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Deep Creek Bridge

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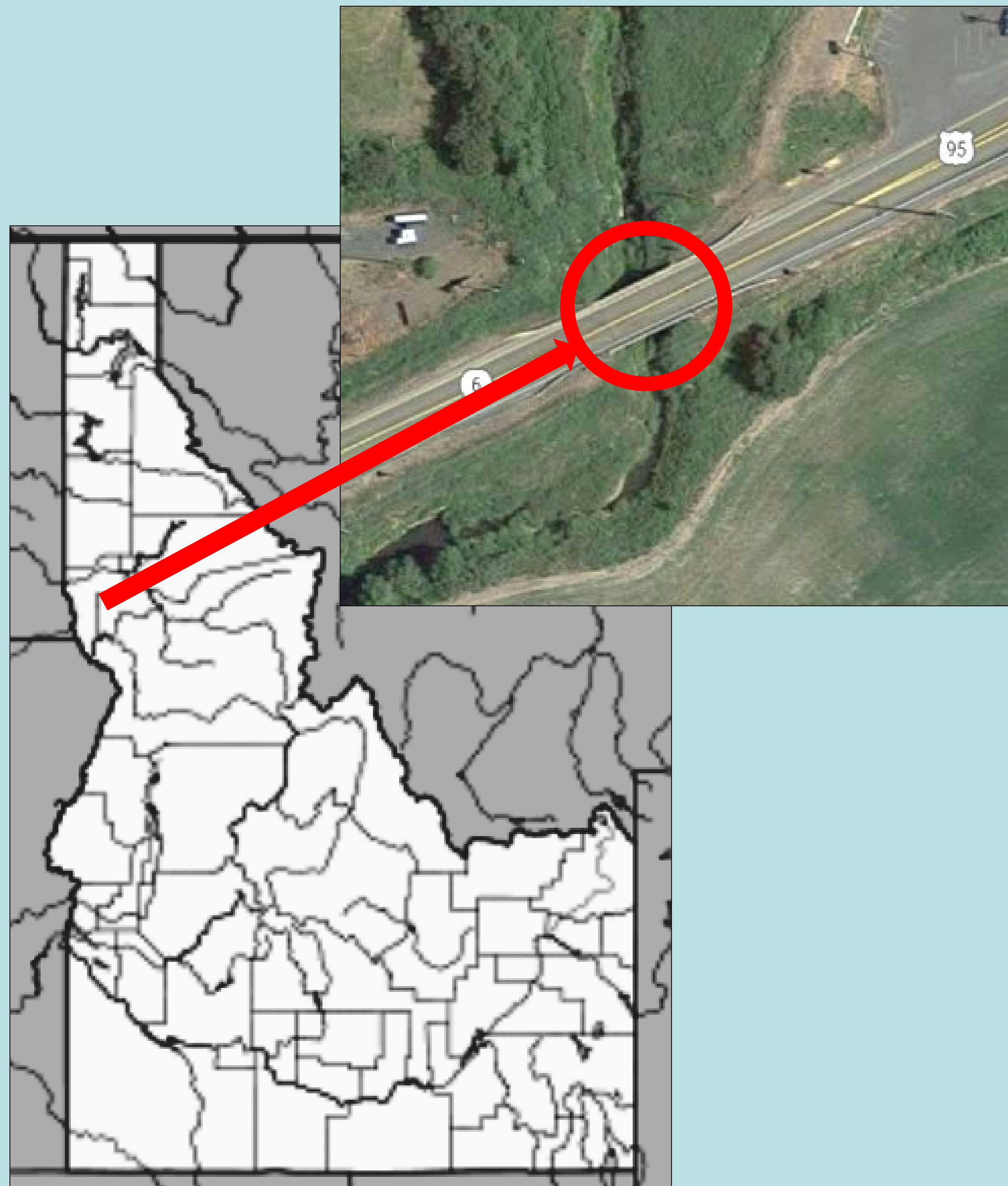
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Deep Creek Bridge Redesign

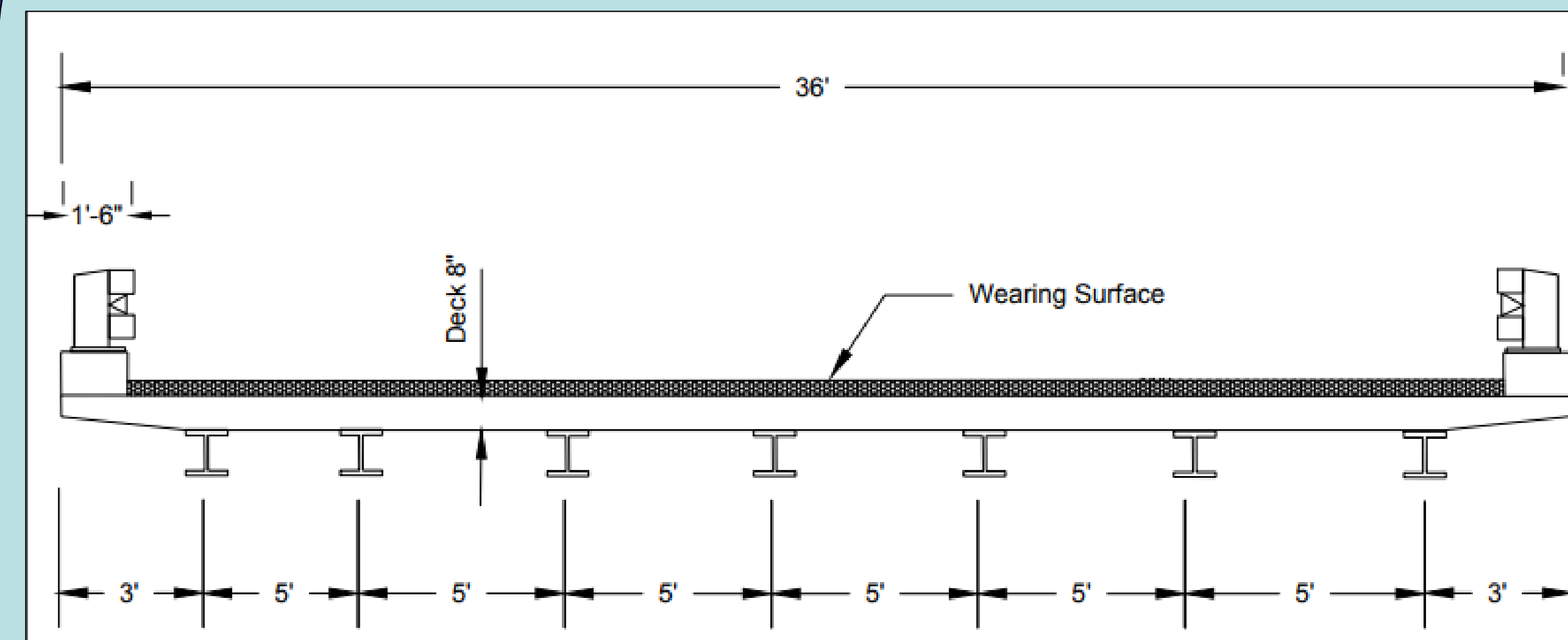
BOISE STATE UNIVERSITY The Dropout Engineers: Austin Berry, Hanna Irving, Luke Spath, Cait Williams
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PROJECT OVERVIEW

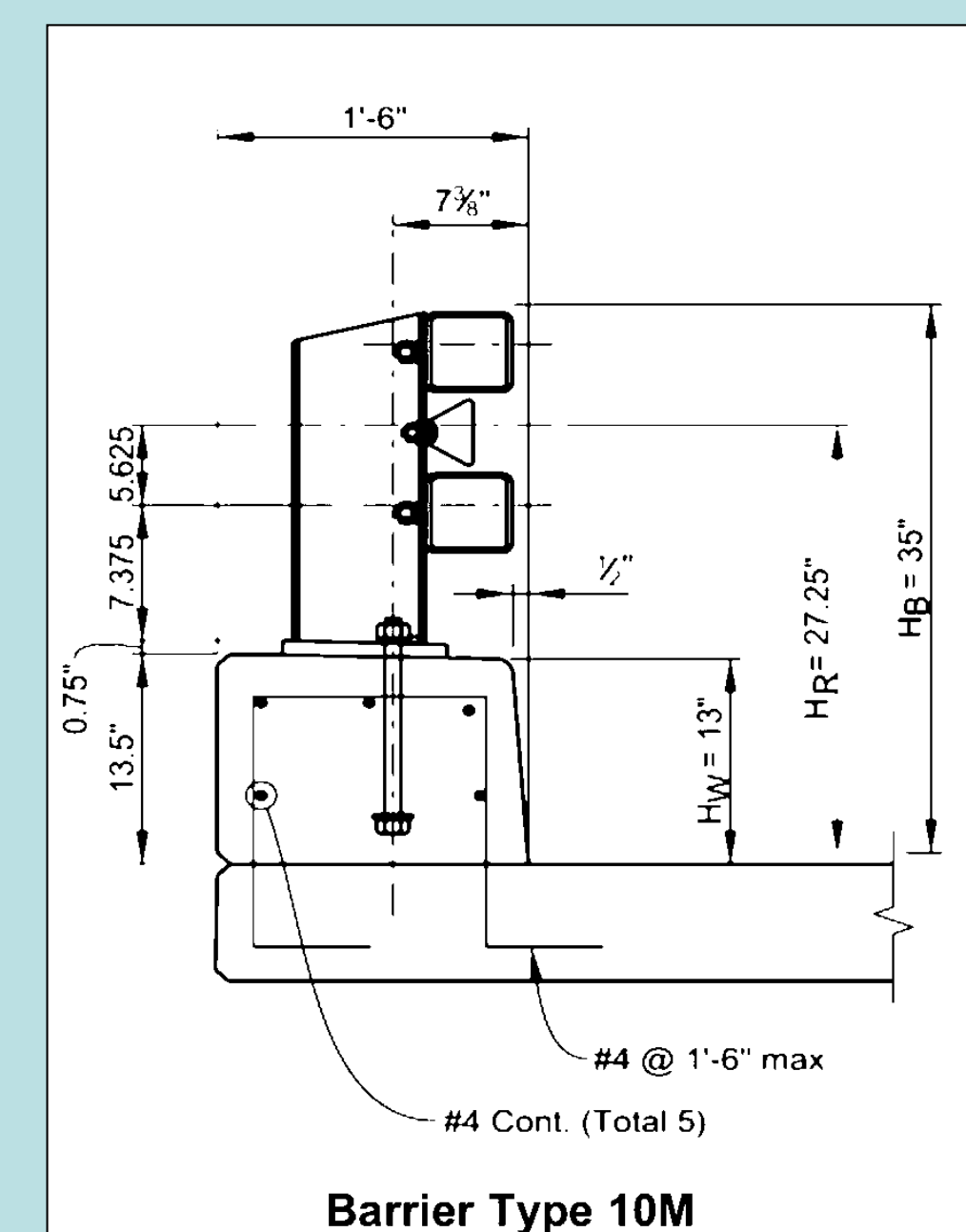
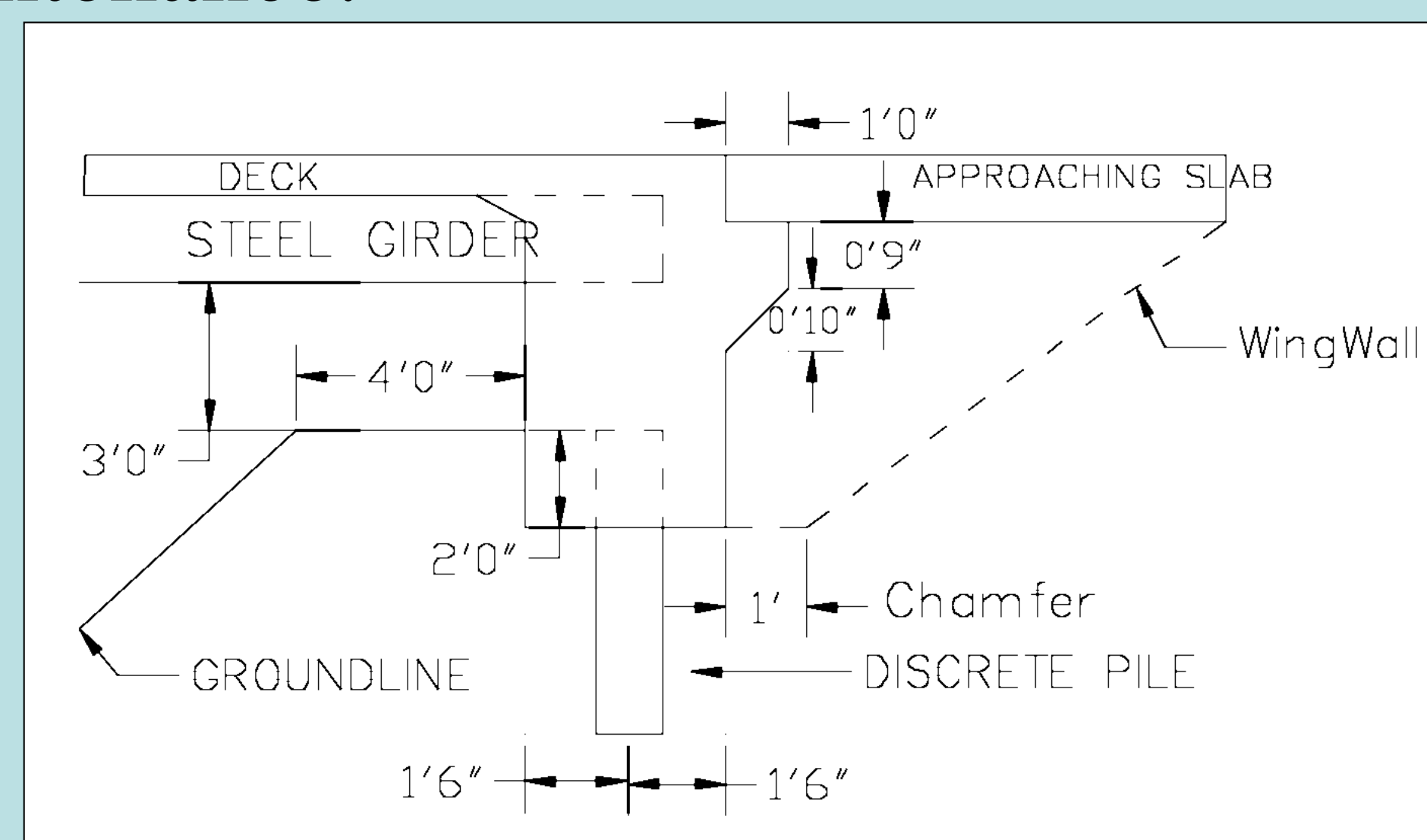


Deep Creek Bridge was built in 1939 and is located in Latah County along US Highway 95 just outside of Potlatch, Idaho. Idaho Transportation Department, in 2015, marked the bridge for reconstruction due to significant scour along the foundations, exposed and rusting steel reinforcement, and subpar safety ratings. The bridge is required to be a single span and traffic flow will be maintained. The main design areas are the foundation design, bridge design, pavement design, traffic management plan, and environmental permitting.

STRUCTURAL



A single span integral bridge with bank pad abutments will be used for the new design. For this design, the use of a concrete deck will be implemented along with a barrier type 10m steel railing. The deck will be supported by seven steel girders (W 36x160). The wearing surface of the deck will be made with an epoxy overlay. An epoxy overlay is generally less expensive and will require little maintenance.



GEOTECHNICAL

Due to poor soils conditions existing until a depth of 47 feet and potential for scour, a deep foundation was selected as the most optimal foundation type. Driven steel piles as per ASTM A252 G3

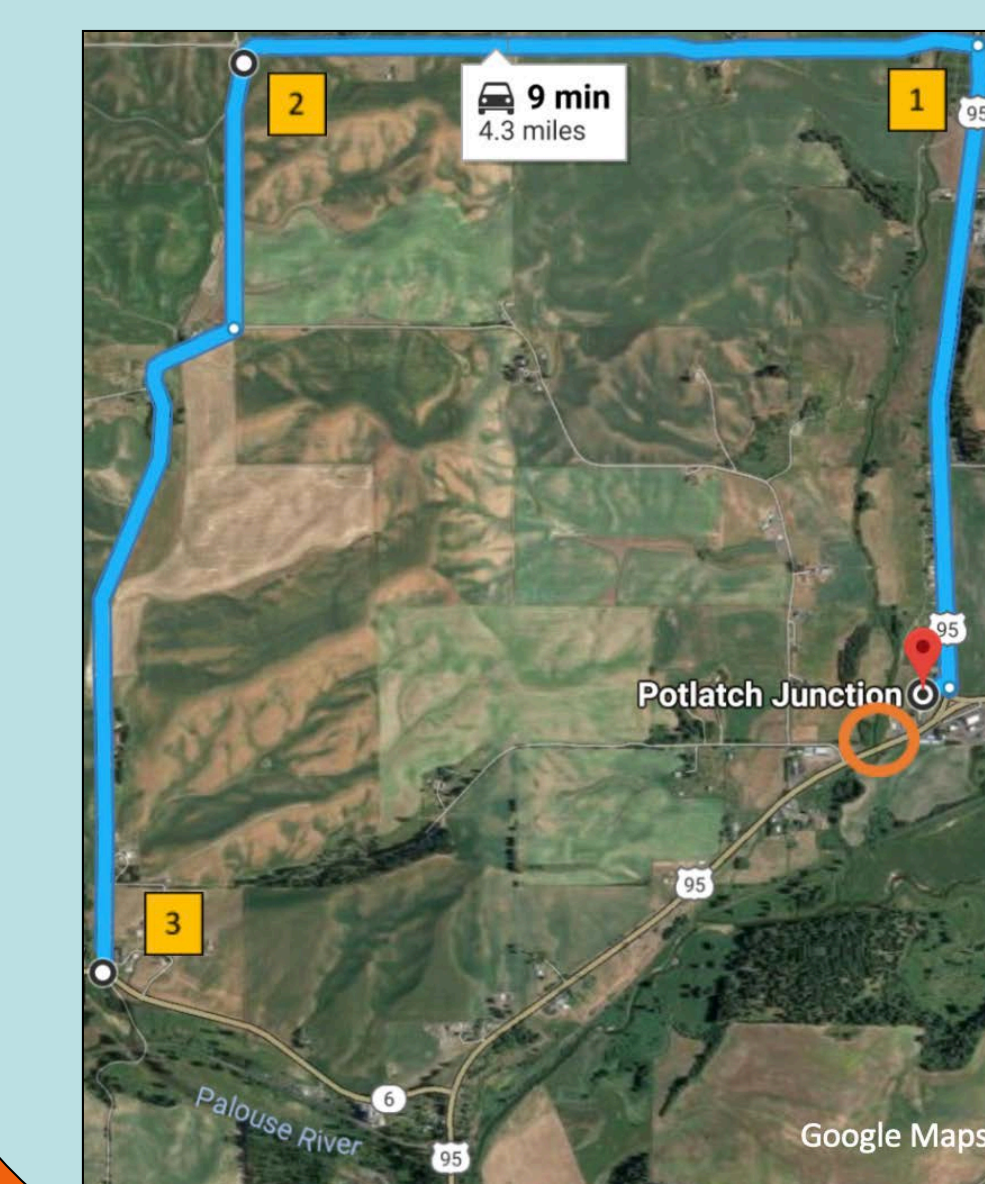


with a diameter of 24 in. and a wall thickness of 0.5 in. were selected. Four of piles are selected to be driven to a depth of 25 ft. to achieve a bearing capacity of 2257 kips/pile.

ENVIRONMENTAL

A stormwater pollution prevention plan (SWPPP) was designed to distribute runoff into existing roadway ditches on either side of the bridge. During the construction of the bridge straw waddles and black sediment control tarps will be used to minimize pollution into the creek.

TRAFFIC MANAGEMENT



Traffic will be routed north along US - 95 and along a frontage road and connect back to Idaho Highway 6. This will prevent any interference with the railroad and limit costs for the detour.