



Montana Department of Transportation
PO Box 201001
Helena, MT 59620-1001

Memorandum

To: Gabe Priebe
From: Bret Boundy
Date: 9/17/09
Subject: Flathead River Bridge 3 Miles NW Bigfork; UPN 6850; Geotech for PFR

Geotechnical Considerations.

Mapping of the area shows alluvial deposits consisting of sand, gravel and clay overlying bedrock of argillite, siltite and scattered quartzite. The six water well logs from nearest the site indicate vastly different thicknesses of alluvium overlying the bedrock, ranging from a minimum of 14' to a maximum of 200'. A seventh well further to the west showed only sand and gravel alluvium to 400'. There is not a clear trend in the bedrock contact, but it appears that the bedrock contact is generally deeper on the west side than on the east. It is predicted that the bedrock contact will be less than 100' deep at the east abutment and greater than 100' at the west. The cost of the foundation may be affected by the new alignment if the depth to bedrock and the density of the overlying alluvial deposits varies significantly on either side of the existing bridge, however, it is not anticipated that geological conditions will preclude a given alignment.

At this early stage of development, it appears that either drilled shafts or driven pipe piles will be appropriate at the bent locations. Spread footings cannot be ruled out at this time, but unlikely to be a viable solution.

Except for the end bents, which can be drilled using a wheeled or tracked drill rig, the borings in the channel will require the use of the barge-mounted drill rig, which should be scheduled between May and September. Environmental permitting for drilling in the river will also be necessary and should be accounted for in scheduling.

Pending further geotechnical investigation, side and end slopes should not exceed 2:1.

Direct questions to Bret Boundy, Missoula District Geotech Manager at 444-6278

cc: Geotechnical File