# OGLE LAKE DAM REHABILITATION

SEC. 01 - T8N - R2E, BROWN COUNTY, WASHINGTON TOWNSHIP, NASHVILLE, INDIANA

**PROJECT** LOCATION ځ Ohio کسم County Seat County Interstate



#### **OPERATING AUTHORITIES**

240 N. Meridian St., Room 1791 Indianapolis, IN, 46204

Town of Nashville 200 Commercial St.

Nashville, IN 47448 812-988-5526 Phyllis Carr SCHOOL DISTRICT Brown County Schools 357 East Main St. P.O. Box 38 Nashville, IN 47448

812-988-6601

300 Morton Ave.

South Central Indiana R.E.M.C. Martinsville, IN 46151 765-352-4751 Howard McCormick

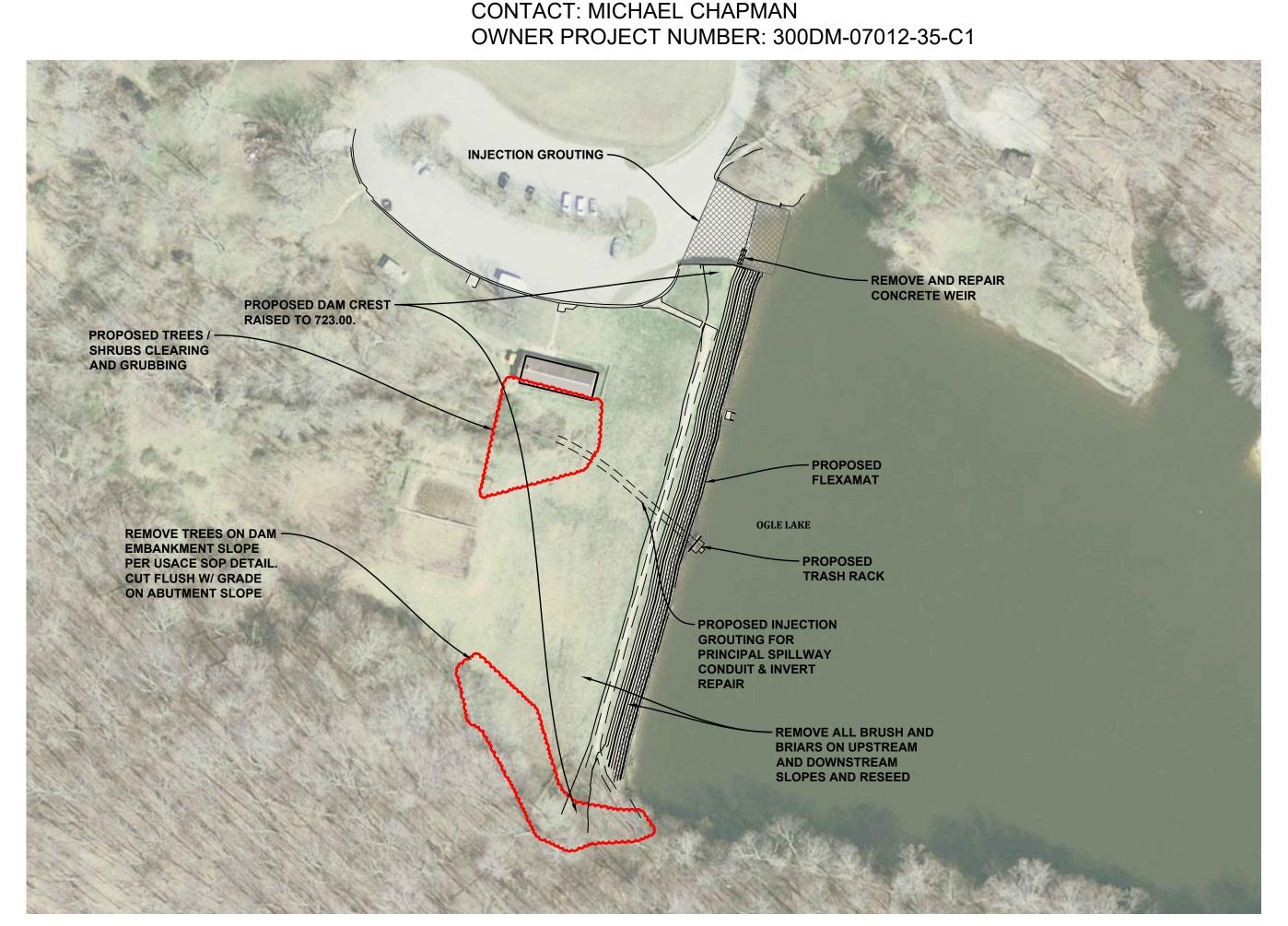
**SANITARY SEWER** Town of Nashville 200 Commercial St. Nashville, IN 47448 812-988-5526 Phyllis Carr

100 S. Mill Creek Rd. Noblesville, IN 46062 317-776-5320 Don McDuffy

Source: Indiana Business Research Center, April 2016

FIRE DEPARTMENT Brown County Volunteer Fire Department 231 E. Main St. Nashville, IN 47448 812-988-4242

PLANS PREPARED FOR: INDIANA DEPARTMENT OF ADMINISTRATION 402 W. WASHINGTON ST., ROOM W467, IGCS INDIANAPOLIS, INDIANA 46204 PHONE: 317-232-4160 FAX: 317-233-4613





	REVISIONS	
NUMBER	DESCRIPTION	DATE

SHEET N	10	DESCRIPTION
C100		TITLE SHEET
C101		EXISTING TOPOGRAPHY PLAN
C102		OVERALL PLAN
C103		CROSS SECTIONS
C400		EROSION CONTROL PLAN
C401		STORM WATER POLLUTION PREVENTION PLAN
C500		EROSION CONTROL DETAILS
C501		MISCELLANEOUS DETAILS
C502-C5	03	SOIL BORINGS

SHEET INDEX



**PROJECT** 

PLANS PREPARED BY:



**LOCATION MAP** 

NO SCALE

853 COLUMBIA ROAD, SUITE #101 PLAINFIELD, IN 46168 BUS: (317) 707-3700, FAX: (317) 707-3800 E-MAIL: Banning@BanningEngineering.com WEB: www.BanningEngineering.com

> CONTACT: JOSEPH L. MILLER EMAIL: jmiller@banning-eng.com

## **CONSTRUCTION DOCUMENTS**

PROJECT MANAGER: THESE PLANS ARE NOT TO BE CONSIDERED FINAL OR TO BE UTILIZED FOR

CONSTRUCTION UNLESS SIGNED AND DATED BY THE APPROPRIATE BANNING

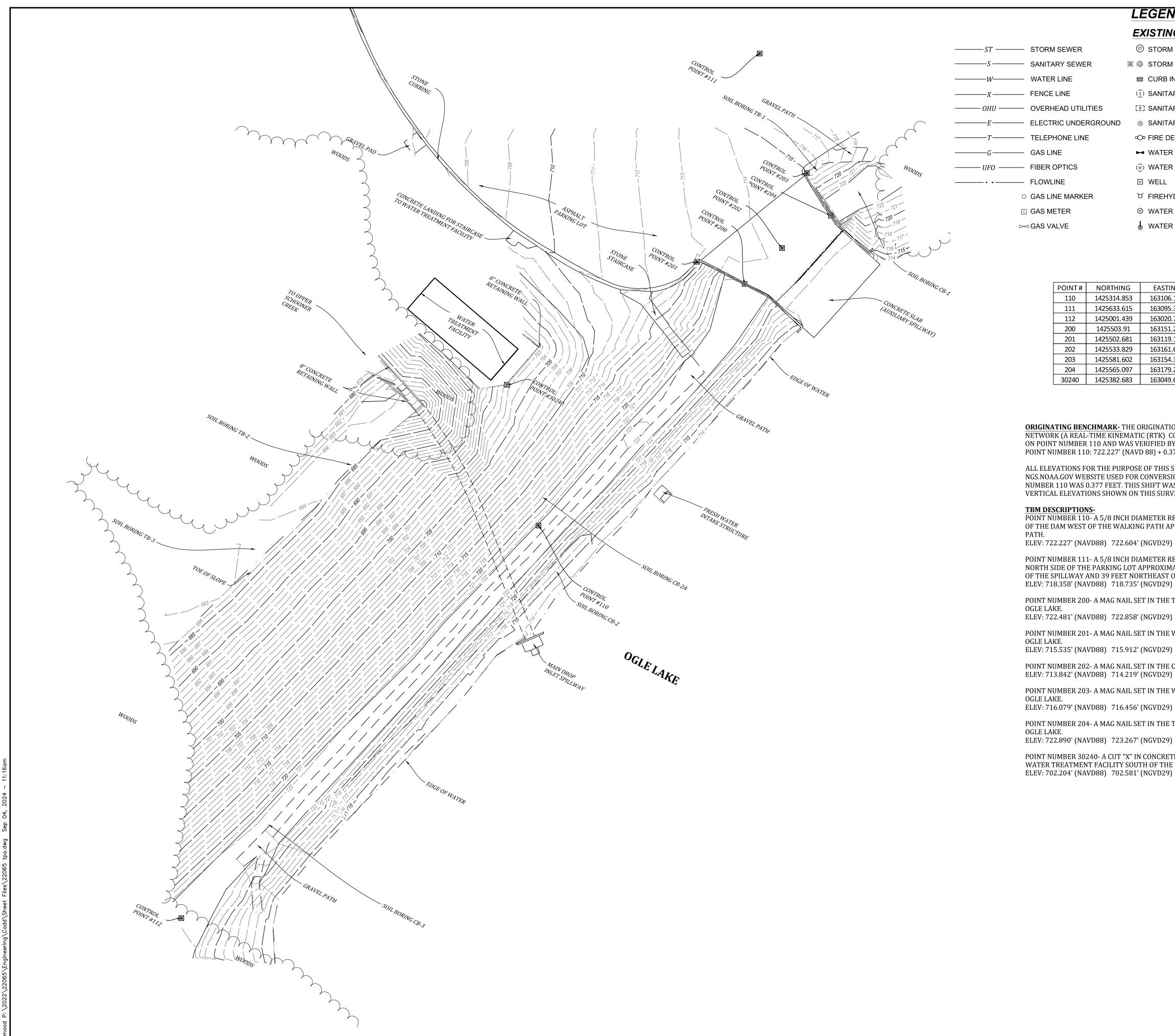
THESE PLANS ARE NOT INTENDED TO BE REPRESENTED AS A RETRACEMENT OR ORIGINAL BOUNDARY SURVEY, A ROUTE SURVEY, OR A SURVEYOR LOCATION REPORT.

ENGINEERING PROJECT MANAGER.



**CERTIFIED BY:** 

Date:	09-04-24
Project No:	22065
Sheet No:	



### LEGEND

#### **EXISTING**

STORM MANHOLE MB MAILBOX # ⊕ STORM INLETS SANITARY SEWER ☐ CURB INLET ■ UTILITY POLES — WATER LINE (S) SANITARY MANHOLE GUY ANCHOR —— FENCE LINE

E ELECTRIC METER [3] SANITARY SEPTIC TANK SANITARY CLEANOUT

ET ELECTRIC TRANSFORMER ○ FIRE DEPARTMENT CONNECTION □□ HVAC UNIT ■ WATER VALVE TELEPHONE STRUCTURE

O POST (w) WATER METER w WELL ∮ SIGN GAS LINE MARKER ♥ FIREHYDRANT 

#### **CONTROL TABLE**

POINT#	NORTHING	EASTING	ELEV. (NAVD88)	DESCRIPTION	SHIFT	ELEV. (NGVD 29)				
110	1425314.853	163106.131	722.227	5/8" REBAR SET	0.377	722.604				
111	1425633.615	163095.343	718.358	5/8" REBAR SET	0.377	718.735				
112	1425001.439	163020.771	723.384	BARN NAIL SET	0.377	723.761				
200	1425503.91	163151.251	722.481	MAG NAIL SET IN CONC.	0.377	722.858				
201	1425502.681	163119.107	715.535	MAG NAIL SET IN CONC.	0.377	715.912				
202	1425533.829	163161.678	713.842	MAG NAIL SET IN CONC.	0.377	714.219				
203	1425581.602	163154.332	716.079	MAG NAIL SET IN CONC.	0.377	716.456				
204	1425565.097	163179.218	722.89	MAG NAIL SET IN CONC.	0.377	723.267				
30240	1425382.683	163049.695	702.204	CUT "X" IN CONC.	0.377	702.581				

ORIGINATING BENCHMARK- THE ORIGINATION BENCHMARK WAS BASED ON VRS (VIRTUAL REFERENCE STATION) CONTROL NETWORK (A REAL-TIME KINEMATIC (RTK) CORRECTION SERVICE OVER THE INTERNET ESTABLISHED BY SEILER COMPANY ON POINT NUMBER 110 AND WAS VERIFIED BY AN OPUS SOLUTION. POINT NUMBER 110: 722.227' (NAVD 88) + 0.377' = 722.604' (NGVD 29)

ALL ELEVATIONS FOR THE PURPOSE OF THIS SURVEY WERE CONVERTED FROM NAVD88 TO NGVD29 UTILIZING VERTCON (AN NUMBER 110 WAS 0.377 FEET. THIS SHIFT WAS APPLIED TO ALL POINTS LOCATED DURING THE COURSE OF THIS SURVEY. ALL VERTICAL ELEVATIONS SHOWN ON THIS SURVEY ARE IN THE NGVD29 DATUM AS REQUESTED BY THE CLIENT.

POINT NUMBER 110- A 5/8 INCH DIAMETER REBAR WITH RED CAP STAMPED "BANNNG CONTROL" SET IN THE TOP CENTER OF THE DAM WEST OF THE WALKING PATH APPROXIMATELY 135 FEET SOUTH OF THE STAIRCASE AT THE START OF SAID

ELEV: 722.227' (NAVD88) 722.604' (NGVD29)

POINT NUMBER 111- A 5/8 INCH DIAMETER REBAR WITH RED CAP STAMPED "BANNNG CONTROL" SET ON THE HILL ON THE NORTH SIDE OF THE PARKING LOT APPROXIMATELY 80 FEET NORTHWEST OF THE WEST EDGE OF THE NORTH WING WALL OF THE SPILLWAY AND 39 FEET NORTHEAST OF NORTH EDGE OF ASPHALT IN THE FIRST PARKING SPOT OF SAID LOT. ELEV: 718.358' (NAVD88) 718.735' (NGVD29)

POINT NUMBER 200- A MAG NAIL SET IN THE TOP CENTER OF THE SOUTH CONCRETE WING WALL OF THE SPILLWAY FOR

ELEV: 722.481' (NAVD88) 722.858' (NGVD29)

POINT NUMBER 201- A MAG NAIL SET IN THE WESTERLY TOP OF THE SOUTH CONCRETE WING WALL OF THE SPILLWAY FOR ELEV: 715.535' (NAVD88) 715.912' (NGVD29)

POINT NUMBER 202- A MAG NAIL SET IN THE CENTER OF THE CONCRETE SLAB OF THE SPILLWAY FOR OGLE LAKE. ELEV: 713.842' (NAVD88) 714.219' (NGVD29)

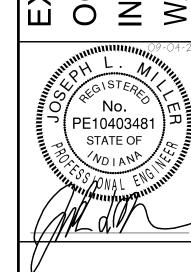
POINT NUMBER 203- A MAG NAIL SET IN THE WESTERLY TOP OF THE NORTH CONCRETE WING WALL OF THE SPILLWAY FOR

POINT NUMBER 204- A MAG NAIL SET IN THE TOP CENTER OF THE NORTH CONCRETE WING WALL OF THE SPILLWAY FOR

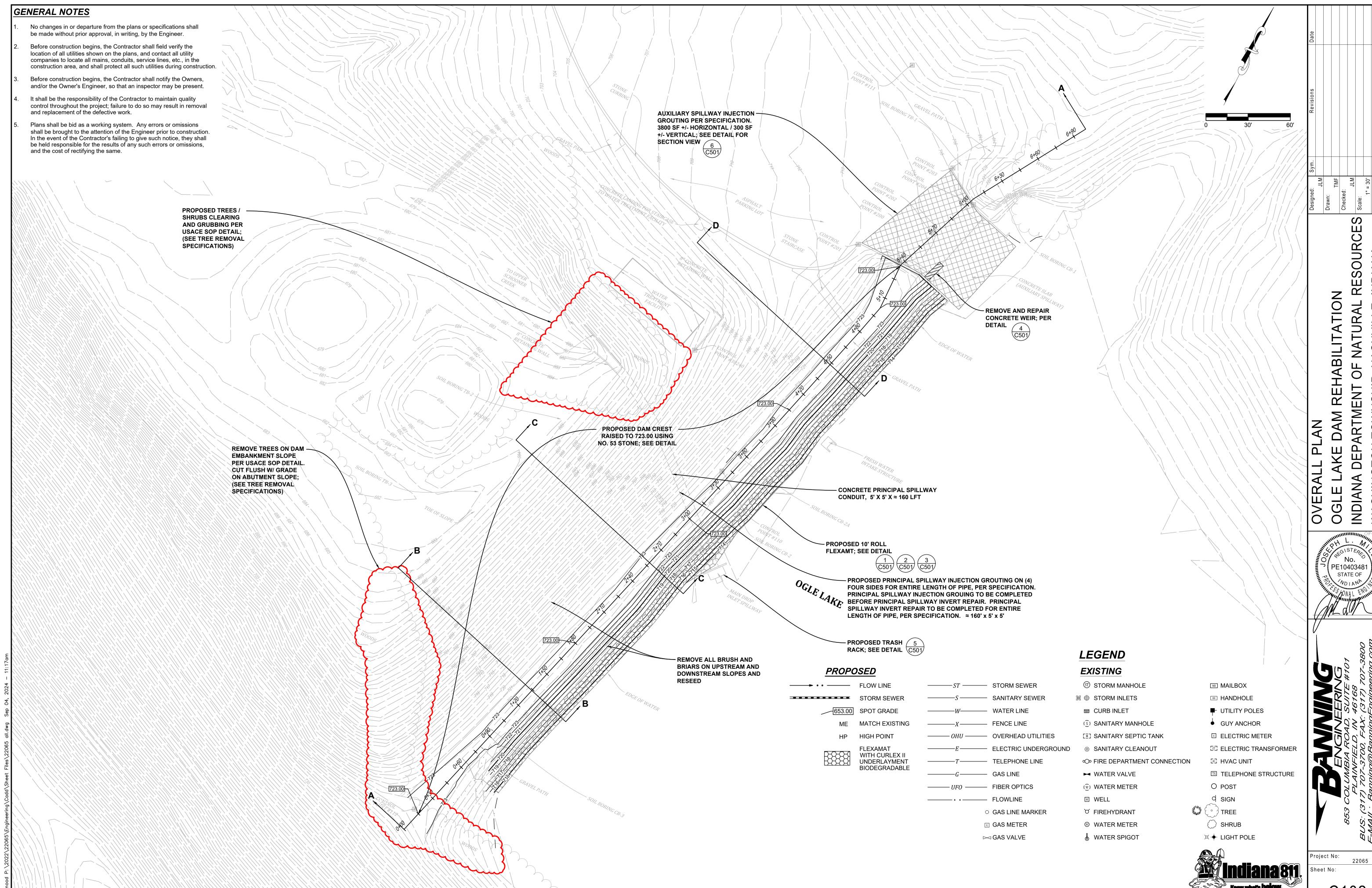
ELEV: 722.890' (NAVD88) 723.267' (NGVD29)

POINT NUMBER 30240- A CUT "X" IN CONCRETE ON THE SOUTHEAST TOP OF A RETAINING WALL THAT SURROUNDS THE WATER TREATMENT FACILITY SOUTH OF THE PARKING LOT.

GLE

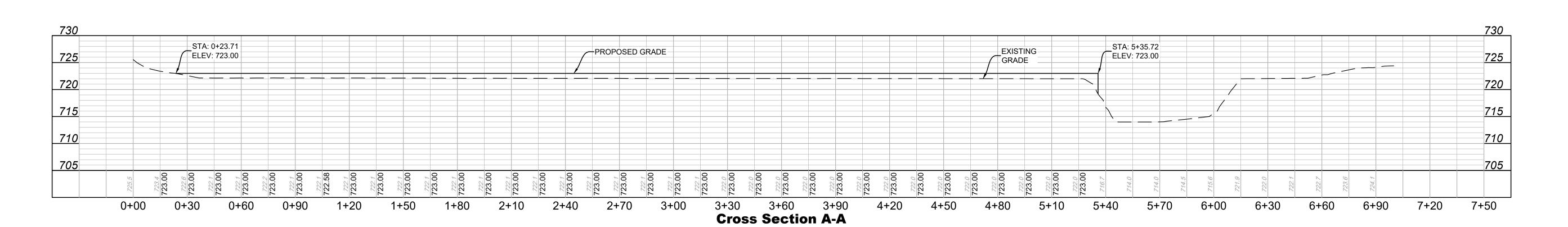


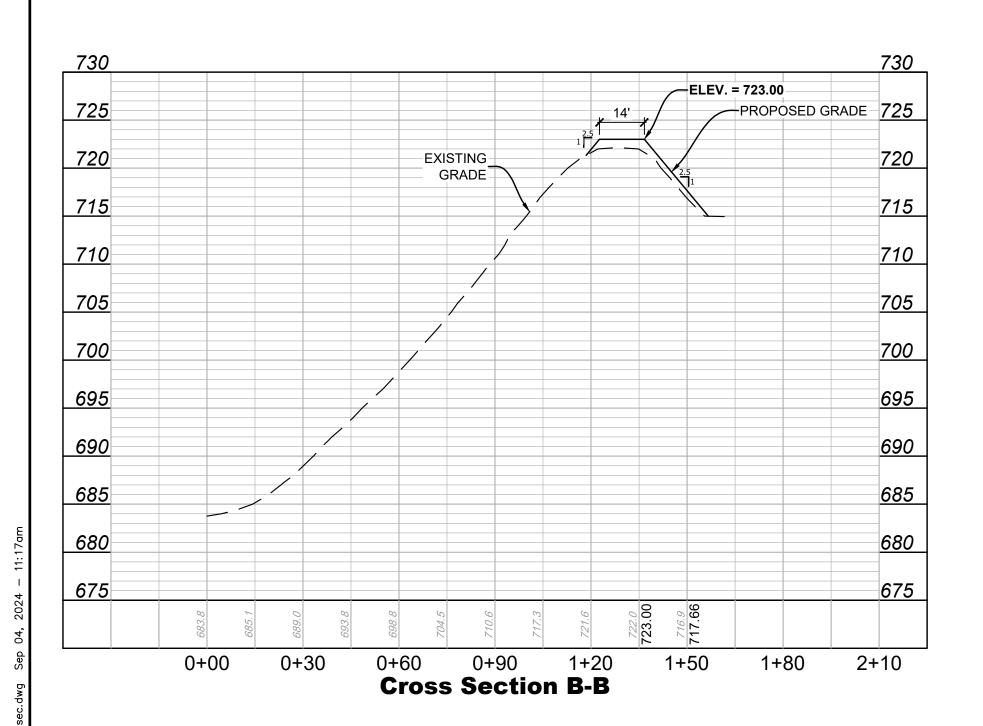
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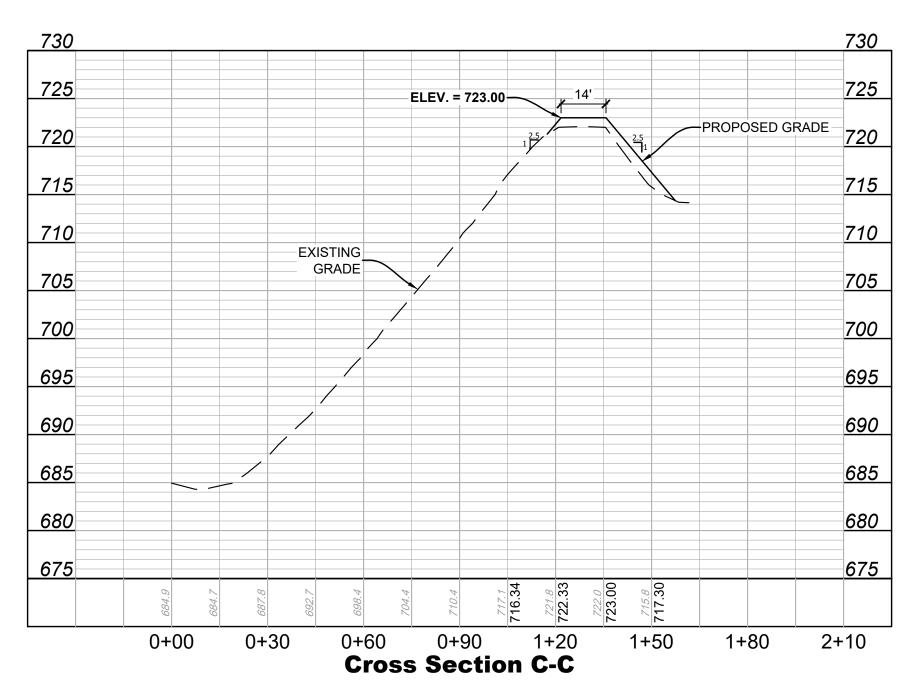


O INDIANA NASHVILLE Ž TOWNSHIP; ASHINGTON GLE DIAN

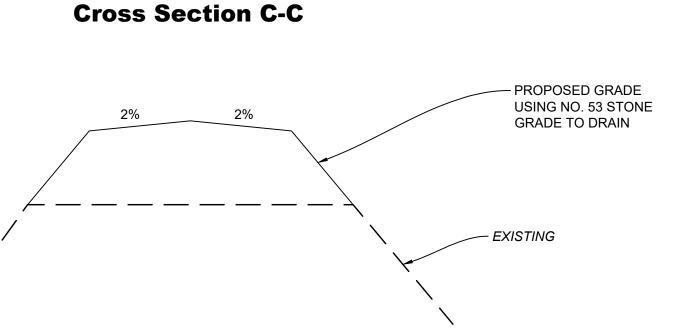


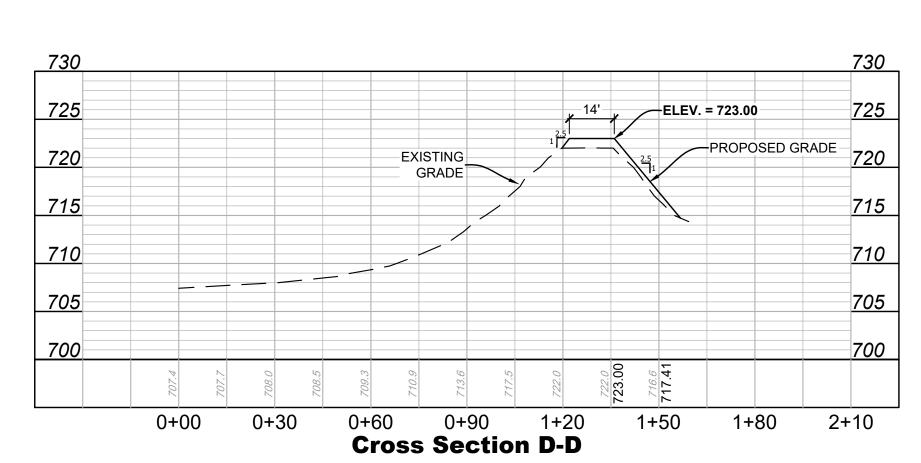






TYPICAL CREST SECTION

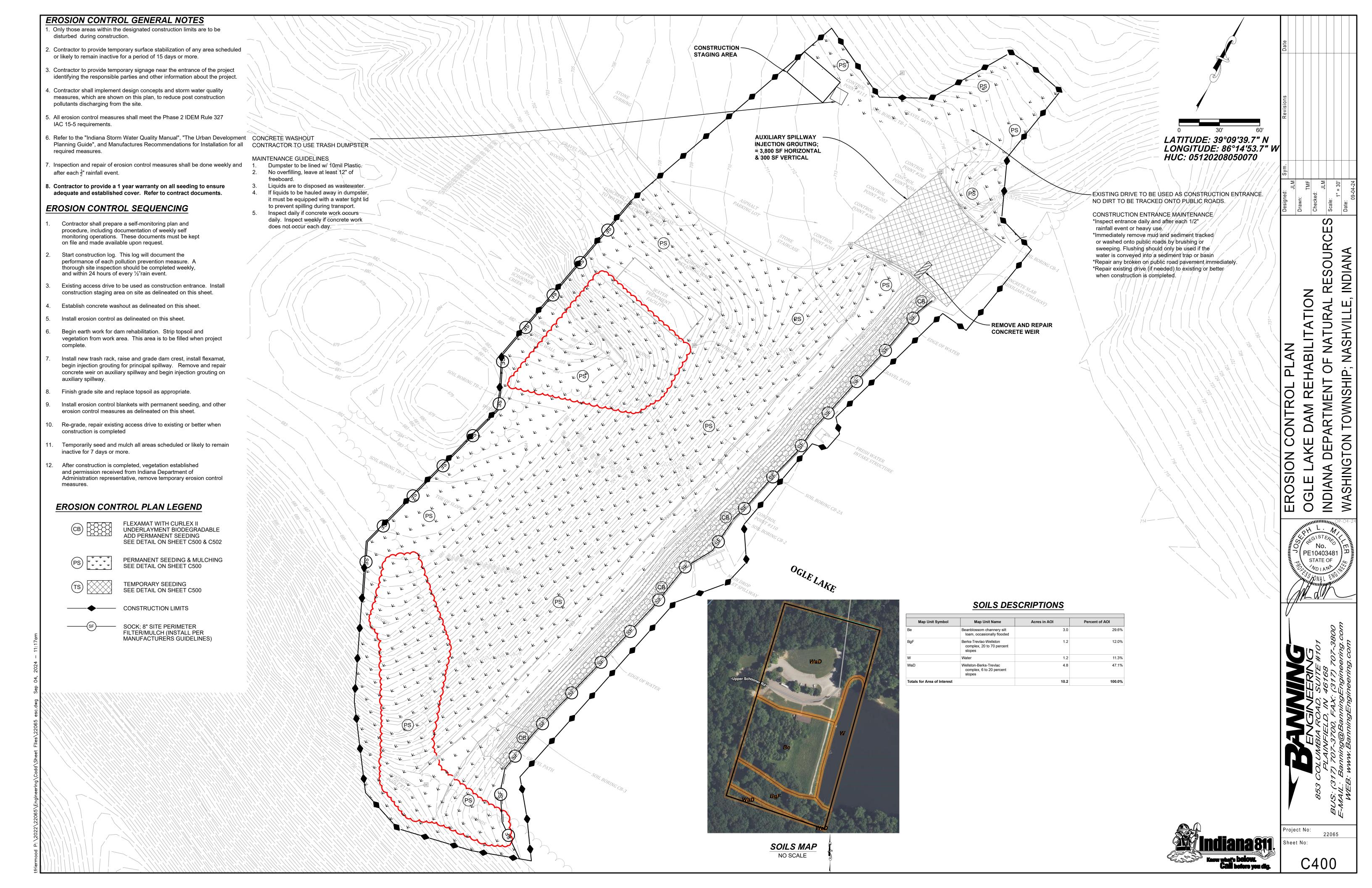






RESOURCES ASHINGTON TOWNSHIP; NASHVILLE, INDIANA OF NATURAL

Project No: 22065



A6 - 11 X 17-inch plat showing building lot numbers/boundaries and road layout/names: Provided as attachment to this narriative A7 - Boundaries of the one hundred (100) year floodplains, floodway fringes, and floodways See Plan Set: This site is located in Flood Zone X (Areas of 0.2% annual chance flood; areas of 1% annual chance flood with

average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood) per Firm Map 18013C0140E Dated December 08, 2016. See this Sheet. A8 - Land use of all adjacent properties: See Plan Set: Existing Topography Plan, C101

South: Wooded East: Wooded

A9 - Identification of a U.S. EPA approved or established TMDL:

North: Wooded

A10 - Name(s) of the receiving water(s): A11 - Identification of discharges to a water on the current 303(d) list of impaired waters and the pollutant(s)

A12 - Soils map of the predominate soil types: See Plan Set: Erosion Control Plan, C400

A13 - Identification and location of all known wetlands, lakes, and water courses on or adjacent to the project site construction plan, existing site layout): See Plan Set: Existing Topography Plan, C101 A14 - Identification of any other state or federal water quality permits or authorizations that are required for

401 Water Quality Certification (IDEM): None Section 404 Permit (USACE): None

A15 - Identification and delineation of existing cover, including natural buffers: See Plan Set: Existing Topography Plan, C101 A16 - Existing site topography at an interval appropriate to indicate drainage patterns:

Construction in a Floodway (IDNR): None

See Plan Set: Existing Topography Plan, C101 A17- Location(s) where run-off enters the project site:

See Plan Set: Existing Topography Plan, C101 A18 - Location(s) where run-off discharges from the project site prior to land disturbance: See Plan Set: Existing Topography Plan, C10:

A19 - Location of all existing structures on the project site: See Plan Set: Existing Topography Plan, C101 A20 - Existing permanent retention or detention facilities, including manmade wetlands, designed for the purpose of stormwater management:

See Plan Set: Existing Topography Plan, C101 A21 - Locations where stormwater may be directly discharged into ground water, such as abandoned wells, sinkholes, or karst features:

A22 - Size of the project area expressed in acres A23 - Total expected land disturbance expressed in acres:

00.000 Acres +/-A24 - Proposed final topography: See Plan Set: Overall Plan, C10

A25 - Locations and approximate boundaries of all disturbed areas: Construction Limits, Erosion Control Plan, C400

A26 - Locations, size, and dimensions of all stormwater drainage system such as culverts, stormwater sewer, See Plan Set: Overall Plan, C103

A27 - Locations of specific points where stormwater and non-stormwater discharges will leave the project site: See Plan Set: Overall Plan, C102

A28 - Location of all proposed site improvements, including roads, utilities, lot delineation and identification proposed structures, and common areas: See Plan Set: Overall Plan, C102

A29 - Location of all on-site and off-site soil stockpiles and borrow areas: A30 - Construction support activities that are expected to be part of the project:

Construction support activities include construction entrance (existing drive), construction staging area (existing parking lot), and A31 - Location of any in-stream activities that are planned for the project including, but not limited to, stream

crossings and pump arounds: See Plan Set: Overall Plan, C102 and Erosion Control Plan, C400

**Stormwater Pollution Prevention - Construction Component (Section B)** B1 - Description of the potential pollutant generating sources and pollutants, including all potential non-stormwater

Silt and sediment from exposed soils, leaves, mulch, vehicular sources such as leaking fuel or oil, brake fluid, brake dust, antifreeze, trash, debris, biological agents found in trash, fertilizers, herbicides, pesticides, lime dust and concrete washout. **B2** - Stable construction entrance locations and specifications: For Location, See Plan Set: Erosion Control Plan, C400

B3 - Specifications for temporary and permanent stabilization: Temporary seeding is required for any area left for 7 days or longer within this project, such as soil stockpiles. Temporary seeding is also required in areas that will be disturbed in future projects. This seeding will be placed after finish grading and topsoil replacement. Permanent seeding will be applied in areas under the solar panels after replacement of topsoil as described in the construction sequencing. For Locations See Plan Set: Erosion Control Plan, C400

For Detail See Plan Set: Erosion Control Details & Miscellaneous Details, C500 - C501 **B4 - Sediment control measures for concentrated flow areas:** 

For Detail, See See Plan Set: Erosion Control Details, C500

B5 - Sediment control measures for sheet flow areas: Mulch sock will be installed along portion of the project to collect sediment runoff.

For Locations see Plan Set: Erosion Control Plans, C400 For details See Plan Set: Erosion Control Details, C500 B6 - Run-off control measures:

Almost all of the erosion control measures used at this site can be viewed as runoff control measures, with the possible exception of the construction entrance and the concrete washout area, in that they either reduce the velocity, such as mulch sock. Even erosion control blankets could be said to be a runoff control measure in that they certainly reduce the erosiveness of the runoff. For Locations see Plan Set: Erosion Control Plans, C400 For details See Plan Set: Erosion Control Details, C500

B7 - Stormwater outlet protection location and specifications:

**B8** - Grade stabilization structure locations and specifications: None Required.

All recycling containers shall be clearly labeled.

**B9 - Dewatering applications and management methods:** Description and Purpose Dewatering operations are practices that manage the discharge of pollutants when non- stormwater and accumulated precipitation

hese practices are implemented for discharges of non-stormwater from construction sites. Non-stormwaters include, but are not limited to, groundwater, water from cofferdams, water diversions, and waters used during construction activities that must be removed from a work area. Practices identified in this section are also appropriate for implementation when managing the removal of accumulated precipitation (stormwater) from depressed areas at a construction site.

Site conditions will dictate design and use of dewatering operations. The controls discussed in this best management practice (BMP) address sediment only. The controls detailed in this BMP only allow for minimal settling time for sediment particles. Use only when site conditions restrict the use of the other control methods. Dewatering operations will require, and must comply with, applicable local permits.

Dewatering discharges must not cause erosion at the discharge point. A variety of methods can be used to treat water during dewatering operations. Several devices are presented below and provide options to achieve sediment removal. The size of particles present in the sediment and permit or receiving water limitations on sediment are key considerations for selecting ediment treatment option(s); in some cases, the use of multiple devices may be appropriate. **B10** - Measures utilized for work within waterbodies:

B11 - Maintenance guidelines for each proposed stormwater quality measure: Each Measure shall be inspected weekly and after each 1/2" rainfall event. Follow maintenance guidelines for each measure as specified in each relevant construction detail. See Plan Set: Erosion Control Detail, C500

B12 - Planned construction sequence that describes the implementation of stormwater quality measures in relation to land disturbance: See Plan Set: Erosion Control Plan, C400 B13 - Provisions for erosion and sediment control on individual residential building lots regulated under the

proposed project: B14 - Material handling and spill prevention and spill response plan meeting the requirements in 327 IAC 2-6.1:

&  ${\tt B15}$  - Material handling and storage procedures associated with construction activity: MATERIAL HANDLING: The proper management and disposal of waste should be practiced on site at all times to reduce pollution of storm waterrunoff. Hazardous waste should always be disposed of through a designated hazardous waste management or recycling

Designate a waste collection area on-site that does not receive a substantial amount of runoff from upland areas and does not drain directly into a water body.

Keep products in original containers with original labels and material safety data information attached. Make sure products ire properly sealed to prevent leaks and spills and stored in a weather proof self contained area away from heat, sparks and A program for recycling or disposal of materials associated with or from the project site shall be established by the contractor.

All construction activities are to be monitored and maintained by the contractor. As each new subcontractor comes on-site, the contractor will conduct and document a meeting to ensure awareness of the pollutant prevention program. Guidelines for proper handling, storage and disposal of construction site wastes shall be posted in the storage and use areas, and workers shall be trained in these practices.

Containers and equipment must be inspected regularly for leaks, corrosion, support or foundation failure, or any other signs of deterioration and must be tested for soundness. Any found to be defective should be repaired or replaced immediatel

SPILL PREVENTION PLAN:

The intention of this Spill Prevention, Control and Countermeasures (SPCC) is to establish the procedures and equipment required to prevent the discharge of oil and hazardous substances in quantities that violate applicable water quality standards, cause a sheen upon or discoloration of the surface of navigable waters or adjoining shorelines, or cause sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines. The Plan also establishes the activities required to mitigate such discharges (i.e.,

Pollutant: means pollutant of any kind or in any form, including but not limited to sediment, paint, cleaning agent, concrete washout, pesticides, nutrients, trash, hydraulic fluids, fuel, oil, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged soil.

Discharge Includes but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping. Navigable Waters:

Means all waters of the United States that are connected with a navigable stream, lake, or sea. [Note: This definition is usually interpreted to mean any wastewater (even normally dry wash or storm sewer) that eventually drains into a navigable stream]. Plan Review and Amendments

This Plan shall be reviewed and/or amended, if necessary, whenever there is a change in the design of the site, construction, operation, or maintenance which materially affects the site's potential for the discharge of regulated material **Prediction of Potential Spills:** 

Nearest Navigable Water: Upper Schooner Creek Drainage System: All storm drainage leaves the site by open ditches and closed storm systems to Ogle Lake Outlet a tributary of Upper Schooner Creek.

Possible Spill Sources (During and post construction): Vehicular sources such as leaking fuel or oil, brake fluid, grease antifreeze; trash and debris, biological agents found in trash and debris, fertilizers, household items including but not limited to cleaning agents, chemicals, paint, herbicides and pesticides.

is felt that there is little or no possibility of post construction groundwater contamination. The facility does have public

Groundwater Contamination: The facility maintains NO above ground or under ground storage tanks at this site. Therefore, it

sanitary sewer and public water. Alert Procedures for Spills: Any personnel observing a spill will immediately instigate the following procedure:

Dialing "911" from any telephone. Notify the appropriate emergency personnel. The Emergency Coordinator will then take the following actions:

Barricade the area allowing no vehicles to enter or leave the spill zone. Notify the Indiana Department of Environmental Management, Office of Emergency Response by calling the appropriate telephone number: 317-233-7745

Toll Free 800-233-7745 Also the National Response Center at 800-424-8802 and provide the following information: Time of observation of the spill

Location of the spill Identity of material spilled Probable source of the spill

Probable time of the spill Volume of the spill and duration Present and anticipated movement of the spill

Weather conditions Personnel at the scene Action initiated by personnel

Notify the Town of Nashville Fire Department Phone: 9-1-1 Notify the Town of Nashville Police department Phone: 9-1-1 Notify waste recovery contractor, maintenance personnel or other contractual personnel as necessary for cleanup.

Cooperate with the IDEM-OER on procedures and reports involved with the event. The Developer shall be continually kept informed, maintain lists of qualified contractors and available Vac-trucks, tank

Coordinate and monitor cleanup until the situation has been stabilize and all spills have been eliminated.

pumpers and other equipment readily accessible for clean-up operations. In addition, a continually applied list of available absorbent materials and clean-up supplies should be kept on site. All maintenance personnel will be made aware of techniques for prevention and containment of spills. They will be informed of the requirements and procedures outlined in this plan. They will be kept abreast of current developments

or new information on the prevention of spills and / or necessary alterations to this plan If spills occur which could endanger human life, this becomes the primary concern. The discharge of the life saving protection function will be carried out by the local police and fire departments. Absorbent materials, which are used in cleaning up spilled materials, will be disposed of in a manner subject to the approval of the Indiana Department of Environmental Management. Flushing of spilled material with water will not be permitted unless so authorized by the Indiana Department of Environmental Management.

ADDITIONAL STORMWATER POLLUTION PREVENTION MEASURES VEHICLE & EQUIPMENT MAINTENANCE

**Description and Purpose:** Prevent or reduce the contamination of stormwater resulting from vehicle and equipment maintenance by running a "dry and clean site". The best option would be to perform maintenance activities at an offsite facility. If this option is not available then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately Suitable Applications:

These procedures are suitable on all construction projects where an onsite yard area is necessary for storage and maintenance of heavy equipment and vehicles.

Onsite vehicle and equipment maintenance should only be used where it is impractical to send vehicles and equipment offsite for maintenance and repair. Sending vehicles/equipment offsite should be done in conjunction with a stabilized Construction Entrance/ Exit. Outdoor vehicle or equipment maintenance is a potentially significant source of stormwater pollution. Activities that can contaminate stormwater include engine repair and service, changing or replacement of fluids, and outdoor equipment storage and parking (engine fluid leaks).

If maintenance must occur onsite, use designated areas, located away from drainage courses. Dedicated maintenance areas should be protected from stormwater runon and runoff, and should be located at least 50 ft from downstream drainage facilities and

Drip pans or absorbent pads should be used during vehicle and equipment maintenance work that involves fluids, unless the

Place a stockpile of spill cleanup materials where it will be readily accessible.

ADDITIONAL STORMWATER POLLUTION PREVENTION MEASURES (CONTINUED): All fueling trucks and fueling areas are required to have spill kits and/or use other spill protection devices.

Use absorbent materials on small spills. Remove the absorbent materials promptly and dispose of properly.

Inspect onsite vehicles and equipment daily at startup for leaks, and repair immediately, or remove from site.

Keep vehicles and equipment clean; do not allow excessive build-up of oil and grease.

Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic and transmission fluids. Provide secondary containment and covers for these materials if stored onsite.

Properly dispose of used oils, fluids, lubricants, and spill cleanup materials.

Train employees and subcontractors in proper maintenance and spill cleanup procedures.

Do not place used oil in a dumpster or pour into a storm drain or watercourse.

Properly dispose of or recycle used batteries Do not bury used tires.

Repair leaks of fluids and oil immediately.

Keep ample supplies of spill cleanup materials onsite.

Maintain waste fluid containers in leak proof condition. VEHICLE AND EOUIPMENT FUELING

Description and Purpose: Vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling Limitations: Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite

for fueling. Sending vehicles and equipment offsite should be done in conjunction with a Stabilized Construction Entrance/Exit. Implementation: Use offsite fueling stations as much as possible. These businesses are better equipped to handle fuel and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate fueling area at a site.

Discourage "topping off" of fuel tanks. Absorbent spill cleanup materials and spill kits should be available in fueling areas and on fueling trucks, and should be disposed of properly after use.

Drip pans or absorbent pads should be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area.

Use absorbent materials on small spills. Do not hose down or bury the spill. Remove the absorbent materials promptly and dispose of properly. Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas.

Train employees and subcontractors in proper fueling and cleanup procedures. Dedicated fueling areas should be protected from stormwater runon and runoff and should be located at least 50 ft away from downstream drainage facilities and watercourses. Fueling must be performed on level grade areas

Protect fueling areas with berms and dikes to prevent runon, runoff, and to contain spills Nozzles used in vehicle and equipment fueling should be equipped with an automatic shutoff to control drips. Fueling operations should not be left unattended.

Federal, state, and local requirements should be observed for any stationary above ground storage tanks.

Vehicles and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately or problem vehicles or equipment should be removed from the project site.

Keep ample supplies of spill cleanup materials onsite.

Avoid mixing excess amounts of fresh concrete.

Immediately clean up spills and properly dispose of contaminated soil and cleanup materials.

The following steps will help reduce stormwater pollution from concrete wastes:

Discuss the concrete management techniques described in this BMP (such as handling of concrete waste and washout) with the ready mix concrete supplier before any deliveries are made.

Incorporate requirements for concrete waste management into material supplies and subcontractor agreements.

Store dry and wet materials under cover, away from drainage areas.

Perform washout of concrete trucks offsite or in designated areas only. Do not wash out concrete trucks into storm drains, open ditches, streets, or streams. Do not allow excess concrete to be dumped onsite, except in designated areas.

For onsite washout: -Locate washout area at least 50 feet from storm drains, open ditches, or water bodies.

Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste. Liquid that accumulates in a washout area may be high in alkalinity and must be disposed of properly -Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly. -Avoid creating runoff by draining water to a bermed or level area when washing concrete to remove fine particles and expose the

-Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.

SOLID WASTE MANAGEMENT Description and Purpose: Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging or regular disposal, and training employees and subcontractors

Suitable Applications: This BMP is suitable for construction sites where the following wastes are generated or stored: Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction. Packaging materials including wood, paper, and plastic.

Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces and masonry products.

Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes. Construction wastes including brick, timber, steel and metal scraps, pipe and electrical cuttings, nonhazardous equipment parts, styrofoam and other materials from transport and package construction material

Select designated waste collection areas onsite.

Inform contractors that you will accept only watertight dumpsters for onsite use Inspect dumpsters for leaks and repair any dumpster that is not watertight.

Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy

Plan for additional containers and more frequent pickup during the demolition phase of construction.

Collect site trash daily, especially during rainy and windy conditions. Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.

Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris

Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.

Arrange for regular waste collection before containers overflow.

Clean up immediately if a container does spill. Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas.

Incorporate requirements for solid waste management into builder and subcontractor agreements.

Littering on the project site should be prohibited. To prevent clogging of the storm drainage system, litter and debris removal from drainage grates, trash racks, and ditch lines should

Trash receptacles should be provided in the contractor's yard, field trailer areas, and at locations where workers congregate for lunch

Litter from work areas within the construction limits of the project site should be collected and placed in watertight dumpsters at least weekly, regardless of whether the litter was generated by the contractor, the public, or others. Collected litter and debris should not be placed in or next to drain inlets, stormwater drainage systems, or watercourse

Dumpsters of sufficient size and number should be provided to contain the solid waste generated by the project. Full dumpsters should be removed from the project site and the contents should be disposed of by the trash hauling contractor.

Construction debris and waste should be removed from the site biweekly or more frequently as needed.

Construction material visible to the public should be stored or stacked in an orderly manner.

Stormwater runon should be prevented from contacting stored solid waste through the use of berms, dikes, or other temporar diversion structures or through the use of measure to elevate waste from site surfaces.

area prone to flooding or ponding Inspection and Maintenance: Inspect construction waste area weekly

Solid waste storage areas should be located at least 50 ft. from drainage facilities and watercourses and should not be located in

Arrange for regular waste collection.

concern. Outlet protection is required to prevent erosion at the outfall location.

fabric that collects sand, silt, and fines.

larger than

DEWATERING AND PUMPING OPERATIONS Description and Purpose: Dewatering operations are practices that manage the discharge of pollutants when non-stormwater and

accumulated precipitation must be removed from a work location so that construction work may be accomplished

Suitable Applications: These practices are implemented for discharges of non-stormwater from construction sites. Non-stormwaters include, but are not limited to, groundwater, water from cofferdams, water diversions, and waters used during construction activities that must be removed from a work area. Practices identified in this section are also appropriate for implementation when managing the removal of accumulated precipitation (stormwater) from depressed areas at a construction site.

Limitations: Site conditions will dictate design and use of dewatering operations. The controls discussed in this best management practice (BMP) address sediment only. The controls detailed in this BMP only allow for minimal settling time for sediment particles. Use only when site conditions restrict the use of the other control methods. Dewatering operations will require, and must comply

water during dewatering operations. Several devices are presented below and provide options to achieve sediment removal. The size of particles present in the sediment and permit or receiving water limitations on sediment are key considerations for selecting sediment treatment option(s); in some cases, the use of multiple devices may be appropriate. Description: A sediment basin is a temporary basin with a controlled release structure that is formed by excavation or construction of an embankment to detain sediment-laden rúnoff and allow sediment to settle out before discharging. Śediment basins are generally

nplementation: Dewatering discharges must not cause erosion at the discharge point. A variety of methods can be used to treat

Sediment Traps Appropriate Applications: Effective for the removal of gravel, sand, silt, some metals that settle out with the sediment, and trash. Implementation: Excavation and construction of related facilities is required. Temporary sediment basins must be fenced if safety is a

Maintenance: Maintenance is required for safety fencing, vegetation, embankment, inlet and outfall structures, as well as other features. Removal of sediment is required when the storage volume is reduced by one half

Description: A sediment trap is a temporary basin formed by excavation and/or construction of an earthen embankment across a waterway or low drainage area to detain runoff and allow sediment to settle out before discharging. Sediment Traps are generally

Appropriate Applications: Effective for the removal of large and medium sized particles (sand and gravel) and some metals that settle Implementation: Excavation and construction of related facilities is required. Trap inlets should be located to maximize the travel distance to the trap outlet. Use rock or vegetation to protect the trap outlets against erosion

sediment is required when the storage volume is reduced by one third. GRAVITY BAG FILTER (DEWATERING BAG) Description: A gravity bag filter, also referred to as a dewatering bag, is a square or rectangular bag made of non-woven geotextile

Maintenance: Maintenance is required for vegetation, embankment, inlet and outfall structures, as well as other features. Removal of

Appropriate Applications: Effective for the removal of sediments (gravel, sand, and silt). Some metals are removed with the mplementation: Water is pumped into one side of the bag and seeps through the bottom and sides of the bag. A secondary barrier,

such as a rock filter bed or straw/hay bale barrier, is placed beneath and beyond the edges of the bag to capture sediments that

Maintenance: Inspection of the flow conditions, bag condition, bag capacity, and the secondary barrier is required. Replace the bag when it no longer filters sediment or passes water at a reasonable rate. The bag is disposed of offsite

C1 - Description of pollutants and their sources associated with the proposed land use:

Leaves, mulch, vehicular sources such as leaking fuel or oil, brake fluid, brake dust, grease, antifreeze, metals, rubber fragments. road grit, salts and sands, trash and debris, fertilizers, cleaning agents chemicals, paint, animal waste, elevated storm runol

C2 - Description of proposed post-construction stormwater measures:

Permanent seeding will be placed to act as a filter and to prevent erosion.

C3 - Plan details for each stormwater measures: For details See Plan Set: Erosion Control Details & Miscellaneous Details, C500 - C501

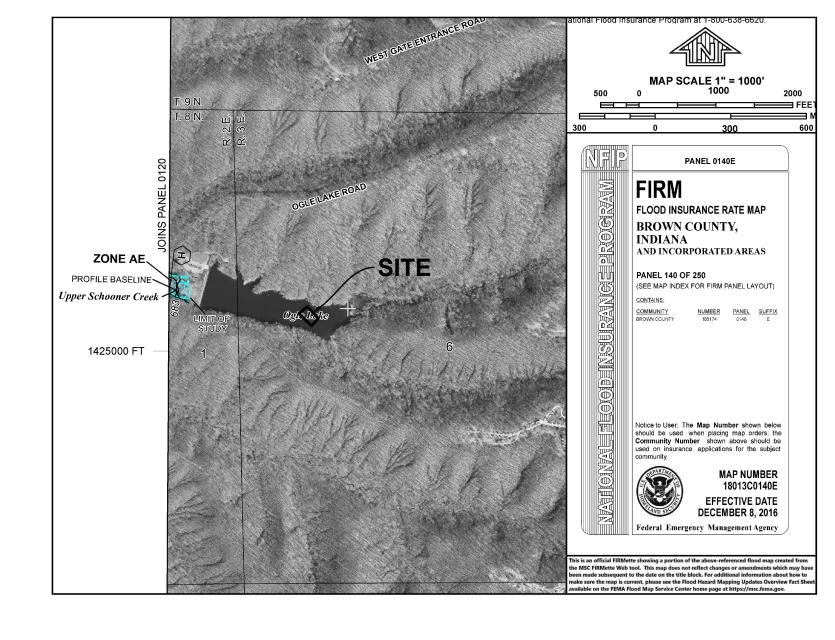
C4 - Sequence describing stormwater measure implementation. Reference Erosion Control Sequencine

See Plan Set: Erosion Control Plan, C400

Permanent seeding will be place within 7 days after final grading is completed. C5 - Maintenance guidelines for proposed post-construction stormwater measures:

Permanent seeding areas should be checked annually for issues related to performance. During this time plant seed if necessary and any erosion problems addressed. Trash should be removed on an as need basis. The grass should be kept to a 3" - 4' height Maintenance is the responsibility of the local landowner.

C6 - Entity that will be responsible for operation and maintenance of the post- construction stormwater Maintenance shall be done by the State of Indiana.





**EVALUATION FOR CONSTRUCTION PROJECTS** ained individual shall perform a written evaluation of the project site. . By the end of the next business day following each rainfall that exceeds 0.5". A minimum of one (1) time per week

Name of Trained Individual: \_ Date of Inspection: Is Evaluation following a rainfall? 0 yes 0 no If yes, date the rain stopped:

Are appropriate practices installed where stormwater leaves the site? Is mulch sock secured into the ground?
 Is mulch sock upright? Do fabric and stakes meet specifications? Is fall is mulch sock terminated to higher ground? Is it properly joined at end. . Are sediment basins and traps installed according to the plan? Are the pipes or rock spillway still functional?

9. Is the earthwork for erosion and sediment column to the discretization and the pipes of the pip Are diversions, swales, and/or waterbars installed to plan and protecte

Are inlet protection measures installed so water does not flow under Are the frame, cross-bracing and/or stakes adequate and meet specific
 Is the fabric, straw, mulch and/or stone intact without holes or tears?
 Are catch basin insert protection installed where required?

 Has temporary stabilization of distributed ground been addres
 Has all disturbed areas that will lie dormant for 7 days protect
 Has all protected dormant areas met a minimum 70% covera Does growing vegetation have sufficient water and/or nutrients to grow Is permanent stabilization of disturbed ground progressing through the project 25. Is final grading and stabilization progressing on completed area 26. Has the soil been properly prepared for seeding?

27. Has hard or soft armoring been installed where natural vegetation will erode

ALL PROBLEMS OR CONCERNS NEED TO BE ADDRESSED WITH A CORRECTIVE ACTION Identify the problem by number and/or provide additional explanation as needed.

> Developer Rep. contacted, name and date: Contractor Rep. contacted, name and date:

Report submitted by:

Sheet No

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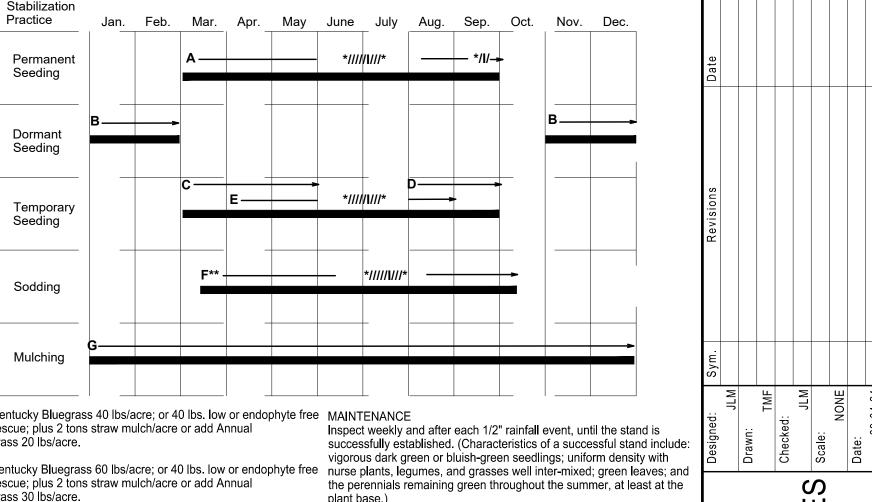
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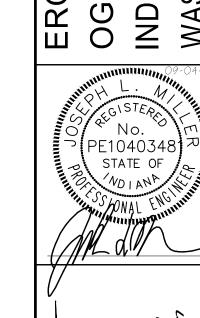
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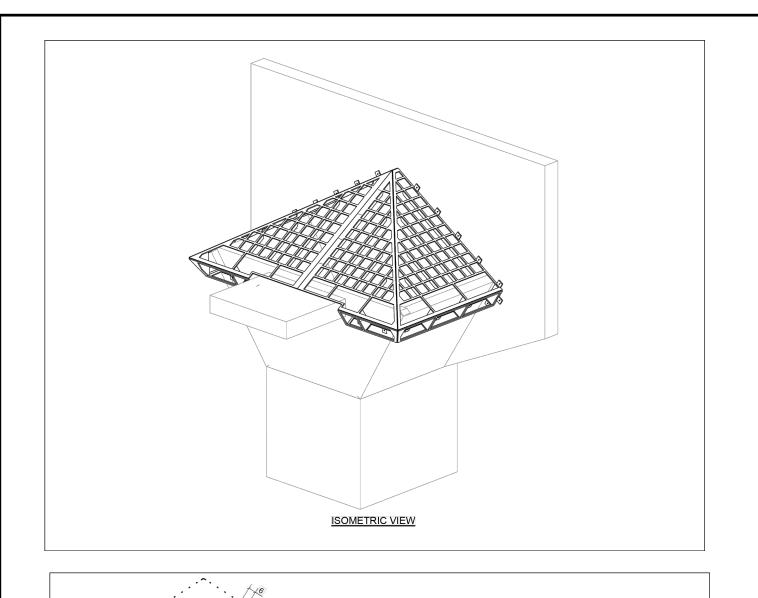
Permanent Seeding Dormant Seeding \*////\* Temporary Seeding \*////\///\* Sodding Mulching A = Kentucky Bluegrass 40 lbs/acre; or 40 lbs. low or endophyte free MAINTENANCE Inspect weekly and after each 1/2" rainfall event, until the stand is successfully established. (Characteristics of a successful stand include: tall Fescue; plus 2 tons straw mulch/acre or add Annual Ryegrass 20 lbs/acre. B = Kentucky Bluegrass 60 lbs/acre; or 40 lbs. low or endophyte free tall Fescue; plus 2 tons straw mulch/acre or add Annual

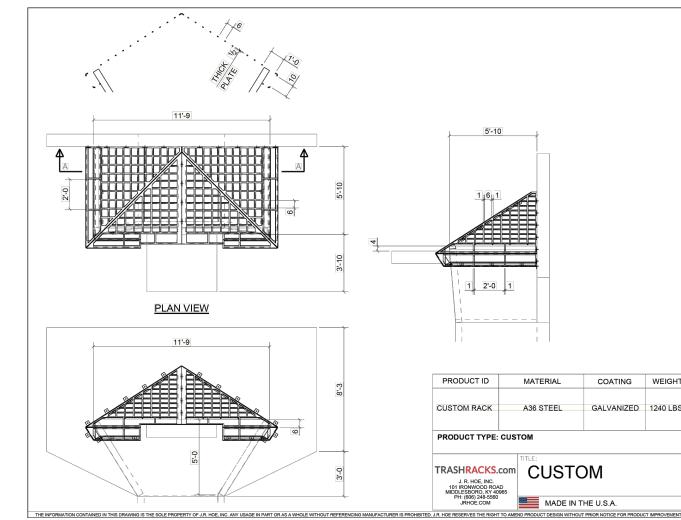
Ryegrass 30 lbs/acre S Ryegrass 30 lbs/acre. SOURCES plant base.) C = Spring Oats 100 lbs./acre Plan to add fertilizer the following growing season according to soil test recommendations. INDIANA D = Wheat or Rye 150 lbs./acre. Repair damaged, bare, or sparse areas by filling any gullies, re-fertilizing, over- or re-seeding, and mulching.

If plant cover is sparse or patchy, review the plant materials chosen, soil E = Annual Ryegrass 40 lbs/acre. (1 lb./1000 sq. ft.) F = Sod fertility, moisture condition, and mulching; then repair the affected area either by over-seeding or by re-seeding and mulching after re-preparing G = Straw Mulch 2 tons/acre. the seedbed \*/I/\* Irrigation needed during June, July, and/or September. If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems. (Contact your SWCD or Cooperative **URAL** NASHVILLE, \*\* Irrigation needed for 2 to 3 weeks after applying sod. Extension office for assistance.) Lime and fertilize to site specific soils tests or apply fertilizer If additional fertilization is needed to get a satisfactory stand, do so according to the soil test recommendations. at a rate of 1000 lbs. per acre or 12-12-12 or equivalent. DETAILS HABILITA TOF NATI All swales shall be seeded with 2 lbs. Adelphi bluegrass and 2 lbs. Perennial Derby rye, or equivalent per 1000 square feet. mulch with one bale of straw per 1000 square feet. Fertilize with 5 lbs. of 20-5-5 per 1000 square feet unless specified otherwise. **SEEDING CHART** TOWNSHIP; NO SCALE ARTMENT EROSION CO OGLE LAKE E INDIANA DEPA WASHINGTON 7









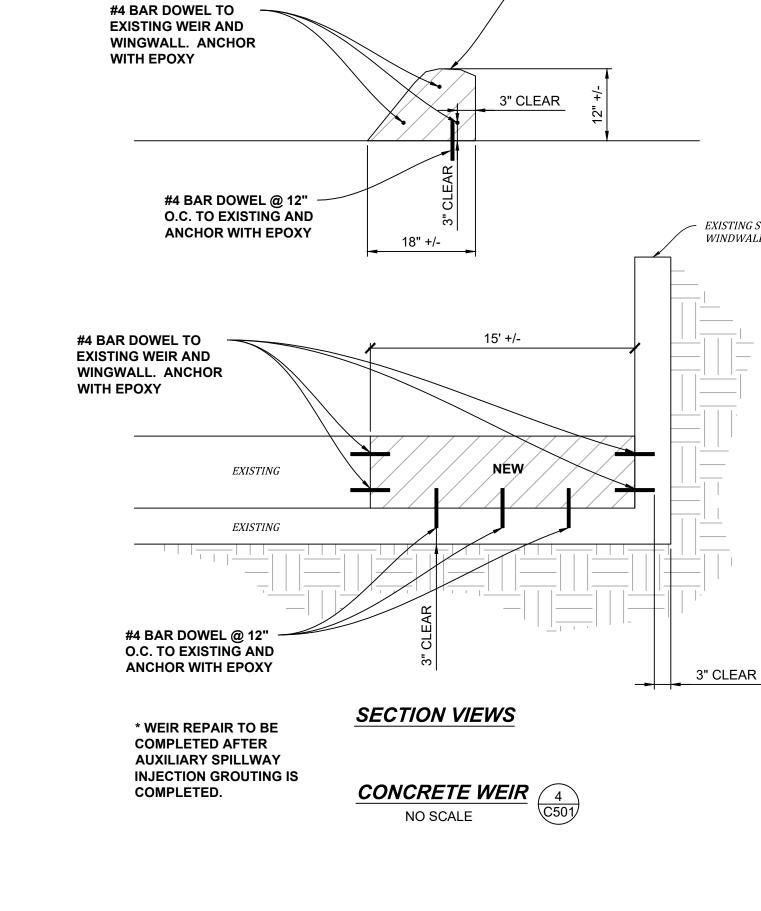
NO SCALE

\* CONTRACTOR RESPONSIBLE FOR

MANUFACTURER. DIMENSIONS SHOWN ARE FROM PREVIOUS ENGINEERING PLANS AND MAY NOT MATCH FIELD CONDITIONS.

STRUCTURE TO TRASH RACK

PROVIDING FIELD DIMENSIONS OF EXISTING TRASH RACK

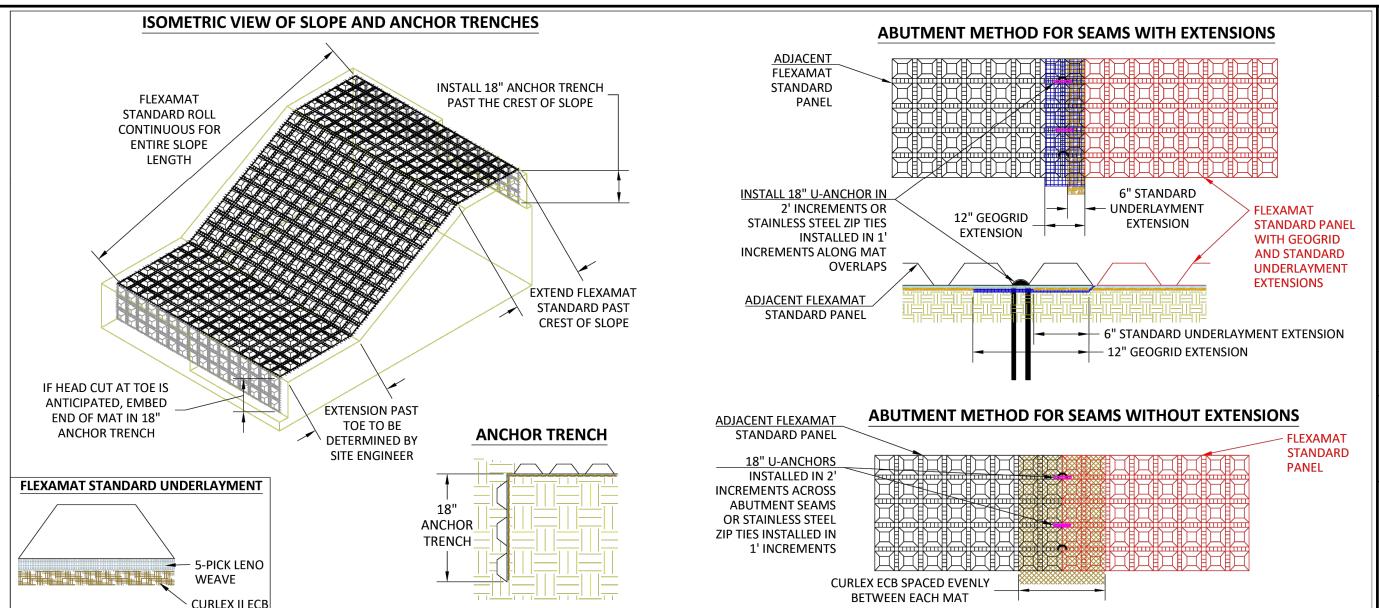


- CREST TOP TO MATCH

EXISTING SOUTH

WINDWALL

**EXISTING CHAMFER SHAPE OF CONCRETE** 



FLEXAMAT STANDARD - SLOPE ARMORING

**CONSTRUCTION NOTES:** AN ENGINEER OR MANUFACTURERS REPRESENTATIVE SHALL BE ONSITE FOR THE START OF THE INSTALLATION.

ALL SUBGRADE SURFACES PREPARED FOR PLACEMENT OF MATS SHALL BE SMOOTH AND FREE OF ALL ROCKS, STICKS, ROOTS, OTHER PROTRUSIONS, OR DEBRIS OF ANY KIND. PRIOR TO FLEXAMAT STANDARD INSTALLATION SEED AND FERTILIZE SUBGRADE WITH SITE SPECIFIC SEED MIX IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. INSTALL FLEXAMAT STANDARD ROLLS THAT ARE CONTINUOUS FOR ENTIRE SLOPE LENGTH. FOR SLOPES LONGER THAN 16', USE MATS WITH EXTENSIONS CUT TO THE LENGTH

- OF THE SLOPE. INSTALL MATS TO THAT THE MATTING EXTENDS PAST THE CREST OF SLOPE AND INTO AN 18" ANCHOR TRENCH. FOR ARMORED SLOPE LENGTHS 16' OR LESS, INSTALL CURLEX ECB EQUALLY UNDER ADJACENT MATS. SECURE SEAM WITH #3 REBAR 18" U-ANCHORS IN 2' INCREMENTS THE LENGTH OF THE ABUTMENT.
- ARMORED SLOPE LENGTHS LONGER THAN 16', INSTALL NEXT MAT OVER EXTENSIONS.
- INSTALL SUBSEQUENT MATS OVER THE GEOGRID EXTENSION AND STANDARD UNDERLAYMENT EXTENSION OF THE PREVIOUSLY INSTALLED MAT. ENSURE THE GEOGRID AND STANDARD UNDERLAYMENT EXTENSIONS ARE LAYING FLAT ON THE SUBGRADE BEFORE INSTALLING ADJACENT MAT OVER THE EXTENSIONS.
- INSTALL #3 REBAR 18" U-ANCHORS IN 2' INCREMENTS ACROSS THE GEOGRID AND STANDARD EXTENSION ABUTMENT. INSTALL ANCHORS PERPENDICULAR TO THE SLOPE DIRECTLY BEHIND FIRST ROW OF BLOCKS ON THE ADJACENT MAT.
- 7. AT THE END OF THE ARMORED SLOPE, IF HEAD CUT IS ANTICIPATED, EMBED THE MAT 18" IN A TERMINATION TRENCH. FILL AND COMPACT TERMI

FLEXAMAT INSTALLATION

\* HEADCUT NOT ANTICIPATED

2.5:1 SLOPE REQUIRED.FILL WILL BE NEEDEDTO MEET SLOPE.



Motz Enterprises, Inc. Office: 513-772-6689

MOTZ

ENTERPRISES, INC.

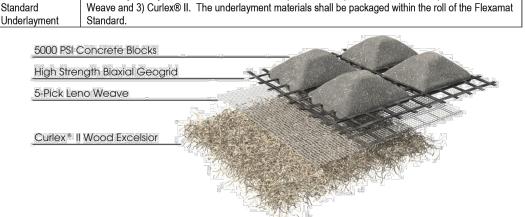
Flexamat

(513)772-6689

Info@Flexamat.com

#### Composition of Materials - Flexamat Standard

Blocks	5000 PSI, Wet-cast Portland Cement										
Interlocking	Fornit 30/30 - Polypropylene Geo	,	•	n black UV inhibitor shall							
Biaxial Geogrid	be blended into the extruded yarns										
	Property	Unit	Test	Requirement							
	Mass/Unit Area	oz/yd²	ASTM D5261	6.5 oz/yd <sup>2</sup>							
	Aperture Size	English units	Measured	1.4x 1.4 inch							
	Ultimate Wide Width Tensile Strength (MD x CMD)	lb/ft	ASTM D6637	2,055 lb/ft							
	Elongation at Ultimate Tensile Strength (MD x CMD)	%	ASTM D6637	6%							
	Wide Width Tensile Strength @ 2% (MD x CMD)	lb/ft	ASTM D6637	822 lb/ft							
	Wide Width Tensile Strength @ 5% (MD x CMD)	lb/ft	ASTM D6637	1,640 lb/ft							
	Tensile Modulus @ 2% (MD x CMD)	lb/ft	ASTM D6637	41,100 lb/ft							
	Tensile Modulus @ 5% (MD x CMD)	lb/ft	ASTM D6637	32,800 lb/ft							
Flexamat Standard Underlayment	A three-layered system includes, in order from top to bottom, 1) Concrete block mat 2) 5-Pick Leno Weave and 3) Curlex® II. The underlayment materials shall be packaged within the roll of the Flexam Standard.										



#### Manufacturing Values

Flexamat Properties	Values
Roll Width	4', 5.5', 8', 10', 12', 15.5, & 16'
Roll Length	30', 40', 50' / custom
Material Weight	10 lbs./sf
Block Size	6.5" x 6.5" x 2.25"
Percentage Open Area (POA)	30% min.

Test	Tested Value	Bed Slope	Soil Classification	Limiting Value
ASTM 6460	Shear Stress	30%	Sandy Loam (USDA)	24 PSF
ASTM 6460	Velocity	20%	Loam (USDA)	30 ft./sec

FLEXAMAT NO SCALE

- 150 SF +/- VERTICAL

SOUTH WING WALL SECTION VIEW 150 SF +/- VERTICAL (300 SF +/- TOTAL) AUXILIARY SPILLWAY

NO SCALE

NORTH WING WALL SECTION VIEW

INJECTION GROUTING C501

(300 SF +/- TOTAL)

FLEXAMAT TYPICAL SECTION

NO SCALE

NORMAL POOL

<u>Performance</u>

Project No: 22065 Sheet No:

C501

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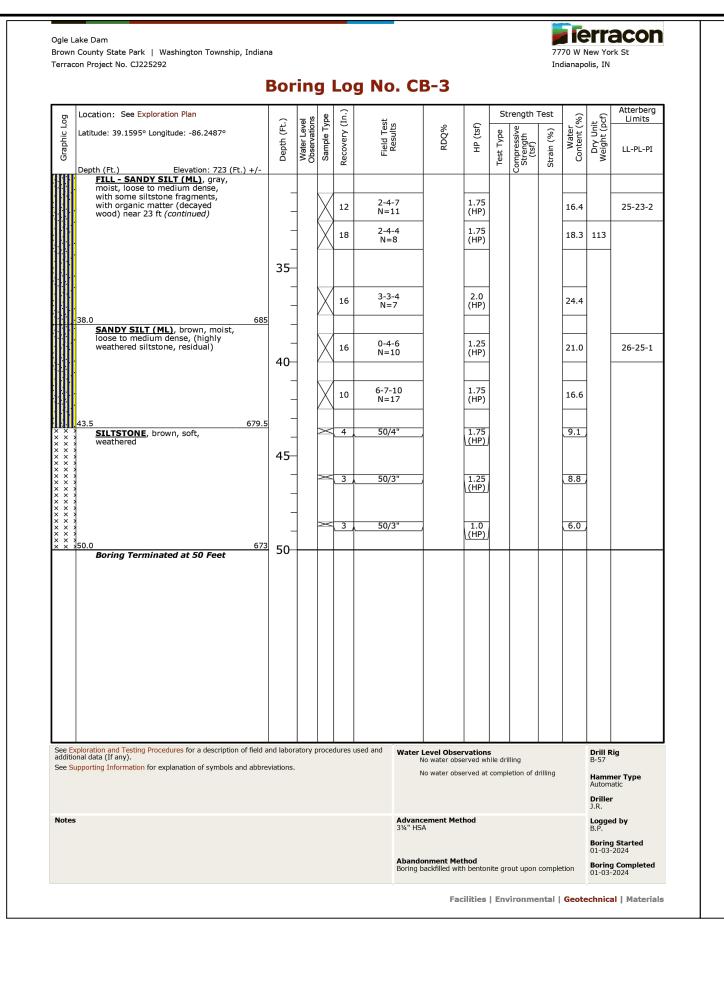
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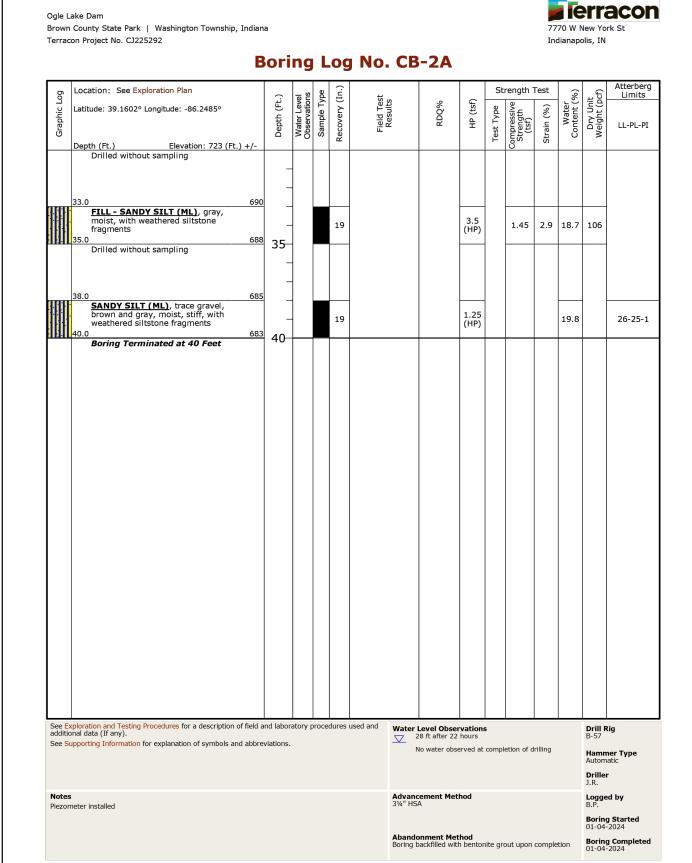
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TOWNSHIP;

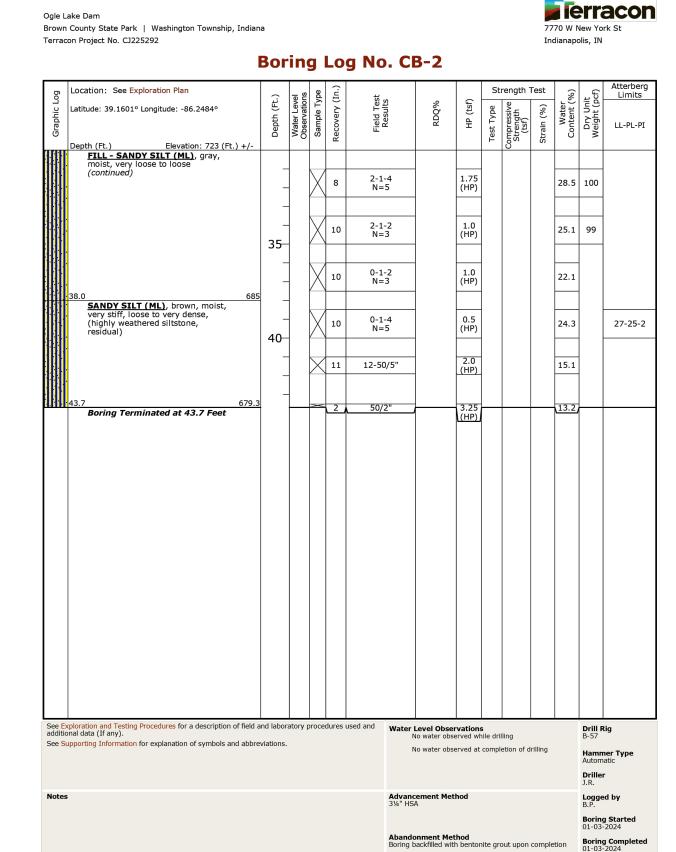
**ASHINGTON** 

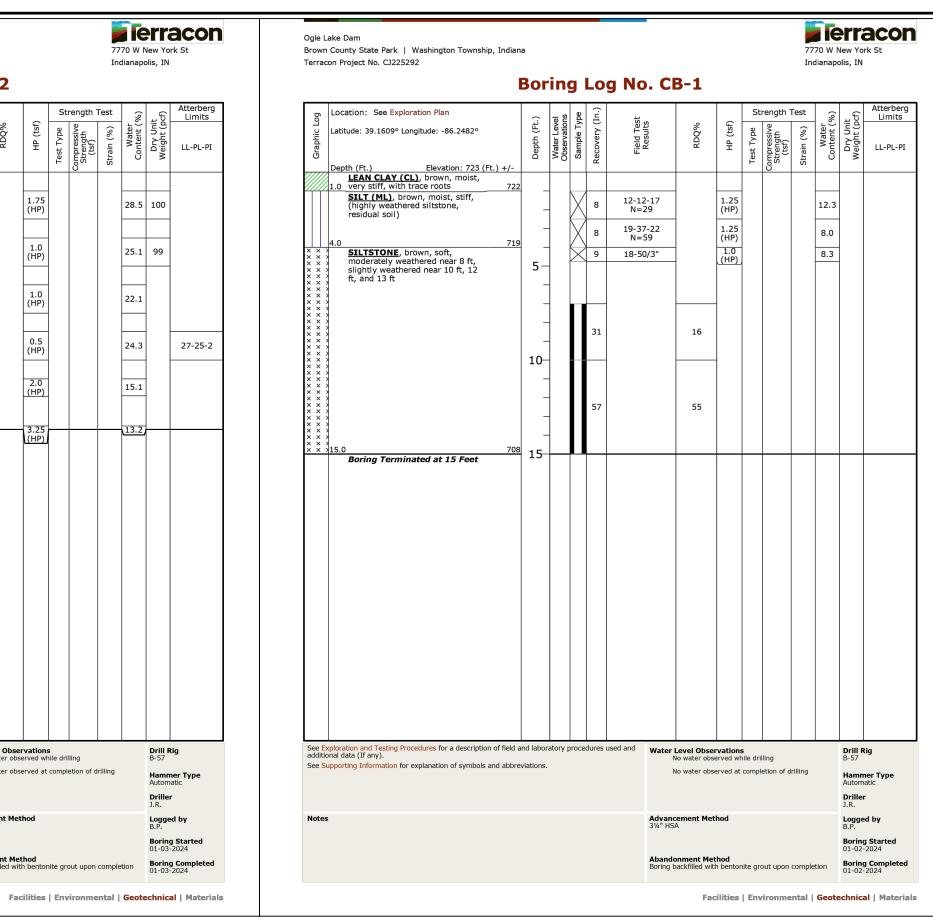
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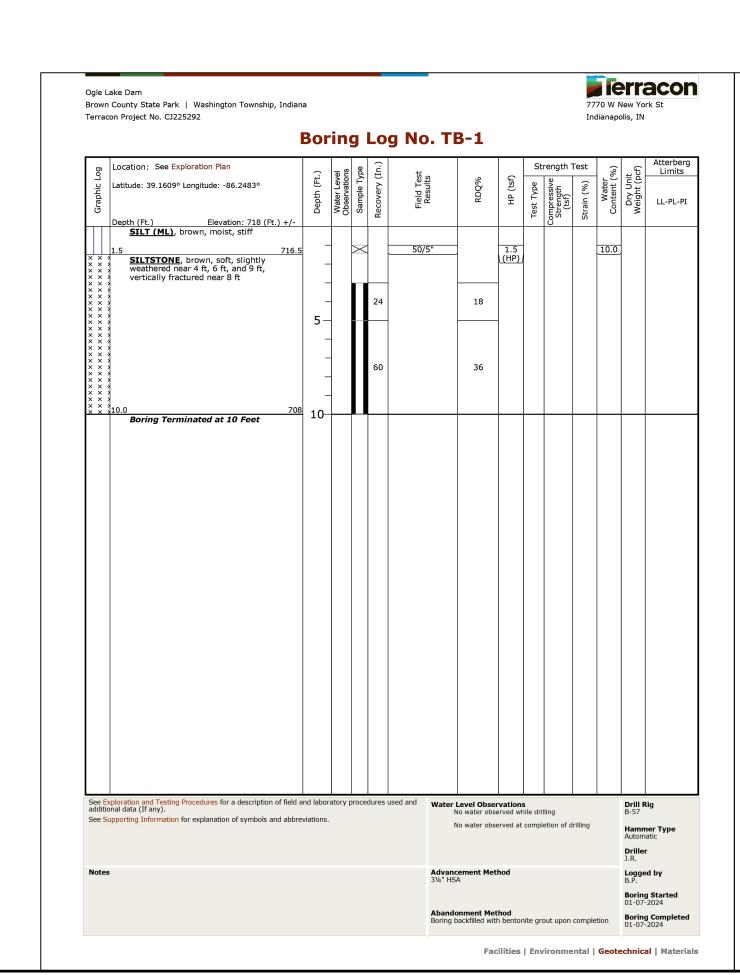


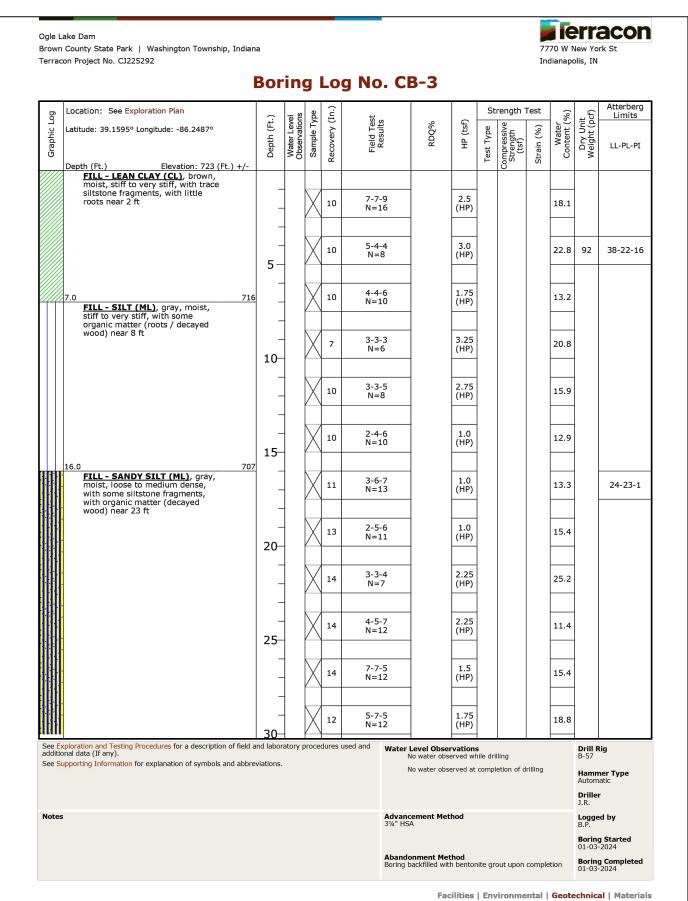


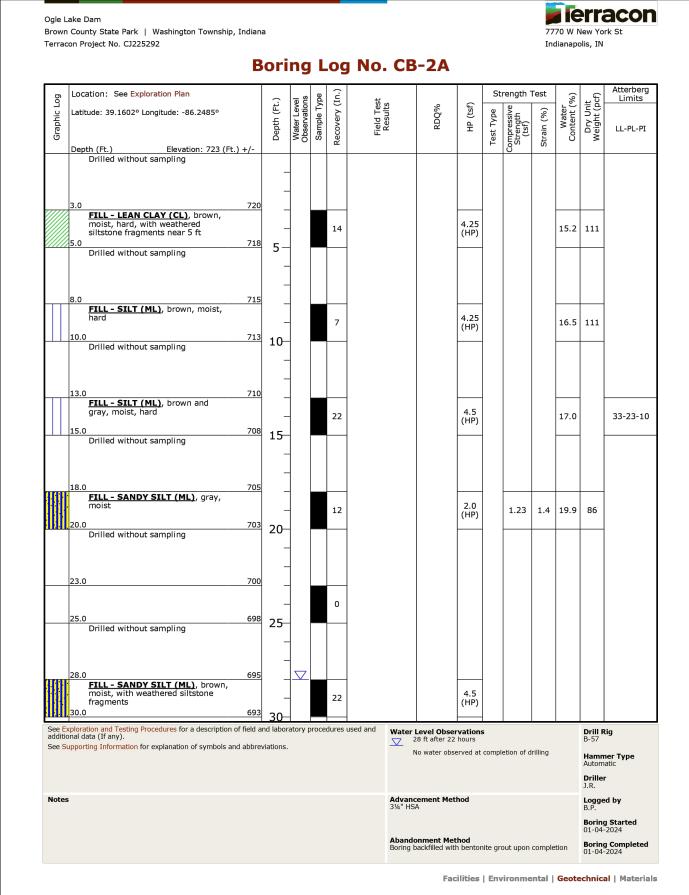
Facilities | Environmental | Geotechnical | Materials

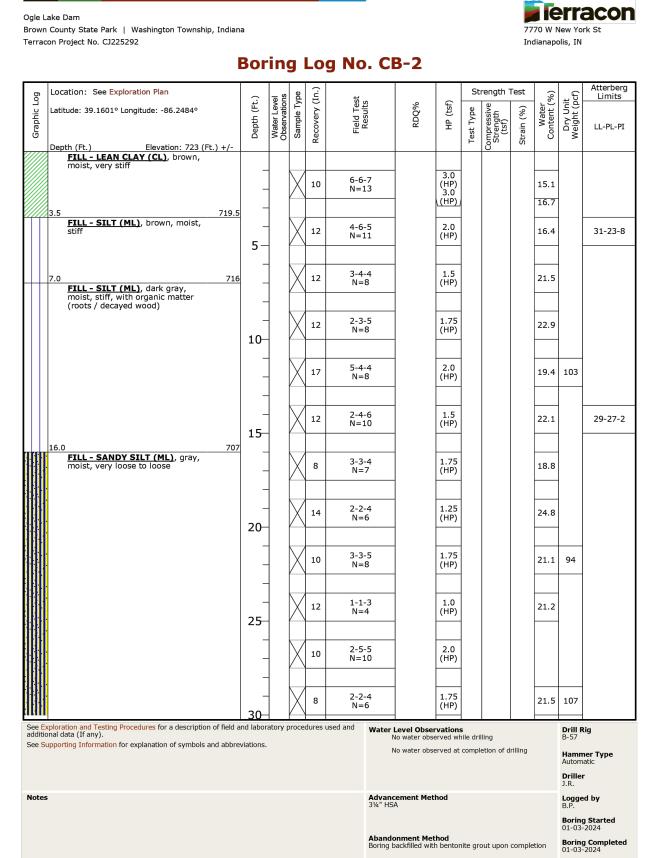


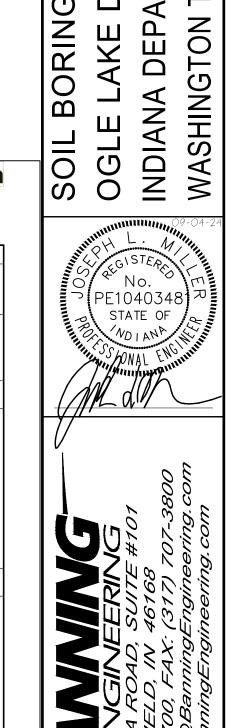












Project No:

Sheet No:

Facilities | Environmental | Geotechnical | Materials

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Brown	.ake Dam I County State Park   Washington Township, Indi 2011 Project No. CJ225292		rin	a L	.00	j No. T∣	B-2				7770 W Indianap	New Yo		Date			
'c Log	Location: See Exploration Plan Latitude: 39.1601° Longitude: -86.2489°							tsf)	Strengt		~	Unit : (pcf)	Atterberg Limits				
Graph	Denth (Ft ) Flevation: 686 (Ft ) ±/	Depth (Ft.)	Water L	Sample Type	Recovery (In.)	Field Test Results	RDQ%	HP (tsf)	Test Type Compressive Strength	(tsf) Strain (%)	Water Content (%)	Dry Unit Weight (pcf)	LL-PL-PI				
	SILT (ML), brown to gray near 5 ft, moist, stiff to very stiff, with siltstone fragments				6	6-5-5 N=10	-	3.5 (HP)			14.2	-		ions			
		5			6	6-8-10 N=18		2.75 (HP)			12.8	-		Revisions			
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addition See Su	xploration and Testing Procedures for a description of fiel onal data (If any). upporting Information for explanation of symbols and abl	o and lab	ns.	procedu	ures us		Level Obse No water obs No water obs	served aft	er 2 hours	of drillin	g	Auton	mer Type natic		JT/	NATC	
<b>Notes</b> Piezom	s meter installed					<b>Advan</b> 3¼" HS	<b>cement Me</b> SA	thod				Drille J.R. Logg B.P.	ed by		BIL	ட	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
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Graphic Log	Location: See Exploration Plan Latitude: 39.1599° Longitude: -86.2490°	Depth (Ft.)	Water Level	Sample Type	Recovery (In.)	Field Test Results	RDQ%	HP (tsf)	Test Type Compressive de Strength		⊢ . હૅ	Dry Unit Weight (pcf)	Atterberg Limits	mun.	PE10 ST/SS/0	STERE	
	Depth (Ft.) Elevation: 684 (Ft.) +/  LEAN CLAY (CL), brown, moist, medium stiff to stiff, with organic matter near 1 ft		_ _ _ _	Sas	Rec		-		Comp	1) (t	Š	We			PE10	04034 ATE OF	8)
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See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Water Level Observations
No water observed while drilling
No water observed at completion of or Drill Rig B-57 No water observed at completion of drilling Logged by B.P. Abandonment Method
Boring backfilled with bentonite grout upon completion
01-05-2024

Project No: 22065 Sheet No: