
October 6, 2016

Director, Environmental Approvals Branch
Manitoba Sustainable Development
Suite 160, 123 Main Street
Winnipeg, MB R3C 1A5

**Reference: Notice of Alteration
Domestic Wastewater Lagoon
Municipality of Glenella-Lansdowne, MB**

Dear Director,

Burns Maendel Consulting Engineers Ltd. has completed periodic inspections and the required testing for the construction of a new Domestic Wastewater Lagoon in the Municipality of Glenella-Lansdowne to service the proposed New Rosedale Colony. Construction of the Domestic Wastewater Lagoon began on August 3, 2016 with the installation of the HDPE liner starting on September 2 and completed on September 7, 2016.

Asit Dey of Manitoba Sustainable Development has indicated that a Notice of Alteration will be required due to the deviations from the original Environmental Act License No. 3198 and the original detailed design drawings reviewed as part of the EAP submission. BMCE has prepared the following letter to document the changes from the original design drawings and accompany the Notice of Alteration Form.

The three main areas which have been altered from the original EAP and Environmental License are the common berm liner detail, panel seaming methods, and the inlet pipe penetration detail. The following sections of the letter will provide more detail on the alterations that were completed and reason for the changes. Each alteration will also speak to any potential environmental or human health effects that are created as a results of the change.

Common Berm

The typical common berm detail as shown in section 2 on drawing C3.1 has been modified as follows:

- The anchor trenches on the berm have been removed and the HDPE liner has been installed continuously over the berm. This change was proposed by Titan prior to installation and approved by BMCE before liner installation started. A revised detail will be included in BMCE's final as-built drawings.
- The vent piping in the common berm has been joined into a single trap vent in the center of the berm instead of two separate ones. This is the preferred method when the liner is carried continuously over the common berm as it reduces the penetrations through the HDPE liner. This change was proposed by JKW prior to

installation and approved by BMCE before liner installation started. A revised detail will be included in BMCE's final as-built drawings.

The changes to the common berm are expected to have negligible environmental or human health effects. The change does not compromise the liner integrity, continuity, or hydraulic conductivity. The introduction of the textured liner material on the top of the berm surface will not compromise worker safety when accessing the equalization pipe valve. The operation of the valve will be executed under our Client's safe work procedures which they will develop.

Panel Seaming

The Environmental Act License No. 3198 clause 19.c) states that "all sections of the liner are to be joined by dual track seaming". During construction Titan completed several seams utilizing extrusion welding. Please refer to the attached letter from Titan Environmental stating the reason why extrusion welding is required in some circumstances to complete the joining of liner panels. BMCE has reviewed their response and are of the opinion that since the extrusion welding was completed and tested in accordance with ASTM D 4437-99 as stated in the Environmental License, that the seams are waterproof and provide a continuous liner.

The changes to the seaming type are expected to have negligible environmental or human health effects. The change does not compromise liner integrity, continuity, or hydraulic conductivity.

Inlet Pipe

The inlet pipe penetration through the liner was shown in the original design utilizing a poly plate penetration through the liner. Prior to construction Titan indentified to BMCE that if the pipe cannot be cut flush, that the poly plate detail cannot be utilized at this location. Titan proposed to install a typical pipe boot instead of the poly plate at the inlet pipe location only. This change was reviewed and approved by BMCE prior to the liner installation. A revised detail will be included in BMCE's final as-built drawings.

The changes to the inlet pipe penetration are expected to have negligible environmental or human health effects. The change does not compromise liner integrity, continuity, or hydraulic conductivity.

Conclusion

This letter and Notice of Alteration application are to summarize all alterations to the Domestic Wastewater Lagoon installation that were proposed during construction and approved by BMCE. The changes that were approved are minor and will have negligible environmental and human health effects. The alterations will not affect the hydraulic conductivity of the lagoon and therefore will not have any incremental effect on the terrestrial, aquatic, and atmospheric environments when compared to the original proposal.

A final QA/QC report provided by Titan Environmental has been enclosed with this letter to verify the installation and testing for the 60mil HDPE liner installation and provide additional support information for the alterations outlined in this letter.

If you have any questions or comments, please don't hesitate to contact the undersigned.

Regards,



Daniel Burns, P. Eng.