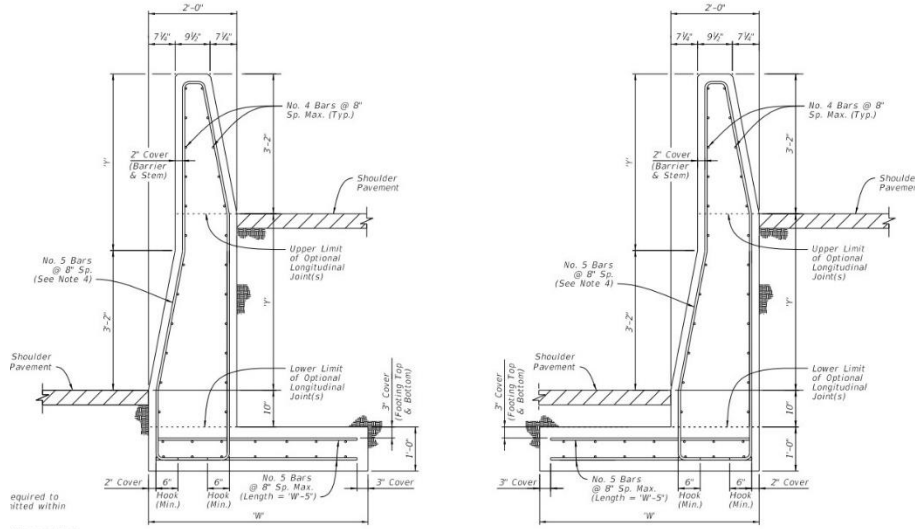


<b>Project Title:</b>	<b>Title: Optimized Grade Separated Concrete Median Barrier (2023-04-LCB)</b>
<b>Project Synopsis:</b>	<p>Often times grade separation is required along median barriers or between adjacent roadways. In particular, for corridors with restricted right-of-way and along superelevated curves. As a result, a combination of median barrier and retaining wall is needed. Some states have developed details for modified median barriers (see details below from FDOT Standard Plans) and there is at least one research project in this area (TTI Report No. 405160-33/35). However, an optimized design evaluated for MASH crashworthiness is needed.</p>  <p style="text-align: center;"> <b>TALL GRADE-SEPARATED HEEL FOOTING SECTION FOR <math>Y \leq 4'-0"</math></b> </p> <p style="text-align: center;"> <b>TALL GRADE-SEPARATED TOE FOOTING SECTION FOR <math>Y \leq 4'-0"</math></b> </p>
<b>Project Goal(s):</b>	Provide MASH TL-4 Compliant Optimized Grade Separated Concrete Barrier Design for range of fill heights.
<b>Project Background:</b>	Grade separation is used along roadway medians with restricted right-of-way and superelevated curvature. For these locations a MASH compliant grade separation barrier system is needed.
<b>Proposed Work Plan:</b>	<ol style="list-style-type: none"> <li>1.) Task 1 – Literature Review of MASH Compliant TL-4 Concrete Median Barrier Systems           <ul style="list-style-type: none"> <li>- Review literatures – NCHRP 22-20, TTI Report 405160-33/35, etc.</li> <li>- Investigate current state of the grade separated concrete barrier design</li> <li>- Retaining wall system / median barriers</li> <li>- Combination of median barriers and retaining wall</li> </ul> </li> <li>2.) Task 2 – Survey Member States to determine range of grade separation requirements           <ul style="list-style-type: none"> <li>- Conduct survey to obtain data for the current designs and/or demands of the grade separation barrier system</li> <li>- Determine grade separation barrier design parameters</li> </ul> </li> <li>3.) Task 3 – Design check using strength analysis per AASHTO section 13, NCHRP 22-20(2) (MSE wall forces) and NCHRP report 20-07 (395)</li> <li>4.) Task 4 - Develop and conduct computer simulations for an optimized barrier design           <ul style="list-style-type: none"> <li>- Develop computer simulation model for an optimized barrier design based on the survey result</li> <li>- Develop soil / ground computer model</li> <li>- Run parametric simulations for maximizing the structural loading on key component of the barrier and identify stressed region</li> </ul> </li> </ol>

	<ul style="list-style-type: none"> <li>- Identify the critical and optimized length (example 40-ft)</li> </ul> <p>5.) Task 5 – Develop final report documenting the work performed with guidelines</p> <p><b>Phase II recommendation for testing (or not)</b></p>
<b>Deliverables:</b>	Final Report providing design guidance for a MASH Compliant TL-4 grade separated concrete barrier system.
<b>Urgency and Expected Benefit:</b>	The results of the project would provide member states with a MASH TL-4 compliant grade separation barrier system.
<b>Problem Funding and Research Period:</b>	<b>Total Estimated Cost = \$159,197</b>
<b>Developer(s) of the Problem Statement:</b>	<p>Name: Richard Stepp, P.E., Florida Department of Transportation</p> <p>Email: richard.stepp@dot.state.fl.us</p> <p>Phone: (850) 414-4313</p>