

Sewage System Details: Waterloo Biofilter AD-BA60
Class IV Tertiary Treatment Sewage System, c/w Type 'A' Dispersal Bed
Ontario Building Code Compliance Analysis

Proposed Residence: 573m² (6,171 ft²), 6 bedrooms + 7 washrooms

Base Sewage flow = 2,500 litres / day (based on 5 bedrooms)

Fixture Units = 7 washroom groups x 6 = 42+ 3.0 (2 kitchen sinks x 1.5) + 1.5 (dishwasher) + 4.5 (3 washing machines x 1.5) + 3.0 (2 laundry sinks x 1.5) + 6.0 (4 add. sinks x 1.5) = 60

Additional Flows:

- 1) No. Fixture Units (over 20) = 40 x 50 L = 2,000 L
- 2) House Size (201m² to 400m²) = 20 x 100 L = 2,000 L/day
(401m² to 600m²) = 18 x 75 L = 1,350 L; TOTAL = 3,350 L
- 3) No. Bedrooms (over 5) = 1 x 500 = 500 L

Q = 5,850 L/day (2,500 L + 3,350L) [House Size governs]: Daily Design Sewage Flow

Waterloo Biofilter Anaerobic Digester:

Anaerobic Digester size = 1.89 x Q₁: 1.89 x 5,850 L = 11,056 L, Provide 13,500 L (3,000 gal.) single compartment concrete tank (to Waterloo Biofilter specifications) with gravity flow to Waterloo Biofilter Dosing Station .

Waterloo Biofilter Dosing Station: Provide 6,135 L (1,350 gal.) pump tank, c/w timed dosing to Waterloo Biofilter Treatment System.

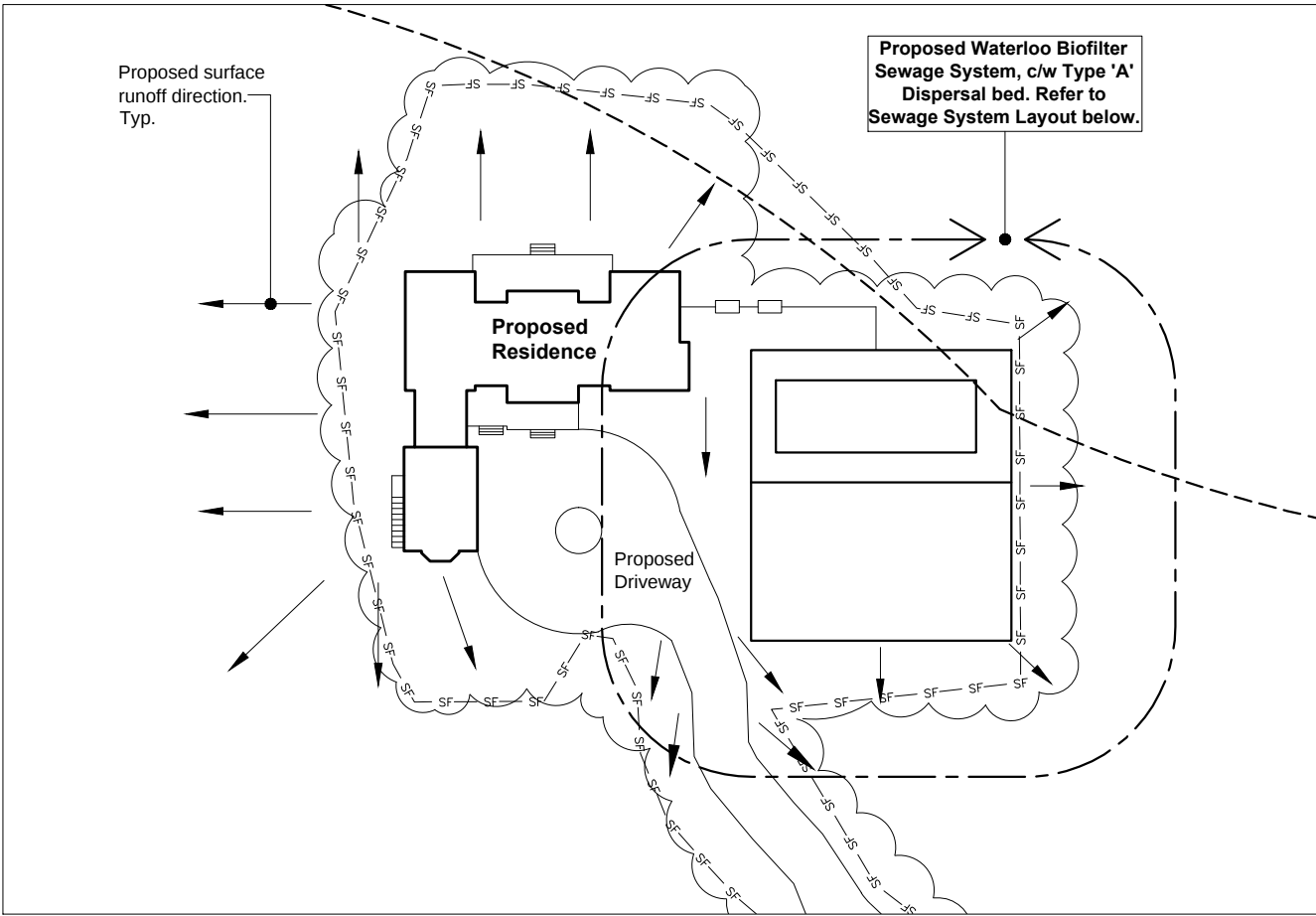
Waterloo Biofilter: Sewage Treatment System (Based on Q = 5,850 L/day):

Waterloo Biofilter - Configuration AD-BA60, rated to a treatment capacity of 6,000 L/day, based on CAN/BNQ 3680-600 Certificate No. 2312. Treatment system is to demand dose (time dosed via pump station) into Type 'A' Dispersal Bed, with 50% recirculation to Anaerobic Digester.

Soil Percolation: T = 50 min/cm. Soil percolation rate assumed until on-site soils investigation is undertaken.

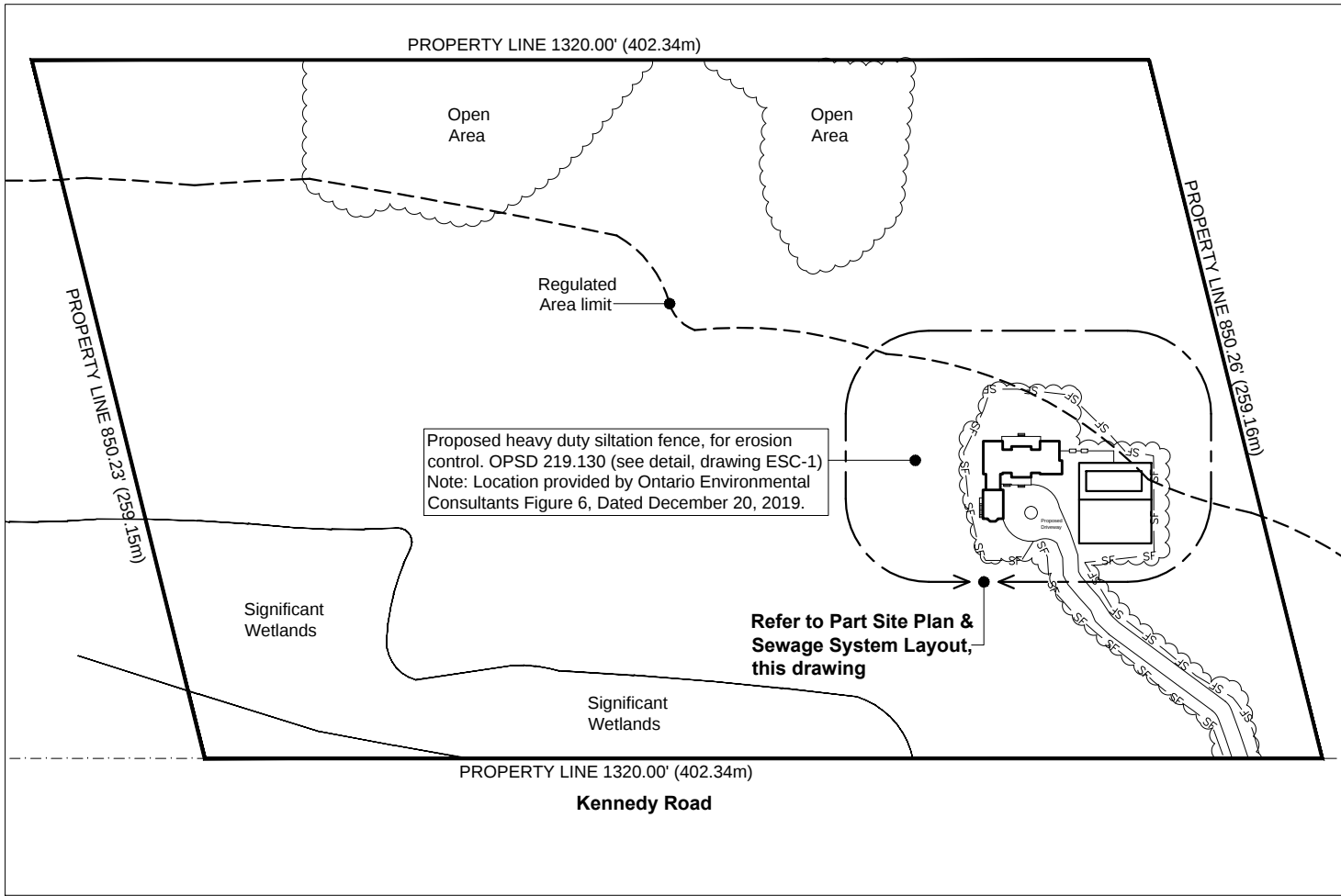
Type 'A' Dispersal Bed (Based on Q = 5,850 L/day & T = 50 min/cm):

- 1) Washed Stone Layer = Maximum loading = 50 L/m² (Q₂ > 3,000 L); Q / 50 = 5,850 / 50 = 117m².
Designed area: 144m² (7.2m x 20m).
- 2) Absorption Bed (Sand Contact Area): = Q x T / 400 = 5,850 x 50 / 400 = 731.3m².
Provide: 754 m² (26m x 29m)
- 3) Mantle - Extending 16.3m from stone layer, as detailed below.



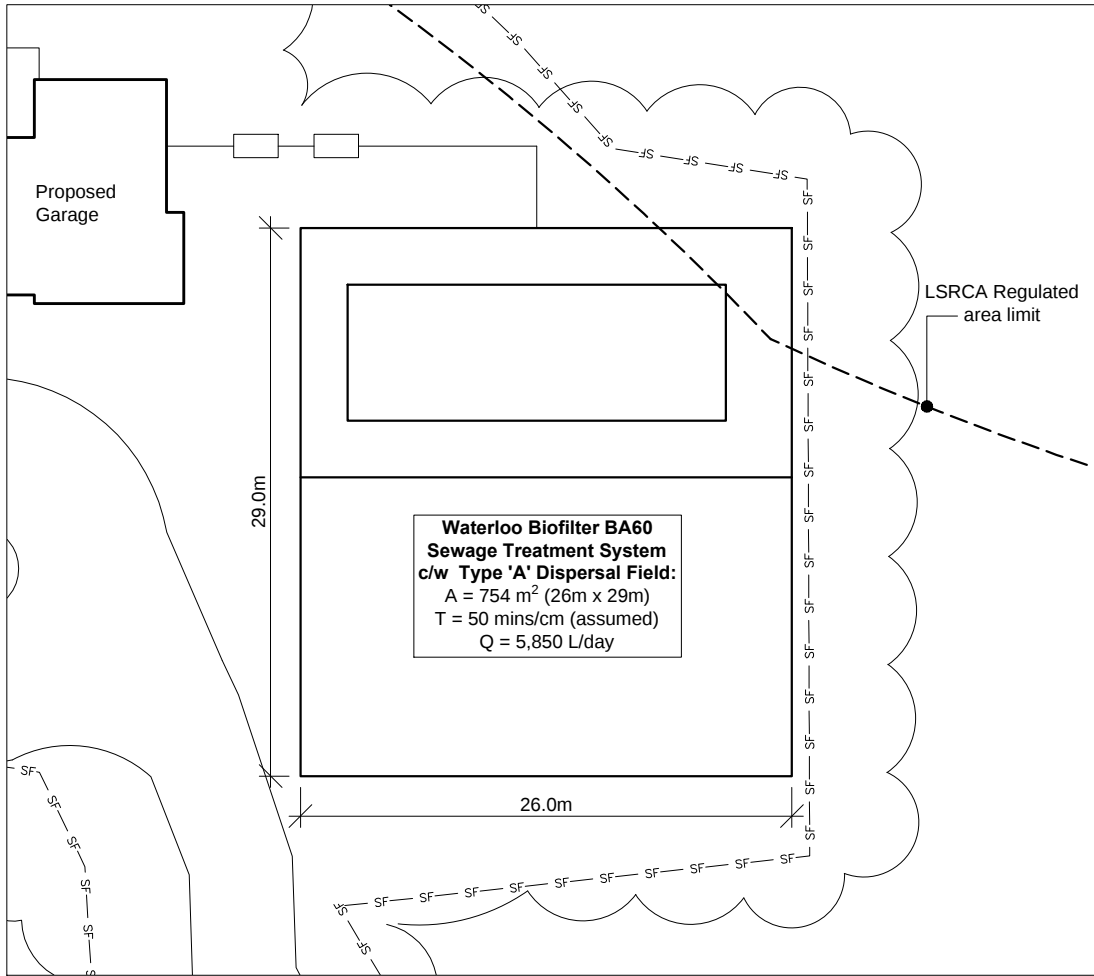
Part Site Plan

Scale: 1: 750



Overall Site Plan

Scale: 1: 2,500



Sewage System Layout

Scale: 1: 400



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Rev. No.	Date	Description	CAD
Rev. 1	5-NOV-2020	Updated House Location	JK

New Residence
Kennedy Road
Part Lot 11, Conc. 9
Town of Georgina

Overall & Part Site Plan
Sewage System Layout

Scale: As Shown	Designed By: EG
Date: 11-FEB-2020	Drawn By: JK
Project No.:	Checked By: EG
	Drawing No.:

D2955

SP-1

The proponent / contractor shall monitor the weather several days in advance of the onset of the project to ensure that the works will be conducted during favourable weather conditions. Should an unexpected storm arise, the contractor will remove all unfixed items from the Regional Storm Flood Plain that would have the potential to cause a spill or an obstruction to flow, e.g., fuel tanks, portapotties, machinery, equipment, construction materials, etc.

An Environmental Monitor will attend the site to inspect all new controls, as well as on a regular basis, or following rain/snowmelt event, to monitor all works, and in particular works related to erosion and sediment controls, dewatering or unwatering, restoration and in- or near- water works. Should concerns arise on site the Environmental Monitor will contact the LSRCA Enforcement Officer as well as the proponent.

All activities, including maintenance procedures, will be controlled to prevent the entry of petroleum products, debris, rubble, concrete or other deleterious substances into any watercourse or wetland. Vehicular refueling and maintenance will be conducted a minimum of 30 metres from any watercourse or wetland.

Disturbed areas will be minimized to the extent possible, and temporarily or permanently stabilized or restored as the work progresses.

In order to comply with the Migratory Birds Convention Act, LSRCA recommends that tree removals be completed between August 1 and April 1.

All dewatering / unwatering shall be treated and released to the environment at least 30 metres from a watercourse or wetland and allowed to drain through a well-vegetated area. No dewatering effluent shall be sent directly to any watercourse, wetland or forest, or allowed to drain onto disturbed soils within the work area. These control measures shall be monitored for effectiveness and maintained or revised to meet the objective of preventing the release of sediment laden water.

Erosion and Sediment Control (ESC) measures will be implemented prior to, and maintained during the construction phases, to prevent entry of sediment into any watercourse or wetland. All damaged erosion and sediment control measures should be repaired and / or replaced within 48 hours of the inspection.

Inspections of the proposed erosion and sediment control (ESC) measures will occur:

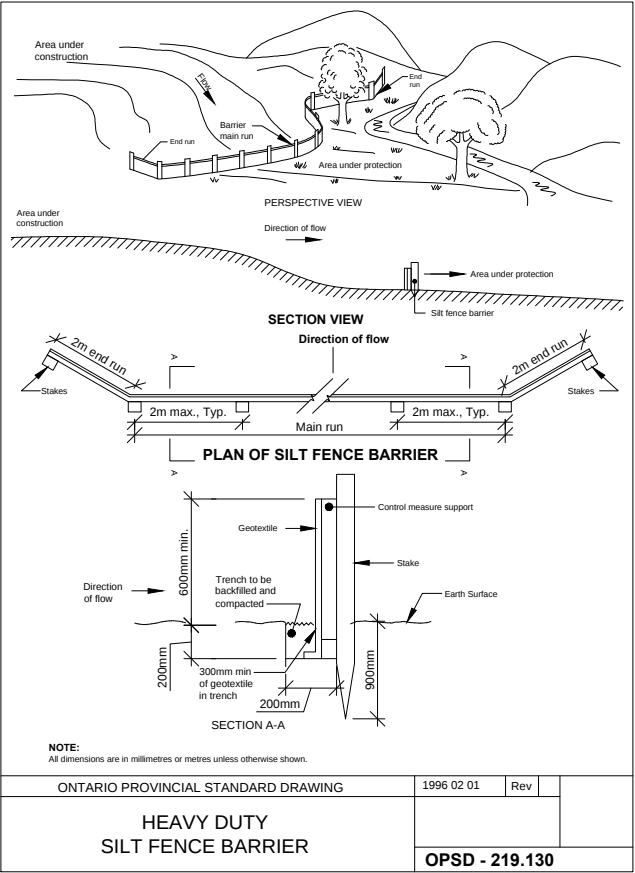
- On a weekly basis
- After every significant rainfall event
- After significant snowmelt events
- Daily during extended rain or snowmelt periods

Siltation Fence to be installed at the beginning of construction & maintained in place until construction completed and new grass stabilized. See Silt Fence detail (this drawing).

Siltation fence to be installed during non-frozen conditions and to consist of non-woven geo-textile material (TERRAFIX 270R or equivalent).

All damaged ESC measures should be repaired and / or replaced within 48 hours of the inspection.

All grades within the Regulatory Flood Plain will be maintained or matched.

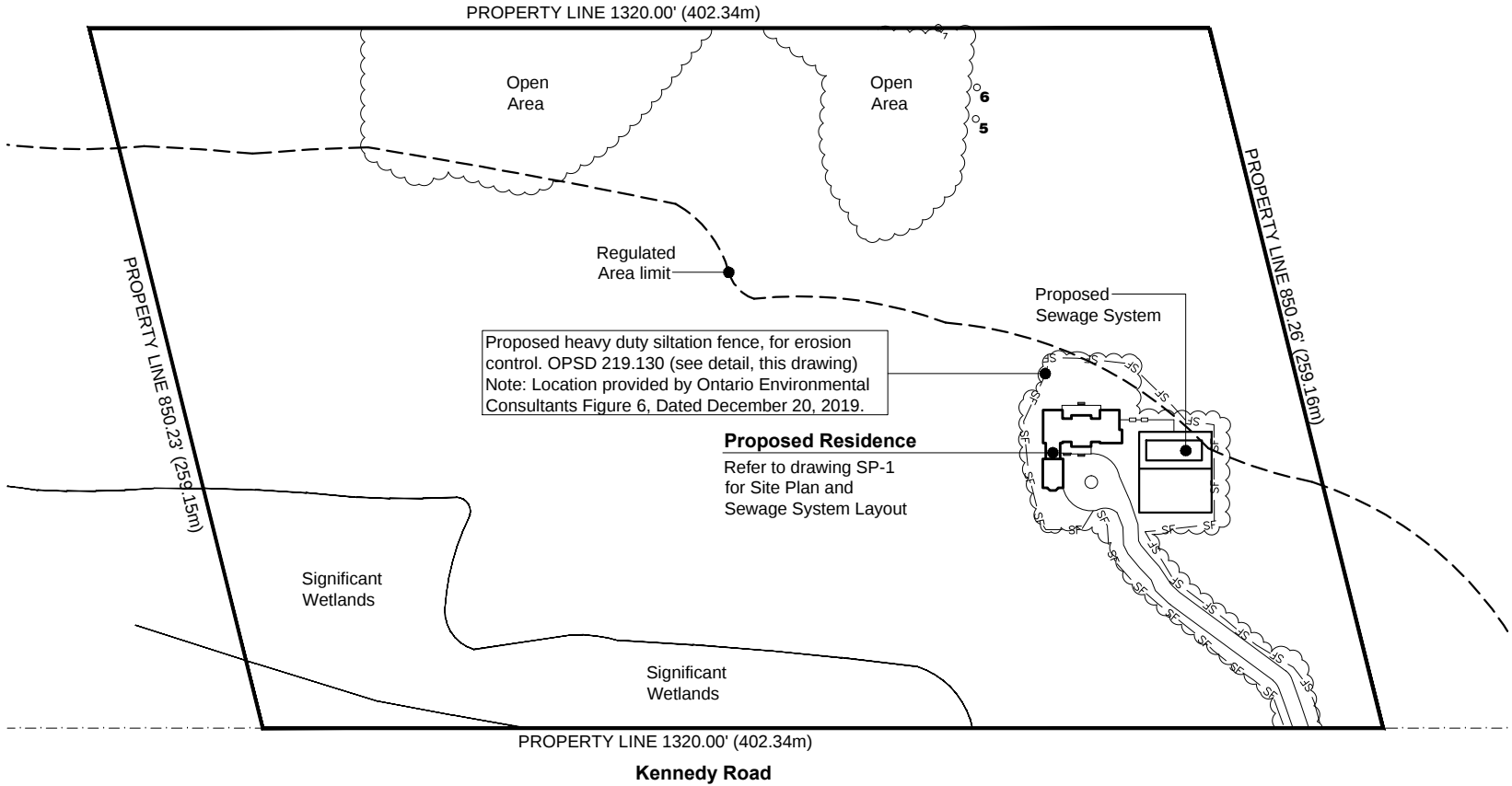


- Heavy Duty Silt Fence Design Notes:**
- Refer to OPSD 219.130.
 - Geotextile material to have a weave density of 270R or equivalent.
 - Sediment / silt control fences are not to be used in creeks or other areas of highly concentrated flows.
 - Structural fencing must be used to back the sediment fence. The sediment / silt fence also doubles as a 'limit of work' fence.
 - Sediment / silt fencing is to be constructed on site. Prefabricated sediment control / silt fences (wooden stakes already attached to geotextile fabric) are not preferred due to structural inadequacy and incapability of water ponding.
 - Maximum allowable slope lengths and grades:

Grade	Length
3:1	25 m
4:1	40 m
 - Fences must be located and installed along the contours and not up and down slopes, with end sections constructed up the slope to stop runoff from flowing around the ends of the fence and on the flat area away from the toe of a slope.
 - Vegetative buffer strips to be provided down gradient from sediment / silt fencing according to the following criteria:
 - 3 m for perimeter fencing
 - 15 m for fencing adjacent to a warm water watercourse (as per LSRCA)
 - 30 m for fencing adjacent to a cold water watercourse supplemented with a second row of fencing 2 meters beyond the initial row (as per LSRCA)
 - The geotextile must be stretched tight when installing the material and the bottom edge buried a minimum of 150mm (6") with compaction of the excavated fill. Diagonal bracing of the posts is recommended where deep ponding is experienced or anticipated.
 - Clear granular stone placement can be used (during all seasons) to assist in filtering sediment laden waters.
 - Sediment / silt fencing shall be inspected on a regular basis and after every rainfall event, to check for failures. All failures must be repaired immediately.
 - When sediment accumulates to half the height of the geotextile material, it shall be removed and disposed of in a controlled area.
 - An additional supply of sediment and control fencing shall be kept on site at all times for quick repairs or additional fencing as required.

The erosion and sediment control strategies outlined on the plans are not static and may need to be upgraded / amended as site conditions change to minimize sediment laden runoff from leaving the work areas. If the prescribed measures on the plans are not effective in preventing the release of a deleterious substance, including sediment, then alternative measures must be implemented immediately to minimize potential ecological impacts. LSRCA Enforcement Officer should be immediately contacted. Additional ESC measures to be kept on site and used as necessary.

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Rev. 1	5-NOV-2020	Updated House Location	JK

New Residence
Kennedy Road
Part Lot 11, Conc. 9
Town of Georgina

Erosion & Sediment
Control Plan (ESC Plan)

Scale: 1:2,500	Designed By: EG
Date: 11-FEB-2020	Drawn By: JK
Project No.:	Checked By: EG
	Drawing No.:

D2955 **ESC-1**