

# STORMWATER POLLUTION PREVENTION PLAN

## Timberlake Industrial Park Site Grading Phase II

Lexington, Tennessee

TLM Job # J-6371

*prepared for*

**Industrial Development Board of the City of Lexington**

October 20, 2020



**TLM ASSOCIATES, INC.**

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Timberlake Industrial Park Site Grading Phase II  
Industrial Development Board of the City of Lexington  
Lexington, Tennessee  
**STORM WATER POLLUTION PREVENTION PLAN**

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Timberlake Industrial Park Site Grading Phase II  
City of Lexington  
Lexington, Tennessee

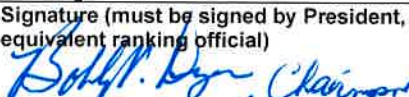
**STORM WATER POLLUTION PREVENTION PLAN**

**GENERAL INFORMATION**

This Storm Water Pollution Prevention Plan (SWPPP) is developed in accordance with the Tennessee General NPDES Permit (TNR 100000) for Storm Water Discharges Associated with Construction Activity (TNCGP) and is prepared using sound engineering practices. TLM Associates, Inc. personnel involved with the development of this plan have completed the *Design of Vegetative and Structural Measures for Erosion Prevention and Sediment Control* Course available from the State of Tennessee.

As instructed by Section 1.4 of the General NPDES Permit, this plan and all attachments are hereby submitted to the local Environmental Field Office (EFO), along with the complete, correctly signed Notice of Intent (NOI). Construction will not be initiated prior to 30 days from the date of submittal of this document, or prior to receipt of a Notice of Coverage (NOC) from the Tennessee Department of Environment and Conservation (TDEC).

**Owner/Developer:** Owner: Industrial Development Board of the City of Lexington  
Address: 33 1<sup>st</sup> Street  
City, State, Zip: Lexington, TN, 38351  
Phone: 731-467-0285  
Contact Person: Bobby Dyer

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, 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.		
<b>Representative of Owner/Developer name and title:</b> Bobby Dyer	<b>Signature (must be signed by President, VP or equivalent ranking official)</b> 	<b>Date:</b> 09-02-2020

**Primary Contractor:** Contractor Name:  
Address:  
City, State, Zip:  
Phone:  
Contact Person:

I certify under penalty of law that I have reviewed this document, any attachments, and the SWPPP referenced above. Based on my inquiry of the construction site owner/developer identified above, and/or my inquiry of the person directly responsible for assembling this NOI, I believe the information submitted is accurate. I am aware that this NOI, if approved, makes the above-described construction activity subject to NPDES permit number TNR100000, and that certain of my activities on-site are thereby regulated. I am aware that there are significant penalties, including the possibility of fine and imprisonment for knowing violations, and for failure to comply with these permit requirements.		
<b>Company name of primary Contractor:</b>	<b>Signature (must be signed by president, V.P. or equivalent)</b>	<b>Date:</b>

The contractor will be responsible for installation, maintenance, certification and inspection of erosion and sediment control measures. Once a contractor has been selected, the person responsible for these items will be \_\_\_\_\_ cell phone number: \_\_\_\_\_ and TNEPSC Cert. number: \_\_\_\_\_.

Current versions of this SWPPP, the NOI, and the NOC will be kept on the site for the duration of the project. These items will be available for the use of all operators and site personnel involved with erosion and sediment controls and will be available to TDEC personnel visiting the site. A notice will be posted near the construction entrance containing a copy of the NOC with the tracking number assigned by the EFO, the name and telephone number of a contact person for the development, location of the SWPPP and EPSC inspection reports and a brief description of the project.

Any new Contractor on the project that has any responsibility to install, inspect, or maintain erosion or sediment control measures will sign the Contractor's certification on a copy of the NOI (Appendix A) and will submit it to the local EFO. Any correspondence with TDEC or any EFO will reference the tracking number assigned by TDEC to the project. The owner will submit a Notice of Termination (NOT: Appendix B) after the complete installation and successful establishment of the final stabilization activities at the site.

It is the intention and goal of the TNCGP and this SWPPP that any discharge from the property described in this document have no objectionable color contrast to the water body that receives it. The construction activity will be carried out in such a manner as will prevent any discharge that would cause a condition in which visible solids, bottom deposits, or turbidity impairs the usefulness of the waters on the property or downstream of the property for fish and aquatic life, livestock watering and wildlife, recreation, irrigation, navigation, or industrial or domestic water supply.

This plan may be amended if modification is deemed necessary to obtain the goals stated in the previous paragraph. When the plans are revised, the Contractor will implement the changes to erosion and sediment controls within 48 hours after the need for modification is identified.

## **EXISTING SITE CONDITIONS**

The project site is located on Kirby Drive in between TN State Route 22 and Timberlake-Wildersville Road in Lexington, TN. The project area is comprised of pre-existing grass fields. The existing slopes across the site are variable and range from 0 percent to 5 percent throughout the site with a small area of the site comprising of 5 to 8 percent slopes. Storm water currently leaves the site via either roadside drainage ditches or overland flow down existing slopes and eventually flows into the Beech River. There are no industrial discharges present at the site. There are no identified wetlands that will be impacted by this project. This project does not encroach upon the 100 year flood plain. County Soil Surveys indicate the soil present at the site are Almo silt loam (Aa); Freeland silt loam, eroded gently sloping phase (Fe); Hatchie silt loam, gently sloping phase (Ha); Hyman silt loam, local alluvium phase (Collins) (He); Lexington silt loam, eroded gently sloping phase (La); and Lexington silt loam, eroded sloping phase (Lc). Almo silt loam (Aa) falls into hydrologic soil group C/D and is poorly drained, Freeland silt loam (Fe) falls into hydrologic soil group C and is moderately well drained, Hatchie silt loam (Ha) falls into hydrologic soil group D and is somewhat poorly drained, Hyman silt loam (He) falls into hydrologic soil group B and is moderately well drained, Lexington silt loam (La and Lc) falls into hydrologic soil group B and is well drained. All of the soils within the project area are subject to at least some erosion but can be managed with proper erosion control and BMP's. The site currently has one main drainage basin which is over the 10-acre threshold of drainage basins that drain into impaired streams. The site's pre-developed and post developed TR-55 curve number will be provided in the site's project description.

## **PROJECT DESCRIPTION**

The project will consist of the disturbance of approximately 17.67 acres for the general flattening of the site and construction of a detention pond. A sediment basin will also be constructed for majority of the storm drainage runoff within the site. The post-development slopes for the site will be around 1% in the proposed



building pad area with 6:1 slopes around the edges of the building pad and pond that tie back to grade. The post-development drainage basin is shown on the attached Post Development Drainage map. This basin exceeds 5 acres and will require a sedimentation basin. The pre-developed TR-55 curve number is 68. The post developed TR-55 curve number is 90.

The pre-development and post-development drainage basins have a total area of 10.59 and 17.24 acres, respectively. A sedimentation basin will be installed on the southern end of the site. At the completion of construction, the sedimentation basin will be converted to a detention basin. All of the storm runoff coming from the proposed building pad will be directed to the sediment pond via ditches built on both sides of the pad.

Based on the approximately 17.24 acres that will drain to the sediment pond the minimum volume of the pond was determined using 3618 cubic feet of storage per every acre drained. This equals a minimum required volume of 62,374.32 cubic feet or 1.432 acre-ft. This volume is to be split equally into 31187.16 cubic feet or 0.716 acre-ft of wet and dry storage. A forebay area equal to at least 25% of the dry storage (7797 cubic feet or 0.179 acre-feet) shall also be provided at the two inlets. Two forebays are provided at the northern and southern corners of the basin. The northern forebay will have a volume of 15028.2 cubic feet and the southern one will have a volume of 16901.3 cubic feet. This results in a total of 31929.5 cubic feet which well exceeds the minimum requirement. The area of the wet storage provided is 32,670 cubic feet and the remaining dry storage area is 86,161 cubic feet. A 5" "Faircloth" skimmer with a 4" head and a 5.0" orifice will be provided designed to allow the runoff from a 5-year 24-hour storm event to drain out of the pond over a 72-hour period. The skimmer elevation will be set at 577.00 or 7.0 feet above the bottom of the pond. This establishes 573.00 as the top of the wet storage and the bottom of the dry storage and forebay areas. The top of the dry storage is set at 575.00 and is controlled by the principal outlet pipe. This principal outlet is a 15-inch CMP pipe. A 20' wide emergency spillway is provided at 577.50 should the principal outlet ever become inoperable. The dimensions of the designed pond are 650 feet in length vs approximately 190 feet in width thus providing a length to width ratio of +/- 3.4. Because the length to width ratio of the pond is not greater than 4, permeable baffles will be included at both inlets to decrease the flow velocity of water and allow particles to settle out.

## **INSPECTIONS**

Inspections shall be conducted by qualified personnel who have completed the "Fundamentals of Erosion Prevention and Sediment Control" course or an accepted equivalent.

Inspections must be conducted at least twice every calendar week. Inspections shall be performed at least 72 hours apart. Inspections will cover all disturbed areas that have not undergone final stabilization, storage areas, sediment control structures, outfall points, and the nearby streams. The inspections will be conducted with the purpose of determining whether erosion prevention and sediment control measures are effective in preventing impacts to receiving waters. All locations where vehicles enter or exit the site will be inspected for evidence of off site sediment tracking. Upon inspection, any control measure determined to be in disrepair or installed improperly shall be repaired or modified, as necessary. If the controls are installed and maintained correctly but are found to provide inadequate level of protection, revisions to this plan will be made and these revisions will be implemented by the Contractor. Any repairs or modifications deemed necessary will be performed before the next rain event if possible. All repairs and modifications must be made no later than 7 days after the need has been established.

Inspections shall be documented and include the scope of the inspection, name(s) and title and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan (including the location(s) of discharges of sediment or other pollutants from the site and of any control device that failed to operate as designed or proved inadequate for a particular location,) and actions taken. All inspection documentation must be maintained on site. Permittees shall also maintain a rain gauge and daily rainfall records at the site or use a reference site for a record of daily amount of precipitation.

Any modification of plans or specifications for sediment basins or other sediment controls involving structural, hydraulic, hydrologic, or other engineering calculations will be prepared by and stamped by a licensed professional engineer or landscape architect.

This project will require a Quality Assurance Site Assessment. The site assessment shall be conducted at each outfall draining 10 or more acres (see Subsection 3.5.3.3 below) or 5 or more acres if draining to waters with unavailable parameters or Exceptional Tennessee Waters (see Section 5.4.1 below). Site Assessments shall cover the entire disturbed area and occur within 30 days of construction commencing at each portion of the site that drains the qualifying acreage. The site assessment shall be performed by individuals with one or more of the following qualifications:

- a) A licensed professional engineer or landscape architect.
- b) A Certified Professional in Erosion and Sediment Control (CPESC).
- c) A person who has successfully completed the “Level II Design Principles for Erosion Prevention and Sediment Control for Construction Sites” course.

All site assessment documentation will be kept at the job site with the Storm Water Pollution Prevention Plan documentation.

At a minimum, site assessments should be performed to verify the installation, functionality, and performance of the EPSC measures described in the SWPPP. If structural BMPs (or equivalent EPSC measures) are not constructed or construction is in progress at the time of the site assessment, a follow-up monthly assessment(s) is required until the BMPs are constructed per the SWPPP. The site assessment should be performed with the inspector (as defined in Part 10 below) and should include a review and update (if applicable) of the SWPPP. Modifications of plans and specifications for any building or structure, including the design of sediment basins or other sediment controls involving structural, hydraulic, hydrologic or other engineering calculations shall be prepared by a licensed professional engineer or landscape architect and stamped and certified in accordance with the Tennessee Code Annotated, Title 62, Chapter 2 (see Part 10 below) and the rules of the Tennessee Board of Architectural and Engineering Examiners. The site assessment findings shall be documented, and the documentation kept with the field SWPPP at the site. At a minimum, the documentation shall include information required in the inspection form provided in Appendix C of the CGP, an assessment of any failing or unmaintained EPSCs, causes of failure and any action necessary to bring the site into compliance with this permit. The documented quality assurance site assessments shall also indicate if all EPSCs have been installed as designed in the submitted SWPPP and EPSC plans; and, if not, measures that need to be taken so those EPSCs meet the design specifications in the field SWPPP and EPSC plans. The documentation must contain the printed name and signature of the individual performing the site assessment and the following certification: *“I certify under penalty of law that this report and all attachments are, to the best of my knowledge and belief, 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. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.”*

### **303(D) SPECIAL REQUIREMENTS**

Discharge from the project sheet flows into nearby drainage ditches that flows into the Beech River to the southwest of the site location. The Beech River is not listed on the State of Tennessee’s 303(d) list of streams impaired due to siltation and/or habitat alteration. According to Section 5.4.1 of the permit, there are no additional requirements for these discharges.

### **SPILLS AND NON-STORM WATER CONTINGENCIES**

All fueling of equipment and vehicles on site will be conducted in the areas deemed to have the least impact on the surroundings. Any spillage will be removed immediately. Contaminated soils will be placed on heavy plastic and covered or placed into approved containers to prevent contact with storm water.

Oil, other vehicle fluids, paints, and solvents will be stored off site. Any spill in excess of two gallons will be reported to a representative of \_\_\_\_\_.

**If a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 CFR 117 or 40 CFR 302 occurs during a 24-hour period, the Contractor will immediately notify the Permittee who shall then do the following: notify the National Response Center (NRC) (800-424-8802) and the Tennessee Emergency Management Agency (TEMA) (emergencies: 800-262-3300; non-emergencies: 800-262-3400); as well as the local Environmental Assistance Center.** Also, a revision of this document to identify measures to prevent the reoccurrence of such release will be prepared. Each Contractor is responsible to provide litter control for trash generated by his crew. Paint cans, oil cans, used oil, and filters will be contained and disposed of By the Contractor by taking them to the local Hazardous Waste Disposal Center. The contractor shall also be responsible for providing temporary restroom facilities for personnel use during construction.

Water used to remove soil or dust from vehicles may be discharged onto a stabilized area. Use of detergents is not permitted. Washing of vehicles to remove petroleum products or other non-soil materials is not permitted. Washing out of concrete trucks is only to be done into the designated concrete truck washout area. Concrete trucks will not be allowed to dispose of excess concrete or wash chutes at any location other than the designated concrete truck washout area. The concrete truck washout may be either above-grade or below-grade. An above grade washout should consist of a ring of staked hay bales lined (sides and bottom) with an impermeable layer of 10-mil plastic sheeting. A below grade washout should consist of an excavated pit lined with an impermeable layer of 10-mil plastic sheeting and surrounded by temporary silt fence. The volume of either type washout should be sufficient to hold the anticipated concrete volume with a minimum 4" freeboard. Recommended minimum dimensions are 10'x10'.

#### **OFFSITE TRACKING OF SEDIMENTS**

The contractor shall establish and maintain a proactive method to prevent the offsite migration of sediment. All vehicles shall be cleaned of sediments before leaving the project site to avoid tracking soil onto streets. If the Construction Entrance fails to provide adequate sediment removal, the tires should be washed prior to exit onto public roadways. When tire washing is necessary, a tire wash rack designed in accordance with the Tennessee Erosion and Sediment Control Handbook- August 2012 shall be provided.

Airborne or surface dust is to be minimized by prompt stabilization with temporary or permanent vegetation cover or gravel cover. If dust is a problem prior to establishment of stabilizing cover, irrigation, calcium chloride, or tackifier should be applied in accordance with the guidelines given in the Tennessee Erosion and Sediment Control Handbook- August 2012. Any sediment, which is tracked onto streets, must be removed immediately.

#### **OFF-SITE ACCUMULATIONS OF SEDIMENT**

If sediment escapes the construction site, off-site accumulations of sediment that have not reached a stream must be removed at a frequency sufficient to minimize offsite impacts (e.g., fugitive sediment that has escaped the construction site and has collected in a street must be removed so that it is not subsequently washed into storm sewers and streams by the next rain and/or so that it does not pose a safety hazard to users of public streets).

Permittees shall not initiate remediation/restoration of a stream without consulting the division first. This permit does not authorize access to private property. Arrangements concerning removal of sediment on adjoining property must be settled by the permittee with the adjoining landowner.

#### **SEDIMENT & EROSION CONTROL MEASURES**

All erosion prevention and sediment control best management practices (BMP's) identified in the Erosion Control Plan and in this SWPPP will be installed as recommended in the Tennessee Erosion and Sediment Control Handbook- August 2012 unless otherwise noted on plans or in this SWPPP. All BMP's are intended to control the rainfall and runoff from a 2-year, 24-hour storm at a minimum.

**Rock Check Dams** – Rock check dams will be used to minimize erosion by reducing the velocity of storm water in areas of concentrated flow, and to capture large soil particles. Rock check dams are constructed from small riprap such as TDOT Class A-1 (clean of fines) with stone sizes from 2 to 15 inches. Rock check dams should be keyed into the channel bottom at, typically, a depth of 6 inches. Sediment should be removed before it reaches a depth of one-half the original dam height. If the area is to be mowed, check dams should be removed once final stabilization has occurred. After removal, the disturbed area should be seeded and mulched immediately.

**Silt Fence** - Silt fences shall be installed prior to disturbance and as needed during construction to trap sediment from limited areas of runoff. The preferred installation method is with a vibratory plow machine specifically designed for silt fence fabric, but entrenched fabric with well-compacted soil is acceptable. 2"x2"x42" minimum hardwood stakes and/or steel "t" posts will be installed and attached to the fabric as needed or directed. Silt fences are to be installed in such a manner as to filter and/or settle runoff water adequately before mixing with waters of the State/U.S. Sediment should be removed once it has accumulated to one-half the original height of the barrier. Filter fabric will be replaced whenever it has deteriorated to such an extent that the effectiveness of the fabric is reduced (approximately 6 months.) Silt fence should remain in place until disturbed areas have been permanently stabilized. All sediment accumulated at the fence should be removed and properly disposed of before the fence is removed.

**Gravel Construction Exit** – Gravel construction exits will be used to reduce or eliminate the transport of material from the construction area onto a public roadway. Construction exits will be constructed with a minimum depth of 6 inches of TDOT # 1 stone. At a minimum, the width should equal full width of all points of vehicle egress, but not less than 20 feet wide. Pad length should be no less than 50 feet. The exit should be maintained in a condition that will prevent tracking of flow of material onto public rights-of-way.

**Sediment Basin** – A temporary sediment basin shall be used to retain runoff waters and to trap sediment from disturbed areas to protect properties and waters below the installation from damage by excessive sedimentation and debris. The water will be temporarily stored allowing the bulk of the sediment carried by the water to fall out of suspension. Design of the dewatering device will allow for a minimum dewatering time of 72 hours. Baffles shall be used to ensure that short circuiting does not occur. Accumulated sediment shall be removed from the basin when it reaches the specified distance below the top of the riser.

**Enhanced Rock Check Dams** – Enhanced rock check dams will be used to reduce flow velocities to allow sediments to drop out. The center of an enhanced rock check dam used in ditches shall be at least 1' lower than the outer edges. Rock check dams are constructed from small riprap such as TDOT Class A-1 (clean of fines) with stone sizes from 2 to 15 inches installed on one layer of Type III geotextile. The outside of the riprap will be faced with smaller coarse aggregate, such as TDOT #57 (clean of fines) with a minimum stone size of ¾ inch. Two layers of type III geotextile shall be placed between the separate layers of rock. Sediment should be removed before it reaches a depth of one-half the original dam height. Enhanced check dams should be removed once final stabilization has occurred. After removal, the disturbed area should be sodded immediately.

**Culvert Protection** – Culvert protection will be used to reduce flow velocities and to prevent sediment from entering drainage systems. Culvert protection per TDOT standard drawings with riprap such as TDOT class A-1 (clean from fines) with stone sizes from 2 to 15 inches. For added sediment filtering capability the outside of the riprap will be faced with smaller coarse aggregate, such as TDOT #57 (clean of fines) with a minimum stone size of ¾ inch. The culvert protection must be kept clear of trash and debris. Sediment should be removed when the level reaches one-half the height of the culvert protection. These structures are temporary and should be removed when the land disturbing project has been stabilized.

Temporary Seeding with Mulch – Stockpiles and disturbed areas where work has been halted for more than 15 days will be covered with temporary vegetative cover. The recommended mixtures based on the time of year are as follows:

- January 1 to May 1 - Italian Rye (33%), Korean Lespedeza (33%) and Summer Oats (34%)
- May 1 to July 15 – Sudan – Sorghum (100%)
- May 1 to July 15 – Starr Millet (100%)
- July 15 to January 1 – Balboa Rye (67%) and Italian Rye (33%)

Riprap Outlet Protection – Riprap outlet protection will be used to reduce storm water velocity and dissipate the energy of flow leaving a storm drain before it empties into receiving channels and to armor erodible materials. Treatment will extend between the points where flow exits the storm drain and where flow velocity and/or flow energy from a 25 year design storm event is dissipated to the degree where there is minimal to no risk of erosion of the receiving channel. Inspect riprap outlet structures after heavy rains to see if any erosion around or below the riprap has taken place or if stones have been dislodged.

Vegetative Ground Cover – Existing vegetation will remain as long as possible to prevent erosion. Clearing and grubbing shall not be initiated more than 15 calendar days prior to grading or earth moving activities unless the area is temporarily seeded and mulched.

Permanent Stabilization – Areas of final grade not covered with structured pavement will receive Bermuda sod which will include slopes tying back to existing grade. Areas not covered with Bermuda sod will be covered with seed and mulch. Areas of excessive slope that are also susceptible to high flow volumes shall be stabilized with riprap.

## **POLLUTANT CONTROL**

The Contractor shall establish and maintain a proactive method to prevent litter, construction debris and construction chemicals from entering waters of the State/U.S. Litter and construction debris exposed to storm water will be picked up prior to anticipated storm events (e.g. forecasted local weather reports), or otherwise prevented from becoming a pollutant source for storm water discharges to waters of the State/U.S. (e.g. screening outfalls, daily pick-up, etc.).

## **BORROW AND/OR WASTE AREAS**

Off-site borrow and/or waste areas, regardless of size, which do not currently have their own storm water discharge permit shall be added to the permit for this project. It shall be the contractor's responsibility to prepare or have prepared, at his expense, the storm water pollution prevention plan for the borrow / waste area. Evidence of permitting for the borrow / waste area shall be forwarded to the site design Engineer.

## **SEQUENCING OF WORK**

1. All temporary sediment barriers will be installed as shown on the Erosion Control Plan before any land-disturbing activity begins.
2. The contractor shall establish and maintain a proactive method to prevent the off-site migration or deposit of sediment on roadways used by the public. Land-disturbing activity will begin after the installation of the construction entrance.
3. Pre-construction vegetative ground cover will not be destroyed, removed, or disturbed more than 10 days prior to grading or earth moving unless the area is seeded and/or mulched or other temporary cover is installed.
4. Once the construction entrance has been installed, excavation for the sedimentation basin will begin. Construction of the sedimentation basin must progress continuously until completed.

5. After completion of the sedimentation basin, an enhanced rock check dam is to be installed at the outlet location as shown on the Erosion Control Plan – Phase I plan sheet.
6. Once the installation of the enhanced rock check dam is completed, grading for the site shall commence.
7. Borrow and waste disposal areas shall be in non-wetland areas and above the 100-year, Federal Emergency Management Agency floodplain. Borrow and waste disposal areas shall not affect any waters of the State/U.S. unless these areas are specifically covered by an ARAP, 404, or NPDES permit, obtained solely by the contractor.
8. Cut and fill activities will continue until the industrial site has reached sub grade elevations. Sediment will be removed from silt fences and other sediment controls, once sediment exceeds 50% storage capacity of measure as instructed in the Sediment and Erosion Control Measures section. Sediment removed from sediment control structures shall be placed and be treated in a manner so that the sediment is contained within the project limits and does not migrate into waters of the State/U.S. Topsoil will be stockpiled. All stockpiles will be located on site and surrounded with silt fence to within 5 ft of the toe of the slope. Stockpiles will be stabilized within 7 days if they are to remain more than 14 days.
9. Stabilization will be accomplished as soon as practicable after attainment of final grade and no later than seven days after attaining final grade. Where earth-disturbing activity has been temporarily ceased, temporary stabilization will be applied within seven days if the activity will not resume within 15 days. The dates when major grading activities occur, the dates when construction activities temporarily or permanently cease and the dates when stabilization measures are initiated will be recorded and maintained on site.
10. The final grading for the future industrial site will be completed. The sedimentation basin will be converted into a detention basin and any additional proposed drainage structures will be installed. The development of the site for this project will be completed, and the site will be fully stabilized as shown on the final stabilization plan for the project.
11. Temporary erosion and sediment control measures will be removed once the disturbed areas are fully stabilized. After use, silt fences will be removed to be prevented from becoming a pollutant source for storm water discharges. A Notice of Termination shall be filed once development and stabilization are complete.



**APPENDIX A**

**NOTICE OF INTENT**

**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION**

Division of Water Resources

William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243  
1-888-891-8332 (TDEC)**Notice of Intent (NOI) for General NPDES Permit for Stormwater Discharges from Construction Activities (TNR100000)**

<b>Site or Project Name:</b> Timberlake Industrial Park Site Grading Phase II		<b>NPDES Tracking Number:</b> TNR	
<b>Street Address or Location:</b> Kirby Dr.		<b>Construction Start Date:</b>	
		<b>Estimated End Date:</b>	
<b>Site Description:</b> General grading and construction of a detention pond		<b>Latitude (dd.dddd):</b>	35.71190
		<b>Longitude (-dd.dddd):</b>	-88.37778
<b>County(ies):</b> Henderson	<b>MS4 (if applicable):</b> N/A	<b>Acres Disturbed:</b>	17.67
<b>Check box if a SWPPP is attached :</b> <input checked="" type="checkbox"/>	<b>Check box if a site location map is attached:</b> <input checked="" type="checkbox"/>	<b>Total Acres:</b>	19.5
<b>Check the appropriate box(s) if there are streams and/or wetlands on or adjacent to the construction site:</b>		<b>Streams</b> <input checked="" type="checkbox"/>	<b>Wetlands</b> <input type="checkbox"/>
<b>Has a jurisdictional determination been made by the USACE or EPA identifying waters of the United States?:</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		<b>Note: if yes, attach the jurisdictional determination</b>	
<b>If an Aquatic Resource Alteration Permit (ARAP) has been obtained for this site, what is the permit number? NR(S)</b>			
<b>Receiving waters:</b> Beech River			
<b>Site Owner/Developer (Primary Permittee):</b> (Provide person, company, or entity that has operational or design control over construction plans and specifications): Industrial Development Board of the City of Lexington			
<b>For corporate entities only, provide correct Tennessee Secretary of State (SOS) Control Number:</b> (an incorrect SOS control number may delay NOI processing)			
<b>Site Owner or Developer Contact Name:</b> (signs the certification below) Bobby Dyer		<b>Title or Position:</b> Chairman	
<b>Mailing Address:</b> 33 1st Street, P.O. Box 1699		<b>City:</b> Lexington	<b>State:</b> TN <b>Zip:</b> 38351
<b>Phone:</b> ( 731 ) 968-6657	<b>Fax:</b> ( 731 ) 968-3238	<b>E-mail:</b> dyer@netease.net	
<b>Optional Contact:</b> Andy Carter		<b>Title or Position:</b> Civil Designer	
<b>Mailing Address:</b> 117 E Lafayette St		<b>City:</b> Jackson	<b>State:</b> TN <b>Zip:</b> 38305
<b>Phone:</b> ( 731 ) 988-9840	<b>Fax:</b> ( 731 ) 988-9959	<b>E-mail:</b> a.carter@tlmae.com	
<b>Owner/Developer(s) Certification:</b> (must be signed by president, vice-president or equivalent, or ranking elected official) (Primary Permittee)			
I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.			
<b>Owner/Developer Name (print/type):</b> Bobby Dyer, Chairman		<b>Signature:</b> 	<b>Date:</b> 02-02-2020
<b>Owner/Developer Name (print/type):</b>		<b>Signature:</b>	<b>Date:</b>
<b>Contractor Certification:</b> (must be signed by president, vice-president or equivalent, or ranking elected official) (Secondary Permittee)			
I certify under penalty of law that I have reviewed this document, any attachments, and the SWPPP referenced above. Based on my inquiry of the construction site owner/developer identified above and/or my inquiry of the person directly responsible for assembling this NOI and SWPPP, I believe the information submitted is accurate. I am aware that this NOI, if approved, makes the above-described construction activity subject to NPDES permit number TNR100000, and that certain of my activities on-site are thereby regulated. I am aware that there are significant penalties, including the possibility of fine and imprisonment for knowing violations, and for failure to comply with these permit requirements. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.			
<b>Contractor name, address, and SOS control number (if applicable):</b>		<b>Signature:</b>	<b>Date:</b>

**OFFICIAL STATE USE ONLY**

<b>Received Date:</b>	<b>Reviewer:</b>	<b>Field Office:</b>	<b>Permit Tracking Number:</b> TNR	<b>Exceptional TN Water:</b>
<b>Fee(s):</b>	<b>T &amp; E Aquatic Flora/Fauna:</b>	<b>SOS Corporate Status:</b>	<b>Waters with Unavailable Parameters:</b>	<b>Notice of Coverage Date:</b>

## CONSTRUCTION GENERAL PERMIT - NOTICE OF INTENT (NOI) - INSTRUCTIONS

A completed NOI must be submitted to obtain coverage under the CGP. **Requesting coverage under this permit means that an applicant has obtained and examined a copy of this permit, and thereby acknowledges applicant's claim of ability to be in compliance with permit terms and conditions.** CGP coverage is required for stormwater (SW) discharge(s) from construction activities including clearing, grading, filling and excavating (including borrow pits) of one or more acres of land. This form should be submitted at least 30 days prior to the commencement of land disturbing activities, or no later than 48 hours prior to when a new operator assumes operational control over site specifications or commences work at the site.

The application fee must accompany the NOI and is based on total acreage to be disturbed by an entire project, including any associated construction support activities (e.g., equipment staging yards, material storage areas, excavated material disposal areas, borrow or waste sites, etc.). A separate annual maintenance fee is also required for activities that exceed 1 year under CGP coverage. See TN Rules, Chapter 0400-40-11-.02(b)(12).

<b>Acres Disturbed</b>	<b>= or &gt; 150 acres</b>	<b>= or &gt; 50 &lt; 150 acres</b>	<b>= or &gt; 20 &lt; 50 acres</b>	<b>= or &gt; 5 &lt; 20 acres</b>	<b>= or &gt; 1 &lt; 5 acres</b>	<b>Subsequent coverage</b>
<b>Fee</b>	\$10,000	\$6,000	\$3,000	\$1,000	\$250	\$100

Who must submit the NOI form? All site operators must submit an NOI form. "Operator" for the purpose of this permit and in the context of SW associated with construction activity means any person associated with a construction project who meets either or both of the following two criteria: (1) The person has operational or design control over construction plans and specifications, including the ability to make modifications to those plans and specifications. This person is typically the owner or developer of the project or a portion of the project (e.g., subsequent builder), or the person that is the current land owner of the construction site, and is considered the primary permittee; or (2) The person has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions. This person is typically a contractor or a commercial builder who is hired by the primary permittee, and is considered a secondary permittee.

Owners, developers and all contractors that meet the definition of the operator in subsection 2.2 of the permit shall apply for permit coverage on the same NOI, insofar as possible. After permit coverage has been granted to the initial site-wide primary permittee, any subsequent NOI submittals must include the site's previously assigned permit tracking number and the project name. The comprehensive site-specific SWPPP shall be prepared in accordance with the requirements of part 3 of the permit and must be submitted with the NOI unless the NOI being submitted is to add a subsequent permittee to an existing coverage. **Artificial entities (e.g., corporations or partnerships) must submit the correct Tennessee Secretary of State, Division of Business Services, control number. General partnerships. For general partnerships, the NOI must be signed by each general partner in the general partnership.**

**The NOI will be considered incomplete without a correct control number, and the division reserves the right to deny coverage to artificial entities that are not properly registered and in good standing with the Tennessee Secretary of State (i.e., listed with an entity status of "active"). The division further reserves the right to issue permit coverage in the correct legal name of the individual or entity seeking coverage and to name each general partner of a general partnership in addition to the general partnership.**

Complete the form: Type or print clearly. Answer each item or enter "NA," for not applicable. If you need additional space, attach a separate piece of paper to the NOI form. **The NOI will be considered incomplete without a permit fee and comprehensive site-specific SWPPP (if applicable).**

Describe and locate the project: Use the legal or official name of the construction site. If a construction site lacks street name or route number, give the most accurate information available to describe the location (reference to adjacent highways, roads and structures; e.g., intersection of state highways 70 and 100). Latitude and longitude (in decimal degrees) can be found at numerous other web sites. Attach a copy of a map, showing location of site, with boundaries at least one mile outside the site boundaries. Provide estimated starting date of clearing activities and completion date of the project, and an estimate of the number of acres of the site on which soil will be disturbed, including borrow areas, fill areas, stockpiles and the total acres. For linear projects, give location at each end of the construction area.

Name of the receiving waters: Trace the route of stormwater runoff from the site and determine the name of the water course(s) into which the runoff drains. Note that the water course may or may not be located on the construction site. If the first water body receiving construction site runoff is unnamed ("unnamed tributary"), determine the name of the waterbody that the unnamed tributary enters.

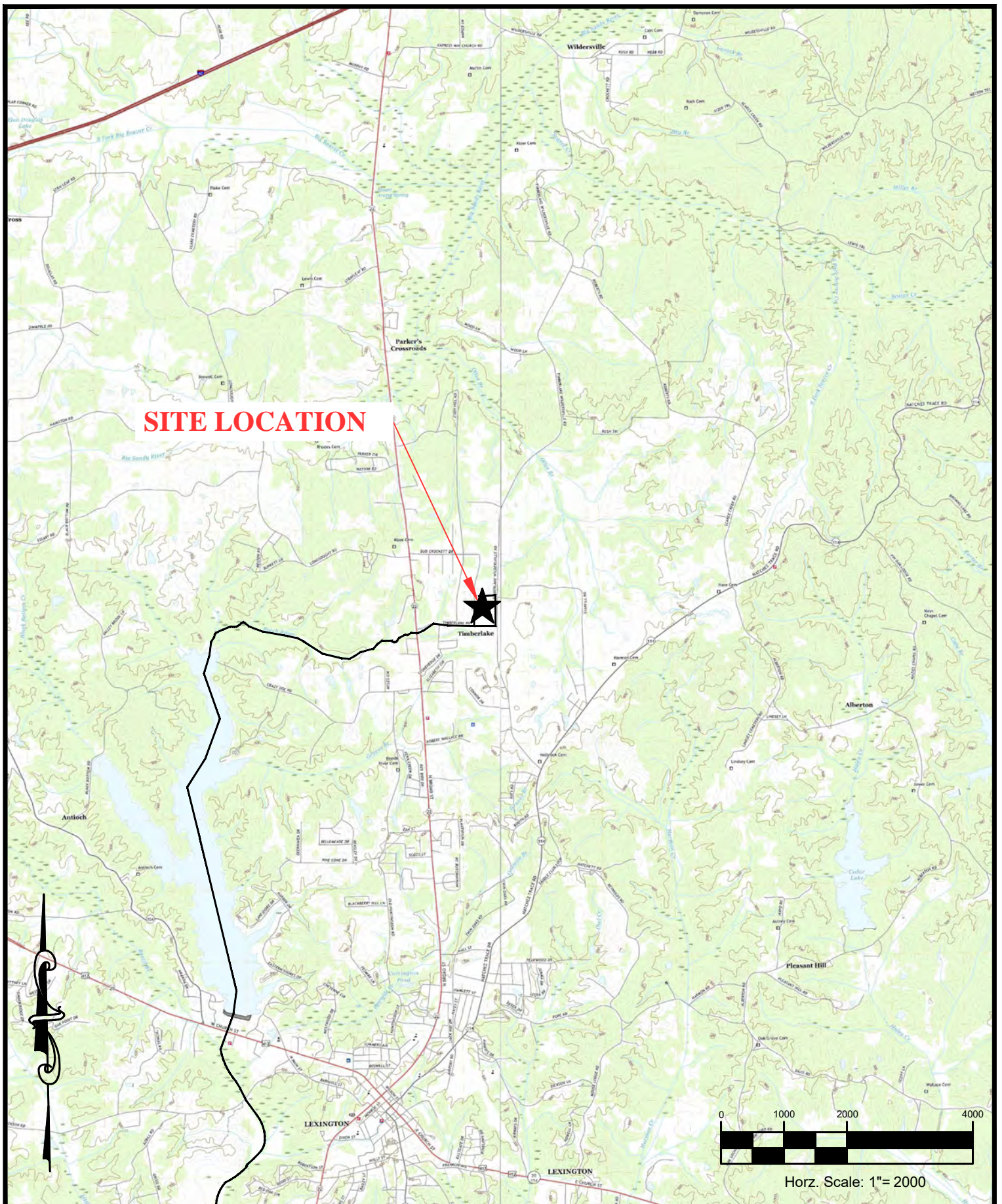
An ARAP may be required: **If your work will disturb or cause alterations of a stream or wetland, you must obtain an appropriate Aquatic Resource Alteration Permit (ARAP).** If wetlands are located on-site and may be impacted, attach the wetland delineation report. If you have a question about the ARAP program, contact your local Field Office (EFO).

Submitting the form and obtaining more information: Note that this form must be signed by the company President, Vice-President, or a ranking elected official in the case of a municipality, for details see subpart 2.5. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed NOI form (keep a copy for your records) to the appropriate EFO for the county(ies) where the construction activity is located, addressed to **Attention: Stormwater NOI Processing.**

Notice of Coverage: The division will review NOIs for completeness and accuracy and issue an NOC to site-wide primary operators, authorizing SW discharge from the construction site as of the effective date of the NOC. New subsequent operators will not receive an NOC, but are considered covered under the permit when their permit record is published on TDEC's dataviewer as "active" and with an effective date. TDEC Permit Dataviewer can be found at: [http://environment-online.tn.gov:8080/pls/enf\\_reports/f?p=9034:34001:0](http://environment-online.tn.gov:8080/pls/enf_reports/f?p=9034:34001:0)

<b>EFO</b>	<b>Street Address</b>	<b>Zip Code</b>	<b>EFO</b>	<b>Street Address</b>	<b>Zip Code</b>
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305-4316	Chattanooga	1301 Riverfront Pkwy, Suite 206	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601





**J-6371**

**Timberlake Industrial Park  
Site Grading Phase II  
for  
City of Lexington  
Lexington, Tennessee**

**Site Location Map**

**TLM**  
ASSOCIATES  
Architects + Engineers

## **APPENDIX B**

# **NOTICE OF TERMINATION**

**Note:**

Notice of Termination is to be completed and submitted to the local EFO when all construction and stabilization activities have been completed and stabilization measures are effective, or if an Operator's responsibilities at this site have ended.



**TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)**

Division of Water Resources

William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243

1-888-891-TDEC (8332)

**Notice of Termination (NOT) for General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)**

This form is required to be submitted when requesting termination of coverage from the CGP. The purpose of this form is to notify the TDEC that either all stormwater discharges associated with construction activity from the portion of the identified facility where you, as an operator, have ceased or have been eliminated; or you are no longer an operator at the construction site. Submission of this form shall in no way relieve the permittee of permit obligations required prior to submission of this form. Please submit this form to the local DWR Environmental Field Office (EFO) address (see table below). For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC).

**Type or print clearly, using ink.**

<b>Site or Project Name:</b> Timberlake Industrial Park Site Grading Phase II	<b>NPDES Tracking Number:</b> TNR
<b>Street Address or Location:</b> Kirby Dr.	<b>County(ies):</b> Henderson

**Name of Permittee Requesting Termination of Coverage:**

<b>Permittee Contact Name:</b>	<b>Title or Position:</b>		
<b>Mailing Address:</b>	<b>City:</b>	<b>State:</b>	<b>Zip:</b>
<b>Phone:</b>	<b>E-mail:</b>		

**Check the reason(s) for termination of permit coverage:**

<input type="checkbox"/>	Stormwater discharge associated with construction activity is no longer occurring and the permitted area has a uniform 70% permanent vegetative cover OR has equivalent measures such as rip rap or geotextiles, in areas not covered with impervious surfaces.
<input type="checkbox"/>	You are no longer the operator at the construction site (i.e., termination of site-wide, primary or secondary permittee coverage).

**Certification and Signature:** (must be signed by president, vice-president or equivalent ranking elected official)

I certify under penalty of law that either: (a) all stormwater discharges associated with construction activity from the portion of the identified facility where I was an operator have ceased or have been eliminated or (b) I am no longer an operator at the construction site. I understand that by submitting this notice of termination, I am no longer authorized to discharge stormwater associated with construction activity under this general permit, and that discharging pollutants in stormwater associated with construction activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this notice of termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

For the purposes of this certification, elimination of stormwater discharges associated with construction activity means that all stormwater discharges associated with construction activities from the identified site that are authorized by a NPDES general permit have been eliminated from the portion of the construction site where the operator had control. Specifically, this means that all disturbed soils at the portion of the construction site where the operator had control have been finally stabilized, the temporary erosion and sediment control measures have been removed, and/or subsequent operators have obtained permit coverage for the site or portions of the site where the operator had control.

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

<b>Permittee name (print or type):</b>	<b>Signature:</b>	<b>Date:</b>
--	-------------------	--------------

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	8383 Wolf Lake Drive, Bartlett, TN	38133	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305	Chattanooga	1301 Riverfront Parkway, Ste. 206	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601



**APPENDIX C**

**SUBCONTRACTOR CERTIFICATION**

# **SUBCONTRACTOR CERTIFICATION STORMWATER POLLUTION PREVENTION PLAN**

Project Name: Timberlake Industrial Park Site Grading Phase II

Operator(s): \_\_\_\_\_

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Failure to comply with the SWPPP may result in termination of the contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at \_\_\_\_\_.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

**I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the BMP's and practices described in the SWPPP.**

This certification is hereby signed in reference to the above named project:

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone #: \_\_\_\_\_

Type of construction service to be provided: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

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

**APPENDIX D**

**CONSTRUCTION STORM WATER  
INSPECTION REPORT**



TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)

Division of Water Resources

William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243

1-888-891-8332 (TDEC)

General NPDES Permit for Stormwater Discharges from Construction Activities (CGP)

Construction Stormwater Inspection Certification (Twice-Weekly Inspections)

Site or Project Name:		NPDES Tracking Number: TNR	
Primary Permittee Name:		Date of Inspection:	
Current approximate disturbed acreage:		Has rainfall been checked/documented daily? Yes      No	Name of Inspector:
Current weather conditions:		Inspector's TNEPSC Certification Number:	

Please check the box if the following items are on-site:

Notice of Coverage (NOC)

Stormwater Pollution Prevention Plan (SWPPP)

Twice-weekly inspection documentation

Site contact information

Rain Gage

Off-site Reference Rain Gage Location: \_\_\_\_\_

Best Management Practices (BMPs):

Are the Erosion Prevention and Sediment Controls (EPSCs) functioning correctly: If "No," describe below in Comment Section

1. Are all applicable EPSCs installed and maintained per the SWPPP?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Are EPSCs functioning correctly at all disturbed areas/material storage areas per section 4.1.5?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3. Are EPSCs functioning correctly at outfall/discharge points such that there is no objectionable color contrast in the receiving stream, and no other water quality impacts per section 5.3.2?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. Are EPSCs functioning correctly at ingress/egress points such that there is no evidence of track out?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5. If applicable, have discharges from dewatering activities been managed by appropriate controls per section 4.1.4? If "No," describe below the measures to be implemented to address deficiencies.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
6. If construction activity at any location on-site has temporarily/permanently ceased, was the area stabilized within 14 days per section 3.5.3.2? If "No," describe below each location and measures taken to stabilize the area(s).	<input type="checkbox"/> Yes	<input type="checkbox"/> No
7. Have pollution prevention measures been installed, implemented, and maintained to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters per section 4.1.5? If "No," describe below the measures to be implemented to address deficiencies.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
8. If a concrete washout facility is located on site, is it clearly identified on the project and maintained? If "No," describe below the measures to be implemented to address deficiencies.	<input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Have all previous deficiencies been addressed? If "No," describe the remaining deficiencies in the Comments section. <input type="checkbox"/> Check if deficiencies/corrective measures have been reported on a previous form.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Comment Section. If the answer is "No" for any of the above, please describe the problem and corrective actions to be taken. Otherwise, describe any pertinent observations:

Certification and Signature (must be signed by the certified inspector and the permittee per Sections 3.5.8.2 (g) and 7.7.2 of the CGP)

I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Inspector Name and Title:	Signature:	Date:
Primary Permittee Name and Title:	Signature:	Date:

## **Construction Stormwater Inspection Certification Form (Twice-Weekly Inspections)**

### **Purpose of this form/ Instructions**

An inspection, as described in section 3.5.8.2. of the General Permit for Stormwater Discharges from Construction Activities ("Permit"), shall be performed at least twice every calendar week and documented on this form. Inspections shall be performed at least 72 hours apart. Where sites or portion(s) of construction sites have been temporarily stabilized, or runoff is unlikely due to winter conditions (e.g., site covered with snow or ice), such inspection only has to be conducted once per month until thawing results in runoff or construction activity resumes.

Inspectors performing the required twice weekly inspections must have an active certification by completing the "Fundamentals of Erosion Prevention and Sediment Control Level I" course. (<http://www.tnepsc.org/>). A copy of the certification or training record for inspector certification should be kept on site.

Qualified personnel, as defined in section 3.5.8.1 of the Permit (provided by the permittee or cooperatively by multiple permittees) shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, locations where vehicles enter or exit the site, and each outfall.

Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the site's drainage system. Erosion prevention and sediment control measures shall be observed to ensure that they are operating correctly.

Outfall points (where discharges leave the site and/or enter waters of the state) shall be inspected to determine whether erosion prevention and sediment control measures are effective in preventing significant impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations shall be inspected. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

Based on the results of the inspection, any inadequate control measures or control measures in disrepair shall be replaced or modified, or repaired as necessary, before the next rain event if possible, but in no case more than 7 days after the need is identified.

Based on the results of the inspection, the site description identified in the SWPPP in accordance with section 3.5.1 of the Permit and pollution prevention measures identified in the SWPPP in accordance with section 3.5.2 of the Permit, shall be revised as appropriate, but in no case later than 7 days following the inspection. Such modifications shall provide for timely implementation of any changes to the SWPPP, but in no case later than 14 days following the inspection.

All inspections shall be documented on this Construction Stormwater Inspection Certification form. Alternative inspection forms may be used as long as the form contents and the inspection certification language are, at a minimum, equivalent to the division's form and the permittee has obtained a written approval from the division to use the alternative form. Inspection documentation will be maintained on site and made available to the division upon request. Inspection reports must be submitted to the division within 10 days of the request.

Trained certified inspectors shall complete inspection documentation to the best of their ability. Falsifying inspection records or other documentation or failure to complete inspection documentation shall result in a violation of this permit and any other applicable acts or rules.

**APPENDIX E**

**STORMWATER POLLUTION PREVENTION PLAN**  
**(SWPPP)**  
**AMENDMENT LOG**



# Stormwater Pollution Prevention Plan (SWPPP) Amendment Log

**Project Name:** Timberlake Industrial Park Site Grading Phase II

**SWPPP Contact:** \_\_\_\_\_

Amendment No.	Description of the Amendment	Date of Amendment	Have the Construction Plans been Updated with these changes?	Amendment Prepared by [Name(s) and Title]
1			Yes / No	
2			Yes / No	
3			Yes / No	
4			Yes / No	
5			Yes / No	
6			Yes / No	
7			Yes / No	
8			Yes / No	
9			Yes / No	
10			Yes / No	

**ATTACHMENT I**

**NOAA ATLAS-14 PRECIPITATION  
FREQUENCY**



NOAA Atlas 14, Volume 2, Version 3  
Location name: Lexington, Tennessee, USA\*  
Latitude: 35.7187°, Longitude: -88.3783°  
Elevation: 580.63 ft\*\*  
\* source: ESRI Maps  
\*\* source: USGS



## POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnín, D. Martín, B. Lin, T. Parzybok, M. Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF\\_tabular](#) | [PF\\_graphical](#) | [Maps\\_&\\_aerials](#)

### PF tabular

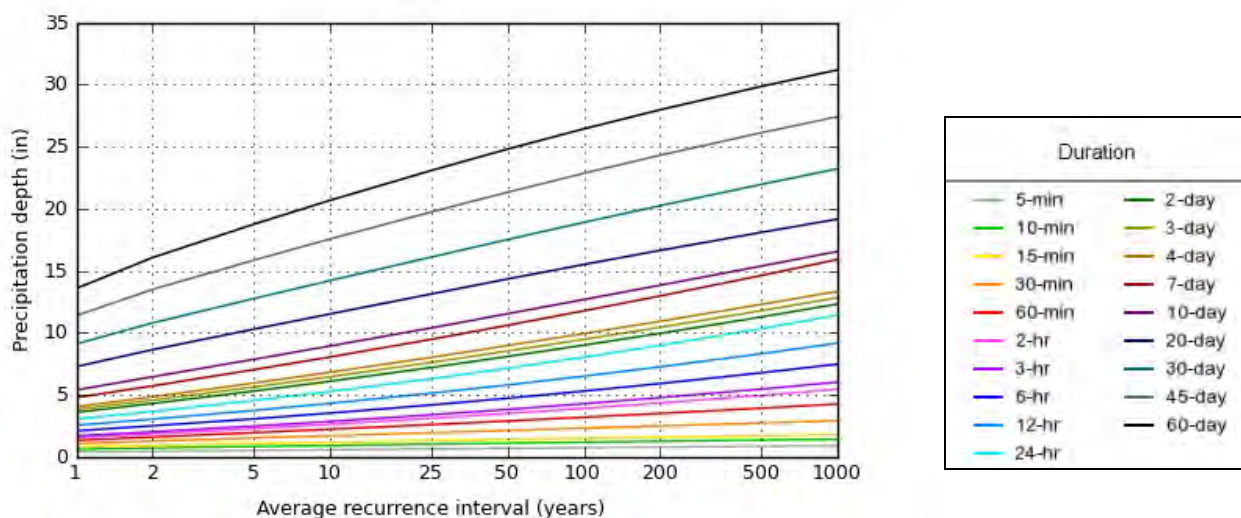
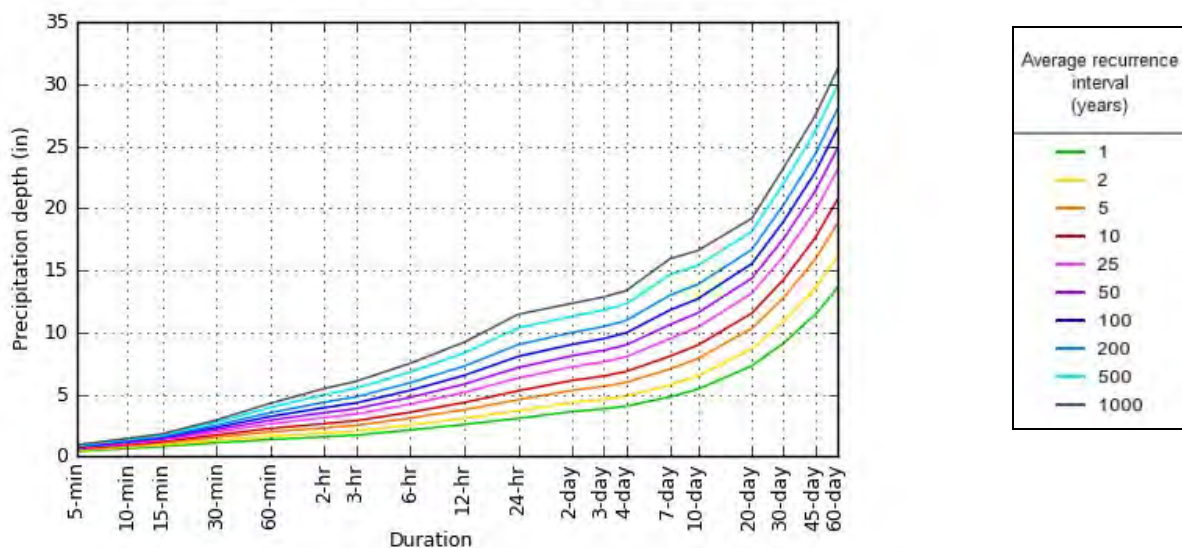
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) <sup>1</sup>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.397 (0.365-0.434)	0.465 (0.427-0.509)	0.534 (0.491-0.585)	0.588 (0.540-0.643)	0.656 (0.599-0.717)	0.707 (0.642-0.772)	0.757 (0.684-0.827)	0.805 (0.723-0.880)	0.867 (0.772-0.950)	0.915 (0.809-1.00)
10-min	0.634 (0.583-0.694)	0.743 (0.683-0.814)	0.855 (0.786-0.936)	0.940 (0.863-1.03)	1.05 (0.954-1.14)	1.13 (1.02-1.23)	1.20 (1.09-1.31)	1.28 (1.15-1.40)	1.37 (1.22-1.50)	1.44 (1.27-1.58)
15-min	0.793 (0.729-0.867)	0.934 (0.859-1.02)	1.08 (0.994-1.18)	1.19 (1.09-1.30)	1.33 (1.21-1.45)	1.43 (1.29-1.56)	1.52 (1.37-1.66)	1.61 (1.45-1.76)	1.73 (1.54-1.89)	1.81 (1.60-1.98)
30-min	1.09 (0.999-1.19)	1.29 (1.19-1.41)	1.54 (1.41-1.68)	1.72 (1.58-1.89)	1.96 (1.79-2.15)	2.15 (1.95-2.34)	2.33 (2.10-2.54)	2.51 (2.25-2.74)	2.75 (2.45-3.01)	2.93 (2.59-3.21)
60-min	1.36 (1.25-1.48)	1.62 (1.49-1.77)	1.97 (1.81-2.16)	2.24 (2.06-2.45)	2.61 (2.38-2.86)	2.91 (2.64-3.18)	3.21 (2.90-3.50)	3.52 (3.16-3.84)	3.94 (3.51-4.32)	4.27 (3.78-4.68)
2-hr	1.57 (1.45-1.71)	1.88 (1.74-2.04)	2.29 (2.12-2.49)	2.64 (2.43-2.86)	3.12 (2.86-3.38)	3.51 (3.21-3.81)	3.92 (3.57-4.25)	4.36 (3.94-4.73)	4.97 (4.45-5.40)	5.46 (4.85-5.95)
3-hr	1.71 (1.58-1.85)	2.04 (1.88-2.22)	2.49 (2.30-2.71)	2.87 (2.64-3.11)	3.40 (3.12-3.68)	3.84 (3.50-4.15)	4.30 (3.90-4.65)	4.79 (4.32-5.18)	5.48 (4.89-5.93)	6.04 (5.35-6.55)
6-hr	2.12 (1.95-2.31)	2.52 (2.32-2.76)	3.08 (2.83-3.36)	3.55 (3.25-3.87)	4.20 (3.83-4.57)	4.74 (4.31-5.16)	5.31 (4.80-5.77)	5.93 (5.32-6.44)	6.79 (6.04-7.38)	7.49 (6.61-8.16)
12-hr	2.56 (2.34-2.82)	3.06 (2.80-3.36)	3.75 (3.44-4.12)	4.33 (3.95-4.74)	5.15 (4.68-5.63)	5.81 (5.26-6.36)	6.52 (5.86-7.12)	7.27 (6.50-7.94)	8.32 (7.38-9.11)	9.19 (8.09-10.1)
24-hr	3.06 (2.83-3.34)	3.67 (3.40-4.01)	4.56 (4.20-4.97)	5.28 (4.86-5.74)	6.30 (5.78-6.85)	7.15 (6.52-7.76)	8.05 (7.30-8.74)	9.00 (8.11-9.77)	10.3 (9.21-11.3)	11.4 (10.1-12.5)
2-day	3.61 (3.36-3.89)	4.32 (4.02-4.67)	5.32 (4.93-5.74)	6.11 (5.67-6.58)	7.21 (6.66-7.76)	8.10 (7.44-8.70)	9.02 (8.24-9.70)	9.97 (9.06-10.7)	11.3 (10.2-12.2)	12.3 (11.0-13.4)
3-day	3.83 (3.57-4.12)	4.59 (4.27-4.94)	5.64 (5.24-6.07)	6.47 (6.01-6.95)	7.62 (7.04-8.18)	8.54 (7.86-9.17)	9.48 (8.68-10.2)	10.5 (9.52-11.3)	11.8 (10.6-12.7)	12.8 (11.5-13.9)
4-day	4.05 (3.77-4.35)	4.86 (4.53-5.22)	5.96 (5.55-6.41)	6.84 (6.35-7.33)	8.03 (7.43-8.61)	8.98 (8.28-9.63)	9.95 (9.12-10.7)	10.9 (9.97-11.8)	12.3 (11.1-13.3)	13.4 (11.9-14.5)
7-day	4.79 (4.45-5.14)	5.74 (5.34-6.17)	7.04 (6.54-7.56)	8.06 (7.47-8.65)	9.48 (8.75-10.2)	10.6 (9.75-11.4)	11.8 (10.8-12.7)	13.0 (11.8-14.0)	14.6 (13.1-15.8)	15.9 (14.2-17.3)
10-day	5.41 (5.04-5.79)	6.47 (6.03-6.94)	7.87 (7.33-8.43)	8.95 (8.32-9.57)	10.4 (9.64-11.1)	11.5 (10.7-12.4)	12.7 (11.7-13.6)	13.8 (12.7-14.9)	15.4 (14.0-16.6)	16.6 (14.9-17.9)
20-day	7.29 (6.83-7.75)	8.66 (8.12-9.22)	10.3 (9.67-11.0)	11.5 (10.8-12.3)	13.1 (12.3-14.0)	14.3 (13.4-15.3)	15.5 (14.4-16.5)	16.7 (15.4-17.7)	18.1 (16.7-19.3)	19.2 (17.6-20.5)
30-day	9.11 (8.55-9.69)	10.8 (10.1-11.5)	12.8 (12.0-13.5)	14.2 (13.3-15.1)	16.1 (15.1-17.1)	17.5 (16.3-18.6)	18.9 (17.6-20.1)	20.3 (18.7-21.5)	22.0 (20.2-23.4)	23.2 (21.3-24.8)
45-day	11.4 (10.7-12.1)	13.5 (12.7-14.3)	15.9 (14.9-16.8)	17.6 (16.5-18.6)	19.7 (18.5-20.9)	21.3 (19.9-22.6)	22.9 (21.3-24.3)	24.3 (22.6-25.8)	26.1 (24.2-27.8)	27.4 (25.3-29.3)
60-day	13.6 (12.8-14.4)	16.1 (15.1-17.1)	18.8 (17.6-19.9)	20.7 (19.4-21.9)	23.1 (21.6-24.5)	24.8 (23.2-26.3)	26.4 (24.7-28.1)	28.0 (26.1-29.7)	29.9 (27.7-31.8)	31.2 (28.9-33.3)
<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.										

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## PF graphical

PDS-based depth-duration-frequency (DDF) curves

Latitude: 35.7187°, Longitude: -88.3783°



## Maps & aerals

Small scale terrain



Large scale terrain



Large scale map



### Large scale aerial



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**ATTACHMENT II**

**SOILS REPORT FOR SITE**



United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for **Henderson County, Tennessee**



August 14, 2020

# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

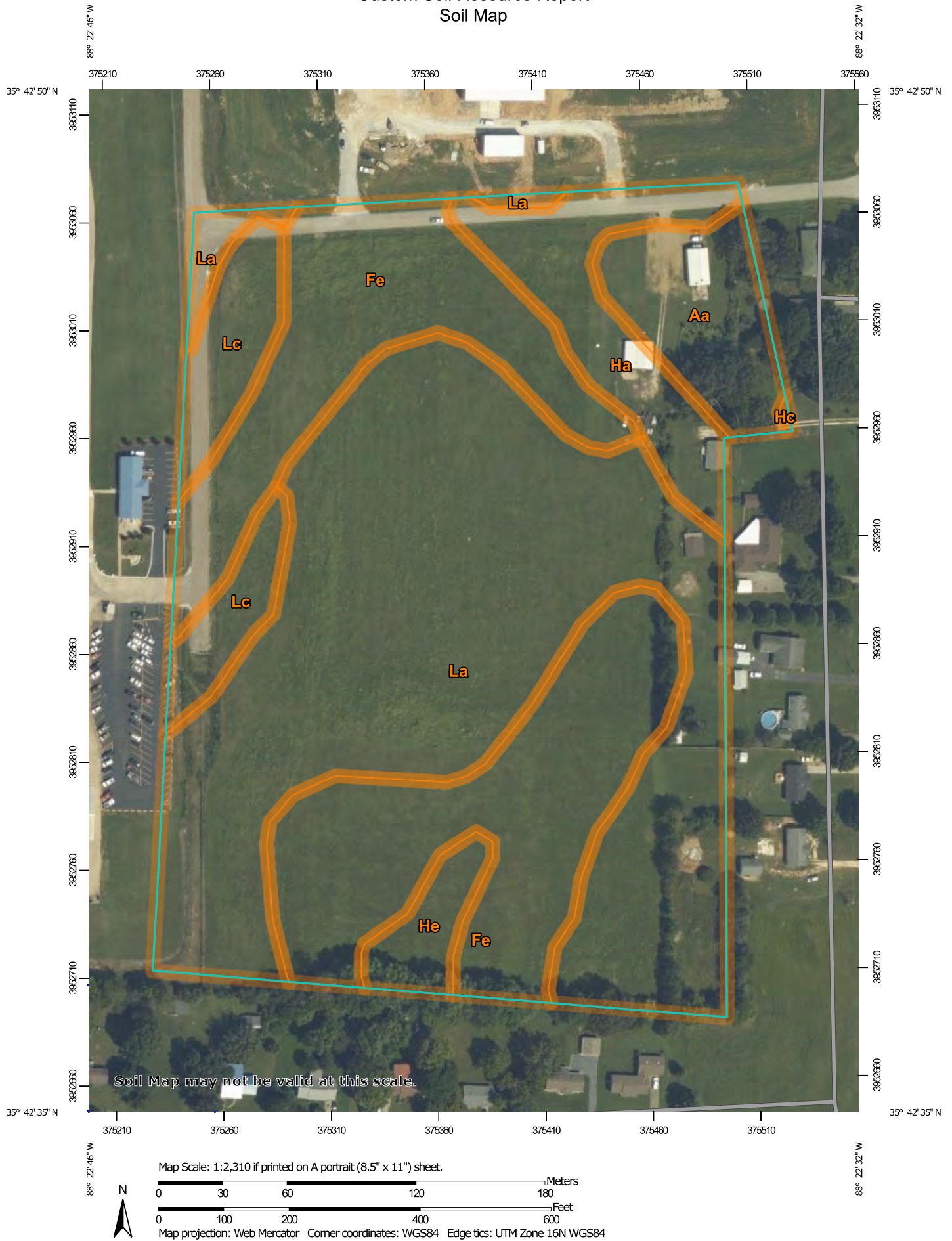


# Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


# Custom Soil Resource Report Soil Map




## Custom Soil Resource Report


### MAP LEGEND

#### Area of Interest (AOI)

 Area of Interest (AOI)

#### Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

#### Special Point Features

 Blowout


 Borrow Pit


 Clay Spot

 Closed Depression

 Gravel Pit


 Gravelly Spot


 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole

 Slide or Slip

 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

#### Water Features

 Streams and Canals

#### Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

#### Background

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Henderson County, Tennessee  
Survey Area Data: Version 15, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 6, 2019—Sep 11, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Aa	Almo silt loam	1.4	6.0%
Fe	Freeland silt loam, eroded gently sloping phase	7.4	30.6%
Ha	Hatchie silt loam, gently sloping phase	1.8	7.5%
Hc	Hymon fine sandy loam, local alluvium phase (luka)	0.0	0.1%
He	Hymon silt loam, local alluvium phase (Collins)	0.6	2.4%
La	Lexington silt loam, eroded gently sloping phase	11.4	47.4%
Lc	Lexington silt loam, eroded sloping phase	1.5	6.2%
<b>Totals for Area of Interest</b>		<b>24.1</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor

components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Henderson County, Tennessee

### Aa—Almo silt loam

#### Map Unit Setting

*National map unit symbol:* bzzm  
*Elevation:* 400 to 500 feet  
*Mean annual precipitation:* 21 to 59 inches  
*Mean annual air temperature:* 48 to 71 degrees F  
*Frost-free period:* 197 to 211 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Almo and similar soils:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Almo

##### Setting

*Landform:* Flood plains  
*Landform position (three-dimensional):* Talf  
*Parent material:* Loess over loamy alluvium

##### Typical profile

*H1 - 0 to 7 inches:* silt loam  
*H2 - 7 to 23 inches:* silt loam  
*H3 - 23 to 58 inches:* loam  
*H4 - 58 to 72 inches:* clay loam

##### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 6 to 24 inches  
*Frequency of flooding:* RareNone  
*Frequency of ponding:* None  
*Available water capacity:* Moderate (about 6.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* C/D  
*Hydric soil rating:* Yes

### Fe—Freeland silt loam, eroded gently sloping phase

#### Map Unit Setting

*National map unit symbol:* c015  
*Elevation:* 400 to 500 feet

## Custom Soil Resource Report

*Mean annual precipitation:* 21 to 59 inches  
*Mean annual air temperature:* 48 to 71 degrees F  
*Frost-free period:* 197 to 211 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Freeland and similar soils:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Freeland

#### Setting

*Landform:* Stream terraces  
*Parent material:* Loess over loamy alluvium

#### Typical profile

*H1 - 0 to 6 inches:* silt loam  
*H2 - 6 to 24 inches:* silt loam  
*H3 - 24 to 60 inches:* sandy loam

#### Properties and qualities

*Slope:* 2 to 5 percent  
*Depth to restrictive feature:* 24 to 40 inches to fragipan  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 18 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water capacity:* Low (about 4.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Hydric soil rating:* No

## Ha—Hatchie silt loam, gently sloping phase

### Map Unit Setting

*National map unit symbol:* c01g  
*Elevation:* 350 to 500 feet  
*Mean annual precipitation:* 21 to 59 inches  
*Mean annual air temperature:* 48 to 71 degrees F  
*Frost-free period:* 197 to 211 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Hatchie and similar soils:* 92 percent  
*Minor components:* 8 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Hatchie

### Setting

*Landform:* Stream terraces

*Parent material:* Loess over loamy alluvium

### Typical profile

*H1 - 0 to 6 inches:* silt loam

*H2 - 6 to 16 inches:* silt loam

*H3 - 16 to 34 inches:* silt loam

*H4 - 34 to 60 inches:* loam

### Properties and qualities

*Slope:* 2 to 5 percent

*Depth to restrictive feature:* 16 to 32 inches to fragipan

*Drainage class:* Somewhat poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 12 to 24 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water capacity:* Low (about 3.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* D

*Hydric soil rating:* No

## Minor Components

### Almo

*Percent of map unit:* 8 percent

*Landform:* Flood plains

*Landform position (three-dimensional):* Talf

*Hydric soil rating:* Yes

## Hc—Hymon fine sandy loam, local alluvium phase (luka)

### Map Unit Setting

*National map unit symbol:* c01j

*Elevation:* 380 to 640 feet

*Mean annual precipitation:* 21 to 59 inches

*Mean annual air temperature:* 48 to 71 degrees F

*Frost-free period:* 197 to 211 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*luka and similar soils:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*



## **Description of luka**

### **Setting**

*Landform:* Flood plains

*Landform position (three-dimensional):* Talf

*Parent material:* Loamy alluvium

### **Typical profile**

*H1 - 0 to 6 inches:* fine sandy loam

*H2 - 6 to 20 inches:* loam

*H3 - 20 to 60 inches:* sandy loam

### **Properties and qualities**

*Slope:* 2 to 5 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* About 12 to 36 inches

*Frequency of flooding:* OccasionalNone

*Frequency of ponding:* None

*Available water capacity:* Moderate (about 8.9 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* C

*Hydric soil rating:* No

## **He—Hymon silt loam, local alluvium phase (Collins)**

### **Map Unit Setting**

*National map unit symbol:* c01l

*Elevation:* 380 to 640 feet

*Mean annual precipitation:* 21 to 59 inches

*Mean annual air temperature:* 48 to 71 degrees F

*Frost-free period:* 197 to 211 days

*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Collins and similar soils:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

## **Description of Collins**

### **Setting**

*Landform:* Flood plains

*Landform position (three-dimensional):* Talf

*Parent material:* Silty alluvium

### **Typical profile**

*H1 - 0 to 20 inches:* silt loam

## Custom Soil Resource Report

*H2 - 20 to 60 inches: silt loam*

### **Properties and qualities**

*Slope: 2 to 5 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Moderately well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high  
(0.60 to 2.00 in/hr)*

*Depth to water table: About 24 to 60 inches*

*Frequency of flooding: OccasionalNone*

*Frequency of ponding: None*

*Available water capacity: Very high (about 12.8 inches)*

### **Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 2w*

*Hydrologic Soil Group: B*

*Hydric soil rating: No*

## **La—Lexington silt loam, eroded gently sloping phase**

### **Map Unit Setting**

*National map unit symbol: c01s*

*Elevation: 300 to 650 feet*

*Mean annual precipitation: 21 to 59 inches*

*Mean annual air temperature: 48 to 71 degrees F*

*Frost-free period: 197 to 211 days*

*Farmland classification: All areas are prime farmland*

### **Map Unit Composition**

*Lexington and similar soils: 100 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Lexington**

#### **Setting**

*Landform: Interfluves*

*Landform position (three-dimensional): Interfluve*

*Parent material: Loess over loamy marine deposits*

#### **Typical profile**

*H1 - 0 to 6 inches: silt loam*

*H2 - 6 to 34 inches: silty clay loam*

*H3 - 34 to 60 inches: loamy sand*

### **Properties and qualities**

*Slope: 2 to 5 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high  
(0.60 to 2.00 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

## Custom Soil Resource Report

*Frequency of ponding:* None

*Available water capacity:* Moderate (about 8.6 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* B

*Hydric soil rating:* No

## **Lc—Lexington silt loam, eroded sloping phase**

### **Map Unit Setting**

*National map unit symbol:* c01v

*Elevation:* 300 to 650 feet

*Mean annual precipitation:* 21 to 59 inches

*Mean annual air temperature:* 48 to 71 degrees F

*Frost-free period:* 197 to 211 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Lexington and similar soils:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Lexington**

#### **Setting**

*Landform:* Hillslopes

*Landform position (three-dimensional):* Side slope

*Parent material:* Loess over loamy marine deposits

#### **Typical profile**

*H1 - 0 to 6 inches:* silt loam

*H2 - 6 to 34 inches:* silty clay loam

*H3 - 34 to 60 inches:* loamy sand

#### **Properties and qualities**

*Slope:* 5 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water capacity:* Moderate (about 8.6 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B

*Hydric soil rating:* No



# **Soil Information for All Uses**

---

## **Soil Properties and Qualities**

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

## **Soil Erosion Factors**

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

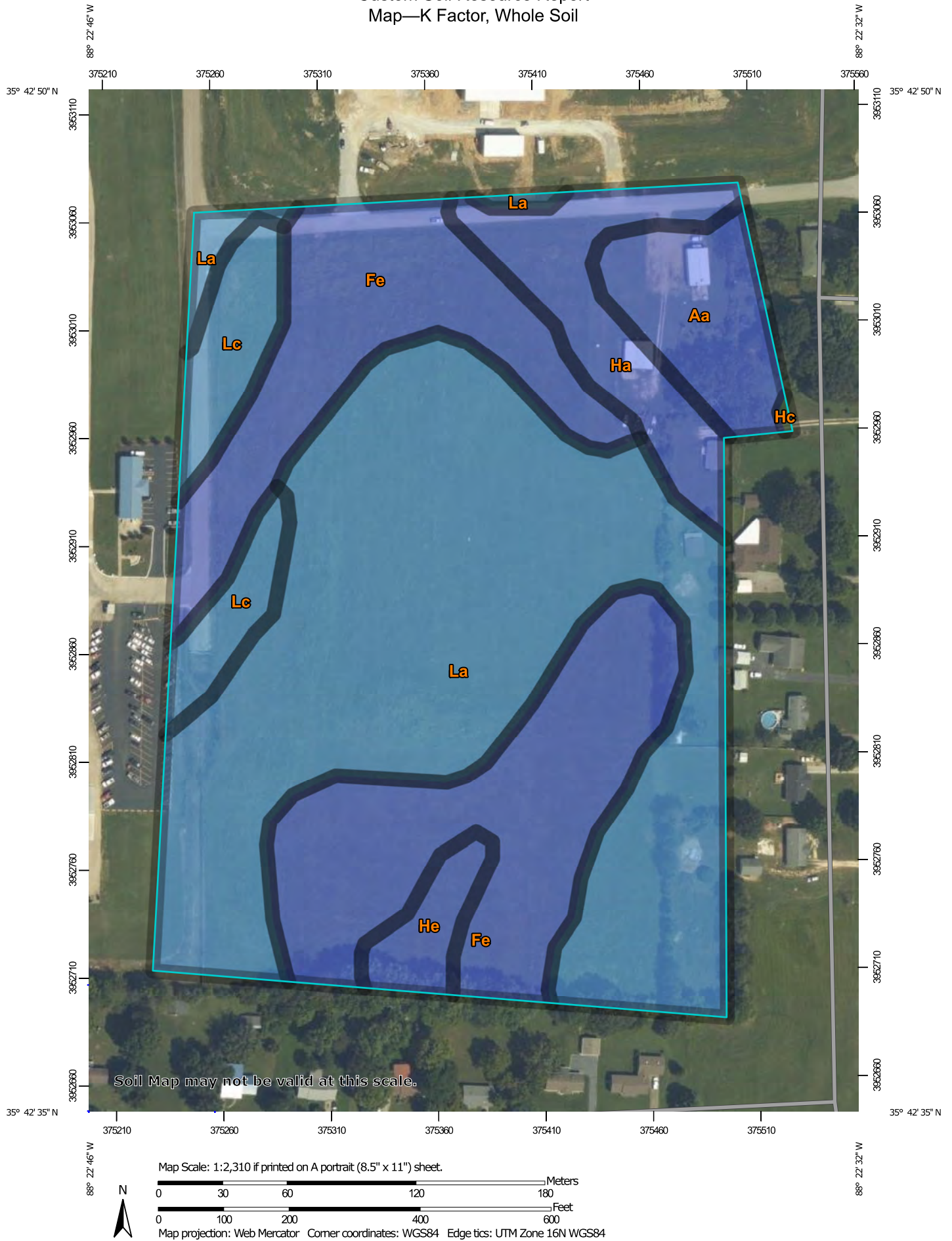
### **K Factor, Whole Soil**

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

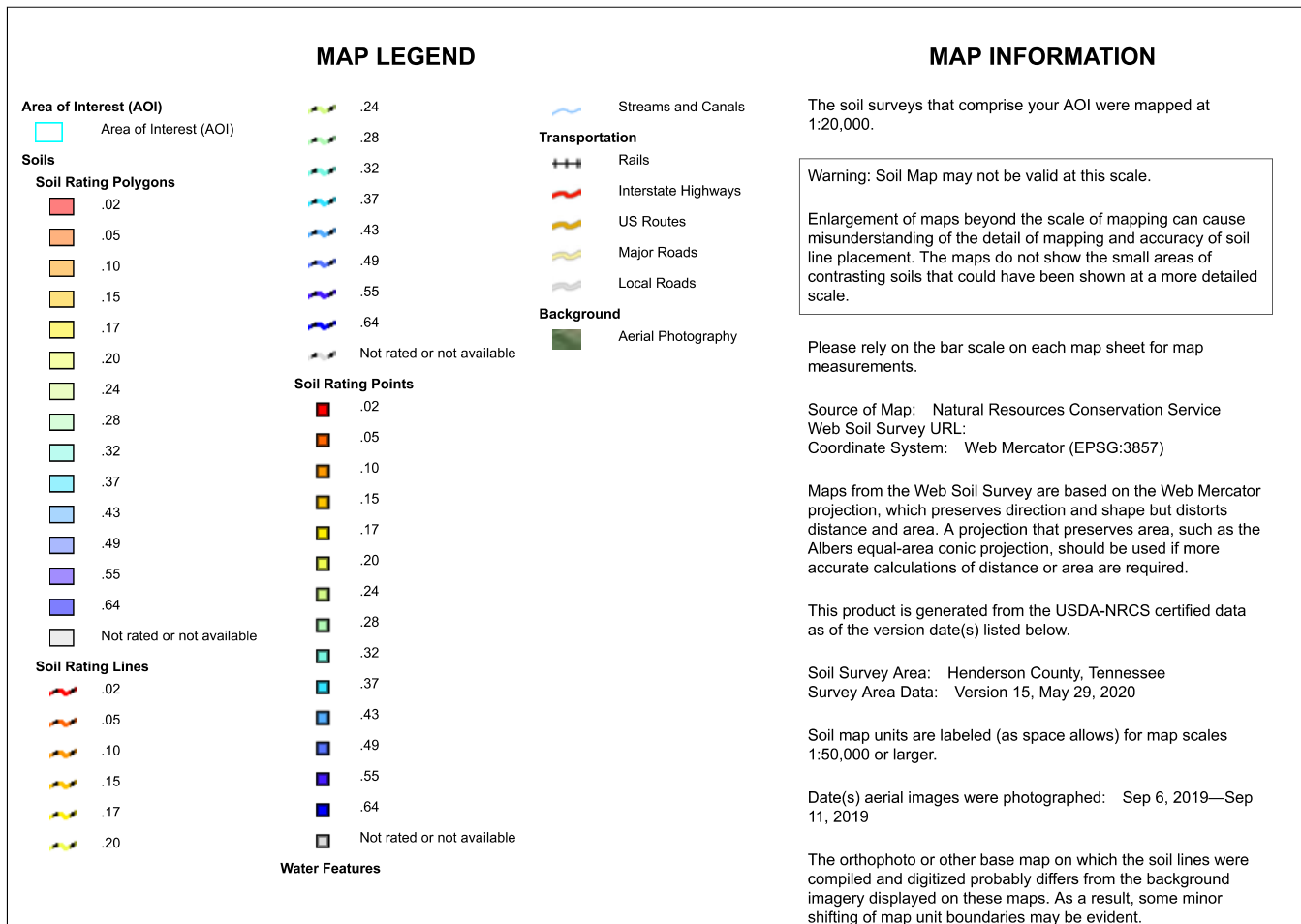
"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

# Custom Soil Resource Report

## Map—K Factor, Whole Soil



## Custom Soil Resource Report





**Table—K Factor, Whole Soil**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Aa	Almo silt loam	.49	1.4	6.0%
Fe	Freeland silt loam, eroded gently sloping phase	.49	7.4	30.6%
Ha	Hatchie silt loam, gently sloping phase	.49	1.8	7.5%
Hc	Hymon fine sandy loam, local alluvium phase (Iuka)	.28	0.0	0.1%
He	Hymon silt loam, local alluvium phase (Collins)	.49	0.6	2.4%
La	Lexington silt loam, eroded gently sloping phase	.43	11.4	47.4%
Lc	Lexington silt loam, eroded sloping phase	.43	1.5	6.2%
<b>Totals for Area of Interest</b>			<b>24.1</b>	<b>100.0%</b>

**Rating Options—K Factor, Whole Soil***Aggregation Method: Dominant Condition**Component Percent Cutoff: None Specified**Tie-break Rule: Higher**Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)*

# References

---

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
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- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
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- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_054262](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262)
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053577](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577)
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- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2\\_053374](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374)
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)

**ATTACHMENT III**

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
(FEMA)  
FLOOD INSURANCE RATE MAP (FIRM)**

# NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It is necessary to identify all areas subject to flooding, particularly from local sources of small size. The community map repository should be used for possible updates or additional flood hazard information.

For more detailed information in areas where Base Flood Elevations and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that covers this FIRM. Users should be aware that DFAs shown on the FIRM are rounded whole-foot elevations. These DFAs are intended for flood rating purposes only and should not be used as the sole source of elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of action and/or floodplain management.

Base Flood Elevations shown on this map apply only to landward of 0.5' American Vertical Datum of 1988. Users of this FIRM should be aware that flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for flood rating purposes only and should not be used as the sole source of elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of action and/or floodplain management.

Base Flood Elevations were computed at cross sections and interpolated at cross sections. The floodways were based on hydraulic considerations and to requirements of the National Flood Insurance Program. Floodway and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Areas not in Special Flood Hazard Areas may be protected by flood structures. Refer to Section 2.4 Flood Protection Measures of the Insurance Study report for information on flood control structures for this jurisdiction.

Map used in the preparation of this map was TENNESSEE STATE FIRM 15002E 4100. The horizontal datum was the North American Datum of 1983 (NAD 83). GCR1980 Spheroid. Differences in datum, spheroid, or State Plane zones used in the production of the FIRM from previous versions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not impact the accuracy of this map.

Elevations on this map are referenced to the North American Vertical of 1988. These flood elevations must be compared to structure and elevation referenced to the same vertical datum. For information on conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at writing address.

Information Services  
NAD83  
Geodetic Survey  
15002E  
15002E Highway  
Spring, Maryland, 20910-3282  
301-324-3242

For current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the Geodetic Survey at (301) 713-3242, or visit its website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov).

Map information shown on this FIRM is derived from multiple sources. Map files were provided in digital format by the State of Tennessee. Map hydrographic information was provided in digital format by the National Hydrographic Dataset.

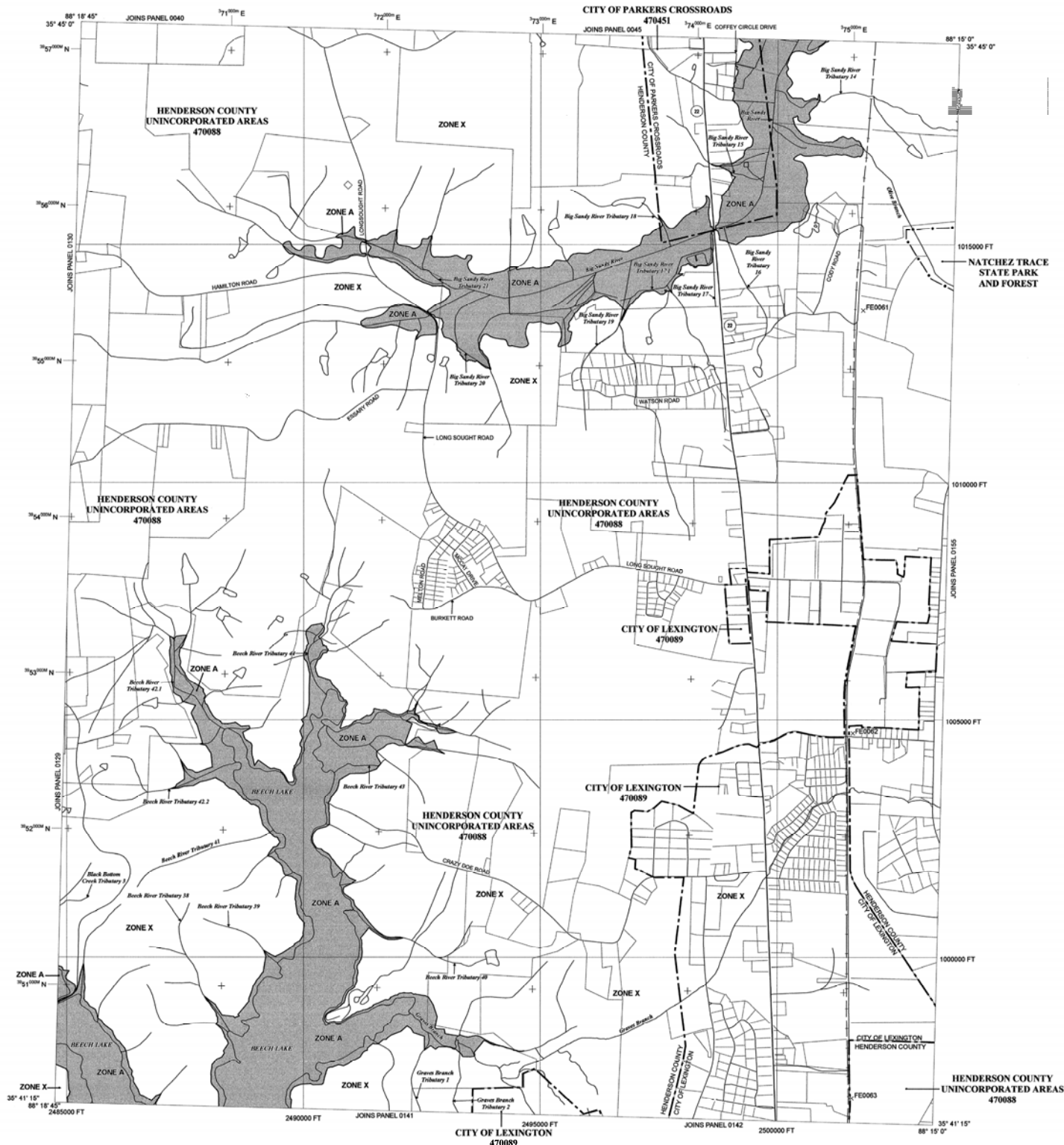
Map reflects more detailed and up-to-date stream channel configurations shown on the previous FIRM for this jurisdiction. The floodplains and areas that were transferred from the previous FIRM may have been adjusted from to these new stream channel configurations. As a result, the Flood and Floodway Data tables ("stream names") in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream distances that differ from what is shown on this map.

Map limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may occur after this map was published, map users should contact the community officials to verify current corporate limit locations.

Users are referred to the separately printed Map Index for an overview map of the showing the layout of map panels, community map repository addresses, listing of Communities table containing National Flood Insurance Program for each community as well as a listing of the panels on which each community is located.

For the FEMA Map Service Center at 1-800-358-6616 for information on products associated with this FIRM. Available products may include any issued Letters of Map Change, a Flood Insurance Study report, and any versions of this map. The FEMA Map Service Center may also be contacted by fax at 1-800-358-6620 and its website at <http://www.fema.gov>.

For questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA-MAP (1-877-336-6262) or visit the FEMA website at <http://www.fema.gov>.



# National Flood Hazard Layer FIRMette



88°23'W 35°42'57"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, X, A99
	With BFE or Depth Zone AE, AO, AH, VE, AR Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee. See Notes, Zone X
	Area with Flood Risk due to Levee Zone D
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard Zone X
	Effective LOMRs
GENERAL STRUCTURES	Area of Undetermined Flood Hazard Zone D
	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
OTHER FEATURES	20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
	17.5 Coastal Transect
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
MAP PANELS	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Digital Data Available
	No Digital Data Available
	Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

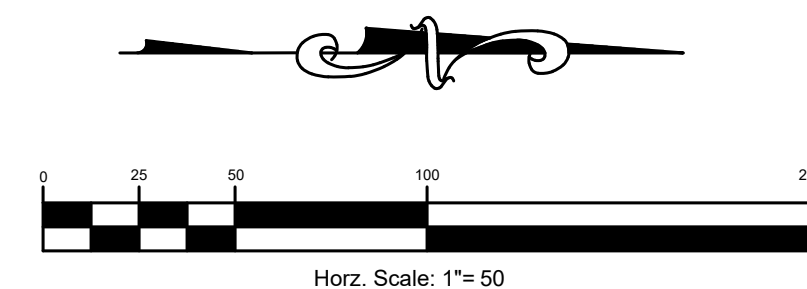
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/14/2020 at 12:19 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmoderated areas cannot be used for regulatory purposes.

**ATTACHMENT IV**

**C3.0 EROSION CONTROL PLAN  
PHASE I**







**ATTACHMENT V**

**C3.1 EROSION CONTROL PLAN  
PHASE II**

[illegible]

CONSULTANT



**TLM ASSOCIATES, INC.**  
ARCHITECTS + ENGINEERS

117 East Lafayette Street Jackson, Tennessee 38301  
www.tlmae.com  
731.988.9840 (phone) - 731.988.9959 (fax)

## EROSION CONTROL PLAN - PHASE II

## TIMBERLAKE INDUSTRIAL PARK

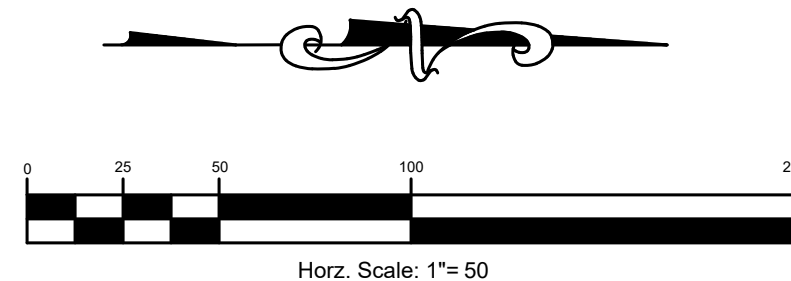
## SITE GRADING PHASE II

**Industrial Development Board of the City of Lexington**  
Lexington, Tennessee

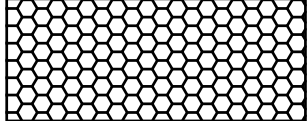



09/09/2020

6371

### C3.1



EROSION CONTROL LEGEND:

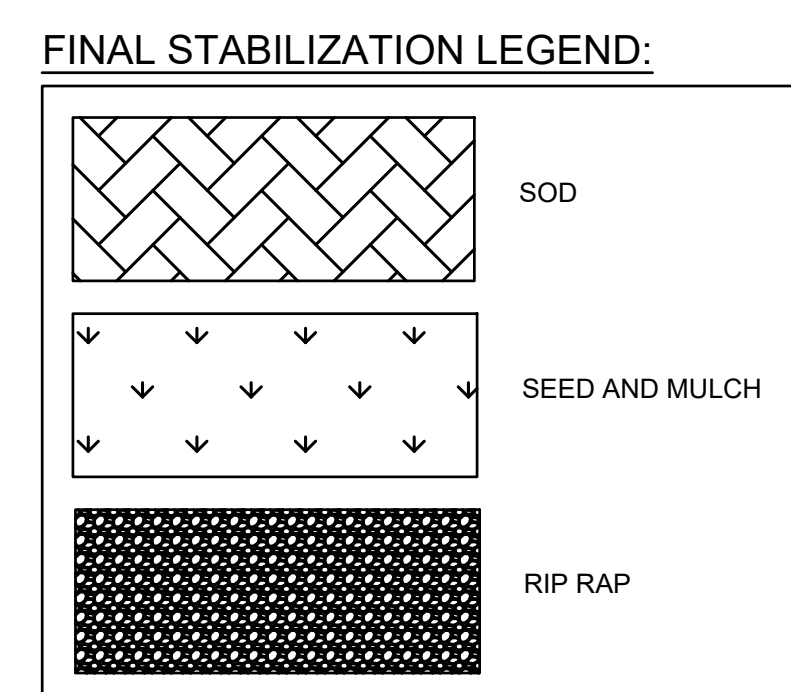
<u>SYMBOL</u>	<u>DESCRIPTION</u>
— SF — SF —	TEMP. SILT FENCE. REFER TO TDOT STD DWG EC-STR-3B
	GRAVEL CONSTRUCTION ENTRANCE. REFER TO TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC), 2012 HANDBOOK.
	ROCK CHECK DAM. REFER TO TDOT STD DWG EC-STR-6
	ENHANCED ROCK CHECK DAM. REFER TO TDOT STD DWG EC-STR-6A
	CULVERT PROTECTION (TYPE 1). REFER TO TDOT STD DWG EC-STR-11

**NOTE:**  
CONTRACTOR TO PROVIDE INLET PROTECTION PER TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION (TDEC)  
2012 HANDBOOK UNTIL AREAS DRAINING TO INLETS ARE STABILIZED

**ATTACHMENT VI**

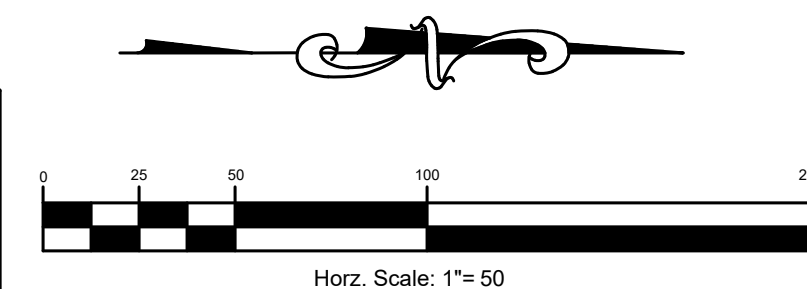
**C3.2 FINAL STABILIZATION PLAN**





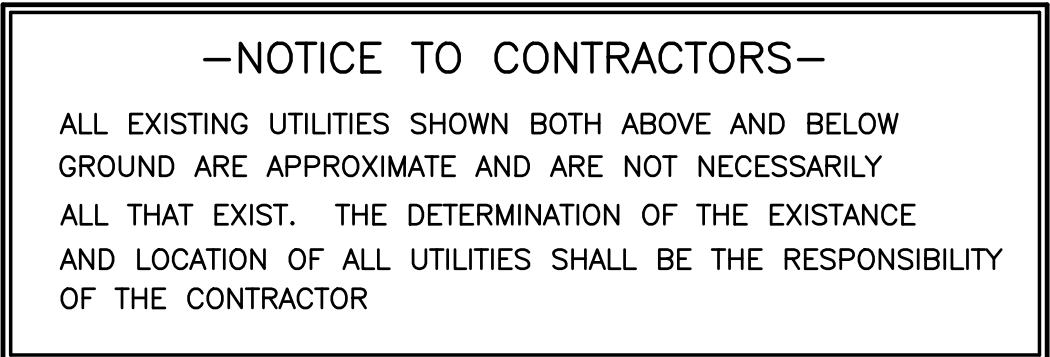
**-NOTICE TO CONTRACTORS-**

ALL EXISTING UTILITIES SHOWN BOTH ABOVE AND BELOW GROUND ARE APPROXIMATE AND ARE NOT NECESSARILY ALL THAT EXIST. THE DETERMINATION OF THE EXISTENCE AND LOCATION OF ALL UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR



**ATTACHMENT VII**

**SEDIMENT BASIN  
PLAN & DETAILS**

[illegible]

CONSULTANT

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**TLM ASSOCIATES, INC.**  
**ARCHITECTS + ENGINEERS**

[www.tlmae.com](http://www.tlmae.com)  
117 East Lafayette Street Jackson, Tennessee 38301  
731.988.9840 (phone) • 731.988.9952 (fax)

**SEDIMENT BASIN PLAN**

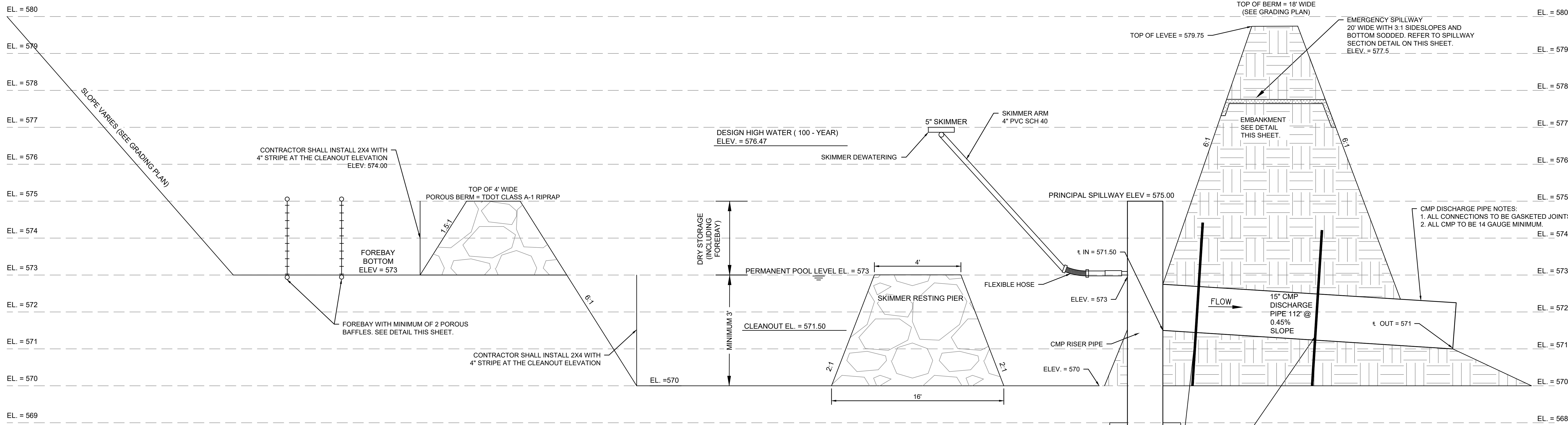
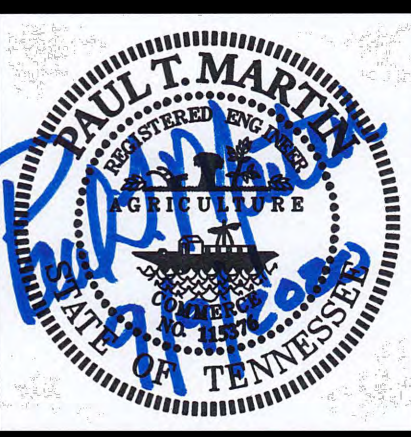
**TIMBERLAKE INDUSTRIAL PARK  
SITE GRADING PHASE II**

for  
Industrial Development Board of the City of Lexington  
Lexington, Tennessee

09/09/2020
6371

**C4.0**





SKIMMER DEWATERING DEVICE SPECIFICATIONS

FACILITY	SKIMMER NO.	ARM DIA.	ORIFICE DIA.	DRAW DOWN
BASIN	1	4"	5"	3 DAYS

BASIN SCHEDULE

RISER PIPE DIA. (IN.)	DISCHARGE PIPE DIA. (IN.)	PERMANENT POOL ELEVATION	PRINCIPAL SPILLWAY ELEVATION	EMERGENCY SPILLWAY WIDTH (FT)	EMERGENCY SPILLWAY SIDESLOPE	TOP OF EMBANKMENT ELEVATION	BOTTOM OF EMBANKMENT ELEVATION
18	15	573	575	20	3H:1V	579.75	570

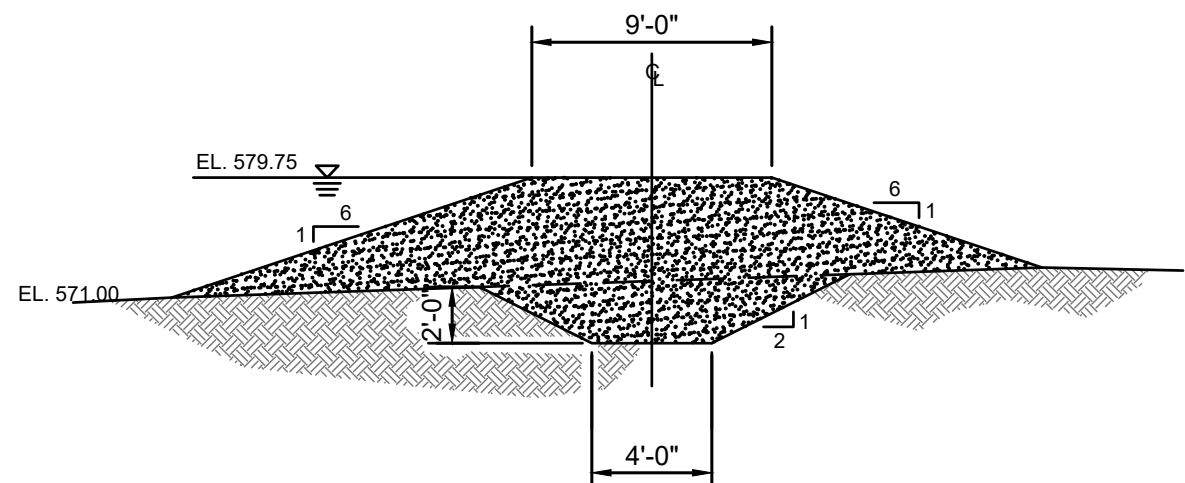
SEDIMENT POND DETAIL

N.T.S.

(2) ANTI-SEEP COLLARS - 68"x68" SQ. SPACED 20' APART. FIRST COLLAR PLACED 15' INTO EMBANKMENT. NOTE: CONNECTIONS BETWEEN THE ANTI-SEEP COLLAR AND BARREL MUST BE WATERTIGHT. SEE DETAIL THIS SHEET.

ONCE CONSTRUCTION IS COMPLETE, THE SEDIMENT BASIN WILL BE CONVERTED INTO A DETENTION POND. THIS INCLUDES THE FOLLOWING:

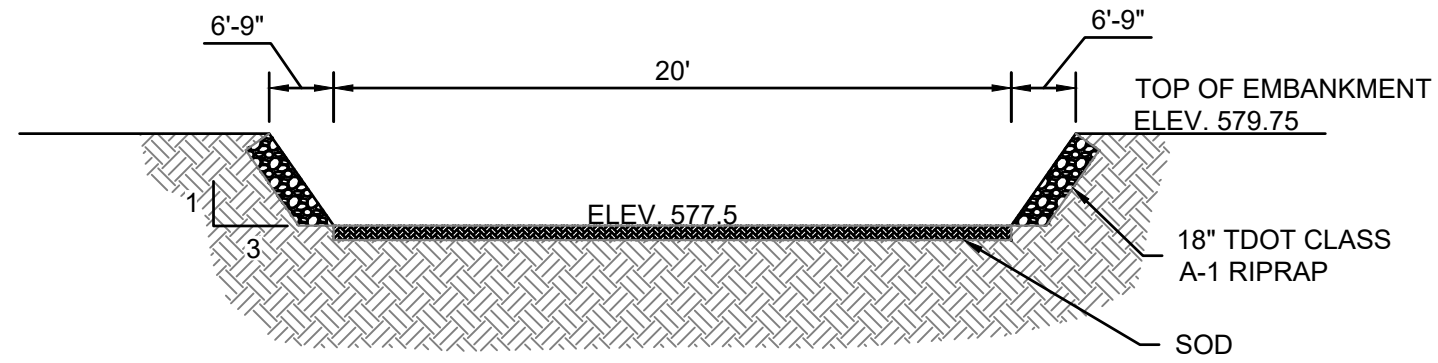
- REMOVAL OF THE SKIMMER AND SKIMMER RESTING PIER
- REMOVAL OF THE 18" RISER PIPE
- REMOVAL OF THE POROUS ROCK BERM
- REMOVAL OF THE POROUS BAFFLES
- FILL BOTTOM OF POND UP TO 571.50, MAINTAIN POSITIVE DRAINAGE TO DISCHARGE PIPE.



EMBANKMENT SECTION

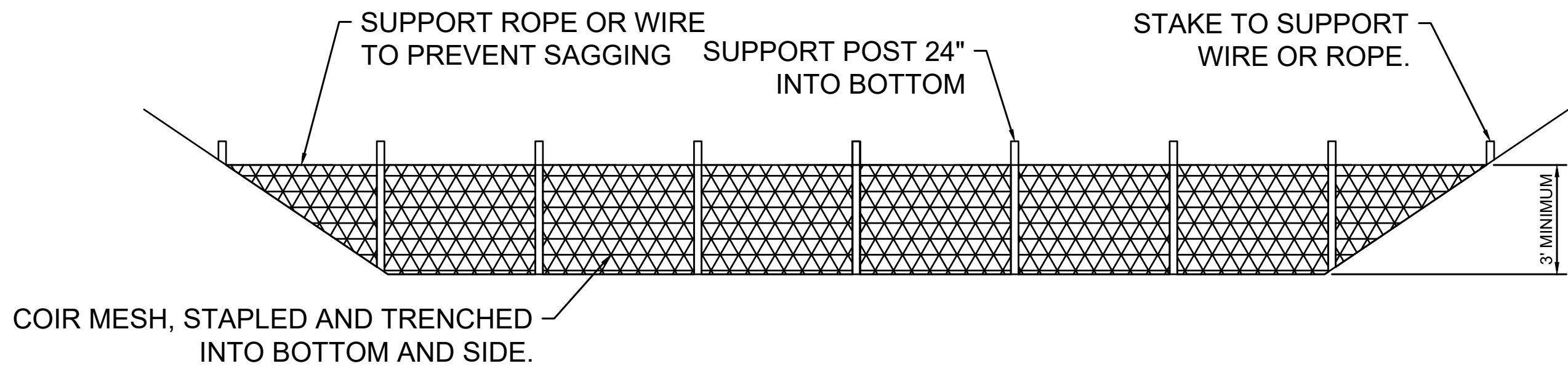
EMBANKMENT NOTES:

- EMBANKMENT TO BE CONSTRUCTED OF SELECT ON-SITE SOILS APPROVED BY SOILS ENGINEERS.
- COMPACT TO A MINIMUM OF 95% STD. PROCTOR DENSITY @ 2-3% OVER OPTIMUM MOISTURE
- CONSTRUCT 4'-0" WIDE KEYWAY ALONG CENTER OF EMBANKMENT PER DETAIL THIS SHEET.
- REFER TO EROSION CONTROL PLAN FOR STABILIZATION OF EMBANKMENT.
- SLOPE LENGTH VARIES, REFER TO GRADING PLAN.



SECTION THRU EMERGENCY SPILLWAY

N.T.S.

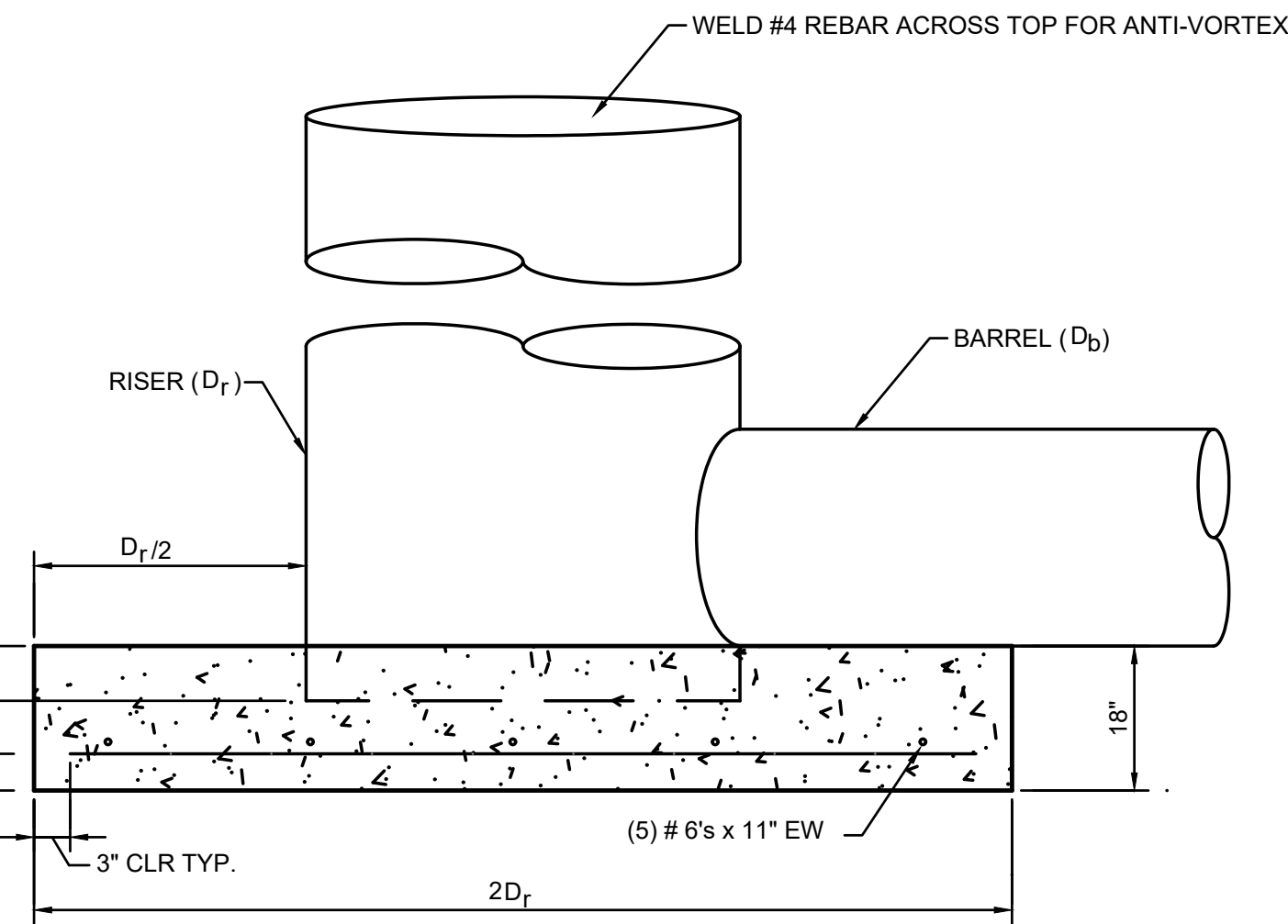


NOTES:

- 100% COCONUT FIBER (COIR) TWINE WOVEN INTO HIGH STRENGTH MATRIX
- 0.30" THK., MIN.
- TENSILE STRENGTH, 1248 x 626 LBS/FT MIN.
- ELONGATION, 38% MAX
- FLOW VELOCITY, 11 FT/SEC
- WEIGHT, 20oz./40<sup>2</sup>
- OPEN AREA, 50%

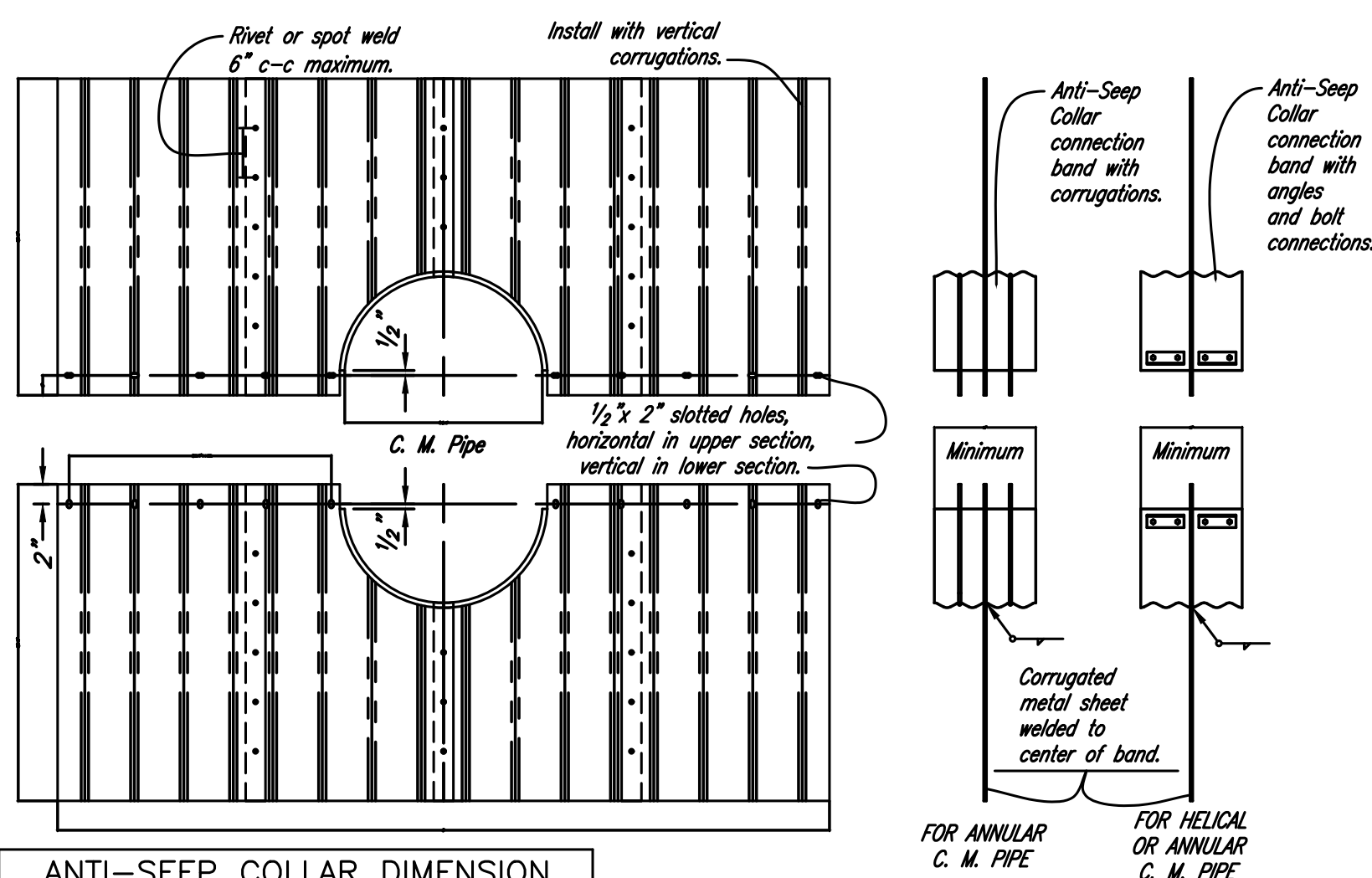
POROUS BAFFLE DETAIL FOR FOREBAY AREA

N.T.S.



SPILLWAY FOUNDATION DETAIL

N.T.S.



PIPE DIA.	NO. USED	W (INCHES)
15"	2	68"

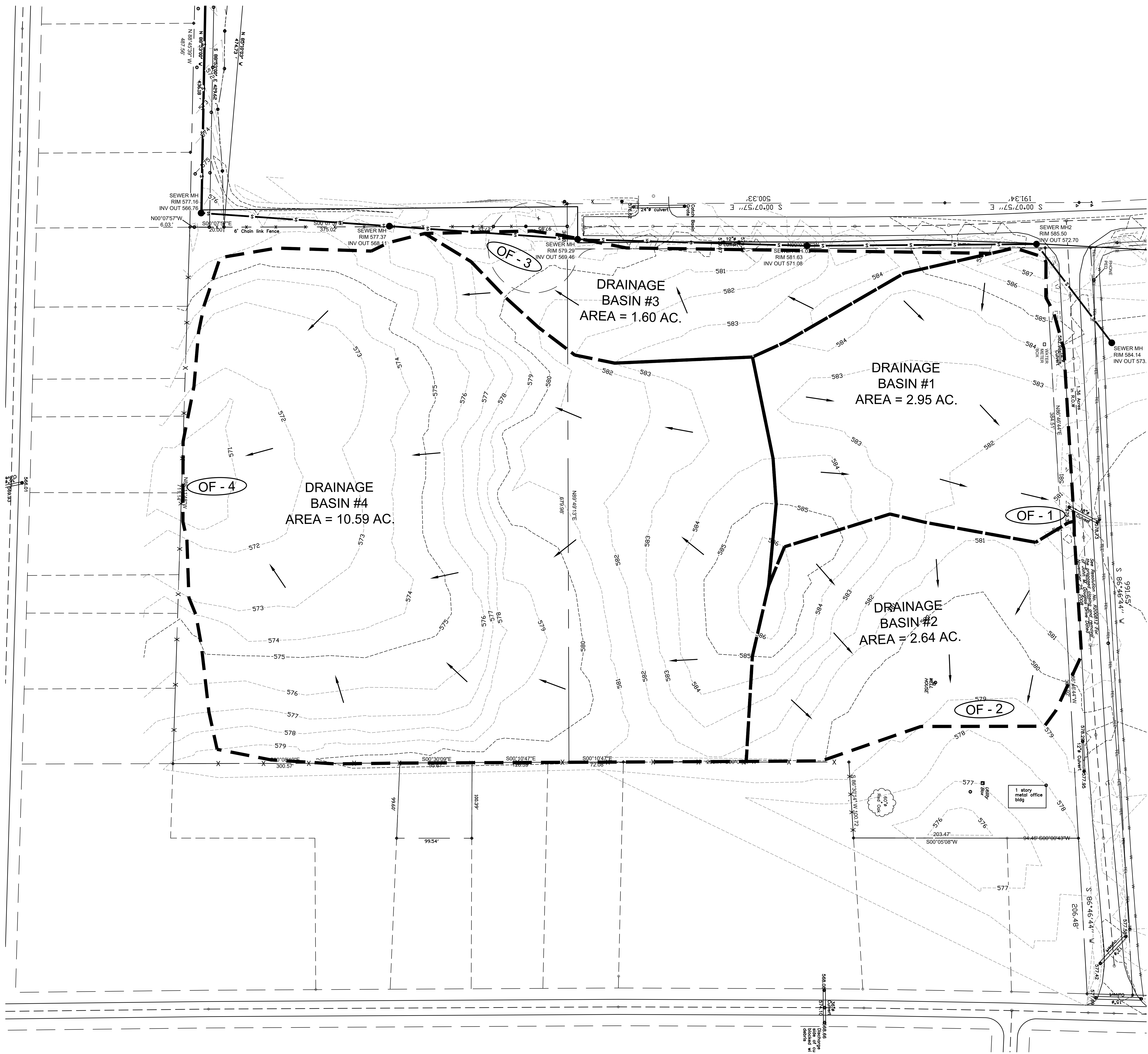
Anti-Seep Collar dimensions shown may be increased to allow fabrication from standard size sheets.

Anti-Seep Collars for 18" to 48" corrugated metal pipe to be connected with two 1/2" diameter rods with lock lugs.  
Anti-Seep Collars for 8" to 15" corrugated metal pipe to be connected with angles riveted or spot welded to band and connected with bolts.

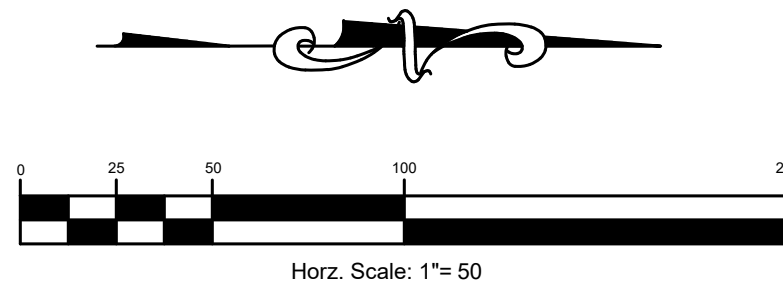


**ATTACHMENT VIII**

**PRE/ POST DEVELOPMENT DRAINAGE MAPS**





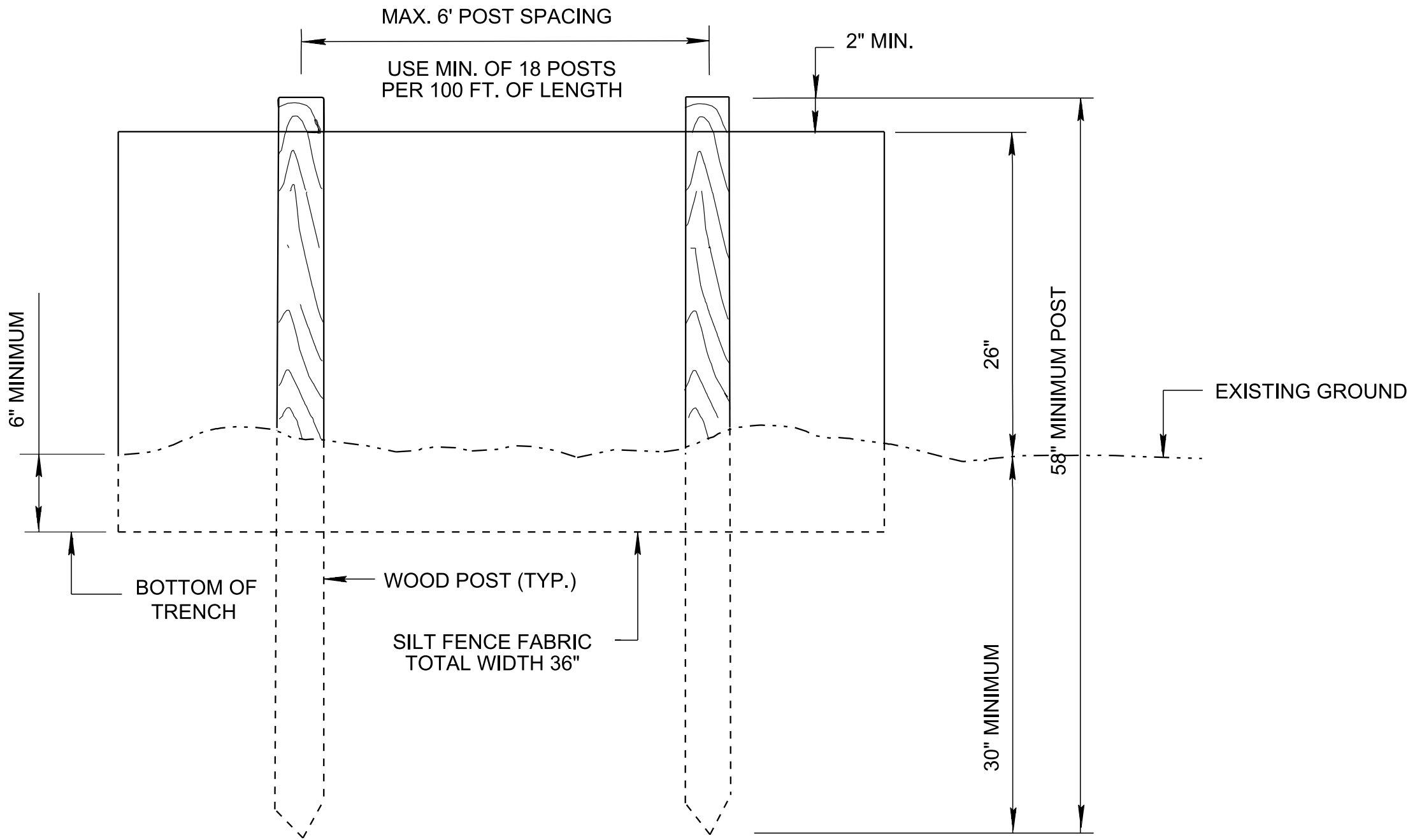




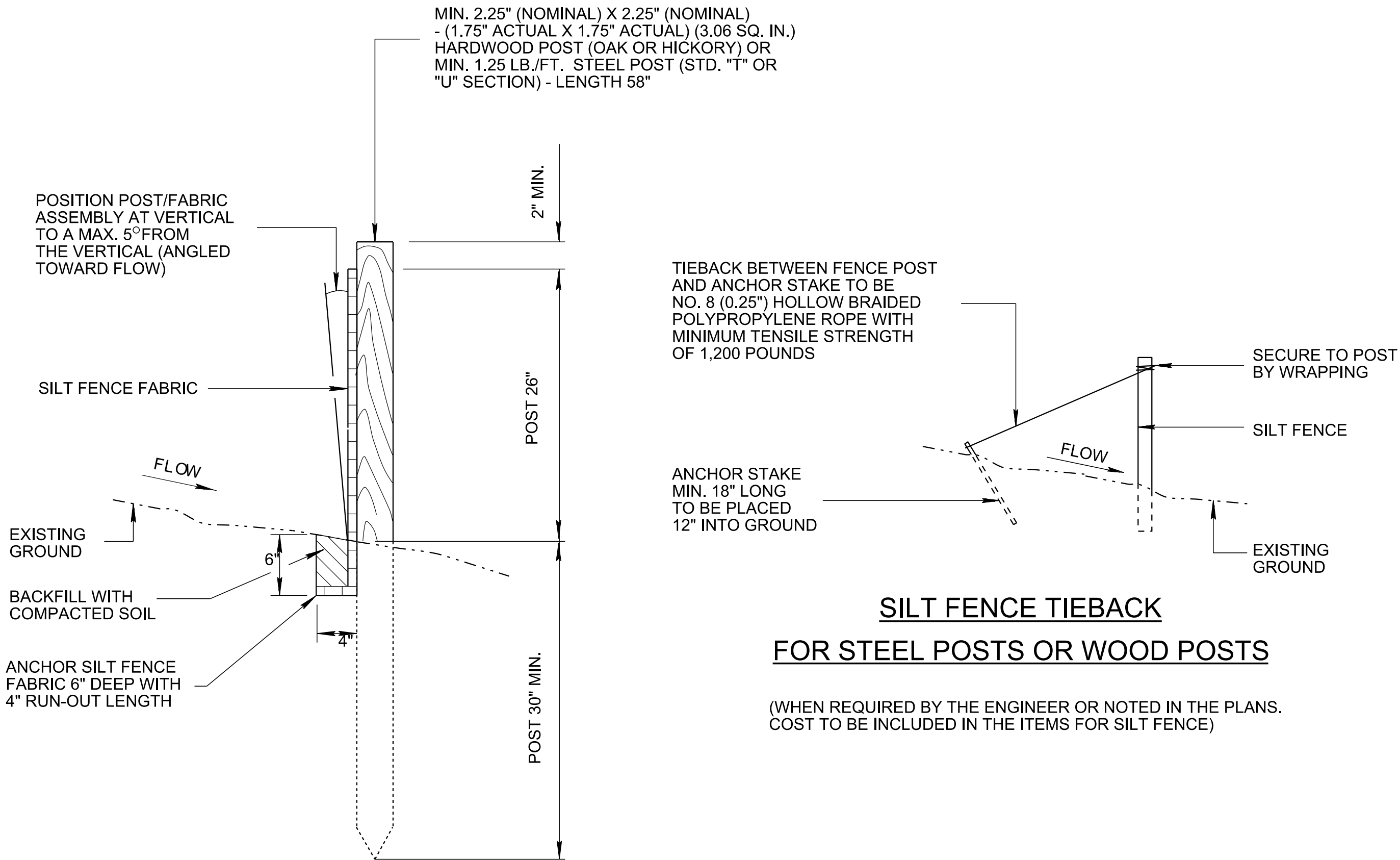
**ATTACHMENT IX**

**TDOT STANDARD DRAWINGS  
FOR EPSC MEASURES**

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ELEVATION VIEW



SECTIONAL VIEW

SILT FENCE TIEBACK  
FOR STEEL POSTS OR WOOD POSTS

(WHEN REQUIRED BY THE ENGINEER OR NOTED IN THE PLANS. COST TO BE INCLUDED IN THE ITEMS FOR SILT FENCE)

SILT FENCE FABRIC SPECIFICATIONS

FABRIC PROPERTY AND TEST METHODS	REQUIRED PHYSICAL PROPERTIES (MARV VALUES OF TEST DATA)
GEOTEXTILE FABRIC TYPE	WOVEN SLIT FILM
APPARENT OPENING SIZE (ASTM D4751)	#30 TO #70 STANDARD SIEVE
WATER FLUX (ASTM D4491)	≥ 4 GPM/FT <sup>2</sup>
TENSILE STRENGTH (ASTM D4632)	≥ 120 LB. (WARP DIRECTION) X 100 LB. (FILL DIRECTION)
ULTRAVIOLET STABILITY (AFTER 500 HRS PER ASTM D4355)	≥ 70%
ELONGATION (ASTM D4632)	≤ 20% (MAX)
BURST STRENGTH (ASTM D3786)	≥ 250 PSI
PUNCTURE STRENGTH (ASTM D4833)	≥ 60 LB.
TRAPEZOIDAL TEAR (ASTM D4533)	≥ 50 LB. (WARP DIRECTION) X 40 LB. (FILL DIRECTION)

- REV. 12-18-03: MODIFIED TABLE ① AND GENERAL NOTE ⑥
- REV. 7-29-04: CHANGED VALUES IN TABLE ① FROM MEAN TO MARV VALUES.
- REV. 4-15-06: REMOVED POA SPECS. FROM TABLE 1. ADDED NOTE ①. REVISED TABLE TITLE, REORDERED GENERAL NOTES, REFORMATTED SHEET, REVISED NOTES, MISC. EDITS TO DRAWING.
- REV. 4-1-08: REMOVED TEMPORARY REFERENCE, REVISED NOTES, AND MISC. EDITS TO DRAWING.
- REV. 8-1-12: MINOR EDITS TO GENERAL NOTES.
- REV. 3-16-17: CHANGED SECOND NOTE ⑥ TO NOTE ①.

SILT FENCE GENERAL NOTES

- A SILT FENCE IS USED TO INTERCEPT SMALL AMOUNTS OF SEDIMENT AND REDUCE VELOCITY FROM SHEET FLOW ONLY. DO NOT USE IT ADJACENT TO NATURAL WATER RESOURCES (WETLANDS OR STREAMS) OR ACROSS CONCENTRATED FLOW PATHS.
- B THE MAXIMUM DRAINAGE AREA SIZE FOR A CONTINUOUS BARRIER SHALL BE 1/4 ACRE PER 100 LINEAR FEET OF FENCE LENGTH UP TO A MAXIMUM DRAINAGE AREA OF 2 ACRES. MAXIMUM SLOPE LENGTH BEHIND FENCE ON UPSLOPE SIDE SHALL BE 110 FEET (AS MEASURED ALONG THE GROUND SURFACE).
- C WHEN INSTALLED AT THE TOE OF A SLOPE, SILT FENCE SHOULD BE PLACED 5 FEET TO 7 FEET AWAY FROM THE TOE TO ALLOW SPACE FOR PONDING OF WATER, COLLECTION OF SEDIMENT, AND EASE OF MAINTENANCE AND REMOVAL.
- D WHEN TWO SECTIONS OF SILT FENCE FABRIC ADJOIN EACH OTHER THEY SHALL BE JOINED ACCORDING TO THE DETAILS ON STANDARD DRAWING EC-STR-3E.
- E MAINTENANCE SHALL BE PERFORMED AS NEEDED: CAPTURED SOIL MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE AND/OR OTHER EVIDENCE OF FILTER CLOGGING IS OBSERVED.
- F STEEL POSTS SHALL BE ROLLED FROM HIGH CARBON STEEL AND SHALL HAVE A MINIMUM WEIGHT OF 1.25 LB/FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH GRADE WEATHER RESISTANT STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH AN ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSSED, OR PUNCHED TO AID IN THE ATTACHMENT OF THE WIRE BACKING. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702.
- G WHEN STEEL POSTS ARE USED THEY SHALL HAVE A PROJECTION FOR FASTENING WIRE TO THEM. THE WIRE FASTENERS SHOULD BE EVENLY SPACED WITH AT LEAST FIVE PER POST.
- H IF THE FILTER MATERIAL IS STAPLED TO THE WOODEN STAKES, HEAVY DUTY WIRE STAPLES WITH ONE-HALF INCH LENGTH AND 1 INCH WIDTH SHALL BE USED AND EVENLY SPACED WITH AT LEAST FOUR PER POST. SILT FENCE FABRIC SHALL NOT BE STAPLED TO TREES.
- I SILT FENCES SHOULD BE PLACED ALONG OR NEAR THE GROUND CONTOUR. THE BOTTOM OF FENCE AT GROUNDLINE SHOULD BE ON A ZERO PERCENT (0%) GRADE, PLUS OR MINUS FIVE TENTHS OF ONE PERCENT (0.5%). THE ENDS OF A ROW OF SILT FENCE SHOULD BE TURNED UPSLOPE FORMING A J-HOOK TO FILTER ANY CONCENTRATED FLOW BEHIND FENCE.
- J A PREASSEMBLED SILT FENCE MEETING THE REQUIREMENTS OF THIS DRAWING IS ACCEPTABLE IN LIEU OF A FIELD CONSTRUCTED SILT FENCE.
- K STATIC SLICING IS THE PREFERRED METHOD OF FENCE INSTALLATION. STATIC SLICING INVOLVES THE INSERTION OF A NARROW CUTTING BLADE, PLACED AT THE SPECIFIED ANCHOR DEPTH FOR THE GIVEN FABRIC AS SHOWN ON THE APPLICABLE DETAIL, AND SIMULTANEOUSLY PULLING THE FENCE FABRIC INTO THE TRENCH AS THE TRENCH IS BEING EXCAVATED. ALTERNATE TRENCH-BASED METHODS ARE ALSO ACCEPTABLE. FOR TRENCH-BASED INSTALLATIONS, SILT FENCING SHALL BE INSTALLED PER THE FOLLOWING STEPS AND IN THE FOLLOWING ORDER:
  - EXCAVATE TRENCH A MAXIMUM OF 4 INCHES WIDE AND 6 INCHES DEEP. THE TRENCH SHALL BE HAND-CLEANED FOLLOWING EXCAVATION TO REMOVE BULKY DEBRIS SUCH AS ROCKS, STICKS, AND SOIL CLODS FROM THE TRENCH.
  - INSTALL FABRIC IN TRENCH.
  - BACKFILL TRENCH (OVER-FILL) WITH SOIL PLACED AROUND FABRIC.
  - COMPACT SOIL BACKFILL WITH MECHANICAL EQUIPMENT. DO NOT DAMAGE THE FABRIC DURING COMPACTION (DAMAGED FABRIC SHALL BE REPLACED).
  - DRIVE AND SET SUPPORT POSTS PER SPACING REQUIREMENTS GIVEN ON THE APPLICABLE FENCE DETAIL. FOR PRE-ASSEMBLED SILT FENCE, DRIVE SUPPORT IN TO GROUND FIRST, FOLLOWED BY FABRIC PLACEMENT IN TRENCH.
  - ATTACH FABRIC TO THE POSTS USING WIRE TIES OR STAPLES. SPACING AND DENSITY OF TIES OR STAPLES SHALL BE INSTALLED AS DESCRIBED IN NOTES G AND H.
- L ONLY SILT FENCE FABRIC LISTED ON THE QUALIFIED PRODUCTS LIST MAY BE USED. ANY PRODUCTS LISTED ON THE QUALIFIED PRODUCTS LIST AS AN APPROVED ALTERNATE MAY ALSO BE USED.
- M SILT FENCE SHALL BE PAID FOR UNDER ITEM NUMBER 209-08.03 TEMPORARY SILT FENCE (WITHOUT BACKING) PER LINEAR FOOT. PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF THE SILT FENCE.
- N SEDIMENT SHALL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NUMBER 209-05, SEDIMENT REMOVAL PER CUBIC YARD.

MINOR REVISION -- FHWA  
APPROVAL NOT REQUIRED.

NOT TO SCALE

STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

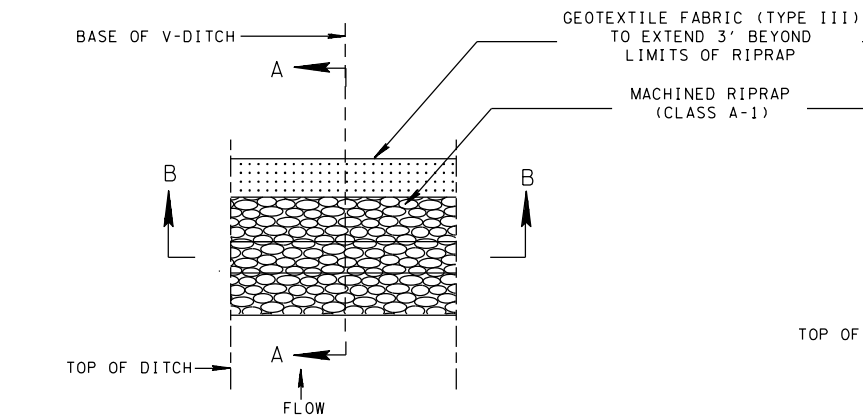
SILT FENCE

12-18-02

EC-STR-3B

EROSION CONTROL PLAN LEGEND: \* SF \* SF \* SF \* SILT FENCE

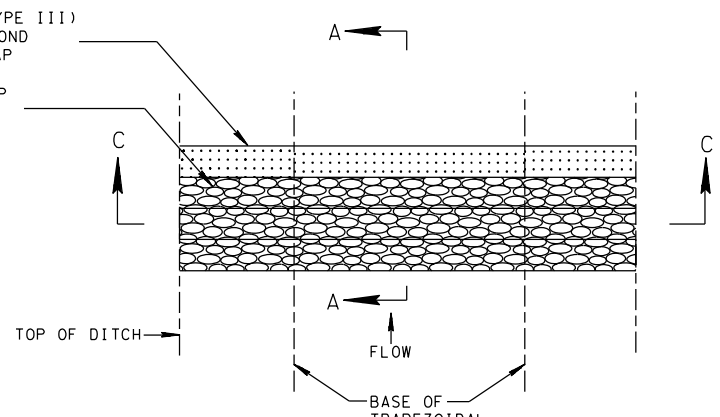
DETAIL FOR V-DITCH



PLAN VIEW

SECTION B - B

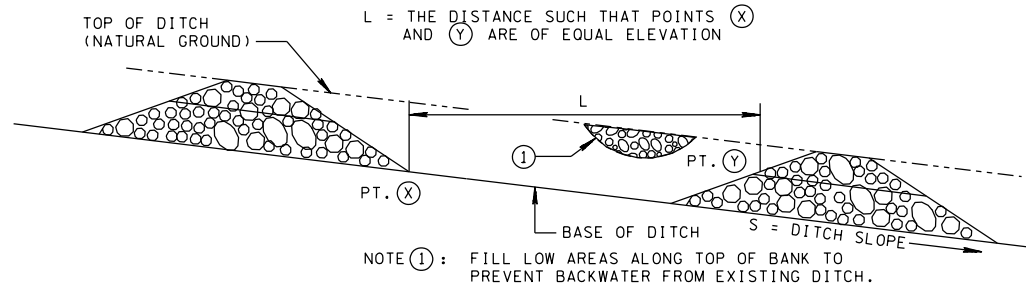
DETAIL FOR TRAPEZOIDAL DITCH



PLAN VIEW

SECTION C - C



DETAIL FOR SPACING BETWEEN CHECK DAMS



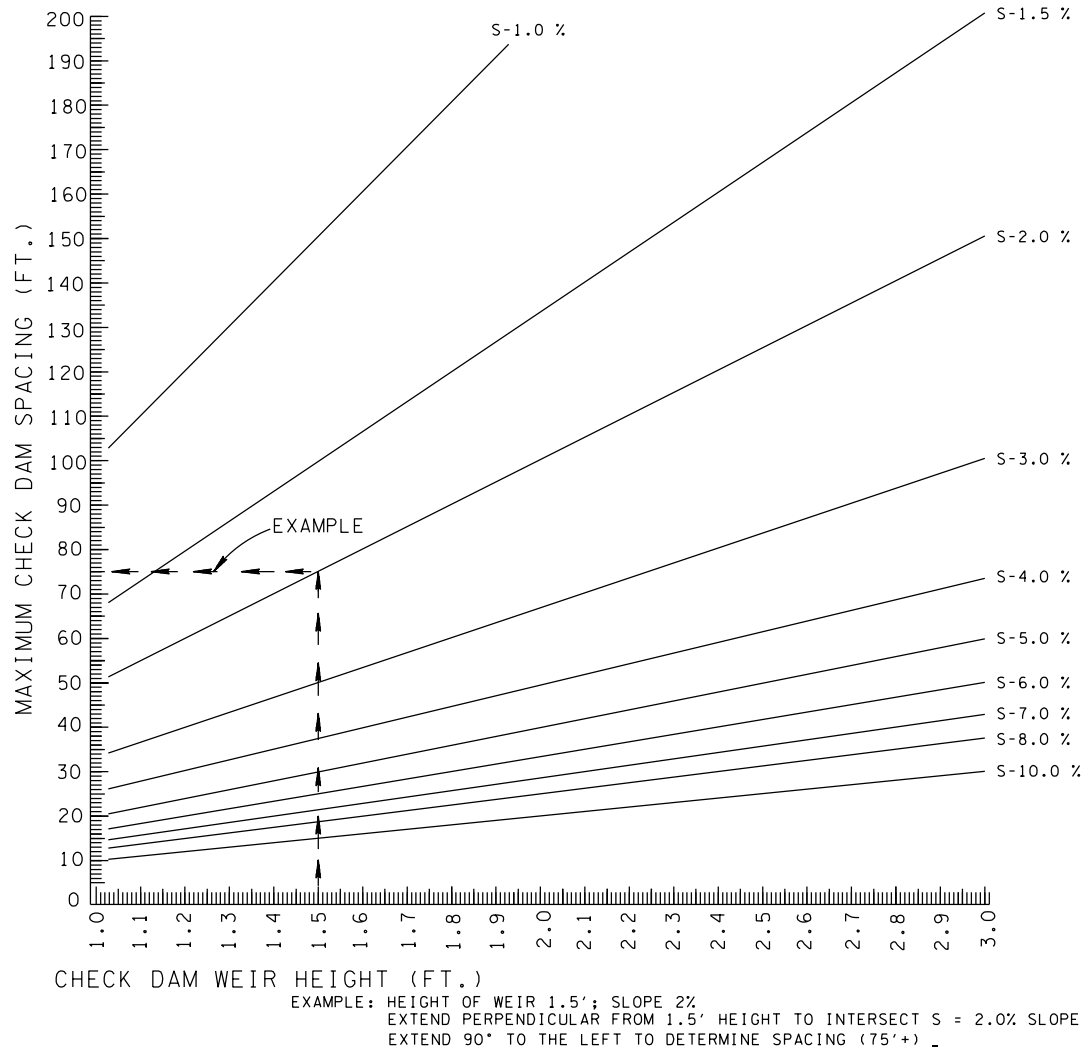
ROCK CHECK DAM ESTIMATED QUANTITIES

	2:1 DITCH SLOPE			3:1 DITCH SLOPE			4:1 DITCH SLOPE		
	HEIGHT FT	RIP RAP TON	GEOTEXTILE SF	HEIGHT FT	RIP RAP TON	GEOTEXTILE SF	HEIGHT FT	RIP RAP TON	GEOTEXTILE SF
V-DITCH <sup>1</sup>	1.5	6.5	16.8	1.5	9.2	23.7	1.5	12.0	30.9
	2.0	13.0	24.6	2.0	18.4	34.8	2.0	24.1	45.4
	2.5	22.8	33.9	2.5	32.3	48.0	2.5	42.1	62.5
	3.0	36.5	44.7	3.0	51.7	63.2	3.0	67.3	82.5
TRAPEZOIDAL DITCH <sup>2</sup>	1.5	8.9	22.8	1.5	11.6	29.7	1.5	14.4	36.9
	2.0	16.9	31.9	2.0	22.3	42.1	2.0	27.9	52.7
	2.5	28.7	42.6	2.5	38.1	56.6	2.5	47.9	71.2
	3.0	44.7	54.7	3.0	59.8	73.2	3.0	75.5	92.4

1. ESTIMATED QUANTITIES BASED ON 4:1 SIDE SLOPES. QUANTITIES WILL VARY BASED ON ACTUAL DITCH CONFIGURATION.  
2. ESTIMATED QUANTITIES BASED ON 4FT BOTTOM WIDTH, AND 4:1 SIDE SLOPES. QUANTITIES WILL VARY BASED ON ACTUAL DITCH CONFIGURATION.

EROSION CONTROL PLAN LEGEND :  ROCK CHECK DAM (V-DITCH)  
EROSION CONTROL PLAN LEGEND :  ROCK CHECK DAM (TRAPEZOIDAL DITCH)

ROCK CHECK DAM SPACING



ROCK CHECK DAM GENERAL NOTES

- (A) ROCK CHECK DAMS ARE TO BE USED FOR VELOCITY REDUCTION AND EROSION PREVENTION IN AREAS WHERE CONCENTRATED FLOW EXISTS. ROCK CHECK DAMS SHALL NOT BE USED IN STREAMS OR OTHER NATURAL WATER RESOURCES. ROCK CHECK DAMS ARE NOT TO BE USED FOR SEDIMENT CONTROL AND SHOULD NOT BE CONSIDERED A SEDIMENT TRAPPING DEVICE.
- (B) THE DRAINAGE AREA FOR THE ROCK CHECK DAMS SHALL BE 10 ACRES OR LESS.
- (C) ROCK CHECK DAMS MAY REMAIN IN PLACE AS PERMANENT CHECK DAMS, IF SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
- (D) THE CENTER OF THE ROCK CHECK DAM MUST BE AT LEAST ONE (1) FOOT LOWER THAN THE OUTER EDGES.
- (E) THE DEPTH OF FLOW ON THE CENTER OF THE STRUCTURE SHALL BE COMPUTED FOR THE PEAK FLOW RATE GENERATED BY THE 2-YEAR, 24-HOUR STORM IN ORDER TO ENSURE THAT THE TOP OF THE STRUCTURE WILL NOT BE OVERTOPPED. FOR SITES WHICH DRAIN TO EXCEPTIONAL TENNESSEE WATERS OR SEDIMENT-IMPARED STREAMS, THE DEPTH SHOULD BE DETERMINED FOR THE 5-YEAR, 24-HOUR PEAK FLOW RATE. THIS WILL ELIMINATE THE ROCK-SOIL FAILURE POINT WHERE THE ROCK CHECK DAM AND NATURAL GROUND MERGE.
- (F) FOR SITES WHICH DRAIN TO EXCEPTIONAL TENNESSEE WATERS OR SEDIMENT-IMPARED STREAMS, THE MINIMUM HEIGHT OF THE STRUCTURE ABOVE THE DITCH BOTTOM SHALL BE INCREASED TO 2 FEET.
- (G) THE MAXIMUM SPACING BETWEEN ROCK CHECK DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE FLOW LINE OF THE WEIR OF THE DOWNSTREAM DAM (SEE ROCK CHECK SPACING GRAPH THIS SHEET).
- (H) ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.
- (I) PRODUCTS LISTED ON THE QUALIFIED PRODUCTS LIST FOR FILTER SOCK DITCH APPLICATION MAY BE USED AND SHALL BE PAID UNDER FOLLOWING ITEM NUMBER:  
209-08.09 FILTER SOCK CHECK DAM PER EACH
- (J) ROCK CHECK DAMS SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:  
209-08.07 ROCK CHECK DAM PER EACH  
PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF ROCK CHECK DAMS.
- (K) SEDIMENT SHALL BE REMOVED FROM BEHIND THE ROCK CHECK DAMS WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE DAM AND PAID FOR UNDER ITEM NUMBER 209-05, SEDIMENT REMOVAL PER CUBIC YARD.

- REV. 12-18-95: CHANGED DRAWING NO. FROM ESC-STR-6 TO EC-STR-6.  
REV. 7-29-96: MADE MINOR CORRECTIONS TO GENERAL NOTES.  
REV. 4-15-98: CHANGED PAY ITEMS FOR CHECK DAMS.  
REV. 5-27-01: CHANGED DESCRIPTION FOR GEOTEXTILE FABRIC (TYPE III, CLASS A) TO GEOTEXTILE FABRIC (TYPE III).  
REV. 12-18-02: CHANGED GENERAL NOTE (C).  
REV. 1-22-03: CORRECTED NOTE IN SECTION A-A.  
REV. 4-15-06: REFORMATTED SHEET, REVISED NOTES, MISC. EDITS TO DRAWING.  
REV. 4-1-08: REMOVED TEMPORARY REFERENCE, REVISED NOTES, MISC. EDITS TO DRAWING, MODIFIED SPACING CHART.  
REV. 8-1-12: MINOR EDITS TO GENERAL NOTES.  
REV. 5-6-16: REVISED QUANTITIES TABLE, REVISED GENERAL NOTE (I), REVISED DITCH DETAIL.

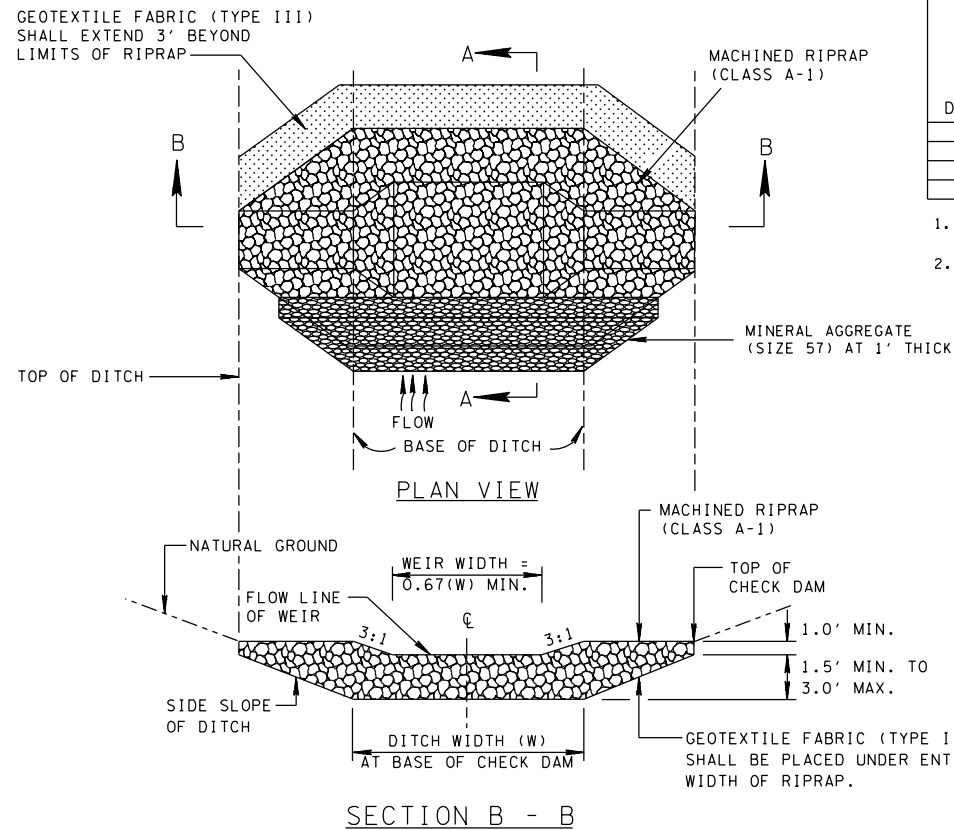
MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

NOT TO SCALE

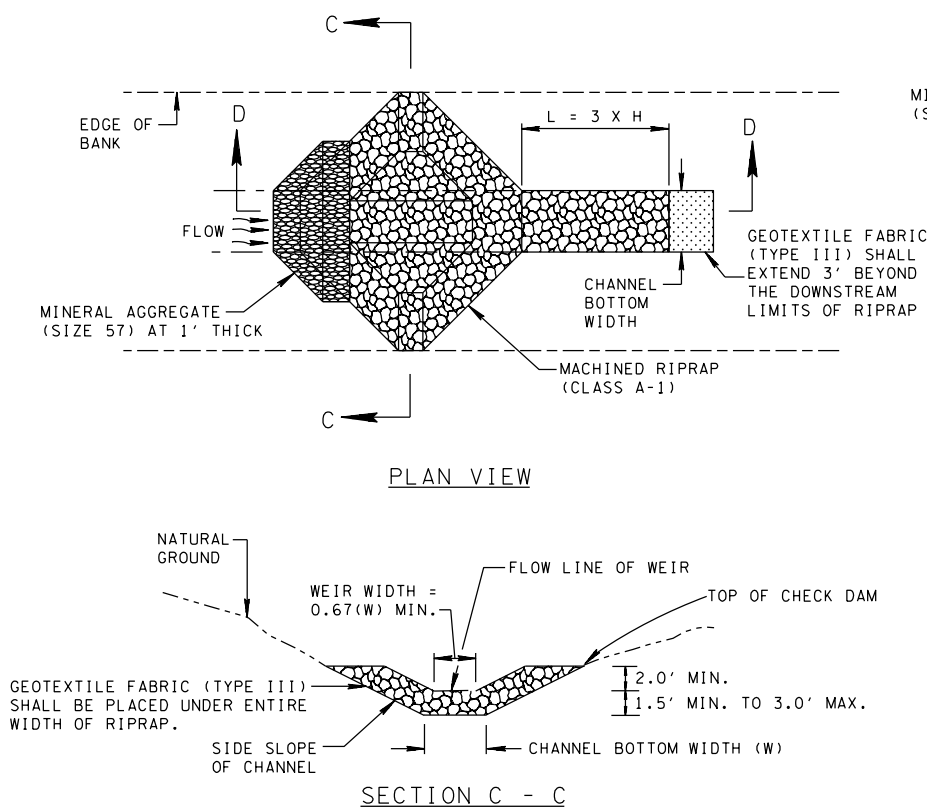
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

ROCK  
CHECK DAM

## DETAIL FOR TRAPEZOIDAL DITCH

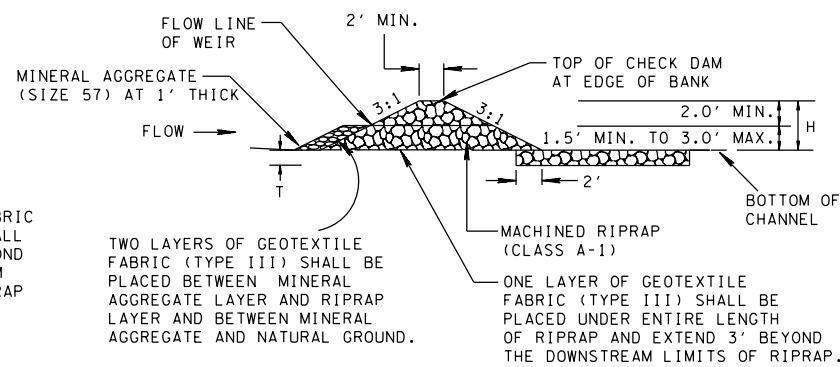
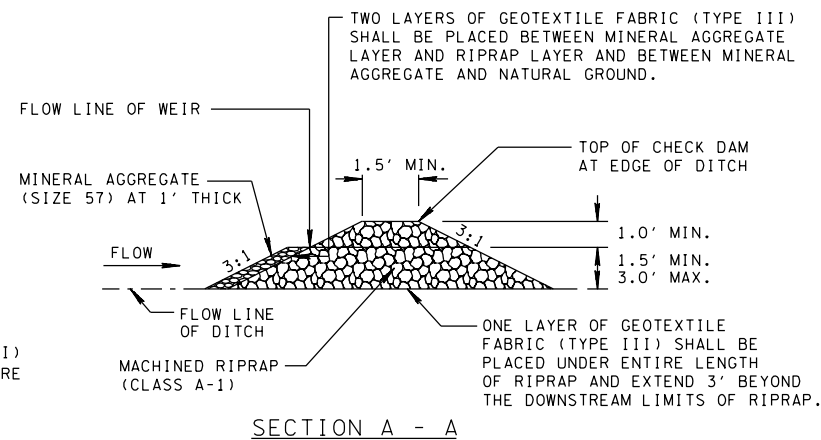


## DETAIL FOR CHANNELS



ENHANCED ROCK CHECK DAM ESTIMATED QUANTITIES						
DEPTH	V-DITCH <sup>1</sup>			TRAPEZOIDAL DITCH <sup>2</sup>		
	MINERAL AGGREGATE (SIZE 57) (TON)	MACHINED RIPRAP (CLASS A-1) (TON)	GEOTEXTILE FABRIC (TYPE III) (S.Y.)	MINERAL AGGREGATE (SIZE 57) (TON)	MACHINED RIPRAP (CLASS A-1) (TON)	GEOTEXTILE FABRIC (TYPE III) (S.Y.)
1.5	0.21	12.2	31.7	0.29	17.2	40.3
2.0	0.33	20.2	44.0	0.44	27.6	54.7
2.5	0.48	31.1	58.3	0.62	41.2	71.0
3.0	0.66	45.1	74.7	0.83	58.3	89.3

- ESTIMATED QUANTITIES BASED ON 4:1 SIDE SLOPES. QUANTITIES WILL VARY BASED ON ACTUAL DITCH CONFIGURATION.
- ESTIMATED QUANTITIES BASED ON 4FT BOTTOM WIDTH, 4 FT DEPTH, AND 4:1 SIDE SLOPES. QUANTITIES WILL VARY BASED ON ACTUAL DITCH CONFIGURATION.



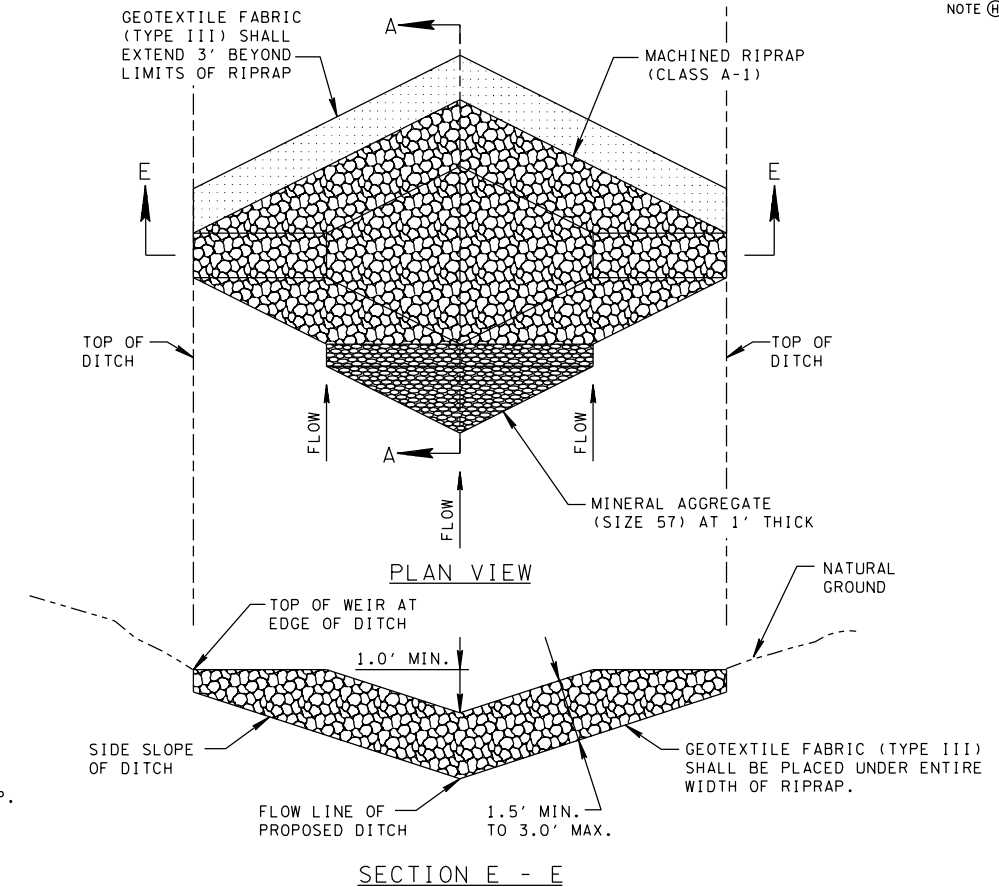
## SECTION D - D

T = 1.0' MINIMUM TO 1.5' MAXIMUM  
H = HEIGHT OF CHECK DAM  
L = LENGTH OF RIPRAP PAD  
W = WIDTH OF DITCH (CHANNEL) BOTTOM

## EROSION CONTROL PLAN LEGEND:

- ENHANCED ROCK CHECK DAM (TRAPEZOIDAL DITCH)
- ENHANCED ROCK CHECK DAM (V-DITCH)
- ENHANCED ROCK CHECK DAM (CHANNEL)

## DETAIL FOR V-DITCH



## ENHANCED ROCK CHECK DAM GENERAL NOTES

- ENHANCED ROCK CHECK DAMS MAY BE USED TO REDUCE FLOW VELOCITIES TO ALLOW SEDIMENTS TO DROP OUT. THEY MAY BE EMPLOYED WHERE THE DRAINAGE AREA EXCEEDS THE MAXIMUM FOR ROCK CHECK DAMS OR WHERE A FILTRATION FUNCTION FOR VERY LOW FLOWS IS DESIRED. ENHANCED ROCK CHECK DAMS SHALL NOT BE USED IN STREAMS OR WETLANDS UNLESS PROVIDED FOR IN THE PERMITS.
- AT MOST SITES, THE MAXIMUM ALLOWABLE DRAINAGE AREA SHALL BE 30 ACRES. AT SITES WHICH DRAIN TO EXCEPTIONAL TENNESSEE WATERS OR SEDIMENT-IMPAIRED STREAMS, THE MAXIMUM ALLOWABLE DRAINAGE AREA SHALL BE 20 ACRES.
- ENHANCED CHECK DAM MAY REMAIN IN PLACE AS PERMANENT CHECK DAM. IF SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
- THE CENTER OF THE ENHANCED ROCK CHECK DAM USED IN DITCHES MUST BE AT LEAST ONE (1) FOOT LOWER THAN THE OUTER EDGES. THE CENTER OF ENHANCED ROCK CHECK DAMS USED IN CHANNELS MUST BE AT LEAST TWO (2) FEET LOWER THAN THE OUTER EDGES.
- THE DEPTH OF FLOW ON THE CENTER OF THE STRUCTURE SHALL BE COMPUTED FOR THE PEAK FLOW RATE GENERATED BY THE 2-YEAR, 24-HOUR STORM IN ORDER TO ENSURE THAT THE TOP OF THE STRUCTURE WILL NOT BE OVERTOPPED. FOR SITES WHICH DRAIN TO EXCEPTIONAL TENNESSEE WATERS OR SEDIMENT IMPAIRED STREAMS, THE DEPTH SHOULD BE DETERMINED FOR THE 5-YEAR, 24-HOUR PEAK FLOW RATE. THIS WILL ELIMINATE THE ROCK - SOIL FAILURE POINT WHERE THE ENHANCED ROCK CHECK DAM AND NATURAL GROUND MERGE.
- THE MAXIMUM SPACE BETWEEN ENHANCED ROCK CHECK DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM IS AT THE SAME ELEVATION AS THE FLOW LINE OF THE WEIR OF THE DOWNSTREAM DAM. (SEE ROCK CHECK DAM SPACING GRAPH ON EC-STR-6)
- ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.
- PRODUCTS LISTED ON THE QUALIFIED PRODUCTS LIST FOR FILTER SOCK DITCH APPLICATION MAY BE USED AND SHALL BE PAID UNDER FOLLOWING ITEM NUMBER:  
209-08.09 FILTER SOCK CHECK DAM PER EACH
- ENHANCED ROCK CHECK DAMS SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:  
209-08.08 ENHANCED ROCK CHECK DAM PER EACH  
PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF ENHANCED ROCK CHECK DAMS.
- SEDIMENT SHALL BE REMOVED FROM BEHIND THE ENHANCED ROCK CHECK DAM WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NUMBER 209-05, SEDIMENT REMOVAL PER CUBIC YARD.

REV. 8-1-12: MINOR EDITS TO GENERAL NOTES.

REV. 5-6-16: REVISED GENERAL NOTE (H)

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

NOT TO SCALE

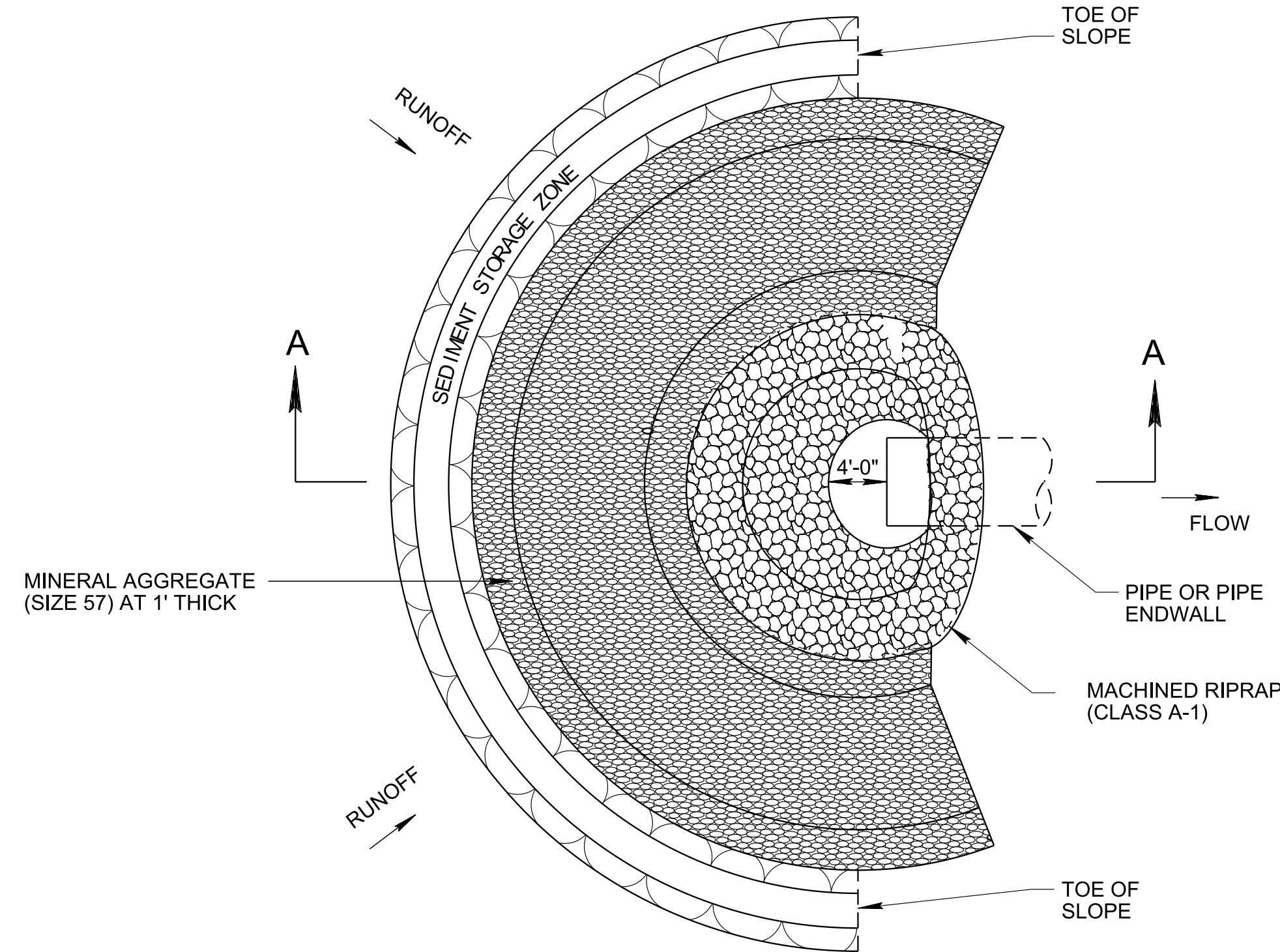
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

ENHANCED  
ROCK CHECK  
DAM

4-1-08 EC-STR-6A

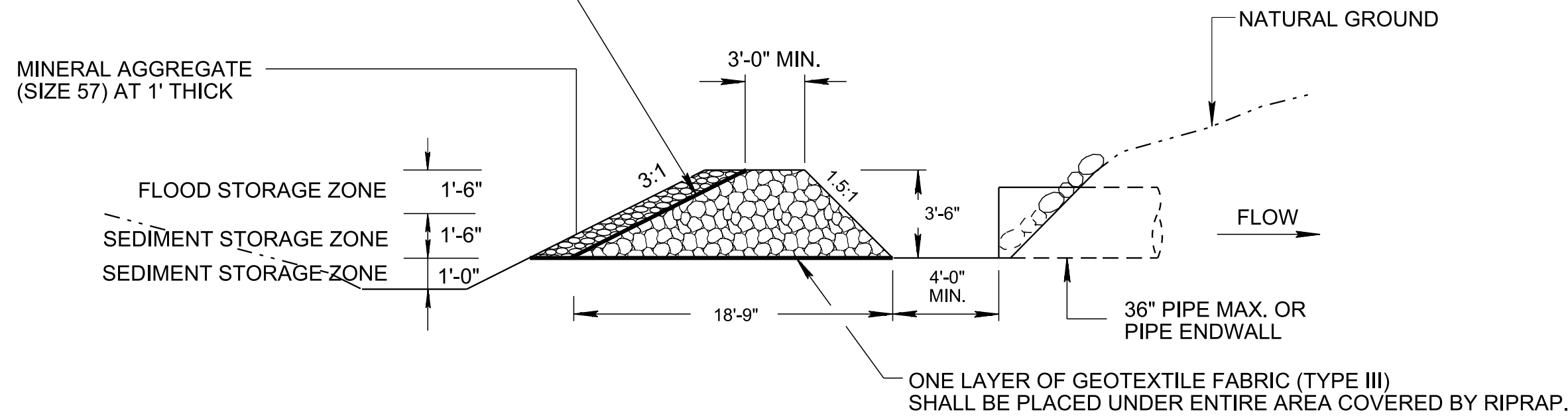
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DETAIL FOR UP TO 36" PIPE SIZE



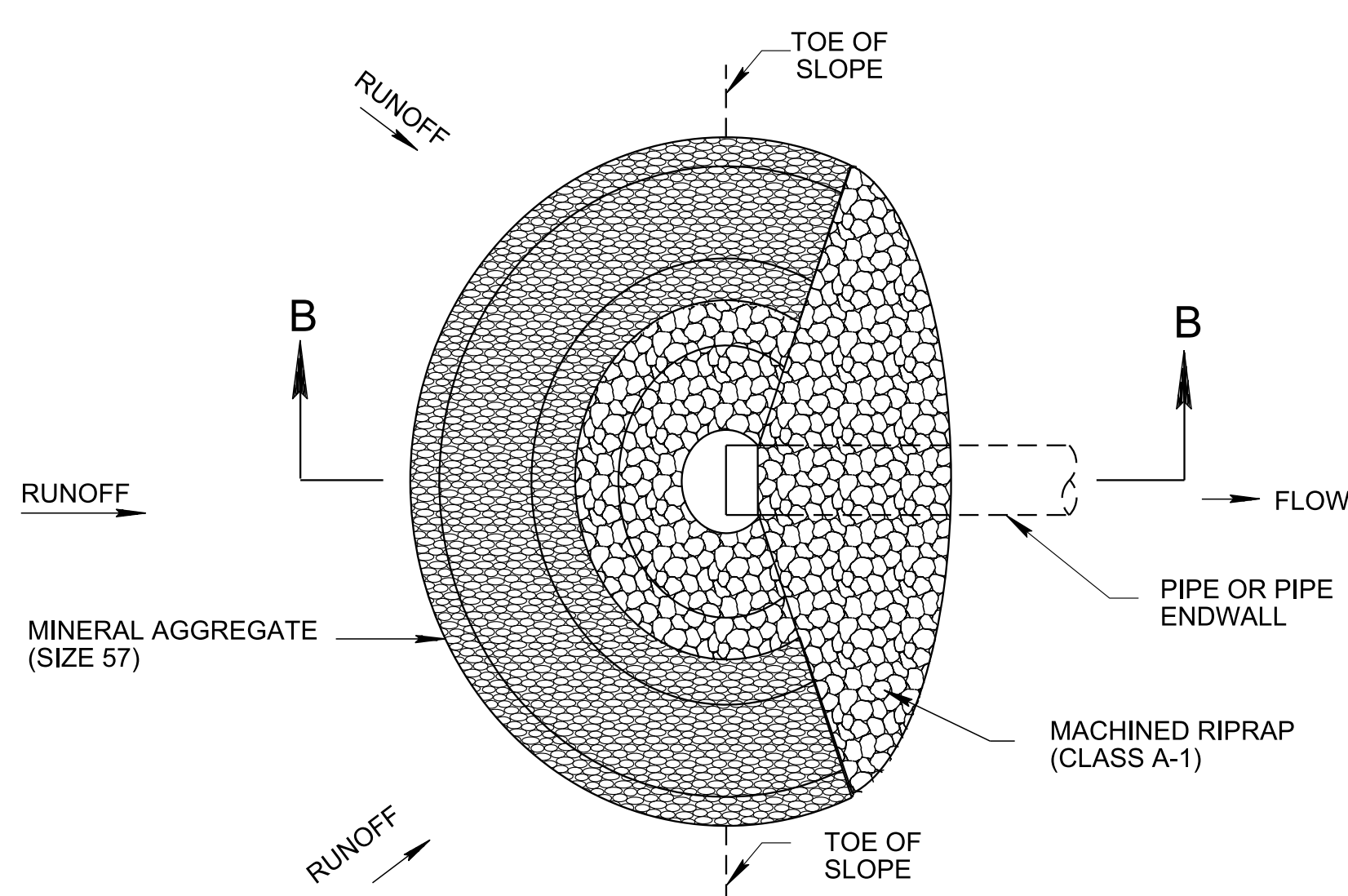
TWO LAYERS OF GEOTEXTILE FABRIC (TYPE III) SHALL BE PLACED BETWEEN MINERAL AGGREGATE LAYER AND RIPRAP LAYER AND BETWEEN MINERAL AGGREGATE AND NATURAL GROUND.

PLAN VIEW



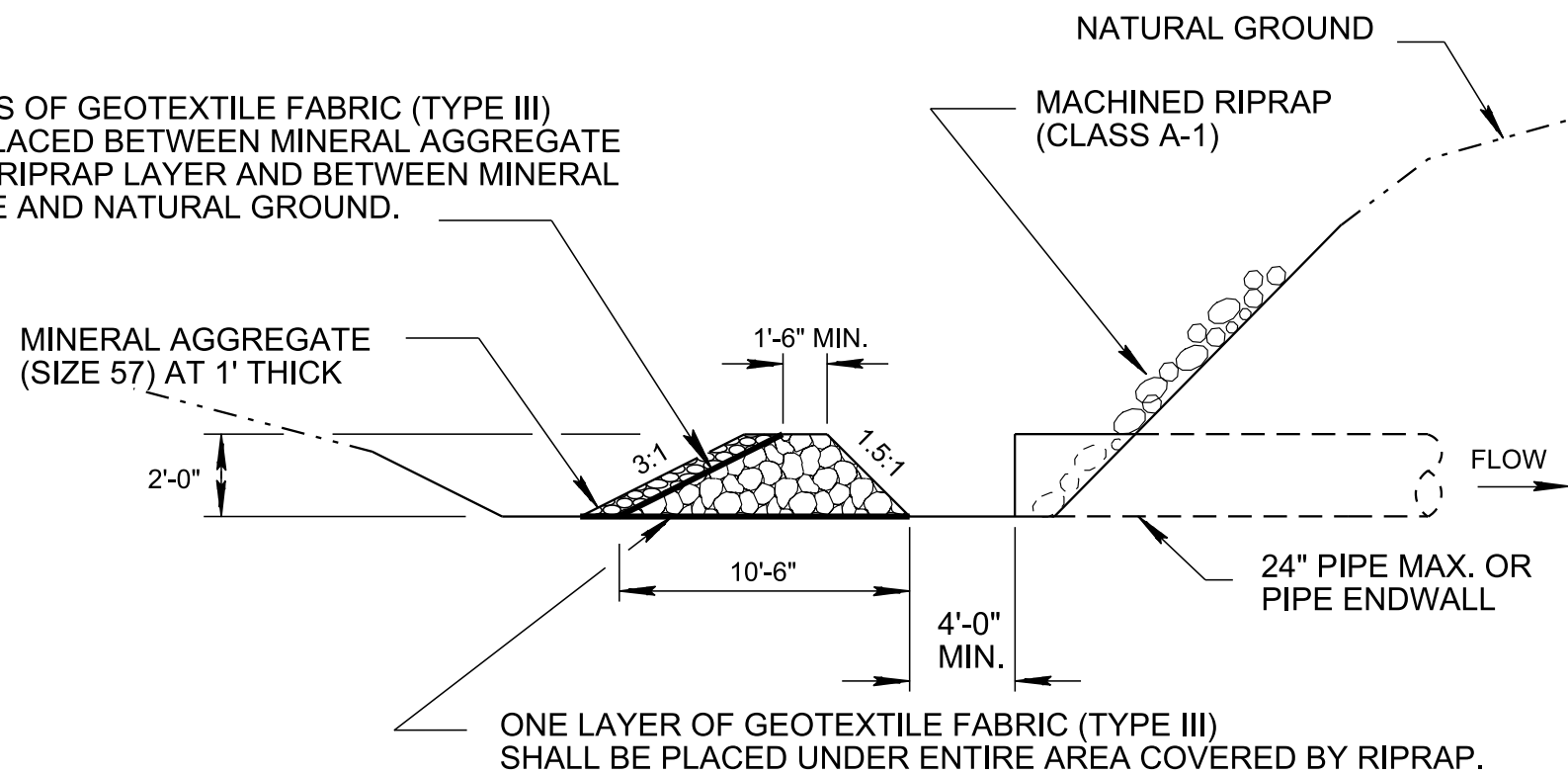
SECTION A - A

DETAIL FOR 18" TO 24" PIPE SIZE



PLAN VIEW

TWO LAYERS OF GEOTEXTILE FABRIC (TYPE III) SHALL BE PLACED BETWEEN MINERAL AGGREGATE LAYER AND RIPRAP LAYER AND BETWEEN MINERAL AGGREGATE AND NATURAL GROUND.



SECTION B - B

CULVERT PROTECTION TYPE 1 GENERAL NOTES

- (A) CULVERT PROTECTION (TYPE 1) MAY BE USED AROUND A CULVERT INLET TO REDUCE FLOW VELOCITIES TO ALLOW SEDIMENTS TO DROP OUT. IT IS NORMALLY USED WHERE ALL OF THE INFLOW TO THE CULVERT IS ON-SITE RUNOFF. IT MAY ALSO BE USED WHERE A FILTRATION FUNCTION FOR VERY LOW FLOWS IS DESIRED.
- (B) CULVERT PROTECTION (TYPE I) SHALL NOT BE USED IN STREAMS OR OTHER NATURAL WATER RESOURCES, UNLESS PROVIDED FOR IN THE PERMITS.
- (C) CULVERT PROTECTION (TYPE I) SHOULD NOT BE USED IN DITCHES, SWALES, OR OTHER DEPRESSIONS WITH A DEPTH GREATER THAN 1 FOOT.
- (D) CULVERT PROTECTION (TYPE1) SHOULD NOT BE USED AT THE CULVERT OUTLET.
- (E) WHERE CONDITIONS OF HIGH SEDIMENT FLOW EXIST, MACHINED RIPRAP (CLASS A-3) MAY BE USED IN LIEU OF MACHINED RIPRAP (CLASS A-1) FOR PIPES UP TO 24 INCHES IN DIAMETER WITH A DRAINAGE AREA LESS THAN 3 ACRES. IT MAY ALSO BE USED FOR PIPE FROM 24 INCHES IN DIAMETER WITH A DRAINAGE AREA LESS THAN 6 ACRES.
- (F) AT MOST SITES, THE MAXIMUM ALLOWABLE DRAINAGE AREA SHALL BE 30 ACRES. AT SITES WHICH DRAIN TO EXCEPTIONAL TENNESSEE WATERS OR SEDIMENT-IMPAIRED STREAMS, THE MAXIMUM ALLOWABLE DRAINAGE AREA SHALL BE 20 ACRES.

- (G) ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.
- (H) CULVERT PROTECTION (TYPE 1) SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBERS:
  - 203-01 ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED) PER CUBIC YARD
  - 303-10.01 MINERAL AGGREGATE (SIZE 57) PER TON
  - 709-05.05 MACHINED RIPRAP (CLASS A-3) PER TON
  - 709-05.06 MACHINED RIPRAP (CLASS A-1) PER TON
  - 740-10.03 GEOTEXTILE (TYPE III) (EROSION CONTROL) PER SQUARE YARD

PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF CULVERT PROTECTION (TYPE 1).

- (I) SEDIMENT SHALL BE REMOVED FROM BEHIND THE CULVERT PROTECTION (TYPE 1) WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NUMBER 209-05, SEDIMENT REMOVAL PER CUBIC YARD.

REV. 12-18-95: CHANGED DRAWING NO. FROM ESC-STR-11 TO EC-STR-11.

REV. 5-27-01: CHANGED ITEM NOS. 303-15.01 TO 303-10.01 AND 740-03.01 TO 740-10.03. CHANGED DESCRIPTION FOR ITEM NOS. 709-05.05, 709-05.06, AND 709-05.07.

REV. 12-18-02: CHANGED GENERAL NOTE (D).

REV. 1-22-03: ADDED ADDITIONAL GEOTEXTILE FABRIC TO ALL SECTIONAL VIEW.

REV. 4-15-06: REFORMATTED SHEET, REVISED NOTES, MISC. EDITS TO DRAWING.

REV. 4-1-08: REMOVED DITCH AND CHANNEL APPLICATION, RENAMED DRAWING, REVISED NOTES, MISC. EDITS TO DRAWING.

REV. 8-1-12: MINOR EDITS TO GENERAL NOTES.

REV. 3-16-17: CORRECTED PAY ITEM NO. 209-05.

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

NOT TO SCALE

STATE OF TENNESSEE  
DEPARTMENT OF  
TRANSPORTATION

CULVERT  
PROTECTION  
TYPE 1

10-26-92

EC-STR-11

