Background
MnDOT, Metro Transit, Hennepin County, and the City of Minneapolis are in the process of developing a project for Interstate 35W between 43rd Street in Minneapolis and 15th Street in Minneapolis. The primary goals of this project are to enhance the Interstate 35W corridor for transit by extending a permanent managed lane (HOT) in the NB and SB directions between Downtown Minneapolis and 46th Street, the construction of a transit station located at or near Lake Street, pavement preservation, and bridge preservation. This project is being developed under State Project No. 2782-327.

The current project is scheduled to be let for construction on June 7, 2017 and is expected to be a 4 year construction period. The project includes work on Interstate 35W from 43rd Street to 11th Avenue, on Interstate 94 from Portland Avenue to Nicollet Avenue, and on TH 65 from Franklin Avenue to 15th Street.

Interstate 35W currently serves an average of 198,550 Average Annual Daily Traffic (AADT). Interstate 94 currently serves an average of 183,750 AADT. Trunk Highway 65 currently serves an average of 38,500 AADT. The projected average volumes in the design year of 2038 for the preferred alternative is expected to be 233,740, AADT, 210,000 AADT, and 53,100 AADT for Interstate 35W, Interstate 94, and Trunk Highway 65, respectively.

Interstate 35 is a roadway that traverses the State of Minnesota from the Iowa Border to Duluth Minnesota and splits into 35W and 35E through the Twin Cities Metropolitan Area. Interstate 94 is a roadway that traverses the State of Minnesota from the North Dakota Border to Hudson Wisconsin. Trunk Highway 65 is a Principal Arterial roadway that starts on Interstate 35W at about Franklin Avenue and crosses the State of Minnesota to Trunk Highway 71 in Koochiching County.

The scope of the project will include the reconstruction of Interstate 35W from 43rd Street to approximately 11th Avenue, the reconstruction of Westbound Interstate 94 from Park Avenue to Nicollet Avenue, and Trunk Highway 65 from approximately 24th Street to 15th Street. The ramps at 36th Street, 35th Street, and 31st Street will be re-constructed. The ramp from northbound I-35W to westbound I-94 will be reconstructed and re-aligned to enter on the left hand side of westbound I-94 in lieu of the right side. New ramps from Northbound Interstate 35W to 28th Street and from Southbound Interstate 35W to Lake Street will be constructed. The project will include the re-decking of the 38th Street Bridge over Interstate 35W and the replacement of the bridges at 40th Street Pedestrian Bridge, 31st Street, Lake Street, Mid-Town Greenway, 28th Street, 26th Street, 24th Street Pedestrian Bridge, Franklin Avenue, and the TH 65 bridges over westbound I-94. The project will reconstruct one pier on the Portland Avenue Bridge over Interstates 94 and 35W. The project will also include the reconstruction of 31st Street, Lake Street, and the approaches to the bridges at 28th Street, 24th Street, 26th Street, and Franklin Avenue. The project will also include the construction of the proposed transit station located on Interstate 35W at Lake Street.

Objective
The Minnesota Department of Transportation (MnDOT) is requesting Letters of Interest to support MnDOT and its partners in the development of project bid documents for State Project Number 2782-327. The contractor will develop the following documents, plans, and provisions for the proposed project:

1) Retaining Wall Plans and Provisions

Project Schedule

<table>
<thead>
<tr>
<th>Percent Design</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>30% Detail Design</td>
<td>November 30, 2015</td>
</tr>
<tr>
<td>60% Detail Design</td>
<td>July 19, 2016</td>
</tr>
<tr>
<td>90% Detail Design</td>
<td>October 12, 2016</td>
</tr>
<tr>
<td>95% Detail Design</td>
<td>November 28, 2016</td>
</tr>
<tr>
<td>Project Turn In</td>
<td>December 5, 2016</td>
</tr>
</tbody>
</table>
Scope of Work

Task 1: Project Management

This task focuses on effective communication of the project work to expedite the decision making process and maintain project schedule. All documents to be produced under this contract must be ADA Compliant and translatable to other languages, as required. It assumes Contractor Involvement for twenty months (20) from Notice to Proceed.

Subtask 1.1: Ongoing Project Coordination

The Contractor will develop a base-lined project schedule that identifies each project task and duration that will be maintained throughout the duration of the project. The Contractor will provide monthly progress reports that document the hours expended for the delivery of the project.

Task 1 Deliverables and Deliverable Due Dates

- Project Schedule – Within 30 days of Notice to Proceed, maintained and updated monthly
- Meeting Agendas – 3 days prior to scheduled meetings
- Meeting Minutes – Within one week after meeting

Task 2: Retaining Wall Design

This task will be to develop the Detail Design for the Proposed Retaining Walls for SP 2782-327.

Subtask 2.1: Retaining Wall Matrix

The project will require the Contractor to develop final design plans for the walls identified in the table shown below. The table identifies the identified wall name, wall location, estimated length of the proposed wall, estimated height of the proposed wall, and the proposed wall type.

<table>
<thead>
<tr>
<th>Wall</th>
<th>Location</th>
<th>Wall Type</th>
<th>Max. Height</th>
<th>Length</th>
<th>Cut/Fill</th>
<th>Comments/Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWW1A</td>
<td>35th St. Exit Ramp - East Side of ramp</td>
<td>CIP</td>
<td>10</td>
<td>394</td>
<td>cut</td>
<td>Special Design due to Noise Wall on CIP</td>
</tr>
<tr>
<td>RWW1</td>
<td>Between 35WSB &amp; 31st St. Ent. Ramp</td>
<td>CIP</td>
<td>23</td>
<td>544</td>
<td>fill</td>
<td>Special Design due to Noise Wall on CIP</td>
</tr>
<tr>
<td>RWW3</td>
<td>Between 35WSB &amp; Green Crescent Trail</td>
<td>CIP</td>
<td>34</td>
<td>475</td>
<td>both (60-40)</td>
<td>Public Art on wall. Special Design cantilever or counterfort</td>
</tr>
<tr>
<td>RWW4</td>
<td>35WSB between 26th &amp; 28th St.</td>
<td>CIP and Soldier Pile</td>
<td>26</td>
<td>1459</td>
<td>cut (80-20)</td>
<td>CIP to Station 705 and Soldier Pile from 705 to end.</td>
</tr>
<tr>
<td>RWW6A</td>
<td>SB Exit Ramp (to Lake St.)</td>
<td>CIP</td>
<td>8</td>
<td>280</td>
<td>fill</td>
<td>Special Design due to Noise Wall on CIP</td>
</tr>
</tbody>
</table>
### I-35W Retaining Wall Design

**Exhibit A - Draft Scope of Work**

<table>
<thead>
<tr>
<th>RW6B</th>
<th>SB Exit Ramp (to Lake St.)</th>
<th>CIP</th>
<th>20</th>
<th>61</th>
<th>Cut</th>
<th>2 stand. CIP panels of 30.5' &amp; tie to wing wall.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RWW7</td>
<td>35WSB at 26th St. Soldier pile</td>
<td>27</td>
<td>840</td>
<td>Cut</td>
<td>move wall to 10' offset from face of curb</td>
<td></td>
</tr>
<tr>
<td>RWW9</td>
<td>Between 35WSB and 4th Ave. CIP</td>
<td>29</td>
<td>406</td>
<td>both (60-40)</td>
<td>alignment needs to be tied to bridges</td>
<td></td>
</tr>
<tr>
<td>RWE3</td>
<td>Between 35WNB/28EXIT &amp; 2nd Ave. CIP</td>
<td>19</td>
<td>483</td>
<td>fill</td>
<td>Special Design due to Noise Wall on CIP, Public Art</td>
<td></td>
</tr>
<tr>
<td>RWE7</td>
<td>35WNB between 26th &amp; 28th St. Soldier pile</td>
<td>8</td>
<td>518</td>
<td>cut</td>
<td>on 35WNB, from 28th St. Bridge to 701+50 (Right), 3-4' wall height at end of wall</td>
<td></td>
</tr>
<tr>
<td>RWE8</td>
<td>35WNB between 26th &amp; 28th St. Soldier pile</td>
<td>10</td>
<td>278</td>
<td>cut</td>
<td>on 35WNB, from sta. 708+50 to 26th St. Bridge (Right), 3-4' wall height at end of wall</td>
<td></td>
</tr>
<tr>
<td>RWE9</td>
<td>35WNB north of 26th St. Soldier pile</td>
<td>11</td>
<td>234</td>
<td>cut (70-30)</td>
<td>buildings very close to r/w</td>
<td></td>
</tr>
<tr>
<td>RWGC1</td>
<td>Green Crescent Trail (knee wall) CIP</td>
<td>1.5</td>
<td>356</td>
<td>cut</td>
<td>Knee wall along Green Crescent Trail</td>
<td></td>
</tr>
<tr>
<td>RWGC2</td>
<td>Terrace wall betw. Green Crescent &amp; RWW3 CIP</td>
<td>9</td>
<td>172</td>
<td>cut</td>
<td>Terrace wall between Green Crescent Trail and Retaining Wall RWW3</td>
<td></td>
</tr>
</tbody>
</table>

### Subtask 2.1.1 Cast In-place Walls

These plans will be developed using MicroStation V8i and GEOPAK V8i. The documents will be developed using MnDOT publication standards for engineering plans. These standards can be found on MnDOT’s webpage located at: [http://www.dot.state.mn.us/caes/index.html](http://www.dot.state.mn.us/caes/index.html). The plans will also be developed consistent with Minnesota Department of Transportation – Metropolitan District’s Sample Plan for Retaining Walls and use MnDOT’s Standard Specifications for Construction 2016 Edition.

Work will be in accordance with the Minnesota Department of Transportation (MnDOT) Highway Project Development Process (HPDP) Handbook, Technical Memoranda, AASHTO LRFD Bridge Design Specification (7th Edition and Current Interims), and will be completed using English units. Electronic file sharing with the STATE is required.

Architectural detailing will follow the Corridor Visual Quality Manual requirements. There are some walls where the architectural treatments will be defined by a public art process that will be ongoing for this project. If walls adjoin bridge wing walls, the height of the coping will match the thickness at the edge of the bridge deck.
The design for CIP cantilever retaining walls will follow the criteria specified in the LRFD RETAINING WALL STANDARD PLANS DESIGN CRITERIA. Design the connection between posts and plank and connection between the wall and posts (There is higher wind load for noise on top of structure compared to the wind loads used to design the standard noise walls). Use The AASHTO LRFD Bridge Design Specifications (7th Edition and Current Interims) for the wind load on top of structures.

The Contractor will perform the following tasks:

1) Prepare and submit Draft Design Plans for each wall to the State for Review, no later than March 1, 2016.
2) Incorporate comments received from the State and resubmit Final Retaining Wall Plans including Tabulations, quantities, and special provisions, no later than July 19, 2016.
3) All electronic files that would support the design provided in task 2, including calculation of quantities and tabulations.

The Contractor will identify any utility conflicts associated with the development of the Retaining Wall Plans, identify solutions that would avoid or minimize impacts, and coordinate associated impacts with the State no later than the 30% plan submittal identified as November 30, 2015 in this contract.

The State will provide the following information to the Contractor upon receipt of the notice to proceed:

1) Construction Plans showing proposed retaining wall locations,
2) Proposed alignment for adjacent roadways and the proposed retaining wall
3) Final Profile Grades for Noise Walls to be integrated into the design of the retaining walls,
4) Final profile grades for the top of retaining wall,
5) Final profile grade for the proposed ground line,
6) Foundations analysis for each proposed retaining wall with recommendations and subsurface investigation information,
7) Aesthetic Criteria to be used for each wall,
8) Inplace Utility Locations.
9) Design Criteria for the integration of noise walls into the design for the proposed retaining walls, and
10) All electronic files needed to support items 1 through 9.

**Subtask 2.1.2 Cantilever Walls or Counterfort Design Walls**

These plans will be developed using MicroStation V8i and GEOPAK V8i. The documents will be developed using MnDOT publication standards for engineering plans. These standards can be found on MnDOT’s webpage located at: [http://www.dot.state.mn.us/caes/index.html](http://www.dot.state.mn.us/caes/index.html). The plans will also be developed consistent with Minnesota Department of Transportation – Metropolitan District’s Sample Plan for Retaining Walls and use MnDOT’s Standard Specifications for Construction 2016 Edition.

Work will be in accordance with the Minnesota Department of Transportation (MnDOT) Highway Project Development Process (HPDP) Handbook, Technical Memoranda, AASHTO LRFD Bridge Design Specification (7th Edition and Current Interims), and will be completed using English units. Electronic file sharing with the STATE is required.

Architectural detailing will follow the Corridor Visual Quality Manual requirements. There are some walls where the architectural treatments will be defined by a public art process that will be ongoing for this project. If walls adjoin bridge wing walls, the height of the coping will match the thickness at the edge of the bridge deck.

The design for CIP cantilever retaining walls will follow the criteria specified in the LRFD RETAINING WALL...
STANDARD PLANS DESIGN CRITERIA.

Retaining Wall RWW3 is estimated to be in excess of 29 feet. And require design consistent with either Cantilever or Counterfort Design. The Contractor will use guidance provided in Exhibit A. of this scope of service for the design of this wall.

The Contractor will perform the following tasks:

1) Prepare and submit Draft Design Plans for each wall to the State for Review, no later than March 1, 2016.
2) Incorporate comments received from the State and resubmit Final Retaining Wall Plans including Tabulations, quantities, and special provisions, no later than July 19, 2016.
3) All electronic files that would support the design provided in task 2, including calculation of quantities and tabulations.

The Contractor will identify any utility conflicts associated with the development of the Retaining Wall Plans, identify solutions that would avoid or minimize impacts, and coordinate associated impacts with the State no later than the 30% plan submittal identified as November 30, 2015 in this contract.

The State will provide the following information to the Contractor upon receipt of the notice to proceed:

1) Construction Plans showing proposed retaining wall locations,
2) Proposed alignment for adjacent roadways and the proposed retaining wall
3) Final Profile Grades for Noise Walls to be integrated into the design of the retaining walls,
4) Final profile grades for the top of retaining wall,
5) Final profile grade for the proposed ground line,
6) Foundations analysis for each proposed retaining wall with recommendations and subsurface investigation information,
7) Aesthetic Criteria to be used for each wall,
8) Inplace Utility Locations.
9) Design Criteria for the integration of noise walls into the design for the proposed retaining walls, and
10) All electronic files needed to support items 1 through 9.

Subtask 2.1.3 Special Design Walls (Soldier Pile)

These plans will be developed using MicroStation V8i and GEOPAK V8i. The documents will be developed using MnDOT publication standards for engineering plans. These standards can be found on MnDOT’s webpage located at: http://www.dot.state.mn.us/caes/index.html. The plans will also be developed consistent with Minnesota Department of Transportation – Metropolitan District’s Sample Plan for Retaining Walls and use MnDOT’s Standard Specifications for Construction 2016 Edition.

Work will be in accordance with the Minnesota Department of Transportation (MnDOT) Highway Project Development Process (HPDP) Handbook, Technical Memoranda, AASHTO LRFD Bridge Design Specification (7th Edition and Current Interims), and will be completed using English units. Electronic file sharing with the STATE is required.

Architectural detailing will follow the Corridor Visual Quality Manual requirements. There are some walls where the architectural treatments will be defined by a public art process that will be ongoing for this project. If walls adjoin bridge wing walls, the height of the coping will match the thickness at the edge of the bridge deck.
Proprietary wall designs will contain the following geometric and project specific information:

1. List of acceptable wall types and/or systems for each wall on the project.
2. Geometrics
   a) Beginning and end of wall stations.
   b) Top of wall profile.
   c) Original and proposed ground line profiles in front of and behind the retaining wall. Profiles will show existing and proposed infrastructure (i.e., utilities and other existing or proposed structures) in the profile section.
   d) Cross sections at relevant wall locations, usually at no more than 50 feet intervals. Cross sections will show temporary and permanent ROW easement limits and existing utilities.
   e) Plan view(s) of wall alignment showing ROW limits, existing and proposed utilities, etc.
   f) Wall alignment geometric data will be shown and tabulated (similar to roadway alignment data).
   g) Details of footing, leveling pad, aesthetics, or other detailed wall requirements.
   h) Details of wall appurtenances such as traffic barriers, moment slabs, coping, fencing, drainage, or other obstructions including but not limited to the location and configurations of signs and lighting including conduit locations and right-of-way limits.
   i) Construction staging requirements, if applicable, including sequence of traffic control, access, temporary construction, temporary fencing, temporary or permanent barrier, and temporary and permanent drainage.
   j) Elevation of highest permissible level for foundation construction.
   k) Location, depth and extent of unsuitable material to be removed and replaced. Details of required ground improvement.
   l) Quantities table showing estimated wall area and quantity of appurtenances and traffic barriers, together with notes identifying the assumptions made in estimating.
   m) At abutments, elevations of bearing pads, location of bridge seat, skew angle and horizontal and vertical survey control data including clearance and details of abutments.
   n) At stream locations, extreme high water, normal water levels and estimated scour depth.
   o) Grading material requirements adjacent to the wall, including details of needed perforated pipe drainage or other drainage requirements.
3. Geotechnical Information
   A copy of the subsurface investigation report and specific design values for the following parameters (where required)
   a) Plan view of sampling and field-testing locations across project site.
   b) Subsurface profile across project site.
   c) Boring logs.
   d) Laboratory test data and results.
   e) Engineering properties of the foundation soil, the reinforced soil, and the retained soil as appropriate to ensure the proper long-term performance of the MSE wall structure.
   f) Required soil modification.
   g) Global and compound stability analysis.
   h) Allowable or factored bearing resistance and ultimate or factored bearing pressure beneath the wall footing and the reinforced earth mass.
   i) Settlement analysis for the foundation soil beneath the wall and the reinforced earth mass.
I-35W Retaining Wall Design

Exhibit A - Draft Scope of Work

j) Groundwater elevations, free water conditions, anticipated high water conditions and required drainage schemes.
k) Recommendations concerning items that may be appropriate to ensure the proper long-term performance of the wall structure.
l) Shear strength (drained and undrained for fine grained soils) of foundation soils.
m) Required shear strength and unit weight ranges of select backfill.
n) Shear strength of random fill or in-situ soil behind wall.

4. General Structural and Geotechnical Design Requirements

The following are general design requirements for retaining walls that will be shown on the drawings or addressed in the contract documents. Specific design requirements for each of the wall types are discussed in the following sections:

a) Design Life of the structure (example: permanent mechanically stabilized earth walls are designed, for minimum corrosion service life of 100 years)
b) Driving force and resistance for overturning, sliding and stability of temporary construction slopes. Analysis for global and compound stability is performed by Foundation Unit.
c) Ultimate and nominal foundation bearing pressure, minimum wall footing embedment depth and maximum tolerable total and differential settlements.
d) Internal design requirements for mechanically stabilized earth wall products.
e) Magnitude, location and direction of external loads due to bridge, overhead signs and lights, traffic surcharge and rapid ground water draw down or displacements and other external loads.
f) Limits and requirements for drainage features beneath, behind, or through retaining structure.
g) Backfill requirements for both within and behind retaining structure.
h) Requirements for special facing panels, module finishes, colors, and/or protective coatings.
i) Governing sections of construction specifications.

The Contractor will perform the following tasks:

1) Prepare and submit Draft Design Plans for each wall to the State for Review, no later than March 1, 2016.
2) Incorporate comments received from the State and resubmit Final Retaining Wall Plans including Tabulations, quantities, and special provisions, no later than July 19, 2016.
3) All electronic files that would support the design provided in task 2, including calculation of quantities and tabulations.

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5) Final profile grade for the proposed ground line,
6) Subsurface Investigation Report for each retaining wall
7) Aesthetic Criteria to be used for each wall,
8) Inplace Utility Locations.
9) Design Criteria for the integration of noise walls into the design for the proposed retaining walls, and
10) All electronic files needed to support items 1 through 9.