

PHASE THREE - DESIGN OPTIONS - General Characteristics of Maple Lake and Pine Springs Sites - Proj.10279-005

Site	Legislation	Approval Process	Cost of Approvals	Design Criteria	Cost To Bring in Hydro	Waste Receiving and Management Criteria	Road Access	Soil Type	Size of Site	Size of Approved Fill Area	Size of Remaining Area	Compatibility with Solid Waste Plan	Water Table Depth	Groundwater Flow Direction
Maple Lake	Approval by MOE & Certificate of Approval issued under Section 53 of OWRA	application of approval including supporting info detailing the proposed design, conditiotn of local environment and anticipated dynamics between the two entities.	\$13,500.00 * plus an additional \$18,000.00 if hearing is required	36,500 L/day	N/A	manually - Standpipe hookup for discharge & cost of full time operator to monitor automated - Metcon IEA Waste Management Loggers (power supplied) (basic package ~ \$80,000)	Maintained gravel 2 lane mun. road	Bedrock - silty to sandy till 1.5 m overlying bedrock	40.5 ha	1.2 ha	39.3 ha	This is not a concern - Class EA can proceed. If facility goes ahead, the TOR for the SWM EA must be amended to reflect the introduction of a septage treatment facility	~1.5m	East-Southeast
Pine Springs	Approval by MOE & Certificate of Approval issued under Section 53 of OWRA	application of approval including supporting info detailing the proposed design, conditiotn of local environment and anticipated dynamics between the two entities. - Hearing	\$31,500.00 - hearing is required because it is crossing municipal boundaries	36,500 L/day	\$100,000.00 to \$110,000.00 (estimate)	manually - Standpipe hookup for discharge & cost of full time operator to monitor automated - Metcon IEA Waste Management Loggers (power supplied) (basic package ~ \$80,000)	Maintained gravel 2 lane mun. road	sand interlayered with silt or gravel	19.7 ha	0.8 ha	18.9 ha	This is not a concern - Class EA can proceed. If facility goes ahead, the TOR for the SWM EA must be amended to reflect the introduction of a septage treatment facility		Northwesterly

Waterloo Biofilter

Site	Primary Treatment Required	Land Requm'ts	Disposal Area Bed Land Requirements	Total Land Required	Hydro Requm't	Sludge Requm't	Operational Requm'ts	Maintenance	Annual Operation and Maintenance Costs	Optional	Security Required	Budget Cost	Water Quality
Maple Lake	Yes - new septic tank sized to provide >2 days retention time (>73,000 L) equipped with Zabel A300 effluent filters (1/32" filtration) and a balance tank sized to accommodate >0.5 day retention time (>18,250 L) and Monarch Submersible Pumps	~ 0.5 ha for treatment system	0.075 ha for the stone bed and 0.2205 ha for the underlying sand bed	0.7205 ha	Yes	Sludge will accumulate in bottom of septic tank - will need to be removed on a scheduled basis -estimated costs will depend on amount generated and location of disposal (land applied in landfill or Municipal Sludge treatment facility)	Daily inspections Full time staff may be needed, depending on transfer station option	Maintenance includes periodic inspection of the pumps and floats, and cleaning of the spray nozzles and effluent filters	\$10,000-\$15,000 - sampling costs	A remote monitoring system could be installed for remote monitoring of the sewage treatment plant operations. This system integrates data acquisition and historical logging, alarm generation, and control capabilities. The system typically monitors pump on-times, pump cycles, flow rates, temperatures, pump tank levels, and alarms.	Yes - fencing etc.	250,000.00	good
Pine Springs	Yes - new septic tank sized to provide >2 days retention time (>73,000 L) equipped with Zabel A300 effluent filters (1/32" filtration) and a balance tank sized to accommodate >0.5 day retention time (>18,250 L) and Monarch Submersible Pumps	~ 0.5 ha for treatment system	0.075 ha for the stone bed and 0.2205 ha for the underlying sand bed	0.7205 ha	Yes	Sludge will accumulate in bottom of septic tank - will need to be removed on a scheduled basis -estimated costs will depend on amount generated and location of disposal (land applied in landfill or Municipal Sludge treatment facility)	Daily inspections Full time staff may be needed, depending on transfer station option	Maintenance includes periodic inspection of the pumps and floats, and cleaning of the spray nozzles and effluent filters	\$10,000-\$15,000 sampling costs	A remote monitoring system could be installed for remote monitoring of the sewage treatment plant operations. This system integrates data acquisition and historical logging, alarm generation, and control capabilities. The system typically monitors pump on-times, pump cycles, flow rates, temperatures, pump tank levels, and alarms.	Yes - fencing etc.	250,000.00	good

Lagoons

Site	Primary Treatment Required	Liner Required	Land Requm't	Disposal trenches Land Requm't	Total Land Requm't	Hydro Requm't	Sludge Requm't	Operational Requmts	Maintenance	Annual Maintaince and Operation Costs	Security Required	Budget Cost	Water Quality
Maple Lake	Yes - a 113,500 L two-chambered septic (trash) tank providing 3 days rention time	Yes - clay or synthetic	2.72 ha for lagoons only	2.81 ha	5.535 ha	No - Can manage system with out hydro but it would make system easier to operate with hydro	Sludge will accumulate in bottom of trash tank - will need to be removed on a scheduled basis -estimated costs will depend on amound generated and location of disposal (land applied in landfill or Municipal Sludge treatment facility)	Requires part time staff to operate the Lagoon Full time staff may be needed depending on transfer station option	Controlling of grass, weeds etc. Routine inspection of lagoon Remove scum from top as required Check depths once per year , may have to remove sludge from bottom	low	Yes - fencing etc.	209,500.00	Fair
Pine Springs	Yes - a 113,500 L two-chambered septic (trash) tank providing 3 days rention time	Yes - clay or synthetic	2.72 ha for lagoons only	2.81 ha	5.535 ha	No - Can manage system with out hydro but it would make system easier to operate with hydro	Sludge will accumulate in bottom of trash tank - will need to be removed on a scheduled basis -estimated costs will depend on amound generated and location of disposal (land applied in landfill or Municipal Sludge treatment facility)	Requires part time staff to operate the Lagoon Full time staff may be needed depending on transfer station option	Controlling of grass, weeds etc. Routine inspection of lagoon Remove scum from top as required Check depths once per year , may have to remove sludge from bottom	low	Yes - fencing etc.	209,500.00	Fair

Ecoflo Biofilter													
Site	Primary Treatment Required	Land Requm't	Required Disposal Area	Total Land Requm't	Hydro Requm't	Sludge Requm't	Operational Requirements	Maintenance	Annual Operation/ Maintenance Costs	Optional	Security Required	Budget Cost	Water Quality
Maple Lake	Yes - new septic tank sized to provide >2 days retention time (>73,000 L) equipped with Zabel A300 effluent filters (1/32"filtration) and a balance tank sized to accommodate >0.5 day retention time (>18, 250 L) and Monarch Submersible Pumps	~ 0.5 ha for treatment system approximately 17 units will be required.	0.123 ha	0.623 ha	Yes	Sludge will accumulate in bottom of septic tank - will need to be removed on a scheduled basis -estimated costs will depend on amount generated and location of disposal (land applied in landfill or Municipal Sludge treatment facility)	Daily inspections Full time staff may be needed, depending on transfer station option	An annual preventative maintainence package is included for the life of the filter (8 years). This includes visual inspection of the system's internal components and raking of the peat filter to ensure proper operation. Also inclcudes sampling of filter effluent at a rate of once durein the first 12 month of operation and every 48 months thereafter. After the 8 years the peat is pumped out using a sewage disposal truck and a new bed installed. The approximate cost of this media replacement is \$, 100 and icnludes a renewed annual preventative maintence package on the new filter.	\$10,000-\$15,000	A remote monitoring system could be installed for remote monitoring of the sewage treatmetn plant operations. This system integrates data acquisition and historical logging, alarm generation, and control cpabilities. The system typically monitors pump on-times, pump cycles, flow rates, temperatures, pump tank levels, and alarms.	Yes - fencing etc.	324,000.00 price includes treatment and pre-treatment	good
Pine Springs	Yes - new septic trnak sized to provide >2 days retention time (>73,000 L) equipped with Zabel A300 effluent filters (1/32"filtration) and a balance tank sized to accommodate >0.5 day retention time (>18, 250 L) and Monarch Submersible Pumps	~ 0.5 ha for treatment system approximately 17 units will be required.	0.123 ha	0.623 ha	Yes	Sludge will accumulate in bottom of trash tank - will need to be removed on a scheduled basis -estimated costs will depend on amount genereated and location of disposal (land applied in landfill or Municipal Sludge treatment facility)	Daily inspections Full time staff may be needed, depending on transfer station option	An annual preventative maintainence package is included for the life of the filter (8 years). This includes visual inspection of the system's internal components and raking of the peat filter to ensure proper operation. Also inclcudes sampling of filter effluent at a rate of once durein the first 12 month of operation and every 48 months thereafter. After the 8 years the peat is pumped out using a sewage disposal truck and a new bed installed. The approximate cost of this media replacement is \$, 100 and icnludes a renewed annual preventative maintence package on the new filter.	\$10,000-\$15,000	A remote monitoring system could be installed for remote monitoring of the sewage treatmetn plant operations. This system integrates data acquisition and historical logging, alarm generation, and control cpabilities. The system typically monitors pump on-times, pump cycles, flow rates, temperatures, pump tank levels, and alarms.	Yes - fencing etc.	324,000.00 price includes treatment and pre-treatment	good
option withdrawn - further research revealed that the Ecoflow system is not suitable for treatment of hauled sewage													

Constructed Wetlands

Site	Primary Treatment Required	Land Available	Land Requm't	Required Disposal Area	Total Land Requm't	Hydro Requm't	Sludge Requm't	Operational Requm'ts	Maintenance	Annual Operation and Maintenance Costs	Optional	Security Required	Budget Cost
Maple Lake	Yes - a lagoon storage of about 5,000 m ³		0.0732 ha for wetland cells	shallow buried trenches total bed area of 0.4 ha	~ 0.5 ha	Not required, but would provide a more compact easier to maintain system	Sludge will accumulate in bottom of lagoon - will need to be removed on a scheduled basis -estimated costs will depend on amount generated and location of disposal (land applied in landfill or Municipal Sludge treatment facility)	Daily inspections Full time staff may be need depending on transfer station option	once up and running no real maintain requirements, except check the level of the lagoon for sludge disposal		A remote monitoring system could be installed for remote monitoring of the sewage treatmetn plant operations. This system integrates data acquisition and historical logging, alarm generation, and control cpabilities. The system typically monitors pump on-times, pump cycles, flow rates, temperatures, pump tank levels, and alarms.	Yes - fencing etc.	350,000.00 * has provided additional costs for engineering of \$87,500
Pine Springs	Yes - a lagoon storage of about 5,000 m ³	Approx. 2.2ha	0.0732 ha for wetland cells plus and additional 83 m for trenches for a system with no hydro and a 5.4 m grade	shallow buried trenches total bed area of 0.4 ha	~ 0.5 ha	Not required, but would provide a more compact easier to maintain system - can supply alternative power options	Sludge will accumulate in bottom of lagoon - will need to be removed on a scheduled basis -estimated costs will depend on amount generated and location of disposal (land applied in landfill or Municipal Sludge treatment facility)	Daily inspections Full time staff may be need depending on transfer station option	once up and running no real maintain requirements, except check the level of the lagoon for sludge disposal	No foreseen costs	A remote monitoring system could be installed for remote monitoring of the sewage treatmetn plant operations. This system integrates data acquisition and historical logging, alarm generation, and control cpabilities. The system typically monitors pump on-times, pump cycles, flow rates, temperatures, pump tank levels, and alarms.	Yes - fencing etc.	350,000.00 * has provided additional costs for engineering of \$87,500

**Water
Quality**

very good

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