

EXHIBIT A – SCOPE OF SERVICES

Slide Repair, Route 59, Holt County

The scope may be streamlined and/or modified as necessary upon agreement of the CONSULTANT and MHTC's representative.

The general scope of the project is to prepare final roadway plan for the construction of the slide repairs and repair of Route 59 in Holt County, Job No. JNW0019. The CONSULTANT will be responsible for completing all work on the project except MoDOT will perform Environmental and Cultural Resources evaluations and Right of Way duties, including appraisal of property and acquisition of property.

This scope of services is intended to be an accurate description of the items and tasks required for completion of the design of this project. However, each project is unique and may require more or less effort in an individual task to complete the design. The following information will explain and define in general terms the major design items of importance relating to this project. All the elements of work that are necessary to satisfactorily complete the design of this project may or may not be listed. The lack of a specific listing of an element or item in the scope of services does not in itself constitute the basis for additional services, supplemental agreements, and/or adjustment in compensation.

A more detailed description of the process and requirements used by MoDOT for completion of the design may be found in the MoDOT Engineering Policy Guide (EPG). The consultant is encouraged to review the appropriate sections of the EPG as a means to supplement the information contained in the scope of services and provide additional guidance in the requirements and expectations of MoDOT for completion of the design services.

The provisions of the Design Consultant Agreement outlining the responsibilities of the CONSULTANT regarding the quality and accuracy of the deliverables and products shall apply to any decisions regarding determinations of additional services.

Preparation of a supplemental agreement is necessary prior to performance of any work, which is considered as additional services, not included in the original scope of services. The CONSULTANT will not be compensated for additional services performed prior to execution of a supplemental agreement. Only additional services, which are required due to changed or unforeseen conditions or are due to a change in the specified product, will be considered for inclusion in a supplemental agreement.

The CONSULTANT will provide the professional, technical, and other personnel resources, equipment, materials, and all other things necessary to prepare roadway preliminary plans and construction plans.

The CONSULTANT shall prepare all plans through use of a Computer Aided Drafting (CAD) program. The CONSULTANT shall conform to the Missouri Department

of Transportation Specifications for Computer Deliverable Contract Plans as referenced in the MoDOT EPG.

The CONSULTANT will be required to produce and update the construction cost estimate for this project at the completion of each major milestone or at a minimum of every six months. The major milestones for this project are defined as Phase 1 – Survey & Preliminary Design, Phase 2 – Preliminary Plan, Phase 3 - Right of Way Plan, and Phase 4 - Final Design.

The CONSULTANT shall review "as built" plans, aerial photographs, manuscripts, etc. and other information to be provided by the Commission and make the necessary field investigations to assure that there have been no significant changes since the information was recorded or obtained.

PHASE 1 – Survey & Preliminary Design

Preliminary design phase of this agreement shall include identification of the landslide limits and preliminary design for roadway portion the project.

1. Existing Conditions
 - 1.1. Describe problem and conditions
 - 1.2. Perform field reconnaissance, mapping with surveyors to identify landslide limits and identify existing right of way and slopes.
 - 1.3. Perform survey to establish
 - 1.3.1. Landslide limits
 - 1.3.2. Right of Way
 - 1.3.3. Project Centerline
 - 1.3.4. Cross Sections
 - 1.3.5. Topography
 - 1.3.6. Establish benchmarks and control points
2. Analysis
 - 2.1. Recommendations for abatement
 - 2.1.1. Control of water
 - 2.1.2. Fill slopes
 - 2.1.3. Ditch reconstruction
 - 2.1.4. Cross road pipes
3. Preliminary Roadway Design
 - 3.1. Horizontal and Vertical Geometry

- 3.2. Typical section
- 3.3. Roadway drainage
- 3.4. Roadway plan and profile
- 3.5. Roadway cross sections
- 3.6. Roadway design exceptions
- 3.7. Preliminary Plans
- 4. Perform cost estimates
 - 4.1. Cost for preliminary design
- 5. Meeting
 - 5.1. Meet with MoDOT to discuss preliminary design
 - 5.2. Recommendation memo: The CONSULTANT shall prepare a comprehensive design criteria memorandum for this entire project and submit it to the COMMISSION for review and approval prior to starting the next design phase. Any deviations from Commission established procedures for design, construction, or materials shall be approved through the MoDOT project manager and documented by the CONSULTANT. This documentation shall include a brief justification for the deviation and the signature of the CONSULTANT project manager and/or structural project engineer. Any issues that need a design exception as described in the EPG shall be documented in accordance with the EPG design exception process.
- 6. QA/QC
 - 6.1. Quality Checking
- 7. Management
 - 7.1. Manage contract

PHASE 2 – PRELIMINARY PLAN

The CONSULTANT'S attention is directed to Section 200 of the MoDOT EPG for general guidelines and requirements for preliminary design. Other chapters may be applicable for preliminary design preparation.

1. Upon approval of the design criteria memorandum by COMMISSION, the CONSULTANT shall undertake the following to develop the preliminary design phase:

a) Perform all necessary design to develop a preliminary design with the plan portion showing existing topography and contours and the profile to show grades. The base drawings for the preliminary plans shall be used later as full-scale base drawings for final design plans.

b) The preliminary plans shall be prepared in accordance with the applicable

sections of the MoDOT EPG, as to what shall be shown thereon, including proposed design features.

1) The plan view English scale shall be 1"= 100' horizontal (or different scale as determined by MoDOT Project Manager for clarity) and extend at least 500 feet beyond the project limits.

2) The profile view English scale shall be 1"=100' horizontal, and 1"=10' vertical.

c) The CONSULTANT may have to review preliminary cross sections sufficiently to make a cost analysis for using retaining walls.

d) The CONSULTANT shall prepare the construction estimate.

e) The preliminary plans shall be submitted to the COMMISSION for review and approval.

f) The preliminary plans shall include approximate existing right of way limits for the purposes of showing construction limits, property lines and ownerships, section lines, township and ranges, any U.S. Surveys, city limits, and a general outline of the construction staging, critical design items, and other items as outlined in the MoDOT EPG.

g) Traffic assignments shall be shown on the respective roadways or on a line sketch of the roadways. The COMMISSION shall furnish the CONSULTANT traffic information for the construction and design years to be used in the preliminary and final design.

h) Typical sections shall indicate heavy, medium or light duty pavement for new roadways, along with descriptions of the existing roadway types remaining in place.

2. A Preliminary Field Check will be arranged with the COMMISSION to discuss design features in the project area.

3. Perform all field surveying including project mapping.

4. The preliminary plans shall be submitted to the COMMISSION for review and approval.

5. Right of way acquisition, including temporary easements, may be included with this project if necessary.

6. Assist MoDOT Staff in securing necessary environmental and cultural resource clearances and permits for the project. This includes developing displays and quantities necessary for these clearances and permits.

PHASE 3 - RIGHT OF WAY DESIGN

1. The CONSULTANT shall prepare right of way plans, which may be separate drawings from those used for design and construction details. The right of way plans shall show alignment, geometric design, removal of improvements, drainage facilities, property lines and ownership, utilities, list of utility owners, other land survey information, street lines and existing right of way and easements (including, but not limited to, existing

MoDOT easements and Utility easements). The CONSULTANT should also include any plan details, which will require additional right of way or easements during the construction phase of the project such as bypasses, temporary erosion control, etc. Right of way plans include title sheet, typical sections, profile sheets, and cross sections of the roadway, entrances, and side roads. Areas of new right of way, permanent easements and/or temporary easements required from each individual property owner may be shown in tabular form on the respective sheets.

a) The CONSULTANT shall finalize any previous review of the roadway cross sections sufficiently to determine the feasibility of constructing retaining walls versus obtaining additional right of way. This final review shall consist of construction estimates versus right of way estimates.

b) Upon completion of the estimates by COMMISSION and CONSULTANT, the CONSULTANT shall recommend to the COMMISSION a choice at the various locations which warrant consideration of the alternate retaining wall versus right of way solutions. The COMMISSION shall make the final determination of purchasing right of way or constructing retaining walls.

c) Right of way plans shall be submitted to the COMMISSION for review and approval. The right of way plans shall be at the same scale as the construction plans. The right of way plans shall include any design details that will control the width of right of way and necessary easements and conform to EPG 236.

d) New right of way lines and all easements shall be dimensioned from the centerline, or crossroad centerlines, if necessary. Bearings and distances, stations and offsets, on the right of way lines may be required.

e) The following minimum design features shall be included on the right of way plans:

1) Title sheet with the appropriate project limits, access note and traffic data completed.

2) Typical sections

3) Cross sections at 100' intervals, including additional sections at each entrance with new and existing entrance grades.

4) Construction limits (slope lines); drainage facilities; entrances and their reference location, width and type; property owners, with areas of new right of way, easements and remaining property (broken out for each side of the centerline); centerline bearing, ties to legal land corners from centerline stations with notation for corner witness by a registered land surveyor; existing utility locations and easements, including replacement utility easements; horizontal curvature information; and proper right of way symbolization for new right of way (access control) and easements, including areas which may be required to accommodate temporary erosion control.

5) Township, Range, Section and/or U.S. Survey information on each plan sheet near the title block or appropriate survey/section line.

6) Centerline land tie grid box with registered monumented corner tied to centerline station with bearing and distance.

2 The CONSULTANT shall perform a land survey of the R/W corridor for the project compliant with the Missouri Minimum Standards for Property Boundary Surveys.

This will include the development of a survey plan, as described in the MoDOT EPG, that will serve as the recordable survey plat.

The survey plan will include a land description of the highway R/W corridor. This description shall (1) be based on the location survey, (2) be concise, (3) contain title identity, (4) contain measured dimensions and highway stationing in ground units, (5) contain measurement data that describes the geometric area of the corridor and closes mathematically, (6) contains information that does not lend to alternate interpretations, and (7) be written to facilitate the relocation of the corridor by a professional land surveyor.

3. The CONSULTANT shall perform the layout of the R/W corridor with the placement of monuments at the locations of line breaks in the R/W. Monumentation in compliance with the standards for permanent monuments including a cap stamped with the department's name and the highway station and offset for that location shall be placed.

The CONSULTANT shall comply with the most recent and applicable State and Federal Laws. Survey procedures and criteria shall be determined in accordance with the Missouri Standards for Property Boundary Surveys and any applicable portions of the MoDOT EPG, particularly Section 236.

4. The COMMISSION shall arrange for a design field check to review right of way plans with the CONSULTANT and right of way personnel prior to completion of the right of way plans. The CONSULTANT shall make any necessary revisions to the right of way plans as determined by this design field check.

5. The COMMISSION shall review, approve, and certify the right of way plans as completed by the CONSULTANT. The CONSULTANT shall provide one (1) electronic set of fully signed and sealed right of way plans, for the COMMISSION'S further use.

6. The CONSUTANT shall provide a set of plans with the utilities colored for the utility coordination/relocation.

7. The CONSULTANT shall be responsible for staking and re-staking tentative right of way on individual properties, as required, during the right of way negotiation and acquisition phase of the project.

8. The CONSULTANT shall be responsible for making all revisions to the right of way and construction plans due to negotiations with the property owners in an effort to acquire the right of way.

9. The CONSULTANT shall write deed descriptions and centerline description for all right of way acquisitions and complete MoDOT's Professional Land Surveyor Description Review form for this project.

PHASE 4 - FINAL DESIGN

The Final Design Phase of this agreement shall include final designs for both the roadway portion and repair of the slide area.

1. The CONSULTANT shall prepare storm water drainage and hydraulic studies and detailed drainage plans, including both pavement and crossroad drainage, for review and approval by the COMMISSION before inclusion in the final design plans.

2. Upon request, the CONSULTANT shall furnish design plans, which show drainage facilities, signing, cross sections and roadway design features, for the COMMISSION'S handling and coordination with the utility companies' existing facilities, and proposed plans of adjustments. The CONSULTANT shall revise plans to adhere to all utility company standards and requirements and make necessary utility plan revisions as become necessary during final plan design and approvals. The COMMISSION shall coordinate utility company activities for any adjustments required to be included in the final design plans.

3. The design plans shall include a detailed traffic control plan with an outline for construction staging conforming to the requirements of the MUTCD and the MoDOT EPG and as may be supplemented by samples provided by the COMMISSION. The traffic control plan requires submittal to the COMMISSION for review and approval prior to inclusion in the final design plans.

4. A final design field check and/or meeting shall be held with CONSULTANT and COMMISSION representatives prior to completing final design plan quantities. The CONSULTANT shall make any necessary revisions to the final plans as determined by this design field check.

5. The CONSULTANT shall prepare detailed temporary erosion control plans for review and approval before inclusion in the final design plans.

6. The CONSULTANT shall prepare computations for all design plan quantities. All plan quantities shall be shown on the Quantities Sheets, by construction stage, if applicable. The format for these sheets shall be furnished by the COMMISSION. Specialty items may have separate sheets for quantity tabulations.

7. The CONSULTANT shall prepare for review and approval by the COMMISSION all necessary Job Special Provisions, which are to supersede the Missouri Standard Specifications for Highway Construction. A brief reason for the deviation from the standard plans and specifications should also be provided.

PLANS, SPECIFICATIONS AND ESTIMATE

The following list shall be considered as the minimum requirements for a complete set of Final Design Plans.

1. Title Sheet
2. Typical Sections
3. Quantities Sheets
4. Plan Sheets at 1"=50' horizontal (or different scale as determined by MoDOT Project Manager for clarity). Plan sheets shall include all necessary adjustments to signing and proposed pavement marking.
5. Profile Sheets at 1"=50' horizontal and 1"=10' vertical
6. Culvert Sections at 1"=10', (if applicable)
7. Special Sheets for geometrics, referenced points, grading plan, traffic control plan, temporary erosion control plan and any other sheets for special design features.
8. Right-of-way Detail Sheets (If applicable)
9. Reference Points
10. Earthwork quantities, Cross sections at 50' intervals, 1" = 10', horizontal and vertical, including entrance sections with existing and proposed grades
11. Job Special Provisions in a format readable in the COMMISSION'S current word processor
12. File with the bid items and quantities as generated by COMMISSION'S Estimate Program
13. Construction Workday Study
14. Final Plans Checklist Form D-12

Additional plans and information may be required to complete the final Design Plans. With the submittal of the Final Design the CONSULTANT shall also provide the COMMISSION a statement that an internal quality control check has been conducted and to the best of the CONSULTANT'S knowledge the final design plans are free of gross errors, misleading or confusing typos, and includes adequate information to construct the project.

BIDDING AND CONSTRUCTION PHASE

After the Final Design Phase of the project is completed the CONSULTANT shall be available to the COMMISSION to discuss and interpret the plans and specifications during the bidding and construction phase of the project as determined necessary by the ENGINEER. During this phase of the project the CONSULTANT will also be required to attend the pre-construction meeting and post construction meeting. If a partnering meeting is held between the construction contractor and MoDOT personnel, the CONSULTANT may be required to attend. If issues arise during construction, there will be a direct line of communication established between the MoDOT Construction Office and the CONSULTANT. The CONSULTANT shall immediately inform MoDOT Design Division of any recommendations or clarifications made to the Construction Office.

DRAWING AND DOCUMENT DELIVERABLES

The CONSULTANT shall prepare all plans through use of a Computer Aided Drafting (CAD) program. The CONSULTANT shall conform to MoDOT's Specifications for Computer Deliverable Contract Plans as referenced in the MoDOT EPG. The CONSULTANT shall use Microstation and Geopak SS4 or ORD.

The CONSULTANT shall furnish the COMMISSION the following completed sheets and documents, as applicable, for each separate construction project included in this contract, as follows:

1. Preliminary Plans showing profile grades, geometric data, alignment data, etc.
2. One (1) electronic copy of the location sketch for Commission Approval submitted in electronic format.
3. Draft copy of the job special provisions related to design elements for review.
4. After corrections, the job special provisions shall be furnished in electronic format utilizing the COMMISSION'S latest word processing program.
5. One (1) legible electronic copy of engineering calculations and analysis.
6. One (1) electronic copy of a complete summary of quantities and estimate of construction costs. The estimate shall be prepared using the latest version of MoDOT's ESTIMATE program.
7. One (1) electronic copy of a workday study showing the estimated number of workdays required to construct the project.
8. The CONSULTANT shall provide a 3D model of the project exported from Geopak SS4 or ORD software for the COMMISSION'S use.

STANDARDS

The CONSULTANT shall use the latest version of the following publications as applicable to determine the design criteria and procedures which will be followed for development of the project:

- MoDOT "Engineering Policy Guide (EPG),"
- AASHTO's "Manual on Uniform Traffic Control Devices" (MUTCD)
- AASHTO's "A Policy on Geometric Design of Highways and Streets"
- *"Missouri Standard Specifications for Highway Construction"*
- AASHTO's LRFD Bridge Design Specifications
- "Missouri Standard Plans"
- "Missouri Department of Transportation Specifications for Computer Deliverable Contract Plans"
- any other publications which the ENGINEER directs the CONSULTANT to use.

SCHEDULE

PHASE 1: Preliminary Design

After Notice to Proceed – Perform Survey and Preliminary Design

Meeting to Review Preliminary Design

PHASE 2: Preliminary Plans

October 3, 2022 – Preliminary Plans and cost estimate for Plans Review

December 2022 – 100% Preliminary Plan

PHASE 3: Right of Way Plans

February 2023 – Right of Way Plans and Cost Estimate for Plans Review

March 24, 2023 – 100% Right of Way Plans, Cost Estimate and Deeds

PHASE 4: Final Design

September 5, 2023 – 100% Final Plans Unsigned for Plans Review

October 10, 2023 – 100% Final Plans Signed

November 2023 – PS&E Submittal

January 2024 - Letting