

Interstate I-65 Over the Cumberland River | Project # 19I065-S3-013

PIN # 130874.02 | Davidson County

Detailed Scope of Work

1GT1 | Develop Geotechnical Work Plan

Objective:

Develop a geotechnical work plan based on field reconnaissance, study of geologic maps, and possible limited subsurface investigations.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Gather Relevant Geotechnical Information <ul style="list-style-type: none">▪ Collect/evaluate relevant project information.▪ Prepare for Site Visit (if needed).
Complete Project-Specific Geotechnical Investigation <ul style="list-style-type: none">▪ Coordinate with Operations and Maintenance staff to discuss maintenance history and existing conditions.▪ Coordinate with Operations and Maintenance staff to discuss maintenance history and existing conditions.▪ Determine site-specific seismic or liquefaction potential.▪ Determine where certain geotechnical subsurface locations may conflict with utilities.
Identify Project Type and Potential Mitigation Strategies <ul style="list-style-type: none">▪ Develop a preliminary strategy to mitigate identified issues/risks.▪ Develop preliminary costs to implement mitigations.
Develop Geotechnical Work Plan <ul style="list-style-type: none">▪ Draft the Geotechnical Work Plan (including responding to comments on the draft).▪ Finalize the Geotechnical Work Plan and send to survey, if needed.
General Task Management <ul style="list-style-type: none">▪ Internal coordination and meetings▪ Project documentation▪ Administration
Complete QC/QA Procedures

<ul style="list-style-type: none"> Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: 1. 2.

1RD1 | Initiate Roadway Design

Objective:

Ensure that the roadway design is consistent with the conceptual layout developed as part of the Concept Report and represents sound roadway design principles and practices.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Establish Project-Specific Design Criteria <ul style="list-style-type: none"> Prepare and submit draft design criteria. Revise and resubmit design criteria in response to comments. Submit final design criteria.
Determine Work Zone Significance <ul style="list-style-type: none"> Prepare and submit draft Work Zone Significance Determination Form. Revise and resubmit form in response to comments. Submit final form
Develop Line, Grade, and Cross Sections (Line and Grade Package) <ul style="list-style-type: none"> Develop/design the Line and Grade Package to include: <ul style="list-style-type: none"> Set the horizontal alignment Set the vertical alignment Establish cross sections Set driveway profiles for key driveways. Create the initial, proposed TIN file and display present and proposed contours. Establish preliminary/proposed right-of-way limits and easement locations. Incorporate environmental resource shapefiles or location details (e.g., for ecological features such as wetlands, streams, etc. or for historic or archaeological resources). Incorporate all other elements listed in the Roadway Line and Grade Design Checklist. Document design efforts that avoid or minimize impacts to environmental resources in the ETSA. Finalize the Line and Grade Package, containing: <ul style="list-style-type: none"> Title sheet .pdf

<ul style="list-style-type: none"> ○ Survey and proposed alignment, contours, and cross section .dgn files ○ TIN file ○ GPK file ○ KMZ file ○ All other necessary MicroStation, GEOPAK, and Microsoft files ○ A .pdf of the proposed alignment as a roll plot, profile, and cross sections ○ All other elements listed in the Roadway Line and Grade Design Checklist ▪ Submit the Package that includes proposed alignment as a roll plot, profile, and cross sections. ▪ Validate the initial assumptions and costs from the preliminary project estimate to support establishment of the initial project estimate. ▪ Develop and submit quantities for the major roadway items for the Line and Grade estimate.
<p>Compile the Line and Grade Package and Participate in the Field Review</p> <ul style="list-style-type: none"> ▪ Compile and notify the team that the package is available. ▪ Lead the meeting and technical discussions (list and count hours in the meeting list above). ▪ Compile and distribute meeting minutes.
<p>General Task Management</p> <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
<p>Complete QC/QA Procedures</p> <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
<p>Insert other tasks as needed:</p> <ol style="list-style-type: none"> 1. 2.

1ST1 | Complete Existing & No Structure Modeling

Objective:

Complete existing and no structure modeling to inform the hydraulic design and grade selection in Stage 2.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Hydraulically Model Existing and No Structure Conditions <ul style="list-style-type: none"> ▪ Gather/confirm previously collected data on the crossings from existing information sources. ▪ Determine flood flows through structure. ▪ Create the existing structure hydraulic model in 1D or 2D modeling software. ▪ Create the No Bridge hydraulic model in 1D or 2D modeling software.
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

1SY1 | Conduct Design-Level Survey

Objective:

Provide survey data that covers the project limits, as requested by the Roadway Design Lead or other technical leads to aid in the development of the Line and Grade Package and Functional Design Plans.

1.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Prepare the Ground Control for Aerial Survey <ul style="list-style-type: none"> ▪ Place aerial targets and conduct GPS occupations. ▪ If static occupation is used, post-process static data. ▪ Submit coordinate data and any other requested information to Aerial Survey Manager.
Complete the Aerial Survey <ul style="list-style-type: none"> ▪ Create a Flight and Ground Control Survey Plan that shows the proposed flight lines. ▪ Obtain/verify ground control survey.

<ul style="list-style-type: none"> ▪ Upon notification of completion of the panels, coordinate with the Aeronautics Division to fly the project. ▪ Completes aerotriangulation using the ground surveyed panel coordinates. ▪ After the project has been flown, post-process both the aerial photography and the GNSS-IMU data that was collected during the flight. ▪ Complete the mapping product, which includes the topographical survey and digital terrain model (DTM). ▪ Provide planimetric mapping and ground elevation data with the mapping.
Set Control Ground Survey (TDOT staff only) <ul style="list-style-type: none"> ▪ Place semi-permanent monuments and conduct "to-reach" and referencing calculations, static GPS occupations, distance checks, and leveling. ▪ Post-process static data to compute coordinates. ▪ Produce Project Control Document containing project information, location map, and data sheets.
Conduct Survey Public Involvement and Ground Survey <ul style="list-style-type: none"> ▪ Conduct Survey Public Involvement and Ground Survey ▪ Finalize the survey files based on comments received. ▪ Develop and submit Property Packet (tax cards, deeds, property owner contact letters), roadway plans, One-Call tickets.
Incorporate SUE Request into Survey <ul style="list-style-type: none"> ▪ Contact Tennessee One Call to obtain utility markings to be located and incorporated into the ground survey. ▪ Incorporate into the existing topography deliverable for the stage.
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

1TO1 | Validate Analysis and Determine Significance |

Objective:

Validate the traffic analysis from the Concept Report and determine work zone significance and potential incident management applications related to the mitigation strategies considered in the Transportation Management Plan (TMP).

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
<p>Validate Traffic Analysis</p> <ul style="list-style-type: none"> ▪ Determine the level of project complexity based on initial traffic analysis and input during the planning stage. ▪ Verify (or develop) the limits of the analysis and intersections included in the analysis match the traffic forecast. ▪ Verify (or develop) the traffic analysis for: <ul style="list-style-type: none"> ○ Base year no-build (based on existing conditions) ○ Future year no-build (based on existing conditions, without the proposed project but with any other fiscally constrained project(s) in place) ○ Future year build for the alignment in question ▪ Recommend innovative operational strategies (as applicable). ▪ Draft and finalize the Traffic Operations Review Memorandum.
<p>Determine Work Zone Significance</p> <ul style="list-style-type: none"> ▪ Review or complete and submit (by the Roadway Design Lead) the Work Zone Significance Determination Form.
<p>General Task Management</p> <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
<p>Complete QC/QA Procedures</p> <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
<p>Insert other tasks as needed:</p> <ol style="list-style-type: none"> 1. 2.

1UT1 | Begin Third Party (Utilities & Railroad) Coordination

Objective:

Contact the utility owners/railroads in a project's vicinity to confirm all are aware of one another's plans, which reduces late-stage changes that can negatively impact the schedule and add unexpected costs.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Make Initial Utility Contact (TDOT staff only) <ul style="list-style-type: none"> ▪ Send notice of a project to all utilities in the project area (two notices may be needed). ▪ Compile a list of the utilities that responded and send to the Roadway Design Lead.
Conduct Utility Coordination Kickoff Meeting <ul style="list-style-type: none"> ▪ Prepare meeting agenda. ▪ Attend the meeting (list and count hours in the meeting list above). ▪ Prepare and distribute meeting minutes/actions.
Initiate Railroad Coordination <ul style="list-style-type: none"> ▪ Identify the Railroad entities involved and the impact types. ▪ Engage in property research. ▪ Search for previous agreements. ▪ Set up the project for coordination. ▪ Generate the required coordination initiation forms. ▪ Identify all stakeholders. ▪ Develop the Preliminary Engineering Agreement.
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

2EN3 | Conduct Permit Assessment |

Objective:

Complete a permit assessment referencing the environmental features/boundaries detailed in the Environmental Boundaries Report (EBR) as depicted on the Line and Grade Package or Functional Design Plans. Use the assessment to coordinate design options and permit sketches to support developing and submitting a project's permit applications.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
<p>Conduct Permit Assessment</p> <ul style="list-style-type: none"> Review the Ecological (and other appropriate) Environmental Boundaries Report, current version of the Utility Coordination Plans (if available), and Line and Grade Package or Functional Design Plans (which must include the boundaries of the identified ecological features). Complete the Permit Assessment. (if no there are no proposed impacts to stream or wetland areas in the EBR) OR Review impacts to environmental features (streams and wetlands). Based on the impacts, identify the types of environmental permits required. Redline plans to identify required changes. Coordinate with the Roadway Design Lead on all required design revisions/redlines to ensure the plans meet regulatory requirements for avoidance and minimization. Identify the need for permit sketches and the location where permit sketches are required. Determine requirements for on-site mitigation or natural channel designs (see 2EN4 and 3EN1 for related information). Complete the Permit Assessment (if impacts to streams and wetlands are identified).
<p>Finalize Plans and Sketch Review and Prepare Permittable Plans Package</p> <ul style="list-style-type: none"> Continue coordination with the Roadway Design Lead on all required design revisions/redlines to ensure the plans meet regulatory requirements for avoidance and minimization. Finalize permit sketches. Prepare permittable plans package and revise (as needed) based on comments received.
<p>Evaluate Permittable Plans Package</p> <ul style="list-style-type: none"> Submit the permittable plans package to Headquarters Permitting for review.
<p>General Task Management</p> <ul style="list-style-type: none"> Internal coordination and meetings Project documentation Administration
<p>Complete QC/QA Procedures</p> <ul style="list-style-type: none"> Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
<p>Insert other tasks as needed:</p> <ol style="list-style-type: none">

2.

2EN4 | Conduct Mitigation Assessment & Initiate Mitigation Design |

Objective:

Assess mitigation to offset identified and unavoidable stream and wetland impacts from the project in Stage 2. Initiate the mitigation design to offset and generate mitigation credits required for the “transportation project,” as opposed to an off-site mitigation project (delineated throughout this section).

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Complete Mitigation Assessment <ul style="list-style-type: none">▪ Review the Ecological (and other appropriate) Environmental Boundaries Report, and Line and Grade Package or Functional Design Plans (which must include the boundaries of the identified ecological features).▪ Identify stream and wetland areas requiring mitigation.▪ Identify Mitigation Bank or In-Lieu Fee credits where available.▪ Identify potential locations on or adjacent to the transportation project (Mitigation Bank or In-Lieu Fee credits are not available).
Develop Preliminary Mitigation Plan <ul style="list-style-type: none">▪ Review current Roadway and Utility Coordination Plans.▪ Develop plans for the proposed on-site mitigation area(s).▪ Develop off-site mitigation project could be required as a separate set of mitigation plans (if required under the Mitigation Assessment).▪ Coordinate inclusion of plans in the Functional Design Plans.
General Task Management <ul style="list-style-type: none">▪ Internal coordination and meetings▪ Project documentation▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none">▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed:

- 1.
- 2.

2GT1 | Complete the Soils and Geology Report |

Objective:

Complete a Soils and Geology Report, including site exploration, laboratory testing, engineering analysis, and recommendations. Additionally, develop Geotechnical Sheets (G-sheets) and supporting geotechnical addenda for the Functional Design Plans.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Conduct Site Exploration for Soils and Geology Report (may be combined with 2GT2 exploration) <ul style="list-style-type: none"> Make the TN One Call and document feedback. Coordinate with TDOT Maintenance for required traffic control and ensure equipment is ready to mobilize to project site. Mobilize crew Conduct the workplan's drilling, sampling, and geophysical testing for the site. Add additional steps specific to the drilling and documentation process here.
Select the Appropriate Laboratory Testing Program <ul style="list-style-type: none"> Determine the appropriate test methods.
Develop the Soils and Geology Report <ul style="list-style-type: none"> Provide samples to GeoServices for lab testing and ensure necessary lab work is completed to process results. Create boring logs and develop necessary report details. Draft the Soils and Geology Report (including responding to comments on the draft). Finalize the Report, including uploading final product to the project folder.
Develop Associated Geotechnical Sheet (G-Sheets) <ul style="list-style-type: none"> Develop the Geotechnical Sheets (G-Sheets). Send preliminary slope recommendations to Roadway Design Lead. Coordinate inclusion of the G-Sheets in the Functional Design Plans and Plan-in-Hand Plans. Attend the field review meeting (list and count hours in the meeting list above).
Develop Supporting Project Addenda <ul style="list-style-type: none"> Develop (as needed) any project addenda to address additional issues or scope change.

General Task Management

- Internal coordination and meetings
- Project documentation
- Administration

Complete QC/QA Procedures

- Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

Insert other tasks as needed:

- 1.
- 2.

2GT2 | Complete Foundation Reports |

Objective:

Prepare foundations reports early in Stage 3 for required bridge foundations, retaining walls, noise walls, and foundations for high-mast lighting, standard lighting, signing, and signal structures. Advanced the geotechnical design and draft the geotechnical special provisions to include with the Plan-in-Hand Plans finalized in Stage 4.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions**Conduct Site Exploration (for Foundation Reports; may be combined with 2GT1 exploration)**

- Make the TN One Call and document feedback.
- Coordinate with TDOT Maintenance for required traffic control and ensure equipment is ready to mobilize to project site.
- Mobilize crew
- Conduct the workplan's drilling, sampling, and geophysical testing for the site for proposed retaining wall(s).
- Conduct the workplan's drilling, sampling, and geophysical testing for the site for proposed noise wall(s).
- Conduct the workplan's drilling, sampling, and geophysical testing for the site for proposed signs, signals, and lighting.
- Conduct the workplan's drilling, sampling, and geophysical testing for the site for proposed bridges (hydraulic and non-hydraulic).
- Attend the **X** field review meetings (list and count hours in the meeting list above).
- **Add additional steps specific to the drilling and documentation process here.**

Complete and Submit Foundation Report for Retaining Wall(s)

- Provide samples to GeoServices for lab testing and ensure necessary lab work is completed to process results.
- Create boring logs and develop necessary report details.
- Draft the Report (including responding to comments on the draft).
- Finalize the Report, including uploading final product to the project folder.
- Develop associated foundation R-sheets in .dgn format, including uploading final product to the project folder.

Complete and Submit Foundation Report for Noise Wall(s)

- Provide samples to GeoServices for lab testing and ensure necessary lab work is completed to process results.
- Create boring logs and develop necessary report details.
- Draft the Report (including responding to comments on the draft).
- Finalize the Report, including uploading final product to the project folder.
- Develop associated foundation detail sheets in .dgn format, including uploading final product to the project folder.

Complete and Submit Foundation Report for Signs, Lighting, Signals, ITS, and High-Mast Lighting

- Provide samples to GeoServices for lab testing and ensure necessary lab work is completed to process results.
- Create boring logs and develop necessary report details.
- Draft the Report (including responding to comments on the draft).
- Finalize the Report, including uploading final product to the project folder.
- Develop associated foundation detail sheets in .dgn format, including uploading final product to the project folder.

Complete and Submit Foundation Report for Bridges

- Complete necessary lab work to process results.
- Create boring logs and develop necessary report details.
- Draft the Report (including responding to comments on the draft).
- Finalize the Report, including uploading final product to the project folder.
- Revise associated foundation detail sheets in .dgn format, including uploading final product to the project folder.
- Draft Geotechnical Special Provisions, including uploading draft product to the project folder.

General Task Management

- Internal coordination and meetings
- Project documentation
- Administration

Complete QC/QA Procedures

- Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

Insert other tasks as needed:

- 1.
- 2.

2PM4 | Conduct Permit Strategy Meeting(s)

Objective:

Organize and facilitate the Permit Strategy Meeting. Review permits required to construct the project(s). The deliverables and tasks in this activity continue into Stage 3.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Set Up Meeting and Develop Agenda <ul style="list-style-type: none"> Gather all relevant materials in the shared project folder and distribute to the meeting invitees. Organize this meeting and develop the agenda.
Hold Meeting and Document Minutes <ul style="list-style-type: none"> Attend/Lead meetings (list and count hours in the meeting list above). If assigned, document comments, decisions, and actions and distribute/upload meeting minutes and deliverables. Update documents as needed.
Verify Permit(s) Are Complete and Submitted
General Task Management (other than tasks outlined above) <ul style="list-style-type: none"> Internal coordination and meetings Project documentation Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

2PM5 | Hold Functional Design Plans Field Review Meeting

Objective:

Organize and facilitate the Functional Design Plans Field Review Meeting, with support from the Design Lead (e.g., the Roadway Design Lead, Structural Design Lead) to lead specific design and technical discussions to solidify the project's footprint.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Set Up Meeting and Develop Agenda <ul style="list-style-type: none">▪ Gather all relevant materials (e.g., Functional Design Plans, estimates, Comment Resolution Form, etc.) in the shared project folder and distribute to the meeting invitees.▪ Organize this meeting and develop the agenda.▪ Coordinate with the Design Lead to confirm all disciplines have completed quality checks and that the Functional Plans are ready for review.
Review and Complete Comment Form <ul style="list-style-type: none">▪ Distribute comment resolution form.▪ Complete PM-level review of the submittal (as appropriate) and add comments to the form.
Compile Comments, Hold Meeting and Document Minutes <ul style="list-style-type: none">▪ Compile all comments received.▪ Attend/Lead meeting (list and count hours in the meeting list above).▪ If assigned, document comments, decisions, and actions and distribute/upload meeting minutes and deliverables.▪ Update documents as needed.
General Task Management (other than tasks outlined above) <ul style="list-style-type: none">▪ Internal coordination and meetings▪ Project documentation▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none">▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none">1.2.

2PV1 | Provide Pavement Design

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Provide Draft Pavement Design <ul style="list-style-type: none">▪ Evaluate the structural capacity and life-cycle cost for the pavement design.▪ Provide an initial/draft pavement design for the Functional Design Plans.▪ Review any other relevant information available to identify known resources.
Provide Final Pavement Design <ul style="list-style-type: none">▪ Update or finalize the pavement design to confirm the original pavement recommendations, provide any needed approvals for changes to the design, and/or submit any updated pavement designs (if needed).▪ Review any other relevant information available to identify known resources.
General Task Management <ul style="list-style-type: none">▪ Internal coordination and meetings▪ Project documentation▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none">▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none">1.2.

2RD1 | Develop Functional Design Plans

Objective:

Complete the project's Functional Design Plans and associated roadway tasks to set the project footprint, define the data to be incorporated into the environmental document, and support advancement of other disciplines' plans and related design work for similar ends.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions

Develop a Utility Impact/Conflict Matrix (complete in concert with SUE task)

- Develop a project-specific Utility Impact/Conflict Matrix
- Revise/update as the project's design progresses and utility details become known.

Identify Initial Subsurface Utility Engineering (SUE) Needs

- Perform a utility conflict analysis to identify potential subsurface conflicts with proposed design elements.
- Coordinates anticipated subsurface components to further refine preliminary utility conflicts.
- Establish a test hole list.
- Request Pavement Design
- Prepare and submit a Pavement Design Request Form to include:
 - Title sheet
 - Traffic information, including average daily traffic (ADT) and average daily loading (ADL).
 - Soils and geology report, as available at the time of the request (see 2GT1 for related information).
 - Typical sections
 - Present and proposed layout sheets
 - Cross sections
 - Traffic phasing (including locations of temporary run-arounds or use of shoulders)

Request Pavement Design

- Complete and submit a Pavement Design Request Form and all required design information (see 2RD1 for list of required information)

Document Design Exceptions and Waivers

- Complete a Design Exception or Design Waiver Request Form
- Prepare and submit the letter, checklist, and location of the design plans (i.e., plan sheets, location map, and other related information).
- Revise the form and related information to address comments.
- Secure approval of the Design Exception(s) or Design Waiver(s).

Incorporate SUE Data and Lead Internal Design Deconfliction Meetings

- Develop agenda and prepare for meeting.
- Update plans/files and the Utility Impact/Conflict Matrix.
- Lead the meeting.
- Distribute and upload meeting minutes and action items to the project folder.
- Schedule follow-up meetings, as needed.

Develop Utility Coordination Plans

- Develop and revise (to address comments) a .pdf and .dgn set with a "Utility Coordination Plan Phase" stamp to include:
 - Title sheet
 - Plan and profile sheets
 - Typical sections and cross section sheets
 - SUE quality level C representation of known (surveyed) utilities
 - Traffic control sheets (if available)

- Drainage sheets, including storm drain system and culvert crossings
- Structure sheets, including retaining wall sheets that depict location and type of retaining walls and bridge foundation and utility impacts with foundations.
- Signal and lighting poles, cabinets, and electrical circuit locations
- Stream and wetland mitigation design and clearly marked resource areas not to be used for utility relocations design (if available and as applicable).
- Proposed cut and fill lines
- Present and proposed right-of-way linework
- Any underground improvements that have a potential to impact the utility relocation design.
- Submit/upload the Utility Coordination Plans to the Utility Coordinator.

Develop Design and Sketches for Permit Applications

- Develop and revise (to address comments) a .pdf or .dgn set with a “Permit Application Plans” stamp that includes:
 - Title sheet
 - Project commitments and environmental notes
 - Present and proposed layouts
 - Roadway and sideroad profiles
 - Haul road layouts and profiles
 - Drainage maps and culvert cross sections
 - Erosion prevention and sediment control (EPSC) plans
 - Bridge preliminary plans
 - Sinkhole remediation plans
 - Location(s) of existing environmental features, proposed impacts to these environmental features, and environmental mitigation plans.
 - Natural stream design plans
 - Proposed right-of-way, easement, and slope lines
- Develop and revise (to address comments) permit sketches consisting of maps and drawings on 8 ½" x 11" sheets depicting individual impact locations.
- Prepare for and attend established Permit Strategy Meetings (list and count hours in the meeting list above).

Develop Conceptual Traffic Control Strategies

- Develop conceptual strategies or Temporary Traffic Control (TTC) concepts in accordance with the Work Zone Safety and Mobility Manual.
- Review the line and grade .dgn in the Line and Grade Package and the layout sketch developed as part of 0TO1.
- Coordinate a QC review of any concepts.

Develop the Functional Design Plans

- Revise the title sheet and update the plan, profile sheets, and cross section sheets from the Line and Grade Package.
- Incorporate geotechnical recommendations for slopes into the plan, profile, and cross section sheets.
- Refine the typical sections to include the pavement design.
- Develop conceptual traffic control strategies/TTC concepts.
- Draft the preliminary pavement and intersection marking design.

<ul style="list-style-type: none"> ▪ Include preliminary placement of roadway safety features. ▪ Develop a preliminary drainage design. ▪ Develop preliminary erosion prevention and sediment control (EPSC) design. ▪ Include existing easements and any right-of-way, permanent easements, slope easements, and temporary construction easements. ▪ Incorporate environmental recommendations for avoidance and minimization of impacts, labeling the environmental features on the plans. ▪ Create pay item quantities associated with construction and generates an updated cost estimate. ▪ Evaluate the roadway design to determine if any incompatibilities exist with other discipline's designs. ▪ Incorporate all other elements listed in the Roadway Functional Design Checklist.
Coordinate Geotechnical Analysis for Noise and Retaining Walls <ul style="list-style-type: none"> ▪ Coordinate/identify boring locations. ▪ Develop and send request letter and layouts to the Lead Geotechnical Engineer/ Geotechnical Engineering Section (revise as needed).
Compile the Functional Design Plans and Participate in the Field Review <ul style="list-style-type: none"> ▪ Compile (from all disciplines) and notify the team that project plans/sheets and estimate are available. ▪ Attend the meeting and lead the technical discussions (list and count hours in the meeting list above). ▪ Compile and distribute a comprehensive list of review comments and meeting minutes.
Revise and Submit Updated Functional Design Plans <ul style="list-style-type: none"> ▪ Review and resolve all field review comments on the Functional Design Plans. ▪ Submit the revised plans in accordance with the Roadway Design Guidelines.
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

2ST1 | Complete Hydraulic Design

Objective:

Choose the preliminary structure types/sizes and provide the project team with an initial assessment on the acceptability of the horizontal and vertical alignment provided in the initial line and grade .dgn (as part of the Line and Grade Package). Choose the most appropriate structure based on in-depth hydraulic modeling and provide final hydraulic design information to the project team and other stakeholders. Note: proposed structures may change SIGNIFICANTLY from the initial assessment to the final hydraulic design completed in this stage.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Verify Proposed Grade and Estimate Hydraulic Structure Sizes <ul style="list-style-type: none">▪ Review the final Conceptual Layout, final digital terrain model (DTM) from the Survey Lead, the line and grade .dgn, and any other relevant information.▪ Initiate/continue coordination with USCG or TVA or FEMA and the local community.▪ Review existing bridge reports for long-term issues.▪ Review for offset issues due to TVA or USACE reservoirs and provide offset elevations.▪ Provide a preliminary estimate of span and bridge length and any necessary grade changes needed to accommodate the structure.▪ Coordinate the hydraulic details (e.g., preliminary structural elevations).▪ Draft, respond to comments, and finalize the Initial Hydraulic Grade Assessment Letter.
Develop Draft Hydraulic Layout <ul style="list-style-type: none">▪ Draft the Hydraulic Layout.▪ Attach layout to the Initial Hydraulic Grade Assessment Letter.
Hydraulically Model Proposed Conditions, Evaluate Proposals, and Select Appropriate Structure <ul style="list-style-type: none">▪ Create proposed hydraulic alternatives in 1D or 2D modeling software.▪ Calculate ultimate scour for selected structure.▪ Design deck drains if selected structure is a bridge.▪ Continue coordination with USCG or TVA or FEMA and the local community.▪ Continue coordination with TVA or USACE regarding reservoir and offset requirements.▪ Compile Hydraulic Design File consisting of all project correspondence, including:<ul style="list-style-type: none">○ Final Hydraulic Letter and Layout○ Maps○ Pictures○ Summary○ Analysis of the hydraulic crossings on the project
Finalize Hydraulic Layout <ul style="list-style-type: none">▪ Finalize the Hydraulic Layout.▪ Attach layout to the Final Hydraulic Letter.
Finalize Hydraulic Design Information <ul style="list-style-type: none">▪ Write the Final Hydraulic Letter.

<ul style="list-style-type: none"> ▪ Submit the letter to the State Hydraulic Engineer for review and signature (if needed). ▪ Resolve any comments and finalize/sign the letter. ▪ Attend the field review meeting (list and count hours in the meeting list above).
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

2ST2 | Develop Preliminary Bridge Plans

Objective:

Review all projects with proposed non-hydraulics structures/crossings to evaluate clearances of the assumed structures for the proposed geometry. Develop preliminary bridge layout(s) for inclusion with the Functional Design Plans.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Review Proposed Grade and Alignment for Non-Hydraulic Crossings <ul style="list-style-type: none"> ▪ Review the proposed alignment, profile, and typical section in the initial line and grade .dgn. ▪ Confirm and/or determine appropriate structure type and span arrangement for each crossing. ▪ Calculate vertical and horizontal clearances for each assumed structure, evaluating whether the proposed line and grade are acceptable. ▪ Develop draft layouts for each crossing if the line and grade are acceptable. ▪ Draft, respond to comments, and finalize Grade Approval Letter.
Develop Preliminary Bridge Layouts <ul style="list-style-type: none"> ▪ Review the Final Hydraulic Layout or Draft Preliminary Layout to ensure all geometry matches the latest roadway plans and adjust the proposed structure as necessary.

<ul style="list-style-type: none"> ▪ Develop a typical cross section using beam type recommendations from the Hydraulics Designer or assumed beam type from the grade approval for non-hydraulic crossings. ▪ Coordinate the design of deck drains with the Hydraulic Lead for all non-hydraulic structures. ▪ Update notes and project information. ▪ Develop preliminary/conservative bridge (and any known wall) estimates based on square footage and preliminary design assumptions. ▪ Submit the preliminary bridge layouts to the Structures Division CE Manager for approval (for consultant-led design). ▪ Attend the field review meeting (list and count hours in the meeting list above).
Coordinate Geotechnical Analysis for Bridges <ul style="list-style-type: none"> ▪ Establish the boring locations for all bridge foundations and wall locations. ▪ Prepare the Foundation Data Sheets. ▪ Finalize and submit the Structures Foundation Request to the Lead Geotechnical Engineer/Geotechnical Engineering Section.
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

2SY1 | Complete SUE and Requested Staking

Objective:

Complete requested subsurface utility engineering (SUE) and staking for proposed sounding holes and right-of-way to support the respective technical discipline's work.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Incorporate SUE Level A and B Request into Survey

<ul style="list-style-type: none"> ▪ Contact Tennessee One Call to obtain utility markings to be located and incorporated into the ground survey. ▪ Incorporate into the deliverable for the stage.
Stake Sounding Holes <ul style="list-style-type: none"> ▪ Provide staking of locations identified by the Structural Design Lead or Lead Geotechnical Engineer/Geologist on the proposed Layout Sheet. ▪ Set the field markings to complete the staking. ▪ Update the Layout Sheet to include assigned ground elevations.
Stake ROW <ul style="list-style-type: none"> ▪ Stake the proposed right-of-way to field-locate parcel impacts. ▪ Complete the field staking and mark the stakes with a description, station, and offset designations.
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

2TO1 | Prepare ITS, Signals, and Lightning Sheets

Objective:

Initiate preliminary design for all signal, lighting, and ITS work for the Functional Design Plan Field Review, ensuring early and ongoing coordination of the project's signal, lighting, and ITS scope and equipment locations with the Transportation Project Specialist Senior (Utility Coordinator), Structural Design Lead, and Roadway Design Lead to mitigate potential impacts. Coordinate with the ITS Manager and Roadway Design Lead in meeting all design requirements and when developing the ITS sheets.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions

Prepare TSMO/ITS Device Sheets

- Review the line and grade .dgn and the layout sketch.
- Prepare an ITS layout with ITS communication type; device, pole, and structural support locations; and power connection locations.
- Develop the preliminary ITS sheets and quantities.
- Coordinate to mitigate issues related to power and overhead/underground conflicts.
- Submit the sheets and CADD files to the Roadway Design Lead for inclusion with the Functional Design Plans.
- Attend the field review meeting (list and count hours in the meeting list above).

Prepare Signal Sheets

- Review the line and grade .dgn and the layout sketch.
- Prepare a signal layout with:
 - Pole locations and strain poles (station/offset/coordinates provided)
 - Power connection locations
 - Controller cabinet
 - Signal heads
 - Pull boxes and conduit
- Develop the preliminary signal sheets and quantities.
- Coordinate to mitigate issues related to power and overhead/underground conflicts.
- Submit the sheets and CADD files to the Roadway Design Lead for inclusion with the Functional Design Plans.
- Attend the field review meeting (list and count hours in the meeting list above).

Prepare Lighting Sheets

- Review the line and grade .dgn and the layout sketch.
- Prepares a photometric layout replicated in MicroStation.
- Prepare a lighting layout with pole locations and identifies power connection locations.
- Determine underpass lighting.
- Develop the preliminary lighting sheets and quantities.
- Coordinate to mitigate issues related to power and overhead/underground conflicts.
- Verify lighting maintenance agreement.
- Submit the sheets and CADD files to the Roadway Design Lead for inclusion with the Functional Design Plans.
- Attend the field review meeting (list and count hours in the meeting list above).

Oversee Development of the Conceptual Traffic Control Strategies

- Oversee development of the TTC concept plans.

General Task Management

- Internal coordination and meetings
- Project documentation
- Administration

Complete QC/QA Procedures

- Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

Insert other tasks as needed:

- 1.
- 2.

2UT1 | Initiate Utility/Railroad Pre-Acquisition Activities

Objective:

Provide updated estimates, coordinate subsurface utility exploration (SUE) needs, and advance third-party coordination efforts from previous stages.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Coordinate/Request Needed SUE <ul style="list-style-type: none">▪ Support the utility conflict analysis to identify potential subsurface conflicts with proposed design elements.▪ Coordinate anticipated subsurface components to further refine preliminary utility conflicts.▪ Help establish the test hole list with the Roadway Design Lead.
Prepare Utility Estimate <ul style="list-style-type: none">▪ Compare projected relocations with past relocations costs.▪ Complete the estimate (determining preliminary utility costs) and upload the estimate into IRIS.
Prepare Railroad Estimates <ul style="list-style-type: none">▪ Verify or update estimate related to all railroads involved.
Develop a Utility Impact/Conflict Matrix <ul style="list-style-type: none">▪ Support development of the project-specific Utility Impact/Conflict Matrix.▪ Revise/update as the project's design progresses and utility details become known.
Review SUE Data and Attend Internal Design Deconfliction Meetings <ul style="list-style-type: none">▪ Support the Roadway Design Lead in developing agenda and preparing for meeting.
General Task Management <ul style="list-style-type: none">▪ Internal coordination and meetings▪ Project documentation▪ Administration
Complete QC/QA Procedures

<ul style="list-style-type: none"> Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: 1. 2.

3EN1 | Finalize Stream & Wetland Mitigation Design

Objective:

Finalize mitigation design to offset and generate mitigation credits required for the transportation project as soon as feasible, but no later than Stage 3.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Finalize Mitigation Plans <ul style="list-style-type: none"> Review current Roadway and Utility Coordination Plans. Finalize plans for the proposed on-site mitigation area(s). Finalize off-site mitigation project could be required as a separate set of mitigation plans (if required under the Mitigation Assessment). Coordinate inclusion of plans in the Plan-in-Hand Plans.
General Task Management <ul style="list-style-type: none"> Internal coordination and meetings Project documentation Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: 1. 2.

3EN2 | Complete and Obtain Aquatic Permit | [Enter Prime]

Objective:

Complete and submit the necessary aquatic permit application(s). Obtain all permit(s), review the conditions, and distribute the permit(s) required to construct the projects.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Complete Aquatic Permit Application (for the Roadway Project) <ul style="list-style-type: none">▪ Determine the environmental impact details requiring a permit(s) and draft the permit application.▪ Gather/finalize all supporting documentation for the application.▪ Submit the draft application internally and revise (as needed) based on comments received.▪ Submit the draft application to the regulatory agencies and revise (as needed) based on comments received.
Obtain Aquatic Resource Permits <ul style="list-style-type: none">▪ Coordinate (as needed) with the regulatory agencies to secure the permit approval.▪ Review the conditions and wording for accuracy.▪ Distribute permit to the team.
Modify or Complete Aquatic Permit Application (for Utility Relocation Impacts) <ul style="list-style-type: none">▪ Identify environmental features and potential areas not to be used for utility relocations in the Utility Coordination Plans.▪ Support the Utility Coordination Lead in meetings and discussions with the Utility Owners.▪ Evaluate schedule risk for either modifying the existing permit application or preparing and submitting a new application to address utility relocation impacts.▪ Modify and resubmit the permit application (as needed) to document utility relocation impacts.
Obtain Aquatic Resource Permits (for utilities) <ul style="list-style-type: none">▪ Coordinate (as needed) with the regulatory agencies to secure the permit approval.▪ Review the conditions and wording for accuracy.▪ Distribute permit to the team.
General Task Management <ul style="list-style-type: none">▪ Internal coordination and meetings▪ Project documentation▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none">▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

Insert other tasks as needed:

- 1.
- 2.

3PM2 | Hold Plan-in-Hand Field Review Meeting

Objective:

Organize and facilitate the Plan-in-Hand Field Review Meeting with support from the Design Lead (e.g., the Roadway Design Lead, Structural Design Lead) to lead specific design and technical discussions to produce a complete design.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Set Up Meeting and Develop Agenda <ul style="list-style-type: none">▪ Gather all relevant materials (e.g., Plan-in-Hand plans, quantities and estimates, specifications/special provisions, Comment Resolution Form, etc.) in the shared project folder and distribute to the meeting invitees.▪ Organize this meeting and develop the agenda.▪ Coordinate with the Design Lead to confirm all disciplines have completed quality checks and that the Functional Plans are ready for review.
Review and Complete Comment Form <ul style="list-style-type: none">▪ Distribute comment resolution form.▪ Complete PM-level review of the submittal (as appropriate) and add comments to the form.
Compile Comments, Hold Meeting, and Document/Distribute Minutes <ul style="list-style-type: none">▪ Compile all comments received.▪ Attend/Lead meeting (list and count hours in the meeting list above).▪ If assigned, document comments, decisions, and actions and distribute/upload meeting minutes and deliverables.▪ Update documents as needed.
General Task Management (other than tasks outlined above) <ul style="list-style-type: none">▪ Internal coordination and meetings▪ Project documentation▪ Administration
Complete QC/QA Procedures

- Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

Insert other tasks as needed:

- 1.
- 2.

3RD1 | Complete Plan-In-Hand Design

Objective:

Complete the project's Plan-in-Hand design and the associated roadway tasks (i.e., all design complete) to facilitate a multidiscipline plan set review of the entire design at the conclusion of the stage. To be completed at any time during this stage, develop the ROW acquisition exhibits, advance the Utility Coordination Plans, coordinate the permit application design/sketches, and finalize the Transportation Management Plan (TMP).

Tasks/Deliverables:

Tasks/Deliverables with Assumptions

Develop ROW Acquisition Exhibits

- Prepare exhibits (revise as needed based on review comments).
- Prepare for and attend established ROW Strategy Meetings (list and count hours in the meeting list above).
- Revise exhibits and/or plans and complete the Revision Request Form (as needed) due to optimization or negotiations.
- Revise/Update as the design progresses and utility details become known encroachments (e.g. permanent easements, slope easements, temporary construction easements).

Finalize the TMP & Complete the Temporary Traffic Control Plans

- Finalize the TMP and associated temporary traffic control plans.
- Coordinate a final compliance review of the TMP and TTC plans with Traffic Operations.

Complete the Plan-in-Hand Plans

- Refine and complete the roadway design based on comments received from the Functional Design Plans Field Review Meeting.
- Verify geotechnical recommendations for slopes and walls are in the design, plan, profile, cross section, and retaining wall sheets.
- Finalize the title sheet, plan and profile sheets, and cross section sheets.
- Finalize the typical sections.
- Finalize the TMP and TTC plans.
- Finalize the pavement marking and signing (signing and striping) plans.

<ul style="list-style-type: none"> ▪ Finalize the drainage design plans. ▪ Finalize the EPSC plans and any landscape and aesthetic plans. ▪ Incorporate/confirm inclusion of all environmental resource boundary identifiers into the design. ▪ Finalize the roadway design of retaining walls and sheets in coordination with the Hydraulic Lead, Lead Geotechnical Engineer, Structural Design Lead, Utility Coordinator, and ROW Lead. ▪ Evaluate the roadway design to determine if any incompatibilities exist with other discipline's designs. ▪ Incorporate all other elements listed in the Roadway Plan-in-Hand Design Checklist. ▪ Finalize pay item quantities associated with construction and generates an updated cost estimate. ▪ Coordinate with the Construction Engineer to create the project's roadway special provisions.
<p>Compile the Plan-in-Hand Plans and Participate in the Field Review</p> <ul style="list-style-type: none"> ▪ Compile (from all disciplines) and notify the team that project plans/sheets, specifications, and estimate are available. ▪ Attend the meeting and lead the technical discussions (list and count hours in the meeting list above). ▪ Compile and distribute a comprehensive list of review comments and meeting minutes.
<p>General Task Management</p> <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
<p>Complete QC/QA Procedures</p> <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
<p>Insert other tasks as needed:</p> <ol style="list-style-type: none"> 1. 2.

3ST1 | Complete Structural Design

Objective:

Finalize the structural design (walls and bridge plans) for inclusion with the Plan-in-Hand Plans.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions

Complete Retaining/Noise Wall Sheets

- For Category One retaining walls:
 - Design the retaining wall.
 - Detail final wall drawings, which includes Structures Division drawing numbers.
 - Submit final plans, quantities, and calculations to the Structures Division CE Manager for review.
- For Category Two Retaining Walls:
 - Review the wall preliminary plans, adjusting the acceptable wall types, aesthetic finishes, or other details as needed.
- For Noise Walls:
 - Design the noise wall.
 - Detail final wall drawings, which includes Structures Division drawing numbers.
 - Submit final plans, quantities, and calculations to the Structures Division CE Manager for review.
- Compile all wall drawings into a final set with 'R' series sheet numbers.
- Submit to the Roadway Design Lead for inclusion with the Plan-in-Hand Set.

Complete Design and Detail Bridge Plans and Estimate

- Design the bridge
- Compile design calculation notebook in .pdf format.
- Prepare the structures special provisions and detailed bridge plans.
- Submit calculation notebook and plans sheets to Structures Division CE Manager for review.
- Prepare quantity cost estimate in the standard TDOT Excel format.
- Compile all bridge drawings and submit to the Roadway Design Lead for inclusion with the Plan-in-Hand Set.
- Attend the field review meeting (list and count hours in the meeting list above).

General Task Management

- Internal coordination and meetings
- Project documentation
- Administration

Complete QC/QA Procedures

- Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.

Insert other tasks as needed:

- 1.
- 2.

3TO1 | Complete Signal, Lighting, and TSMO/ITS Device Design

Objective:

Complete all signal, lighting, and ITS design work for the Plan-in-Hand Field Review, ensuring early and ongoing coordination of the project's signal, lighting, and ITS scope and equipment locations with the Transportation Project Specialist Senior (Utility Coordinator), Structural Design Lead, and Roadway Design Lead to mitigate potential impacts.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Complete Signal Design <ul style="list-style-type: none">▪ Finalize and compile signal design plans and detail sheets.▪ Include finalized Geotechnical Report for signal foundations.▪ Compile signal communications plans and details (as applicable).▪ Complete signal timing plans as coordinated with the Local Agency (as applicable).▪ Compile signal quantities.▪ Submit the sheets and CADD files to the Roadway Design Lead for inclusion with the Plan-in-Hand Plans.▪ Attend the field review meeting (list and count hours in the meeting list above).
Complete Lighting Design <ul style="list-style-type: none">▪ Finalize and compile lighting design plans and detail sheets.▪ Include finalized Geotechnical Report for lighting foundations.▪ Complete lighting circuit sheets.▪ Complete voltage drop calculations.▪ Compile lighting quantities.▪ Submit the sheets and CADD files to the Roadway Design Lead for inclusion with the Plan-in-Hand Plans.▪ Attend the field review meeting (list and count hours in the meeting list above).
Complete TSMO/ITS Device Design <ul style="list-style-type: none">▪ Finalize ITS design plans and detail sheets, ITS scope of work, and general notes.▪ Finalize ITS communication network design.▪ Finalize ITS power service details.▪ Finalize ITS voltage calculations.▪ Compile ITS quantities, ITS typicals (Standard Drawings), and traffic control (as applicable).▪ Submit the sheets and CADD files to the Roadway Design Lead for inclusion with the Plan-in-Hand Plans.▪ Attend the field review meeting (list and count hours in the meeting list above).
Review the TMP for Compliance <ul style="list-style-type: none">▪ Review TMP and TTC plans.
General Task Management

<ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

3UT1 | Perform Utility Coordination

Objective:

Develop and execute a plan to address how each utility on a project is addressed (avoided, relocated, protected-in-place, etc.) so construction may move forward without any delays/issues.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Process Consultant Requests (TDOT staff only) <ul style="list-style-type: none"> ▪ Review the applicable consultant documents. ▪ Issue a consultant authorization letter to the utility owner.
Send Utility Coordination Plans <ul style="list-style-type: none"> ▪ Review the plans and provide comments prior to sending to the utility owner. ▪ Send the identified utility owner a complete set of plans. ▪ Upload the submitted plans to IRIS.
Conduct Utility Plan Review Kickoff Meeting <ul style="list-style-type: none"> ▪ Prepare the agenda and other meeting materials. ▪ Attend the meeting (list and count hours in the meeting list above). ▪ Prepare and distribute meeting minutes and actions.
60-Day Deconfliction Meeting <ul style="list-style-type: none"> ▪ Set and invite attendees to the utility deconfliction meeting. ▪ Prepare agenda and other meeting materials. ▪ Attend the meeting (list and count hours in the meeting list above).
Complete 120-day Utility Review and Process Relocation Contract Requests (TDOT staff only)

<ul style="list-style-type: none"> ▪ Receive and review A-date package from each impacted utility owner. ▪ Generate and send the relocation contract to the utility owner. ▪ Receive/process a contract signed by the utility owner and circulate for execution. ▪ Draft and send the utility owner a letter with the contract attached.
Submit Rainbows to Environmental (TDOT staff only) <ul style="list-style-type: none"> ▪ Review Utility Relocation Plans, aka Rainbow Plans. ▪ Forward plans to the NEPA Lead and Environmental Permit Lead, coordinating potential environmental reevaluations, additional environmental technical studies, or changes to the permit sketches.
Put Utilities to Work (TDOT staff only) <ul style="list-style-type: none"> ▪ Gather all approved documents to include as an attachment to the “put to work letter”. ▪ Draft and send the utility owner a signed letter authorizing them to commence their relocation.
Submit Construction Drawings to Design (TDOT staff only) <ul style="list-style-type: none"> ▪ Generate the U1 drawings from Utility Relocation Plans (aka Rainbow Plans). ▪ Gather all utility relocation plans for each utility, including the owner’s work in the state contract. ▪ Compile all drawings together into a .pdf portfolio. ▪ Send the compiled drawings to the Roadway Design Lead for incorporation into the Plan-in-Hand Plans and then final Construction Documents. ▪ Attend the two review meetings (list and count hours in the meeting list above).
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

3UT2 | Perform Railroad Coordination

Objective:

Coordinate design plan review and comment resolution with the Railroad. Receive Railroad plans and estimates. Generate the special provisions and Construction Agreement.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Receive Railroad Plans and Estimates <ul style="list-style-type: none"> ▪ Submits the plans for Railroad review and receive Railroad plan review comments. ▪ Submit Railroad plan review comments to the Roadway Design Lead or assigned design staff to be addressed. ▪ Process a statement from the Railroad that there are no further exceptions to the plans. ▪ Develop/submit the Special Provisions 105C (SP105C) to the Railroad for their review and comment. ▪ Process a statement from the Railroad that there are no further exceptions to the SP105C. ▪ Process and approve/return a Construction Force Account Estimate to the Railroad. ▪ Request the generation of the Construction Agreement. ▪ Submits the Construction Agreement to the Project Manager and other stakeholders for execution.
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

3UT3 | Prepare & Submit Utility/Railroad Certification

Objective:

Verify required coordination steps have been completed and secure/finalize the utility and (if applicable) railroad certification for letting.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions

<p>Receive and Process Utility Deposits (TDOT staff only)</p> <ul style="list-style-type: none"> Confirm utility owner has sent a check or wires money via LGIP account for the amount specified in the executed relocation contract. If TDOT has not received the money 6 months prior to letting, send the utility owner a letter informing them that TDOT will remove their work from the state contract if funds are not received. Upon receiving the check, deliver the funds and submit a copy of the contract to Central Accounting.
<p>Verify Utility Coordination Is Complete (TDOT staff only)</p> <ul style="list-style-type: none"> Review the project to verify all rules, regulations, and policies were followed for both utility and railroad coordination. Check that all contracts have been executed and utilities have been put to work. Verify the Utility Relocation Plans (aka Rainbow Plans) have been sent to the NEPA Lead and Environmental Permits Lead. Verify deposits, if any, have been sent to the Finance Division. Verify that U1s, U2s, etc. have been sent to the Roadway Design Lead and uploaded to the project file.
<p>Finalize the Railroad Agreement(s) (TDOT staff only)</p> <ul style="list-style-type: none"> Finalize the railroad agreement.
<p>General Task Management</p> <ul style="list-style-type: none"> Internal coordination and meetings Project documentation Administration
<p>Complete QC/QA Procedures</p> <ul style="list-style-type: none"> Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
<p>Insert other tasks as needed:</p> <ol style="list-style-type: none">

4EN1 | Complete and Obtain Stormwater Permit

Objective:

Complete and submit the necessary stormwater permit application(s). Obtain permit(s), review the conditions, and distribute the permit(s) required to construct the projects.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Complete Stormwater Permit Application <ul style="list-style-type: none">▪ Review the EPSC plans for accuracy and redline the plans (as needed).▪ Submit comments for revision to ensure regulatory requirements are met.▪ Develop the Stormwater Application, including the SWPPP and documentation.▪ Apply for Construction General Permit (CGP) coverage.▪ Submit the draft applications to the regulatory agencies and revise (as needed) based on comments received.
Obtain NPDES Coverage <ul style="list-style-type: none">▪ Coordinate (as needed) with the regulatory agencies to secure the permit approval.▪ Review the conditions and wording for accuracy.▪ Distribute permit to the team.
General Task Management <ul style="list-style-type: none">▪ Internal coordination and meetings▪ Project documentation▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none">▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none">1.2.

4GT1 | Finalize Geotechnical Plans

Objective:

Compile the final Geotechnical Design Documents with any other required documentation to assist the Roadway Design Lead in compiling the Construction Documents needed to advertise and let the project.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Finalize Geotechnical Design Documents

<ul style="list-style-type: none"> ▪ Review comments from the Plan-in-Hand Field Review and address necessary design revisions and plan updates. ▪ Prepare the plans for the PS&E Review Meeting, submitting plans for inclusion with the other design plans for review. ▪ Attend the review meeting (list and count hours in the meeting list above). ▪ Assemble the final Geotechnical Design Documents and reports for letting. ▪ Sign and submit sealed plans and CADD files to the Roadway Design Lead for inclusion with the Construction Documents.
Finalize Geotechnical Special Provisions for Letting <ul style="list-style-type: none"> ▪ Finalize Geotechnical Special Provisions and submit to the Roadway Design Lead for inclusion with the Construction Documents.
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

4PM2 | Hold PS&E Preview Meeting

Objective:

Organize and facilitate the Plans, Specifications, and Estimates (PS&E) Review Meeting.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Set Up Meeting and Develop Agenda <ul style="list-style-type: none"> ▪ Verify all relevant materials and documents are ready for letting and distribute all relevant materials to the meeting invitees. ▪ Organize this meeting and develop the agenda.
Review and Complete Comment Form <ul style="list-style-type: none"> ▪ Distribute comment resolution form.

<ul style="list-style-type: none"> ▪ Complete PM-level review of the submittal (as appropriate) and add comments to the form.
Compile Comments, Hold Meeting and Finalize Project Documentation <ul style="list-style-type: none"> ▪ Compile all comments received. ▪ Attend/Lead meeting (list and count hours in the meeting list above). ▪ If assigned, document comments, decisions, and actions and distribute/upload meeting minutes and deliverables. ▪ Finalize all documents as needed, including uploading the final set of Construction Documents to the shared project folder.
General Task Management (other than tasks outlined above) <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

4RD1 | Finalize Construction Documents

Objective:

Compile the final set of design documents/plans, specifications, and the estimate (i.e., the PS&E package) to advertise and let the project.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Finalize the Roadway Plans for the PS&E Review Meeting <ul style="list-style-type: none"> ▪ Review comments from the Plan-in-Hand Field Review and address necessary design revisions and plan updates. ▪ Incorporate all other elements listed in the Roadway PS&E Design Checklist. ▪ Update/finalize the roadway quantities and cost estimate. ▪ Prepare the plans for the PS&E Review Meeting. ▪ Attend the review meeting (list and count hours in the meeting list above).
Compile the Final Construction Documents

<ul style="list-style-type: none"> ▪ Resolve any last roadway comments from the PS&E Review Meeting. ▪ Seal the Roadway Construction Documents, including the plans, specifications, and estimate. ▪ Create a .zip of the roadway files. ▪ Compile a final set of Construction Documents, including the sealed documents from all impacted disciplines. ▪ Upload the final Construction Document package to the project folder, notifying the Regional Director of Project Development that the package is available for a final review. ▪ Confirm the approved final set of Construction Documents has been uploaded to the project folder. ▪ Email a submittal letter, estimate documents, and notification to the appropriate parties. ▪ Include a copy of the email in the project folder.
General Task Management <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
Complete QC/QA Procedures <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
Insert other tasks as needed: <ol style="list-style-type: none"> 1. 2.

4ST1 | Finalize Structural Design

Objective:

Compile the final Structural Design Documents (walls and bridge plans) and estimate with any other required documentation to assist the Roadway Design Lead (as applicable for the project type) in compiling the Construction Documents needed to advertise and let the project. For structure-led projects, the Structural Design Lead finalizes the Construction Documents for turn in following the process described in in this section and 4RD1.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
Finalize Retaining/Noise Wall Plans <ul style="list-style-type: none"> ▪ Review comments from the Plan-in-Hand Field Review and address necessary design revisions and plan updates.

<ul style="list-style-type: none"> ▪ Prepare the plans for the PS&E Review Meeting, submitting plans for inclusion with the other design plans for review. ▪ Attend the review meeting (list and count hours in the meeting list above). ▪ Resolve last comments from the PS&E meeting. ▪ Submit final plans to the Structures Division CE Manager for final review. ▪ Seal the final Category One retaining wall plans. ▪ Update the wall cost estimate file using the standard TDOT Excel spreadsheet. ▪ Submit sealed plans and CADD files and the estimate and special provisions to the Roadway Design Lead for inclusion with the Construction Documents.
<p>Finalize Bridge Plans</p> <ul style="list-style-type: none"> ▪ Review comments from the Plan-in-Hand Field Review and address necessary design revisions and plan updates. ▪ Prepare the plans for the PS&E Review Meeting, submitting plans for inclusion with the other design plans for review. ▪ Attend the review meeting (list and count hours in the meeting list above). ▪ Resolve last comments from the PS&E meeting. ▪ Submit final plans to the Structures Division CE Manager for final review. ▪ Seal the final bridge plans. ▪ Update the bridge cost estimate file using the standard TDOT Excel spreadsheet. ▪ Submit sealed plans and CADD files and the estimate and special provisions to the Roadway Design Lead for inclusion with the Construction Documents.
<p>General Task Management</p> <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
<p>Complete QC/QA Procedures</p> <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
<p>Insert other tasks as needed:</p> <ol style="list-style-type: none"> 1. 2.

4TO1 | Finalize Signal, Lighting, and TSMO/ITS Plans |

Objective:

Compile the final signal, lighting, and TSMO/ITS Design Documents and estimate with any other required documentation to assist the Roadway Design Lead in compiling the Construction Documents needed to advertise and let the project.

Tasks/Deliverables:

Tasks/Deliverables with Assumptions
<p>Finalize Signals, Lighting, and TSMO/ITS Design Documents</p> <ul style="list-style-type: none"> ▪ Review comments from the Plan-in-Hand Field Review and address necessary design revisions and plan updates. ▪ Prepare the plans for the PS&E Review Meeting, submitting plans for inclusion with the other design plans for review. ▪ Attend the review meeting (list and count hours in the meeting list above). ▪ Resolves last comments from the PS&E meeting. ▪ Submit plans and quantities to the applicable Design Manager(s) for final review. ▪ Submit sealed plans and CADD files and the quantities to the Roadway Design Lead for inclusion with the Construction Documents.
<p>Finalize ITS Special Provisions</p> <ul style="list-style-type: none"> ▪ Coordinate/create the project's ITS special provisions ▪ Assemble the final ITS special provisions for letting. ▪ Submits the special provisions to the Roadway Design Lead for inclusion with the Construction Documents.
<p>General Task Management</p> <ul style="list-style-type: none"> ▪ Internal coordination and meetings ▪ Project documentation ▪ Administration
<p>Complete QC/QA Procedures</p> <ul style="list-style-type: none"> ▪ Perform appropriate quality reviews and complete quality checklists in accordance with the TDOT Quality Manual.
<p>Insert other tasks as needed:</p> <ol style="list-style-type: none"> 1. 2.