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DESIGN-BUILD

RFP CONTRACT BOOK 3

PROJECT SPECIFIC INFORMATION

TENNESSEE DEPARTMENT OF TRANSPORTATION

I-40

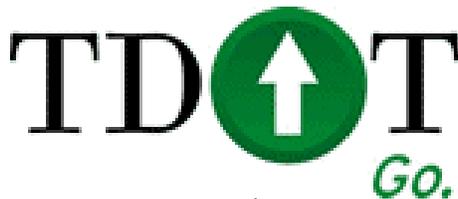
Widening from Central Pike to East of SR-109

Wilson County- TENNESSEE

PROJECT IDENTIFICATION NUMBER (PIN 114169.00)

PROJECT NUMBER IM-40-5(140); 95100-0105-44

DB CONTRACT NO. DB1101



September 16, 2011

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PROJECT REQUIREMENTS

1. GENERAL

- a. Plans and/or the Department supplied material are:
- The mapping is 1" = 50', 3" pixel size and has TN State Plane NAD 83 Datum Adjusted Coordinates;
 - The NEPA documentation was processed as a Categorical Exclusion (CE) under 23 CFR 771.117(d) approved on 7/11/2011. The corridor is located in the Reference Technical Report Documents provided with this RFP. The information for Section 2 will coincide with this project. (The project description and purpose and need from the document is firm; however, the scope of the project listed in the RFP takes precedence.);
 - Functional Plans (dated March 2011) (the functional plans are supplied for information only, the scope of the project listing in the RFP takes precedence.);
 - Existing Bridge Plans;
 - Traffic Data developed by the Department's Project Planning Division (dated march 3, 2011);
 - D-B Geotechnical Reports dated April 11, 2011
 - Except as provided by the Department above, the Design Builder shall provide all surveys, mapping, plans, verification of existing utilities, investigation, and analysis required for completion of the work.

Unless noted otherwise elsewhere in this RFP, the Design Builder shall adhere to all commitments stated in the environmental documents.

The Design Builder shall acknowledge that materials furnished by the Department are preliminary and provided solely to assist the Design Builder in the development of the project design. The Design Builder shall be fully and totally responsible for the accuracy and completeness of all work performed under this contract and shall hold the Department harmless and shall be fully liable for any additional costs and all claims against the Department which may arise due to errors, omissions and negligence of the Design Builder in performing the work required by this contract.

- b. The Department has not or will not procure permits for the Design Builder.
- The Design Builder shall be solely responsible for and obtain any necessary environmental permits or approvals for any environmental permits or approvals, not supplied above, resulting from their design and construction. If environmental permits are necessary, prior to completion of the Definitive Design Plans, the Design Builder shall contact the Department Alternative Contracting Office immediately for guidance.

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- The Design Builder shall be solely responsible for and obtain any necessary environmental permits or approvals from state and/or local agencies regarding the operation of any project-dedicated asphalt and/or concrete plants.
 - Borrow and waste disposal areas shall be located in non-wetland areas and above the 100-year, Federal Emergency Management Agency floodplain. Borrow and waste disposal areas shall not affect any Waters of the State/U.S. unless these areas are specifically covered by an ARAP, 404, or NPDES permit, obtained solely by the Design Builder.
- c. The assigned DBE goal for this Project is:
- The assigned DBE goal for this Project is **8%**.
The Design Builder shall exercise all necessary and reasonable steps to ensure that DBEs participate in at least the percent of the total project cost as set forth above as the goal. The design Builder shall make good faith efforts in achieving this goal and shall comply with all requirements of 49 CFR part 26.
- d. Assigned On-the-Job/Apprenticeship Training
- Not required on this project.
- e. The liquidated damage for non compliance (including lane closures outside specified timeframes) is **\$12,376 per Calendar Day***. This is also the Time Value used for calculation of selection and for failure to complete the work on time. It shall be calculated as follows:
If the Project is NOT completed in time “B”, then the following amount will be deducted from the monies due the Design Builder as:
 $(\text{Actual Time Charged} - B) \times \$12,376/\text{Calendar Day}^*$
- * Calendar Day amounts are applicable when the Contract Time is expressed on the Calendar Day or fixed date basis.
Any liquidated damages shall be addressed, not as a penalty, and computed as they occur with a separate item number subtracting from monies due the Design Builder.
- f. All work shall be completed in accordance with the most current version of the Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction, unless specifically stated herein.
- g. The Department will be responsible for Construction Engineering Inspection (CEI) work.
- h. A rideability Special Provision (SP411B) will be included in this Project.
- i. Bituminous Material, Portland Cement and Fuel Price Adjustments shall be available on this Project. Once the Contract is executed items for Bituminous

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Material and Fuel Price Adjustments will be added. The adjustments will be made on the Progress Payments approved by the Department.

- j. The Design Builder is to use ten (10) Business Days in their CPM for activities requiring the Department Review and Acceptance or Review and Comment.
- k. Nothing in the Contract shall relieve the Design Builder from their responsibilities toward the safety and convenience of the general public and the residents along the proposed construction area.

2. PERSONNEL

Any licenses or certifications that are required to meet the requirements of the Contract shall be in place by the time the initial Notice to Proceed is issued. The Response Category II must list the following information.

a. ON SITE PERSONNEL

At all times that work is actually being performed the Design Builder shall have present on the project one competent individual who has been authorized to act in a supervisory capacity over all work on the project including work subcontracted. The individual who has been so authorized shall be experienced in the type of work being performed and is to be fully capable of managing, directing, and coordinating the work; of reading and thoroughly understanding the contract; and of receiving and carrying out directions from the Engineer or his authorized representatives. This person shall be an employee of the Design Builder, unless otherwise approved by the Department.

b. ON CALL PERSONNEL

At all times during the life of the project the Design Builder shall provide one permanent employee who shall have the authority and capability for the overall responsibility of the project and who shall be personally available at the site of work within 24 hours notice. Such employee shall be fully authorized to conduct all business with the Subcontractors and to execute the orders or directions of the Engineer.

c. EXCEPTIONS

If the Design Builder elects to have the employee described under (b.) above constantly available in person on the project, then the presence of this employee will be considered as also meeting the requirements of (a.) above. However, if such employee is absent from the project then an authorized individual meeting the requirements of (a.) above shall be present on the project.

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d. KEY PERSONNEL

Key Personnel identified in the SOQ shall not be modified in the Technical Proposal without express written approval of the Department. Any request for modification shall be sent to the Department Design-Build Program Manager prior to the RFP submittal and the written approval from the Department shall be included in Response Category II for the Technical Proposal. Failure to comply with this requirement may be justification for removing the Design Builder from further consideration for this Project. The information provided in the SOQ will be used in the scoring criteria for Response Category II.

Design Builder's Project Management Personnel shall consist of the following individuals to be consistent with the personnel submitted in the SOQ:

- Design Builder's Project Manager
- Design Manager
- Construction Manager/Superintendent
- Traffic Engineer Manager
- Traffic Control Supervisor
- Environmental Compliance Manager

Please provide the following information, at a minimum, in a table format for each of the Key Personnel listed above:

- Key Personnel Role;
- Name of Individual to fill the roles and responsibilities;
- Approval letter of substitution, if applicable.

e. DESIGN PROFESSIONALS

The Design Builder's design professionals shall consist of the following individuals:

- Lead Design Engineer
- Lead Structural Engineer
- Traffic Signal/Sign Design Engineer
- Utilities Design Engineering/ Coordinator
- Erosion Prevention and Sediment Control Inspector

Please provide the following information, at a minimum, in a table format for each of the Design Professionals listed above:

The table shall include the:

- Design Professional Role;
- Name of Individual to fill the roles and responsibilities;

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- Anticipated percent of each Individuals time that would be committed to the Project.
- Number of total years experience;
- Number of years experience on projects of similar size and scope;
- Number of years experience on Design Build Projects;
- Education;
- Licenses or Certifications;
- Include the length of employment with current employer and the title, roles, and responsibilities on any related projects.
- Additional qualifications as necessary.

In addition to the information above, the following information is required from the Utility Coordination Firm.

- Form DT-0330 Part II located at: http://www.tdot.state.tn.us/Chief_Engineer/assistant_engineer_design/design/TDOT%20SURVEY%20MANUAL/DOT-CS-200/index.htm
(This form will not count as part of the total page count)
 - Including within the response for Section F. of this form documentation of experience/projects related to utility/SUE coordination and references for the firm's experience associated with these projects.

Resumes of Key Personnel shall be limited to one page each and will not be counted towards the overall page limit. If an individual fills more than one position, only one resume is required.

3. ROADWAY SCOPE OF WORK

The Design Builder shall perform all necessary survey, design and construction services necessary to construct the widening of I-40 from 4 to 8 lanes in Wilson County from near the Central Pike underpass to east of State Route 109 as outlined in the technical report, including minor interchange modifications at State Route 171, Beckwith Road and State Route 109.

The proposed roadway shall be designed and constructed to meet a 70-mph design speed for a rolling urban freeway and shall adhere to the latest editions of all appropriate TDOT Roadway Standard Drawings, TDOT Design Guidelines and Instructional Bulletins, TDOT Drainage Manual, TDOT Traffic Design Manual, TDOT Design CADD Standards, AASHTO *Policy on Geometric Design of Highways and Streets*, and *Manual on Uniform Traffic Control Devices*. Microstation and Geopak shall be used in the preparation of CADD files.

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The Design Builder shall perform all necessary field surveys to support the roadway design and construction activities for the Project. These field surveys shall also support activities, such as, but not limited to geotechnical investigations, right-of-way stakeout, construction stakeout, as built location of all ITS systems, etc. The field surveys shall be performed in accordance with the latest version of the TDOT Survey Manual, as posted on the TDOT website. Additionally, TDOT has developed aerial mapping for the project and the topographical*.dgn file, digital terrain model *.dtm file, and aerial mosaic *.tif and *.tfw files will be provided. This design scale mapping is 1"=50', 3" pixel size and it has TN State Plane NAD 83 Datum Adjusted Coordinates.

The Design Builder shall ensure that all proposed work is completed within existing right-of-way limits utilizing any measures necessary. If the Design Builder deems that ROW acquisitions are unavoidable, the Design Builder will be responsible for all ROW activities including but not limited to appraisals, appraisal reviews, and acquisitions.

The Design Builder shall be responsible for all utility coordination and utility relocations.

The Design Builder shall ensure that minimum clearing and grubbing is performed beyond the toe of slopes, preserving as much vegetation as possible.

The Design Builder will be responsible for the replacement of all control access fence within the project limits. The new control access fence shall be 6' chain link fence. The following special note shall be added to the plans and adhered to during construction: "Removal of existing fence shall be performed by hand or suitable means to avoid damage to adjacent vegetation. Vegetation shall be removed only if it is entangled in the fence itself. Removal of all fence shall be as directed by the engineer and all costs for removal are to be included in the price bid for new fence."

The Design Builder shall identify the need for any special roadway design details (i.e. any special drainage structures, rock embankment, rock plating, special guardrail, retaining walls, concrete barrier designs, etc.) and shall provide special design drawings.

The Design Builder shall install ITS conduit and pull boxes along both sides of the roadway. ITS conduit is to be located outside of the cut and fill slope lines and close to the ROW line when possible. Conduit should also be located so that it will not conflict with or be damaged by other roadway items such as drainage structures, foundations, signing, lighting, guardrail, retaining walls, and landscaping. ITS conduit shall be Flexible Conduit (Bank Type 4) and shall meet the attached specifications for ITS Conduit. ITS conduit will be required to be bored under active roadways and ramps. ITS conduit shall be marked with cable markers. Pull boxes shall be located at a maximum spacing of 500 feet. Work shall be coordinated and approved by the TDOT Design Division (ITS, Signal, and Standards Office) prior to any construction taking place. Upon project

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completion, the Design Builder shall provide the TDOT Design Division with a survey using Tennessee State Plane Coordinates showing the as built location of all ITS related items. Information is to be supplied in both hard copy and Microstation files using TDOT CADD standards.

All Design Documents and Design Reviews shall be provided by the Design Builder and performed in accordance with the Design Review schedule established in the Critical Path Method (CPM) Schedule, and in accordance with contract requirements.

The Design Builder shall design and construct two Emergency Pull Off Areas in each direction of travel. Specific guidance and details for design and construction of the Emergency Pull Off Areas is referenced in Appendix C. Locations of the Emergency Pull Off Areas are to be ultimately approved by the Department.

The Design Builder shall ensure that all applicable “General and Special Notes” found in Section VI of the current edition of the State of Tennessee Department of Transportation Design Division Roadway Design Guidelines are adhered to during construction.

The Design Builder shall be responsible for all open channels and storm drainage design and construction. The design of drainage facilities shall be compatible with existing or proposed drainage systems on adjacent properties, and shall preserve existing drainage patterns wherever possible. If existing drainage patterns must be changed due to design of the Project, the Design Builder shall design and construct a solution that does not adversely impact property owners outside the ROW.

Roadway component geometric configurations shall be designed to provide adequate drainage and minimize hydroplaning. Cross slopes shall be in accordance with the requirements of the roadway section.

Hydraulic design data shall be listed on the Readiness-for-Construction Design plans for each culvert.

The Design Builder shall cold plane and pave in the direction of traffic. The Pavement Design Report for this Project has been developed by the Department and is located as an Appendix A in this **Contract Book 3 (Project Specific Information)**.

- An aggregate or filter cloth underdrain with pipe throughout the project limits will be required, as there is a drainage layer within the pavement.
- Laterals for the underdrain will also be required.
- The Design Builder shall be responsible for the design of all temporary pavements and the evaluation of existing shoulders and roadways regarding their suitability for carrying traffic during construction, if necessary. If required, the Design

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Builder shall be responsible for strengthening existing facilities prior to routing traffic onto them.

The Design Builder shall not dispose of any material either on or off state-owned ROW in a regulatory flood way as defined by the Federal Emergency Management Agency without approval by same. All material shall be disposed of in upland (non-wetland) areas and above ordinary high water of any adjacent watercourse. This does not eliminate the need to obtain any other licenses or permits that may be required by any other federal, state or local agency.

The design and installation of all appropriate temporary and permanent roadway signing shall be the responsibility of the Design Builder.

- All detour, construction signing, and stripping shall be in strict accordance with the current edition of the MUTCD, TDOT Design Guidelines, and TDOT Standard Drawings for temporary work zones.
- The top of sign footing shall be placed level with the ground line
- After the sign locations have been staked, but prior to ordering any material for the supports, there shall be a field Review and Approval by the Department.
- The existing footings are to be removed 6 inches below the ground line.
- The letters, digits, arrows, borders, and alphabet accessories on all flat sheet signs shall be applied by silk screening process, except that cut-out direct applied copy shall be used on all flat sheet signs with a green background, or brown background.
- The Design Builder shall verify all support lengths at the site prior to erection.
- All permanent signing shall be in accordance with the current edition of the MUTCD, the current edition of the Standard Highway Signs, the TDOT Supplement to the Standard Highway Signs, the TDOT Design Divisions Roadway Design Guidelines, TDOT Standard Roadway and Bridge Drawings and the current edition of the Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals.
- All sign sheeting shall be Type 3 Prismatic or better. All existing signs that do not meet the retro-reflectivity requirements shall be replaced. All yellow reflective warning signs on I-40 shall be fluorescence yellow.
- All advance guide signs (1 mile and ½ mile) and exit directional guide signing shall be mounted on new overhead truss or bridge mounted sign structures (not cantilevered sign structures).

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- Existing Logo, Hospital and Guide signing shall remain up through all phases of construction. All existing signing shall be replaced with new breakaway supports and new sign faces.
- Emergency Reference Markers shall be installed on project.
- All permanent signing plans; Signing Layouts, Sign Schedules, Overhead Truss and Bridge Mount conceptual drawings (on sign structure drawing sheets) & Miscellaneous Detail Sheets, shall be reviewed by TDOT Design Division (and TDOT Structures Division to assign I.D. and drawing numbers to the sign structure sheets) prior to construction.
- All overhead truss and bridge mount conceptual drawings (on sign structure drawing sheets) & miscellaneous detail sheets, shall be reviewed by TDOT Structures Division prior to construction.
- The eastbound truck rest area will be closed permanently to the public (no truck parking allowed) and re-designated as an area for TDOT Maintenance to use for salt storage and snow and ice operations. Appropriate access and signing shall be provided as a part of the Design-Build Project and approved by the Department. These signs shall be in accordance with the current publication of the MUTCD and shall be installed 60 days after the Notice to Proceed. Access for TDOT Maintenance shall be maintained throughout construction.
- The westbound truck parking area can be closed during construction, but will need to remain open (as a designated truck parking area) after construction is complete. The Design Builder shall be responsible for providing appropriate signing for all phases in accordance with the current edition of the MUTCD. These signs shall be installed 60 days after the Notice to Proceed.

The Design Builder shall not remove any sections of existing guardrail to rework shoulders or flatten slopes until the Department concurs in the necessity of removal due to construction requirements and appropriate warning devices are installed. The proposed guardrail, including any anchor system, shall be installed quickly to minimize traffic exposure to any hazard. Guardrail shall be removed and replaced in accordance with the current editions of Department Standard Drawings and Department Standard Specifications, as amended, Section 909. Guardrail is to be complete in place before the mainline roadway is opened to traffic.

- All permanent and temporary safety appurtenances (sign supports, guardrail, barrier rail, impact attenuators, etc.) shall be NCHRP 350 approved and shall have all required TDOT certification documents.

The Design Builder Traffic Control Plan shall show the staging concept. The Design Builder

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shall take steps to minimize disruptions to the existing roadway facilities during the life of the project and shall demonstrate how the design, traffic control phasing and construction minimize inconvenience to the motorist on the facility.

- The roadway construction shall be phased such that two 12' traffic lanes are open at all times in each direction.

All median barriers shall be in accordance with the Department Standard Drawings, for Median Concrete barriers, and shall adjust the barrier shape as necessary to accommodate bridge piers, sign supports, and light poles, if any, located on the median. Median barrier wall shall be 51" single slope wall.

Desirable lengths according to AASHTO A policy on Geometric Design of Highways and Streets, 2004 Edition shall be used for acceleration and deceleration lanes and tapers. Acceleration lanes shall be parallel type.

The Design Builder shall replace an existing Automatic Traffic Recorder (ATR#34) located at the end of the Beckwith Road Interchange westbound on-ramp (near L.M. 5.91). This ATR presently collects traffic data for both eastbound and southbound directions. The planned improvements will require an additional ATR for collecting the eastbound traffic. Specific guidance and details for installation of the ATR's can be found in Appendix B of the Technical Report located in Appendix C.

The Design Builder shall be responsible in removing and relocating existing lighting poles or Luminaires, if required.

A design exception is anticipated for the mainline shoulders at the SR-171 underpass. The Design Builder shall be responsible for preparation of the design exception request form as outlined in current edition of the TDOT Design Guidelines regarding this exception.

Upon completion of the project, the Design-Builder shall provide Alternative Contracting Office A transmittal letter and compact disc (CD) containing As-Built drawings and final foundation type, including footing elevations and lengths of individual piles, shall be furnished to the Department Alternative Contracting Office prior to final payment of funds to the Design-Builder. The Professional Engineer in charge of the development of the Project plans shall place his seal, including signature and date, on the right side of the title sheet. All plans sheets shall contain the seal, including signature and date, of the Professional Engineer in charge of its development. For As-Built Plans and the Design-Builder Specifications following construction completion shall incorporate any changes to the Readiness-for-Construction Design Review Plans and

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Specifications, as well as all utility locations within ROW. As indicated in the Design Build Guidance: http://www.tdot.state.tn.us/construction/Design-Build/Design-Build%20Guidance_07-14-09.pdf

4. STRUCTURES SCOPE OF WORK

The Design-Builder shall be responsible for the design and construction of the bridge widening on I-40 over Wilson Creek.

- a. The existing dual bridges on I-40 over Wilson Creek shall be widened into a single structure.
- b. The new structure shall be wide enough to incorporate the full roadway width as presented in the functional plans.
- c. The bridge length and span arrangement should match that of the existing dual bridges.
- d. The bridge widening shall be designed using the AASHTO LRFD Bridge Design Specifications (Fifth Edition, 2010).
- e. The Design-Builder shall reference the TDOT Standard Specifications for Road and Bridge Construction (2006 Edition) for construction materials and methods.
- f. The bridge design shall use integral abutments and shall be continuous for live loads.
- g. Use HL-93 live loading in the design.
- h. The bridge design shall include 35 psf for future wearing surface.
- i. The bridge parapet rail and median barrier must be specified according to current TDOT standards. They shall have a single-sloped face.
- j. The Design-Builder shall perform a hydraulic analysis to determine the need for deck drains and/or end of bridge drains to handle the surface water on the bridge deck.
- k. The Design-Builder shall provide a mechanically grooved finish to the bridge deck.
- l. An applied texture finish is required on the parapet rail, cantilever slab and exterior beam. The side of the parapet facing traffic shall receive a white finish (Fed. Spec. No. 37886). All other locations are to be mountain grey (Fed. Spec. No. 36440). The exposed portions of the substructure including the wingwalls, endwalls, abutment beams, pier columns and pier caps are to be finished in mountain grey.
- m. The bridge construction shall be phased such that two 12' traffic lanes are open at all times in each direction and shall correspond with the roadway phasing.
- n. The existing dual bridge plans shall be reviewed and considered during the design of the new single structure.

The Design Builder shall be responsible for all culverts and culvert extensions.

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- a. The Design Builder shall adhere to all permit, FEMA, and hydraulic design criteria when designing culverts and culvert extensions. Design Builder shall use Drainage Manual found on TDOT Design Division website, and Design procedures for Hydraulic Structures 2004 found on TDOT Structure Division website. Design Builder shall use FHWA scour publication HEC-18, and shall use bridge deck drain design procedures contained in FHWA publication HEC-21 or HEC-22
- b. The Design Builder shall analyze existing culverts, boxes and cross pipes, impacted or affected by the project's design.
- c. The Design Builder shall replace or supplement any pipes or culverts that are deemed hydraulically deficient as a result of this project and replace any structurally deficient pipes or culverts within the project limits.

The Design Builder shall be responsible for wall envelopes, design, and construction of all retaining walls, slope momentum. If retaining walls are used, the retaining walls shall be designed according to TDOT's Earth Retaining Structures Manual and TDOT Standard Specifications for Road and Bridge Construction (2006 Edition) and Supplemental Specifications.

The Design-Builder shall be responsible for the design and construction of a noise wall on I-40 west-bound east of SR-171 (Mt. Juliet Road).

- a. The noise wall shall be located at/near the edge of shoulder.
- b. The top of noise wall elevation shall be 10 feet above finished grade of the outside lane.
- c. The noise wall shall begin on the exit ramp at log mile 3.21 and extend a distance of 2600' to log mile 3.70.
- d. The noise wall shall be designed using the AASHTO Guide Specifications for Structural Design of Sound Barriers, 1989 edition (with 1992 and 2002 interims).
- e. The noise wall shall be constructed using concrete posts and concrete panels.
- f. The concrete used in the posts and panels must have a compressive strength of at least 3000 psi.
- g. The posts shall be centered between the panels. The post spacing shall not exceed 20 feet.
- h. The panels shall be 2', 3' or 4' in height. The panels may be tapered. The horizontal joints between the panels shall align with adjacent panel sections.

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- i. The posts and panels shall be flush at the top. The top of wall elevation shall vary by no more than 2 feet.
- j. The posts and panels shall be texture-coated mountain grey (Fed. Spec. No. 36440).
- k. The noise wall panels shall have an ashlar stone pattern using a formliner on both sides. The pattern shall be approved by TDOT before fabrication may begin. The top panel in each section shall have a 12 inch smooth concrete band at the top of the panel.
- l. The noise wall does not need to be absorptive.
- m. The noise wall design shall address any conflicts with utilities and/or drainage structures.

The Design-Builder shall be responsible for the design and construction of all remaining structures necessary to complete the project.

The Design-Builder shall be responsible for the removal and disposal of all deficient structures, or portions thereof.

There are three existing bridges crossing Interstate 40 along the project limits. A minimum vertical clearance of at least 16'-0" over the roadway shall be provided during and after construction.

The Design-Builder shall be responsible for Bridge Repair of the spalls on the substructure of the existing bridges over Wilson creek. The Design-Builder shall contact TDOT Structures Division concerning all needed repairs to the existing bridges or any other structures.

- 1. The Design Builder shall remove the existing wearing surface.
- 2. The Design Builder shall be sounded the existing bridge to determine the areas of full and partial depth deck repairs. (Existing bridges already has a concrete overlay). Bridge deck survey referenced on Index C.
- 3. The Design Builder shall be sounded the substructures to determine the areas of spall repair.
- 4. The Design Builder shall remove the existing bridge end drains because of the widening.
- 5. The Design Builder shall place an asphalt overlay with the bridge deck sealant (membrane) over the new and existing repaired.
- 6. The Design Builder shall investigate the need for approach asphalt transitions if the new profile makes the asphalt overlay too thick.

Spall Repair Details and the latest inspection of the I-40 crossing of Wilson Creek reports are on the website as referenced in Index C

The department will **not** allow doweling into the existing slab. The transverse slab steel should be continuous across any joints.

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Upon completion of the project, the Design-Builder shall provide TDOT Structures Division a final revised set of plans for all structures (bridges, walls, culverts, etc.). The plans shall be delivered on CD (in pdf form) as well as full-size Mylars (24"x36").

5. GEOTECHNICAL ENGINEERING SCOPE OF WORK

Available subsurface information from nearby projects will be provided to the Design Builder. The Design Builder shall be responsible for site specific investigations. By submitting its Price Proposal, the Design Builder acknowledges that any subsurface information furnished by the Department is provided solely to assist the Design Builder in the development of the project design. No information with respect to subsurface conditions furnished by the Department shall be considered a Contract Document or part of the Contract. If the Design Builder relies upon any subsurface information furnished the Department, they do so at their own risk. Please refer to the geotechnical reports provided with this RFP for available subsurface information in this area.

- a) The Design Builder shall be required to perform a design level geotechnical investigation to validate and augment the geotechnical information included in this RFP. If field investigations are necessary, the Design Builder shall mail contact letters to all property owners where entry is needed at least one week prior to commencing any activity on private property. Property owners names and addresses shall be obtained using the latest records available from the county Tax Assessor's office. To promote good relationships, a diligent effort shall be made to contact each property owner or tenant prior to entering the property. However, personal contact is preferable in order to explain that entry is required, the purpose of the activity, the activities involved and to determine facts pertinent to the activity.
- b) The Design Builder shall collect appropriate data for geotechnical evaluation of embankments, subgrade, soil and rock cuts, culverts, bridge and wall structures, noise barriers, storm water management structures and ponds, minor structures, including drainage pipes, and any other earth supported structures or elements of highway design and construction relevant to the project.

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- c) Prior to any geotechnical design submittal, the foundation design recommendation reports shall be sealed and signed by a Professional Engineer registered in the State of Tennessee who has completed a minimum of three geotechnical design projects of scope and complexity similar to that anticipated for this project using the load and resistance factor design (LRFD) method and in accordance with the latest edition of the AASHTO LRFD Bridge Design Specifications.
- d) The prequalified geotechnical firm shall also determine if additional subsurface information, other than that required and noted elsewhere in the Contract Documents, is required based upon the final roadway and structure designs. If a determination is made that additional subsurface information is required; the Design Builder shall perform all additional subsurface investigation and laboratory testing in accordance with the current Department Geotechnical Specifications, Material and Tests Division.
- e) The Design Builder shall be responsible for obtaining the borings for all abutments, bents, piers, retaining wall foundation locations, and noise wall foundation locations where subsurface information is not sufficient or is warranted by variability in the geology. All borings shall be deep enough to show a complete soil and rock profile to the depth of the foundation-supporting layer.
- f) The Design Builder shall provide geotechnical design and construction summaries that contain pertinent subsurface investigations, test, and engineering evaluations.
- g) The Design Builder shall provide field quality control for all bridge foundations, retaining foundations and noise wall foundations including verifying subsurface conditions for drilled piers and bearing for shallow foundations.

6. RIGHT OF WAY SCOPE OF WORK

The Design-Builder, acting as an agent on behalf of the State of Tennessee Department of Transportation, shall provide right-of-way acquisition services for the Project. Right-of-way acquisition services shall include certified title reports, appraisal, appraisal review, negotiations, relocation assistance services, property management services, parcel closings and all related activities. All appraiser/s, appraisal reviewer/s and acquisition/relocation firms shall be selected from the Tennessee Department of Transportation Right of Way Office's

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pre-qualified list. TDOT will retain authority for approving just compensation, relocation benefits and claims, administrative settlements, court settlements and court awards. TDOT must issue a Notice to Proceed with Right-of-Way Acquisition to the Design-Builder prior to any offers being made to acquire the property. This represents a hold point in the Design-Builder's Baseline Schedule. TDOT must also issue a Notice to Proceed with Construction to the Design-Builder once the property has been acquired prior to commencing construction on the property. This also represents a hold point in the Design-Builder's Baseline Schedule. The Design-Builder **WILL** be responsible for the right of way acquisition costs. As used in this RFP, the term "right of way acquisition costs" means the actual purchase price paid to a landowner for right-of-way, including fee simple, any and all easements, any relocation assistant payments, all costs associated with the services provided by the appraiser/s, review appraiser/s acquisition/relocation firm, miscellaneous fees associated with closings as part of the project, the costs of any public hearings that may be required, actual payments to property owners and all expenses related to the acquisitions and associated legal costs as well as any additional monies paid the landowners to reach an administrative settlement or pay for court settlements and awards.

The following responsibilities shall be carried out by either the Design-Builder or TDOT as specified in each bulleted item below:

- The Design-Builder shall acquire property in accordance with all Federal and State laws and regulations, including but not limited to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (the "Uniform Act") The acquisition of property shall follow the guidelines as established by TDOT and other State and Federal guidelines that are required and the Tennessee Department of Transportation Right of Way Procedures Manual. The Design-Builder shall execute a certification in its proposal that it has received the Tennessee Department of Transportation's Right of Way Procedures Manual and will comply with the procedures.
- TDOT has an Appeals Board to hear any Relocation Assistance appeals. TDOT agrees to assist with any out of state relocation by persons displaced within the rights of way by arranging with such other state(s) for verification of the relocation assistance claim.
- The Design-Builder shall establish an acquisition/relocation office at a location that is accessible to the property owners and displacees on or near the project. The purpose of maintaining this office is to ensure effective and responsive service to meet the

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property owners and displacees' needs. The office must be operational by the time acquisitions begin. Supply relocation and negotiation personnel with substantial experience in highway right-of-way acquisition, or similar work, in numbers sufficient to accomplish the required work in a timely manner. All relocation and negotiation personnel are to be approved by the State for each project hereunder. After the State has approved the personnel for a project, changes may only be made with the written approval of the State. This office shall be staffed by persons knowledgeable of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (the "Uniform Act") and the Tennessee Department of Transportation Right of Way Procedures Manual. This office shall be open during normal business hours and after hours by appointment.

- The Design-Builder shall submit procedures for handling right-of-way acquisitions and relocations to TDOT for approval prior to commencing right-of-way activities. This represents a hold point in the Design-Builder's Baseline Schedule. These procedures are to show the Design-Builder's methods, including the appropriate steps and workflow required for certified title reports, appraisals, appraisal review, negotiations, acquisition, relocations and parcel closings and all related activities. These procedures shall include TDOT's review and approval of just compensation, administrative settlements, relocation benefits and claims.
- A TDOT Representative/s will be available to make timely decisions concerning establishing review and approval of just compensation, approval of administrative settlements, approval of relocation benefits and claims, on behalf of TDOT. The TDOT Representative/s is/are committed to issuing decisions on approval requests within sixty (60) days. The commitment is based on the plan providing a reasonable and orderly workflow and the work being provided to the TDOT Representative/s as completed.
- Maintain accurate parcel files and at the termination of the work on the project, turn over to the State all relocation and negotiation files, appraisal and appraisal review files, and any other pertinent acquisition files, records or reports. All files shall be documented in accordance with the applicable State and Federal requirements. During the work on the project, the Design Builder shall make all such files available, upon demand, for inspection by the State and/or by the Federal Highway Administration, when applicable
- The Design-Builder shall submit a project specific Acquisition and Relocation Plan for TDOT approval. The plan shall identify a prioritized schedule of right-of-way activities including but not limited to appraisal, appraisal review, the specific parcels

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to be acquired and all relocations. The plan shall allow for the orderly relocation of displaced persons based on time frames not less than those provided by the “Uniform Act” and/or the Department’s Right of Way Procedures Manual. This plan shall be updated as necessary during the life of the Project.

- The Design-Builder shall submit bi-monthly status reports to TDOT’s Right-of-way Division to manage and track the acquisition process. TDOT standard appraisal, appraisal review, acquisition and relocation assistance and property management forms and documents, will be used as applicable. The status report must include but not limited to the appraisal, appraisal review, and acquisition and relocation assistance status of all parcels.
- The Design-Builder shall provide a current title report (no older than one hundred and eighty (180) days) for each parcel at the time of the initial offer to landowner. Each title examination report shall be prepared by a TDOT approved attorney or Title Company (each TDOT Regional Right of Way Office has a list of approved title firms). The Design Builder will furnish an original + 3 legible copies of a title report, including summary of 5 years sale history, on a form to be provided by the State, designated as ROW Form-49, with copies of all recorded deeds, liens, selloffs, easements, subdivision plats, divorce decrees, wills, judgments, and other pertinent documents attached, for each numbered tract on the right-of-way plan. The Design Builder will furnish one updating of the title report; the process of updating the title report will be performed as part of the closing.
- The following terms and conditions will also apply unless otherwise indicated.
 - Preliminary reports of title are required on all tracts for which a taking or an acquisition is shown on the acquisition table.
 - Title insurance is not required.
 - An original and three legible copies of the “Preliminary Report of Title” (Form 49) are to be submitted. All attachments must accompany the original and all three (3) copies.
 - Reports must include information on all contiguous parcels of land which form a single tract under the same ownership.
 - In addition to the information to be provided on the R.O.W. Form 49, each

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- preliminary report of title shall contain the tax map, and parcel number for the particular tract as well as the civil district in which the tract is located.
- In addition include documentation of all Environmental Liens if they apply.
- The Design Builder will furnish the correct mailing address of the property owner for each tract number.
- If the right-of-way plan is revised so to add additional tracts from which there will be an acquisition as shown by the acquisition table, all services covered by this agreement are to be provided for those additional tracts.
- Facsimile of title report will not be accepted.
- Completion and filing of Form 1099 published by the Internal Revenue Service, is required in connection with closing of right-of-way acquisition.
- Copies of Tax Maps showing all tracts are to be included. These maps are to be complete, full size sheets whenever possible.
- Copies of subdivision plots are to be included when the only deed description of an individual parcel consists of a lot number in the mentioned subdivision.
- Please number the pages of each "Preliminary Report of Title".
- If any instrument is not legible on the provided copy, (attachments) then a typed legible instrument must accompany illegible copies.
- The Design Builder will close all negotiated tracts on the project. This service to include; updating of all the title report to the time of execution of the instrument of conveyance, the preparation of the warranty deed and any releases, the preparation of the closing statement on a form to be provided by the State, designated as ROW Form-24, the preparation of the deed transmittal statement on a form to be provided by the State, designated as ROW Form-29, the arrangement for an making of such disbursements as may be necessary to cause the removal of property taxes, judgments and instruments constituting liens for money owed, and the recording of the warranty deed, releases and/or partial releases and the recording of any other required releases for liens or encumbrances and all cost associated with obtaining any releases and any other such documents as soon as practicable following the closing are the responsibility of the Design Builder.

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- The Design Builder agrees to discuss time and location for each proposed closing with the prospective grantor(s) and within reason to accomplish same in accordance with the grantor(s) advice. **Normal closings are expected to take place within 45 days after the agreement of sale is executed. Extenuating circumstances requiring more than 45 days will be reported by letter (or by FAX) no later than the 45th day from the date of the executed agreement of sale with a request for an extension. Requests for extensions beyond the normal accepted time will be considered on a case by case basis.** Within 24 hours after closing the Design Builder will notify the Regional Transportation Manager II of this fact. All closings are to be done by personal contact, at a time and place that is convenient to the landowner. Where a closing by mail is requested, the written consent of the Department is required, **except of Out of State property owners.**
- The Design-Builder shall prepare appraisals in accordance with TDOT's Guidelines for Appraisers, the Uniform Act and the Uniform Standards for Professional Appraisal Practice (USPAP).
- Appraisal and Related Service" may include all or parts of the following: real estate appraisal, real estate appraisal review, real estate consultation, pre-trial conference, deposition, and court testimony, as further defined.
- The Design Builder shall provide all service and deliverables as required, described.
- For the project to be covered hereunder, the Design Builder shall provide such of the following services as required by this Contract issued by the State for the subject project. As called for, the Design Builder shall:
 - Complete all appraisal services and work product to the standards set forth herein. Failure on the part of the Design-Builder to complete each assignment according to said standards by the agreed upon due date shall be considered a material breach of this Contract.
 - Complete all appraisal services in accordance with the Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs Act [Uniform Act (Part 24 of title 49 CFR)], the Uniform Standards of Professional Appraisal Practice [USPAP (Appraisal Foundation)], [Guidelines For Appraisers (www.tdot.state.tn.us; click TDOT Services Index; Right-of-Way; Appraisal Office; Guidelines For Appraisers)], and federal, state and local laws, rules, and regulations.

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- Furnish an original and two (2) copies of each Market Data Brochure and each Appraisal Report. Furnish one additional copy of each appraisal report together with all exhibits and comparable data write-ups. This copy shall be clearly identified as the landowner(s) copy. Unless specifically directed otherwise in writing, all appraisal services products are to be delivered to the regional office in which the project is located.
- In addition to the standard photos of the subject property and exterior photos of the acquired improvements, the Design Builder shall provide a typical interior photo of acquired/affected structures having substantial contributory value (i.e. residences, commercial structures, large barns, etc.) Legible digital images are acceptable.
- Update to “date of possession” appraisal report(s) on any tract(s) involved in condemnation covered under Work Orders issued hereunder when requested to do so by the State. Appraisal updates shall be completed within sixty (60) days after the request is made in writing by the State. All such updates shall be in compliance with standards set forth above except that the standards in force as of the date of employment to conduct the updated appraisal service shall apply. The “update” appraisal request may require the Design Builder to consider and include minor plan revisions and changes in market conditions.
- Upon request by the State, testify, in support of the opinion of value of any and all of the property included in his/her appraisal report, in any judicial or arbitration proceeding involving the determination of the value of the property. Further, the Design Builder agrees to attend, as requested by the State, any pre-trial conferences, meetings, depositions, etc. related to such proceedings. The Design Builder shall be compensated for these litigation-related services in accordance with the Expert Valuation Witness Rates in effect at the time the service is rendered. The Expert Valuation Witness Rate Schedule may be adjusted periodically.
- Execute disclaimers of any past, present or contemplated future personal interest in any of the properties included in the proposed agreement, as required by the State, or if applicable, Federal Highway Administration (FHWA).
- Maintain throughout the term of this Contract Errors and Omissions insurance in the amount of not less than one million dollars (\$1,000,000.00), and proof of which shall be made available to the State upon demand.

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- The Design-Builder shall provide appraisal reviews complying with technical review guidelines found in TDOT's Guidelines for Appraisers, the Uniform Act and the Uniform Standards for Professional Appraisal Practice (USPAP) and TDOT's Right of Way Procedures Manual and make a recommendation of just compensation. Design-Builder's Right-of-Way staff that performs acquisition and relocation/property management services shall be from the TDOT pre-qualified consultant list for acquisition and relocation assistance and related services and the Design-Builder shall include a TDOT pre-qualified Fee Appraiser from TDOT's prequalified appraiser list. The review appraiser shall be approved by TDOT and shall also be on TDOT's prequalified fee appraiser list. TDOT shall have final approval of all the Design-Builder right of way staff.
- Provide necessary property management services during the period of Consultant's work. Those property management services include, but are not limited to: private property owner utility adjustment cost estimates, salvage appraisals on improvements being acquired, moving cost determination, including the moving of on-premise signs and outdoor advertising devices, and determination and collection of rent after the "90 day" notice to vacate has expired.
- Coordinate all work through the State's Regional Right-of-Way Transportation Manager 2 or his designated representative.
- Recommend tracts for condemnation. When the Design Builder recommends that a tract should be condemned, the request for condemnation must have the necessary back-up information attached to properly completed forms DT 1606 and DT 1602 when submitted to the Regional Right-of-Way Office. The Regional Right-of-Way Office will check these forms and process this information to obtain a voucher. In general all voucher requests for any payment will be handled in this manner.
- Conduct any public meetings as requested by the State and as required by the State's right-of-way procedures and practices.
- Meet and coordinate with public officials of governmental agencies and civic groups as required or as requested by the State.

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- Execute disclaimers of any past, present or contemplated future personal interest in any of the properties included in the proposed agreement, as required by the State, or if applicable, Federal Highway Administration.
- Maintain throughout the term of this Contract Errors and Omissions insurance in the amount of one million dollars (\$1,000,000.00).
- The Design-Builder shall make direct payments to property owners for negotiated settlements, administrative settlements, and relocation benefits. The Design Builder will make direct payments to be deposited with the court. In addition any payments agreed to by the property owner and the Attorney General's Office during the condemnation process either by settlement or through the courts including court cost and any mediation expenses is the responsibility of the Design-Builder. The Design-Builder will be responsible for disbursement and providing indefeasible title to TDOT. All payments will be made in accordance with the policies and procedures established in the Tennessee Department of Transportation's Right of Way Procedures Manual.
- The Design-Builder shall prepare, obtain execution of, and record documents conveying title to such properties to the State of Tennessee Department of Transportation and deliver all executed and recorded general warranty deeds to TDOT. For all property purchased in conjunction with the Project, title will be acquired in fee simple (except for the acquisition of slope, construction or permanent drainage easements, in lieu of fee simple title, with respect to any portion of the rights of way, this must be approved by TDOT's Design Division) and shall be conveyed to the State of Tennessee Department of Transportation, Grantee" by a TDOT-approved general warranty deed, free and clear of all liens and encumbrances except encumbrances expressly permitted by TDOT in writing in advance. All easements shall be acquired in the name of the State of Tennessee Department of Transportation.
- Because these acquisitions are being made on behalf of the Department of Transportation, TDOT shall make the ultimate determination in each case as to whether settlement is appropriate or whether the filing of a condemnation action is necessary, taking into consideration the recommendations of the Design-Builder. When TDOT authorizes the filing of condemnation, the Design-Builder shall prepare all required documents necessary to file and forwarded to the appropriate TDOT Regional Right of Way Office.

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- The Design-Builder will provide the necessary staff and resources as directed by TDOT to work with the Department and the Attorney General's Office throughout the entire condemnation process until the property is acquired by settlement, by deed, or by Final Consent Judgment executed by TDOT and the appropriate court. The Design-Builder will provide updated appraisals (*i.e.*, appraisal reports effective as of the date of possession) and expert testimony supporting condemnation proceedings upon request by TDOT and/or the Attorney General's Office.
- The Design-Builder will be responsible for all contacts with landowners for rights of way and construction items and shall be responsible for properly setting all right of way monuments associated with the Project.
- The Design-Builder shall maintain adequate access to all occupied properties to insure emergency and personal vehicle access. Utility service must be available to all occupied properties at all times prior to and until relocation is complete.
- The Design-Builder shall use reasonable care in determining whether there is reason to believe that property and improvements to be acquired for rights of way may contain concealed or hidden wastes or other materials or hazards requiring remedial action or treatment. When there is reason to believe that such materials may be present, the Design-Builder shall notify TDOT within three (3) calendar days. The Design-Builder shall not proceed with acquiring such property until they receive written notification from TDOT.
- During the acquisition process and for a period of three (3) years after final payment is made to the Design-Builder for any phase of the work, and until the Department of Transportation has indefeasible title to the property, all Project documents and records not previously delivered to TDOT, including but not limited to design and engineering costs, construction costs, costs of acquisition of rights of way, and all documents and records necessary to determine compliance with the laws relating to the acquisition of rights of way and the costs of relocation of utilities, shall be maintained and made available to TDOT for inspection or audit. Throughout the design, acquisition and construction phases of the Project, copies of all documents/correspondence shall be submitted to both the TDOT Head Quarters Office and the respective TDOT Regional Office.
- The Design-Builder will ensure no open burning will occur within 1,000 feet of an occupied dwelling.

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- The Design-Builder shall maintain a sufficient buffer or hold off zone around parcels which have not been acquired and/or occupied properties to ensure compliance with right of way procedures prior to starting construction activities in these affected areas. There should be no construction related activities within the hold off zone until the property is acquired and/or vacated. TDOT will provide written notification before the contractor can enter the hold off zone.

7. UTILITY COORDINATION SCOPE OF WORK

- a. The Design Builder shall be familiar with 1680-6-1 Rules and Regulations for Accommodating Utilities within Highway Rights-of-Way, Tennessee Code Annotated (TCA) Part 8 Relocation of Utilities 54-5-801 through 54-5-856, 23 CFR Part 645 “Utilities”, and 23 CFR 646 “Railroads”. Adherence to the above referenced regulations and procedures are mandatory.
- b. Immediately after submittal of the accepted final Definitive Design Plans, the Design Builder needs to accommodate the statute (TCA 54-5-854) required 120 - 165 Calendar Days in their CPM for Utility Investigation.
- c. Some adjustment of utility lines will be required due to the Design Builder design. The Design Builder shall be responsible for identifying any utility conflicts/relocations and utility construction plans. Exact locations shall be determined in the field by contacting the utility companies involved. Notification by calling the Tennessee One Call System, Inc., at 1-800-351-1111 as required by TCA 65-31-106 will be required.
- d. The Design Builder shall provide all necessary protective measures to safeguard existing utilities from damage during construction of this Project. In the event that special equipment is required to work over and around the utilities, the Design Builder will be required to furnish such equipment. The cost of protecting utilities from damage and furnishing special equipment will be included in the price bid for other items of construction.
- e. Prior to submitting the bid, the Design Builder will be solely responsible for contacting owners of all affected utilities in order to determine the extent to which utility relocations and/or adjustments will have upon the schedule of work for the Project. While some work may be required ‘around’ utility facilities that will remain in place, other utility facilities may need to be adjusted concurrently with the Design Builder’s operations. Advance clear cutting may be required by the Department at any location where clearing is called for in the specifications and clear cutting is necessary for a utility relocation.
- f. The Design Builder shall be responsible for confirming the utility locations, confirming the type of facilities, identifying the utility owners and determining

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the cost responsibilities in order to coordinate the relocation of any utilities in conflict with the project.

- g. The Design Builder shall notify each individual utility owner of their plan of operation in the area of the utilities. Prior to commencing work, the Design Builder shall contact the utility owners and request them to properly locate their respective utility on the ground. This notification shall be given at least three (3) business days prior to commencement of operations around the utility in accordance with TCA 65-31-106.
- h. The Design Builder shall coordinate the relocation or adjustment of the utilities in accordance with the RFP. The Department will process and certify all compensable utilities. The Design Builder shall process and certify all non-compensable utilities for potential conflict and/or relocations.
- i. The Department will be the approving authority for all utility agreements and approval of plans.
- j. The Department shall make the necessary arrangements with the utility owners on compensable utilities and the Design Builder shall make the necessary arrangements with the utility owners for all non-compensable utilities including new installations required for the project, adjustments, relocations or removals where the Design Builder and utility company determine that such work is essential for highway safety and performance of the required construction.
- k. The Design Builder shall accommodate utility adjustments, reconstruction, new installation and routine maintenance work by others that may be underway or take place during the progress of the contract.
- l. In the event of a utility conflict, the Design Builder shall request that the utility company submit relocation plans (Plans to be provided by the Design Builder to Utility Owners) that shows existing utilities and proposed utility relocations.
- m. The Design Builder shall be responsible for determining the cost responsibility (*compensable or non-compensable utilities*) for the utility relocations. The Department will be responsible for non-betterment (*compensable utilities*) utility relocation cost when the utility company has prior rights-of-way or compensable interest. The utility company shall be responsible for the relocation costs if they cannot furnish evidence of prior rights-of-way or compensable interest (*non-compensable utilities*) in their facilities. The Design Builder shall be responsible for all costs associated with utility relocations due to haul roads and/or any other temporary conditions resulting from the Design Builder's methods of operation or sequence of work.
- n. If the Design Builder elects to make arrangements with a utility company to incorporate a new utility installation or relocation as part of the highway construction, the utility work done by the Design Builder and the associated costs

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for the work shall be negotiated and agreed upon between the Design Builder and the utility company.

- o. If the Design Builder is requested, in writing, by an entity to relocate, upgrade or incorporate new water and sewer facilities as part of the highway construction, designs shall be coordinated with the utility owner, and the Department. The associated design and construction costs shall be negotiated and agreed upon between the Design Builder and the utility company. The Design Builder shall develop designs; prepare all plans for needed agreements and permits; submit permits directly to the agencies and obtain approval from the agencies.
- p. The Department Utility Office must execute approved agreements on Design-Build highway projects. The Utility Relocation Agreements (Cost Agreement) and encroachment agreements are available from the Department.
- q. No additional compensation or time shall be granted for any delays, inconveniences, or damage sustained by the Design Builder or its subcontractors due to interference from utilities or the operation of relocating utilities.
- r. The Design Builder shall make all reasonable efforts to design the Project to avoid conflicts with utilities, and minimize impacts where conflicts cannot be avoided.

8. ENVIRONMENTAL SCOPE OF WORK

Environmental Boundaries

The Design Builder shall be responsible for preparing the Environmental Boundaries and all associated environmental studies concerning water quality and Federal Endangered/Threatened species for the subject project. The cost shall be included in the contract amount.

Study for Water Quality Permitting

Unless otherwise specified by TDOT, all personnel conducting field studies or writing ecology reports must be degreed biologists. Non-biologists may assist with studies only under the on-site supervision of a degreed biologist, and may not write reports. Unsupervised use of non-biologists will be allowed only with prior TDOT approval, and will usually be acceptable only for tasks such as water bottle collection not requiring habitat notes.

Personnel conducting wetland identifications and/or delineations must be degreed biologists and submit evidence to the TDOT Environmental Division, Ecology Section, of wetland delineation training acceptable to TDOT. TDOT may, at its option, disallow the conduct of studies by

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personnel for whom it feels the training is inadequate or where follow-up studies indicate misidentification.

TDOT may require participation or supervision by subject-matter experts such as chemists, geologists, expert botanists, or malacologists, etc.

The contractor shall prepare Ecological Studies as directed by the STATE as follows:

For the subject transportation project the contractor activities may include, but not be limited to, conducting various types of surveys such as ecological, environmental, water quality, and endangered/threatened species and their habitats

State of Federal Endangered/Threatened Species Surveys, Sweeps And Transplants

Surveys will be conducted as appropriate, depending on the species. The Design–Build biologist should put together a sampling plan as recommended from USFWS and TWRA. The plan should include at a minimum the techniques, equipment, analytical techniques or metrics (e.g., IBI, TMI), time frame, and staff qualifications, including the appropriate collection permits if necessary.

A sweep is generally associated with fish, mussels, or crayfish, and is conducted one or two days prior to construction work in the water. It now has to be done the same day as the coffer dams go in, or the work is being done. A plan describing the methods for conducting the sweep may be needed. In all cases, the sweep methods and procedures should be discussed and coordinated with USFWS and TWRA prior to the sweep.

A brief transplant plan, if necessary, should be submitted to the USFWS (federal listed plants) and TDEC (State listed plants) for approval. This would include, at a minimum, the techniques for moving the plants, the proposed relocation site, the time frame for the move, and the qualifications of the staff involved. We usually have to monitor the success of relocated plants for a time period (generally three years, but it depends on the regulatory agency).

Environmental Boundaries Field Studies

Prior to conducting routine ecological field studies (termed Environmental Boundaries), the Design–Build biologist will review all material provided, including maps, plans, species lists, species maps, USFWS species coordination letter, and other agency letters, as well as other materials available from other sources such as NRCS soils maps and species information available on the internet. The field studies will be planned and conducted to identify any features and/or resources requiring documentation, avoidance, protection and/or mitigation. These field studies include, but are not limited to, identification of streams, wetlands, wet-weather conveyances, specialized habitats and protected species, areas of disturbance, etc. Any soil type shown on the NRCS soils map as hydric or having hydric inclusions will be specifically examined and documented, although there may be other wetlands on the project whose soils are not listed. Scope Attachment G (herein Form G) addresses routine ecological field studies. It

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can be used to document studies at several phases of project development, and is designed with a tabular format that can be reviewed and updated at various times as major projects progress. It is used for routine ecological studies to accurately locate and identify natural resource features and the impacts associated with the proposed alignment. Form G accompanies permit applications and is used as a basis for erosion control design, stream relocations, and water quality determinations.

Note that the study area for Design Phase projects (projects for which plans are provided) extends at least 50 feet on either side of the proposed right-of-way and easement lines. Boundary surveys (e.g., wetland boundaries) should also extend at least 50 feet beyond the right-of-way and easement lines. Do not show a closed boundary at the limit(s) of the survey for features that continue well beyond the project limits and proposed right-of-way (e.g., a wetland that extends beyond the study area limits). Springs/seeps that occur outside the ROW line and are the origin of streams that cross the project impact area should be noted.

Design Phase studies may supplement, update, and revise earlier studies. The tabular format of Form G is intended to provide an easy means of identifying and evaluating new or changed information as a project progresses. Form G should, therefore, build upon previous project documents rather than replace them.

Scope G studies require verification of wetland boundaries only if the boundaries of the wetland are in question or when identification of the wetland itself is questionable. Verification of water resource features is required when the identification of that feature is in doubt (such as a wet weather conveyance shown as a blue line stream on the topo map). For questionable determinations, complete the Hydrologic Field Determination Sheet and contact TDEC and USACE in the appropriate region to arrange for a site visit.

Ecology Field Data Sheets

Scope G is comprised of field data sheets which are designed to document Water Resources, Wetlands, or Other Resource Features associated with a project. Additional data sheets may be needed for some features, such as a Habitat Assessment form for all perennial streams to assess overall water quality and the potential for the stream to be listed as Exceptional Tennessee Waters (ETWs), or the Army Corps of Engineers new Jurisdictional Determination (JD) forms for every water resource and wetland feature.

All of the field data sheets are intended to be completed in the field to ensure that the appropriate attributes for each resource feature (e.g., streams, wetlands) are documented. The *Water Resources* data sheet of Form G should be used to document streams, springs, seeps, ponds, quarries, lakes and wet weather conveyances. The *Wetlands* field data sheet of Form G should be used to document wetlands as well as potential mitigation sites – this data sheet does not replace the wetland determination form. The *Other Resource Features* data sheet of Form G should be used to document caves, rock shelters, sinkholes, specialized habitats, management areas, and protected species, as well as other features that may affect a project.

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All resource features associated with a project will be documented using the appropriate Form G field data sheet and the feature(s) marked on the project plans (if provided), whether the feature was originally shown on the plans or not. The delineation of the features should extend approximately 50 feet beyond the edge of ROW (if applicable). For example, if the stream changes course at an angle near the ROW, the stream should be drawn on the plans to show where it is in relation to the ROW.

If you are unable to survey/sample/measure certain aspects of a feature, note that you were unable to gather that information and indicate the reason (e.g., unable to survey fish/benthos/substrate due to high flow, near vertical stream banks, landowner not allowing access to site, etc.).

If you believe that a stream or wetland is potentially exceptional (this is a judgment call, based on hydrology, location, surrounding land use, benthic invertebrates, etc.) but the stream is not included in the list of ETW or ONRW streams in TN, indicate in the NOTES portion of the forms that the feature may be considered an ETW or ONRW stream. This will let us know that the stream should be further evaluated prior to applying for permits. If it is definitely not (again, based on opinion) exceptional, please indicate in the Notes section.

Scope G Map

The location of all features listed on the field data sheet(s) is to be indicated on a separate 8½ x 11 inch, 7.5-minute USGS topographic map. If needed, the project area can be displayed on more than one page. Minimum information on the map(s) includes the following:

- county name
- quadrangle name
- project name
- proposed alignment
- north arrow
- scale bar
- date of field survey
- PE number; PIN
- beginning/end of project

All features listed on the field data sheet(s) will be indicated on the topo map according to location and labeled using the map label (e.g., STR-1, WTL-2, WWC-1), with its corresponding color. If yellow is not distinctive, use a similar color such as orange, but only on the topographic map (not on the marked-up plans), and make a note to that effect in the Notes section. An example is provided at the end of this section.

Scope G Photos

Provide **at least** one photo for each feature (e.g., stream, wet weather conveyance, sinkhole, cave, wetland). For large features (rivers, wetlands) it is recommended that more than one photo be taken and included (such as standing on bridge looking upstream [east] and downstream [west], or where a stream that will be affected flows into a river that will be affected). If the

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feature needs to be verified by TDEC/USACE, include several photos which may enable a decision to be made without a site visit. Keep photographs to a maximum of 3 per page. Photos should be labeled with a minimum of the following information:

- County
- Name of feature (name, map label)
- Direction of feature in photo (e.g., looking downstream [north] at STR-1)
- Date (month, day, year) photo was taken
- Location of photo (e.g., standing on RDB, looking a confluence with STR-2)
- Corresponding photo number from attachment G

Scope G Feature Labels

Below is the complete list of color coded feature labels to be used when completing the field data sheets and the Form G map. Detailed instructions on the use of the labels are provided in the following sections: Field Data Sheets - Water Resources, Wetlands, and Other Resource Features.

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

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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	

Water Resources

The Water Resources field data sheet is to be used to document streams, springs, seeps, ponds, quarries, lakes and wet weather conveyances.

1-Station: In most instances, preliminary plans or Right-of-Way (ROW) plans will be provided for review, with the project limits shown. It will be the responsibility of the consultant to ensure that all natural resource features are shown or marked on the plans. The consultant must check all features shown on the plans (e.g., streams, culverts, bridges, “ditches”, caves, etc.), as well as all others which were found during the environmental boundaries field review but may not be on the plans (e.g., caves, wet weather conveyances [WWCs], springs, seeps, etc.). The station numbers for any feature or structure, regardless of whether they require a permit, will be listed. For example, if there is a culvert shown on the plans, but it does not cross a watercourse (it may be present for property access), include it on Form G, note its purpose and specifically note whether a watercourse is present as well as land use at the site.

The station number for a culvert crossing or bridge is the station read at the centerline of the structure. The exact location is often shown on the profile and/or cross-section sheet.

The station number for a wetland, a pond or lake, or a stream or WWC that is not a crossing will be shown as “###+## to ###+##”, followed by either L (left) or R (right). L indicates that the feature is on the left side of the proposed ROW; R indicates that it is on the right side of the proposed ROW, if you were standing at the beginning of the project and looking towards the end of the project. For example, if a wetland extends approximately 60 feet along the left side of a proposed road, the station would be listed as “140+70L to 150+30L”. If it occurs between two proposed roads, list both of them, ensuring that the two roads are indicated in the station; e.g., “140+70L to 150+30L on I-65 and 12+20R to 12+80R on Ramp D”.

If ecology studies for environmental documents are requested (Scope A), no plans will usually be provided. If no plans are available, provide GPS coordinates rather than station numbers for all features listed on Form G.

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2 - Map label and Name: The map label consists of an alphanumeric code. The letters represent the type of feature, and the number represents the chronological sequence of that particular feature. The color is that which is used to mark a particular feature on the plans and is keyed to the accompanying map. Choose from one of the following:

Map Label	Feature	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

3 – Latitude/Longitude: A GPS point should be recorded at the area of impact and submitted in decimal degrees. Data should be recorded in Geographic Decimal Degrees (Lat/Long) – WGS84.

4 - Potential impact: There can be more than one impact listed; indicate if the impact is temporary or permanent, if applicable. Choose from one of the following:

- Crossing (to be used only when the type of structure (bridge vs. culvert) is not specified or known).
- Crossing/bridge
- Crossing/encapsulation (to be used for box, round and oval culverts)
- Crossing with channel loss
- Relocation (stream or WWC)
- Cut/Eliminate
- Fill (wetland/WWC/Sink/Spring/Seep/Non-Wetland Area)
- Drain (pond, quarry)
- Runoff (no direct alteration of resource)
- Structure removal

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- Relocation with loss of stream footage
- Runaround (temporary detour)
- Other (Explain)

5 - Feature description: The suggested descriptors may not all apply, but if they do, describe each that is applicable. The Notes section can be used for additional information. Left Bank (LB) and Right Bank (RB) are determined by looking downstream (i.e., left descending bank and right descending bank).

This would correspond to the map label, using only the actual name (e.g., intermittent stream; perennial stream; [not the abbreviation or color coding]). See Appendix A for stream determination procedure. **Never** use the term “non-jurisdictional feature.” Choose from one of the following:

- Perennial stream, Intermittent stream, Wet Weather Conveyance or Ditch
 - Pond, lake, or quarry
 - Impoundment
 - Spring (perennial or wet weather)
 - Seep
 - Swale (sometimes used when a culvert is present, but a watercourse is not)
 - None (when a culvert is present, but no watercourse or other aquatic resource or channel is present – on plans label as “none – no feature present”)
 - Others - Contact TDOT Environmental Division regional biologist
- Blue-line on topo? (y/n): Is it marked as a blue-line on the topographic map? Indicate using “yes” or “no”.

Natural Resource Mitigation

Once the routine ecological field studies have been completed and the natural resource features documented, you must assess the project-related impacts and determine if mitigation is required. If mitigation is required for specific features, these requirements must be recorded.

1. Identify specific locations where mitigation or in-kind replacement is required for a stream, wetland, listed species or other feature.
2. Transmit the information that needs to be placed on the plans in a clear, understandable format with no extraneous information.

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3. Provide plan view and cross-section sketches of mitigation features needed, placed correctly on plans sheets to allow proper mitigation of natural resource impacts.

Species Review

The Design–Build biologist may be provided with the following items:

For Federally Listed Species

A USFWS species letter or the USFWS Memorandum of Agreement (the MOA applies only to small projects in areas not known to harbor protected species). The MOA can only be used between USFWS and TDOT.

For State Listed Species

Animals. A Tennessee Wildlife Resources Agency (TWRA) coordination response letter. When a species review indicates there are known occurrences for state listed animals near a project, the Design–Build biologist will coordinate with TWRA to address these species. TDOT biologists will provide TWRA with the list of species that were noted during the database review as well as a brief project description; TWRA personnel will review this information and provide comments regarding the potential project impacts to the listed species. TWRA may also provide direction and notes that will protect the species of concern.

Plants. A Tennessee Department of Environment and Conservation Division of Natural Areas (DNA) coordination response letter. When the species review indicates state listed plants are near a project, the Design–Build biologist will determine if coordination with DNA is required and only coordinate with DNA if it is believed a listed plant may be affected by the proposed project or if additional information is needed regarding a state listed plant. If coordination is warranted, Design–Build biologist will provide DNA with the list of plant species that were noted during the database review as well as a brief project description; DNA personnel will review this information and provide comments regarding the potential project effects to the listed species. DNA may also provide direction and notes that will protect the species of concern. Coordination with DNA may also be required if during the course of the field survey it is determined that a listed plant may be affected by the proposed project.

If there are no records for listed plant or animal species the consultant will be notified.

Migratory Birds

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All migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (last amended in 1998). Migratory birds include all birds except pigeons and starlings. A significant population of migratory birds nesting within the proposed project limits must be documented and accompanied by photos of the nests or roosts. Some examples of nesting populations include heron rookeries, turkey vulture roosts and cliff swallow nests on bridges. The definition of significant concentration will vary depending on the species. For example, a single robin or bluebird nest would not be significant, but a single bald eagle nest or twenty cliff swallow nests might be. Biologists should use best professional judgment with regard to the nesting behaviors and social tendencies of the species in question (solitary vs. colonial) to determine what constitutes a significant concentration of nesting birds. The Design–Build biologist will use the information provided to coordinate with USFWS for project specific recommendations or necessary requirements to be implemented prior to or during construction.

Species Map

If there are records for listed species within the project review limits, a map showing known locations of state and federally listed species within a 4-mile radius of the project will be provided, along with a listing of species occurrences separated into the following: species within a 1-mile radius of the project and species within a 1 to 4 mile radius of the project (see example). The species map is generated using records maintained by DNA.

The Design–Build biologist will review these materials and conduct necessary field studies to determine whether state or federally listed species or their habitats occur in the project area. If Form G is required, the field studies should be conducted simultaneously.

Identification, survey, and monitoring of other natural resources such as sinkholes, caves or specialized habitats

Coordination with regulatory agencies when necessary

GPS/GIS data collection with mapping grade accuracy

It is mandatory that each member of the consultants team has completed a minimum 10-hour OSHA Construction Safety Training course annually, prior to any on-site work assigned under this contract. If a 30-hour or 40-hour OSHA certification is current, no additional training is required.

Example of Form G

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Water Quality Permits

The Design-Builder will obtain and pay for all regulatory permits as required by applicable laws, the plans, or contract specifications. The cost shall be included in the Contract Amount. The Design-Builder shall be cognizant of and adhere to the requirements of the various permits that will be necessary for construction and operation of this project. Also, the listing herein is not all-inclusive and it shall be the responsibility of the Design-Builder to determine all of the permits required in order to perform the work.

The Design-builder assumes all responsibility of the permittee as indicated in the permit that relate to protection of the “waters of the United States” and/or “waters of the State of Tennessee” pursuant to the following:

- 1) Section 404 of the Federal Clean Water Act (33 U.S.C. §1344), and all implementing regulations, including without limitation regulations of the U.S. Army Corps of Engineers governing permits for discharges of dredged or fill material into waters of the United States in 33 CFR Part 323;
- 2) The Tennessee Water Quality Control Act (T.C.A. §69-3-101, et seq.) and all implementing regulations, including without limitation the Rules of the Tennessee Department of Environment and Conservation governing National Pollutant discharge Elimination System (NPDES) permits in Chapter 1200-4-10, and Aquatic Resource Alteration Permits in Chapter 1200-4-7; Class V Injection Well Permits for work in or near sinkholes; and
- 3) Section 26a of the Tennessee Valley Authority (TVA) Act of 1933 as amended (49 Stat. 1079, 16 U. S. C. sec. 831y1.) and all implementing regulations, including without limitation the regulations of the Tennessee Valley Authority governing construction in the Tennessee River System in 18 C.F.R., Part 1304.

List of Regulatory Agencies and Permit Types

Department of Army (DA) United States Army Corps of Engineers (USACE)

- Nationwide Section 404 Permit (404)
- Individual Nationwide Section 404 Permit (I404)

Tennessee Department of Environment and Conservation (TDEC), Natural Resource Section

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- General Aquatic Resources Alteration Permit (GARAP)
- Individual Aquatic Resources Alteration Permit (IARAP)
- 401 Water Quality Certification (401)

Tennessee Department of Environment and Conservation (TDEC), Division of Water Supply

- Class V Injection Wells (sinkholes)

Tennessee Department of Environment and Conservation (TDEC), Division of Water Pollution Control

- General NPDES Permit for Discharge of Storm Water Associated with Construction Activities

Tennessee Valley Authority (TVA)

- Section 26a Permit

Permits may be modified by regulatory agencies during the course of performing the work under the Contract. Therefore, wherever the term "order," "permit," "opinion," "programmatic agreement," or "authorization" is used in the Contract, it is intended to refer to the current version in effect at the time the event governed by it takes place.

A TDEC permit may also be required when activities such as core sampling, seismic exploratory operations, soil surveys, soil sampling, and historic resources surveys occur within waters of the state. A TDEC permit may also be required for placement and operations of scientific measurement devices. See Tennessee General Aquatic Resource Alteration for Surveying and Geotechnical Exploration for additional details. (<http://www.tn.gov/environment/permits/arapgps.shtml>)

The Design Builder shall be responsible for preparing all documents (permit package) and attending all public meetings necessary to obtain the environmental permits for the construction requirements of this project. It shall be the Design Builder's responsibility to acquire information and prepare permit drawings/sketches that reflect the impacts and minimization efforts resulting from the Design Builder's design of this project. Permit drawings/sketches for individual permits (IARAP or I404) shall be prepared utilizing the Department's template for permit sketches.

The Design Builder shall be responsible for developing the permit application for all jurisdictional impacts. The Design-Builder shall be responsibility for all public notice requirements such as documentation to be placed in the local paper and in the field. The cost of the public notice shall be included in the Contract Amount. The Design Builder shall be required

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to staff any personnel the Design Builder deems necessary to provide permit compliance. The design shall be complete prior to permit application.

Information included in permit package:

- Signed application letter to the Tennessee Department of Environment and Conservation (TDEC), Natural Resource Section, U.S. Corps of Engineers and the Tennessee Valley Authority (if applicable) listing all water quality impacts. (The application letter should indicate alternatives for each impact to environmental features; how the Design Builder minimized impacts to each environmental feature; and, if mitigation was required, how mitigation for the environmental feature was achieved.)
- Labeled U.S. Geologic Survey (USGS) color quadrangle map. The map should have the following information shown: 1) impact area labeled by permit type; 2) longitude and latitude (decimal) listed for each impact; 3) quadrangle name and number; and 4) project information (PIN, State Project Number, project description, County name, nearest city). The scale of the quad map should be 1:24000 with a scale bar shown along with a north arrow.
- Copy of signed CN1091 form (the original CN1091 form should be submitted to Dan Eagar, TDEC).
- Signed DA/TVA form or DA form (if applicable). DA/TVA form must be filled out if an Individual Section 404 Permit or the project is located within one of the TVA watersheds. Refer to the website listed below for TVA watershed information.

http://www.tva.gov/river/landandshore/landuse_contacts.htm#

- Signed Section 26a Permit and Land Use Application Applicant Disclosure Form (if applicable).
- Individual Section 404 Permit applications require the names and addresses of property owners adjacent to all permit impacts listed on a separate permit sketch.
- Individual permit sketches
- Form G of the Environmental Boundaries report
- Form G quad map showing impact area and listing all environmental features.

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- Photographs of all environmental features. The photographs should match Form G.
- Marked-up plan sheets from the Environmental Boundaries matching Form G.
- A copy of all coordination letters between TDOT and the United States Fish and Wildlife Service (USFWS)
- TDEC Division of Natural Areas, endangered species database search (Form N of the Environmental Boundaries).
- A copy of all coordination letters between TDOT and the Tennessee Wildlife Resource Agency (TWRA).
- Federal Emergency Management Agency (FEMA) flood map for the subject project with construction limits labeled.
- FEMA No–Rise Certification letter or Conditional Letter of Map Revision (CLOMR).
- A copy of approved National Environmental Policy Act (NEPA) document (Environment Assessment, Finding of No Significant Impact, Categorical Exclusion, etc.)
- A copy of the State Historic Preservation Office (SHPO) letter (Architectural & Archaeological)
- Mitigation plan/plans for all streams and wetlands (if applicable)
- Half-size copy of the bridge layout(s) (if applicable)
- Half-size set of plans showing all environmental features. The plans should have the new culvert construction (extensions included) highlighted in orange on the proposed layout; existing culverts highlighted in blue on the present layout (blue on the proposed layout if sections are remaining); streams/springs highlighted in blue on the present and proposed layout; wetland highlighted on present layout (green for permanent impacts and yellow for temporary impacts (label in plans)); and bank stabilization, outfall structures, and sinkholes highlighted in pink on proposed layout.

For examples of the above listed forms please see:

http://www.tdot.state.tn.us/construction/DB1101_details.htm

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If any regulatory agency rejects or denies the permit application, it is the Design-Builder's responsibility to make whatever changes necessary to ensure the permit is approved. The Design-Builder will be responsible for preparing designs and proposing construction methods that are permissible. All permits required for a particular construction activity will be acquired prior to commencing the particular construction activity. All costs and delays associated with incomplete permit packages, agency rejection, agency denials, agency processing time, or any permit violations will be the responsibility of the Design-Builder, and will not be considered sufficient reason for time extension.

Any temporary construction measures, including de-watering, construction access, erosion control measures, temporary crossings, etc. shall be addressed in the permit application. The Design-Builder shall clearly indicate the location of and impacts of haul roads on jurisdictional areas. The Design-Builder shall identify all proposed borrow and waste sites and provide all clearance documentation per the Waste and Borrow Manual (<http://www.tdot.state.tn.us/construction/Specs & Procedures.htm>). These details shall be included in the permit application data. Further, the Design-Builder shall describe the methods of construction of all structures.

Agencies review time for Nationwide Section 404 Permits and General Aquatic Resources Alteration applications will be approximately 30 to 60 days; Individual Aquatic Resources Alteration Permit and Individual Nationwide Section 404 Permit applications will be approximately 90 to 180 days; TVA 26a permit applications will be approximately 90 to 120 days; and Class V Injection Wells (sinkholes) will be approximately be 30 days from the receipt of a "complete" package, including any fees. The Design-Builder needs to be aware that the timeframes listed to review any permit applications begin only after a fully complete and 100 percent accurate submittal is received. Processing time can vary depending upon such things as the complexity of the activity or impact, the level of public interest (including public hearings), the quality or value of the waters to be affected, etc. Please keep in mind that not all activities are entitled to a permit. All work by the Design-Builder shall be accomplished in strict compliance with the plans submitted with the permit applications and in compliance with all terms and conditions of all permits and certifications issued by the agencies.

Mitigation of Stream and Wetlands

The Design-Builder shall be responsible for all stream and wetland mitigation required for the subject project and all costs associated with obtaining mitigation. The cost shall be included in the contract amount. This may include but is not limited to planning, design, and construction of on-site/off-site mitigation for stream and/or wetlands impacts, purchasing of wetland mitigation credits from an approved bank or site, and/or purchasing of stream mitigation from an approved site/organization. All stream mitigation shall follow the requirements/guidelines outlined in the Stream Mitigation Guidelines for the State of Tennessee prepared by the Tennessee Department of Environment and Conservation, Division of Water Pollution Control, Natural Resources Section. All proposed stream and wetland mitigation shall be submitted to and coordinated with

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the regulatory agencies before submittal of the permit application. It shall be the responsibility of the Design-Builder to make any and all adjustments deemed necessary by the regulatory agencies to the proposed mitigation plan.

The Design-Builder shall be responsible for all on-site/off-site mitigation requirements listed in the permits and all costs associated with mitigation requirements such as 5 year site monitoring after construction, mitigation monitoring reporting to regulatory agencies, and maintenance and/or repairs needed to mitigation sites, etc.

NPDES Permit

Agency review time for stormwater permits (National Pollutant Discharge Elimination System, NPDES) will be approximately 30 days.

If a NPDES Construction General Permit (CGP) is required for the project, the Design-Builder shall prepare a Storm Water Pollution Prevention Plan (SWPPP) and a Notice of Intent (NOI) using the most current TDOT format approved by TDOT and TDEC for submittal of the NPDES permits to TDEC. A copy of the Storm Water Pollution Prevention Plan Manual (SWPPP) used by TDOT to develop SWPPPs can be found at the following location:

<http://www.tdot.state.tn.us/environment/permits/stormwater.htm>.

The SWPPP template and Storm Water Pollution Prevention Plan Manual shall be used as a starting guide to SWPPP preparation and the Design-Builder is responsible for complying with all requirements of the CGP. Refer to the following website for a copy of the current CGP and for additional information/requirements:

<http://www.tn.gov/environment/permits/conststrm.shtml>.

The SWPPP shall include the erosion prevention and sediment control (EPSC) plans for application of coverage under the CGP. The SWPPP and NOI shall be submitted at least 30 Business Days prior to beginning construction activities. Once a Notice of Coverage (NOC) is received by the Design-Builder, the EPSC plans shall be kept current for all phases of construction. Any changes in scope subsequent to submitting the SWPPP for coverage under the CGP shall be submitted to TDEC for their records.

The requirements set forth in the Statewide Storm Water Management Plan (SSWMP) will be effective on this project. The Department will perform the Environmental Quality Assurance Project Compliance Assessments on this project, which will include the waste and borrow areas.

The Design Builder shall prepare EPSC plans detailing best management practices (BMPs) to prevent erosion and control sedimentation, and the discharge of any pollutants that may enter stormwater and be transported to receiving waters during the construction of the project. The Design Builder shall identify all outfall locations on the EPSC plans with an appropriate numbering or lettering system. The Design Builder shall revise the SWPPP and the EPSC plans as necessary based on actual construction activities throughout the duration of the project. The

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Design Builder shall certify that the individual who prepared and reviewed the EPSC plans and SWPPP is currently certified according to Section 3.5.8.1 of the CGP; and that the BMPs are designed, so that if properly implemented, installed and maintained that will manage erosion and prevent sediment accumulation in the waters of the state and comply with the terms of the TDEC NPDES Construction Permit.

The Design Builder shall following all of TDOT Design Standards/Guidelines when developing the EPSC plan for the subject project. TDOT Design Standards/Guidelines can be found at the following address:

http://www.tdot.state.tn.us/Chief_Engineer/assistant_engineer_design/design/designstandardsmenu.htm.

The Department will review and monitor the project, including all waste and borrow areas, to ensure compliance with all applicable environmental regulations and stormwater management activities throughout the duration of the project. If at any time, the Design Builder is not in compliance with any applicable permit regulations, all non-compliance items must be addressed by the Design Builder within 24 hours of such identification. If non-compliance items are not addressed within this timeframe, liquidated damages shall be addressed, not as a penalty, and computed as they occur with a separate item number subtracting from monies due the Design Builder. The liquidated damages amount will be addressed in a notice of warning to the Design Builder of failure to comply. The Department has the authority to suspend work until such time the deficiencies have been corrected. The Design Builder shall not be granted any cost or time compensation for any work suspensions associated with non-compliance. Any monetary fees and/or fines associated with any violations shall be the responsibility of the Design Builder.

Noise Barrier

The noise study indicates that a noise barrier for the Stonegate Mobile Home Park on the north side of I-40 east of Mount Juliet Road is both “feasible” and “reasonable” in accordance with the new noise policy. TDOT must now solicit the viewpoints of the benefited property owners and residents to determine if the community desires a noise barrier. TDOT will be soliciting these viewpoints in the next several weeks. However, based on past experience, it is very likely that the community will support the construction of a noise barrier. If the community supports it, a noise barrier will have to be included in the project plans.

A figure showing the likely barrier location is attached. The barrier will have to be located at/near the edge of shoulder since I-40 and the westbound ramp are on fill. The barrier top elevation should be 10 feet above the finished grade of the outside lane. If the barrier is moved down the fill slope, the barrier heights will have to be increased in order to maintain the required top elevations.

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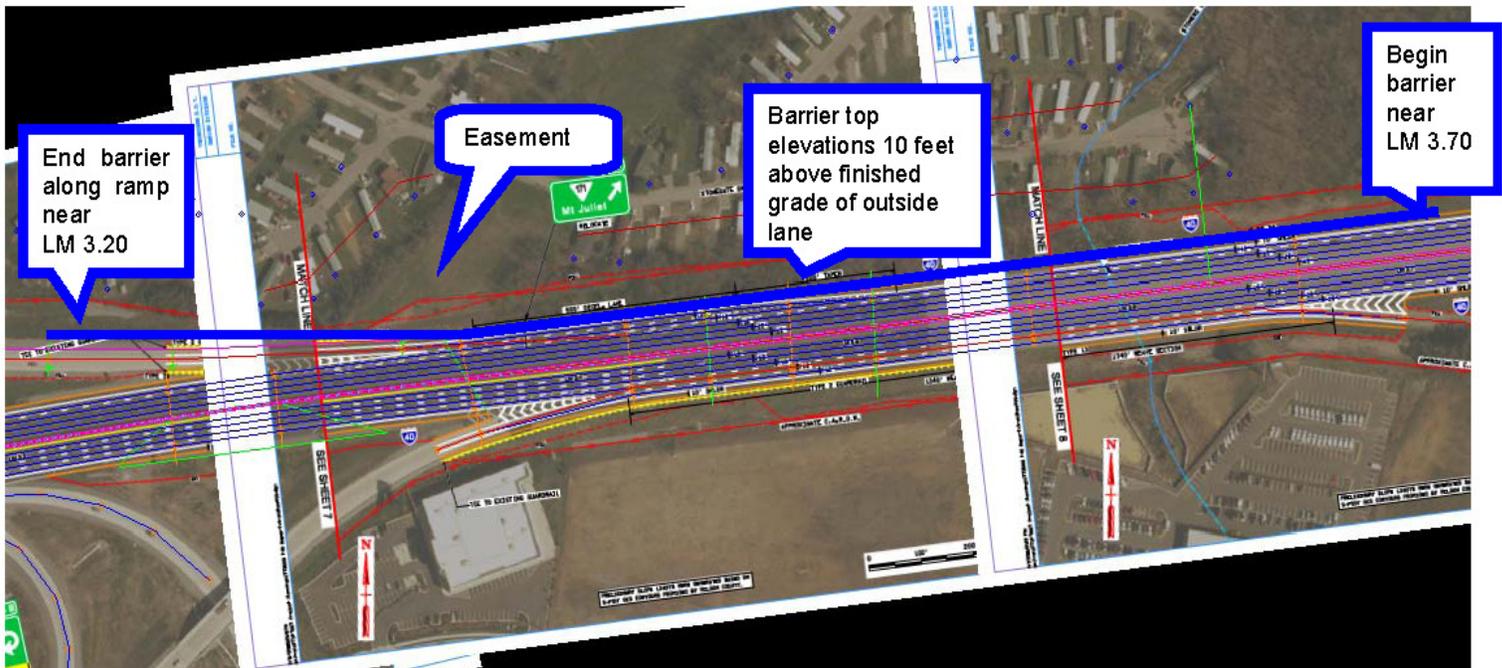
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As shown, the barrier will begin near Log Mile 3.70 and extend a distance of 2,600 feet and end along the westbound exit ramp to Mt. Juliet Road near Log Mile 3.21. The barrier will be concrete with an ashlar stone finish on both sides and texture coated mountain gray. The casting method can be selected by the contractor (i.e. precast, cast-in-place). The barrier does not need to be absorptive. Additionally, there is a utility easement that runs through I-40 and the mobile home park as shown in the figure. We believe there may be gas lines in this easement.

Westbound Noise Barrier
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National Environmental Policy Act (NEPA) document

The Environmental Document for this project is a D List Categorical Exclusion which allows the project to be federally funded. The D list Categorical Exclusion was approved on 7/11/2011. According to the environmental process, as directed by the FHWA, a Right-of-Way and/ or Construction re-evaluation must be conducted on the project as development progresses. If there are changes in the Right-of-Way limits, including permanent and/or construction easements, a formal Re-evaluation will need to be conducted by the TDOT Environmental Documentation

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Office. Both permanent and construction easements are considered as a Right-of-Way acquisition, and therefore, must be addressed in all environmental documents and re-evaluations. They also require FHWA concurrence. This process will take approximately eight weeks. As you move through the various phases of the Design Build project, please remain aware of the federally- mandated requirements for these re-evaluations. Please, also, allow time for the environmental process for this Design Build project.

The Design Builder shall provide the TDOT Environmental Documentation Office final ROW plans for the entire project no later than 8 months after the is project has been awarded. This will allow the TDOT Environmental Documentation Office to complete the Right-of-Way and/ or Construction re-evaluation before construction activity commence.

9. TRAFFIC CONTROL/PAVEMENT MARKING SCOPE OF WORK

The Design Builder shall be responsible for developing the traffic control system that best meets these requirements and the construction activities.

- State method of construction in your technical proposal. No closures are allowed on holidays or holiday weekends as defined in the Standard Specifications, as amended. Also, no closures are allowed due to major events and attractions. Known periods when lanes cannot be closed include: Wilson County Fair, CMA Music Festival, Country Music Marathon and on days of Tennessee Titans home games.
- All lane and ramp closures must be approved in advance by the Department. All requests must be made a minimum of seven (7) days in advance of the anticipated closures.
- No less than seven (7) days prior to the closure of the road, the Design Builder shall notify the following individuals or agencies completely describing the affected roads and the approximate duration of the construction: these parties include, but are not limited to: (1) local law enforcement office, (2) local fire

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department, (3) ambulance service, (4) local school superintendent, (5) United States Postal Service, and (6) local road superintendent.

- In order to minimize inconvenience to the travelling public all other temporary lane closures shall occur at night between 8:00 PM and 5:00 AM, except no closures will be allowed as specified in subsection 104.04 of the Standard Specifications (Supplemental Specifications). At least one lane in each direction shall be maintained on I-40 during these hours and two lanes at all other times. The Design Builder shall only work in one direction at a time.
- For each hour or portion thereof, which any traffic lane remains closed beyond these allowable time periods, the sum of two thousand dollars (\$2,000) per **HOURLY** per lane shall be deducted from monies due the Design Builder, not as a penalty, but as liquidated damages.
- Rolling roadblocks shall be utilized using Uniformed Police Officers during blasting operations. Blasting within the project limits shall not occur on a Sunday. Blasting shall be permitted between 9:00 a.m. and 2:00 p.m. Monday through Friday and between 7:00 a.m. and 2:00 p.m. on Saturday. If necessary for the public's protection from blasting, the Contractor may close traffic lanes in the vicinity of blasting site up to 15 minutes in any one-hour period. For each 15 minute period, or portion thereof, in excess of the allotted 15 minute period that any traffic lane remains closed, the sum of \$500 per lane shall be deducted from the monies due the contractor, not as a penalty, but as liquidated damages.
- The Design Builder shall notify the Department and the local governmental agency responsible for traffic control maintenance at least one day in advance of the cold planning activity at signalized intersections where detector loops are on the pavement. The maintaining agency will then be responsible for

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disconnecting the loop detectors and making any necessary timing adjustments in the signal controller prior to the construction.

- If detours are required, they shall be paved, striped, signed and the vertical panels are to be in place before it is opened to traffic.
- Advanced warning signs shall not be displayed more than forty-eight (48) hours before physical construction begins. Signs may be erected up to one week before needed, if the sign face is fully covered.
- If the Design Builder moves off the Project, all unneeded signs shall be covered or removed as directed by the Department. Costs of removal, covering, and reinstalling signs shall not be measured and paid for separately, but all costs shall be included in the Contract Amount.
- A long term but sporadic use warning sign, such as a flagger sign, may remain in place when not required provided the sign face is fully covered.
- Traffic control devices shall not be displayed or erected unless related conditions are present necessitating warning.
- Use of barricades, portable barrier rails, vertical panels, and drums shall be limited to the immediate areas of construction where a hazard is present. These devices shall not be stored along the roadway within thirty (30) feet of the edge of the traveled way before or after use unless protected by guardrail, bridge rail, and/or barriers installed for other purposes for roadways with current ADT's less than 1500 and design speed of less than 60 mph. This distance shall increase to forty-five (45) feet for roadways with current ADT's of 1500 or greater and design speed of 60 mph or greater or on the outside of a horizontal curve. These devices shall be removed from the construction work zone when the Department determines they are no longer needed. Where there is insufficient ROW to provide for this required setback, the ADT's shall

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determine the alternate locations and request the Department's approval to use them.

- A minimum of four (4) Changeable Message Signs shall be used in addition to advance warnings signs to notify the motoring public. The locations of these Changeable Message signs shall be approved the Department.
- Difference in elevation between adjacent roadway elements greater than 0.75 inch and not exceeding 2 inches:
 - A. Warning signs, uneven pavement (W8-11) and/or shoulder drop-off (W8-9a), shall be placed in advance of and throughout the exposed area. Maximum spacing between signs shall be 2,000 feet with a minimum of 2 signs per exposed area. Where uneven pavement is encountered, signs shall be placed on each side of the roadway.
 - B. Differences in elevation between adjacent traffic lanes being utilized by traffic caused by added pavement shall be eliminated within three workdays.
 - C. Differences in elevation between adjacent traffic lanes being utilized by traffic caused by cold planing shall be eliminated within three workdays.
 - D. When the difference in elevation is between the traffic lane being utilized by traffic and shoulder the difference in elevation shall be eliminated within 7 workdays after the condition is created.
- Difference in elevation between adjacent roadway elements greater than 2 inches and not exceeding 6 inches. Traffic is not to be allowed to traverse this difference in elevation.
 - A. Separation shall be accomplished by drums, barricades or other approved devices in accordance with the following:
 1. Where posted speeds are 50 mph or greater, spacing of the protective devices shall not exceed 100 feet.

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2. Where posted speeds are less than 50 mph the maximum spacing of the protective devices in feet shall not exceed twice the posted speed in miles per hour or 50 feet, whichever spacing is greater.
- B. If the difference in elevation is eliminated or decreased to 2 inches or less by the end of each day's work, cones may be used during daylight hours in lieu of drums, barricades or other approved protective devices mentioned in paragraph a, provided warning signs are erected. Warning signs (uneven pavement and/or low shoulder) shall be placed in advance of and throughout the exposed area. Maximum spacing between signs shall be 2,000 feet with a minimum of 2 signs per exposed area. Where uneven pavement is encountered, signs shall be placed on each side of the roadway.
- C. When the difference in elevation is between the thru traffic lane and the shoulder and the elevation difference is less than 3 ½ inches, the contractor may use warning signs and/or protective devices as applicable and approved by the engineer. See paragraph A regarding use of drums, barricades or other approved protective devices. Warning signs (uneven pavement and/or low shoulder) will be placed in advance of and throughout the exposed area. Maximum spacing between signs shall be 2,000 feet with a minimum of 2 signs per exposed area. Where uneven pavement is encountered, signs shall be placed on each side of the roadway.

In these situations the Design Builder shall limit his operations to one work zone not exceeding two miles in length unless otherwise noted on the plans approved by the Department. Once the Design Builder begins work in a work zone a continuous operation shall be maintained until the difference in elevation is eliminated. Simultaneous work on separate

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roadways of divided highways will be considered independently in regard to restriction of work zone activity.

- Difference in elevation between adjacent roadway elements greater than 6 inches but not exceeding 18 inches, the Design Builder, with the Department's approval, may utilize one of the following:
 - A. The Design Builder shall accomplish separation by drums, barricades or other approved devices in accordance with the following:
 1. Where posted speeds are 50 mph or greater, spacing of the protective devices shall not exceed 100 feet.
 2. Where posted speeds are less than 50 mph the maximum spacing of the protective devices in feet shall not exceed twice the posted speed in miles per hour or 50 feet, whichever spacing is greater. In order to use this method the Design Builder must reduce the difference in elevation to 6 inches or less by the end of the workday that the condition is created.
 - B. The Design Builder shall provide drums, barricades or other approved separation devices as specified in paragraph A, and construct a stone wedge with a 4:1 slope, or flatter, to eliminate the vertical offset if the lower elevation is at or below subgrade at the end of each day.
 - C. The Design Builder shall provide drums, barricades or other approved separation devices as specified in paragraph a, and if the lower elevation is base stone or asphalt pavement, placement of subsequent layers of pavement must begin the next work day and progress continuously until the difference in elevation is eliminated or reduced to six inches or less.
 - D. The Design Builder shall provide separation by portable barrier rail. For preceding conditions A, B, and C, the Design Builder shall use the shoulder drop-off warning sign (W8-9a). It shall be placed in advance of

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and throughout the exposed area. Maximum spacing between the signs shall be 2,000 feet with a minimum of 2 signs per exposed area. In these situations the Design Builder shall limit his operations to one work zone not exceeding one mile in length unless otherwise approved by the Department. Once the Design Builder begins work in a work zone a continuous operation shall be maintained until the difference is eliminated. Simultaneous work on separate roadways of divided highways will be considered independently in regard to restriction of work zone activity.

- Difference in elevation between adjacent roadway elements greater than 18 inches. Separation will be provided by use of portable barrier rail. In this situation the Design Builder shall limit his operations to one work zone not exceeding one mile in length unless otherwise approved by the Department. Once the Design Builder begins work in a work zone a continuous operation shall be maintained until the difference in elevation is eliminated. Simultaneous work on separate roadways of divided highways will be considered independently in regard to restriction of work zone activity.
- Difference in elevation is within 30 feet of the nearest traffic lane being used by traffic caused by grading, excavation for utilities, drainage structures, undercutting, etc.:
- Difference in elevation is within 8 feet of the nearest traffic lane with difference in elevation greater than $\frac{3}{4}$ inch and not exceeding 2 inches.

Warning signs (uneven pavement and/or low shoulder) shall be placed in advance of and throughout the exposed area maximum spacing between signs shall be 2,000 feet with a minimum of 2 signs per exposed area. Where uneven pavement is encountered, signs shall be placed on each side of the roadway.

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- Difference in elevation is within 8 feet of the nearest traffic lane with difference in elevation greater than 2 inches and not exceeding 6 inches:
 - A. Separation shall be accomplished by drums, barricades or other approved devices in accordance with the following:
 1. Where posted speeds are 50 mph or greater, spacing of the protective devices shall not exceed 100 feet.
 2. Where posted speeds are less than 50 mph the maximum spacing of the protective devices in feet shall not exceed twice the posted speed in miles per hour or 50 feet, whichever spacing is greater.
- Difference in elevation is within 8 feet of the nearest traffic lane with difference in elevation greater than 6 inches:
 - A. Separation shall be accomplished by drums, barricades or other approved devices in accordance with the following:
 1. Where posted speeds are 50 mph or greater, spacing of the protective devices shall not exceed 100 feet.
 2. Where posted speeds are less than 50 mph the maximum spacing of the protective devices in feet shall not exceed twice the posted speed in miles per hour or 50 feet, whichever spacing is greater.
 - B. Eliminate vertical offset by constructing a stone wedge or grading to a 4:1 slope, or flatter, or use portable barrier rail.

The Design Builder shall schedule the work so as to minimize the time traffic is exposed to an elevation difference. Once the Design Builder begins an activity that creates an elevation difference within 8 feet of a traffic lane, the activity shall be pursued as a continuous operation until the elevation difference is eliminated.
- Difference in elevation is farther than 8 feet from the nearest traffic lane but not more than 30 feet from the nearest traffic lane: separation shall be

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accomplished by drums, barricades or other approved devices in accordance with the following:

- A. Where posted speeds are 50 mph or greater, spacing of the protective devices shall not exceed 100 feet.
- B. Where posted speeds are less than 50 mph the maximum spacing of the protective devices in feet shall not exceed twice the posted speed in miles per hour or 50 feet, whichever spacing is greater.

The Design Builder shall schedule the work so as to minimize the time traffic is exposed to an elevation difference. Once the Design Builder begins an activity that creates an elevation difference, the activity shall be pursued as a continuous operation until the elevation difference is eliminated.

- The Design Builder is not permitted to park any vehicles or construction equipment during periods of inactivity, within thirty (30) feet of the edge of pavement when the lane is open to traffic unless protected by guardrail, bridge rail, and/or barriers installed for other purposes for roadways with current ADT's less than 1500 and design speed of less than 60 mph. This distance shall be increased to forty-five (45) feet for roadways with current ADT's of 1500 or greater and design speed of 60 mph or greater or on the outside of a horizontal curve. Privately owned vehicles shall not be allowed to park within thirty (30) feet of a open traffic lane at any time unless protected as described above for roadways with current ADT's less than 1500 and design speed of less than 60 mph. This distance shall be increased to forty-five (45) feet for roadways with current ADT's of 1500 or greater and design speed of 60 mph or greater or on the outside of a horizontal curve.. Where there is insufficient ROW to provide for this required setback, the contractor shall determine the alternate locations and request the Department's approval to use them.

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- The Design Builder shall use Traffic Control materials from the Department's Qualified Products List (QPL).
- Temporary and Permanent Pavement Markings shall adhere to guidance outlined in Section IV of current edition of The State of Tennessee Department of Transportation Design Division Roadway Design Guidelines for pavement markings.
- Law enforcement officers will be required for lane closures as SP 712PO indicated. The cost should be included in the lump-sum price.
- The use of advisory speed plates shall be limited to locations where the traffic control design warrants a 10 miles per hour or more reduction in speed. The designer shall make every effort to achieve a traffic control design that would avoid the use of these plates.

IM-40-5(140); 95100-0105-44
PIN 114169.00,
I-40
FROM WEST OF SR-171
TO EAST SR-109
WILSON COUNTY

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Design-Build Project

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APPENDIX A

DATE: 03/15/11 FULL DEPTH DESIGN FOR I-40 ADDITIO ROUTE I-40
COUNTY: WILSON PROJ NO: 95100-0105-44 PIN#: 114169.00
DESCRIPTION: FROM CENTRAL PIKE TO EAST OF SR-109

REGION III

ROADWAY & INSIDE SHOULDER DESIGN

DESCRIPTION	THICKNESS
411-03.10 PERF AC (PG76-22) GR "D"	1.25
307-03.08 PERF AC (PG76-22) GR "B-M2"	2.00
307-03.01 PERF AC (PG76-22) GR "A"	6.00
307-(**) PERF AC (PG76-22)GR"A-S"	4.00
303-01 MINERAL AGG BASE GRADING "D"	12.00
TOTALS	25.25

OUTSIDE SHOULDER DESIGN

DESCRIPTION	THICKNESS
411-01.07 SURFACE AC (PG64-22) GR "E"	1.25
307-01.08 BINDER AC (PG64-22)GR "B-M2"	2.00
303-01 MINERAL AGG BASE GRA "D"	22.00
TOTALS	25.25

(**) REQUIRES USE OF ITEM 307-

REMARKS: 1) 6" OF PERF. "A-MIX" TO BE APPLIED AT TWO EQUAL LIFTS
2) SUBSURFACE DRAINAGE: AGGREGATE UNDERDRAIN W/PIPE
3) MILL 1.25" FROM EXISTING PAVEMENT AND OVERLAY USING 1.25" OF "D" MIX WHERE NECESSARY

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DATE: 09/13/11 FULL DEPTH DESIGN FOR LEEVILLE ROAD ROUTE: I-40
COUNTY: WILSON PROJ NO: 95100-0105-44
DESCRIPTION: I-40 ADDITIONS
FROM CENTRAL PIKE TO EAST

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ROADWAY DESIGN		REGION III
DESCRIPTION	THICKNESS	
411-01.10	SURFACE AC (PG64-22) GR "D"	1.25
307-01.08	BINDER AC (PG64-22)GR "B-M2"	2.00
303-01	MINERAL AGG BASE GRA "D"	10.00
TOTALS		13.25

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SHOULDER DESIGN		
DESCRIPTION	THICKNESS	
411-01.07	SURFACE AC (PG64-22) GR "E"	1.50
303-01	MINERAL AGG BASE GRA "D"	11.75
TOTALS		13.25

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REMARKS: 1) ELIMINATE SHOULDER DESIGN FOR CURB AND GUTTER SECTION /
SHOULDER WIDTH IS LESS THAN 4 FT

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APPENDIX B

CONTRACT BOOK 3 (PROJECT INFORMATION) FORMS

(Located in the Design Builder’s Technical Proposal “Exhibit A”)

FORM NAME	FORM DESIGNATION
ALTERNATE TECHNICAL CONCEPTS (ATC) SUBMITTAL	FORM ATC
RFP QUESTION REQUEST	FORM QR
RESPONSE CATEGORY II	FORM RC II
RESPONSE CATEGORY III	FORM RC III
RESPONSE CATEGORY IV	FORM RC IV

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APPENDIX C

REFERENCE INFORMATION

- Technical Report http://www.tdot.state.tn.us/construction/DB1101_details.htm
- As Built Plans http://www.tdot.state.tn.us/construction/DB1101_details.htm
- I-40 DB Mapping http://www.tdot.state.tn.us/construction/DB1101_details.htm
- Existing Structure details over Wilson Creek http://www.tdot.state.tn.us/construction/DB1101_details.htm
- Environmental Document D-list C.E. http://www.tdot.state.tn.us/construction/DB1101_details.htm
- DB Geotechnical documents http://www.tdot.state.tn.us/construction/DB1101_details.htm
- NEPA Ecology Report http://www.tdot.state.tn.us/construction/DB1101_details.htm
- Emergency Pull over Area Detail http://www.tdot.state.tn.us/construction/DB1101_details.htm
- Latest Inspection Reports of the I-40 crossing of Wilson Creek http://www.tdot.state.tn.us/construction/DB1101_details.htm
- Spall Repair Details http://www.tdot.state.tn.us/construction/DB1101_details.htm
- Permit Forms Examples http://www.tdot.state.tn.us/construction/DB1101_details.htm
- Signing Details http://www.tdot.state.tn.us/construction/DB1101_details.htm