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View Q&A



Guardrail attached to low fill culverts

Question	
State	OH
Description Text	<p>In Research Report No. TRP-03-278-13 - <i>Post Weld and Epoxy Anchorage Variations for W-beam Guardrail Attached to Low-Fill Culverts</i>, the results conclude that both ASTM A36 and Grade 50 steel post and base plates are expected to perform similarly. The design Ohio uses is slightly different (see attached). Would you expect this design to also perform similarly regardless of which of these two steels are used?</p> <p>Thanks!</p>

System Performance Evaluation

System Types

Road Closure Gates

Thrie Beam Guardrails

Applications

System Features

Date August 14, 2018

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Attachment [low fill post.JPG \(attachments/4611b97003feb36ecab8630b5019ef3f.JPG\)](#)

Response	
Response (active)	<p>There are two MASH TL-3 crashworthy, top-mounted, strong-post, W-beam guardrail systems for use on low-fill culverts. The report you referenced herein evaluated variations of a system developed at MwRSF. This system incorporated a 1/2" thick base plate that is intended to yield and deform during loading. this plastic deformation in the plate absorbs energy and limits the resistance forces of the posts. The second guardrail on culvert system was developed at TTI and incorporated a 7/8" thick base plate, which remains rigid during impacts. Thus, the forces from the posts are higher. Both systems have been crash tested, so either can be used for treatments on low-fill culverts.</p> <p>The drawings you attached appear to be utilizing the details from the TTI system. The upper right base plate in the attachment has the same thickness, hole dimensions, and offset from the headwall as the TTI base plate. Since the as-tested system used A36 steel and didn't experience deformations to the plate, the same result would be expected for a plate made from stronger, grade 50 steel. A copy of the TTI report on this system is attached.</p> <p>The base plate detail shown in the upper left of your detail incorporates a wider design with lateral slots spaced 11" apart instead of 9". Also, this plate is thinner than the original plate (3/4" vs. 7/8"). The combination of a wider anchorage spacing and a thinner plate may alter the performance of this post-and-plate assembly. As such, further analysis may be required to evaluate this baseplate design to MASH criteria.</p>

Date August 14, 2018

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Attachment [405160-23-2-box-culvert-rev2.pdf](https://www.unl.edu/attachments/df5e2e3911612e8a85610612f1ab0a10.pdf) (attachments/df5e2e3911612e8a85610612f1ab0a10.pdf)



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