## SUMMARY OF COMMENTS/RECOMMENDATIONS

| | |
|---|---|
| **PROPONENT:** | **Rural Municipality of Pipestone** |
| **PROPOSAL NAME:** | **Village of Cromer Subdivision – Onsite Wastewater Management System** |
| **CLASS OF DEVELOPMENT:** | **2** |
| **TYPE OF DEVELOPMENT:** | **Waste Treatment–Sewage Treatment Plant** |
| **CLIENT FILE NO.:** | **5580.00** |

## OVERVIEW:

On April 10, 2012 the Department received a Proposal from GENIVAR on behalf of Rural Municipality of Pipestone for the construction and operation of an Onsite Wastewater Management System (OWMS) located in the Section 8-9-28 WPM in the Rural Municipality of Pipestone to serve a new 16-lot residential development in the village of Cromer. The OWMS will consist of a secondary wastewater treatment system, an effluent pumping station and an onsite disposal field. Treated effluent will be discharged into the pumping station which will pump it to the disposal field.

On May 14, 2012 Manitoba Conservation and Water Stewardship placed copies of the Proposal in the Public Registries located at 123 Main St. (Union Station), the Winnipeg Millennium Public Library, the Manitoba Eco-Network, and the R.M. of Pipestone Municipal Office. Copies of the Proposal were also provided to the Canadian Environmental Assessment Agency (CEEA) and the Technical Advisory Committee (TAC) members. The Department placed public notification of the Proposal in the Reston Recorder on Friday, May 18, 2012. The newspaper and TAC notifications invited responses until June 18, 2012.

On June 27, 2012, Manitoba Conservation and Water Stewardship forwarded requests for additional information from the TAC to the proponent's consultant. On August 16, 2012, the consultant submitted responses to the comments and requests from the TAC.

On August 17, 2012, the consultant's responses were distributed to the participating TAC for review and comment.

All additional information necessary for the review was placed in the Public Registries

## COMMENTS FROM THE PUBLIC:

No comments were received from the public.

## COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE (TAC):

### Manitoba Conservation and Water Stewardship – Water Control Works and Drainage Licensing Branch (June 11, 2012)

- *No concerns*

**Manitoba Innovation, Energy and Mines– Mines Branch (May 31, 2012)**

- *No concerns*

**Manitoba Conservation and Water Stewardship - Sustainable Policy and Resource Management Branch and Lands Branch (May 25, 2012)**

- *No concerns*

**Manitoba Conservation and Water Stewardship – Office of Drinking Water (June 8, 2012)**

- *No concerns*

**Manitoba Conservation and Water Stewardship - Sustainable Resource and Policy Management Branch (May 22, 2012)**

- *No concerns*

**Manitoba Conservation and Water Stewardship – Environmental Programs and Strategies Branch- Air Quality Section (May 22, 2012)**

- *No concerns*

**Manitoba Conservation and Water Stewardship - Water Control Works and Drainage Licensing Branch (June 11, 2012)**

- *No concerns*

**Manitoba Local Government – Community Planning Services Branch (May 23, 2012)**

- *Provided Manitoba Conservation and Water Stewardship is satisfied that the proposed onsite wastewater system being proposed to service a new 16 lot residential development and the existing community hall in Cromer meets the requirements of all applicable provincial regulatory requirements, our office has no concerns with the proposed development.*

- *From my review of the project proposal, I note the following matters which our office is bringing forward for your review and consideration.*

  *Section 5.4 (p.10) of the proposal makes reference to "Groundwater Pollution Hazard Map –Virden Area". No additional information was included in the proposal identifying the source of the information. In any event, this section of the report indicates the project area lies outside of any groundwater pollution hazard areas. Please be advised that based on Map One (see attached) of the RM of Pipestone Zoning By-law No. 2001/05, as amended, the unincorporated community of Cromer (including the project area) lies within a "Groundwater Sensitivity Area. In this regard, please find set out below relevant extracts from the RM of Pipestone Zoning By-law as follows:*

***"PART 6: MISCELLANEOUS REGULATIONS***
*High Water Table Areas*

*6.4 Where development is proposed on a site which is known to the Development Officer to be subject to a high groundwater table, including sites within the groundwater sensitivity areas shaded grey on Map 1, the owner must include measures in the design of the building which in the opinion of Council are adequate to protect basements from groundwater infiltration."*

***"PART 9: INTERPRETATION***
*Groundwater Sensitivity Areas*

*9.3 The shaded areas on Map 1 representing groundwater sensitivity areas are derived from information provided by Manitoba Water Resources Branch, and are believed to be reasonably accurate. Where there is some question as to whether or not a specific proposal is located in an area which is considered to be a groundwater sensitivity area, the provisions of this By-law related to groundwater sensitivity may be disregarded only if the owner can provide sufficient information, obtained through on-site investigations including test drilling, which indicates that groundwater sensitivity conditions do not exist at the specific location."*

<u>Proponent Response (August 16, 2012)</u>

- A review of the Groundwater Pollution Hazard Map - Virden Area has shown that the facility is located just outside of a groundwater pollution hazard area (See the attached map). The Groundwater Sensitivity Map in the Zoning By-Law does not provide direction as to the location and construction of fields from our inquiries on this matter.

- Two test holes, excavated with a tractor-backhoe, on the site, revealed that the site is a glacial deposit of boulders, sand and gravel. The top 30 centimetres in depth is boulders and loam. The loam ranges from 30% to 48% sand and gravel, $40^{O}$/0 to 55% silt and 12% to 15% clay. Below the loam, at a depth of about 90 centimetres, the deposit is about 85% sand and gravel. The upper layer of loam makes the site suitable for the location of a treated wastewater disposal field. The loam controls the rate of infiltration to an appropriate level; the sand and gravel below permits good drainage to prevent saturation of the upper layers.

- The proposed disposal field will receive treated wastewater from the MicroFAST system, which has the capabilities of achieving a tertiary treatment level of $BOD_5$ less than 10 mg/L, TSS — less than 10 mg/L, Total Nitrogen — 70% reduction with Nitrate less than 5 mg/L. To illustrate the

quality of a disposal field treatment, please refer to the description of the test in response to the previous item herein.

- Based on the above information, it is believed that by the time treated wastewater reaches the aquifer, the $BOD_5$ level will be no longer detectable, TSS level - less than 10 mg/L, Total Nitrogen — 70% reduction with Nitrate less than 5 mg/L, therefore, wastewater quality will be good enough for aquifer recharge.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from Community Planning Services Branch.

**Manitoba Conservation and Water Stewardship – Environmental Compliance and Enforcement – Western Region (June 6, 2012)**

- *What size of trash tank will be used with this system?*

- *The Pinnacle information only specifies a range of acceptable volumes that is quite large, the minimum of this range is 1/3 of the daily flow which seems quite small. What size of tank will the MicroFAST system be installed in?*

- *The proposal also states that groundwater monitoring will be done at the request of Manitoba Conservation. The last similar system we had installed at Can-Am Colony (CF 5256) had groundwater monitoring wells installed and sampled as license conditions. Will this be a requirement at this development as well?*

Proponent Response (August 16, 2012)

- The new Secondary Wastewater Treatment System (MicroFAST® 4.5) is a 2.4 m diameter cylindrical fibreglass one piece tank. The first compartment (Trash) is 3.6 m long with a working capacity of 2,630 IC or 11,956 L.

- The new Secondary Wastewater Treatment System (MicroFAST® 4.5) is a 2.4 m diameter fibreglass one piece tank, which is placed in the ground horizontally. It is cylindrical, with rounded endcaps, with an overall length of 9 m. The first compartment (Trash) is 3.6 m long with a working capacity of 11,956 L. The second or treatment chamber is 5.4 m long with a working capacity of 18,502 L. The total hydraulic capacity of the tank is 30,458 L which exceeds the daily design flow of 17,000 L.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from Environmental Compliance and Enforcement.

**Manitoba Conservation and Water Stewardship – Water Science and Management Branch – Water Quality Management Section (June 1, 2012)**

- *The Proponent describes an above ground total area septic disposal field. The Proponent will need to take measures to ensure the system and pipes do not freeze. Can the proponent describe precautions that are in place to insulate against freezing and other relevant details?*

- *What safety measures are in place to ensure the wastewater system does not overload or malfunction? If the system does overload or malfunction, what contingency plans does the Proponent have in place to deal with such a problem?*

- *How is the Proponent going to monitor the ongoing function of the system? The Water Quality Management Section is concerned with any discharges that have the potential to impact the aquatic environment and/or restrict present and future uses of the water. Therefore, it is recommended that the license require the Proponent to monitor the quality of water the holding tank and septic disposal field system produces.*

    - *Recommended monitoring parameters - Nitrate and Nitrite Nitrogen, Total Phosphorous, Ammonia, Total Kjeldhal Nitrogen, $BOD_5$, Total Suspended Solids, Total Coliform, and Fecal Coliform*

- *The safety factor for the sizing of the septic field system is partly based upon secondary treatment occurring within the holding tank. Consequently, it is recommended that the water quality of the holding tank effluent be monitored regularly.*

    - *Recommended monitoring parameters - Nitrate and Nitrite Nitrogen, Total Phosphorous, Ammonia, Total Kjeldhal Nitrogen, $BOD_5$, Total Suspended Solids, Total Coliform, and Fecal Coliform*

- *The Proponent must ensure that there is sufficient capacity in municipal wastewater treatment facilities to accommodate the solids that must be periodically removed from this system.*

- *The Water Quality Management Section is concerned with any discharges that have the potential to impact the aquatic environment and/or restrict present and future uses of the water. Therefore it is recommended that the*

*license require the proponent to actively participate in any future watershed based management study, plan/or nutrient reduction program, approved by the Director.*

Proponent Response (August 16, 2012)

- The design follows the recommended cover thickness of the Manitoba Conservation Schedules. The low pressure sewer (LPS) will be installed below the frost line to the treatment unit. Effluent will be pumped to the field in batches and this type of installation is able to operate in winter similar to most other septic fields designed as per Manitoba Regulation 83/2003. Typically, the field area is covered with straw and not driven over in winter to allow snow to act as insulation. In the initial years of operation, depending on numbers of units attached to the system, pumping cycles may be shortened to operate more often and possibly only 1 or 2 of the 3 zones will be utilized.

- As per the Pinnacle Environmental Technologies information, the MicroFAST system has an air blower alarm panel and a high water level alarm that will alert the operator if the air blower is not operating or if the liquid surface in the plant rises beyond the working level. If the hydraulic or organic load exceeds the system's daily sewage flow, the wastewater will flow through the wastewater system at the same rate as what flows into the system. The treatment level will drop if this condition persists for 2 - 3 weeks or longer, therefore, there is time to source corrective actions or resolve each problem without any wastewater backing up. If a problem cannot be solved without shutting down the MicroFAST system, wastewater can be hauled to the Reston or R.M. of Pipestone lagoon until the problem is fixed.

- With the construction of a new onsite wastewater management system sized to treat the design loadings, the treated effluent will normally be well within the limits that will be required in a new Environment Act Licence. The proposed MicroFAST system has the capabilities of achieving a tertiary treatment level of $BOD_5$ less than 10 mg/L, TSS — less than 10 mg/L, Total Nitrogen — 70% reduction with Nitrate less than 5 mg/L. Samples can be taken to verify the quality of the MicroFAST system. Further treatment will take place in the disposal field and can be monitored if special access points are installed around the field. Effluent will be absorbed in the soil and will not enter the aquatic environment.

- Samples can be taken to verify the quality of the MicroFAST system. Further treatment will take place in the disposal field and can be monitored if special access points are installed around the field.

- As per the supplier information, typically, the solids from the MicroFAST systems need to be removed once every 3 years. Solids will be hauled to the

Reston or Pipestone lagoon and should only require 1-2 truck loads depending on truck size and should not create a problem at either lagoon even if done yearly.

- Any party involved in a future watershed based management study, plan/or nutrient reduction program for the area are welcome to contact the R.M. of Pipestone, Village of Cromer.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from Water Science and Management Branch – Water Quality Management Section.

**Manitoba Conservation and Water Stewardship – Water Science and Management Branch – Groundwater Management Section (May 25, 2012)**

- *A sand and gravel aquifer is present in the area as shallow as 2.4m below ground. The Cromer municipal well is located in the SE08-09-28W1 is completed into this shallow aquifer. With only thin glacial till cover the aquifer it potentially may be subject to contamination from the surface. The application does not take into consideration Source Water Protection for the municipal well or other domestic wells that may be in the vicinity. Depending on the separation distance(s) and groundwater flow direction monitoring between the proposed wastewater management system and drinking water well(s) may be beneficial.*

Proponent Response (August 16, 2012)

- According to the Regulation H 25 — R.M. 83/2003, Schedule A (Subsection 8(3)), *Standards for Septic Tanks, Aerobic Treatment Units and Disposal Fields Servicing Dwellings and Other Buildings,* a disposal field shall be set back at least 15 m from a well (drilled and cased to a minimum of 6 m (20 feet) below ground level and 30 m (100 feet) from other wells and springs to the nearest part of the disposal field that receives wastewater.

- The distance from the disposal field to the nearest well is in excess of 200 m, which exceeds the minimum requirements of the regulation by a factor of six.

- In September 2010, the effluent from an Onsite System near Steinbach was sampled by Alf Poetker, P.Eng. The system has the plastic chambers installed in a trench-type field and the trenches which are installed in a sandy soil. Five samples were taken during the investigation and tested in an ALS Laboratory. Results showed that the strength of the effluent from the septic tank was 305 mg/L $BOD_5$ after settling. Samples 2, 3 and 4 were measured from the centre of the outside trench in the direction of underground water flow. Sample No. 2 was taken at 0.6 m from the edge of the outside trench and the wastewater strength was 16.8 mg/L $BOD_5$. Sample

No. 3 was taken at 1.8 m from the edge of the outside trench and the wastewater strength was 6.0 mg/L $BOD_5$. Sample No. 4 was taken at 3.0 m from the edge of the trench and showed that in 3.0 m of sand, the $BOD_5$ was no longer detectable within the accuracy of the testing method that was used for this test. A sample taken at 1.0 metre from the edge of a trench tested at <3 MPN/100 ml for fecal coliform. This demonstrates the effectiveness of soil in removing contaminants from water and purifying groundwater.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from Water Science and Management Branch – Groundwater Management Section.

## COMMENTS FROM FEDERAL REPRESENTATION:

**Canadian Environmental Assessment Agency (CEEA) (**April 17, 2012)

- *Project information was shared with all federal departments with a potential interest. Based on the responses to the survey the application of the Canadian Environmental Assessment Act (the Act) by a federal authority will not be required for this project.*
- *Health Canada (HC) has indicated it is not a responsible Authority (RA) for the project. However, it could contribute expert knowledge in the area of human health to an RA if requested.*
- *Environment Canada (EC) has also reviewed the project information and determined it is not an RA for the project. However, EC could provide expert advice related to its mandate to an RA if requested.*

## PUBLIC HEARING:

- A public hearing is not recommended because no comments were received from the public.

## CROWN-ABORIGINAL CONSULTATION:

The Government of Manitoba recognizes it has a duty to consult in a meaningful way with First Nations, Métis communities and other Aboriginal communities when any proposed provincial law, regulation, decision or action may infringe upon or adversely affect the exercise of a treaty or Aboriginal right of that First Nation, Métis community or other Aboriginal community.

It has been determined that Crown-Aboriginal consultation is not required as there is no aboriginal community nearby the proposed project. The project is not expected to affect the exercise of an aboriginal or treaty right.

**RECOMMENDATION:**

The Proponent should be issued a Licence for the construction and operation of an Onsite Wastewater Management System in accordance with the specifications, limits, terms and conditions of the attached draft Licence. Enforcement of the Licence should be assigned to the Environmental Approvals Branch until all inspections have been completed and the facility is fully commissioned in accordance with the licence.

PREPARED BY:

Rafiqul Chowdhury, M.Eng., P.Eng.
Environmental Engineer
Mines and Wastewater Section
Environmental Approvals Branch
Manitoba Conservation and Water Stewardship
October 25, 2012

Telephone: (204) 945-2614
Fax: (204) 945-5229
E-mail Address: rafiqul.chowdhury@gov.mb.ca