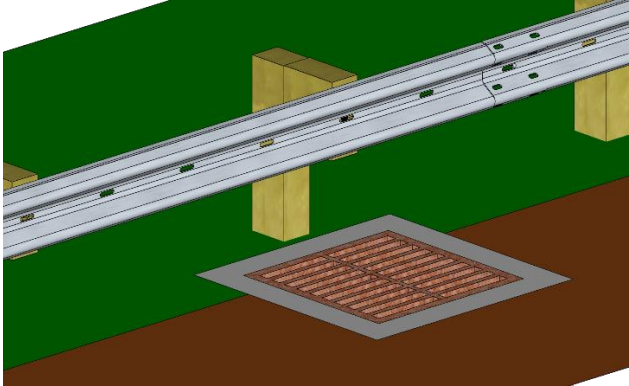
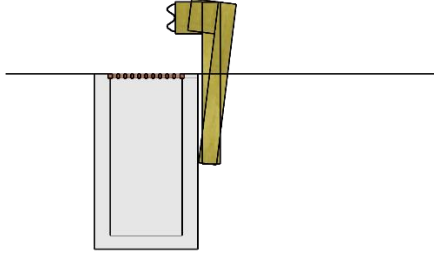


Project Title:	Placement of Underground Obstruction by Posts (2023-03-LSRB)
Project Synopsis:	<p>Beam Guard posts occasionally need to be placed close to underground obstruction. When does the placement of an underground obstruction interfere with post operation?</p>  
Project Goal(s):	<ol style="list-style-type: none"> 1.) How close an object can be to a beam guard post without interfering with post operation? 2.) Is there a different offset depending on which side of the post the underground obstruction (impact side, backside, left, right)? 3.) Is there a different post response depending on elevation of underground obstruction?
Project Background:	<p>Occasionally utilities, drainage features are placed close to beam guard posts. Some examples are:</p> <ul style="list-style-type: none"> • A utility may run parallel with a beam guard installation. • A pipe may intersect a beam guard run. • An inlet may be close to a post.
Proposed Work Plan:	<ol style="list-style-type: none"> 1.) Task 1 – Literature Review <ul style="list-style-type: none"> - Review studies and/or test reports to identify <ul style="list-style-type: none"> - currently used posts, existing posts, and/or previously tested posts that closely placed underground obstructions - Obstacle types 2.) Task 2 – Computer modeling of different underground obstruction <ul style="list-style-type: none"> - Based on data from Task 1, develop computer simulation models for different types of posts and underground obstructions - Find critical cases: combinations of a post and an obstruction / side of post impacting the obstructions / distance between post and obstruction 3.) Task 3 – Bogie testing <ul style="list-style-type: none"> - Conduct bogie tests on critical cases based on Task 2 4.) Task 4 – Calibrated simulations <ul style="list-style-type: none"> - Compare bogie tests and preliminary simulation - Calibrate and upgrade the computer simulation models - Find a range of offsets from the post faces to the obstruction to eliminate effect on a beam guard operation.
	<ol style="list-style-type: none"> 1. A range of offsets from difference post faces to underground obstruction that will not interfere with beam guard operation. 2. Approximate force imparted at a given distance from post.

Urgency and Expected Benefit:	States will have a better understanding of how close underground obstructions can be to a post. States can provide information to a utility what forces will be imparted to their equipment at a given offset.
Problem Funding and Research Period:	Total Estimated Cost = \$181,822
Developer(s) of the Problem Statement:	Name: Erik Emerson, Wisconsin DOT Email: Erik.Emerson@dot.wi.gov Phone: