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SUPPLEMENTAL INFORMATION
ENVIRONMENTAL ACT PROPOSAL
VILLAGE OF GLENBORO
WASTEWATER TREATMENT LAGOON UPGRADE
MUNICIPALITY OF GLENBORO-SOUTH CYPRESS

SUBMITTED BY:
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PH: 204-727-0747

PROJECT NO.: SEI2021-024

JUNE 21, 2021

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LIST OF APPENDICIES

1 INTRODUCTION

On behalf of the Municipality of Glenboro-South Cypress (Municipality), Samson Engineering Inc. (Samson) submitted an Environmental Act Proposal (EAP) to the Environmental Approvals Branch of Manitoba's Department of Conservation and Climate (Manitoba Conservation) for the proposed Glenboro Wastewater Lagoon Upgrade, dated November 29, 2019. The EAP was posted to the public registry on April 16, 2020 (file 178.30). After internal and public review, Manitoba Conservation issued an email request for additional information to the Municipality dated June 1, 2020. The Municipality has retained Samson to further the design and generate construction details for the Village of Glenboro Wastewater Lagoon Upgrade and to provide Manitoba Conservation with the additional design, data, and clarification so that a provisional license can be issued. The email consisted of 15 items that Manitoba Conservation requested a response to as well as an additional 6 comments that did not require a response. The following sections detail the request and response to each item. A copy of the request has been provided in Appendix A.

2 EXISTING PRIMARY CELL DRAWINGS

Manitoba Conservation Request Item 1:

> *"Please submit clear engineering drawings (i.e., top view and side view) showing the continuity of the liner material in the existing primary cell of the wastewater treatment lagoon including the thickness of the liner material, the thickness of the liner materials covering the liner material, the inlet location, the elevations of the top of the dyke and the bottom of the cell, and the depth of operation including freeboard."*

A top view of the current elevations of the site, including the top of the dyke and the bottom of the primary cell, is provided in the topographical survey identified as Drawing C-001 in Appendix B. The existing primary cell cross section identifying the continuity of the liner material in the primary cell as well as the thickness of the liner material (200-300mm bentonite modified soil liner), the thickness of the clay fill above the liner (150-300mm clay fill), the inlet location, the elevations of the top of the dyke, bottom of the cell, and the depth of operation including freeboard, is shown in Details 1 and 2, Drawing C-301 in Appendix B.

3 BERM MODIFICATIONS

Manitoba Conservation Request Item 2:

> *"Per Section 3.1 of the "Village of Glenboro Wastewater Lagoon Feasibility Study Addendum", the perimeter of the primary cell berm is proposed to be raise up. Please comment on how the new liner material in the raised up portion of the perimeter berm will be tied into the existing liner material."*

Samson conducted a topographic survey of the Glenboro lagoon site in 2019 (see Drawing C-001). Based on the 2019 site conditions, the primary lagoon has sufficient water depth for the aerated lagoon upgrade; however, the top of the existing perimeter berm elevation does not meet the minimum required freeboard. New material will be added to the berm to increase the berm height and to ensure proper inner and outer slopes using the following procedure:

1) Clear and grub organics and top soils to expose existing impermeable layer and existing bentonite liner above the current water level;
2) Scarify existing impermeable layer and existing bentonite liner to allow for adequate mix of new liner material;
3) Place and compact new clay liner and berm to elevation as shown on the preliminary drawings;
4) Provide rip-rap erosion protection to 0.600m above existing water level; and
5) Dress new berm with 0.200m of top soil and seed with prairie grass mix.

Berm modifications are shown in Detail 1, Drawing C-301 in Appendix B.

4 UPGRADED PRIMARY CELL DRAWING

Manitoba Conservation Request Item 3:

> *"Please submit clear engineering drawings (i.e., top view and side view) showing the continuity of the liner material proposed to be present in the upgraded primary cell of the wastewater treatment lagoon including the thickness of the liner material, inlet and effluent pipelines, inlet location, the thickness of the materials covering the liner material, the elevations of the top of the dyke and the bottom of the cell, and the depth of operation including freeboard."*

A top view of the upgraded primary cell is provided in Drawing C-102, Appendix B. The upgraded primary cell cross section identifying the continuity of the liner material in the primary cell as well as the thickness of the liner material, inlet and effluent pipelines, inlet location, thickness of the clay fill above the liner, elevations of the top of the dyke, bottom of the cell, and the depth of operation including freeboard, is shown in Details 1 and 2, Drawing C-301 in Appendix B. Aeration, diffuser, and baffle details are provided in Appendix C – Nexom Pre-Shop Drawings.

5 DISINFECTION

Manitoba Conservation Request Item 4:

> *"Even though the SAGR system provides an element of disinfection, it may or may not meet our fecal coliform requirement. Therefore, additional disinfection may be required. Per our meeting on May 28, 2020, it was discussed to use ultraviolet technology for disinfection purposes. Please provide us the details of the UV technology that was proposed to be used including the location of the potential UV Treatment facility."*

If additional UV treatment is required, the site specific wastewater characteristics would be used to determine the specific unit to be installed. At this time, it is expected that the Trojan System UV3000TMPTP, Model Number D3200K-PTP would be appropriate. The unit would be installed in-line within a pre-cast concrete manhole downstream of the SAGR level control manhole directly north of the proposed blower building and would disinfect the wastewater existing in the SAGR system, prior to leaving the site. The proposed location of the UV Disinfection manhole is shown in Drawing C-102 in Appendix B. Information regarding the design parameters, guaranteed performance, equipment details, and drawings of the UV disinfection system are provided in Appendix D.

6 TRUCK HAULED WASTEWATER

Manitoba Conservation Request Item 5:

> *"Per our meeting on May 28, 2020, the lagoon receives truck hauled wastewater. Please comment on whether the lagoon accepts septage and the number of truck loads that the upgraded lagoon can accommodate per day. Does acceptance of septage influence the 20 year organic loading calculation?"*

The current Glenboro Lagoon accepts truck hauled wastewater, including septage. In 2020, approximately 168m^3 of truck hauled wastewater was hauled to the Glenboro lagoon. The number of truck loads averaged 1 to 2 per month with volumes ranging from zero in December to a maximum of 28m^3 in August. The current OPTAER™ Wastewater Treatment System design proposed by Nexom assumes that an average of 32m^3 of septage (4 average sized septic trucks) will be disposed of at the lagoon per month with a maximum volume of septage accepted per month being 64m^3. The design assumes that the trucked in material has typical septage characteristics as per the Ontario design guidelines (see Appendix D for typical septage characteristics). The size of the primary cell and the 38 day retention time of wastewater moving through the primary cell has the capacity to buffer the changes in volume and the aeration design parameters have the capacity to treat the organic loading associated with the septage. The acceptance of septage does influence organic loading calculations; however, the influence of the septage is minimal and fits into the current 20 year organic loading capacity for the proposed lagoon design.

7 LAYOUT DRAWING

Manitoba Conservation Request Item 6:

> *"Please submit a layout drawing identifying the key components of the proposed upgrades such as the primary cell, aeration system, inlet location, truck dumping station, baffle curtains, UV channel, SAGR system, phosphorus treatment station, and the final discharge point where the effluent monitoring station will be located to ensure that the collected samples meet the Licence requirements. This layout will be used in the draft Licence."*

The proposed Site Plan has been provided as Drawing C-102 in Appendix B. The Global Site Plan and General Layout Plan identify force main and discharge locations in Details 1 and 2, Drawing C-101.

8 VOLUME OF TRUCK HAULED LOADING

Manitoba Conservation Request Item 7:

> *"Per Section 2.5 of the Environmental Act Proposal, the volume of truck hauled loading was determined to be insignificant. Please comment on what data was used to support the foregoing statement."*

The volume of truck hauled loading was determined to be insignificant due to the small volume and infrequent disposal of trucked hauled wastewater at the lagoon. The frequency of truck hauled wastewater at the lagoon averages between 1 and 2 truck loads per month. The total volume of truck hauled wastewater in 2020 was approximately 168m^3 with an average volume of 16.8m^3/month and a maximum monthly volume of 28m^3 in August. The proposed lagoon design assumes that truck hauled wastewater has typical septage characteristics as per the Ontario design guidelines. The design assumes an average of 32m^3/month of truck hauled septage will be accepted, which represents 0.37% of the design flow rate based on the daily design flow rate of 292m^3/day. The design's maximum acceptable trucked in septage is 64m^3/month or 0.73% of the design flow rate. The size of the primary cell and the 38 day retention time of wastewater moving through the primary cell has the capacity to buffer the changes in volume and the aeration design parameters have the capacity to treat the organic loading associated with the septage.

9 SECONDARY CELL DECOMMISSIONING PLAN

Manitoba Conservation Request Item 8:

> *"Section 2.15 of the Environment Act Proposal outlines the decommission of the existing secondary cell. Please note that the draft licence will require the Village of Glenboro to submit a detailed decommissioning plan for the existing secondary cell for approval of the Director of the Environmental Approvals Branch within one year after issuance of the Licence."*

It is understood that a detailed decommissioning plan for the secondary cell is required to be submitted to the Environmental Approvals Branch for approval within one year of receiving the final licence. The

decommissioning plan will be submitted after the new wastewater treatment facility is fully operational, the water within the secondary cell has emptied via exfiltration, and sampling can be completed to confirm what residual materials remain within the secondary cell.

10 INLET LOCATION

Manitoba Conservation Request Item 9:

> *"Per Section 2.0 of the Environment Act Proposal, the inlet will be moved to the southeast corner of the primary cell. It should be noted that keeping the inlet closer to the centre of the lagoon causes the biosolids build-up near the centre of the lagoon only. However, moving the inlet to one of the corners of the lagoon may cause mounding of biosolids closer to the banks of the lagoon and the potential mounding of biosolids may be exposed to the environment which is not recommended. Please comment on how the potential mounding issues will be mitigated."*

The influent needs to be at the beginning of the treatment process, up-gradient of the flow that is occurring within the primary cell. The flow is created by baffles that direct wastewater through the primary cell, which is divided into three smaller cells, including two Partial Mix Cells (1a and 1b) and one Settling Cell (1c). Sludge build up is not expected because of the high oxygen efficiency of the OPTAER™ Partial Mix Cells with fine bubble diffusers. A Nexom project in Ontario added the same system to a lagoon where the equipment was placed on-top of a significant amount of sludge build up. The previously existing solids in the primary cell were reduced by approximately 23% after one year and approximately 30% after two years.

A generalized layout of cells (1a, 1b, and 1c), aeration, diffusers, baffles etc. and diagrams showing how they interact to direct flow through the system have been provided in Appendix C - Nexom Pre-Shop Drawings. The specific location of the influent and aeration equipment for the proposed Glenboro wastewater treatment lagoon is provided in Drawing C-102 and Detail 2 of Drawing C-301 in Appendix B.

11 ANTICIPATED EFFLUENT CHARACTERISTICS

Manitoba Conservation Request Item 10:

"Please provide the anticipated effluent characteristics in table format provided below for the development of a site specific total ammonia limit for a continuously discharging facility."

Historical Flow and Anticipated Effluent Characteristics						
Month	**Maximum Day Flow m^3/Sec***	**Maximum Weekly Average flow m^3/Sec (year)****	**Maximum Monthly Average Flow m^3/Sec (year)****	**Maximum Day Total Ammonia as N mg/L**	**Maximum Weekly Average Total Ammonia as N mg/L**	**Maximum Monthly Average Total Ammonia as N mg/L**
January	0.0127	0.005250 (2020)	0.003787 (2020)	10	10	5
February	0.0127	0.004750 (2015)	0.003792 (2015)	10	10	5
March	0.0127	0.005500 (2020)	0.003875 (2015)	5	5	2
April	0.0127	0.004625 (2020)	0.004400 (2020)	5	5	2
May	0.0127	0.004958 (2015)	0.004317 (2015)	2	2	1
June	0.0127	0.008750 (2016)	0.004300 (2016)	2	2	1
July	0.0127	0.008653 (2020)	0.005456 (2020)	2	2	1
August	0.0127	0.007250 (2020)	0.004970 (2020)	2	2	1
September	0.0127	0.004000 (2016)	0.003505 (2016)	2	2	1
October	0.0127	0.010750 (2019)	0.007344 (2019)	2	2	1
November	0.0127	0.012578 (2019)	0.007924 (2019)	5	5	2
December	0.0127	0.005125 (2019)	0.004531 (2019)	10	10	5

***Note:** Max Day Flow was calculated by using the average usage of 350L/capita/day for rural Manitoba towns, an infiltration rate of 44L/capita/day, the Harmons peaking factor, and the projected 2037 population.

****Note:** The maximum weekly and monthly average flow rates were determined by reviewing the weekly pumping hours for the years 2015 to 2020. 2017 data was excluded due to large data gaps. Operators confirmed that pump rates are higher in times of spring melt and heavy rain events as shallow groundwater enters the lagoon system. For example, October, November, and December of 2019 are elevated due to unusually high fall precipitation in 2019. Data from May and June 2020 was excluded as it was known that one of the pumps was running dry and was replaced. Operators confirmed that pump errors are likely to have occurred if one pump has significantly different readings than the second pump. June 2016 had large pump differences; however, it cannot be determined if the elevated flow rate is due to pump error, and so the data has been retained.

12 WASTEWATER TREATEMENT FACILITY CLASSIFICATION FORM

Manitoba Conservation Request Item 11:

"Please complete and submit a wastewater facility classification form."

The Wastewater Facility Classification Form has been included in Appendix E. A separate copy is also being submitted to the Approvals Branch.

13 CERTIFIED OPERATOR

Manitoba Conservation Request Item 12:

Do you have a certified operator? If so, please provide the name of the operator.

The Glenboro Lagoon currently has the following certified operators:

- Armand Vallotton, Urban Foreman, WWC1 and WWT1, expires May 2022;
- James Drysdale, Public Works Supervisor, WWC1, WWT OIT (will be WWT1 in June/July), expires June 2025. James will be applying for his WWT 2 in the fall of 2021; and
- Bryce Ryland, Waste Disposal Supervisor, WWC1 OIT, WWT OIT, expires March 2026.

14 FORCE MAIN LOCATION

Manitoba Conservation Request Item 13:

"What side of Road 81W will the force main follow? Appendix A appears to show it to follow the east side of the road allowance, while the text suggest that it is adjacent to SE-21-0007-14W1 (west of road). Please comment."

The force main will follow the west side of Road 81W. Please see Drawing C-101 in Appendix B for additional detail.

15 FORCE MAIN INSTALLATION

Manitoba Conservation Request Item 14:

"Please comment on the pipeline installation method that will be used to install the effluent forcemain. It should be noted that the proposed project is routed across patches of hairy-prairie clover listed as Threatened under the Endangered Species and Ecosystems Act. This species occurs within the road right of way, and impacts are not mitigated by limiting activity to within the previously disturbed ditch area. There is also a risk to disturbing or destroying prairie skink, listed as Endangered under The Endangered species and Ecosystems Act and the federal Species At Risk Act, as this species has been observed immediately east of the right of way. Potential conflicts occur along Road 81W, within an approximate 100 metre stretch between SE-21-007-14W1 and SW-22-007-14W1, directly east of the golf course. It is recommended to use directional drilling within approximately 100 metre stretch of right of way to prevent negative impacts to species

protected under The Endangered Species and Ecosystems Act and Species at Risk Act. The installation of the pipelines by plow method may impact the above species."

The proposed Ø150mm force main is to be installed along the west side of road 81W approximately 3m from the property line and will be installed via Horizontal Directional Drill and plow method. The locations and lengths of the directional drilling are shown in Detail 1 of Drawing C-101 in Appendix B. The depth (minimum 3m from surface) and directional drill detail is shown in Detail 3 of Drawing C-101 in Appendix B. The force main will be installed via directional drilling for the areas of special concern, including the area directly east of the golf course, which will minimize impacts to the prairie skink and Hairy Prairie-Clover. Prior to construction, a review of the west side of Road 81W will be conducted to determine areas populated by Hairy Prairie-Clover and prairie skink and if found outside of the area already identified, the use of directional drilling will be expanded.

16 MITIGATION PLAN

Manitoba Conservation Request Item 15:

"The consultant is recommended to contact Wildlife and Fisheries Branch for more information, and an adequate mitigation plan should be developed for this portion of the route. Please contact Brain Kiss at brian.kiss@gov.mb.ca. The draft Licence will contain a clause that will require the Licencee to submit a copy of the approval letter approving the mitigation plan to the Environmental Approvals Branch."

Brian Kiss of the Wildlife and Fisheries Branch was contacted for additional information. The following information was received via email:

"Thank you for contacting us. We appreciate that directional horizontal drilling will be used to protect listed species. I have attached a map that identifies our "area of concern", and also an "area of caution" to assist with your hairy prairie-clover surveys and consideration for additional horizontal drilling portions of the route. Our Conservation Data Centre suggests that surveys for hairy prairie clover be conducted in early-August.

If you have any other questions, please let us know."

A mitigation plan will be submitted to the Wildlife and Fisheries Branch for approval after project funding has been secured, prior to initiating the project. As seen in Drawing C-101 in Appendix B, the area of concern and the area of caution will be directionally drilled. We understand that the draft Licence will contain a clause that will require the Licencee to submit a copy of the approval letter approving the mitigation plan to the Environmental Approvals Branch.

A copy of the email from the Wildlife and Fisheries Branch has been included in Appendix D.

17 HERITAGE RESOURCE IMPACT ASSESSMENT

The Manitoba Conservation request for information consisted of the 15 items identified as well as an additional 6 comments that did not require a response. Of the 6 comments that did not require a response, most were re-stating information already known about the project such as effluent standards. Comment 3 was regarding the need for a Heritage Resource Impact Assessment (HRIA). Samson contacted Graham Reid of the Historic Resources Branch for additional information regarding the areas of archeological concern. After several discussions regarding the project, the following information was provided as well as an additional request for information:

> *"Polygons 1-5 – These polygons highlight archaeologically sensitive areas associated with the dune fields along Mile Road 81W. If the pipeline is within the current road allowance (i.e. within the ditch and not affecting the sand dunes on the side of the road), then a HRIA is not required for these areas. If the pipeline is going to be directionally drilled under these sand dune areas, the need for an HRIA would be determined based on the depth of the pipeline below the surface.*
>
> *Polygons 6-9 – These polygons highlight archaeological sensitive areas between Mile Road 81W and the Assiniboine River. Where the pad, outflow, access road, and force main pipeline fall within these areas should be subjected to an HRIA prior to construction. Pleased be advised that there are larger areas of concern beyond what is present here. These polygons are based on the preliminary route for the force main. Any major deviations from the current proposed route will likely also run the risk of impacting archaeological sensitive areas.*
>
> *Moving Forward*
>
> *We request that you address the following:*
>
> 1. *Identify the areas that will be directionally drilled along Mile Road 811W and the depth below surface for the pipe.*
> 2. *Determine preliminary footprint for the final 1km of the force main pipeline from Mile Road 81W to the Assiniboine River. A rough centre line and lat/long of the outflow and the pad from google earth should be sufficient to start."*

Regarding the archaeological sensitive areas associated with the sand dune areas along Mile Road 81W, the sewer line will be directionally drilled at a minimum depth of 3m within the previously disturbed road allowance. The line will not be located on private property and will not disturb the sand dunes located adjacent to the road allowance. The directional drilling will be conducted to protect potential species at risk in the area and thus will also avoid potential archaeologically sensitive areas.

Regarding the archaeological sensitive areas between Mile Road 81W and the Assiniboine River, an HRIA will be conducted in these areas after project funding has been secured, prior to initiating the project. The results of the HRIA will be submitted to the Historic Resources Branch for comment and approval. This area is expected to be directionally drilled at a minimum depth of 3m. Other appropriate design modifications will be made to the project in consultation with the Historic Resources Branch if required.

The location of the force main, the areas that will be directionally drilled, and the location of the outflow and pad are shown on Drawing C-101 in Appendix B. The outflow and pad will be located at Latitude: 49°36'22.00"N, Longitude: 99°19'1.00"W.

18 REPORT LIMITATIONS

This report is based on the information collected from previous documents, research, site visits, and interviews. All information collected by Samson was collected in good faith with the assumption that the information is correct or to the best of their knowledge. Samson accepts no responsibility for any inaccurate information in this report as a result of omissions or misinterpretations of information that was provided by previous reports or persons interviewed. Unless otherwise noted within the report, Samson renounces any obligations to update this report with information that becomes available after the time of issuing.

This report has been prepared exclusively for Municipality of Glenboro-South Cypress. Should this report be used by a third party, any reliance or decisions made based on this report shall be the responsibility of the third party. Samson makes no representation concerning the legal significance of the findings or the information contained within this report.

19 CLOSURE

We trust this report meets your requirements. If you have any questions or comments, please feel free to contact our office.

Yours very truly,
Samson Engineering Inc.

[redacted]

Joanne Lanoie, B.Sc., M.Sc.
Senior Project Manager – Environmental

[redacted]

Appendix A – EAP Request For Information

Additional Information Request

Municipality of Glenboro-South Cypress Date: June 1, 2020
File: 178.30

Respecting the Wastewater Treatment Lagoon

1. Please submit clear engineering drawings (i.e., top view and side view) showing the continuity of the liner material present in the existing primary cell of the wastewater treatment lagoon including the thickness of the liner material, the thickness of the materials covering the liner material, the inlet location, the elevations of the top of the dyke and the bottom of the cell, and the depth of operation including freeboard.
2. Per Section 3.1 of the "Village of Glenboro Wastewater Lagoon Feasibility Study Addendum", the perimeter of the primary cell berm is proposed to be raised up. Please comment on how the new liner material in the raised up portion of the perimeter berm will be tied into the existing liner material.
3. Please submit clear engineering drawings (i.e., top view and side view) showing the continuity of the liner material proposed to be present in the upgraded primary cell of the wastewater treatment lagoon including the thickness of the liner material, inlet and effluent pipelines, inlet location, the thickness of the materials covering the liner material, the elevations of the top of the dyke and the bottom of the cell, and the depth of operation including freeboard.
4. Even though the SAGR system provides an element of disinfection, it may or may not meet our fecal coliform requirement. Therefore, additional disinfection may be required. Per our meeting on May 28, 2020, it was discussed to use ultraviolet technology for disinfection purposes. Please provide us the details of the UV technology that was proposed to be used including the location of the potential UV treatment facility.
5. Per our meeting on May 28, 2020, the lagoon receives truck hauled wastewater. Please comment on whether the lagoon accepts septage and the number of truck loads that the upgraded lagoon can accommodate per day. Does acceptance of septage influence the 20 year organic loading calculation?
6. Please submit a layout drawing identifying the key components of the proposed upgrades such as the primary cell, aeration system, inlet location, truck dumping station, baffle curtains, UV channel, SAGR system, phosphorus treatment station, and the final discharge point where the effluent monitoring station will be located to ensure that the collected samples meet the Licence requirements. This layout will be used in the draft Licence.
7. Per Section 2.5 of the Environment Act Proposal, the volume of truck hauled loading was determined to be insignificant. Please comment on what data was used to support the foregoing statement.
8. Section 2.1.5 of the Environment Act Proposal outlines the decommissioning of the existing secondary cell. Please note that the draft licence will require the village of Glenboro to submit a detailed decommissioning plan for the existing secondary cell for approval of the Director of the Environmental Approvals Branch within one year after issuance of the Licence.
9. Per Section 2.0 of the Environment Act Proposal, the inlet will be moved to the southeast corner of the primary cell. It should be noted that keeping the inlet closer to the centre of the lagoon causes the biosolids build-up near the centre of the lagoon only. However, moving the inlet to one of the corners of the lagoon may cause mounding of biosolids closer to the banks of the lagoon and the potential mounding of biosolids may be exposed to the environment which is not recommended. Please comment on how the potential mounding issues will be mitigated.

10. Please provide the anticipated effluent characteristics in table format provided below for the development of a site specific total ammonia limit for a continuously discharging facility.

Month	Maximum Day Flow (m^3/S)	Maximum Weekly Average Flow (m^3/S)	Maximum Monthly Average Flow (m^3/S)	Maximum Day Total Ammonia as N (mg/L)	Maximum Weekly Average Total Ammonia as N (mg/L)	Maximum Monthly Average Total Ammonia as N (mg/L)
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

11. Please complete and submit a wastewater facility classification form. Please follow the web link below to access the form.

https://www.gov.mb.ca/sd/eal/certification/application_for_wastewater_treatment_facility_classification.pdf

12. Do you have a certified operator? If so, please provide the name of the operator.

Respecting Wildlife and Fisheries

13. What side of Road 81W will the force main follow? Appendix A appears to show it to follow the east side of the road allowance, while the text suggest that it is adjacent to SE-21-007-14W1 (west of road). Please comment.
14. Please comment on the pipeline installation method that will be used to install the effluent forcemain. It should be noted that the proposed project is routed across patches of hairy-prairie clover listed as Threatened under the Endangered Species and Ecosystems Act. This species occurs within the road right of way, and impacts are not mitigated by limiting activity to within the previously disturbed ditch area. There is also a risk to disturbing or destroying prairie skink, listed as Endangered under The Endangered Species and Ecosystems Act and the federal Species At Risk Act, as this species has been observed immediately east of the right of way. Potential conflicts occur along Road 81W, within an ~100 metre stretch between SE-21-007-14W1 and SW-22-007-14W1, directly east of the golf course. It is recommended to use directional drilling within approximately 100 metre stretch of right of way to prevent negative impacts to species protected under The Endangered Species and Ecosystems Act and Species at Risk Act. The installation of the pipelines by plow method may impact the above species.
15. The consultant is recommended to contact Wildlife and Fisheries Branch for more information, and an adequate mitigation plan should be developed for this portion of the route. Please contact Brian Kiss at brian.kiss@gob.mb.ca. The draft Licence will contain a clause that will require the Licencee to submit a copy of the approval letter approving the mitigation plan to the Environment Approvals Branch.

Please find below comments from TAC members for information purposes only and responses are not required.

1. The following effluent standards must be applied to the Village of Glenboro wastewater treatment lagoon as per the Manitoba Water Quality Standards, Objectives and Guidelines Regulation (196/2011):
   (a) BOD5 25 mg/L,
   (b) TSS 25 mg/L,
   (c) Fecal Coliforms or Escherichia coli 200 organisms / 100mL,
   (d) <1 mg/L Total Phosphorous.
2. 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.
3. The current proposed route passes through areas with intact sand dunes, as well as intersecting with the Assiniboine River valley. There are numerous archaeological sites in the immediate area, including documented fur trade forts, Precontact Indigenous settlements, historic cart trails, and human burials. As the current plans stand, a heritage resource impact assessment (HRIA) is required for the 6 km force main pipeline. The proponent must contract a qualified archaeological/paleontological consultant to conduct a Heritage Resources Impact assessment

(HRIA) of the proposed development location, in order to identify and assess any heritage resources that may be negatively impacted by development. If desirable, the Branch will work with the developer/land owners and its consultant to draw up terms of reference for this project.

Note: Please be advised, that a search of the Manitoba Historical Society web page is not sufficient for determining if heritage resources are present. The location of archaeological sites and human burials is protected under Manitoba's Freedom of Information and Protection of Privacy Act (FOIPPA), and as such are not available to the general public. Therefore, heritage screenings must be reviewed by the Historic Resource Branch to determine if an HRIA is required.

4. The RM is required to obtain the required building and occupancy permits from the authority having jurisdiction for any new buildings and the alteration, reconstruction, demolition, removal, relocation, and occupancy of all existing buildings. An emergency plan be filed and approved by the local fire department prior to occupancy in accordance with the Manitoba Fire Code.
5. The proposed pipeline to be installed along the Road Allowance and heading north crossing under PTH 2 Right-of-Way, will require a permission/agreement from MI for the work within the PTH 2 Right-of-way. Permission/agreement applications (online or by mail) and requirement information for utilities within Manitoba Infrastructure Right-of-Way can be obtained at the following link: https://www.gov.mb.ca/mit/hpd/utilities.html. Alternatively, the proponent may contact Brian Hickman, Regional Planning Technologist at Brian.Hickman@gov.mb.ca.

   Note: Manitoba Infrastructure permit may also be required for:

   a. Any construction (above or below ground level) within 38.1 m (125 ft);
   b. Any plantings within 15.2 m (50 ft) from the edge of the right of way of PTH 2; and
   c. Discharge of water or other liquid materials into the ditch PTH 2.

6. The proposed area is zoned "A agriculture" and Sewage Disposal Lagoon is a conditional use.

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Appendix B – Preliminary Drawings

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VILLAGE OF GLENBORO
WASTEWATER LAGOON UPDATE
GLENBORO, MB.

DRAWING LIST

CIVIL		
SHEET	TITLE	ISSUE
C 001	LEGAL & TOPOGRAPH CAL SURVEY	
C 101	GLOBAL S TE PLAN & GENERAL LAYOUT PLAN	
C 102	S TE PLAN	
C 301	LAGOON SECT ONS & DETA LS	

PROJECT NUMBER: SEI2021-024

TOPOGRAPHIC SURVEY
OF PART OF
NW 1/4 SEC. 10-7-14 WPM
BEING
PARCEL 2 PLAN No. 1136 (C. DIV.) AND LOT 4
PLAN No. 53101

MUNICIPALITY OF GLENBORO–SOUTH CYPRESS
MANITOBA

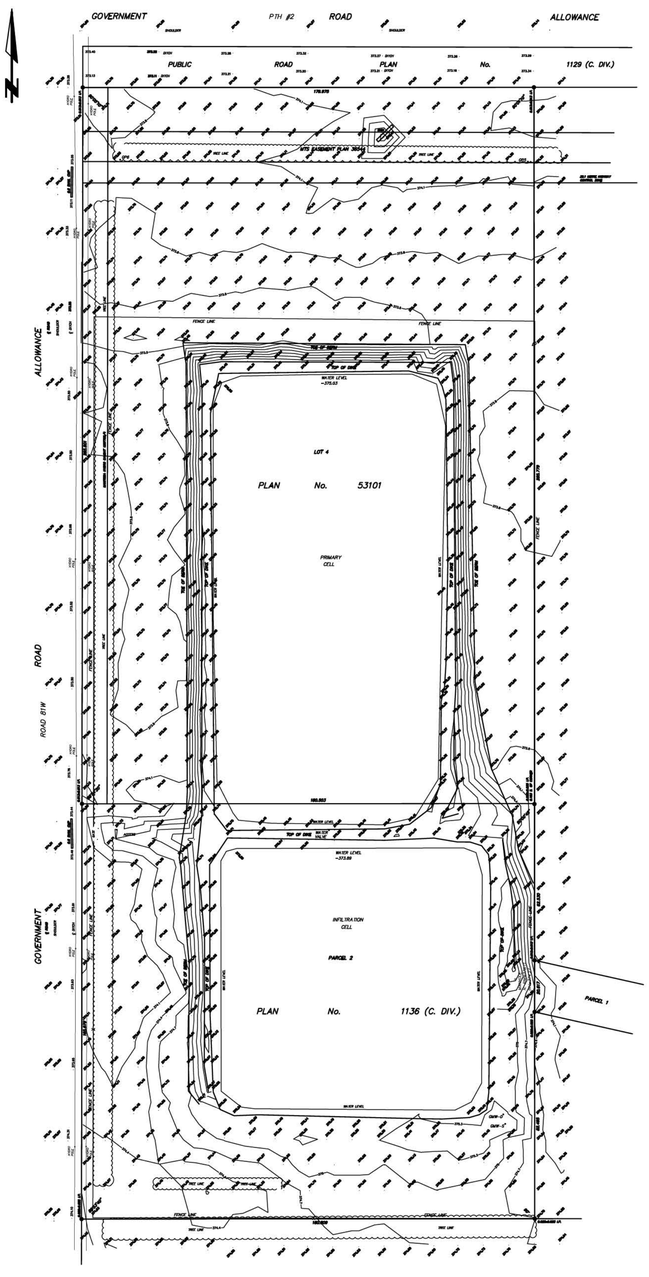
SCALE: 1 : 300

NOTES:
ALL DISTANCES ARE AS MEASURED AND MAY BE DIFFERENT FROM RECORD DISTANCES.
ALL BEARINGS ARE GRID BEARINGS DERIVED FROM OBSERVATIONS TAKEN BY GPS METHODS AND ARE REFERRED TO THE 114° MERIDIAN.
GPS OBSERVATIONS ARE SHOWN THUS ———— ●
FOUND MONUMENTS ARE SHOWN THUS ———— ●
ADDITIONAL MONUMENTS, BEARING AND DISTANCES WERE OBTAINED FROM COORDINATES ON RECORD.
DISTANCES ARE SHOWN TO THE NEAREST 0.01 METRE.
DISTANCES IN BRACKETS TO IDENTIFY THE PLAN AND LOCATION OF ALL RECORD CALCULATED POINTS.
ALL PLANS REFERENCED TO ARE OF RECORD IN THE WINNIPEG LAND TITLES OFFICE.

DISCLAIMERS:
THIS PLAN IS FOR PRELIMINARY DESIGN PURPOSES ONLY. IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.
THE INFORMATION SHOWN ON THIS PLAN IS BASED ON A FIELD SURVEY AND RECORD INFORMATION.
THE SURVEYOR DOES NOT WARRANT THE COMPLETENESS OF THE INFORMATION SHOWN ON THIS PLAN.
ADDITIONAL RIGHTS-OF-WAY AND EASEMENTS MAY EXIST THAT ARE NOT SHOWN ON THIS PLAN.

PROVISIONAL DRAFT
DENNIS LEE SCHREIER
MANITOBA LAND SURVEYOR

METRIC



1 LEGAL & TOPOGRAPHICAL SURVEY
SCALE: NTS

NO	ISSUED	DATE

PRELIMINARY FOR REVIEW & COMMENT ONLY

NORTH ARROW

NOTE:

T E GENERA CONTRACTOR MUST VER FY A D MENS ONS DATUMS AND EVE S NOTED ON T ESE DRAW NGS W T 5 TE COND T ONS ANY D SCREPANC ES ERRORS OR OM SS ONS MUST BE REPORTED TO T E ARC TECT OR ENG NEER PR OR TO COMMENC NG ANY RE ATED WORK

DO NOT SCA E DRAW NGS

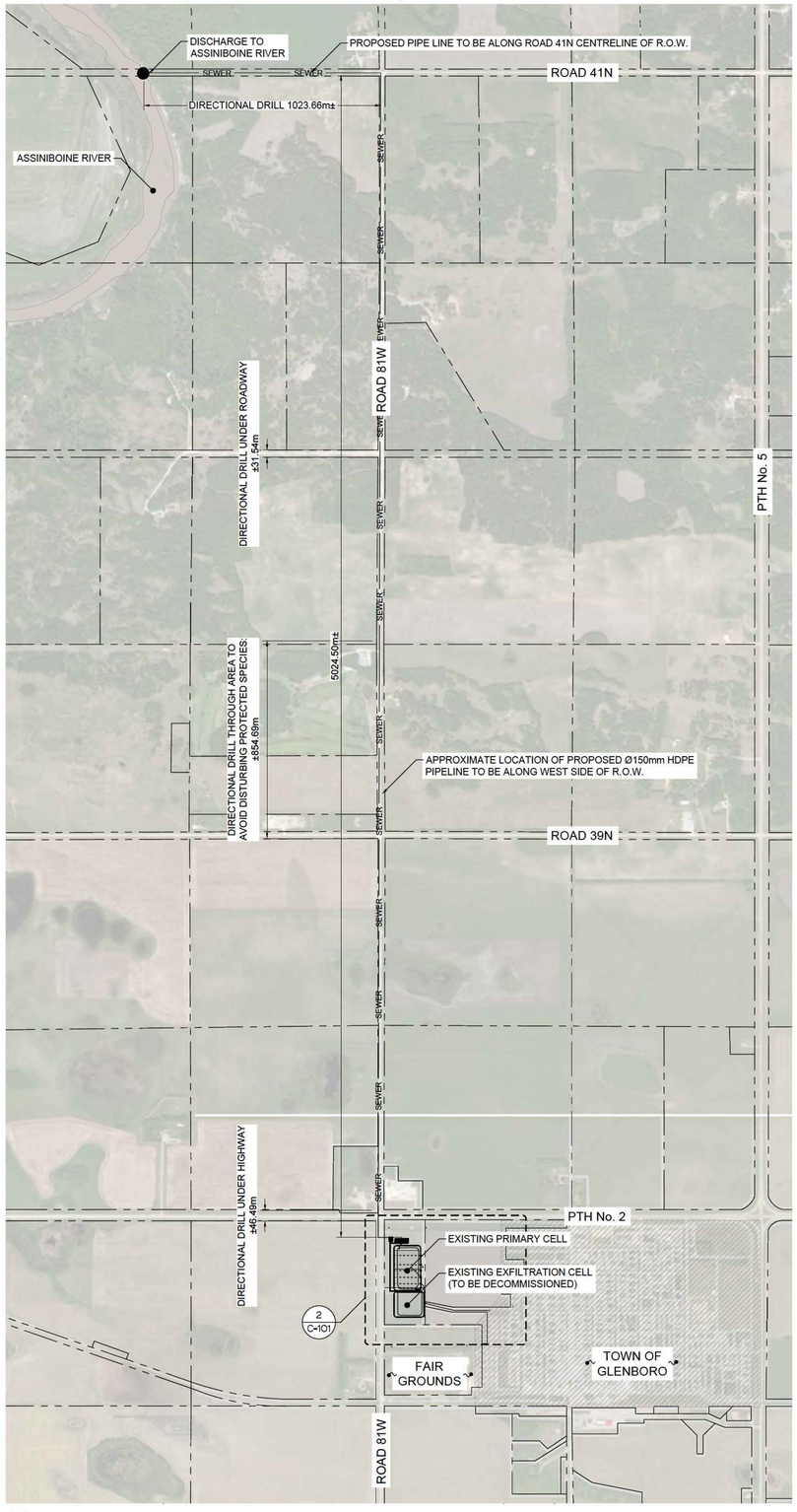
SAMSON
ARC TECTURE I ENG NEER NG
62 OTH STREET
BRANDON MB R7A 4E6
PH (204 727 0747

PRO ECT LOCATION
GLENBORO MB

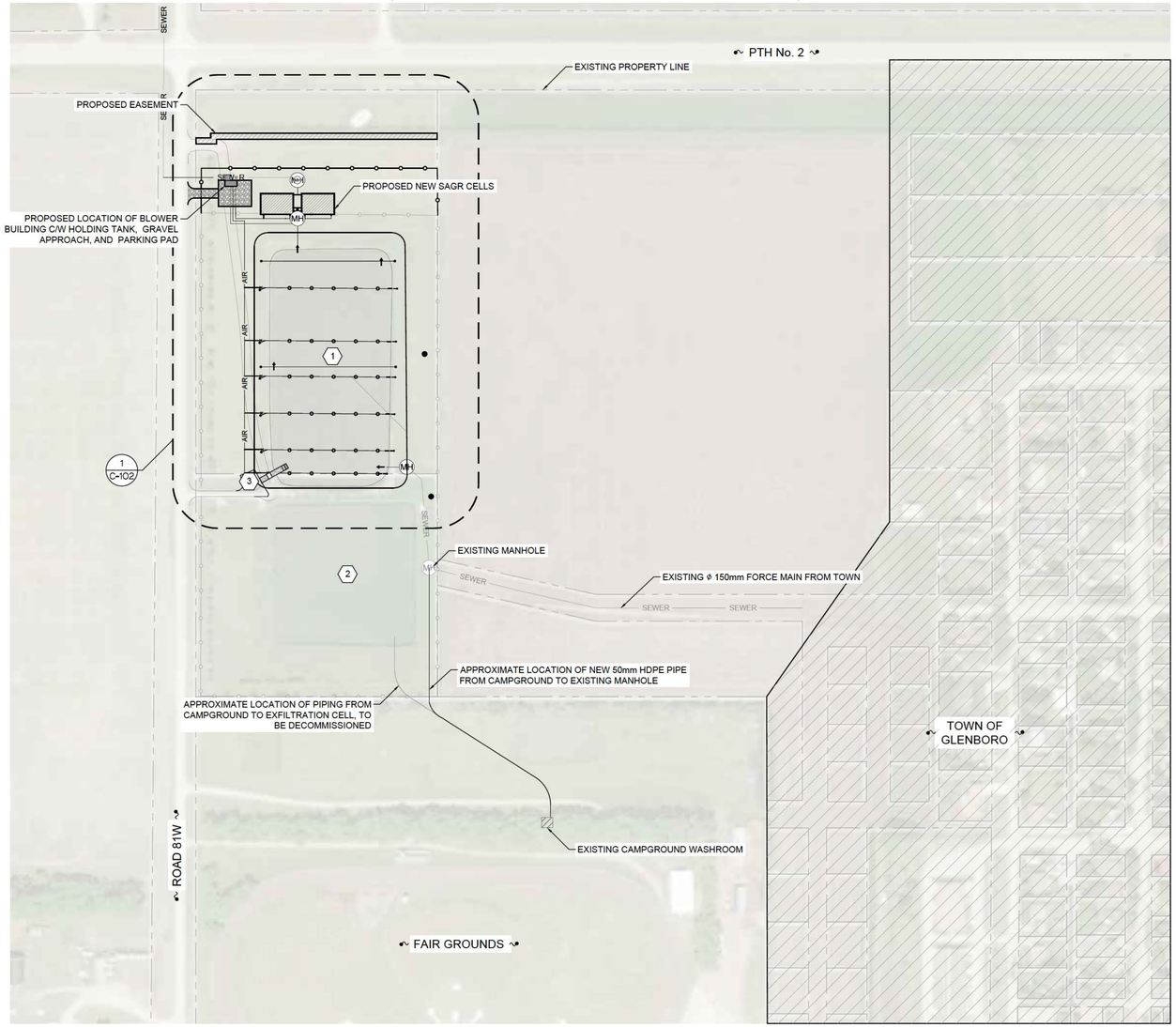
PRO ECT NAME
VILLAGE OF GLENBORO
WATEWATER LAGOON
UPDATE

DRAWING TITLE
LEGAL & TOPOGRAPHICAL
SURVEY

PRO ECT NUMBER	DATE
SE12021-024	JUN 09 2021
DRAWING NUMBER	SHEET SIZE / SCALE
C-001	(24 X 36) AS NOT D
DRAWN BY	CHECKED BY
TT	PD



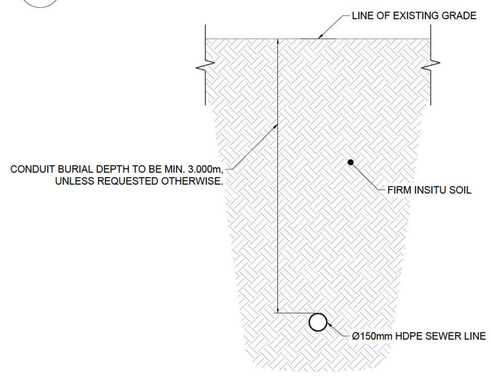
1 GLOBAL SITE PLAN
SCALE: 1:12,000



2 GENERAL LAYOUT PLAN
SCALE: 1:2000

KEY NOTES:

1. - EXISTING PRIMARY CELL TO BE UPGRADED WITH NEXOM AERATION COMPONENTS AND TWO CELL SAGR SYSTEM.
2. - EXISTING INFILTRATION CELL TO BE DE-COMMISSIONED.
3. - SEPTIC WASTE DUMP STATION.



3 TYP. DIRECTIONAL DRILLED PIPE INSTALLATION DETAILS
SCALE: 1:25

NO	ISSUED	DATE

PRELIMINARY FOR REVIEW & COMMENT ONLY

NORTH ARROW

NOTE:

T E GENERA CONTRACTOR MUST VER FY A D MENS ONS DATUMS AND EVE S NOTED ON T ESE DRAW NGS W T S TE COND T ONS ANY D SCREPANC ES ERRORS OR OM SS ONS MUST BE REPORTED TO T E ARC TECT OF ENG NEER PR OR TO COMMENC NG ANY RE ATED WORK

DO NOT SCA E DRAW NGS

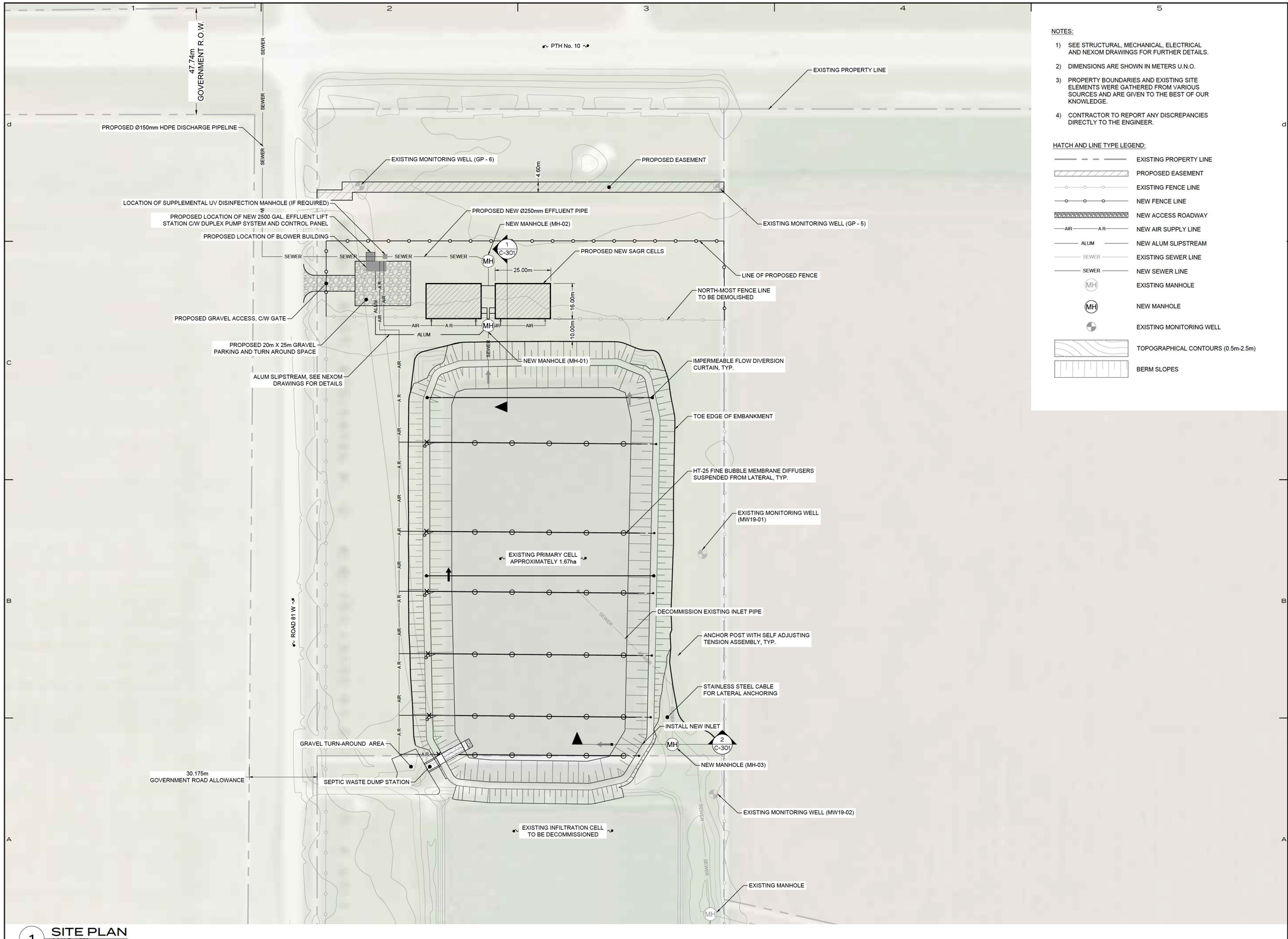
SAMSON
ARC TECTURE I ENG NEER NG
62 OTH STREET
BRANDON MB R7A 4E6
PH (204 727 0747

PRO ECT LOCATION: GLENBORO MB

PRO ECT NAME: VILLAGE OF GLENBORO WATEWATER LAGOON UPDATE

DRAWING TITLE: GLOBAL SITE PLAN & GENERAL LAYOUT PLAN

PRO ECT NUMBER	DATE	
SEI2021-024	JUN 09 2021	
DRAWING NUMBER	SHEET SIZE	SCALE
C-101	(24 X 36)	AS NOT D
	DRAWN BY: TT	CHECKED BY: PD



1 SITE PLAN
SCALE: 1:750

NOTES:

1) SEE STRUCTURAL, MECHANICAL, ELECTRICAL AND NEXOM DRAWINGS FOR FURTHER DETAILS.
2) DIMENSIONS ARE SHOWN IN METERS U.N.O.
3) PROPERTY BOUNDARIES AND EXISTING SITE ELEMENTS WERE GATHERED FROM VARIOUS SOURCES AND ARE GIVEN TO THE BEST OF OUR KNOWLEDGE.
4) CONTRACTOR TO REPORT ANY DISCREPANCIES DIRECTLY TO THE ENGINEER.

HATCH AND LINE TYPE LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED EASEMENT
- EXISTING FENCE LINE
- NEW FENCE LINE
- NEW ACCESS ROADWAY
- NEW AIR SUPPLY LINE
- NEW ALUM SLIPSTREAM
- EXISTING SEWER LINE
- NEW SEWER LINE
- EXISTING MANHOLE
- NEW MANHOLE
- EXISTING MONITORING WELL
- TOPOGRAPHICAL CONTOURS (0.5m-2.5m)
- BERM SLOPES

NO	ISSUED	DATE

PRELIMINARY FOR REVIEW & COMMENT ONLY

NORTH ARROW

N

NOTE:

T E GENERA CONTRACTOR MUST VER FY A D MENS ONS DATUMS AND EVE S NOTED ON T ESE DRAW NGS W T S TE COND T ONS ANY D SCREPANC ES ERRORS OR OM SS ONS MUST BE REPORTED TO T E ARC TECT OR ENG NEER PR OR TO COMMENC NG ANY RE ATED WORK

DO NOT SCA E DRAW NGS

SAMSON
ARC TECTURE I ENG NEER NG
62 OTH STREET
BRANDON MB R7A 4E6
PH (204 727 0747

PRO ECT LOCATION
GLENBORO MB

PRO ECT NAME
VILLAGE OF GLENBORO
WATEWATER LAGOON
UPDATE

DRAWING TITLE
SITE PLAN

PRO ECT NUMBER	DATE
SEI2021-024	JUN 09 2021

DRAWING NUMBER	SHEET SIZE	SCALE
C-102	(24 X 36)	AS NOT D

DRAWN BY	CHECKED BY
TT	PD

SAMSON
ARCHITECTURE | ENGINEERING

Appendix C – Nexom Pre-Shop Drawings

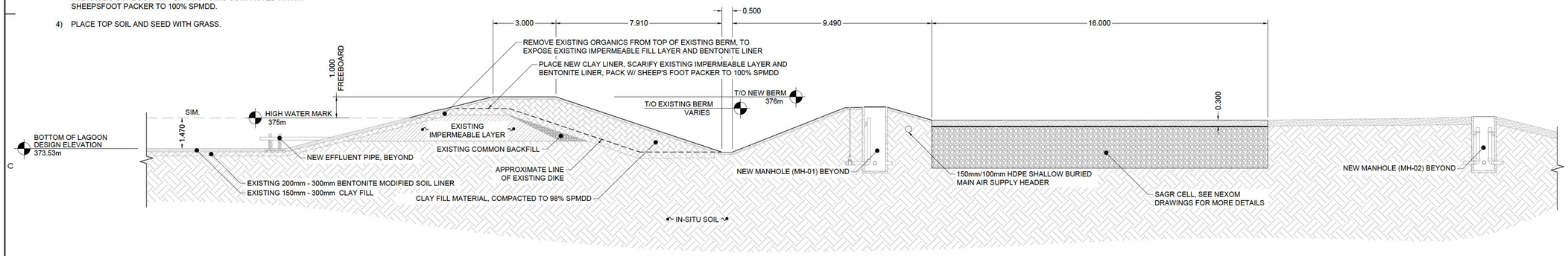
BERM EXTENSION PROCEDURE:

1) CLEAR AND GRUB ORGANICS AND TOP SOIL TO EXPOSE EXISTING LINER ON LAGOON SLOPE, TOP OF BERM AND BACK SLOPE. MAINTAIN A 200mm FREEBOARD FROM EXISTING WATER LEVEL TO EXCAVATION EXTENT.

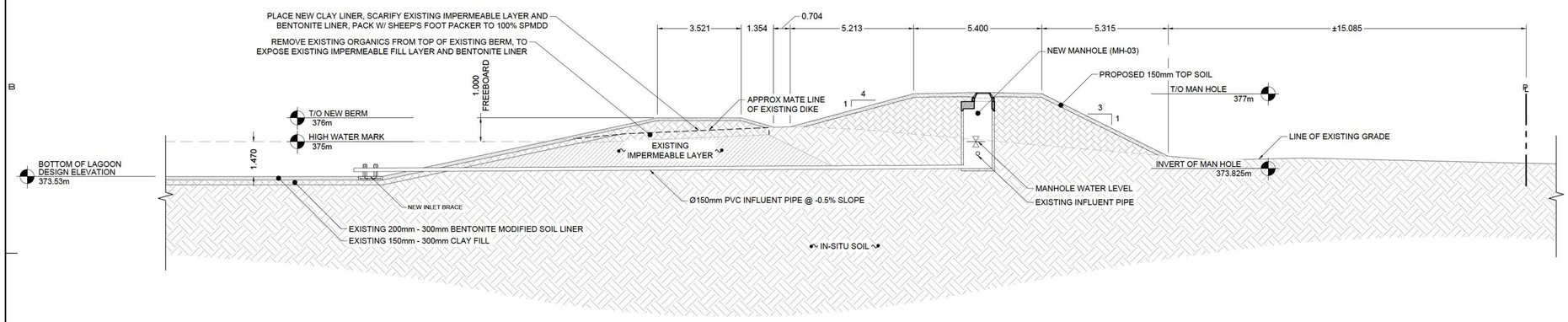
2) SCARIFY EXISTING LINER FOR CONTINUITY BETWEEN EXISTING LINER AND NEW LINER EXTENSION.

3) PLACE AND COMPACT NEW CLAY LINER WITH CLAY WITH A MINIMUM HYDRAULIC CONDUCTIVITY OF $1X10^{-7}$ CM/S COMPACTED WITH A SHEEPSFOOT PACKER TO 100% SPMDD.

4) PLACE TOP SOIL AND SEED WITH GRASS.



1 TYPICAL BERM SECTION DETAIL
SCALE: 1:75



2 INFLUENT PIPE SECTION DETAIL
SCALE: 1:75

NO	ISSUED	DATE

PRELIMINARY FOR REVIEW & COMMENT ONLY

NORTH ARROW

N

NOTE:

T E GENERA CONTRACTOR MUST VER FY A D MENS ONS DATUMS AND EVE S NOTED ON T ESE DRAW NGS W T S TE COND T ONS ANY D SCREPANC ES ERRORS OR OM SS ONS MUST BE REPORTED TO T E ARC TECT OR ENG NEER PR OR TO COMMENC NG ANY RE ATED WORK

DO NOT SCA E DRAW NGS

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ARC TECTURE I ENG NEER NG
62 OTH STREET
BRANDON MB R7A 4E6
PH (204 727 0747

PRO ECT LOCATION
GLENBORO MB

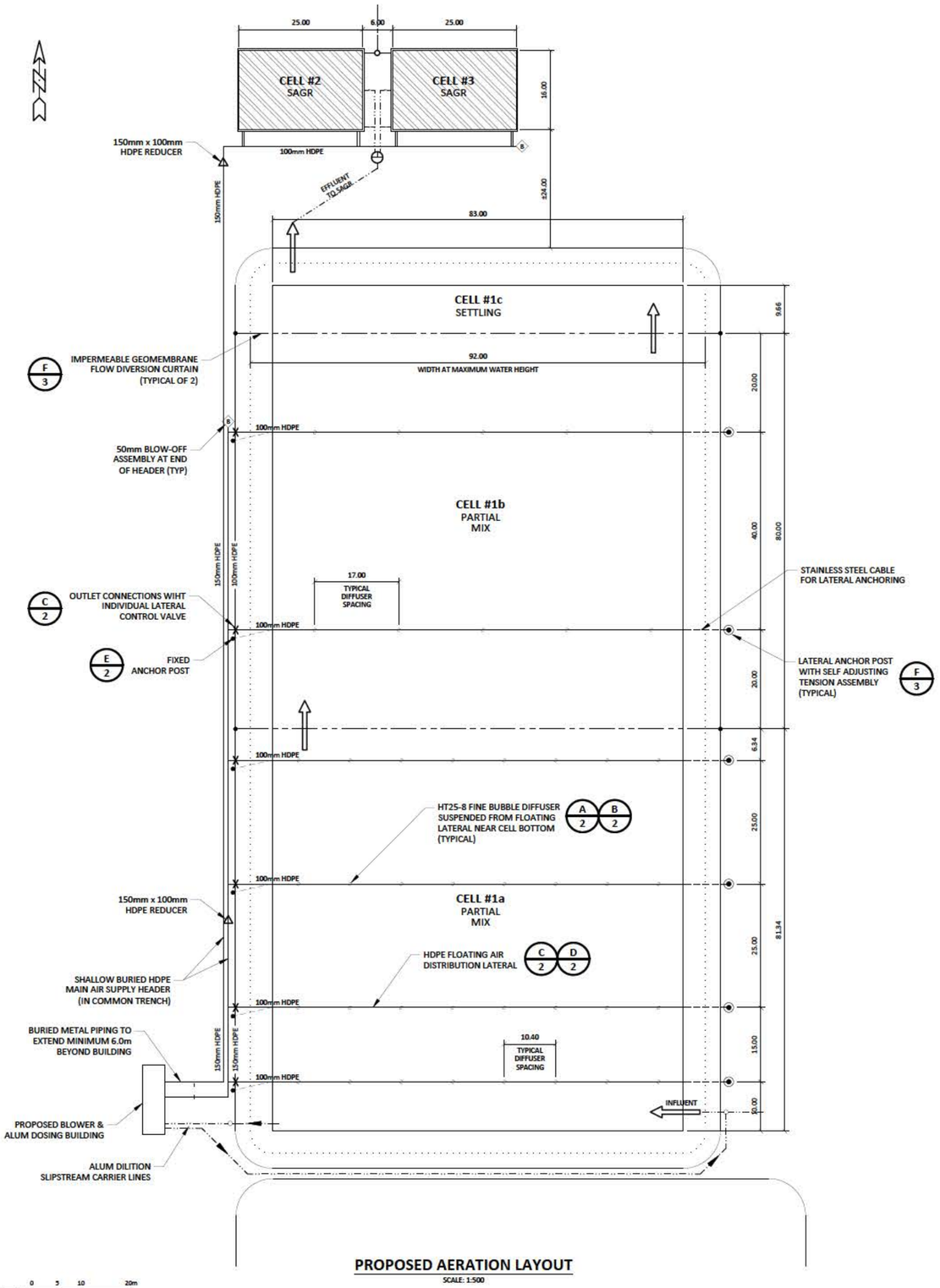
PRO ECT NAME
VILLAGE OF GLENBORO WATEWATER LAGOON UPDATE

DRAWING TITLE
LAGOON SECTIONS & DETAILS

PRO ECT NUMBER	DATE
SE12021-024	JUN 09 2021
DRAWING NUMBER	SHEET SIZE / SCALE
C-301	(24 X 36) AS NOT D
	DRAWN BY / CHECKED BY
	TT PD

PLOT SIZE: 610mm x 914mm (24" x 36")

REDUCED SIZE PLOT - DO NOT SCALE

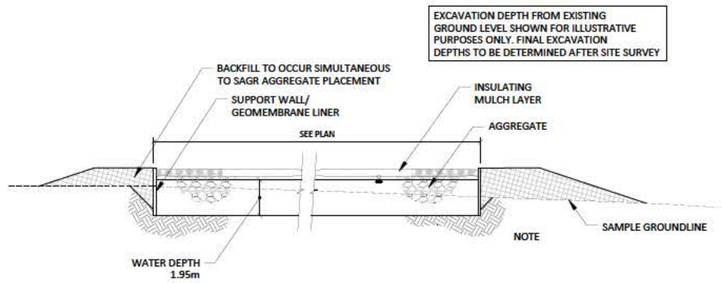


PROPOSED AERATION LAYOUT

SCALE: 1:500

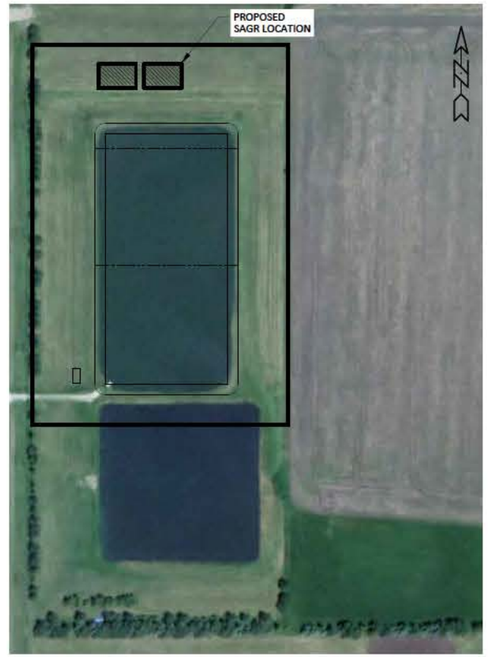
10 0 5 10 20m

SCALE 1:500



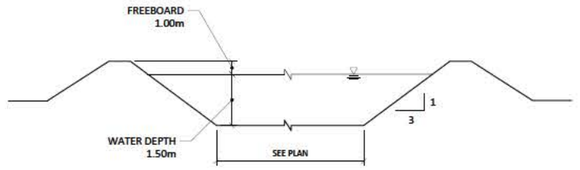
TYPICAL SAGR CONSTRUCTION

SCALE: N.T.S.



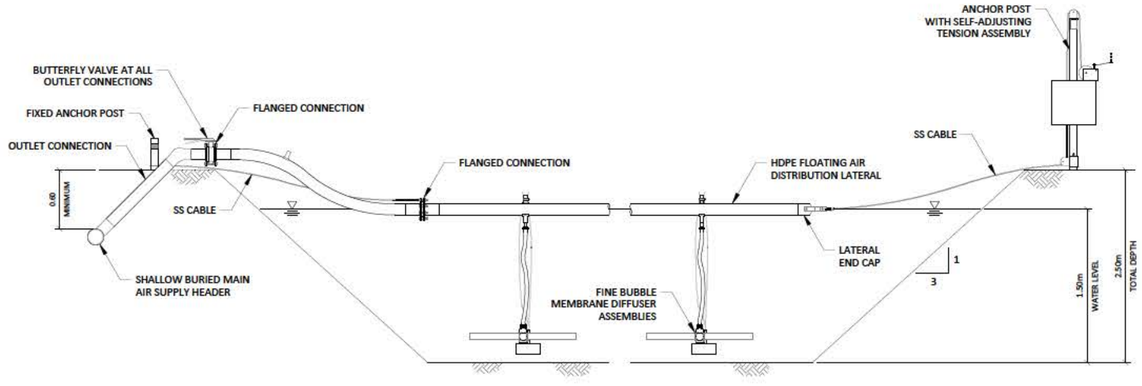
LOCATION PLAN

SCALE: 1:2000



TYPICAL SECTION - AERATED CELLS

SCALE: N.T.S.



AERATED LAGOON SECTION

SCALE: N.T.S.

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Canada R2J 3R8

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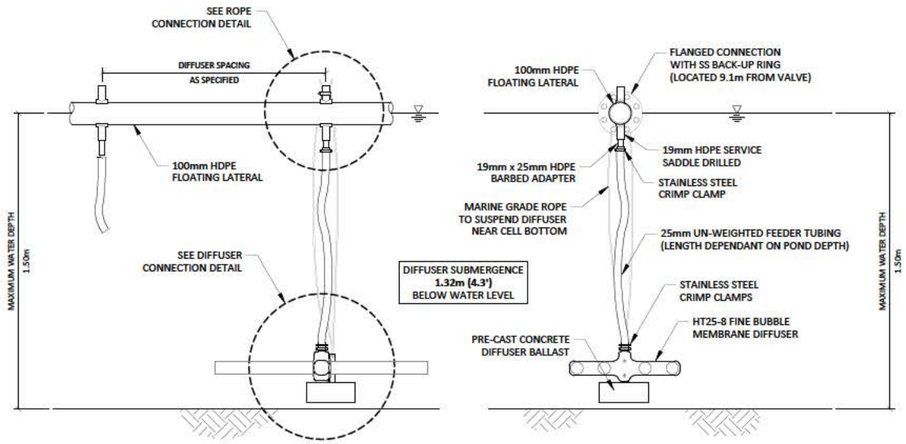
PROJECT	GLENBORO, MB PROPOSED WASTEWATER TREATMENT SYSTEM
TITLE	OPTAER SYSTEM AERATION LAYOUT, TYPICAL SECTION, LOCATION PLAN
DRAWN BY	LE
APPROVED BY	LE
SCALE	AS NOTED
DRAWING NO.	NE01
SHT.	1 of 10
REV.	0
DATE	2020/06/30
FILE #	CD3313.03

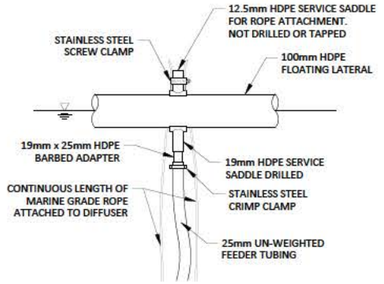
PLOT SIZE: 610mm x 914mm (24" x 36")

REDUCED SIZE PLOT - DO NOT SCALE

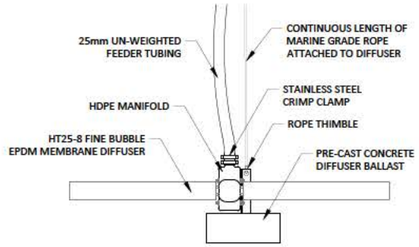


A — **LATERAL DETAIL - ELEVATION**
SCALE: 1:15

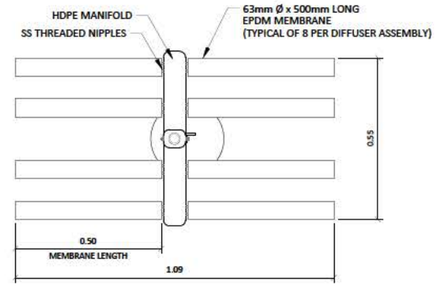
B — **LATERAL DETAIL - SECTION**
SCALE: 1:15



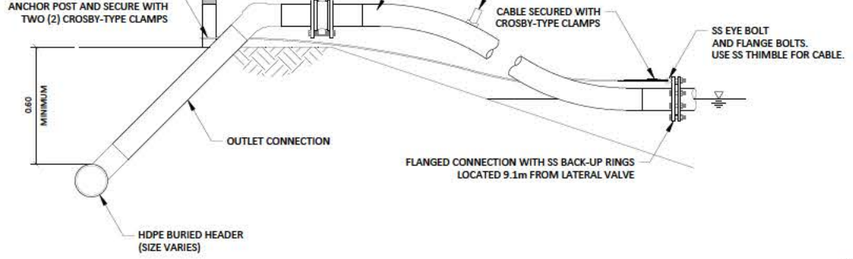
ROPE CONNECTION DETAIL
SCALE: N.T.S.



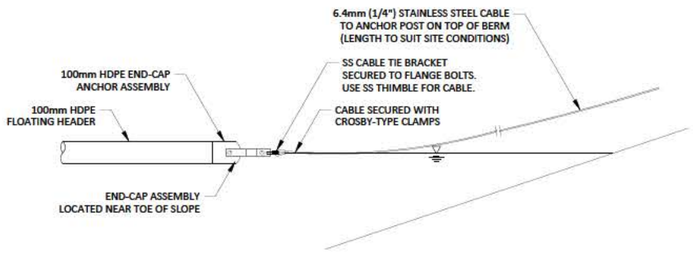
DIFFUSER CONNECTION DETAIL
SCALE: N.T.S.



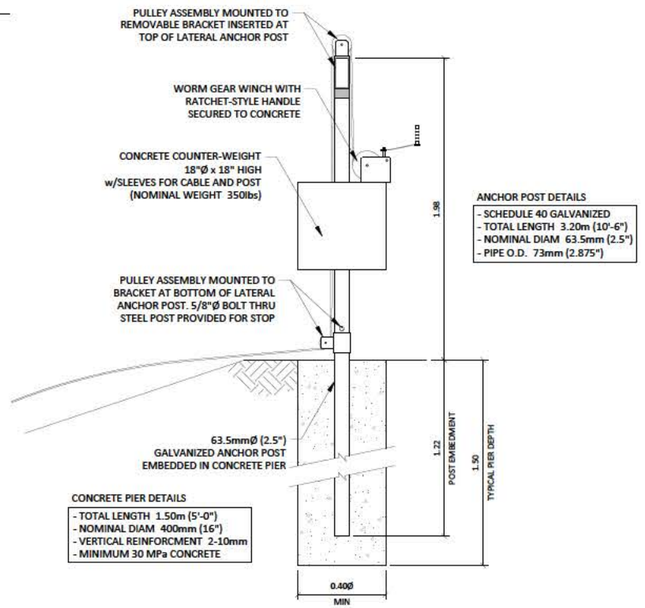
HT25-8 DIFFUSER - PLAN
SCALE: N.T.S.

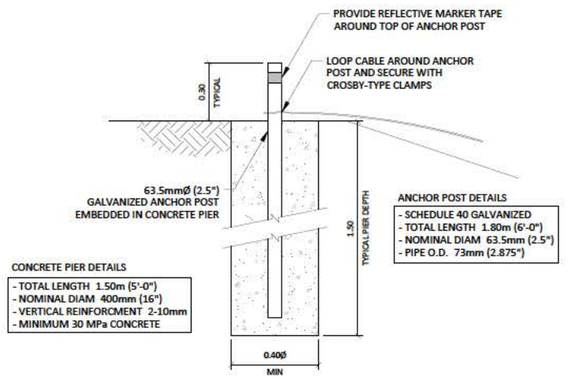


C — **LATERAL DETAIL AT HEADER**
SCALE: 1:15



D — **LATERAL DETAIL AT FREE END**
SCALE: 1:15





E — **FIXED ANCHOR POST AT HEADER DETAIL**
SCALE: 1:15

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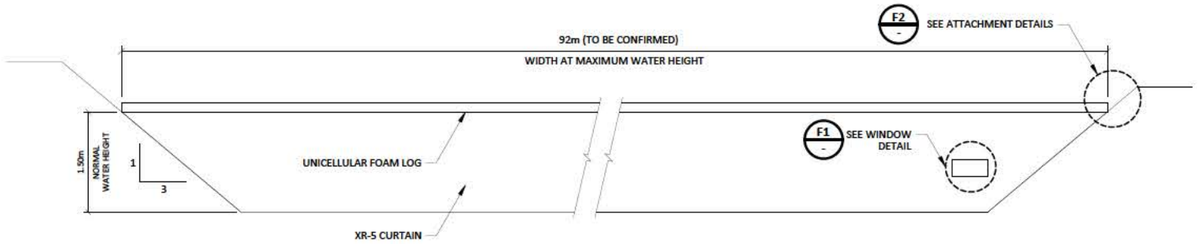
5 Burks Way
Winnipeg, Manitoba
Canada R2J 3R8
888-426-8180
www.nexom.com

PROJECT	GLENBORO, MB PROPOSED WASTEWATER TREATMENT SYSTEM
TITLE	OPTAER SYSTEM TYPICAL AEATION DETAILS
DRAWN BY	LE
APPROVED BY	LE
SCALE	AS NOTED
DRAWING NO.	NE02
SHT.	2 of 10
REV.	0
DATE	2020/06/30
FILE #	CD3313.03

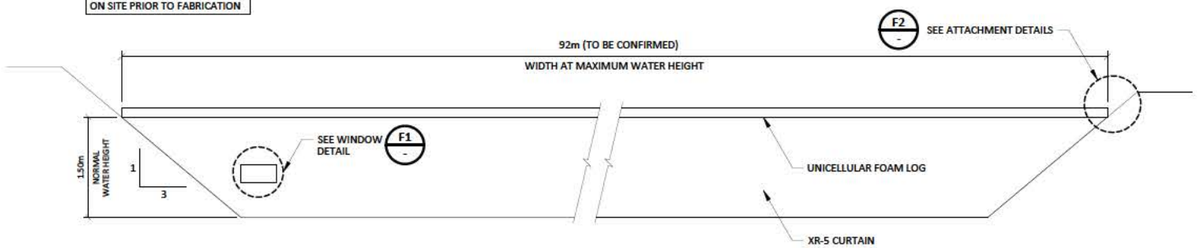
PLOT SIZE: 610mm x 914mm (24" x 36")

REDUCED SIZE PLOT - DO NOT SCALE

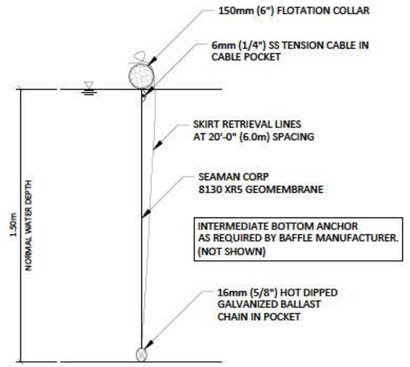


F — IMPERMEABLE CURTAIN DETAIL
SCALE: N.T.S

ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO FABRICATION

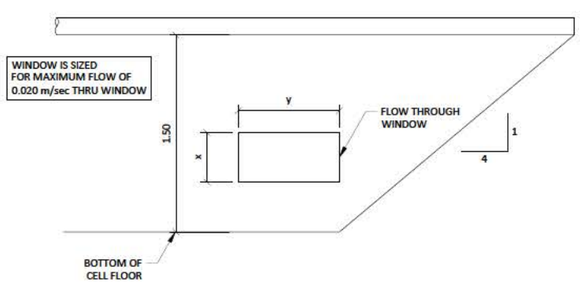


F — IMPERMEABLE CURTAIN DETAIL
SCALE: N.T.S



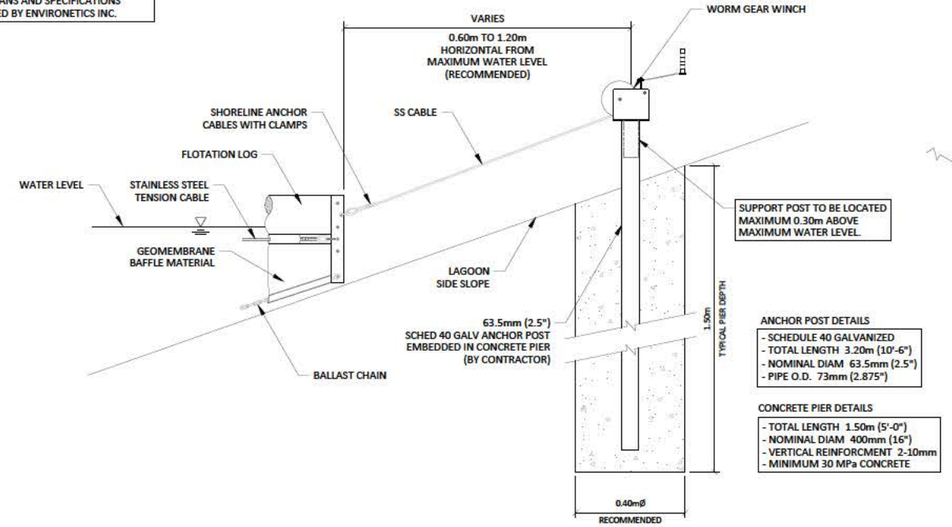
BAFFLE CURTAIN TYPICAL SECTION
SCALE: N.T.S.

KEY BAFFLE DIMENSIONS	
ITEM	VALUE (m)
WATER DEPTH	1.50
TOP WIDTH (AT MAX WATER HEIGHT)	± 92m
WINDOW SIZE	x * y
SIDE SLOPE	3 : 1

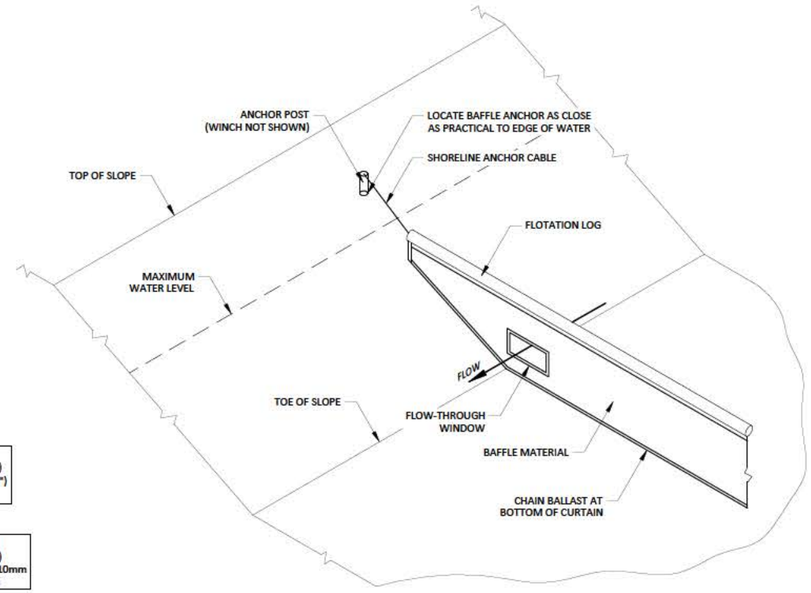


F1 — WINDOW SIZE / LOCATION DETAIL
SCALE: N.T.S

IMPORTANT
DRAWING TO BE READ IN CONJUNCTION WITH PLANS AND SPECIFICATIONS PREPARED BY ENVIRONETICS INC.



F2 — ATTACHMENT DETAILS - SECTION
SCALE: N.T.S



IMPERMEABLE CURTAIN - ISOMETRIC (ALONG SLOPE)
SCALE: N.T.S

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PROJECT: GLENBORO, MB
PROPOSED WASTEWATER TREATMENT SYSTEM

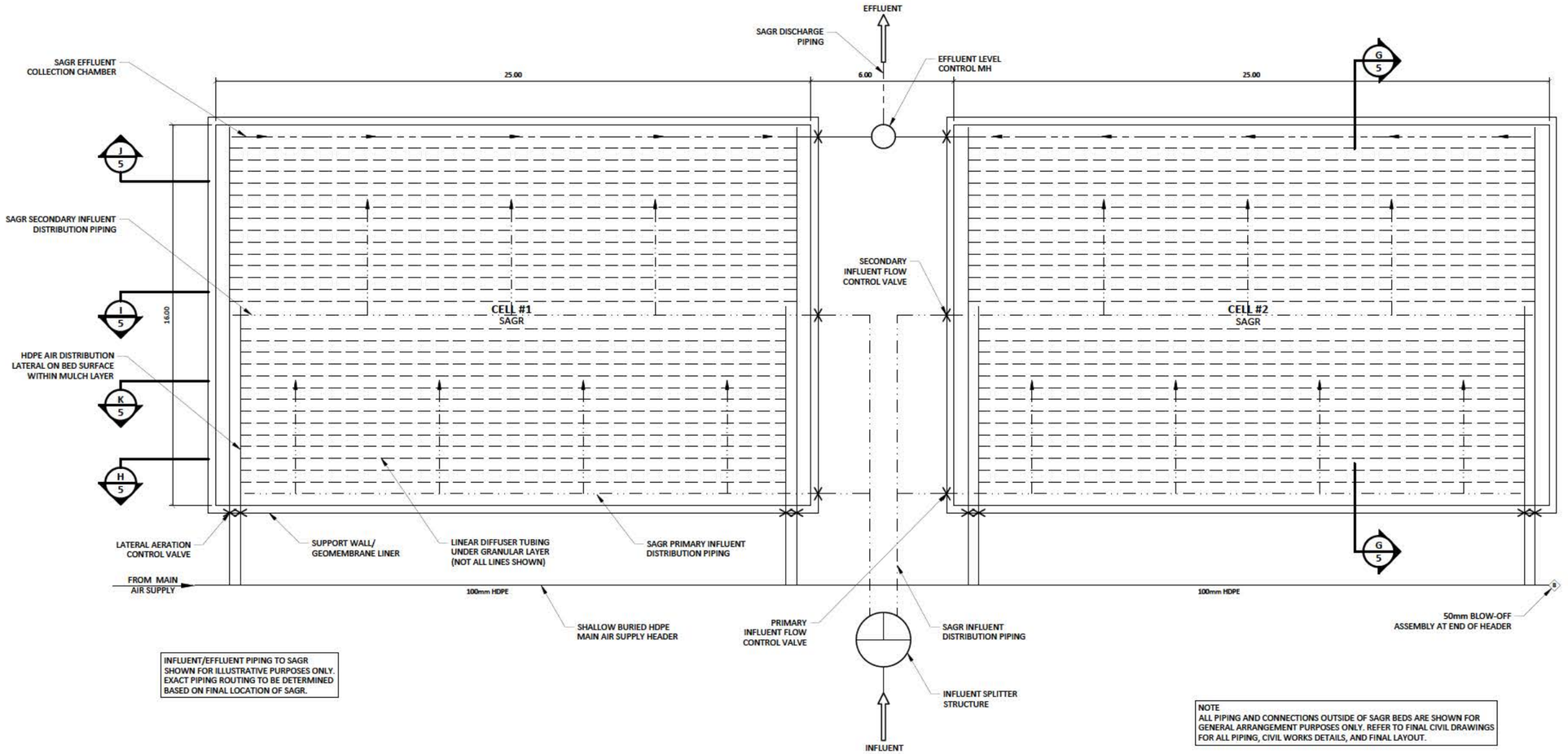
TITLE: OPTAER SYSTEM
TYPICAL BAFFLE DETAILS

DRAWN BY	APPROVED BY	SCALE	DRAWING NO.	SHT.	REV.
LE	LE	AS NOTED	NE03	3 of 10	0

DATE: 2020/06/30 | FILE #: CD3313.03

PLOT SIZE: 610mm x 914mm (24" x 36")

REDUCED SIZE PLOT - DO NOT SCALE



INFLUENT/EFFLUENT PIPING TO SAGR SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. EXACT PIPING ROUTING TO BE DETERMINED BASED ON FINAL LOCATION OF SAGR.

PROPOSED SAGR LAYOUT

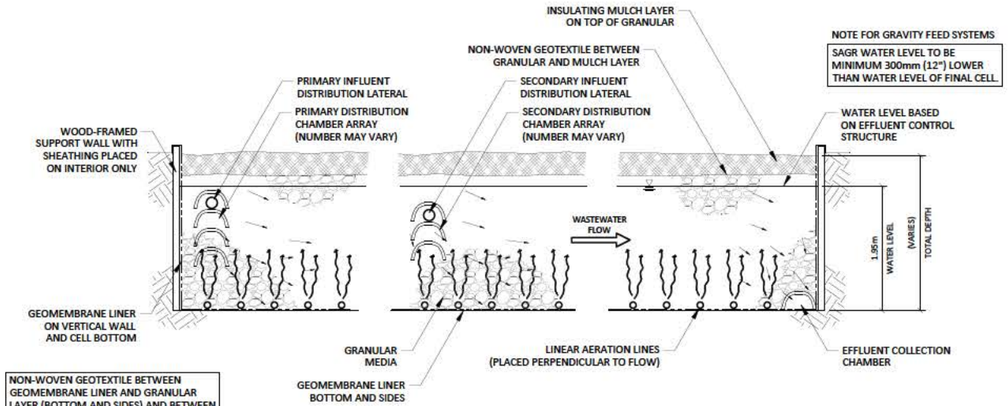
SCALE: 1:100

NOTE
ALL PIPING AND CONNECTIONS OUTSIDE OF SAGR BEDS ARE SHOWN FOR GENERAL ARRANGEMENT PURPOSES ONLY. REFER TO FINAL CIVIL DRAWINGS FOR ALL PIPING, CIVIL WORKS DETAILS, AND FINAL LAYOUT.

MATERIAL *EXCLUDED* FROM NEXOM SCOPE OF WORK/SUPPLY

CIVIL WORKS INCLUDING BUT NOT LIMITED TO
- YARD PIPING OUTSIDE SAGR BEDS INCLUDING INFLUENT PIPING, DISCHARGE PIPING
- PIPING AND VALVES BETWEEN LAGOON, SAGR BEDS, AND INFLUENT/EFFLUENT STRUCTURES
- PIPING CONNECTIONS OUTSIDE OF SAGR BED
- SAGR EFFLUENT LEVEL CONTROL STRUCTURES, AND INFLUENT SPLITTER STRUCTURES

MATERIALS AND CONSTRUCTION REQUIRED FOR THE SAGR BED
- BERM/BED DESIGN AND CONSTRUCTION
- WOOD-CONSTRUCTED "SACRIFICIAL" VERTICAL SIDE WALLS AROUND PERIMETER OF SAGR CELLS
- GEOMEMBRANE LINER FOR SAGR CELLS
- PIPE PENETRATIONS THROUGH SAGR LINER, PIPE BOOTS AS REQUIRED
- NON-WOVEN GEOTEXTILE PROTECTIVE FABRIC ON UNDERSIDE OF LINER (FLOOR ONLY) AND TOP OF LINER (BOTTOM AND SIDES) OF SAGR CELL
- NON-WOVEN GEOTEXTILE PROTECTIVE FABRIC BETWEEN GRANULAR & MULCH
- GRANULAR MATERIAL
- INSULATING LAYER OF WOOD CHIPS (OR SIMILAR)



NON-WOVEN GEOTEXTILE BETWEEN GEOMEMBRANE LINER AND GRANULAR LAYER (BOTTOM AND SIDES) AND BETWEEN MULCH LAYER AND GRANULAR LAYER (TOP)

HORIZONTAL FLOW SAGR - SECTION

SCALE: N.T.S.

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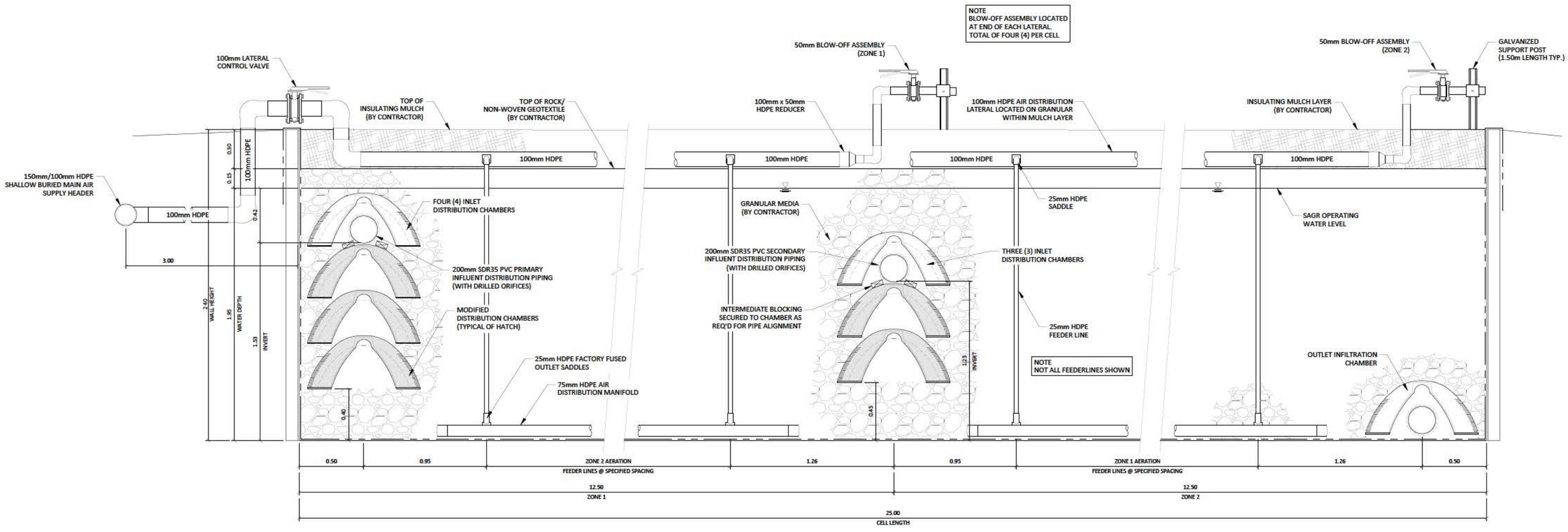
888-426-8180
www.nexom.com

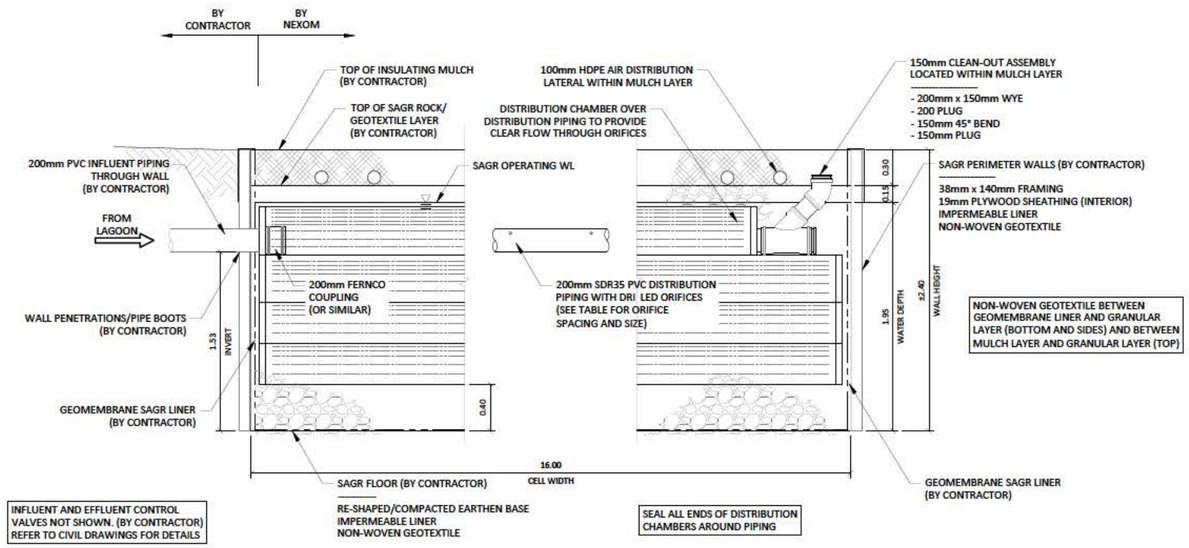
PROJECT: GLENBORO, MB PROPOSED WASTEWATER TREATMENT SYSTEM						
TITLE: OPTAER SYSTEM SAGR LAYOUT, TYPICAL SECTION						
DRAWN BY: LE	APPROVED BY: LE	SCALE: AS NOTED	DRAWING NO.: NE04	SHT.: 4 of 10	REV.: 0	
DATE: 2020/06/30	FILE #: CD3313.03					



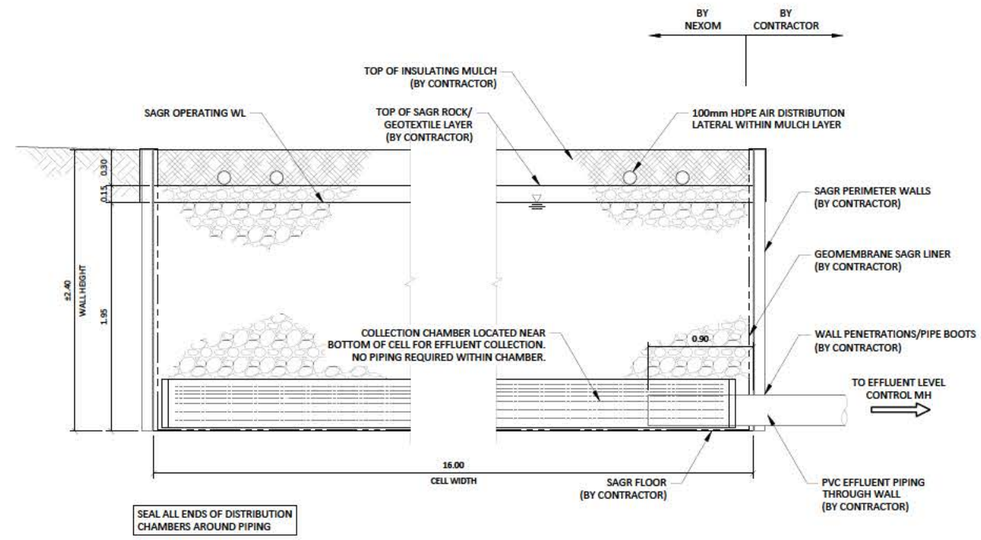
G - **SAGR AERATION/FLOW DISTRIBUTION - SECTION**
SACLE: 1:15

Nexom technologies for cleaner water
5 Burks Way
Winnipeg, Manitoba
Canada R2J 3R8
888-426-8180
www.nexom.com

PROJECT	GLENBORO, MB PROPOSED WASTEWATER TREATMENT SYSTEM
TITLE	OPTAER SYSTEM SAGR AERATION / DISTRIBUTION PIPING SECTION
DRAWN BY	LE
APPROVED BY	LE
SCALE	AS NOTED
DRAWING NO.	NE05
SHT.	5 of 10
REV.	0
DATE	2020/06/30
FILE #	CD3313.03



H — **SAGR IN-BASIN PRIMARY DISTRIBUTION**
SCALE: 1:25



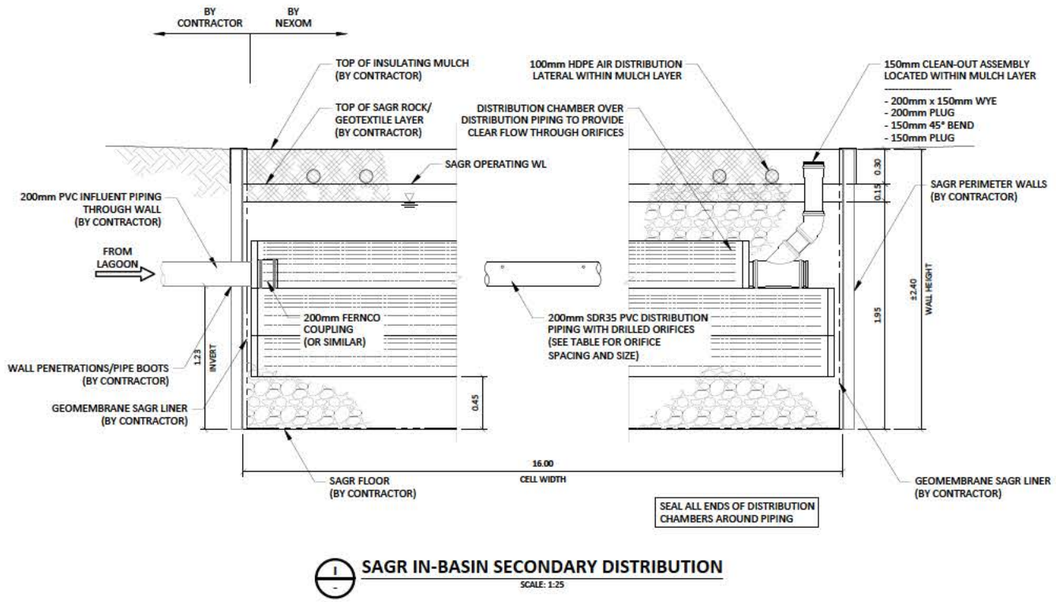
J — **SAGR IN-BASIN COLLECTION**
SCALE: 1:25

NOTE
ALL PROCESS PIPING AND CONNECTIONS OUTSIDE OF AERATED PONDS AND SAGR BEDS ARE SHOWN FOR GENERAL ARRANGEMENT PURPOSES ONLY.
REFER TO FINAL CONTRACTOR DRAWINGS FOR FINAL LAYOUT AND ALL CIVIL WORK DETAILS.

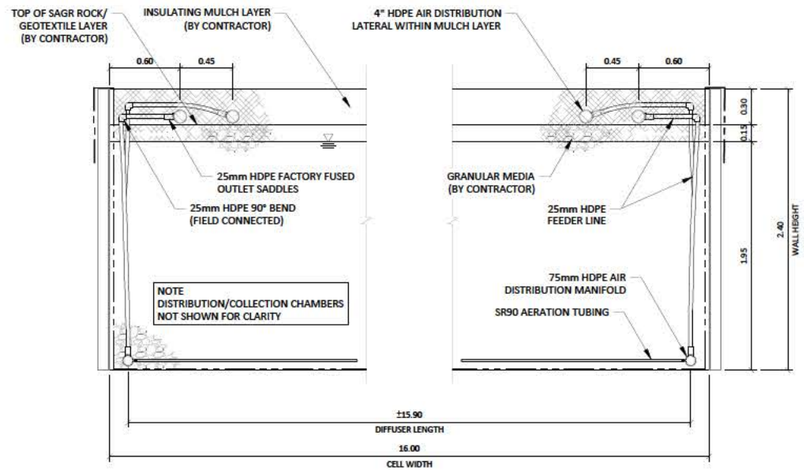
DISTRIBUTION PIPING SCHEDULE*

LINE	PIPE SIZE (mm)	ORIFICE SIZE (mm)	ORIFICE SPACING (m)	# HOLES REQUIRED
PRIMARY	200	19	1.20	21
SECONDARY	200	19	1.20	21

*NOTE ORIFICES TO BE DRILLED ON-SITE



I — **SAGR IN-BASIN SECONDARY DISTRIBUTION**
SCALE: 1:25



K — **SAGR AERATION - SECTION**
SCALE: 1:25

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Winnipeg, Manitoba
Canada R2J 3R8
888-426-8180
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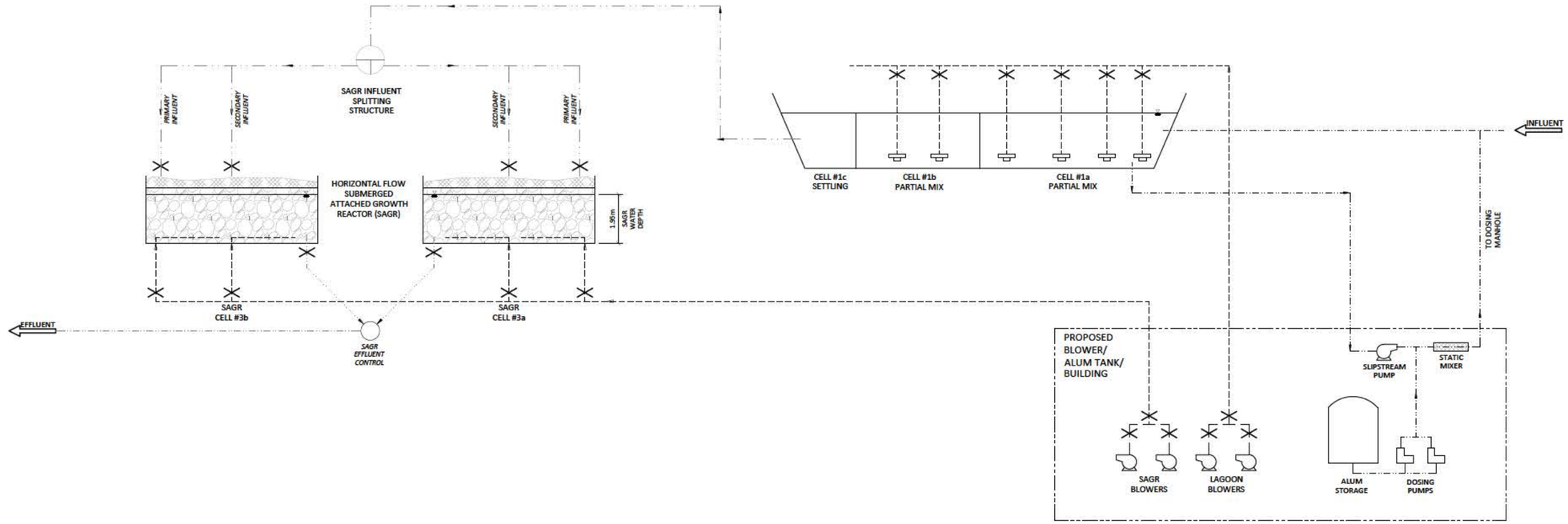
PROJECT: **GLENBORO, MB**
PROPOSED WASTEWATER TREATMENT SYSTEM

TITLE: OPTAER SYSTEM
SAGR AERATION / DISTRIBUTION PIPING SECTION

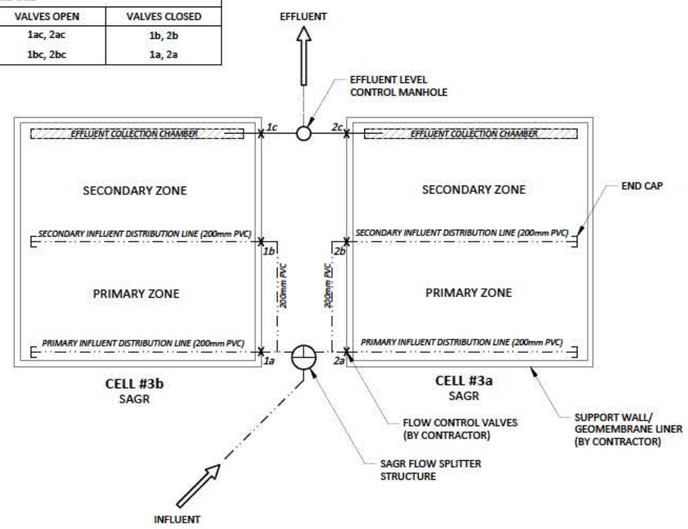
DRAWN BY	APPROVED BY	SCALE	DRAWING NO.	SHT.	REV.
LE	LE	AS NOTED	NE06	6 of 10	0

DATE: 2020/06/30 — FILE #: CD3313.03

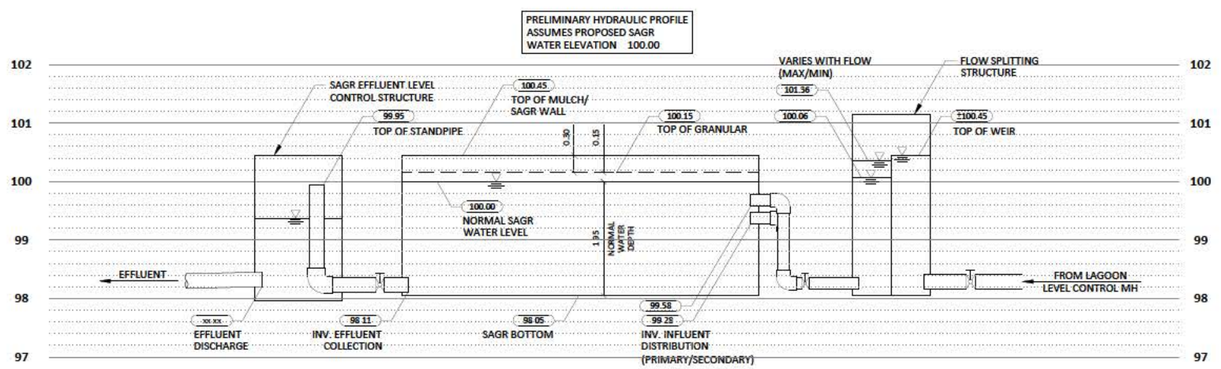


PROCESS FLOW DIAGRAM
SCALE: N.T.S.

VALVE OPERATION SCHEDULE		
OPERATION	VALVES OPEN	VALVES CLOSED
NORMAL OPERATION	1ac, 2ac	1b, 2b
SECONDARY FEED	1bc, 2bc	1a, 2a



SAGR INFLUENT/EFFLUENT PIPING SCHEMATIC
SCALE: N.T.S.



PRELIMINARY HYDRAULIC PROFILE
SCALE: N.T.S.

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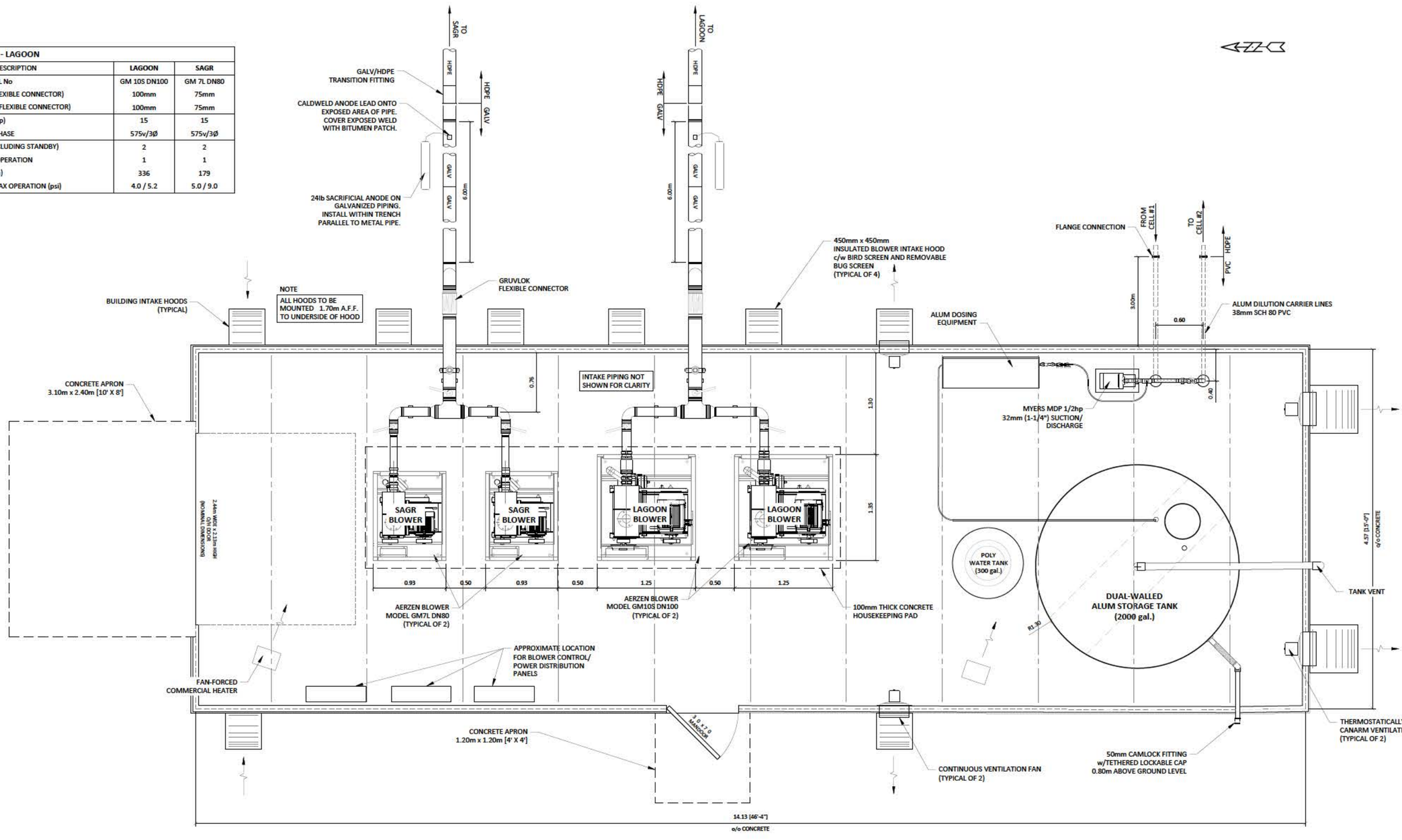
PROJECT	GLENBORO, MB PROPOSED WASTEWATER TREATMENT SYSTEM
TITLE	OPTAER SYSTEM HYDRAULIC PROFILE, PROCESS FLOW
DRAWN BY	LE
APPROVED BY	LE
SCALE	AS NOTED
DRAWING NO.	NE07
SHT.	7 of 10
REV.	0
DATE	2020/06/30
FILE #	CD3313.03

PLOT SIZE: 610mm x 914mm (24" x 36")

REDUCED SIZE PLOT - DO NOT SCALE

BLOWER SCHEDULE - LAGOON		
DESCRIPTION	LAGOON	SAGR
AERZEN BLOWER MODEL No	GM 10S DN100	GM 7L DN80
NOMINAL INLET SIZE (FLEXIBLE CONNECTOR)	100mm	75mm
NOMINAL OUTLET SIZE (FLEXIBLE CONNECTOR)	100mm	75mm
BLOWER MOTOR SIZE (hp)	15	15
OPERATING VOLTAGE/PHASE	575v/3Ø	575v/3Ø
# BLOWERS - TOTAL (INCLUDING STANDBY)	2	2
# BLOWERS - NORMAL OPERATION	1	1
AIRFLOW - DESIGN (scfm)	336	179
PRESSURE - NORMAL/MAX OPERATION (psi)	4.0 / 5.2	5.0 / 9.0



BLOWER BUILDING LAYOUT - PLAN

SCALE: 1:25

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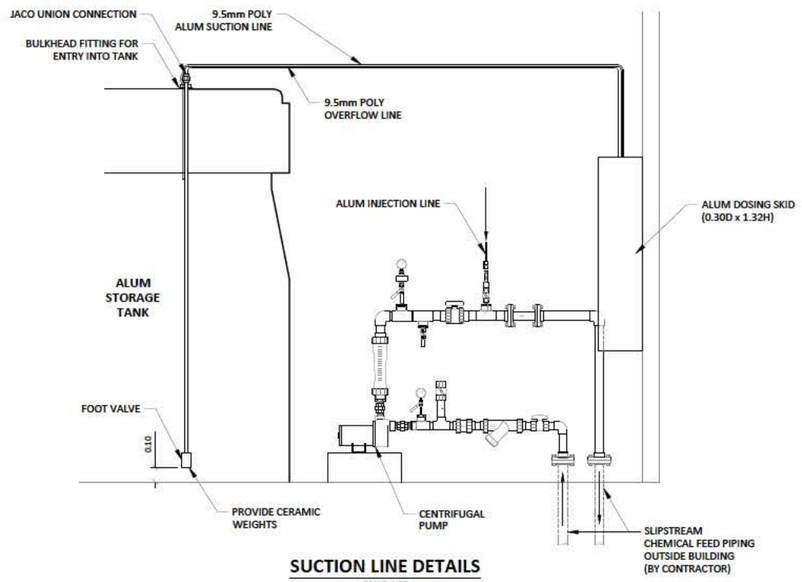
PROJECT	GLENBORO, MB PROPOSED WASTEWATER TREATMENT SYSTEM				
TITLE	OPTAER SYSTEM PROPOSED BUILDING LAYOUT				
DRAWN BY: LE	APPROVED BY: LE	SCALE: AS NOTED	DRAWING NO.: NE08	SHT.: 8 of 10	REV.: 0
DATE: 2020/06/30	FILE #: CD3313.03				

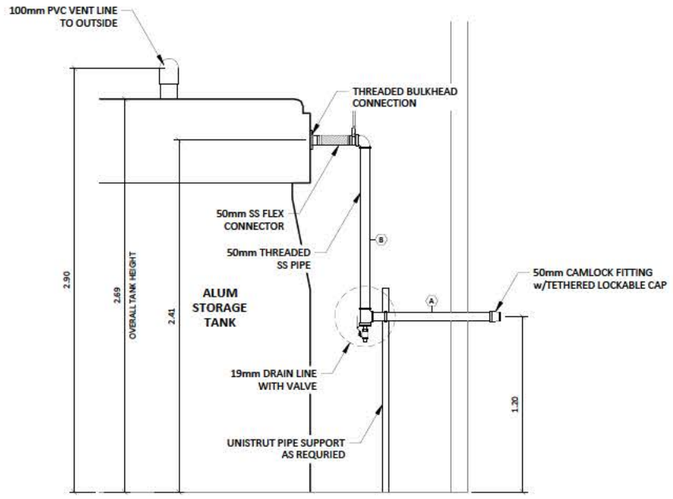
PLOT SIZE: 610mm x 914mm (24" x 36")

REDUCED SIZE PLOT - DO NOT SCALE



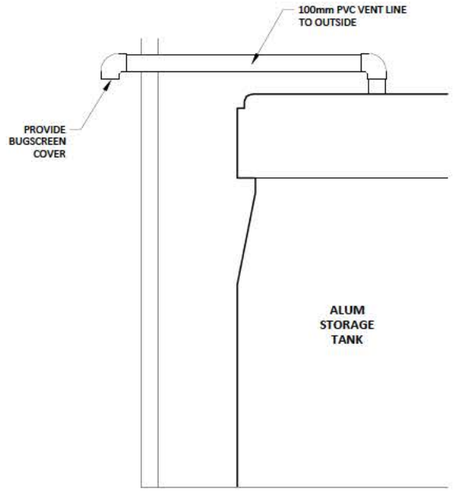
SUCTION LINE DETAILS

SCALE: 1:20



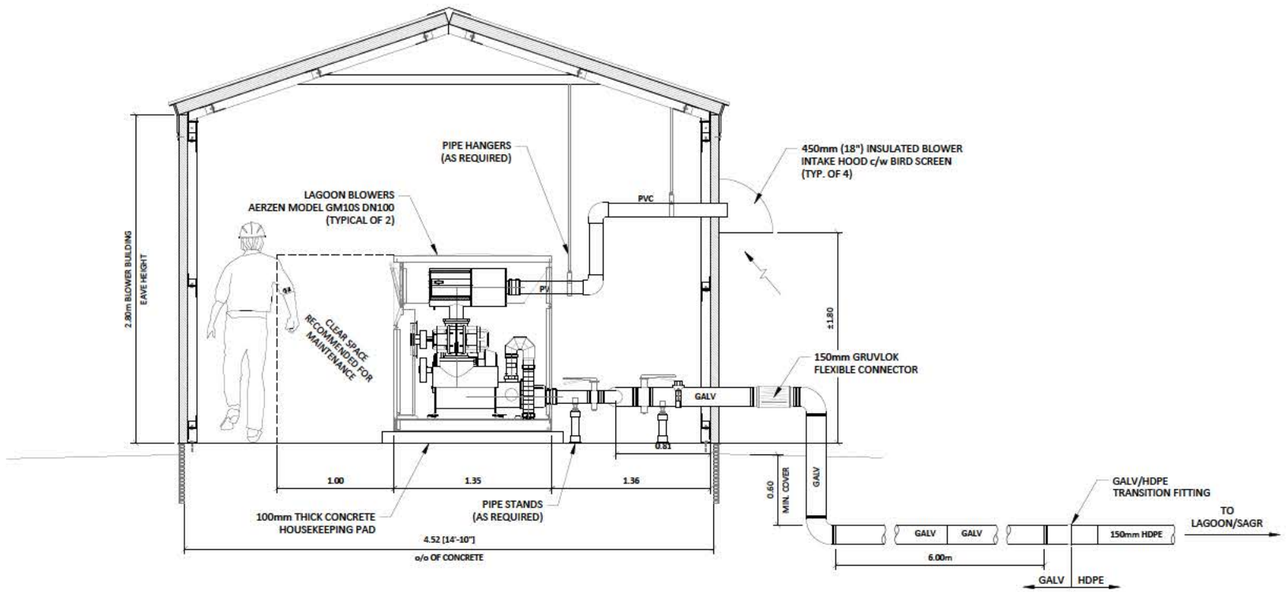
CHEMICAL FILL LINE DETAIL

SCALE: 1:20



VENT LINE DETAIL

SCALE: 1:20



BLOWER BUILDING - SECTION

SCALE: 1:25

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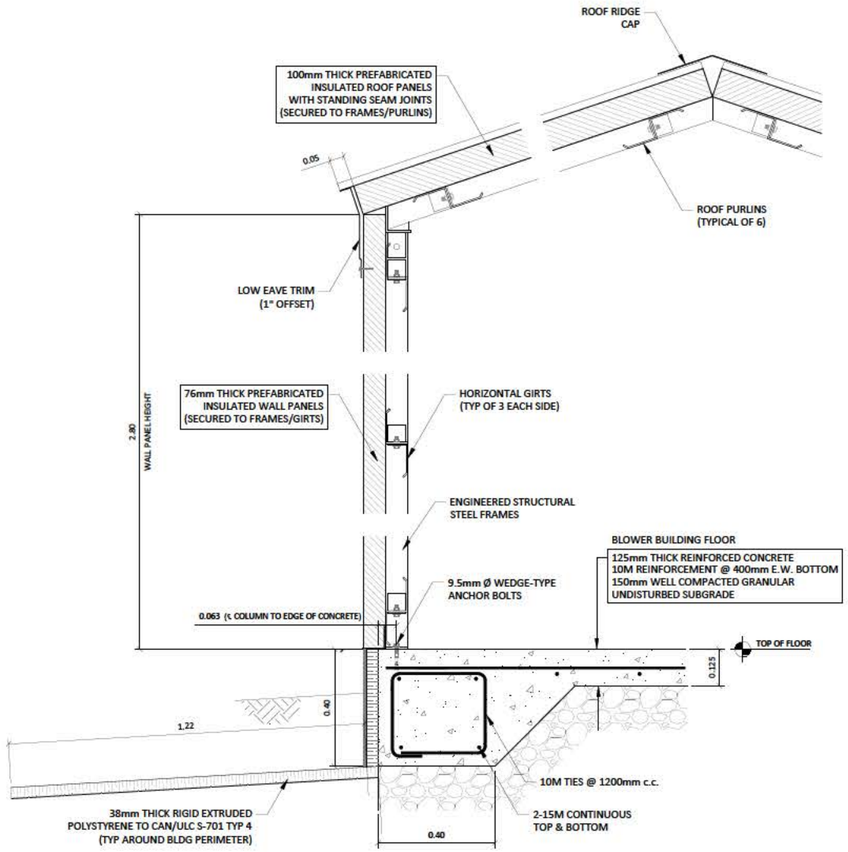
PROJECT	GLENBORO, MB PROPOSED WASTEWATER TREATMENT SYSTEM
TITLE	OPTAER SYSTEM BLOWER SECTION, ALUM DOSING DETAILS
DRAWN BY	LE
APPROVED BY	LE
SCALE	AS NOTED
DRAWING NO.	NE09
SHT.	9 of 10
REV.	0
DATE	2020/06/30
FILE #	CD3313.03



TYPICAL BUILDING SECTION

SCALE: 1:10

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PROJECT	GLENBORO, MB PROPOSED WASTEWATER TREATMENT SYSTEM
TITLE	OPTAER SYSTEM TYPICAL BUILDING SECTION
DRAWN BY: LE	APPROVED BY: LE
SCALE: AS NOTED	DRAWING NO.: NE10
SHT.: 10 of 10	REV.: 0
DATE: 2020/06/30	FILE #: CD3313.03

SAMSON
ARCHITECTURE | ENGINEERING

Appendix D – Supporting Information

TROJAN UV

3020 Gore Road
London, Ontario N5V 4T7
1-888-220-6118
Tel: (519) 457-3400 / Fax: (519) 457-3030
www.trojanuv.com

Trojan System UV3000™PTP
Municipal Wastewater Disinfection Equipment

Project Name: Glenboro, MB WWT Lagoon Upgrade

Quote Number: Q210403

Date: April, 20, 2021

Prepared For:	**Joanne Lanoie**	**Phone:**	**204-981-8961**
Company:	**Samson Engineering**		
		Email:	JLanoie@samsonae.ca

UV SYSTEM DESIGN PARAMETERS		**GUARANTEED PERFORMANCE**	
Peak Design Flow	584 m3/d	Validated UV Dose	65 mJ/cm2
UV Transmittance	45%, minimum	Disinfection Limit	< 200 fecal coliform/100 ml
TSS Concentration	30 mg/L, 30-day average		on a single day max

EQUIPMENT DETAILS ***Model Number D3200K-PTP***

- (1) Complete UV system supplied with Type 304 Stainless Steel Channel, Module Support Rack, Level Control Weir, Transition Boxes, Monitoring System, Spare Parts Package, Operators Kit and Maintenance Rack.
- (8) Type 316 Stainless Steel Modules supplied, containing (2) UV lamps each module– Total of (16) UV lamps in the UV system
- Each UV module weighs 14 kg and is easily handled by one person
- Each UV module has a standard 120V plug and 10 foot weatherproof cable for connection to GFI receptacle
- (8) Outdoor-rated GFI Power Distribution Receptacles supplied (one for 2 modules)
- Each lamp consumes 87.5 Watts – Total system power requirement of 1400 Watts (12.8 amps)
- Lamp on/off status indicated on each UV module using LED indicators
- Monitoring System provided for local indication of UV intensity, lamp age and alarms
- Remote indication of UV intensity and low UV intensity alarm available
- Monitoring System requires 120V, single phase, 2 wire plus ground, 5 amp power supply, 60 Hz
- Please refer to the enclosed drawings and specifications for full design details and requirements

COMMERCIAL DETAILS

- Comprehensive Lamp Warranty: Full replacement (non pro-rated) up to 12,000 hours or thirty-six (36) calendar months from shipment, whichever comes first
- System Warranty: 12 months after substantial completion or 18 months after shipment, whichever occurs first
- (1) electronic copy of submittal shop drawings and O&M Manuals will be supplied. 2 days for submittal preparation.
- Equipment Delivered 3-5 weeks after release for fabrication (approved shop drawings)
- Applicable taxes extra.
- Prices are FOB factory, ground freight paid to jobsite
- Start-up and training provided by Trojan-certified local service provider, eda Environmental Ltd.

Selling Price **$ 64,200**

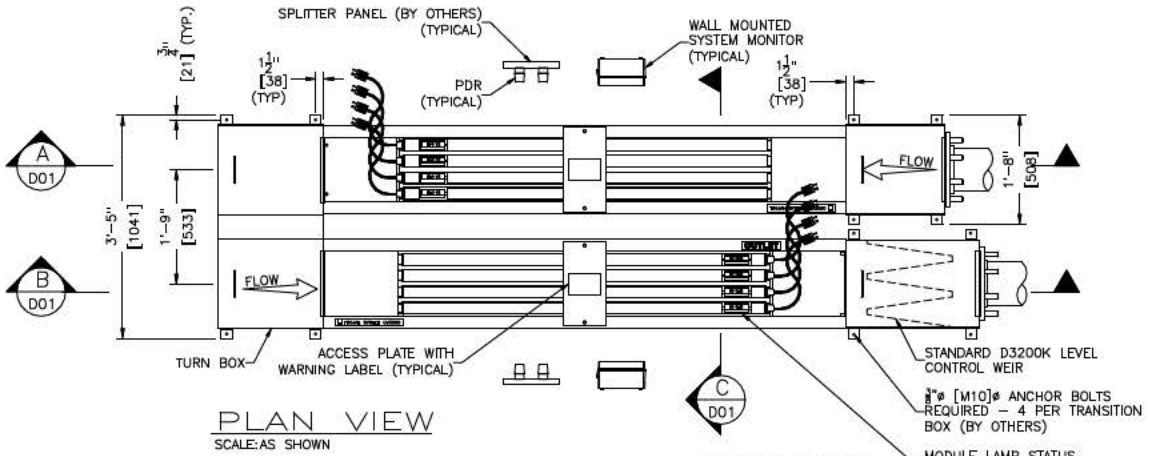
Please contact me if you have any questions about this design. I look forward to working with you on this project.

Rep Name:	Mike Cassie	Phone:	204-632-9154
Rep Company:	eda Environmental Ltd.	Email:	mcassie@edaenv.ca

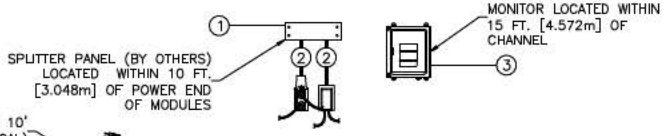
Additional Information:

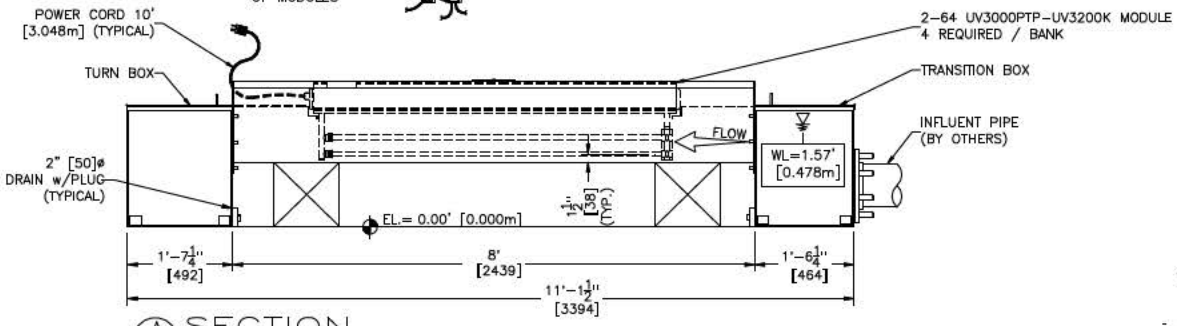
TROJAN UV3000™ PTP
EQUIPMENT INTERCONNECTIONS

No.	DESCRIPTION	FROM	TO
1	SPLITTER PANEL POWER SUPPLY 120V, 1 PHASE, 2 WIRE, ACTUAL DRAW 6.4 AMPS / SPLITTER PANEL	DISTRIBUTION PANEL (DP) (NOT SHOWN) (BY OTHERS)	SPLITTER PANEL (BY OTHERS)
2	POWER DISTRIBUTION RECEPTACLE (PDR) POWER SUPPLY 120V, 1 PHASE, 2 WIRE, ACTUAL DRAW 3.2 AMPS / PDR	SPLITTER PANEL (BY OTHERS)	PDR
3	SYSTEM MONITOR POWER SUPPLY 120V, 1 PHASE, 2 WIRE, 5 AMPS	DP (NOT SHOWN) (BY OTHERS)	SYSTEM MONITOR

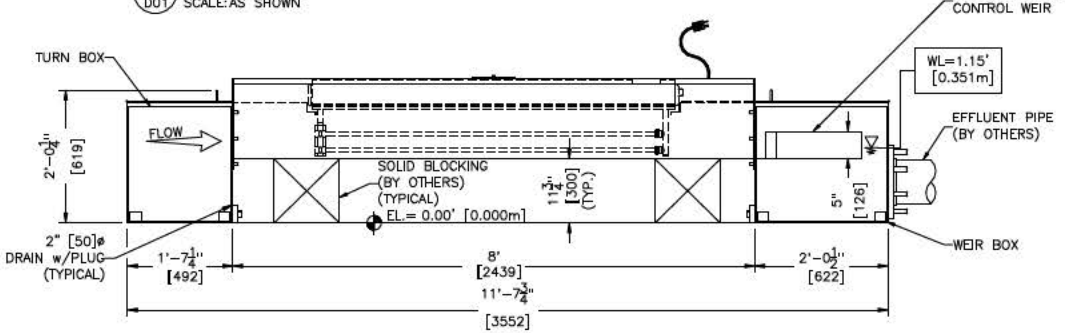


PLAN VIEW
SCALE: AS SHOWN

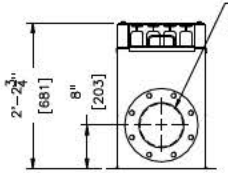




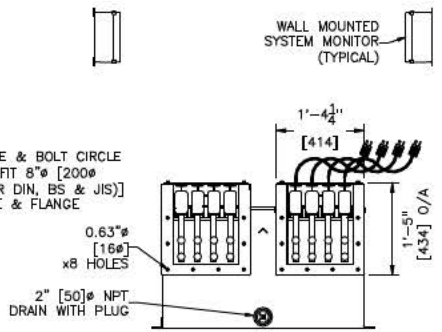
A D01 SECTION
SCALE: AS SHOWN



B D01 SECTION
SCALE: AS SHOWN
NOTE: PDR & SYSTEM MONITOR NOT SHOWN FOR CLARITY



END VIEW (TYPICAL)
SCALE: AS SHOWN



C D01 SECTION
SCALE: AS SHOWN
NOTE: PDR & SPLITTER PANEL (BY OTHERS) NOT SHOWN FOR CLARITY

NOTES:
: DO NOT SLOPE CHANNEL FLOOR.
: CHANNEL WIDTH & DEPTH MUST BE KEPT WITHIN A TOLERANCE OF + OR – 1/4" [6].
: ANCHOR BOLTS ARE NOT SUPPLIED BY TROJAN TECHNOLOGIES.
: BOLTS, WASHERS AND NUTS FOR CONNECTION OF CHANNELS AND TRANSITION BOXES TO CHANNELS ARE PROVIDED BY TROJAN TECHNOLOGIES.
: SYSTEM CONDUIT, WIRING, DISTRIBUTION PANELS & INTERCONNECTIONS BY OTHERS.
: ELECTRICAL REQUIREMENTS SHOWN ARE TO SUPPLY TROJAN UV EQUIPMENT ONLY. ELECTRICAL INRUSH FACTOR TO BE ADDED AS PER LOCAL CODE.
: ANY EXTRA OUTLETS NOT BEING USED BY TROJAN EQUIPMENT HAVE NOT BEEN INCLUDED IN THE INTERCONNECT AMPERAGE.
: CONTRACTOR TO REVIEW ALL TROJAN TECHNOLOGIES INSTALLATION INSTRUCTIONS PRIOR TO EQUIPMENT INSTALLATION.
: ACCESS IS REQUIRED FOR MODULE REMOVAL – NOTE THE CHANNEL WIDTH AND ENSURE ADEQUATE ACCESS IS PROVIDED TO ALL MODULES.
: DO NOT ENCASE THE STEEL CHANNEL IN CONCRETE.
: [ ] INDICATES MILLIMETERS UNLESS OTHERWISE SPECIFIED.

MULTIPLE CHANNELS IN PARALLEL (OPTION):
: ADDITIONAL UNITS CAN BE INSTALLED PARALLEL TO THE UNIT SHOWN.
: ACCESS BETWEEN EVERY 2 PARALLEL CHANNELS IS REQUIRED FOR MODULE REMOVAL – NOTE THE CHANNEL WIDTH AND ENSURE ADEQUATE ACCESS IS PROVIDED BETWEEN TRANSITION BOXES AND CHANNELS.
: ACCESS BETWEEN A MAXIMUM OF 2 CHANNELS IS NOT REQUIRED FOR MODULE REMOVAL. TRANSITION BOXES CAN BE INSTALLED ADJACENT TO EACH OTHER.

TROJAN UV

DESCRIPTION: LAYOUT, UV3000PTP–UV3200K 1 CHANNEL 2 BANKS 2 LAMPS WEIR BOX TURNBOX

DRAWN BY :	SLO/JMM/CJB	DATE :	12JL17
CHECKED BY :	SAH	DATE :	12JL19
APPROVED BY :	CAP	DATE :	12JL19
SCALE (11x17) :	NOT TO SCALE	LOG NUMBER :	N/A

STANDARD DRAWING NO. 3M0601
REFERENCE NO. N/A
DWG NO. D01
REV. C

Hannah Colvin

From: Kiss, Brian (ARD) <Brian.Kiss@gov.mb.ca>
Sent: May 26, 2021 4:05 PM
To: Joanne Lanoie
Subject: RE: SEI2021-024 Mitigation Plan
Attachments: Glenboro Wastewater Lagoon Upgrade - Areas of Concern.jpg

Hi Joanne,

Thank you for contacting us. We appreciate that directional horizontal drilling will be used to protect listed species. I have attached a map that identifies our "area of concern", and also an "area of caution" to assist with your hairy prairie-clover surveys and consideration for additional horizontal drilling portions of the route. Our Conservation Data Centre suggests that surveys for hairy prairie clover be conducted in early-August.

If you have any other questions, please let us know.

-Brian Kiss

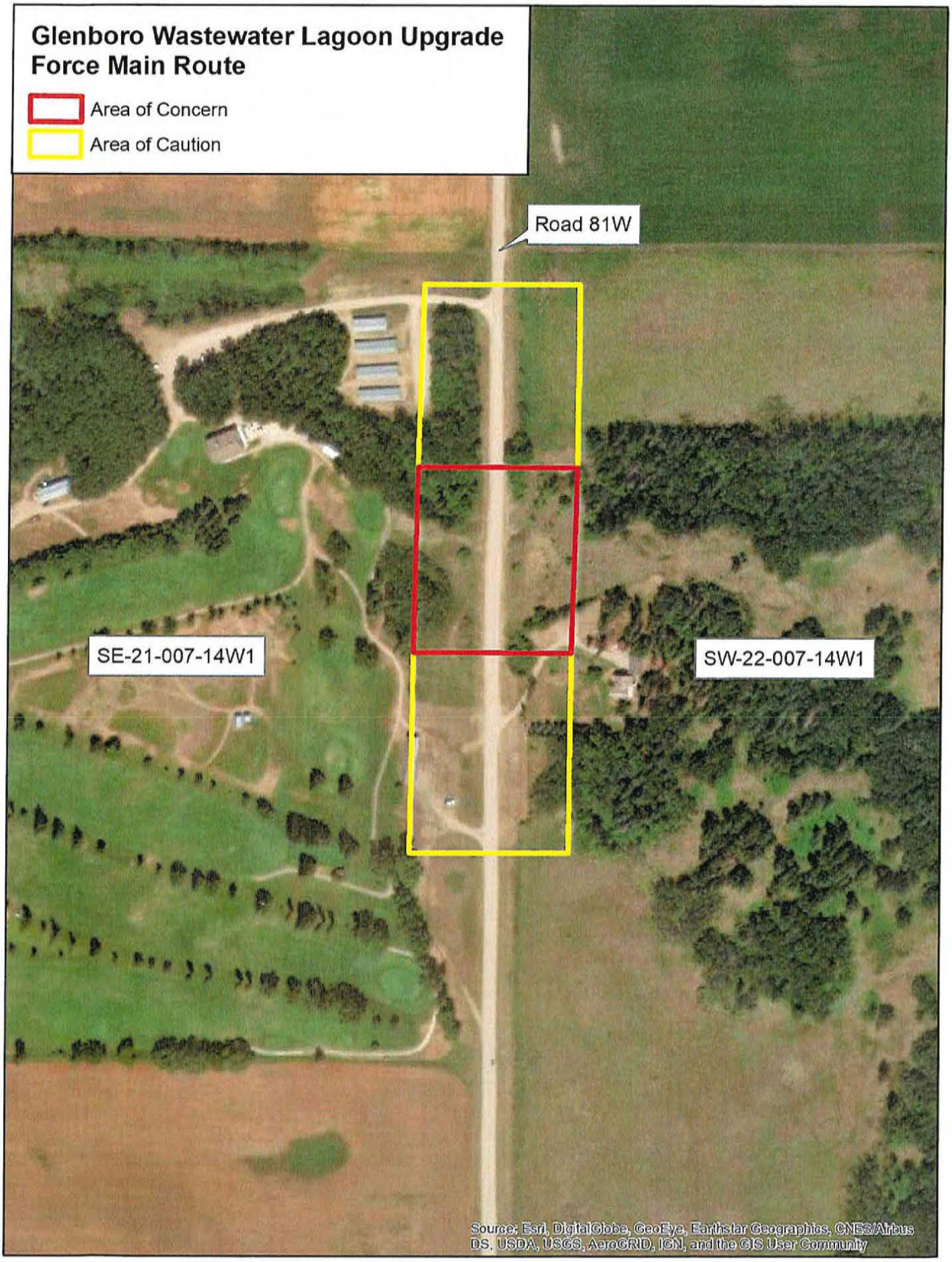
From: Joanne Lanoie <JLanoie@samsonae.ca>
Sent: May 19, 2021 3:44 PM
To: Kiss, Brian (ARD) <Brian.Kiss@gov.mb.ca>
Cc: Info <Info@samsonae.ca>
Subject: SEI2021-024 Mitigation Plan

Hi Brian,
Your contact information was provided regarding a mitigation plan to protect the Hairy Prairie-Clover and the Prairie Skink, which are located in the area of a wastewater treatment force main. We submitted an EAP on behalf of The Municipality of Glenboro-South Cypress Glenboro Wastewater Lagoon Upgrade, dated November 29, 2019. The EAP was posted to the public registry on April 16, 2020 (file 178.30). After internal and public review, Manitoba Conservation issued an email request for additional information to the Municipality dated June 1, 2020. We have now been asked to further the design to be able to reply to the request. Item 15 of the request was to contact you for further information. We understand that a mitigation plan must be submitted to the Wildlife and Fisheries Branch and that the draft Licence will contain a clause that will require the Licencee to submit a copy of the approval letter. We understand that the hairy-prairie clover occurs within the road right of way and that the prairie skink has been identified immediately east of the right of way and is a concern for a 100m stretch of roadway and that we are being asked to directionally drill this area of the force main. As requested, we will install the proposed *Ø150mm* force main via horizonal directional drill in the area of concern, the 100 m stretch between SE-21-007-14W1 and SW-22-007-14W1, directly east of the golf course. Prior to commencing with final design as well as prior to construction, a review will occur of the west side of Road 81W for these species. If these species are identified, the designated areas to be horizontally directionally drilled will be expanded.

I look forward to hearing from you regarding this project. Please call me on my cell to discuss further.

Thank you.

Joanne Lanoie, B.Sc., M.Sc.
Senior Project Manager – Environmental
Samson Engineering Inc.
Cell: 204-981-8961


Glenboro Wastewater Lagoon Upgrade
Force Main Route
Area of Concern
Area of Caution
Road 81W
SE-21-007-14W1
SW-22-007-14W1
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Hannah Colvin

From: Graham, Reid (SCH) <Reid.Graham@gov.mb.ca>
Sent: June 10, 2020 3:40 PM
To: Joanne Lanoie
Subject: RE: Glenboro Lagoon Upgrade
Attachments: AAS-20-15768 MCC-EAB 178_30.pdf; HRB Archaeological Consultants List updated Nov 2019.pdf; HRIA Process Flowchart.pdf; AAS General Inquiry Form.docx; AAS General Inquiry Form.pdf; Maps.zip; Force_Main_HRIA.zip

Hi Joanne,

As per our conversation, I have attached the relevant letters and documents associated with the proposed Glenboro Lagoon and main force pipeline. The documents include the original memorandum, a list of the current archaeological consultants who work in the province, a general flow chart showing how the HRIA process works, and general inquiry forms for future use.

I have also included a zipped file which contains four maps and another that contains a shapefile and a kml of the areas of concern. Two pdfs, which show the areas of concern that we have identified, and two Tiff files that include the lidar for the area. These Lidar maps are georeferenced, and I tested it out in Google Earth. You can simply drag and drop each Tiff file into Google Earth, select the scale option in the dialogue box, and the image will overlay in Google Earth.

The shapefile/kml Force_Main_HRIA covers the areas that we had discussed, and are based on the preliminary footprint for the force main pipeline (following either the west or east side of Mile Road 81W within the existing ditchline, then turning west on an unused road allowance along the north edge of 28-7-14W to the Assiniboine River).

The expectation for your chosen consultant is that they would conduct an HRIA for the portions of the force main pipeline that intersect with the Force_Main_HRIA polygons. Additional Areas of Concern have been highlighted for planning purposes and will not need to be assessed for heritage concerns if the main force pipeline does not passes through them. The assessment would be limited to the development footprint, not the entire polygon area.

Polygons 1-5 – These polygons highlight archaeologically sensitive areas associated with the dune fields along Mile Road 81W. If the pipeline is within the current road allowance (i.e. within the ditch and not affecting the sand dunes on the side of the road), then a HRIA is not required for these areas. If the pipeline is going to be directionally drilled under these sand dune areas, the need for an HRIA would be determined based on the depth of the pipeline below the surface.

Polygons 6-9 – These polygons highlight archaeological sensitive areas between Mile Road 81W and the Assiniboine River. Where the pad, outflow, access road, and force main pipeline fall within these areas should be subjected to an HRIA prior to construction. Pleased be advised that there are larger areas of concern beyond what is present here. These polygons are based on the preliminary route for the force main. Any major deviations from the current proposed route will likely also run the risk of impacting archaeological sensitive areas.

Moving Forward

We request that you address the following:

1. Identify the areas that will be directionally drilled along Mile Road 811W and the depth below surface for the pipe.

2. Determine preliminary footprint for the final 1km of the force main pipeline from Mile Road 81W to the Assiniboine River. A rough centre line and lat/long of the outflow and the pad from google earth should be sufficient to start.

Your selected consultant can then use this information to provide a quote and conduct an HRIA of the proposed route, to see if additional work is required before finalizing the engineering plans.

Review this information and if you have any questions, please feel free to contact me.

Thanks,

Reid Graham

Impact Assessment Archaeologist
Historic Resources Branch | Manitoba Sport, Culture and Heritage
213 Notre Dame Avenue, Main Floor | Winnipeg, MB | R3B 1N3
Reid.Graham@gov.mb.ca
t. 204.945.2118

PS Here is some additional info regarding the lidar and the software to use to view it.

Links to the MB lidar data
https://mli2.gov.mb.ca/dems/index_external_lidar.html - most recent lidar sources
https://mli2.gov.mb.ca/dems/index.html - older lidar - mainly red river valley

Software to view and process lidar –Qgis and ArcGis are the most widely used softwares for working with GIS data.
https://www.qgis.org/en/site/
https://www.esri.com/

From: Joanne Lanoie <jlanoie@samsonengineering.com>
Sent: June 10, 2020 9:55 AM
To: Graham, Reid (SCH) <Reid.Graham@gov.mb.ca>
Subject: Glenboro Lagoon Upgrade

Hi Reid,

I understand that you can provide guidance as to what the Historic Resource Branch requirement are for this project. Can you please call me on my cell to discuss.

Thank you.

Joanne Lanoie, B.Sc., M.Sc.
Senior Project Manager – Environmental
Samson Engineering Inc.
Cell: 204-981-8961

From: Dey, Asit (CC) [mailto:Asit.Dey@gov.mb.ca]
Sent: Monday, June 8, 2020 7:53 AM
To: Joanne Lanoie
Subject: RE: Contact

Hello Joanne,

Good morning. You may contact Reid Graham at Reid.Graham@gov.mb.ca or at 204.945.2118.

Thanks,

Regards,

Asit Dey, P.Eng.
Municipal and Industrial Section
Environmental Approvals Branch
Department of Conservation and Climate
T: (204) 794-3389 F: (204) 945-5229 **Email:** asit.dey@gov.mb.ca
Note: My new contact number is (204)794-3389

From: Joanne Lanoie <jlanoie@samsonengineering.com>
Sent: June 5, 2020 2:06 PM
To: Dey, Asit (CC) <Asit.Dey@gov.mb.ca>
Subject: RE: Contact

Hi Asit,
Another request, is there someone specific I should be contacting at the Historic Resource Branch?

Thank you.

Joanne Lanoie, B.Sc., M.Sc.
Senior Project Manager – Environmental
Samson Engineering Inc.
Cell: 204-981-8961

From: Joanne Lanoie
Sent: Friday, June 5, 2020 12:50 PM
To: 'Dey, Asit (CC)'
Subject: Contact

Hi Asit,
On the phone you had indicated that you would provide a contact within the department who works with ICIP. I am interested in following up so that we can find out if we might get funding approval soon.

Thank you.

Joanne Lanoie, B.Sc., M.Sc.
Senior Project Manager – Environmental
Samson Engineering Inc.
Cell: 204-981-8961

SAMSON
ARCHITECTURE | ENGINEERING

Appendix E – Application for Wastewater Facility Classification

Manitoba
Sustainable Development

Water & Wastewater Facility Operators Certification Program

Application for Wastewater Treatment Facility Classification

also available online at http://www.manitoba.ca/certification

Please print clearly or type and follow the instructions on the application form.
NOTE: If using Adobe Reader text can be inserted into form and tab between fields.

This application is pursuant to the Water and Wastewater Facility Operators Regulation issued under The Environment Act.

Name of Facility:	Village of Glenboro Wastewater Treatment Lagoon Upgrade
Name of Facility Owner: (Municipality/Commission/ Company/Individual/etc)	Municipality of Glenboro-South Cypress
Civic Address of Facility:	Lot 4 Plan 53101 in NW-10-07-14-W, Parcel 2 & eastern 130' of Parcel 1
Mailing Address of Owner:	618 Railway Avenue, PO Box 219, Glenboro, Manitoba

Postal Code:	R0K 0X0	Telephone:	(204) 827-2083
Contact Person:	Darren Myers	Position:	Chief Administrative Officer
Cell or Pager:		Fax:	Email: cao@mgsc.ca

Is this a REAPPLICATION? (•) Yes ( ) No

Please complete the following. The information provided will be used to classify the wastewater treatment facility under the Water and Wastewater Facility Operators Regulation. In some cases actual numbers or answers must be supplied, but in most cases it will only be necessary to check the appropriate criteria.

Forward the completed form by email to:
wwopcert@gov.mb.ca

Or mail it to:
Director
Environmental Approvals Branch
Manitoba Sustainable Development
1007 Century Street
Winnipeg MB R3H 0W4

Please direct questions to:

Certification Program Specialist
Email: wwopcert@gov.mb.ca
Phone: (204) 945-7065

Application for Wastewater Treatment Facility Classification

SYSTEM *(choose all that apply)*			
1.	New or proposed Facility seeking classification	○	
	Proposed start of operations (month / year)		
	Existing Facility seeking classification (in operation prior to December 31, 2005)	◉	
	Facility has been in operation since (approximate month/year) 08/25/1986		
2.	The facility **WILL** employ mechanical treatment processes	◉	
	The facility **WILL NOT** employ mechanical treatment processes	○	

SIZE *(refer to Supplemental Information for point designation) (2 point minimum to 20 point maximum)*				
1.	Maximum population or part served, peak day	# 740		1-10
2.	Design flow average day **Estimated** or **Actual** (Circle volume option & units) ◉ ○ **OR** Peak month's flow average day **Estimated** or **Actual** ◉ ○	292 ◉ m^3/day ○ gal/day _____ ○ m^3/day ○ gal/day		1-10

VARIATION IN RAW WASTE[1] *(choose all that apply) (0 point minimum to 6 point maximum)*			
1.	Variations do not exceed those normally or typically expected	☑	0
2.	Recurring deviations or excessive variations of 100-200% in strength	☐	2
	Recurring deviations or excessive variations of 100-200% in flow	☐	
	Recurring deviations or excessive variations of 100-200% in strength and flow	☐	
3.	Recurring deviations or excessive variations of more than 200% in strength	☐	4
	Recurring deviations or excessive variations of more than 200% in flow	☐	
	Recurring deviations or excessive variations of more than 200% in strength and flow	☐	
4.	Raw wastes subject to toxic waste discharges	☐	6
5.	Septage or truck-hauled waste discharge is accepted at the facility.	☑	0 - 4
	Estimated number of loads per day in peak haul times	4/month	

Application for Wastewater Treatment Facility Classification

PRELIMINARY TREATMENT *(choose all that apply)*			
1.	Facility pumping of main flow	☑	3
2.	Screening or Comminution	☐	3
3.	Grit removal	☐	3
4.	Equalization	☐	1

PRIMARY TREATMENT *(choose all that apply)*			
1.	Clarifiers	☐	5
2.	Anaerobic treatment with biogas flare	☐	10
3.	Anaerobic treatment with biogas utilization facility	☐	15

SECONDARY TREATMENT *(choose all that apply)*			
1.	Fixed-film reactor	☐	10
2.	Activated sludge	☐	15
3.	Stabilization ponds without aeration(i.e. sewage lagoon)	☐	5
4.	Stabilization ponds with aeration	☑	8

TERTIARY TREATMENT *(choose all that apply)*			
1.	Polishing ponds for advanced waste treatment	☑	2
2.	Chemical / physical advanced waste treatment without secondary treatment	☐	15
3.	Chemical / physical advanced waste treatment following secondary treatment	☐	10
4.	Biological or chemical / biological advanced waste treatment	☐	12
5.	Nitrification by designed extended aeration only	☐	5
6.	Ion exchange for advanced waste treatment	☐	10
7.	Reverse osmosis, electrodialysis and other membrane filtration techniques	☐	10
8.	Advanced waste treatment chemical recovery, carbon regeneration	☐	4

Application for Wastewater Treatment Facility Classification

9.	Media filtration	☐	5

ADDITIONAL TREATMENT PROCESSES *(choose all that apply)*			
1.	Chemical addition: *(Please list chemicals used, 2 pts per chemical to max. of 6)* Chemicals Alum	☑	0 - 6
2.	Dissolved air floatation (other than for sludge thickening)	☐	8
3.	Intermittent sand filter	☐	2
4.	Recirculating intermittent sand filter	☐	3
5.	Microscreens	☐	5
6.	Generation of oxygen	☐	5

SOLIDS HANDLING *(choose all that apply)*			
1.	Storage (other than for stabilization)	☐	2
2.	Stabilization by storage (including any storage afterwards)	☐	4
3.	Gravity thickening	☐	2
4.	Mechanical dewatering	☐	8
5.	Anaerobic digestion of solids	☐	10
6.	Utilization of digester gas for heating or cogeneration	☐	5
7.	Aerobic digestion of solids	☐	6
8.	Air-drying of sludge	☐	2
9.	Solids reduction (including incineration and wet oxidation)	☐	12
10.	Disposal in landfill	☐	2
11.	Solids composting	☐	10
12.	Land application of biosolids by contractor	☐	2
13.	Land application of biosolids by facility personnel	☐	10

Application for Wastewater Treatment Facility Classification

DISINFECTION *(choose all that apply) (0 point minimum to 10 point maximum)*			
1.	Chlorination	☐	5
	Ultraviolet irradiation	☐	
2.	Ozonization	☐	10

EFFLUENT DISCHARGE *(choose all that apply) (0 point minimum to 10 point maximum)*			
1.	Discharge to surface water (ditch or lake or _____)	☑	0
2.	Mechanical post-aeration	☐	2
3.	Direct recycling and reuse	☐	6
4.	Land treatment and surface or subsurface disposal	☐	4

INSTRUMENTATION *(choose one) (0 point minimum to 6 point maximum)*			
1.	SCADA or similar instrumentation systems are used to provide:		
	• Data with no process operation	◉	0
	• Data with limited process operation	○	2
	• Data with moderate process operation	○	4
	• Data with extensive or total process operation	○	6

LABORATORY CONTROL[2] *(choose all that apply) (0 point minimum to 15 point maximum)*			
1.	Bacteriological / Biological *(0 point minimum to 5 point maximum)*		
	• Lab work done outside the facility	☑	0
	• Membrane filter procedures	☐	3
	• Use of fermentation tubes or any dilution method of fecal coliform determination	☐	5
2.	Chemical / Physical *(0 point minimum to 10 point maximum)*		
	• Lab work done outside the facility	☑	0

Application for Wastewater Treatment Facility Classification

	• Push button or visual methods for simple tests such as pH or settleable solids *(List tests)*	☐	3
	• Additional procedures such as DO, COD, BOD, gas analysis, titration, solids content or volatile content *(List tests)*	☐	5
	• More advanced determinations such as specific constituents, nutrients, total oils or phenols *(List tests)*	☐	7
	• Highly sophisticated instrumentation such as atomic absorption or gas chromatograph *(List tests)*	☐	10

APPLICANT VERIFICATION	
I HEREBY DECLARE THAT ALL INFORMATION IN THIS APPLICATION IS TRUE.	
Name of Applicant[3]: (Print) Phil Dorn, P. Eng.	
Title: Owner	
Telephone: (204) 727-0747	Fax: (204) 725-9870
Email: [redacted]	
Signatur[redacted] Represe	Date: 06/21/2021

[1]The key [redacted]eviation, or excessive variation from normal or typical fluctuations. The devia[redacted]on to inflow, or shock loads.

[2] The key concept is to credit laboratory analyses done on-site by facility personnel under the direction of an operator-in-charge with points from 0-15.

[3] Applicant must be an authorized representative of the owner/operating authority (i.e. manager, P. Eng., or overall responsible operator).

Print Application Form

Wastewater Treatment Form Supplemental Information

This is supplemental information for completing the Application for Wastewater Treatment Facility Classification Form only.

For exact definitions and text refer to Manitoba Regulation 77/2003, Water and Wastewater Facility Operators Regulation under The Environment Act (C.C.S.M. c E125).

A copy of the regulation is available by following the link for Manitoba Regulations at: http://www.gov.mb.ca/conservation/envapprovals/publs/index.html

Facilities are classified as follows:

Small system class
A wastewater treatment facility that otherwise meets the criteria of a class 1 wastewater treatment facility shall be classified in the small system class if

a) it treats wastewater from a population of no more than 500; and
b) no mechanical treatment processes are employed at the facility.

Classes 1 to 4
Wastewater treatment facilities shall be classified in classes 1 to 4 in accordance with the following table, on the basis of the number of classification points assessed under the classification point system set out in the Water and Wastewater Facility Operators Regulation.

Range of Classification Points	Classification
0 to 30	Class 1
31 to 55	Class 2
56 to 75	Class 3
76 or more	Class 4

Size

Points for size: (2 point minimum to 20 point maximum)

Maximum population or part served, peak day (1 point minimum to 10 point maximum). Points are assigned at 1 point per 10,000 population or part.

Design flow average day or peak month's flow average day, whichever is larger (1 point minimum to 10 point maximum). Points are assigned at 1 point per 4.5 megalitres per day or part.

Authorized Representative

Signatures for the Applicant Verification section must be an individual recognized by the Owner of the facility as able to sign official documentation (i.e. P.Eng., Manager, CAO, etc).