

Exhibit A
Detailed Scope of Services and Deliverables
Road Design Plans for TH 23 & TH 10 in St. Cloud
S.P. 0503-91

PROJECT OVERVIEW

State has programmed the reconstruction of Trunk Highway (TH) 23 and TH 10 through the city of St. Cloud, MN as State Project (SP) 0503-91. The project extends from 0.1 mile west of Lincoln Avenue to 0.1 mile west of Benton CSAH 1 on TH 23, and from 0.2 mile north of St. Germain Street to 0.1 mile north of 15th Avenue SE on TH 10. The project will reconstruct the pavement, replace bridges #9021 and #9022 with new bridges #05018 and #05019, and will construct new bridge #05020 (4th Street) over TH 10. The project also includes Americans with Disabilities Act (ADA) and signal improvements at Lincoln Avenue, 14th Avenue and St. Germain Street, and new signals at the ramp termini, lighting and traffic camera.

Project goals include:

- Replacing aging infrastructure
- Improving safety and mobility by reconfiguring the interchange ramps at the TH 23/TH 10 interchange
- Improving community cohesiveness pedestrian safety by lowering the grade on TH 10 and connecting neighborhoods and businesses on both sides of TH 10 via the new 4th Street bridge connection.

State will deliver this project through the Design-Bid-Build delivery method.

General design components for this contract include, but are not limited to:

Roadway Design

- Construction Limits
- All roadway design for any roadway segment shown on the proposed layouts
- Bridge approach panels
- Any local street construction required by the proposed layouts
- Guardrail, impact attenuators and other safety barriers
- Final hydraulics, erosion control and Stormwater Prevention Plan (SWPPP) design
- Permit exhibits for Department of Natural Resources (DNR) and Corps of Engineers (COE) permits
- ADA

Bridge Design

- Bridges will be designed by MnDOT Bridge Design Unit.

Geotechnical/Retaining Walls

- Geotechnical recommendations for all retaining walls
- Retaining wall design including Visual Quality components as outlined in the Visual Quality Manual for wall finishes
- Ground improvements (if applicable)

Materials Design Recommendation (MDR)

- Includes all necessary soils borings and cores for roadway and drainage segments

Traffic

- Traffic control plans and staging plans (developed in collaboration with State)
- New permanent signing (C, D, and overhead) for all geometric changes
- Traffic control signal system for the intersections of interchanges as shown on the layout
- Highway lighting for areas in the layouts
- Striping
- Intelligent Transportation System (ITS)

1.0 PROJECT MANAGEMENT (Source Type 1010)

1.1 Project Administration

State will provide a Project Manager to help manage the project. It will be the responsibility of the State's Project Manager to receive the work produced by the Contractor, review the work for compliance with contract requirements, and to recommend payment for such work. Contractor will utilize the State's ProjectWise TH 23 project directory for project file sharing. Project directory standards and file naming standards are available upon request to the State's Project Manager. Administration includes communication with State, invoicing, supplemental agreements, cost and schedule updates, billing preparation, and other non-technical work.

1.2 Schedule Management

State will provide a P6 Schedule for project design. Contractor's task will be to coordinate the design schedule in order to meet the proposed project letting date.

1.3 Design Team Kick-Off Meeting

Contractor will schedule and facilitate a design kick-off meeting to establish communication protocol for the design, discuss known project issues, and review the project schedule. Contractor will receive available project information from State, including the most up-to-date preliminary design information. At the kick-off meeting Contractor will provide its Quality Management Plan (QMP) to State.

1.4. Railroad Coordination

Contractor will attend coordination meeting with the railroad if needed. Minimal railroad coordination is anticipated, as only TH 23 pavement reconstruction will occur under the railroad bridge. The bridge will not be affected.

1.5. Additional Project Meetings (as necessary)

Includes meetings with St. Cloud and Benton County for coordination of local road connections and utilities.

1.6. Quality Management Plan (QMP) and Quality Assurance/Quality Control Procedures (Source Type 1250)

Contractor will develop a QMP that specifies how Contractor will perform Quality Assurance (QA) and Quality Control (QC) activities throughout the duration of the project to ensure delivery of a quality product in a timely manner that conforms to established contract requirements. Contractor will prepare the QMP and distribute it to all project team members, including subcontractors.

Contractor's Quality Assurance Manager will have the responsibility of reviewing submittals, prior to submittal, to ensure compliance with the MnDOT QMP. The basic format for quality certification will be checking, back checking, and verifying format in accordance with MnDOT's Design-Bid-Build Quality Management Process. Refer to <http://www.dot.state.mn.us/design/qmp/index.html> for further information.

Contractor's QA Manager will review the entire plan design and production process to ensure the completeness and adequacy of their work and conformance with Contractor's QA procedures.

No changes in Contractor's Key Personnel may be made without prior written consent of the State's Project Manager. State will notify Contractor immediately if there are changes to State's project management or lead design personnel.

1.7. Deliverables

State's Deliverables:

1. Review and respond to submittals.
2. Coordinate internal reviews.
3. Provide copies of project correspondences and project information.
4. Approve deliverables.
5. Monitor quality control.
6. File naming convention guidance and file directory structure guidance.

Contractor's Deliverables:

1. Schedule and attend meetings.
2. Weekly update meeting or conference call with State's Project Manager.
3. Prepare meeting agendas and minutes.
4. Prepare and submit monthly progress and status reports.
5. Maintain project schedule, and provide updates to the State's Project Manager during weekly conference calls.
6. Provide timely copies of critical correspondences and project issue data.
7. Provide Quality Assurance / Quality Control on project deliverables and submit project QA/QC certification.

2.0 UTILITY COORDINATION (Source Type 1195)

Utility coordination will include tasks necessary to be in compliance with MnDOT's Utility Accommodation & Coordination Manual and applicable State Statutes. This includes but is not limited to Gopher State-One Call contacts and preparing and distributing letters and plans, meetings and individual utility contacts.

A Subsurface Utility Engineering (SUE) contract is already in place with T2 Utility Engineers and it can be assumed that the Utility Coordination Process will be completed thru Utility Coordination *Step 3: Review of Information from Utility Owners*.

Contacting will be responsible for Utility Coordination beginning at *Step 4: Utility Design Meeting* through *Step 9: Review of Utility Relocation Plans, Schedule and Permit Submittal*. State will be responsible for Steps 10 thru 14.

2.1 Deliverables

State's Deliverables:

1. Subsurface Utility Engineering (SUE) information plans, tabulations, and potholing data

Contractor's Deliverables:

1. Gophers State One call documentation.
2. Coordination Letters and attachments.
3. Utility Plans.
4. Utility Coordination Meeting agendas, materials and minutes.
5. Phone log documentation.
6. Project Manager utility certification.
7. Meeting minutes.

3.0 DETAIL DESIGN PLANS (SOURCE TYPE 1250)

This task includes development of final detailed design plan(s) for the project. Contractor will be required to provide work using MicroStation Corridor Modeler. The final road plans will also be consistent with any findings and recommendations identified in the Project Documentation and in accordance with Federal and State laws, rules, and regulations.

It can be assumed that due to the phased staging required to maintain traffic flow and the extensive utility impacts and/or relocations that will be required, multiple work packages may be required for this project. For proposal purposes, assume 4 work packages will be required.

3.1 Construction Limits (Source Type 1200)

Establish final cross-sections and degrading limits to determine limits of construction. This product will be for right of way and wetland impact purposes for all disturbed areas including working space, ponds and staging. The final construction limits will build off the preliminary limits developed with the Level 1 layout work.

a. Cross Sections and Earthwork

Develop cross sections and earthwork sufficient for the preparation of a Section 404 wetland permit and to define right of way impacts.

b. Plan/Layout

Complete plan view of construction limits and wetland impacts sufficient for the preparation of a Section 404 wetland permit and to define right of way impacts.

c. Deliverables

Contractor Deliverables

1. Construction Limits
2. Determination of wetland and right of way impacts

State Deliverables

1. Review construction limits and submit comments
2. Wetland Delineations

3.2 Construction Plans

The Construction Plan set will consist of, but is not limited to, the following sheets, and not necessarily in the order listed below:

- a) Title Sheet
 - Contains the location map, signature block, sheet index, project data, station equations, traffic data, and station-reference point comparison.
- b) General Layout
 - A layout of the project showing the plan sheet layout and sheet numbers for reference.
- c) Statement of Estimated Quantities (SEQ)
 - Tabulation showing MnDOT's standard pay item numbers, item descriptions, and quantity of materials needed to complete the project. Columns will exist for referencing the individual item's tabulation. Notes will be included where necessary for clarification. The SEQ will require separation of quantities by funding source type. Contractor will ensure that pay items are consistent with the State's Trns*port pay item list.
- d) Soils and Construction Notes and Standard Plates
 - Notes covering special requirements and critical information contained in the Materials Design Recommendation will be listed as well as any other special construction requirements and District-provided notes that have been identified. MnDOT Standard Plates used on this project will also be listed on this sheet. MnDOT will provide this information. Contractor will review.
- e) Typical Sections
 - Typical sectional views of the existing and proposed roadway will be shown for the length of the project. The sections will be consistent with the Materials Design Recommendation and the Environmental Documentation. Surface type, cross slopes, material types will be shown.
- f) Quantity Charts (Tabulations)
 - Detailed quantity breakdown by station or station range of most items contained in the Statement of Estimate Quantities (SEQ). Tabulations will separate or note different funding sources.
- g) Public Utility
 - Detailed plan of existing utilities located within the project limits. Plans will include & denote utility ownership and conflict action to be taken (Relocate, Adjust, Leave as is, etc.)
- h) Miscellaneous Details
 - Any details necessary for the construction of unique or non-standard elements identified during detail design.
- i) Standard Plan Sheets
 - MnDOT Standard Plan Sheets will be included as needed to supplement the construction details in the plan. The State will provide electronic copies of any District-Modified Standard Plan Sheets.
- j) ADA Details and Construction Limits
 1. The person who is responsible for leading the curb ramp, sidewalk and driveway design for the project must have attended MnDOT's Consultant ADA Training or have comparable experience approved by the State's Project Manager and must be directly involved with the design of the project.
 2. A field walk with the designer will be conducted with the State's Project Manager prior to the start of any design.

3. Contractor will meet with State ADA staff after completion of the 30% and 60% plans. ADA construction limits will be determined based on the 30% plan.
 4. All pay items including utility adjustments will be tabulated by quadrant and if radial domes are intended to be used at a quadrant the radius will be given in addition to quantity. Follow pay item guidance provided in MnDOT's ADA Project Design Guide when determining which pay items to use on the project.
 5. Contractor will complete and submit the ADA plan checklists to the ADA office.
- k) Road Connection and Entrance Details
 - o Detailed plan layouts and charts showing grades, radii, widths, cross slope and construction details.
 - l) Construction Plan Sheets

Detailed plans of the project; providing information on the location of items such as roadways, shoulders, approach panels, guardrail layout, radii, turn lanes, acceleration lanes, driveways, curb and gutter, accessible sidewalks and curb ramps, tapers, right-of-way, railroad property, easements, obliterations, station equations, fencing, etc. Construction Staging plans.
 - m) Earthwork tabulations

Earthwork volumes will be shown on separate tabulation sheets and developed for each stage of construction.
 - n) Profile sheets (with existing and proposed utility crossing shown)
 - o) Concrete Paving Layout
 - p) Superelevation Plans

Prepare a detailed superelevation plan that patterns the superelevation transition, showing cross-slopes where superelevation transition begins and ends and where the superelevation is zero.
 - q) Removal Sheets
 - o Detailed plans of the project providing information on the location of removal of pavement, drainage, etc. included on the Construction Plan Sheets.
 - r) Drainage and Erosion Control / SWPPP Plans – see Task 5
 - s) Traffic Control Plan – see Task 4
 - t) Striping Plan – see Task 4
 - u) Signing Plan – see Task 4
 - v) Signal Plans - see Task 4
 - w) ITS Plans - see Task 4
 - x) Alignment Plan and tabulation for the entire project.
 - y) Cross-Section Sheets including a match line layout sheet
 - o Cross-Section Sheets for the entire project. Prepare cross-sections as needed to show drainage and special features. Cross sections will include existing ground line, proposed roadway template, grading grade, existing and proposed utilities, existing and proposed culverts, existing and proposed right-of-way, temporary easements, entrance slopes, subgrade corrections, unsuitable soil removal, rock lines and topsoil placement.

3.3 Plan Format

The format of the Road/Construction Plans will comply with the State's current design concepts and practices. Plan Sheets must have sheet specific legends. Sheets contained in the Road/Construction Plans and cross-sections will be submitted to MnDOT in MicroStation Version 8i or other version as approved by the State Project Manager. The Plan will be in compliance with the MnDOT CADD Standards Manual.

Electronic Project design information will be in MicroStation and Geopak format. Upon completion of this Project or Termination of this contract, the electronic project files become the property of the State of Minnesota, Department of Transportation and will be submitted on a CD-ROM or portable USB device.

Plans submitted for reviews will be delivered in a PDF format. The final design plan will be submitted on 11"x17" bond and only the title sheets will be on an 11" x 17" sheet of vellum. Plan review meetings will be held via virtual meeting platform at the 30%, 60% and 90% plan reviews.

3.4 Plan Review and Approval

All submittals will be in a single .pdf format and the State will use the .pdf electronic redlining process to insure all State comments are consolidated into a single set of comments. The Contractor will respond electronically to each State comment electronically either agreeing to the change, commenting on the change, or disagreeing with the change and stating why for further discussion.

The Road/Construction Plan will be submitted for review and approval at the following stages of development. State will provide a checklist of items to be included at each submittal.

- a) Construction Limits Verification
Contractor will use provided Staff Approved Layouts and survey information to verify the construction limits and provide one final set to the State's Project Manager. This task includes resolving any conflicting or overlapping areas. These construction limits will be the final right of way limits for any property acquisition.
- b) Preliminary Design (30% Complete)
Contractor will prepare a set of 30% plans per MnDOT's Plan Check List.

In addition, Contractor will be required to submit an Excel spreadsheet that includes all Pay Items and Estimated Quantities for review and cost estimating purposes. It is understood that estimated quantities will be subject to change with each submittal, but additional effort will be required to provide accurate estimated quantities for all pay items with each submittal, including the initial 30% Plan stage.

- Prior to submittal of the construction limits and plans, the Contractor will perform enhanced internal quality control review process (QA/QC review) of design components, including a Discipline Coordination Review meeting. Scan and electronically file documentation of quality control checks and resolutions including 30% Review Checklist and Functional Group Review (FGR) Independent Technical Review (ITR)/Independent Constructability (ICR) Review Forms.
 - The State's District staff will complete review and comment on this submittal 15 working days after the submittal date. The State will provide a single set of consolidated comments in a PDF format. If necessary, Contractor will revise and re-submit corrected construction limits and send a PDF of the responses to the State's review comments.
- c) Intermediate Design (60% Complete)
The Contractor will submit a PDF file showing statement of estimated quantities, tabulations, existing topography and utility plans, roadway plan sheets, alignments and profiles, construction details, drainage plans with cross sections, typical sections, pavement

marking, signing, cross sections and any preliminary utility relocations. Typical sections should be final at the 60% plan.

- Prior to submittal of the 60% plan, the Contractor will perform enhanced internal quality control review process (QA/QC review) of design components, including a Discipline Coordination Review meeting. Scan and electronically file documentation of quality control checks and resolutions including 60% Review Checklist and FGR/ITR/ICR Review Forms.
- The State's District staff will complete review and comment on this submittal 15 working days after the submittal date. The State will provide a single set of consolidated comments in a PDF format. Resolved comments will be incorporated into the 90% plan submittal.
- Contractor will meet with State Project Manager and staff in the St. Cloud office to review the 60% comments. No more than 2 Contractor staff will attend the meeting. The Contractor will send back a PDF with responses to the State's comments.

d) Final Design (90% Complete)

The Contractor will submit a PDF of the proposed Final Design Plans for State's review and comment. The 90% submittal by the Contractor is what the Contractor would consider final biddable plans. Selected sheets may be sent to Central Office for preparation of any necessary Agreements.

- Prior to submittal of the 90% plan, the Contractor will perform enhanced internal quality control review process (QA/QC review) of design components, including a Discipline Coordination Review meeting. Scan and electronically file documentation of quality control checks and resolutions including 90% Review Checklist and FGR/ITR/ICR Review Forms.
- The State's District staff will complete review and comment on this submittal 15 working days after the submittal date. The State will provide a single set of consolidated comments in a PDF format. Resolved comments will be incorporated into the 95% plan submittal.
- Contractor will meet with State Project Manager and staff to review the 90% comments. No more than 2 Contractor staff will attend the meeting. The Contractor will send back a PDF with responses to the State's comments.

e) Final Design (95% Complete)

Upon making the revisions from the 90% District 3 submittal, the Contractor will submit 2 copies of the signed vellum title sheet.

The original signed and certified prints will be submitted to the State's Central Office Pre-Letting Unit by the State's District Office for review and approval.

- Prior to submittal of the 95% plan, the Contractor will perform enhanced internal quality control review process (QA/QC review) of design components, including a Discipline Coordination Review meeting. Scan and electronically file documentation of quality control checks and resolutions.
- The State's District staff will complete review and comment on this submittal within 10 working days of the submittal date. The State will provide a single set of consolidated comments in a PDF format.

- Resolved comments will be incorporated into the 100% plan submittal. The MnDOT Central Office Pre-letting Unit will make a final review and comment on the certified Construction Plan. The Contractor will resubmit the plans. Contractor should assume one meeting with State staff in St. Paul to review comments.

f) Final Design (100% Complete)

Upon making the revisions requested by Central Office Design Pre-letting Unit, the Contractor will submit new signed and certified sheets, as necessary. An electronic copy of the project's Geopak design files (.gpk), Corridor Models, Staking files, Excel files and each sheet in Microstation format will be submitted. One copy of the design computations and quantity calculations will also be submitted.

- Prior to submittal of the 100% plan, the Contractor will perform enhanced internal quality control review process (QA/QC review) of design components, including a Discipline Coordination Review meeting. Scan and electronically file documentation of quality control checks and resolutions.
- An electronic copy of the project's Geopak design files (.gpk), Corridor Models, Staking files, Excel files and each sheet in Microstation format will be submitted. One copy of the design computations and quantity calculations will also be submitted. A "Read Me" file will be submitted with a description of each design file, alignment and profile names, excel files, model descriptions, and earthwork breakdowns.

3.5 Deliverables

State's Deliverables

1. Staff Approved Layouts
2. ADA Recommendations
3. District-modified standard plan sheets & District Details
4. Right of Way (ROW) file in Microstation DGN format
5. Plan comments
6. Meeting attendance

Contractor's Deliverables:

1. 30% plan and construction limits submittal
2. 60% plan submittal
3. 90% plan submittal
4. 95% plan submittal
5. 100% plan submittal
6. ADA checklist #1 with 60% plan submittal
7. ADA checklist #2 with 90% plan submittal
8. ADA Design Memo.
9. Geopak design files (.GPK)
10. Microstation design files (.DGN)
11. Corridor modelling surfaces for the bottom of subcut, grading grade, and top of proposed surface. Files must be in either .xml, .ttm, or .tin formats
12. For any proposed curb lines provide the flowline alignment and profile.
13. Design computations and quantity computations (including excel files for all quantities and tabulations, design tables, and any detail tables created).
14. QA/QC Documents
15. Meeting Attendance

4.0 TRAFFIC CONTROL AND STAGING, SIGNING & STRIPING, LIGHTING AND ITS PLANS (see work item for Source Type)

4.1 Traffic Control Plans (Source Type 1254)

Contractor's Lead Traffic Engineer and Traffic Control Designer will participate in staging meetings with the State.

Contractor will develop detailed staging and traffic control plans, notes, and tabulations for the location of signs, barriers, and striping necessary to accommodate the construction staging. Plans and notes will be consistent with the Minnesota Manual of Uniform Traffic Control Devices (MMUTCD), Manual for Temporary Traffic Control Zone Layouts, and MnDOT District 3 practices.

Contractor will prepare a Basic Transportation Management Plan (TMP) for approval by the State. Any traffic modeling or analysis will be done by others.

4.2 Striping Plans (Source Type 1255)

Contractor will prepare detailed plans, notes, and tabulations for the temporary and permanent pavement markings. The plan will include the applicable MnDOT Pavement Marking Typical found on the MnDOT Traffic Engineering website and plan sheets showing permanent pavement markings on the roadway alignment. Plans and notes will be consistent with the Minnesota Manual on Uniform Traffic Control Devices, Chapter 7 of the MnDOT Traffic Engineering Manual, and MnDOT District 3 practices. The State will provide the recommendation for the pavement marking materials.

4.3 Signing Plans (Source Type 1255)

Contractor will prepare signing plans for overhead (OH) and other signs that will require changes/replacement due to the new interchange configuration or other roadway changes. Any signs that do not require changes will not be replaced.

Detailed plans, notes, and tabulations will be prepared showing the location of the in-place signs and the location of the permanent signs upon completion of the project. The plan will include necessary typicals found on the MnDOT Traffic Engineering website to construct the permanent signing as shown on the plan sheets. The plan will also include sign designs for new permanent signing. New signs must be designed according to the MnDOT Sign Design Manual and be completed using SignCAD software. Plans and notes will be consistent with the Minnesota Manual on Uniform Traffic Control Devices, Chapter 6 of the MnDOT Traffic Engineering Manual, the MnDOT Signing Plan Design Manual, and MnDOT District 3 practices.

4.4 Traffic Lighting Plans (Source Type 1252)

This task consists of replacing the lighting impacted by the new interchange configurations. Included are both tower lights and interchange lighting. Lighting plans will be in State plan format, coordinate correct, and will contain all necessary design information including (but not limited to) the following: quantity tabulation, signature block, abbreviations, symbols, details (standard & special), intersection layout(s) and wiring diagram(s), scale to be approved by District 3 staff, appropriate to each area of interest (e.g. - 50, 100 or 200 scale drawing), and include Salvage and Removal Lighting plans as part of the lighting package.

4.5 Traffic Signal Plan (Source Type 1251)

This task is for the design of the traffic control signal systems as detailed in the final geometric layout.

It can be assumed that full signal plans will be required at the new ramps, and that modifications will be needed at Lincoln Avenue, 14th Avenue SE and at St. Germain Street.

The signal plan will be in State plan format (40 scale drawing), coordinate correct, and will contain all necessary design information including (but not limited to) the following: quantity tabulation, signature block, abbreviations, symbols, details (standard & special), intersection layout(s) and wiring diagram(s).

4.6 ITS Plans (Source Type 1256)

This task will include the design of a new ITS system and infrastructure that will be required at the interchange.

4.7 Deliverables

State's Deliverables

1. In-place signal plans, signing and lighting plans.
2. MnDOT's Traffic web site (<http://www.dot.state.mn.us/trafficeng/>) for checklists, sample plans, details, etc.
3. Plan sheet format
4. District-modified standard plan sheets
5. District traffic control practices.
6. Typical Details
7. Plan/special provisions review comments

Contractor's Deliverables:

1. 30, 60%, 90%, 95% and 100% plan submittals (paper and Microstation)
2. Design quantity computations
3. QA/QC documentation
4. Transportation Management Plan (TMP)
5. QA/QC documentation.

5.0 DRAINAGE, CULVERT, TEMPORARY EROSION/SEDIMENT CONTROL, PERMANENT TURF ESTABLISHMENT PLANS AND SWPPP PLAN SHEET (Source Type 1257)

5.1 Hydraulic Design

The Contractor will perform the following tasks according to MnDOT's District 3 Hydraulic Guidelines, the Drainage Manual, and other applicable resources with the approval of the district Hydraulics Engineer or their delegation.

Determine the hydrology of the project area.

1. Rational method
 - a. SCS (Soil Conservation Service) method
 - b. Time of concentration
 - i. Impervious areas - apron and drop inlet
 - ii. Pervious areas - catch basin
 - iii. Significant offsite
 - iv. Other areas
 - c. Rainfall
 - i. IDF Curve
 - ii. Atlas 14 average rainfall depths
 - d. Models/Design software

- i. HydroCAD
 - ii. Geopak Drainage
 - iii. HY-8
 - iv. HEC-RAS
 - v. Haestads Methods Culvert Master
 - vi. FHWA Hydraulic Toolbox
 - vii. Other approved modeling software
- 2. Prepare a drainage map depicting the drainage area of all surface drainage (culverts, catch basins, and ponds).
- 3. Inspect all drainage features including centerline culverts, and storm sewer that will be left in place and/or connected to within the proposed project construction limits.
 - i. Provide dimensions (length, height, width), material type, and condition (consistent with MnDOT's Hydraulic Infrastructure Information Application (HydInfra) Condition Rating Guide).
 - ii. Provide a list of any pipe that cannot be inspected due to water or debris.
 - 1. Clean structures to make visual or video inspection possible. MnDOT will review and approve those pipes necessary for cleaning.
 - 2. Stabilize existing vegetation if disturbed by structure cleaning with MnDOT approved seed mixture, mulch, and or erosion control material.
 - iii. Provide a list of all pipe or structures requiring video inspection.
 - 1. MnDOT will review and approve those structures/pipe necessary for video inspection.
 - 2. Submit videos and include a summary sheet which tabulates the defects and condition information for individual features.
 - iv. Provide an electronic map of storm sewer features showing pertinent details including the flow connections and direction between structures.
 - 1. Provide a list of recommended fixes including RP's & alignment stations.
- 4. Generate reports of hydrologic and hydraulic computations for the pre and post construction conditions.
- 5. Assemble a matrix to summarize the relevant storm water and/or environmental regulations that will apply to the project and coordinate with MnDOT early in the design process to ensure the final design meets their storm water and/or environmental requirements.
- 6. Perform drainage modeling and design culverts, ditches (including flumes), ponds, and storm sewer. The design computations and sizes will be delivered between the 30% and 60% plan reviews. This deliverable will include
 - i. Drainage plan view sheets showing location of drainage structures, pipes, outfalls, and ponds.
 - ii. Drainage profile sheets showing the hydraulic grade line on proposed pipes and structures.
 - iii. Hydraulic design information in a table showing the proposed drainage structures, drainage areas, runoff coefficients, time of concentration, intensity, drainage area discharge, allowed spread width, computed spread width, and bypass flow amounts.
 - iv. Pond grading plans and details.
 - v. Infiltration/filtration basin and pond modeling computations.
 - vi. Hydraulic design of ditches and/or flumes.
 - vii. Incorporate necessary subsurface drainage into drainage plans, tabulations, and details as needed. Include all tile crossings that will need to be replaced.
 - viii. Evaluate storm sewer alternatives for addressing drainage deficiencies. Perform analysis of storm sewer outfall pipe sizing and alternatives for capacity improvements outside the state right-of-way and project area. Work includes feasibility-level analysis of options, preparation of cost estimates, and map of feasible outfall routes.

7. Provide a risk assessment for all culverts 48" or larger.
8. Prepare hydraulic plans that incorporate approved drainage recommendations.
9. Incorporate Best Management Practices (BMPs) according to National Pollutant Discharge Elimination System (NPDES) permit for use during construction.
10. Prepare signing plans as necessary for storm water ponds and/or devices.
11. Size rip rap according to proposed pipe velocity (MnDOT Drainage Manual).
12. Update culvert guide post to MnDOT standards.
 - a. Design criteria standards set forth at the discretion of the District 3 Hydraulic Engineer will include:
13. Castings placement
 - a. Place catch basins (CB) upstream of the following:
 - i. Intersection
 - ii. Crosswalks
 - iii. Ped ramps
 - iv. Bridge decks
 - v. Superelevation rollover (near 1%)
 - vi. Median and ramp noses
 - vii. As needed for spread criteria.
 - b. Include at least 1 flanking CB at mainline low points unless very small drainage area.
 - c. MnDOT M-11 castings for drop inlets (DI).
 - d. MnDOT A-9 castings for manholes (MH).
 - e. MnDOT B-9 castings for on-grade and B-5 for B-curb and median low points.
 - f. MnDOT D-4 castings for on-grade and D-3 for low point locations with D-curb.
 - g. 0.1 ft. sump in curb line and 0.2 ft. sump for DIs in ditches.
14. Spread
 - a. 10-year design event on grade
 - b. 50-year design event at low points with more than 2 ft. flooding potential
 - c. Low point inlet analysis will include the sump in depth and assumes 50% clogging of grate if no curb box.
 - d. Flanking inlets at edge of pool will not be used in spread computations (per MnDOT Drainage Manual section 8.7.10).
 - e. Maximum allowable spread will meet minimum standards defined in Tech. Memo. No. 11-14-B-05
15. Structures
 - a. 400 ft. max spacing for pipes 54 in. and smaller.
 - b. Angle between pipes greater than 90° where ever possible.
 - c. Structures sized using method described in the MnDOT Drainage Manual or using the Cretex Calculator.
 - d. MnDOT Design H (lead structures only), A, F, 4020 or 4020-combination will depend on:
 - i. Casting
 - ii. Pay height
 - iii. Pipe diameters
 - iv. Pipe configuration
16. Storm Sewer
 - a. Full flow capacity > or = rational method peak discharge for design event
 - b. Max. velocity in pipes (design flow) = 14 ft/s – desirable.
 - c. Max. velocity discharging to ponds (design flow) = or < 10 ft/s – desirable.
 - d. Min. velocity in pipes (design flow) = 3 ft/s – desirable. Check 80% capacity if less than 3 ft/s.
 - e. Min. pipe size = 15 in. (unless 12 in. needed for cover or clearance requirements).

- f. RCP minimum pipe cover = 1.25 ft. under rigid pavement, 1.75 ft. under flexible.
 - g. 10-year design event, 50-year for true sag where flooding of 2 ft. or more can occur.
17. Culverts
- a. Driveway
 - i. 10-year design
 - ii. 18 in. minimum, CSP (Corrugated Steel Pipe)
 - iii. Freeboard = non-damaging
 - b. Street Approach
 - i. 10-year design
 - ii. 18 in. minimum, RCP (Reinforced Concrete Pipe)
 - iii. Freeboard = 1 ft. below shoulder PI (desired), shoulder PI (minimum).
 - c. Centerline
 - i. 50-year design
 - ii. 24 in. minimum, RCP
 - iii. Freeboard = 1 ft. below shoulder PI (desired), shoulder PI (minimum).
18. Aprons - Safety aprons and/or grates required in clear zone per MnDOT Road Design Manual 8-4.03.02.
19. Water Quality - NPDES
- a. Deadpool Storage = 1800 ft³ per acre of drainage area.
 - i. Discharge WQV at 5.66 cfs/ surface area of pond.
20. Rate Control
- a. Don't exceed existing discharge rates for the 2-year, 10-year, and 100-year critical duration storm events, preferred.
 - b. May exceed existing rates if discharging to large waterbody.
 - c. Discharge to comply with controlling authority recommendations.
21. Volume Control - NPDES
- a. Infiltrate the runoff from 1" of runoff from new impervious surface where soils, groundwater, and contamination do not restrict infiltration.
 - b. Max. drawdown time = 48 hours
 - c. Pretreatment is required for runoff from new road construction.
22. Physical Design Criteria – Wet Detention Basin
- a. Provide access for future maintenance.
 - b. Prevent short-circuiting of flow from inlets to outlets.
 - c. Prevent mitigation of floating debris and oils for the 1-year storm.
 - d. Provide an emergency overflow spillway stabilized to convey flows from the 100-year storm event. Spillways not needed within interchanges.

All Preliminary Hydraulics Recommendations will be completed by the State per the MnDOT Drainage Manual found at <http://www.dot.state.mn.us/bridge/hydraulics/drainagemanual.html>. Field review of all structures will not be required.

5.2 Drainage Chart (Tabulation)

Show the type, size, location, and proposed construction impact of in-place drainage culverts and structures within the project limits. The tabulation will show the removals, salvages, reinstalls, linings, extensions, etc. of pipes, culverts, drainage structures. Also included in the tabulation will be new culverts and drainage structure information including type, size, lengths, class of pipe, excavation, and bedding. Contractor will use District 3 example drainage plans. The use of Geopak drainage charts are **not** acceptable. When multiple trunk highways are involved into a new Plan, begin numbering structures from the lowest TH number (i.e., start numbering from TH 10, then TH 23.) beginning structure numbers from west to east, or south to north - CB 1, CB 2, MH 3, etc.) and

carry numbering throughout, then continue numbering on next trunk highway. If during the development of the project it is found that an additional structure is needed, the added structure will contain a suffix "A", "B" or "C" (i.e., MH 24B).

5.3 Pond Design

Provide detailed layouts for the retaining ponds shown on the staff approved layouts.

5.4 Drainage Plan Sheets – to be combined with construction plans.

Show proposed culverts, aprons, other drainage structure, labeling size, material type, and structure number if applicable.

5.5 Proposed Drainage Tabulation

A list of the location, type, size, length, inlet and outlet elevations, grade, class, alternative pipe types, erosion control, excavation, and bedding for each proposed pipe and structure. The tabulations will also include quantities associated with box culvert/bridge construction.

5.6 Temporary Erosion Control

For temporary erosion control items, tabulate the location and type of temporary erosion control devices that will be used to control project runoff and sediment during construction. The Best Management Practices will be consistent with the Environmental Documentation and comply with Minnesota Pollution Control Agency (MPCA), Department of Natural Resources (DNR), Corp of Engineers (COE) and National Pollution Discharge Elimination System (NPDES) permit requirements. Erosion control must be developed. Provide any calculations required by the NPDES permit.

5.7 Permanent Erosion Control

For permanent erosion control items, tabulate the locations and types of permanent turf establishment in areas of construction disturbance and permanent erosion control devices that comply with MPCA Best Management Practices (BMP's). Erosion control will be developed in conjunction with District 3 Water Resources personnel.

5.8 SWPPP

NPDES Permit Application and Storm Water Pollution Prevention Plan (SWPPP) sheets containing the SWPPP and NPDES permit application will be developed as part of the overall plan set. A stand-alone SWPPP plan set will not be developed. The NPDES will be submitted by the state.

5.9 Permit Exhibits

Contractor will prepare cross sections and other exhibits for the USACOE wetland permit and any exhibits required for the DNR Public Waters Permit. State will submit the permits.

5.10 Environmental Green Sheets

Contractor will track and document environmental commitments through design phase for the project using MnDOT's "green sheet" process.

5.11 Drainage, Erosion Control and Turf Establishment Plan Sheets

Develop preliminary erosion control details. Coordinate usage of BMPs, and identify pay item breakdowns, and necessary special provisions. Prepare drainage, erosion control and turf establishment plans and SWPPP. The details will include notes, symbols and abbreviations of Best Management Practices being applied to control project runoff during construction. Prepare

tabulations that summarize the drainage, erosion control and turf establishment items and their locations.

5.12 Ensure all utility conflicts with storm sewer are resolved and depicted in the utility plans.

5.13 Deliverables

State's Deliverables:

1. Standard district SWPPP template
2. Hydrinfa listing of drainage structures in the project.
3. District 3 Water Resources repair guidelines.
4. Set of drainage as-builts from the original grading plan
5. Any available video files of structures and pipes.
6. Wetland delineation.
7. NPDES Permit application

Contractor's Deliverables:

1. Final Hydraulics recommendations including all drainage calculations.
2. Green sheets for environmental commitments
3. 60%, 90%, 95% and 100% drainage plan submittals.
4. QA/QC documentation
5. SWPPP plan sheets
6. Permit coordination including exhibits needed for permits
7. QA/QC documentation.

6.0 SPECIAL PROVISIONS (Source Type 1297)

The Contractor will be responsible for producing the Special Provisions for unique items (0.600 items) in this project not covered in the MnDOT Standard Specifications for Construction. The Contractor will coordinate with the State to review special provisions for all items. Each provision will contain a description, materials, construction requirements, method of measurement, and basis of payment for each item. An electronic draft copy will be submitted to State for review along with the 60%, 90%, 95% and 100% Final Design plans submittal.

6.1 Deliverables

State's Deliverables:

1. Example standard format for Special Provisions.

Contractor's Deliverables:

1. Coordination with State on Special Provisions for 0.600 items.
2. Draft Division ST, SS, SZ & SL at 60% plan submittal in Word format.
3. Draft Division ST, SS, SZ & SL at 90% plan submittal in Word format
4. Final Division ST, SS, SZ & SL at 95% plan submittal in Word format.

7.0 PERMANENT RETAINING WALL STRUCTURES (Source Type 1250)

This task is to determine the locations and types of retaining walls needed on the Project and provide detailed plan sheets. Wall designer will collaborate with MnDOT staff on wall types.

7.1 Retaining Wall

When proprietary or alternate wall systems other than cast-in-place concrete cantilever or counterfort/buttress walls are used, provide Site-specific information required by the wall provider in the roadway Design Documents.

Do not change or intermix wall types within an uninterrupted wall segment. A bridge abutment wing wall will be considered part of the wall segment. Wall types can be intermixed if the retaining wall and adjacent wing wall have the same architectural treatment facing.

When steps in the horizontal alignment are used in the wall design, provide steps that face away from the direction of traffic. Points of inflection in the horizontal alignment of retaining walls with the wall face angling toward or away from traffic are acceptable.

Do not use steel sheet pile, timber, or recycled material for permanent retaining walls or retaining wall foundations.

Support cast-in-place concrete retaining walls on spread footings, driven piles, or drilled shafts. Install base leveling pads of concrete, crushed stone, or other manufacturer-recommended material for proprietary or alternate wall systems when required by the manufacturer.

Use the MnDOT *Standard Plans Manual* for cast-in-place retaining walls that meet the conditions outlined in the Basis of Design on MnDOT Standard Plan 5-297.639.

7.2 Wall Design Parameters

For design conditions outside the design parameters in the MnDOT *Standard Plans Manual*, design cast-in-place concrete retaining walls as either cantilever or counterforted/buttressed retaining walls in accordance with the following:

- Use active earth pressure to design for the geotechnical failure modes (sliding, overturning and bearing) as well as for the structural design of the footing.
- Use at-rest earth pressure for the structural design of the stem.
- If the wall is retaining a sloping backfill (slope is steeper than 1V:6H), calculate the at-rest pressure coefficient with the following equation: $K_0 = (1 - \sin \phi) (1 + \sin \beta)$

Where:

ϕ = drained internal friction angle

β = back slope angle from horizontal plane

- Analyze the retaining wall for the load combinations defined on MnDOT Standard Plan 5-297.639.

For the design of any tiered wall, follow the guidelines in “Design Guidelines for Multi-Tiered MSE Walls”, FHWA/TX-05/0-4485-2.

Provide drainage for overland flow at the top of retaining wall systems. Also provide drainage within the wall system at the bottom rear of the backfill or reinforced fill zone and at the bottom rear of the wall stem or leveling pad. Do not design walls such that surface drainage is allowed to run over the top and down the face of the wall. Do not use Type I drainage systems for permanent retaining walls.

If the longitudinal slope of the footing becomes steeper than 1:10 (V:H), use stepped footings.

Slopes within 10 feet of the front of retaining walls will be 1:4 (V:H) or flatter.

7.3 Retaining Wall Plans

Contractor will prepare the necessary retaining wall plans (including, location, profile, and cross sections) in accordance with current State standards. Contractor will provide changes in drawings that comply with foundations and/or subgrade corrections recommended by State’s Foundations Unit and State’s

District Soils Office reports. Contractor will also provide structural calculations for walls that are not covered by State's Standard Plans.

Contractor will use the wall type, size, and location information from the Preliminary Plan, plus any additional information provided by State, to design the retaining wall system with consideration of economy, visual quality, and constructability. Walls must be offset a minimum of ten feet from the Right of Way line

Contractor will assign a geotechnical engineer experienced with the applicable wall systems to analyze internal, global, and compound stability of the wall system to ensure long term stability. Contractor will provide a 2-3-page report describing recommendations to improve long term stability.

If Contractor incorporates design elements that preclude other wall types from being constructed, Contractor must provide a detailed explanation of methodology to State.

7.4 Deliverables

State's Deliverables:

1. Geotechnical information
2. Staff approved layouts
3. Standard plan sheets
4. Review and comment

Contractor's Deliverables:

1. Wall type determination
2. 30%, 60%, 90%, 95% and 100% plan submittals.
3. Design calculations
4. Geotechnical stability report
5. QA/QC documentation
6. Special Provisions

8.0 SOILS BORINGS AND MATERIALS DESIGN RECOMMENDATIONS (Source Types 1180 & 1182)

The work and services to be performed by Contractor will consist of performing pavement cores and solid-stem auger borings; collecting field soil samples; performing laboratory tests including, but not limited to, Atterberg limits, particle size (percent sand, silt, and clay), R value, and organic content; producing boring logs; and the Materials Design Recommendation. Borings may be taken in the following areas, but not limited to, mainline, shoulder, and turn lane pavement; shoulder PIs; widening areas; medians; inslopes; ditch bottoms; culvert locations; new alignment areas; and in potential ponding areas.

All work under this section (8.0), including soil boring logs, soil identification, and the Materials Design Recommendation, will be prepared by, or under the direct supervision of a Professional Engineer registered in the State of Minnesota, and highly knowledgeable in the subject matter.

Key Reference Information Required

Contractor will have ready access, and detailed knowledge, of the following reference information:

- * MnDOT Grading and Base and Pavement Design Manuals
<http://www.dot.state.mn.us/materials/pvmt/design/manual.html>
- * MnDOT Lab manual
- * State's Manual on Uniform Traffic Control Devices

* Triaxial Soil Classification Chart from the MnDOT Grading and Base Manual

Soils Analysis and Recommendation (Source Type 1180)

Prepare a Materials Design Recommendation that addresses all grading, sub-surface, and pavement features, including subcuts, removals, transitions and tie-in points. Prepare recommendations for Project features that include muck excavations, subgrade excavations, embankment construction, culvert treatments, subsurface drainage, dewatering, frost treatments, turf establishment, geotextile recommendations, and base and surfacing design for the proposed pavement, including trails, sidewalk, loops, ramps, frontage roads, shoulders, and temporary pavement designs. Prepare the Materials Design Recommendation in accordance with the MnDOT Pavement Design Manual, and addressing all categories listed in Section 830 of said manual.

A Draft MDR and all pertinent data/information will be delivered to the State's Project Manager. The State's Project Manager will review and comment within 2 weeks of receiving all required information.

Geotechnical (Source Type 1182)

Soil Borings, Coring, and Lab Testing

8.1 Solid Stem Auger Borings and Cores

Contractor will locate and stake proposed boring locations in the field, clear utilities using the Gopher State One Call System, provide necessary traffic control, perform solid stem auger borings and pavement cores and the associated soils survey and classification, produce field logs for each soil boring/core, perform laboratory tests on selected soil samples and produce final boring/core logs.

Borings and Cores will be made in accordance with the MnDOT "Pavement Design Manual". All auger flights will have a minimum diameter of 3 ¾ inches. Depth of all borings is to be measured from the existing ground line at the time the boring is performed. Contractor will extend borings to depths determined necessary for design based on the available topographic information and design grades of the roadways. Holes discovering peat and/or muck must be at least 2 feet into the underlying layer and at least one boring should extend 15 feet below the apparent peat/muck bottom to provide adequate evidence against a false bottom. Borings at culvert locations will be extended to 5' below the culvert invert. Borings will be taken as close to the culvert barrel without contacting the drainage structure. No boring will terminate in unstable materials such as muck or peat. All soils encountered in the project area will be correctly classified. To meet this requirement, Contractor will perform soil classification in the field at the time of sampling (will require lab testing of selective samples to confirm the field identification).

Soil classification will be performed in accordance with the State's classification system as described in the MnDOT Grading and Base and Pavement Design Manuals.

The "pulling dead" sample method is the preferred method of sampling and will be used whenever possible. However, the augured method may be acceptable in some situations. However, no more than 5 feet of material will be brought to the surface at one time. When applicable, ground water level will be measured and recorded in all borings. Measurements of standing water in the bore hole will be noted on the field boring log and will include the date, time, depth of hole, depth to water surface, method of measurement and other pertinent information.

If bore hole sealing is required, it will be done in accordance with the Minnesota Rules, Chapter 4725, Rules Relating to Wells and Borings, effective May 10, 1993, including the revisions of November 15,

1993 and any current revisions. Please note that the required owner's copy of the sealing records should be sent to the District Materials Engineer at the following address:

Sara Johnson, P.E.
Minnesota Department of Transportation - District 3
7694 Industrial Park Road
Baxter, MN 56425-8096

Bore holes will be backfilled in such a manner as to insure against subsequent settlement of the backfill resulting in a hole hazardous to persons, animals or equipment. Upon completion of the field investigation work, all surplus material and debris resulting from work will be removed and the premises left in a neat, orderly condition. Existing improvements disturbed during boring operations will be fully restored in kind and character as they were before the work started. Restoration work will be the responsibility of the Contractor and must be completed within 2 working days of the work at that location being completed.

8.2 Auger boring site selection and frequency

The borings will be performed at drainage structure locations as indicated on the Drainage Overview Map. Should any of the borings fall within the limits of a bridge or other type structure, they must be taken as close to the original location as possible without damaging the structure. If unsuitable materials such as peat or muck are encountered during the drilling, depth of drilling will be increased to identify the termini of the unsuitable material. Contractor will be responsible for all measuring and marking needed to locate boring sites. Drilling site selection will be accurate to approximately 5 feet, or better, horizontally from the required locations as defined above. Boring locations may be slightly altered based on topography, utilities and stratigraphy encountered or as directed by State's Project Manager. Follow the MnDOT Pavement Design Manual for guidance on boring intervals. Provide a boring/core location map for approval, prior to drilling/coring.

8.3 Auger boring data collection

Boring data will be collected using the State's "Soils Data Dictionary", or approved equivalent, in conjunction with Trimble Global Positioning System (GPS), or approved equivalent. Abbreviations for soils terms, as defined in the State's Geotechnical and Pavement Manual, are built into the "Soils Data Dictionary".

A timely and uniform flow of information to the State is required for determining acceptance of the Contractor's work, and for evaluation of the progress of the contractor's field data acquisition.

8.4 Auger boring location reporting

The final horizontal locations of all bore holes will be provided to the State in two formats:

- A) In the appropriate NAD83 (2011) Benton County coordinate in feet; and
- B) In reference point & offset format, OR centerline station and offset.

The final coordinate location (x,y) of each bore hole will be at least one foot in accuracy. No vertical location (elevation) is required for the bore holes.

8.5 Classification of auger soil samples - Field

Every sample taken will be visually inspected, classified and given a description. Soils will be classified by texture, color, moisture and organic content in accordance with State criteria as outlined in the MnDOT "Pavement Design Manual" and the MnDOT Triaxial Classification Chart.

Contractor will perform at least 4 gradations and 4 hydrometer tests on non-granular representative soil samples to serve as verification of Contractor's field soil classification (these numbers can be altered at the discretion of the State's Project Manager based on soils encountered).

To insure field classification procedures are adequate early in the project, at least 2 of the gradation and at least 2 of the hydrometer tests will be performed, and results submitted to the State's Project Manager, before 20% of the total number of borings are completed under the contract.

At least two representative samples of each major soil type found during the boring activity will be retained by the Contractor and available for inspection until the project is terminated by the State.

The Contractor will perform a minimum of 10 gradation analyses on granular material (sand and/or gravel base materials) encountered, (these numbers can be altered at the discretion of the State's Project Manager based on soils encountered).

The Unified System is not adequate and will not be accepted.

Minimum sample quantities required for disturbed boring tests are listed in the Grading and Base and Pavement Design Manuals.

8.6 Classification and testing of auger soil samples - Laboratory

Perform laboratory soils tests of sufficient number and type to ascertain the nature, strength, conditions, stability, and consolidation characteristics of soil conditions existing at the Site that influence the proposed design and construction activities. The field and laboratory testing is described in the MnDOT Grading and Base and Pavement Design Manual. The laboratory procedures will follow those set forth in the State's Lab Manual. Compile all completed laboratory test data in an electronic document for submittal to MnDOT with the MDR.

8.7 Traffic Control

Traffic control will be required whenever working on the roadway or shoulders or parking on the shoulders. All traffic control will be in accordance with the Minnesota Manual on Uniform Traffic Control Devices including the Field Manual.

All traffic control will be the responsibility of the Contractor. Contractor will provide State's Project Manager at least 3 working days' notice of any lane closure. All flaggers used on the project must be certified.

8.8 Project Deliverables

State's Deliverables:

1. Soils Data Dictionary file in Trimble Data Dictionary (*.ddf) file format.
2. Review boring/core layout prior to drilling/coring activity.
3. Review and comment on Draft and Final MDR.

Contractor's Deliverables:

1. Provide boring/core layout map for approval, prior to field work.
2. Locate and stake proposed boring locations in the field.
3. Clear utilities using the Gopher State One Call System.
4. Provide traffic control for field work.
5. Perform auger borings on existing and proposed roadway alignments. Core existing pavements. All cores or borings through existing pavement must be backfilled and patched with the same material,

- i.e. bituminous road requires a bituminous patch.
6. Provide computer files containing information for the soil boring and cores in Trimble GPS data files (in *.ssf format) containing both bore log information as defined in the State’s “Soils Data Dictionary”, and X and Y coordinates. Also provide final boring and core logs in .pdf format.
 7. Plotted borings and cores in plan and profile view using Microstation.
 8. Laboratory testing data.
 9. Draft and Final MDR.
 10. Submit electronic project files on CD at the project completion.

9.0 CONSTRUCTION SUPPORT (Source Type 1800)

During the construction phase of the project, Contractor will respond to Requests for Information (RFIs) and provide supporting design analysis as needed. If these services are needed, State’s Project Manager will send the RFIs to Contractor, and Contractor will direct its responses back to State’s Project Manager. Assume 120 hours for construction support.

10.0 CONSTRUCTION DESIGN SUPPORT (Source Type 1250)

Contractor will provide 500 hours of Post-letting Construction support and be available to respond to questions or design related issues that arise during the construction phase. Contractor will attend Pre-construction meetings as requested by the State.

11.0 PROJECT SCHEDULE

Construction Limits	April 1, 2021	Verify Construction Limits.
30% Plan	September 10, 2021	Plan for MnDOT review
60% Plan	December 31, 2021	Plan for MnDOT review and constructability review.
90% Plan	April 22, 2022	Plans for MnDOT review and constructability review.
95% Plan	June 3, 2022	Plans for MnDOT Central Office review.
100% Plan	July 1, 2022	Signed plan complete and ready to be submitted to Central Office.
Anticipated letting	November 18, 2022	
Construction Design Support	April 2023 through November 2024	As needed