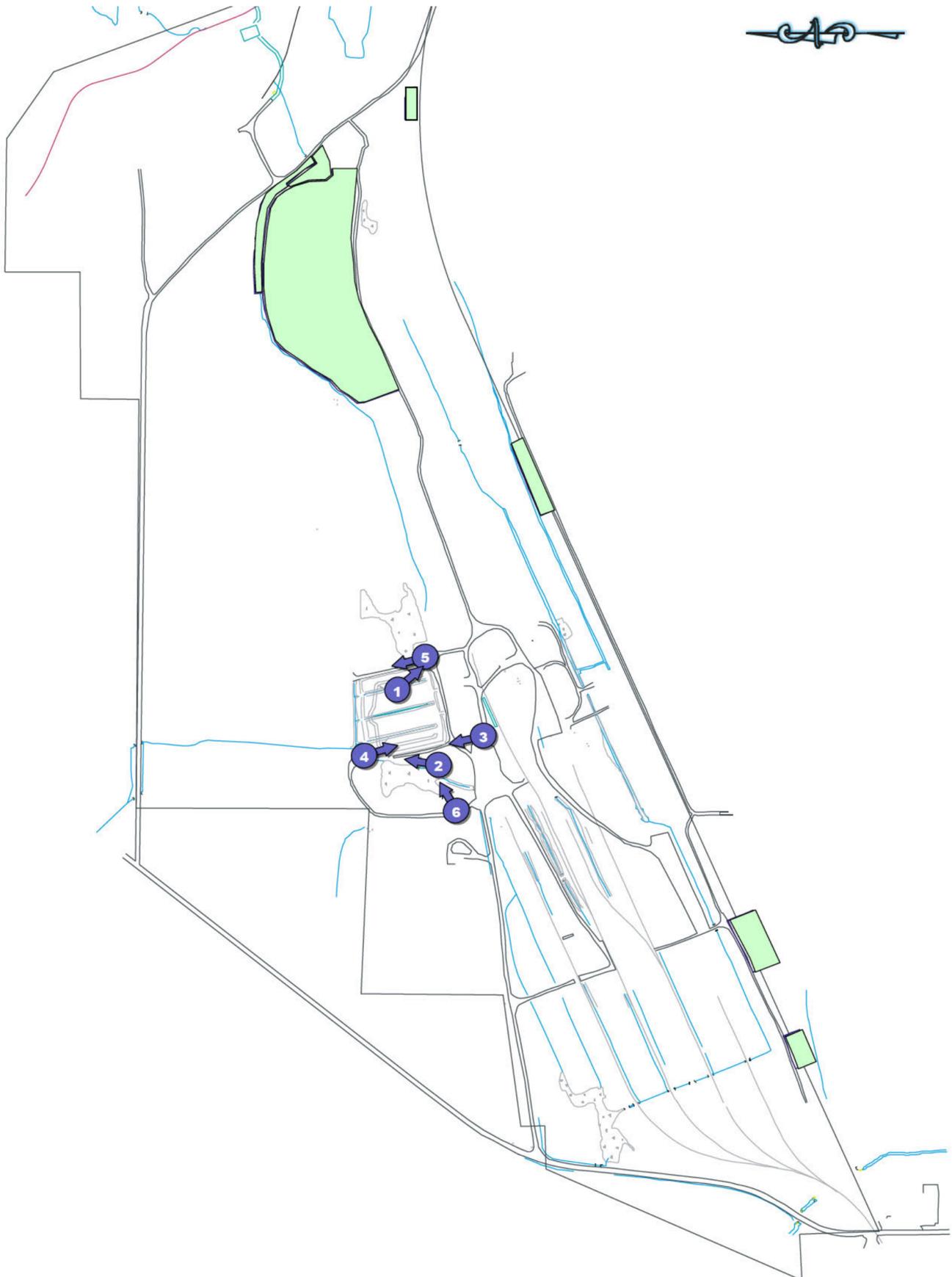


**5** SEEDING EAST SLOPE.



**6** PLACING EROSION CONTROL FABRIC ON THE WEST LOWER SLOPE OF THE CAMU.

**PLAN VIEW**



**GENERAL COMMENTS**

- CONTINUING TO HAVE HEALTH & SAFETY MEETINGS BEFORE START OF WORK.
- CONTINUED TO WATER ACCESS ROADS FOR DUST CONTROL.
- CONTINUED AND COMPLETED FINAL GRADE THE CAMU.
- CONTINUED AND COMPLETED GRADING SLOPES ON THE CAMU.
- COMMENCED AND CONTINUED GRADING CAMU ACCESS ROAD.
- COMMENCED INSTALLING THE ANCHOR TRENCH DISCHARGE PIPE ON THE SOUTH WEST CORNER OF THE CAMU.
- COMMENCED SEEDING OF THE LOWER CAMU SLOPES AND INSTALLING EROSION CONTROL BLANKETS.
- COMMENCED SEEDING THE FORMER LAGOON AREA SURFACE COVER.
- CONTINUED TO INSTALL EROSION CONTROL BLANKET ON THE CAMU WEST LOWER SLOPE.
- COMPLETED SEEDING AREAS 2, 3 & 5, NORTH DITCH AND WETLAND AREAS.



Report No.  
**10**

Project No.  
**E-1047**

Work Dates:  
**10-25-10 to 10-30-10**

**Weekly**  
Progress Report®  
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1 PLACING THE STONE OVER THE WOVEN FABRIC ON THE CAMU ACCESS ROAD.



2 PREPARING TO INSTALL THE EAST RENO MATTRESS SWALE.



3 PLACING RIP RAP ON THE WEST RIP RAP SWALE.



4 INSTALLING RENO MATTRESS.

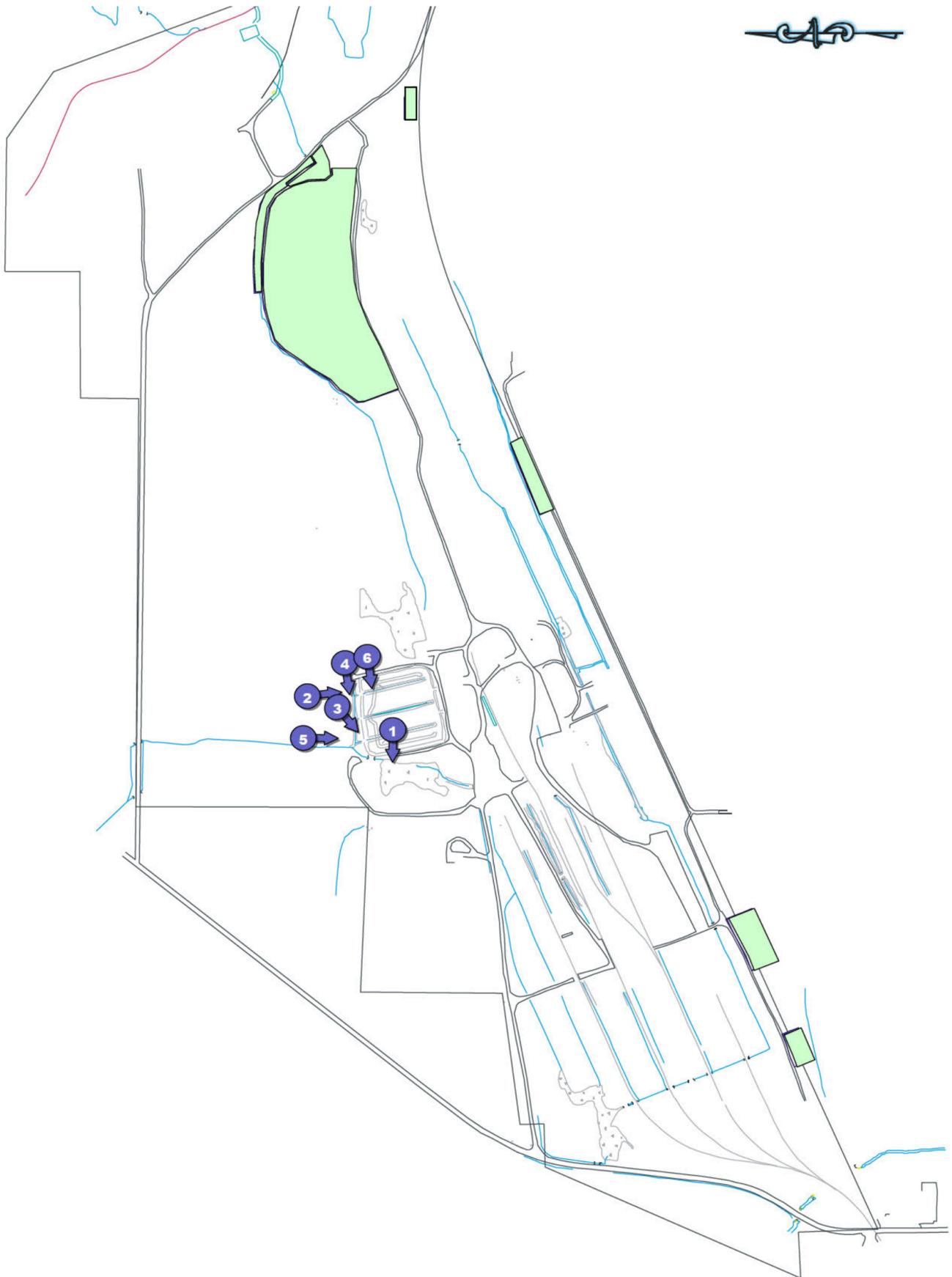


5 WEST OUTFALL STRUCTURE.



6 COMPLETED NORTH SLOPE SWALE.

## PLAN VIEW



## GENERAL COMMENTS

- CONTINUING TO HAVE HEALTH & SAFETY MEETINGS BEFORE START OF WORK.
- CONTINUED TO WATER ACCESS ROADS FOR DUST CONTROL.
- COMMENCED INSTALLING THE WEST RIP-RAP CROSSING ON THE NORTH CAMU ACCESS ROAD.
- CONTINUED TO PLACE FABRIC AND STONE FOR CAMU ACCESS ROADS.
- COMMENCED AND CONTINUED INSTALLING THE RENO MATTRESS ON THE WEST SIDE.
- CONTINUED TO INSTALL ACCESS ROAD.
- CONTINUED TO INSTALL RIP RAP FOR DRAINAGE.
- COMMENCED SURVEY THE EAST, WEST AND NORTH MID-SLOPE SWALE FOR CONSTRUCTION.
- CONTINUED TO INSTALL MID-SLOPE SWALES AND WORK ON THE CAMU ACCESS ROAD.
- COMPLETED THE NORTH AND EAST MID-SLOPE SWALES.
- COMPLETED THE ACCESS ROAD DRAINAGE SWALE.
- COMMENCED SEEDING THE REMAINDER OF THE 8 ACRES.



Report No.  
**11**

Project No.  
**E-1047**

Work Dates:  
**11-01-10 to 11-02-10**

**Weekly**  
Progress Report  
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1 SEEDING THE WEST SLOPE OF THE CAMU.



2 SEEDING COMPLETE ON THE CAMU.



3 EROSION BLANKET ON THE NORTH MID-SLOPE SWALE.



4 INSTALLING EROSION BLANKET ON THE EAST SLOPE SWALE.

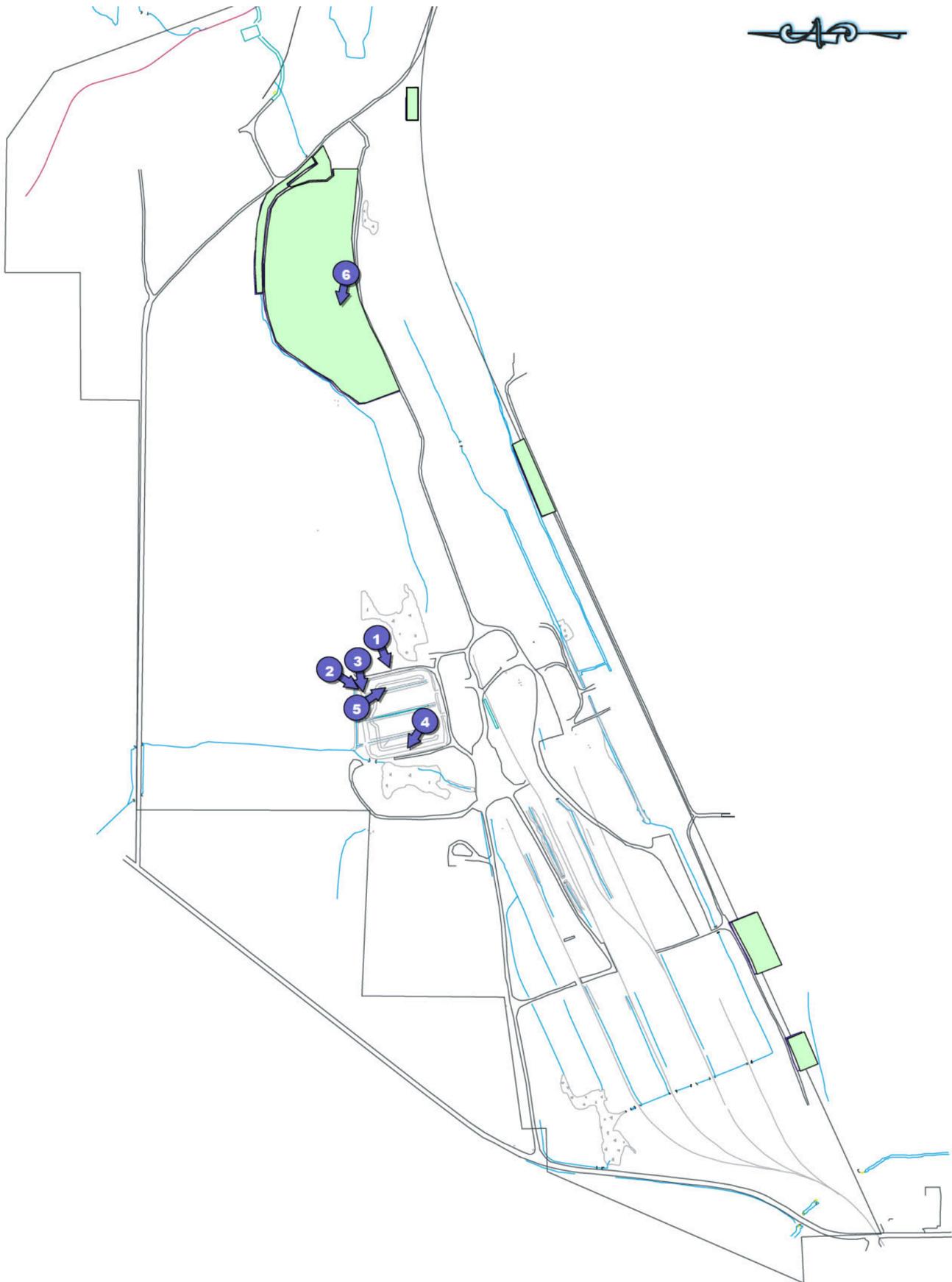


5 COMPLETING THE CAMU STONE ACCESS ROAD.



6 COMPLETING THE SEEDING IN THE FORMER LAGOON AREA.

## PLAN VIEW



## GENERAL COMMENTS

- COMMENCED AND COMPLETED INSTALLING EROSION BLANKET ON THE CAMU MID-SLOPE SWALE.
- CONTINUED AND COMPLETED SEEDING THE 8 ACRE AREA.
- COMPLETED SEEDING OF THE CAMU.
- JOB COMPLETED.



**Appendix F**

Technical Submittal Registers



**Submittals**



General Submittals

**Beazer East, Inc. - Carbondale, IL Kentucky  
CAMU Containment Cell**

**Technical Submittal Register**

Item No.	Submittal Description	Specification Reference (see Note 2.)	Date Received	Reviewed By	Interim Status/Date	Final Status/Date (see Note 1.)	Notes
<b>Geocomposite</b>							
1	Manufacturer's data for GDC including physical properties and roll size.	MP-02219, 1.04	6/30/2004, 8/9/04	JGS	S 7/2/04, S 7/22/04, R 8/9/04	R 8/9/04	Thickness of the material is not consistent/incorrect (should be 300 mil) and transmissivity and other testing must be conducted per the specification, second submittal referred the previous submittal, reviewed
2	The Origin (supplier's name and production plant) and identification (brand name and number) of geotextile and geonet used to fabricate the GDC.	MP-02219, 1.04	8/9/2004	JGS	R 8/9/04	R 8/9/04	Reviewed
3	Geocomposite sample material.	MP-02219, 1.04	7/22/2004, 8/9/04	JGS	S 7/22/04, R 8/9/04	R 8/9/04	No sample received, 250 mil and 300 mil product was received, reviewed
4	Manufacturer's quality assurance/quality control program for the GDC.	MP-02219, 1.04	7/22/2004, 8/9/04	JGS	J 7/22/04, R 8/9/05	R 8/9/04	QC manual for geomembranes was received, QC Manual for geocomposites has been reviewed
5	Written certification that the GDC MARVs given are guaranteed by the GDC Manufacturer.	MP-02219, 1.04	7/22/2004, 8/9/04	JGS	S 7/22/04, R 8/9/04	R 8/9/04	MARV certification has not been received, reviewed
6	Written certification by the Contractor that field-delivered materials meet the Manufacturer's specifications		7/22/2004 9/16/04	JGS	J 7/22/04, R 9/16/04	R 9/16/04	Submittal is inappropriate until material is delivered to the site
7	Listing of lot and roll numbers for the material to be delivered to the site.		7/22/2004, 9/8/04, 9/17/04	JGS	J 7/22/04, R 9/8/04, R 9/17/04	R 9/17/04	Not received
8	Contractor's proposed transportation, handling, and storage techniques for the GDC.	MP-02219, 1.04	7/22/2004, 8/9/04	JGS	R 7/22/04, R 8/9/04	R 8/9/04	
9	Panel layout, shop drawings, and proposed installation techniques for GDC.	MP-02219, 1.04	8/9/2004	JGS	R 8/9/04	R 8/9/04	Reviewed
10	Prior to installation, the Contractor shall provide the Installer's written verification that the GDC has not been damaged due to improper transportation, handling, or storage.	MP-02219, 1.04	7/22/2004, 9/16/04	JGS	J 7/22/04, R 9/16/04	R 9/16/04	Inappropriate until material is delivered to the site
11	Written certification from the Contractor that underlying FML is acceptable.	MP-02219, 1.04	7/22/2004, 9/16/04	JGS	J 7/22/04, R 9/16/04	R 9/16/04	Inappropriate until subgrade preparation is final
12	The Contractor shall provide as-built drawings indicating panel layouts, locations or imperfections, repairs or any other appropriate observations.	MP-02219, 3.03	10/4/2004	JGS	R 10/7/04		
13	The Contractor shall provide quality control testing results for: a. Unit weight (geotextile component) (ASTM D5261). b. Thickness (ASTM D1777). c. Geotextile-geonet ply adhesion (ASTM D413). d. Transmissivity Testing (ASTM D4716).	MP-02219, 1.04	7/19/2004, 7/22/04, 8/10/04	JGS	J 7/20/04, S 7/22/04, R 8/23/04	R 8/23/04	Transmissivity testing received 7/19/04, incorrect material was tested (200 mil tested, which is not the thickness of the final cover or liner system's GDC per GSE's memo dated 7/19/04), second submittal referred to the previous submittal, test results meet specifications
<b>Geosynthetic Clay Liner</b>							
<b>Prior to Delivery to the Site:</b>							
14	A project reference list demonstrating the GEOSYNTHETICS Contractor's experience on a minimum of 5 projects consisting of 10 million square feet of installed GCL, or as approved by Beazer East, Inc.	MP-02413, 1.05, A, 1, a	7/22/2004	JGS	R 7/22/04	R 7/22/04	
15	A list of all GCL installation crew personnel and resumes of the Supervisor and QC Manager including prior experience installing GCL. This information shall be submitted at least 30 days prior to the commencement of GCL installation. If the exact crew who will be performing the installation is not known 30 days in advance of the start date, the GEOSYNTHETICS CONTRACTOR shall submit a list of several potential crew members. This information shall be supplied in a timely manner for approval in order to avoid delay of any construction activities. GCL crew staff will be subject to approval by Beazer East, Inc..	MP-02413, 1.05, A, 1, b	7/22/2004	JGS	S 7/22/04, R 9/10/04	R 9/10/04	Crew identification should be done 30 days prior to start of work
16	A copy of the Manufacturer's Manufacturing Quality Assurance/Manufacturing Quality Control (MQA/MQC) Plan for testing GCL.	MP-02413, 1.05, A, 1, c	7/22/2004	JGS	R 7/22/04	R 7/22/04	
17	A statement of the GCL Manufacturer's experience in manufacturing GCL, including the manufacturing and supplying company's name, address, and employee contact.	MP-02413, 1.05, A, 1, d	7/22/2004	JGS	R 7/22/04	R 7/22/04	
18	A certification from the GCL Manufacturer attesting that the proposed GCL meets the physical, mechanical and manufacturing requirements specified in Part 2 of this section.	MP-02413, 1.05, A, 1, e	6/30/2004, 7/22/04, 7/28/04, 5/23/06	JGS CAA	S 7/2/04, J 7/22/04, R 8/2/04	R 8/2/04 R 5/24/06	Specific testing is required, second submittal refers to the previous
19	GCL interface and strength testing per ASTM D6243, one test per cover and liner	MP-02413, 2.01, B	7/19/2004, 7/28/04, 8/28/06	JGS RLP	J 7/20/04, R 8/2/04, 9/5/06	R 8/2/04 (Stamped 10/7/04) N 9/5/06	Rejected because Bentomat DN was not tested. Submittal 2 (Rec'd on 7/28/04) was reviewed for compliance with the specifications for the Liner and Cover System. Submittal 3 (Rec'd on 8/28/06) was reviewed and noted that since the GCL would be stored on-site for future use, we strongly recommend that the GCL be re-tested for interface friction (direct shear) prior to installation.
20	Hydraulic conductivity ASTM D5887		8/25/2004 5/23/06	JGS CAA	R 8/26/04	R 8/26/04 R 5/24/06	
21	Mass per unit area (bentonite content ASTM D5993, geotextile upper layer and lower layer ASTM D 5261)		8/2/2004 5/23/06	JGS CAA	R 8/2/04	R 8/2/04 R 5/24/06	
22	Index flux ASTM D5887		8/25/2004 5/23/06	JGS CAA	R 8/26/04	R 8/26/04 R 5/24/06	
23	Grab tensile strength ASTM D4632		8/2/2004 5/23/06	JGS CAA	R 8/2/04	R 8/2/04 R 5/24/06	
24	Bentonite swell index ASTM D5890		8/25/2004 5/23/06	JGS CAA	R 8/26/04	R 8/26/04 R 5/24/06	
25	Bentonite fluid loss ASTM D5891		8/25/2004 5/23/06	JGS CAA	R 8/26/04	R 8/26/04 R 5/24/06	
26	Peel strength ASTM D 4632		8/2/2004 5/23/06	JGS CAA	R 8/2/04	R 8/2/04 R 5/24/06	

**Beazer East, Inc. - Carbondale, IL Kentucky  
CAMU Containment Cell**

**Technical Submittal Register**

Item No.	Submittal Description	Specification Reference (see Note 2.)	Date Received	Reviewed By	Interim Status/Date	Final Status/Date (see Note 1.)	Notes
27	Copies of the Manufacturing Quality Control (MQC) certificates for the material to be delivered to the site. The reports shall include the quality control test results of samples obtained during the manufacturing of the material to be delivered to the site. The GCL will be rejected if it does not meet the specified requirements of Part 2 of this Section or if it is found to have defects, rips, holes, flaws, deterioration or other damage deemed unacceptable by Beazer East, Inc.'s REPRESENTATIVE.	MP-02413, 1.05, A, 1, f	7/22/2004, 7/28/04, 8/25/04 5/23/06	JGS CAA	J 7/22/04, R 8/2/04, R 8/26/04	R 8/26/04 R 5/24/06	Has not been submitted
28	A certification from the manufacturer that the manufacturing process used to produce the GCL includes needle detection and a mechanism for removal of needles. The certification shall include a statement attesting that the needle detection and removal process will be applied to all GCL to this project, and that all GCL rolls shall be needle free.	MP-02413, 1.05, A, 1, g	7/22/2004, 8/19/04, 8/25/04 5/23/06	JGS CAA	J 7/22/04, R 8/23/04, R 8/26/04	R 8/26/04 R 5/24/06	Has not been submitted, certification letter meets specifications
29	Proposed method of GCL panel seaming including overlap distance at sides and end of panels, and use of additional material to complete the seal (if any).	MP-02413, 1.05, A, 1, h	7/22/2004	JGS	R 7/22/04	R 7/22/04	
30	Internal and interface shear strength test results as required in Part 2, Article 2.01	MP-02413, 1.05, A, 1, i	7/28/2004	JGS	R 8/2/04	R 8/2/04	
31	A listing of lot and roll numbers for the material to be delivered to the site	MP-02413, A, 1, j	7/22/2004, 8/2/04, 8/23/04 5/23/06	JGS CAA	J 7/22/04, R 8/2/04, R 8/26/04	R 8/26/04 R 5/24/06	Has not been submitted, lot and roll number for material to be tested has been reviewed
32	A supplier and/or source of the bentonite shall be included on the MQA results for the bentonite.	MP-02413, 1.05, A, 1, k	7/28/2004, 8/25/04	JGS	R 8/2/04, R 8/26/04	R 8/26/04	
<b>Prior to Installation:</b>							
33	A schedule of operations including means and method of installation for the GCL	MP-02413, 1.05, A, 2, a	9/10/2004	JGS	R 9/10/04	R 9/10/04	
34	The proposed method of deploying the GCL material and placement of panels.	MP-02413, 1.05, A, 2, b	9/10/2004	JGS	R 9/10/04	R 9/10/04	
35	GCL shop drawings including details of all overlapping attachments and anchoring.	MP-02413, 1.05, A, 2, c					
36	Proposed methods of protecting installed GCL panels from rain, ponding water or other elements that could hydrate or damage the GCL.	MP-02413, 1.05, A, 2, d	9/10/2004	JGS	R 9/10/04	R 9/10/04	
37	Panel layout diagram	MP-02413, 1.05, A, 2, e	9/10/2004	JGS	R 9/10/04	R 9/10/04	
38	MCQ data issued by the manufacturer	MP-02413, 1.05, A, 2, f	7/28/2004, 8/25/04	JGS	R 8/4/04, R 8/26/04	R 8/26/04	
39	Subgrade below the GCL shall be certified by the contractor	MP-02413, 1.05, A, 2, g	10/4/2004	JGS	R 10/7/04	R 9/16/04	
<b>During Installation Submitted Weekly:</b>							
40	Weekly construction progress reports clearly showing GCL panels and GCL roll numbers placed to date.	MP-02413, 1.05, A, 3, a					NA- installation took less than 1 week
<b>Upon Completion:</b>							
41	GCL Record Panel Layout Diagram.	MP-02413, 1.05, A, 4, a	10/4/2004	JGS	R 10/7/04	R 10/7/04	
42	Summary and log of all laboratory quality control and quality assurance completed by GEOSYNTHETIC CONTRACTOR.	MP-02413, 1.05, A, 4, b	10/4/2004	JGS	R 10/7/04	R 10/7/04	
43	Summary and log of all field quality control work completed by the GEOSYNTHETICS CONTRACTOR.	MP-02413, 1.05, A, 4, c	10/4/2004	JGS	R 10/7/04	R 10/7/04	
44	Certification that GCL installation is complete and in accordance with these specifications.	MP-02413, 1.05, A, 4, d	10/4/2004	JGS	R 10/7/04	R 10/7/04	
45	Statement of material and installation warranties for the GCL.	MP-02413, 1.05, A, 4, e					
<b>Geotextile</b>							
46	Manufacturer's data for GT including, at a minimum, physical properties, packaging, and installation techniques.	MP-02232, 1.04, A	7/21/2004, 8/30/04	CAA, JGS	N 7/22/04, R 9/24/04	R 9/24/04	Need to submit packaging and installation techniques for both the woven and non-woven geotextile. Physical properties for both materials are acceptable.
47	Origin (resin supplier's name and resin production plant) and identification (brand name and number) of the resin used to manufacture the NWGT.	MP-02232, 1.04, B	8/30/2004	JGS	N 9/24/04		Resin supplier identified but not specific production plant
48	Geotextile material sample	MP-02232, 1.04, C	7/22/2004	JGS	S 7/22/04		Samples have not been submitted
49	Manufacturer's quality assurance/quality control program for the GT.	MP-02232, 1.04, D	7/22/2004, 8/30/04	JGS	J 7/22/04, R 9/24/04	R 9/24/04	QC manual for wrong manufacturer was submitted
50	Certified results of all quality control testing for the rolls of GT to be used on-site including:	MP-02232, 1.04, E					
51	Unit Weight ASTM D5261						
52	Grab tensile/elongation ASTM D4632						
53	Trapezoidal tear ASTM D4533		7/22/2004, 8/30/04	JGS	J 7/22/04, R 9/24/04	R 9/24/04	Certified test results have not been received
54	Mullenburst ASTM D3786						
55	Puncture ASTM D4833						
56	UV resistance ASTM D4355						
57	Apparent opening size ASTM D4751						
58	Permittivity ASTM D4491						
59	A list of the materials that comprise the NWGT, expressed in the following categories as percent by weight: base polymer, carbon black, other additives.	MP-02232, 1.04, F					
60	Written certification that the MARVs given in the specification are guaranteed by the Manufacturer.	MP-02232, 1.04, G	7/22/2004	JGS	J 7/22/04		Certified MARVs have not been received
61	Written certifications by the contractor that the field-delivered materials meet manufacturers specifications	MP-02232, 1.04, H	7/22/2004	JGS	J 7/22/04		This submittal is not appropriate at this time
62	Listing of lot and roll numbers for the material to be delivered to the site.	MP-02232, 1.04, I	7/22/2004, 8/30/04	JGS	J 7/22/04, R 9/24/04	R 9/24/04	Submittal has not been received
63	Contractor's proposed transportation, handling, storage, and installation techniques for the GT.	MP-02232, 1.04, J	7/22/2004	JGS	R 7/22/04	R 7/22/04	
64	NWGT shop drawings.	MP-02232, 1.04, K					
65	Written certification that the field-delivered geotextile has not been damaged due to improper transportation, handling or storage	MP-02232, 1.04, L	7/22/2004	JGS	J 7/22/04		This submittal is not appropriate at this time
66	Upon completing the installation, the Contractor shall submit to Beazer East, Inc.'s Representative all quality control documentation and the as-built panel drawings.	MP-02232, 3.03, A, 1					
67	The Contractor shall obtain from the Manufacturer and submit to Beazer East, Inc.'s Representative, a standard warranty provided for the geotextiles	MP-02232, 3.04, A					

**Beazer East, Inc. - Carbondale, IL Kentucky  
CAMU Containment Cell**

**Technical Submittal Register**

Item No.	Submittal Description	Specification Reference (see Note 2.)	Date Received	Reviewed By	Interim Status/Date	Final Status/Date (see Note 1.)	Notes
	<b>Flexible Membrane Liner</b>						
The Contractor shall submit to Beazer East, Inc.'s Representative for approval the following information regarding the FML Manufacturer:							
68	FML Manufacturer's corporate background and information.	MP-02234, 1.04, A, 1, a	7/22/2004	JGS	R 7/22/04	R 7/22/04	
69	FML Manufacturer's capabilities including:						
70	1) Quality control procedures for manufacturing; and	MP-02234, 1.04, A, 1, b	7/22/2004	JGS	R 7/22/04	R 7/22/04	
71	2) List of material properties including certified test results, to which FML samples are attached.	MP-02234, 1.04, A, 1, b	7/22/2004, 8/9/04	JGS	S 7/22/04, R 8/9/04	R 8/9/04	40 mil HDPE material sample not submitted
72	A list of at least 10 completed facilities, totaling a minimum of 10,000,000 ft2, for which the Manufacturer has manufactured FMLs. For each facility, the following information shall be provided:						
	1) Name and purpose of facility, its location, and date of installation.	MP-02234, 1.04, A, 1, c	7/22/2004	JGS	R 7/22/04	R 7/22/04	
	2) Name of Owner, Project Manager, Designer, Fabricator (if any), and Installer.	MP-02234, 1.04, A, 1, c	7/22/2004	JGS	R 7/22/04	R 7/22/04	
	3) Thickness of FML, surface area of FML manufactured.	MP-02234, 1.04, A, 1, c	7/22/2004	JGS	R 7/22/04	R 7/22/04	
73	Origin (resin supplier's name, resin production plant) and identification (brand name, number) of the resin.	MP-02234, 1.04, A, 1, d	9/10/2004	JGS	R 9/10/04	R 9/10/04	
74	Copies of dated quality control certificates issued by the resin supplier for the FML.	MP-02234, 1.04, A, 1, e	9/10/2004	JGS	R 9/10/04	R 9/10/04	
75	Results of test conducted by the Manufacturer to verify that the resin used to manufacture the FML meets the project specifications for melt flow index and density.	MP-02234, 1.04, A, 1, f	9/10/2004	JGS	R 9/10/04	R 9/10/04	
76	A statement that the amount of reclaimed polymer added to the resin during manufacturing was done with appropriate cleanliness and did not exceed 2% by weight for the FML.	MP-02234, 1.04, A, 1, g	7/22/2004	JGS	R 7/22/04	R 7/22/04	
77	Written certification that the MARVs given are guaranteed by the Manufacturer for the FML.	MP-02234, 1.04, A, 1, h	6/30/2004, 7/22/04, 8/9/04	JGS	S 7/2/04, S 7/22/04, R 8/9/04	R 8/9/04	Submit product's certified values which are guaranteed by the manufacturer, second submittal referred to the previous, reviewed
The Contractor shall submit to Beazer East, Inc.'s Representative for approval the following written information, relative to the Installer:							
78	A copy of Installer's letter of approval or license by the Manufacturer.	MP-02234, 1.04, A, 1, i	7/22/2004	JGS	R 7/22/04	R 7/22/04	
79	Resume of the "master seamer" to be assigned to this project, including dates and duration of employment.	MP-02234, 1.04, A, 1, i	6/29/2006, 7/22/2004, 9/10/04	RLP JGS	R 7/14/06, N 7/22/04, R 9/10/04	R 7/14/06, R 9/10/04	
80	The Contractor shall provide quality control certificates, signed by a responsible party employed by the Manufacturer. The quality control certificates shall include lot and roll identification numbers, testing procedures, and results of quality control tests. At a minimum, results shall be given in accordance with the Technical Drawings and Specifications for:	MP-02234, 1.04, A,1,j	7/22/2004, 9/10/04	JGS	J 7/20/04, R 9/10/04	R 9/10/04	Testing results have not been submitted
a.	Density (ASTM D1505);						
b.	Carbon black content (ASTM D1603);						
c.	Carbon black dispersion (ASTM D5596);						
d.	Thickness (ASTM D5994);						
e.	Tensile properties (ASTM D638); and						
f.	Tear resistance (ASTM D1004).						
	These quality control tests shall be performed for each lot number at a minimum frequency of once every 40,000 ft <sup>2</sup> of FML produces. The Manufacturer shall provide a certification letter that will provide data for puncture, environmental stress, low temperature, and burial.						
The Contractor shall submit the following items for approval at least one week prior to installation:							
81	Shop drawings that shall include:	MP-02234, 1.04, A, 1,k	9/10/2004	JGS	R 9/10/04	R 9/10/04	
	a. Layout plan.						
	b. Quality control program manuals covering all phases of manufacturing and installation.						
	c. Complete and detailed written instructions for the storage, handling, installation, seaming, inspection plan fail criteria for liner inspections, and QA/QC testing procedures of the liner in compliance with these specifications and the condition of its warranty.						
82	Certification by the contractor that the field-delivered FML has not been damaged due to improper transportation, handling or storage	MP-02234, 1.04,E	7/22/2004, 9/16/04	JGS	J 7/20/04, R 9/16/04	R 9/16/04	Not an appropriate submittal at this time
83	The FML Installer shall certify in writing that the final surface on which the FML is to be installed is acceptable.	MP-02234, 1.04, F	9/13/2004	JGS	R 9/13/04	R 9/13/04	
84	The Contractor shall perform trial seams on excess FML material. (See specification for details.)	MP-02234, 3.01, C, f	10/4/2004	JGS	R 10/7/04	R 10/7/04	
85	The Contractor shall perform nondestructive seam testing on 100 percent of field seams.	MP-02234, 3.01, D, 1	10/4/2004	JGS	R 10/7/04	R 10/7/04	
86	In addition to nondestructive seam testing, the Contractor will perform destructive testing.	MP-02234, 3.01, D, 2	10/4/2004	JGS	R 10/7/04	R 10/7/04	
87	The installer of the FML materials shall prepare and the Contractor shall submit to Beazer East, Inc. or Beazer East, Inc.'s Representative, record drawings illustrating the following information:	MP-02234, 3.02	10/4/2004	JGS	R 10/7/04	R 10/7/04	
	1) Dimensions of all FML field panels.						
	2) Panel locations referenced to the Technical Drawings.						
	3) All field seams and panels with the appropriate number or code						
	4) Location of all patches, repairs, and destructive testing samples.						
88	The Contractor shall obtain and submit to Beazer East, Inc.'s Representative from the Manufacturer a standard warranty provided for the FML.	MP-02234, 3.03					

**Beazer East, Inc. - Carbondale, IL Kentucky  
CAMU Containment Cell**

**Technical Submittal Register**

Item No.	Submittal Description	Specification Reference (see Note 2.)	Date Received	Reviewed By	Interim Status/Date	Final Status/Date (see Note 1.)	Notes
	<b>Additional Submittals Received</b>						
89	Liner Subbase - compact to 90% standard proctor, in place density testing conducted 9 tests per acres, minimum 3 tests per lift	Figure 16					
90	Crusher-run gravel - compact to 95% standard proctor, density testing to be conducted a minimum of 1 test per 5,000 sqft, with a minimum of three tests in each area	Figure 16					
91	PVC membrane - seam bonding in accordance with manufactures specifications.						
92	Sand - to be compacted to 90% standard proctor						
93	Crusher-run/Gravel - Field/Lab Gradations	Figure 16	7/13/2004	CAA		N 7/15/04	
94	Crusher-run/Gravel - Materials Certification	Figure 16	7/15/2004	CAA		R 7/15/04	
95	Drainage Stone Surrounding the RCRA Cap Drainage Collection Pipe	Figure 9	7/28/2004	CAA		R 8/4/2004	RR1 will be used (submitted July 23, 2004, Glade Creek submittal #5)
96	RCRA Cap Drainage Collection Pipe	Figure 9	7/28/2004	CAA		R 8/4/2004	
97	Erosion Control Mat - Enkamat II (NAG SC250 Alternate)	Figure 16	7/30/2004	RLP		R 8/31/2004	
98	Groundwater Collection Manhole Design	Figure 5	9/7/2004	RLP		N 9/13/04	
99	Groundwater Collection Manhole Access Door	Figure 5	9/21/2004	TAS		R 9/24/2004	
100	Access Road Woven Geotextile - ProPlex 2006 (Mirafi 600X Alternate)		9/21/2004	TAS		R 9/24/2004	
101	Temporary Erosion Control Mat - AEC Premier Coconut (NAG SC150 Alternate)	Figure 16	9/30/2004	RLP		R 10/05/2004	
102	Interim PVC Cover		10/19/2004	JGS		R 10/19/04	Solmax 220, 29 mil PVC geomembrane
103	Sandbag Specification		11/12/2004	RLP		R 11/15/2004	
104	FML - Additional resumes of installers	MP-02234, 1,04, A, 1, i	6/29/2006	RLP	R 7/14/06	R 7/14/06	
105	Drainage Stone Witin Final Cover Anchor Trench	Figure 6	8/31/2010	CAA		N 8/31/2004	Specifications call for CA1, but RR1 may be used.
106	Erosion Control Mat - Erosion Contorl Blanket SC32 (NAG SC150 alternate)	Figure 16	10/8/2010	CAA		R 10/8/10	

**Notes:**

- Submittal status nomenclature is as follows:  
 R - Reviewed  
 N - Reviewed and Noted  
 S - Resubmit  
 J - Rejected  
 I - Information Only
- GDC - Geocomposite
- NWGT - Non-Woven Geotextile Fabric
- FML - Flexible Membrane Liner
- GCL - Geosynthetic Clay Liner



CAMU Submittals

**Beazer East, Inc. - Carbondale, IL  
Surface Cover**

**Technical Submittal Register**

Item No.	Submittal Description	Specification Reference (see Note 2.)	Date Received	Reviewed By	Interim Status/Date	Final Status/Date (see Note 1.)	Notes
<b>Geocomposite</b>							
<b>Submittals Prior to Material Delivery</b>							
1	Manufacturer's data for geocomposite including physical properties and roll size.	MP-02219, 1.04, A, 1	7/12/2005	RLP		A-7/18/05	Previously submitted for CAMU liner construction. Transmissivity values for this material are acceptable based on the results of testing of the CAMU liner system material which required greater performance criteria.
2	The Origin (supplier's name and production plant) and identification (brand name and number) of the geotextile and geonet used to fabricate the geocomposite.	MP-02219, 1.04, A, 2					Previously Reviewed
3	Geocomposite sample material.	MP-02219, 1.04, A, 3					Previously Reviewed
4	Manufacturer's quality assurance/quality control program for the geocomposite.	MP-02219, 1.04, A, 4					Previously Reviewed
5	Written certification by the Manufacturer that the MARVs provided in the specification are guaranteed.	MP-02219, 1.04, A, 5					Previously Reviewed
6	Contractor's proposed transportation, handling, and storage techniques for the geocomposite.	MP-02219, 1.04, A, 6					Previously Reviewed
7	Installation details and proposed installation techniques for the geocomposite.	MP-02219, 1.04, A, 7					Previously Reviewed
<b>Submittals Following Material Delivery</b>							
8	Written certification by the Contractor that field-delivered materials meet the Manufacturer's specifications	MP-02219, 1.04, B, 1					
9	Listing of lot and roll numbers of material delivered to the site.	MP-02219, 1.04, B, 2	8/15/2005	GNG		A-8/25/05	Roll # 131187481 does not appear on packing list, but has been delivered to the site.
10	The Contractor shall provide manufacturers quality control testing results pertaining to the rolls of geocomposite to be used on-site in accordance with 2.02, B.	MP-02219, 1.04, B, 3	8/15/2005	GNG		A-8/25/05	
11	Proposed panel layout.	MP-02219, 1.04, B, 4					
12	Written certification by the contractor that the field-delivered geocomposite has not been damaged due to improper transportation, handling, or storage.	MP-02219, 1.04, B, 5					
13	Written certification that the Beazer East, Inc.'s Representative and the Contractor agree that the underlying FML is acceptable to both parties.	MP-02219, 1.04, B, 6					
<b>Submittals Following Material Deployment</b>							
14	The Contractor shall provide as-built drawings identifying panel layouts, locations or imperfections, repairs and any other appropriate observations.	MP-02219, 1.04, C, 1					
<b>Geotextile Fabric</b>							
<b>Submittals Prior to Material Delivery</b>							
15	Manufacturer's data for GT including, at a minimum, physical properties, packaging, and installation techniques.	MP-02232, 1.04, A, 1	7/12/2005	RLP	RR-7/18/05		Provide additional information regarding packaging and installation techniques.
16	Geotextile material sample	MP-02232, 1.04, A, 2					Previously Reviewed
17	Manufacturer's quality assurance/quality control program for the GT.	MP-02232, 1.04, A, 3					Previously Reviewed
18	Written certification that the MARVs given in the specification are guaranteed by the Manufacturer.	MP-02232, 1.04, A, 4					Previously Reviewed
19	Contractor's proposed transportation, handling, storage, and installation techniques for the GT.	MP-02232, 1.04, A, 5					Previously Reviewed
20	Typical installation details and descriptions of proposed installation techniques.	MP-02232, 1.04, A, 6					Previously Reviewed
<b>Submittals Following Material Delivery</b>							
21	Written certifications by the contractor that the field-delivered materials meet manufacturers specifications	MP-02232, 1.04, B, 1					
22	Listing of lot and roll numbers for the material delivered to the site.	MP-02232, 1.04, B, 2	8/15/2005	GNG		A-8/16/2005	
23	Certified results of all quality control testing for the rolls of GT to be used on-site including:	MP-02232, 1.04, B, 3	8/15/2005	GNG		A-8/16/2005	
24	Written certification that the field-delivered geotextile has not been damaged due to improper transportation, handling or storage	MP-02232, 1.04, B, 4					
25	The Contractor shall obtain from the Manufacturer and submit to Beazer East, Inc.'s Representative, a standard warranty provided for the geotextiles	MP-02232, 1.04, B, 5	9/26/2005	RLP		A-9/26/2005	
<b>Submittals Following Material Deployment</b>							
26	Upon completing the installation, the Contractor shall submit to Beazer East, Inc.'s Representative the as-built panel drawings.	MP-02232, 3.03, A					
<b>Flexible Membrane Liner</b>							
<b>Submittals Prior to Material Delivery</b>							
27	FML Manufacturers Corporate background and information.	MP-02234, 1.04, A, 1					Previously Reviewed
28	Quality control procedures for manufacturing.	MP-02234, 1.04, A, 2					Previously Reviewed
29	List of material properties including certified test results, to which FML samples are attached.	MP-02234, 1.04, A, 3	7/12/2005	RLP	RR-7/18/05		Provide FML samples and certified test results when available.
30	A list of at least 10 completed facilities, totaling a minimum of 10,000,000 ft <sup>2</sup> , for which the Manufacturer has manufactured FMLs. For each facility the following information should be provided: 1) Name and purpose of facility, its location and date of installation. 2) Name of Owner, Project Manager, Designer, Fabricator (if any) and Contractor. 3) Thickness of FML, surface area of FML manufactured.	MP-02234, 1.04, A, 4					Previously Reviewed
31	A statement that the amount of reclaimed polymer added to the resin during manufacturing was done with appropriate cleanliness and did not exceed 2% by weight for the FML.	MP-02234, 1.04, A, 5					Previously Reviewed
32	Written certification that the MARVs given are guaranteed by the Manufacturer for the FML.	MP-02234, 1.04, A, 6					Previously Reviewed

**Beazer East, Inc. - Carbondale, IL  
Surface Cover**

**Technical Submittal Register**

Item No.	Submittal Description	Specification Reference (see Note 2.)	Date Received	Reviewed By	Interim Status/Date	Final Status/Date (see Note 1.)	Notes
<b>Submittals Following Material Delivery</b>							
33	A copy of Installer's letter of approval or license by the Manufacturer.	MP-02234, 1.04, B, 1					
34	Resume of the "master seamer" to be assigned to this project, including dates and duration of employment.	MP-02234, 1.04, B, 2	8/4/2008	RLP		A-8/05/2005	
35	The Contractor shall provide manufacturers quality control testing results pertaining to the rolls of FML to be used on-site in accordance with 2.02 A.	MP-02234, 1.04, B, 3	8/15/2005	GNG		A-8/16/2005	
36	Panel layout plan.	MP-02234, 1.04, B, 4	8/4/2008	RLP		C-8/05/2005	
37	Written certification by the Contractor that the field-delivered FML has not been damaged due to improper transportation, handling, or storage.	MP-02234, 1.04, B, 5					
38	Written certification that the Beazer East, Inc.'s Representative and the Contractor agree that the underlying subgrade is acceptable to both parties.	MP-02234, 1.04, B, 6					
39	Complete and detailed written instructions for the storage, handling, installation, seaming, inspection plan fail criteria for liner inspections, and QA/QC testing procedures of the liner in compliance with the specifications and the condition of its warranty.	MP-02234, 1.04, B, 7					
40	The Contractor shall obtain and submit to Beazer East, Inc.'s Representative from the Manufacturer a standard warranty provided for the FML.	MP-02234, 1.04, B, 8	9/26/2005	RLP		A-9/26/2005	
<b>Submittals Following Deployment of Material</b>							
41	The Contractor shall submit the results of all testing performed on trial seams.	MP-02234, 1.04, C, 1					
42	The Contractor shall submit the results of all nondestructive seam testing.	MP-02234, 1.04, C, 2					
43	The Contractor shall submit the results of all destructive seam testing.	MP-02234, 1.04, C, 3	9/12/2005	RWP		A-9/14/05	Results for DT 1-49
44	The Installer of the FML materials shall prepare and the Contractor shall submit to Beazer East, Inc. or Beazer East, Inc.'s Representative, record drawings illustrating the following information: 1) Dimensions of all FML field panels. 2) Panel locations referenced to the Technical Drawings. 3) All field seams and panels with the appropriate number or code 4) Location of all patches, repairs, and destructive testing samples.	MP-02234, 1.04, C, 4					
<b>Additional Submittals</b>							
45	Drainage stone, riprap and crusher run to be tested for conformance with material descriptions using ASTM C-136 (sieve analyses of fine and coarse aggregate). Testing to be performed at a minimum frequency of two tests per material type from a given source.	Figure 7				Previously Reviewed	
46	Material obtained from off-site sources to be analyzed for SVOCs, VOCs, and RCRA metals (8) at a frequency of one sample per source for each material type.	Figure 7					
47	Collection Pipe	Figure 7	6/13/2005	RLP		A-6/13/2005	Submitted material is an acceptable alternative to the specified 4" diam. perforated, SDR-13.5 pipe.
48	Erosion Control Mat	Figure 7					Previously Reviewed
49	Seed Mix (Erosion Mx)	Figure 5					Previously Reviewed
50	Non-Woven Geotextile - Mirafi 1100N	Figure 7	5/31/2005	CAA		A-7/18/2005	Submitted material is an acceptable alternative to Propex 4510.
51	Geocomposite - Material and Performance Clarification	MP-02219, 2.02, B, 1	7/12/2005	RLP		A-7/18/2005	Submitted GSE clarification has been reviewed and is acceptable.
52	Geocomposite - Material and Performance Clarification	MP-02219, 2.02, B, 2	7/12/2005	RLP		A-7/18/2005	Submitted GSE clarification has been reviewed and is acceptable.
53	Geocomposite - Material and Performance Clarification	MP-02219, 2.02, B, 3	7/12/2005	RLP		A-7/18/2005	Previously submitted for CAMU liner construction. Transmissivity values for this material are acceptable based on the results of testing of the CAMU liner system material which required greater performance criteria.
54	Geocomposite - Material and Performance Clarification	MP-02219, 2.02, C	7/12/2005	RLP		A-7/18/2005	Submitted GSE clarification has been reviewed and is acceptable.
55	Geocomposite - Material and Performance Clarification	MP-02219, 2.02, A, 1	7/12/2005	RLP		A-7/18/2005	Submitted GSE clarification has been reviewed and is acceptable.
56	FML - Material and Performance Clarification	MP-02234, 2.03, A	7/12/2005	RLP		A-7/18/2005	Submitted GSE clarification has been reviewed and is acceptable. Once geomembrane is received onsite, it shall be covered with a tarp.
57	Drainage Stone for Cover System Anchor Trench with Collection Pipe	Figure 7	7/12/2005	RLP		A-7/18/2005	RR1 submitted is an acceptable alternative to CA1 as previously reviewed July 28, 2004, CAMU Submittal #95.
58	FML - Destructive Seam Tests, DT 2-8, 9-13, 17-18, and 21-31	MP-02234, 3.01, C 2	8/15/2005 8/22/2005	RLP RLP		A-8/25/2005	See Item No. 43 for all destructive seam tests.
59	Geocomposite - Manufacturers standard warranty provided for the geocomposite.		9/26/2005	RLP		A-9/26/2005	
60	Installers installation warranty for geosynthetics.		9/26/2005	RLP		A-9/26/2005	

**Notes:**

- Submittal status nomenclature is as follows:  
A - Approved  
C - Approved as Corrected  
RR - Revise and Resubmit  
NA - Not Approved  
I - Information Only
- FML - Flexible Membrane Liner



Ditch Culvert Submittals

**CONTRACTOR SUBMITTAL REGISTER**

**DRAINAGE DITCH DESIGN  
BEAZER EAST, INC.  
CARBONDALE, ILLINOIS**

Item No.	Submittal Description	Specification Reference	Date Received	Reviewed By	Final Status/Date	Notes
1	Abandoned Pipe Fill	Drawing 5				not required - pipe removed
2	Anti-Seep Collar	Drawing 5	09/03/08	ESD	A 09/08/08	
3	Concrete	Drawing 5	09/24/08	ESD	A 09/26/08	
4	Erosion Control Blanket	Drawing 5	09/24/08	ESD	A 09/26/08	
5	General Fill	Drawing 5				not required for onsite borrow - only for imported fill
6	Hay/Straw Bale	Drawing 5				not used
7	HDPE Cover	Drawing 5	09/03/08	ESD	A 09/08/08	
8	HDPE Liner	Drawing 5	09/03/08	ESD	A 09/08/08	
9	HDPE Pipe	Drawing 5	09/03/08	ESD	A 09/08/08	
10	Non-Woven Geotextile	Drawing 5	09/16/08	ESD	A 09/17/08	
11	Riprap	Drawing 5				not required for reused riprap - only for imported riprap
12	Silt Fence	Drawing 5	09/16/08	ESD		
13	Vegetative Cover	Drawing 5	09/30/08	ESD	A 10/03/08	
14	Gravel	Drawing 5	09/18/08	ESD	A 09/22/08	CA 11 to be used in place of CA 8 pipe bedding
15	CA 5 Stone	--	09/24/08	ESD	A 09/26/08	CA 5 to be used in place of CA 8 for water bars

Notes:

1. Submittal Process

- Sevenson provides Transmittal of Submittal and acknowledges Sevenson's review.
- ARCADIS reviews submittal and provides following action:
  - APPROVED
  - APPROVED AS CORRECTED (Resubmit final copy for file)
  - REVISE AND RESUBMIT BEFORE PROCEEDING
  - NOT APPROVED

2. Allow a minimum of 10 da\_ s for En\_ineer's review of all submittals \_rior to manufacturin\_ , fabrication, and \_lacement.



**Appendix G**

Laboratory Analytical Data



CAMU Consolidation Materials -  
2004

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: BBL-CDALE-CAMUMATLS

GC/MS Semivolatiles

Lot-Sample #...: C4K090206-001 Work Order #...: GWJDC1AC Matrix.....: SOLID  
 Date Sampled...: 11/08/04 12:00 Date Received...: 11/09/04 10:10 MS Run #.....: 4314319  
 Prep Date.....: 11/09/04 Analysis Date...: 11/22/04  
 Prep Batch #...: 4314480 Analysis Time...: 09:43  
 Dilution Factor: 400 Initial Wgt/Vol: 15 g Final Wgt/Vol...: 0.5 mL  
 % Moisture.....: 12 Analyst ID.....: 001562 Instrument ID...: 71  
 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Naphthalene	1400000 E	150000	ug/kg	3600
Acenaphthylene	12000 J	150000	ug/kg	3200
Acenaphthene	220000	150000	ug/kg	3300
Fluorene	150000	150000	ug/kg	3600
Phenanthrene	830000	150000	ug/kg	3600
Anthracene	120000 J	150000	ug/kg	3400
Fluoranthene	370000	150000	ug/kg	3200
Pyrene	360000	150000	ug/kg	3700
Benzo (a) anthracene	75000 J	150000	ug/kg	3300
Chrysene	77000 J	150000	ug/kg	2900
Benzo (b) fluoranthene	59000 J	150000	ug/kg	3000
Benzo (k) fluoranthene	25000 J	150000	ug/kg	3000
Benzo (a) pyrene	42000 J	150000	ug/kg	2500
Indeno (1, 2, 3-cd) pyrene	22000 J	150000	ug/kg	3000
Dibenzo (a, h) anthracene	ND	150000	ug/kg	2500
Benzo (ghi) perylene	19000 J	150000	ug/kg	2900
Pentachlorophenol	ND	720000	ug/kg	210000

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2,4,6-Tribromophenol	NC, DIL	(35 - 116)
2-Fluorobiphenyl	NC, DIL	(43 - 110)
2-Fluorophenol	NC, DIL	(11 - 116)
Nitrobenzene-d5	NC, DIL	(42 - 110)
Phenol-d5	NC, DIL	(25 - 115)
Terphenyl-d14	NC, DIL	(37 - 137)

NOTE (S) :

- NC The recovery and/or RPD were not calculated.
- DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.
- Results and reporting limits have been adjusted for dry weight.
- E Estimated result. Result concentration exceeds the calibration range.
- J Estimated result. Result is less than RL.

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: BBL-CDALE-CAMUMATLS

GC/MS Semivolatiles

Lot-Sample #....: C4K090206-001 Work Order #....: GWJDC2AC Matrix.....: SOLID  
 Date Sampled....: 11/08/04 12:00 Date Received...: 11/09/04 10:10 MS Run #.....: 4314319  
 Prep Date.....: 11/09/04 Analysis Date...: 11/22/04  
 Prep Batch #....: 4314480 Analysis Time...: 10:41  
 Dilution Factor: 800 Initial Wgt/Vol: 15 g Final Wgt/Vol...: 0.5 mL  
 % Moisture.....: 12 Analyst ID.....: 001562 Instrument ID...: 71  
 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Naphthalene	910000	300000	ug/kg	7200
Acenaphthylene	12000 J	300000	ug/kg	6300
Acenaphthene	220000 J	300000	ug/kg	6600
Fluorene	160000 J	300000	ug/kg	7200
Phenanthrene	750000	300000	ug/kg	7200
Anthracene	120000 J	300000	ug/kg	6900
Fluoranthene	360000	300000	ug/kg	6400
Pyrene	360000	300000	ug/kg	7400
Benzo (a) anthracene	77000 J	300000	ug/kg	6600
Chrysene	79000 J	300000	ug/kg	5900
Benzo (b) fluoranthene	61000 J	300000	ug/kg	6000
Benzo (k) fluoranthene	24000 J	300000	ug/kg	5900
Benzo (a) pyrene	42000 J	300000	ug/kg	5100
Indeno (1, 2, 3-cd) pyrene	23000 J	300000	ug/kg	6000
Dibenzo (a, h) anthracene	ND	300000	ug/kg	4900
Benzo (ghi) perylene	19000 J	300000	ug/kg	5700
Pentachlorophenol	ND	1400000	ug/kg	410000

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2, 4, 6-Tribromophenol	NC, DIL	(35 - 116)
2-Fluorobiphenyl	NC, DIL	(43 - 110)
2-Fluorophenol	NC, DIL	(11 - 116)
Nitrobenzene-d5	NC, DIL	(42 - 110)
Phenol-d5	NC, DIL	(25 - 115)
Terphenyl-d14	NC, DIL	(37 - 137)

NOTE (S) :

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.



CAMU Consolidation Materials –  
2005

ARCADIS U.S., Inc.

Client Sample ID: CAMU-OCT-05

GC/MS Semivolatiles

Lot-Sample #...: C5J210112-001    Work Order #...: HM9FL1AC    Matrix.....: SOLID  
 Date Sampled...: 10/19/05    Date Received...: 10/20/05    MS Run #.....: 5299003  
 Prep Date.....: 10/26/05    Analysis Date...: 11/07/05  
 Prep Batch #...: 5299014    Analysis Time...: 10:56  
 Dilution Factor: 1000  
 % Moisture.....: 18    Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Naphthalene	150000 J	400000	ug/kg	9700
Acenaphthylene	34000 J	400000	ug/kg	8500
Acenaphthene	480000	400000	ug/kg	8900
Fluorene	530000	400000	ug/kg	9800
Phenanthrene	2300000	400000	ug/kg	9800
Anthracene	1000000	400000	ug/kg	9300
Fluoranthene	1700000	400000	ug/kg	8700
Pyrene	1400000	400000	ug/kg	10000
Benzo(a)anthracene	340000 J	400000	ug/kg	9000
Chrysene	390000 J	400000	ug/kg	8000
Benzo(b)fluoranthene	190000 J	400000	ug/kg	8200
Benzo(k)fluoranthene	89000 J	400000	ug/kg	8000
Benzo(a)pyrene	130000 J	400000	ug/kg	6900
Indeno(1,2,3-cd)pyrene	110000 J	400000	ug/kg	8100
Dibenzo(a,h)anthracene	ND	400000	ug/kg	6700
Benzo(ghi)perylene	120000 J	400000	ug/kg	7700
Pentachlorophenol	ND	2000000	ug/kg	560000

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
2,4,6-Tribromophenol	NC,DIL	(21 - 144)
2-Fluorobiphenyl	NC,DIL	(26 - 128)
2-Fluorophenol	NC,DIL	(34 - 115)
Nitrobenzene-d5	NC,DIL	(30 - 118)
Phenol-d5	NC,DIL	(35 - 117)
Terphenyl-d14	NC,DIL	(40 - 115)

**NOTE(S):**

- NC The recovery and/or RPD were not calculated.
- DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.
- Results and reporting limits have been adjusted for dry weight.
- J Estimated result. Result is less than RL.



Sediment Processing Area –  
Pre-Construction

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: BBL-CDALE-STABPITI

GC/MS Semivolatiles

Lot-Sample #...: C5F030192-001 Work Order #...: HCVT81AC Matrix.....: SOLID  
 Date Sampled...: 05/21/05 17:00 Date Received...: 06/02/05 09:10 MS Run #.....: 5157003  
 Prep Date.....: 06/06/05 Analysis Date...: 06/07/05  
 Prep Batch #...: 5157011 Analysis Time...: 16:22  
 Dilution Factor: 1 Initial Wgt/Vol: 15 g Final Wgt/Vol...: 0.5 mL  
 % Moisture.....: 20 Analyst ID.....: 003200 Instrument ID...: 731  
 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Naphthalene	30 J	410	ug/kg	10
Acenaphthylene	92 J	410	ug/kg	8.7
Acenaphthene	24 J	410	ug/kg	9.1
Fluorene	31 J	410	ug/kg	10
Phenanthrene	100 J	410	ug/kg	10
Anthracene	120 J	410	ug/kg	9.5
Fluoranthene	120 J	410	ug/kg	8.9
Pyrene	120 J	410	ug/kg	10
Benzo (a) anthracene	84 J	410	ug/kg	9.2
Chrysene	150 J	410	ug/kg	8.2
Benzo (b) fluoranthene	340 J	410	ug/kg	8.3
Benzo (k) fluoranthene	91 J	410	ug/kg	8.2
Benzo (a) pyrene	200 J	410	ug/kg	7.0
Indeno (1, 2, 3-cd) pyrene	190 J	410	ug/kg	8.3
Dibenzo (a, h) anthracene	22 J	410	ug/kg	6.8
Benzo (ghi) perylene	220 J	410	ug/kg	7.9
Pentachlorophenol	ND	2000	ug/kg	570

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
2, 4, 6-Tribromophenol	79	(35 - 116)
2-Fluorobiphenyl	83	(43 - 110)
2-Fluorophenol	77	(11 - 116)
Nitrobenzene-d5	80	(42 - 110)
Phenol-d5	79	(25 - 115)
Terphenyl-d14	77	(37 - 137)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.



Sediment Processing Area –  
Post-Construction

Blasland, Bouck & Lee, Inc. (BBL)

Client Sample ID: CDALE MIX PIT

GC/MS Semivolatiles

Lot-Sample #....: C6F270129-001 Work Order #....: H79E41AC Matrix.....: SOLID  
Date Sampled....: 06/26/06 15:40 Date Received...: 06/27/06 09:40 MS Run #.....: 6179008  
Prep Date.....: 06/28/06 Analysis Date...: 06/28/06  
Prep Batch #....: 6179016 Analysis Time...: 18:58  
Dilution Factor: 1 Initial Wgt/Vol: 15 g Final Wgt/Vol...: 0.5 mL  
% Moisture.....: 19 Analyst ID.....: 007062 Instrument ID...: 732  
Method.....: SW846 8270C

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		
		<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Pentachlorophenol	ND	2000	ug/kg	560
Naphthalene	ND	410	ug/kg	9.8
Acenaphthylene	ND	410	ug/kg	8.6
Acenaphthene	ND	410	ug/kg	9.0
Fluorene	ND	410	ug/kg	9.8
Phenanthrene	ND	410	ug/kg	9.8
Anthracene	ND	410	ug/kg	9.4
Fluoranthene	ND	410	ug/kg	8.7
Pyrene	ND	410	ug/kg	10
Benzo (a) anthracene	ND	410	ug/kg	9.0
Chrysene	ND	410	ug/kg	8.0
Benzo (b) fluoranthene	ND	410	ug/kg	8.2
Benzo (k) fluoranthene	ND	410	ug/kg	8.1
Benzo (a) pyrene	ND	410	ug/kg	6.9
Indeno (1,2,3-cd) pyrene	ND	410	ug/kg	8.2
Dibenzo (a,h) anthracene	ND	410	ug/kg	6.7
Benzo (ghi) perylene	ND	410	ug/kg	7.8

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
2,4,6-Tribromophenol	87	(21 - 144)
2-Fluorobiphenyl	76	(26 - 128)
2-Fluorophenol	75	(34 - 115)
Nitrobenzene-d5	70	(30 - 118)
Phenol-d5	75	(35 - 117)
Terphenyl-d14	66	(40 - 115)

NOTE (S) :

Results and reporting limits have been adjusted for dry weight.