From:	Linnemanstons, Leo
To:	Graham, Joseph R - DNR
Cc:	Elias, Kim; Fenske, Dean
Subject:	AECOM Review of Responses to Additional Questions - MMP for C. Reiss Company, Superior, WI, 02-16-589248
Date:	Monday, February 06, 2023 11:35:36 AM
Attachments:	Additional Questions - MMP for C. Reiss Company Superior WI 02-16-589248.msg

Hi, Joe.

AECOM's subject matter experts (SMEs) have reviewed Stantec's Response to Request for Additional Information #3 (dated January 24, 2023) for the C Reiss Dock Materials Management Plan (MMP). The additional information was in response to questions and comments from AECOM's previous review of their C Reiss Dock Materials Management Plan (MMP) and supporting information (Responses #1 and #2). The questions and comments were provided to Stantec in your email dated 12/23/2022, which is attached for reference, and clarifications were discussed in a conference call with Stantec, WDNR, and AECOM on January 5, 2023.

As provided in the scope of work authorized by the WDNR (Task 1 &2), AECOM has not independently performed or checked Stantec's analysis and is only providing an opinion based on a review of stated inputs and their subsequent results. Because Stantec has an intimate knowledge of the site-specific conditions, we are giving deference to their professional judgement for those considerations. Based on our review of the additional information provided, AECOM provides the following opinions and comments:

Geotechnical Review Comments:

Stantec has performed global stability analyses that would be expected for this type of construction. They have considered both construction phase and long-term stability in their analysis and have used appropriate factors of safety for the evaluation of the stability. We observed that Stantec's selection of a few of the input parameters appear to tend toward an optimistic interpretation of site conditions (specifically the short-term shear strengths) and may discount a few less favorable data points (potentially outliers). Given that their approach is within reason, we have no objections to the results of their analyses.

Stantec indicates that construction phase testing to verify that sediments and fill soils meet strength requirements is dictated in the construction specifications for this project. The construction specifications provided by Stantec in an email dated January 5, 2023 indicate that the contractor will be responsible for meeting the necessary requirements. Stantec has also indicated that they will perform quality assurance testing of the placed materials throughout construction and placement of materials in the containment berm. We understand that the MMP will include provision that sediments and soils will not be placed in the berm until they will meet strength requirements. A construction documentation report will be prepared and submitted to the WDNR to demonstrate compliance.

Cap integrity and related settlement concerns were addressed with a plan for inspection and repairs. The proposed Cover Maintenance Plan appears adequate and is a typical continuing obligation for landfill maintenance. Given the site information and assumed soil, fill, and sediment characteristics, the approach for estimating the amount of settlement in foundation soil and placement material is reasonable. By their analysis, the majority of settlement is anticipated in the fill and upper clay underlying the berm and is expected to occur over a period greater than 10 years, which is not expected to cause a negative impact to the cover that would not be addressed as part of the Cover Maintenance Plan. Given that the anticipated loss of volume in consolidated materials (especially with placed sediments that would still have interstitial water), we assume that the displaced water is accounted for in the HELP

model discussed in the included Hydrological Memo (Stantec 2023c).

The response regarding consideration for stability of saturated soil addressed the concern to avoid subgrade fluidization by removal of unsuitable soil. However, the response did not address the included concern for the presence of the water table at the railroad cut elevation. Although contaminated groundwater is not anticipated at any planned excavation, Stantec's Groundwater Cross-section Details for Stations 9+78 through 18+05 indicate that excavation will extend below the approximate groundwater table elevation and may breach the confining clay unit near Stations 11+75 and 15+10. The drainage swales flanking the railroad bed may become groundwater seeps that may need to be accounted for considering locally impacted water quality. Following construction, the stormwater pond will likely have a higher hydraulic head and an outward gradient across its constructed liner; however, potentially impaired groundwater through the railroad swale seeps would enter the site's stormwater system. If contaminated groundwater is identified in these excavations, the contaminated groundwater would need to be managed and a plan developed to contain or control contaminated groundwater.

Hydrogeological/Contaminant Fate Review Comments:

The LNAPL Monitoring and Contingency Plan provides for monitoring of changes in water levels and the presence of LNAPL in monitoring wells around the containment berm. The monitoring portion of the plan appears sufficient to determine if the construction of the containment berm produces changes in the water levels or may contribute to movement in LNAPL underneath and in the vicinity. Given that most of the excavation work is anticipated to occur above the water table, the contingency portion of the plan only addresses immediate or short-term occurrences of contaminated groundwater or the presence of LNAPL in excavations. If deeper excavations become necessary or groundwater is encountered at higher elevations, Stantec's plan recognizes that work may need to be stopped until a suitable groundwater management plan is developed.

To evaluate the water balance of the containment berm, Stantec developed HELP model simulations of several locations across the berm. Based on these simulations, the containment berm was demonstrated to have increased runoff and evapotranspiration that results in an overall reduction in infiltration compared to baseline conditions with no berm. These inputs and assumptions appear to be reasonable. We would note that the HELP model (and hydrological evaluation as a whole) does not appear to account for the probable reduction in hydraulic conductivity and porosity from the expected consolidation of the sediments and foundation soils, which may also displace interstitial water from the consolidated materials. However, given the anticipated initial water content of these materials, the changes from the material consolidation are not expected to significantly change the conclusions of their analyses.

General Comments:

Stantec has addressed each of our concerns either directly with new information or by proposing a plan to monitor for changes in conditions that, while not expected, may develop. Because their opinion is that the likelihood of adverse conditions is low, Stantec's mitigation planning is for small, immediate actions, and if larger solutions are required, work may be stopped while additional plans are developed for unforeseen conditions. One of the larger uncertainties that our reviewers identified is the character of dredged sediment and the ability to adequately dewater it, to meet strength requirements, prior to placement into the berm. We understand that the construction specifications will require that dredged materials meet the minimum dewatering/strength requirement established in the global stability analysis prior to placement in the berm. In this way, the risk that the dredged material has been dewatered and has adequate strength will be transferred from the stability of the berm design to the construction dewatering phase for the necessary effort needed to make the material suitable for placement. Therefore, with the incorporation of the supplemental information provided by Stantec in the response submittals (dated, October 11, 2022; December 2, 2022; and January 24, 2023), AECOM believes that the MMP should adequately cover the geotechnical and hydrogeological concerns that we identified.

AECOM also recommends that a discussion is provided in the MMP that provides a summary of the regulatory

framework, such as how the Chapter NR500.08(3)(a), Wisconsin Administrative Code (WAC), requirements will be satisfied for this project assuming a response action site exemption under Chapter NR718.15, WAC. Likewise, a discussion of how applicable USACE requirements are also satisfied for the upland disposal of dredged material would also be helpful.

Please let me know if you would like to have a call to discuss these comments in more detail. Thanks!

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From: Graham, Joseph R - DNR <Joseph.Graham@wisconsin.gov>
Sent: Wednesday, January 25, 2023 9:19 AM
To: Linnemanstons, Leo <Leo.Linnemanstons@aecom.com>
Cc: Elias, Kim <Kim.Elias@aecom.com>
Subject: Action Needed: C Reiss - responses to additional geotechnical and hydrogeological questions

Leo and Kim,

Please see my email below.

The attachment for the original email was too large. The attachment is now uploading the file to the Task 16_C Reiss Geotech folder on the AECOM Teams site. It may take a while at my internet speed so you may want to wait a bit before looking for it.

Thanks,

We are committed to service excellence.
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Joe Graham
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joseph.graham@wisconsin.gov

From: Graham, Joseph R - DNR
Sent: Wednesday, January 25, 2023 8:54 AM
To: Linnemanstons, Leo <Leo.Linnemanstons@aecom.com>
Cc: Endsley, Erin A - DNR <erin.endsley@wisconsin.gov>; Hunt, John T - DNR <JohnT.Hunt@wisconsin.gov>; Sager, John E - DNR <John.Sager@wisconsin.gov>; Saari, Christopher A - DNR <Christopher.Saari@wisconsin.gov>; Elias, Kim <Kim.Elias@aecom.com>
Subject: C Reiss - responses to additional geotechnical and hydrogeological questions

Leo and others,

Attached is Stantec's response to additional questions about the geotechnical and hydrogeological

review for the C Reiss dock redevelopment in Superior, WI. Please review the responses and let us know if the questions or concerns have been adequately addressed in the responses or if critical issues remain that present a significant concern for DNR approval of the material management plan for the proposed disposal berm.

If possible, DNR would appreciate AECOM's review by close of business on February 3rd, but we understand if more time may be needed.

We can also schedule a call between AECOM and DNR, and possibly with Stantec, if that would be helpful.

Thank you,

We are committed to service excellence.
Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

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