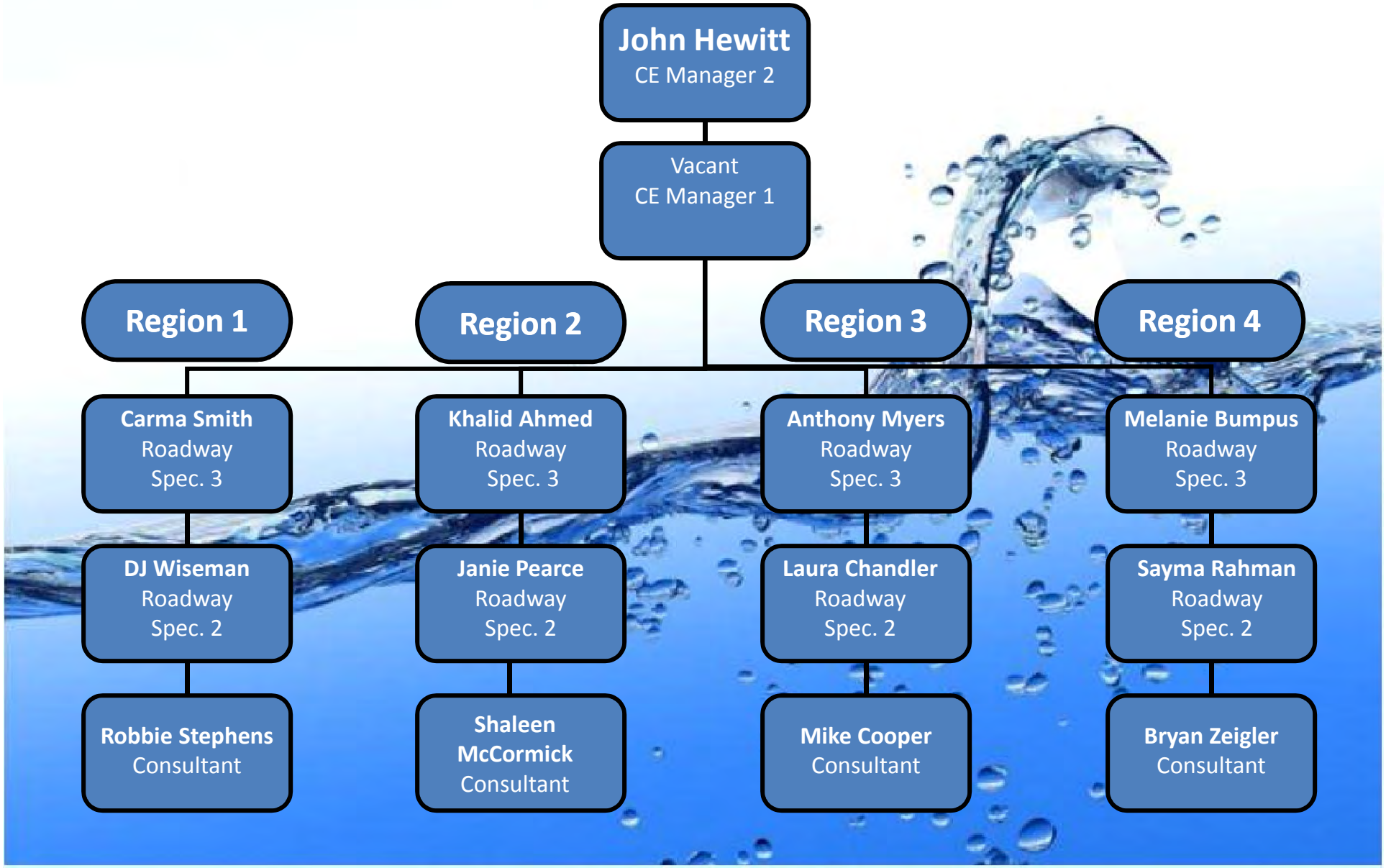
Water Quality Permit Requirements

Natural Resource Office
Environmental Permits Section

Design Overview

Permits Section



Permit Process Overview

Water Quality Permits

- ARAP, Corps, TVA, TWRA
- Tasks Associated with Obtaining Permits
  - Review Environmental Boundaries
  - Permit Assessment
  - Permit Application
  - Distribute Permits

Stormwater Coverage

- Attend Field Reviews
- Supply Erosion Control Comments
- SWPPP Preparation and Submittal (Final Plans Required)

Regulatory Agencies

- **Tennessee Department of Environment and Conservation**
  - Aquatic Resource Alteration Permit
  - NPDES Construction General Permit Coverage
  - Class V Injection Well Permit (Sinkholes)

- **United States Army Corps of Engineers**
  - Nationwide Section 404
  - Individual 404

- **Tennessee Valley Authority**
  - Section 26a Permits

- **Reelfoot Watershed Management Permit**
  - - Joint application with TDEC permits

Environmental Boundaries (EB)

Elements of the Report

- COVER LETTER
- TOPO MAP
- FORM G
  - Labels
  - Stream
  - Wetland
- PICTURES OF FEATURES
- MARKED UP PLAN SHEETS
- FORM J
  - Sketch Information
  - Channel Relocation
  - Streams
  - Wetlands
- SPECIAL NOTES & PLANS NOTES
- SPECIES

Cover Letter

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
Environmental Division
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-0334

MEMORANDUM

To: Lee Jones
Design Division

From: Dennis Crumby
Environmental Division

Date: January 19, 2011

Subject: ENVIRONMENTAL BOUNDARIES AND MITIGATION DESIGN FOR:
Sumner County: SR-6, Intersections at SR-25 and N. Locust Ave./ Locust St. N.
PIN 110421.00 P.E. # 83950-0257-54

An ecological evaluation of the subject project has been conducted with the following results:

_X_ No wetlands identified

_X_ No streams are present

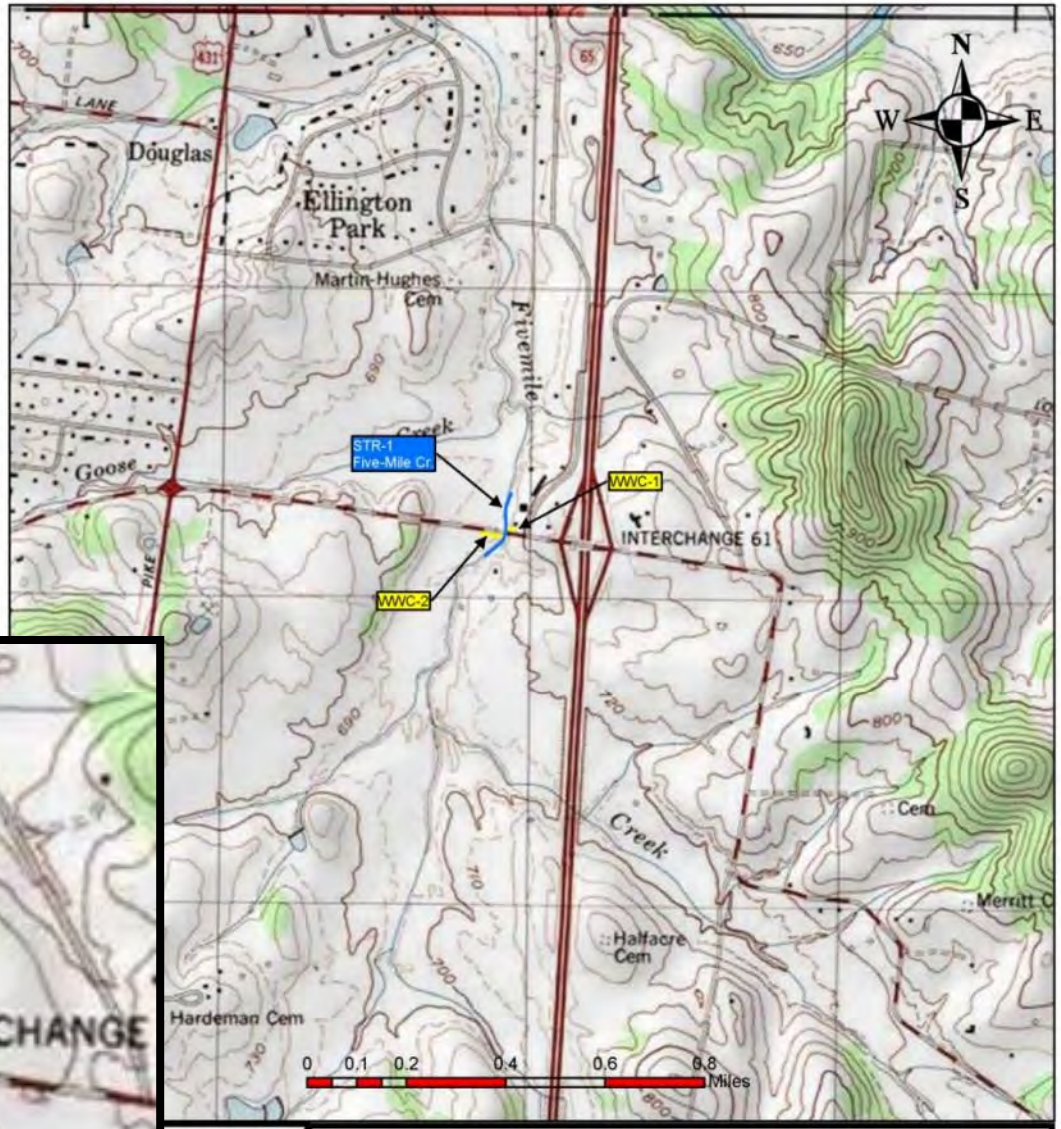
_X_ No protected species identified in project impact area: The project is covered by the Memorandum of Agreement between TDOT and the U.S. Fish and Wildlife Service; therefore, no endangered species coordination is required.

No aquatic resource alteration permits or mitigation will be required for this project.

Your assistance is appreciated. If you have any questions or comments please contact me at 615-253-2465 or dennis.crumby@tn.gov.

copy: John Hewitt
Jerry Melson
Environmental Division Project File/Reading File

Topo Map



Form G Map
Williamson County, SR-248 Bridge Over Five Mile Creek at LM 3.46 (Repairs)

P.E. 94005-4211-04
PIN 113444.00

TDOT

Form G: Feature Labels

Complete list of color coded feature labels		
MAP LABEL	FEATURE DESCRIPTION	COLOR
STR	Perennial or intermittent stream	BLUE
SPG	Spring	BLUE
SEP	Seep	BLUE
PND	Pond, quarry	BLUE
LAK	Lake	BLUE
WFL	Waterfall/cascade	BLUE
WWC	Wet weather conveyance	YELLOW
WTL	Wetland	GREEN
WMS	Potential wetland mitigation site	GREEN
CAV	Cave	BROWN
RKS	Rock shelter	BROWN
SNK	Sinkhole	RED
SPH	Specialized habitat, management area	PURPLE
PSP	Protected Species	PURPLE
Others	Contact TDOT Region Biologist	

Form G - Streams

Lists:

- Feature
- Approximate Station
- Feature Name & Number
- General Information Concerning Feature
- ETW (Exceptional TN Waters)
- 303(d) Status

Ecology Field Data Sheet: **Water Resources** Form G

Project: Carter County, S.R. 362, From +/- 0.2 Miles South of Dry Creek Rd., to S.R. 67 (U.S. 321), LM – N/A, PE No.10016-1212-04, PIN – 101216.00

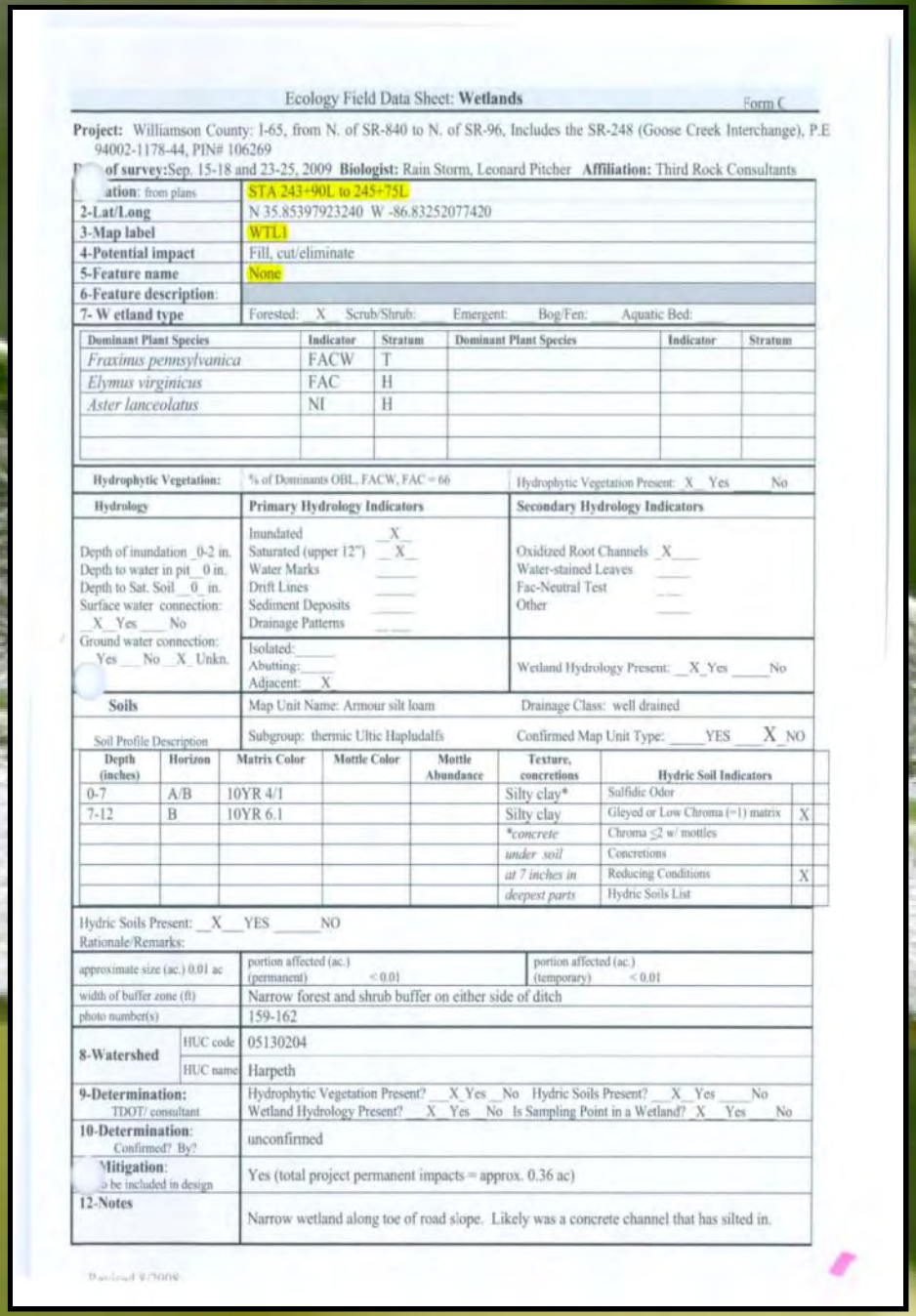
Date of survey: 8/25/08 Biologist: Catron/Garcia Affiliation: CEC, Inc.

1-Station: from plans	98+00R to 168+00R
2-Map label and name	STR-1, Gap Creek
3-Latitude/Longitude	36.26083, -82.22508
4-Potential impact	Crossing/encapsulation, runoff
5-Feature description:	
what is it	Intermittent Stream
blue-line on topo? (y/n)	Yes
defined channel (y/n)	Yes
straight or meandering	Straight
channel bottom width	3'
top of bank width	4'
bank height and slope ratio	3', 2:1
avg. gradient of stream (%)	10%
substratum	Cobble, gravel
riffle/run/pool	N/A
width of buffer zone	LB: 5' RB: 10'
water flow	No flow at origin of stream. Flow observed further downstream.
water depth	N/A
water width	N/A
general water quality	N/A
OHWM indicators	Vegetation line approximately one foot up the bank.
groundwater connection	Yes
bank stability: LB, RB	LB, RB – moderately stable
dominant species: LB, RB	LB, RB – green ash, jewel weed, privet, tulip poplar, dogwood, southern red oak, white pine, and hemlock.
overhead canopy (%)	80%
benthos	N/A, downstream approximately 50 feet, crayfish and amphibian egg sacks
fish	N/A
algae or other aquatic life	N/A, downstream approximately 50 feet, filamentous algae.
habitat assessment score	No flow at location
photo number (s)	1 d/s, 7 d/s, 8 u/s
rainfall information	Raining during site visit.
6- HUC code & name (8 & 12-digit)	06010103 (Watauga River); 060101030501(Watauga River)
7-Determined by:	CEC, Inc.
8-Confirmed by:	
9-Mitigation: yes/no (If yes, include on Form J)	Yes
10-Notes Indicate if stream is Tier II/III or on 303(d) list	
Estimate size (acres) of lake or pond if applicable	Water appears at driveway located at STA 106+50R

Form G - Wetlands

Lists:

- Feature
- Approximate Station
- Feature Name
- Feature Number
- General Information Concerning Feature



Ecology Field Data Sheet: **Wetlands** Form C

Project: Williamson County: I-65, from N. of SR-840 to N. of SR-96, Includes the SR-248 (Goose Creek Interchange), P.E 94002-1178-44, PIN# 106269

Date of survey: Sep. 15-18 and 23-25, 2009 **Biologist:** Rain Storm, Leonard Pitcher **Affiliation:** Third Rock Consultants

Station: from plans	STA 243+90L to 245+75L
2-Lat/Long	N 35.85397923240 W -86.83252077420
3-Map label	WTL1
4-Potential impact	Fill, cut/eliminate
5-Feature name	None
6-Feature description:	
7- W etland type	Forested: X Scrub/Shrub: Emergent: Bog/Fen: Aquatic Bed:

Dominant Plant Species	Indicator	Stratum	Dominant Plant Species	Indicator	Stratum
Fraxinus pennsylvanica	FACW	T			
Elymus virginicus	FAC	H			
Aster lanceolatus	NI	H			

Hydrophytic Vegetation:	% of Dominants OBL, FACW, FAC = 66	Hydrophytic Vegetation Present: X Yes No

Hydrology	**Primary Hydrology Indicators**	**Secondary Hydrology Indicators**
Depth of inundation 0-2 in. Depth to water in pit 0 in. Depth to Sat. Soil 0 in. Surface water connection: X Yes No Ground water connection: Yes No X Unkn.	Inundated X Saturated (upper 12") X Water Marks Drift Lines Sediment Deposits Drainage Patterns Isolated: Abutting: Adjacent: X	Oxidized Root Channels X Water-stained Leaves Fac-Neutral Test Other Wetland Hydrology Present: X Yes No

Soils	Map Unit Name: Armour silt loam	Drainage Class: well drained
Soil Profile Description	Subgroup: thermic Ultic Hapludalfs	Confirmed Map Unit Type: YES X NO

Depth (inches)	Horizon	Matrix Color	Mottle Color	Mottle Abundance	Texture, concretions	Hydric Soil Indicators	
0-7	A/B	10YR 4/1			Silty clay*	Sulfidic Odor	
7-12	B	10YR 6.1			Silty clay	Gleyed or Low Chroma (=1) matrix	X
					*concrete	Chroma ≤2 w/ mottles	
					under soil	Concretions	
					at 7 inches in	Reducing Conditions	X
					deepest parts	Hydric Soils List	

Hydric Soils Present: X YES NO

Rationale/Remarks:

approximate size (ac.) 0.01 ac	portion affected (ac.) (permanent) < 0.01	portion affected (ac.) (temporary) < 0.01
width of buffer zone (ft)	Narrow forest and shrub buffer on either side of ditch	
photo number(s)	159-162	
8-Watershed HUC code	05130204	
HUC name	Harpeth	
9-Determination: TDOT/ consultant	Hydrophytic Vegetation Present? X Yes No Hydric Soils Present? X Yes No Wetland Hydrology Present? X Yes No Is Sampling Point in a Wetland? X Yes No	
10-Determination: Confirmed? By?	unconfirmed	
Mitigation: To be included in design	Yes (total project permanent impacts = approx. 0.36 ac)	
12-Notes	Narrow wetland along toe of road slope. Likely was a concrete channel that has silted in.	

Revised 8/2008

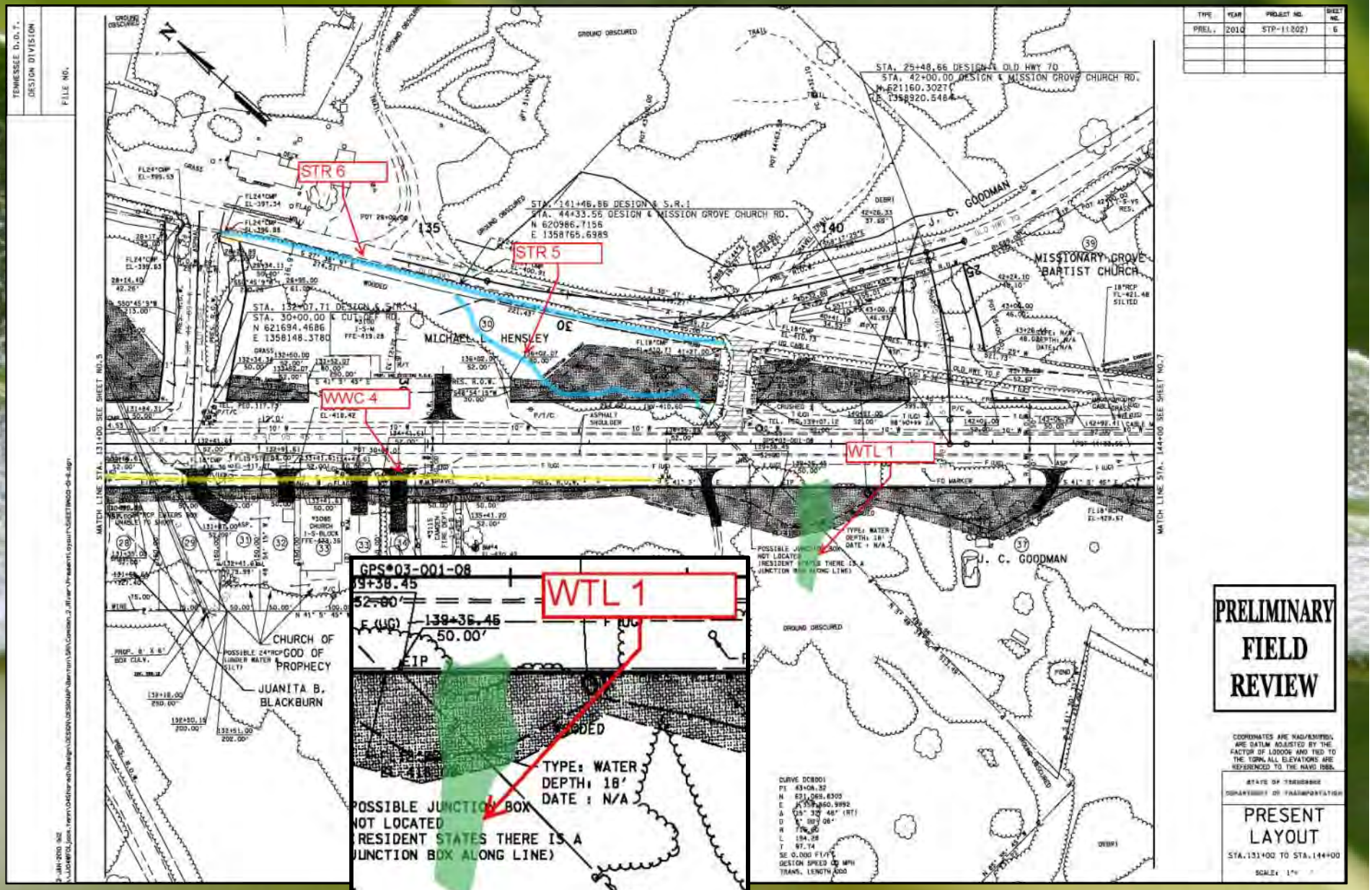
Pictures

Photo Summary: 4 October 2011
Project Description: Williamson County: SR-248 bridge over Five Mile Creek at LM 3.46
P.E.: 94005-4211-04 PIN: 113444.00

Photo 1. Downstream view of STR-1 (Five Mile Creek) taken from beneath bridge.

Photo 2. Upstream view of STR-1 (Five Mile Creek) taken from beneath bridge.

EB Marked Up Plan Sheets



Form J: Mitigation Sketch/Information

Form J

Natural Resources Mitigation Sketches/Information

County: Carter County **Route:** N/A **LM:** N/A **PE No.** 10016-1212-04 **PIN No.** 101216.00
Project Description: S.R. 362, From +/- 0.2 Miles South of Dry Creek Rd., to S.R. 67 (U.S. 321)
Date of survey: August 25-27, 2008 August 2008 **Biologist:** Catron/Garcia/Nehus/Williams **Affiliation:** CEC, Inc.

Station	Map label	Attachments: Marked-up plans sheet (A); notes (B); mitigation plan (C) attached	Calculate permanent & temporary wetland impacts & provide to Keven Brown and John Hewitt ("X")	Apply "standard" stream relocation configuration & instructions ("X")	Survey boundaries as flagged in field ("X")	General notes and/or specific changes requested
98+00R to 115+00R	STR-1	A, B, C		X		Proposed 6'T channel should be replaced with relocation of STR-1 mimicking natural pattern and profile. Tie channel back into existing Gap Creek at ~ 115+00R. SPG1/STR-3 should be surveyed and placed on plans so that an attempt can be made to incorporate them into the new STR-1 channel (If possible).
109+70L	STR-2	A,B				No culvert shown on plans – mitigation requirements cannot be determined. If < 200 LF of channel is encapsulated, no compensatory mitigation will be required.
113+60R	SPG-1	A, B				Survey resource and place on plans to determine if resource can be avoided by proposed STR-1 relocation channel channel.
113+60R to 116+00R	STR-3	A, B				Survey resource and place on plans to determine if resource can be avoided by proposed STR-1 relocation channel channel. Additional ROW or in-lieu fee mitigation may be required

This is just a best guess impact assessment by the Ecology staff.
Once all features have been surveyed this information will change.

Scope J:

Channel Relocation Notes

These notes should be added to plans.

Plans Notes

Please add the following information verbatim to the Final Plans:

CHANNEL RELOCATION SEQUENCE AND IMPLEMENTATION NOTES FOR RELOCATED STREAM CHANNELS (IGNORE REFERENCES TO ITEMS NOT SPECIFIED)

1. The new channel shall be excavated and stabilized during a low-water period. Rip-rap (only as shown on plans), seeding, and sod shall be installed immediately following channel completion. Trees shall be installed in the first planting season following channel excavation. Water shall be diverted into the new channel only after it is completely stabilized, and only during a low-water period. Stabilized means that all specified rock and erosion control blanket or flexible channel liner is in place, and seeding and sod are in place and established.

2. CHANNEL RELOCATION SEQUENCE
   a. Flag edge of the new channel top bank prior to clearing. Do not clear large trees in position to shade the new channel. Leave as many trees and shrubs as possible between toe of the new highway slope and the stream.
   b. Excavate the new channel "in the dry" by leaving areas of undisturbed earth (diversion berms) in place at both ends.
   c. Shape channel to specifications shown. Remove loose soils and debris.
   d. Place topsoil, erosion control blanket or flexible channel liner, seed, and sod as specified.
   e. Remove diversion berms, beginning with the most downstream, banks and bottom elevation of the old channel should transition smoothly into the new channel. The elevations of the new channel bottom at each end of the relocation sequence should match the elevations of the existing channel, and a steady percent slope should be maintained throughout the relocated channel centerline or as specified.
   f. Install trees according to standard specifications section 802.
3. Only rip-rap shown on plans should be used in the relocated channel reach. Any other proposed rip-rap should be coordinated with the Environmental Division through the TDOT Headquarters Construction Office.
4. Requests by any agency that would require the modification of channels, ditches, elevations, rip-rap or any other stream mitigation items associated with the channel relocations shall be referred to the TDOT Environmental Division via the Headquarters Construction Office for coordination with all involved agencies and TDOT divisions.

TREES

No substitutions of tree species or sizes shall be allowed without the written approval of TDOT Environmental Division. Concerning **stream mitigation**, trees shall be of the variety requested and first quality. Concerning **temporary wetland mitigation**, trees shall be of the variety requested, well branched, **bare root (roots must be kept moist at all times)**, and first quality. No clones or cultivars will be accepted. Any found to be incorrect species, or improperly planted, at any time prior to termination of the contract shall be removed and replaced at the contractor's expense. Stakes and wires shall be

Scope J:

Stream Mitigation

Standard Stream Mitigation (STR-1)

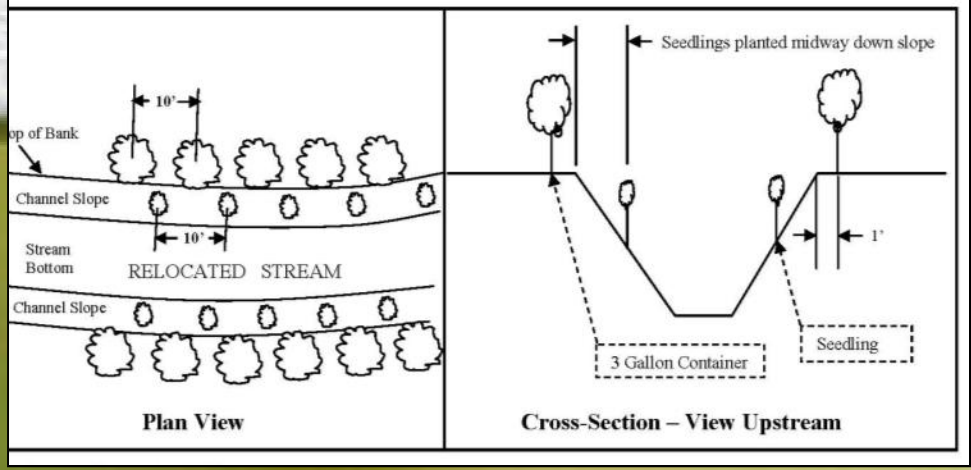
Apply these measures to all applicable streams listed in Form J. Duplicate the length, bottom channel width, elevations, side slopes, meander wavelength, and curvature of the existing channels to the extent possible. Each channel should transition smoothly from its beginning elevation to its tie-in elevation in the receiving stream, without profile drops or jumps. Locate the new channels in as flat an area as possible to avoid unusually high side slopes; this may require some additional right-of-way. Channel length placed in spring-boxes or culverts counts as part of the new channel length (but may require off-site compensatory mitigation that would not be required for an open channel). Channel side slopes should mimic existing channel side slopes, if possible, and be stabilized using appropriate BMPs – the use of rip-rap should be avoided if possible. If rip-rap is required, the rip-rap should be imbedded into the soil so that the top of the rip-rap is flush with the bottom and sides of the channel.

Plant two alternating rows of tree or shrub species on both sides of the new channels; the first row shall be bare root seedlings that are planted on the channel slope, centered on the midpoint of the slope. Along the top of bank, 3-gallon container-grown trees are to be planted within one foot of the top of bank.

Rip-rap, if required, should be limited to ends of culverts. All relocated channels and their accompanying mitigation features, including trees, are to be placed in right-of-way rather than easements; this may require acquisition of additional right-of-way. Use the following specifications for planted species (leave item number blank):

Item #	Description	Unit
	(Red maple *(Acer rubrum)*	Each
	(Black walnut *(Juglans nigra)*	Each
	(Sycamore *(Platanus occidentalis)*	Each
	(Tulip poplar *(Liriodendron tulipifera)*	Each
	(Southern red oak *(Quercus falcata)*	Each

Figure 1. SPACING FOR PLANTING ALONG RELOCATED STREAM.



Scope J:

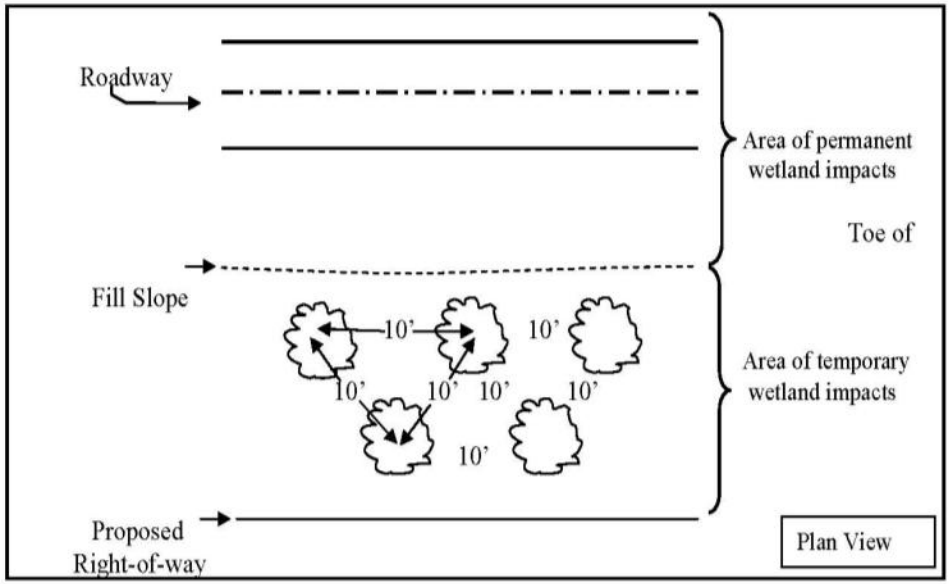
Wetland Mitigation

STANDARD ON-SITE MITIGATION FOR TEMPORARY WETLAND IMPACT AREAS

APPLY THESE MEASURES TO ALL APPLICABLE TEMPORARY WETLAND IMPACT AREAS LISTED IN FORM J. FOR TEMPORARY WETLAND IMPACT AREAS, REMOVE THE TOP SIX TO 12 INCHES OF TOPSOIL AND STOCKPILE IT UNTIL CONSTRUCTION IS COMPLETE. ONCE CONSTRUCTION ACTIVITIES ARE COMPLETED, RESTORE ALL TEMPORARY WETLAND IMPACT AREAS TO PRE-CONSTRUCTION CONDITIONS. THIS INCLUDES REMOVING HAUL ROADS (IF APPLICABLE), RESTORING THE SITE TO THE ORIGINAL (PRE-CONSTRUCTION) ELEVATION AND SPREADING STOCKPILED TOPSOIL BACK OVER THE WETLAND SITE. THE AREA OF TEMPORARY IMPACTS WILL THEN BE SEEDED, COVERED WITH STRAW AND PLANTED WITH TREE SEEDLINGS TO STABILIZE THE SITE. SEEDLINGS WILL BE PLANTED ON 10-FOOT CENTERS. PLACE A NOTE ON THE PRESENT AND PROPOSED LAYOUT SHEETS TO PROTECT WETLAND AREAS LOCATED BEYOND THE LIMITS OF THE FILL SLOPE AND PROPOSED RIGHT-OF-WAY. USE THE FOLLOWING TREE SPECIFICATIONS (LEAVE ITEM NUMBER BLANK):

Item #	Description	Unit
	Seedling (*scientific name & common name here* 18"-24" SEEDLING B. R)	EACH
	Seedling (*scientific name & common name here* 18"-24" SEEDLING B. R)	Each
	Seedling (*scientific name & common name here* 18"-24" SEEDLING B. R)	Each
	Seedling (*scientific name & common name here* 18"-24" SEEDLING B. R)	Each
	Seedling (*scientific name & common name here* 18"-24" SEEDLING B. R)	Each

TREE PLANTING SCHEME FOR TEMPORARY WETLAND IMPACT AREAS



Special Notes needed on plans

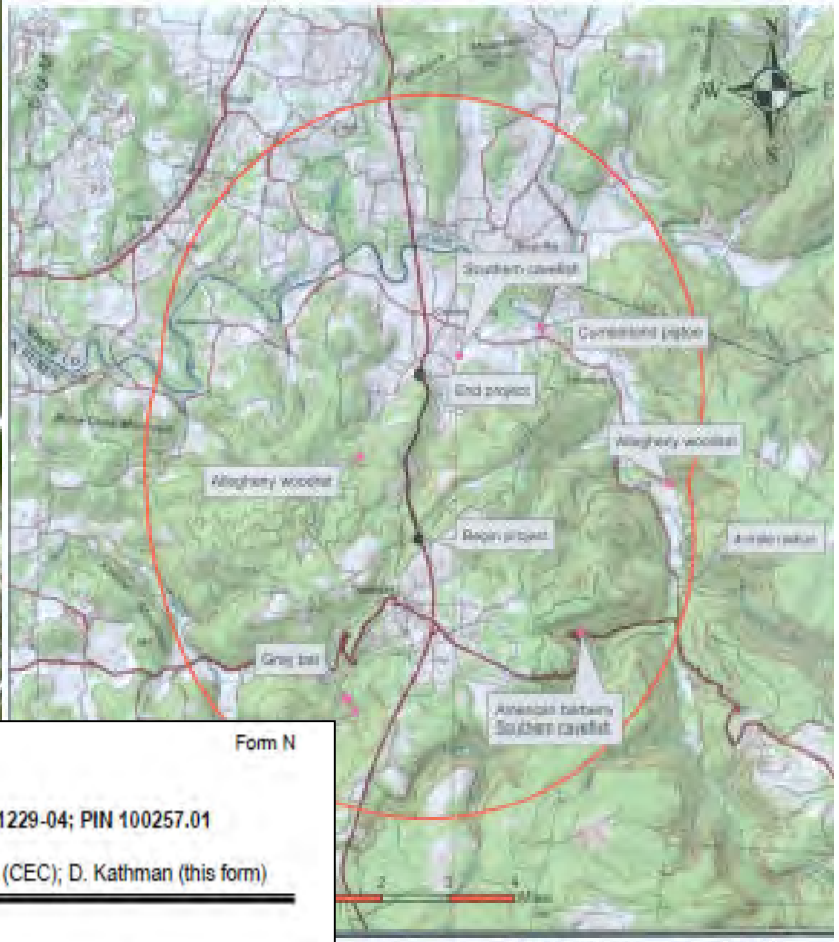
Please place the following notes in the Special Notes section of the plans:

Topsoil is to be removed from all areas of temporary wetland impacts and stockpiled prior to construction.

Upon completion of construction activities, temporary haul roads are to be removed. Excavated material from the haul roads is to be disposed of as directed by the engineer.

Upon completion of construction activities, all temporary wetland impact areas are to be restored to pre-construction contours and the stockpiled wetland topsoil spread to restore these areas to pre-construction elevation.

Species



Form N

Species Review Form

Project: Van Buren County: SR 111, from south of Manus Road to south of Double Bridge Road; PE No. 88027-1229-04; PIN 100257.01

Date of field study: 08 December 2010 Date TDEC database checked: 21 July 2011 Biologists: J. Garcia, C. Hertwig (CEC); D. Kathman (this form)

Species reported within 1 mile radius of project:

1.	2.		3.	4.	5.	6	7.
Species Scientific and common names, followed by (A) for animal or (P) for plant	Status		Species is potentially present in R-O-W because: (A) it is listed by TDEC within ROW (B) habitat is present (C) Observed during site visit (D) critical habitat is present in ROW	Species is considered likely NOT present in ROW because: (A) Present habitat unsuitable (B) Not observed during site visit (C) Original record questionable (D) Considered extinct/extirpated	(A) BMPs are sufficient to protect species (B) Special Notes are included on project plans (C) Individuals will be affected (D) Accommodations not practical due to broad habitat description or mobility of species	Habitat (e.g., blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Notes
	Fed	TN					
Typhlichtys subterraneus (southern cavefish) (A)		D		A B	A	Inhabits caves Last observed in 2001 in Swamp River Cave at Cummingsville 354756N; 0852659W	TWRA requests "stringent adherence to sediment control best management practices during construction".
Neotoma magister (Allegheny woodrat) (A)		D		A B	A	Habitats are outcrops, cliffs, talus slopes, crevices, sinkholes, caves Last observed in 2002 354641N; 0852835W	TWRA requires no disturbance immediately around sinkholes and caves, including no vehicle maintenance, and no storage/parking of fuels or vehicles .

EB Plan Requirements

What to include in plans:

- All Environmental features such as streams, springs, seeps, wetlands, ponds, caves, and sinkholes (verified by Geotechnical)

What not to include in plans:

- NWA - Non wetland areas
- Sinkholes and caves that cannot be verified by the Geotechnical Report
- Features picked up by survey but not verified by ecology

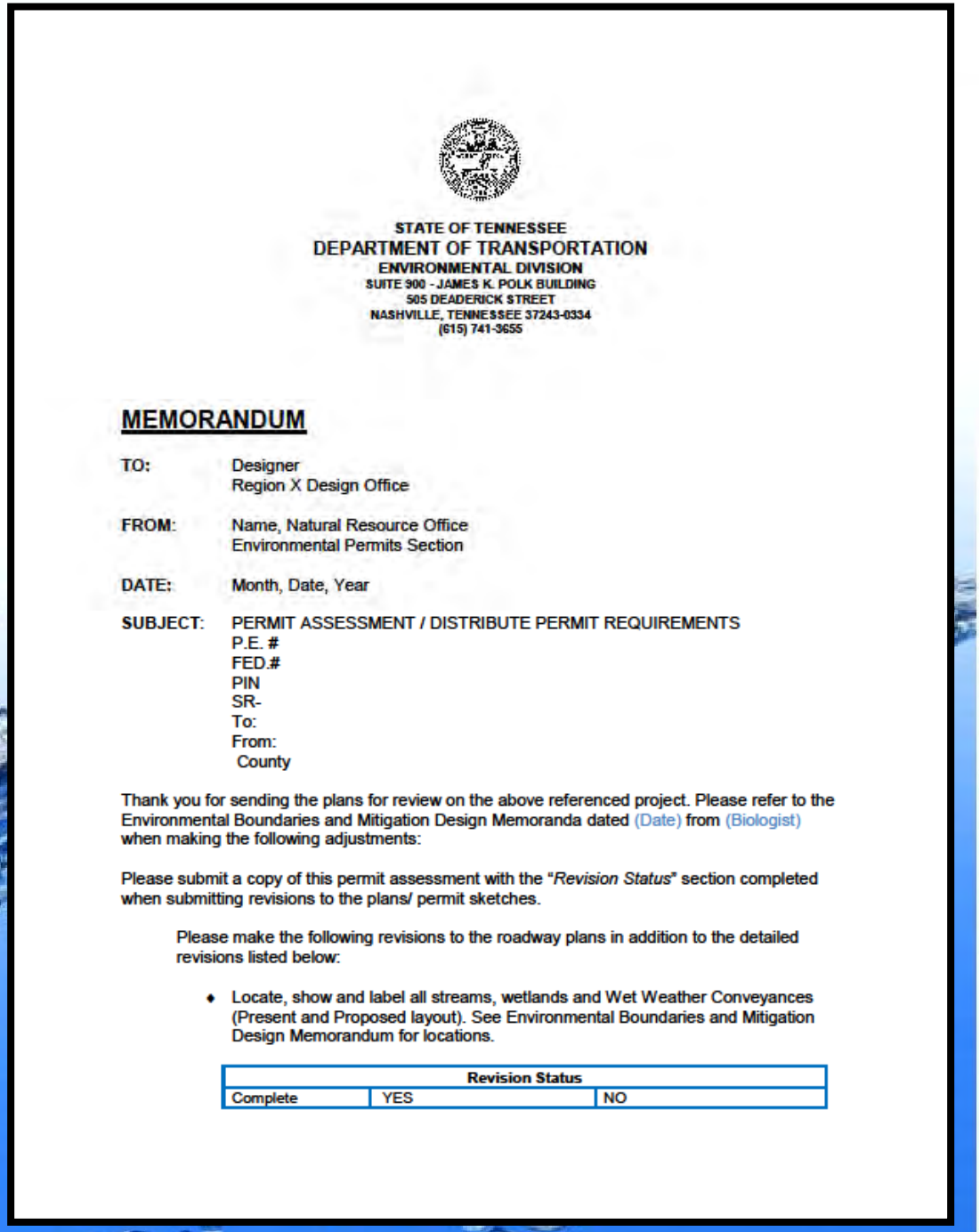
EB Plan Requirements

- Environmental feature locations must be surveyed and shown on plans, not located based on the marked up EB plan sheets
- If ecology provides .shp files to Design showing boundaries of wetlands/features, they do not need to be resurveyed in
  - Ask biologists for this information if it is not provided
  - Not always available
- **Submit a revised set of plans showing EB features to Permits for use in the permit assessment as soon as possible**

PERMIT ASSESSMENT

Format Types

- Memo
- Plans



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
SUITE 900 - JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-0334
(615) 741-3655

MEMORANDUM

TO: Designer
Region X Design Office

FROM: Name, Natural Resource Office
Environmental Permits Section

DATE: Month, Date, Year

SUBJECT: PERMIT ASSESSMENT / DISTRIBUTE PERMIT REQUIREMENTS
P.E. #
FED.#
PIN
SR-
To:
From:
County

Thank you for sending the plans for review on the above referenced project. Please refer to the Environmental Boundaries and Mitigation Design Memoranda dated (Date) from (Biologist) when making the following adjustments:

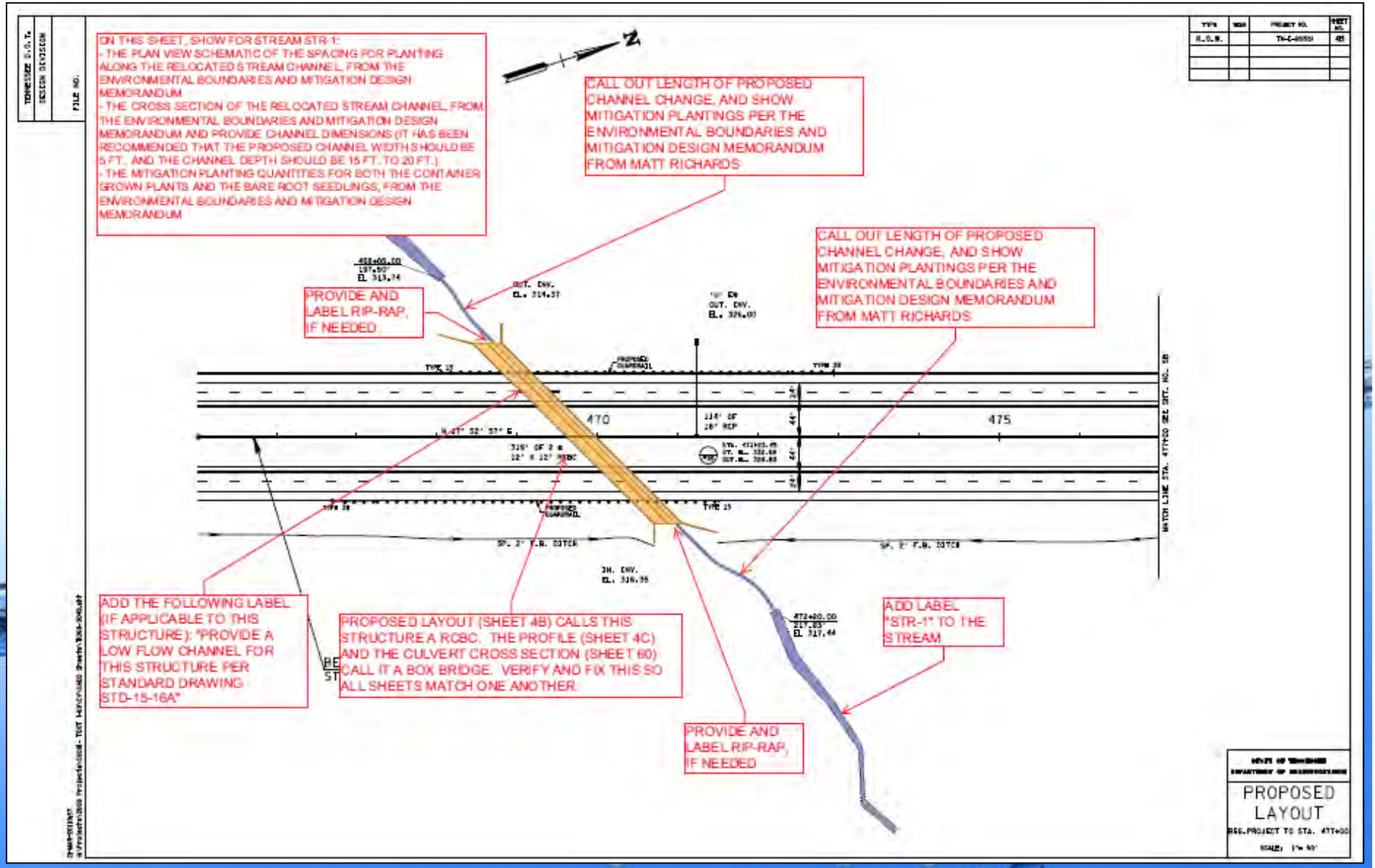
Please submit a copy of this permit assessment with the "*Revision Status*" section completed when submitting revisions to the plans/ permit sketches.

Please make the following revisions to the roadway plans in addition to the detailed revisions listed below:

- Locate, show and label all streams, wetlands and Wet Weather Conveyances (Present and Proposed layout). See Environmental Boundaries and Mitigation Design Memorandum for locations.

Revision Status		
Complete	YES	NO

Plans Sheet Format



General Assessment Comments

- Locate, show and label all springs, streams, wetlands, wet weather conveyances and any other feature listed in the Environmental Boundary report (Present and Proposed layout). See Environmental Boundaries and Mitigation Design Memorandum for locations

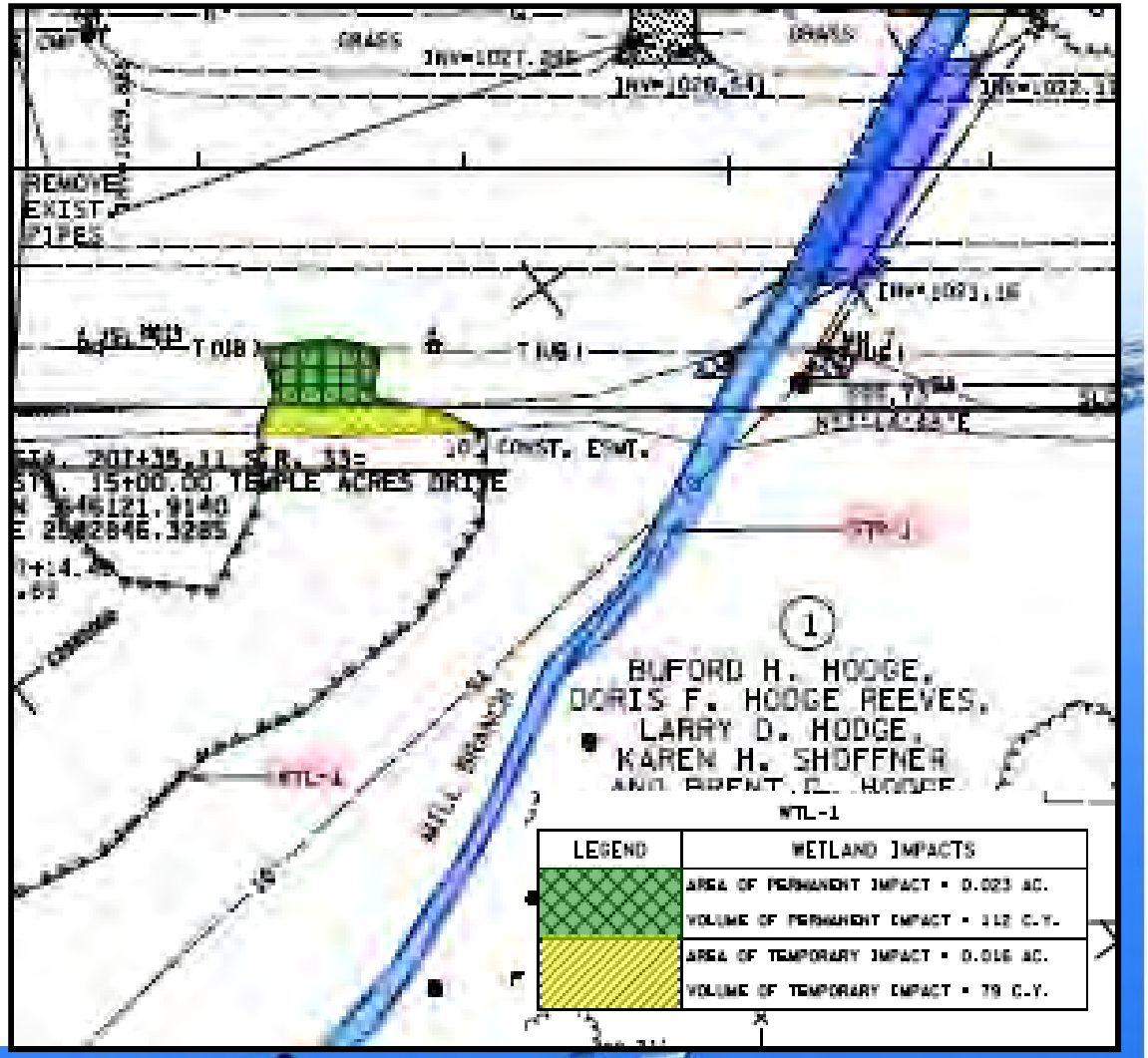
- Revised plans and permit sketches, with all water quality comments addressed, should be submitted to the Permit Section within two weeks for small projects and one month for large alignments, unless otherwise specified

General Wetland Comments

- If the permanent wetland impact is greater than 0.1 acre cumulative, permits sketches are required
- High visibility fence should be shown around non-impacted wetland areas on EPSC sheets
- Reduce roadway slopes where possible to minimize impacts to wetland areas
- Plan Notes:
  - “The contractor shall use any measure necessary to ensure that the remaining wetland will not be disturbed and is protected from sediment and other pollutants.”
  - “Temporary wetland impacts must be limited to 10 -15 feet beyond the toe of slope.”

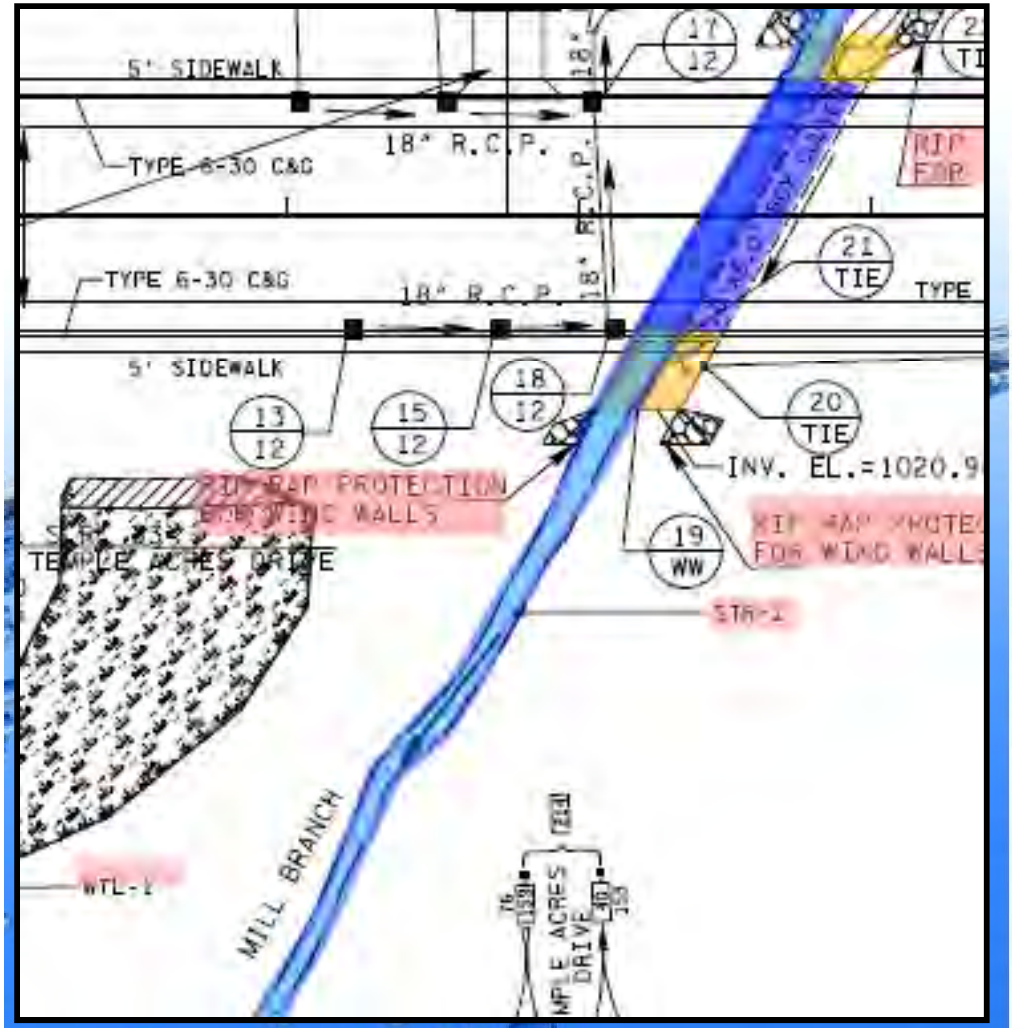
Present Layout
Wetland Requirements

- Show entire Wetland Boundaries including areas outside ROW
- Hatching (Temporary vs. Permanent)
- Wetland Impact Box



Proposed Layout
Wetland Requirements

- Only show remaining wetland area
- Mitigation
  - Tree plantings per Env. Boundaries Report
  - Notes per Environmental Boundaries Report
- Ensure wetland is not being drained (clay plugs, berms, other methods)



General Stream Comments

- **Excavation in the dry note**:
  - Any work within the wetland/stream channel area (e.g., for Pier Footing, Rip-Rap Placement, Multi-Barrel Culvert/ Bridge Construction etc.) shall be separated from flowing water or expected flow path and performed during low flow conditions. All items used within the wetland/stream channel area for diversion of flow (or expected flow), unless specified in the plans, shall not be paid for directly but shall be included in the cost of the other items. The note excludes any items specified in the plans for use with EC-STR-31 (ECM-STR-31) and EC-STR-32 (ECM-STR-32).
- **Velocity Check**
  - Ensure outlet protection is adequate

    (Only a general rule of thumb provided by hydraulics)
    - 6 – 10 ft/s: Class “B” Rip-rap
    - 10 – 14 ft/s: Class “C” rip-rap
    - Greater than 14 ft/s: Dissipater

Information Required for Stream Crossings

The length and type of each must be provided:

Show Length and Type	Shown on
Existing Structure	Present Layout and/or Culvert Cross Section
Proposed structure	Proposed Layout and Culvert Cross Section
Extensions	Proposed Layout and Culvert Cross Section
Proposed rip-rap	Proposed Layout and Culvert Cross Section
Stream transitions	Proposed Layout and/or Culvert Cross Section
Energy dissipaters, aprons, and U-Endwalls	Proposed Layout and Culvert Cross Section

Stream Crossing Notes

Plan Notes:

- **Box structure, with a bottom, is proposed (not applicable in Reg. 4)**

  "If adequate bedrock is encountered, change to bottomless structure."

- **Rip-rap proposed in bottom of stream channel**

  Rip-rap shall be placed as to mimic the existing contours of the stream channel. The top of the proposed rip-rap shall be at grade with the bottom of the existing stream channel. Voids within the rip-rap shall be filled with creek gravel to prevent loss of stream within rip-rap areas. Creek gravel can be removed from culvert excavation area

- **Stream Comments:**
  - Please minimize the use of rip-rap (2 time the barrel width)
  - The proposed channel must mimic the existing stream characteristics (size, shape, ect.). Refer to the EB for existing channel characteristics

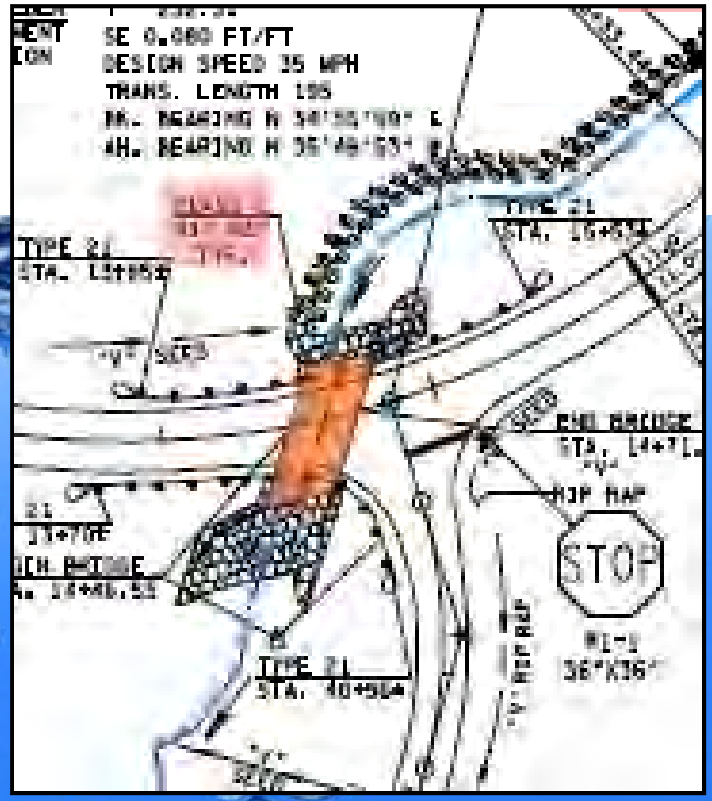
Stream Crossing Notes

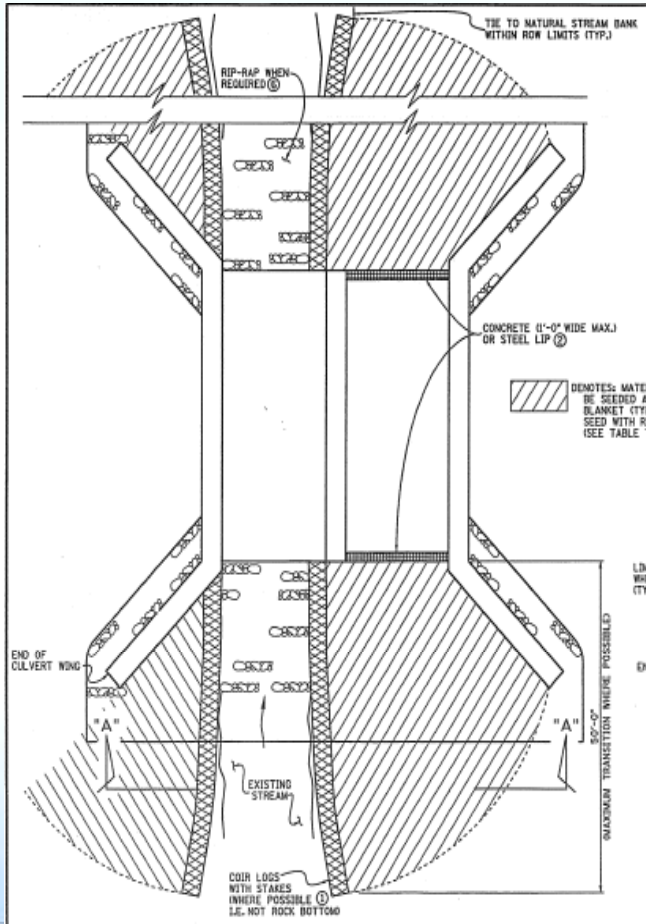
Low Flow

- Required if proposed structure is wider than original stream width
- Stream widening is not permitted by TDEC & other agencies
- Should not be used in culverts less than 6 ft in height
- Should only be used on box culverts and not single circular or oval culverts
- Show the two following notes on each sheet fitting this situation

NOTES: REFER TO STD. DWG. EC-STR-30A FOR CONSTRUCTION PHASING AND CHANNEL DIVERSION OF PROPOSED BOX BRIDGE.

REFER TO STD-15-16A FOR LOW FLOW CHANNEL DIVERSION DETAILS FOR BOX BRIDGE INLET AND OUTLET.

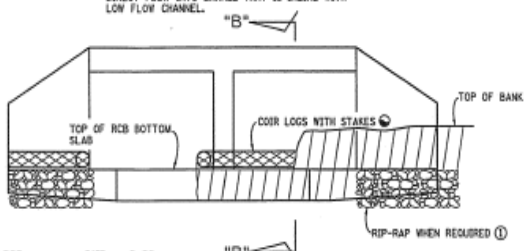




PLAN

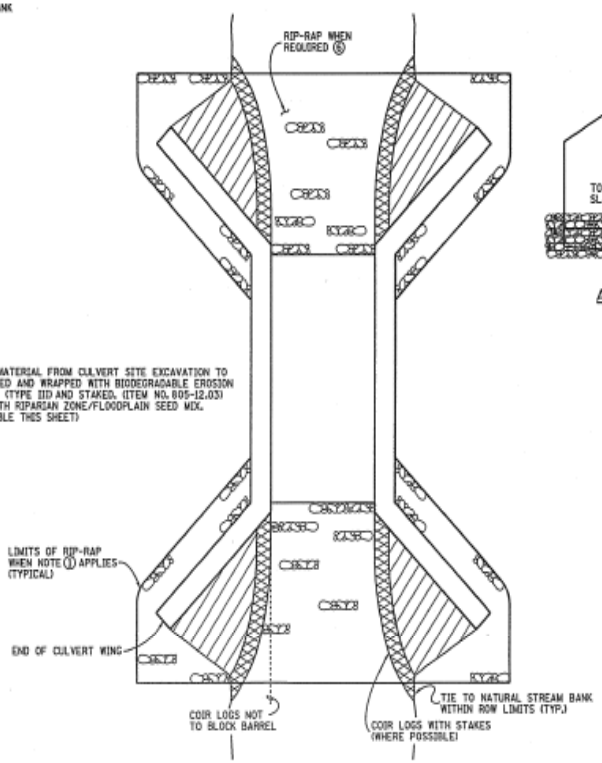
MULTI-BARREL CULVERT

1) ONE BARREL OF THE CULVERT IS TO BE ORIENTED INLINE WITH THE LOW FLOW CHANNEL.
2) COIR LOGS WITH STAKES ARE TO BE USED TO DIRECT FLOW INTO BARREL THAT IS INLINE WITH LOW FLOW CHANNEL.



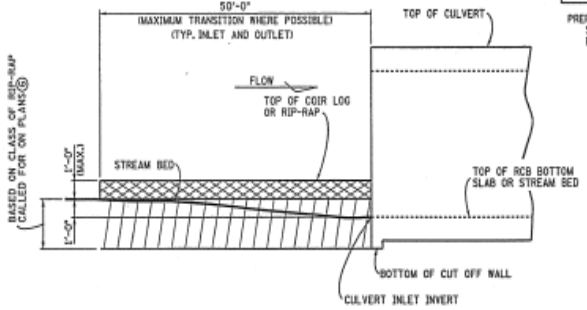
SECTION "A"-"A"

ITEM NO. 209-06.02 UNLESS OTHERWISE SPECIFIED BY DESIGNER.



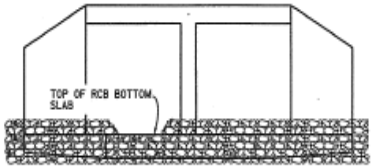
PLAN

SINGLE BARREL CULVERT



SECTION "B"-"B"

NOTE: 90° STRUCTURE SHOWN, STRUCTURE SKEW MAY VARY



ALTERNATE SECTION "A"-"A" ①

RIP-RAP ITEM NO. 709-05.XX

PROJECT NO.	YEAR	SHEET NO.
	2007	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

GENERAL NOTES:

① ALTERNATE IS TO FORM ENTIRE CROSS-SECTION WITH GABIONS OR RIP-RAP APPROPRIATELY SIZED FOR VELOCITY WITH TOP OF RIP-RAP LAYER NOT TO EXCEED 2'-0" ABOVE TOP OF BOTTOM SLAB OR SIGNIFICANTLY REDUCE BARREL OPENING.

② CONCRETE OR STEEL LIPS IN BARREL MAY BE USED AS AN ALTERNATIVE TO THE LOW FLOW CONSTRUCTION, WITH APPROVAL OF DESIGNER. COST TO BE INCLUDED IN ITEM 604-02.01.

③ WHEN RIP-RAP IS SPECIFIED FROM WING TIP TO WING TIP, LOW FLOW CHANNEL CONSTRUCTION IS TO BE FORMED BY RIP-RAP AS IN SECTION "A"-"A".

④ WHERE BEDROCK OR SLAB CULVERT IS USED, RIP-RAP SHOULD BE USED TO FORM LOW FLOW CHANNEL DIVERSION. SEE ALTERNATE SECTION "A"-"A" ABOVE.

⑤ THIS DRAWING IS TO BE CALLED FOR BY THE ENVIRONMENTAL DIVISION.

⑥ RIP-RAP PLACED IN THE STREAM CHANNEL SHALL BE COUNTERSUNK AND PLACED AT GRADE WITH THE EXISTING STREAM SUBSTRATE WITH EXCEPTION OF NOTE 1 AND SHALL MIMIC THE EXISTING CHANNEL CHARACTERISTICS.

⑦ LOW FLOW CHANNEL CONSTRUCTION SHALL NOT BEGIN UNTIL CULVERT BARRELS AND WINGS ARE COMPLETE.

RIPARIAN ZONE/FLOODPLAIN SEED MIX:

FOR STABILIZATION OF CHANNEL DIVERSION FILL AREAS FOLLOWING CONSTRUCTION

RIPARIAN ZONE/FLOODPLAIN SEED MIX: ITEM NO. (A SPECIAL PAY ITEM WILL BE REQUIRED)

COVER CROP SEED MIX

SCIENTIFIC NAME	COMMON NAME	SEEDING RATE		QUANTITY, BY WEIGHT	OVERALL QUANTITY
		POUNDS/ACRE	POUNDS/1,000 s.f.		
TRITICUM AESTIVUM	WINTER WHEAT	10.0	0.23	50%	15.4%
SECALE CEREALE	CEREAL RYE	10.0	0.23	50%	15.4%
COVER CROP TOTALS		*20.0*	*0.46*	*100%*	

GRASS SEED MIX

SCIENTIFIC NAME	COMMON NAME	SEEDING RATE		QUANTITY, BY WEIGHT	OVERALL QUANTITY
		POUNDS/ACRE	POUNDS/1,000 s.f.		
ENCHINOCHLOA MURICATA	BARNYARD GRASS	10.0	0.23	22%	15.4%
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	10.0	0.23	22%	15.4%
LEERSIA ORYZOIDES	RICE CUT GRASS	10.0	0.23	22%	15.4%
PANICUM CLANDESTINUM	DEERTONGUE	10.0	0.23	22%	15.4%
CHASMANTHIUM LATIFOLIUM	RIVER OATS	5.0	0.12	12%	7.6%
GRASS TOTALS		*45.0*	*1.04*	*100%*	
GRAND TOTALS:		*65.0*	*1.50*		*100%*

PREPARATION OF THE SEEDBED (INCLUDING COIR LOGS AND STAKES) AND SOWING OF THE SEED MIXTURE SHALL BE AS SPECIFIED IN THE TDOT STANDARD SPECIFICATIONS MANUAL SECTION 801. SEED SHALL BE APPLIED PRIOR TO WRAPPING WITH BIODEGRADABLE EROSION BLANKET (TYPE IID.

NOTE: DRAWING NOT TO BE USED WHEN CULVERT IS LESS THAN 6' IN HEIGHT.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOW FLOW CHANNEL CONSTRUCTION DETAILS FOR CULVERT INLET AND OUTLET 2007

DESIGNED BY KEN ELROD DATE 8-08
DRAWN BY K.L. FRANKENFIELD DATE 8-08
SUPERVISED BY KEN ELROD DATE 8-08
CHECKED BY DATE

CORRECT Edward P. Wasserman
CHIEF ENGINEER OF STRUCTURES

STD-15-16A

Requirements for Stream Relocations

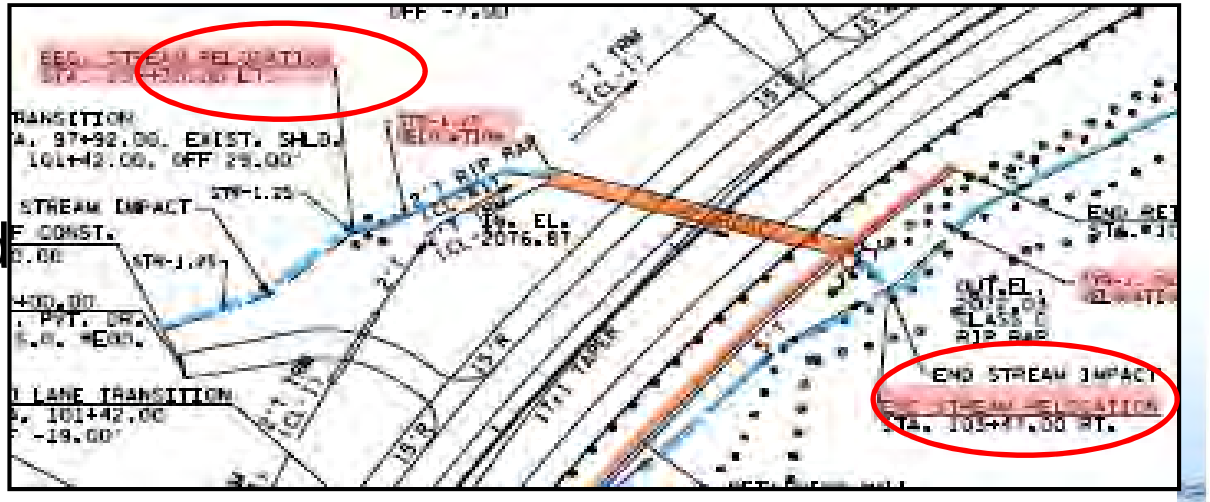
Additional information required for stream relocations

Show Length and Type of each	Shown on
Beginning & End Stream Impact	Present & Proposed Layout
Detailed Mitigation Information	Proposed Layout or Mitigation Sheet
Existing & Proposed Stream Cross Section	Present & Proposed Layout or Mitigation Sheet
Top and bottom of bank	Present and Proposed Layout

Standard information required for both stream relocations and crossings.

Show Length and Type	Shown on
Existing Structure	Present Layout and/or Culvert Cross Section
Proposed structure	Proposed Layout and Culvert Cross Section
Extensions	Proposed Layout and Culvert Cross Section
Proposed rip-rap	Proposed Layout and Culvert Cross Section
Stream transitions	Proposed Layout and/or Culvert Cross Section
Energy dissipaters, aprons, and U-Endwalls	Proposed Layout and Culvert Cross Section

Determining Begin and End Impact



Begin Impact

Point where proposed stream deviates from the existing stream channel

- Label for Begin Impact should include “Begin Stream Impact, Station xx+xx”

End Impact

Point where the proposed stream intersects the existing stream channel

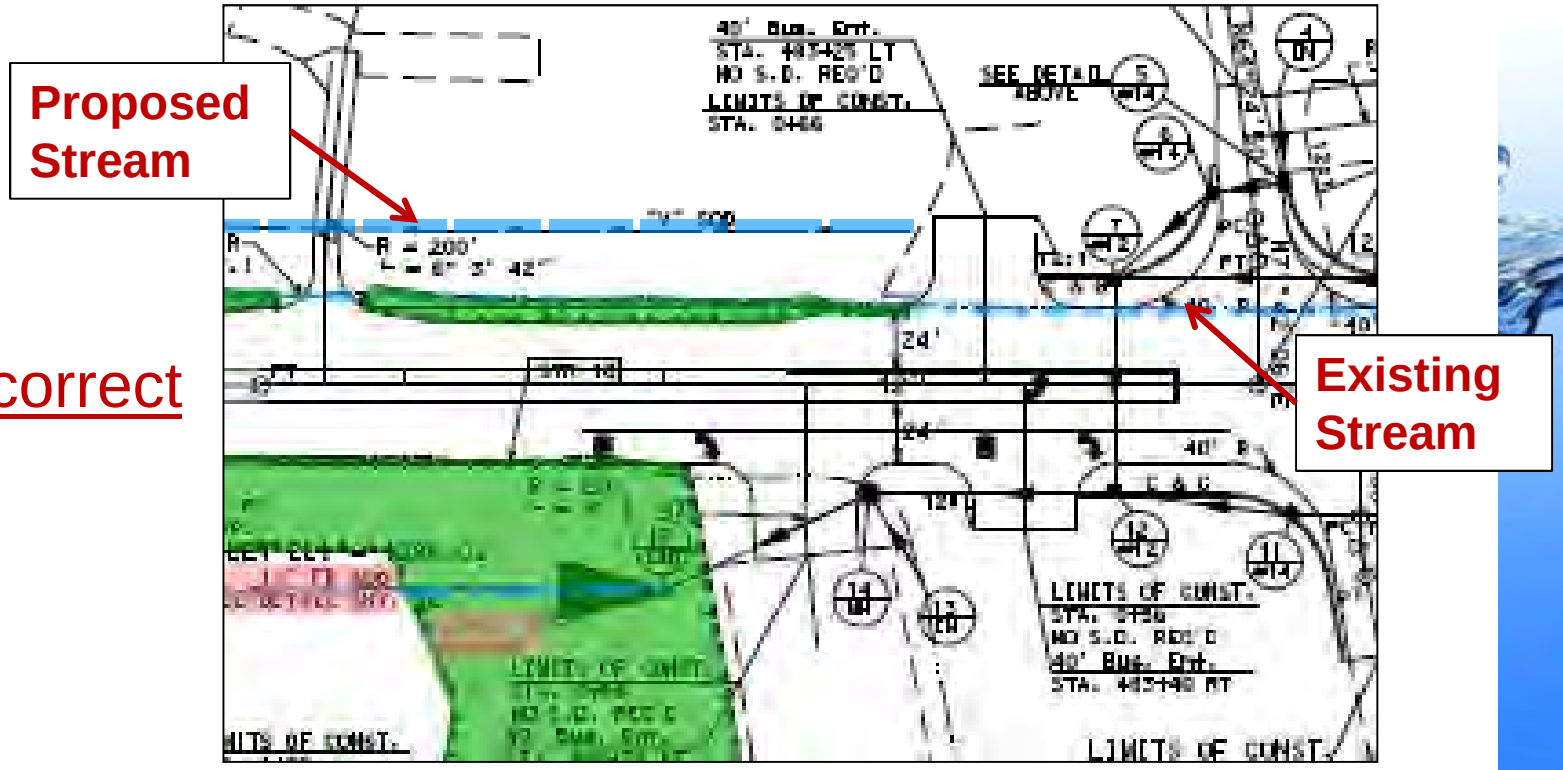
- Label for Ending Impact should include “End Stream Impact, Station xx+xx”

Mitigation Requirements

- Mitigation details are shown in Scope J of the EB Report such as tree and shrub species and spacing
- Mitigation Sheets may be added if adequate space is not available on the proposed layout sheets
- Stream relocations greater than 200 ft. may require a Natural Stream Design, provided by the Environmental Division
  - Natural Stream Design sheets will be inserted in the same manner as utility sheets
- Stream Impacts to 303d listed streams for habitat alteration or Exceptional Tennessee Waters require in-system mitigation (Shown in EB Report)

Common Stream Issues

- Ensure source of existing stream is still connected to proposed stream channel
- Tie stream relocation into existing stream

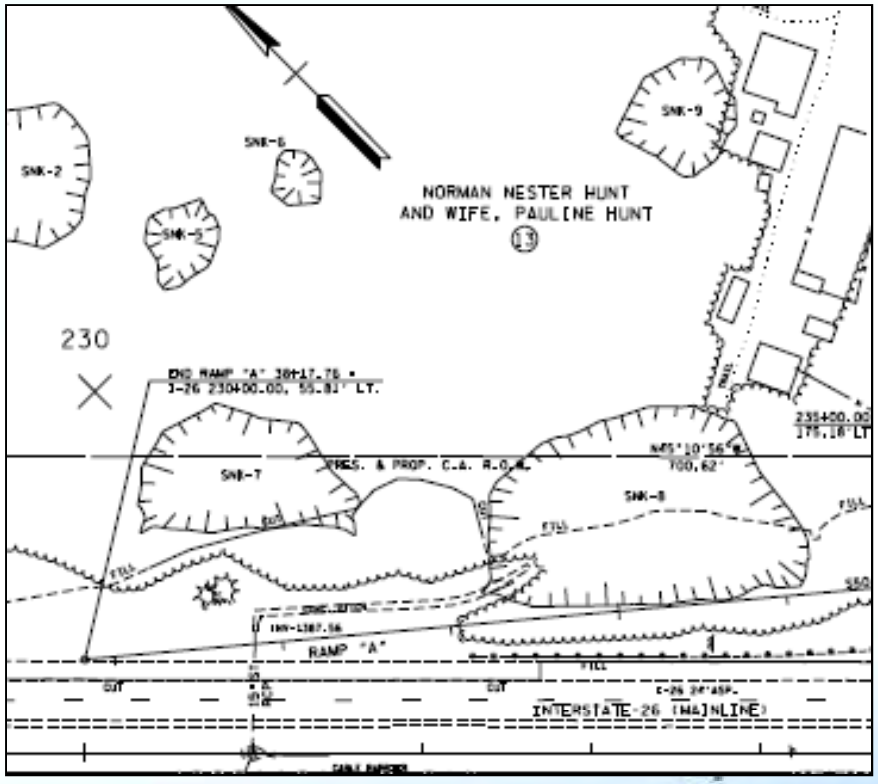


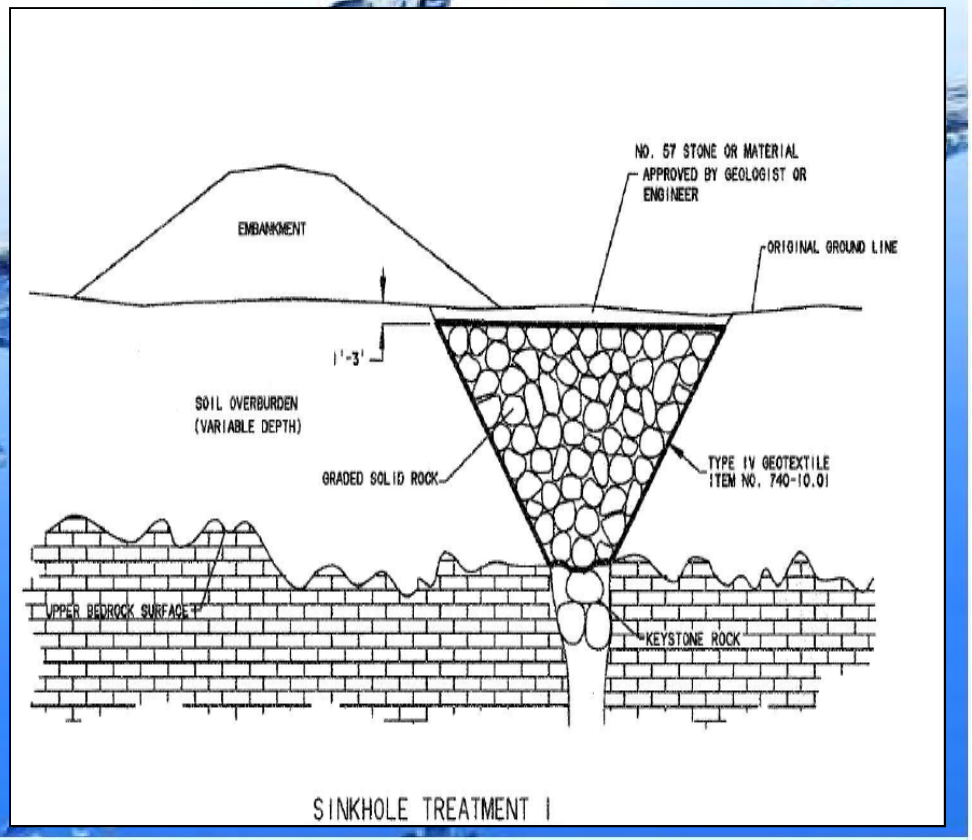
- Sod must not be used in the bottom of the stream channel. Contact Biologist if not addressed in EB

Springs

- Show treatment method
  - French Drain
  - Spring Box
  - Graded solid rock
- Show any associated rock pads in the area
- Ensure spring flow is directed into channel
- Place following note:
  - “Before installation of the spring box, the spring head should be field verified. If SPR-x moves from the current location, flow from the spring area should be conveyed/directed into the proposed stream relocation

Sinkholes





Treatment Plan

Per Geotechnical Report

Additional Information Required

Alternative Analysis required by TDEC for all impacts to environmental features.

- How did roadway design minimize environmental (wetland & stream) impacts?
  - Structures considered and why they were selected or not selected
  - Cost
  - Constructability
  - ROW needs
  - Roadway slopes reduced
  - Maintenance

The above info should be emailed to the permits contact person that submitted assessment or included as an assessment response.

ADDITIONAL COSTS TO CONSIDER

PERMIT SKETCHES

Compensatory Mitigation for Individual Permits In-Lieu Fee Program

ALTERATION TYPE I ($100 per foot)

- $ **Loss of riparian canopy (trees) on proposed stream relocations**
- $ **Stream channel modifications**
- $ **Synthetic channel liners along banks**

Compensatory Mitigation for Individual Permits In-Lieu Fee Program

ALTERATION TYPE II ($150 per foot)

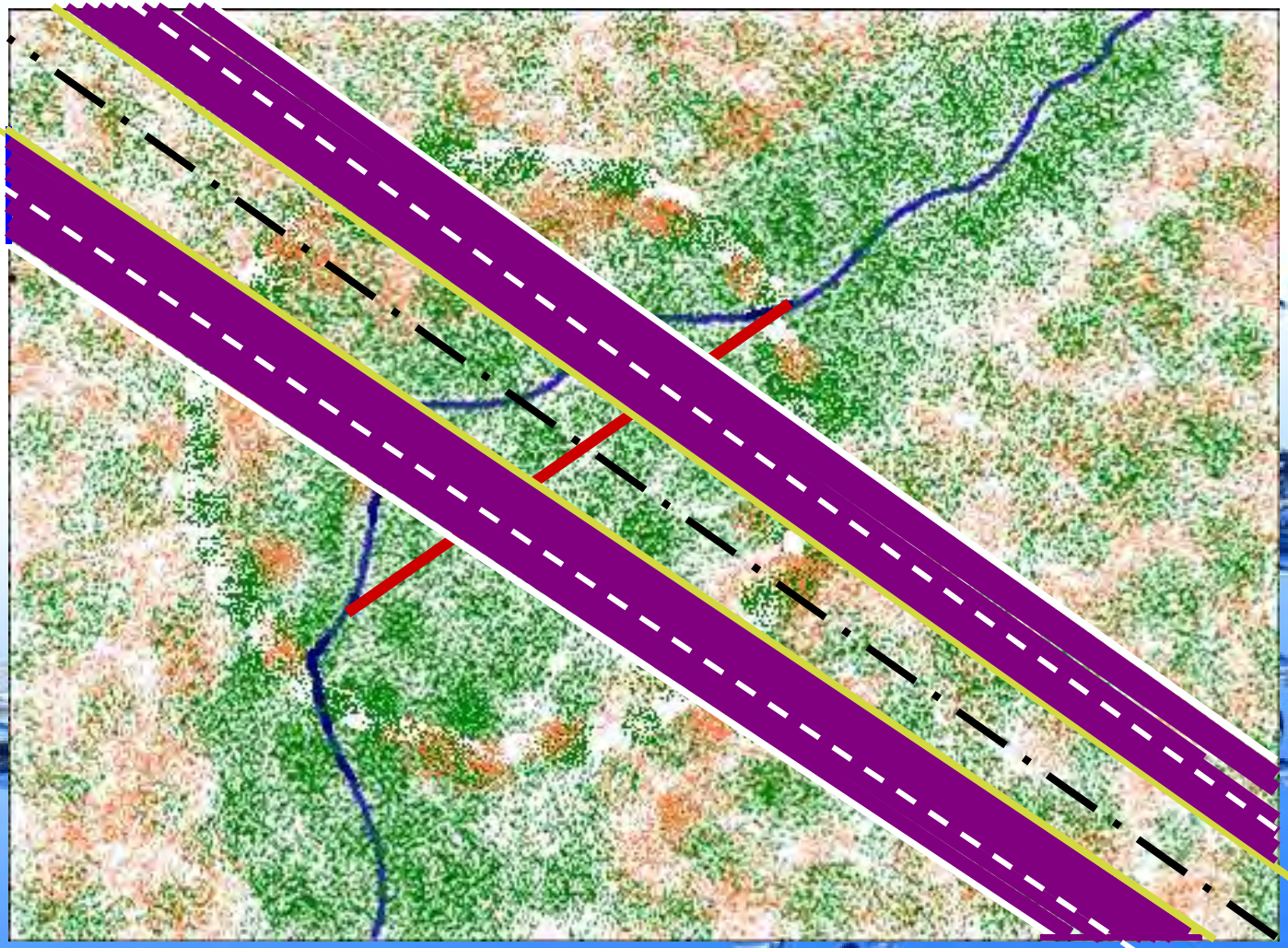
- $ **Rip-rap lined channels (bottom and sides)**
- $ **Rip-rap or concrete lined stream banks (both banks)**
- $ **Impoundments**

Compensatory Mitigation for Individual Permits In-Lieu Fee Program

ALTERATION TYPE III ($200 per foot)

- $ **Encapsulations (culverts) longer than 200 feet**
- $ **Loss of stream length**
- $ **Concrete lined channels (bottom and sides)**

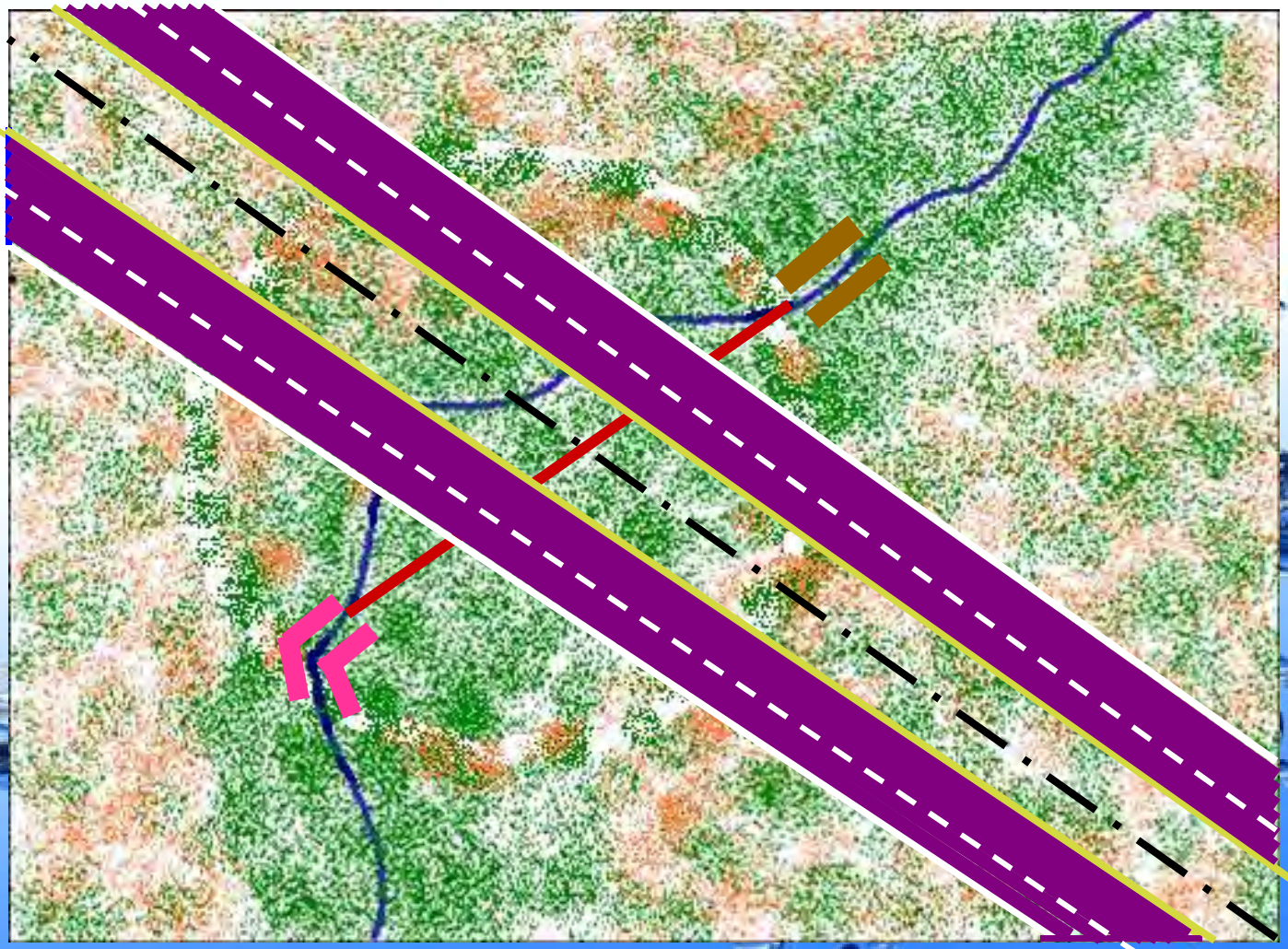
Compensatory Mitigation Example



230 ft. Culvert
Cost = $46,000

Stream Length Loss = 75 ft.
Cost = $15,000

Compensatory Mitigation Example



Remove 100 ft of Canopy
Cost = $10,000

Place 100’ Rip Rap
Cost = $15,000

TOTAL IN-LIEU FEE
COST = $86,000

Permit Sketches

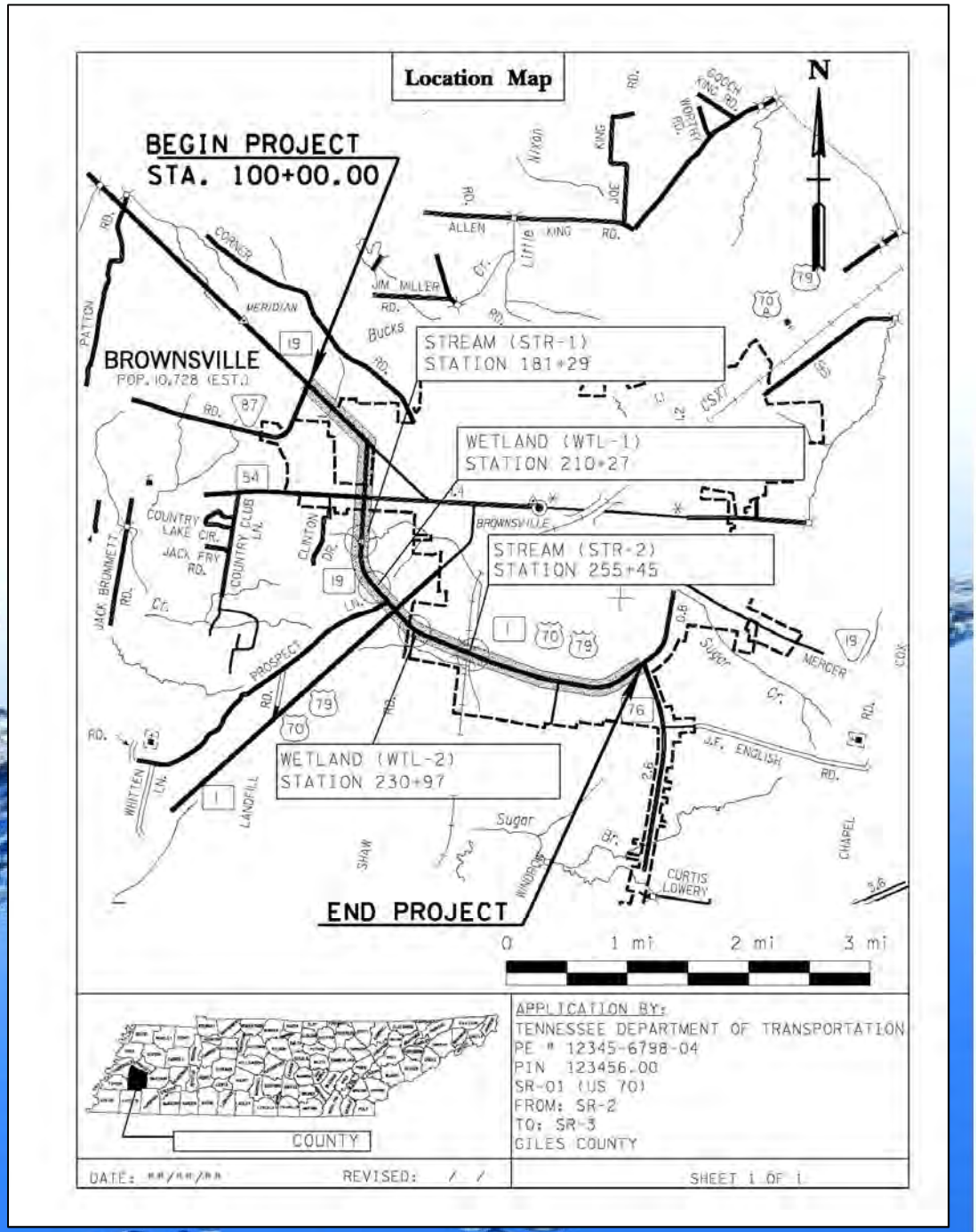
- Purpose – Public Notice

- Sketches required if:
  - Stream relocation
  - Stream impact greater than 200 ft
  - Scenic river or contaminated sediments
  - Permanent wetland impact(s) greater then 0.1 acre cumulative
  - Species with a “May Affect”

- Permit Assessment will advise when required

Elements of Permit Sketches

- Location Map
  - – County Map
    Pinpointing each Environmental Feature
- Impacted Env. Site
- Culvert Cross Section
- Stream Cross Section (if relocation)
- Mitigation Information

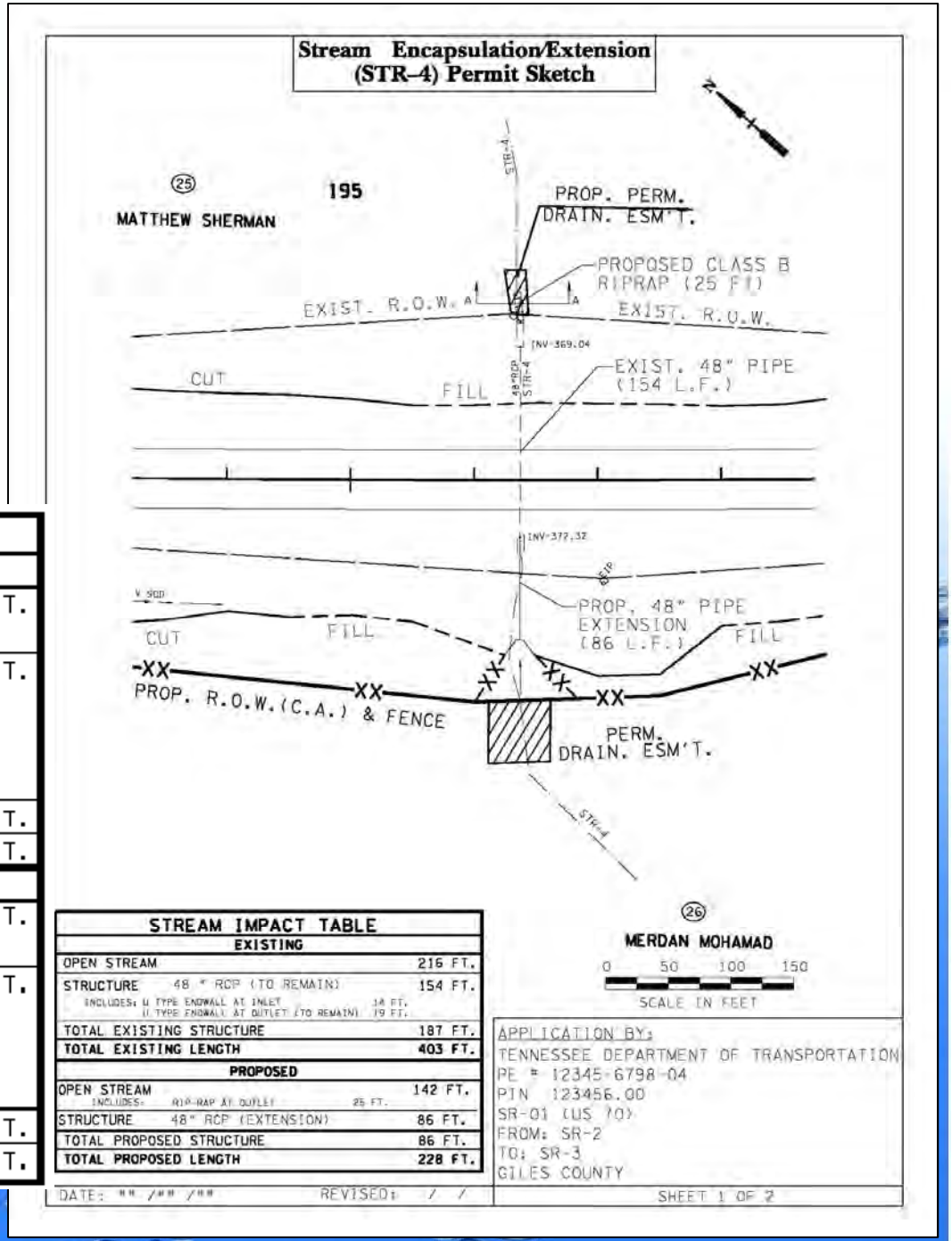


Permit Sketch

Encapsulation/ Extension

- Plan view from proposed layout
- Impact Table

STREAM IMPACT TABLE			
EXISTING			
OPEN STREAM			000 FT.
INCLUDES:	RIP RAP AT INLET	000 FT.	
	RIP RAP AT OUTLET	000 FT.	
STRUCTURE	00FT. X 00 FT. RCB		000 FT.
INCLUDES:	CONCRETE APRON AT INLET	000 FT.	
	U TYPE ENDWALL AT INLET	000 FT.	
	CONCRETE APRON AT OUTLET	000 FT.	
	U TYPE ENDWALL AT OUTLET	000 FT.	
	ENERGY DISSIPATOR AT OUTLET	000 FT.	
TOTAL EXISTING STRUCTURE			000 FT.
TOTAL EXISTING LENGTH			000 FT.
PROPOSED			
OPEN STREAM			000 FT.
INCLUDES:	RIP-RAP AT INLET	000 FT.	
	RIP-RAP AT OUTLET	000 FT.	
STRUCTURE	00FT. X 00 FT.		000 FT.
INCLUDES:	CONCRETE APRON AT INLET	000 FT.	
	U TYPE ENDWALL AT INLET	000 FT.	
	CONCRETE APRON AT OUTLET	000 FT.	
	U TYPE ENDWALL AT OUTLET	000 FT.	
	ENERGY DISSIPATOR AT OUTLET	000 FT.	
TOTAL PROPOSED STRUCTURE			000 FT.
TOTAL PROPOSED LENGTH			000 FT.



STREAM IMPACT TABLE		
EXISTING		
OPEN STREAM		216 FT.
STRUCTURE	48 " RCP (TO REMAIN)	154 FT.
INCLUDES: U TYPE ENDWALL AT INLET		14 FT.
U TYPE ENDWALL AT OUTLET (TO REMAIN)		19 FT.
TOTAL EXISTING STRUCTURE		187 FT.
TOTAL EXISTING LENGTH		**403 FT.**
PROPOSED		
OPEN STREAM		142 FT.
INCLUDES: RIP-RAP AT OUTLET		25 FT.
STRUCTURE	48" RCP (EXTENSION)	86 FT.
TOTAL PROPOSED STRUCTURE		86 FT.
TOTAL PROPOSED LENGTH		**228 FT.**

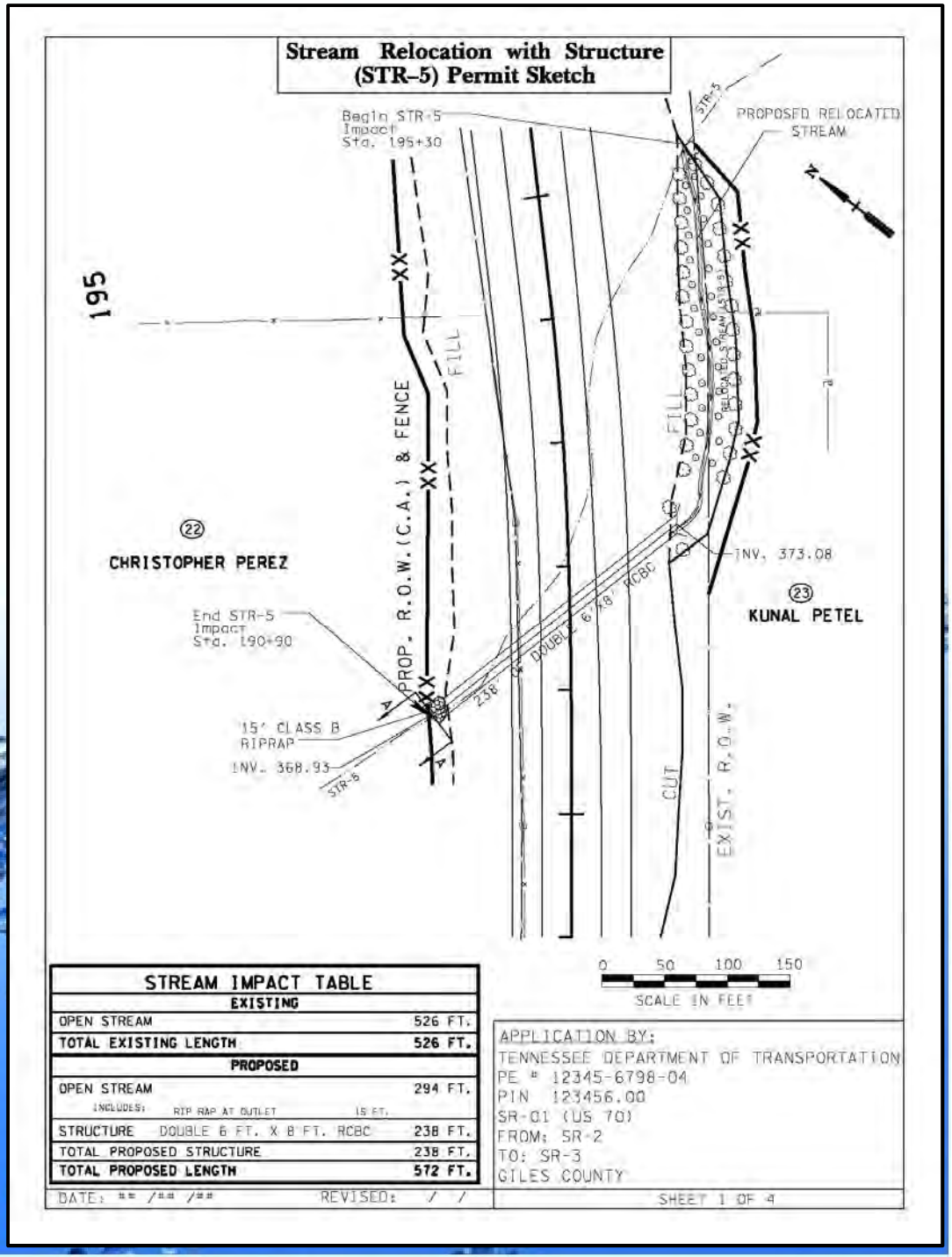
Permit Sketch

Encapsulation with Stream Relocation

Show

- Stream labels
- Existing & proposed stream relocation
- Impact box
- Begin & End Impact Labels
- Mitigation & details

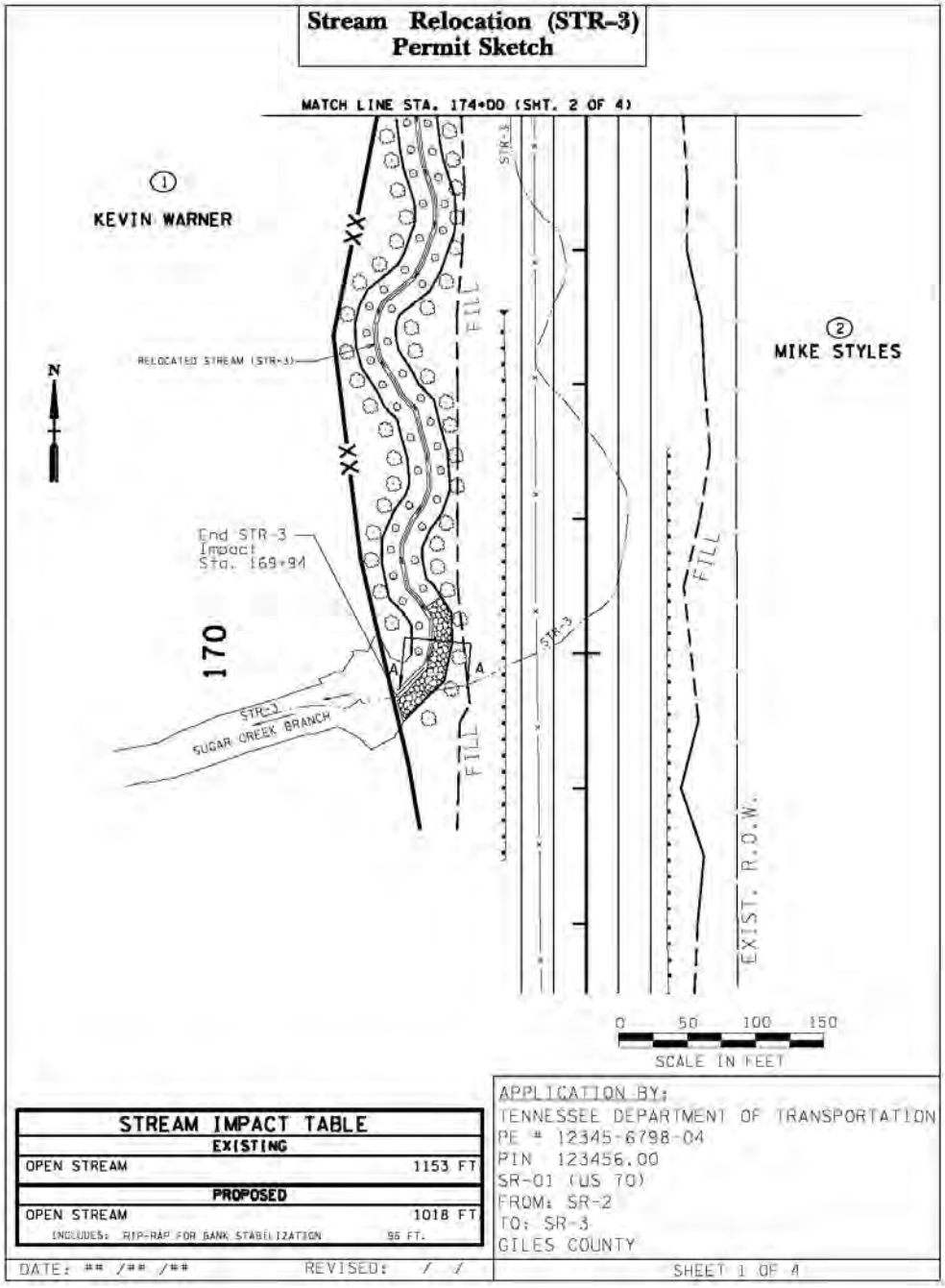
(All info except impact box should already be shown on plans)



Permit Sketch

Stream Relocations

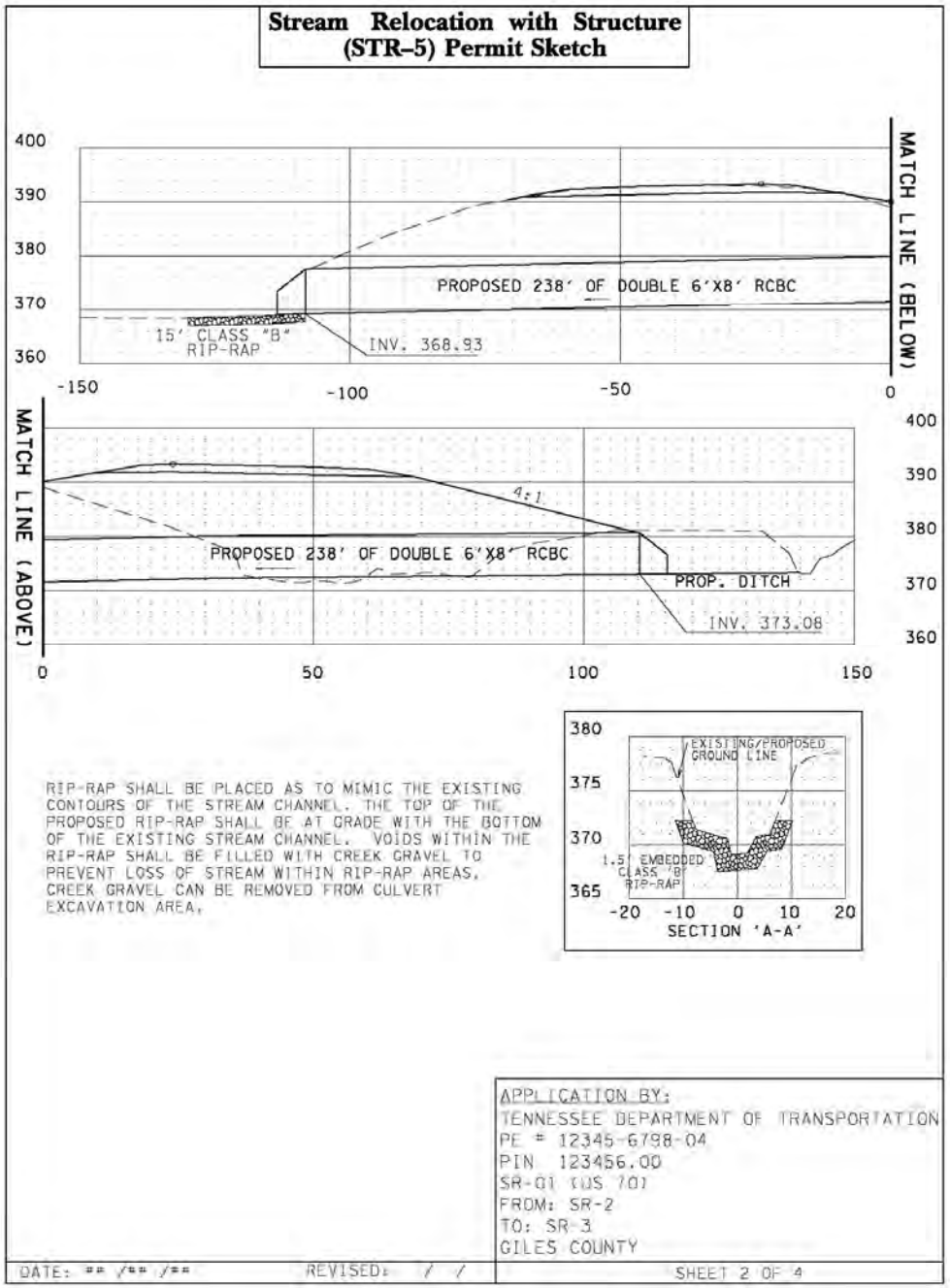
- Show
  - Stream labels
  - Existing & proposed stream relocation
  - Impact box
  - Begin & End Impact Labels
  - Mitigation & details
- Measure existing impacted stream surface area
- If stream impact spans multiple pages, impact box should be shown on first page of impact & summed across site



Permit Sketch

Culvert Cross Sections

- Structure length (existing to remain & proposed)
- Hydraulic data
- Rip-rap at inlet & outlet
- U shaped end walls & paved outlets
- Energy dissipaters



Permit Sketch

Mitigation Details

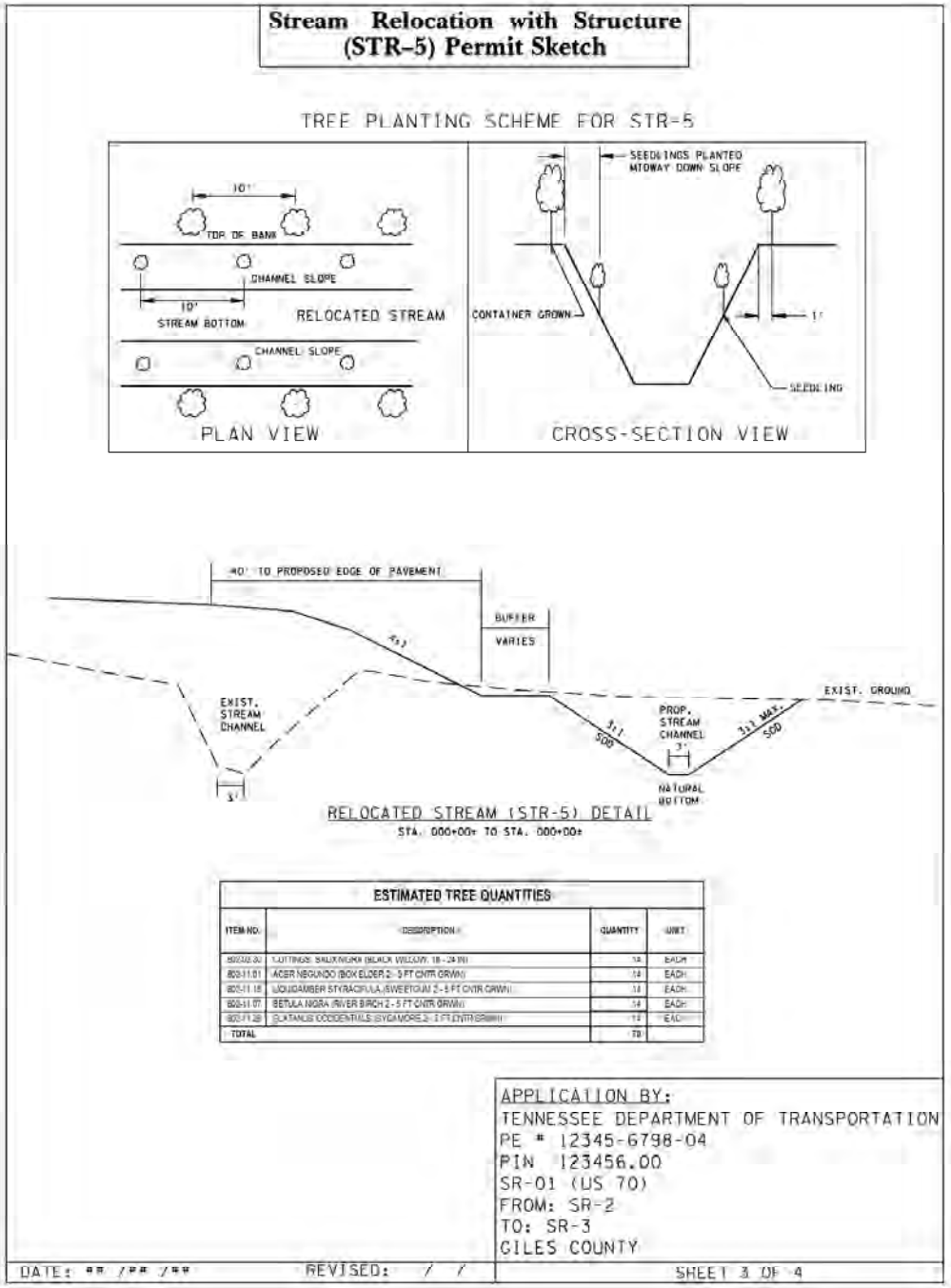
Stream Cross-section

- Existing & Proposed stream channel
- Dimensions of each channel

Plantings

- Type
- Spacing
- Quantities

Method of stabilizing bank slopes. (seeding, sod, blankets, rip-rap...)



Permit Sketch

Mitigation

Notes:

All notes related to mitigation and species must be shown

Permit Sketch

Stream Relocation with Structure (STR-5) Permit Sketch

STANDARD STREAM MITIGATION :

1) IF THE RELOCATED CHANNEL FLOWS INTO A PROPOSED CULVERT, THE NEW CHANNEL SHALL BE RELOCATED PRIOR TO INSTALLATION OF THE CULVERT TO ENSURE CORRECT ELEVATION LEVELS ARE SET FOR THE INLET. THE NEW CHANNEL SHALL BE EXCAVATED AND STABILIZED DURING A LOW-WATER PERIOD. RIP-RAP (ONLY AS SHOWN ON PLANS), SEEDING OR SOD SHALL BE INSTALLED IMMEDIATELY FOLLOWING CHANNEL COMPLETION. TREES SHALL BE INSTALLED IN THE FIRST PLANTING SEASON FOLLOWING CHANNEL EXCAVATION. WATER SHALL BE DIVERTED INTO THE NEW CHANNEL ONLY AFTER IT IS COMPLETELY STABILIZED, AND ONLY DURING A LOW WATER PERIOD. STABILIZED MEANS THAT ALL SPECIFIED ROCK AND EROSION CONTROL BLANKET IS IN PLACE , AND SEEDING AND SOD ARE IN PLACE AND ESTABLISHED.

2) CHANNEL RELOCATION SEQUENCE
   A) FLAG EDGE OF THE NEW CHANNEL TOP OF BANK PRIOR TO CLEARING. DO NOT CLEAR LARGE TREES IN POSITION TO SHADE THE NEW CHANNEL. LEAVE AS MANY TREES AND SHRUBS AS POSSIBLE BETWEEN TOE OF THE NEW HIGHWAY SLOPE AND THE STREAM.
   B) EXCAVATE THE NEW CHANNEL 'IN THE DRY' BY LEAVING AREAS OF UNDISTURBED EARTH (DIVERSION BERMS) IN PLACE AT BOTH ENDS.
   C) SHAPE CHANNEL TO SPECIFICATIONS SHOWN. REMOVE LOOSE SOILS AND DEBRIS.
   D) PLACE TOPSOIL, EROSION CONTROL BLANKET, SEED AND SOD AS SPECIFIED.
   E) REMOVE DIVERSION BERMS, BEGINNING WITH THE MOST DOWN STREAM. BANKS AND BOTTOM ELEVATION OF THE OLD CHANNEL SHOULD TRANSITION SMOOTHLY INTO THE NEW CHANNEL. THE ELEVATIONS OF THE NEW CHANNEL BOTTOM AT EACH END OF THE RELOCATION SEQUENCE SHOULD MATCH THE ELEVATIONS OF THE EXISTING CHANNEL, AND A STEADY PERCENT SLOPE SHOULD BE MAINTAINED THROUGHOUT THE RELOCATED CHANNEL CENTERLINE OR AS SPECIFIED.
   F) INSTALL TREES ACCORDING TO STANDARD SPECIFICATIONS SECTION 802.

3) ONLY RIP-RAP SHOWN ON PLANS SHOULD BE USED IN THE RELOCATED CHANNEL REACH. ANY OTHER PROPOSED RIP-RAP SHOULD BE COORDINATED WITH THE ENVIRONMENTAL DIVISION.

4) REQUESTS BY ANY AGENCY THAT WOULD REQUIRE THE MODIFICATION OF CHANNELS, DITCHES, ELEVATIONS, RIP-RAP OR ANY OTHER STREAM MITIGATION ITEMS ASSOCIATED WITH THE CHANNEL RELOCATIONS SHALL BE REFERRED TO THE TDOT ENVIRONMENTAL DIVISION VIA THE HEADQUARTERS CONSTRUCTION OFFICE FOR THE COORDINATION WITH ALL AGENCIES AND TDOT DIVISIONS. THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION MAY MAKE RECOMMENDATIONS CONCERNING EROSION CONTROL VIA THE ENGINEER WITHOUT SUCH REFERRAL.

TREES:

1. NO SUBSTITIONS OF TREE SPECIES OR SIZES SHALL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF TDOT ENVIRONMENTAL DIVISION. TREES SHALL BE THE VARIETY REQUESTED AND FIRST QUALITY. NO CLONES OR CULTIVARS WILL BE ACCEPTED. ANY FOUND TO BE INCORRECT SPECIES, OR IMPROPERLY PLANTED, AT ANY TIME PRIOR TO TERMINATION OF THE CONTRACT SHALL BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE. STAKES AND WIRES SHALL BE REMOVED IMMEDIATELY PRIOR TO CONTRACT TERMINATION.UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. THE CONTRACTOR SHOULD ARRANGE SEVERAL MONTHS AHEAD OF TIME TO OBTAIN THE CORRECT TREE SPECIES, AS SOME MAY REQUIRE SOME TIME TO LOCATE.
3. TREES SHALL BE WATERED AS REQUIRED THROUGH THE PERIOD OF ESTABLISHMENT TO ENSURE SURVIVAL.

APPLICATION BY:
TENNESSEE DEPARTMENT OF TRANSPORTATION
PE # 12345-6798-04
PIN 123456.00
SR-01 (US 70)
FROM: SR-2
TO: SR-3
GILES COUNTY

DATE: ** /** /** REVISED: / /

SHEET 4 OF 4

Measuring Existing

Existing Open Channel Length

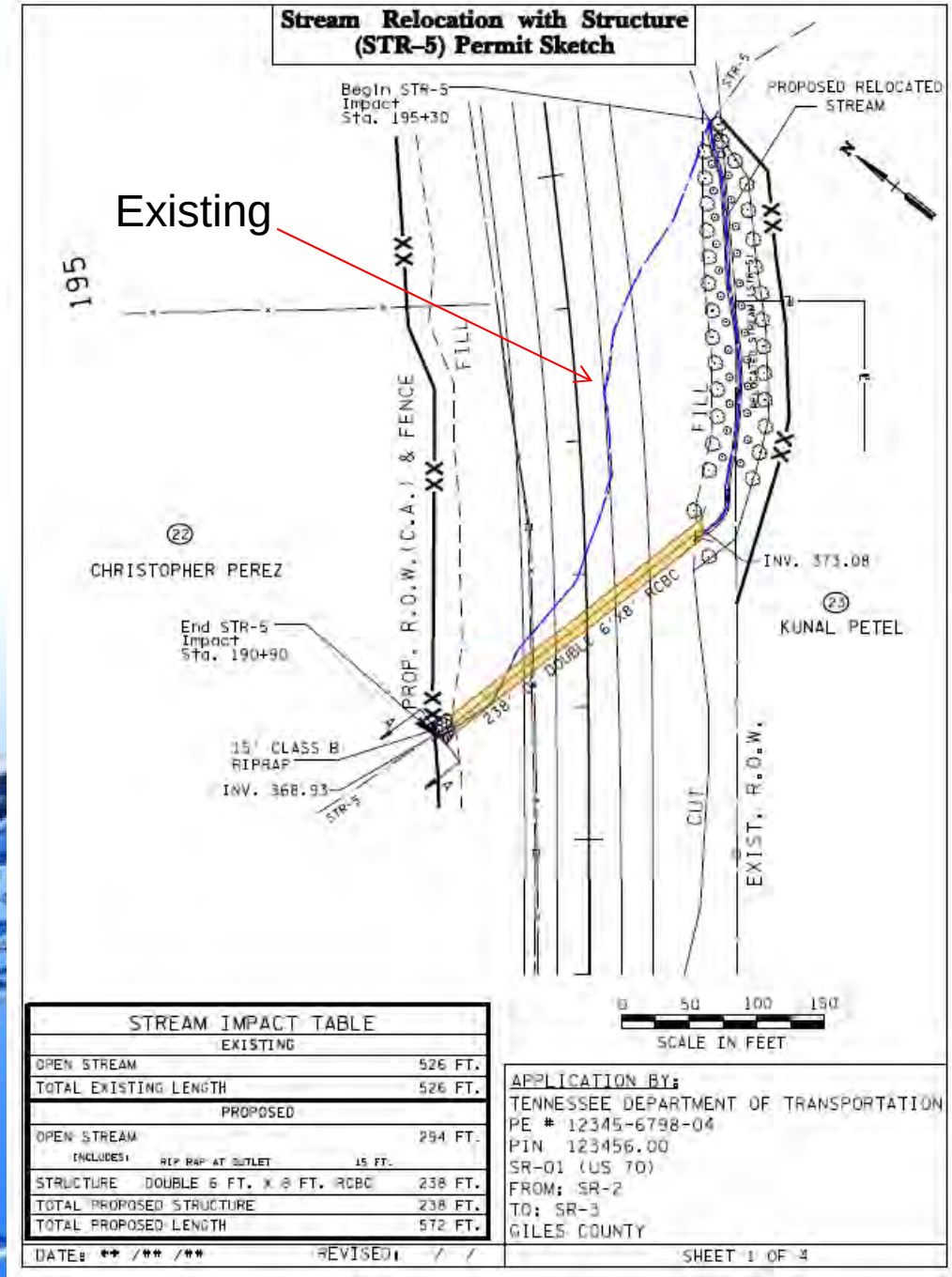
- Do not include structure lengths, only the actual open channel length
- Include rip-rap

Existing Structure Length

- Structure length plus u-shaped headwalls, dissipaters, concrete aprons , etc ….)

Total Existing Impact Length

- Existing open channel length plus existing structure length



Permit Sketch

Measuring Proposed

Proposed Open Channel Length

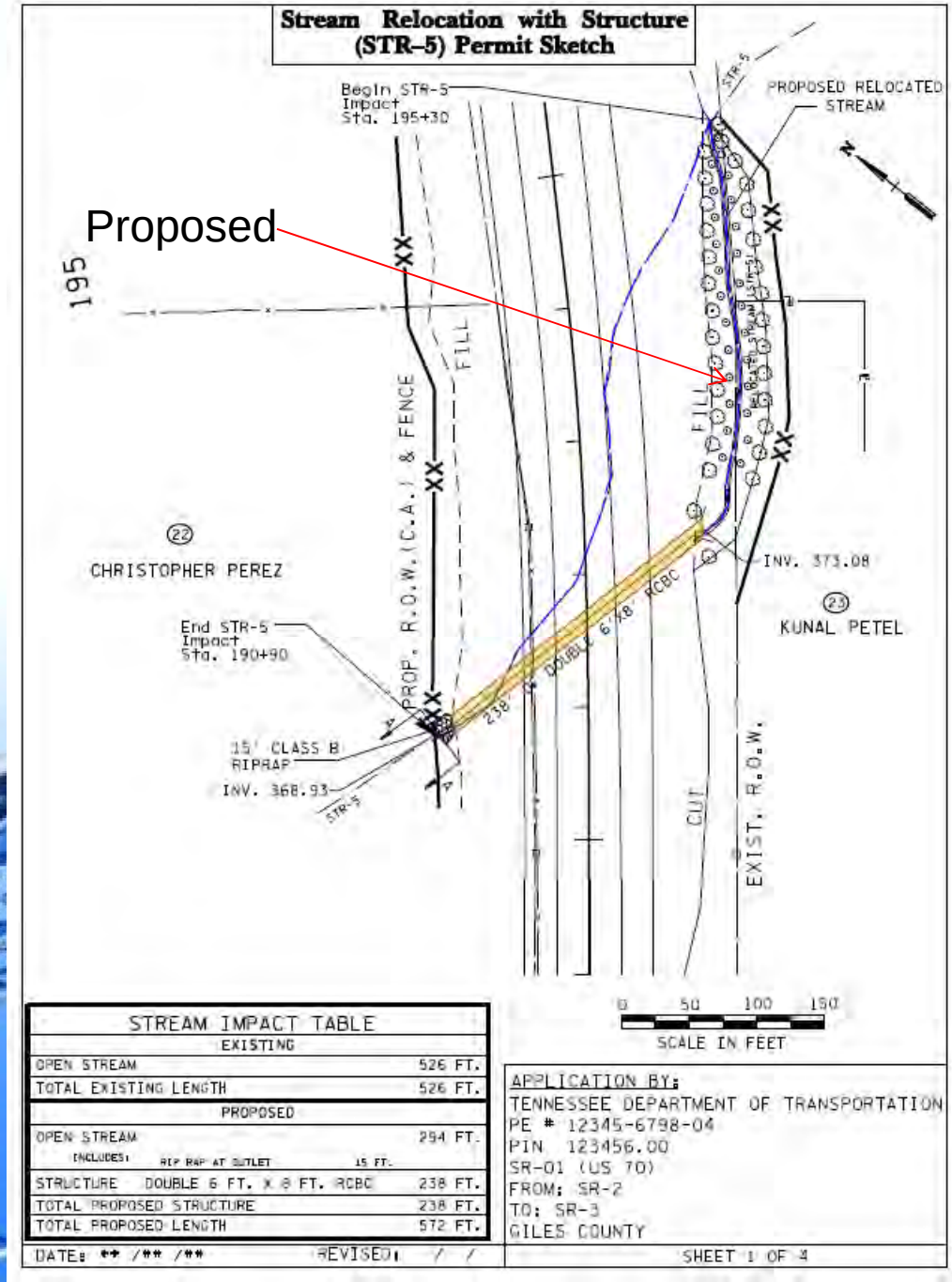
- Do not include structure lengths, only the actual open channel length
- Include rip-rap

Proposed Structure Length

- Structure length plus u-shaped headwalls, dissipaters, concrete aprons , etc. ….)

Total Proposed Impact Length

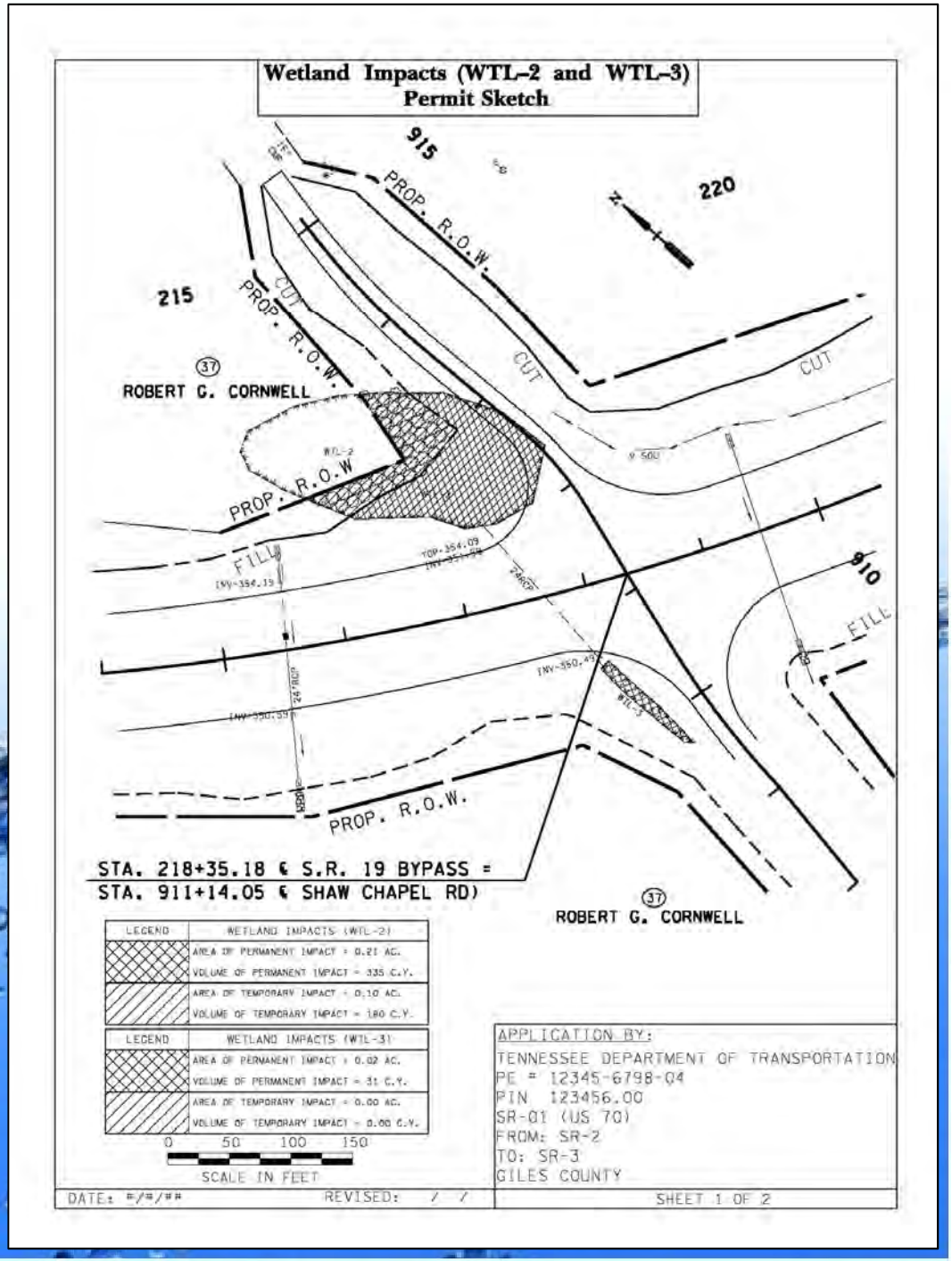
- Proposed open channel length plus proposed structure length



Permit Sketch

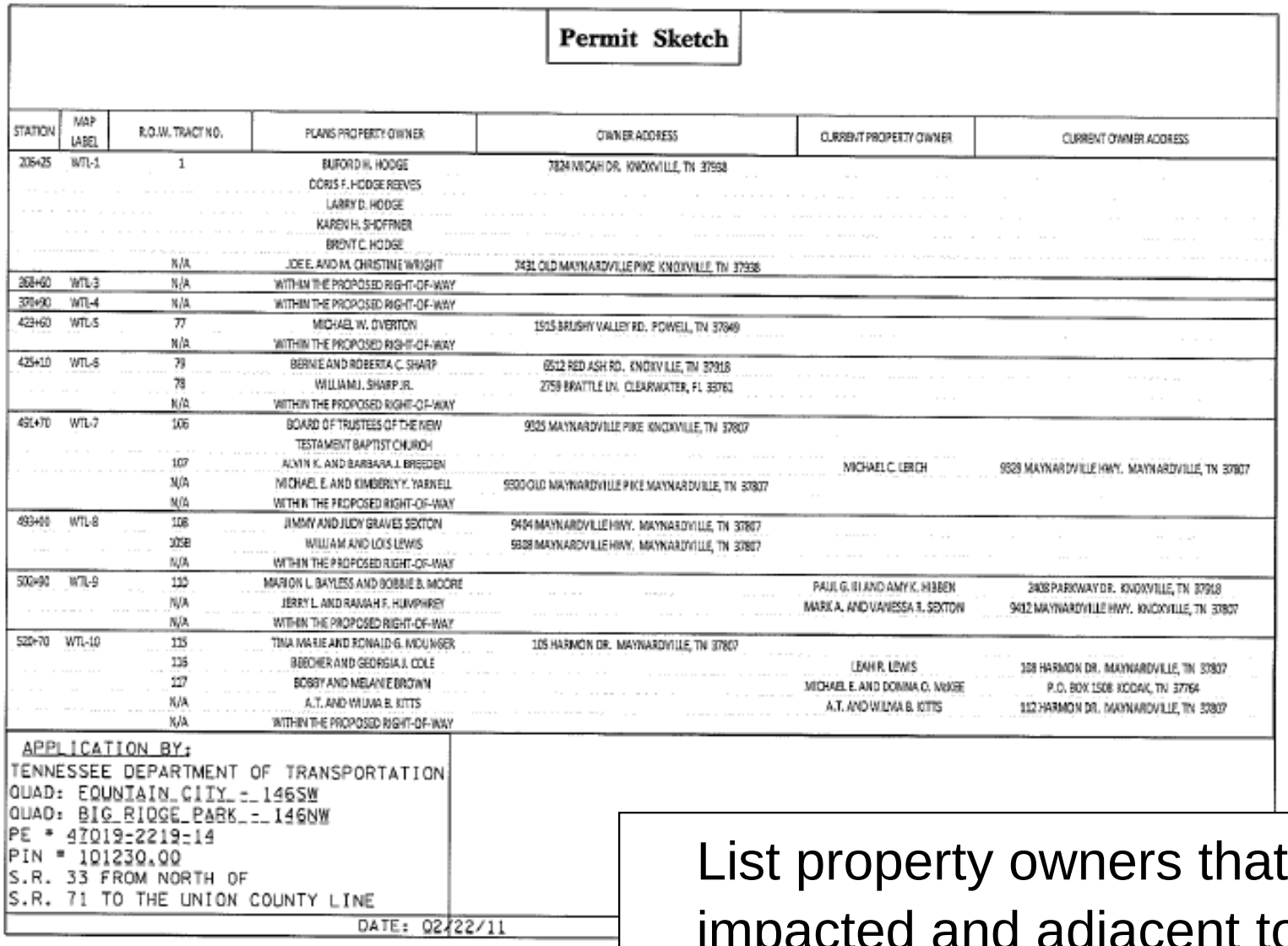
Wetlands

- Impact Boundaries & Hatching
- Impact Table
  - Temporary & Permanent Impact Areas
  - Temporary & Permanent Fill Volume
- Mitigation & Notes Listed in EB



Permit Sketch

Property Owners



Permit Sketch

STATION	MAP LABEL	R.O.W. TRACT NO.	PLANS PROPERTY OWNER	OWNER ADDRESS	CURRENT PROPERTY OWNER	CURRENT OWNER ADDRESS
206+25	WTL-1	1	BUFORD H. HODGE DORIS F. HODGE REEVES LARRY D. HODGE KAREN H. SHOFFNER BRENT C. HODGE	7824 MICAH DR. KNOXVILLE, TN 37938		
		N/A	JOE E. AND M. CHRISTINE WRIGHT	7431 OLD MAYNARDVILLE PIKE KNOXVILLE, TN 37938		
268+60	WTL-3	N/A	WITHIN THE PROPOSED RIGHT-OF-WAY			
370+90	WTL-4	N/A	WITHIN THE PROPOSED RIGHT-OF-WAY			
423+60	WTL-5	77	MICHAEL W. OVERTON	1515 BRUSHY VALLEY RD. POWELL, TN 37849		
		N/A	WITHIN THE PROPOSED RIGHT-OF-WAY			
425+10	WTL-6	79	BERNIE AND ROBERTA C. SHARP	6512 RED ASH RD. KNOXVILLE, TN 37918		
		78	WILLIAM J. SHARP JR.	2759 BRATTLE LN. CLEARWATER, FL 33761		
		N/A	WITHIN THE PROPOSED RIGHT-OF-WAY			
491+70	WTL-7	106	BOARD OF TRUSTEES OF THE NEW TESTAMENT BAPTIST CHURCH	9525 MAYNARDVILLE PIKE KNOXVILLE, TN 37807		
		107	ALVIN K. AND BARBARA J. BREEDEN		MICHAEL C. LERCH	9528 MAYNARDVILLE HWY. MAYNARDVILLE, TN 37807
		N/A	MICHAEL E. AND KIMBERLY Y. YARNELL	9500 OLD MAYNARDVILLE PIKE MAYNARDVILLE, TN 37807		
		N/A	WITHIN THE PROPOSED RIGHT-OF-WAY			
493+60	WTL-8	108	JIMMY AND JUDY GRAVES SEXTON	9494 MAYNARDVILLE HWY. MAYNARDVILLE, TN 37807		
		105B	WILLIAM AND LOIS LEWIS	9538 MAYNARDVILLE HWY. MAYNARDVILLE, TN 37807		
		N/A	WITHIN THE PROPOSED RIGHT-OF-WAY			
502+90	WTL-9	110	MARION L. BAYLESS AND BOBBIE B. MOORE		PAUL G. III AND AMY K. HIBBEN	2808 PARKWAY DR. KNOXVILLE, TN 37918
		N/A	JERRY L. AND RANAH F. HUMPHREY		MARK A. AND VANESSA R. SEXTON	9412 MAYNARDVILLE HWY. KNOXVILLE, TN 37807
		N/A	WITHIN THE PROPOSED RIGHT-OF-WAY			
520+70	WTL-10	115	TINA MARIE AND RONALD G. MOUNGER	105 HARMON DR. MAYNARDVILLE, TN 37807		
		116	BEECHER AND GEORGIA J. COLE		LEAH R. LEWIS	108 HARMON DR. MAYNARDVILLE, TN 37807
		117	BOBBY AND MELANIE BROWN		MICHAEL E. AND DONNA O. McKEE	P.O. BOX 1508 KODAK, TN 37764
		N/A	A.T. AND WILMA B. KITTS		A.T. AND WILMA B. KITTS	112 HARMON DR. MAYNARDVILLE, TN 37807
		N/A	WITHIN THE PROPOSED RIGHT-OF-WAY			

APPLICATION BY:
TENNESSEE DEPARTMENT OF TRANSPORTATION
QUAD: FOUNTAIN CITY - 146SW
QUAD: BIG RIDGE PARK - 146NW
PE # 47019-2219-14
PIN # 101230.00
S.R. 33 FROM NORTH OF
S.R. 71 TO THE UNION COUNTY LINE

DATE: 02/22/11

List property owners that are impacted and adjacent to all wetlands impacts

PERMIT TIMETABLE

- GARAP/Nationwide 404: 30 days
- IARAP/Nationwide 404: 90-120 days (3-4 months)
- I-404/401 Certification: 4 to 5 months
- TVA: Approximately 30-60 days AFTER TDEC issues permit

PERMITS MUST BE ISSUED BEFORE TURN IN

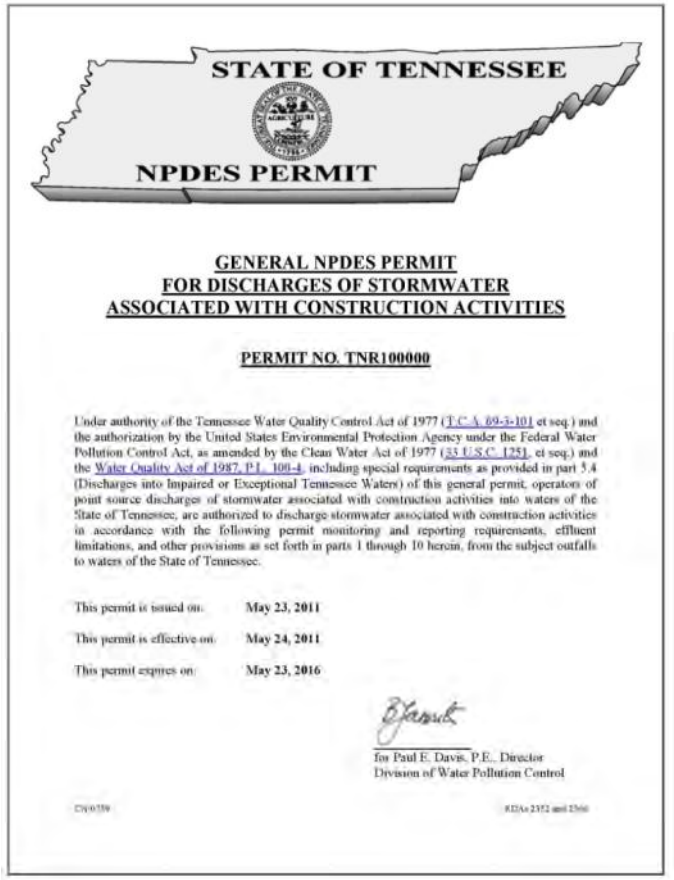
QUESTIONS!!!

TDOT DESIGN DIVISION

MODULE 2:

2011 TN NPDES GENERAL PERMIT FOR DISCHARGE OF STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES

Overview



STATE OF TENNESSEE

NPDES PERMIT

GENERAL NPDES PERMIT
FOR DISCHARGES OF STORMWATER
ASSOCIATED WITH CONSTRUCTION ACTIVITIES

PERMIT NO. TNR100000

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.) and the authorization by the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, et seq.) and the Water Quality Act of 1987, P.L. 100-4, including special requirements as provided in part 5.4 (Discharges into Impaired or Exceptional Tennessee Waters) of this general permit, operators of point source discharges of stormwater associated with construction activities into waters of the State of Tennessee, are authorized to discharge stormwater associated with construction activities in accordance with the following permit monitoring and reporting requirements, effluent limitations, and other provisions as set forth in parts 1 through 10 herein, from the subject outfalls to waters of the State of Tennessee.

This permit is issued on: **May 23, 2011**

This permit is effective on: **May 24, 2011**

This permit expires on: **May 23, 2016**

for Paul E. Davis, P.E., Director
Division of Water Pollution Control

- CGP
  - Issue date: May 23, 2011
  - Effective date: May 24, 2011
  - Expiration date: May 23, 2016

- CGP authorizes *point source* discharges of stormwater from construction activities (outfalls)
- Required for land disturbances of 1 acre or more
- Includes support activities (borrow and waste areas, concrete and asphalt plants, staging yards, material storage areas, etc.)

Overview

Tennessee is Granted Primacy by EPA to Oversee the State NPDES Program

- Managed by the Tennessee Department of Environment & Conservation (TDEC) - Division of Water Pollution Control (WPC)
- Entitled – "*General NPDES Permit for Discharges of Stormwater Associated with Construction Activities" or "Construction General Permit"* (CGP)

TDEC CGP

Section 1: Coverage Under This General Permit

1.2.3. Non-stormwater discharges

- Dewatering of work areas of stormwater and ground water may require (added):
  - filtering
  - chemical treatment

1.5.1 Notice of Coverage (NOC)

- Issuance of a NOC for any site requiring other permits (i.e. ARAPs) may be:
  - delayed or
  - not issued until the other permits have been issued or resolved

TDEC CGP

Section 3: SWPPP Requirements

3.1. The General Purpose of the SWPPP

- A site-specific SWPPP must be developed for each construction project
- The design, inspection and maintenance of Best Management Practices (BMPs) must be:
  - described in the SWPPP
  - prepared in accordance with good engineering practices
- Permit allows use of innovative or alternative BMPs
  - performance has been documented to be equivalent or superior to conventional BMPs
  - certified by the SWPPP/EPSC designer

TDEC CGP

Section 3: SWPPP Requirements

3.1.1. Registered engineer or landscape architect requirement

- SWPPP narrative (SWPPP Consultant or TDOT ED) may be prepared by:
  - CPESC or
  - TDEC Level II (new)
- Plans and specifications requiring structural, hydraulic, hydrologic or other engineering calculations be *stamped and certified* by PE or LA

TDEC CGP

Section 3: SWPPP Requirements

3.5 Components of the SWPPP

- Site description
- Description of stormwater runoff controls
- Erosion prevention and sediment controls (EPSC Plans)
- Stabilization practices
- Structural practices
- Stormwater management
- Other items needing control
- Maintenance
- Inspections
- Pollution prevention measures for non-stormwater discharges
- Documentation of permit eligibility related to TMDLs (303d siltation or habitat alteration)

TDEC CGP

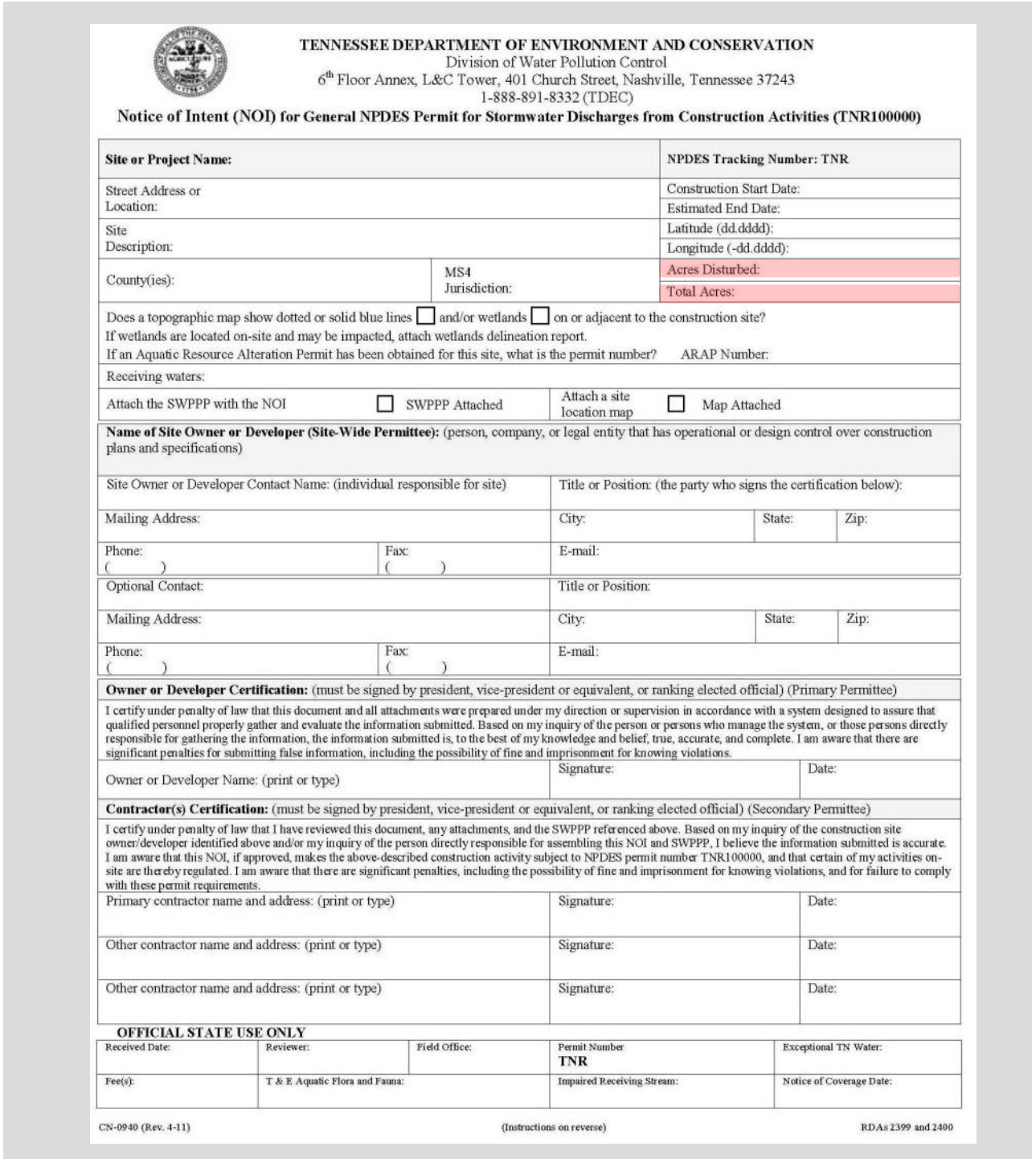
Section 3: SWPPP Requirements

3.5.1. Site description

- c) estimates of the total area:
  - of the site (project area)
  - disturbed area
- f) estimate of the percentage of impervious area:
  - before and
  - after construction
- n) limits of disturbance shall be:
  - clearly marked in the SWPPP (EPSC plans) and
  - areas to be undisturbed clearly marked in the field before construction activities begin

TDEC CGP

Section 2: Notice of Intent (NOI) Requirements



TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Water Pollution Control
6th Floor Annex, L&C Tower, 401 Church Street, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

Notice of Intent (NOI) for General NPDES Permit for Stormwater Discharges from Construction Activities (TNR100000)

Site or Project Name:		**NPDES Tracking Number: TNR**
Street Address or Location:		Construction Start Date:
		Estimated End Date:
Site Description:		Latitude (dd.dddd):
		Longitude (-dd.dddd):
County(ies):	MS4 Jurisdiction:	Acres Disturbed:
		Total Acres:

Does a topographic map show dotted or solid blue lines ☐ and/or wetlands ☐ on or adjacent to the construction site?
If wetlands are located on-site and may be impacted, attach wetlands delineation report.
If an Aquatic Resource Alteration Permit has been obtained for this site, what is the permit number? ARAP Number:

Receiving waters:

Attach the SWPPP with the NOI ☐ SWPPP Attached | Attach a site location map ☐ Map Attached

Name of Site Owner or Developer (Site-Wide Permittee): (person, company, or legal entity that has operational or design control over construction plans and specifications)

Site Owner or Developer Contact Name: (individual responsible for site)		Title or Position: (the party who signs the certification below):		
Mailing Address:		City:	State:	Zip:
Phone: ( )	Fax: ( )	E-mail:		
Optional Contact:		Title or Position:		
Mailing Address:		City:	State:	Zip:
Phone: ( )	Fax: ( )	E-mail:		

Owner or Developer Certification: (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 under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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.

Owner or Developer Name: (print or type)	Signature:	Date:

Contractor(s) Certification: (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.

Primary contractor name and address: (print or type)	Signature:	Date:
Other contractor name and address: (print or type)	Signature:	Date:
Other contractor name and address: (print or type)	Signature:	Date:

OFFICIAL STATE USE ONLY

Received Date:	Reviewer:	Field Office:	Permit Number **TNR**	Exceptional TN Water:
Fee(s):	T & E Aquatic Flora and Fauna:		Impaired Receiving Stream:	Notice of Coverage Date:

CN-0940 (Rev. 4-11) (Instructions on reverse) RDAs 2399 and 2400

TDEC CGP

Section 3: SWPPP Requirements

3.5.2. Description of stormwater runoff controls

EPSC plans that reflect construction phases (i.e. initial, interim grading, final, etc.) should be depicted on multiple plan sheets

EPSC staging

- One sheet depicting *all* EPSC that will be used during the life of the project *will not* be considered complete
- Sites disturbance
  - <5 acres – minimum of 2 stages of EPSC (initial/clearing and final)
  - >5 acres - minimum of 3 stages of EPSC (initial/clearing, interim and final)

TDEC CGP

Section 3: SWPPP Requirements

3.5.3 Erosion prevention and sediment controls

- a) Erosion prevention controls designed to *eliminate* the dislodging and suspension of soil in water
- b) Proposed physical and/or chemical treatment must be:
  - researched
  - applied according to the manufacturer's guidelines
  - fully described in the SWPPP

TDEC CGP

Section 3: SWPPP Requirements

3.5.3 Erosion prevention and sediment controls

- h) Pre-construction vegetative ground cover shall not be destroyed, removed or disturbed more than 15 days (previously 10 days) prior to grading or earth moving unless the area is seeded and/or mulched or other temporary cover is installed

- k) Construction project phasing
  - Required for all sites regardless of size
  - Off-site borrow or waste areas are to be included in the 50 acres of disturbance if associated with construction support activities

TDEC CGP

Section 3: SWPPP Requirements

3.5.3.1. EPSC General criteria and requirements (cont.)

- k) 50 acre limitation does not apply to linear construction projects if the following conditions are met:
  - where *no one area* of active soil disturbance is greater than 50 acres and the various areas of disturbance have *distinct receiving waters*; or
  - where *contiguous disturbances* amount to greater than 50 acres, but no one *distinct water* is receiving run off from more than 50 disturbed acres; or
  - with the department's written concurrence, where more than 50 acres of disturbance is to occur and where one receiving water will receive run-off from more than 50 acres; or
  - where *no one area* of active soil disturbance is greater than 50 acres and the various areas of disturbance are more than *5 miles apart*

TDEC CGP

Section 3: SWPPP Requirements

3.5.3.1. EPSC General criteria and requirements (cont.)

- n)
  - offsite vehicle tracking of sediments and the generation of dust shall be minimized
  - construction entrances shall be described and implemented

TDEC CGP

Section 3: SWPPP Requirements

3.5.3.2 Stabilization practices

- Steep slopes shall be temporarily stabilized not later then 7 days after construction activity on the slope has temporarily or permanently ceased

Steep Slopes

- A natural or created slope of 35% grade (>3:1 slope)
- No height restrictions
- Designers must pay special attention to stormwater management to convey runoff non-erosively around or over a steep slope

TDEC CGP

Section 3: SWPPP Requirements

3.5.3.3 Structural practices

- 2-year and 5-year design storm depths and intensities derived:
  - from total rainfall in the designated period or
  - the equivalent *intensity*

- A drainage area (onsite + offsite) of 10 or more acres includes:
  - both disturbed and undisturbed portions of the site or
  - areas adjacent to the site

  all draining through the common outfall

TDEC CGP

Section 3: SWPPP Requirements

3.5.9. Pollution prevention measures for non-stormwater discharges

- Estimated volume of the non-stormwater component(s) of the discharge must be included in the design of all impacted control measures
  - dewatering of work areas (sediment filter bags)
  - water for dust control
  - waterline flushings
  - groundwater
  - wash areas

Non-Stormwater Discharges

Sediment filter bags

Dust control

TDEC CGP

Section 4: Construction and Development Effluent Guidelines

New section that includes non-numeric effluent limitations for the following:

- EPSC
- Buffer zones
- Pre-approved sites
- Soil stabilization
- Dewatering
- Pollution prevention measures
- Prohibited discharges
- Surface outlets

TDEC CGP

Section 4: Construction and Development Effluent Guidelines

4.1.1. Erosion Prevention and Sediment Controls

EPSC must be *designed*, installed and maintained to:

- Control stormwater *volume and velocity* within the site to minimize soil erosion
- Control stormwater discharges, including both *peak flows and total stormwater volume*, to minimize erosion at outlets, stream channels and streams banks
- Minimize the amount of soil exposed
- Minimize the disturbance of steep slopes

TDEC CGP

Section 4: Construction and Development Effluent Guidelines

4.1.1. Erosion Prevention and Sediment Controls (cont.)

- Eliminate sediment discharges from the site
- *Design*, installation and maintenance of EPSC controls must address:
  - design storm (2 yr or 5 yr – 24 hour)
  - soil characteristics
  - include range of soil particle sizes expected to be present
- Provide and maintain natural buffers around surface waters
- Minimize soil compaction – preserve topsoil

TDEC CGP

Section 4: Construction and Development Effluent Guidelines

4.1.2. Buffer zone requirements

- Applicable to all streams
  - 60 feet (on each side of stream) for impaired and exceptional TN waters (average width with a min. of 30 feet)
  - 30 feet (on each side of stream) for all other streams (average width with a min. of 15 feet)

- Identified using methodology from TDEC "Standard Operating Procedures for Hydrologic Determinations" (Qualified Hydrologic Professionals) – Ecology Section
- Ecology forms will be including this information in the future

TDEC CGP

Section 4: Construction and Development Effluent Guidelines

4.1.2. Buffer zone requirements (cont.)

- Are not primary sediment control structures
- Requirement does not apply to any valid ARAP or equivalent permit by federal agencies
- Buffer zone exemptions defined based on existing land uses

TDEC CGP

Section 4: Construction and Development Effluent Guidelines

4.1.2.2. Pre-Approved Sites

- TDOT projects are exempt from buffer zone requirements if final TDOT right-of-way plans were finalized before February 1, 2010

TDEC CGP

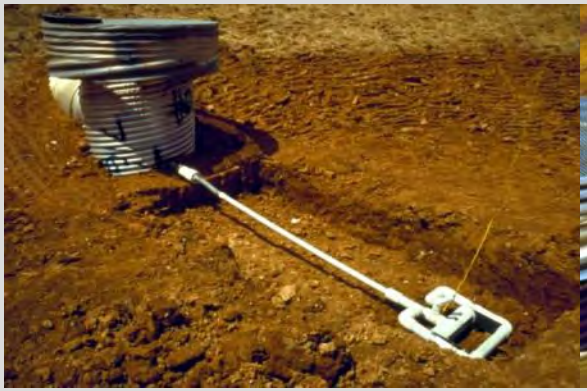
Section 4: Construction and Development Effluent Guidelines

4.1.4. Dewatering

- Discharges from dewatering activities are prohibited unless managed by controls providing equivalent level of treatment (filters – i.e. sediment filter bags)

4.1.7 Surface Outlets

- Discharges from basins and impoundments, utilize outlet structures that only withdraw water from near the surface of the basin or impoundment (i.e. Faircloth skimmer)



TDEC CGP

Surface Outlets Design

4.1.7 Surface Outlets

- "Sediment Basin" definition updated to reflect new design components including:
  - forebay cell
  - permanent pool
  - primary spillway with secondary or emergency spillway
  - surface dewatering
- Size
  - includes shape
  - incoming runoff volume and peak flow
  - particle size
  - receiving stream classification (impaired or exceptional waters)
- TDOT in process of redesigning STD DWG.

TDEC CGP

Section 4: Construction and Development Effluent Guidelines

4.1.5. Pollution prevention measures

Measures must be *designed*, installed and maintained to minimize the:

- Discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters
- Exposure of building materials and products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater
- Discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures

TDEC CGP

Section 5: Special Conditions, Management Practices, and Other Non-Numeric Limitations

5.4.1. Additional SWPPP/BMP Requirements for discharges into impaired or exceptional TN Waters

- Includes discharges from sites upstream or within *"close proximity"* of the exceptional segment
  - TDOT/TDEC agreement defines close proximity as: the project is within a one mile flow length upstream of the KETW
- b) Requires SWPPP (EPSC plans part of) to be prepared by a person who has completed TDEC Level II
  - effective within 24 months (May 24, 2013)
  - copy of certification or training record for inspector included in the SWPPP

Questions?

TDOT DESIGN DIVISION

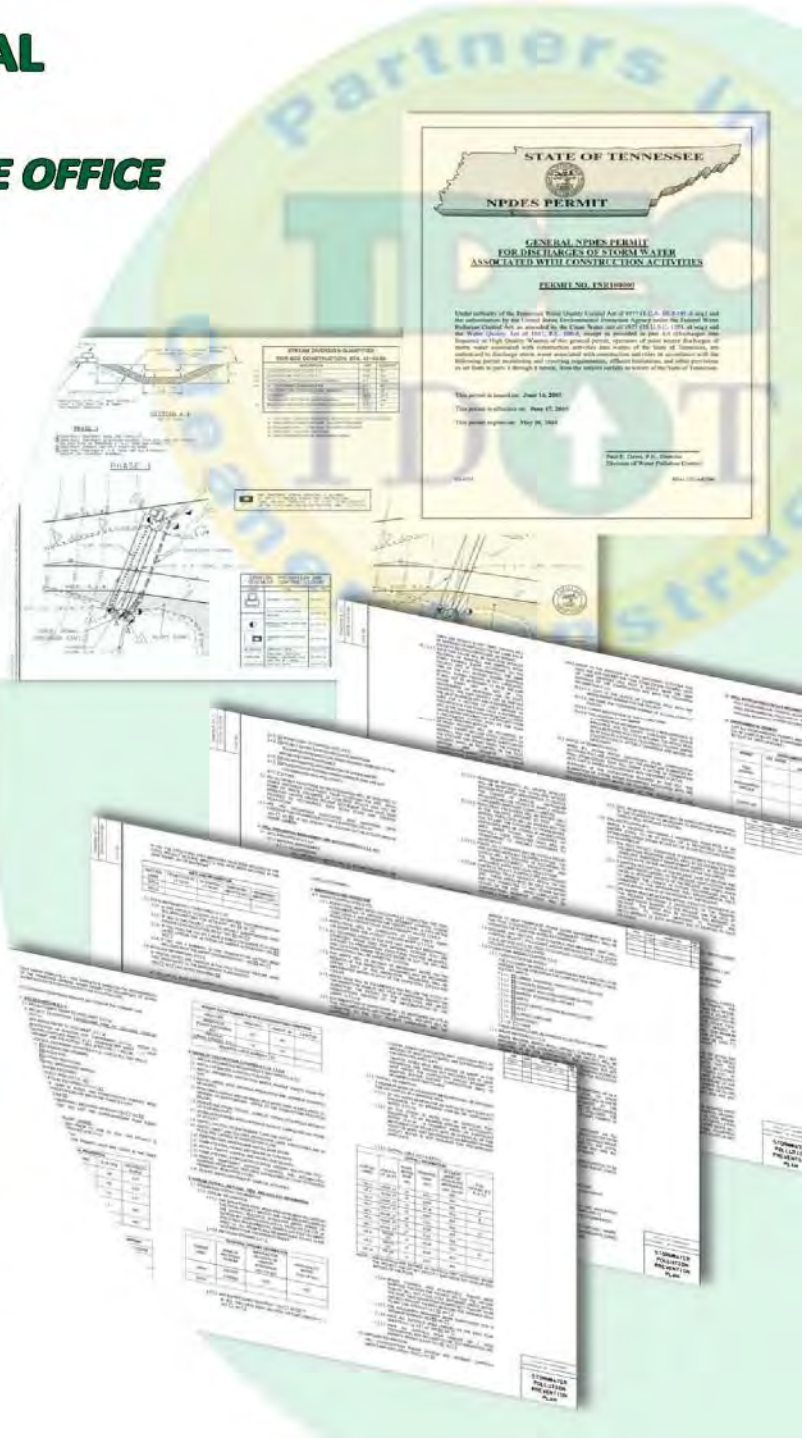
MODULE 3:

TDOT SWPPP Process

ENVIRONMENTAL DIVISION

NATURAL RESOURCE OFFICE

STORM WATER POLLUTION PREVENTION PLAN MANUAL



TDOT

Prepared By:

Palmer ENGINEERING

TDOT ARCADIS

TDOT ED Natural Resources Section

TDOT SWPPP's are produced by:

- In-house TDOT Staff

  and/or
- Consultants assigned by TDOT ED

Communication with TDOT Design Manager

SWPPP writers are to contact the TDOT Design Manager once they are assigned to a project.

Questions that may be asked by the SWPPP writer:

- What design stage is the project in? (Preliminary ROW, ROW or Construction)
- When is the next field review?
- Have there been any major design changes?
- Request to be placed on the distribution list for the next field review

Review Project Site

Watershed & Stream Designation Review

SWPPP writers are to review the project site including:

- Verify natural resources – streams, wetlands, springs, sinkholes etc. within and adjacent to the project site utilizing:
  - ecology report
  - design plans
  - USGS topographic map
- Verify TDEC's assessment for 303d impaired streams for siltation and/or habitat alteration:
  - fully-supporting
  - partially-supporting
  - not supporting or not assessed
- Known Exceptional Tennessee Waters (KETW) (high quality or Tier II waters)

Review Project Site

Watershed & Stream Designation Review

- Determine the watershed and sub watersheds in which the project discharges:
  - 8-digit Hydrologic Unit Code (HUC)

  and
  - 12-digit HUC
- Determine if the project directly discharges to:
  - a 303(d) listed stream

    or
  - if the project is located within a 1-mile flow length upstream of a designated KETW *(close proximity)*
- Review the TDEC Stream Impairment Assessment web-based mapping utility: http://tnmap.tn.gov/wpc/

Review Project Site

TMDL Review

- TDEC Total Maximum Daily Load (TMDL) website: http://www.tennessee.gov/environment/wpc/tmdl/approved.shtml
- Project located within a TMDL watershed?
- If yes, is site located in a sub-watershed with a Waste Load Allocation (WLA)?
- If yes, does the project discharge directly into an impaired stream?
- Answer Yes to all 3 questions - TDOT required to request consultation with TDEC to confirm adherence to the requirements of the General NPDES Permit for Discharges of Stormwater Associated with Construction Activities (CGP) for an approved TMDL for siltation

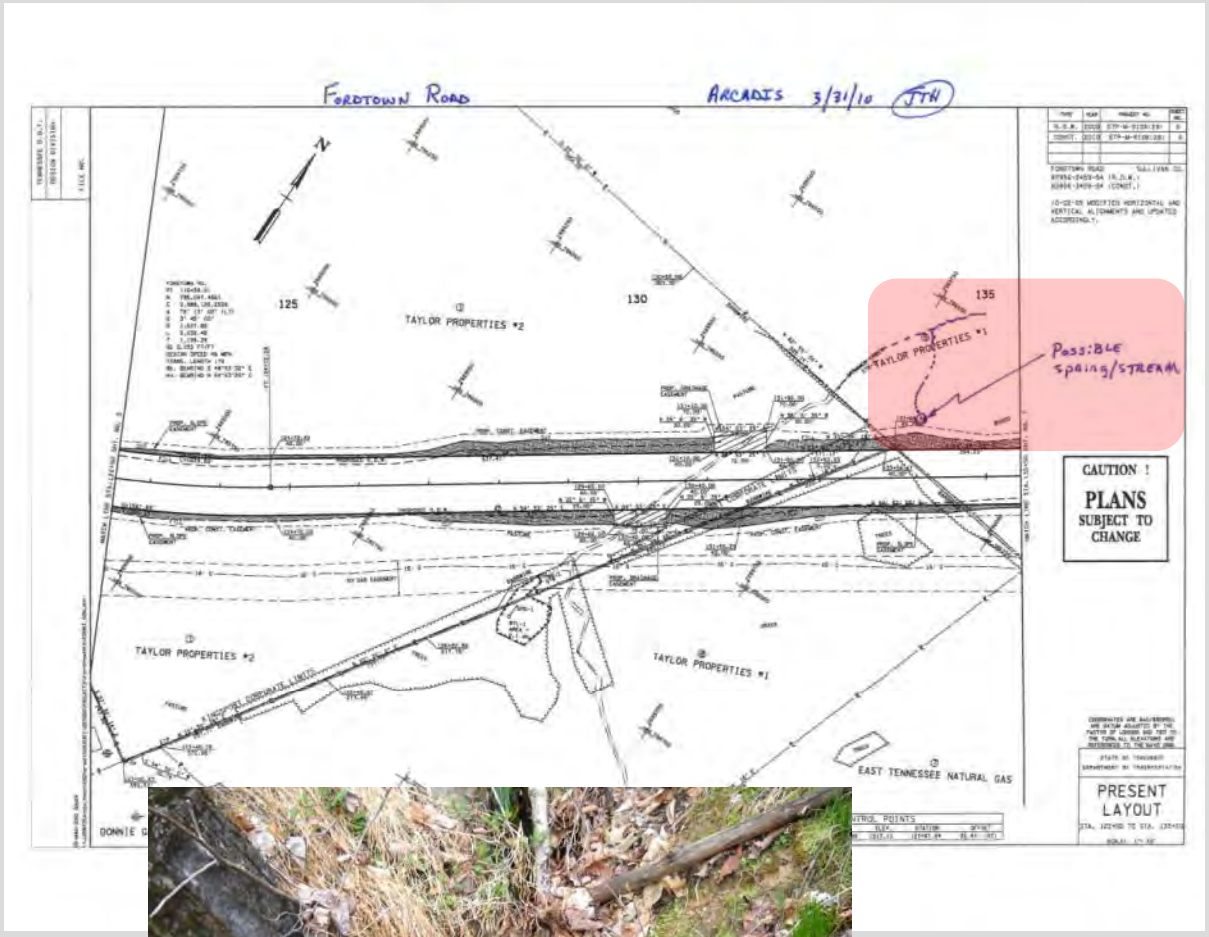
Review Project Site

- Perform a site visit to review:
  - on-site and adjacent topographic conditions and land uses
  - existing and proposed drainage patterns
  - existing erosion problems
  - additional jurisdictional features found
  - enough ROW or easements for EPSC installation and maintenance
- Knowing where things are makes it easier to discuss in field reviews

Review Project Site

Additional jurisdictional feature (spring/stream) found

TDOT Design Manager was notified



Review Project Site

Offsite drainage

Temporary stream crossing

Sediment filter bag locations

Review Project Site

Existing erosion

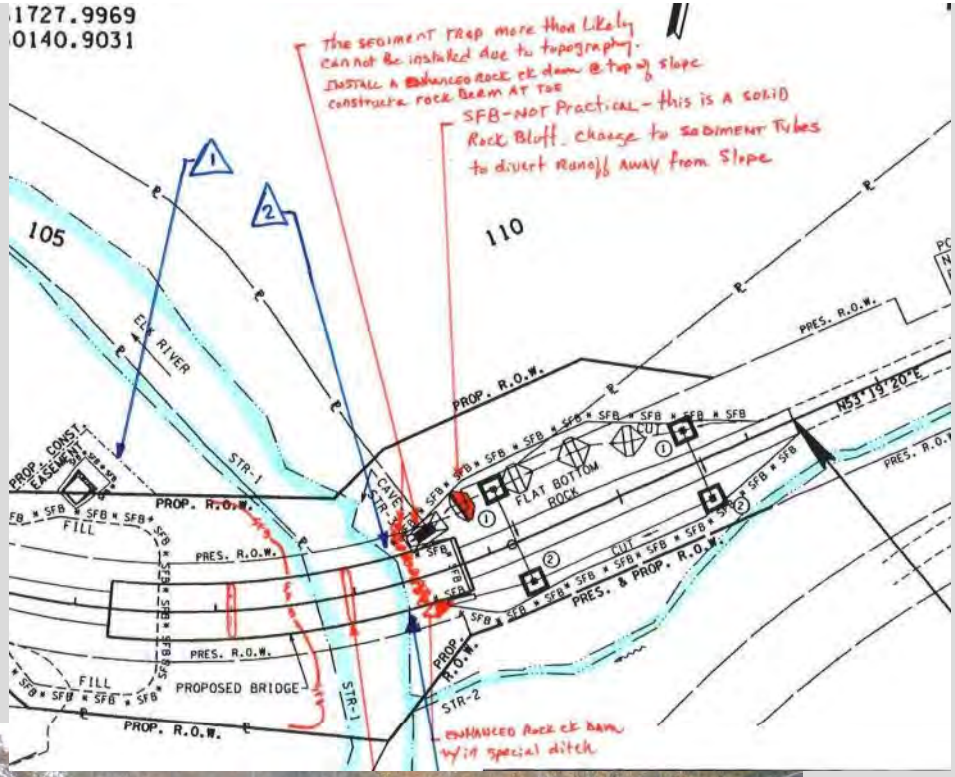
Curb inlets not identified or protected

Review Project Site

Bridge construction haul roads, jetties, barge access, etc.

Review Project Site

Site Condition Restraints



Preparing for Field Reviews

EPSC Plan Review

- Review the present, proposed and EPSC plans
- Are the EPSC plans phased?
  - The number of EPSC phases required provided
  - Existing contours depicted (combine with Phase I EPSC)
  - Proposed contours depicted (combine with Phase 2, 3 or later EPSC phases)
- Are utilities included in contract or by others?
  - If yes, are EPSC measures depicted for utility construction?

Preparing for Field Reviews

EPSC Plan Review

- All existing and proposed inlets (pipes, culverts, storm sewer) have appropriate inlet protection
- Existing drainage ditches are being protected (i.e. rock check dams, sediment tube ditch checks, etc.)
- Off-site water being diverted by diversion berms, sediment tubes or other methods
- Slope drains being utilized in low points of the diversion berms
- Each outfall has an appropriate EPSC BMP installed. (i.e. enhanced rock check dam, sediment tube ditch check, etc.)
- No EPSC measures are installed across streams
- Silt fence is not installed in concentrated flow areas (ditches, swales, etc.)
- Silt fence installed along the contour

Preparing for Field Reviews

EPSC Plan Review

- J-hooks should be added to silt fence not on contour to prevent undercutting
- Silt fence with backing (or other adequate BMPs) being utilized at the toe of large fill slopes
- Environmentally sensitive areas are protected with adequate BMPs.
- Silt fence with backing installed along stream banks (each side) and wetlands in existing and proposed conditions
- All streams must have a designated buffer zone (delineate with high visibility fencing)
- Temporary diversion channel or temporary diversion culvert is shown for all stream relocations
- Temporary stream crossings designated
- Suspended pipe diversions

Preparing for Field Reviews

EPSC Plan Review

- Graded solid rock being utilized to fill wetland areas as designated by Geotech
- Sediment filter bags provided during construction of:
  - box and pipe culverts on streams
  - stream diversions
  - Bridges over streams/wetlands
- Sediment filter bags – enough ROW or easements
- Construction exit(s) depicted on the plans – multiple locations needed
- Haul roads, jetties, etc. necessary for bridge construction provided
- Special ecology notes added to the plans

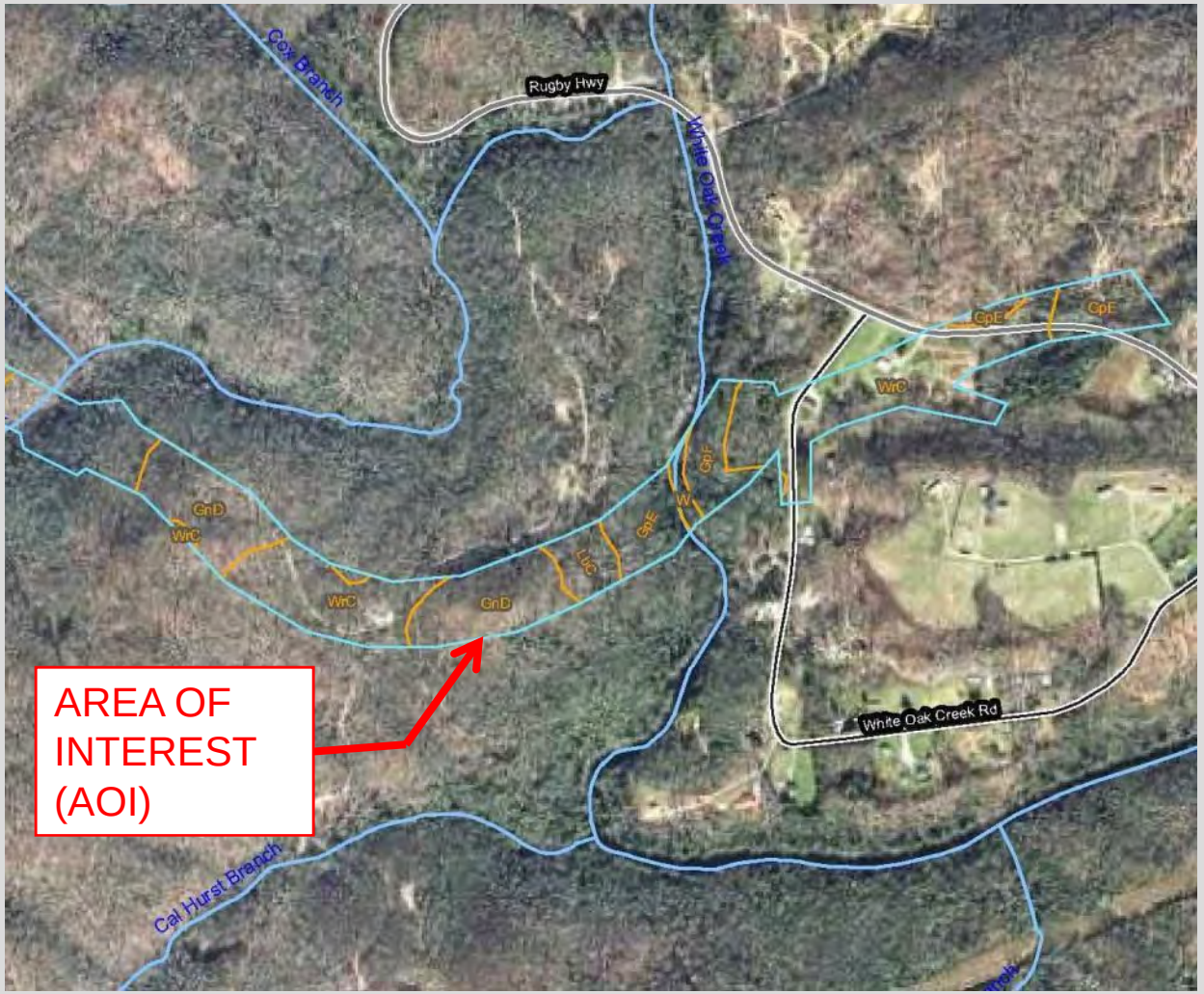
Preparing for Field Reviews

EPSC Plan Review

- Ensure all measures are designed and applied in accordance with:
  - TDOT standard drawings
  - Chapter 10 of “TDOT Design Division Drainage Manual”
  - Latest instructional bulletins (IB)
- Review the soil types your project is located in.
  - Hydrologic Soil Group (A-D soil)
  - Erodibility of the soil (k value)
  - High or low runoff potential

Preparing for Field Reviews

EPSC Plan Review



USDA WEB SOIL SURVEY (WSS)

http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

Preparing for Field Reviews

EPSC Plan Review

> K Value = The More Erodible The Soil Is

Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — Morgan County Area, Tennessee

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GnD	Gilpin silt loam, 12 to 20 percent slopes	C	15.9	15.1%
GpE	Gilpin-Petros complex, 20 to 35 percent slopes	C	26.9	25.5%
GpF	Gilpin-Petros complex, 35 to 80 percent slopes	C	3.1	3.0%
LbC	Lily loam, 5 to 12 percent slopes	B	2.3	2.2%
LgC	Lily-Gilpin complex, 5 to 12 percent slopes	B	2.3	2.2%
W	Water		0.8	0.8%
WrB	Wernock silt loam, 2 to 5 percent slopes	B	17.0	16.1%
WrC	Wernock silt loam, 5 to 12 percent slopes	B	37.1	35.3%
Subtotals for Soil Survey Area			105.3	100.0%
Totals for Area of Interest			105.3	100.0%

43.7% of the soils (C) will have a high rate of runoff during construction

Tables — K Factor, Whole Soil — Summary By Map Unit

Summary by Map Unit — Morgan County Area, Tennessee

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GnD	GILPIN SILT LOAM, 12 TO 20 PERCENT SLOPES	.32	15.9	15.1%
GpE	GILPIN-PETROS COMPLEX, 20 TO 35 PERCENT SLOPES	.32	26.9	25.5%
GpF	GILPIN-PETROS COMPLEX, 35 TO 80 PERCENT SLOPES	.32	3.1	3.0%
LbC	LILY LOAM, 5 TO 12 PERCENT SLOPES	.28	2.3	2.2%
LgC	LILY-GILPIN COMPLEX, 5 TO 12 PERCENT SLOPES	.28	2.3	2.2%
W	WATER		0.8	0.8%
WrB	WERNOCK SILT LOAM, 2 TO 5 PERCENT SLOPES	.37	17.0	16.1%
WrC	WERNOCK SILT LOAM, 5 TO 12 PERCENT SLOPES	.37	37.1	35.3%
Subtotals for Soil Survey Area			105.3	100.0%
Totals for Area of Interest			105.3	100.0%

54.1% of the soils (0.37) will have a high rate of sediment loss during construction

Soils Summary

Hydrologic Soil Groups (HSG)
4 Types (A, B, C, D)

Higher CN or "C" Factor = More Runoff Potential

HYDROLOGIC SOIL GROUP

A (SAND) ⟷ D (CLAY)

RUNOFF POTENTIAL

LESS ⟷ MORE

Cover Description	Curve Numbers for Hydrologic Soil Group			
	A	B	C	D
Impervious areas:				
Paved parking lots, roofs, driveways, etc. (excluding ROW)	98	98	98	98
Streets and roads:				
Paved: curbs and strom sewers (excluding ROW)	98	98	98	98
Paved: open ditches (including ROW)	83	89	92	93
Gravel (including ROW)	76	85	89	91
Dirt (including ROW)	72	82	87	89
Newly graded areas (pervious areas only, no vegetation)	**77**	**86**	**91**	**94**
Meadow - continous grass	30	58	71	78
Woods - good condition	30	55	70	77

Attending Field Reviews

- Provide watershed information: 303d status (siltation or habitat alteration) or KETW
- SWPPP writers are to explain their recommendations – why it is needed not because they think it needs to be that way
- Their recommendations should be consistent with IB's, Drainage Manual, Std. Drawings, etc.

Attending Field Reviews

Common sheets that comments may be made

- Index and Standard Drawings
  - ❖SWPPP sheets to be added to index:

    S series (S-1, S-2, etc.)
- Estimated Roadway Quantities
  - ❖Request following note to be added below the quantities table

    "All quantities are to be used as directed by the engineer."
- Typical Sections and Details
  - ❖Stabilization of slopes and ditches
- Special Ditch Sections
  - ❖Stabilization, lining, dimensions, etc.

Attending Field Reviews

Common sheets that comments may be made

- General and Special Notes
  - Latest edition
  - All applicable notes shown
  - Special ecology notes added
- Present/Proposed Plan Sheets
  - Drainage concerns
- Culvert X-Sections
  - Outlet protection depicted, type, length, depth, etc.
- Drainage Maps provided
- EPSC Notes
  - Latest edition
  - Utility EPSC notes needed
- EPSC Plan Sheets

Attending Field Reviews

- Construction Division representative – get their input. They are building the project.
- Never let the statement “Construction will take care of it in the field” go unaddressed in regard to stormwater and EPSC
- Not every single phase of EPSC can be reflected in the plans. (There are an infinite number of phases)
- Add notes on EPSC plan and other sheets for additional guidance if needed

Issuing Comments

- Plans versus type written comments are to be provided to the TDOT Design Manager and design consultant (if applicable)
- To be provided within 2 weeks after the field review

CT15033.0000-00001

Index Of Sheets

FOR INDEX OF SHEETS SEE SHEET 1A
(INDEX AND STANDARD DRAWINGS)

CFR COMMENTS BY ARCADIS

*TN KNOWN EXCEPTIONAL WATERS
- GLADY FORK
- UNNAMED TRIB. TO ROCKY RIVER

TENNESSEE R.O.W. | DESIGN DIVISION | FILE NO.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING

TENN.	YEAR	SHEET NO.
	2010	1
FED. AID PROJ. NO.	APD/NHE-111(74)	
STATE PROJ. NO.	77005-3216-14	
	88027-3245-64	

SEQUATCHIE & VAN BUREN COUNTIES

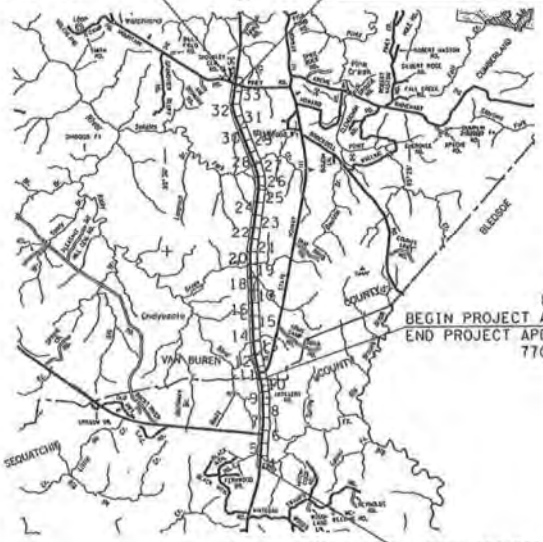
STATE ROUTE 111
FROM 3,500' SOUTH OF STATE ROUTE 8
TO 1,000' SOUTH OF SR 284 (WELCHLAND ROAD)

GRADE, DRAIN, PAVING, SIGNS

STATE HIGHWAY NO. 111 F.A.H.S. NO. 111

88027-3245-64
END PROJECT APD/NHE-111(74)
STA. 1026+00.00 CONST.

88027-3238-64
ADJOINING PROJECT APD/NHE-111(38)



88027-3245-64
BEGIN PROJECT APD/NHE-111(74) (VAN BUREN)
END PROJECT APD/NHE-111(74) (SEQUATCHIE)
77005-3216-14

77005-3216-14
BEGIN PROJECT APD/NHE-111(74)
STA. 634+00 CONST.

NO EXCLUSIONS
NO EQUATIONS

CONST. FIELD REVIEW

APPROVED:
CHIEF ENGINEER
DATE:
APPROVED:
COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED:
DIVISION ADMINISTRATOR DATE

SPECIAL NOTES

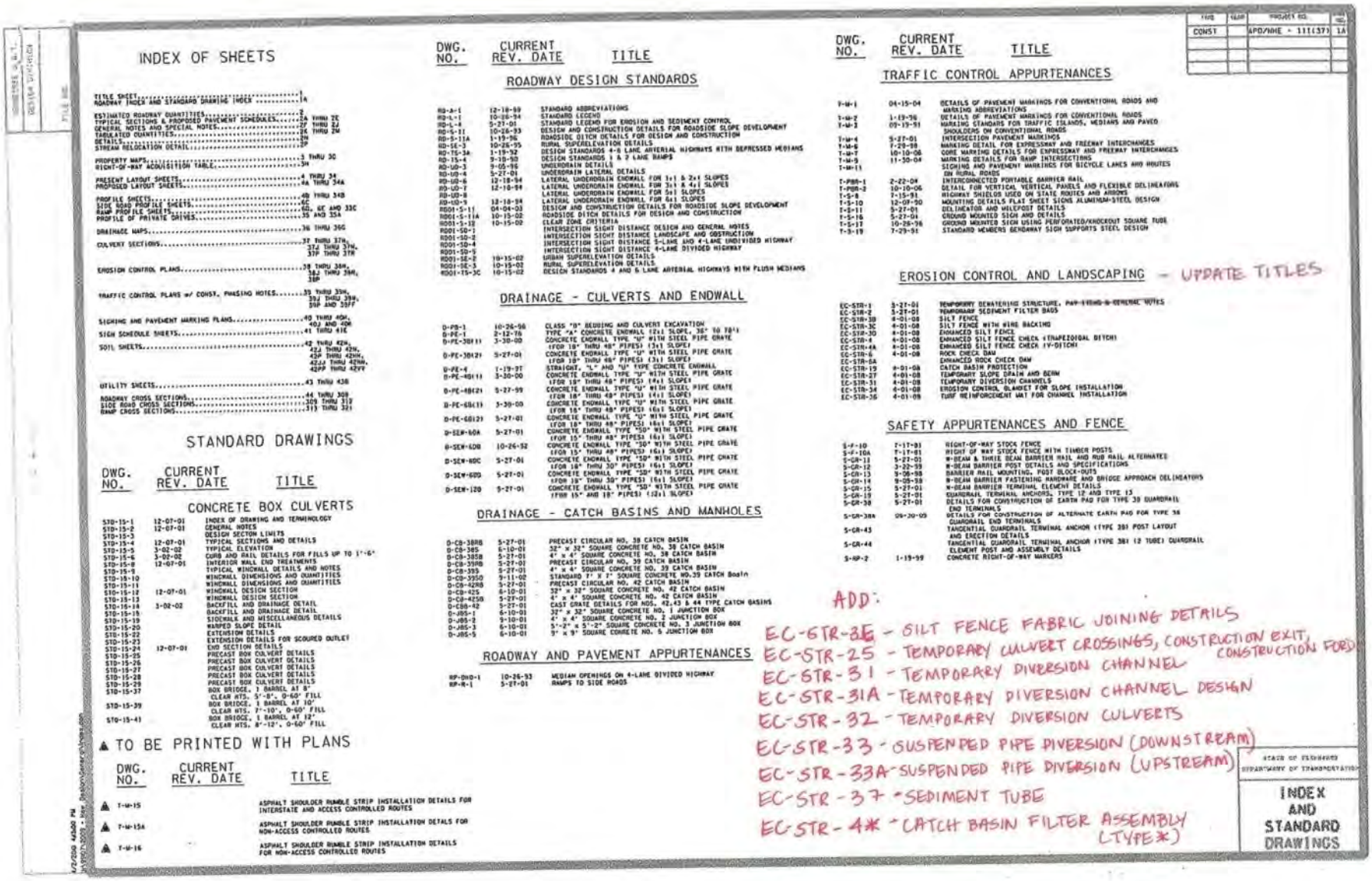
PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED MARCH 1, 2006 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT

TDOT DESIGN MANAGER James A. Johnston, PE
DESIGNER Albert Zimmerman, PE CHECKED BY Brian Johnson, PE
P.E. NO. 77005-1213-64, 88027-1231-64
PIN. 101038.00, 101038.01

	SEQUATCHIE	VAN BUREN	TOTAL
ROADWAY LENGTH	1.758 MILES	5.666 MILES	7.424 MILES
BRIDGE LENGTH	0.000 MILES	0.000 MILES	0.000 MILES
BOX BRIDGE LENGTH	0.000 MILES	0.000 MILES	0.000 MILES
PROJECT LENGTH	1.758 MILES	5.666 MILES	7.424 MILES

TRAFFIC DATA	
ADT (2016)	3,490
ADT (2030)	5,270
DHV (2030)	527
D	65 - 35
T (ADT)	22 %
T (DHV)	10 %
V	70 MPH



INDEX OF SHEETS

STANDARD DRAWINGS

CONCRETE BOX CULVERTS

DWG. NO.	CURRENT REV. DATE	TITLE
STD-15-1	12-07-01	INDEX OF DRAWING AND TERMINOLOGY
STD-15-2	12-07-01	GENERAL NOTES
STD-15-3		DESIGN SECTON LIMITS
STD-15-4	12-07-01	TYPICAL SECTIONS AND DETAILS
STD-15-5	3-02-02	TYPICAL ELEVATION
STD-15-6	3-02-02	CURB AND RAIL DETAILS FOR FILLS UP TO 1'-6"
STD-15-8	12-07-01	INTERIOR WALL END TREATMENTS
STD-15-9		TYPICAL WINGWALL DETAILS AND NOTES
STD-15-10		WINGWALL DIMENSIONS AND QUANTITIES
STD-15-11		WINGWALL DIMENSIONS AND QUANTITIES
STD-15-12	12-07-01	WINGWALL DESIGN SECTION
STD-15-13		WINGWALL DESIGN SECTION
STD-15-14	3-02-02	BACKFILL AND DRAINAGE DETAIL
STD-15-15		BACKFILL AND DRAINAGE DETAIL
STD-15-19		SIDEWALK AND MISCELLANEOUS DETAILS
STD-15-20		RAMPED SLOPE DETAIL
STD-15-22		EXTENSION DETAILS
STD-15-23		EXTENSION DETAILS FOR SCOURED OUTLET
STD-15-24	12-07-01	END SECTION DETAILS
STD-15-25		PRECAST BOX CULVERT DETAILS
STD-15-26		PRECAST BOX CULVERT DETAILS
STD-15-27		PRECAST BOX CULVERT DETAILS
STD-15-28		PRECAST BOX CULVERT DETAILS
STD-15-29		PRECAST BOX CULVERT DETAILS
STD-15-37		BOX BRIDGE, 1 BARREL AT 8' CLEAR HTS. 5'-8", 0-60° FILL
STD-15-39		BOX BRIDGE, 1 BARREL AT 10' CLEAR HTS. 7'-10", 0-60° FILL
STD-15-41		BOX BRIDGE, 1 BARREL AT 12' CLEAR HTS. 8'-12", 0-60° FILL

▲ TO BE PRINTED WITH PLANS

DWG. NO.	CURRENT REV. DATE	TITLE
▲ T-M-15		ASPHALT SHOULDER RUMBLE STRIP INSTALLATION DETAILS FOR INTERSTATE AND ACCESS CONTROLLED ROUTES
▲ T-M-15A		ASPHALT SHOULDER RUMBLE STRIP INSTALLATION DETAILS FOR NON-ACCESS CONTROLLED ROUTES
▲ T-M-16		ASPHALT SHOULDER RUMBLE STRIP INSTALLATION DETAILS FOR NON-ACCESS CONTROLLED ROUTES

ROADWAY DESIGN STANDARDS

DWG. NO.	CURRENT REV. DATE	TITLE
RD-A-1	12-10-99	STANDARD ABBREVIATIONS
RD-L-1	10-26-94	STANDARD LEGEND
RD-L-4	5-27-01	STANDARD LEGEND FOR EROSION AND SEDIMENT CONTROL
RD-S-11	10-26-93	DESIGN AND CONSTRUCTION DETAILS FOR ROADSIDE SLOPE DEVELOPMENT
RD-S-11A	1-19-96	ROADSIDE DITCH DETAILS FOR DESIGN AND CONSTRUCTION
RD-SE-3	10-26-95	RURAL SUPERELEVATION DETAILS
RD-TS-3A	1-19-92	DESIGN STANDARDS 4-6 LANE ARTERIAL HIGHWAYS WITH DEPRESSED MEDIANS
RD-15-4	9-10-90	DESIGN STANDARDS 1 & 2 LANE RAMPS
RD-UD-3	9-05-96	UNDERDRAIN DETAILS
RD-UD-4	5-27-01	UNDERDRAIN LATERAL DETAILS
RD-UD-6	12-18-94	LATERAL UNDERDRAIN ENDWALL FOR 1:1 & 2:1 SLOPES
RD-UD-7	12-10-94	LATERAL UNDERDRAIN ENDWALL FOR 3:1 & 4:1 SLOPES
RD-UD-8		LATERAL UNDERDRAIN ENDWALL FOR 5:1 SLOPES
RD-UD-9	12-18-94	LATERAL UNDERDRAIN ENDWALL FOR 6:1 SLOPES
RDDI-S-11	04-04-03	DESIGN AND CONSTRUCTION DETAILS FOR ROADSIDE SLOPE DEVELOPMENT
RDDI-S-11A	10-15-02	ROADSIDE DITCH DETAILS FOR DESIGN AND CONSTRUCTION
RDDI-S-12	10-15-02	CLEAR ZONE CRITERIA
RDDI-SD-1		INTERSECTION SIGHT DISTANCE DESIGN AND GENERAL NOTES
RDDI-SD-2		INTERSECTION SIGHT DISTANCE LANDSCAPE AND OBSTRUCTION
RDDI-SD-4		INTERSECTION SIGHT DISTANCE 5-LANE AND 4-LANE UNDIVIDED HIGHWAY
RDDI-SD-5		INTERSECTION SIGHT DISTANCE 4-LANE DIVIDED HIGHWAY
RDDI-SE-2	10-15-02	URBAN SUPERELEVATION DETAILS
RDDI-SE-3	10-15-02	RURAL SUPERELEVATION DETAILS
RDDI-TS-3C	10-15-02	DESIGN STANDARDS 4 AND 6 LANE ARTERIAL HIGHWAYS WITH PLUSH MEDIANS

DRAINAGE - CULVERTS AND ENDWALL

DWG. NO.	CURRENT REV. DATE	TITLE
D-PB-1	10-26-98	CLASS "B" BEDDING AND CULVERT EXCAVATION
D-PE-1	2-12-76	TYPE "A" CONCRETE ENDWALL (2:1 SLOPE, 30° TO 78°)
D-PE-38(1)	3-30-00	CONCRETE ENDWALL TYPE "U" WITH STEEL PIPE GRATE (FOR 18" THRU 48" PIPES) (3:1 SLOPE)
D-PE-38(2)	5-27-01	CONCRETE ENDWALL TYPE "U" WITH STEEL PIPE GRATE (FOR 18" THRU 48" PIPES) (3:1 SLOPE)
D-PE-4	1-19-27	STRAIGHT, "L" AND "U" TYPE CONCRETE ENDWALL
D-PE-4G(1)	3-30-00	CONCRETE ENDWALL TYPE "U" WITH STEEL PIPE GRATE (FOR 18" THRU 48" PIPES) (4:1 SLOPE)
D-PE-4B(2)	5-27-99	CONCRETE ENDWALL TYPE "U" WITH STEEL PIPE GRATE (FOR 18" THRU 48" PIPES) (4:1 SLOPE)
D-PE-6G(1)	3-30-00	CONCRETE ENDWALL TYPE "U" WITH STEEL PIPE GRATE (FOR 18" THRU 48" PIPES) (6:1 SLOPE)
D-PE-6B(2)	5-27-01	CONCRETE ENDWALL TYPE "U" WITH STEEL PIPE GRATE (FOR 18" THRU 48" PIPES) (6:1 SLOPE)
D-SEW-50A	5-27-01	CONCRETE ENDWALL TYPE "50" WITH STEEL PIPE GRATE (FOR 15" THRU 48" PIPES) (6:1 SLOPE)
D-SEW-50B	10-26-92	CONCRETE ENDWALL TYPE "50" WITH STEEL PIPE GRATE (FOR 15" THRU 48" PIPES) (6:1 SLOPE)
D-SEW-50C	5-27-01	CONCRETE ENDWALL TYPE "50" WITH STEEL PIPE GRATE (FOR 18" THRU 30" PIPES) (6:1 SLOPE)
D-SEW-50D	5-27-01	CONCRETE ENDWALL TYPE "50" WITH STEEL PIPE GRATE (FOR 18" THRU 30" PIPES) (6:1 SLOPE)
D-SEW-120	5-27-01	CONCRETE ENDWALL TYPE "50" WITH STEEL PIPE GRATE (FOR 15" AND 18" PIPES) (12:1 SLOPE)

DRAINAGE - CATCH BASINS AND MANHOLES

DWG. NO.	CURRENT REV. DATE	TITLE
D-CB-38RB	5-27-01	PRECAST CIRCULAR NO. 38 CATCH BASIN
D-CB-38S	6-10-01	32" x 32" SQUARE CONCRETE NO. 38 CATCH BASIN
D-CB-38SB	5-27-01	4' x 4' SQUARE CONCRETE NO. 38 CATCH BASIN
D-CB-39RB	5-27-01	PRECAST CIRCULAR NO. 39 CATCH BASIN
D-CB-39S	5-27-01	4' x 4' SQUARE CONCRETE NO. 39 CATCH BASIN
D-CB-39SD	9-11-02	STANDARD 7' X 7' SQUARE CONCRETE NO.39 CATCH Basin
D-CB-42RB	5-27-01	PRECAST CIRCULAR NO. 42 CATCH BASIN
D-CB-42S	6-10-01	32" x 32" SQUARE CONCRETE NO. 42 CATCH BASIN
D-CB-42SB	5-27-01	4' x 4' SQUARE CONCRETE NO. 42 CATCH BASIN
D-CBB-42	5-27-01	CAST GRATE DETAILS FOR NOS. 42,43 & 44 TYPE CATCH BASINS
D-JBS-1	6-10-01	32" x 32" SQUARE CONCRETE NO. 1 JUNCTION BOX
D-JBS-2	9-10-01	4' x 4' SQUARE CONCRETE NO. 2 JUNCTION BOX
D-JBS-3	6-10-01	5'-2" x 5'-2" SQUARE CONCRETE NO. 3 JUNCTION BOX
D-JBS-5	6-10-01	9' x 9' SQUARE CONRETE NO. 5 JUNCTION BOX

ROADWAY AND PAVEMENT APPURTENANCES

DWG. NO.	CURRENT REV. DATE	TITLE
RP-DHD-1	10-26-93	MEDIAN OPENINGS ON 4-LANE DIVIDED HIGHWAY
RP-R-1	5-27-01	RAMPS TO SIDE ROADS

TRAFFIC CONTROL APPURTENANCES

DWG. NO.	CURRENT REV. DATE	TITLE
T-M-1	04-15-04	DETAILS OF PAVEMENT MARKINGS FOR CONVENTIONAL ROADS AND MARKING ABBREVIATIONS
T-M-2	1-19-96	DETAILS OF PAVEMENT MARKINGS FOR CONVENTIONAL ROADS
T-M-3	09-19-91	MARKING STANDARDS FOR TRAFFIC ISLANDS, MEDIANS AND PAVED SHOULDERS ON CONVENTIONAL ROADS
T-M-4	5-27-01	INTERSECTION PAVEMENT MARKINGS
T-M-6	1-29-98	MARKING DETAIL FOR EXPRESSWAY AND FREEWAY INTERCHANGES
T-M-7	10-10-06	CORE MARKING DETAILS FOR EXPRESSWAY AND FREEWAY INTERCHANGES
T-M-9	11-30-04	MARKING DETAILS FOR RAMP INTERSECTIONS
T-M-11		SIGNING AND PAVEMENT MARKINGS FOR BICYCLE LANES AND ROUTES ON RURAL ROADS
T-PBR-1	2-22-04	INTERCONNECTED PONTABLE BARRIER RAIL
T-PBR-2	10-10-06	DETAIL FOR VERTICAL VERTICAL PANELS AND FLEXIBLE DELINEATORS
T-S-8	7-15-91	HIGHWAY SHIELDS USED ON STATE ROUTES AND ARROWS
T-S-10	12-07-90	MOUNTING DETAILS FLAT SHEET SIGNS ALUMINUM-STEEL DESIGN
T-S-11	5-27-01	DELINEATOR AND MILEPOST DETAILS
T-S-16	5-27-01	GROUND MOUNTED SIGN AND DETAILS
T-S-17	10-28-96	GROUND MOUNTED SIGN USING PERFORATED/KNOCKOUT SQUARE TUBE
T-S-19	7-29-91	STANDARD MEMBERS BENDAWAY SIGN SUPPORTS STEEL DESIGN

EROSION CONTROL AND LANDSCAPING - UPDATE TITLES

DWG. NO.	CURRENT REV. DATE	TITLE
EC-STR-1	5-27-01	TEMPORARY DEWATERING STRUCTURE, PAY ITEMS & GENERAL NOTES
EC-STR-2	5-27-01	TEMPORARY SEDIMENT FILTER BAGS
EC-STR-3B	4-01-08	SILT FENCE
EC-STR-3C	4-01-08	SILT FENCE WITH WIRE BACKING
EC-STR-3D	4-01-08	ENHANCED SILT FENCE
EC-STR-4	4-01-08	ENHANCED SILT FENCE CHECK (TRAPEZOIDAL DITCH)
EC-STR-4A	4-01-08	ENHANCED SILT FENCE CHECK (V-DITCH)
EC-STR-6	4-01-08	ROCK CHECK DAM
EC-STR-6A		ENHANCED ROCK CHECK DAM
EC-STR-15	4-01-08	CATCH BASIN PROTECTION
EC-STR-27	4-01-08	TEMPORARY SLOPE DRAIN AND BERM
EC-STR-31	4-01-08	TEMPORARY DIVERSION CHANNELS
EC-STR-34	4-01-08	EROSION CONTROL BLANKET FOR SLOPE INSTALLATION
EC-STR-36	4-01-08	TURF REINFORCEMENT MAT FOR CHANNEL INSTALLATION

SAFETY APPURTENANCES AND FENCE

DWG. NO.	CURRENT REV. DATE	TITLE
S-F-10	7-17-81	RIGHT-OF-WAY STOCK FENCE
S-F-10A	7-17-81	RIGHT OF WAY STOCK FENCE WITH TIMBER POSTS
S-GR-11	5-27-01	W-BEAM & THRIE BEAM BARRIER RAIL AND RUB RAIL ALTERNATES
S-GR-12	3-22-93	W-BEAM BARRIER POST DETAILS AND SPECIFICATIONS
S-GR-13	9-06-98	BARRIER RAIL MOUNTING, POST BLOCK-OUTS
S-GR-14	9-05-98	W-BEAM BARRIER FASTENING HARDWARE AND BRIDGE APPROACH DELINEATORS
S-GR-15	5-27-01	W-BEAM BARRIER TERMINAL ELEMENT DETAILS
S-GR-19	5-27-01	GUARDRAIL TERMINAL ANCHORS, TYPE 12 AND TYPE 13
S-GR-38	5-27-01	DETAILS FOR CONSTRUCTION OF EARTH PAD FOR TYPE 38 GUARDRAIL END TERMINALS
S-GR-38A	09-20-05	DETAILS FOR CONSTRUCTION OF ALTERNATE EARTH PAD FOR TYPE 38 GUARDRAIL END TERMINALS
S-GR-43		TANGENTIAL GUARDRAIL TERMINAL ANCHOR (TYPE 38) POST LAYOUT AND ERECTION DETAILS
S-GR-44		TANGENTIAL GUARDRAIL TERMINAL ANCHOR (TYPE 38) (2 TUBE) GUARDRAIL ELEMENT POST AND ASSEMBLY DETAILS
S-RP-2	1-19-99	CONCRETE RIGHT-OF-WAY MARKERS

ADD:

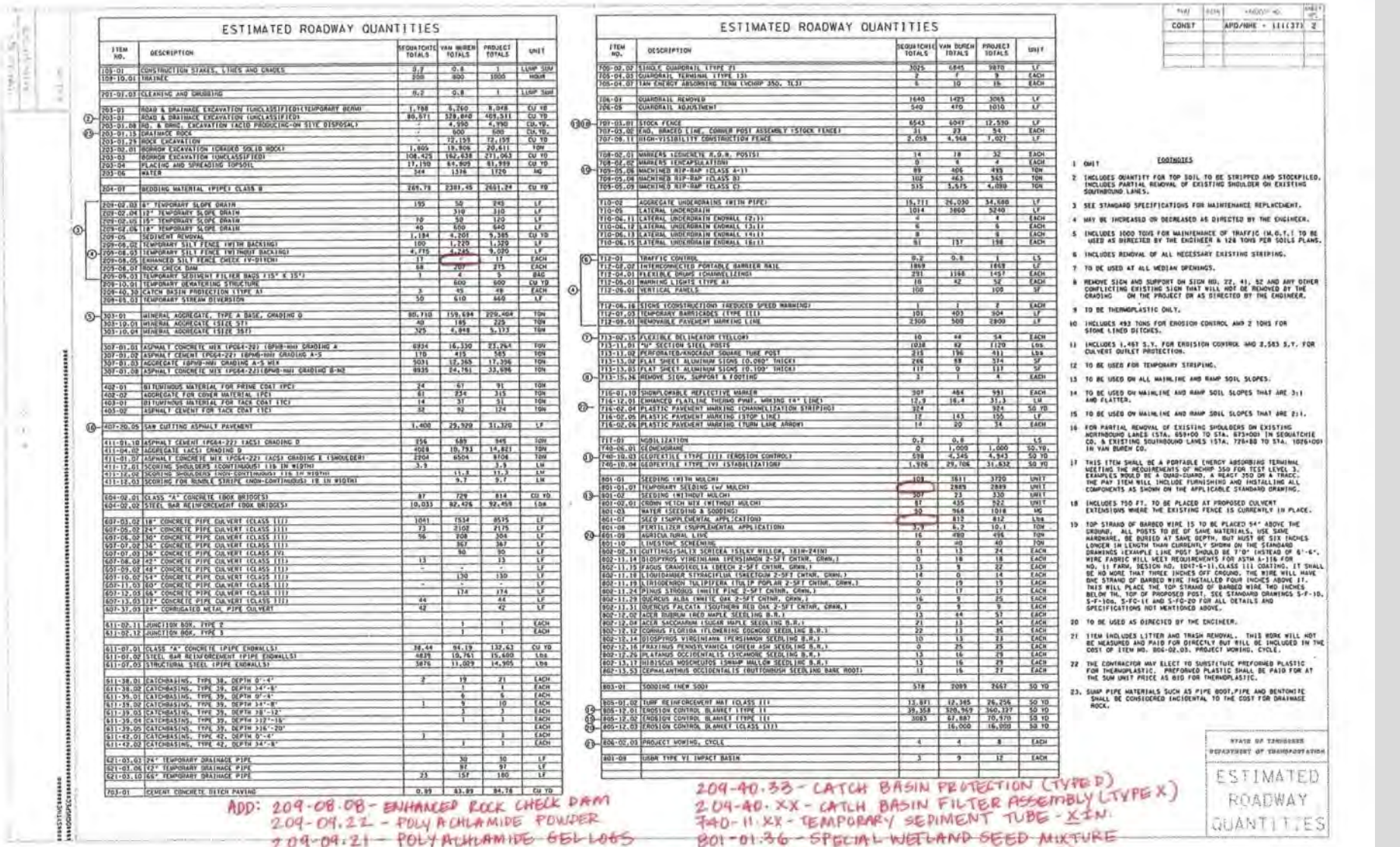
EC-STR-3E - SILT FENCE FABRIC JOINING DETAILS
EC-STR-25 - TEMPORARY CULVERT CROSSINGS, CONSTRUCTION EXIT, CONSTRUCTION FORD
EC-STR-31 - TEMPORARY DIVERSION CHANNEL
EC-STR-31A - TEMPORARY DIVERSION CHANNEL DESIGN
EC-STR-32 - TEMPORARY DIVERSION CULVERTS
EC-STR-33 - SUSPENDED PIPE DIVERSION (DOWNSTREAM)
EC-STR-33A - SUSPENDED PIPE DIVERSION (UPSTREAM)
EC-STR-37 - SEDIMENT TUBE
EC-STR-4* - CATCH BASIN FILTER ASSEMBLY (TYPE *)

TYPE	YEAR	PROJECT NO.	NO.
CONST		APD/NHE - 111(37)	1A

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

INDEX AND STANDARD DRAWINGS

TDOT ARCADIS



ESTIMATED ROADWAY QUANTITIES

ITEM NO.	DESCRIPTION	SEQUATCHIE TOTALS	VAN BUREN TOTALS	PROJECT TOTALS	UNIT
105-01	CONSTRUCTION STAKES, LINES AND GRADES	3.2	0.8	1	LUMP SUM
109-10.01	TRAINEE	200	800	1000	HOUR
201-07.03	CLEARING AND GRUBBING	0.2	0.8	1	LUMP SUM
203-01	ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED)(TEMPORARY BERM)	1,798	5,260	8,048	CU YD
203-01	ROAD & DRAINAGE EXCAVATION (UNCLASSIFIED)	80,571	328,840	409,311	CU YD
203-01.08	RD. & DRNG. EXCAVATION (ACID PRODUCING-ON SITE DISPOSAL)	-	4,390	4,390	CU. YD.
203-01.15	DRAINAGE ROCK	-	500	500	CU. YD.
203-01.25	ROCK EXCAVATION	-	17,195	17,195	CU YD
203-02.01	BORROW EXCAVATION (GRADED SOLID ROCK)	1,805	18,806	20,611	TON
203-03	BORROW EXCAVATION (UNCLASSIFIED)	108,425	162,638	271,063	CU YD
203-04	PLACING AND SPREADING TOPSOIL	17,130	64,909	81,999	CU YD
203-06	WATER	344	1376	1720	MG
204-07	BEDDING MATERIAL (PIPE) CLASS B	269.73	2381.45	2651.24	CU YD
209-02.03	6" TEMPORARY SLOPE DRAIN	195	50	245	LF
209-02.04	12" TEMPORARY SLOPE DRAIN		310	310	LF
209-02.05	15" TEMPORARY SLOPE DRAIN	70	50	120	LF
209-02.06	18" TEMPORARY SLOPE DRAIN	40	600	640	LF
209-05	SEDIMENT REMOVAL	1,194	4,201	5,395	CU YD
209-08.02	TEMPORARY SILT FENCE (WITH BACKING)	100	1,220	1,320	LF
209-08.03	TEMPORARY SILT FENCE (WITHOUT BACKING)	4,775	4,245	9,020	LF
209-08.05	ENHANCED SILT FENCE CHECK (V-DITCH)	11	-	11	EACH
209-08.07	ROCK CHECK DAM	68	207	275	EACH
209-09.03	TEMPORARY SEDIMENT FILTER BAGS (15" X 15")	1	4	5	BAG
209-10.01	TEMPORARY DEWATERING STRUCTURE		600	600	CU YD
209-40.30	CATCH BASIN PROTECTION (TYPE A)	3	45	48	EACH
209-65.01	TEMPORARY STREAM DIVERSION	50	600	650	LF
303-01	MINERAL AGGREGATE, TYPE A BASE, GRADING D	80,710	159,694	229,404	TON
303-10.01	MINERAL AGGREGATE (SIZE 57)	40	185	225	TON
303-10.04	MINERAL AGGREGATE (SIZE 357)	329	4,844	5,173	TON
307-01.01	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HMI GRADING A	6934	16,330	23,264	TON
307-01.02	ASPHALT CEMENT (PG64-22) (BPMB-HMI GRADING A-S	170	415	585	TON
307-01.03	AGGREGATE (BPMB-HMI GRADING A-S MIX	9031	17,365	17,396	TON
307-01.08	ASPHALT CONCRETE MIX (PG64-22) (BPMB-HMI GRADING B-N)	8935	24,761	33,696	TON
402-01	BITUMINOUS MATERIAL FOR PRIME COAT (PC)	24	67	91	TON
402-02	AGGREGATE FOR COVER MATERIAL (PC)	61	254	315	TON
403-01	BITUMINOUS MATERIAL FOR TACK COAT (TC)	14	37	51	TON
403-02	ASPHALT CEMENT FOR TACK COAT (TC)	32	92	124	TON
407-20.05	SAW CUTTING ASPHALT PAVEMENT	1,400	29,920	31,320	LF
411-01.10	ASPHALT CEMENT (PG64-22) (ACS) GRADING D	256	689	945	TON
411-04.02	AGGREGATE (ACS) GRADING D	4088	10,733	14,821	TON
411-01.07	ASPHALT CONCRETE MIX (PG64-22) (ACS) GRADING E (SHOULDER)	2250	6504	8704	TON
411-12.01	SCORING SHOULDERS (CONTINUOUS) 11" IN WIDTH)	3.3	-	3.3	LM
411-12.02	SCORING SHOULDERS (NON-CONTINUOUS) 11" IN WIDTH)		11.3	11.3	LM
411-12.03	SCORING FOR RUMBLE STRIPE (NON-CONTINUOUS) 12" IN WIDTH)		9.7	9.7	LM
604-02.01	CLASS "A" CONCRETE (BOX BRIDGES)	87	729	816	CU YD
604-02.02	STEEL BAR REINFORCEMENT (BOX BRIDGES)	10,033	82,426	92,459	LBS
607-03.02	18" CONCRETE PIPE CULVERT (CLASS III)	1041	7534	8575	LF
607-05.02	24" CONCRETE PIPE CULVERT (CLASS III)	73	2102	2175	LF
607-06.02	30" CONCRETE PIPE CULVERT (CLASS III)	96	208	304	LF
607-07.02	36" CONCRETE PIPE CULVERT (CLASS III)	-	367	367	LF
607-07.03	36" CONCRETE PIPE CULVERT (CLASS IV)	-	90	90	LF
607-08.02	42" CONCRETE PIPE CULVERT (CLASS III)	-	13	13	LF
607-09.02	48" CONCRETE PIPE CULVERT (CLASS III)	-	-	-	LF
607-10.02	54" CONCRETE PIPE CULVERT (CLASS III)	-	130	130	LF
607-11.03	60" CONCRETE PIPE CULVERT (CLASS III)	-	-	-	LF
607-12.03	66" CONCRETE PIPE CULVERT (CLASS III)	-	174	174	LF
607-13.03	72" CONCRETE PIPE CULVERT (CLASS III)	44	-	44	LF
607-37.03	24" CORRUGATED METAL PIPE CULVERT	42	-	42	LF
611-02.11	JUNCTION BOX, TYPE 2		1	1	EACH
611-02.12	JUNCTION BOX, TYPE 3		1	1	EACH
611-07.01	CLASS "A" CONCRETE (PIPE ENDWALLS)	38.44	94.19	132.63	CU YD
611-07.02	STEEL BAR REINFORCEMENT (PIPE ENDWALLS)	4839	19,761	15,600	LBS
611-07.03	STRUCTURAL STEEL (PIPE ENDWALLS)	3876	11,029	14,905	LBS
611-38.01	CATCHBASINS, TYPE 38, DEPTH 0'-4"	2	19	21	EACH
611-38.02	CATCHBASINS, TYPE 38, DEPTH 34"-8"		1	1	EACH
611-39.01	CATCHBASINS, TYPE 39, DEPTH 0'-4"		6	6	EACH
611-39.02	CATCHBASINS, TYPE 39, DEPTH 34"-8"	1	9	10	EACH
611-39.03	CATCHBASINS, TYPE 39, DEPTH 78"-12"		3	3	EACH
611-39.04	CATCHBASINS, TYPE 39, DEPTH 132"-16"		1	1	EACH
611-39.05	CATCHBASINS, TYPE 39, DEPTH 136"-20"				EACH
611-42.01	CATCHBASINS, TYPE 42, DEPTH 0'-4"	1		1	EACH
611-42.02	CATCHBASINS, TYPE 42, DEPTH 34"-8"		1	1	EACH
621-03.03	24" TEMPORARY DRAINAGE PIPE		30	30	LF
621-03.06	42" TEMPORARY DRAINAGE PIPE		97	97	LF
621-03.10	66" TEMPORARY DRAINAGE PIPE	23	157	180	LF
703-01	CEMENT CONCRETE DITCH PAVING	0.99	43.89	84.78	CU YD

ESTIMATED ROADWAY QUANTITIES

ITEM NO.	DESCRIPTION	SEQUATCHIE TOTALS	VAN BUREN TOTALS	PROJECT TOTALS	UNIT
705-02.02	SINGLE GUARDRAIL (TYPE 21)	3025	6845	9870	LF
705-04.03	GUARDRAIL TERMINAL (TYPE 13)	2	7	9	EACH
705-04.07	TAU ENERGY ABSORBING TERM (VCHDP 350, TL3)	5	10	15	EACH
706-01	GUARDRAIL REMOVED	1640	1425	3065	LF
706-05	GUARDRAIL ADJUSTMENT	540	470	1010	LF
707-03.01	STOCK FENCE	6543	6047	12,590	LF
707-03.02	END, BRACED (INC. CORNER POST ASSEMBLY (STOCK FENCE)	31	23	54	EACH
707-08.11	HIGH-VISIBILITY CONSTRUCTION FENCE	2,058	4,968	7,027	LF
708-02.01	MARKERS (CONCRETE, R.P.M. POSTS)	14	18	32	EACH
708-02.02	MARKERS (ENCAPSULATED)	0	4	4	EACH
709-05.06	MACHINED RIP-RAP (CLASS A-1)	89	406	495	TON
709-05.08	MACHINED RIP-RAP (CLASS B)	102	463	565	TON
709-05.09	MACHINED RIP-RAP (CLASS C)	515	3,575	4,090	TON
710-02	AGGREGATE UNDERDRAINS (WITH PIPE)	15,771	26,030	34,680	LF
710-05	LATERAL UNDERDRAIN	1014	3860	5240	LF
710-06.11	LATERAL UNDERDRAIN ENDWALL (2;1)	4		4	EACH
710-06.12	LATERAL UNDERDRAIN ENDWALL (3;1)	6		6	EACH
710-06.13	LATERAL UNDERDRAIN ENDWALL (4;1)	8		8	EACH
710-06.15	LATERAL UNDERDRAIN ENDWALL (8;1)	61	137	198	EACH
712-01	TRAFFIC CONTROL	0.2	0.8	1	LS
712-02.02	INTERCONNECTED PORTABLE BARRIER RAIL	1869		1869	LF
712-04.01	FLEXIBLE DRUMS (CHANNELIZING)	291	1168	1457	EACH
712-06.01	WARNING LIGHTS (TYPE A)	10	42	52	EACH
712-06.01	VERTICAL PANELS	100		100	SF
712-06.16	SIGNS (CONSTRUCTION) (REDUCED SPEED WARNING)	1	1	2	EACH
712-07.03	TEMPORARY BARRICADES (TYPE III)	101	403	504	LF
712-09.01	REMOVABLE PAVEMENT MARKING LINE	2300	500	2800	LF
713-02.15	FLEXIBLE DELINEATOR (YELLOW)	10	44	54	EACH
713-11.01	"U" SECTION STEEL POSTS	1038	82	1120	LBS
713-11.02	PERFORATED-KNOCKOUT SQUARE TUBE POST	215	196	411	LBS
713-13.02	FLAT SHEET ALUMINUM SIGNS (0.080" THICK)	246	59	305	SF
713-13.03	FLAT SHEET ALUMINUM SIGNS (0.100" THICK)	117	0	117	SF
713-15.36	REMOVE SIGN, SUPPORT & FOOTING	3	1	4	EACH
716-01.10	SNOWPLOWABLE REFLECTIVE MARKER	307	484	991	EACH
716-12.01	ENHANCED FLATLINE THERMO PVMT. MARKING (6" LINE)	12.9	18.4	31.3	LM
716-02.04	PLASTIC PAVEMENT MARKING (CHANNELIZATION STRIPING)	324		324	SQ YD
716-02.05	PLASTIC PAVEMENT MARKING (STOP LINE)	12	143	155	LF
716-02.06	PLASTIC PAVEMENT MARKING (TURN LANE ARROW)	14	20	34	EACH
717-01	MOBILIZATION	0.2	0.8	1	LS
740-06.01	CONCRIBAND	0	1,000	1,000	SQ.YD.
740-10.03	GEOTEXTILE (TYPE III) (EROSION CONTROL)	598	4,345	4,943	SQ YD
740-10.04	GEOTEXTILE (TYPE IV) (STABILIZATION)	1,926	29,706	31,632	SQ YD
801-01	SEEDING (WITH MULCH)	103	3611	3720	UNIT
801-01.07	TEMPORARY SEEDING (W/ MULCH)		2889	2889	UNIT
801-02	SEEDING (WITHOUT MULCH)	307	23	330	UNIT
801-02.01	CROWN VETCH MIX (WITHOUT MULCH)	87	435	522	UNIT
801-03	WATER (SEEDING & SODDING)	50	968	1018	MG
801-07	SEED (SUPPLEMENTAL APPLICATION)		812	812	LBS
801-08	FERTILIZER (SUPPLEMENTAL APPLICATION)	3.9	6.2	10.1	TON
801-09	AGRICULTURAL LIME	16	480	496	TON
801-10	LIMESTONE SCREENING	0	40	40	TON
802-02.31	CUTTINGS: SALIX SERICEA (SILKY WILLOW, 18IN-24IN)	11	13	24	EACH
802-11.14	DIOSPYROS VIRGINIANA (PERSIMMON 2-5FT CNTNR, GRWN.)	0	18	18	EACH
802-11.15	FAGUS GRANDIFOLIA (BEECH 2-5FT CNTNR, GRWN.)	13	9	22	EACH
802-11.19	LIQUIDAMBER STYRACIFLUA (SWEETGUM 2-5FT CNTNR, GRWN.)	14	0	14	EACH
802-11.19	LIRIODENDRON TULIPIFERA (TULIP POPLAR 2-5FT CNTNR, GRWN.)	0	19	19	EACH
802-11.24	PINUS STROBUS (WHITE PINE 2-5FT CNTNR, GRWN.)	0	17	17	EACH
802-11.29	QUERCUS ALBA (WHITE OAK 2-5FT CNTNR, GRWN.)	16	9	25	EACH
802-11.31	QUERCUS FALCATA (SOUTHERN RED OAK 2-5FT CNTNR, GRWN.)	0	9	9	EACH
802-12.02	ACER RUBRUM (RED MAPLE SEEDLING B.R.)	13	44	57	EACH
802-12.04	ACER SACCHARUM (SUGAR MAPLE SEEDLING B.R.)	21	13	34	EACH
802-12.12	CORNUS FLORIDA (FLOWERING DOGWOOD SEEDLING B.R.)	22	13	35	EACH
802-12.14	DIOSPYROS VIRGINIANA (PERSIMMON SEEDLING B.R.)	10	13	23	EACH
802-12.16	FRAXINUS PENNSYLVANICA (GREEN ASH SEEDLING B.R.)	0	25	25	EACH
802-12.26	PLATANUS OCCIDENTALIS (SYCAMORE SEEDLING B.R.)	13	16	29	EACH
802-13.17	HIBISCUS MOSCHEUTOS (SWAMP MALLOW SEEDLING B.R.)	13	16	29	EACH
802-13.53	CEPHALANTHUS OCCIDENTALIS (BUTTONBUSH SEEDLING BARE ROOT)	11	16	27	EACH
803-01	SODDING (NEW SOD)	578	2089	2667	SQ YD
805-01.02	TURF REINFORCEMENT MAT (CLASS II)	13,871	12,385	26,256	SQ YD
805-12.01	EROSION CONTROL BLANKET (TYPE II)	39,358	320,969	360,327	SQ YD
805-12.02	EROSION CONTROL BLANKET (TYPE III)	3083	67,887	70,970	SQ YD
805-12.03	EROSION CONTROL BLANKET (CLASS III)		16,000	16,000	SQ YD
806-02.01	PROJECT MOWING, CYCLE	4	4	8	EACH
801-09	USBR TYPE VI IMPACT BASIN	3	9	12	EACH

CONST		APD/NHE - 111(37)	2

FOOTNOTES

1 OMIT

2 INCLUDES QUANTITY FOR TOP SOIL TO BE STRIPPED AND STOCKPILED. INCLUDES PARTIAL REMOVAL OF EXISTING SHOULDER ON EXISTING SOUTHBOUND LANES.

3 SEE STANDARD SPECIFICATIONS FOR MAINTENANCE REPLACEMENT.

4 MAY BE INCREASED OR DECREASED AS DIRECTED BY THE ENGINEER.

5 INCLUDES 1000 TONS FOR MAINTENANCE OF TRAFFIC (M.O.T.) TO BE USED AS DIRECTED BY THE ENGINEER & 128 TONS PER SOILS PLANS.

6 INCLUDES REMOVAL OF ALL NECESSARY EXISTING STRIPING.

7 TO BE USED AT ALL MEDIAN OPENINGS.

8 REMOVE SIGN AND SUPPORT ON SIGN NO. 22, 41, 52 AND ANY OTHER CONFLICTING EXISTING SIGN THAT WILL NOT BE REMOVED BY THE GRADING ON THE PROJECT OR AS DIRECTED BY THE ENGINEER.

9 TO BE THERMOPLASTIC ONLY.

10 INCLUDES 493 TONS FOR EROSION CONTROL AND 2 TONS FOR STONE LINED DITCHES.

11 INCLUDES 1,467 S.Y. FOR EROSION CONTROL AND 2,583 S.Y. FOR CULVERT OUTLET PROTECTION.

12 TO BE USED FOR TEMPORARY STRIPING.

13 TO BE USED ON ALL MAINLINE AND RAMP SOIL SLOPES.

14 TO BE USED ON MAINLINE AND RAMP SOIL SLOPES THAT ARE 3:1 AND FLATTER.

15 TO BE USED ON MAINLINE AND RAMP SOIL SLOPES THAT ARE 2:1.

16 FOR PARTIAL REMOVAL OF EXISTING SHOULDERS ON EXISTING NORTHBOUND LANES (STA. 659+00 TO STA. 673+00) IN SEQUATCHIE CO. & EXISTING SOUTHBOUND LANES (STA. 728+88 TO STA. 1026+00) IN VAN BUREN CO.

17 THIS ITEM SHALL BE A PORTABLE ENERGY ABSORBING TERMINAL MEETING THE REQUIREMENTS OF NCHRP 350 FOR TEST LEVEL 3. EXAMPLES WOULD BE A QUAD-GUARD, A REACT 350 OR A TRACC. THE PAY ITEM WILL INCLUDE FURNISHING AND INSTALLING ALL COMPONENTS AS SHOWN ON THE APPLICABLE STANDARD DRAWING.

18 INCLUDES 750 FT. TO BE PLACED AT PROPOSED CULVERT EXTENSIONS WHERE THE EXISTING FENCE IS CURRENTLY IN PLACE.

19 TOP STRAND OF BARBED WIRE IS TO BE PLACED 54" ABOVE THE GROUND. ALL POSTS TO BE OF SAME MATERIALS, USE SAME HARDWARE, BE BURIED AT SAME DEPTH, BUT MUST BE SIX INCHES LONGER IN LENGTH THAN CURRENTLY SHOWN ON THE STANDARD DRAWINGS (EXAMPLE LINE POST SHOULD BE 7'0" INSTEAD OF 6'-6". WIRE FABRIC WILL MEET REQUIREMENTS FOR ASTM A-116 FOR NO. 11 FARM, DESIGN NO. 1047-6-11, CLASS III COATING. IT SHALL BE NO MORE THAT THREE INCHES OFF GROUND. THE WIRE WILL HAVE ONE STRAND OF BARBED WIRE INSTALLED FOUR INCHES ABOVE IT. THIS WILL PLACE THE TOP STRAND OF BARBED WIRE TWO INCHES BELOW TH. TOP OF PROPOSED POST. SEE STANDARD DRAWINGS S-F-10, S-F-10a, S-FC-1E AND S-FD-20 FOR ALL DETAILS AND SPECIFICATIONS NOT MENTIONED ABOVE.

20 TO BE USED AS DIRECTED BY THE ENGINEER.

21 ITEM INCLUDES LITTER AND TRASH REMOVAL. THIS WORK WILL NOT BE MEASURED AND PAID FOR DIRECTLY BUT WILL BE INCLUDED IN THE COST OF ITEM NO. 806-02.03, PROJECT MOWING, CYCLE.

22 THE CONTRACTOR MAY ELECT TO SUBSTITUTE PREFORMED PLASTIC FOR THERMOPLASTIC. PREFORMED PLASTIC SHALL BE PAID FOR AT THE SUM UNIT PRICE AS BID FOR THERMOPLASTIC.

23. SUMP PIPE MATERIALS SUCH AS PIPE BOOT, PIPE AND BENTONITE SHALL BE CONSIDERED INCIDENTAL TO THE COST FOR DRAINAGE ROCK.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ESTIMATED ROADWAY QUANTITIES

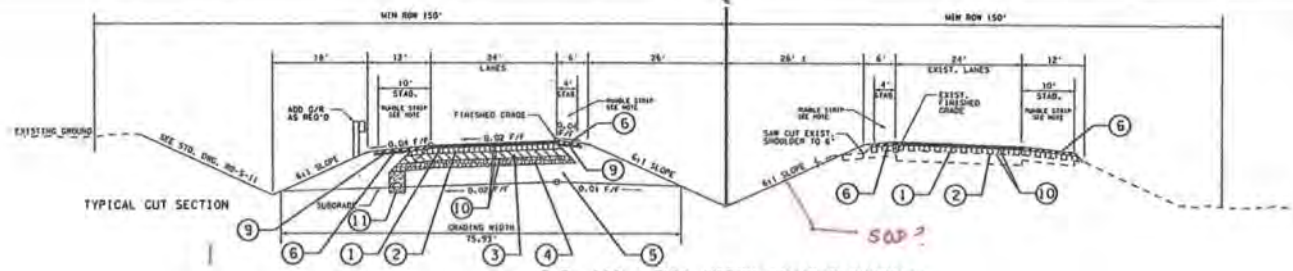
ADD: 209-08.08 - ENHANCED ROCK CHECK DAM
209-09.22 - POLYACRYLAMIDE POWDER
209-09.21 - POLYACRYLAMIDE GEL LOGS
209-09.24 - JUTE MESH FABRIC

209-40.33 - CATCH BASIN PROTECTION (TYPE D)
209-40.XX - CATCH BASIN FILTER ASSEMBLY (TYPE X)
740-11.XX - TEMPORARY SEDIMENT TUBE - X IN.
801-01.36 - SPECIAL WETLAND SEED MIXTURE
709-05.05 - MACHINED RIPRAP (CLASS A-3)

TDOT ARCADIS

TENNESSEE D.O.T. | DESIGN DIVISION | FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
ROW		APD/NHE-111(37)	2
CONST		APD/NHE-111(37)	28



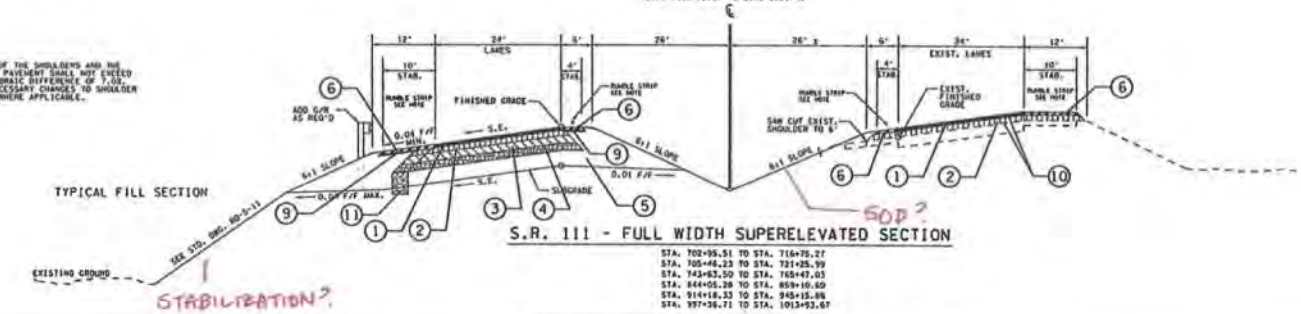
TYPICAL CUT SECTION

S.R. 111 - FULL WIDTH TANGENT SECTION

STA. 716+79.27 TO STA. 702+95.51
STA. 659+23.67 TO STA. 705+48.23
STA. 721+25.99 TO STA. 743+63.50
STA. 765+47.03 TO STA. 844+05.28
STA. 859+10.60 TO STA. 914+08.33
STA. 945+15.86 TO STA. 937+36.71
STA. 1013+93.67 TO STA. 1020+40

NOTE:
TYPICALS ARE BASED ON STD. DWG. RD-TS-34
FOR MARBLE STRIP INSTALLATION - SEE STD. DWG. T-M-15, T-MESA & T-M-16

* SLOPES OF THE SHOULDERS AND THE ROADWAY PAVEMENT SHALL NOT EXCEED AN ALGEBRAIC DIFFERENCE OF 7.0%. MAKE NECESSARY CHANGES TO SHOULDER SLOPES WHERE APPLICABLE.



TYPICAL FILL SECTION

S.R. 111 - FULL WIDTH SUPERELEVATED SECTION

STA. 702+95.51 TO STA. 716+79.27
STA. 705+48.23 TO STA. 721+25.99
STA. 743+63.50 TO STA. 765+47.03
STA. 844+05.28 TO STA. 859+10.60
STA. 914+16.33 TO STA. 945+15.86
STA. 937+36.71 TO STA. 1013+93.67

SED PAVEME
1.50" (SHOULDER
WALT CEMENT (PG64-22)
@ 3.50"
WALT CONCRETE MIX (PG
ROADWAY SECTION
GREGATE BASE
GATE, TYPE A BASE, GR
SHOULDER SECTION
NOUS MATERIAL FOR PRI
ATE FOR COVER MATERIA
NOUS MATERIAL FOR TAC
T CEMENT FOR TACK COA

TENNESSEE D.O.T. | DESIGN DIVISION | FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2010	ADPVNHE-111174	24

SPECIAL NOTES

GRADING

(1) THE GRADING TABULATIONS AND RESULTING EARTHWORK ASSOCIATED BID QUANTITIES WERE PREPARED UTILIZING AVAILABLE GEOTECHNICAL INFORMATION AND/OR REPORTS PREPARED FOR THIS PROJECT. THIS INFORMATION IS PROVIDED FOR GENERAL INFORMATION AND ESTIMATION GUIDANCE ONLY.

(2) BORING DEPICTIONS SHOWN ON THE FOUNDATION DATA SHEETS, SOILS SHEETS, PLANS, AND CROSS-SECTIONS INDICATE SOIL AND ROCK CONDITIONS AT THE SPECIFIC BORING LOCATIONS. ANY SOIL PROFILE AND/OR ROCK LINE IS INTERPRETIVE BASED ON THE JUDGMENT OF THE GEOTECHNICAL ENGINEER/GEOLOGIST. THE TRANSITION BETWEEN BORINGS AND LAYERS MAY VARY SIGNIFICANTLY DEPENDING ON THE GEOLOGIC FORMATIONS ENCOUNTERED.

(3) TO ASSIST IN BID PREPARATION FOR EARTHWORK AND FOUNDATION CONSTRUCTION, DETAIL ROCK AND SOIL DESCRIPTION AND/OR SOME PROJECTS, ROCK CORE SAMPLES ARE AVAILABLE FOR INSPECTION AT THE MATERIALS AND TESTS HEADQUARTERS AT 6601 CENTENNIAL BOULEVARD, NASHVILLE, TN OR AT THE TDOT REGION 1 BUILDING IN KNOXVILLE, TN.

(4) THE CONTRACTOR SHALL UTILIZE ALL INFORMATION PROVIDED IN THE PLANS, CROSS-SECTIONS AND CONTRACT DOCUMENTS INCLUDING ANY SPECIAL PROVISIONS AS WELL AS UTILIZING HIS PAST EXPERIENCE WITH PROJECTS OF SIMILAR NATURE, SCOPE AND LOCATION IN PREPARATION OF HIS BID FOR EARTHWORK ITEMS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE AND PROVIDE EQUIPMENT AND MEANS NECESSARY TO CONDUCT THE EXCAVATION ACTIVITIES IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.

(5) EARTHWORK IS PAID FOR UNDER ITEM 203-01, ROAD AND DRAINAGE EXCAVATION (UNCLASSIFIED). NO ADDITIONAL PAYMENT WILL BE MADE FOR EARTHWORK QUANTITIES BASED SOLELY ON A CLAIM THAT THE QUANTITIES SHOWN IN THE GRADING TABULATION OR ELSEWHERE IN THE PLANS ARE INACCURATE WITH RESPECT TO THE TYPE OF MATERIALS ENCOUNTERED DURING CONSTRUCTION EXCEPT AS PROVIDED FOR BY SECTION 104.02 W THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OR AS AMENDED W SUPPLEMENTAL SPECIFICATIONS.

EROSION PREVENTION AND SEDIMENT CONTROL

STREAM/WETLAND

(1) ANY WORK WITHIN THE STREAM CHANNEL AREA (E.G., FOR PIER FOOTING, RIP-RAP PLACEMENT, MULTI-BARREL CULVERT/BRIDGE CONSTRUCTION, ETC.) SHALL BE SEPARATED FROM FLOWING WATER OR EXPECTED FLOW PATH AND PERFORMED DURING LOW FLOW CONDITIONS. ALL ITEMS USED WITHIN THE STREAM CHANNEL AREA FOR DIVERSION OF FLOW (OR EXPECTED FLOW), UNLESS SPECIFIED IN THE PLANS, SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE COST OF OTHER ITEMS. THIS NOTE EXCLUDES ANY ITEMS SPECIFIED IN THE PLANS FOR THE TEMPORARY DIVERSION CHANNELS, EC-STR-31 AND TEMPORARY DIVERSION CULVERTS, EC-STR-32 FOR SINGLE BARREL CULVERT CONSTRUCTION.

HIGH QUALITY WATERS

(2) FOR PROJECTS THAT DISCHARGE INTO HIGH QUALITY WATERS OR WATERS IMPAIRED BY SILTATION, AN OUTFALL IN A DRAINAGE AREA OF 5 ACRES OR MORE, A TEMPORARY (OR PERMANENT) SEDIMENT BASIN THAT PROVIDES STORAGE FOR A CALCULATED VOLUME OF RUNOFF FROM A 5-YEAR/ 24-HOUR STORM EVENT AND RUNOFF FROM EACH ACRE DRAINED, OR EQUIVALENT CONTROL MEASURES, SHALL BE PROVIDED UNTIL FINAL STABILIZATION OF THE SITE. THE ENVIRONMENTAL AND DESIGN DIVISIONS MAY BE CONTACTED TO REVIEW AND CONCUR WITH ANY REVISION OF THE SWPPP BEFORE DISTURBANCE OF THE OUTFALL PROCEEDS, UNLESS PREVIOUSLY EXEMPT IN THE NPDES CONSTRUCTION GENERAL PERMIT.

(3) FOR PROJECTS THAT DISCHARGE INTO HIGH QUALITY WATERS OR WATERS IMPAIRED BY SILTATION, A 60 FOOT NATURAL RIPARIAN BUFFER ZONE ADJACENT TO AND ON BOTH SIDES OF THE RECEIVING STREAM WITH THIS DESIGNATION SHALL BE PRESERVED, TO THE MAXIMUM EXTENT PRACTICABLE. DURING CONSTRUCTION ACTIVITIES AT THE SITE, BUFFER ZONES ARE NOT SEDIMENT CONTROL MEASURES AND SHOULD NOT BE RELIED UPON AS PRIMARY SEDIMENT CONTROL MEASURES. THE RIPARIAN BUFFER ZONE SHALL BE ESTABLISHED BETWEEN THE TOP OF THE STREAM BANK AND THE DISTURBED CONSTRUCTION AREA. THE 60 FOOT CRITERION FOR THE WIDTH OF THE BUFFER ZONE CAN BE ESTABLISHED ON AN AVERAGE WIDTH BASIS AT A PROJECT, AS LONG AS THE MINIMUM WIDTH OF THE BUFFER ZONE IS MORE THAN 25 FEET AT ANY MEASURED LOCATION. EVERY ATTEMPT SHALL BE MADE FOR CONSTRUCTION ACTIVITIES NOT TO TAKE PLACE WITHIN THE BUFFER ZONES. BEST MANAGEMENT PRACTICES (BMPS) PROVIDING EQUIVALENT PROTECTION AS THE NATURAL RIPARIAN ZONE MAY BE USED. A JUSTIFICATION FOR USE AND DESIGN EQUIVALENCY SHALL BE DOCUMENTED WITHIN THE SWPPP. THE ENVIRONMENTAL AND DESIGN DIVISIONS SHALL REVIEW AND APPROVE THIS REVISION OF THE SWPPP BEFORE DISTURBANCE OF THE SITE PROCEEDS, UNLESS PREVIOUSLY EXEMPT IN THE NPDES CONSTRUCTION GENERAL PERMIT. WHERE ISSUED, ARAP/401 REQUIREMENTS WILL PREVAIL IF IN CONFLICT WITH THESE BUFFER ZONE REQUIREMENTS.

NPDES

(4) REFER TO THE EROSION PREVENTION AND SEDIMENT CONTROL PLAN, SHEET [illegible] FOR NOTES REGARDING SEASONAL WORK LIMITATION OR LIMITATION ON THE TOTAL AREA OF EXPOSED SOIL.

ENVIRONMENTAL-ECOLOGY

(1) STAFF FROM THE TDOT ENVIRONMENTAL DIVISION OR A DESIGNEE WILL ADVISE THE CONTRACTOR DURING THE PRE-CONSTRUCTION MEETING CONCERNING WHEN ENVIRONMENTAL DIVISION PERSONNEL OR DESIGNATED CONSULTANT WILL NEED TO BE ON-SITE FOR WORK BEING DONE WHICH COULD AFFECT THE STREAM OR SPECIES.

(2) STAFF FROM THE TDOT ENVIRONMENTAL DIVISION OR A DESIGNEE WILL ATTEND THE PRE-CONSTRUCTION MEETING FOR ALL PROJECTS WHICH HAVE THREATENED OR ENDANGERED SPECIES OR CRITICAL HABITAT PROXIMAL TO SCHEDULED BRIDGE WORK. THIS WILL PROVIDE THE OPPORTUNITY TO ENSURE THAT PERSONNEL INCLUDING THE CONTRACTOR'S PERSONNEL AND SUBCONTRACTORS ARE MADE AWARE OF THE NECESSARY PRECAUTIONS WHICH MUST BE FOLLOWED.

(3) ALL BRIDGE PROJECTS WITH THREATENED OR ENDANGERED SPECIES OR CRITICAL HABITAT IDENTIFIED MUST HAVE MEASURES IN PLACE TO CONTAIN CONCRETE DUST, CEMENT DUST AND ALL OTHER MATERIALS. THESE MATERIALS ARE NOT ALLOWED TO ENTER THE STREAM.

(4) NOTIFY THE REGIONAL BIOLOGIST (CHRISTINA RICHARDS) WHEN THE WATER IN A RELOCATED CHANNEL HAS BEEN TURNED ON OR A WETLAND HAS BEEN RESTORED (TEMPORARY IMPACTS).

(5) MONITORING WILL BE REQUIRED FOR ALL RELOCATED STREAMS AND TEMPORARY IMPACTS FOR FIVE (5) YEARS POSTCONSTRUCTION. CONSTRUCTION COSTS AND CHARGE NUMBERS SHOULD BE KEPT OPEN TO ALLOW FOR THIS. THERE MAY BE REMEDIATION COSTS DUE TO FAILURES, ALONG WITH ADDITIONAL MONITORING.

(6) PLEASE PLACE ORANGE CONSTRUCTION FENCING AROUND WETLAND OR STREAMS THAT ARE WITHIN ROW THAT ARE NEAR ANY TYPE OF IMPACT. THIS WILL PREVENT ANY ACCIDENTAL IMPACTS AND THEREFORE ADDITIONAL REMEDIATION.

(7) STR-2 (GLADY FORK) IS AN EXCEPTIONAL TENNESSEE WATERS DUE TO THE PRESENCE OF AN ENDANGERED SPECIES. THE BIOLOGIST MUST BE CONTACTED 2 WEEKS PRIOR TO WORK WITHIN THE STREAM TO SET UP A CRAYFISH SWEEP. THE SWEEP WILL OCCUR THE DAY BEFORE WORK IS DONE, AS WELL AS THE MORNING OF SAID CONSTRUCTION.

(8) PROPOSED RIP-RAP IN STREAM CHANNELS OR AT CULVERT INLETS AND OUTLETS SHALL BE EMBEDED INTO THE SOIL SUCH THAT THE TOP OF THE RIP-RAP IS FLUSH WITH THE BOTTOM AND SIDES OF THE CHANNEL. THE VOIDS ARE FILLED WITH MATERIAL SIMILAR TO THE ORIGINAL CHANNEL BOTTOM, AND THE WATER WILL FLOW ON TOP OF THE EMBEDED RIP-RAP AND SOIL MATERIAL TO ENABLE THE WATER TO BE VISIBLE.

WETLAND

(9) TOPSOIL IS TO BE REMOVED FROM ALL AREAS OF TEMPORARY WETLAND IMPACTS AND STOCKPILED PRIOR TO CONSTRUCTION.

(10) UPON COMPLETION OF CONSTRUCTION ACTIVITIES, TEMPORARY HAUL ROADS ARE TO BE REMOVED. EXCAVATED MATERIAL FROM THE HAUL ROADS IS TO BE DISPOSED OF AS DIRECTED BY THE ENGINEER.

(11) UPON COMPLETION OF CONSTRUCTION ACTIVITIES, ALL TEMPORARY WETLAND IMPACT AREAS ARE TO BE RESTORED TO PRE-CONSTRUCTION CONTOURS AND THE STOCKPILED WETLAND TOPSOIL SPREAD TO RESTORE THESE AREAS TO PRE-CONSTRUCTION ELEVATION.

ENVIRONMENTAL-MITIGATION

CHANNEL RELOCATION SEQUENCE AND IMPLEMENTATION NOTES FOR RELOCATED STREAM CHANNELS (IGNORE REFERENCES TO ITEMS NOT SPECIFIED)

(1) THE NEW CHANNEL SHALL BE EXCAVATED AND STABILIZED DURING A LOW-WATER PERIOD. RIPRAP (ONLY AS SHOWN ON PLANS), SEEDING, AND SOD SHALL BE INSTALLED IMMEDIATELY FOLLOWING CHANNEL COMPLETION. TREES SHALL BE INSTALLED IN THE FIRST PLANTING SEASON FOLLOWING CHANNEL EXCAVATION. WATER SHALL BE DIVERTED INTO THE NEW CHANNEL ONLY AFTER IT IS COMPLETELY STABILIZED, AND ONLY DURING A LOW-WATER PERIOD. STABILIZED MEANS THAT ALL SPECIFIED ROCK AND EROSION CONTROL BLANKET OR FLEXIBLE CHANNEL LINER IS IN PLACE, AND SEEDING AND SOD ARE IN PLACE AND ESTABLISHED.

(2) CHANNEL RELOCATION SEQUENCE

A. FLAG EDGE OF THE NEW CHANNEL TOP BANK PRIOR TO CLEARING. DO NOT CLEAR LARGE TREES IN POSITION TO SHADE THE NEW CHANNEL. LEAVE AS MANY TREES AND SHRUBS AS POSSIBLE BETWEEN TOE OF THE NEW HIGHWAY SLOPE AND THE STREAM.

B. EXCAVATE THE NEW CHANNEL "IN THE DRY" BY LEAVING AREAS OF UNDISTURBED EARTH (DIVERSION BERMS) IN PLACE AT BOTH ENDS.

C. SHAPE CHANNEL TO SPECIFICATIONS SHOWN. REMOVE LOOSE SOILS AND DEBRIS.

D. PLACE TOPSOIL, EROSION CONTROL BLANKET OR FLEXIBLE CHANNEL LINER, SEED, AND SOD AS SPECIFIED.

E. REMOVE DIVERSION BERMS, BEGINNING WITH THE MOST DOWNSTREAM. BANKS AND BOTTOM ELEVATION OF THE OLD CHANNEL SHOULD TRANSITION SMOOTHLY INTO THE NEW CHANNEL. THE ELEVATIONS OF THE NEW CHANNEL BOTTOM AT EACH END OF THE RELOCATION SEQUENCE SHOULD MATCH THE ELEVATIONS OF THE EXISTING CHANNEL, AND A STEADY PERCENT SLOPE SHOULD BE MAINTAINED THROUGHOUT THE RELOCATED CHANNEL CENTERLINE OR AS SPECIFIED.

F. INSTALL TREES ACCORDING TO STANDARD SPECIFICATIONS SECTION 802.

(3) ONLY RIP-RAP SHOWN ON PLANS SHOULD BE USED IN THE RELOCATED CHANNEL REACH. ANY OTHER PROPOSED RIP-RAP SHOULD BE COORDINATED WITH THE ENVIRONMENTAL DIVISION THROUGH THE TDOT HEADQUARTERS CONSTRUCTION OFFICE.

(4) REQUESTS BY ANY AGENCY THAT WOULD REQUIRE THE MODIFICATION OF CHANNELS, DITCHES, ELEVATIONS, RIP-RAP OR ANY OTHER STREAM MITIGATION ITEMS ASSOCIATED WITH THE CHANNEL RELOCATIONS SHALL BE REFERRED TO THE TDOT ENVIRONMENTAL DIVISION VIA THE HEADQUARTERS CONSTRUCTION OFFICE FOR COORDINATION WITH ALL INVOLVED AGENCIES AND TDOT DIVISIONS.

TREES, SHRUBS, AND SEEDLINGS

(1) NO SUBSTITUTIONS OF PLANT SPECIES OR SIZES SHALL BE ALLOWED WITHOUT THE WRITTEN APPROVAL OF TDOT ENVIRONMENTAL DIVISION. CONCERNING STREAM MITIGATION, TREES SHALL BE OF THE VARIETY REQUESTED AND FIRST QUALITY. CONCERNING TEMPORARY WETLAND MITIGATION, TREES SHALL BE OF THE VARIETY REQUESTED, WELL BRANCHED, BARE ROOT (ROOTS MUST BE KEPT MOIST AT ALL TIMES), AND FIRST QUALITY. NO CLONES OR CULTIVARS WILL BE ACCEPTED. ANY FOUND TO BE INCORRECT SPECIES, OR IMPROPERLY PLANTED, AT ANY TIME PRIOR TO TERMINATION OF THE CONTRACT SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. STAKES AND WIRES SHALL BE REMOVED IMMEDIATELY PRIOR TO CONTRACT TERMINATION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

(2) THE CONTRACTOR SHOULD ARRANGE SEVERAL MONTHS AHEAD OF TIME TO OBTAIN THE CORRECT TREE SPECIES, AS SOME MAY REQUIRE SOME TIME TO LOCATE.

(3) ALL PLANTS SHALL BE PLANTED AS PER SECTION 802.07 OF TDOT STANDARD SPECIFICATIONS FOR THE ROAD AND BRIDGE CONSTRUCTION.

(4) PLANTS SHALL BE WATERED AS REQUIRED THROUGH THE PERIOD OF ESTABLISHMENT TO ENSURE SURVIVAL.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

SPECIAL NOTES

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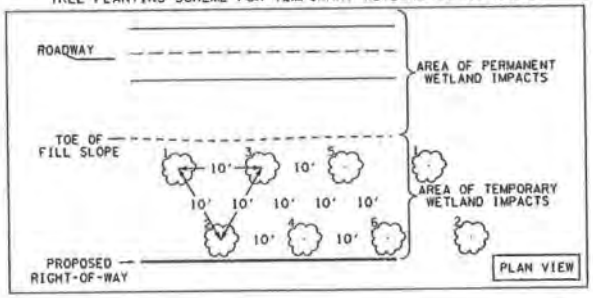
TDOT ARCADIS

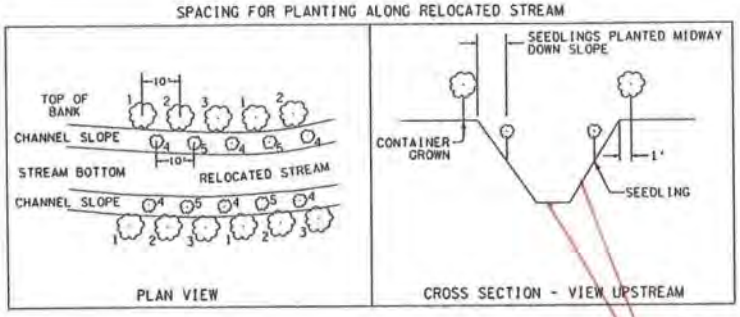
TENNESSEE D.O.T. | DESIGN DIVISION | FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2010	APD/HSIP-111(74)	29

TREE PLANTING SCHEME FOR TEMPORARY WETLAND IMPACT AREAS



SPACING FOR PLANTING ALONG RELOCATED STREAM



DEFILT STABILIZATION MEASURES & CHANNEL BOTTOM

ESTIMATED TREE QUANTITIES - STREAM 9

	ITEM NO.	DESCRIPTION	QUANTITY	UNIT
1	802-11.29	QUERCUS ALBA (WHITE OAK 2-5FT CNTNR GRWN)	12	EACH
2	802-11.18	LIQUIDAMBER STYRACIFLUA (SWEETGUM 2-5FT CNTNR GRWN)	10	EACH
3	802-11.15	FAGUS GRANDIFOLIA (BEECH 2-5FT CNTNR GRWN)	10	EACH
4	802-12.12	CORNUS FLORIDA (FLOWERING DOGWOOD SEEDLNG B.R.)	16	EACH
5	802-12.04	ACER SACCHARUM (SUGAR MAPLE SEEDLNG B.R.)	15	EACH
	TOTAL		63	

ESTIMATED TREE QUANTITIES - WETLANDS

ITEM NO.	DESCRIPTION	QUANTITY					UNIT
		WTL-4	WTL-9	WTL-26	WTL-29	WTL-34	
802-12.02	ACER RUBRUM (RED MAPLE SEEDLNG B.R.)	3	4	2	9	2	EACH
802-12.20	PLATANUS OCCIDENTALIS (SYCAMORE SEEDLNG B.R.)	3	4	2	9	2	EACH
802-13.17	HIBISCUS MOSCHEUTOS (SWAMP MALLOW SDLNG B.R.)	3	4	2	9	2	EACH
802-13.53	CEPHALANTHUS OCCIDENTALIS (BUTTONBUSH SDLNG BARE ROOT)	2	4	2	9	2	EACH
802-02.31	CUTTINGS: SALIX SERICEA (SILKY WILLOW, 18IN-24IN)	2	4	1	8	1	EACH
802-12.14	DIOSPYROS VIRGINIANA (PERSIMMON SEEDLNG B.R.)	2	3	1	8	1	EACH
TOTAL		15	23	10	52	10	

provide a schedule of STREAM relocation Dimensions and stabilization would be helpful. This leaves no field interpretation during construction.

ESTIMATED TREE QUANTITIES - STREAM 12

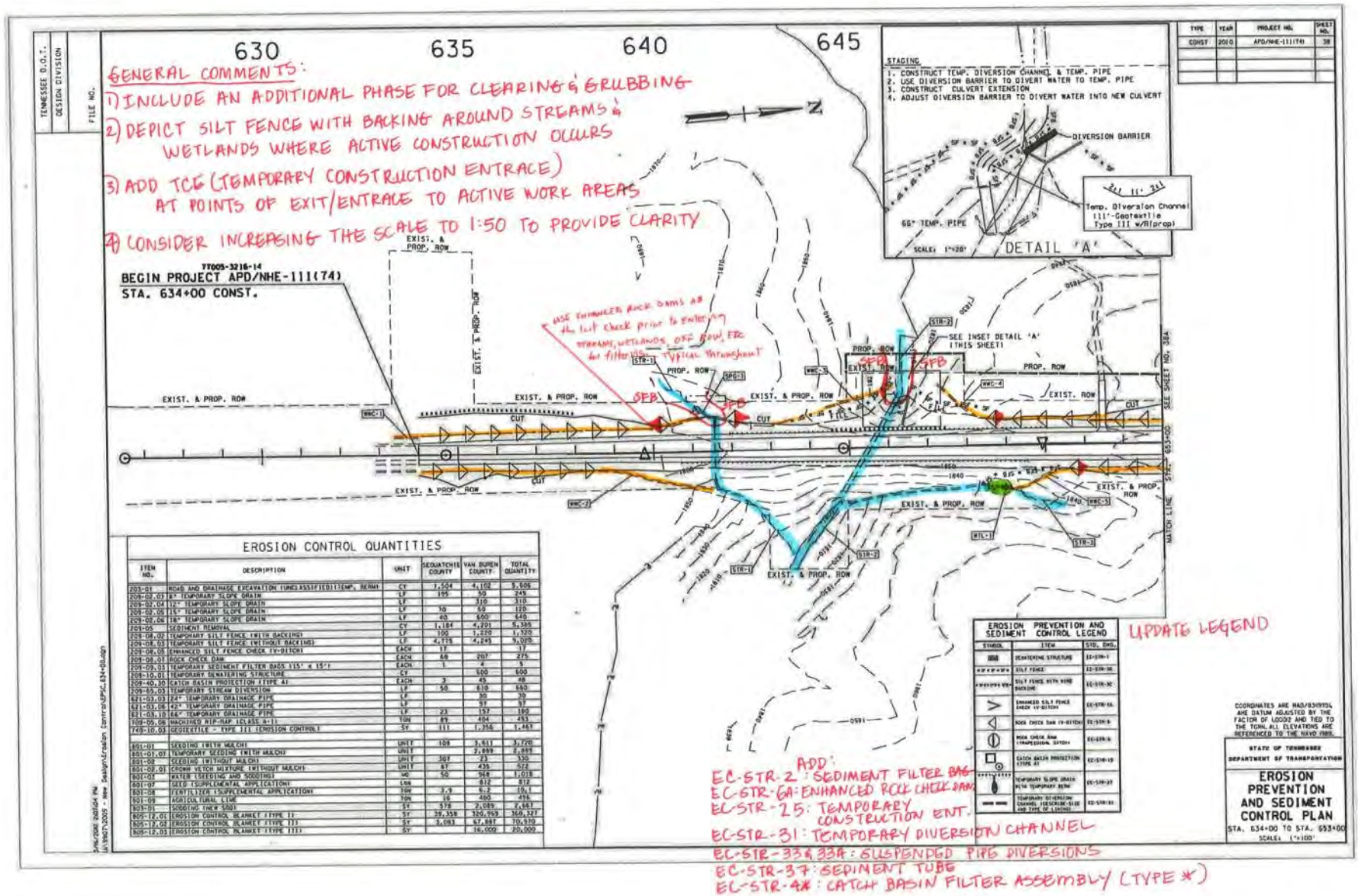
	ITEM NO.	DESCRIPTION	QUANTITY	UNIT
1	802-11.29	QUERCUS ALBA (WHITE OAK 2-5FT CNTNR GRWN)	8	EACH
2	802-11.31	QUERCUS FALCATA (SOUTHERN RED OAK 2-5FT CNTNR GRWN)	9	EACH
3	802-11.15	FAGUS GRANDIFOLIA (BEECH 2-5FT CNTNR GRWN)	9	EACH
4	802-12.12	CORNUS FLORIDA (FLOWERING DOGWOOD SEEDLNG B.R.)	13	EACH
5	802-12.04	ACER SACCHARUM (SUGAR MAPLE SEEDLNG B.R.)	13	EACH
	TOTAL		53	

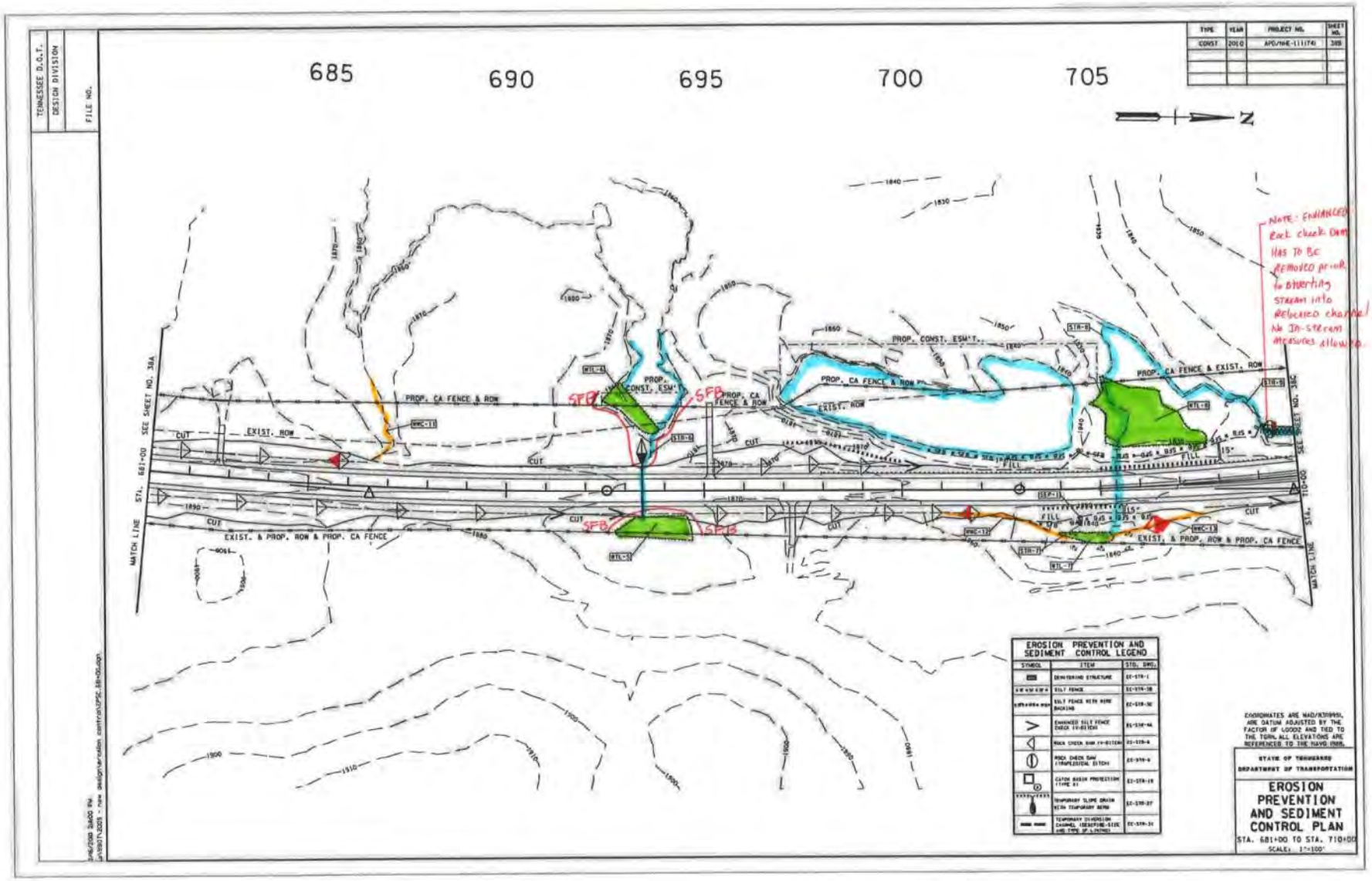
ESTIMATED TREE QUANTITIES - STREAM 30

	ITEM NO.	DESCRIPTION	QUANTITY	UNIT
1	802-11.19	LIRIODENDRON TULIPIFERA (TULIP POPLAR 2-5FT CNTNR GRWN)	7	EACH
2	802-11.14	DIOSPYROS VIRGINIANA (PERSIMMON 2-5FT CNTNR GRWN)	6	EACH
3	802-11.24	PINUS STROBUS (WHITE PINE 2-5FT CNTNR GRWN)	6	EACH
4	802-12.02	ACER RUBRUM (RED MAPLE SEEDLNG B.R.)	10	EACH
5	802-12.16	FRAXINUS PENNSYLVANICA (GREEN ASH SEEDLNG B.R.)	9	EACH
	TOTAL		38	

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

STREAM RELOCATION DETAILS


GENERAL COMMENTS:
1) INCLUDE AN ADDITIONAL PHASE FOR CLEARING & GRUBBING
2) DEPICT SILT FENCE WITH BACKING AROUND STREAMS & WETLANDS WHERE ACTIVE CONSTRUCTION OCCURS
3) ADD TCE (TEMPORARY CONSTRUCTION ENTRACE) AT POINTS OF EXIT/ENTRACE TO ACTIVE WORK AREAS
4) CONSIDER INCREASING THE SCALE TO 1:50 TO PROVIDE CLARITY
630
635
640
645
STAGING
1. CONSTRUCT TEMP. DIVERSION CHANNEL & TEMP. PIPE
2. USE DIVERSION BARRIER TO DIVERT WATER TO TEMP. PIPE
3. CONSTRUCT CULVERT EXTENSION
4. ADJUST DIVERSION BARRIER TO DIVERT WATER INTO NEW CULVERT
DIVERSION BARRIER
66" TEMP. PIPE
DETAIL 'A'
Temp. Diversion Channel 111'-Geotextile Type III w/R(prop)
YT005-3216-14
BEGIN PROJECT APD/NHE-111(74)
STA. 634+00 CONST.
EXIST. & PROP. ROW
SEE INSET DETAIL 'A' (THIS SHEET)
SEE SHEET NO. 38A
SEE SHEET NO. 38
EROSION CONTROL QUANTITIES
EROSION PREVENTION AND SEDIMENT CONTROL LEGEND
UPDATE LEGEND
EC-STR-2 ADD: SEDIMENT FILTER BAG
EC-STR-6A: ENHANCED ROCK CHECK DAM
EC-STR-25: TEMPORARY CONSTRUCTION ENT.
EC-STR-31: TEMPORARY DIVERSION CHANNEL
EC-STR-33 & 33A: SUSPENDED PIPE DIVERSIONS
EC-STR-37: SEDIMENT TUBE
EC-STR-4*: CATCH BASIN FILTER ASSEMBLY (TYPE *)
EROSION PREVENTION AND SEDIMENT CONTROL PLAN
STA. 634+00 TO STA. 653+00
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION


685
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695
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705
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TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.
TYPE
YEAR
PROJECT NO.
SHEET NO.
CONST
2010
APD/NHE-(111)74
389
Note: ENHANCED Rock check DAM HAS TO BE REMOVED prior to diverting STREAM into RELOCATED channel. No In-Stream measures allowed.
PROP. CONST. ESM'T.
PROP. CA FENCE & ROW
EXIST. ROW
EXIST. & PROP. ROW & PROP. CA FENCE
SEE SHEET NO. 38A
SEE SHEET NO. 38C
STA. 681+00
STA. 710+00
MATCH LINE
CUT
FILL
SFB
EROSION PREVENTION AND SEDIMENT CONTROL LEGEND
SYMBOL
ITEM
STD. DWG.
COORDINATES ARE NAD/83(1998), ARE DATUM ADJUSTED BY THE FACTOR OF 1.00002 AND TIED TO THE TDPA. ALL ELEVATIONS ARE REFERENCED TO THE NAVD 1988.
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
EROSION PREVENTION AND SEDIMENT CONTROL PLAN
STA. 681+00 TO STA. 710+00
SCALE: 1"=100'

Outfall Locations

- Per IB 09-11, “the designer is responsible for identifying and labeling stormwater outfalls on all phase of the EPSC plans…..”
- SWPPP writer may prefer to locate the outfalls for you to save time and editing
- Outfall drainage areas – to be provided by the designer

Coordination with Roadway Designer

- Designer to provide a copy of the revised EPSC plans for final review and approval
- SWPPP writer to:
  - contact designer minimum of 2 weeks prior to the design turn-in date
  - Review plans to determine if recommendations have been taken into consideration
  - Verify outfall labels have been placed in each phase and are labeled correctly
- For recommendations not accepted, the designer will be asked to provided their reason in writing
- Provide final comments (if needed)

What's in a TDOT SWPPP?

SWPPP Template:

5+ sheets and a Documentation and Permits Binder

- Site description (including soils, runoff, etc.)
- Order of construction activities
- Stream, outfall, wetland, and TMDL information
- Ecology information
- EPSC measures to be utilized
- Offsite material storage
- Maintenance and inspection
- stormwater management
- Non-stormwater discharges
- Spill prevention management and notification
- Record keeping
- Certifications
- Environmental permits
- Figure – topographic map

SWPPP Template Sections

Section 1: SWPPP Requirements

Section 2: Site Description

Section 3: Order of Construction Activities

Section 4: Stream, Outfall, Wetland, TMDL & Ecology Information

Section 5: Erosion Prevention and Sediment Control (EPSC) Measures

Section 6: Construction support Activities – Borrow and Waste Areas

Section 7: Maintenance and Inspection

SWPPP Template Sections

Section 8: Site Assessments

Section 9: Stormwater Management

Section 10: Non-Stormwater Discharges

Section 11: Spill Prevention, Management and Notification

Section 12: Record Keeping

Section 13 and 14: Certifications (TDOT and Contractor)

Section 15: Environmental Permits

TENNESSEE D.O.T.	DESIGN DIVISION	FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2011	ABCD-0000(00)	
P.E.	2011	12345-1234-00	S-1

CITATIONS IN PARENTHESIS INDICATE SECTIONS OF THE CURRENT CGP.

1. SWPPP REQUIREMENTS (3.0)

1.1. HAS THE SWPPP TEMPLATE BEEN PREPARED BY AN INDIVIDUAL THAT HAS THE FOLLOWING CERTIFICATIONS (3.1.1) YES ☒ NO ☐ (CHECK ALL THAT APPLY BELOW)

1.1.1. ☒ CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC); OR

1.1.2. ☒ TDEC LEVEL II

1.2. DOES THE EPSC PLANS INVOLVE STRUCTURAL DESIGN, HYDRAULIC, HYDROLOGIC OR OTHER ENGINEERING CALCULATIONS FOR EPSC STRUCTURAL MEASURES (SEDIMENT BASINS, ETC.)? YES ☐ NO ☒(3.1.1)

IF YES, HAVE THE EPSC PLANS BEEN PREPARED, STAMPED AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT?

☐YES ☐ NO

1.3. DOES THE PROJECT STORMWATER OUTFALLS DISCHARGE INTO THE FOLLOWING? (5.4.1) YES ☒ NO ☐ (CHECK ALL THAT APPLY BELOW)

1.3.1. ☒ IMPAIRED WATERS (303d FOR SILTATION OR HABITAT ALTERATION)

1.3.2. ☐ TENNESSEE KNOWN EXCEPTIONAL WATERS

IF YES, HAVE THE EPSC PLANS BEEN PREPARED BY AN INDIVIDUAL WHO HAS COMPLETED TDEC LEVEL II? ☒YES ☐ NO (5.4.1.b); AND

IF YES, HAS THE SWPPP TEMPLATE BEEN PREPARED BY AN INDIVIDUAL WHO HAS COMPLETED TDEC LEVEL II? ☒YES ☐ NO (5.4.1.b)

2. SITE DESCRIPTION (3.5.1)

2.1. PROJECT LIMITS REFER TO TITLE SHEET (3.5.1.g);

2.2. PROJECT DESCRIPTION: (3.5.1.a)

TITLE: SR-33 FROM NORTH OF SR-71 TO THE UNION COUNTY LINE

COUNTY: KNOX

PIN: 101230.00

2.3. SITE MAP(S): REFER TO TITLE SHEET (3.5.1.g)

2.4. DESCRIPTION OF EXISTING SITE TOPOGRAPHY (3.5.1.d): REFER TO EXISTING CONTOURS SHEET(S) 22-35 ; DRAINAGE MAP SHEET(S) 14-18; USGS QUAD MAP; AND THE OUTFALL TABLE IN SECTION 4.2.3 BELOW.

2.5. MAJOR SOIL DISTURBING ACTIVITIES (3.5.1.b) (CHECK ALL THAT APPLY)

2.5.1. ☒ CLEARING AND GRUBBING

2.5.2. ☒ EXCAVATION

2.5.3. ☒ CUTTING AND FILLING

2.5.4. ☒ FINAL GRADING AND SHAPING

2.5.5. ☒ UTILITIES

2.5.6. ☐ OTHER (DESCRIBE): ____

2.6. TOTAL PROJECT AREA (3.5.1.e): 324.3 ACRES

2.7. TOTAL AREA TO BE DISTURBED (3.5.1.e): 154.1 ACRES

IF GREATER THAN 50 ACRES, HAS CONSTRUCTION PROJECT PHASING BEEN SPECIFIED IN SECTION 3 BELOW AND IN THE PLANS (3.5.3.1.k)?

YES ☒ NO ☐ N/A ☐

2.8. ARE THERE ANY SEASONAL LIMITATIONS ON WORK? YES ☐ NO ☒

IF YES, DESCRIBE AND LIST THE CORRESPONDING PLAN SHEET: ____

2.9. WAS ROW FINALIZED PRIOR TO FEBRUARY 1, 2010?

YES ☐ _____ (DATE); NO ☒ (4.1.2.2).

IF ROW WAS FINALIZED PRIOR TO FEBRUARY 1, 2010, THIS PROJECT IS CONSIDERED A PRE-APPROVED SITE (4.1.2.2)

2.10. ARE UTILITIES INCLUDED IN THE CONTRACT? YES ☒ NO ☐

2.11. SOIL PROPERTIES (3.5.1.e)(4.1.1)

SOIL PROPERTIES FOR THE PRIMARY SOILS ARE LISTED IN THE TABLE BELOW.

SOIL PROPERTIES			
PRIMARY SOIL NAME	HSG	% OF SITE	ERODIBILITY (k value)
APISON- MONTEVALLO COMPLEX	C	25.3	0.37
DEWEY SILT LOAM	B	4.6	0.32
EMORY SILT LOAM	B	15.4	0.37
ETOWAH- MINVALE COMPLEX	B	19.6	0.32
LOYSTON- NONABURG- ROCK OUTCROP COMPLEX	D	18.1	N/A
STEADMAN SILT LOAM	C	17.0	0.37

2.12. PROJECT RUNOFF COEFFICIENTS AND AREA PERCENTAGES (3.5.1.f)

RUNOFF COEFFICIENTS FOR EXISTING CONDITIONS				
AREA TYPE	AREA(AC)	PERCENTAGE OF TOTAL AREA (%)	RUNOFF CN	C FACTOR
IMPERVIOUS (ROADS, SHOULDERS, ETC.)	56.5	25.2	98	
PERVIOUS (GRASS, FORESTS, ETC.)	164.9	73.5	72	
SEMI-PERVIOUS (RIP RAP, GRAVEL, ETC.)	2.9	1.3	89	
WEIGHTED CURVE NUMBER OR C-FACTOR =			79	

RUNOFF COEFFICIENTS FOR POST-CONSTRUCTION CONDITIONS				
AREA TYPE	AREA(AC)	PERCENTAGE OF TOTAL AREA (%)	RUNOFF CN	C FACTOR
IMPERVIOUS (ROADS, SHOULDERS, ETC.)	72.6	32.4	98	
PERVIOUS (GRASS, FORESTS, ETC.)	130.3	58.1	74	
SEMI-PERVIOUS (RIP RAP, GRAVEL, ETC.)	21.4	9.5	89	
WEIGHTED CURVE NUMBER OR C-FACTOR =			83	

3. ORDER OF CONSTRUCTION ACTIVITIES (3.5.1.b, 3.5.2.a)

3.1. SPECIAL SEQUENCING REQUIREMENTS (SEE SHEETS ____)

3.2. INSTALL STABILIZED CONSTRUCTION EXITS.

3.3. INSTALL PERIMETER PROTECTION WHERE RUNOFF SHEETS FROM THE SITE.

3.4. INSTALL INITIAL EPSC (EROSION PREVENTION AND SEDIMENT CONTROL) MEASURES.

3.5. PERFORM CLEARING AND GRUBBING (NOT MORE THAN 15 DAYS PRIOR TO GRADING OR EARTH-MOVING. REFER TO THE STABILIZATION PRACTICES BELOW.)

3.6. REMOVE AND STORE TOPSOIL. STABILIZE TOPSOIL STOCKPILES WITHIN 15 DAYS OF INACTIVITY.

3.7. STABILIZE DISTURBED AREAS WITHIN 14 DAYS OF COMPLETING ANY PHASE OF ACTIVITY.

3.8. INSTALL UTILITIES, STORM SEWERS AND BRIDGE STRUCTURES.

3.9. INSTALL INLET AND CULVERT PROTECTION ONCE STRUCTURES ARE IN PLACE AND CAPABLE OF INTERCEPTING FLOW.

3.10. PERFORM FINAL GRADING AND INSTALL BASE STONE.

3.11. COMPLETE FINAL PAVING AND SEALING OF CONCRETE.

3.12. INSTALL TRAFFIC CONTROL AND PROTECTION DEVICES.

3.13. COMPLETE FINAL STABILIZATION (TOPSOIL, SEEDING, MULCH, SOD, ETC)

3.14. REMOVE TEMPORARY EROSION CONTROLS AND ACCUMULATED SEDIMENT FROM AREAS THAT HAVE ESTABLISHED AT LEAST 70 PERCENT PERMANENT VEGETATIVE COVER.

3.15. RESEED AREAS DISTURBED BY REMOVAL ACTIVITIES.

4. STREAM, OUTFALL, WETLAND, TMDL AND ECOLOGY INFORMATION

4.1. STREAM INFORMATION

WILL CONSTRUCTION AND/OR EROSION PREVENTION AND SEDIMENT CONTROLS IMPACT ANY STREAMS? YES ☒ NO ☐

4.1.1. STREAM INFORMATION

4.1.1.1. THE STRUCTURAL EPSC MEASURES HAVE BEEN INCLUDED IN THE TOTAL PROJECT IMPACTS AND HAVE BEEN INCLUDED IN THE AQUATIC RESOURCE ALTERATION (ARAP) PERMIT OR SECTION 401 CERTIFICATION (3.5.1.i). REFER TO THE LIST OF APPLICABLE ENVIRONMENTAL PERMITS LOCATED ON SWPPP SHEET 5. ALL PERMITS WILL BE MAINTAINED ON SITE IN THE "DOCUMENTATION AND PERMITS" BINDER.

4.1.1.2. RECEIVING STREAMS (3.5.1.j)

RECEIVING STREAM INFORMATION			
NATURAL RESOURCE LABEL	NAME OF RECEIVING NATURAL RESOURCE	IMPAIRED FOR SILTATION OR HABITAT ALTERATION (YES OR NO)	KNOWN EXCEPTIONAL QUALITY WATERS (YES OR NO)
WWC-1	WET WEATHER CONVEYANCE	NO	NO
STR-1	MILL BRANCH	YES	NO
WWC-2	WET WEATHER CONVEYANCE	NO	NO
WWC-3	WET WEATHER CONVEYANCE	NO	NO
SPG-1/STR-2	UNNAMED TRIBUTARY TO MILL BRANCH	YES	NO
WWC-4	WET WEATHER CONVEYANCE	NO	NO
WWC-5	WET WEATHER CONVEYANCE	NO	NO

4.1.2. ARE BUFFER ZONES REQUIRED? YES ☒ NO ☐ (4.1.2, 5.4.2)

IF YES, THEY HAVE BEEN INCLUDED ON PLAN SHEET(S) 22-35

IF YES, CHECK THE APPROPRIATE BOX BELOW FOR SIZE OF BUFFER

☒ 60-FEET FOR IMPAIRED AND EXCEPTIONAL WATERS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 30-FEET)

☐ 30-FEET FOR ALL OTHER STREAMS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 15-FEET)

BUFFER ZONE REQUIREMENTS ARE NOT REQUIRED FOR PRE-APPROVED SITES (4.1.2.2)

4.1.3. ARE THERE BUFFER ZONE EXEMPTIONS? YES ☐ NO ☒ (4.1.2.1)

4.2. OUTFALL INFORMATION:

A SEDIMENT BASIN OR EQUIVALENT MEASURE(S) WILL BE PROVIDED FOR ANY OUTFALL IN A DRAINAGE AREA:

4.2.1. OF TEN ACRES OR MORE FOR AN OUTFALL(S) THAT DOES NOT DISCHARGE TO AN IMPAIRED STREAM OR KNOWN EXCEPTIONAL QUALITY WATER (3.5.3.3)

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4.2.2. OF FIVE ACRES OR MORE FOR AN OUTFALL(S) THAT DISCHARGES TO AN IMPAIRED STREAM OR KNOWN EXCEPTIONAL QUALITY WATER (5.4.1.f).

4.2.3. OUTFALL TABLE (3.5.1.d, 5.4.1.f)

OUTFALL INFORMATION

OUTFALL LABEL	STATION LT OR RT	SLOPE WITHIN ROW (%)	DRAINAGE AREA (AC)	SEDIMENT BASIN OR EQUIVALENT MEASURE(S) (YES, NO OR N/A)	SUB-OUTFALL (e.g. A, B, C)†	RECEIVING NATURAL RESOURCE NAME OR LABEL
1	205+80, RT	23	4.3	N/A		WTL-1
2	210+10, RT	15	20.1	YES		STR-1
3	210+40, LT	33	1.2	N/A		STR-1
4	210+80, LT	18	7.5	YES		WWC-1
5	233+60, LT	5	2.3	N/A		WWC-2
6	291+70, LT	10	3.6	N/A		STR-2

†NOTE: SUB-OUTFALLS ARE DEFINED AS OUTFALLS THAT DISCHARGE WITHIN THE PROJECT AND DO NOT DIRECTLY DISCHARGE OFF ROW OR INTO WATERS OF THE STATE.

4.2.4. WHERE POSSIBLE, HAS NON-PROJECT RUN-ON BEEN DIVERTED THROUGH THE PROJECT SO THAT THE OFF-SITE RUN-ON WILL NOT FLOW OVER DISTURBED AREAS WITHIN THE ROW, THUS SEPARATING NON-PROJECT RUN-OFF FROM PROJECT RUN-OFF THEREBY REDUCING THE DRAINAGE AREA TO ANY ONE OUTFALL? YES ☒ NO ☐

4.2.5. ARE EQUIVALENT MEASURES BEING SUBSTITUTED FOR A SEDIMENT BASIN(S)? YES ☐ NO ☒

4.2.6. HAVE ALL OUTFALLS BEEN LABELED ON THE EPSC PLAN SHEETS (3.5.1.g, 5.4.1.f)? YES ☒ NO ☐

4.2.7. HAVE ALL OUTFALLS BEEN LABELED ON A USGS TOPOGRAPHIC MAP INCLUDED IN THE "DOCUMENTATION AND PERMITS" BINDER (2.6.2)? YES ☒ NO ☐

4.3. WETLAND INFORMATION

WILL CONSTRUCTION AND/OR EROSION AND SEDIMENT CONTROLS IMPACT ANY WETLANDS? YES ☒ NO ☐

IF YES, THE STRUCTURAL EPSC MEASURES HAVE BEEN INCLUDED IN THE TOTAL PROJECT WETLAND IMPACTS AND HAVE BEEN INCLUDED IN THE ARAP PERMIT, 401 OR 404 PERMITS.

WETLAND INFORMATION

WETLAND LABEL	FROM STATION LT OR RT	TO STATION LT OR RT	TEMPORARY IMPACTS (AC)	PERMANENT IMPACTS (AC)
WTL-1	206+25, RT	207+25, RT	0.05	0.00
WTL-2	338+60, LT	339+60, LT	0.00	0.39
WTL-3	368+60,RT	369+25, RT	0.08	0.25

4.4. TOTAL MAXIMUM DAILY LOADS (TMDL) INFORMATION (3.5.10)

4.4.1. IS THIS PROJECT LOCATED IN A WATERSHED THAT MAINTAINS AN EPA APPROVED TMDL FOR SILTATION? YES ☒ NO ☐

4.4.2. IF YES, IS THIS PROJECT LOCATED WITHIN A SUBWATERSHED WITH A WASTE LOAD ALLOCATION (WLA)? YES ☒ NO ☐

4.4.3. IF YES, DOES THE PROJECT HAVE A DIRECT DISCHARGE TO A 303(d) LISTED STREAM FOR SILTATION OR HABITAT ALTERATION? YES ☒ NO ☐

4.4.4. IF YES, HAS A SUMMARY OF THE CONSULTATION (LETTER) BEEN INCLUDED WITH THE SWPPP DOCUMENTATION? YES ☒ NO ☐

4.5. ECOLOGY INFORMATION (3.5.5.e)

IF SPECIAL NOTES ARE PRESENT IN THE TDOT ECOLOGY REPORT, HAVE THEY BEEN ADDED TO THE APPROPRIATE PLAN SHEETS?

YES ☐ NO ☐ NO NOTES REQUIRED ☒

IF YES, LIST ALL PLAN SHEETS WHERE SPECIAL NOTES HAVE BEEN ADDED.

5. EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURES (3.5.3)

5.1. EPSC MEASURES MUST BE DESIGNED, INSTALLED AND MAINTAINED TO CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE EROSION. (4.1.1)

5.2. EPSC MEASURES MUST CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOWS AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS, STREAM CHANNELS AND STREAM BANKS. (4.1.1)

5.3. HAVE THE CONTROL MEASURES BEEN DESIGNED ACCORDING TO THE SIZE AND SLOPE OF THE DISTURBED DRAINAGE AREA (3.5.3.3)? YES ☒ NO ☐

5.4. THE CONTROL MEASURES HAVE, AT A MINIMUM, BEEN DESIGNED FOR THE 5-YEAR, 24 HOUR STORM EVENT (3.5.3.3, 5.4.1.a). FOR SITES THAT DISCHARGE INTO AN IMPAIRED OR KNOWN EXCEPTIONAL QUALITY WATER, EPSC MEASURES WILL BE DESIGNED TO CONTROL STORM RUNOFF GENERATED BY A 5-YEAR, 24-HOUR STORM EVENT.

5.5. ARE THE LIMITS OF DISTURBANCE CLEARLY MARKED ON THE EPSC PLANS? (3.5.1.n) YES ☒ NO ☐

5.6. HAVE PHASED EPSC PLANS BEEN PREPARED FOR THE PROJECT? (3.5.2) YES ☒ NO ☐ (IF YES, CHECK ONE BELOW)

5.6.1. ☐ PROJECT DISTURBED AREA IS THAN LESS THAN 5 ACRES (MINIMUM OF TWO PHASES OF EPSC PLANS)

5.6.2. ☒ PROJECT DISTURBED AREA IS GREATER THAN 5 ACRES (MINIMUM OF THREE PHASES OF EPSC PLANS)

5.7. IS ADDITIONAL PHYSICAL OR CHEMICAL TREATMENT OF STORMWATER RUNOFF NECESSARY (5.4.1.a)? YES ☒ NO ☐

5.8. HAVE STEEP SLOPES (GREATER THAN 35%) BEEN MINIMALLY DISTURBED AND/OR PROTECTED BY CONVEYING RUNOFF NON-EROSIVELY AROUND OR OVER THE SLOPE? (3.5.3.2) (10 "STEEP SLOPES") YES ☒ NO ☐

5.9. ALL PHYSICAL AND/OR CHEMICAL TREATMENT WILL BE RESEARCHED, APPLIED IN ACCORDANCE WITH MANUFACTURE'S GUIDELINES AMD FULLY DESCRIBED ON THE EPSC PLANS (3.5.3.1.b).

5.10. ALL EPSC CONTROL MEASURES WILL BE INSTALLED ACCORDING TO TDOT STANDARDS (E.G. STANDARD DRAWINGS).

5.11. EPSC MEASURES WILL NOT BE INSTALLED IN A STREAM WITHOUT FIRST OBTAINING US COE SECTION 404, TDEC ARAP, AND TVA PERMITS.

5.12. DISCHARGES FROM DEWATERING ACTIVITIES ARE PROHIBITED UNLESS MANAGED BY CONTROLS PROVIDING EQUIVALENT LEVEL OF TREATMENT (FILTRATION) (4.14)

5.13. DISCHARGES FROM SEDIMENT BASINS AND IMPOUNDMENTS MUST USE OUTLET STRUCTURES THAT ONLY WITHDRAW WATER FROM NEAR THE SURFACE OF THE BASIN OR IMPOUNDMENT, UNLESS INFEASIBLE. (4.1.7)

5.14. THE CONTROL MEASURES LISTED IN THE QUANTITIES TABLE ON SHEET 2A-2B HAVE BEEN SELECTED IN ACCORDANCE WITH TDOT STANDARD DRAWINGS AND GOOD ENGINEERING PRACTICES (3.5.3.1.b).

5.15. THE QUANTITIES REQUIRED FOR STABILIZED CONSTRUCTION EXITS PER TDOT STANDARDS HAVE BEEN SPECIFIED ON SHEET 2A (3.5.3.1.n).

5.16. STABILIZATION PRACTICES

PRE-CONSTRUCTION VEGETATIVE COVER WILL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN 15 DAYS PRIOR TO GRADING OR EARTH MOVING UNLESS THE AREA WILL BE SEEDED AND/OR MULCHED OR OTHER TEMPORARY COVER IS INSTALLED. (3.5.3.1.h)

5.17. STABILIZATION MEASURES WILL BE INITIATED AS SOON AS POSSIBLE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY OR PERMANENT STABILIZATION WILL BE COMPLETED WITHIN 14 DAYS AFTER ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IN THAT AREA. PERMANENT STABILIZATION WILL REPLACE TEMPORARY MEASURES AS SOON AS PRACTICABLE. (3.5.3.2)

5.18. STEEP SLOPES (3.5.3.2)

STEEP SLOPES ARE DEFINED AS A NATURAL OR CREATED SLOPE OF 35% GRADE OR STEEPER REGARDLESS OF HEIGHT. STEEP SLOPES SHALL BE TEMPORARILY STABILIZED NOT LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED.

6. CONSTRUCTION SUPPORT ACTIVITIES – BORROW AND WASTE AREAS (1.2.2)(3.5.3.1.g)

IF OFFSITE BORROW AND WASTE AREAS BECOME NECESSARY DURING THE LIFE OF THE PROJECT, THE SUPPORT ACTIVITIES SHALL BE ADDRESSED IN THE TDOT *WASTE AND BORROW MANUAL* PER THE *STATEWIDE STORMWATER MANAGEMENT PLAN (SSWMP)*.

7. MAINTENANCE AND INSPECTION

7.1. INSPECTION PRACTICES (3.5.8)

7.1.1. INSPECTORS MUST HAVE SUCCESSFULLY COMPLETED THE TDEC FUNDAMENTALS OF EROSION AND SEDIMENT CONTROL COURSE (TDEC LEVEL I) AND MAINTAIN THE CERTIFICATION. A COPY OF THE INSPECTOR'S CERTIFICATION SHOULD BE KEPT ON SITE. (3.5.8.1)

7.1.2. INSPECTIONS WILL BE CONDUCTED AT LEAST TWICE EVERY CALENDAR WEEK AND AT LEAST 72 HOURS APART. (3.5.8.2.a)

7.1.3. THE FREQUENCY OF EPSC INSPECTIONS MAY BE REDUCED TO ONCE A MONTH (I.E. EXTREME DROUGHT CONDITIONS, FROZEN GROUND, ETC.) WITH WRITTEN NOTIFICATION TO TDEC NASHVILLE CENTRAL OFFICE AND SUBSEQUENT TDEC APPROVAL. WRITTEN NOTIFICATION MUST INCLUDE THE INTENT TO CHANGE FREQUENCY AND JUSTIFICATION. (3.5.8.2.e)

7.1.4. ALL DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED, AREAS USED FOR MATERIAL STORAGE THAT ARE EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE, AND EACH OUTFALL WILL BE INSPECTED. (3.5.8.2.b)

7.1.5. THE INSPECTOR WILL OVERSEE THE REQUIREMENTS OF OTHER CONSTRUCTION-RELATED WATER QUALITY PERMITS (I.E. TDEC ARAP, US COE AND TVA SECTION 26a PERMITS) FOR CONSTRUCTION ACTIVITIES AROUND WATERS OF THE STATE (10)

7.1.6. THE SWPPP WILL BE REVISED AS NECESSARY BASED ON THE RESULTS OF THE INSPECTION. REVISION(S) WILL BE RECORDED WITHIN 7 DAYS OF THE INSPECTION. REVISION(S) WILL BE IMPLEMENTED WITHIN 14 DAYS OF THE INSPECTION. (3.8.5.2.e AND 3.8.5.2.f)

7.1.7. THE INSPECTOR SHALL CONDUCT PRE-CONSTRUCTION INSPECTIONS TO VERIFY AREAS THAT ARE NOT TO BE DISTURBED HAVE BEEN MARKED IN THE SWPPP AND IN THE FIELD BEFORE LAND DISTURBANCE ACTIVITIES BEGIN AND INITIAL MEASURES HAVE BEEN INSTALLED. (10 "INSPECTOR") (3.5.1n)

7.1.8. INSPECTIONS WILL BE DOCUMENTED ON THE TDOT EPSC INSPECTION REPORT (TDEC PRE-APPROVED) AND INCLUDE THE SCOPE OF THE INSPECTION, NAME(S), TITLE AND TN EPSC CERTIFICATION NUMBER OF PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, CURRENT APPROXIMATE DISTURBED ACREAGE AT TIME OF INSPECTION, CHECKLIST (NOC, SWPPP, RAIN GAGE, SITE CONTACT INFORMATION, ETC.) AND MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE SWPPP. (3.5.8.2.g)

7.1.9. DOCUMENTATION OF INSPECTIONS WILL BE MAINTAINED ON SITE IN THE "DOCUMENTATION AND PERMITS" BINDER. REPORTS WILL BE SUBMITTED TO THE TDOT PROJECT SUPERVISOR PER THE CONTRACT.

7.1.10. THESE INSPECTION REQUIREMENTS DO NOT APPLY TO DEFINABLE AREAS OF THE SITE THAT HAVE MET FINAL STABILIZATION REQUIREMENTS AND HAVE BEEN NOTED IN THE SWPPP.

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7.1.11. 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. (3.6.5.2.h)

7.2. DULY AUTHORIZED REPRESENTATIVE (7.7.3)

THE PROJECT SUPERVISOR MAY DELEGATE AN INDIVIDUAL AND/OR CONSULTANT TO SIGN EPSC INSPECTIONS REPORTS FOR SATISFYING SIGNATORY REQUIREMENTS FOR EPSC INSPECTION REPORTS. THE PROJECT SUPERVISOR AND NEWLY AUTHORIZED INDIVIDUAL ACCEPTING RESPONSIBILITY MUST PERFORM THE FOLLOWING:

7.2.1. COMPLETE AND SIGN THE TDOT CONSTRUCTION DIVISION EPSC DELEGATION OF AUTHORITY.

7.2.2. SUBMIT THE EPSC DELEGATION OF AUTHORITY TO THE LOCAL TDEC EFO.

7.3. MAINTENANCE PRACTICES (3.5.3.1 AND 3.5.7)

7.3.1. ALL CONTROLS WILL BE MAINTAINED IN GOOD AND EFFECTIVE OPERATING ORDER. NECESSARY REPAIRS OR MAINTENANCE WILL BE ACCOMPLISHED BEFORE THE NEXT STORM EVENT AND IN NO CASE MORE THAN 24 HOURS AFTER THE NEED IS IDENTIFIED. IN A CASE WHERE THE ACTIVITY IS DEEMED IMPRACTICABLE, ANY SUCH CONDITIONS WILL BE DOCUMENTED. (3.5.0.2.e)

7.3.2. ALL CONTROLS WILL BE MAINTAINED IN ACCORDANCE WITH TDOT STANDARD DRAWINGS AND GOOD ENGINEERING PRACTICES. (3.5.3.1.b)

7.3.3. SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS, SILT FENCE, SEDIMENT BASINS, AND OTHER CONTROLS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%. (3.5.3.1.e)

7.3.4. CHECK DAMS WILL BE INSPECTED FOR STABILITY. SEDIMENT WILL BE REMOVED WHEN DEPTH REACHES ONE-HALF (½) THE HEIGHT OF THE DAM.

7.3.5. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER WILL BE PICKED UP AND REMOVED FROM STORMWATER EXPOSURE PRIOR TO ANTICIPATED STORM EVENTS OR BEFORE BEING CARRIED OFF OF THE SITE BY WIND, OR OTHERWISE PREVENTED FROM BECOMING A POLLUTANT SOURCE FOR STORMWATER DISCHARGES. AFTER USE, MATERIALS USED FOR EROSION CONTROL WILL BE REMOVED. (3.5.3.1.f)

7.3.6. ALL SEEDED AREAS WILL BE CHECKED FOR BARE SPOTS, EROSION WASHOUTS, AND VIGOROUS GROWTH FREE OF SIGNIFICANT WEED INFESTATIONS.

7.3.7. THE TDOT PROJECT SUPERVISOR OR THEIR DESIGNEE AND THE CONTRACTOR'S SITE SUPERINTENDENT ARE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE TDOT PROJECT SUPERVISOR OR THEIR DESIGNEE WILL COMPLETE THE INSPECTION REPORTS AND DISTRIBUTE COPIES PER THE CONTRACT.

8. SITE ASSESSMENTS (3.1.2)

QUALITY ASSURANCE SITE ASSESSMENTS OF EROSION PREVENTION AND SEDIMENT CONTROLS SHALL BE PERFORMED BY THE TDOT ENVIRONMENTAL DIVISION COMPREHENSIVE INSPECTIONS OFFICE GUIDELINES.

9. STORMWATER MANAGEMENT (3.5.4)

9.1. STORMWATER MANAGEMENT WILL BE HANDLED BY TEMPORARY CONTROLS OUTLINED IN THIS SWPPP AND ANY PERMANENT CONTROLS NEEDED TO MEET PERMANENT STORMWATER MANAGEMENT NEEDS IN THE POST CONSTRUCTION PERIOD. PERMANENT CONTROLS WILL BE SHOWN ON THE PLANS AND NOTED AS PERMANENT.

9.2. DESCRIBE ANY SPECIFIC POST-CONSTRUCTION MEASURES THAT WILL CONTROL VELOCITY, POLLUTANTS, AND/OR EROSION (3.5.1.F, 3.5.4): RIP-RAP OUTLET PROTECTION

9.3. OTHER ITEMS NEEDING CONTROL (3.5.5)

9.3.1. CONSTRUCTION MATERIALS:

THE FOLLOWING MATERIALS OR SUBSTANCES ARE EXPECTED TO BE PRESENT ON THE SITE DURING THE CONSTRUCTION PERIOD. (CHECK ALL THAT APPLY):

9.3.1.1. ☒ LUMBER, GUARDRAIL, TRAFFIC CONTROL DEVICES

9.3.1.2. ☒ CONCRETE WASHOUT

9.3.1.3. ☒ CONCRETE AND CORRUGATED METAL PIPES

9.3.1.4. ☒ MINERAL AGGREGATES, ASPHALT

9.3.1.5. ☒ EARTH

9.3.1.6. ☒ LIQUID TRAFFIC STRIPING MATERIALS, PAINT

9.3.1.7. ☒ ROCK

9.3.1.8. ☒ CURING COMPOUND

9.3.1.9. ☒ EXPLOSIVES

9.3.1.10. ☐ OTHER

THESE MATERIALS WILL BE HANDLED AS NOTED IN THIS SWPPP.

9.3.2. WASTE MATERIALS (3.5.5.b)

WASTE MATERIAL (EARTH, ROCK, ASPHALT, CONCRETE, ETC.) NOT REQUIRED FOR THE CONSTRUCTION OF THE PROJECT WILL BE DISPOSED OF BY THE CONTRACTOR. THE CONTRACTOR WILL OBTAIN ANY AND ALL NECESSARY PERMITS INCLUDING, BUT NOT LIMITED TO NPDES, AQUATIC RESOURCES ALTERATION PERMIT(S) CORPS OF ENGINEERS SECTION 404 PERMITS, AND TVA SECTION 26A PERMITS TO DISPOSE OF WASTE MATERIALS.

9.3.3. HAZARDOUS WASTE (3.5.5.c) (7.9)

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN A MANNER WHICH IS COMPLIANT WITH LOCAL OR STATE REGULATIONS. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES, AND THE INDIVIDUAL DESIGNATED AS THE CONTRACTOR'S ON-SITE REPRESENTATIVE WILL BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED. THE CONTRACTOR WILL OBTAIN ANY AND ALL NECESSARY PERMITS TO DISPOSE OF HAZARDOUS MATERIAL.

9.3.4. SANITARY WASTE (3.5.5.b)

PORTABLE SANITARY FACILITIES WILL BE PROVIDED ON ALL CONSTRUCTION SITES. SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS IN A TIMELY MANNER BY A LICENSED WASTE MANAGEMENT CONTRACTOR OR AS REQUIRED BY ANY LOCAL REGULATIONS. THE CONTRACTOR WILL OBTAIN ANY AND ALL NECESSARY PERMITS TO DISPOSE OF SANITARY WASTE.

9.3.5. OTHER MATERIALS.

THE FOLLOWING MATERIALS OR SUBSTANCES ARE EXPECTED TO BE PRESENT ON THE SITE DURING THE CONSTRUCTION PERIOD. (CHECK ALL THAT APPLY):

9.3.5.1. ☒ FERTILIZERS AND LIME

9.3.5.2. ☐ PESTICIDES AND/OR HERBICIDES

9.3.5.3. ☒ DIESEL AND GASOLINE

9.3.5.4. ☒ MACHINERY LUBRICANTS (OIL AND GREASE)

THESE MATERIALS WILL BE HANDLED AS NOTED THIS SWPPP.

10. NON-STORMWATER DISCHARGES (3.5.9)

10.1. THE FOLLOWING NON-STORMWATER DISCHARGES ARE ANTICIPATED DURING THE COURSE OF THIS PROJECT (CHECK ALL THAT APPLY):

10.1.1. ☒ DEWATERING OF WORK AREAS OF COLLECTED STORMWATER AND GROUND WATER

10.1.2. ☐ WATERS USED TO WASH VEHICLES (OF DUST AND SOIL), WHERE DETERGENTS ARE NOT USED AND DETENTION AND/OR FILTERING IS PROVIDED BEFORE THE WATER LEAVES SITE

10.1.3. ☒ WATER USED TO CONTROL DUST (3.5.3.1.n)

10.1.4. ☒ POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS FROM WHICH CHLORINE HAS BEEN REMOVED TO THE MAXIMUM EXTENT PRACTICABLE

10.1.5. ☒ UNCONTAMINATED GROUNDWATER OR SPRING WATER.

10.1.6. ☒ FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH POLLUTANTS

10.1.7. ☐ OTHER:

10.2. ALL ALLOWABLE NON-STORMWATER DISCHARGES WILL BE DIRECTED TO STABLE DISCHARGE STRUCTURES PRIOR TO LEAVING THE SITE. FILTERING OR CHEMICAL TREATMENT MAY BE NECESSARY PRIOR TO DISCHARGE.

10.3. THE DESIGN OF ALL IMPACTED EPSC MEASURES RECEIVING FLOW FROM ALLOWABLE NON-STORMWATER DISCHARGES MUST BE DESIGNED TO HANDLE THE VOLUME OF THE NON-STORMWATER COMPONENT.

10.4. WASH DOWN OR WASTE DISCHARGE OF CONCRETE TRUCKS WILL NOT BE PERMITTED ON-SITE UNLESS PROPER SETTLEMENT AREAS HAVE BEEN PROVIDED IN ACCORDANCE WITH BOTH STATE AND FEDERAL REGULATIONS.

10.5. ARE ANY DISCHARGES ASSOCIATED WITH INDUSTRIAL (NON-CONSTRUCTION STORMWATER) ACTIVITY EXPECTED (3.5.1.h)?

YES ☐ NO ☒ IF YES, SPECIFY THE LOCATION OF THE ACTIVITY AND ITS PERMIT NUMBER.

11. SPILL PREVENTION, MANAGEMENT AND NOTIFICATION (3.5.5.c, 5.1)

11.1. SPILL PREVENTION (3.5.5.c)

11.1.1. MATERIAL MANAGEMENT

11.1.1.1. HOUSEKEEPING

ONLY PRODUCTS NEEDED WILL BE STORED ON-SITE BY THE CONTRACTOR. EXCEPT FOR BULK MATERIALS THE CONTRACTOR WILL STORE ALL MATERIALS UNDER COVER AND IN APPROPRIATE CONTAINERS. PRODUCTS MUST BE STORED IN ORIGINAL CONTAINERS AND LABELED. MATERIAL MIXING WILL BE CONDUCTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHEN POSSIBLE, ALL PRODUCTS WILL BE USED COMPLETELY BEFORE PROPERLY DISPOSING OF THE CONTAINER OFF SITE. THE MANUFACTURER'S DIRECTIONS FOR DISPOSAL OF MATERIALS AND CONTAINERS WILL BE FOLLOWED. THE CONTRACTOR'S SITE SUPERINTENDENT WILL INSPECT MATERIALS STORAGE AREAS REGULARLY TO ENSURE PROPER USE AND DISPOSAL. DUST GENERATED WILL BE CONTROLLED IN AN ENVIRONMENTALLY SAFE MANNER. VEGETATION AREAS NOT ESSENTIAL TO THE CONSTRUCTION PROJECT WILL BE PRESERVED AND MAINTAINED AS NOTED ON THE PLANS.

11.1.1.2. HAZARDOUS MATERIALS

PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THE CONTAINER IS NOT RESEALABLE. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHEETS WILL BE RETAINED IN A SAFE PLACE TO RELAY IMPORTANT PRODUCT INFORMATION. IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S LABEL DIRECTIONS FOR DISPOSAL WILL BE FOLLOWED. MAINTENANCE AND REPAIR OF ALL EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM DRAIN DOWN, DE-GREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES WHICH MAY RESULT IN THE ACCIDENTAL RELEASE OF CONTAMINANTS WILL BE CONDUCTED ON AN IMPERVIOUS SURFACE AND UNDER COVER DURING WET WEATHER TO PREVENT THE RELEASE OF CONTAMINANTS ONTO THE GROUND. WHEEL WASH WATER WILL BE COLLECTED AND ALLOWED TO SETTLE OUT SUSPENDED SOLIDS PRIOR TO DISCHARGE. WHEEL WASH WATER WILL NOT BE DISCHARGED DIRECTLY INTO ANY STORMWATER SYSTEM OR STORMWATER TREATMENT SYSTEM. POTENTIAL PH-MODIFYING MATERIALS SUCH AS: BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHINGS AND CURING WATERS, CONCRETE PUMPING, AND MIXER WASHOUT WATERS WILL BE COLLECTED ON SITE AND MANAGED TO PREVENT CONTAMINATION OF STORMWATER RUNOFF.

11.1.1.3. PRODUCT SPECIFIC PRACTICES

11.1.1.3.1. PETROLEUM PRODUCTS: ALL ON-SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED.

11.1.1.3.2. FERTILIZERS: FERTILIZERS WILL BE APPLIED ONLY IN THE AMOUNTS SPECIFIED BY TDOT. ONCE APPLIED, FERTILIZERS WILL BE WORKED INTO THE SOIL TO LIMIT THE EXPOSURE TO STORMWATER. FERTILIZERS WILL BE STORED IN AN ENCLOSED AREA UNDER COVER. THE CONTENTS OF PARTIALLY USED FERTILIZER BAGS WILL BE TRANSFERRED TO SEALABLE CONTAINERS TO AVOID SPILLS.

11.1.1.3.3. PAINTS: ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. THE

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EXCESS WILL BE DISPOSED OF ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AND APPLICABLE STATE AND LOCAL REGULATIONS.

11.1.1.3.4. CONCRETE TRUCKS: CONTRACTORS WILL PROVIDE DESIGNATED TRUCK WASHOUT AREAS ON THE SITE. THESE AREAS MUST BE SELF CONTAINED AND NOT CONNECTED TO ANY STORMWATER OUTLET OF THE SITE. UPON COMPLETION OF CONSTRUCTION WASHOUT AREAS WILL BE PROPERLY STABILIZED.

11.2. SPILL MANAGEMENT

11.2.1. IN ADDITION TO THE PREVIOUS HOUSEKEEPING AND MANAGEMENT PRACTICES, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP IF NECESSARY.

11.2.2. FOR ALL HAZARDOUS MATERIALS STORED ON SITE, THE MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEAN UP WILL BE CLEARLY POSTED. SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATIONS OF THE INFORMATION AND CLEANUP SUPPLIES.

11.2.3. APPROPRIATE CLEANUP MATERIALS AND EQUIPMENT WILL BE MAINTAINED BY THE CONTRACTOR IN THE MATERIALS STORAGE AREA ON-SITE AND UNDER COVER. AS APPROPRIATE, EQUIPMENT AND MATERIALS MAY INCLUDE ITEMS SUCH AS BOOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR CLEAN UP PURPOSES.

11.2.4. ALL SPILLS WILL BE CLEANED IMMEDIATELY AFTER DISCOVERY AND THE MATERIALS DISPOSED OF PROPERLY. THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.

11.2.5. THE CONTRACTOR'S SITE SUPERINTENDENT WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE SITE SUPERINTENDENT HAS HAD APPROPRIATE TRAINING FOR HAZARDOUS MATERIALS HANDLING, SPILL MANAGEMENT, AND CLEANUP.

11.2.6. IF SPILLS REPRESENT AN IMMINENT THREAT OF ESCAPING THE SITE AND ENTERING RECEIVING WATERS, PERSONNEL WILL RESPOND IMMEDIATELY TO CONTAIN THE RELEASE AND NOTIFY THE SUPERINTENDENT AFTER THE SITUATION HAS BEEN STABILIZED.

11.2.7. IF OIL SHEEN IS OBSERVED ON SURFACE WATER (E.G. SETTLING PONDS, DETENTION PONDS, SWALES) ACTION WILL BE TAKEN IMMEDIATELY TO REMOVE THE MATERIAL CAUSING THE SHEEN. THE CONTRACTOR WILL USE APPROPRIATE MATERIALS TO CONTAIN AND ABSORB THE SPILL. THE SOURCE OF THE OIL SHEEN WILL ALSO BE IDENTIFIED AND REMOVED OR REPAIRED AS NECESSARY TO PREVENT FURTHER RELEASES.

11.2.8. IF A SPILL OCCURS THE SUPERINTENDENT OR THE SUPERINTENDENT'S DESIGNEE WILL BE RESPONSIBLE FOR COMPLETING THE SPILL REPORTING FORM AND FOR REPORTING THE SPILL TO THE TDOT PROJECT SUPERVISOR.

11.2.9. SPILL RESPONSE EQUIPMENT WILL BE INSPECTED AND MAINTAINED BY THE CONTRACTOR AS NECESSARY TO REPLACE ANY MATERIALS USED IN SPILL RESPONSE ACTIVITIES.

11.3. SPILL NOTIFICATION (5.1)

WHERE A RELEASE CONTAINING A HAZARDOUS SUBSTANCE IN AN AMOUNT EQUAL TO OR IN EXCESS OF A REPORTABLE QUANTITY ESTABLISHED UNDER EITHER 40 CFR 117 OR 40 CFR 302 OCCURS DURING A 24 HOUR PERIOD:

11.3.1. THE TDOT PROJECT SUPERVISOR IS RESPONSIBLE FOR NOTIFYING THE REGIONAL ENVIRONMENTAL COORDINATOR OR ASSISTANT REGIONAL ENVIRONMENTAL COORDINATOR AS SOON AS HE OR SHE HAS KNOWLEDGE OF THE DISCHARGE.

11.3.2. THE TDOT REGIONAL ENVIRONMENTAL COORDINATOR WILL NOTIFY THE LOCAL TDEC ENVIRONMENTAL FIELD OFFICE AND ANY OTHER APPLICABLE REGULATORY AGENCIES WITHIN 24 HOURS OF THE SPILL.

11.3.3. A WRITTEN DESCRIPTION OF THE RELEASE, DATE OF RELEASE AND CIRCUMSTANCES LEADING TO THE RELEASE, WHAT ACTIONS WERE TAKEN TO MITIGATE EFFECTS OF THE RELEASE, AND STEPS TAKEN TO MINIMIZE THE CHANCE OF FUTURE OCCURRENCES WILL BE SUBMITTED TO THE APPROPRIATE TDEC ENVIRONMENTAL FIELD OFFICE WITHIN 14 DAYS OF KNOWLEDGE OF THE RELEASE.

11.3.4. THE SWPPP MUST BE MODIFIED WITHIN 14 DAYS OF KNOWLEDGE OF THE RELEASE PROVIDING A DESCRIPTION OF THE RELEASE, CIRCUMSTANCES LEADING TO THE RELEASE, AND THE DATE OF RELEASE. THE SWPPP WILL BE REVIEWED AND MODIFIED AS NECESSARY TO IDENTIFY MEASURES TO PREVENT THE REOCCURRENCE OF SUCH RELEASES AND TO RESPOND TO SUCH RELEASES.

12 RECORD-KEEPING

12.1 REQUIRED RECORDS

TDOT OR THEIR DESIGNEE WILL MAINTAIN AT THE SITE THE FOLLOWING RECORDS OF CONSTRUCTION ACTIVITIES (3.5.3.1.m) (6.2.1):

12.1.1. THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR

12.1.2. THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE

12.1.3. THE DATES WHEN STABILIZATION MEASURES ARE INITIATED

12.1.4 RECORDS OF TWICE WEEKLY EPSC INSPECTION REPORTS AND CORRECTIVE MEASURES

12.1.5. RECORDS OF QUALITY ASSURANCE SITE ASSESSMENTS

12.1.6. COPY OF SITE EPSC INSPECTOR'S TDEC LEVEL 1 CERTIFICATION

12.1.7. RAINFALL MONITORING PLAN (3.5.3.1.o)

12.1.7.1. EQUIPMENT

AT A MINIMUM, THE CONTRACTOR WILL INSTALL A FENCE POST TYPE RAIN GAUGE TO MEASURE RAINFALL. THE STANDARD FENCE POST RAIN GAUGE WILL BE A WEDGE-SHAPED GAUGE THAT MEASURES UP TO 6 INCHES OF RAINFALL. AN ENGLISH SCALE WILL BE PROVIDED ON ONE FACE, WITH A METRIC SCALE ON THE OTHER FACE. GRADUATION WILL BE PERMANENTLY MOLDED IN DURABLE WEATHER-RESISTANT PLASTIC. THE MINIMUM GRADUATION WILL BE 0.01 INCH (OR 0.1MM). AN ALUMINUM BRACKET WITH SCREWS MAY BE USED TO MOUNT THE GAUGE ON A WOODEN SUPPORT.

12.1.7.2. LOCATION

THE RAIN GAUGE WILL BE LOCATED AT OR ALONG THE PROJECT SITE, AS DEFINED IN THE NOI OF THE NPDES PERMIT, IN AN OPEN AREA SUCH THAT THE MEASUREMENT WILL NOT BE INFLUENCED BY OUTSIDE FACTORS (I.E. OVERHANGS, GUTTER, TREES, ETC). AT LEAST ONE RAIN GAUGE PER LINEAR MILE IS REQUIRED ALONG (AS MEASURED ALONG THE CENTERLINE OF THE PRIMARY ALIGNMENT) THE PROJECT WHERE CLEARING, GRUBBING, EXCAVATION, GRADING, CUTTING OR FILLING IS ACTIVELY PERFORMED, OR EXPOSED SOIL HAS NOT YET BEEN PERMANENTLY STABILIZED.

12.1.7.3. METHODS

12.1.7.3.1. RAINFALL MONITORING WILL BE INITIATED PRIOR TO CLEARING, GRUBBING, EXCAVATION, GRADING, CUTTING, OR FILLING. EXCEPT AS SUCH MINIMAL CLEARING MAY BE NECESSARY TO INSTALL A RAIN GAUGE IN AN OPEN AREA. THE RAIN GAUGE WILL BE CHECKED FOR OPERATIONAL SOUNDNESS DAILY (DURING NORMAL BUSINESS HOURS) IN WET TIMES AND WEEKLY IN DRY TIMES. GAUGES WILL BE REPAIRED OR REPLACED ON THE SAME DAY IF FOUND TO BE NON-OPERATIONAL OR MISSING.

12.1.7.3.2. EACH RAIN GAUGE WILL BE READ (FOR DETAILED RECORDS OF RAINFALL) AND EMPTIED AFTER EVERY RAINFALL EVENT OCCURRING ON THE PROJECT SITE AT APPROXIMATELY THE SAME TIME OF THE DAY (DURING NORMAL BUSINESS HOURS). DURING PERIODS OF DRY CONDITIONS, IT WILL NOT BE NECESSARY TO READ THE RAIN GAUGE EVERY DAY. IN LIEU OF THIS REQUIREMENT ON WEEKENDS AND ON STATE HOLIDAYS, THE RAIN GAUGES CAN BE EMPTIED THE NEXT BUSINESS DAY AND A REFERENCE SITE USED FOR A RECORD OF DAILY AMOUNT OF PRECIPITATION FOR THOSE DAYS. A REFERENCE SITE IS THE DOCUMENTATION FROM THE CLOSEST GAUGE WITHIN PROXIMITY OF THE PROJECT FROM A RECOGNIZED SOURCE SUCH AS THE NOAA NATIONAL WEATHER SERVICE.

12.1.7.3.3. DETAILED RECORDS WILL BE RECORDED OF RAINFALL EVENTS INCLUDE DATES, AMOUNTS OF RAINFALL, AND THE APPROXIMATE DURATION (OR THE STARTING AND ENDING TIMES) THE RAINFALL RECORDS SHALL BE RECORDED ON THE TDOT EROSION AND SEDIMENT CONTROL CONSTRUCTION INSPECTION REPORT LOCATED IN CONSTRUCTION CIRCULAR 209.01-02 AND SHALL BE MAINTAINED IN THE "DOCUMENTATION AND PERMITS" BINDER.

12.1.7.3.4. IF IN THE EVENT THAT THE RAINFALL EVENT IS STILL IN PROGRESS AT THE DAILY RECORDING TIME, THE GAUGE WILL BE EMPTIED AND THE RECORD WILL INDICATE THAT THE STORM EVENT WAS STILL IN PROGRESS.

12.1.7.3.5. RAIN GAUGE INFORMATION (DETAILED RECORDS), INCLUDING THE LOCATION OF THE NEAREST OUTFALL, WILL BE RECORDED ON THE EPSC INSPECTION REPORT FORMS AT THE TIME OF MEASUREMENT.

12.2. KEEPING PLANS CURRENT (3.4)

TDOT OR THEIR DESIGNEE WILL MODIFY AND UPDATE THE SWPPP WHEN ANY OF THE FOLLOWING CONDITIONS APPLY:

12.2.1. WHENEVER THERE IS A CHANGE IN THE SCOPE OF THE PROJECT THAT WOULD BE EXPECTED TO HAVE A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO THE WATERS OF THE STATE AND WHICH HAS NOT OTHERWISE BEEN ADDRESSED IN THE SWPPP;

12.2.2. WHENEVER INSPECTIONS OR INVESTIGATIONS BY SITE OPERATORS, LOCAL, STATE, OR FEDERAL OFFICIALS INDICATE THE SWPPP IS PROVING INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS FROM CONSTRUCTION ACTIVITY SOURCES, OR IS OTHERWISE NOT ACHIEVING THE GENERAL OBJECTIVES OF CONTROLLING POLLUTANTS IN STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY; WHERE LOCAL, STATE, OR FEDERAL OFFICIALS DETERMINE THAT THE SWPPP IS INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANT SOURCES, A COPY OF ANY CORRESPONDENCE TO THAT EFFECT MUST BE RETAINED IN THE SWPPP;

12.2.3. WHEN ANY NEW OPERATOR AND/OR SUB-OPERATOR IS ASSIGNED OR RELIEVED OF THEIR RESPONSIBILITY TO IMPLEMENT A PORTION OF THE SWPPP; AND

12.2.4 TO PREVENT A NEGATIVE IMPACT TO LEGALLY PROTECTED STATE OR FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED AQUATIC FAUNA.

12.2.5 WHEN THERE IS A CHANGE IN CHEMICAL TREATMENT METHODS INCLUDING USE OF DIFFERENT TREATMENT CHEMICALS, DIFFERENT DOSAGE OR APPLICATION RATES OR A DIFFERENT AREA OF APPLICATION NOT SPECIFIED ON THE EPSC PLANS.

12.2.6 WHEN A TMDL IS DEVELOPED FOR THE RECEIVING WATERS FOR A POLLUTANT OF CONCERN (SILTATION AND/OR HABITAT ALTERATION)

12.3. MAKING PLANS ACCESSIBLE

12.3.1. TDOT WILL RETAIN A COPY OF THIS SWPPP (INCLUDING A COPY OF THE "DOCUMENTATION AND PERMITS" BINDER AT THE CONSTRUCTION SITE (OR OTHER LOCATION ACCESSIBLE TO TDEC AND THE PUBLIC) FROM THE DATE CONSTRUCTION COMMENCES TO THE DATE OF FINAL STABILIZATION. TDOT WILL HAVE A COPY OF THE SWPPP AVAILABLE AT THE LOCATION WHERE WORK IS OCCURRING ON-SITE FOR THE USE OF OPERATORS AND THOSE IDENTIFIED AS HAVING RESPONSIBILITIES UNDER THE SWPPP WHENEVER THEY ARE ON THE CONSTRUCTION SITE. (6.2)

12.3.2. PRIOR TO THE INITIATION OF LAND DISTURBING ACTIVITIES AND UNTIL THE SITE HAS MET THE FINAL STABILIZATION CRITERIA, TDOT OR THEIR DESIGNEE WILL POST A NOTICE NEAR THE MAIN ENTRANCE OF THE CONSTRUCTION SITE WITH THE FOLLOWING INFORMATION (3.3.3) (6.2.1):

12.3.2.1. A COPY OF THE NOTICE OF COVERAGE (NOC) WITH THE NPDES PERMIT NUMBER FOR THE PROJECT;

12.3.2.2. THE INDIVIDUAL NAME, COMPANY NAME, E-MAIL ADDRESS (IF APPLICABLE) AND TELEPHONE NUMBER OF THE LOCAL PROJECT SITE OWNER AND OPERATOR CONTACT;

12.3.2.3. A BRIEF DESCRIPTION OF THE PROJECT; AND

12.3.2.4. THE LOCATION OF THE SWPPP.

12.3.3. ALL INFORMATION DESCRIBED IN SECTION 10.3.2 MUST BE MAINTAINED IN LEGIBLE CONDITION. IF POSTING THIS INFORMATION NEAR A MAIN

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

STORMWATER POLLUTION PREVENTION PLAN

SSSSTHESSSSS
SSSSSSSSSSSSS

TENNESSEE D.O.T. | DESIGN DIVISION | FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2011	ABCD-0000(00)	
P.E.	2011	12345-1234-00	S-5

ENTRANCE IS INFEASIBLE DUE TO SAFETY CONCERNS. THE NOTICE SHALL BE POSTED IN A LOCAL BUILDING. THE NOTICE MUST BE PLACED IN A PUBLICLY ACCESSIBLE LOCATION WHERE CONSTRUCTION IS ACTIVELY UNDERWAY AND MOVED AS NECESSARY.

12.4. NOTICE OF TERMINATION (8.0)

12.4.1. WHEN ALL STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES THAT ARE AUTHORIZED BY THE PERMIT ARE ELIMINATED BY FINAL STABILIZATION, TDOT WILL SUBMIT A NOTICE OF TERMINATION (NOT) THAT IS SIGNED IN ACCORDANCE WITH THE PERMIT TO THE TDEC CENTRAL OFFICE IN NASHVILLE, TN.

12.4.2. FOR THE PURPOSES OF THE CERTIFICATION REQUIRED BY THE NOT, THE ELIMINATION OF STORMWATER DISCHARGES ASSOCIATED WITH THE CONSTRUCTION ACTIVITY MEANS THE FOLLOWING:

12.4.1.3. ALL EARTH-DISTURBING ACTIVITIES ON THE SITE ARE COMPLETED AND ALL DISTURBED SOILS AT THE PORTION OF THE CONSTRUCTION SITE WHERE THE OPERATOR HAD CONTROL HAVE BEEN FINALLY STABILIZED; AND

12.4.1.4. ALL CONSTRUCTION MATERIALS, WASTE AND WASTE HANDLING DEVICES, AND ALL EQUIPMENT, AND VEHICLES THAT WERE USED DURING CONSTRUCTION HAVE BEEN REMOVED AND PROPERLY DISPOSED; AND

12.4.1.5. ALL STORMWATER CONTROLS THAT WERE INSTALLED AND MAINTAINED DURING CONSTRUCTION, EXCEPT THOSE THAT ARE INTENDED FOR LONG-TERM USE FOLLOWING TERMINATION OF PERMIT COVERAGE, HAVE BEEN REMOVED; AND

12.4.1.6. ALL POTENTIAL POLLUTANTS AND POLLUTANT GENERATING ACTIVITIES ASSOCIATED WITH CONSTRUCTION HAVE BEEN REMOVED; AND

12.4.1.7. THE PERMITTEE HAS IDENTIFIED WHO IS RESPONSIBLE FOR ONGOING MAINTENANCE OF ANY STORMWATER CONTROLS LEFT ON THE SITE FOR LONG-TERM USE FOLLOWING TERMINATION OF PERMIT COVERAGE; AND

12.4.1.8. TEMPORARY EPSC MEASURES HAVE BEEN OR WILL BE REMOVED AT AN APPROPRIATE TIME TO ENSURE FINAL STABILIZATION IS MAINTAINED; AND

12.4.1.9. ALL STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES FROM THE IDENTIFIED SITE THAT ARE AUTHORIZED BY A NPDES GENERAL PERMIT HAVE OTHERWISE BEEN ELIMINATED FROM THE PORTION OF THE CONSTRUCTION SITE WHERE THE OPERATOR HAD CONTROL.

12.5. RETENTION OF RECORDS (6.2)

TDOT WILL RETAIN COPIES OF THE SWPPP, ALL REPORTS REQUIRED BY THE PERMIT, AND RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT FOR THE PROJECT FOR A PERIOD OF AT LEAST THREE (3) YEARS FROM THE DATE THE NOT WAS FILED.

13. SITE WIDE/PRIMARY PERMITTEE CERTIFICATION (7.7.5)

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 GATHER AND EVALUATE 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.

_____
AUTHORIZED TDOT PERSONNEL SIGNATURE (3.3.1)

SUZANNE B. HERRON, PE, CPESC
PRINTED NAME

DIRECTOR – ENVIRONMENTAL DIVISION
TITLE

_____
DATE

14. SECONDARY PERMITTEE (OPERATOR) CERTIFICATION (7.7.6)

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.

_____
AUTHORIZED OPERATOR (CONTRACTOR) SIGNATURE (3.3.1)

_____
PRINTED NAME

_____
TITLE

_____
DATE

15. ENVIRONMENTAL PERMITS (9.0)

LIST ALL ENVIRONMENTAL PERMITS AND EXPIRATION DATES FOR PROJECT (TO BE COMPLETED AT THE ENVIRONMENTAL PRECONSTRUCTION MEETING BY TDOT CONSTRUCTION OR THEIR DESIGNEE):

ENVIRONMENTAL PERMITS			
PERMIT	YES OR NO	PERMIT OR TRACKING NO.	EXPIRATION DATE*
TDEC ARAP			
CORPS OF ENGINEERS (COE)			
TVA 26A			
TDEC CGP			
OTHER:			

*THE TDOT ENVIRONMENTAL DIVISION MUST BE NOTIFIED SIX MONTHS PRIOR TO PERMIT EXPIRATION DATE.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

STORMWATER POLLUTION PREVENTION PLAN

Section 1: SWPPP Requirements

Construction General Permit (CGP) references are in parentheses

TDEC Level II requirement effective May 24, 2013

1. SWPPP REQUIREMENTS (3.0)

1.1. HAS THE SWPPP TEMPLATE BEEN PREPARED BY AN INDIVIDUAL THAT HAS THE FOLLOWING CERTIFICATIONS (3.1.1) YES ☒ NO ☐ (CHECK ALL THAT APPLY BELOW)

1.1.1. ☒ CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC); OR

1.1.2. ☒ TDEC LEVEL II

1.2. DOES THE EPSC PLANS INVOLVE STRUCTURAL DESIGN, HYDRAULIC, HYDROLOGIC OR OTHER ENGINEERING CALCULATIONS FOR EPSC STRUCTURAL MEASURES (SEDIMENT BASINS, ETC.)? YES ☐ NO ☒(3.1.1)

IF YES, HAVE THE EPSC PLANS BEEN PREPARED, STAMPED AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER OR LANDSCAPE ARCHITECT?

☐YES ☐ NO

1.3. DOES THE PROJECT STORMWATER OUTFALLS DISCHARGE INTO THE FOLLOWING? (5.4.1) YES ☒ NO ☐ (CHECK ALL THAT APPLY BELOW)

1.3.1. ☒ IMPAIRED WATERS (303d FOR SILTATION OR HABITAT ALTERATION)

1.3.2. ☐ TENNESSEE KNOWN EXCEPTIONAL WATERS

IF YES, HAVE THE EPSC PLANS BEEN PREPARED BY AN INDIVIDUAL WHO HAS COMPLETED TDEC LEVEL II? ☒YES ☐ NO (5.4.1.b); AND

IF YES, HAS THE SWPPP TEMPLATE BEEN PREPARED BY AN INDIVIDUAL WHO HAS COMPLETED TDEC LEVEL II? ☒YES ☐ NO (5.4.1.b)

Section 1: SWPPP Requirements

TDEC Level II Check

TNEPSC website

http://www.tnepsc.org/

Section 2: Site Description

Pre-approved site exemption (buffer zone requirements)

2. SITE DESCRIPTION (3.5.1)

2.1. PROJECT LIMITS REFER TO TITLE SHEET (3.5.1.g):

2.2. PROJECT DESCRIPTION: (3.5.1.a)

TITLE: SR-33 FROM NORTH OF SR-71 TO THE UNION COUNTY LINE

COUNTY: KNOX

PIN: 101230.00

2.3. SITE MAP(S): REFER TO TITLE SHEET (3.5.1.g)

2.4. DESCRIPTION OF EXISTING SITE TOPOGRAPHY (3.5.1.d): REFER TO EXISTING CONTOURS SHEET(S) 22-35 , DRAINAGE MAP SHEET(S) 14-18, USGS QUAD MAP, AND THE OUTFALL TABLE IN SECTION 4.2.3 BELOW.

2.5. MAJOR SOIL DISTURBING ACTIVITIES (3.5.1.b) (CHECK ALL THAT APPLY)

2.5.1. ☒ CLEARING AND GRUBBING

2.5.2. ☒ EXCAVATION

2.5.3. ☒ CUTTING AND FILLING

2.5.4. ☒ FINAL GRADING AND SHAPING

2.5.5. ☒ UTILITIES

2.5.6. ☐ OTHER (DESCRIBE): ____

2.6. TOTAL PROJECT AREA (3.5.1.c): 224.3 ACRES

2.7. TOTAL AREA TO BE DISTURBED (3.5.1.c): 154.1 ACRES

IF GREATER THAN 50 ACRES, HAS CONSTRUCTION PROJECT PHASING BEEN SPECIFIED IN SECTION 3 BELOW AND IN THE PLANS (3.5.3.1.k)?

YES ☒ NO ☐ N/A ☐

2.8. ARE THERE ANY SEASONAL LIMITATIONS ON WORK? YES ☐ NO ☒

IF YES, DESCRIBE AND LIST THE CORRESPONDING PLAN SHEET: ____

2.9. WAS ROW FINALIZED PRIOR TO FEBRUARY 1, 2010?

YES ☐ _____ (DATE) NO ☒ (4.1.2.2).

IF ROW WAS FINALIZED PRIOR TO FEBRUARY 1, 2010, THIS PROJECT IS CONSIDERED A PRE-APPROVED SITE (4.1.2.2)

2.10. ARE UTILITIES INCLUDED IN THE CONTRACT? YES ☒ NO ☐

Section 2: Soils Summary

HSG – Hydrologic Soil Group

k – Erodibility (higher the "k" value the more erodible the soil)

% of Site Total = 100%

2.11. SOIL PROPERTIES (3.5.1.e)(4.1.1)

SOIL PROPERTIES FOR THE PRIMARY SOILS ARE LISTED IN THE TABLE BELOW.

SOIL PROPERTIES			
PRIMARY SOIL NAME	HSG	% OF SITE	ERODIBILITY (k value)
APISON- MONTEVALLO COMPLEX	C	25.3	0.37
DEWEY SILT LOAM	B	4.6	0.32
EMORY SILT LOAM	B	15.4	0.37
ETOWAH- MINVALE COMPLEX	B	19.6	0.32
LOYSTON- NONABURG- ROCK OUTCROP COMPLEX	D	18.1	N/A
STEADMAN SILT LOAM	C	17.0	0.37

60.4% of the soils (C & D) will have a high rate of runoff during construction

57.7% of the soils (0.37) will have a high potential for sediment loss

Are your EPSC measures designed to handle the higher runoff and sediment loads?

Section 2: Runoff

Area Type – Keep Simple - 3 Categories (if possible)

% of Total Area = 100%

2.12. PROJECT RUNOFF COEFFICIENTS AND AREA PERCENTAGES (3.5.1.f)

RUNOFF COEFFICIENTS FOR EXISTING CONDITIONS				
AREA TYPE	AREA(AC)	PERCENTAGE OF TOTAL AREA (%)	RUNOFF CN	C FACTOR
IMPERVIOUS (ROADS, SHOULDERS, ETC.)	56.5	25.2	98	
PERVIOUS (GRASS, FORESTS, ETC.)	164.9	73.5	72	
SEMI-PERVIOUS (RIP RAP, GRAVEL, ETC.)	2.9	1.3	89	
WEIGHTED CURVE NUMBER OR C-FACTOR =			79	

RUNOFF COEFFICIENTS FOR POST-CONSTRUCTION CONDITIONS				
AREA TYPE	AREA(AC)	PERCENTAGE OF TOTAL AREA (%)	RUNOFF CN	C FACTOR
IMPERVIOUS (ROADS, SHOULDERS, ETC.)	72.6	32.4	98	
PERVIOUS (GRASS, FORESTS, ETC.)	130.3	58.1	74	
SEMI-PERVIOUS (RIP RAP, GRAVEL, ETC.)	21.4	9.5	89	
WEIGHTED CURVE NUMBER OR C-FACTOR =			83	

Section 4: Stream, Outfall, Wetland, TMDL, and Ecology Information

Scope G forms have been updated to indicate 303d or KETW for streams

4. STREAM, OUTFALL, WETLAND, TMDL AND ECOLOGY INFORMATION

4.1. STREAM INFORMATION

WILL CONSTRUCTION AND/OR EROSION PREVENTION AND SEDIMENT CONTROLS IMPACT ANY STREAMS? YES ☒ NO ☐

4.1.1. STREAM INFORMATION

4.1.1.1. THE STRUCTURAL EPSC MEASURES HAVE BEEN INCLUDED IN THE TOTAL PROJECT IMPACTS AND HAVE BEEN INCLUDED IN THE AQUATIC RESOURCE ALTERATION (ARAP) PERMIT OR SECTION 401 CERTIFICATION (3.5.1.i). REFER TO THE LIST OF APPLICABLE ENVIRONMENTAL PERMITS LOCATED ON SWPPP SHEET 5. ALL PERMITS WILL BE MAINTAINED ON SITE IN THE "DOCUMENTATION AND PERMITS" BINDER.

4.1.1.2. RECEIVING STREAMS (3.5.1.j)

RECEIVING STREAM INFORMATION			
NATURAL RESOURCE LABEL	NAME OF RECEIVING NATURAL RESOURCE	IMPAIRED FOR SILTATION OR HABITAT ALTERATION (YES OR NO)	KNOWN EXCEPTIONAL QUALITY WATERS (YES OR NO)
WWC-1	WET WEATHER CONVEYANCE	NO	NO
STR-1	MILL BRANCH	YES	NO
WWC-2	WET WEATHER CONVEYANCE	NO	NO
WWC-3	WET WEATHER CONVEYANCE	NO	NO
SPG-1/STR-2	UNNAMED TRIBUTARY TO MILL BRANCH	YES	NO
WWC-4	WET WEATHER CONVEYANCE	NO	NO
WWC-5	WET WEATHER CONVEYANCE	NO	NO

Section 4: Stream, Outfall, Wetland, TMDL, and Ecology Information

Buffer zones

4.1.2. ARE BUFFER ZONES REQUIRED? YES ☒ NO ☐ (4.1.2, 5.4.2)

IF YES, THEY HAVE BEEN INCLUDED ON PLAN SHEET(S) 22-35

IF YES, CHECK THE APPROPRIATE BOX BELOW FOR SIZE OF BUFFER

☒ 60-FEET FOR IMPAIRED AND EXCEPTIONAL WATERS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 30-FEET)

☐ 30-FEETFOR ALL OTHER STREAMS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 15-FEET)

BUFFER ZONE REQUIREMENTS ARE NOT REQUIRED FOR PRE-APPROVED SITES (4.1.2.2)

4.1.3. ARE THERE BUFFER ZONE EXEMPTIONS? YES ☐ NO ☒ (4.1.2.1)

Section 3: Stream, Outfall, Wetland, TMDL, and Ecology Information

Outfall information

Drainage area(s)

Sediment basins

4.2. OUTFALL INFORMATION:

A SEDIMENT BASIN OR EQUIVALENT MEASURE(S) WILL BE PROVIDED FOR ANY OUTFALL IN A DRAINAGE AREA:

4.2.1. OF TEN ACRES OR MORE FOR AN OUTFALL(S) THAT DOES NOT DISCHARGE TO AN IMPAIRED STREAM OR KNOWN EXCEPTIONAL QUALITY WATER (3.5.3.3)

4.2.2. OF FIVE ACRES OR MORE FOR AN OUTFALL(S) THAT DISCHARGES TO AN IMPAIRED STREAM OR KNOWN EXCEPTIONAL QUALITY WATER (5.4.1.f).

4.2.3. OUTFALL TABLE (3.5.1.d, 5.4.1.f)

OUTFALL INFORMATION						
OUTFALL LABEL	STATION LT OR RT	SLOPE WITHIN ROW (%)	DRAINAGE AREA (AC)	SEDIMENT BASIN OR EQUIVALENT MEASURE(S) (YES, NO OR N/A)	SUB-OUTFALL (e.g. A, B, C)†	RECEIVING NATURAL RESOURCE NAME OR LABEL
1	206+80, RT	23	4.3	N/A		WTL-1
2	210+10, RT	15	20.1	YES		STR-1
3	210+40, LT	33	1.2	N/A		STR-1
4	210+80, LT	18	7.5	YES		WWC-1
5	233+60, LT	5	2.3	N/A		WWC-2
6	291+70, LT	10	3.6	N/A		STR-2

†NOTE: SUB-OUTFALLS ARE DEFINED AS OUTFALLS THAT DISCHARGE WITHIN THE PROJECT AND DO NOT DIRECTLY DISCHARGE OFF ROW OR INTO WATERS OF THE STATE.

4.2.4. WHERE POSSIBLE, HAS NON-PROJECT RUN-ON BEEN DIVERTED THROUGH THE PROJECT SO THAT THE OFF-SITE RUN-ON WILL NOT FLOW OVER DISTURBED AREAS WITHIN THE ROW, THUS SEPARATING NON-PROJECT RUN-OFF FROM PROJECT RUN-OFF THEREBY REDUCING THE DRAINAGE AREA TO ANY ONE OUTFALL? YES ☒ NO ☐

4.2.5. ARE EQUIVALENT MEASURES BEING SUBSTITUTED FOR A SEDIMENT BASIN(S)? YES ☐ NO ☒

4.2.6. HAVE ALL OUTFALLS BEEN LABELED ON THE EPSC PLAN SHEETS (3.5.1.g, 5.4.1.f)? YES ☒ NO ☐

4.2.7. HAVE ALL OUTFALLS BEEN LABELED ON A USGS TOPOGRAPHIC MAP INCLUDED IN THE "DOCUMENTATION AND PERMITS" BINDER (2.6.2)?

YES ☒ NO ☐

Section 4: Stream, Outfall, Wetland, TMDL, and Ecology Information

Wetland information

4.3. WETLAND INFORMATION

WILL CONSTRUCTION AND/OR EROSION AND SEDIMENT CONTROLS IMPACT ANY WETLANDS? YES ☒ NO ☐

IF YES, THE STRUCTURAL EPSC MEASURES HAVE BEEN INCLUDED IN THE TOTAL PROJECT WETLAND IMPACTS AND HAVE BEEN INCLUDED IN THE ARAP PERMIT, 401 OR 404 PERMITS.

WETLAND INFORMATION				
WETLAND LABEL	FROM STATION LT OR RT	TO STATION LT OR RT	TEMPORARY IMPACTS (AC)	PERMANENT IMPACTS (AC)
WTL-1	206+25, RT	207+25, RT	0.05	0.00
WTL-2	338+60, LT	339+60, LT	0.00	0.39
WTL-3	368+60,RT	369+25, RT	0.08	0.25

Section 4: Stream, Outfall, Wetland, TMDL, and Ecology Information

TMDL and Ecology information

4.4. TOTAL MAXIMUM DAILY LOADS (TMDL) INFORMATION (3.5.10)

4.4.1. IS THIS PROJECT LOCATED IN A WATERSHED THAT MAINTAINS AN EPA APPROVED TMDL FOR SILTATION? YES ☒ NO ☐

4.4.2. IF YES, IS THIS PROJECT LOCATED WITHIN A SUBWATERSHED WITH A WASTE LOAD ALLOCATION (WLA)? YES ☒ NO ☐

4.4.3. IF YES, DOES THE PROJECT HAVE A DIRECT DISCHARGE TO A 303(d) LISTED STREAM FOR SILTATION OR HABITAT ALTERATION?

YES ☒ NO ☐

4.4.4. IF YES, HAS A SUMMARY OF THE CONSULTATION (LETTER) BEEN INCLUDED WITH THE SWPPP DOCUMENTATION? YES ☒ NO ☐

4.5. ECOLOGY INFORMATION (3.5.5.e)

IF SPECIAL NOTES ARE PRESENT IN THE TDOT ECOLOGY REPORT, HAVE THEY BEEN ADDED TO THE APPROPRIATE PLAN SHEETS?

YES ☐ NO ☐ NO NOTES REQUIRED ☒

IF YES, LIST ALL PLAN SHEETS WHERE SPECIAL NOTES HAVE BEEN ADDED.

Section 5: EPSC Measures

Stormwater volumes and peak flows

Limits of disturbance

Phased EPSC plans

Steep slopes

Chemical treatment

5. EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) MEASURES (3.5.3)

5.1. EPSC MEASURES MUST BE DESIGNED, INSTALLED AND MAINTAINED TO CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE EROSION. (4.1.1)

5.2. EPSC MEASURES MUST CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOWS AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS, STREAM CHANNELS AND STREAM BANKS. (4.1.1)

5.3. HAVE THE CONTROL MEASURES BEEN DESIGNED ACCORDING TO THE SIZE AND SLOPE OF THE DISTURBED DRAINAGE AREA (3.5.3.3)? YES ☒ NO ☐

5.4. THE CONTROL MEASURES HAVE, AT A MINIMUM, BEEN DESIGNED FOR THE 5-YEAR, 24 HOUR STORM EVENT (3.5.3.3, 5.4.1.a). FOR SITES THAT DISCHARGE INTO AN IMPAIRED OR KNOWN EXCEPTIONAL QUALITY WATER, EPSC MEASURES WILL BE DESIGNED TO CONTROL STORM RUNOFF GENERATED BY A 5-YEAR, 24-HOUR STORM EVENT.

5.5. ARE THE LIMITS OF DISTURBANCE CLEARLY MARKED ON THE EPSC PLANS? (3.5.1.n) YES ☒ NO ☐

5.6. HAVE PHASED EPSC PLANS BEEN PREPARED FOR THE PROJECT? (3.5.2)

YES ☒ NO ☐ (IF YES, CHECK ONE BELOW)

5.6.1. ☐ PROJECT DISTURBED AREA IS THAN LESS THAN 5 ACRES (MINIMUM OF TWO PHASES OF EPSC PLANS)

5.6.2. ☒ PROJECT DISTURBED AREA IS GREATER THAN 5 ACRES (MINIMUM OF THREE PHASES OF EPSC PLANS)

5.7. IS ADDITIONAL PHYSICAL OR CHEMICAL TREATMENT OF STORMWATER RUNOFF NECESSARY (5.4.1.a)? YES ☒ NO ☐

5.8. HAVE STEEP SLOPES (GREATER THAN 35%) BEEN MINIMALLY DISTURBED AND/OR PROTECTED BY CONVEYING RUNOFF NON-EROSIVELY AROUND OR OVER THE SLOPE? (3.5.3.2) (10 "STEEP SLOPES")

YES ☒ NO ☐

5.9. ALL PHYSICAL AND/OR CHEMICAL TREATMENT WILL BE RESEARCHED, APPLIED IN ACCORDANCE WITH MANUFACTURE'S GUIDELINES AMD FULLY DESCRIBED ON THE EPSC PLANS (3.5.3.1.b).

Section 5: EPSC Measures

EPSC Quantities

Construction Entrances

5.10. ALL EPSC CONTROL MEASURES WILL BE INSTALLED ACCORDING TO TDOT STANDARDS (E.G. STANDARD DRAWINGS).

5.11. EPSC MEASURES WILL NOT BE INSTALLED IN A STREAM WITHOUT FIRST OBTAINING US COE SECTION 404, TDEC ARAP, AND TVA PERMITS.

5.12. DISCHARGES FROM DEWATERING ACTIVITIES ARE PROHIBITED UNLESS MANAGED BY CONTROLS PROVIDING EQUIVALENT LEVEL OF TREATMENT (FILTRATION) (4.14)

5.13. DISCHARGES FROM SEDIMENT BASINS AND IMPOUNDMENTS MUST USE OUTLET STRUCTURES THAT ONLY WITHDRAW WATER FROM NEAR THE SURFACE OF THE BASIN OR IMPOUNDMENT, UNLESS INFEASIBLE. (4.1.7)

5.14. THE CONTROL MEASURES LISTED IN THE QUANTITIES TABLE ON SHEET 2A-2B HAVE BEEN SELECTED IN ACCORDANCE WITH TDOT STANDARD DRAWINGS AND GOOD ENGINEERING PRACTICES (3.5.3.1.b).

5.15. THE QUANTITIES REQUIRED FOR STABILIZED CONSTRUCTION EXITS PER TDOT STANDARDS HAVE BEEN SPECIFIED ON SHEET 2A (3.5.3.1.n).

5.16. STABILIZATION PRACTICES

PRE-CONSTRUCTION VEGETATIVE COVER WILL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN 15 DAYS PRIOR TO GRADING OR EARTH MOVING UNLESS THE AREA WILL BE SEEDED AND/OR MULCHED OR OTHER TEMPORARY COVER IS INSTALLED. (3.5.3.1.h)

5.17. STABILIZATION MEASURES WILL BE INITIATED AS SOON AS POSSIBLE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY OR PERMANENT STABILIZATION WILL BE COMPLETED WITHIN 14 DAYS AFTER ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED IN THAT AREA. PERMANENT STABILIZATION WILL REPLACE TEMPORARY MEASURES AS SOON AS PRACTICABLE. (3.5.3.2)

5.18. STEEP SLOPES (3.5.3.2)

STEEP SLOPES ARE DEFINED AS A NATURAL OR CREATED SLOPE OF 35% GRADE OR STEEPER REGARDLESS OF HEIGHT. STEEP SLOPES SHALL BE TEMPORARILY STABILIZED NOT LATER THAN 7 DAYS AFTER CONSTRUCTION ACTIVITY ON THE SLOPE HAS TEMPORARILY OR PERMANENTLY CEASED.

Section 10: Non-Stormwater Discharges

Filtering

Chemical treatment

Volume of non-stormwater discharge

10. NON-STORMWATER DISCHARGES (3.5.9)

10.1. THE FOLLOWING NON-STORMWATER DISCHARGES ARE ANTICIPATED DURING THE COURSE OF THIS PROJECT (CHECK ALL THAT APPLY):

- 10.1.1. ☒ DEWATERING OF WORK AREAS OF COLLECTED STORMWATER AND GROUND WATER
- 10.1.2. ☐ WATERS USED TO WASH VEHICLES (OF DUST AND SOIL) WHERE DETERGENTS ARE NOT USED AND DETENTION AND/OR FILTERING IS PROVIDED BEFORE THE WATER LEAVES SITE
- 10.1.3. ☒ WATER USED TO CONTROL DUST (3.5.3.1.n)
- 10.1.4. ☒ POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS FROM WHICH CHLORINE HAS BEEN REMOVED TO THE MAXIMUM EXTENT PRACTICABLE
- 10.1.5. ☒ UNCONTAMINATED GROUNDWATER OR SPRING WATER
- 10.1.6. ☒ FOUNDATION OR FOOTING DRAINS WHERE FLOWS ARE NOT CONTAMINATED WITH POLLUTANTS
- 10.1.7. ☐ OTHER:

10.2. ALL ALLOWABLE NON-STORMWATER DISCHARGES WILL BE DIRECTED TO STABLE DISCHARGE STRUCTURES PRIOR TO LEAVING THE SITE. FILTERING OR CHEMICAL TREATMENT MAY BE NECESSARY PRIOR TO DISCHARGE.

10.3. THE DESIGN OF ALL IMPACTED EPSC MEASURES RECEIVING FLOW FROM ALLOWABLE NON-STORMWATER DISCHARGES MUST BE DESIGNED TO HANDLE THE VOLUME OF THE NON-STORMWATER COMPONENT.

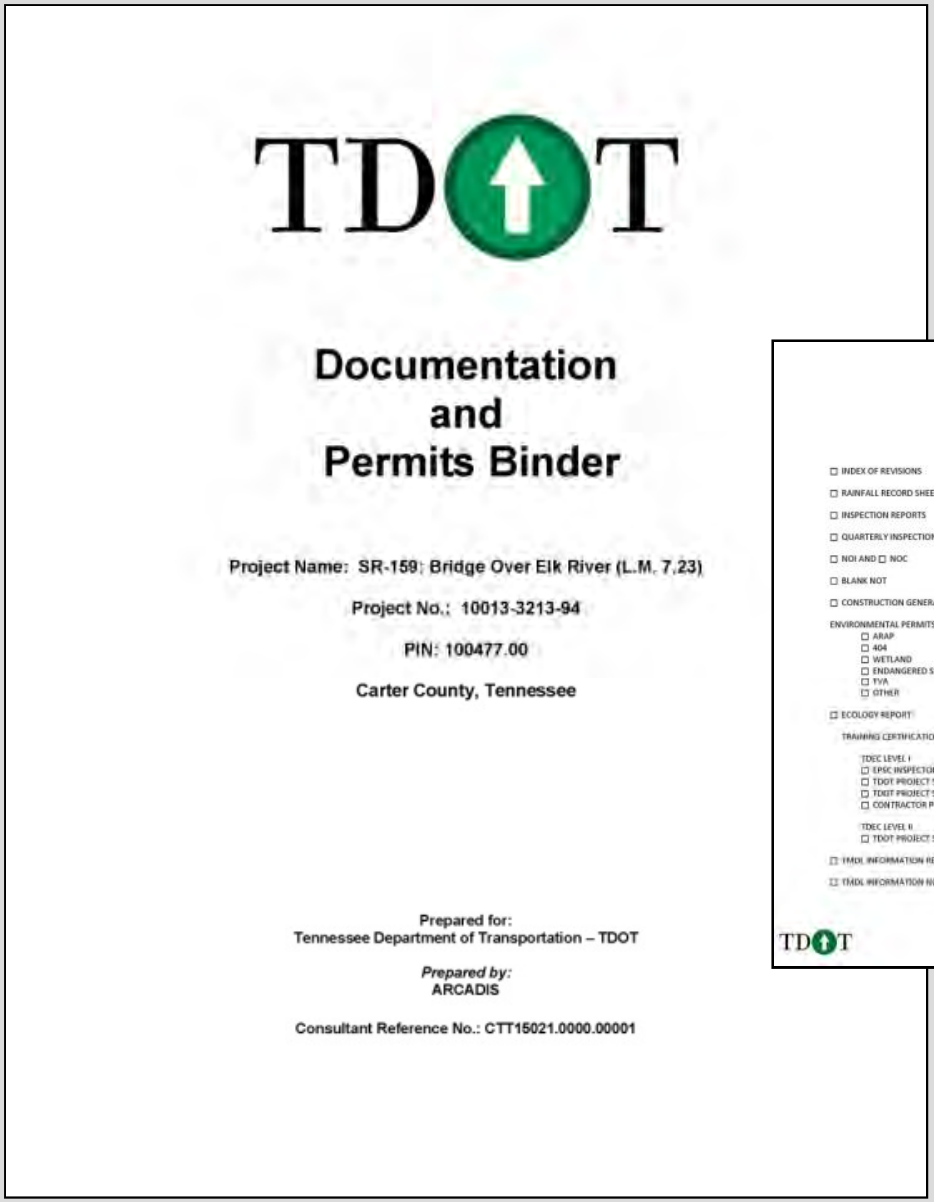
10.4. WASH DOWN OR WASTE DISCHARGE OF CONCRETE TRUCKS WILL NOT BE PERMITTED ON-SITE UNLESS PROPER SETTLEMENT AREAS HAVE BEEN PROVIDED IN ACCORDANCE WITH BOTH STATE AND FEDERAL REGULATIONS.

10.5. ARE ANY DISCHARGES ASSOCIATED WITH INDUSTRIAL (NON-CONSTRUCTION STORMWATER) ACTIVITY EXPECTED (3.5.1.h)?

YES ☐ NO ☒ IF YES, SPECIFY THE LOCATION OF THE ACTIVITY AND ITS PERMIT NUMBER.

Documentation and Permits Binder

A book that contains permits and forms for record keeping and compliance tracking



TDOT

Documentation and Permits Binder

Project Name: SR-159: Bridge Over Elk River (L.M. 7.23)

Project No.: 10013-3213-94

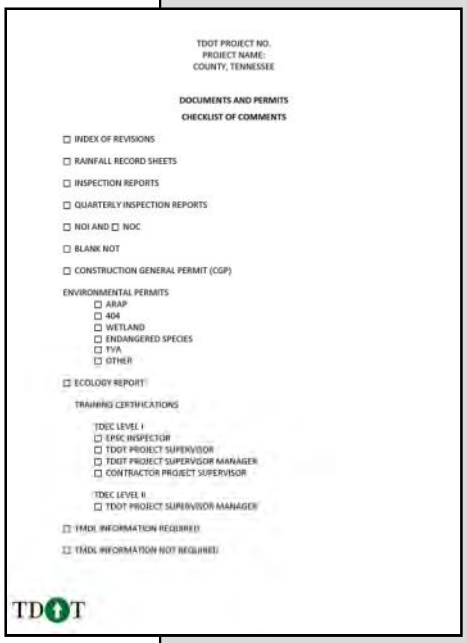
PIN: 100477.00

Carter County, Tennessee

Prepared for:
Tennessee Department of Transportation – TDOT

Prepared by:
ARCADIS

Consultant Reference No.: CTT15021.0000.00001



TDOT PROJECT NO.
PROJECT NAME:
COUNTY, TENNESSEE

DOCUMENTS AND PERMITS
CHECKLIST OF COMMENTS

- ☐ INDEX OF REVISIONS
- ☐ RAINFALL RECORD SHEETS
- ☐ INSPECTION REPORTS
- ☐ QUARTERLY INSPECTION REPORTS
- ☐ NOI AND ☐ NOC
- ☐ BLANK NOT
- ☐ CONSTRUCTION GENERAL PERMIT (CGP)

ENVIRONMENTAL PERMITS
- ☐ ARAP
- ☐ 404
- ☐ WETLAND
- ☐ ENDANGERED SPECIES
- ☐ TVA
- ☐ OTHER

- ☐ ECOLOGY REPORT

TRAINING CERTIFICATIONS

TDEC LEVEL I
- ☐ EPSC INSPECTOR
- ☐ TDOT PROJECT SUPERVISOR
- ☐ TDOT PROJECT SUPERVISOR MANAGER
- ☐ CONTRACTOR PROJECT SUPERVISOR

TDEC LEVEL II
- ☐ TDOT PROJECT SUPERVISOR MANAGER

- ☐ TMDL INFORMATION REQUIRED
- ☐ TMDL INFORMATION NOT REQUIRED

TDOT

TDOT ARCADIS

Documentation & Permits Binder

DOCUMENTS AND PERMITS BINDER

CHECKLIST

PROJECT NAME:
PIN:
PROJECT NO. :
COUNTY:

1. ☒ INDEX OF REVISIONS
2. ☒ RAINFALL RECORD SHEETS
3. ☒ EPSC INSPECTION REPORTS
4. ☒ NOI AND ☐ NOC
5. ☒ BLANK NOT
6. ☒ CONSTRUCTION GENERAL PERMIT (CGP)
7. ENVIRONMENTAL PERMITS
   - 7.1 ☒ PERMIT APPLICATION LETTER
   - 7.2 PERMITS
     - a. ☐ TDEC ARAP
     - b. ☐ CORPS OF ENGINEERS (COE)
     - c. ☐ TVA 26A
     - d. ☐ OTHER
8. ☒ ECOLOGY REPORT
9. TRAINING CERTIFICATIONS

   TDEC LEVEL I
   - a. ☐ EPSC INSPECTOR
   - b. ☐ TDOT PROJECT SUPERVISOR
   - c. ☐ TDOT PROJECT SUPERVISOR MANAGER
   - d. ☐ CONTRACTOR PROJECT SUPERVISOR

   TDEC LEVEL II
   - e. ☐ TDOT PROJECT SUPERVISOR MANAGER

10. TMDL INFORMATION REQUIRED
    - a. ☐ Yes
    - b. ☐ No

Questions?

TDOT DESIGN DIVISION

MODULE 4:

STORMWATER OUTFALLS

Outfalls

Definition

Outfalls Are Defined As:

- Stormwater runoff, snow melt runoff, and surface runoff and drainage
- Stormwater must be in a discernable/discrete/confined conveyance
  - pipes and culverts
  - ditches and channels
  - curb and gutter
  - catch basins or curb inlets (sub-outfalls)
- May include the discharge of:
  - sediment filter bags
  - dewatering structures

Outfalls

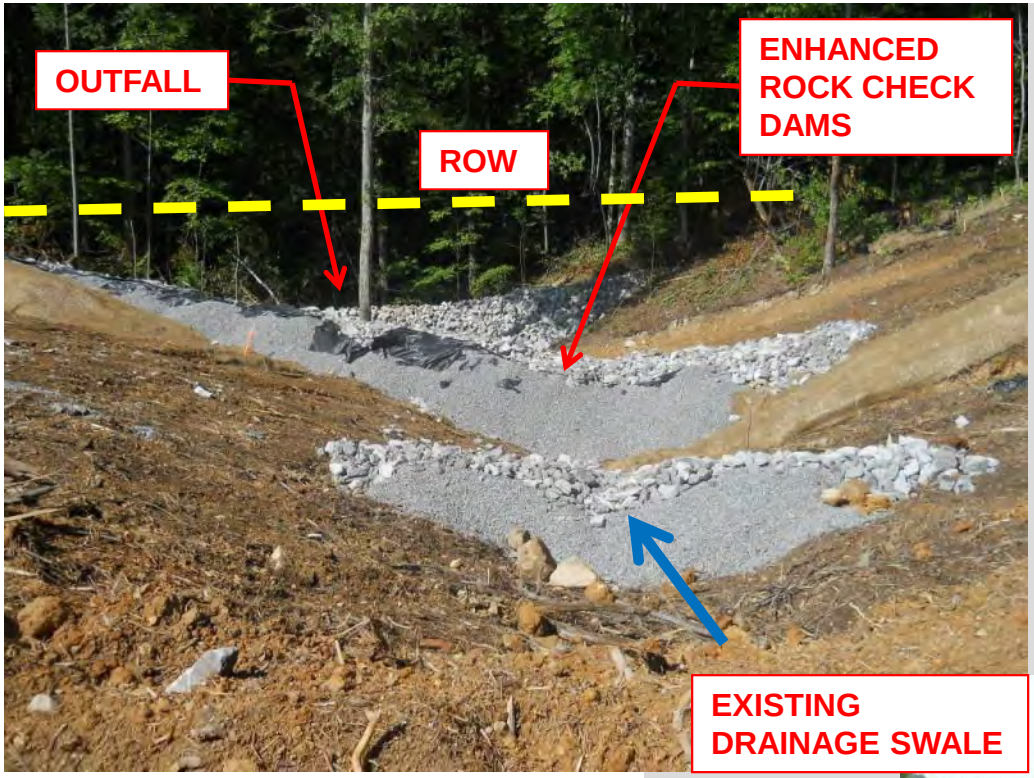
Definition

Location:

- leaves the project:
  - ROW
  - project limits
  - easement (i.e. temporary construction or permanent drainage)

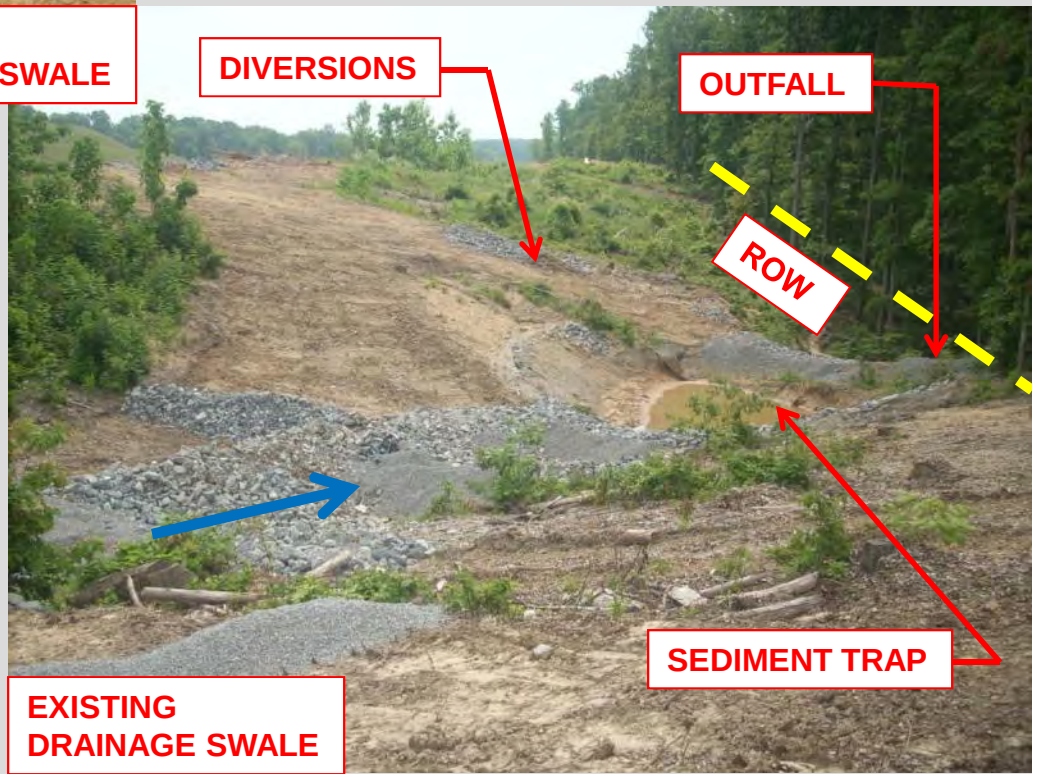
  or

- directly enters jurisdictional features (streams, springs, wetlands and sinkholes)



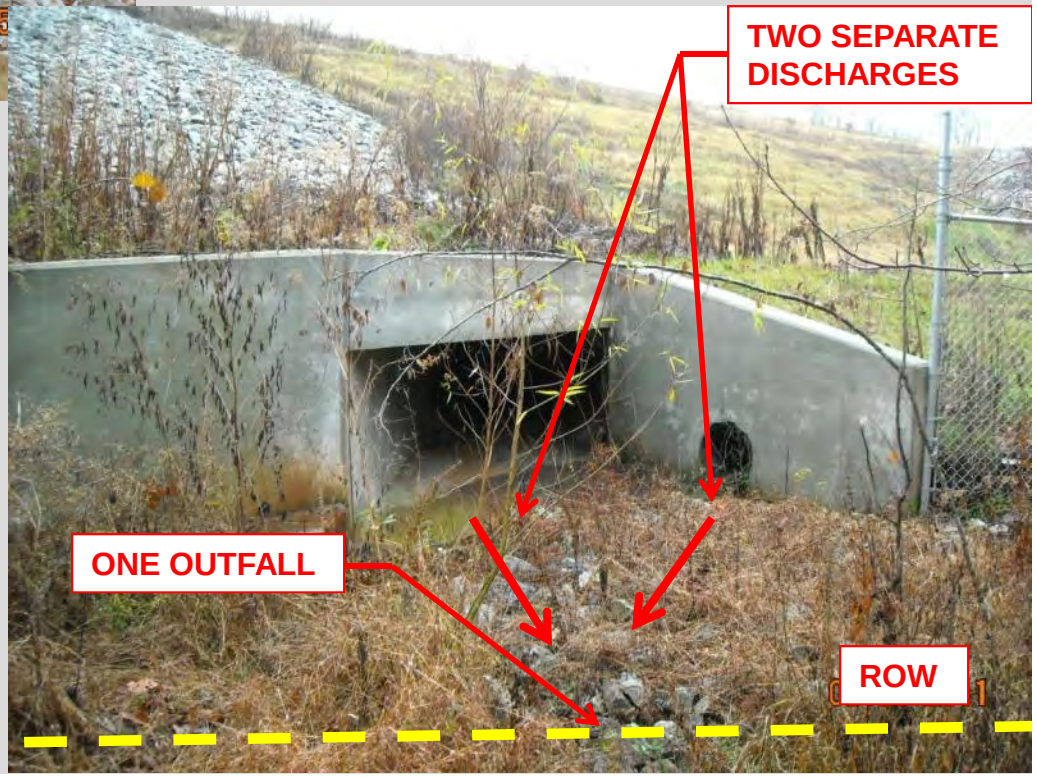
Existing conditions

Phase 1: clearing and grubbing

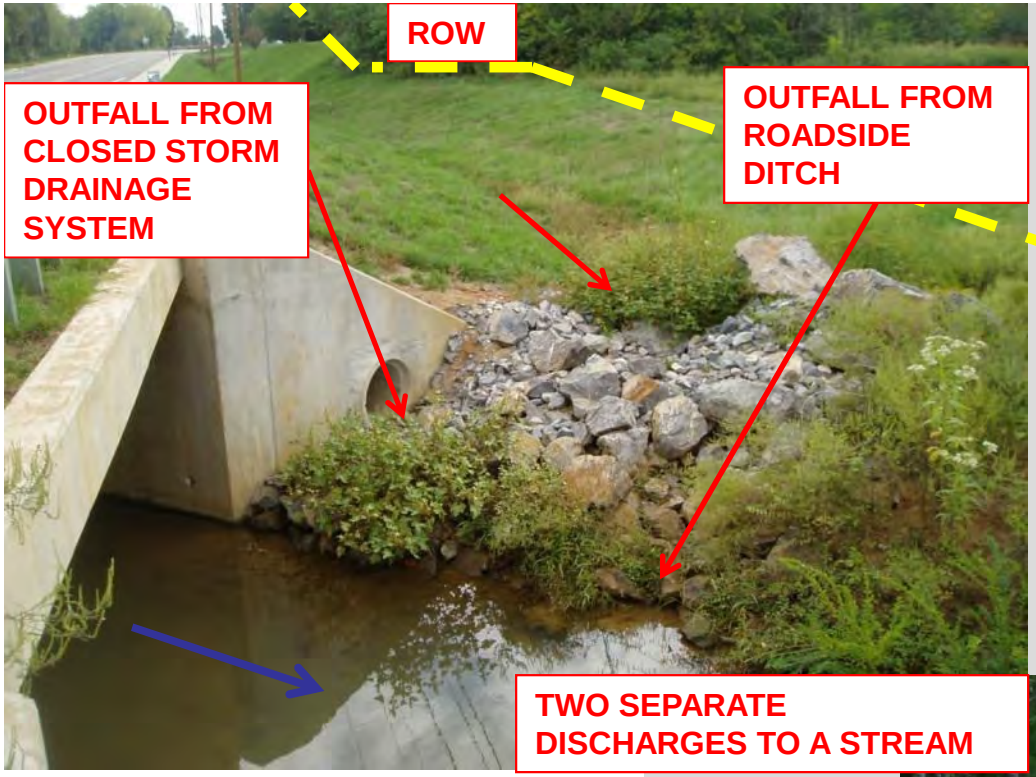


Natural drainage features need to be protected

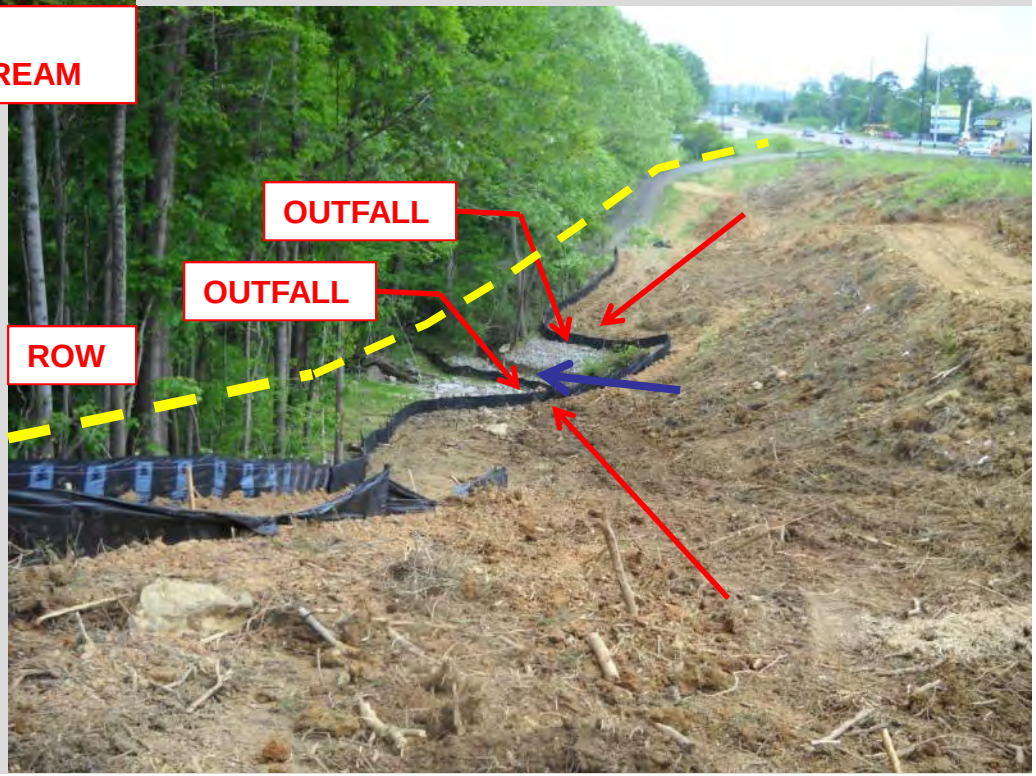
Rip rap channel to stream. Outfall enters a jurisdictional feature within ROW



Multiple culverts discharging into a wet weather conveyance

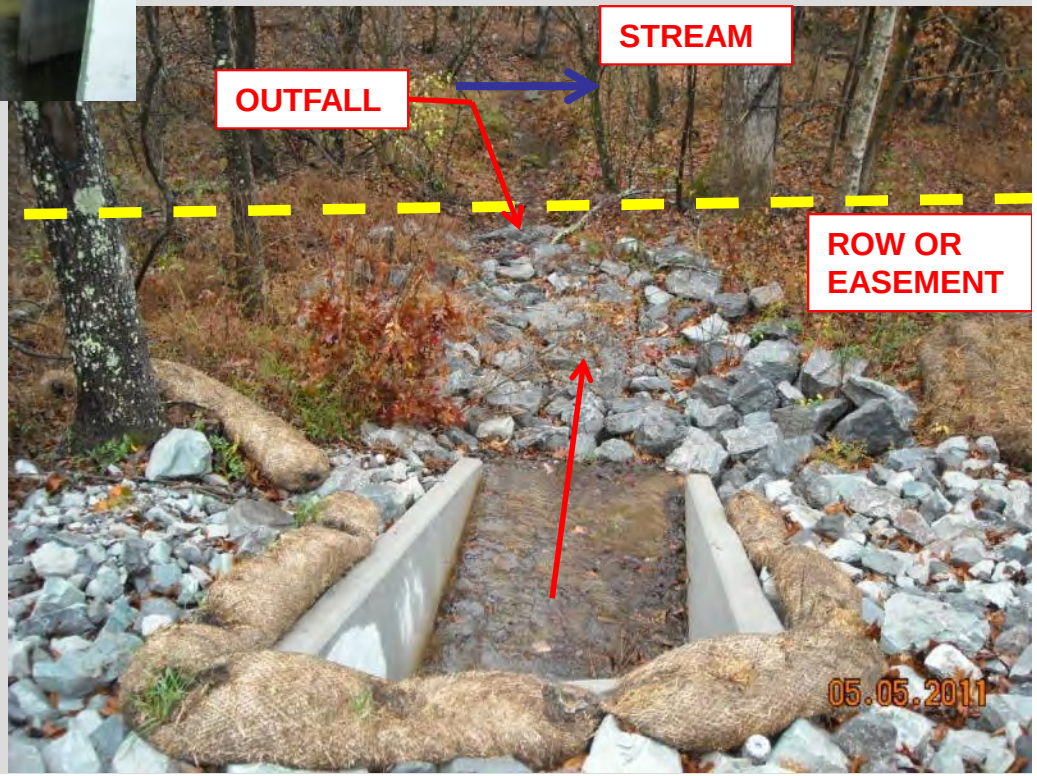


Multiple outfalls in one location



Natural drainage swales or toe ditches that discharge to streams

Relocated stream channel discharging to another stream



Pipe/culvert/ditch discharging at ROW or easement before entering offsite stream

Discharge from a sediment filter bag

May be designated as a temporary outfall on the EPSC plans

Sub-outfalls

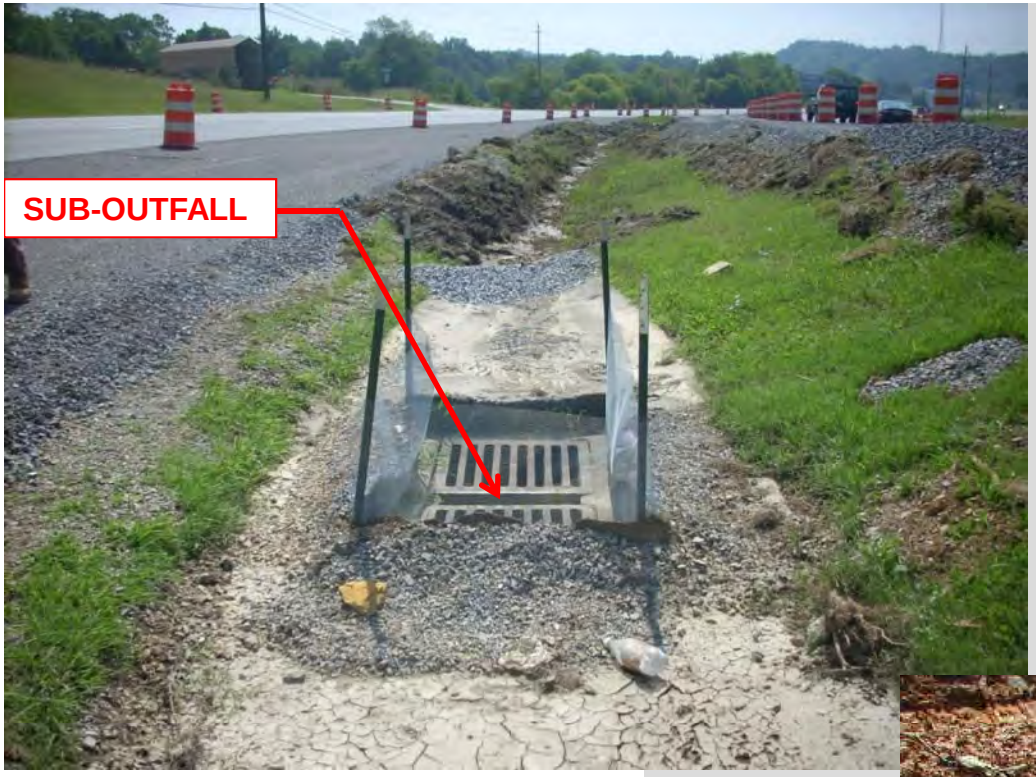
Definition

Sub-outfalls are defined as:

- Outfalls that have been subdivided:
  - to reduce the drainage area (eliminates sediment basins and/or traps)
  - to account for drainage in a closed storm system from upslope areas that is collected in area drains or curb inlets

Phases of curb inlets

Curb inlets with no protection



Area drain/catch basin protection

Stormwater manholes

Area drain during construction

Area drain after construction

Outfalls

EPSC Phases

- Outfall locations may change in the EPSC phases
  - Existing
  - Intermediate
  - Final
- Size of drainage area to each respective outfall may change in each phase
- Outfall drainage area(s) to be provided by the roadway designer

TDOT SWPPP Section 4.2.3: Outfall Table

Outfall drainage areas will be requested by the SWPPP writer (consultant or TDOT)

Required by the CGP

OUTFALL INFORMATION						
OUTFALL LABEL	STATION LT OR RT	SLOPE WITHIN ROW (%)	DRAINAGE AREA * (AC)	SEDIMENT BASIN OR EQUIVALENT MEASURE(S) (YES, NO OR N/A)	SUB-OUTFALL (e.g. A, B, C)†	RECEIVING NATURAL RESOURCE NAME OR LABEL
33B	23+75, LT WHITE OAK RD.	6	0.3	NO		WWC
34	216+60, LT	3	0.5	NO		WWC
35	217+80, LT	10	2.0 / 0.7	NO		WWC
36	76+60, RT OLD SR-52	17	2.0	NO		WWC
37	OMITTED					
38	220+00, RT	3	2.0	NO		WWC
39	225+00, LT	20	1.0	NO		STR-13
40	225+10, LT	8	0.3	NO		STR-13
41	225+70, RT	26	1.6	NO		STR-13
42	229+00, LT	4	0.6	NO		STR-14
43	229+10, LT	6	0.2	NO		STR-14
44	2289+90, RT	25	1.9	NO		STR-14
45	12+30, LT WHITE OAK RD.	6	2.5	NO		WWC

* OUTFALL DRAINAGE AREAS DEPICTED AS "A / B" ARE DEFINED AS FOLLOWS: A = OUTFALL DRAINAGE AREA FOR EXISTING CONDITIONS. B = OUTFALL DRAINAGE AREA IN POST CONSTRUCTION CONDITIONS.

†NOTE: SUB-OUTFALLS ARE DEFINED AS OUTFALLS THAT DISCHARGE WITHIN THE PROJECT AND DO NOT DIRECTLY DISCHARGE OFF ROW OR INTO WATERS OF THE STATE.

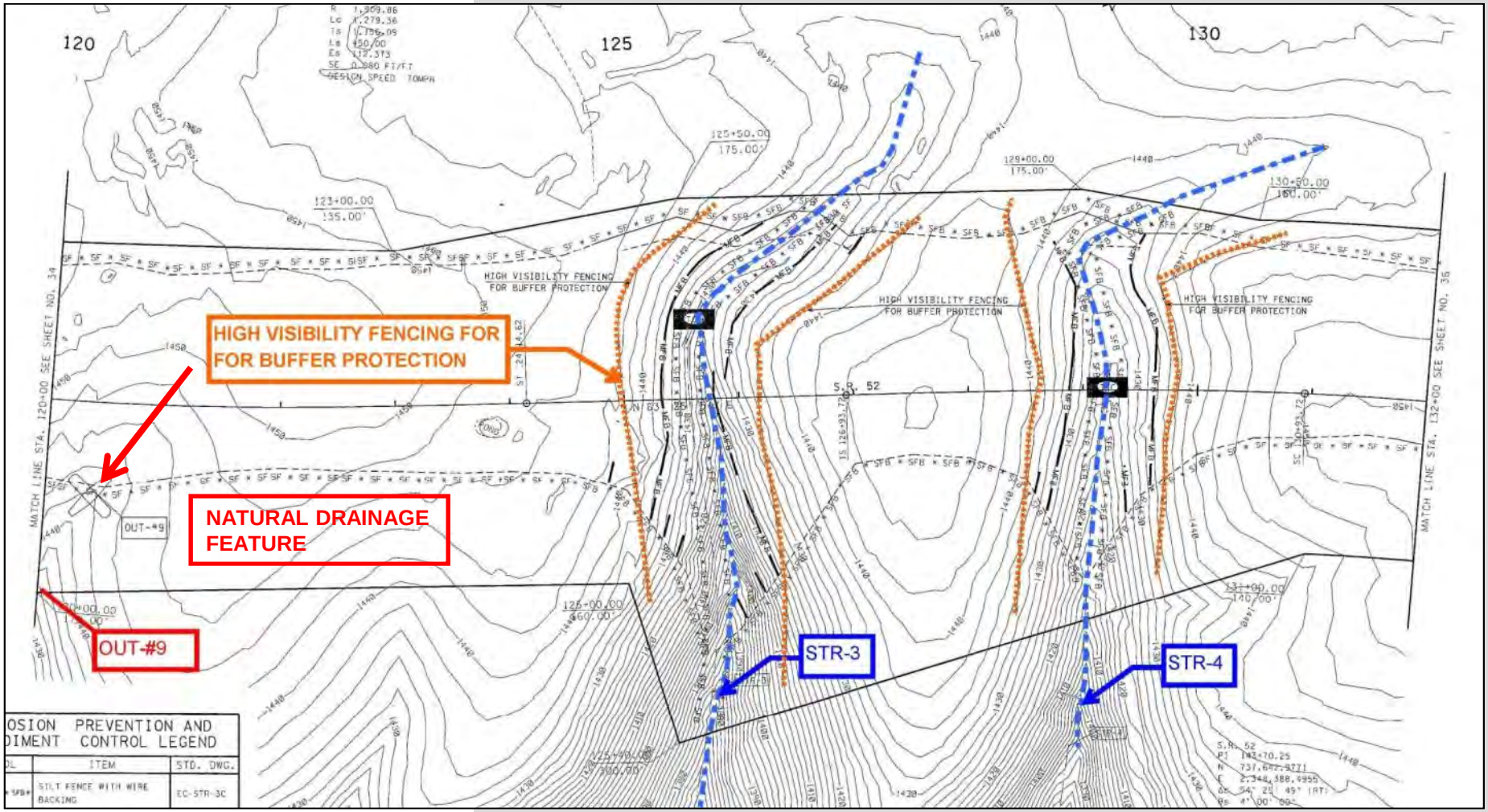
3.1.2.4. WHERE POSSIBLE, HAS NON-PROJECT RUN-ON BEEN DIVERTED THROUGH THE PROJECT SO THAT THE OFF-SITE RUN-ON WILL NOT FLOW OVER DISTURBED AREAS WITHIN THE ROW, THUS SEPARATING NON-PROJECT RUN-OFF FROM PROJECT RUN-OFF THEREBY REDUCING THE DRAINAGE AREA TO ANY ONE OUTFALL?
YES ☒ NO ☐

3.1.2.5. ARE EQUIVALENT MEASURES BEING SUBSTITUTED FOR A SEDIMENT BASIN(S)? YES ☐ NO ☒

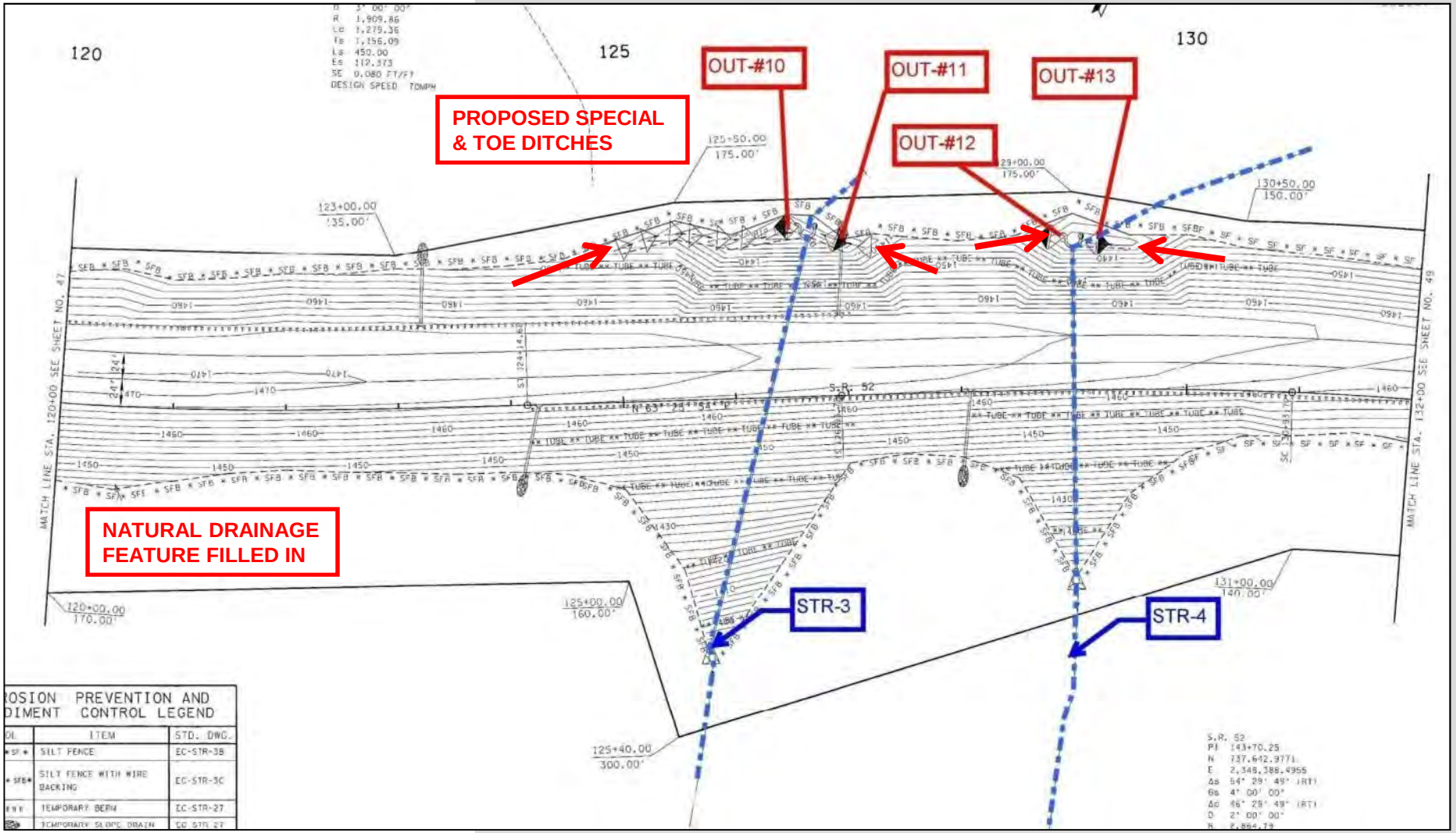
3.1.2.6. HAVE ALL OUTFALLS BEEN LABELED ON THE EPSC PLAN SHEETS (3.5.1.g, 4.4.1.e)? YES ☒ NO ☐

3.1.2.7. HAVE ALL OUTFALLS BEEN LABELED ON A USGS TOPOGRAPHIC MAP INCLUDED IN THE "DOCUMENTATION AND PERMITS" BINDER (2.6.2)? YES ☒ NO ☐

Outfall Location - Present (existing) Conditions

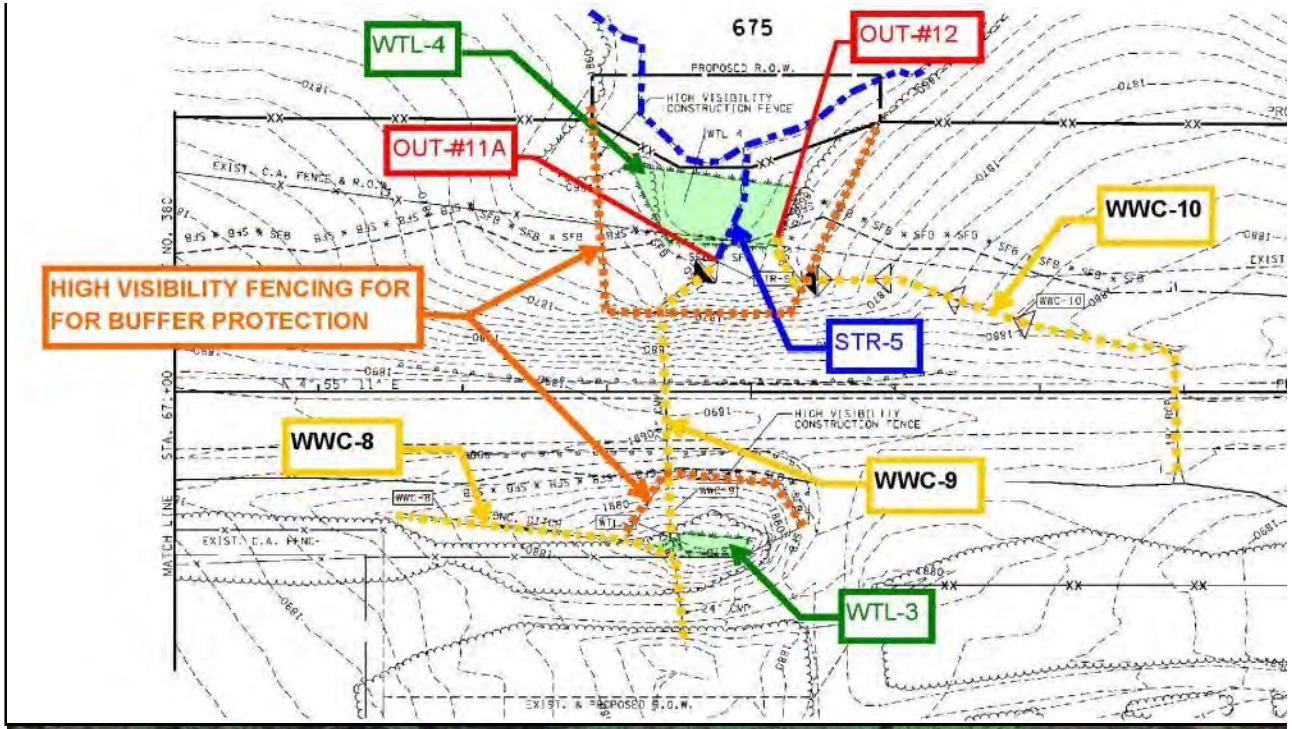


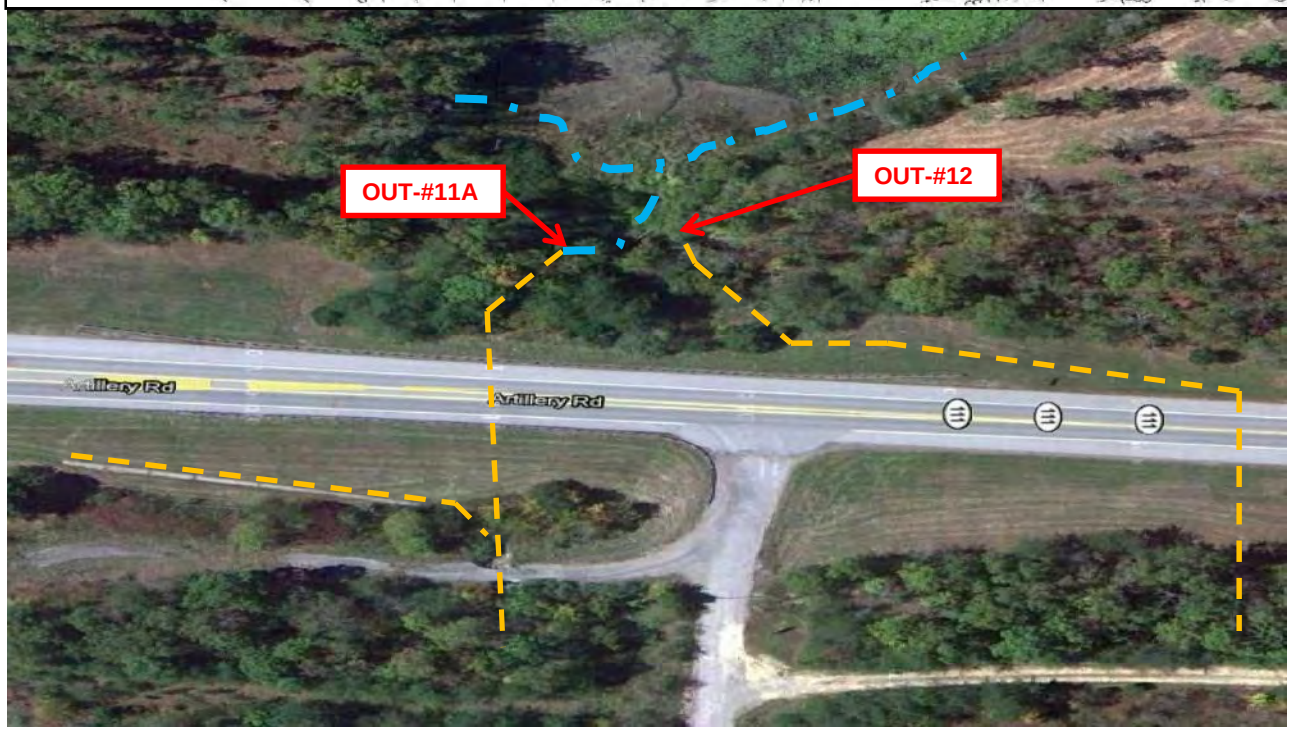
Outfall Location - Proposed Conditions



Outfall Locations

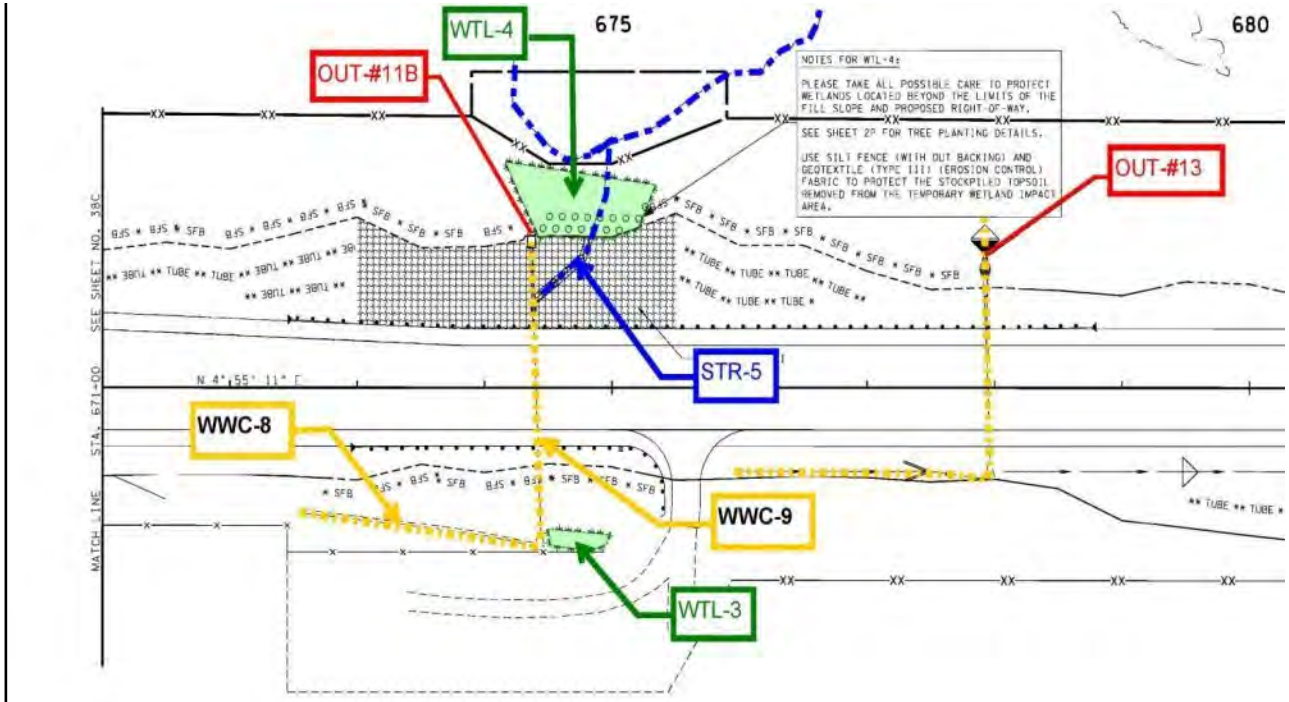
Present (existing) Conditions





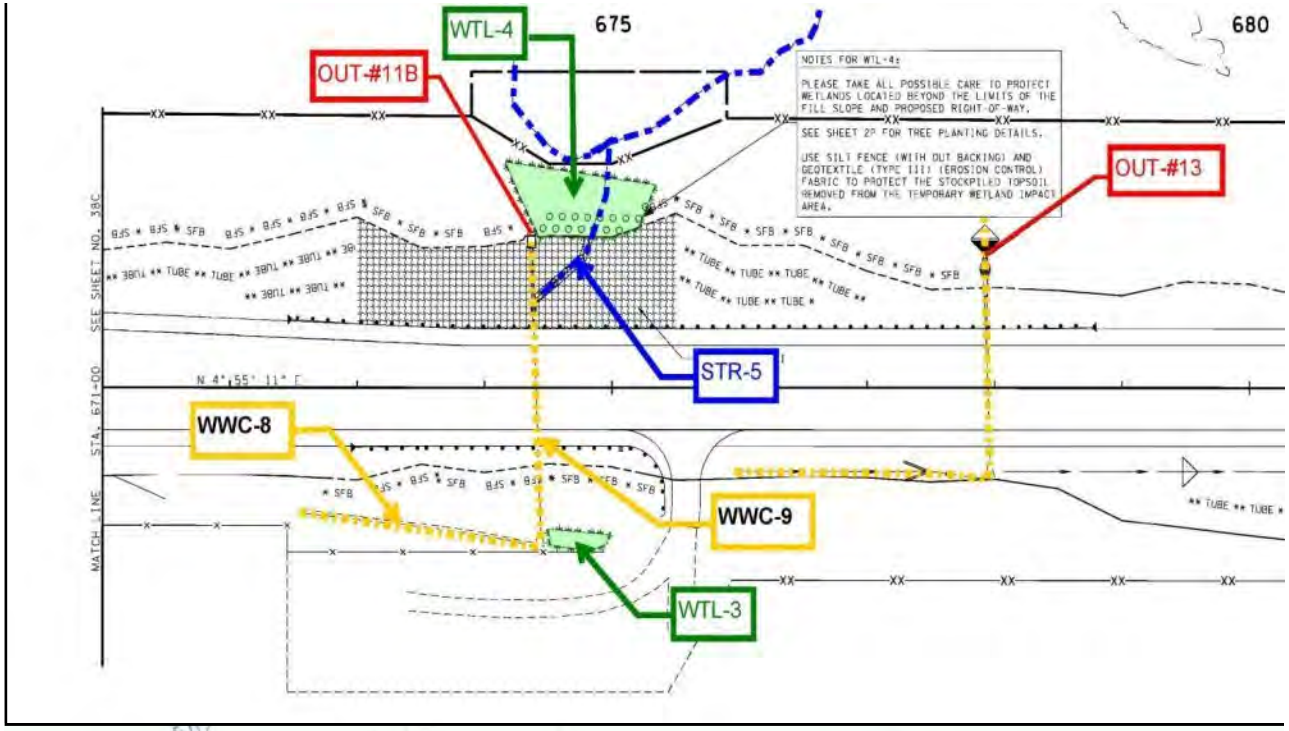
Outfall Locations

Proposed Conditions

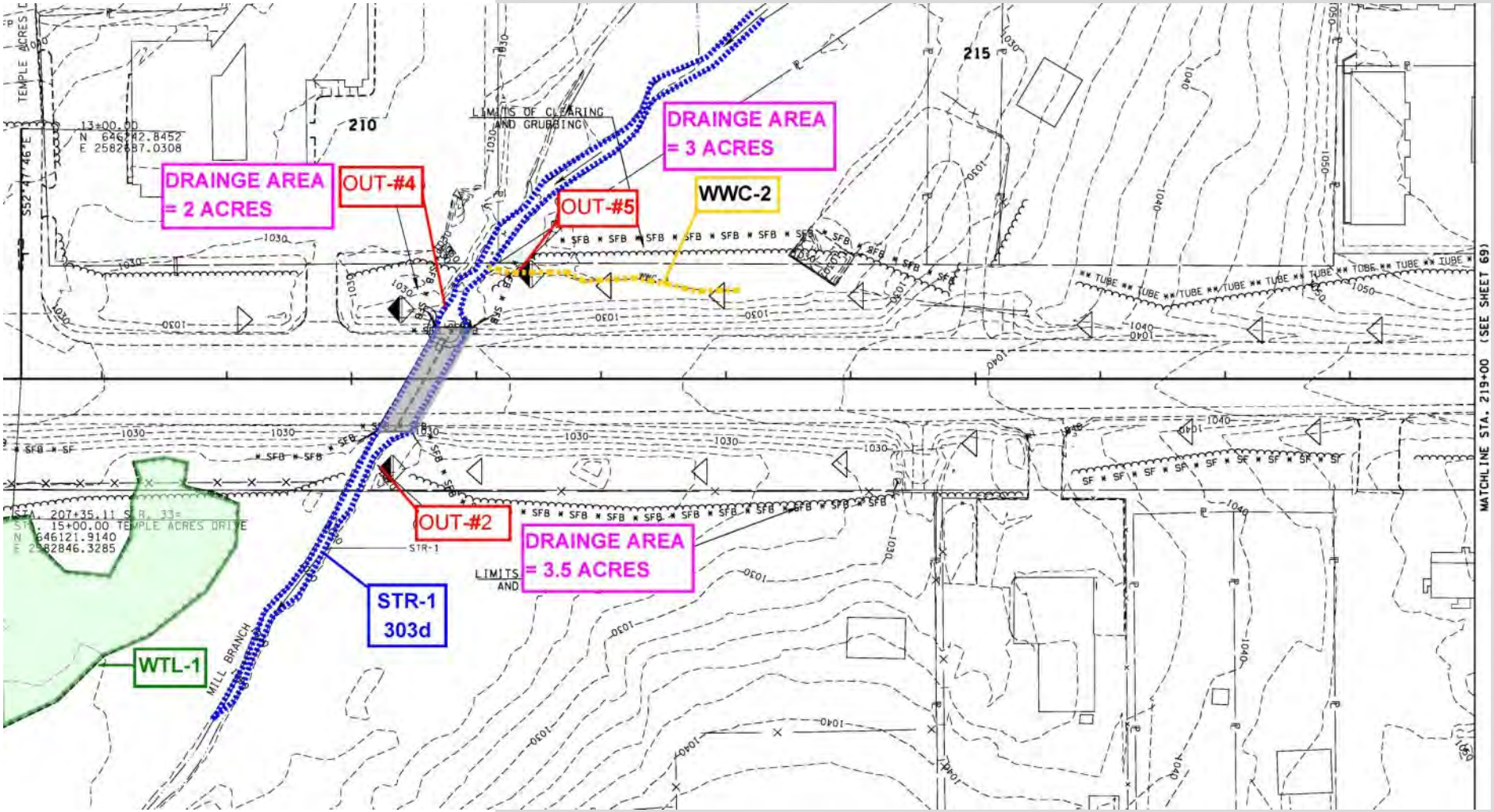


Outfall Locations

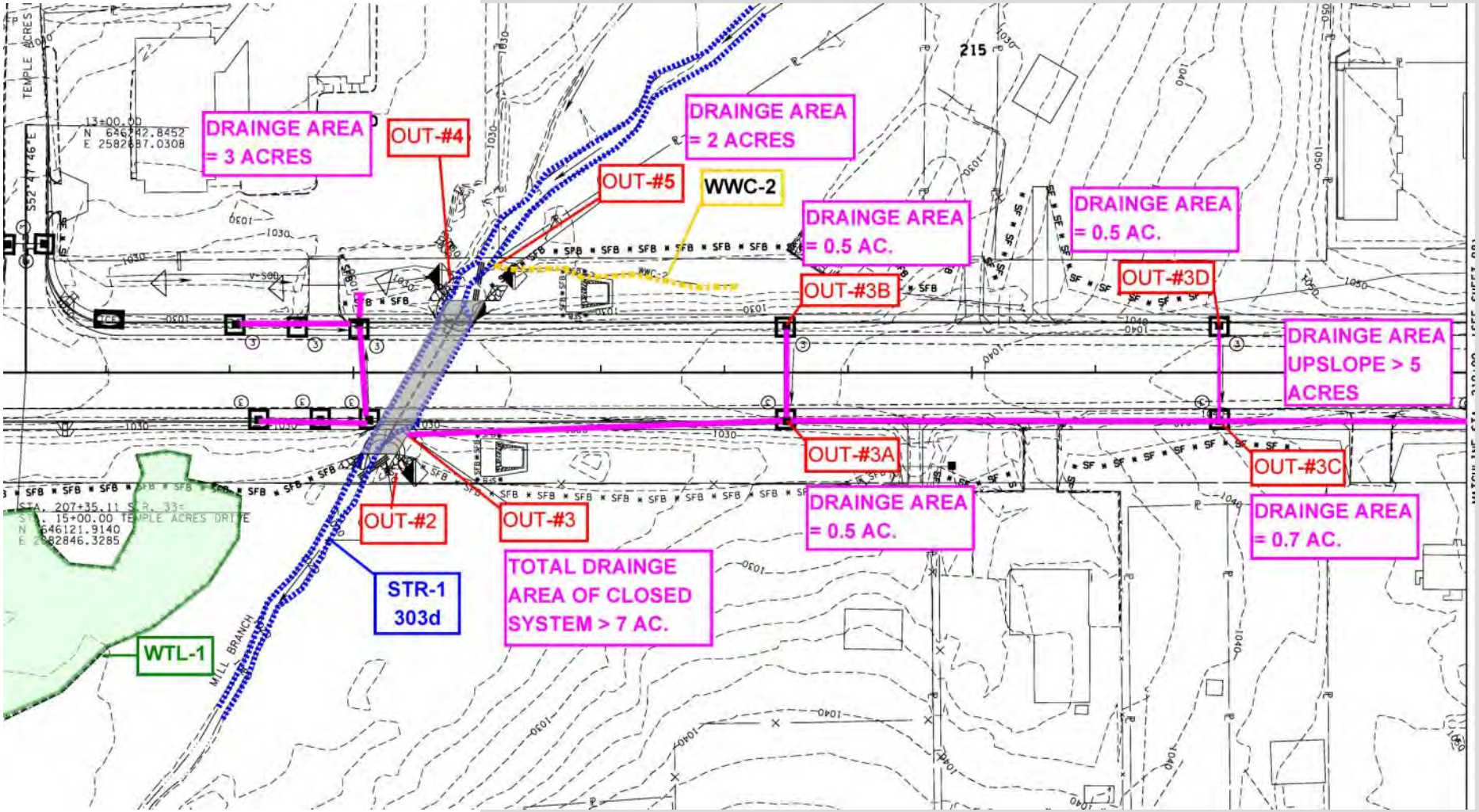
Proposed Conditions



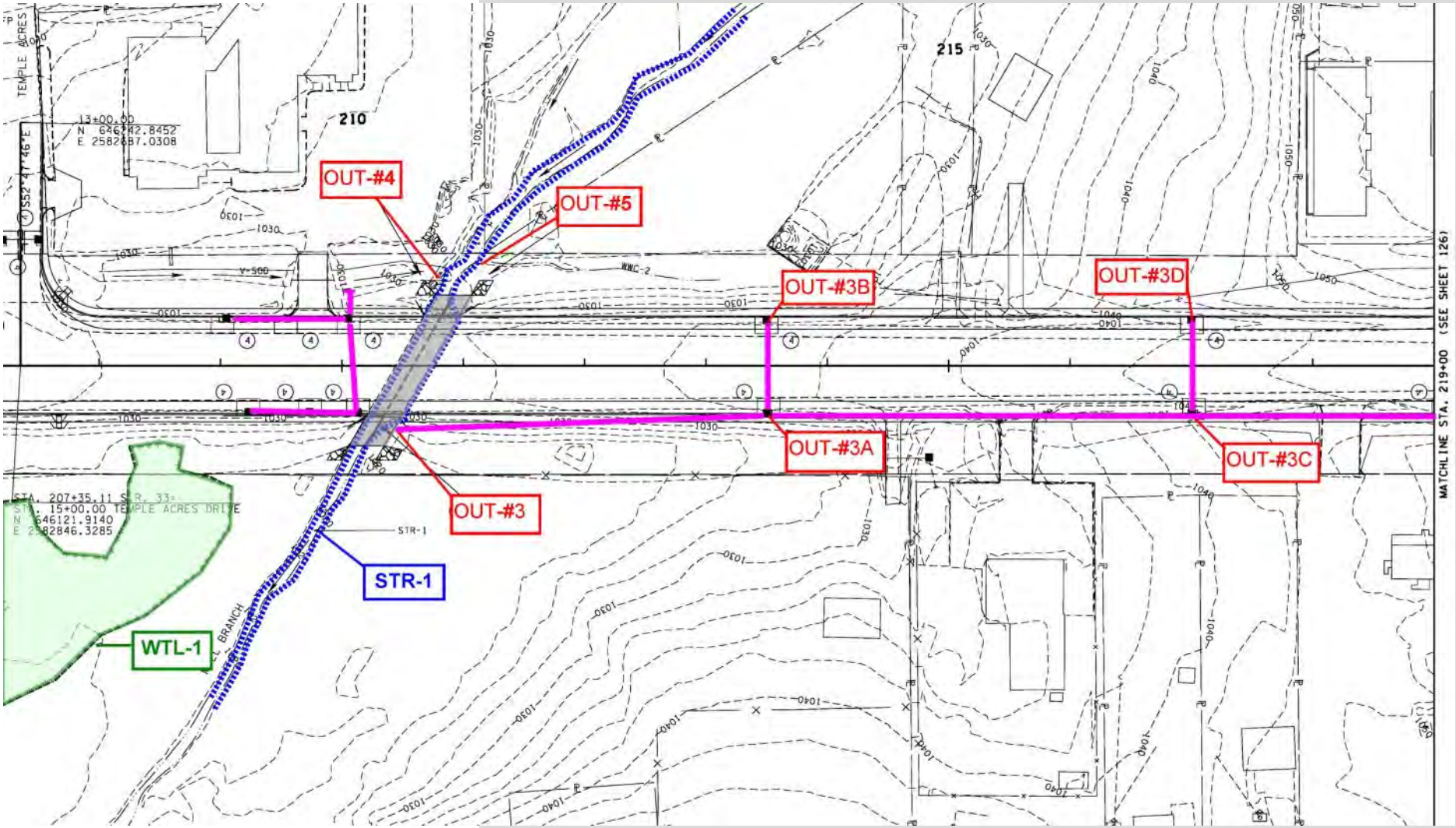
Outfall Location – Phase 1 EPSC Clearing & Grubbing



Outfall Location – Phase 2 EPSC Intermediate



Outfall Location – Phase 3 EPSC Final



Questions?

TDOT DESIGN DIVISION

MODULE 5:

PROJECT VS. DISTURBED AREAS

Areas

Definition

Project Area:

- Includes all areas within the project limits:
  - Proposed project ROW
  - Easements (slope, construction, permanent drainage, etc.)
- Will be requested by the SWPPP writer
- Required by the CGP
- It's an estimate – round to the nearest acre

Areas

Definition

Disturbed Area:

- Determines the CGP Permit Fee
- Area to be cleared, graded or excavated during the life of the project
- Includes utility locations
- CGP requires limits of disturbance to be clearly marked on the plans and in the field
  - cut and fill lines
  - slope easements
  - construction easements
  - drainage easements
- Will determine how many EPSC phases are required

Areas

Definition

Disturbed Area:

- Divert off-site water around the disturbed area not the total project area
- Determines sediment storage needed
- It's an estimate – round to the nearest acre

TDOT SWPPP Section 2: Site Description

Total Project Area

Total Disturbed Area

2. SITE DESCRIPTION (3.5.1)

2.1. PROJECT LIMITS REFER TO TITLE SHEET (3.5.1.g):

2.2. PROJECT DESCRIPTION: (3.5.1.a)

TITLE: SR-33 FROM NORTH OF SR-71 TO THE UNION COUNTY LINE

COUNTY: KNOX

PIN: 101230.00

2.3. SITE MAP(S): REFER TO TITLE SHEET (3.5.1.g)

2.4. DESCRIPTION OF EXISTING SITE TOPOGRAPHY (3.5.1.d): REFER TO EXISTING CONTOURS SHEET(S) 22-35 , DRAINAGE MAP SHEET(S) 14-18, USGS QUAD MAP, AND THE OUTFALL TABLE IN SECTION 4.2.3 BELOW.

2.5. MAJOR SOIL DISTURBING ACTIVITIES (3.5.1.b) (CHECK ALL THAT APPLY)

2.5.1. ☒ CLEARING AND GRUBBING

2.5.2. ☒ EXCAVATION

2.5.3. ☒ CUTTING AND FILLING

2.5.4. ☒ FINAL GRADING AND SHAPING

2.5.5. ☒ UTILITIES

2.5.6. ☐ OTHER (DESCRIBE): ____

2.6. TOTAL PROJECT AREA (3.5.1.c): 224.3 ACRES

2.7. TOTAL AREA TO BE DISTURBED (3.5.1.c): 154.1 ACRES

IF GREATER THAN 50 ACRES, HAS CONSTRUCTION PROJECT PHASING BEEN SPECIFIED IN SECTION 3 BELOW AND IN THE PLANS (3.5.3.1.k)?

YES ☒ NO ☐ N/A ☐

2.8. ARE THERE ANY SEASONAL LIMITATIONS ON WORK? YES ☐ NO ☒

IF YES, DESCRIBE AND LIST THE CORRESPONDING PLAN SHEET: ____

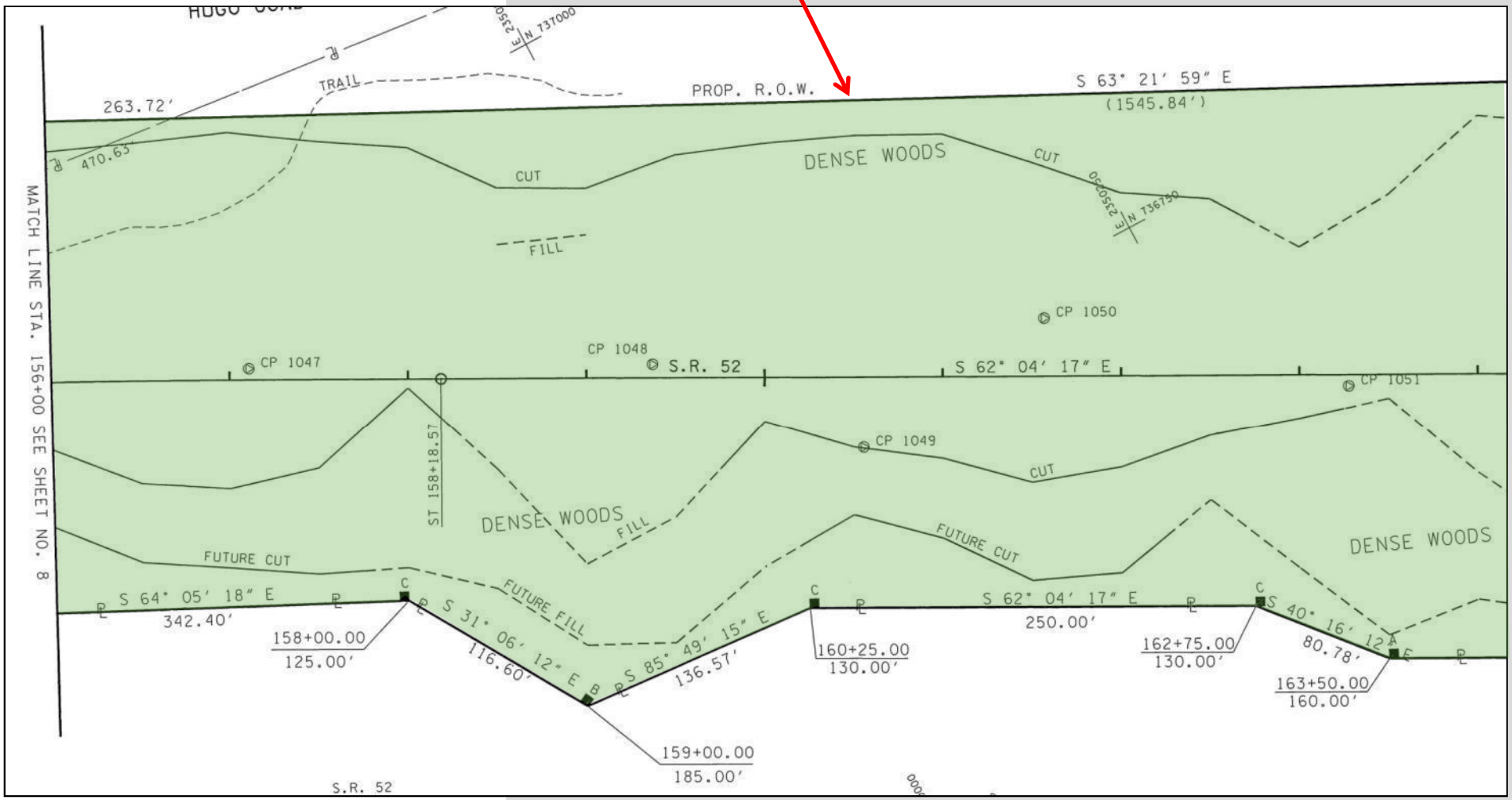
2.9. WAS ROW FINALIZED PRIOR TO FEBRUARY 1, 2010?

YES ☐ _____ (DATE) NO ☒ (4.1.2.2).

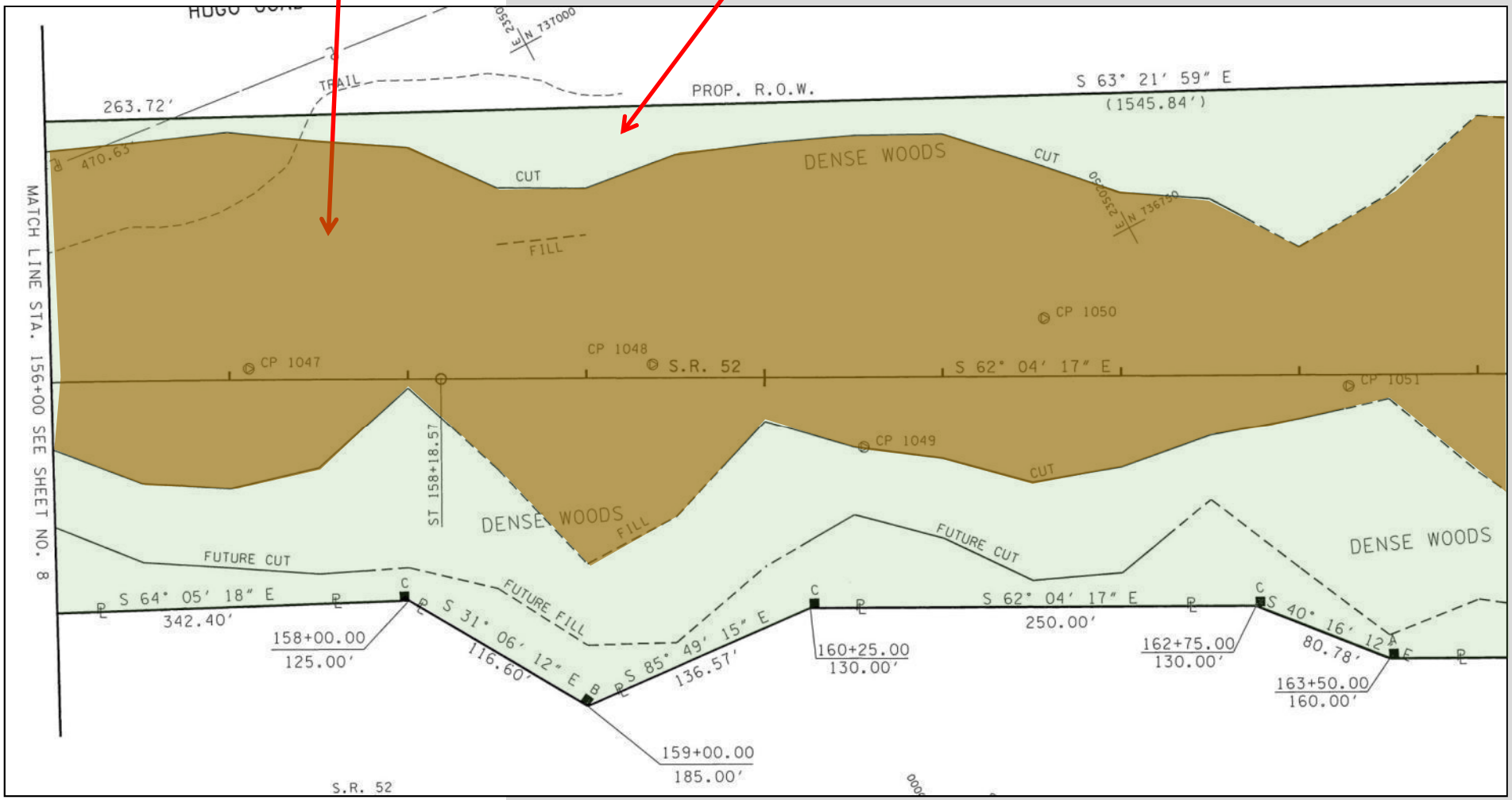
IF ROW WAS FINALIZED PRIOR TO FEBRUARY 1, 2010, THIS PROJECT IS CONSIDERED A PRE-APPROVED SITE (4.1.2.2)

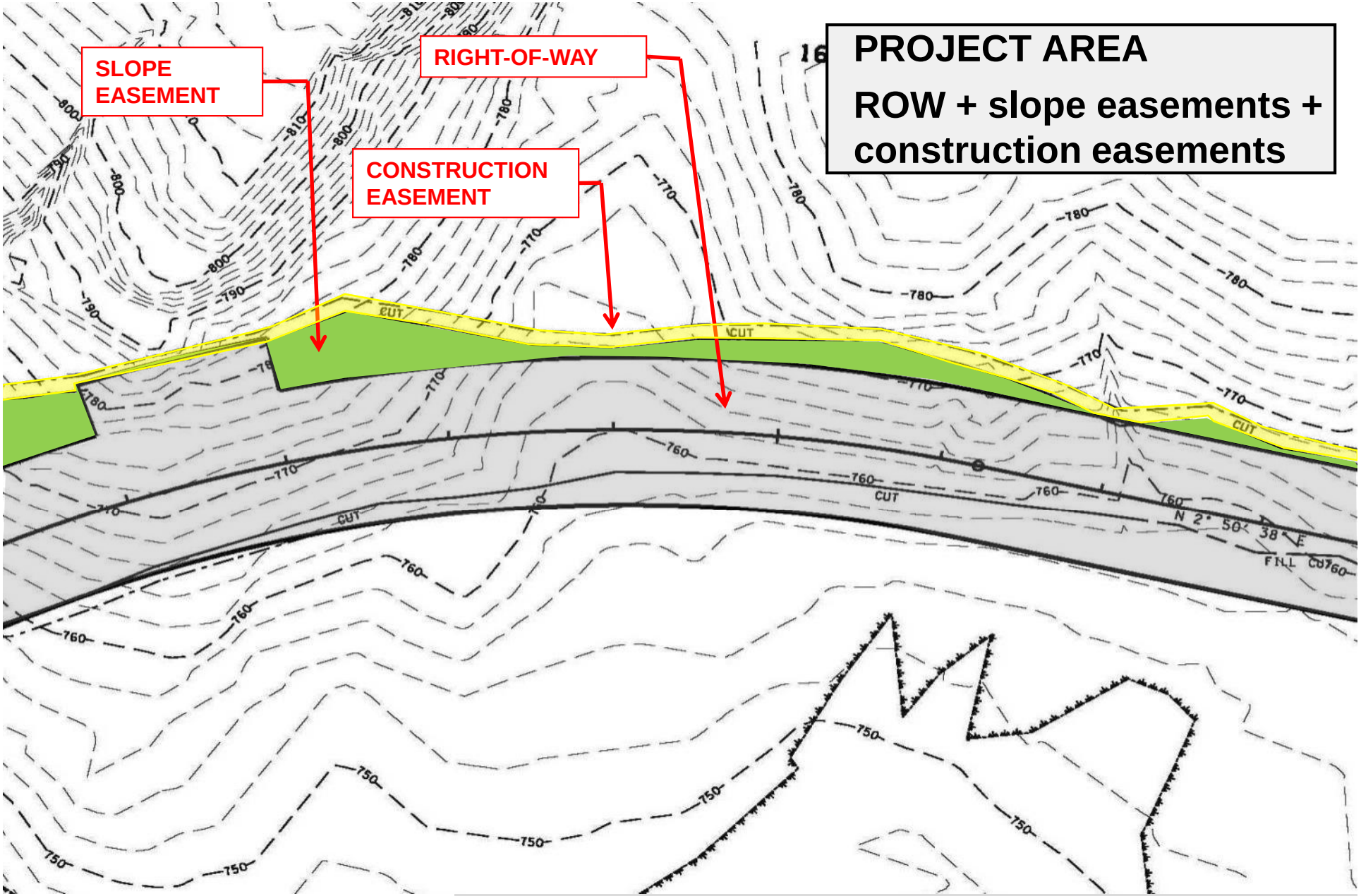
2.10. ARE UTILITIES INCLUDED IN THE CONTRACT? YES ☒ NO ☐

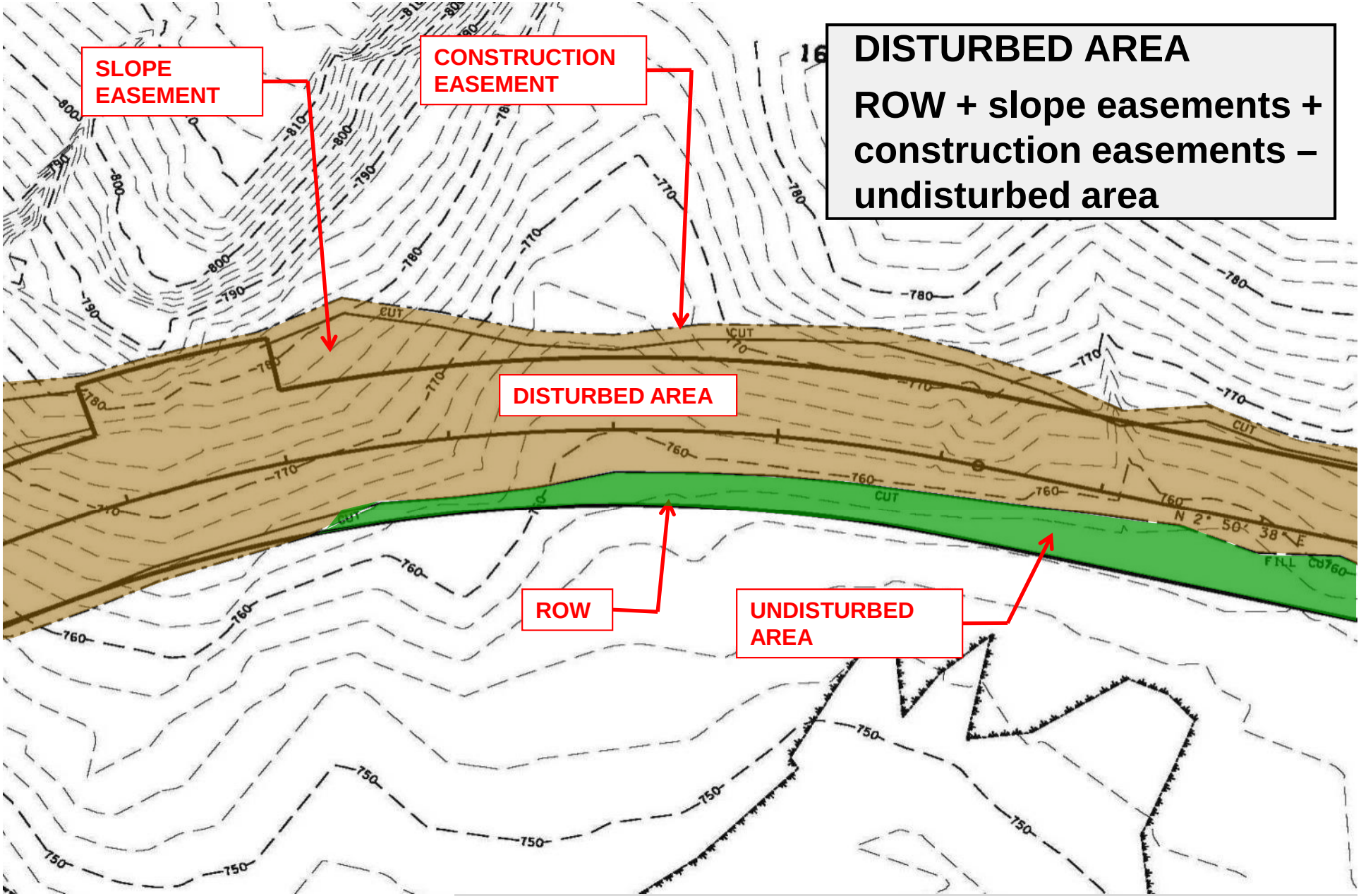
TOTAL PROJECT AREA



DISTURBED AREA




SLOPE EASEMENT
RIGHT-OF-WAY
CONSTRUCTION EASEMENT
PROJECT AREA
ROW + slope easements + construction easements
CUT
FILL
N 2° 50' 38" E



DISTURBED AREA

ROW + slope easements + construction easements – undisturbed area

Aerial View

Total Project Area

versus

Total Disturbed Area

Aerial View

Total Disturbed Area

Have you thought about how large is your disturbed area?

What if it were all open (disturbed) at one time?

Clearing Limits

Prevents unnecessary clearing

Less disturbed areas =

reduced EPSC measures needed

reduced construction costs

reduced risk of sediment releases and potential NOVs

Questions?

TDOT DESIGN DIVISION

MODULE 6:

BUFFER ZONE REQUIREMENTS

Buffer Zones

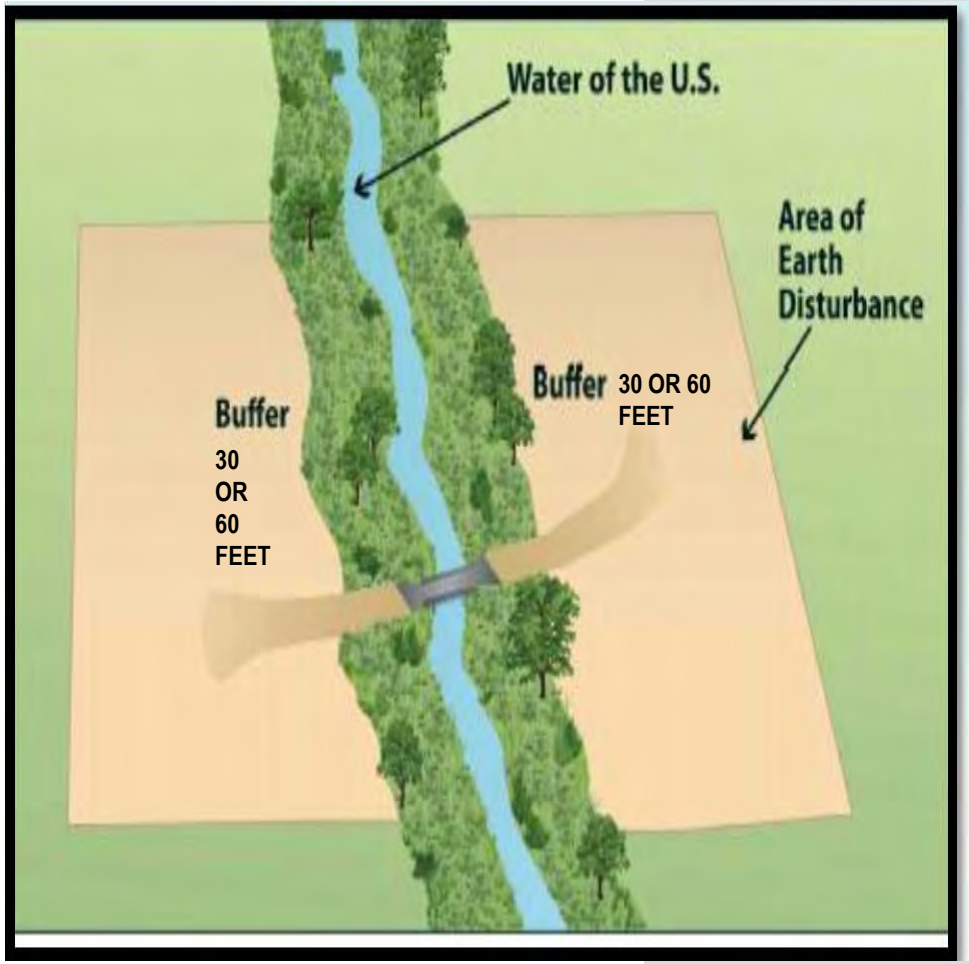
Definition

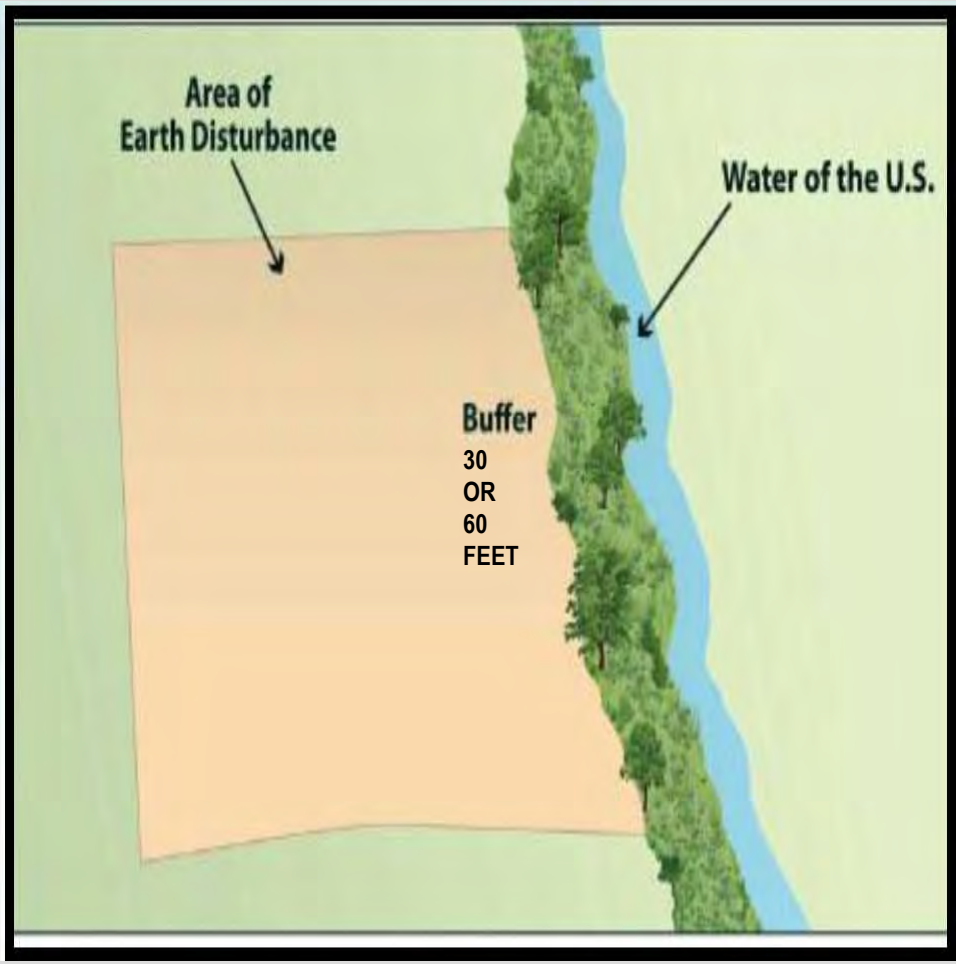
Additional protection is required for any waters of the State or U.S. that are located on or immediately adjacent to the project site.

Buffer Zones Are Defined As:

- A strip of dense undisturbed perennial native vegetation, either original or re-established, that borders:
  - streams and rivers
  - ponds and lakes
  - wetlands and seeps
- *"Every attempt should be made for construction activities not to take place within the buffer zone."* – TDEC CGP

Buffer Zones





Buffer Zones

Purpose

- Buffer zones are established for the purposes of:
  - slowing water runoff
  - enhancing water infiltration
  - minimizing the risk of any potential nutrients or pollutants from leaving the upland area and reaching surface waters
- Buffer zones are:
  - not primary sediment control structures
  - are most effective when stormwater runoff is flowing into and through the buffer zone as shallow sheet flow, rather than in concentrated form such as in channels, gullies, or wet weather conveyances

Buffer Zone Requirements

Per TDEC

Stream buffer requirements

- Clearly identified and outlined on the plans
  - 707-08.11 HIGH-VISIBILITY CONSTRUCTION FENCE
- Applicable to **ALL** streams
  - 60 feet (on each side of stream) for impaired and Exceptional TN Waters (average width with a min. of 30 feet)
  - 30 feet (on each side of stream) for all other streams (average width with a min. of 15 feet)

TDOT SWPPP Section 4: Stream, Outfall, Wetland, TMDL, and Ecology Information

Required by the CGP

4.1.2. ARE BUFFER ZONES REQUIRED? YES ☐ NO ☒ THIS PROJECT CONSISTS OF BRIDGE REPAIR WORK. NO EXCAVATION/SOIL DISTURBANCE AND CLEARING WITHIN THE BUFFER ZONE IS ALLOWED EXCEPT FOR THE INSTALLATION AND REMOVAL OF EPSC MEASURES AND THE CONSTRUCTION ACCESS ROAD. (4.1.2, 5.4.2)

IF YES, THEY HAVE BEEN INCLUDED ON PLAN SHEET(S) _____

IF YES, CHECK THE APPROPRIATE BOX BELOW FOR SIZE OF BUFFER

☐ 60-FEET FOR IMPAIRED AND EXCEPTIONAL WATERS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 30-FEET)

☐ 30-FEET FOR ALL OTHER STREAMS (AVERAGE WIDTH PER SIDE WITH A MINIMUM OF 15-FEET)

4.1.3. ARE THERE BUFFER ZONE EXEMPTIONS? YES ☐ NO ☒ (4.1.2.1)

High visibility fence identifying clearing limits around known exceptional TN waters (KETW) prior to bridge construction

Buffer zone during bridge construction

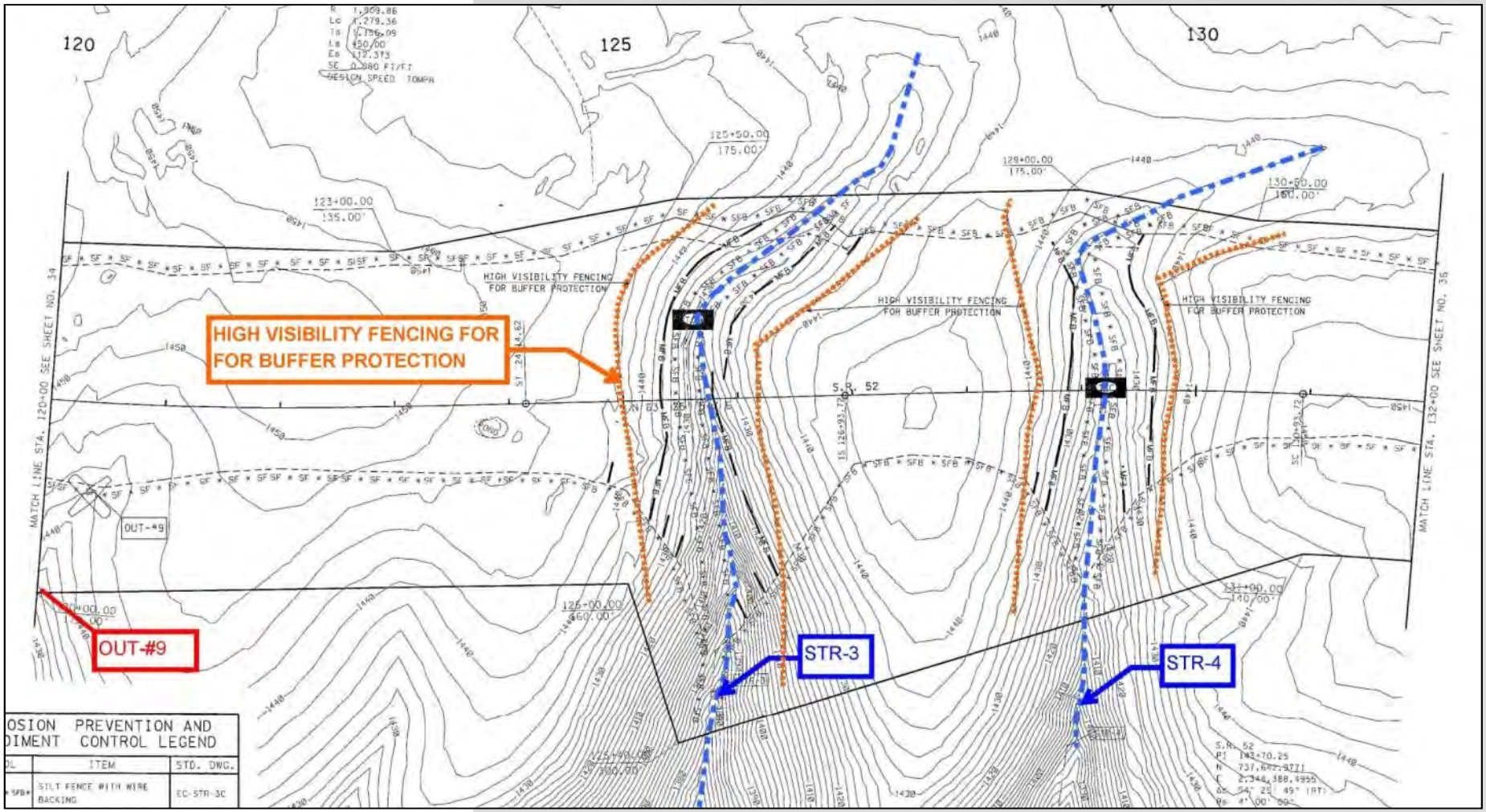
Vegetated buffer and equivalent measures along a temporary stream crossing

Vegetative buffer left in place during bridge construction

Vegetated buffer and equivalent measures adjacent to a spring

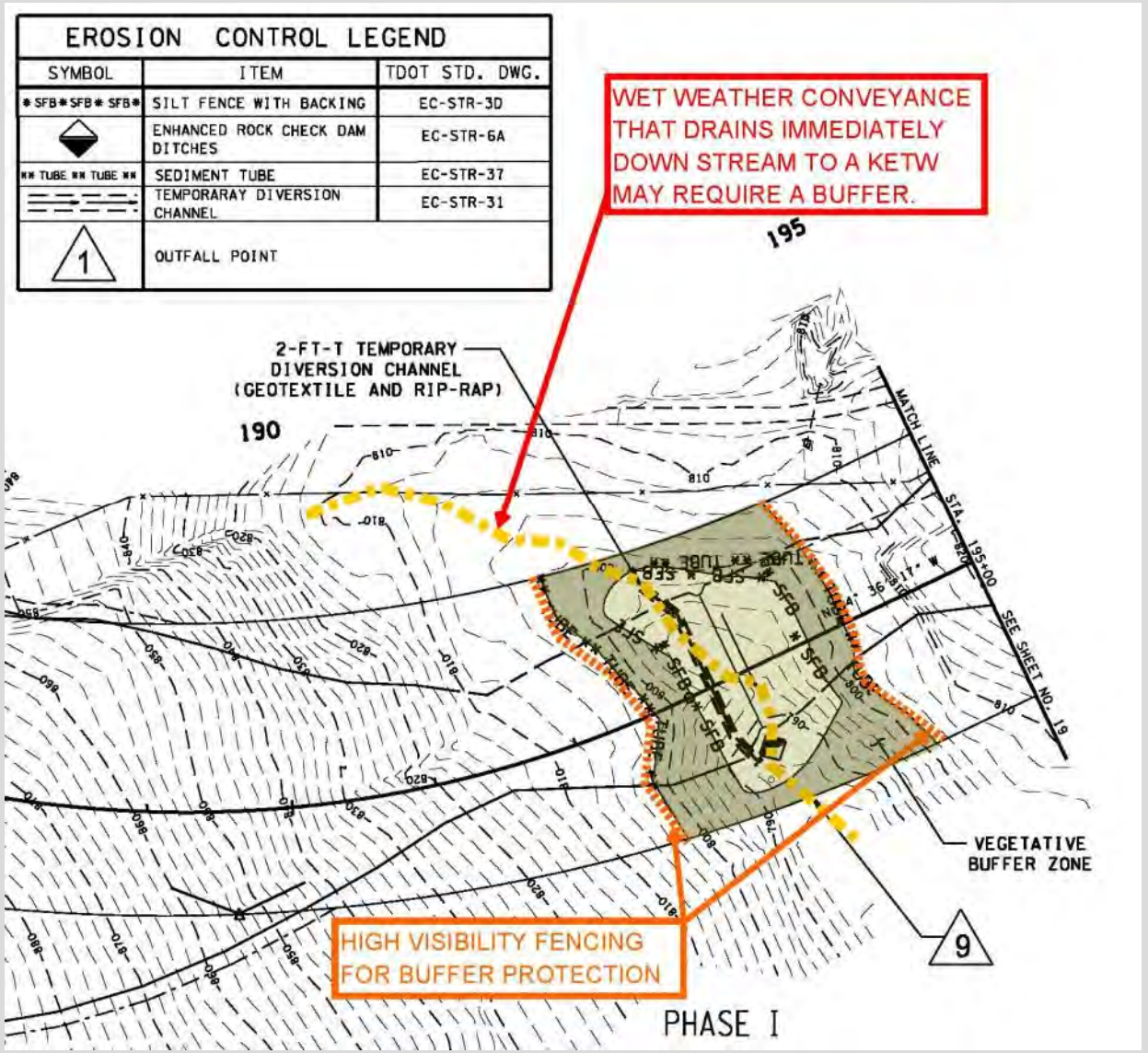
High visibility fencing identifying clearing limits and buffer zone adjacent to a wetland

Buffer Zone Identification- Present (existing) Conditions

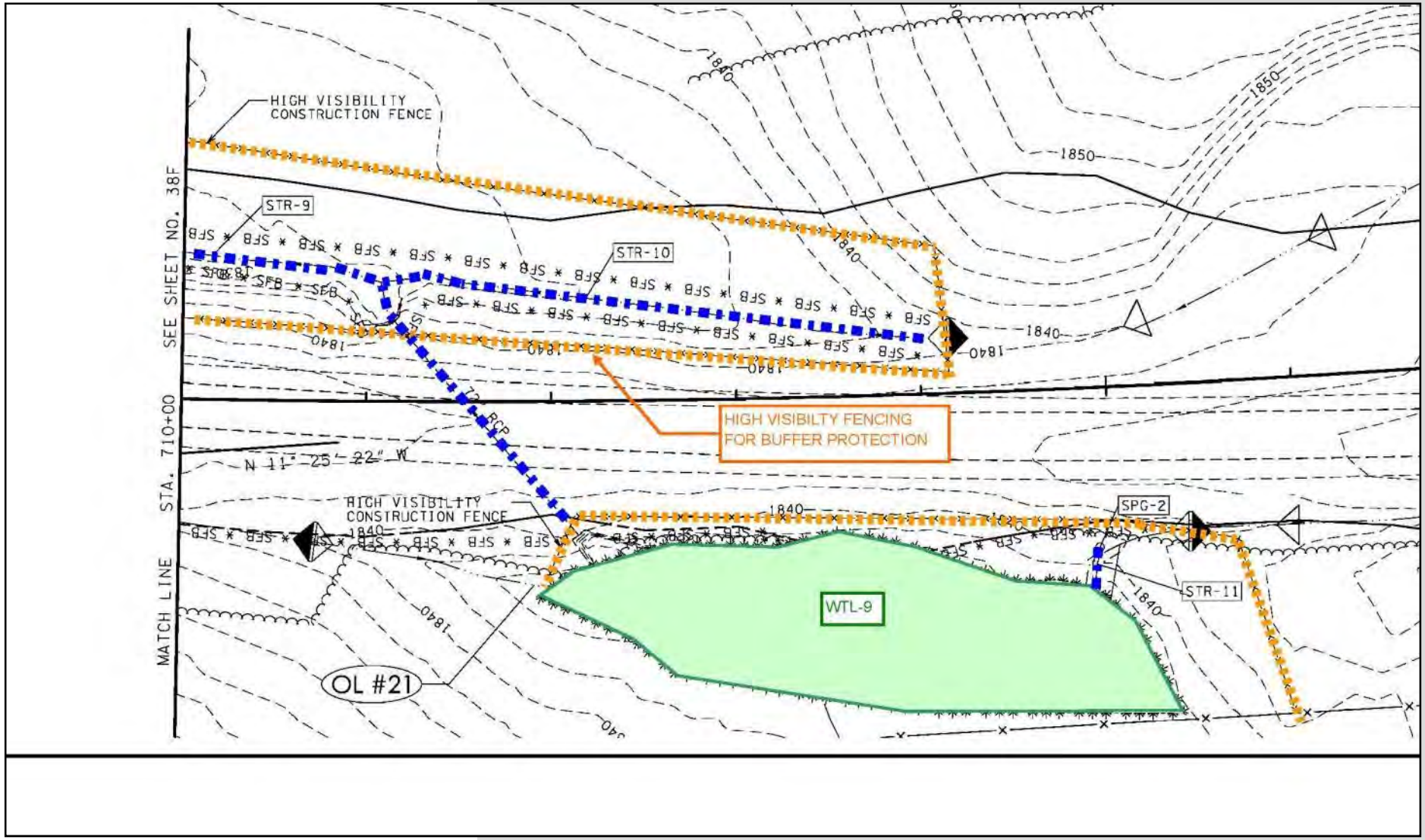


Buffer Zones – Phase 1 EPSC Clearing and Grubbing

Wet weather conveyance that is adjacent to a KETW



Buffer Zones – Phase 1 EPSC Clearing & Grubbing



Buffer Zones

Exemptions

Buffer zone exemptions

- Requirement does not apply to any valid ARAP or equivalent permit by federal agencies
- Buffer zone exemptions defined based on existing land uses if in place prior to issuance of NOI
  - buildings
  - parking lots
  - roadways
  - utilities
- Only the portion of the buffer zone that contains the footprint of the existing land use is exempt

Buffer Zones

Exemptions

Buffer zone exemptions

- If an area with an existing land use is proposed to be converted to another use or the imperious surfaces located within the buffer area are being removed buffer zone requirements shall apply

- For TDOT: sites pre-approved if ROW finalized before February 1, 2010

Buffer Zones

Compliance Alternatives

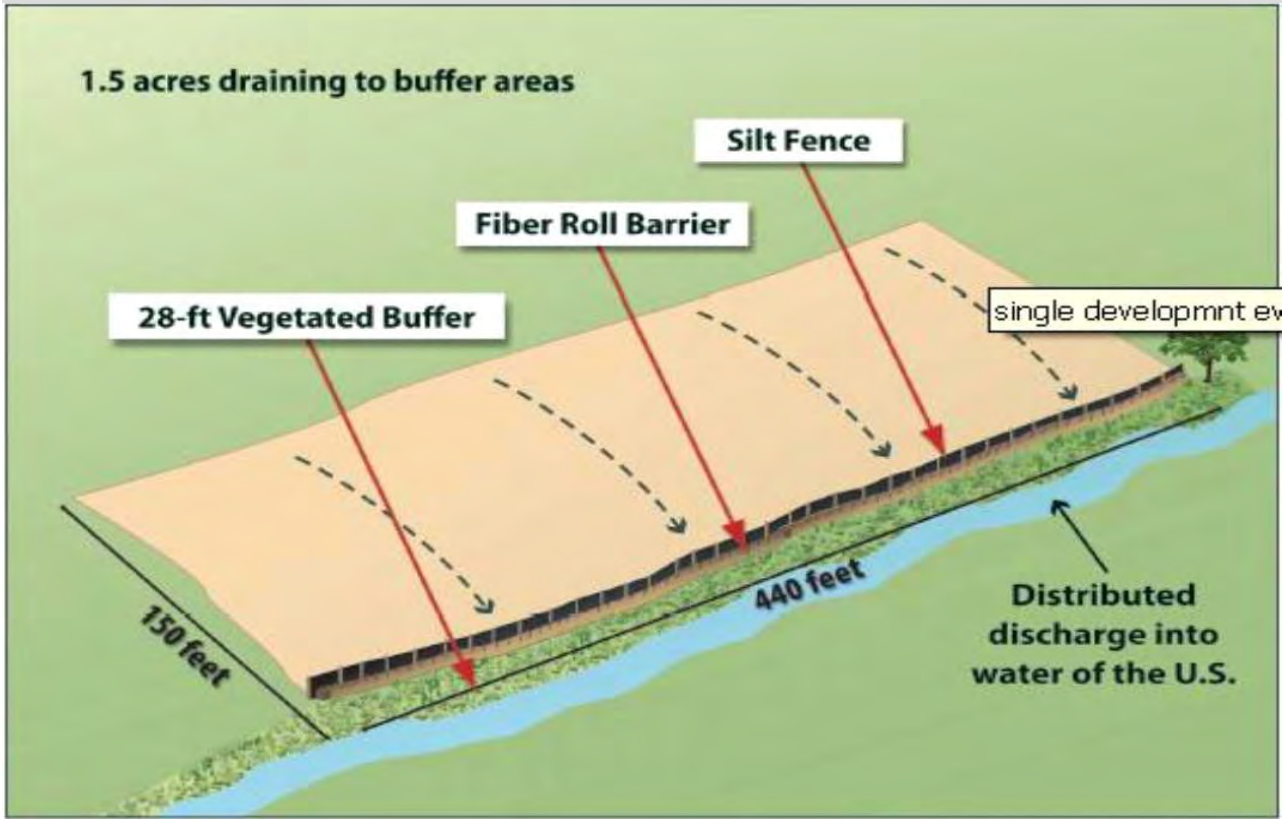
If a water of the State or U.S. is on or immediately adjacent to your site, you must comply with one of the following:

- Provide the proper amount of buffer of undisturbed natural vegetation between construction activities and top of bank/edge of water
- Provide a narrower buffer that is supplemented by additional sediment and erosion controls, which will achieve an *equivalent* sediment load reduction as the designated buffer
- If infeasible to provide a buffer of any size, implement sediment and erosion controls that achieve an *equivalent* sediment load reduction as the designated buffer

Buffer Zones

Example of Buffer Alternative Equivalent Measure

- Step 1: Estimate sediment reduction from designated buffer
- Step 2: design EPSC measures that matches sediment removal efficiency of designated buffer
- Step 3: document how site-specific EPSC controls will achieve sediment removal efficiency of the designated buffer

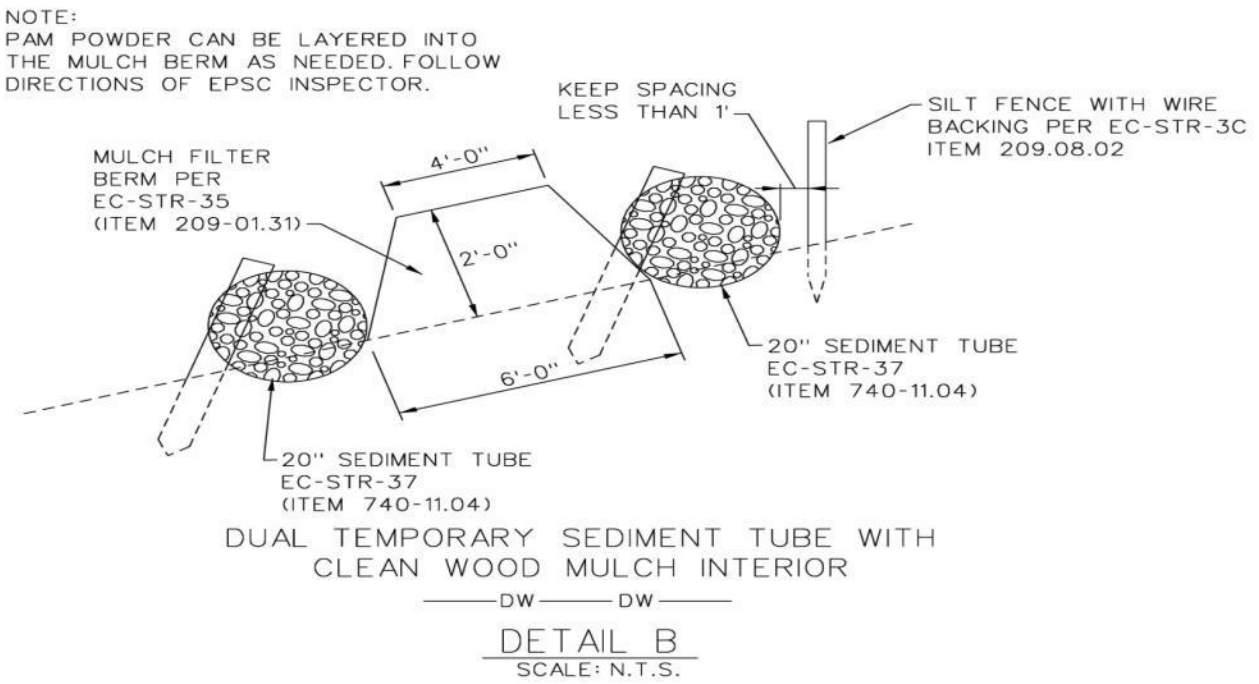


Buffer Zones

Example of Buffer Alternative Equivalent Measure

Silt fence with backing

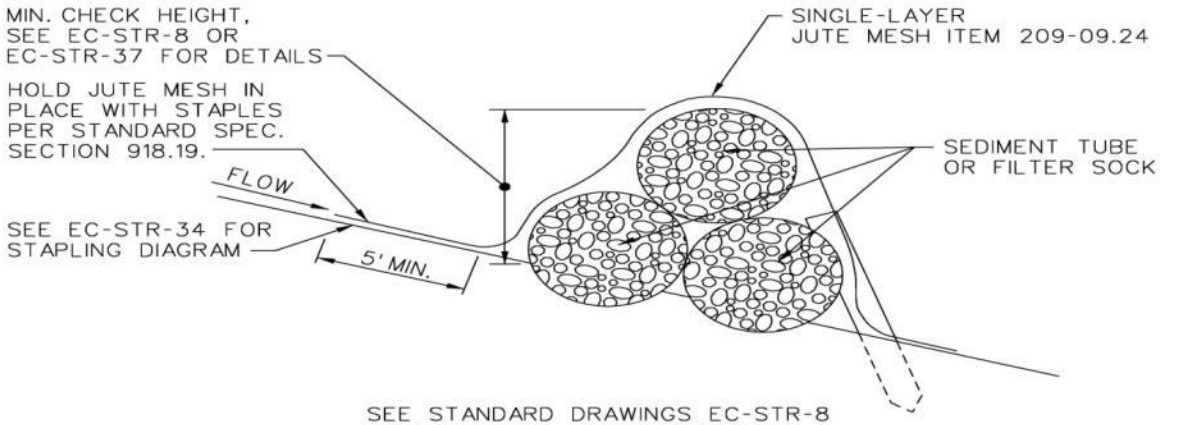
Dual temporary sediment tube with clean wood mulch interior (mulch filter berm)



Buffer Zones

Example of Buffer Alternative Equivalent Measure

Silt fence with backing
triple stacked sediment tubes with jute mesh



TEMPORARY SEDIMENT TUBE OR FILTER SOCK CHECK DAM IN DITCH WITH JUTE MESH

DETAIL C

SCALE: N.T.S.

Buffer Zones

Example of Buffer Alternative Equivalent Measure

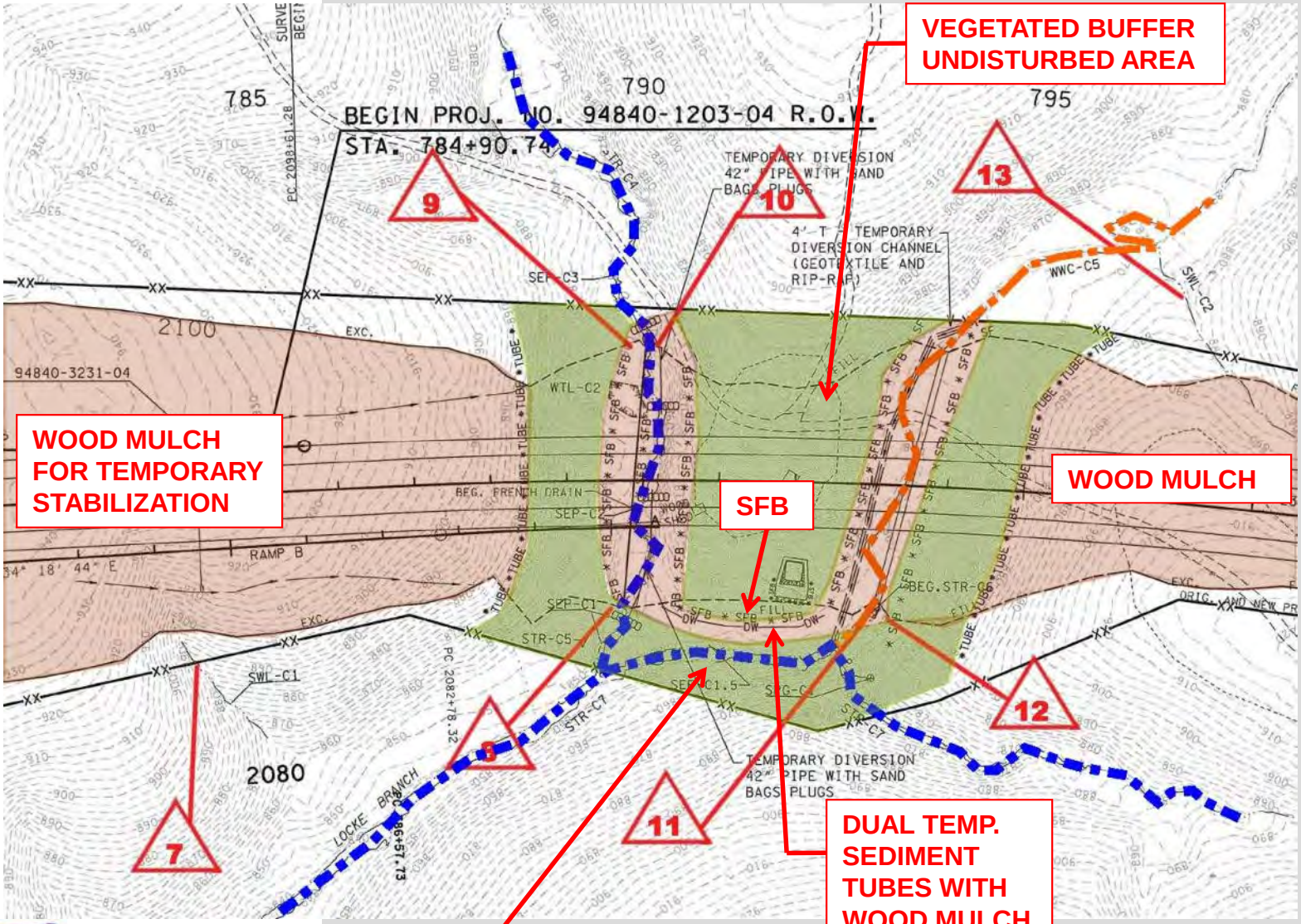
Sediment tube in front and behind silt fence with backing

Buffer Zones

Example of Buffer Alternative Equivalent Measure not acceptable

Buffer Zones

Buffer Alternative Equivalent Measure Project Example: EPSC Phase I



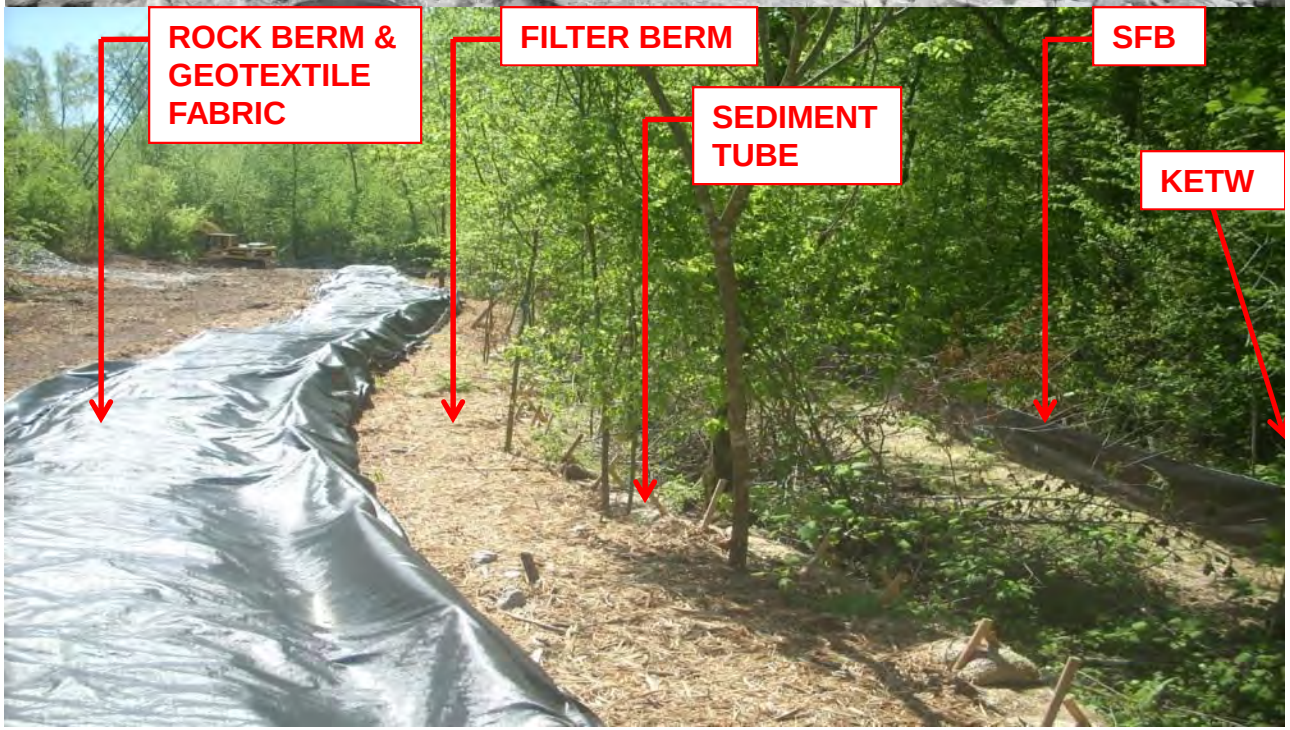
Buffer Zones

Buffer Alternative Equivalent Measure

Project Example: Silt fence with backing

Sediment tubes with filter berm

Rock berm overlain with geotextile fabric



Questions?

TDOT DESIGN DIVISION

MODULE 7:

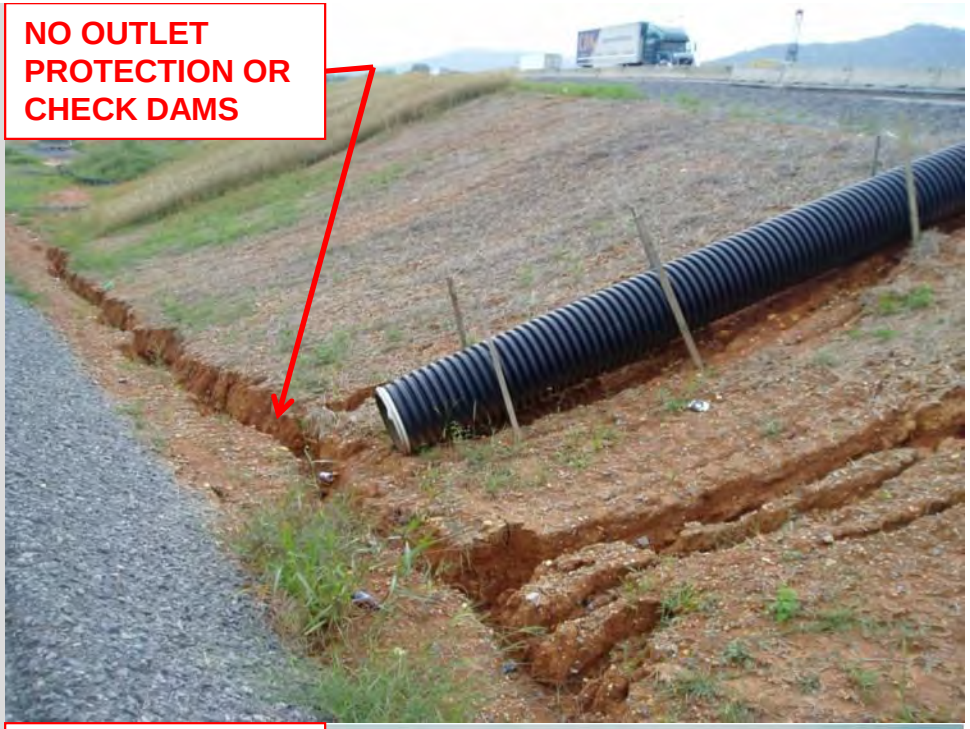
MISCELLANEOUS EPSC DESIGN

Slope Drains

Typical comments on EPSC plans

- Not depicted in any EPSC phases (including clearing and grubbing)
- Outlet protection not provided
- Not used on super elevated road sections
- Not used to divert offsite drainage around or through a construction area
- Not discharged at toe of slope
- A BMP that could be used to meet the new steep slope requirement

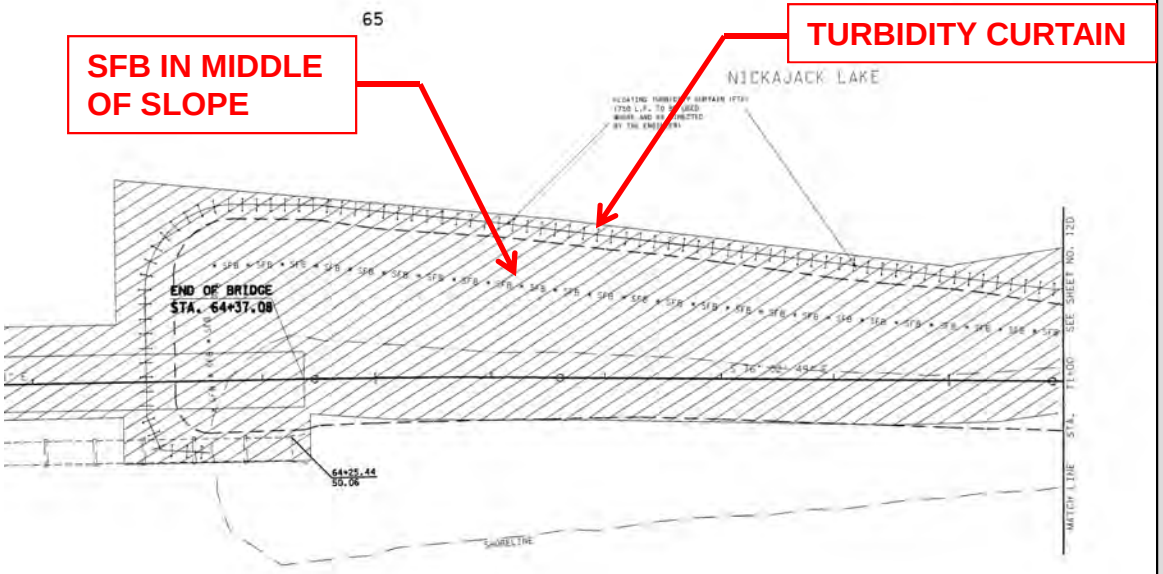
Slope drain without outlet protection



Discharge slope drains to toe of slope or into channels

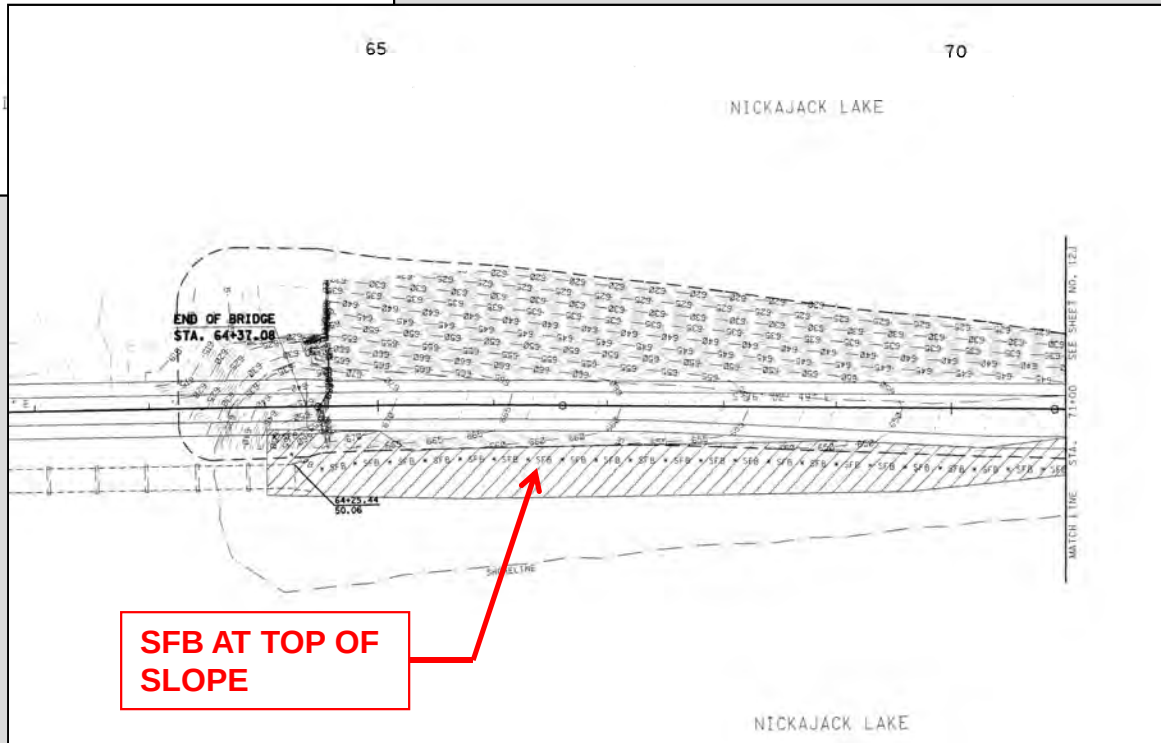
Check dams used as slope drain outlet protection and runoff control within ditch

Super elevated road sections diverted into slope drains



Project Example: Bridge replacement project on a KETW

EPSC Phase 1



EPSC Phase 2

Project Example: Bridge replacement project on a KETW

Finish grade work for roadway

Permanent seeding and ECBs placed on finished slopes

No slope drains depicted in EPSC plans. Several slope failures occurred due to surface runoff from compacted roadway surface

BMP failure at toe of slope. Sediment discharged into KETW

Multiple slope drains added to convey surface runoff to toe of slope until roadway is completed (change order to construction)

Slope drain discharges at toe of slope onto rock fill for outlet protection

Construction Entrances

Typical comments on EPSC plans

- Not depicted in any EPSC phases (including clearing and grubbing)
  - ❖ item numbers not included
  - ❖ construction change order
- Required by the CGP
- Not depicted at side road crossings
- Temporary drainage pipes not provided under entrance

Tracking onto public roadways

Construction entrance not provided

No temporary pipe culvert included for existing drainage swale

Properly installed construction entrance

Sediment Filter Bags

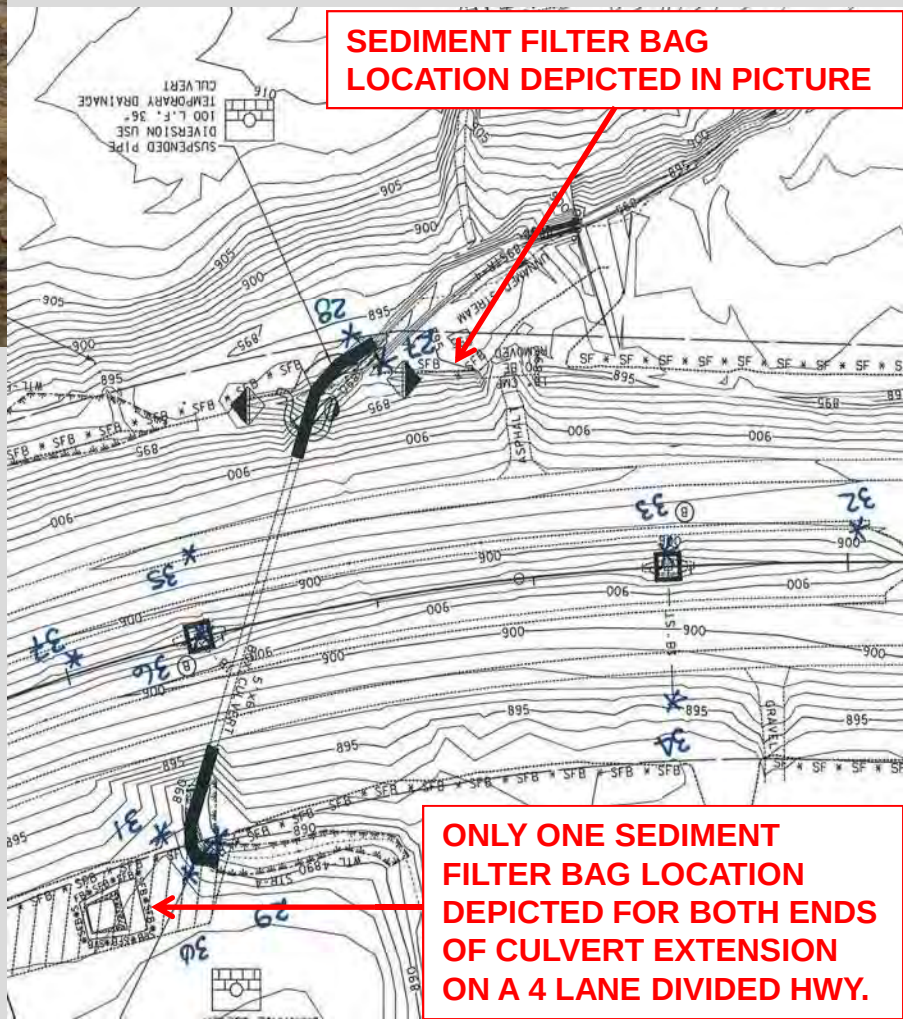
Typical comments on EPSC plans

- Should be included with all culverts (pipe, box, etc) associated with stream crossings, relocations, etc.
- Not depicted for bridge construction with piers outside of streams (groundwater, surface runoff, etc.)
- Not depicted far enough away from buffer zone
- Not located on flat topography
- Not enough ROW or temporary construction easements provided for installation and maintenance

Don’t depict in streams

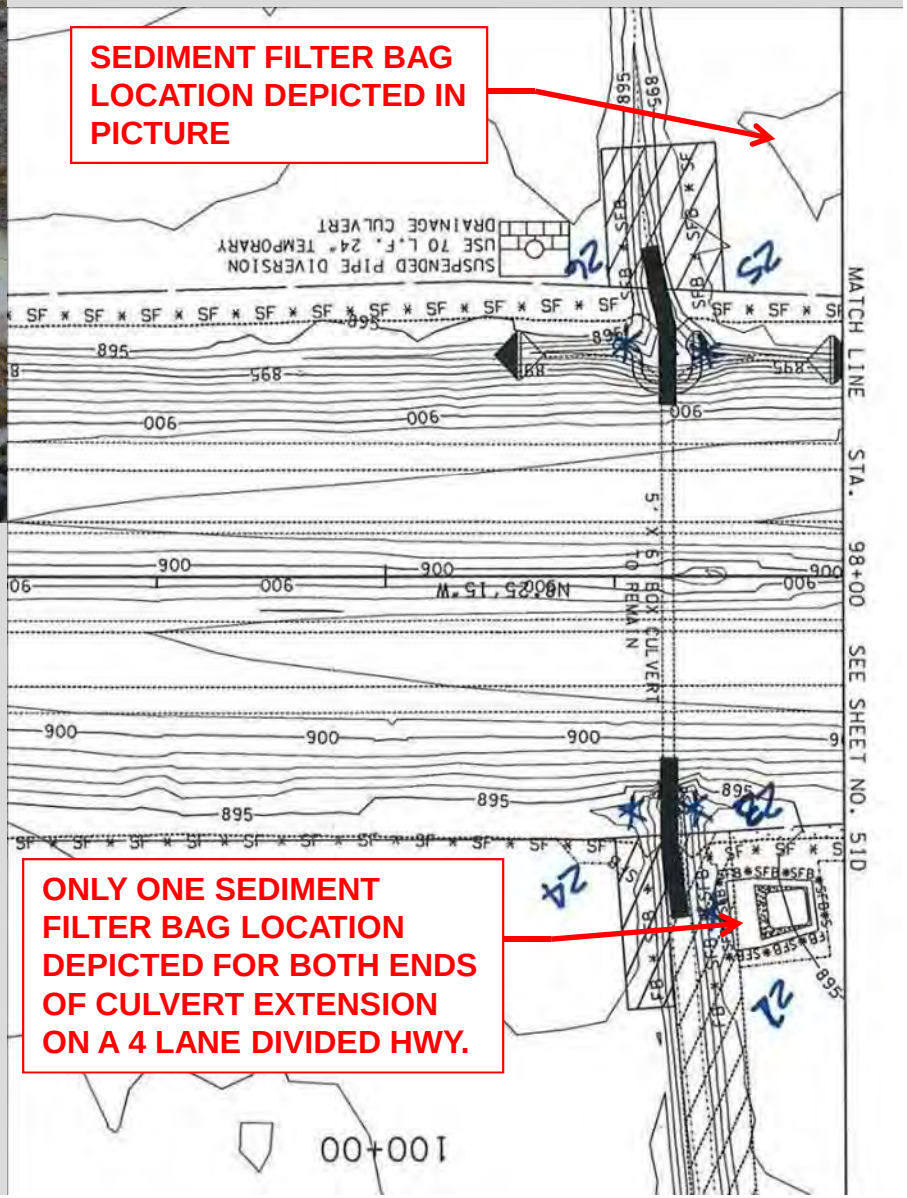
They can be undersized

No construction easement or enough stream buffer provided for sediment filter bag.



Sediment filter bag had to be dug into toe of fill slope to stay within ROW.

Great flat area for installation….



but no construction easement provided for installation on opposite side

Sediment filter bags located too close to receiving water bodies

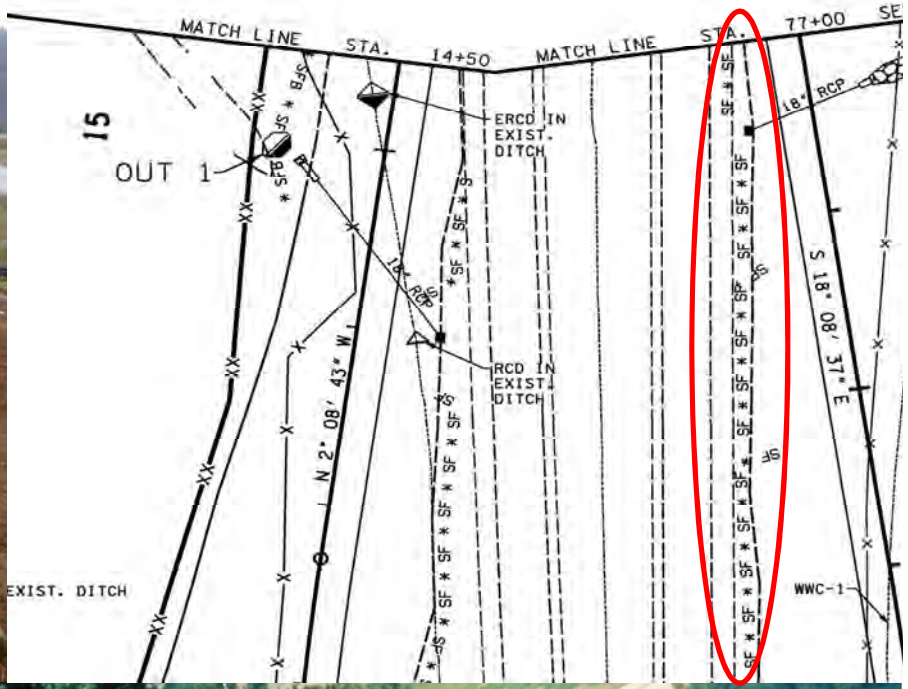
Sediment filter bags are not designed to remove fine sediments or control turbid water

Discharge of sediment filter bag above into a KETW

Silt Fence

Typical comments on EPSC plans

- Overly used – not the cure all
- ROW and/or clearing limits lined with silt fence
- Not placed on contour
- Placed across natural drainage swales, ditches, concentrated flow, etc. with no outlet
- J-hooks not provided
- Depicted at toe of slope = no storage area
- Not enough ROW or construction easements provided for sediment storage and maintenance



Silt fence placed at top of slope – not needed

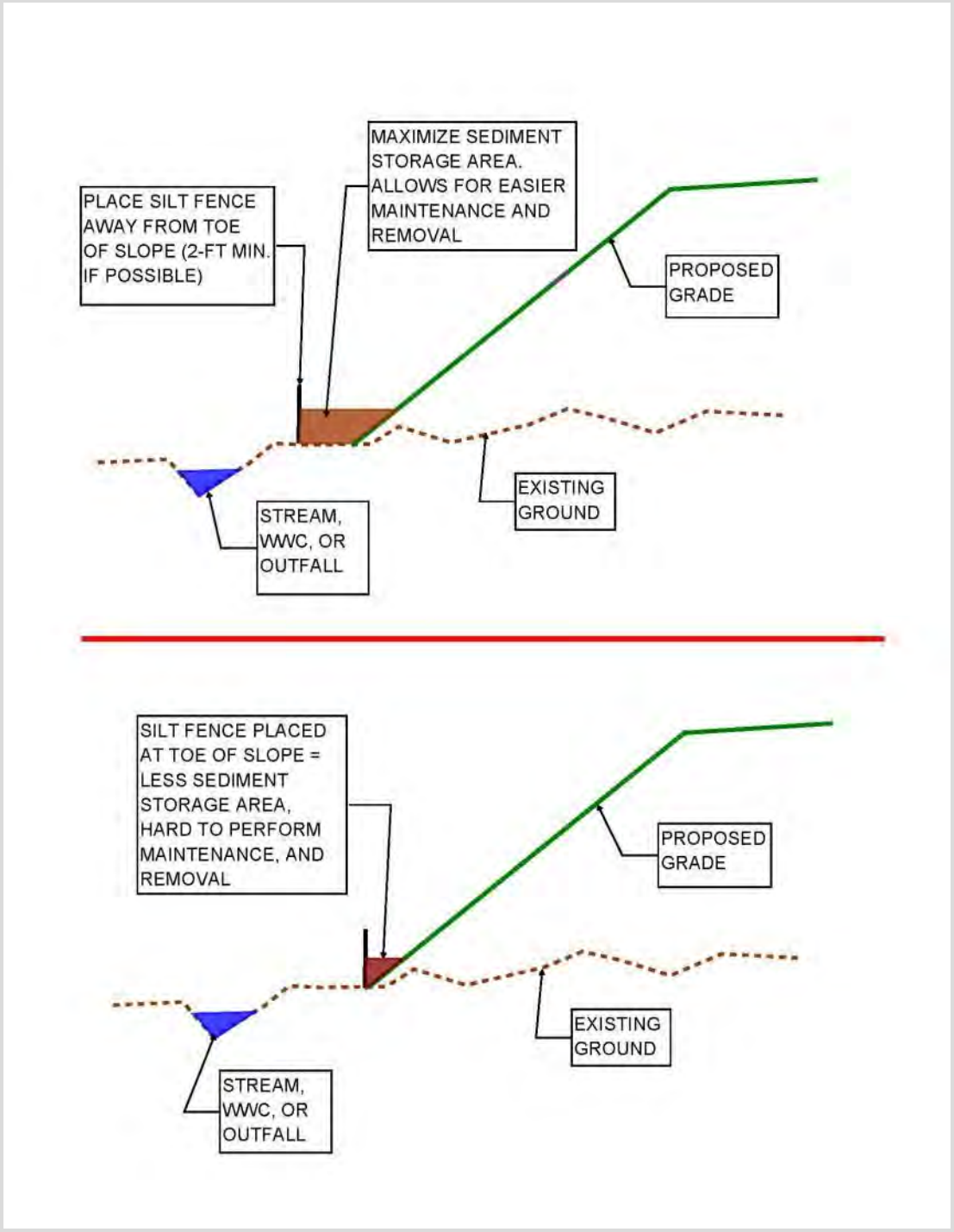
Silt fence placed properly along the contour

Silt fence placed at toe of slope = no sediment storage and hard to perform maintenance and removal

Silt fence with wire backing should be used on large fill slopes

Silt Fence

Placement of silt fence or other BMPs at toe of slopes allows for maximum sediment storage, ease of maintenance and removal



Never place silt fence across concentrated flow paths

Never depict silt fence across streams

Never place silt fence across concentrated flow paths

Silt fence should not used for culvert outlet protection

Never place silt fence across concentrated flow paths

Silt fence should not used for culvert outlet protection

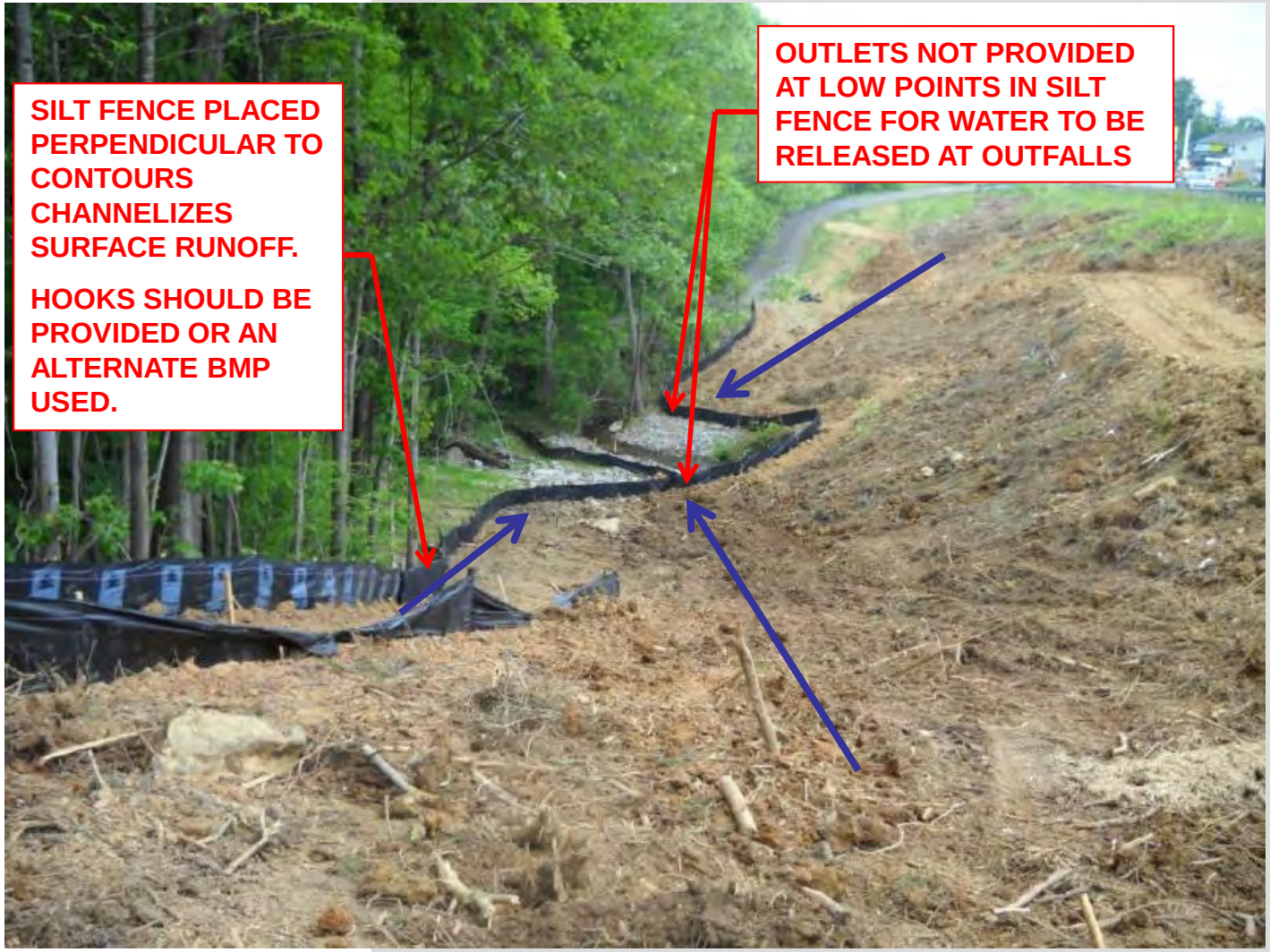
Place enhanced or rock dams in low lying areas to prevent….

silt fence from collapsing and releasing sediment offsite

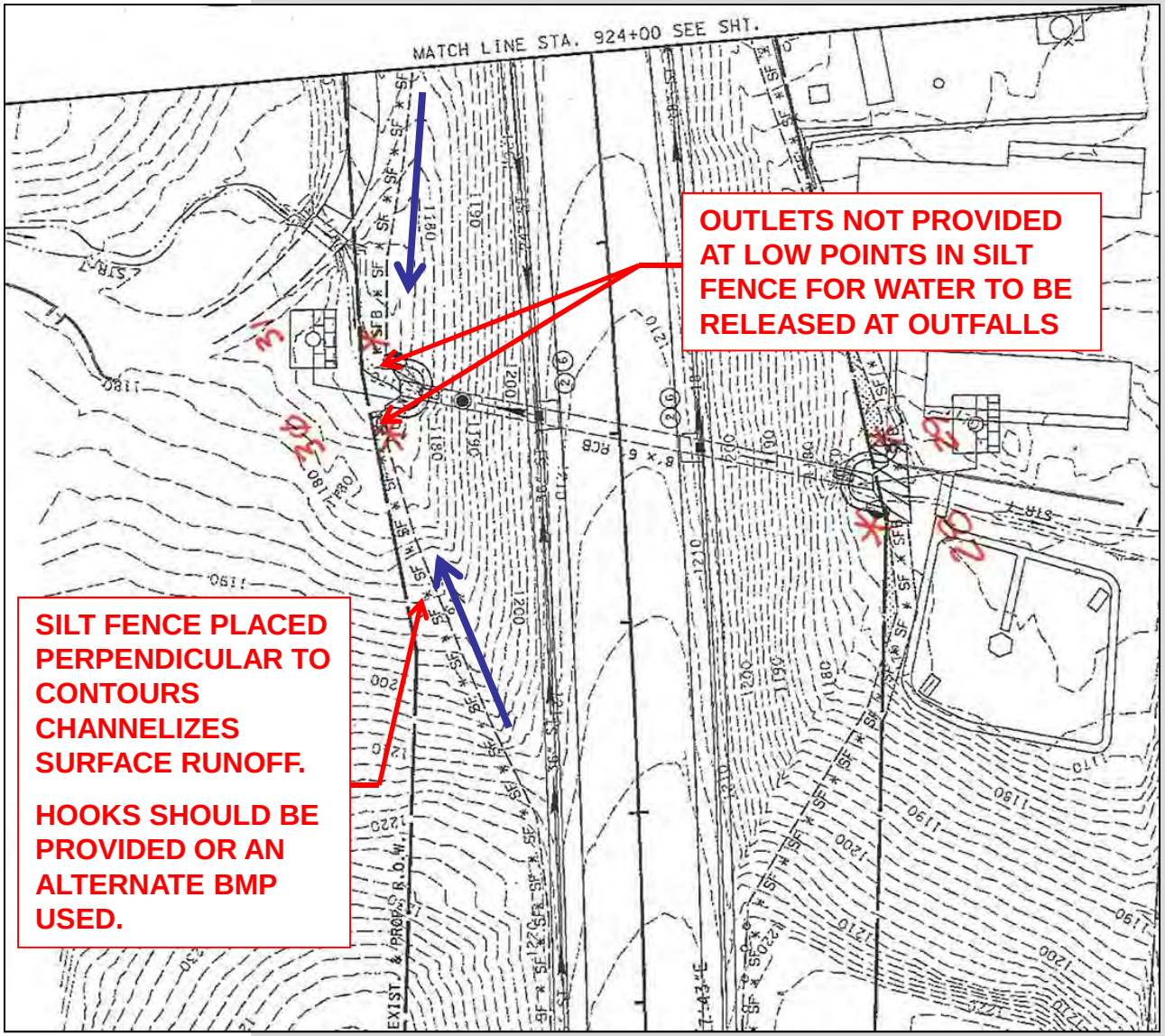
Silt fence using erosion eels for J-hooks on silt fence not placed on contour

J-hooks constructed out of silt fence

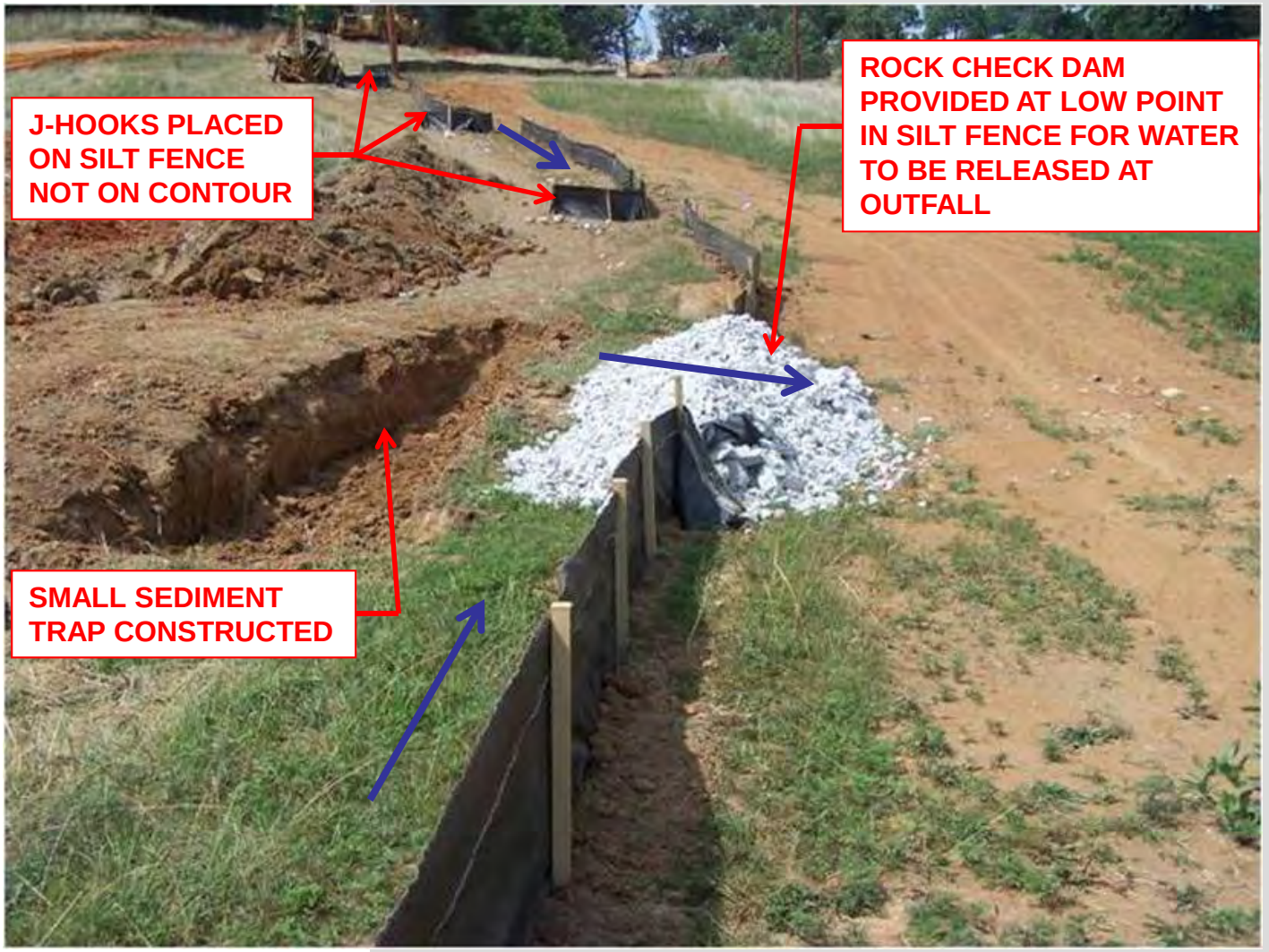
Silt fence shouldn't be depicted perpendicular to contours. No outlet provided at low point in silt fence at toe of slope resulting in silt fence being overtopped during storm event



Project example: EPSC plan view (only phase depicted)



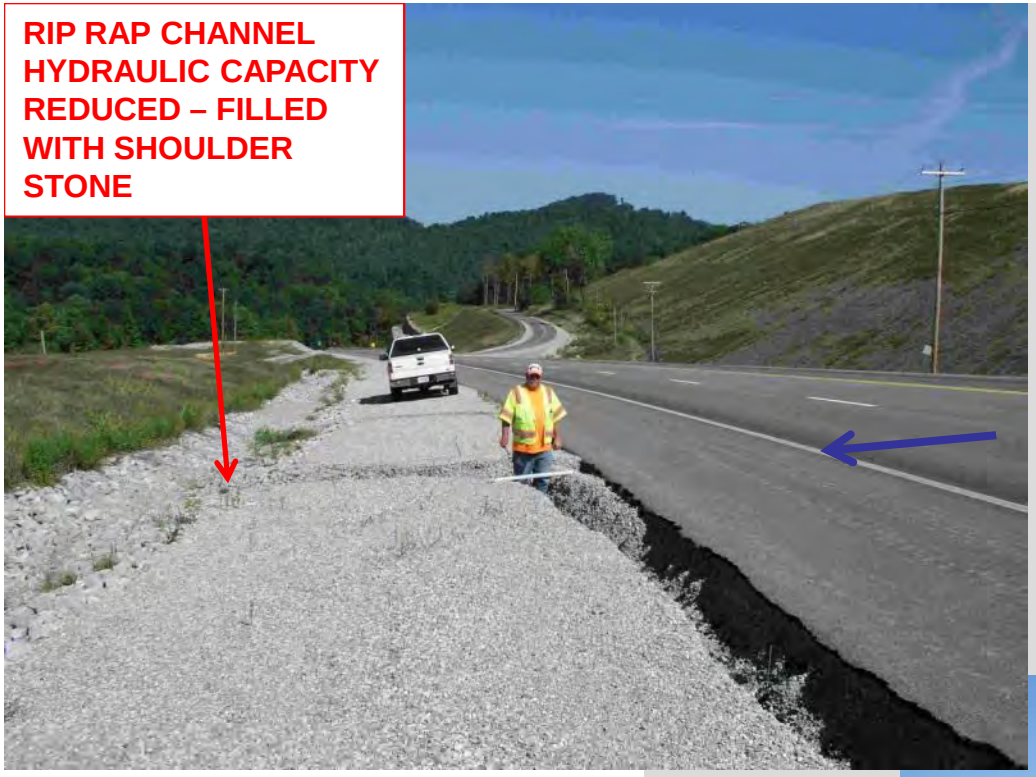
Outlet s (i.e. rock check dams) are needed in silt fence runs where low spots in the topography occur to prevent water from building up and overtopping silt fencing.



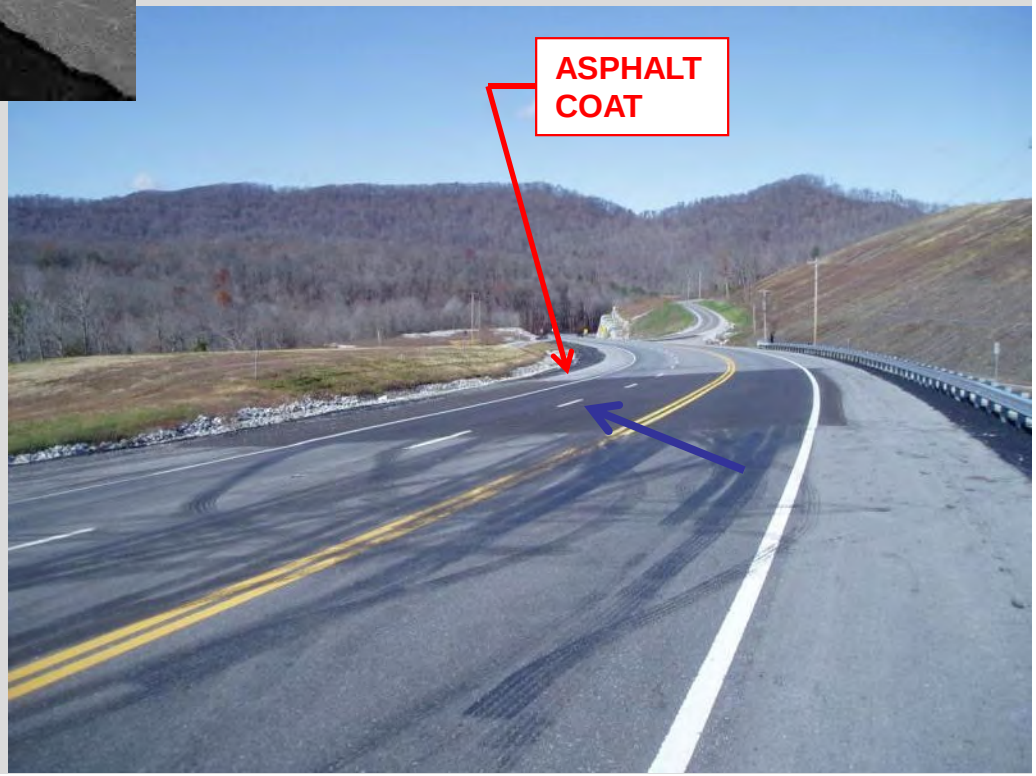
Roadway shoulders

Typical comments on EPSC plans

- Gravel shoulders not stabilized on super elevated roadway cross sections



Super elevated roadway on a down gradient slope



Stabilize shoulders with prime or tack coat

Temporary Stream Crossings & Diversions

Typical comments on EPSC plans

- A temporary stream crossing will be required almost every time for culvert and or bridge construction
- Not enough ROW or construction easements provided for installation and maintenance
- Diversions not phased with culvert and or bridge construction
- Diversions not depicted
- Number of pipes, sizes, cross sections dimensions, etc. for temporary stream crossings and stream diversions not provided on EPSC plans

Suspended pipe diversion on box culvert extension on inlet – not properly diverted into inlet for high flows

Suspended pipe diversion on box culvert outlet extension

Stream diversion using bypass pumping- undersized?

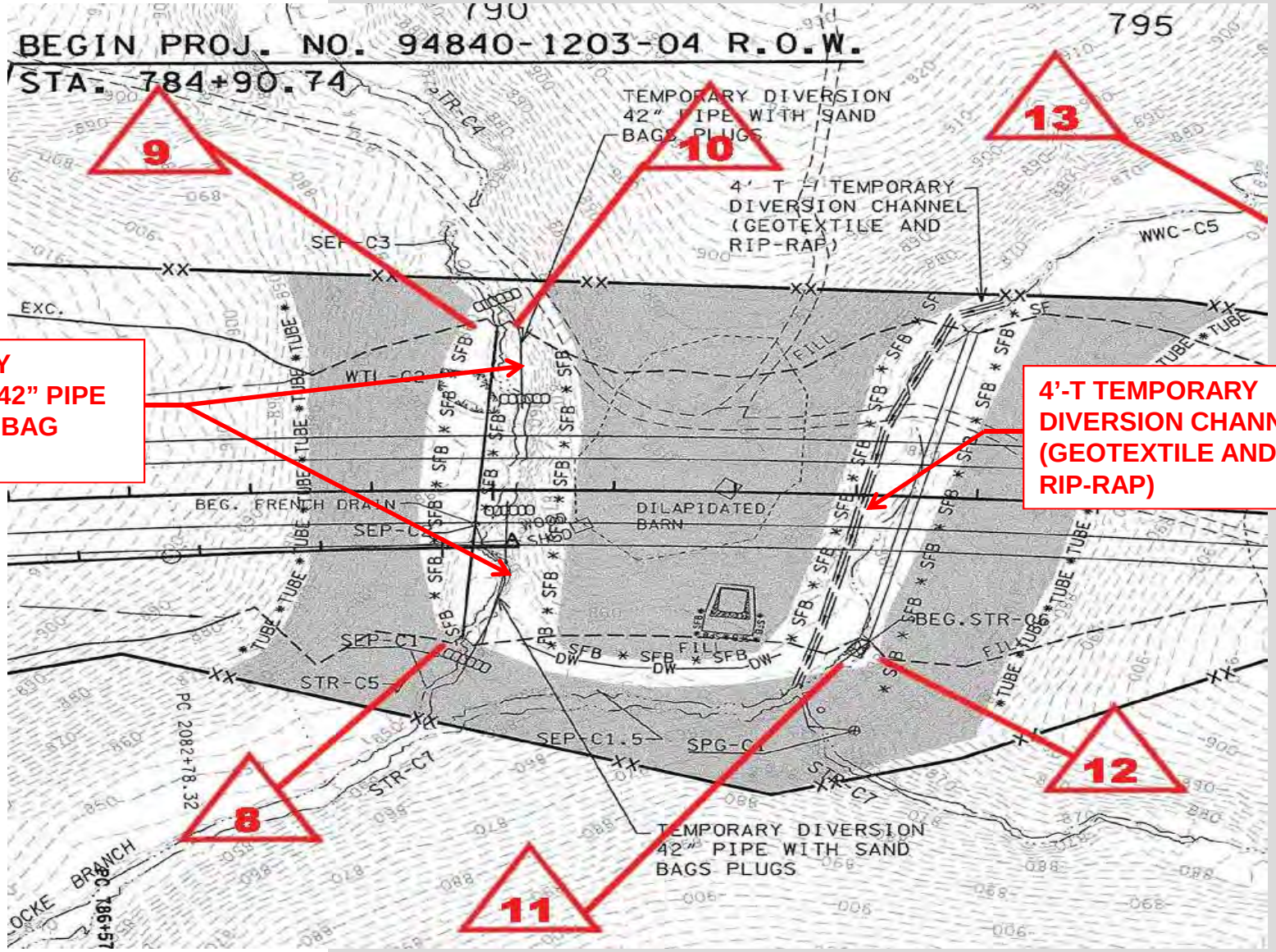
Stream diversion for new box bridge

Size of diversion and lining provided on EPSC plans

Suspended pipe stream diversion – pipe size provided on EPSC plans

Diversion may be needed for wet weather conveyances

Project example: EPSC plan view



TEMPORARY DIVERSION 42" PIPE WITH SAND BAG PLUGS

4'-T TEMPORARY DIVERSION CHANNEL (GEOTEXTILE AND RIP-RAP)

Stream diversion for channel relocation – plastic pipe and gravel berm

Diversions may be needed for existing bridge removal

Temporary stream crossing – installed correctly?

Size and number of pipes needed for temporary stream crossing were not provided to contractor.

After the water receded. The contractor had to remove stone from creek channel by hand.

Contractor reinstalls temporary stream diversion and uses same number and size of pipes and adds steel plates.

Next rain event took out the temporary stream crossing again.

Your site may require special temporary stream diversion pipe with baffles for trout.

Temporary stream diversion and crossing to construct a box culvert.

Temporary stream diversion using jersey barrier and plastic sheeting.

Temporary stream diversion lined with plastic and rip-rap.

Same temporary stream diversion in use after a storm event.

Rip-rap berm used to protect an intermittent stream.

Temporary stream diversion gone bad.

Verify that the channel lining specified in the stream diversion can handle the velocities during the design storm event.

Curb Inlet / Catch Basin Protection

Typical comments on EPSC plans

- Inlet protection not provided on different phases of construction

Inlet protection is considered a perimeter control because the discharge from area drains and curb inlets is usually at the project boundaries

Catch basin filter assembly placed over a median drain

Catch basin filter assemblies placed over curb inlets during different phases of construction

Curb inlet protection Type 1-4 needed to protect inlets from sediment

Type 1 curb inlet protection

Type 3 curb inlet protection

Type 4 inlet protection

Type A catch basin protection with a silt saver top

Type B catch basin protection

Type D catch basin protection

Type E catch basin protection

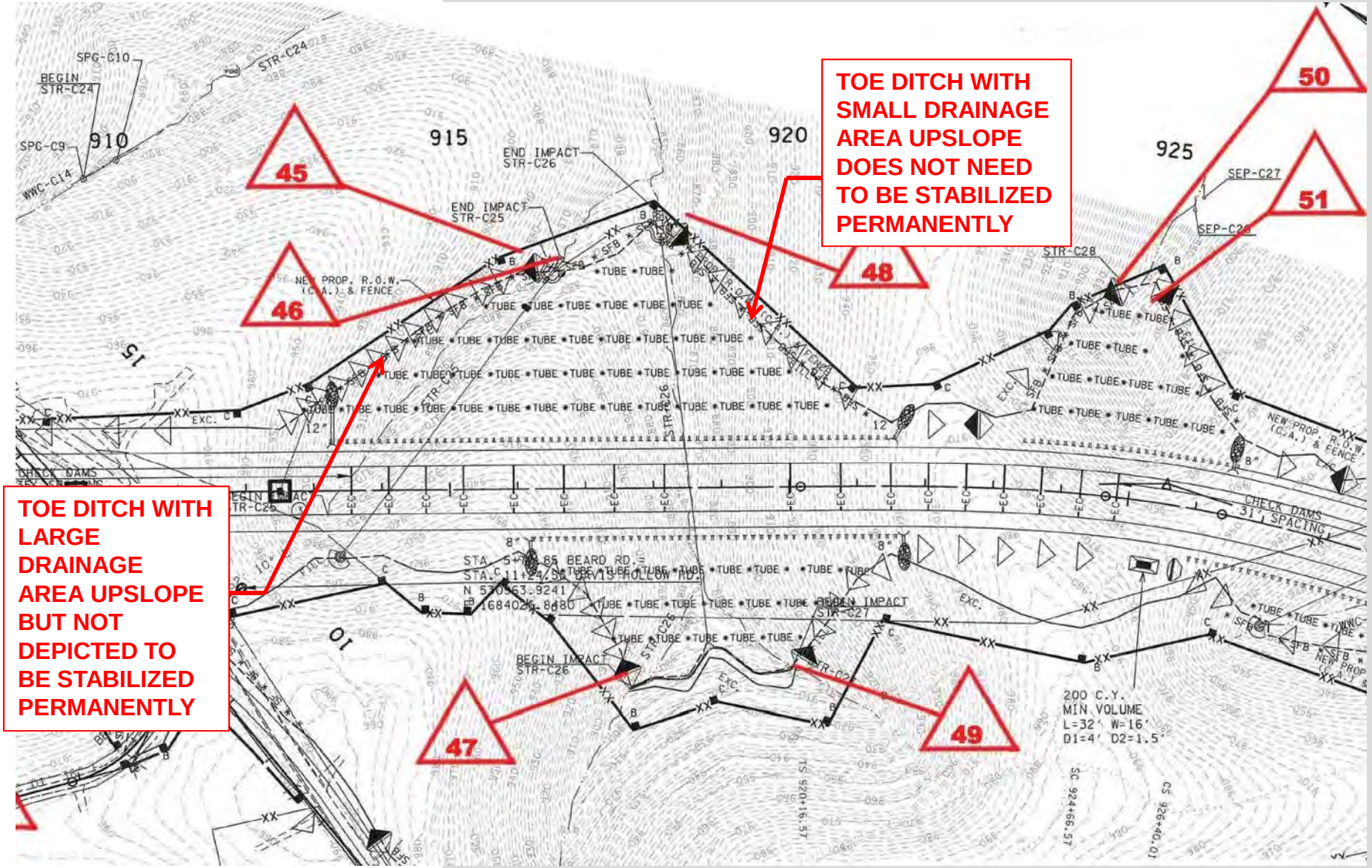
Phases of inlet protection for a median drain

Toe Ditches

Common mistakes on EPSC plans

- A toe ditch is created where fill meets existing contours creating a “V” channel
- Not protected for discharge from roadway or special ditches
- Inadequately sized rip rap

Project example: EPSC plan view (Final Phase)



Large drainage area upslope from roadside ditch leads to a toe ditch…

Can the toe ditch handle the flow from above?

Typically toe ditches are on a very steep gradient and need stabilization

Small drainage area upslope therefore no need for additional stabilization in the toe ditch

Low point in roadway required both toe ditches to be stabilized with rip rap

Only one toe ditch required additional stabilization

Steep Slopes

Future comments on EPSC plans

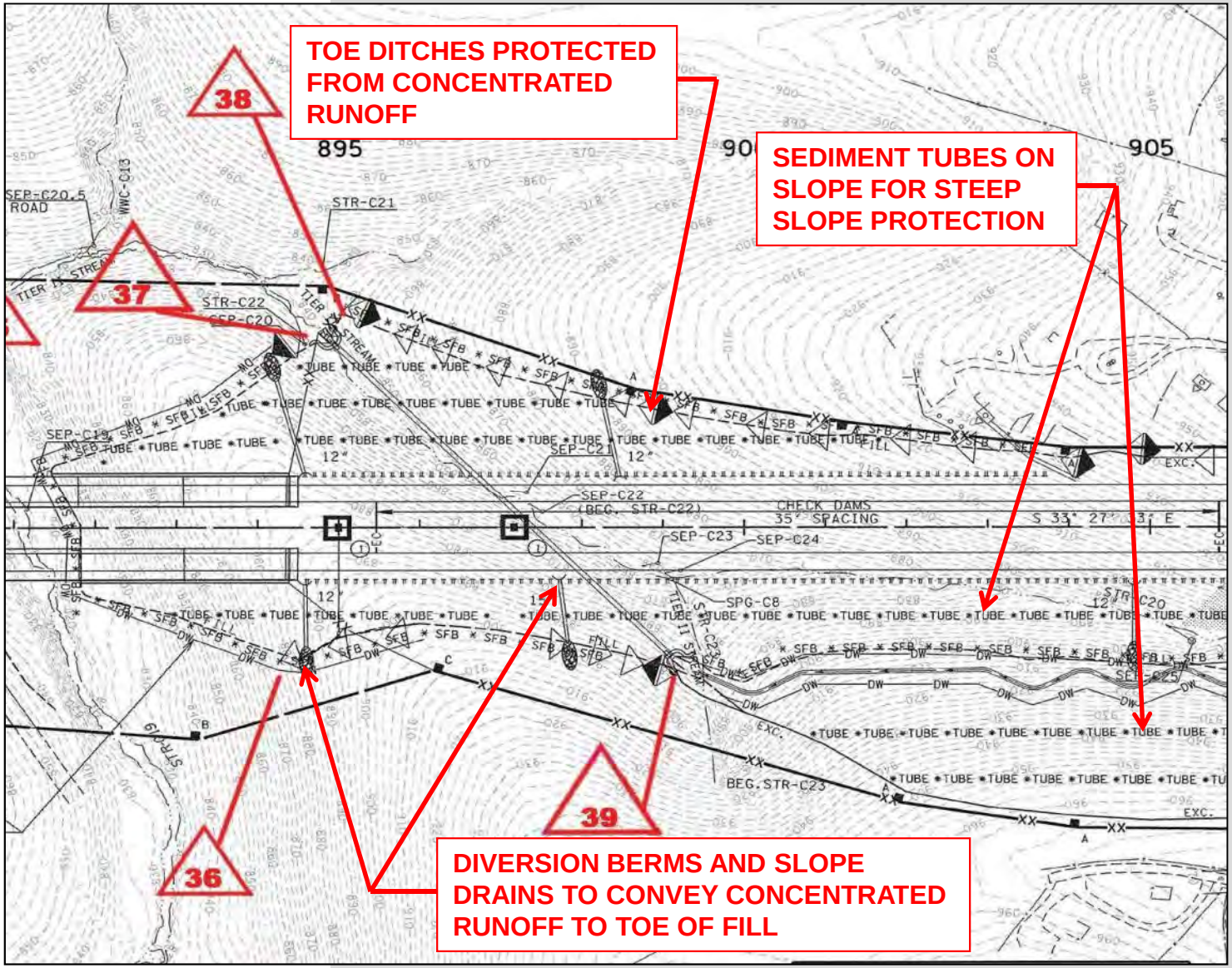
- New requirements per the CGP for steep slopes
- Steep Slopes are defined as:
  - natural or created slope of 35% grade or greater
  - no height restrictions
- Steep slopes shall be temporarily stabilized not later then 7 days after construction activity on the slope has temporarily or permanently ceased
- Designers must pay special attention to stormwater management to convey runoff non-erosively around or over a steep slope

Bridge abutment slopes protected with sediment tubes and matting (intermediate EPSC phase)

Diversion ditches and matting used to protect steep slope areas during construction (intermediate EPSC phase)

Diversion ditch used to divert stormwater runoff away from steep slopes and to EPSC measures down slope (intermediate EPSC phase)

Project example: EPSC plan view



Sediment tubes placed on slopes to break up surface runoff into to relocated stream channel (final EPSC phase)

Diversion berm with slope drains down slope to divert runoff from steep slope areas

Sediment tubes used to protect a roadside ditch slopes until the sod is rooted.

Combination of sediment tubes, diversion berms and slope drains to protect steep slope areas

Questions?

TDOT DESIGN DIVISION

MODULE 8:

NPDES FUTURE COMPLIANCE

Current NPDES Compliance

Stormwater Discharges from Construction Sites in Tennessee

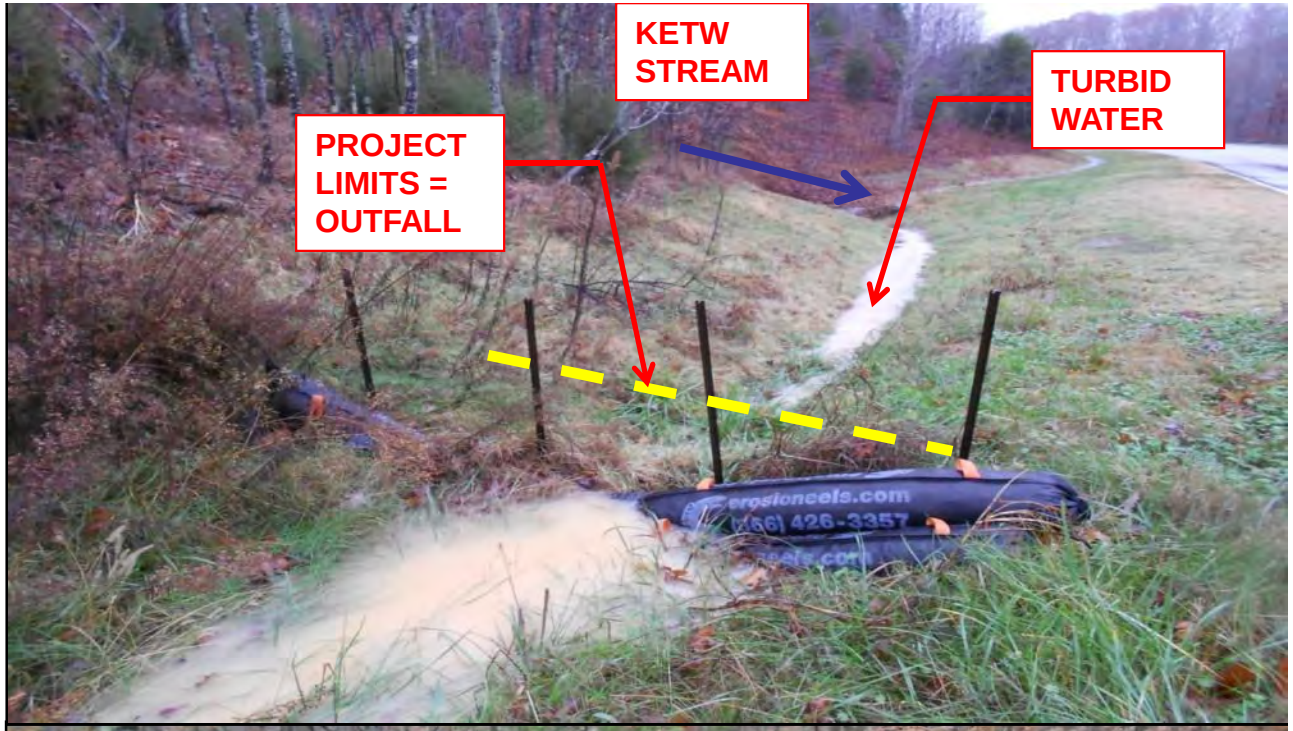
- Permit compliance is based on visible and color discharge
- Don’t change the color of the receiving water body (“objectional color contrast”)
- No measureable standards (NTUs)
- Very subjective
- Difficult to enforce
- Left room for error

Current NPDES Compliance

Objectionable color contrast

Current NPDES Compliance

Objectionable color contrast



Current NPDES Compliance

Objectionable color contrast

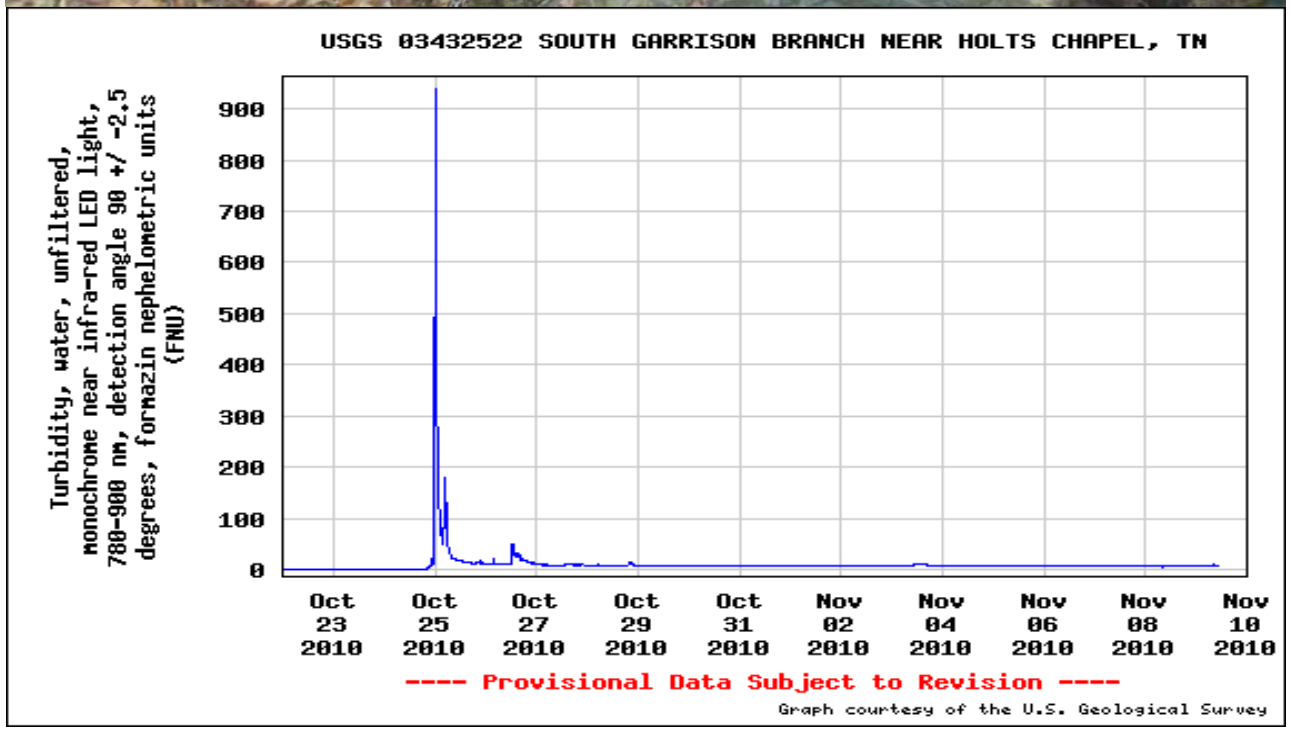
Sediment Releases

Fine sediments deposited in streams

TDOT EPSC measures not designed for fine sediments or turbidity

Sediment Releases

Turbidity measurements >1000 NTUs



Future NPDES Compliance

EPA Effluent Guidelines for stormwater Discharges from Construction Sites

- Nov. 28, 2008 – EPA publishes in the Federal Register *"Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category: Proposed Rule"*
- December 1, 2009 – EPA publishes *"Final Rule: Effluent Guidelines for Discharges from the Construction and Development Industry"*
- February 1, 2010 – Effluent guidelines *were to become* effective **nationwide**

Future NPDES Compliance

Previously: EPA Effluent Guidelines Final Rule Phase In

- August 1, 2011 - 20 acre or greater sites will have to meet a discharge effluent limit
- February 1, 2014 - 10 acre or greater sites will have to meet a discharge effluent limit

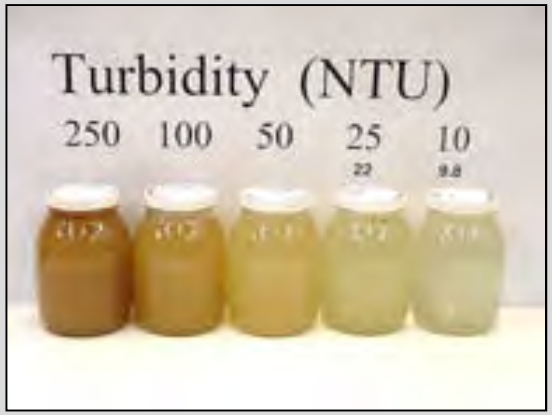
Future NPDES Compliance

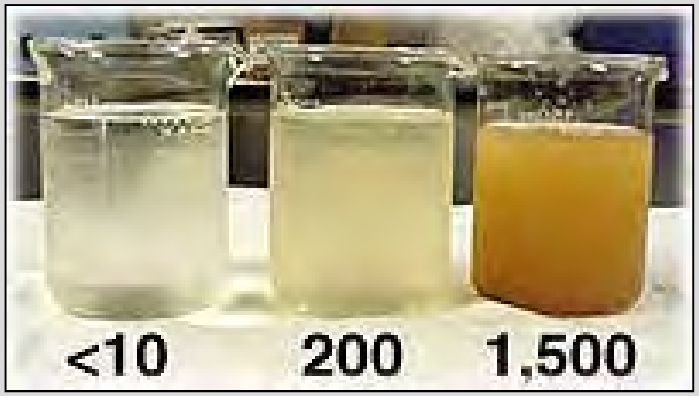
EPA's *Original* Discharge Effluent Limits

- Must sample stormwater discharges at outfalls during the rain event
- 280 Nephelometric Turbidity Unit (NTU) limit (average)
- Not applicable for storm events over the 2 year-24 hour storm
- Does not include weekends or holidays
- Sampling protocols not clearly defined

Future NPDES Compliance

EPA original discharge effluent limit – 280 NTUs





EPA

ELGs Challenged

In August 2010 EPA ELG rule challenged by:

- Wisconsin Homebuilders Association
- National Association of Homebuilders
- Utility Water Act Group

Previously in April 2010, the Small Business Administration Office of Advocacy filed a complaint/petition

EPA

ELGs Challenged

All 3 groups filed separate petitions with the Court.

Court consolidates the 3 petitions on several common factors

- An argument that there are deficiencies in the EPA Dataset to adopt the 280 NTU effluent guideline in their rule – flawed analysis
- Failure to consider site specific characteristics (in particular, cold weather sites and small drainage areas within a site)
- Specific issues relevant to linear gas and electric projects
- Cost to achieve the limits would cost more than the $953 million estimated by the EPA – SBA estimates up to $10 billion annually

EPA

ELGs Challenged

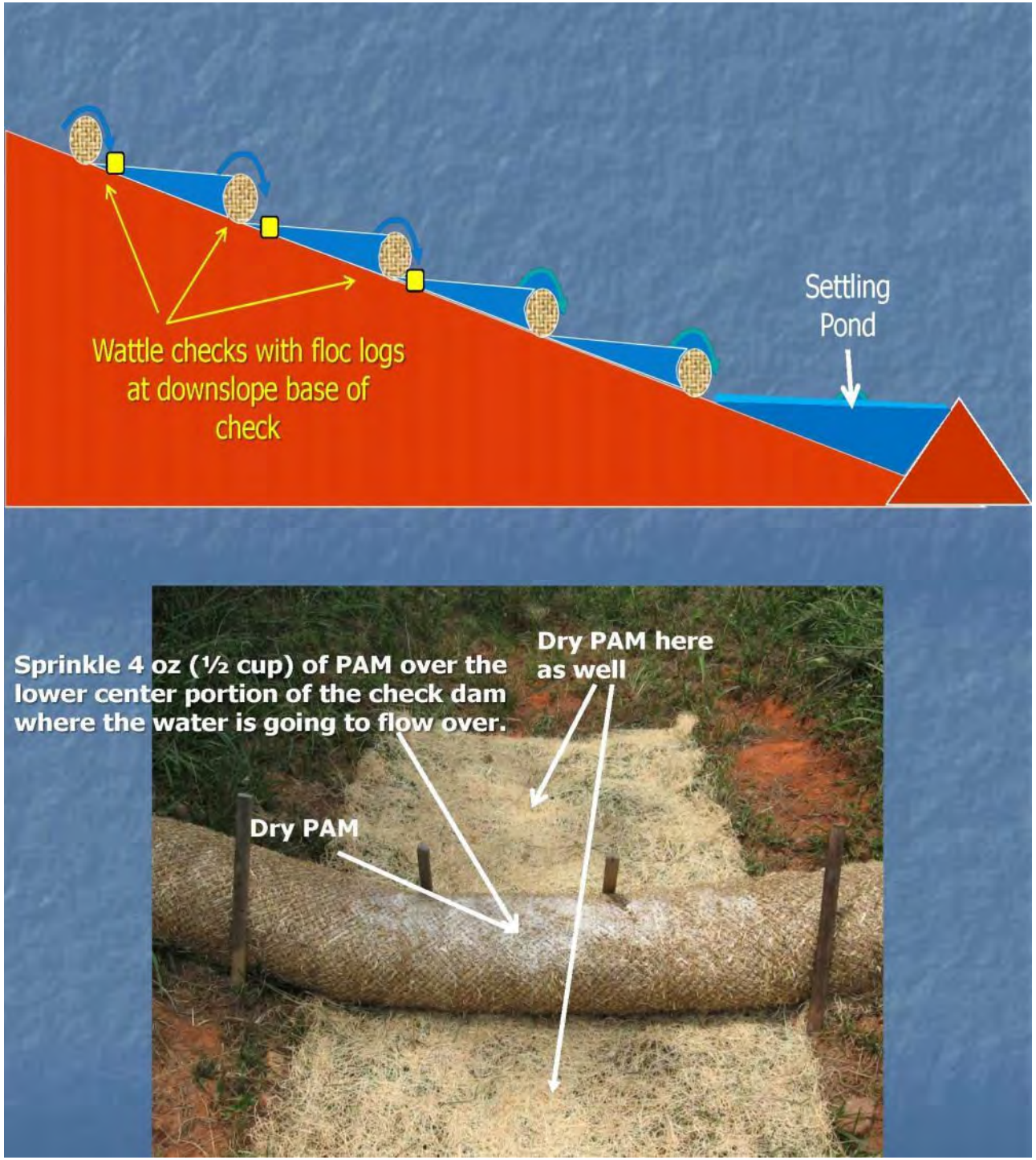
- EPA asked court to vacate the numeric standard while EPA re-evaluates the calculation of the turbidity limitation
- The Justice Department asked EPA to defend the numeric limit – remanded the rule back to the EPA, but did not vacate the numeric limitation
- EPA itself admits the ELG would control less than one quarter of one percent of all total sediment runoff
- EPA was forced to admit several flaws in the final rule and that it had improperly interpreted the data.

Construction Techniques

Polyacrylamide (PAM) active treatment trains

Removal of fine sediments

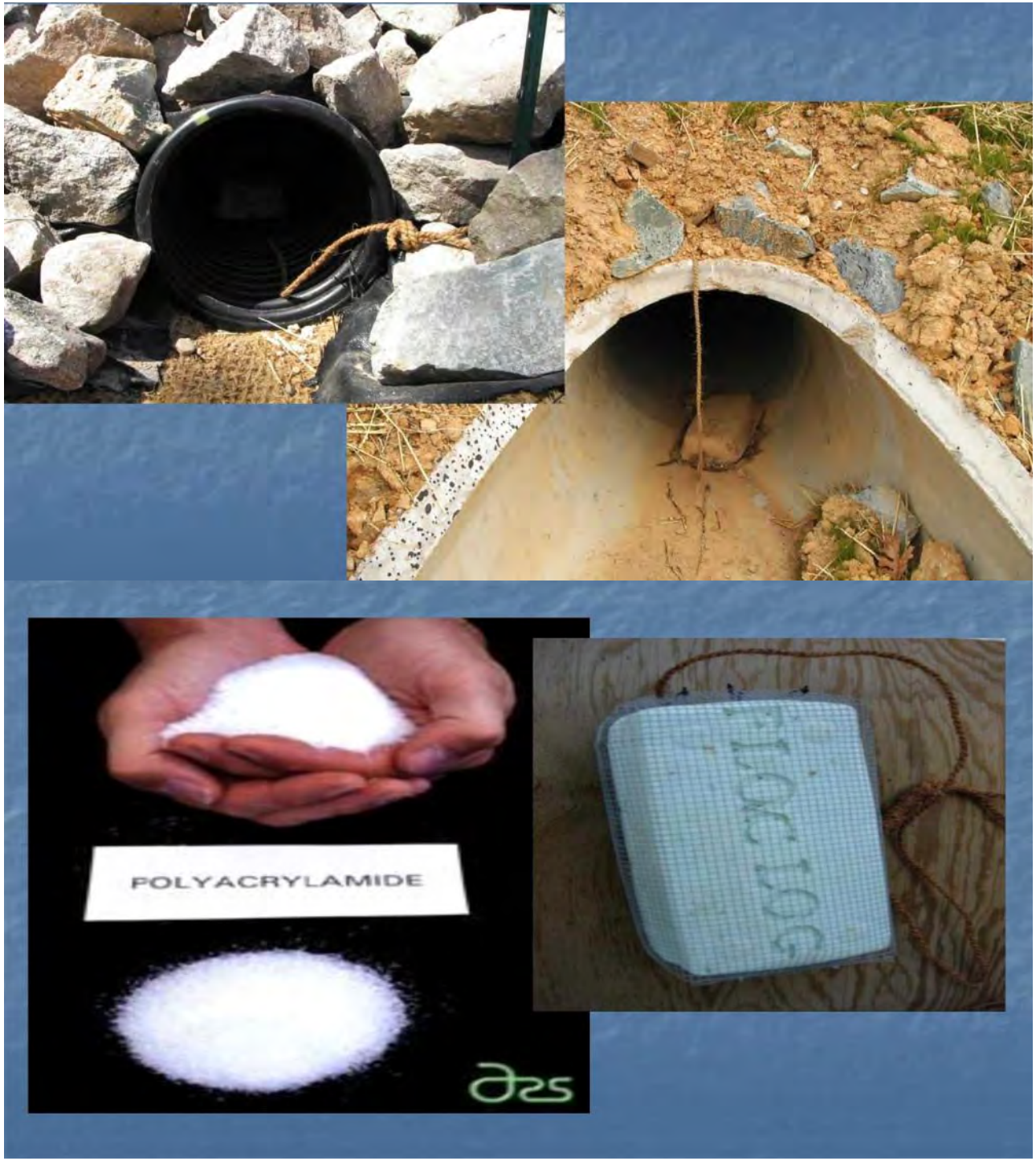
Turbidity reduction



Construction Techniques

Polyacrylamide (PAM) active treatment trains

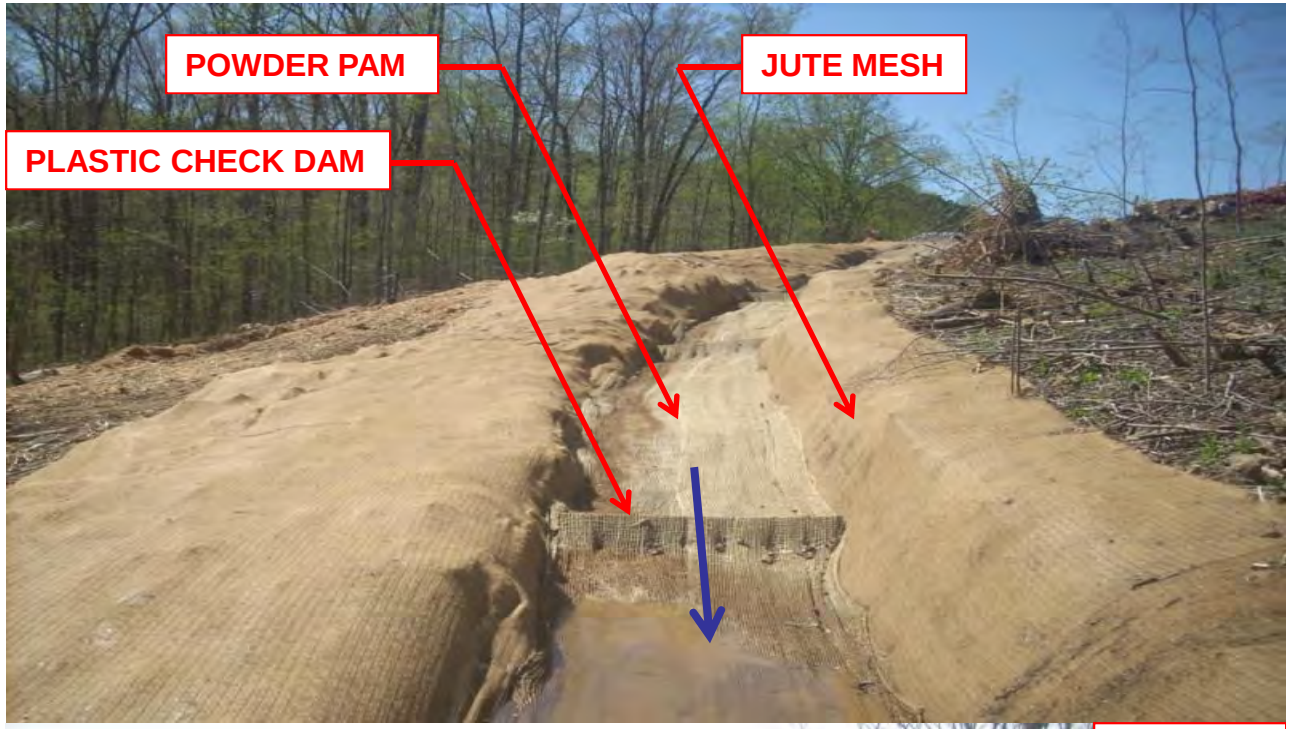
Dry Powders
Liquids
Emulsions
Gel/Floc logs

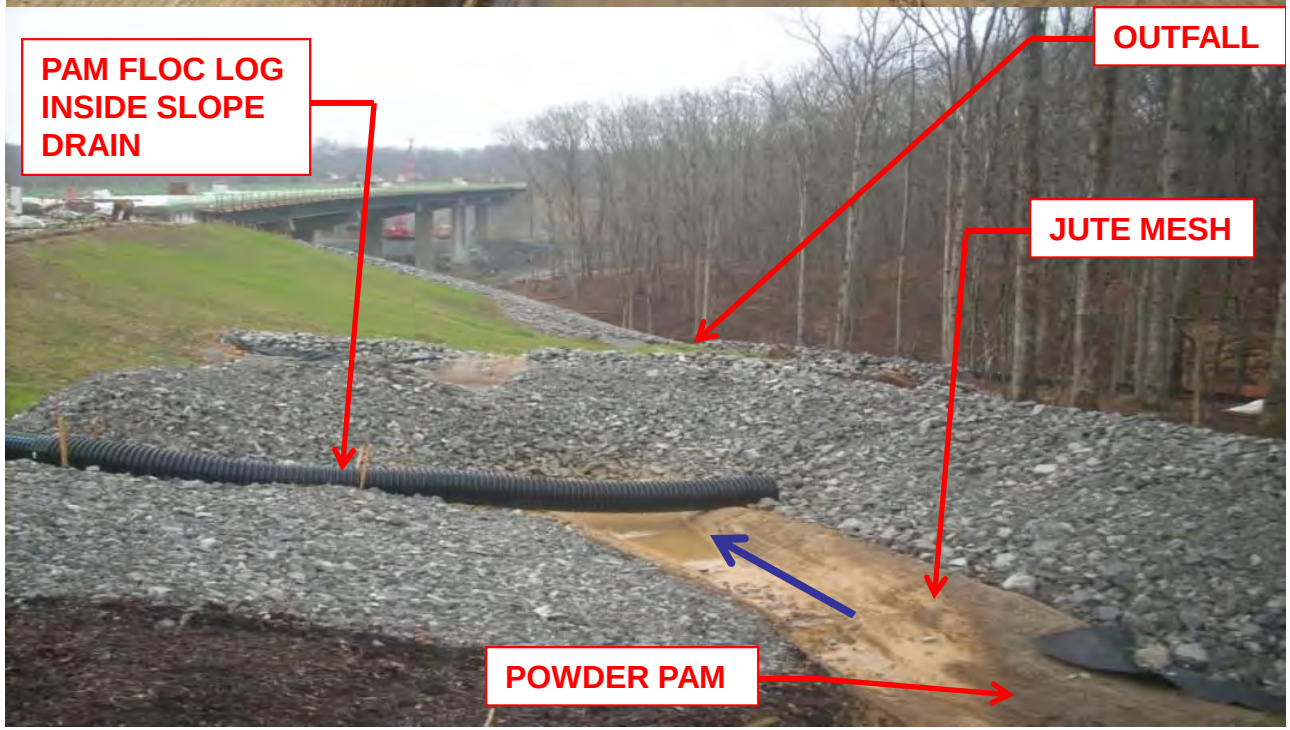


Construction Techniques

Polyacrylamide (PAM) active treatment trains

Powdered PAM
Plastic check dams
Jute mesh
Slope drain

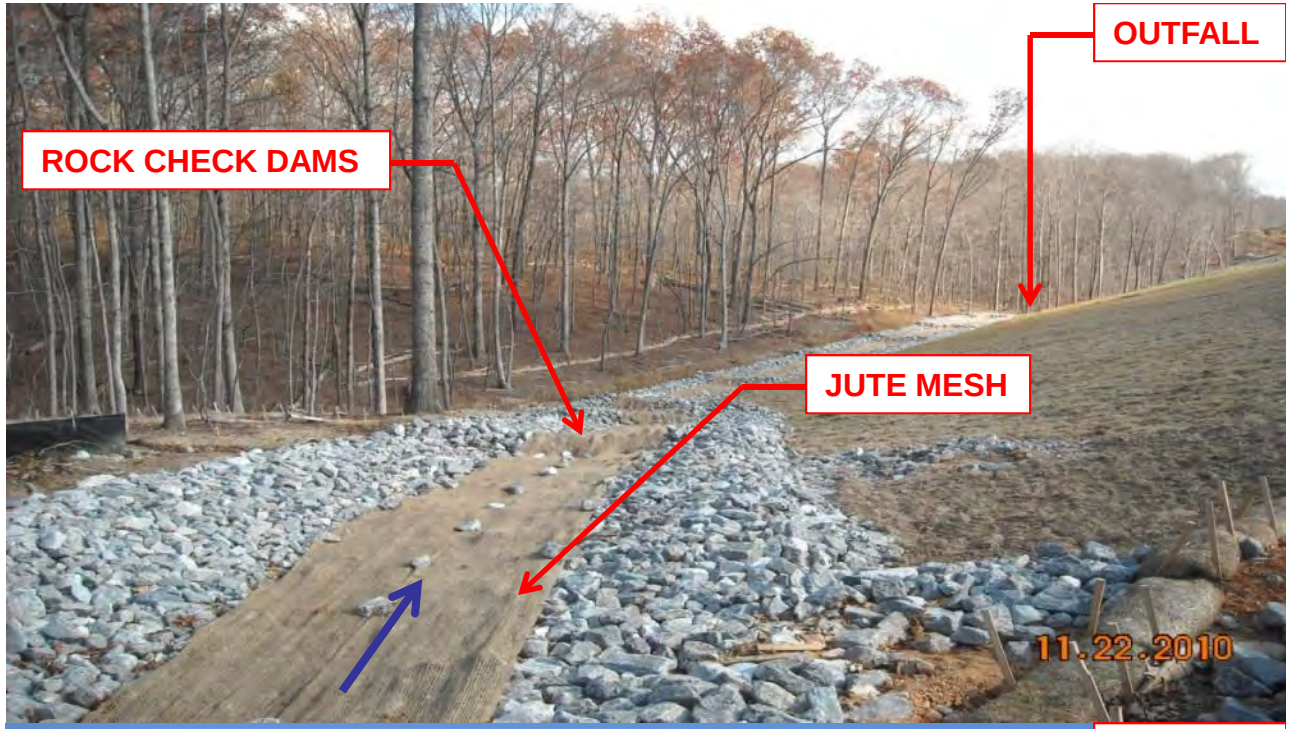


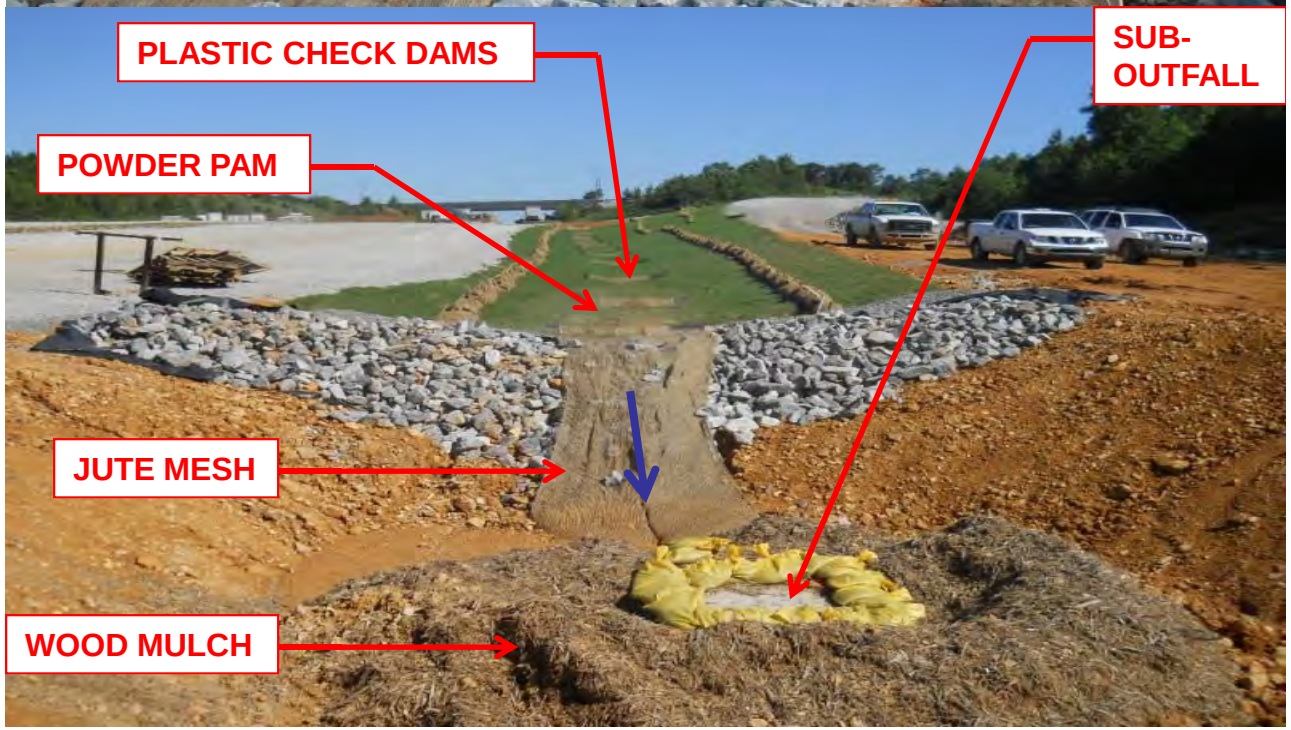


Construction Techniques

Polyacrylamide (PAM) active treatment trains

Powdered PAM
Jute mesh
Rock check dams
Plastic check dams
Wood mulch





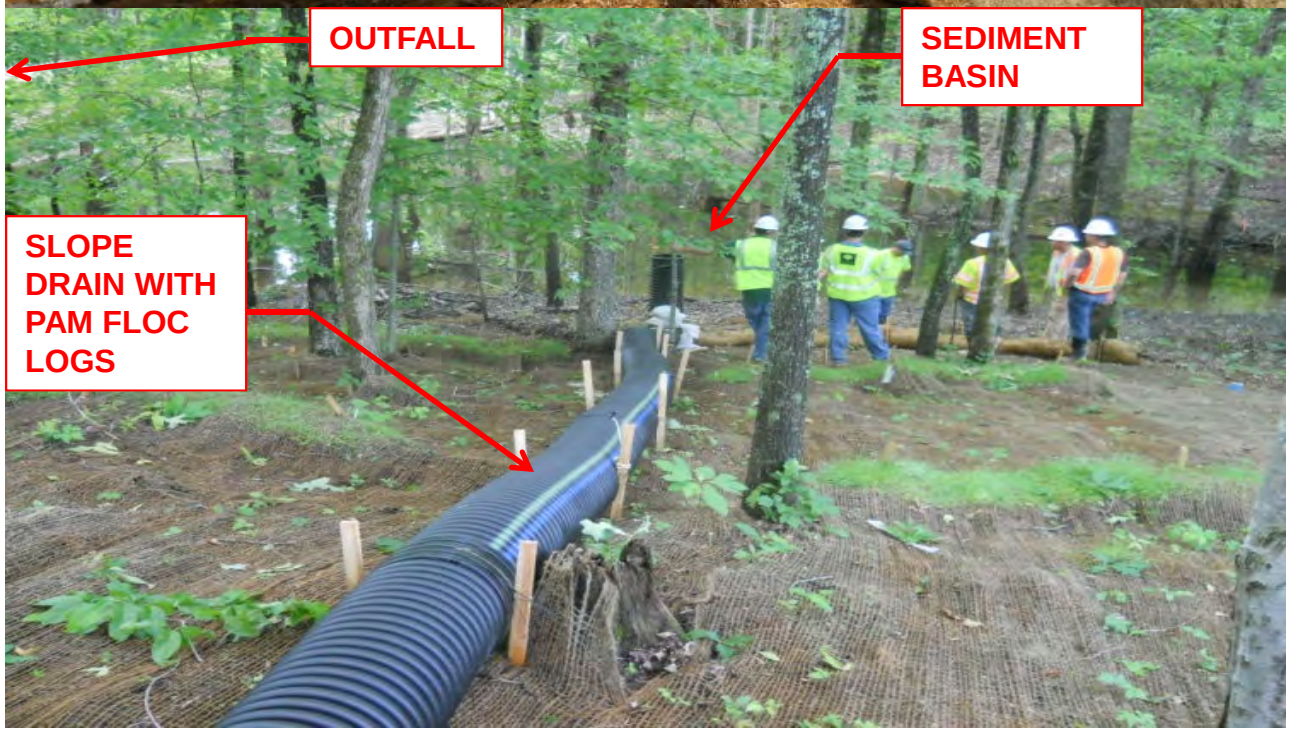
Construction Techniques

Polyacrylamide (PAM) active treatment trains

Treatment/diversion ditch with PAM and jute mesh

Wood mulch and rock check dams

Slope drain pipe with PAM floc logs



Construction Techniques

Polyacrylamide (PAM) active treatment trains

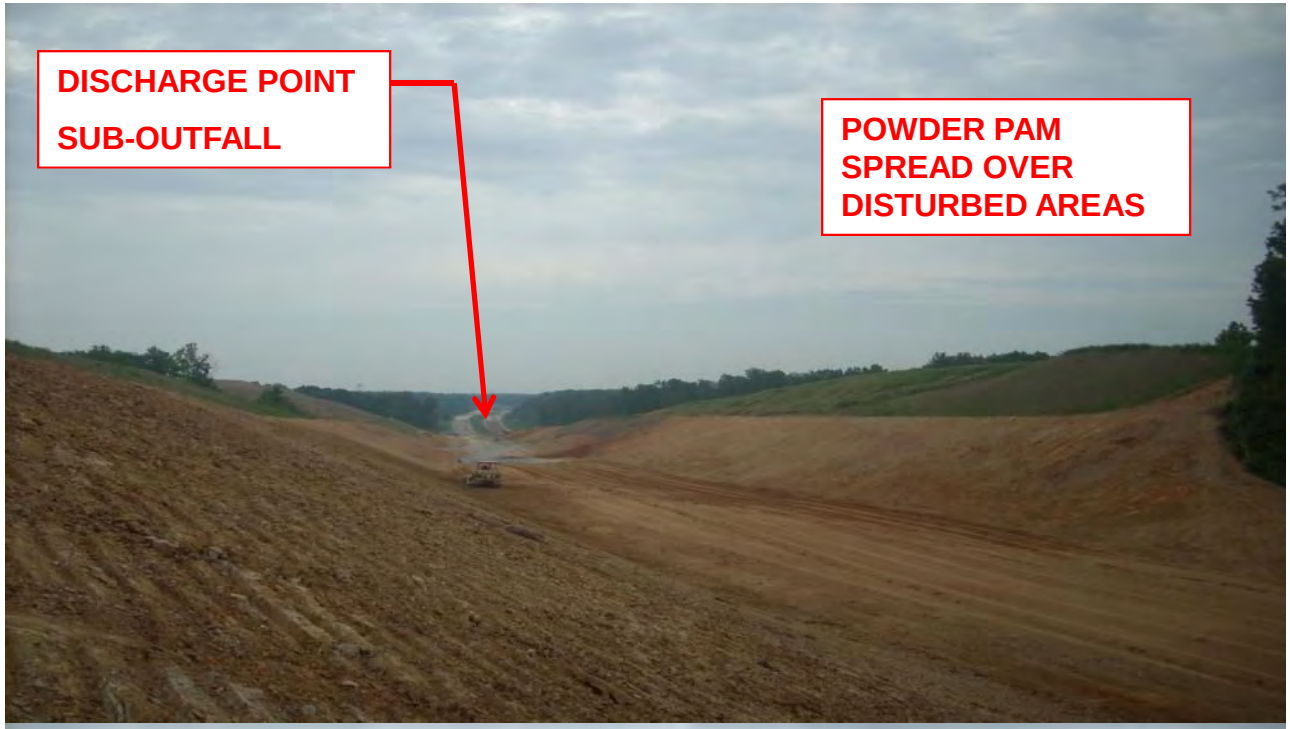
Slope drain with floc logs to sediment basin

Powdered PAM and jute mesh in median ditch

Construction Techniques

Polyacrylamide (PAM) active treatment trains

SR-840 case study KETW located at discharge point



Construction Techniques

Polyacrylamide (PAM) active treatment trains

Powdered PAM
Erosion Eels
Rock silt screens
Jute mesh
Erosion control blankets
Sediment tubes
Wood mulch

Construction Techniques

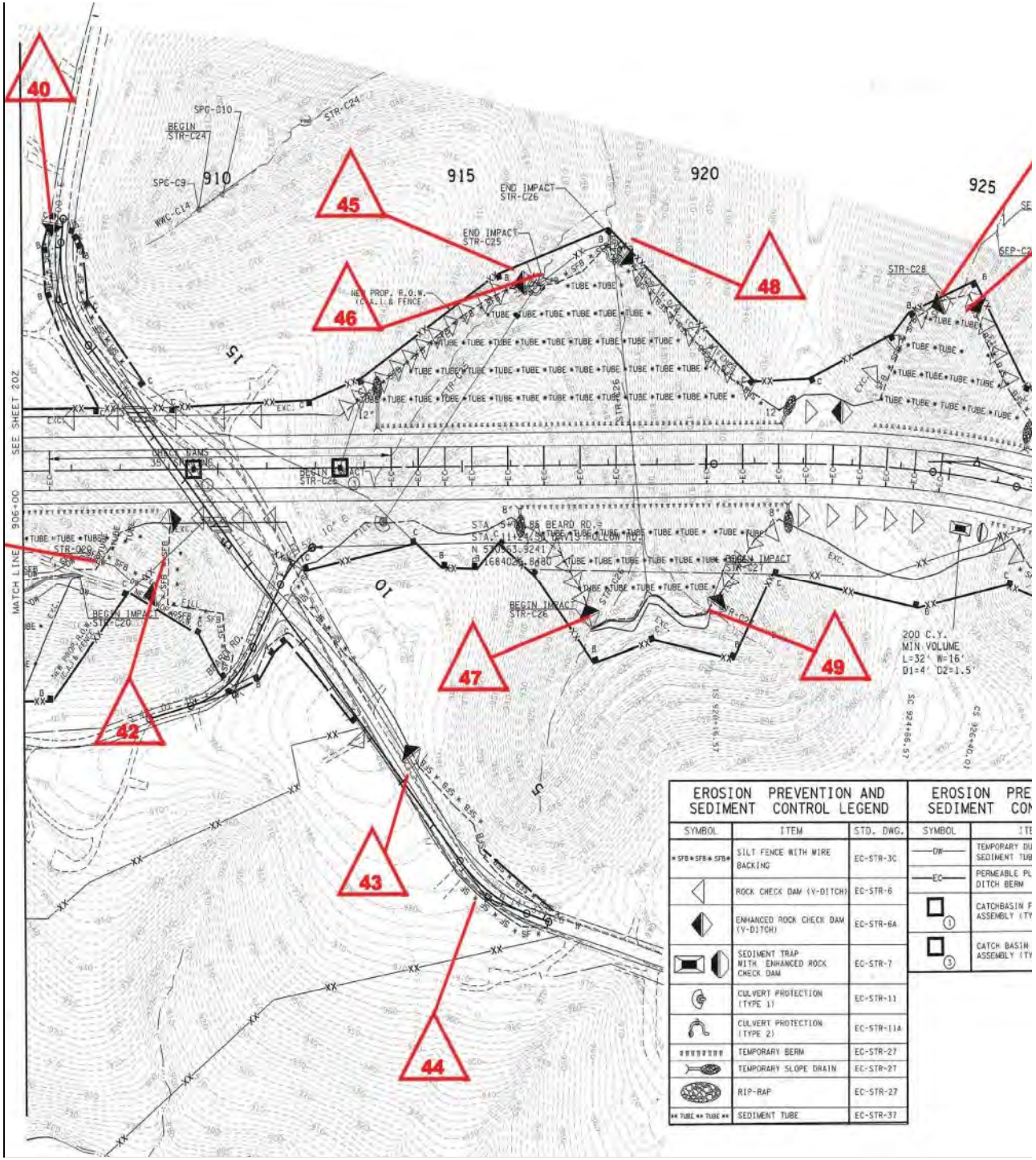
Polyacrylamide (PAM) active treatment trains

Questions?

TDOT DESIGN DIVISION

MODULE 9:

STAGED EPSC PLANS



Staged EPSC Plans

Definition

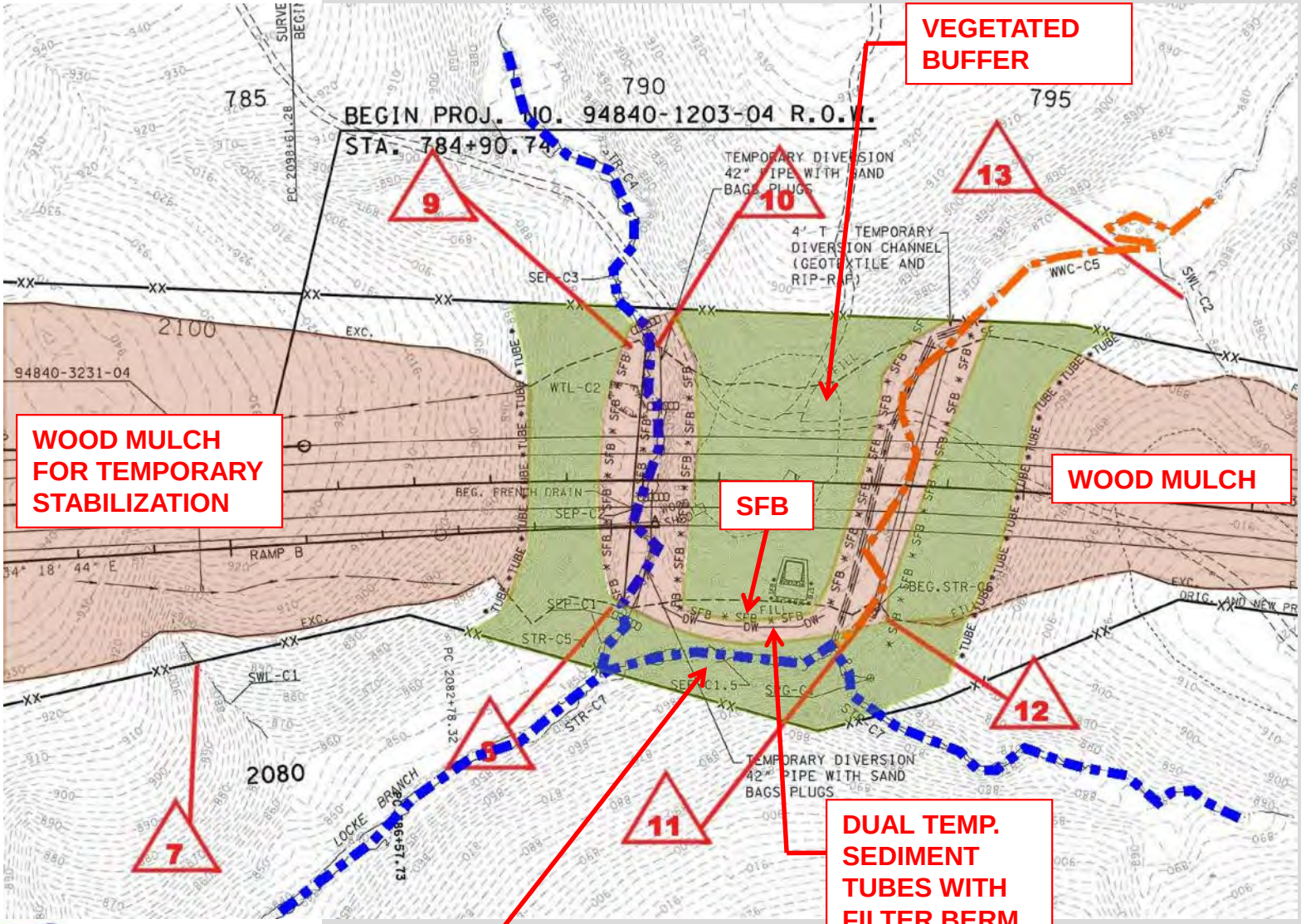
EPSC plans that reflect construction phases (i.e. initial, interim grading, final, etc.) should be depicted on multiple plan sheets

EPSC staging

- One sheet depicting *all* EPSC that will be used during the life of the project *will not* be considered complete
- Sites disturbance
  - <5 acres – minimum of 2 stages of EPSC (initial/clearing and final)
  - >5 acres - minimum of 3 stages of EPSC (initial/clearing, interim and final)

EPSC Stage 1:

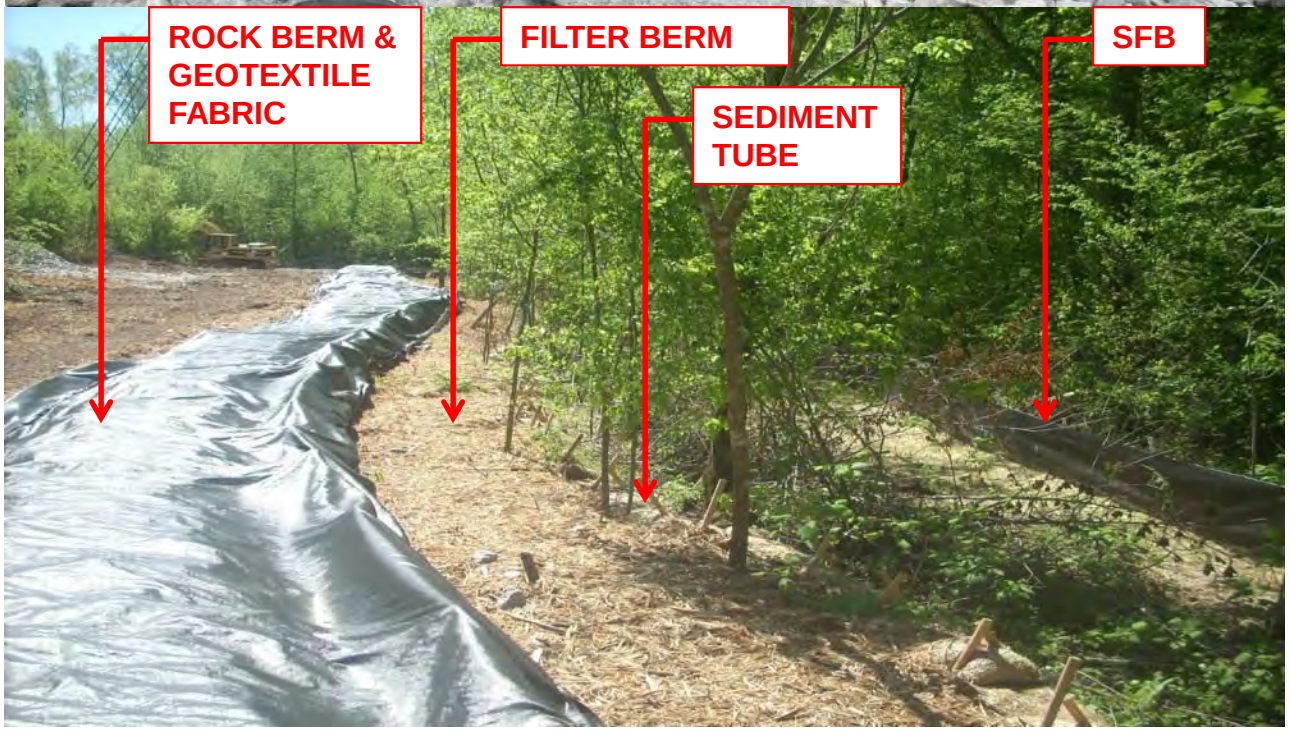
Initial Stage - Buffer Protection, Culvert Installations, Clearing and Grubbing



EPSC Stage 1

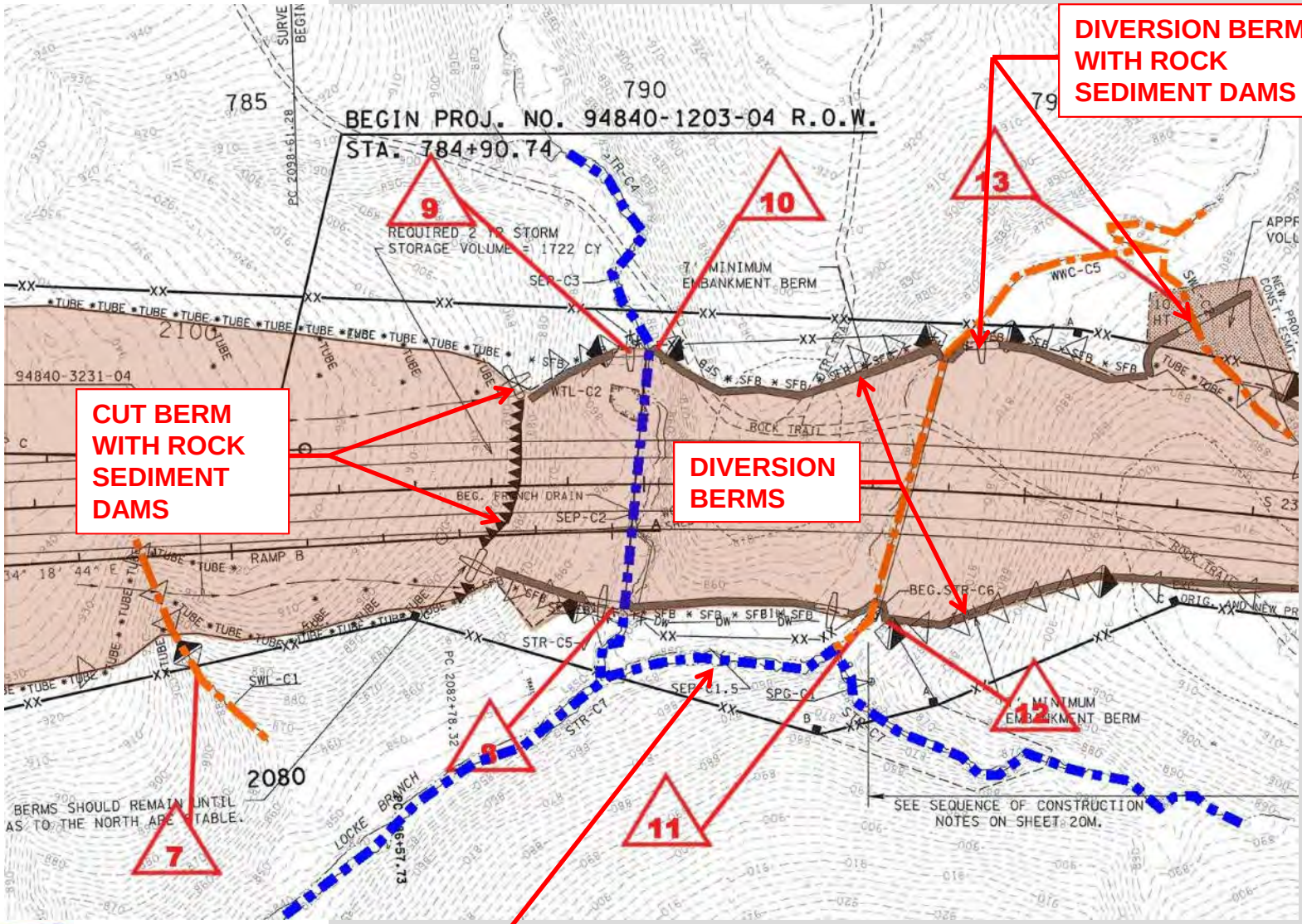
Clearing and grubbing

Project Example



EPSC Stage 2:

Intermediate Stage – Mass Grading Operations

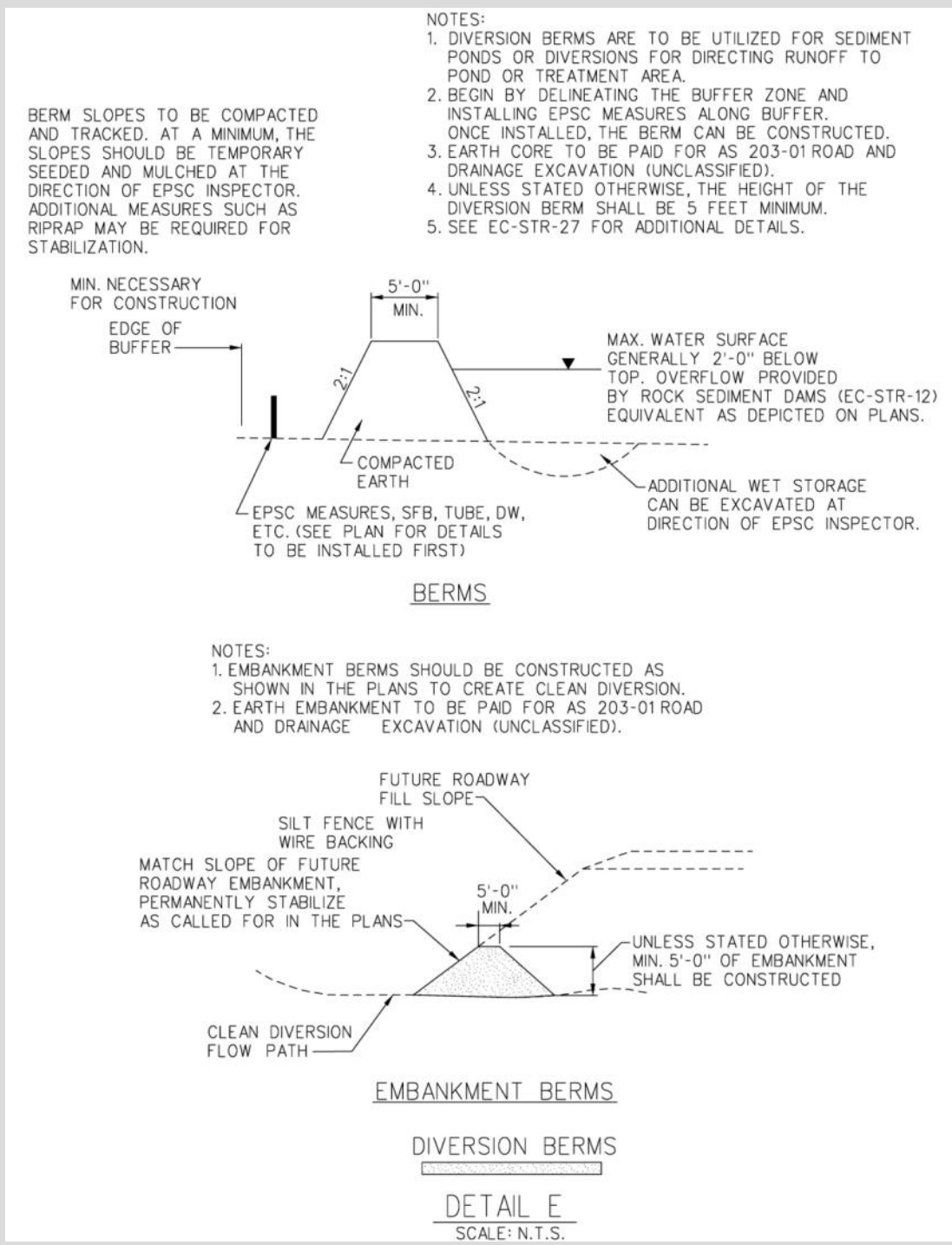


TDOT ARCADIS

EPSC Stage 2

Example of EPSC details

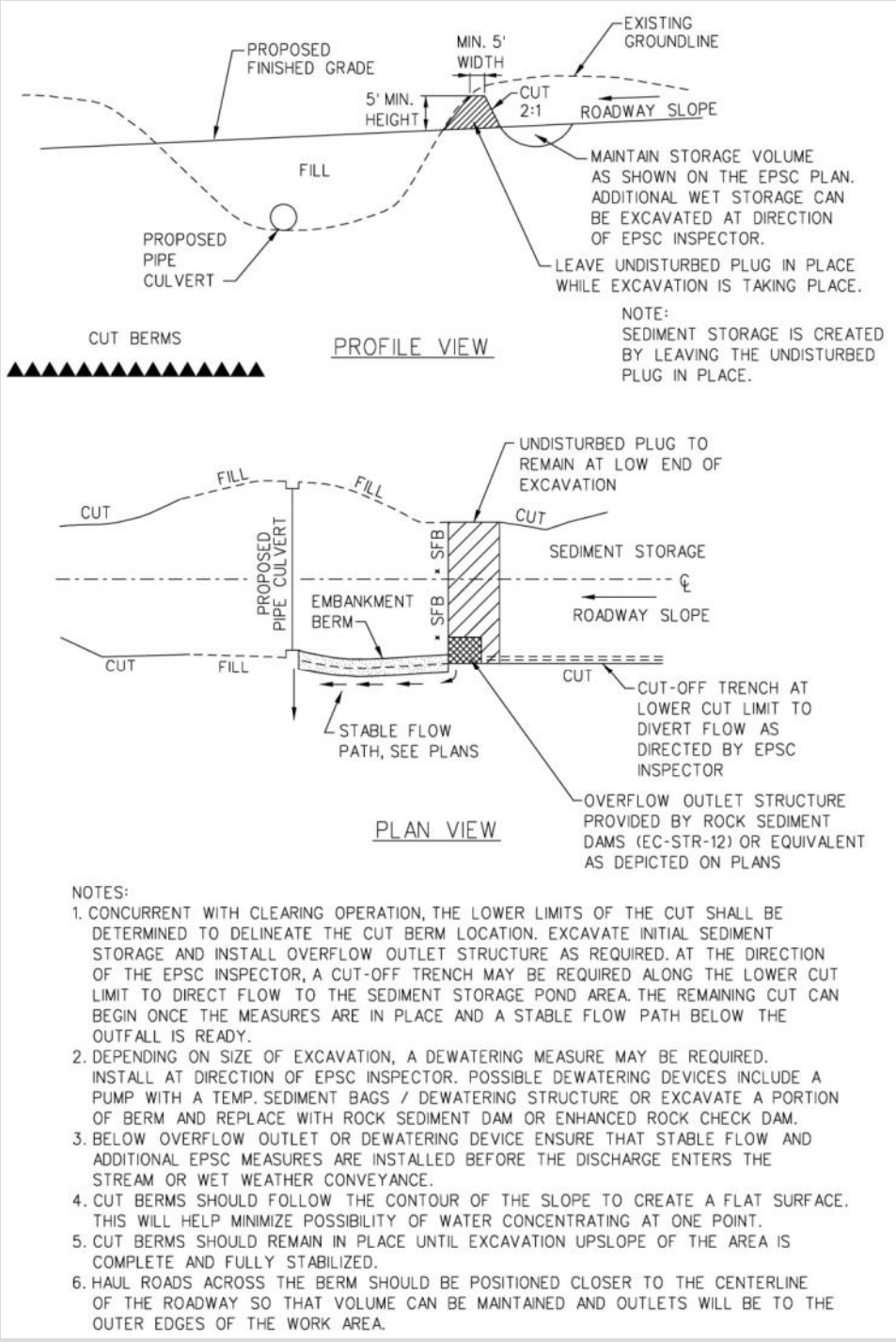
Diversion and embankment berms



EPSC Stage 2

Example of EPSC details

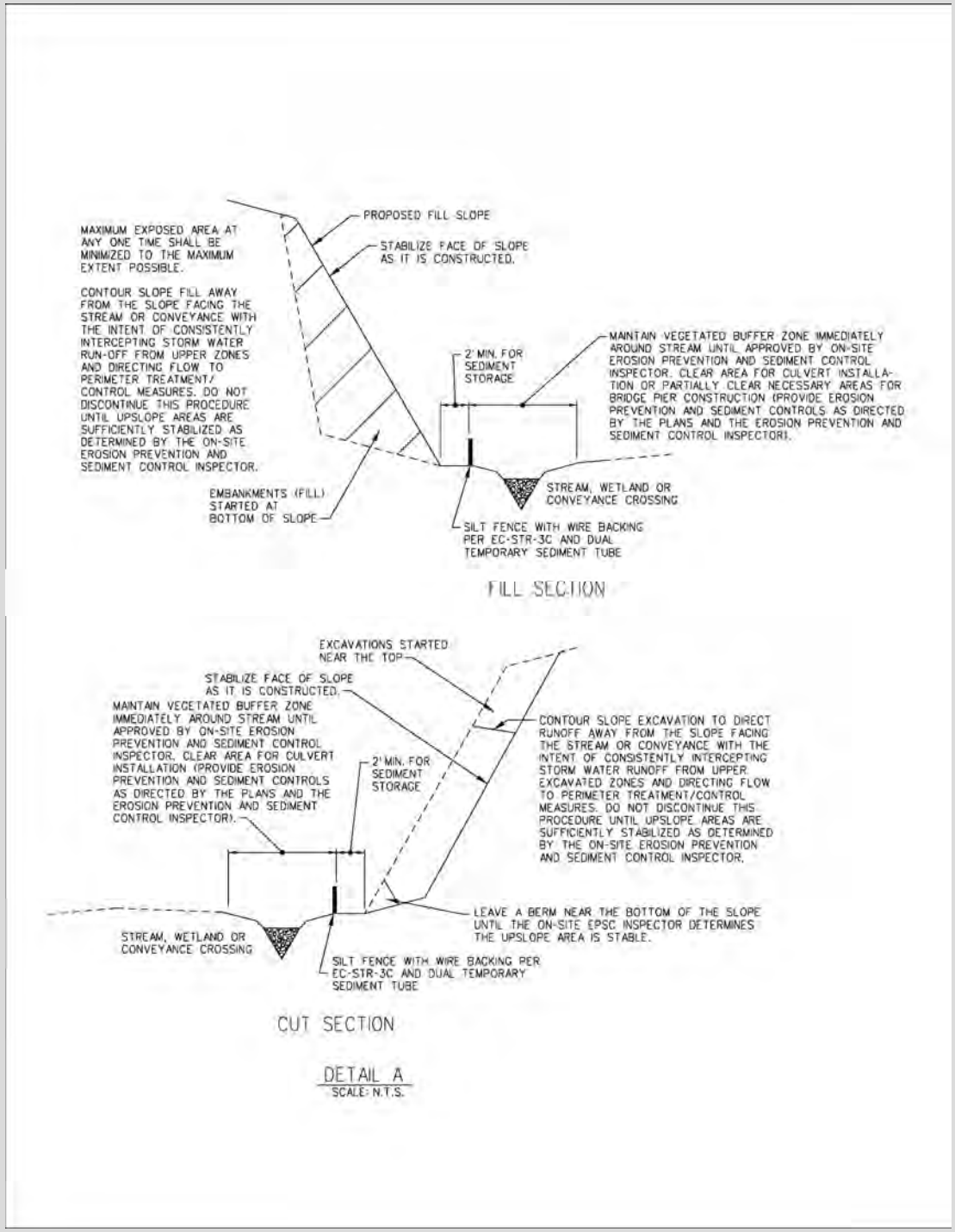
Cut berms



EPSC
Stage 2

Example of EPSC details

Grading of cut and fill sections



EPSC Stage 2

Project Example

EPSC plans dictated grade to be tilted away (part of an EPSC staged approach)

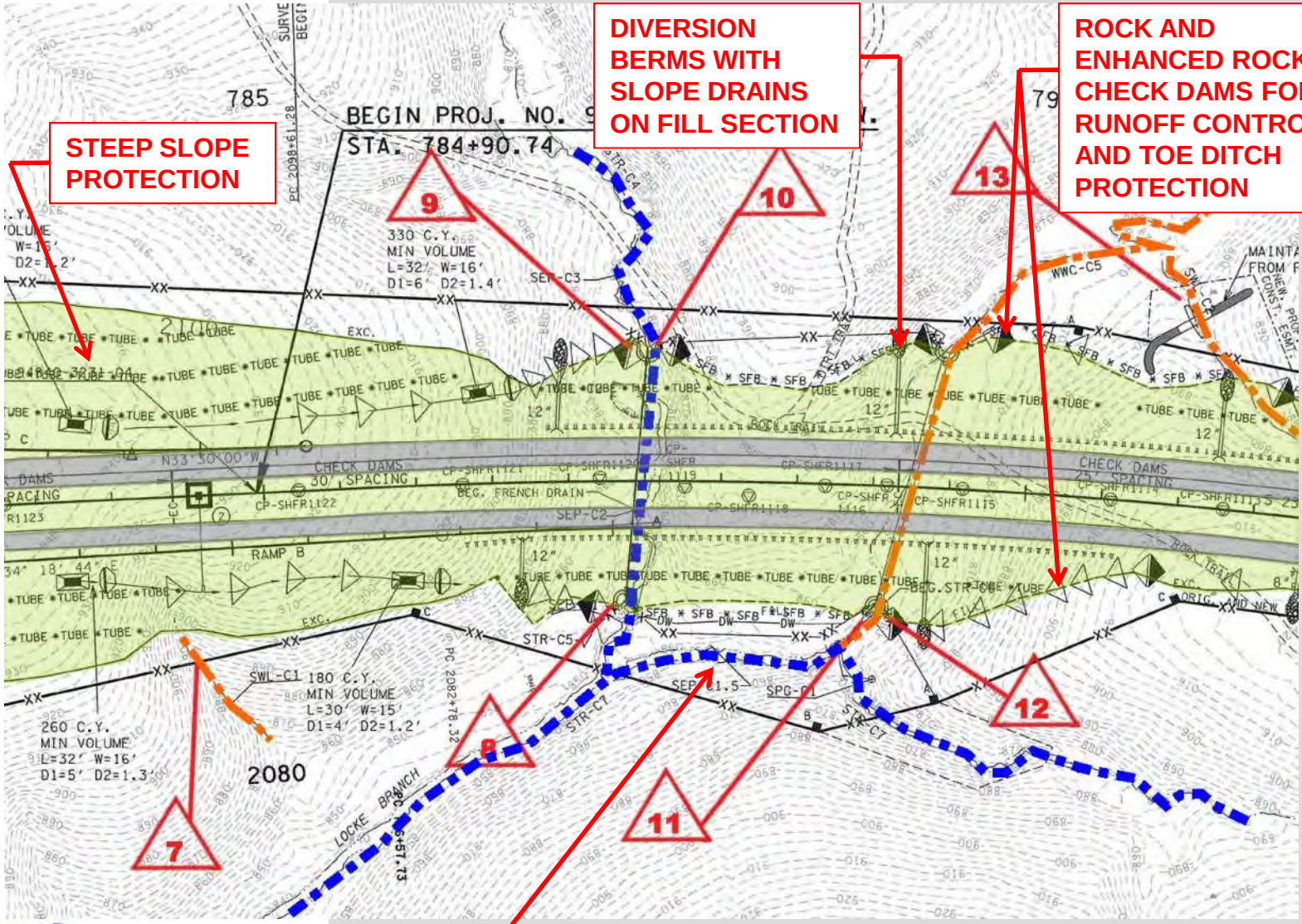
EPSC Stage 2

Project Example

Grade tilted to drain to sediment basin

EPSC Stage 3:

Final Stage - Finished Grade, Runoff Control and Final Stabilization



EPSC Stage 3

Project Example

Runoff controls

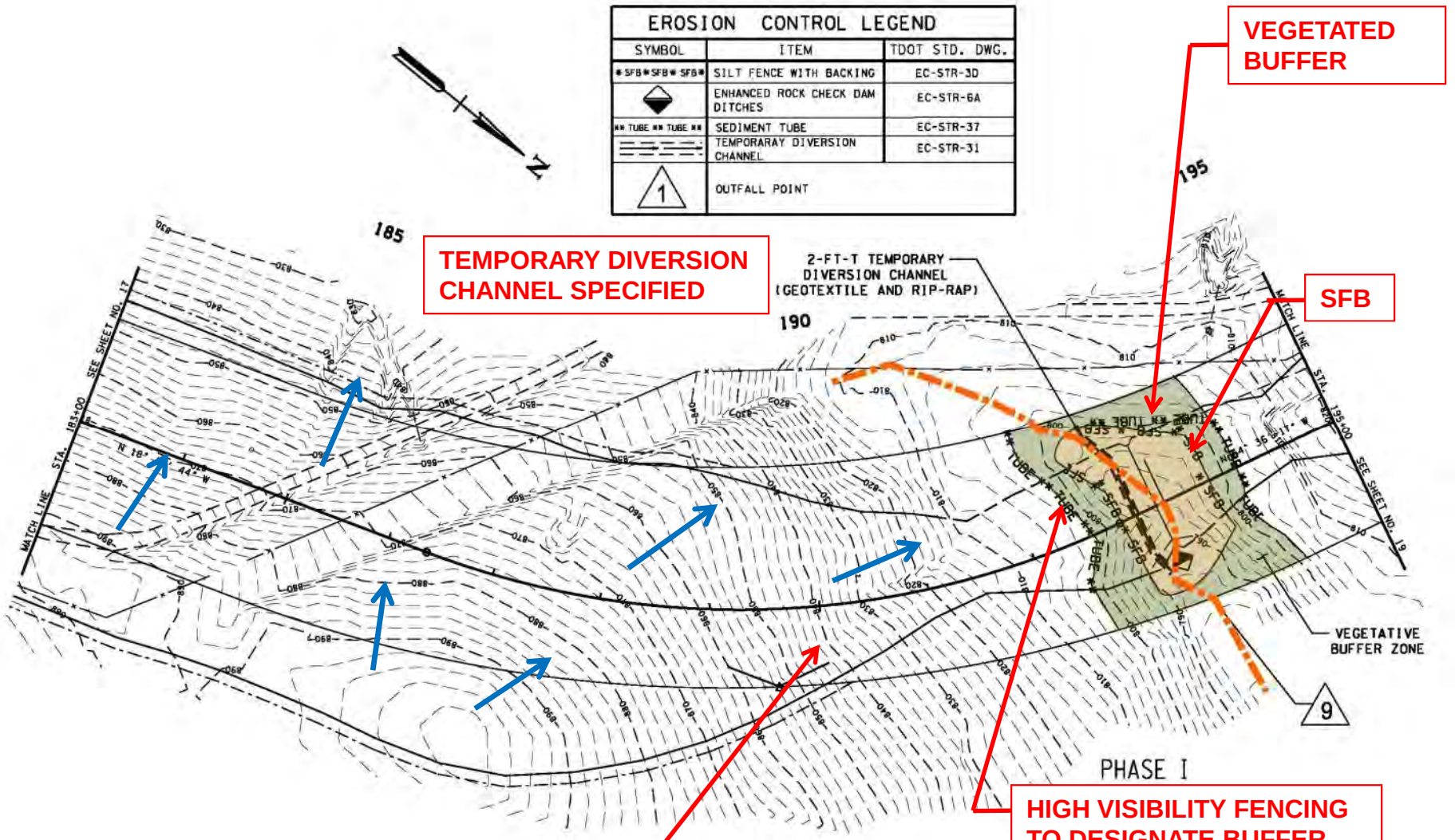
EPSC OUTFALL

Project Example

Discharge location into KETW

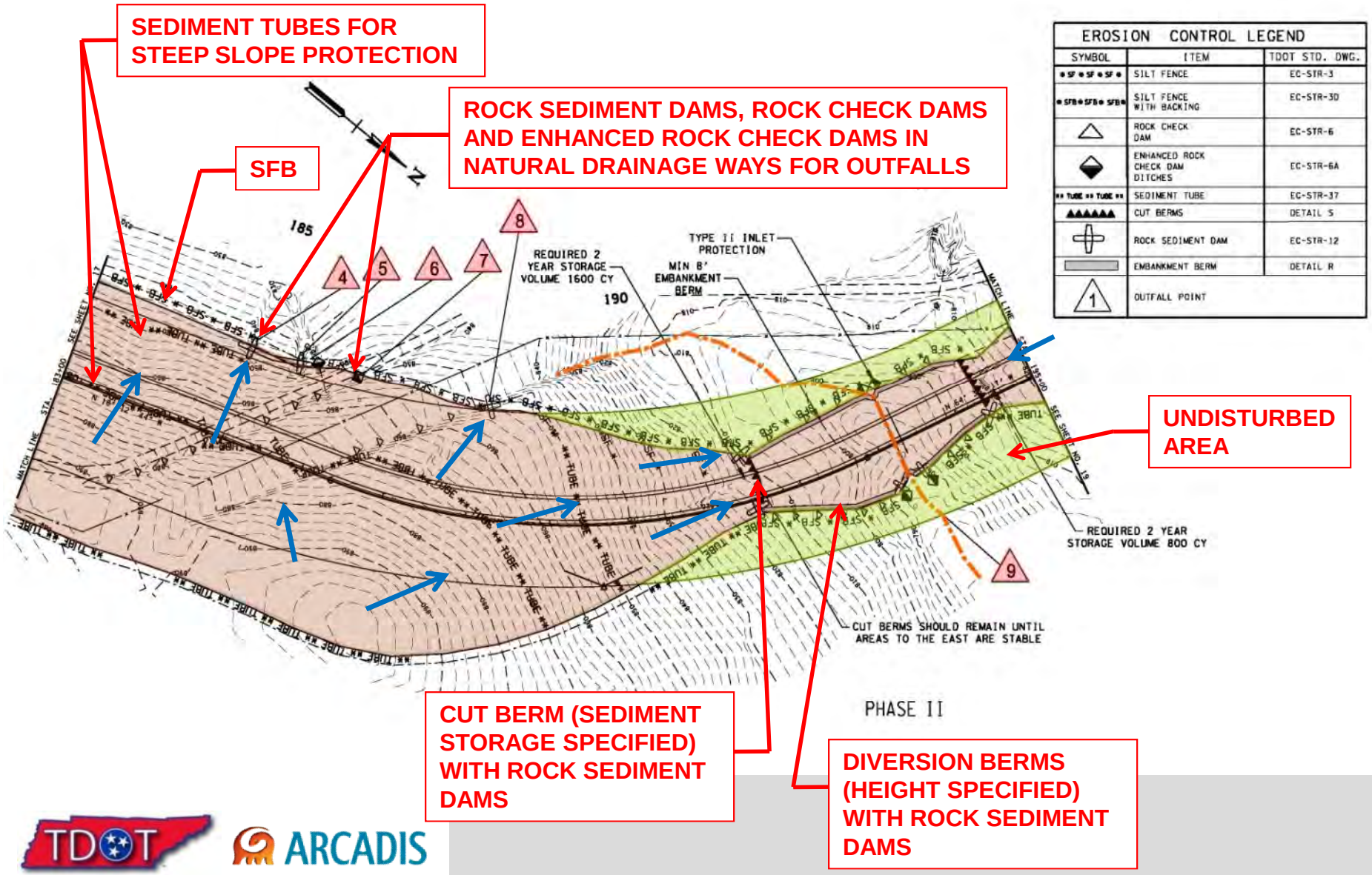
EPSC Stage 1:

Initial Stage - Buffer Protection and Culvert Installation



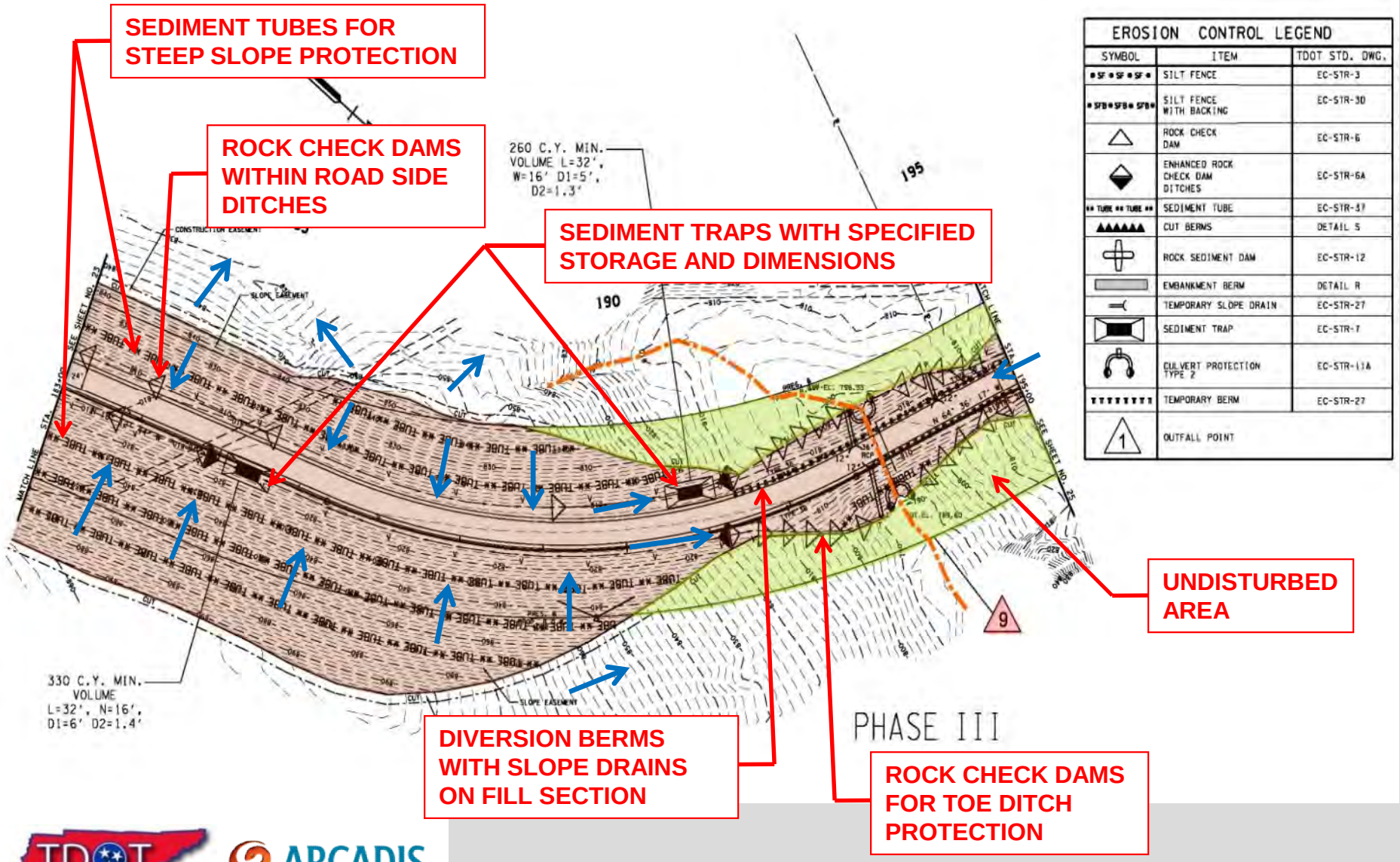
EPSC Stage 2:

Intermediate Stage – Clearing & Grubbing
Mass Grading Operations



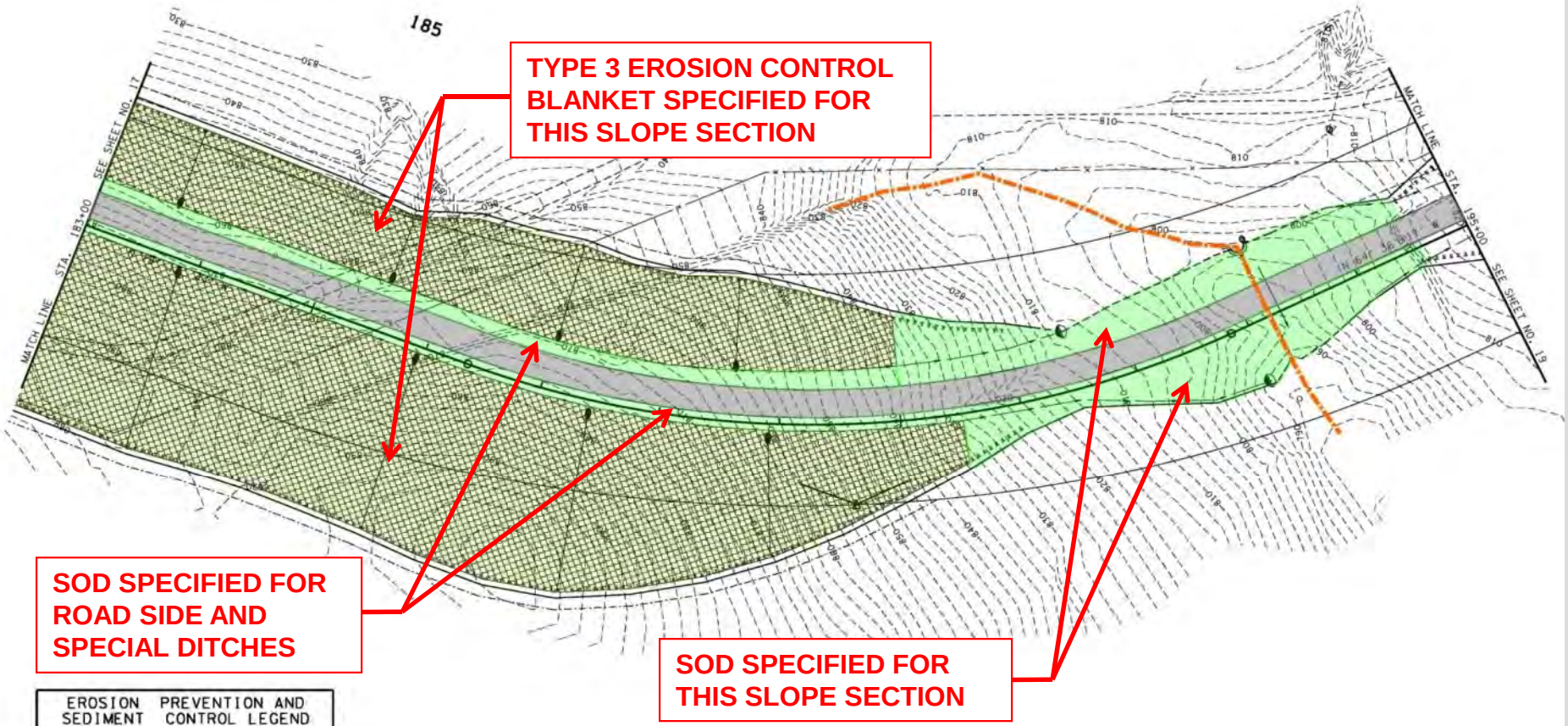
EPSC Stage 3:

Intermediate Stage - Finished Grade and Runoff Control



EPSC Stage 4:

Final Stage - Final Stabilization



EROSION PREVENTION AND SEDIMENT CONTROL LEGEND		
SYMBOL	ITEM	STD. DWG.
	TEMPORARY SLOPE DRAIN WITH TEMPORARY BERM	EC-STR-27
	EROSION CONTROL BLANKET	EC-STR-34
	ENHANCED ROCK CHECK DAM (TRAPEZOIDAL DITCH)	EC-STR-6A
	CULVERT PROTECTION (TYPE 2)	EC-STR-11A

Questions?