



## Interoffice Memorandum

To: Hunter Ridley and Russ Means  
From: Rob Zuber *RZ*  
Date: March 6, 2024  
Subject: 25<sup>th</sup> Avenue Site (M-2002-020), TR-03, RDZ review of the riverbank stabilization design and applicant's adequacy responses

I have completed my second review of Technical Revision Number 3 (TR-03) for the 25<sup>th</sup> Avenue Site, operated by the City of Greeley. This entailed a detailed review of the Basis of Design Report by Otak, Inc. (submitted to the Division on February 22, 2024) as well as review of several technical documents that are referenced in the report. I also conducted calculations to check the calculations performed by Otak. After this extensive review, I have generally found that the Basis of Design Report is well written, contains sound engineering analysis, and addresses the issues that I raised in my previous memorandum (dated October 13, 2023).

However, I need the applicant to provide the following additional information before I can complete my review:

1. I want to see the cross-section, with elevations, for the sections located in plan view on Figure 6 (page 12) of the Otak report.
2. I want to see more details regarding the calculations for the boulder wall design in Section 4.2 of the Otak report.
  - a. The response should explain if water pressure was accounted for in the analysis. If not, why? If so, how?
  - b. The applicant should provide a reference for the technical document that was used for the Coulomb's Theory analysis. This should include the name, publication date, and author of the document, as well as other pertinent information.
  - c. The applicant's response should point to the equations that were used to calculate the factors of safety.
  - d. The variables shown on Figure 11 should match the ones listed in Tables 4 and 5, and it should be clear how these variables are used in the equations.
  - e. An example calculation should be provided. This could be for the overturning factor of safety for the 9-foot lower wall.

