2021-03-25

Public

Shannon Kohler, Director
Environmental Approvals Branch
Manitoba Conservation and Climate
1007 Century Street
Winnipeg, MB R3H 0W4

Subject: Notice of Alteration – RM of Gimli Biosolids Storage Facility
Client ref.: File no. 4522.10

Dear Madam:

On behalf of the Rural Municipality of Gimli, WSP Canada Inc. (WSP) is pleased to submit a Notice of Alteration regarding the operations of the Gimli Biosolids Storage Facility.

Should you have any questions or require further information, please contact Dana Bredin at 204-477-6650 or dana.bredin@wsp.com.

Kind regards,

Dana Bredin, P.Eng.
Project Manager

cc: Siobhan Burland Ross, M.Eng., P.Eng., Manitoba Conservation and Climate
Asit Dey, P.Eng., Manitoba Conservation and Climate
Dick Menon, P.Eng., RM of Gimli
Darcy Hjelmeland, RM of Gimli

Encl.
WSP ref.: 181-03988-01

1600 Buffalo Place
Winnipeg (Manitoba) R3T 6B8
Canada

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wsp.com

Notice of Alteration Form

Manitoba Sustainable Development

Client File No. : 4522.10	Environment Act Licence No. : 2473R

Legal name of the Licencee: Rural Municipality of Gimli

Name of the development: Gimli Biosolids Storage Facility

Category and Type of development per Classes of Development Regulation:

Waste Treatment and Storage — Biosolids application

Licencee Contact Person: Dick Menon, P.Eng.
Mailing address of the Licencee: P.O. Box 1236, 62 - 2nd Ave
City: Gimli Province: MB Postal Code: R0C 1B0
Phone Number: (204) 396-1000 Fax: Email: dmenon@rmgimli.com

Name of proponent contact person for purposes of the environmental assessment (e.g. consultant):
Dana Bredin, P.Eng.

Phone: (204) 477-6650 Fax:	Mailing address: 1600 Buffalo Place Winnipeg, MB R3T 6B8

Email address: dana.bredin@wsp.com

Short Description of Alteration *(max 90 characters)*:

Biosolids stockpile height reduced from 1.00 m to 0.69 m

Alteration fee attached: Yes: ☐ No: ☑

If No, please explain: No fee associated minor alteration

Date: 2021-03-25	Signature: [redacted] Printed name: Dana Bredin

A complete Notice of Alteration **(NoA)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Notice of Alteration Form**
- ☑ **2 hard copies and 1 electronic copy of the NoA detailed report** (see "Information Bulletin - Alteration to Developments with Environment Act Licences")
- ☐ **$500 Application fee, if applicable** (Cheque, payable to the Minister of Finance)

Submit the complete NoA to:

Director
Environmental Approvals Branch
Manitoba Sustainable Development
1007 Century Street
Winnipeg, Manitoba R3H 0W4

For more information:

Phone: (204) 945-8321
Fax: (204) 945-5229
http://www.gov.mb.ca/sd/eal

Note: Per Section 14(3) of the Environment Act, Major Notices of Alteration must be filed through submission of an Environment Act Proposal Form (see "Information Bulletin – Environment Act Proposal Report Guidelines")

NOTICE OF ALTERATION

TO: Shannon Kohler, Director – Conservation and Climate, Environmental Approvals

FROM: Dana Bredin, P.Eng. – WSP Canada Inc.

SUBJECT: **RM of Gimli Biosolids Storage Facility**

DATE: **March 25, 2021**

INTRODUCTION

A meeting between the RM of Gimli, WSP and Manitoba Conservation and Climate (MCC) took place on March 3, 2021 regarding the clay core constructed at the completed RM of Gimli Biosolids Storage Facility. Testing of the clay core was completed after construction and the hydraulic conductivity is approximately $4.8x10^{-7}$ cm/s, which does not meet the Licence criteria of $1x10^{-7}$ cm/s. The meeting was arranged to discuss the options available to the RM of Gimli and the discussion focussed on how the more permeable clay core will interact with the future stockpiled biosolids material. From the discourse, there was agreement that WSP, on behalf of the RM of Gimli, propose revised operating measures to mitigate against potential contamination laterally through the clay core.

BACKGROUND

The hydraulic conductivity results of the clay core Shelby tube samples are above the $1x10^{-7}$ cm/s requirement, which is supported by the observed extrusions for the three clay core samples. The test results are:

- ST-03: $3.77x10^{-7}$ cm/s (Clay core)
  - Taken at a depth of 0.6 m to 1.2 m below top of berm
  - Mid-distance along south berm
- ST-04: $4.77x10^{-7}$ cm/s (Clay core)
  - Taken at a depth of 0.75 m to 1.35 m below top of berm
  - NW corner of Cell 1 berm
- ST-05: $4.20x10^{-7}$ cm/s (Clay core)
  - Taken at a depth of 0.45 m to 1.05 m below top of berm
  - NE corner of Cell 3 berm
- It is expected that the entire clay core is of a similar hydraulic conductivity.

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The average depth of clay core is approximately 1.6 m below the top of the berm. The remaining berm and floor material is in situ till. The hydraulic conductivity of the till material is found to be in the range of $1x10^{-8}$ cm/s. This impervious material is found throughout the site and extends to depths greater than 35 m below grade, providing for a large impervious layer of material preventing groundwater contamination of the aquifer below. It is acknowledged that the clay core hydraulic conductivity results are above the limit set by Clause 15 of Licence 2473 R.

The biosolids to be stored at this facility are in a digested and dewatered state (approximately 20% solids) and will be stored at the facility until it can be land applied and surface water runoff resulting from precipitation and snowmelt will be collected in a weeping tile system and directed to one of three large fiberglass holding tanks for containment and subsequent hauling to the RM of Gimli wastewater treatment facility.

We are proposing modifications to the storage facility operations as well as additional monitoring of the facility in order to mitigate against potential environmental contamination migrating laterally through the clay core.

REVISED OPERATIONAL MEASURES

Currently, biosolids are to be stored in the cell up to a depth of 1.0 m while maintaining a freeboard of 1.0 m. The design allowed for biosolids to be stored on the berm slopes. Each cell is anticipated to be used once every three years and will store the biosolids for up to 18 months before land application.

We propose to modify the stockpile height of the dewatered biosolids material in the storage cells. The maximum height of the biosolids will be reduced to 0.69 m. This change allows for the material to be stored entirely within the in situ till layer and mitigates any potential impact of collected water moving laterally through the clay core.

The revised storage capacity of each cell is approximately 1,460 m^3 for an overall capacity of approximately 8,760 m^3. From the EAP submitted in March, the anticipated future biosolids generation per year is 4,270 m^3, thus there is still over two years of capacity at the storage facility when the WWTP reaches its design capacity.

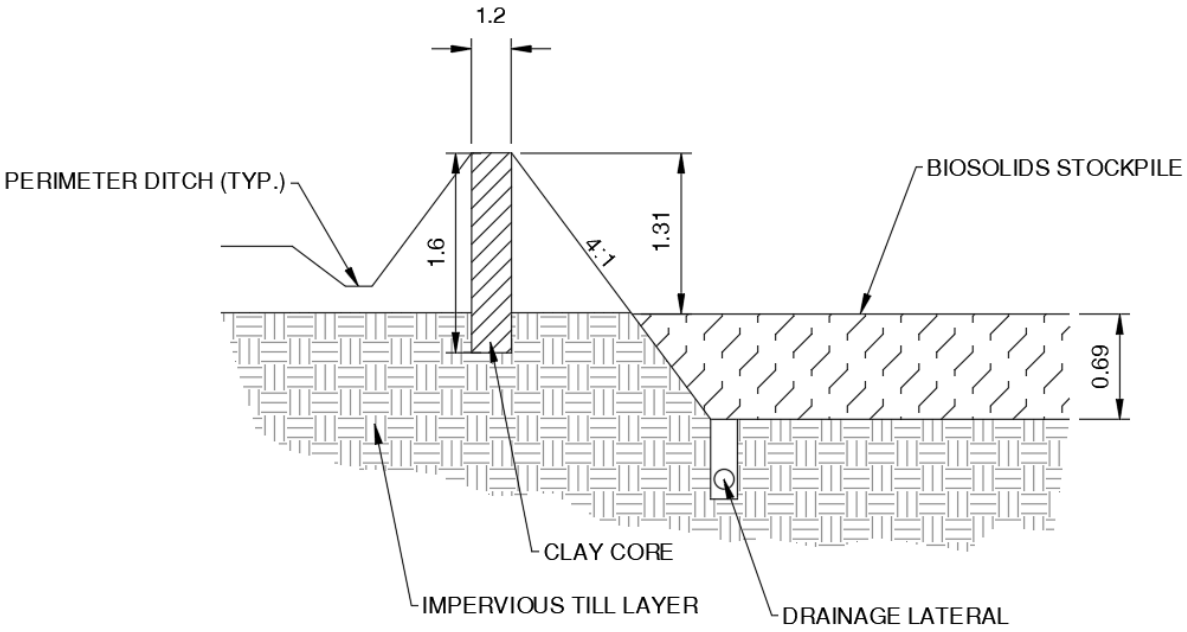

Figure 1: Proposed Operational Changes

[redacted]

Dana Bredin, P.Eng.
Project Manager
Water and Wastewater Infrastructure

Encl.
Cc: Siobhan Burland Ross, M.Eng., P.Eng., Manitoba Conservation and Climate
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