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SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

**US 25E – CLINCH RIVER – SECTIONS 1 AND 2
SECTION 26A APPROVAL FOR BIG SYCAMORE CREEK
AND CLINCH RIVER CROSSINGS AND PERMANENT
EASEMENT FOR 12.5 ACRES OF TVA LAND ASSOCIATED
WITH IMPROVEMENTS TO US 25 (STATE ROUTE 32) FROM
SOUTH OF LITTLE SYCAMORE CREEK TO NORTH OF
INDIAN CREEK
TENNESSEE DEPARTMENT OF TRANSPORTATION**

**Grainger County, Tennessee
Norris Reservoir**

TENNESSEE VALLEY AUTHORITY

**Cooperating Agency
U.S. Army Corps of Engineers**

FEBRUARY 2004

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

US 25E – CLINCH RIVER – SECTIONS 1 AND 2 SECTION 26A AND LAND USE APPROVALS FOR BIG SYCAMORE CREEK AND CLINCH RIVER CROSSINGS GRAINGER COUNTY, TENNESSEE NORRIS RESERVOIR

TENNESSEE VALLEY AUTHORITY

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The Proposed Decision and Need

The Tennessee Department of Transportation (TDOT) submitted an application to Tennessee Valley Authority (TVA) for stream relocations, culverts, and fill associated with the improvements to US 25E (State Route 32) from south of Little Sycamore Creek to north of Indian Creek. This project is part of Corridor "S" in the Appalachian System and is designated as Sections 1 and 2 in the Federal Highway Administration (FHWA) Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) dated September 18, 1995. Sections 1 and 2 cover the improvement of SR 32 (US 25E) from 0.5 mile north of Indian Creek to 1.0 mile north of the Powell River located in Claiborne County, Tennessee. The proposed project involves the construction of several bridges and culverts which would require approval under Section 26a of the TVA Act. Additionally, the project would require a permanent easement over 12.7 acres of TVA land for road widening, right-of-way maintenance, and culvert placement.

Background

In September 1995, the FHWA and TDOT prepared an EA which concluded that construction of a four-lane, divided highway with a median was the recommended alternative for improvement to an 18.2-mile length of US 25E from north of Indian Creek in Grainger County to north of the Powell River in Claiborne County. This project was divided into six sections due to the length and estimated cost of the project and due to the impact of construction. The project is approximately 18.2 miles in length and involves 66 family relocations and 21 business relocations, with a total estimated project cost of \$85,175,000. Below are the termini of each section:

- Section 1 - From approximately 0.5 mile north of Indian Creek to Caney Valley Road
- Section 2 - From Caney Valley Road to 0.1 mile south of Little Sycamore Creek
- Section 3 - From 0.1 mile south of Little Sycamore Creek to 0.5 mile south of the intersection of SR 33
- Section 4 - From 0.5 mile south of the intersection of SR 33 to 0.2 mile north of Anders Street
- Section 5 - From 0.2 mile north of Anders Street to 0.9 mile south of the Powell River
- Section 6 - From 0.9 mile south of the Powell River to 1.0 mile north of the Powell River

In September 1997, the United States Army Corps of Engineers (USACE) prepared an EA that assessed the impacts of a channel relocation and construction of a new bridge over the Powell River (Section 6). In August 1998, TVA adopted the EAs for this project prepared by the FHWA and the USACE as support for its decision to approve the Powell River Bridge and other Section 26a action north of Tazewell. In January 2003, TVA prepared a Supplemental EA and issued a FONSI to document its consideration of impacts and mitigation associated with 2,746 feet of stream culverting, relocation of 850 feet of stream channel, and an archeological site within Section 3 of the highway.

TVA decided to prepare this Supplemental EA to document its consideration of impacts and mitigation associated with Sections 1 and 2 of the project. On December 10, 2003, the U.S. Army Corps of Engineers issued a joint public notice soliciting comments on the proposed project (Attachment 1).

Other Environmental Reviews and Documentation

On January 16, 2004, the Tennessee Department of Environment and Conservation (TDEC) issued a 401 Water Quality Certification for Sections 1 and 2 of the project (Attachment 2). In addition to general provisions, the permit included specific conditions for stream mitigation for 1,642 feet of stream loss/encapsulations, 66 feet of riprap-lined channels, and 579 feet of riparian canopy losses to be made through the in-lieu fee program. The permanent impact for filling 5.11 acres of wetlands would be mitigated by debiting, at a 2:1 ratio, 10.22 acres from available wetland credits at the Shady Valley Wetlands Mitigation Bank. Temporarily affected wetland areas would be restored to the original elevation and seeding with hydrophilic plant species.

TDOT has since further detailed their plans which avoided 0.18 acre of wetlands as originally proposed. The permanent impact for filling 4.92 acres of wetlands would be mitigated by debiting, at a 2:1 ratio, 9.84 acres from available wetland credits at the Shady Valley Wetlands Mitigation Bank. TDOT also identified an additional wet weather conveyance which resulted in additional stream impacts. Stream mitigation would now be necessary for additional 10 feet of stream loss/encapsulations for a total of 1,652 feet; additional 164 feet of riprap-lined channels for a total of 230 feet; and additional 123 feet of riparian canopy losses for a total of 579 feet; to be made through the in-lieu fee program.

Alternatives

In addition to a No Action Alternative, several build alternatives were considered in the FHWA EA; however, in the area of Sections 1 and 2, all build alternatives followed the same route along the existing highway. The typical cross-section recommended for Sections 1 and 2 is four 12-foot traffic lanes (two in each direction separated by a 14-foot median with concrete barrier wall), and two 12-foot outside shoulders.

For the purposes of this Supplemental EA, TVA and USACE considered the action and no action alternatives, along with appropriate mitigation.

Affected Environment and Evaluation of Impacts

Site Description

Termini for the improvements to Sections 1 and 2 of US 25E (SR 32) are located north of Indian Creek to south of Little Sycamore Creek in Claiborne and Grainger Counties, Tennessee. Claiborne and Grainger Counties are located in the northeastern portion of the state of Tennessee, south of the Kentucky-Virginia line. With the exception of the northwest corner of Claiborne County, the counties lie within the Great Valley of East Tennessee. This is a part of the much larger ridge and valley physiographic province of the United States, a province which consists of a series of parallel ridges and their associated valleys.

The Clinch River would be crossed at approximate Clinch River mile 151.9 (Sta. 3+595) with a 617-foot, 6-span concrete deck girder bridge. Big Sycamore Creek would be crossed at approximate Big Sycamore Creek mile 6.0 with a 290-foot, 3-span bridge. Stream crossings and impacts would occur at the following locations:

- Sta. 1+040: Caney Creek. Install 62 feet of culvert.
- Sta. 1+090.026: Unnamed tributary to Clinch River. Extend the existing box culvert 25 feet and add 39 feet of riprap.
- Sta. 1+099 to Sta. 1+142: Unnamed tributary to Clinch River. Install 164 feet of riprap.
- Sta. 1+845.768: Unnamed tributary to Clinch River. Extend the existing box culvert 93 feet plus 16 feet of riprap and 22 feet of graded solid rock.
- Sta. 3+616 to Sta. 3+695: Unnamed tributary to Clinch River. Install 53 feet of box culvert and 26 feet of riprap. Relocate 269 feet of existing open stream into 212 feet of created channel.
- Sta. 3+614 to Sta. 4+020: Unnamed tributary to Clinch River. Install 40 feet of box culvert plus 10 feet of riprap. Relocate 1,209 feet of existing open stream into 920 feet of created channel plus 538 feet of graded rock channel.
- Sta. 4+413 to Sta. 5-184: Unnamed tributary to Big Sycamore Creek. Relocate 745 feet of open stream channel into 72 feet of rock ditch and 1,375 feet of graded solid rock channel. Install spring drain box, a total of 769 feet of culvert, and a total of 29 feet of type "U" endwall. Relocate 449 feet of open stream and 25 feet of metal pipe into 408 feet of graded rock channel and 82 feet of metal pipe. Remove 1,083 feet of pipe and restore the channel to open stream conditions.
- Sta. 5+319: Caney Creek. Install 210 feet of box culverts and 40 feet of riprap.
- Sta. 5+430: Caney Creek. Remove the existing bridge and restore/enhance 36 feet of stream by reconstructing banks and slopes to match existing up and down stream profiles.
- Sta. 6+060: Caney Creek. Remove the existing bridge and restore/enhance 59 feet of stream by reconstructing banks and slopes to match existing up and down stream profiles.
- Sta. 7+070 to Sta. 7+785: Unnamed tributary to Caney Creek. Install 200 feet of pipe. Relocate 194 feet of existing open stream into 130 feet of graded solid rock channel.
- Sta. 7+632 to Sta. 8+481: Wetland and Caney Creek. Install 72 feet of box culvert. Relocate 525 feet of open-stream channel into 456 feet of graded solid rock channel and 20 feet of riprap. Install 367 feet of box culvert and 92 feet of riprap.
- Sta. 8+875: Unnamed tributary to Big Sycamore Creek. Install 367 feet of box culvert, 24 feet of riprap, and 161 feet of graded solid rock channel. Plug and abandon 44 feet of existing box culvert.

Sta. 8+881 to Sta. 9+100: Unnamed tributary to Big Sycamore Creek. Relocate 687 feet of open stream and 28 feet of metal pipe into 586 feet of graded solid rock channel.

Sta. 9+734 to Sta. 9+863: Unnamed tributary to Big Sycamore Creek. Relocate 503 feet of open stream and 40 feet of metal pipe into 467 feet of graded solid rock channel. Install a spring drain box, 128 feet of pipe, and 8 feet of type "U" endwall.

Sta. 9+842 to Sta. 10+025: Unnamed tributary to Big Sycamore Creek. Relocate 786 feet of open stream, 40 feet of metal pipe, and 56 feet of box culvert into 420 feet of graded solid rock channel including 24 feet of riprap and 318 feet of box culvert.

The proposed permanent discharge of fill material in wetlands would occur at the following locations:

Sta. 4+410 to Sta. 4+450: ±0.40 acres

Sta. 7+632 to Sta. 8+480: ±4.52 acres (Norris Reservoir)

Impacts Evaluated

Threatened and Endangered Species: The FHWA EA was reviewed for site-specific impacts identified within this section of the project. TDOT has coordinated with USFWS on this project since 1989. An initial biological opinion was issued in 1993, and after receiving an amendment to the original biological assessment from TDOT in 2002 (Attachment 3), USFWS concurred that this project was not likely to jeopardize the continued existence of federally listed endangered and threatened species if the Reasonable and Prudent Measures and Terms and Conditions were implemented.

The list of endangered and threatened species evaluated in 2002 included:

Gray bat	Indiana bat
Slender chub	Yellowfin madtom
Duskytail darter	Palezone shiner
Cumberlandian combshell	Oyster mussel
Birdwing pearly mussel	Dromedary pearly mussel
Green-blossom pearly mussel	Fine-rayed pigtoe
Appalachian monkeyface pearly mussel	Rough pigtoe
Cumberland monkeyface pearly mussel	Fanshell
Yellow-blossom pearly mussel	Cracking pearly mussel
White wartyback	Shiny pigtoe
Rough rabbitsfoot	Anthony's riversnail

According to a recent review of the TVA Regional Natural Heritage Project database, the pink mucket is also known to occur in the vicinity of this proposed action (according to a 1979 survey report). Due to this recent discovery and the amount of time that has passed since the informal consultation with TDOT, TVA requested concurrence from USFWS that the determination of no effect on these species (to include the pink mucket) remains in effect (see Attachment 4). In their November 20, 2003, letter to TVA, the USFWS replied that the previously identified Reasonable and Prudent Measures and Terms and Conditions would minimize the potential for incidental take that might occur during construction. Since 15 species of mussels were included in the consultation, USFWS believes that the measures and conditions would protect the pink mucket as well. Provided TDOT follows the Reasonable and Prudent Measures and Terms and Conditions provided for this project

by the USFWS, no direct impacts to protected aquatic animal species are likely to occur as a result of this proposed action. The prudent measures and conditions are listed in the mitigation section of this EA.

Stream Impacts: The TDEC Section 401 Water Quality Certification provides special conditions for the stream crossings within Sections 1 and 2. The 1,652 feet of stream loss through culverting or relocation, 230 feet of riprap lined channels, and 579 feet of riparian canopy loss would be mitigated by payment (\$422,800) to the Tennessee Wildlife Resources Foundation for the Tennessee Stream Mitigation Program (in-lieu fee program).

Wetland Impacts: The proposed permanent discharge of fill material would impact 4.92 acres of wetlands. The applicant proposes to mitigate the permanent wetland impacts by debiting 9.84 acres (2:1 ratio) from credits available to TDOT at the Shady Valley Wetland Mitigation Bank. Temporary wetland impacts (2.19 acres) would be mitigated by returning these areas to their original elevations, planting perennial rye, and planting trees.

Cultural Resources: TVA has reviewed the TDOT documentation for Section 106 compliance and has determined that adequate Section 106 compliance has been achieved for this project. Construction of this section would not result in adverse impact to any significant historic property. By letter of December 12, 2003, the Tennessee Historical Commission determined that there are no National Register of Historic Places listed or eligible properties affected by these sections (Attachment 5).

Floodplains: The proposed project is located between a point 0.5 mile north of Indian Creek in Grainger County, Tennessee, and a point 0.6 mile south of Little Sycamore Creek in Claiborne County, Tennessee. The proposed project involves the construction of several bridges and culverts within the limits of the 100-year floodplain, and a permanent easement over approximately 12.7 acres of TVA land for road widening, right-of-way maintenance, and culvert placement. There are two Norris Reservoir bridge crossings, one at Clinch River mile 151.9 and the other at Big Sycamore Creek mile 5.95. The 100-year floodplain at Clinch River mile 151.9 would be the area below elevation 1034.5. The 500-year flood elevation at Clinch River mile 151.9 would be elevation 1038.0. The 100-year floodplain at Big Sycamore Creek mile 5.95 would be the area below elevation 1032.0. The 500-year flood elevation at Big Sycamore Creek mile 5.95 would be elevation 1035.0.

The proposed project involves the construction of several bridges and culverts within the limits of the 100-year floodplain and a permanent easement for the use of TVA land in the affected area. For compliance with Executive Order 11988, bridges and culverts are considered to be repetitive actions in the floodplain that should result in minor floodplain impacts. Based on information provided in Angela L. Duncan's July 31 letter to Ron Gatlin, U.S. Army Corps of Engineers, the project would comply with the National Flood Insurance Program and fulfill the requirements of Executive Order 11988. The applicant has provided documentation indicating they have evaluated alternatives to the proposed fill and minimized the quantity of fill needed for the project consistent with the requirements of the TVA Flood Control Storage Loss Guideline.

Recreation: The widening of State Route 32/U.S. 25E would have minimal impact on the recreational use of Norris Reservoir because the project as proposed touches an insignificant portion of the 802 miles of shoreline. However, the project would impact the two public boat ramps that provide boat access to the very upper reaches of the reservoir. These ramps are located where the project crosses Big Sycamore Creek and Clinch River.

Both ramps are located on the right bank on property transferred from TVA to TWRA and both are managed by TWRA. The current Big Sycamore ramp is gravel with a gravel access road. The National Highway Act requires mitigation for potential impacts from construction projects on "park lands." TDOT proposes to improve the Big Sycamore Creek ramp by replacing the existing ramp in the same location with a 15-meter-wide concrete ramp and pave the access road and parking area. The current ramp at the Clinch River crossing is concrete with a gravel access road. TDOT proposes to leave the ramp in place and improve the access by paving the access road and adjacent parking. The impacts on the ramps would be temporary during construction, but beneficial after construction. Construction activities would impact boating access temporarily; however, upon completion of construction, boating access would be enhanced because of the conversion from gravel to paved surfaces.

Visual Resources: The visual character surrounding the proposed 4-lane roadway ranges from undeveloped, mountainous terrain to light residential. Vegetation along the proposed roadway consists of a mixture of hardwood and pine. Most of the pine trees in this area are beetle-infested. Temporary visual impacts would include an increase in the number of personnel and equipment in the area during the construction period. Laydown and storage areas would further increase the number of adversely contrasting elements in the landscape, as seen by motorists and residents in the foreground (0 feet to 1/2 mile). However, this visual discord would be temporary until construction is complete. Long-term visual impacts, such as an increase in the number of automobiles seen in the landscape and infrequent maintenance activities, would be visually similar to other areas within the region. There would be a net visual benefit due to the removal of dead trees along the proposed right-of-way. Therefore, there are no adverse visual impacts anticipated as a result of the construction, operation, or long-term maintenance of the proposed project.

Cumulative Impacts

TVA previously adopted the FHWA's EA, which covers all six sections of the project. This review addressed impacts for the proposed 18.2-mile highway improvement project from north of Indian Creek in Grainger County to north of the Powell River in Claiborne County. This Supplemental EA addresses site specific impacts within Sections 1 and 2 because more detailed design information is now available. Sections 1 and 2 are the last two proposed sections to be completed and no other linkages are planned. Resources potentially cumulatively affected by the current segment, when added to the other segments, include terrestrial habitat, wetlands, and cultural resources. As indicated elsewhere in this FONSI, the two previous TVA FONSI, and the 1993 FHWA EA and FONSI, the cumulative effects on these resources are expected to be insignificant, as long as routine mitigation measures and special endangered species protection measures are put into place. TVA is not aware of any other proposed projects in the vicinity that would cumulatively affect the resources addressed.

Mitigation Measures

TVA has determined that with the implementation of commitments resulting from the reviews of the FHWA and TDEC all impacts associated with Sections 1 and 2 would be reduced to insignificant levels. Proper implementation of the TDEC permit conditions as well as the BMPs required by TVA Standard Conditions (5a-e and 6a-i) would result in insignificant impacts associated with the proposed project.

TDOT will improve the Big Sycamore Creek ramp by replacing the existing ramp in the same location with a 15-meter-wide concrete ramp and pave the access road and parking area. TDOT will improve the access to Clinch River ramp by paving the access road and adjacent parking.

The following reasonable and prudent measures were identified by the USFWS in their May 2002 addendum to the May 1993 biological opinion to greatly reduce the likelihood of adversely affecting aquatic species, in the project area:

1. Clearing and grubbing will be limited to the minimum amount necessary to accommodate roadway cut and fill slopes and operation of equipment. All disturbed areas will be stabilized, seeded, and mulched as soon as practicable to reduce the potential for soil erosion.
2. Canopy removal along area streams, including the Clinch River, will be kept to an absolute minimum.
3. Silt fence will be installed along the toe of all fills and along all streambanks to minimize the potential of entering the streams. Staked hay bales will be used in conjunction with silt fences. A minimum 10-foot vegetated buffer or "green belt" will be left between silt fences and the stream edges.
4. Erosion and sediment control measures will be installed concurrent with clearing and grubbing activities, but should be functional prior to earthmoving activities. These may include, but are not limited to: silt fence, hay bales, clean shot rock checkdams, sandbags, sediment ponds, sediment filter bags, slope drains, or other suitable methods.
5. Erosion control structures will be inspected regularly and maintained throughout the life of the project so that they are not rendered ineffective. Sediment is to be removed from structures as necessary and must be removed when design capacity has been reduced by 50 percent to insure maximum effectiveness. Material from these structures is not to be disposed of in the Clinch River or any other area streams.
6. Maintenance needs for erosion and sediment control structures identified during inspections or by other means shall be accomplished before the next storm event if possible, but in no case more than 7 days after the need is identified. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable.
7. Waste and borrow areas will be located in non-wetland areas and are to be of sufficient distance from area streams such that no soil material is allowed to enter these streams. These areas will be stabilized as soon as practicable. Appropriate erosion and sediment control measures will be utilized in these areas to minimize soil loss.
8. Stockpiled topsoil or fill material is to be treated in such a manner that it is not allowed to enter either the Clinch River or any other area streams.

9. Equipment staging areas will be located a sufficient distance from area streams and/or wetlands such that no oils, coolants, or other petroleum products are allowed to enter these areas.
10. Construction of the proposed bridge over the Clinch River will be accomplished "in the dry" using cofferdams or other similar means to separate construction activities from flowing waters. All water from cofferdams is to be pumped into filter bags or sediment ponds prior to release back into the Clinch River.
11. The proposed bridge piers located in the Clinch River will be designed and constructed to minimize impedance of river flows.
12. Demolition and removal of the old bridge will be accomplished in such a way to minimize the amount of debris that is allowed to enter the Clinch River. Debris from the old bridge shall not be disposed of in the Clinch River. Any material that enters the Clinch River during the demolition process will be removed as completely as practicable and with as little as disturbance to the river substrate as possible.
13. Drainage structures required at stream crossings will be constructed "in the dry". Stream flows will be diverted through work areas using flexible pipes or berms or channels lined with plastic, clean shot rock, or other non-erodible material.
14. No motorized equipment will be operated in the Clinch River during construction of the proposed bridges except on temporary pads or haul roads constructed of clean shot-rock. Equipment required for core-drilling of the proposed pier footings by the TDOT Geo-Technical Section will be exempted from this condition. All material from the pads and/or haul roads will be removed to the approximate elevation of the existing substrate once the work on the proposed bridge is completed.
15. Any motorized equipment operating from the banks of the Clinch River will be accomplished on gravel or clean shot rock pads. This material is to be removed and the banks reshaped to their approximate pre-construction condition prior to project termination.
16. No fill material for rock pads or haul roads will be obtained from the Clinch River. No alteration or realignment of the Clinch River channel will be permitted.
17. Prior to any work on the proposed structure over the Clinch River, a mussel sweep will be conducted to remove as many mussels as practicable from the footprints of the proposed pier footings. Any mussels collected would be relocated to suitable habitat upstream of the project area. A similar sweep will be conducted in the corridor of the existing bridge prior to its removal.
18. A Stormwater Pollution Prevention Plan (SWPP) will be prepared for the proposed project and will contain a detailed erosion and sediment control plan.
19. Weekly stormwater inspections will be conducted for the proposed project as per National Pollutant Discharge Elimination System (NPDES) guidelines. Inspections will be performed by either TDOT personnel or a designated erosion control consultant throughout the duration of the project. Stormwater inspection reports will

be submitted to the Tennessee Department of Environment and Conservation (TDEC) on a quarterly basis. A TDOT inspector will be onsite daily.

Preferred Alternative

TVA's preferred alternative is to approve the Section 26a application with TVA Standard Conditions (5a-e and 6a-i), a requirement to improve the two existing boat ramps, and a requirement to comply with the reasonable and prudent measures identified by the U.S. Fish and Wildlife Service.

TVA Preparers

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Agencies and Others Consulted

Tennessee Department of Environment and Conservation

Tennessee Department of Transportation

Tennessee State Historic Preservation Officer

U.S. Army Corps of Engineers

U.S. Fish and Wildlife Service

Attachments

Attachment 1 - Joint Public Notice, U.S. Army Corps of Engineers, Tennessee Valley Authority, and State of Tennessee, December 10, 2003.

Attachment 2 - State of Tennessee 401 Water Quality Certification, January 16, 2004.

Attachment 3 - USFWS May 29, 2002, Addendum to the December 29, 1992, Biological Assessment.

Attachment 4 - TVA October 16, 2003, letter to USFWS.

Attachment 5 - USFWS November 20, 2003, concurrence letter to TVA.

Attachment 6 - USFWS Letter in Response to Public Notice, January 7, 2004.

Attachment 7 - Tennessee Historical Commission (SHPO) letter in Response to Public Notice, December 12, 2003.