BALAN
ENGINEERING CORP.

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Address: 49 North Street East, Tillsonburg, ON

MEMO

Sept 25 2025

re: Response to Comments issued by Norfolk County, April 16 2025

Proposed Mini Storage, 310 Fourteenth Street West, Simcoe

General Comments:

1. Security Schedule has been provided.

2. The detailed electrical layout is as of yet to be determined and will be determined at building permit phase. Please note that electrical servicing is straightforward. In lieu of an electrical services plan we would like to provide the following information:

-there are no proposed freestanding light poles / fixtures

-exterior lighting will be limited to wall pack lighting, now illustrated on drawing SP1.

-all lighting to be dark sky compliant, (note has been added to SP1).

-the two existing hydro poles along the frontage have been identified.

-reference site lighting note on drawing SP1

3. Municipal Address has been added.

4. Pre Treatment has now been provided. 'All catch basins to be 'EnviroBasins' (by Enviropod Toronto). These units will remove >60% TSS. Documentation is attached to SWM Report. MECP has notified that an ECA is not required. Instead they have asked for an EASR submission which has been completed (documentation is attached).

5. Noted.

FSR Cover Letter:

6a. As per discussion with development engineering, a cistern is now proposed in lieu of a private well.

6b. drawing revised to indicate cistern (no proposed private well).

6c. drawing revised to indicate cistern (no proposed private well).

6d. drawing revised to indicate cistern (no proposed private well).

7. A source protection report has been added as an Appendix to the FSR (Appendix 1)

SWM Report:

8. Under Section 1.(1) of the Regulation, the definition of industrial land is as follows:

“industrial land” means land used for the production, processing, repair, maintenance or storage of goods or materials, or the processing, storage, transfer or disposal of waste, but does not include land used primarily for the purpose of buying or selling,

(a) goods or materials other than fuel, or

(b) services other than vehicle repair services

The proposed building is a Mini Storage Facility, with no proposed fuel sales or vehicle repair services. Therefore it would appear to fit under the category of "land not used primarily for the purpose of buying or selling (a)goods and materials other than fuel; or (b) services other than vehicle repair services. " Therefore, the subject property does not fall under an 'industrial' designation according to MECP.

Furthermore, after review by the MECP, the proposal was not considered to have a high risk of groundwater contamination and the Ministry has stated that no ECA is required.

9. Pre treatment has been added to the design. As per meeting with Norfolk County Staff, (July 2025) we have specified 'Enviro Basins' (Enviropod, Toronto). These filters in conjunction with TSS removal provided by infiltration will provide >80% TSS removal. SWM report has been updated.

10. MECP has indicated that an ECA is not required. The Ministry did ask that an EASR registration be completed. This has been completed and is attached to this memo.

11. The developed portion of the site (area to be controlled) has been reduced to 1.05ha. The remaining 0.54ha at the rear of the subject property will drain toward the proposed fire pond. The Post Dev absorption coefficient for this area will not increase over the Pre Dev coefficient. Therefore no quantity controls should be required.

12. SWM design has been modified to provide a safety factor of 2. (reference 'QUANTITY CONTROL SUMMARY contained in revised SWM Report).

13. Ponding/ Retention has been provided to accommodate in excess of the 100 year storm. No direct outflow to the street is anticipated up to the 100 year storm.

14. The calculations provided in Appendix 'A', along with the data in the report indicate the required storm water retention up to the 100 year storm. (284m3 required to control 100 year storm).

15. A drainage area plan has been provided. No external flows will enter the property. The developed portion of the site is at a higher elevation then all surrounding lands.

16. As per discussion with Norfolk County Staff, the geotechnical consultant is not required to review the SWM report or make comment. The SWM design takes into account the soil testing performed and reported in the Geotechnical Report (Englobe). The infiltration rate of the native soil is 60mm/hr.

17. The SWM design will accommodate in excess of the 100 year storm. Should a greater storm event occur, or should the proposed on site storm sewer somehow become compromised, an emergency overland flow route has been provided to direct surpluss runoff to the fire pond at the south end of the site.

Grading and Drainage Plan (SP2):

19. The CSP is a new installation. It is now specified at 450mm.

20. Headwalls to be removed. This has now been noted on drawing.

21. The proposed grading has been revised to remove the emergency overflow at the front of the property, the emergency overflow is now directed solely to the fire pond. Nevertheless, Curbing has been added at front to stabilize edge of gravel.

It should be noted that curbing / concrete weir have not been provided at the rear of the property. The proposed grading / topography will achieve the same result, i.e. excess runoff will direct towards the fire pond regardless of the integrity of the edge of gravel.

22. The SWM design will accommodate in excess of the 100 year storm. Should a greater storm event occur, or should the proposed on site storm sewer somehow become compromised, an emergency overland flow route has been provided to direct surplus runoff to the fire pond at the south end of the site as requested by County.

Please note that an emergency overflow to the street is no longer proposed. Please also note that at the rear of the property an overflow weir is not provided, instead the general proposed grading will direct the emergency runoff toward the fire pond.

23. typo has been corrected.

24. Fencing is now labelled.

25. Notes regarding grass restoration have been added. (Reference General Planting Notes on SP1).

26. The entire developed portion of the site will be raised by a minimum of 0.5m. This was necessary to gain the depth required to install the on-site storm sewer.

27. Topsoil will be removed from site.

28. Additional final grades have been indicated as per request. Note indicating 'Match Existing Grades at Property Lines' has also been added.

29. Hydrant locations have been clarified on drawings.

Site Servicing Plan (SP3):

30. Hydrant locations have been clarified on drawings.

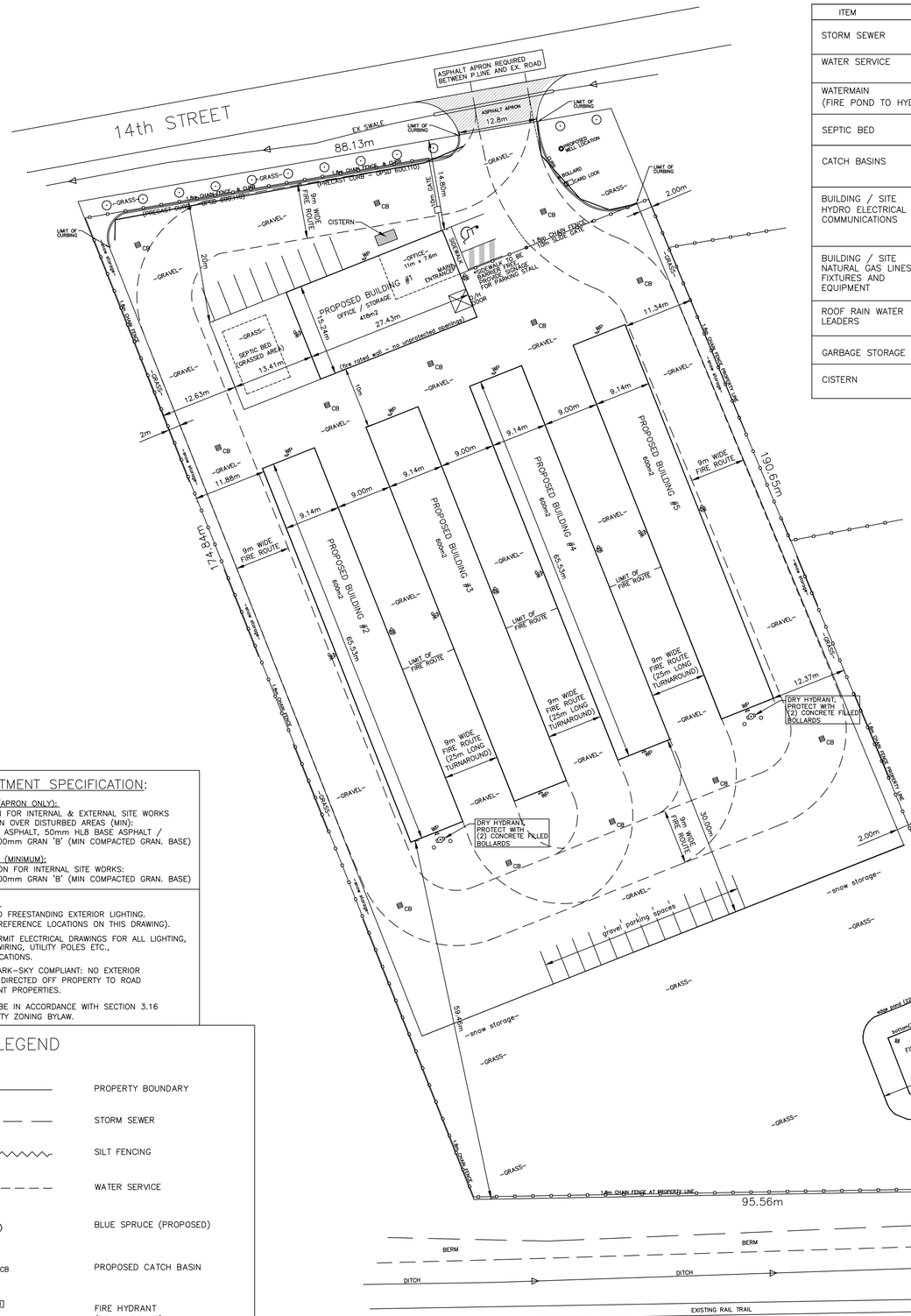
31. The site BM is indicated on drawing SP2 at the north east cornor of the property (Hydro Pole).

32. Fencing has been labled (drawing SP1 & SP3)

33. The Hydro Pole at the frontage has been indicated. There are no existing services or utilities on the subject property. Under General Notes, note #5 indicates requirements for locates prior to construction.

Erosion and Sediment Plan (SP4):

34. Reference to silt sack detail has been corrected.



SERVICING SPECIFICATIONS

ITEM	REFER TO DETAIL
STORM SEWER	250mm PERFORATED HDPE STM
WATER SERVICE	FROM CISTERN
WATERMAIN (FIRE POND TO HYD)	250mm PVC DR18
SEPTIC BED	DESIGN BY OTHERS (TOTAL FIXTURE COUNT IS 1 TOILET, 2 SINKS)
CATCH BASINS	–CATCH BASINS AS PER OPSD 705.010 –ALL CATCH BASINS TO BE EQUIPPED WITH 'ENVIROBASIN FILTER' BY ENVIROPOD. PRODUCT INFORMATION IS ATTACHED TO SWM REPORT.
BUILDING / SITE HYDRO ELECTRICAL / COMMUNICATIONS	REFER TO ELECTRICAL DRAWINGS FOR BUILDING/ SITE HYDRO ELECTRICAL AND COMMUNICATIONS (BELL/ROGERS ETC.) CONDUIT SERVICES, LOCATIONS, EQUIPMENT, FIXTURE TYPES AND SPECIFICATIONS.
BUILDING / SITE NATURAL GAS LINES, FIXTURES AND EQUIPMENT	REFER TO MECHANICAL DRAWINGS FOR NATURAL GAS SERVICES, LOCATIONS, EQUIPMENT, FIXTURE TYPES AND SPECIFICATIONS.
ROOF RAIN WATER LEADERS	ROOF RAIN WATER LEADERS TO BE DIRECTED TO GRADE VIA CONCRETE SPLASH PADS
GARBAGE STORAGE	INTERNAL
CISTERN	2000 GAL PRECAST CISTERN, REINFORCED LID FOR TRAFFIC LOADING, BY WILKINSON HEAVY PRECAST OR EQUIV.

SURFACE TREATMENT SPECIFICATION:

ASPHALT SPECIFICATION (APRON ONLY):
ASPHALT SPECIFICATION FOR INTERNAL & EXTERNAL SITE WORKS INCLUDING RESTORATION OVER DISTURBED AREAS (MIN):
–50mm HL3 SURFACE ASPHALT, 50mm HL8 BASE ASPHALT /
–150mm GRAN 'A', 300mm GRAN 'B' (MIN COMPACTED GRAN. BASE)

GRANULAR SPECIFICATION (MINIMUM):
GRANULAR SPECIFICATION FOR INTERNAL SITE WORKS:
–150mm GRAN 'A', 300mm GRAN 'B' (MIN COMPACTED GRAN. BASE)

SITE LIGHTING:

THERE IS NO PROPOSED FREESTANDING EXTERIOR LIGHTING. (WALL PACKS ONLY – REFERENCE LOCATIONS ON THIS DRAWING).

REFER TO BUILDING PERMIT ELECTRICAL DRAWINGS FOR ALL LIGHTING, LIGHT FIXTURE TYPES, WIRING, UTILITY POLES ETC., LOCATIONS AND SPECIFICATIONS.

ALL FIXTURES TO BE DARK–SKY COMPLIANT: NO EXTERIOR LIGHTING ARRAY TO BE DIRECTED OFF PROPERTY TO ROAD ALLOWANCE OR ADJACENT PROPERTIES.

EXTERIOR LIGHTING TO BE IN ACCORDANCE WITH SECTION 3.16 OF THE NORFOLK COUNTY ZONING BYLAW.

LEGEND

- PROPERTY BOUNDARY
- STORM SEWER
- SILT FENCING
- WATER SERVICE
- BLUE SPRUCE (PROPOSED)
- CB — PROPOSED CATCH BASIN
- FIRE HYDRANT (DRY HYDRANT)
- WP — LOCATION OF WALL PACK LIGHTING

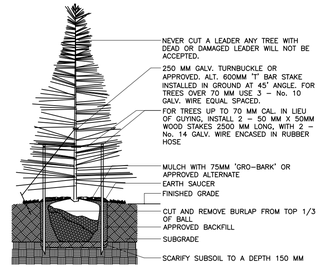
GENERAL NOTES

1. PRIMARY UNITS ARE METRIC. DIMENSIONS ARE METERS.
2. PROPER SILTATION MEASURES TO TAKE PLACE. SILT CONTROLS, I.E. SILT FENCING AROUND ALL CONSTRUCTION AREAS ARE TO BE IN PLACE PRIOR TO THE START OF SITE WORKS, AND BE MAINTAINED FOR THE DURATION OF CONSTRUCTION (SILT FENCING TO BE PROPERLY SECURED C/W T BAR POSTS IN GROUND & C/W FILTER FABRIC) SILT FENCING AS PER OPSD 219.130
3. THERE IS NO PROPOSED OUTDOOR FREESTANDING LIGHTING (WALL PACKS ONLY).
4. ALL NECESSARY RELOCATIONS OR REMOVALS OF EXISTING PHYSICAL SITE FEATURES INCLUDING U/G SERVICES TO BE THE RESPONSIBILITY OF THE CONTRACTOR/OWNER.
5. EXACT LOCATIONS INVERTS & ELEVATIONS OF ALL EXISTING SERVICES (INCLUDING EXISTING STORM SEWER, SANITARY SEWER, WATER, GAS, BELL, ETC.), GRADES, MATERIAL LENGTHS, & INVERTS TO BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY SITEWORK, AND ORDERING OF MH STRUCTURES.
6. REFER TO MECHANICAL DRAWINGS FOR INTERIOR SERVICE ARRANGEMENT & ADDITIONAL MECHANICAL INFORMATION.
7. ANY LANDSCAPED OR GRASSED AREAS LOCATED ON ADJACENT PROPERTY, WHICH ARE DAMAGED OR IMPACTED DURING THE COURSE OF CONSTRUCTION, OR SITE DEVELOPMENT ARE TO BE PROPERLY REPAIRED, AND RE–SODDED.
8. RESTORATION OF ROAD TO SATISFACTION OF COUNTY.
9. GARBAGE STORAGE IS TO BE INTERNAL
10. EXISTING TOPOGRAPHY TO REMAIN UNLESS OTHERWISE NOTED.
11. THIS DRAWING TO BE READ IN CONJUNCTION WITH ANY AND ALL OTHER DOCUMENTS SUBMITTED FOR MUNICIPAL APPROVAL(S).
12. ANY DISCREPANCY(S) BETWEEN INFORMATION ON THIS SITE DRAWING AND ACTUAL FIELD CONDITIONS, WHICH MAY IMPACT ON THE PROPOSED DEVELOPMENT, ARE TO BE REPORTED TO THE SENIOR CONSULTANT / P.ENG.
13. CISTERN IS PROPOSED TO PROVIDE DOMESTIC WATER SERVICING (NO PRIVATE WELL IS PROPOSED).

PLANTING SCHEDULE

KEY	COMMON NAME	BOTANICAL NAME	QUANT.	CONDITION	SYMBOL	
BS	BLUE SPRUCE	PICEA PUNGENS	13	(bab) W/B	⊙	50mm CAL

PLANTING DETAIL



NOTES:
1. DO NOT ALLOW AIR POCKETS WHEN BACKFILLING.
2. DO NOT DAMAGE MAIN ROOTS WHEN INSTALLING STAKES.
3. POSITION CROWN OF ROOT BALL 50MM ABOVE FINISHED GRADE TO ALLOW FOR SETTLING.
4. FOR TREES PLANTED WITHIN PLANTING OR SHRUB BEDS, DELETE EARTH SAUCER.
5. ALL DIMENSIONS SHOWN IN MILLIMETERS.
6. TREES UNDER 70MM REQUIRE TWO STAKES. TREES 70MM CALIPER AND OVER REQUIRE THREE STAKES.
7. TREES 2000M IN HEIGHT AND LESS REQUIRE ONE STAKE.
8. NO TREE PITS SHALL BE LEFT OPEN OVERNIGHT.
9. THE ABOVE DOES NOT REPRESENT ANY PARTICULAR SPECIES.

GENERAL PLANTING NOTES:

TOPSOIL:
- ALL SHRUB BEDS AND TREES TO BE BACKFILLED WITH GOOD QUALITY TOPSOIL SCARIFIED FREE OF ALL STONES, ROOTS, BRANCHES LARGER THAN 1" (25MM) AND COMPACTED TO 85% S.P.D.
- ALL SUBSOIL TO BE SCARIFIED TO A DEPTH OF 6" (150 MM) PRIOR TO THE INSTALLATION OF TOPSOIL TO ENSURE NO HARDPAN CONDITIONS.
- DIRECT ALL RAINLEADERS AND SUMP LEADERS AWAY FROM PLANTING BEDS AND TO THE DESIGNATED SWALES.

MULCH:
- ALL TREE PITS, SHRUB PITS AND PLANTING AREAS ARE TO BE MULCHED WITH MIN. 75MM OF MEDIUM MULCH, UNLESS OTHERWISE NOTED.

PLANT MATERIALS:
- CONTRACTOR TO VERIFY ALL PLANT MATERIAL ON DRAWING(S) AND PLANT MATERIAL LIST(S). REPORT ALL DISCREPANCIES.
- PLANTINGS MAY BE ADJUSTED TO SUIT UTILITIES STRUCTURES AND AESTHETIC CONCERNS,
- ALL TREE PITS SHALL BE AT LEAST 2 FT. (600MM) WIDER THAN BALL OF THE TREE TO BE PLANTED AND SHALL BE DEEP ENOUGH SO THAT THE TOP OF BALL IS AT THE SAME LEVEL AS SURROUNDING GRADE. A MINIMUM OF 6" (150MM) OF BACKFILL SHALL BE PLACED UNDER BALL. TREE PITS ARE NOT TO BE LEFT OPEN OVER NIGHT.
- SHRUB BEDS SHALL BE EXCAVATED TO A DEPTH OF 18" (450MM) AND FILLED WITH APPROVED BACKFILL MATERIAL.
- ALL TREES SHALL HAVE AN EARTH SAUCER AT ITS BASE WITH A DIAMETER AS LARGE AS EXCAVATED AREA TO SHAPE TO RETAIN WATER. SEE DETAIL. EARTH SAUCER TO HAVE APPROVED MULCH INSTALLED TO A MINIMUM DEPTH OR 2.5" (63MM).
- ALL BURLAP SHALL BE CUT AND BURIED BELOW SURFACE DURING PLANTING.
- ALL EVERGREENS ARE TO WRAPPED THE FIRST WINTER.
- DO NOT INSTALL PLANT MATERIAL IN DRAINAGE SWALES.
- ALL TREES TO BE PROPERLY STAKED WITH HOSE COATED WIRE. REMOVE ALL GUY WIRES AFTER 2 FULL GROWING SEASONS.

GRASSED AREAS:
- GRASSED AREAS SHALL BE SEEDED (HYDRO SEED OR EQUIVILENT) UPON INSTALLATION AREAS SHOULD BE WATERED SO AS TO SATURATE THE UPPER 4" (100MM) OF SOIL.

0m — 50m
1:400 metric

ZONING CHART / SITE STATISTICS

ITEM	REQUIRED	PROVIDED
ZONING – MG (GENERAL INDUSTRIAL)		
MINIMUM LOT AREA	1,855m2	16,009m2
MINIMUM LOT FRONTAGE	30m	88.13m
GROUND FLOOR AREA	N/A	2,818m2
FRONT YARD SET BACK	6m	14.80m
REAR YARD SET BACK	9m	59.46m
INTERIOR SIDE YARD SET BACK	3m	11.3m
EXTERIOR SIDE YARD SET BACK	6m	N/A
MAX BUILDING HEIGHT	45° ANGULAR PLANE FROM ADJACENT ZONES	>45°
OUTDOOR STORAGE	PROHIBITED IN FRONT YARD AND EXT. SIDE YARDS	REAR YARD ONLY
PARKING SPACES OFFICE – 1 SPACE PER 30m2 (1 REQ.) WAREHOUSE – 1 SPACE PER 180m2 (4 REQ.) (regular spaces are 5.8m X 3m / B.F. space is 5.8m X 4.5m)	20	20 (INCLUDING 1 B/F)
BARRIER–FREE PARKING SPACES (1 REQUIRED)	1	1
ELECTRONIC VEHICLE CHARGING STATION PARKING SPACES	–	0
LOADING SPACE	0	1

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DO NOT SCALE DRAWINGS

Client:

Atlao Group Inc
200 Glendale Ave N
Hamilton, On, L8L7K3

REVISIONS

1	SEPT 26 2025	Issued for SPA	--
0	DEC 12 2024	Issued for SPA	--

Rev.: | Date: dd/mm/yyyy | Description: | By:

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STAMP:

This drawing is to be assumed preliminary and not to be used for construction unless the profession engineer's seal is applied.

LICENSED PROFESSIONAL ENGINEER
2025-09-29
N.S. BALAN
100503960
PROVINCE OF ONTARIO

BALAN ENGINEERING CORP.
49 North Street East, Tillsonburg, ON
email: info@balanengineering.com
Web: balanengineering.com
Office: 519.688.2525

Project Name:

PROPOSED MINI STORAGE
310 - 14th Street, Simcoe, Ontario

Owner:
Atlao Group Inc
200 Glendale Ave N
Hamilton, On, L8L7K3

Drawing:

Site Plan / Landscape Plan

Drawn By:	Job Number:
RM	22-0164
Approved By:	Sheet No.: / Revision No.:
N. BALAN	SP1 / 1
Date: October, 2024	Scale: As Noted

SURFACE TREATMENT SPECIFICATION:

ASPHALT SPECIFICATION (APRON ONLY):
ASPHALT SPECIFICATION FOR INTERNAL & EXTERNAL SITE WORKS INCLUDING RESTORATION OVER DISTURBED AREAS (MIN):
–50mm HL3 SURFACE ASPHALT, 50mm HL8 BASE ASPHALT /
–150mm GRAN 'A', 300mm GRAN 'B' (MIN COMPACTED GRAN. BASE)

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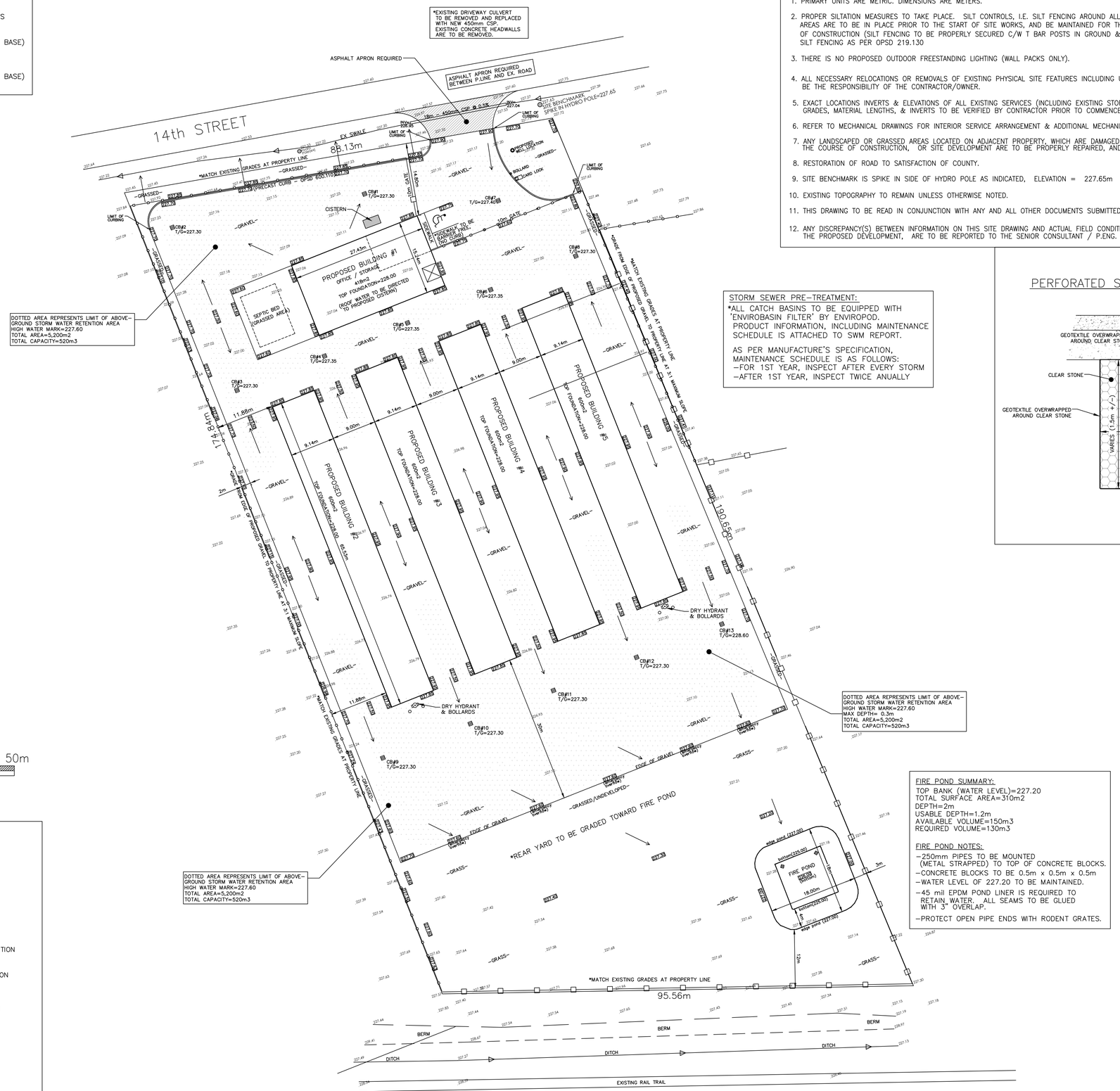

0m 50m
1:400 metric

LEGEND

- PROPERTY BOUNDARY
- STORM SEWER
- WATER SERVICE
- 227.70 swale — PROPOSED GRADE ELEVATION
- 227.08 — EXISTING GRADE ELEVATION
- CB — PROPOSED CATCH BASIN
- FIRE HYDRANT (DRY HYDRANT)

GENERAL NOTES

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2. PROPER SILTATION MEASURES TO TAKE PLACE. SILT CONTROLS, I.E. SILT FENCING AROUND ALL CONSTRUCTION AREAS ARE TO BE IN PLACE PRIOR TO THE START OF SITE WORKS, AND BE MAINTAINED FOR THE DURATION OF CONSTRUCTION (SILT FENCING TO BE PROPERLY SECURED C/W T BAR POSTS IN GROUND & C/W FILTER FABRIC) SILT FENCING AS PER OPSD 219.130
3. THERE IS NO PROPOSED OUTDOOR FREESTANDING LIGHTING (WALL PACKS ONLY).
4. ALL NECESSARY RELOCATIONS OR REMOVALS OF EXISTING PHYSICAL SITE FEATURES INCLUDING U/G SERVICES TO BE THE RESPONSIBILITY OF THE CONTRACTOR/OWNER.
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8. RESTORATION OF ROAD TO SATISFACTION OF COUNTY.
9. SITE BENCHMARK IS SPIKE IN SIDE OF HYDRO POLE AS INDICATED, ELEVATION = 227.65m
10. EXISTING TOPOGRAPHY TO REMAIN UNLESS OTHERWISE NOTED.
11. THIS DRAWING TO BE READ IN CONJUNCTION WITH ANY AND ALL OTHER DOCUMENTS SUBMITTED FOR MUNICIPAL APPROVAL(S).
12. ANY DISCREPANCY(S) BETWEEN INFORMATION ON THIS SITE DRAWING AND ACTUAL FIELD CONDITIONS, WHICH MAY IMPACT ON THE PROPOSED DEVELOPMENT, ARE TO BE REPORTED TO THE SENIOR CONSULTANT / P.ENG.

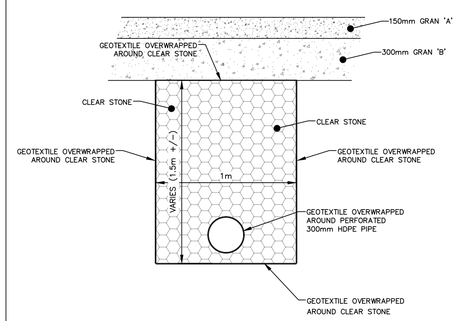
STORM SEWER PRE–TREATMENT:
*ALL CATCH BASINS TO BE EQUIPPED WITH 'ENVIROBASIN FILTER' BY ENVIROPOD. PRODUCT INFORMATION, INCLUDING MAINTENANCE SCHEDULE IS ATTACHED TO SWM REPORT.

AS PER MANUFACTURE'S SPECIFICATION, MAINTENANCE SCHEDULE IS AS FOLLOWS:
–FOR 1ST YEAR, INSPECT AFTER EVERY STORM
–AFTER 1ST YEAR, INSPECT TWICE ANUALLY

FIRE POND SUMMARY:
TOP BANK (WATER LEVEL)=227.20
TOTAL SURFACE AREA=310m2
DEPTH=2m
USABLE DEPTH=1.2m
AVAILABLE VOLUME=150m3
REQUIRED VOLUME=130m3

FIRE POND NOTES:
–250mm PIPES TO BE MOUNTED (METAL STRAPPED) TO TOP OF CONCRETE BLOCKS.
–CONCRETE BLOCKS TO BE 0.5m x 0.5m x 0.5m
–WATER LEVEL OF 227.20 TO BE MAINTAINED.
–45 mil EPDM POND LINER IS REQUIRED TO RETAIN WATER. ALL SEAMS TO BE GLUED WITH 3" OVERLAP.
–PROTECT OPEN PIPE ENDS WITH RODENT GRATES.

PERFORATED STORM PIPE DETAIL (DRYWELL)



DRYWELL INFORMATION

576m perforated storm pipe c/w sock in 1.9m deep, 1.2m wide gravel trench
total contact area of drywell=2,880m2
(sides + bottom = 5m2/m)

infiltration rate=60mm/hour (0.06m/hour)
Q=0.06m/hour X 2880m2
Q=172m3/hour
Q=0.048m3/sec

therefore drywell capacity is 0.048m3/sec

Above ground storage (dotted areas)
Total storage required (100 year storm)=284m3
Total storage proposed=568m3 (safety factor of 2)

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STAMP:
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LICENSED PROFESSIONAL ENGINEER
2025-09-29
N.S. BALAN
100503960
N. Balan
PROVINCE OF ONTARIO

BALAN ENGINEERING CORP.

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Office: 519.688.2525

Project Name:

PROPOSED MINI STORAGE
310 - 14th Street, Simcoe, Ontario

Owner:
Atlao Group Inc
200 Glendale Ave N
Hamilton, On, L8L7K3

Drawing:

Grading and Drainage Plan

Drawn By:	Job Number:
RM	22-0164
Approved By:	Sheet No.: / Revision No.:
N. BALAN	SP2 / 1
Date: October, 2024	Scale: As Noted

SURFACE TREATMENT SPECIFICATION:

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–150mm GRAN 'A', 300mm GRAN 'B' (MIN COMPACTED GRAN. BASE)

GRANULAR SPECIFICATION (MINIMUM):
GRANULAR SPECIFICATION FOR INTERNAL SITE WORKS:
–150mm GRAN 'A', 300mm GRAN 'B' (MIN COMPACTED GRAN. BASE)

SITE LIGHTING:

THERE IS NO PROPOSED FREESTANDING EXTERIOR LIGHTING.
(WALL PACKS ONLY – REFERENCE LOCATIONS ON THIS DRAWING).

REFER TO ELECTRICAL DRAWINGS FOR ALL LIGHTING, LIGHT FIXTURE TYPES, WIRING, UTILITY POLES ETC., LOCATIONS AND SPECIFICATIONS.

ALL FIXTURES TO BE DARK–SKY COMPLIANT: NO EXTERIOR LIGHTING ARRAY TO BE DIRECTED OFF PROPERTY TO ROAD ALLOWANCE OR ADJACENT PROPERTIES.

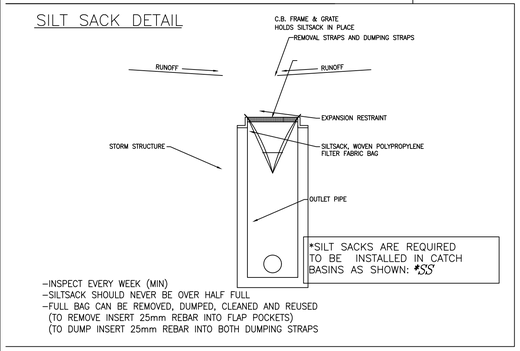
EXTERIOR LIGHTING TO BE IN ACCORDANCE WITH SECTION 3.16 OF THE NORFOLK COUNTY ZONING BYLAW.

FIRE POND

SUMMARY:
TOP BANK (WATER LEVEL)=227.20
TOTAL SURFACE AREA=310m2
DEPTH=2m
USABLE DEPTH=1.2m
AVAILABLE VOLUME=150m3
REQUIRED VOLUME=130m3

FIRE POND NOTES:
–250mm PIPES TO BE MOUNTED (METAL STRAPPED) TO TOP OF CONCRETE BLOCKS.
–CONCRETE BLOCKS TO BE 0.5m x 0.5m x 0.5m
–WATER LEVEL OF 227.20 TO BE MAINTAINED.
–45 mil EPDM POND LINER IS REQUIRED TO RETAIN WATER. ALL SEAMS TO BE GLUED WITH 3" OVERLAP.
–PROTECT OPEN PIPE ENDS WITH RODENT GRATES.

SILT SACK DETAIL

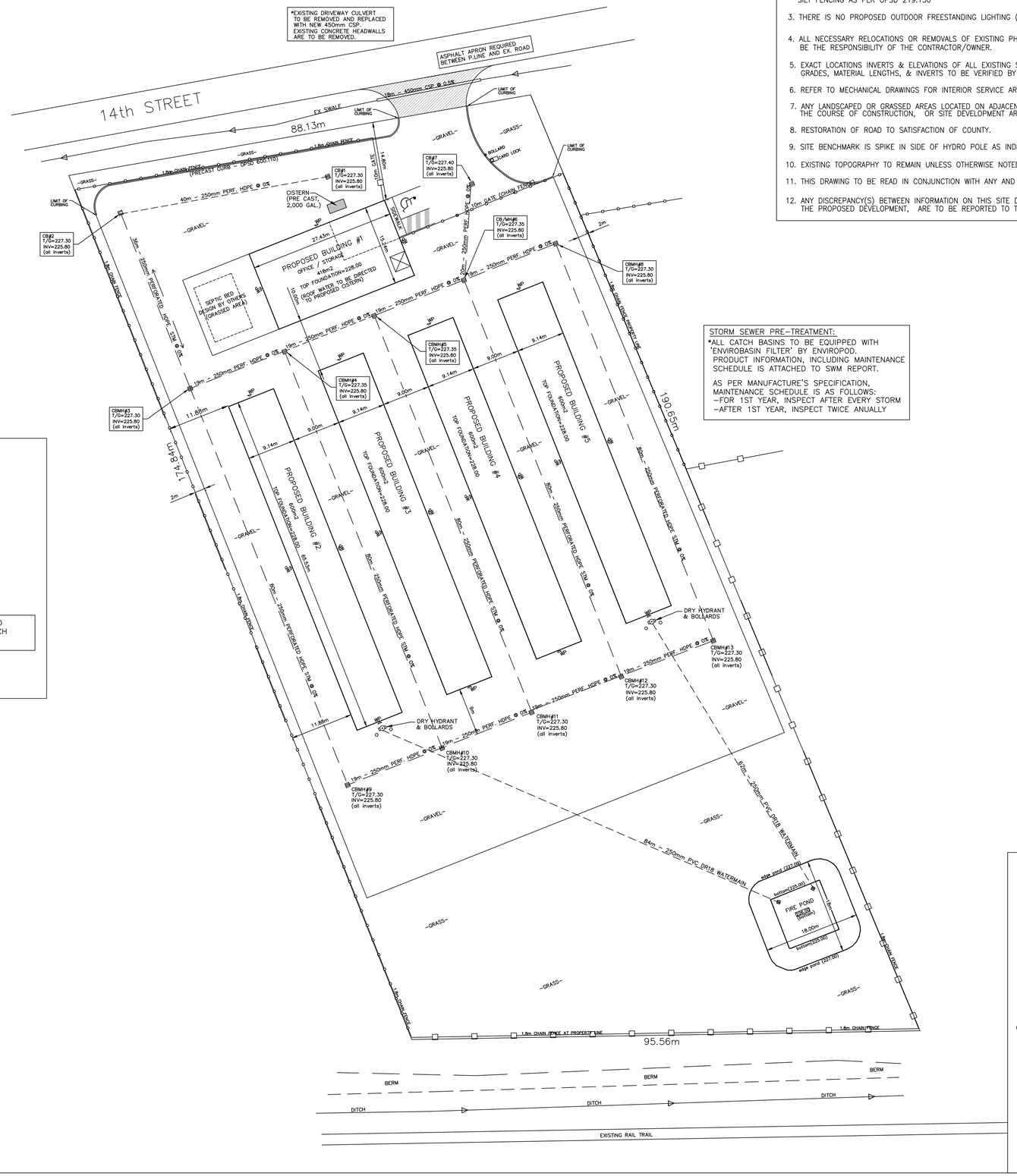


–INSPECT EVERY WEEK (MIN)
–SILTSACK SHOULD NEVER BE OVER HALF FULL
–FULL BAG CAN BE REMOVED, DUMPED, CLEANED AND REUSED (TO REMOVE INSERT 25mm REBAR INTO FLAP POCKETS). (TO DUMP INSERT 25mm REBAR INTO BOTH DUMPING STRAPS

0m 50m
1:400 metric

LEGEND

———	PROPERTY BOUNDARY
– – – – – –	STORM SEWER
~~	SILT FENCING
——— ———	WATER SERVICE
227.70 swale	PROPOSED GRADE ELEVATION
227.06	EXISTING GRADE ELEVATION
CB	PROPOSED CATCH BASIN
	FIRE HYDRANT (DRY HYDRANT)
WP	LOCATION OF WALL PACK LIGHT



GENERAL NOTES

1. PRIMARY UNITS ARE METRIC. DIMENSIONS ARE METERS.
2. PROPER SILTATION MEASURES TO TAKE PLACE. SILT CONTROLS, I.E. SILT FENCING AROUND ALL CONSTRUCTION AREAS ARE TO BE IN PLACE PRIOR TO THE START OF SITE WORKS, AND BE MAINTAINED FOR THE DURATION OF CONSTRUCTION (SILT FENCING TO BE PROPERLY SECURED C/W T BAR POSTS IN GROUND & C/W FILTER FABRIC) SILT FENCING AS PER OPSD 219.130
3. THERE IS NO PROPOSED OUTDOOR FREESTANDING LIGHTING (WALL PACKS ONLY).
4. ALL NECESSARY RELOCATIONS OR REMOVALS OF EXISTING PHYSICAL SITE FEATURES INCLUDING U/G SERVICES TO BE THE RESPONSIBILITY OF THE CONTRACTOR/OWNER.
5. EXACT LOCATIONS INVERTS & ELEVATIONS OF ALL EXISTING SERVICES (INCLUDING EXISTING STORM SEWER, SANITARY SEWER, WATER, GAS, BELL, ETC.), GRADES, MATERIAL LENGTHS, & INVERTS TO BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY SITEWORK, AND ORDERING OF MH STRUCTURES.
6. REFER TO MECHANICAL DRAWINGS FOR INTERIOR SERVICE ARRANGEMENT & ADDITIONAL MECHANICAL INFORMATION.
7. ANY LANDSCAPED OR GRASSED AREAS LOCATED ON ADJACENT PROPERTY, WHICH ARE DAMAGED OR IMPACTED DURING THE COURSE OF CONSTRUCTION, OR SITE DEVELOPMENT ARE TO BE PROPERLY REPAIRED, AND RE–SODDED.
8. RESTORATION OF ROAD TO SATISFACTION OF COUNTY.
9. SITE BENCHMARK IS SPIKE IN SIDE OF HYDRO POLE AS INDICATED, ELEVATION = 227.65m
10. EXISTING TOPOGRAPHY TO REMAIN UNLESS OTHERWISE NOTED.
11. THIS DRAWING TO BE READ IN CONJUNCTION WITH ANY AND ALL OTHER DOCUMENTS SUBMITTED FOR MUNICIPAL APPROVAL(S).
12. ANY DISCREPANCY(S) BETWEEN INFORMATION ON THIS SITE DRAWING AND ACTUAL FIELD CONDITIONS, WHICH MAY IMPACT ON THE PROPOSED DEVELOPMENT, ARE TO BE REPORTED TO THE SENIOR CONSULTANT / P.ENG.

STORM SEWER PRE–TREATMENT:
*ALL CATCH BASINS TO BE EQUIPPED WITH 'ENVIROBASIN FILTER' BY ENVIROPOD. PRODUCT INFORMATION, INCLUDING MAINTENANCE SCHEDULE IS ATTACHED TO SWM REPORT.

AS PER MANUFACTURE'S SPECIFICATION, MAINTENANCE SCHEDULE IS AS FOLLOWS:
–FOR 1ST YEAR, INSPECT AFTER EVERY STORM
–AFTER 1ST YEAR, INSPECT TWICE ANUALLY

SERVICING SPECIFICATIONS

ITEM	REFER TO DETAIL
STORM SEWER	250mm PERFORATED HDPE STM
WATER SERVICE	FROM CISTERN
WATERMAIN (FIRE POND TO HYD)	250mm PVC DR18
SEPTIC BED	DESIGN BY OTHERS (TOTAL FIXTURE COUNT IS 1 TOILET, 2 SINKS)
CBMH	–ALL CBMH'S TO BE EQUIPPED WITH 'ENVIROBASIN FILTER' BY ENVIROPOD. PRODUCT INFORMATION IS ATTACHED TO SWM REPORT.
BUILDING / SITE HYDRO ELECTRICAL / COMMUNICATIONS	REFER TO ELECTRICAL DRAWINGS FOR BUILDING/ SITE HYDRO ELECTRICAL AND COMMUNICATIONS (BELL/ROGERS ETC.) CONDUIT SERVICES, LOCATIONS, EQUIPMENT, FIXTURE TYPES AND SPECIFICATIONS.
BUILDING / SITE NATURAL GAS LINES, FIXTURES AND EQUIPMENT	REFER TO MECHANICAL DRAWINGS FOR NATURAL GAS SERVICES, LOCATIONS, EQUIPMENT, FIXTURE TYPES AND SPECIFICATIONS.
ROOF RAIN WATER LEADERS	ROOF RAIN WATER LEADERS TO BE DIRECTED TO GRADE VIA CONCRETE SPLASH PADS
GARBAGE STORAGE	INTERNAL
CISTERN	2000 GAL PRECAST CISTERN, REINFORCED LID FOR TRAFFIC LOADING, BY WILKINSON HEAVY PRECAST OR EQUIV.

DRYWELL INFORMATION

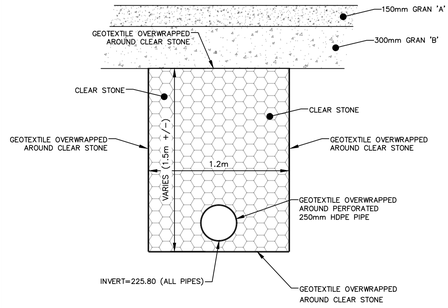
576m perforated storm pipe c/w sock in 1.9m deep, 1.2m wide gravel trench
total contact area of drywell=2,880m2
(sides + bottom = 5m2/m)

infiltration rate=60mm/hour (0.06m/hour)
Q=0.06m/hour X 2880m2
Q=172m3/hour
Q=0.048m3/sec

therefore drywell capacity is 0.048m3/sec

Above ground storage (dotted areas)
Total storage required (100 year storm)=284m3
Total storage proposed=568m3 (safety factor of 2)

PERFORATED STORM PIPE DETAIL (DRYWELL)



General Note:
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DO NOT SCALE DRAWINGS

Client:

Atlao Group Inc
200 Glendale Ave N
Hamilton, On, L8L7K3

REVISIONS

Rev.:	Date: dd/mm/yyyy	Description:	By:
1	SEPT 24 2025	Issued for SPA	--
0	DEC 12 2024	Issued for SPA	--

THESE DRAWINGS, DETAILS AND SPECIFICATIONS SHALL NOT BE USED FOR CONSTRUCTION UNTIL THEY HAVE BEEN SIGNED AND SEALED BY THE ENGINEER AND A BUILDING PERMIT HAS BEEN ISSUED.

STAMP:
This drawing is to be assumed preliminary and not to be used for construction unless the profession engineer's seal is applied.

LICENCE / AUTHORIZATION NUMBER
2025-09-29
N.S. BALAN
100503960
PROVINCE OF ONTARIO

BALAN ENGINEERING CORP.
49 North Street East, Tillsonburg, ON
email: info@balanengineering.com
Web: balanengineering.com
Office: 519.688.2525

Project Name:

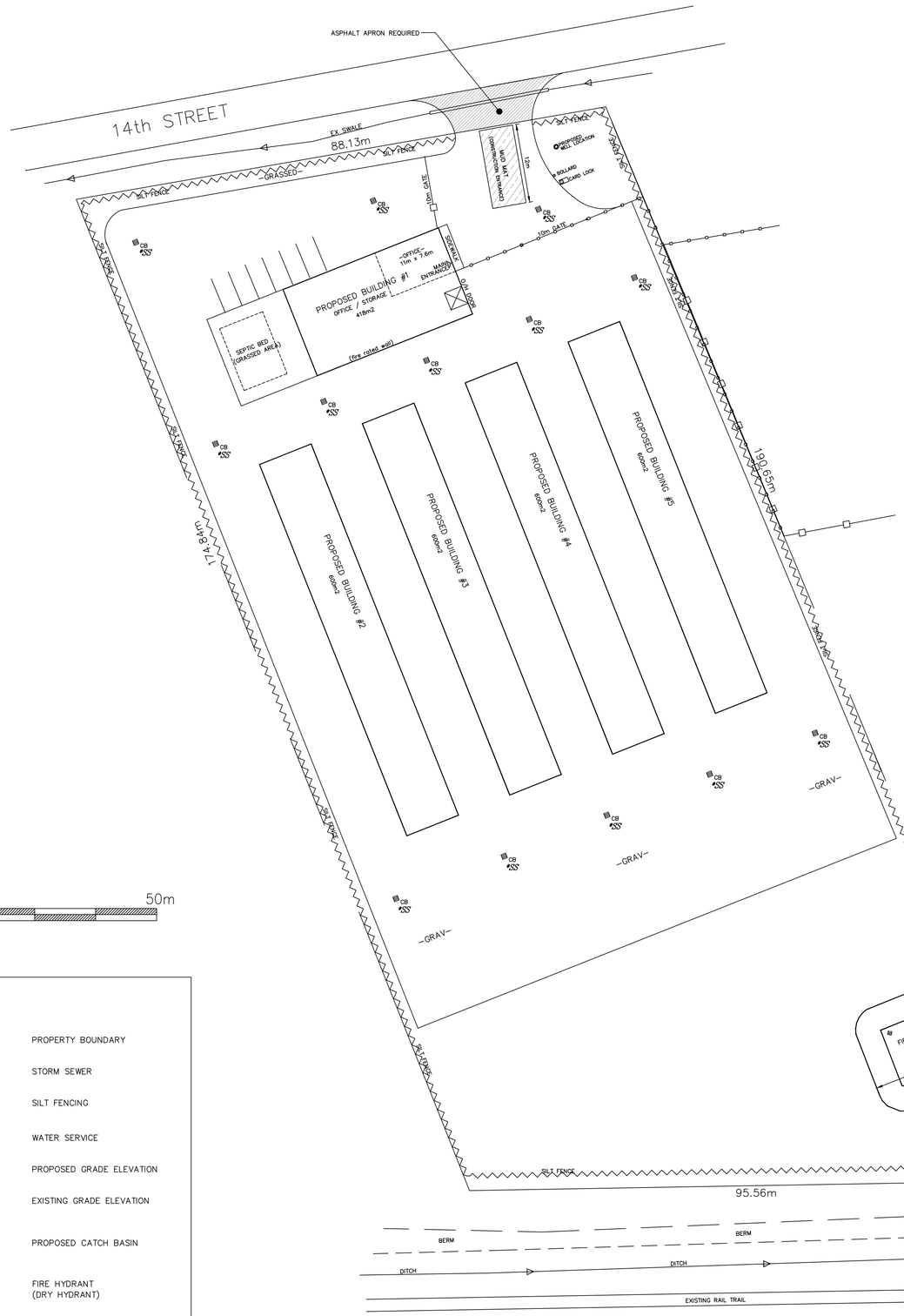
PROPOSED MINI STORAGE
310 - 14th Street, Simcoe, Ontario

Owner:
Atlao Group Inc
200 Glendale Ave N
Hamilton, On, L8L7K3

Drawing:

Site Servicing Plan

Drawn By:	Job Number:
RM	22-0164
Approved By:	Sheet No.: / Revision No.:
N. BALAN	SP3 / 1
Date: October, 2024	Scale: As Noted



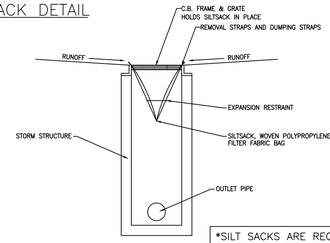
0m 50m

1:400 metric

LEGEND

- PROPERTY BOUNDARY
- STORM SEWER
- SILT FENCING
- WATER SERVICE
- 227.70 swale — PROPOSED GRADE ELEVATION
- 227.08 — EXISTING GRADE ELEVATION
- CB — PROPOSED CATCH BASIN
- FIRE HYDRANT (DRY HYDRANT)

SILT SACK DETAIL



*SILT SACKS ARE REQUIRED TO BE INSTALLED IN CATCH BASINS AS SHOWN: *SS

-INSPECT EVERY WEEK (MIN)
-SILTSACK SHOULD NEVER BE OVER HALF FULL
-FULL BAG CAN BE REMOVED, DUMPED, CLEANED AND REUSED
(TO REMOVE INSERT 25mm REBAR INTO FLAP POCKETS)
(TO DUMP INSERT 25mm REBAR INTO BOTH DUMPING STRAPS

CONSTRUCTION ENTRANCE/ MUD MAT NOTES:

1. STONE SIZE – USE CLEAN STONE WITH GRADATION BETWEEN 50mm AND 400mm.
2. LENGTH – 12m (MIN)
3. THICKNESS – 450mm OF 75mm CRUSHED STONE
4. WIDTH – 5m (MIN)
5. GEOTEXTILE UNDER STONE WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE AS DIRECTED BY THE ENGINEER. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. PROPOSED DRAINAGE PIPES SHALL BE SIZED WITH SUFFICIENT CAPACITY TO CARRY DITCH FLOWS. ALTERNATIVE WAYS OF TRANSPORTING DITCH DRAINAGE ACROSS CONSTRUCTION ENTRANCES MAY BE PROPOSED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER.
8. WHEN WASHING OF VEHICLE IS NECESSARY, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.

ROADWAY RESTORATION NOTES:

1. CONTRACTOR TO OBTAIN ALL NECESSARY ROAD CUT PERMITS PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO MAINTAIN A MINIMUM OF ONE LANE OF TRAFFIC AT ALL TIMES. IF TEMPORARY ROAD CLOSURES ARE NECESSARY, THEN CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH HALDIMAND COUNTY.
3. CONTRACTOR SHALL LOCATE AND PROTECT ALL UTILITIES.
4. ALL CUTS TO EXISTING ASPHALT AND CONCRETE SHALL BE CLEAN SAW CUTS ONLY.
5. BACKFILL FOR ALL SERVICE TRENCHES FROM EDGE OF ASPHALT TO BACK OF SIDEWALK SHALL BE GRANULAR 'B'
6. BACKFILL FOR ALL SERVICE TRENCHES FROM BACK OF SIDEWALK TO STREET LINE SHALL BE SELECT NATIVE MATERIAL.
7. ALL BEDDING AND BACKFILL SHALL BE COMPACTED TO MIN. 98% SPMDD

SILT FENCE NOTES:

1. SILT FENCE SHALL GENERALLY BE PLACED A MINIMUM OF 1.5m BEYOND TOE OF SLOPE, 3m PREFERRED, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF SEDIMENT CONTAINMENT AREA.

2. ALL ENDS SHALL BE "J" HOOKED TO TRAP SEDIMENT.

3. IN AREAS WITH TWO SLOPES, SILT FENCE SHALL BE USED TO ERECT A DAM AND TRAP SEDIMENT AT THE BASE OF THE STEEPER SLOPE.

4. THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 150mm BELOW GROUND, AND KEYED IN 100mm. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSTREAM SIDE OF THE FABRIC. MAXIMUM DRAINAGE AREA TRIBUTARY TO 30m OF SILT FENCE SHALL BE 0.1 ha.

5. SILT FENCE SHALL BE REMOVED WHEN THE AREA HAS BEEN STABILIZED.

6. AT TIME OF REMOVAL OF THE SILT FENCE, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.

7. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.

8. MEASURES SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE–HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.

9. SILT FENCE SHALL BE INSTALLED ON A LINE OF EQUAL ELEVATION (CONTOUR). IT MAY BE INSTALLED AT INTERMEDIATE POINTS UP SLOPES AS WELL AS AT THE BOTTOM, AS SHOWN IN THE DETAIL.

10. SILT FENCE SHALL NOT BE USED ACROSS CONCENTRATED FLOW.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICE WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND DIRECTION OF THE COUNTY.

2. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

3. SILT FENCE AS PER OPSD 219.130

4. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE CITY.

5. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

6. ALL EROSION CONTROL DEVICES ARE TO BE INSPECTED AND MAINTAINED WEEKLY AND AFTER EACH RAINFALL.

7. ALL AREAS OF WORK WHICH WILL REMAIN DISTURBED FOR A PERIOD OF THIRTY DAYS OR MORE MUST BE STABILIZED TO THE SATISFACTION OF THE COUNTY.

8. ALL MATERIAL STOCKPILES ARE TO BE LOCATED WITHIN THE BOUNDARY OF THE INDICATED SILT FENCE. ADDITIONAL SILT FENCE IS TO BE ERECTED AROUND ANY PROPOSED STOCKPILES.

9. CATCH BASINS TO HAVE SILT TRAPS INSTALLED FOR THE DURATION OF CONSTRUCTION. REFERENCE SILT SACK DETAIL ON THIS PAGE.

General Note:

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DRAWINGS, DETAILS AND SPECIFICATIONS, INCLUDING WITH ARCHITECTURAL DRAWINGS, AND MUST REPORT ANY DISCREPANCIES TO THE ARCHITECT AND ENGINEER BEFORE PROCEEDING WITH THE WORK.

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DO NOT SCALE DRAWINGS

Client:

Atlao Group Inc
200 Glendale Ave N
Hamilton, On, L8L7K3

REVISIONS

Rev.	Date: dd/mm/yyyy	Description:	By:
1	SEPT 26 2025	Issued for SPA	--
0	DEC 12 2024	Issued for SPA	--

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LICENSED PROFESSIONAL ENGINEER
2025-09-29
N.S. BALAN
100503960
PROVINCE OF ONTARIO

BALAN ENGINEERING CORP.
49 North Street East, Tillsonburg, ON
email: info@balanengineering.com
Web: balanengineering.com
Office: 519.688.2525

Project Name:

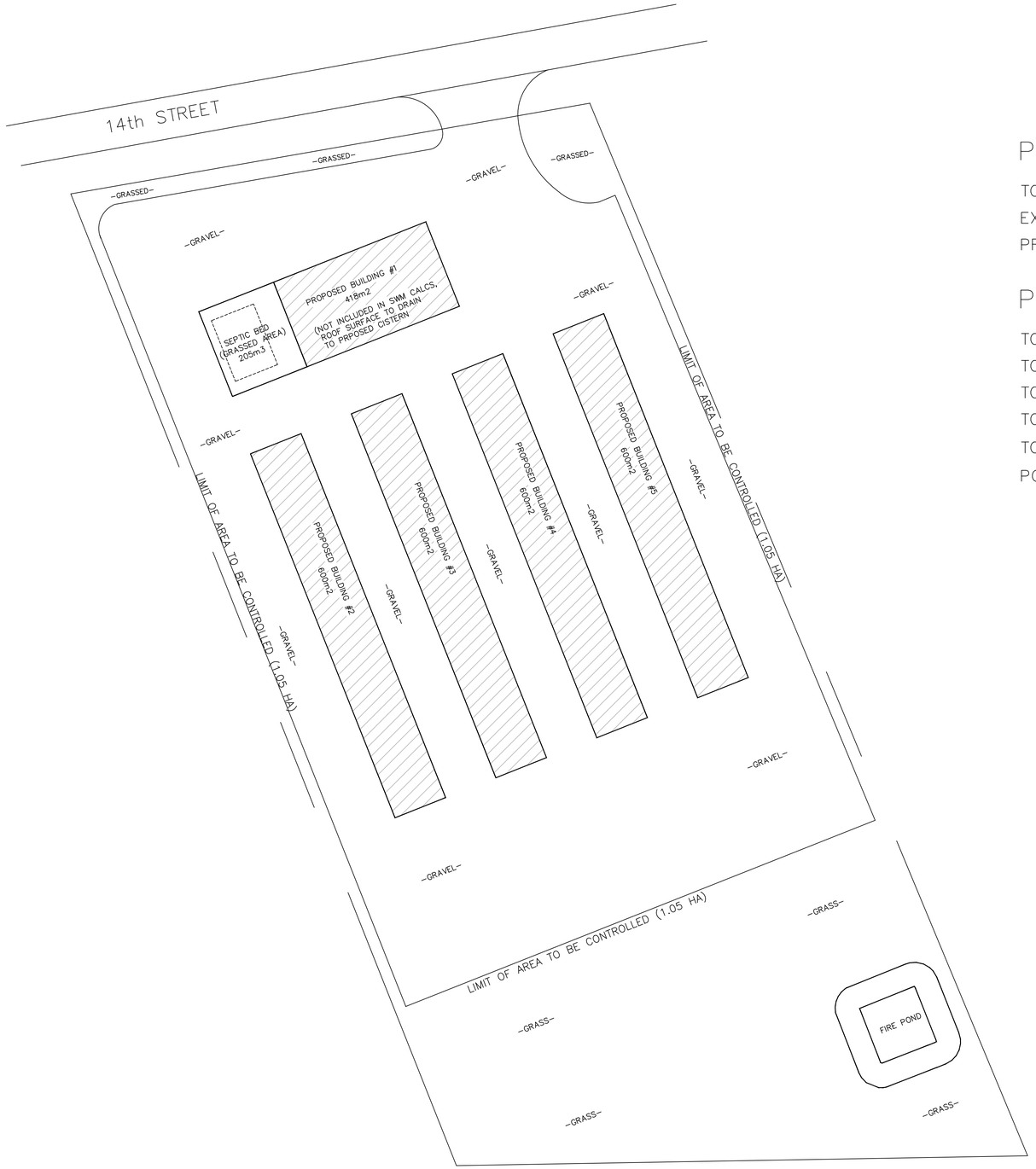
PROPOSED MINI STORAGE
310 - 14th Street, Simcoe, Ontario

Owner:
Atlao Group Inc
200 Glendale Ave N
Hamilton, On, L8L7K3

Drawing:

Erosion Control Plan

Drawn By:		Job Number:	
RM		22-0164	
Approved By:		Sheet No.:	Revision No.:
N. BALAN		SP4	1
Date:	Scale:		
October, 2024	As Noted		



PRE DEVELOPMENT:

TOTAL LOT AREA = 1.6ha
EXISTING SURFACE TREATMENT IS GRASSED / UNDEVELOPED
PRE DEVELOPMENT IMPERVIOUSNESS COEFFICIENT = 0.3

PRE DEVELOPMENT:

TOTAL LOT AREA = 1.6ha
TOTAL AREA TO BE CONTROLLED = 1.05ha
TOTAL PROPOSED GRANULAR SURFACE 0.79 (@ 0.6) = 0.48
TOTAL PROPOSED ROOF SURFACE 0.24ha (@ 0.9) = 0.21
TOTAL PROPOSED GRASSED AREA 0.02ha (@ 0.3) = .0061
POST DEVELOPMENT IMPERVIOUSNESS COEFFICIENT = 0.65

Client:

Atlao Group Inc
200 Glendale Ave N
Hamilton, On, L8L7K3

REVISIONS

Rev.:	Date: dd/mm/yyyy	Description:	By:
0	SEPT 26 2025	Issued for SPA	--

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LICENSED PROFESSIONAL ENGINEER
2025-09-29
N.S. BALAN
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PROVINCE OF ONTARIO

BALAN ENGINEERING CORP.
49 North Street East, Tillsonburg, ON
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Project Name:

PROPOSED MINI STORAGE
310 - 14th Street, Simcoe, Ontario

Owner:
Atlao Group Inc
200 Glendale Ave N
Hamilton, On, L8L7K3

Drawing:

Drainage Area Plan

Drawn By:		Job Number:	
RM		22-0164	
Approved By:		Sheet No.:	Revision No.:
N. BALAN		SP5	0
Date:	Scale:		
October, 2024	As Noted		

Report on
On Site Fire Fighting Water Supply Requirement
310 Fourteenth Street, Simcoe, Ontario

1.0 Introduction

.1 A Self Service storage complex is proposed at the subject address. This report discusses fire water design and hydrant count.

2.0 OBC Requirements for Fire Fighting

.1 OBC requirements for water supplies for self service storage buildings Under part 3, Section 10 include the following:

a. A Fire route which has been provided and which requires fire hydrants along its length. Hydrant coverage so that distance from hydrant to fire truck is not more than 45m and from fire truck to each opening in each building is not more than 45m. As the buildings are 67m long this will require two fire hydrant at west end of the complex and one at the east end of the complex for a total of 3. This could be reduced to 2 fire hydrants if an additional fire route is added by extending 7.6m driveway between office building and remaining 4 buildings to 9m wide.

b. Total of building's 1, 2, 3, 4 & 5 volume V is:

27.5m x 15.3m x 3.35mH + 4 x 65.6m x 91.5m x 2.59mH
= 1410 m^3 + 4 x 1555 m^3
= 7630 cubic meters.

From OBC 3.2.5.7. for a F2 category occupancy the building Water Supply Coefficient is K = 17.
Spatial Separation Coefficient is S = 1.0 (no exposed sides)

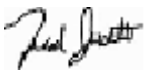
Require water storage per OBC 3.2.5.7. is:

Q = KVS
Therefore
Stored water supply volume required is:

Q = 17 x 7630 x 1 = 129710 litres

Piping to be designed for a minimum flow of 3600 l/m. Size of piping will depend upon longest length of pipe route as suction limitation of 20 ft Total (static plus dynamic) applies to piping design.

Report Prepared by



Fred Jewett P. Eng.

Fred Jewett
7635 Aughrim Line, RR#2
Bothwell, Ontario N0P 1C0

Phone (905) 973-9590

fredjewettengineering@gmail.com

Report on
Wellhead Source Protection Plan
310 Fourteenth Street West, Simcoe, Ontario

1.0 Introduction

.1 A Self Service storage complex is proposed at the subject address. This report discusses well head source protection of municipal water supplies.

2.0 Property Location Relative to Municipal Water Supplies

.1 This property is located outside of the Wellhead protection zone as shown on attached map Fig 1. The property is at the red pinned location. Most of the property is however within Area D of the wellhead source area zones. See also Table 2 which indicates the zones of source protection. It is prudent to observe standard good practices to avoid use of substances and practices that may introduce contamination into the wells.

.2 Ministry of Environment, Conservation and Parks has established practices to avoid when developing properties near municipal wells.

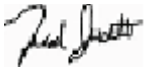
3.0 Good Practices in Areas Adjacent to Municipal Wells

.1 The following practices should be restricted or curtailed.

Application of agricultural source material (WHPA-A)
Storage of agricultural source material (WHPA-A & B, v-score 10)
Handling and storage of commercial fertilizer (>2,500 L)
Handling and storage of pesticides greater than 2,500 kilograms
Handling, and storage of road salt
Storage of snow (storage area >1 ha)
Handling and storage of fuel
Handling and storage of Dense Non-Aqueous Phase Liquids (DNAPLs)
Handling and storage of organic solvents

.2 It should be a policy to restrict storage unit contents to not include flammable or combustible liquids and toxic liquid or solid chemicals.

Report Prepared by



Fred Jewett P. Eng.
September 22, 2025

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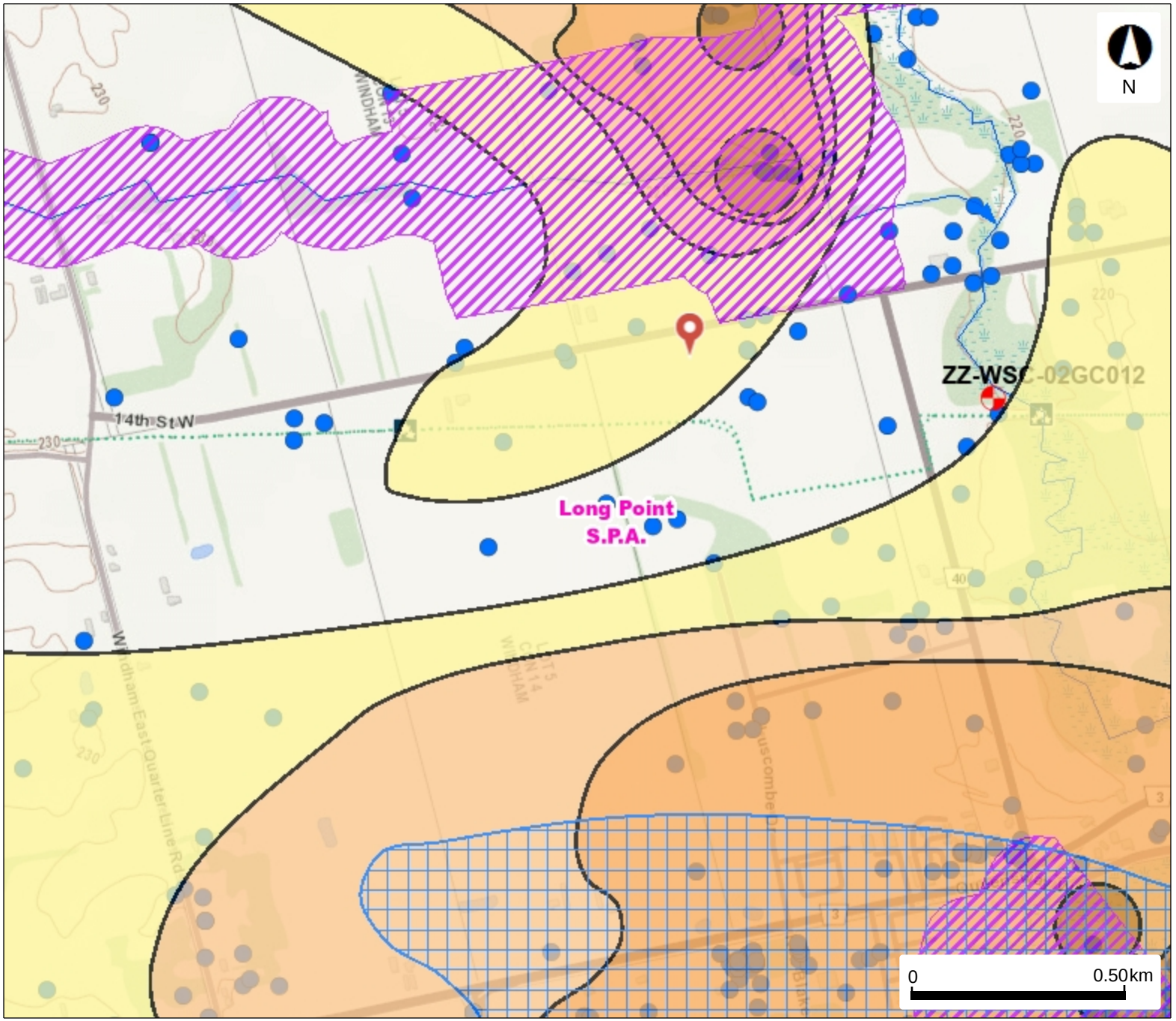
-Map Title-



Legend

- Issue Contributing Areas
- WHPA-E
- Wellhead Protection Area
  - A
  - B
  - C
  - C1
  - D
  - F
- Intake Protection Zone 1
- Event Based Areas
- Intake Protection Zone 2
- Hydrometric Monitoring Statior
- Watercourse Direction
- Source Protection Areas
- Wells

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Environment, Conservation and Parks (MECP) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Ontario

Map Created: 9/22/2025
Map Center: 42.84904 N, -80.3397 W

Wellhead Protection Area Zones

Zone	Time of Travel (ToT)	Vulnerability
WHPA-A	A 100-meter radius around the wellhead.	Highest vulnerability, with a score of 10. Land-based activities here pose the highest risk.
WHPA-B	Up to two years.	High vulnerability, with scores ranging from 6 to 10.
WHPA-C	Between two and five years.	Moderate vulnerability. Scores range from 4 to 8.
WHPA-C1	Up to 10 years (for specific circumstances).	Moderate vulnerability. Policies may address Dense Non-Aqueous Phase Liquids (DNAPLs).
WHPA-D	Between five and 25 years.	Lower vulnerability. Scores range from 2 to 6.

BALAN
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STORM WATER MANAGEMENT REPORT

PROPOSED

Mini Storage Facility

#310 - 14th Street, Simcoe, Norfolk County, Ontario

REVISION 1 - Sept 25 2025

GENERAL

This report is to be read in conjunction with Site Plan & Grading Plan (Drawings SP1, SP2), prepared by Balan Engineering.

The modified rational method has been used to determine pre development and post development flow rates. Calculations and Data are contained at the back of this report.

The following documents have been referenced and reviewed in the preparation of this report:

-Geotechnical Report, prepared by Atlao Group Inc.

- Ministry of the Environment Stormwater Management Planning and Design Manual 2003

-MTO Drainage Management Manual

-Norfolk County Design Criteria

SITE INFORMATION & DESCRIPTION OF DEVELOPMENT

The subject property is located at #310, 14th Street in Simcoe Ontario.

The subject property is currently un-developed.

The proposal is to construct 2,818m2 building area and an associated gravel parking and vehicle access area.

Quantity control will be provided. Storm water runoff will be directed to a retention area and discharge to the on-site drywell system. The drywell has been sized to accommodate 0.043m3/second.

It should be noted that the property and road allowance are fairly flat from east to west. As such, the existing roadside ditch is not suitable to accommodate the uncontrolled runoff from the subject property, therefore an on-site drywell system is proposed to accommodate runoff up to the 100 year storm.

The emergency overland flow routes are toward the street at the north, and toward the fire pond at the south side of the property.

DESIGN CRITERIA

Quantity controls will be provided on site.

A drywell system consisting of a network of 250mm perforated pipes will be provided to accommodate runoff.

The drywell has been sized to discharge 0.048m3/second through infiltration.

Drywell design is based on Geotechnical Report, prepared by Atlao Group Inc.

On Site storage has been provided to accommodate excess runoff (100 year-storm event).

The total required retention (100 year storm) is 284m2.

The total provided retention volume is 572m3, to provide a safety factor of 2x.

DATA SUMMARY

Total Lot Area = 1.6ha

Area to be Controlled = 1.06ha

Tc = 10min.

Discharge Rate from drywell=0.048m3/sec

Pre Development C = 0.30

Post Development C = 0.65

Max storage required = 284m3 (100 year storm)

Storage provided = 572m3 (total above ground + below ground storage)

***Reference appendix #1 for SWM calculations.**

DATA AND CALCULATIONS

TOTAL SITE AREA: 1.6ha

AREA TO BE CONTROLLED: 1.06ha

***Reference appendix #1 for SWM calculations.**

IMPERVIOUSNESS COEFFICIENTS

***Reference drainage area plan, drawing #SP6**

Predevelopment C: 0.30 (undeveloped / grass)

Post Development C: 0.65 (gravel & roof surface)

RETENTION INFORMATION

Required retention = 284m3

High water mark = 227.60m (reference dwg. SP3)

Max Depth =0.30m

Total area of retention= 5,200m2

Total proposed above ground storage= 520m3 (+/-)

Total storage in pipes (576m of 250mm dia pipe) = 28m3

Total storage in Catch Basins = 24m3

Total proposed below ground storage= 52m3 (+/-)

Total storage provided = 572m3

**retention area is listed on drawing SP3, and is indicated by hatching (dotted areas)*

DRYWELL DESIGN CALCULATION:

Drywell network consists of 576m of perforated HDPE storm pipe in a granular trench / c/w filter cloth on all sides and bottom.

Total Depth of sidewalls = 1.9m

Total width of trench= 1.2m

Total contact area of drywell is 2,880m2 (sides + bottom = 5m2/m)

Infiltration Rate of native soil = 60mm/hr (reference Geotech Report)

Q=0.06m/hour x 2,880m2
Q=172m3/hour
Q=0.048m3/sec

Therefore the discharge rate from the proposed drywell system is 0.048m3/sec.

QUALITY CONTROL

Though the subject property is not located in the well head protection area, pre-treatment has been provided. Catch Basins are to be equipped with Enviropod Filters. Detailed information is attached as appendix 'B' to this report.

QUANTITY CONTROL SUMMARY

POST DEVELOPMENT DISCHARGE RATE = 0.048m3/sec

REQUIRED STORAGE VOLUME= 284m3

REQUIRED STORGAE VOLUME x SAFTEY FACTOR OF 2 = 568m3

PROPOSED STORAGE VOLUME=572m3

CONCLUSION

The SWM controls provided in this report and on the design drawings will sufficiently meet the design objectives of this report, as well as the standards of Norfolk County. No impact to the road allowance, or adjacent property is anticipated.

Modified Rational Method -Mini Storage Facility, 14th Street, Simcoe - REVISION 1, SEPT 25 2025

Q= 0.00278CIA

Area (ha)	Time of Concentration (min)	Time Increments (min)	Pre Development Runoff Coefficient	Post Development Runoff Coefficient
1.06	10	5	0.3	0.65

SWM Pond Design Input - inflow / outflow from drywell

Storm (yrs)				Allowable Outflow	Post Development Runoff Coefficient
	A	B	C	(m3/s)	
2	529.711	4.501	0.745	0.048	0.65
5	583.017	3.007	0.703	0.048	0.65
10	670.324	3.007	0.698	0.048	0.65
25	721.533	2.253	0.679	0.048	0.65
50	766.038	1.898	0.668	0.048	0.65
100	801.041	1.501	0.657	0.048	0.65

Results

Storm	Storage	Time
	m^3	min
2	0.00	0
5	0.00	0
10	0.00	0
25	0.00	0
50	0.00	0
100	284.00	110

Pre-Development Runoff Rate(10 MIN)

	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
C	0.3	0.3	0.3	0.3	0.3	0.3
I	72	96	112	132	147	161
A	1.06	1.06	1.06	1.06	1.06	1.06
Q	0.064	0.085	0.099	0.117	0.130	0.142

Rainfall Station: Norofik

Only Enter Values in Blue Boxes

Calculate Storage Volume

APPENDIX A

Time (min)	2 Year Intensity mm/hr	2 Year Inflow m^3/s	2 Year Outflow m^3/s	2 Year Storage m^3	Difference	5 Year Intensity mm/hr	5 Year Inflow m^3/s	5 Year Outflow m^3/s	5 Year Storage m^3	Difference	10 Year Intensity mm/hr	10 Year Inflow m^3/s	10 Year Outflow m^3/s	10 Year Storage m^3	Difference	25 Year Intensity mm/hr	25 Year Inflow m^3/s	25 Year Outflow m^3/s	25 Year Storage m^3	Difference	50 Year Intensity mm/hr	50 Year Inflow m^3/s	50 Year Outflow m^3/s	50 Year Storage m^3	Difference	100 Year Intensity mm/hr	100 Year Inflow m^3/s	100 Year Outflow m^3/s	100 Year Storage m^3	Difference
5	98.99	0.190	0.048	35.28	18.94	135.06	0.258	0.048	55.95	25.53	156.91	0.300	0.048	68.50	31.13	187.92	0.360	0.0480	86.30	36.05	210.85	0.404	0.048	99.47	39.96	234.17	0.448	0.048	112.851	43.20
10	72.24	0.138	0.048	54.23	9.65	96.03	0.184	0.048	81.48	14.13	111.84	0.214	0.048	99.63	17.89	131.63	0.252	0.0480	122.35	21.37	146.50	0.280	0.048	139.43	24.20	160.97	0.308	0.048	156.050	26.68
15	57.94	0.111	0.048	63.87	5.27	76.40	0.146	0.048	95.60	8.90	89.12	0.171	0.048	117.51	11.79	104.33	0.200	0.0480	143.72	14.68	115.89	0.222	0.048	163.63	17.03	126.98	0.243	0.048	182.731	19.16
20	48.88	0.094	0.048	69.14	2.74	64.31	0.123	0.048	104.50	5.89	75.11	0.144	0.048	129.31	8.27	87.78	0.168	0.0480	158.39	10.80	97.47	0.187	0.048	180.65	12.85	106.72	0.204	0.048	201.891	14.75
25	42.56	0.082	0.048	71.88	1.10	56.01	0.107	0.048	110.39	3.92	65.48	0.125	0.048	137.58	5.96	76.49	0.146	0.0480	169.19	8.24	84.96	0.163	0.048	193.50	10.07	93.02	0.178	0.048	216.642	11.81
30	37.88	0.073	0.048	72.98	-0.05	49.90	0.096	0.048	114.31	2.52	58.38	0.112	0.048	143.53	4.32	68.22	0.131	0.0480	177.43	6.41	75.81	0.145	0.048	203.57	8.09	83.03	0.159	0.048	228.452	9.69
35	34.24	0.066	0.048	72.94	-0.90	45.19	0.086	0.048	116.82	1.47	52.91	0.101	0.048	147.86	3.09	61.86	0.118	0.0480	183.84	5.03	68.78	0.132	0.048	211.66	6.58	75.37	0.144	0.048	238.140	8.07
40	31.33	0.060	0.048	72.04	-1.55	41.43	0.079	0.048	118.30	0.66	48.54	0.093	0.048	150.95	2.13	56.79	0.109	0.0480	188.87	3.95	63.19	0.121	0.048	218.24	5.39	69.28	0.133	0.048	246.213	6.80
45	28.94	0.055	0.048	70.49	-2.07	38.35	0.073	0.048	118.95	0.00	44.95	0.086	0.048	153.08	1.36	52.64	0.101	0.0480	192.82	3.07	58.60	0.112	0.048	223.63	4.43	64.29	0.123	0.048	253.010	5.76
50	26.94	0.052	0.048	68.41	-2.50	35.77	0.068	0.048	118.96	-0.53	41.95	0.080	0.048	154.45	0.73	49.17	0.094	0.0480	195.89	2.35	54.77	0.105	0.048	228.06	3.63	60.12	0.115	0.048	258.767	4.89
55	25.24	0.048	0.048	65.91	-65.91	33.57	0.064	0.048	118.42	-0.99	39.39	0.075	0.048	155.17	0.20	46.21	0.088	0.0480	198.24	1.74	51.50	0.099	0.048	231.69	2.96	56.5658	0.108251	0.048	263.6601087	4.16
60	23.76	0.046	0.000	0.00	0.00	31.67	0.061	0.048	117.44	-1.37	37.18	0.071	0.048	155.37	-0.26	43.65	0.084	0.0480	199.97	1.21	48.69	0.093	0.048	234.65	2.38	53.50	0.102	0.048	267.820	3.53
65	22.48	0.043	0.000	0.00	0.00	30.02	0.057	0.048	116.07	-1.70	35.25	0.067	0.048	155.11	-0.65	41.42	0.079	0.0480	201.19	0.76	46.22	0.088	0.048	237.03	1.87	50.82	0.097	0.048	271.348	2.98
70	21.34	0.041	0.000	0.00	0.00	28.56	0.055	0.048	114.36	-1.99	33.55	0.064	0.048	154.46	-0.99	39.45	0.076	0.0480	201.95	0.36	44.05	0.084	0.048	238.90	1.43	48.46	0.093	0.048	274.327	2.50
75	20.34	0.039	0.000	0.00	0.00	27.26	0.052	0.048	112.37	-2.25	32.03	0.061	0.048	153.47	-1.30	37.70	0.072	0.0480	202.31	0.01	42.12	0.081	0.048	240.33	1.04	46.35	0.089	0.048	276.822	2.07
80	19.43	0.037	0.000	0.00	0.00	26.09	0.050	0.048	110.12	-110.12	30.67	0.059	0.048	152.17	-1.57	36.13	0.069	0.0480	202.31	-0.31	40.38	0.077	0.048	241.37	0.69	44.47	0.085	0.048	278.887	1.68
85	18.62	0.036	0.000	0.00	0.00	25.04	0.048	0	0.00	0.00	29.45	0.056	0.048	150.61	-1.81	34.71	0.066	0.0480	202.01	-0.59	38.81	0.074	0.048	242.06	0.37	42.76	0.082	0.048	280.568	1.33
90	17.88	0.034	0.000	0.00	0.00	24.09	0.046	0	0.00	0.00	28.33	0.054	0.048	148.80	-2.03	33.42	0.064	0.0480	201.42	-0.85	37.39	0.072	0.048	242.43	0.09	41.21	0.079	0.048	281.901	1.02
95	17.21	0.033	0.000	0.00	0.00	23.22	0.044	0	0.00	0.00	27.31	0.052	0.048	146.77	-2.22	32.25	0.062	0.0480	200.57	-1.08	36.09	0.069	0.048	242.52	-0.18	39.79	0.076	0.048	282.919	0.73
100	16.59	0.032	0.000	0.00	0.00	22.42	0.043	0	0.00	0.00	26.38	0.050	0.048	144.55	-2.40	31.17	0.060	0.0480	199.49	-1.29	34.90	0.067	0.048	242.34	-0.41	38.49	0.074	0.048	283.650	0.47
105	16.02	0.031	0.000	0.00	0.00	21.69	0.042	0	0.00	0.00	25.52	0.049	0.048	142.15	-142.15	30.17	0.058	0.0480	198.20	-1.49	33.80	0.065	0.048	241.93	-0.63	37.30	0.071	0.048	284.118	0.23
110	15.50	0.030	0.000	0.00	0.00	21.01	0.040	0	0.00	0.00	24.73	0.047	0	0.00	0.00	29.25	0.056	0.0480	196.72	-1.67	32.78	0.063	0.048	241.29	-0.84	36.19	0.069	0.048	284.344	0.00
115	15.01	0.029	0.000	0.00	0.00	20.38	0.039	0	0.00	0.00	23.99	0.046	0	0.00	0.00	28.40	0.054	0.0480	195.05	-1.83	31.84	0.061	0.048	240.46	-1.02	35.16	0.067	0.048	284.346	-0.21
120	14.56	0.028	0.000	0.00	0.00	19.79	0.038	0	0.00	0.00	23.31	0.045	0	0.00	0.00	27.61	0.053	0.0480	193.21	-1.99	30.96	0.059	0.048	239.43	-1.20	34.20	0.065	0.048	284.141	-0.40
125	14.14	0.027	0.000	0.00	0.00	19.24	0.037	0	0.00	0.00	22.67	0.043	0	0.00	0.00	26.86	0.051	0.0480	191.22	-2.13	30.14	0.058	0.048	238.23	-1.36	33.31	0.064	0.048	283.742	-0.58
130	13.74	0.026	0.000	0.00	0.00	18.73	0.036	0	0.00	0.00	22.07	0.042	0	0.00	0.00	26.17	0.050	0.0480	189.09	-2.27	29.37	0.056	0.048	236.87	-1.51	32.47	0.062	0.048	283.163	-0.75
135	13.38	0.026	0.000	0.00	0.00	18.25	0.035	0	0.00	0.00	21.51	0.041	0	0.00	0.00	25.52	0.049	0.0480	186.82	-186.82	28.65	0.055	0.048	235.36	-1.66	31.69	0.061	0.048	282.416	-0.91
140	13.03	0.025	0.000	0.00	0.00	17.80	0.034	0	0.00	0.00	20.98	0.040	0	0.00	0.00	24.91	0.048	0.0000	0.00	0.00	27.97	0.054	0.048	233.70	-1.79	30.95	0.059	0.048	281.510	-1.05
145	12.70	0.024	0.000	0.00	0.00	17.38	0.033	0	0.00	0.00	20.48	0.039	0	0.00	0.00	24.33	0.047	0.0000	0.00	0.00	27.33	0.052	0.048	231.91	-1.92	30.25	0.058	0.048	280.455	-1.19
150	12.40	0.024	0.000	0.00	0.00	16.98	0.032	0	0.00	0.00	20.02	0.038	0	0.00	0.00	23.78	0.046	0.0000	0.00	0.00	26.73	0.051	0.048	230.00	-2.04	29.59	0.057	0.048	279.261	-1.33
155	12.11	0.023	0.000	0.00	0.00	16.60	0.032	0	0.00	0.00	19.57	0.037	0	0.00	0.00	23.27	0.045	0.0000	0.00	0.00	26.16	0.050	0.048	227.96	-2.15	28.96	0.055	0.048	277.933	-1.45
160	11.83	0.023	0.000	0.00	0.00	16.24	0.031	0	0.00	0.00	19.15	0.037	0	0.00	0.00	22.78	0.044	0.0000	0.00	0.00	25.61	0.049	0.048	225.81	-2.25	28.37	0.054	0.048	276.481	-1.57
165	11.57	0.022	0.000	0.00	0.00	15.90	0.030	0	0.00	0.00	18.75	0.036	0	0.00	0.00	22.31	0.043	0.0000	0.00	0.00	25.10	0.048	0.048	223.56	-223.56	27.81	0.053	0.048	274.909	-1.68
170	11.32	0.022	0.000	0.00	#REF!	15.57	0.030	0	0.00	#REF!	18.37	0.035	0	0.00	#REF!	21.87	0.042	0.0000	0.00	#REF!	24.61	0.047	0.000	0.00	#REF!	27.27	0.052	0.048	273.225	#REF!

Ontario

Ministry of the Environment, Conservation and Parks
Environmental Assessment and Permissions Division

Confirmation of Registration

Registration Number: R-014-1378247410
Version Number: 1.0
Date Registration Filed: September 17, 2025 13:51:18

392583 ALBERTA LTD

4318 Hwy 3
Simcoe ON N3Y 4K4

You have registered, in accordance with Section 20.21 (1) of the *Environmental Protection Act*, for the use, operation, establishment, alteration, extension or replacement of any new or existing storm water management works located at:

310 14th Street West Street West
Simcoe ON N3Y 4K6

Ministry District Office: Hamilton District Office

The activity requirements for your storm water management works are summarized in schedule ‘A’ however refer to Ontario Regulation 137/25 for the legal requirements.The activity related information provided during the registration process is included as part of the confirmation of registration as schedule ‘B’.

Dated on September 17, 2025 13:51:18

Director
Client Services and Permissions Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor Toronto ON M4V 1P5

Any questions related to this registration and the Environmental Activity and the Sector Registry should be directed to:

Client Services and Permissions Branch
Ministry of the Environment, Conservation and Parks
Phone:(416) 314-8001
Toll free: 1-800-461-6290
Email: enviropermissions@ontario.ca

Activity Requirements

Activity Requirements for Storm Water Management EASR (O. Reg 137/25)

As the owner/operator of the registered storm water management works, you are responsible to meet the activity requirements that are included in Ontario Regulation 137/25: REGISTRATIONS UNDER PART II.2 OF THE ACT - STORM WATER MANAGEMENT WORKS under the *Environmental Protection Act*. While all efforts are made to ensure the accuracy of the summarized requirements below, the summary may not be comprehensive, and it should not be taken as legal advice. If there is any discrepancy between this summary and any Acts or regulations, the provisions of the Acts and regulations prevail.

Storm Water Management Report

- Operate and maintain your works by following all procedures, best practices, and plans (including monitoring, if applicable) in your storm water management report and make it available to anyone engaging in the activity.
- If the information that you have entered in the registry or in your storm water management report changes, you must update the registry and your storm water management report (or add an addendum) within 30 days.
- The local source protection authority must be notified of works that are identified to be a significant drinking water threat.

Operations

- Within six months of the construction of the works, you must have a set of as-built drawings prepared showing the Works “as constructed” and retained for the lifetime of the works.
- You must construct, operate and maintain the works with the objective that the effluent from the works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen, foam or discoloration on the receiving waters.
- If you receive notice from the local Source Protection Authority of approved changes made to the local Source Protection Plan that could affect whether your works cause a significant drinking water threat, you must re-assess to determine whether your works are a significant drinking water threat.
- You must prepare and implement a spill contingency plan when:
    - you have outdoor storage or handling of soil, raw material, or products, or
    - your works are a significant drinking water threat.
- If your storm water management report includes a monitoring plan that sets out effluent objectives, you must notify the local MECP district manager of any exceedances of effluent objectives immediately and in writing within seven days.
- If you alter, extend or replace your works you must update your registration and your storm water management report to reflect the change before you make the alteration, extension or replacement.

Records

- Create and retain the following records for the lifetime of the works: landowner’s consent, other

permits and authorizations, manufacturers specification sheets and copies of agreements, as-built drawings of the works and spills contingency plan.

- Create and retain the following records for five years from the date the record was created: monitoring results and exceedance notifications, complaints, inspection and maintenance, inspection and repair activities, erosion and sediment control inspections and repair activities and records relating to abnormal situations.

Confirmation

☑ By checking this box, I confirm that I understand the requirements for all storm water management works and will operate in accordance with the requirements set out in Ontario Regulation 137/25.

Business Information

Ontario Business Registry Information

The Ontario Business Registry (OBR) allows organizations that are registered, incorporated, or licensed to carry on business in Ontario. You can determine if you need to register by visiting the Ontario Business Registry page or by contacting the OBR at 416-314-8880 (toll-free 1-800-361-3223).

Important consideration - Ontario Business Registry (OBR)

The ministry requires you to provide your business information as shown in the Ontario Business Registry (OBR) unless you are exempted from registration requirements. It is an offense under s 184 (2) of the *Environmental Protection Act* to provide false or misleading information to the Ministry.

Are you a public sector, government organization or other entity exempted from registering on the OBR, such as a municipality, government agency, crown corporation, public hospital, or school board?	No

The information must be entered exactly the same as what the OBR has on file. You can verify your OBR information by signing into your My Ontario Account. **Please note that all fields are mandatory.**

If you are an individual registering on the EASR, select **"Individual"** under the **"Select Business Type"** drop down list.

Select Business Type	Corporation
Select the Corporation Type	Business Corporation
Enter Legal Name	392583 ALBERTA LTD

Important consideration - Legal Name

Spelling and punctuation of the legal name **must match** the information in your OBR registration. You can verify your OBR information by signing into your My Ontario Account.

Select Document Showing Proof of Legal Name	Business Name Registration (Formerly known as Master Business License)

Business Name Registration (Formerly known as Master Business License)

Attached File	Uploader	Upload Date
392582 ALBERTA LTD - business licence.PDF	Ryan MORRISON	2025-09-17 12:21:31.0

Do you have a business name (operating name)? Yes

Enter Business Name (Also known as Operating Name) MC ENGINEERING

Important consideration - Business Name

The business name (also known as operating name) is the name a business uses in its day to day operations and for advertising purposes. This name may be different from the legal name.

Proof of Business Name (Also known as Operating Name)

Attached File	Uploader	Upload Date
392582 ALBERTA LTD - business licence.PDF	Ryan MORRISON	2025-09-17 12:22:11.0

Enter Ontario Corporation Number (OCN) 160496808

Important consideration - Ontario Corporation Number (OCN)

An Ontario Corporation Number (OCN) is typically a unique **number** assigned to a corporation when it is incorporated, amalgamated or continued in Ontario as a legal corporation. This number is different than a Business Number (BN) that is provided by the CRA. You can verify this information by signing into your My Ontario Account.

The business information you provide will be used to ensure the validity of your registration. Providing false or inaccurate information may result in the suspension or revocation of your registration.

Drinking Water Threat Assessment Summary

A significant drinking water threat (SDWT) is an activity that, according to a risk assessment, poses or has the potential to pose a significant risk to water that is or may be used as a source of drinking water.

Refer to your significant drinking water threat assessment and answer the following questions to demonstrate why your storm water management works are or are not a significant drinking water threat.

Note: This is not an assessment of significant drinking water threats in itself. The following series of questions will create a summary of the information found in the drinking water threat assessment completed as per the requirements under Ontario Regulation 137/25 - Storm Water Management Works. Please see guidance on completing a significant drinking water threat assessment.

1.a. Is your storm water management works located in a source protection area? No

Activity Information

Industry Eligibility Check

1.Are you engaging in an activity that requires you to use, operate, establish, alter, extend or replace stormwater management works? Yes

2.Do you require an environmental permission under the Ontario Water Resource Act (OWRA) and/or *Environmental Protection Act* (EPA) to manage storm water? Yes

3. Please select all North American Industry Classification System (NAICS) codes that apply to activities serviced by your storm water management works.

The NAICS code(s) included are associated with the site you have selected, please go to your Sites tab of your ministry profile if any updates are required.

5311 Lessors of real estate

4.Will your storm water management works be servicing any of the following sites? No

- A waste disposal site as defined in Part V of the Act.
- An abandoned motor vehicle site as defined in Part VII of the Act.
- A snow disposal facility or a site for the storage of snow where the predominant use of the site is for the retention, control, storage or disposal of snow.
- A bulk plant as defined in Ontario Regulation 217/01 (Liquid Fuels) made under the Technical Standards and Safety Act, 2000.
- A golf course.
- A road salt storage facility.
- An aerodrome as defined in the Aeronautics Act (Canada).
- A railway yard or shipyard and any associated maintenance facility.
- A renewable energy generation facility.
- A greenhouse
- An outdoor surface consisting of aggregate that includes basic oxygen furnace slag.
- A site at which any of the following activities take place
- Outdoor repair and maintenance of motorized vehicles, equipment and heavy machinery.

5.a.Are your storm water management works part of an undertaking to which the *Environmental Assessment Act* applies? No

6.Does your storm water management works receive any discharge of process water, cooling water, wash water or sanitary sewage? No

7.Are the storm water management works owned or planned to be transferred to any of the following? No

I. A municipality within the meaning of the Municipal Act, 2001

II. Any of the following bodies established for managing public utilities on behalf of or for a municipality within the meaning of the Municipal Act, 2001:
- a. A public utility commission or a municipal service board
- b. A municipal service board or a city board
- c. A municipal corporation

8.a.Do you own the property where the storm water management works will be constructed? No

8.b.Do you have written consent from the landowner? Yes

8.c.Are all processing, maintenance or repair activities completed indoors? Yes

Activity Related Information

9.What is the primary land use that the storm water management works services?

Rural

10.What is the primary activity at the site?
Self-storage mini warehouses

11.Please provide a short summary of the activity you are undertaking at the site.

For example: Gas station with 12 pumps, car wash and convenience store.
Construction of a proposed Mini Storage Facility

12.Has an assessment of the site, where the storm water management works will be constructed, been completed by a licensed engineering practitioner? Yes

13.Please provide a short summary of the storm water management works that is being registered.
On Site Storm Sewer System to facilitate drainage on site.

14.Provide the size in hectares of the catchment area. 1.2

15. Please select the following component(s) of your storm water management works that apply:

Stormwater conveyance:
Storm sewers

Low Impact Development source/conveyance controls:
Soakaways/infiltration

Treatment
Filtration

16.What is the design capacity of the storm water management works?

>1 to 10 year storm

17.a.Do your current or proposed storm water management works discharge to the natural environment? Yes

17.b.Are your storm water management works been designed to achieve enhanced level protection as defined in Stormwater Management Planning and Design Manual, 2003? Yes

18.a.Provide a description of design considerations made by a licensed engineering practitioner to ensure that the discharge from your storm water management works would not cause an adverse effect.
The on site storm sewer is to serve a proposed mini storage facility. The proposed Mini Storage is in a Rural area. There is no proposed asphalt, and the traffic consultant indicated an average of 5 car trips per day. All catch basins will be equipped with 'Enviro Basins' manufactured by Enviropod (Toronto). This information has been reviewed by MECP and the Ministry provided the following comment: Thank you for the information. Please advise the proponent to go for EASR application, if applicable; in consideration of minimal traffic activity and parking/asphalted area, a full blown ECA application is not required. Thanks again Mohammed Nizamuddin, M.Eng., P.Eng. Senior Wastewater Engineer Tel: 416-414-2942|1-800-461-6290

18.b.Do you have, or do you expect to have any outdoor handling or storage of soil, raw material, intermediate products, finished products or by-products occurring at the property serviced by your works? No

19.a.Have your storm water management works been constructed? No
Within six months of the construction of the proposed works, a set of as-built drawings showing the works “as constructed” shall be prepared and retained at the site.

19.b.Does your storm water management report have a statement, confirmed by a licensed engineering practitioner, that includes the information in the storm water management report is accurate as of the date it is signed and sealed, the information includes the results of the site assessment and the works are designed in a manner that mitigates any adverse effects? Yes

19.c.Have you started operating your storm water management works? No

19.c.ii.Please provide the proposed start date. 2025-11-01

Storm Water Management Report

20.Do you have a storm water management report that has been signed and sealed by a qualified Licensed Engineering Practitioner? Yes

21. Please confirm that your storm water management report contains the following:

a. Site plan Yes

b. Operation and maintenance section to be implemented by the owner Yes

c. Erosion and sediment control plan (ESCP) Yes

d. Procedures for inspecting the works Yes

22.Based on the procedures for inspecting the works outlined in the report, what is the frequency of inspections?

Annually

23.a.Does the Erosion and Sediment Control Plan (ESCP) contain procedures for implementing and inspecting erosion and sediment control measures during construction activities? Yes

23.b.What is the frequncey of inspection? once per week

24.Does the ESCP contain procedures for keeping records relating to the inspections and maintenance of temporary erosion and sediment control measures? Yes

Licensed Engineering Practitioner Information

25. Please provide the name(s) and license number(s) of the Licensed Engineering Practitioner(s) that prepared your storm water management report and provide the date(s) your report was signed.

First Name	Last Name	License Number(s)	Date Signed
Neil	Balan	100503960	2024-12-12

Supporting Documentation

26. Please upload a copy of your storm water management report and any addenda that was prepared by a licensed engineering practitioner in accordance with O. Reg. 137/25 REGISTRATIONS UNDER PART II.2 OF THE ACT - STORM WATER MANAGEMENT WORKS.
Note: If the information contained within your storm water management report changes, you have 30 days to update the uploaded report or add an addendum on your registration.

SWM Report

Attached File	Uploader	Upload Date
14th Street Mini Storage SWM Report Dec 12 2024_sealed.PDF	Ryan MORRISON	2025-09-17 13:28:30.0

Storm Water Discharge Location Information

On this page you will enter information about each storm water management works discharge point. Each point will have its own set of UTM coordinates. For the purposes of this registration form, a discharge point is the location where stormwater is being disposed.

Proposed Mini Storage Facility - #310, 14th Street West, Simcoe, Ontario

Select **"Add Discharge Point"** to enter the location.

Simcoe

Geographic (GPS) Coordinates (provided in Datum NAD83)

Method of Collection	Accuracy Estimate	UTM Zone	UTM East (M)	UTM North (M)
Map	1-10 M(Map)	17	554093.39	4744609.96

Watershed Name	Watershed Use - Annual	Watershed Use - Summer
Big River	N/A	N/A

Source Protection Area

Source Protection Area (SPA)	Wellhead Protection Area Q1	Wellhead Protection Area Q1 Stress
Long Point	No	N/A

Intake Protection Zone Q1	Intake Protection Zone Q1 - Stress
No	N/A

Wellhead Protection Area:	Wellhead Protection Area Score:	Wellhead Protection Area (WHPA-E):
D	6	No

Wellhead Protection Area (WHPA-E) Score:	Intake Protection Zone 1:	Intake Protection Zone 2:
N/A	No	No
	Intake Protection Zone 3:	Intake Protection Zone Score:
	No	N/A

Issue Contributing Area:	Significant Groundwater Recharge Area:	Significant Groundwater Recharge Area Score:
No	Yes	N/A

Highly Vulnerable Aquifers:	Highly Vulnerable Aquifers Score:	Event Based Area:
Yes	6	No
Event Based Area For Type:	Wellhead Protection Area Q2:	Wellhead Protection Area Q2 Stress:
N/A	No	N/A

Storm water management works activities can be a SDWT in certain circumstances if they are located in certain vulnerable areas as defined under the Clean Water Act, 2006.

Vulnerable areas include:

- surface water intake protection zones (IPZ) – IPZ 1, IPZ 2, or IPZ 3 with IPZ 1 identifying the highest level of vulnerability.
- wellhead protection areas (WHPA); WHPA A, WHPA B, WHPA C or WHPA D.

Land Use Policy Areas

1.a Are your storm water management works located in one of the following areas?

None apply

Discharge and Effluent Quality

2. Identify the immediate effluent receiver(s).
Downstream storm water management works

3. Where will your stormwater management works discharge?
Surface water directly

3.iii. Identify the intermediate and final receivers.

The intermediate receiver is the lake or stream into which the final effluent is, or will be, discharged. If the body is not named, or if it is a drainage ditch, storm sewer or ground sub-surface, provide an identifying description. The final receiver is the name of the lake or river into which the intermediate receiver drains.

Roadside Ditch/Patterson Creek

Monitoring Plan

Refer to the information a licensed engineering practitioner provided in the assessment of monitoring section of your storm water management report and answer the following questions.

4.a. Has a licensed engineering practitioner indicated that a monitoring plan is No

required for your works?

4.b. Provide the information a licensed engineering practitioner included in the Assessment of Monitoring section of your Storm Water Management Report.
Note: O Reg 137/25 requires that the Assessment of Monitoring section in the Storm Water Management Report contain an assessment (rationale) as to whether a monitoring plan is necessary for monitoring the discharge from the works.
There is minimal traffic to the site, and no proposed asphalt. Storm water quality is not expected to be adversely effected by a meaningful amount. No monitoring is required or proposed.

Related Approvals

Environmental Compliance Approval (ECA) Information

Do you currently have an Environmental Compliance Approval that authorizes the storm water management works that you are registering?	No

Environmental Activity and the Sector Registry (EASR) Information

Does the facility have one or more existing EASR registrations?	No

Application Summary

Before You Register

In order to register your storm water management works, you must confirm that requirements detailed in the following regulations made under the *Environmental Protection Act* are met:

- Ontario Regulation 137/25: REGISTRATIONS UNDER PART II.2 OF THE ACT - STORM WATER MANAGEMENT WORKS (O. Reg. 137/25)
- Ontario Regulation 245/11: REGISTRATIONS UNDER PART II.2 OF THE ACT - GENERAL (O. Reg. 245/11)

It is your responsibility to determine if your storm water management works are required to be registered in the Environmental Activity and Sector Registry.

Note: If an environmental assessment approved under Part II.1 or Part II.3 of the *Environmental Assessment Act* applies to your storm water management works and no order has been issued, you cannot register your storm water management works until all requirements have been satisfied or approval is given under Part II.3.

Registration Checklist
You should have the following information available to complete your registration:
• Your contact information and business information
• Documentation to support your business ownership type, including: ◦ Business type (for example, Corporation, Limited Partnership, etc.) ◦ Legal name as per Ontario Business Registry information, including documentation showing proof of legal name (for example, Articles of Incorporation, or Business Name Registration) ◦ If applicable, Business Name (also known as Operating Name) and proof of business name (for example, Business Name Registration, Corporation Profile Report) ◦ Ontario Corporation Number
• Your site(s) address information (including the North American Industry Association Classification System code)

Registration Checklist
• General information about your storm water management works including the design, operations and maintenance and erosion and sediment control plan
• A digital copy of your storm water management (SWM) report to upload as part of your registration or if your SWM report is already uploaded, you may add an addendum ◦ Information about your significant drinking water threat assessment
• Information about where your SWM works discharge location(s)
• If your storm water management works are currently approved under an ECA, provide your ECA number
• All required approvals, permits, authorizations or other instruments have been issued with respect to the activity

Guidance Materials
Additional information and guidance relating to storm water management works.
Environmental Permissions
Environmental Activity and Sector Registry
Understanding Stormwater Management: An Introduction to Stormwater Management Planning and Design
Stormwater Management Planning and Design Manual

General Information

Based on how you answer specific questions, you may be notified that your activity cannot be registered. If an activity cannot be registered it may still require an Environmental Compliance Approval.

The collection of personal information and other information in this form is necessary to administer the Environmental Activity and Sector Registry (EASR), a public registry established under subsection 20.20(1) of the *Environmental Protection Act* (EPA).

The information collected in this form will be used for the purposes set out in subsection 20.20 (2) of the EPA including for the purposes of allowing persons to register activities prescribed by the regulations for the purposes of subsection 20.21 (1) of the EPA, and providing public access to information contained in the registrations and other information filed in the EASR, with the exception of payment information.

The information will also be used in connection with the Ministry's compliance and enforcement

activities under the EPA, and to administer the Act.

Questions about the collection of information can be directed to:

Client Services and Permissions Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair W 1st Floor
Toronto ON M4V 1P5
Telephone: 416 314-8001
Toll Free: 1 800 461-6290)
Email: enviropermissions@ontario.ca

Once the required information is filed in the Environmental Activity and Sector Registry with respect to a prescribed activity, O. Reg. 245/11 (Prescribed Activities and the Environmental Activity and Sector Registry) requires that one of the persons listed below certify that the information filed in the Registry is complete and accurate.

The wording of the certification before submittal is summarized below.

1. For individuals engaging in the prescribed activity, the person that is engaging in the prescribed activity is required to make the certification.
2. For corporations engaging in the prescribed activity, an officer or director of or a person who has authority to bind the corporation that is engaging in the prescribed activity is required to make the certification.
3. For partnerships engaging in the prescribed activity, an individual who is a partner in the partnership that is engaging in the prescribed activity is required to make the certification, or an officer or director of or person who has authority to bind the corporation that is a partner in the partnership is required to make the certification.

Registrant Information

Legal / Business Name
392583 ALBERTA LTD

Applicant/Organization Type

CRA Business No.
*****2396

Contact Person

Last Name
MORRISON

First Name
Ryan

Job Title
President

Telephone No.
(519) 420-7457

Cell No.

Fax No.

Email Address
ryanmorrison75@hotmail.com

Business Mailing Address
4318 Hwy 3 Simcoe

Postal/Zip Code
N3Y 4K4

Province/State
ONTARIO

Physical Civic Address
4318 Hwy 3 Simcoe

Postal/Zip Code
N3Y 4K4

Province/State
ONTARIO

Activity Requirements

Activity Requirements for Storm Water Management EASR (O. Reg 137/25)

As the owner/operator of the registered storm water management works, you are responsible to meet the activity requirements that are included in Ontario Regulation 137/25: REGISTRATIONS UNDER PART II.2 OF THE ACT - STORM WATER MANAGEMENT WORKS under the *Environmental Protection Act*. While all efforts are made to ensure the accuracy of the summarized requirements below, the summary may not be comprehensive, and it should not be taken as legal advice. If there is any discrepancy between this summary and any Acts or regulations, the provisions of the Acts and regulations prevail.

Storm Water Management Report

- Operate and maintain your works by following all procedures, best practices, and plans (including monitoring, if applicable) in your storm water management report and make it available to anyone engaging in the activity.
- If the information that you have entered in the registry or in your storm water management report changes, you must update the registry and your storm water management report (or add an addendum) within 30 days.
- The local source protection authority must be notified of works that are identified to be a significant drinking water threat.

Operations

- Within six months of the construction of the works, you must have a set of as-built drawings prepared showing the Works “as constructed” and retained for the lifetime of the works.
- You must construct, operate and maintain the works with the objective that the effluent from the works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen, foam or discoloration on the receiving waters.
- If you receive notice from the local Source Protection Authority of approved changes made to the local Source Protection Plan that could affect whether your works cause a significant drinking water threat, you must re-assess to determine whether your works are a significant drinking water threat.
- You must prepare and implement a spill contingency plan when:
    - you have outdoor storage or handling of soil, raw material, or products, or
    - your works are a significant drinking water threat.
- If your storm water management report includes a monitoring plan that sets out effluent objectives, you must notify the local MECP district manager of any exceedances of effluent objectives immediately and in writing within seven days.
- If you alter, extend or replace your works you must update your registration and your storm water management report to reflect the change before you make the alteration, extension or replacement.

Records

- Create and retain the following records for the lifetime of the works: landowner’s consent, other

permits and authorizations, manufacturers specification sheets and copies of agreements, as-built drawings of the works and spills contingency plan.

- Create and retain the following records for five years from the date the record was created: monitoring results and exceedance notifications, complaints, inspection and maintenance, inspection and repair activities, erosion and sediment control inspections and repair activities and records relating to abnormal situations.

Confirmation

☑ By checking this box, I confirm that I understand the requirements for all storm water management works and will operate in accordance with the requirements set out in Ontario Regulation 137/25.

Business Information

Ontario Business Registry Information

The Ontario Business Registry (OBR) allows organizations that are registered, incorporated, or licensed to carry on business in Ontario. You can determine if you need to register by visiting the Ontario Business Registry page or by contacting the OBR at 416-314-8880 (toll-free 1-800-361-3223).

Important consideration - Ontario Business Registry (OBR)

The ministry requires you to provide your business information as shown in the Ontario Business Registry (OBR) unless you are exempted from registration requirements. It is an offense under s 184 (2) of the *Environmental Protection Act* to provide false or misleading information to the Ministry.

Are you a public sector, government organization or other entity exempted from registering on the OBR, such as a municipality, government agency, crown corporation, public hospital, or school board?	No

The information must be entered exactly the same as what the OBR has on file. You can verify your OBR information by signing into your My Ontario Account. **Please note that all fields are mandatory.**

If you are an individual registering on the EASR, select **"Individual"** under the **"Select Business Type"** drop down list.

Select Business Type	Corporation
Select the Corporation Type	Business Corporation
Enter Legal Name	392583 ALBERTA LTD

Important consideration - Legal Name

Spelling and punctuation of the legal name **must match** the information in your OBR registration. You can verify your OBR information by signing into your My Ontario Account.

Select Document Showing Proof of Legal Name	Business Name Registration (Formerly known as Master Business License)

Business Name Registration (Formerly known as Master Business License)

Attached File	Uploader	Upload Date
392582 ALBERTA LTD - business licence.PDF	Ryan MORRISON	2025-09-17 12:21:31.0

Do you have a business name (operating name)? Yes

Enter Business Name (Also known as Operating Name) MC ENGINEERING

Important consideration - Business Name

The business name (also known as operating name) is the name a business uses in its day to day operations and for advertising purposes. This name may be different from the legal name.

Proof of Business Name (Also known as Operating Name)

Attached File	Uploader	Upload Date
392582 ALBERTA LTD - business licence.PDF	Ryan MORRISON	2025-09-17 12:22:11.0

Enter Ontario Corporation Number (OCN) 160496808

Important consideration - Ontario Corporation Number (OCN)

An Ontario Corporation Number (OCN) is typically a unique **number** assigned to a corporation when it is incorporated, amalgamated or continued in Ontario as a legal corporation. This number is different than a Business Number (BN) that is provided by the CRA. You can verify this information by signing into your My Ontario Account.

The business information you provide will be used to ensure the validity of your registration. Providing false or inaccurate information may result in the suspension or revocation of your registration.

Site Information

Proposed Mini Storage Facility - #310, 14th Street West, Simcoe, Ontario

Site Name
Proposed Mini Storage Facility - #310, 14th Street West, Simcoe, Ontario

List of NAICS Code Detail

1.NAICS Code	2.NAICS Code	3.NAICS Code	4.NAICS Code	5.NAICS Code	6.NAICS Code
5311					

Site Contact

Last Name	First Name		
MORRISON	Ryan		
Telephone No. Ext.	**Cell No.**	**Fax No.**	**Email Address**
(519) 420-7457			ryanmorrison75@hotmail.com

Primary Civic Address

Unit No.	Unit Identifier	
Street No.	Street Name (Including Street Type and Street Direction)	
310	14th Street West ST W	
City/Town/Municipality	**Province**	**Postal/Zip Code**
Simcoe/NORFOLK	ON	N3Y 4K6
District/County	**MECP District Office**	**Property Identification Number (PIN)**
	Hamilton District Office	

Non-address Information

Drinking Water Threat Assessment Summary

A significant drinking water threat (SDWT) is an activity that, according to a risk assessment, poses or has the potential to pose a significant risk to water that is or may be used as a source of drinking water.

Refer to your significant drinking water threat assessment and answer the following questions to demonstrate why your storm water management works are or are not a significant drinking water threat.

Note: This is not an assessment of significant drinking water threats in itself. The following series of questions will create a summary of the information found in the drinking water threat assessment completed as per the requirements under Ontario Regulation 137/25 - Storm Water Management Works. Please see guidance on completing a significant drinking water threat assessment.

1.a. Is your storm water management works located in a source protection area? No

Activity Information

Industry Eligibility Check

1.Are you engaging in an activity that requires you to use, operate, establish, alter, extend or replace stormwater management works? Yes

2.Do you require an environmental permission under the Ontario Water Resource Act (OWRA) and/or *Environmental Protection Act* (EPA) to manage storm water? Yes

3. Please select all North American Industry Classification System (NAICS) codes that apply to activities serviced by your storm water management works.

The NAICS code(s) included are associated with the site you have selected, please go to your Sites tab of your ministry profile if any updates are required.

5311 Lessors of real estate

4.Will your storm water management works be servicing any of the following sites? No

- A waste disposal site as defined in Part V of the Act.
- An abandoned motor vehicle site as defined in Part VII of the Act.
- A snow disposal facility or a site for the storage of snow where the predominant use of the site is for the retention, control, storage or disposal of snow.
- A bulk plant as defined in Ontario Regulation 217/01 (Liquid Fuels) made under the Technical Standards and Safety Act, 2000.
- A golf course.
- A road salt storage facility.
- An aerodrome as defined in the Aeronautics Act (Canada).
- A railway yard or shipyard and any associated maintenance facility.
- A renewable energy generation facility.
- A greenhouse
- An outdoor surface consisting of aggregate that includes basic oxygen furnace slag.
- A site at which any of the following activities take place
- Outdoor repair and maintenance of motorized vehicles, equipment and heavy machinery.

5.a.Are your storm water management works part of an undertaking to which the *Environmental Assessment Act* applies? No

6.Does your storm water management works receive any discharge of process water, cooling water, wash water or sanitary sewage? No

7.Are the storm water management works owned or planned to be transferred to any of the following? No

I. A municipality within the meaning of the Municipal Act, 2001

II. Any of the following bodies established for managing public utilities on behalf of or for a municipality within the meaning of the Municipal Act, 2001:
- a. A public utility commission or a municipal service board
- b. A municipal service board or a city board
- c. A municipal corporation

8.a.Do you own the property where the storm water management works will be constructed? No

8.b.Do you have written consent from the landowner? Yes

8.c.Are all processing, maintenance or repair activities completed indoors? Yes

Activity Related Information

9.What is the primary land use that the storm water management works services?

Rural

10.What is the primary activity at the site?
Self-storage mini warehouses

11.Please provide a short summary of the activity you are undertaking at the site.

For example: Gas station with 12 pumps, car wash and convenience store.
Construction of a proposed Mini Storage Facility

12.Has an assessment of the site, where the storm water management works will be constructed, been completed by a licensed engineering practitioner? Yes

13.Please provide a short summary of the storm water management works that is being registered.
On Site Storm Sewer System to facilitate drainage on site.

14.Provide the size in hectares of the catchment area. 1.2

15. Please select the following component(s) of your storm water management works that apply:

Stormwater conveyance:
Storm sewers

Low Impact Development source/conveyance controls:
Soakaways/infiltration

Treatment
Filtration

16.What is the design capacity of the storm water management works?

>1 to 10 year storm

17.a.Do your current or proposed storm water management works discharge to the natural environment? Yes

17.b.Are your storm water management works been designed to achieve enhanced level protection as defined in Stormwater Management Planning and Design Manual, 2003? Yes

18.a.Provide a description of design considerations made by a licensed engineering practitioner to ensure that the discharge from your storm water management works would not cause an adverse effect.
The on site storm sewer is to serve a proposed mini storage facility. The proposed Mini Storage is in a Rural area. There is no proposed asphalt, and the traffic consultant indicated an average of 5 car trips per day. All catch basins will be equipped with 'Enviro Basins' manufactured by Enviropod (Toronto). This information has been reviewed by MECP and the Ministry provided the following comment: Thank you for the information. Please advise the proponent to go for EASR application, if applicable; in consideration of minimal traffic activity and parking/asphalted area, a full blown ECA application is not required. Thanks again Mohammed Nizamuddin, M.Eng., P.Eng. Senior Wastewater Engineer Tel: 416-414-2942|1-800-461-6290

18.b.Do you have, or do you expect to have any outdoor handling or storage of soil, raw material, intermediate products, finished products or by-products occurring at the property serviced by your works? No

19.a.Have your storm water management works been constructed? No
Within six months of the construction of the proposed works, a set of as-built drawings showing the works “as constructed” shall be prepared and retained at the site.

19.b.Does your storm water management report have a statement, confirmed by a licensed engineering practitioner, that includes the information in the storm water management report is accurate as of the date it is signed and sealed, the information includes the results of the site assessment and the works are designed in a manner that mitigates any adverse effects? Yes

19.c.Have you started operating your storm water management works? No

19.c.ii.Please provide the proposed start date. 2025-11-01

Storm Water Management Report

20.Do you have a storm water management report that has been signed and sealed by a qualified Licensed Engineering Practitioner? Yes

21. Please confirm that your storm water management report contains the following:

a. Site plan Yes

b. Operation and maintenance section to be implemented by the owner Yes

c. Erosion and sediment control plan (ESCP) Yes

d. Procedures for inspecting the works Yes

22.Based on the procedures for inspecting the works outlined in the report, what is the frequency of inspections?

Annually

23.a.Does the Erosion and Sediment Control Plan (ESCP) contain procedures for implementing and inspecting erosion and sediment control measures during construction activities? Yes

23.b.What is the frequncey of inspection? once per week

24.Does the ESCP contain procedures for keeping records relating to the inspections and maintenance of temporary erosion and sediment control measures? Yes

Licensed Engineering Practitioner Information

25. Please provide the name(s) and license number(s) of the Licensed Engineering Practitioner(s) that prepared your storm water management report and provide the date(s) your report was signed.

First Name	Last Name	License Number(s)	Date Signed
Neil	Balan	100503960	2024-12-12

Supporting Documentation

26. Please upload a copy of your storm water management report and any addenda that was prepared by a licensed engineering practitioner in accordance with O. Reg. 137/25 REGISTRATIONS UNDER PART II.2 OF THE ACT - STORM WATER MANAGEMENT WORKS.
Note: If the information contained within your storm water management report changes, you have 30 days to update the uploaded report or add an addendum on your registration.

SWM Report

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14th Street Mini Storage SWM Report Dec 12 2024_sealed.PDF	Ryan MORRISON	2025-09-17 13:28:30.0

Storm Water Discharge Location Information

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Proposed Mini Storage Facility - #310, 14th Street West, Simcoe, Ontario

Select **"Add Discharge Point"** to enter the location.

Simcoe

Geographic (GPS) Coordinates (provided in Datum NAD83)

Method of Collection	Accuracy Estimate	UTM Zone	UTM East (M)	UTM North (M)
Map	1-10 M(Map)	17	554093.39	4744609.96

Watershed Name	Watershed Use - Annual	Watershed Use - Summer
Big River	N/A	N/A

Source Protection Area

Source Protection Area (SPA)	Wellhead Protection Area Q1	Wellhead Protection Area Q1 Stress
Long Point	No	N/A

Intake Protection Zone Q1	Intake Protection Zone Q1 - Stress
No	N/A

Wellhead Protection Area:	Wellhead Protection Area Score:	Wellhead Protection Area (WHPA-E):
D	6	No

Wellhead Protection Area (WHPA-E) Score:	Intake Protection Zone 1:	Intake Protection Zone 2:
N/A	No	No
	Intake Protection Zone 3:	Intake Protection Zone Score:
	No	N/A

Issue Contributing Area:	Significant Groundwater Recharge Area:	Significant Groundwater Recharge Area Score:
No	Yes	N/A

Highly Vulnerable Aquifers: Yes	Highly Vulnerable Aquifers Score: 6	Event Based Area: No
Event Based Area For Type: N/A	Wellhead Protection Area Q2: No	Wellhead Protection Area Q2 Stress: N/A

Storm water management works activities can be a SDWT in certain circumstances if they are located in certain vulnerable areas as defined under the Clean Water Act, 2006.

Vulnerable areas include:

- surface water intake protection zones (IPZ) – IPZ 1, IPZ 2, or IPZ 3 with IPZ 1 identifying the highest level of vulnerability.
- wellhead protection areas (WHPA); WHPA A, WHPA B, WHPA C or WHPA D.

Land Use Policy Areas

1.a Are your storm water management works located in one of the following areas?

None apply

Discharge and Effluent Quality

2. Identify the immediate effluent receiver(s).
Downstream storm water management works

3. Where will your stormwater management works discharge?
Surface water directly

3.iii. Identify the intermediate and final receivers.

The intermediate receiver is the lake or stream into which the final effluent is, or will be, discharged. If the body is not named, or if it is a drainage ditch, storm sewer or ground sub-surface, provide an identifying description. The final receiver is the name of the lake or river into which the intermediate receiver drains.

Roadside Ditch/Patterson Creek

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Related Approvals

Environmental Compliance Approval (ECA) Information

Do you currently have an Environmental Compliance Approval that authorizes the storm water management works that you are registering?	No

Environmental Activity and the Sector Registry (EASR) Information

Does the facility have one or more existing EASR registrations?	No

Verification of Information

Each field marked by an asterisk (*) must be completed.

Person Attesting Information

The person certifying that information being filed for this registration is complete and accurate must be one of those listed below.
Please indicate which option applies to this application.

For individuals engaging in activities related to the Storm Water Management Works,
I am the person that is engaging in activities related to Storm Water Management Works .

☑ For corporations engaging in activities related to the Storm Water Management Works,
I am an officer or director of or a person who has authority to bind the corporation that is engaging in activities related to the Storm Water Management Works .

For partnerships engaging in activities related to the Storm Water Management Works,
I am an individual who is a partner in the partnership that is engaging in activities related to the Storm Water Management Works .

For partnerships engaging in activities related to the Storm Water Management Works,
I am an officer or director of or person who has authority to bind the corporation that is a partner in the partnership that is engaging in activities related to the Storm Water Management Works .

Attestation

☑ I, the undersigned hereby declare that the information provided in this Registration is complete and accurate, and I am aware that it is an offence under s 184 (2) of the Environment Protection Act to provide false or misleading information to the Ministry.

Last Name	First Name
MORRISON	Ryan

Company Name
392583 ALBERTA LTD

Title	Date (yyyy/mm/dd)
President	2025/09/17

MINI STORAGE PROJECT
310 - 14TH STREET WEST, SIMN
SECURITIES AND CONSTRUCTION ESTIMATES

REVISION
DATE - Sept 25 2025
DATE - COLLECTED AT REGISTRATION
DATE - HELD AFTER ACCEPTANCE

ITEM	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL COST	Sec
						10%
BELOW GROUND						
SANITARY SEWERS						
	Sanitary Sewer					
	a) 300mm Diameter	M	1	$0	$0	$0
	b) 200mm Diameter	M	1	$0	$0	$0
	1200mm Diameter Manholes	EACH	1	$0	$0	$0
	Septic Bed and Connection	L.S.	1	$10,000	$10,000	$1,000
	Video Inspection and Report	L.S.	1	$0	$0	$0
	TOTAL SANITARY SEWERS				**$10,000**	**$1,000**
WATERMAIN						
	Watermain					
	a) 250mm Diameter	M	136	$200	$27,200	$2,720
	b) 150mm Diameter	M	0	$0	$0	$0
	c) 75 mm Diameter	M	0	$0	$0	$0
	Watervalves					
	a) 200mm Diameter	EACH	0	$0	$0	$0
	b) 150mm Diameter	EACH	0	$0	$0	$0
	2000 gal Pre Cast Cistern	EACH	1	$5,000	$5,000	$500
	Hydrant Sets (Dry Hydrants)	EACH	2	$3,500	$7,000	$700
	Sampling Station	EACH	0	$0	$0	$0
	TOTAL WATERMAIN				**$39,200**	**$3,920**
STORM SEWERS						
	Storm Sewer					
	a) 1000mm Diameter	M	0	$0	$0	$0
	b) 750mm Diameter	M	0	$0	$0	$0
	c) 300mm Diameter	M	0	$0	$0	$0
	d) 250mm Diameter HDPE	EA	576	$80	$46,080	$4,608
	Manholes	EA	0	$3,000	$0	$0
	Infiltration Trench (clear stone & filter cloth)	M	576	$500	$288,000	$28,800
	Inline Stormceptor	EA	1	$3,000	$3,000	$300
	Video Inspection and Report	L.S.	1	$1,500	$1,500	$150
	TOTAL BELOW STORM SEWER				**$338,580**	**$33,858**
					$387,780	**$38,778**
ABOVE GROUND						
STORM SEWERS						
	catch basins c/w enviro pd filters	EA	13	$4,500	$58,500	$5,850

ITEM	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL COST	Sec
						10%
	TOTAL ABOVE STORM SEWER				**$58,500**	**$5,850**
ROAD CONSTRUCTION						
	Granular 'A'	Tonne	2,500	$15	$37,500	$3,750
	Granular 'B'	Tonne	7,500	$15	$112,500	$11,250
	Curb and Gutter	M	85	$100	$8,500	$850
	Sidewalk	M²	0	$40	$0	$0
	Tactile (at sidewalk ramps)	L.S.	0	$400	$0	$0
	Painted Linework on Pavement	L.S.	0	$2,000	$0	$0
	Supply and Install Street Signs	L.S.	0	$0	$0	$0
	TOTAL ROAD CONSTRUCTION				**$158,500**	**$15,850**
STREETLIGHTING						
	Streetlights (Pole, Mast Arm and Luminaire)	EACH	0	$0	$0	$0
	Streetlight Disconnect Pedestal	EACH	0	$0	$0	$0
	Conduit for Streetlight Conductor					
	a) 50mm Conduit	M	0	$0	$0	$0
	b) 100mm Conduit (Road Crossings)	M	0	$0	$0	$0
	Streetlighting Conductor	M	0	$0	$0	$0
	TOTAL STREETLIGHTING				**$0**	**$0**
					$217,000	**$21,700**
FINISHING WORKS						
	40mm HL3 Asphalt (Top Lift)	M²	0	$100	$0	$0
	Grass and landscaping	L.S.	0	$10,000	$0	$0
	New Entrance on ROW, including: asphalt, culvert and installation	L.S.	1	$10,000	$10,000	$0
	Lot Grading	L.S.	1	$50,000	$50,000	$5,000
					$60,000	**$5,000**
STORM WATER MANAGEMENT POND						
	Headwall and Rip Rap Outlet		1	$0	$0	$0
			1	$0	$0	$0
					$0	**$0**
LANDSCAPING AND ON SITE WORKS						
	Trees	E.A.	12	$200	$2,400	$240
	Trails and Walkways (topsoil to a depth of 0.15 metres and sod)		1	$0	$0	$0
	Park (topsoil to a depth of 0.15 metres and sod)					
	Grass	L.S.	1	$5,000	$5,000	$500

ITEM	DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL COST	Sec
						10%
	Flagstone		1	$0	$0	$0
	Fencing	M	543	$40	$21,720	$2,172
	Lighting		1	$0	$0	$0
	Garbage Enclosure		1	$0	$0	$0
	Retaining Wall		1	$0	$0	$0
	Planters		1	$0	$0	$0
	Signage		1	$0	$0	$0
	Parking Lot Demarcation		1	$0	$0	$0
					$29,120	**$2,912**

SUMMARY

BELOW GROUND	$387,780	$38,778
ABOVE GROUND	$217,000	$21,700
FINISHING WORKS	$60,000	$5,000
STORM WATER MANAGEMENT POND	$0	$0
LANDSCAPING AND ON SITE WORKS	$0	$2,912

TOTAL SECURITIES REQUIRED AT REGISTRATION

urities
100%
$0
$0
$0
$0
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$0
$10,000
$0
$0
$68,390

Introduction

Enviropod International was established in 1996, as a world leader in the development of 'at-source' stormwater treatment solutions and catch basin insert technologies. solving environmental stormwater problems around the globe. As a result of continued field and laboratory testing with independent third-parties in Canada, Australia, and New Zealand, Enviropod delivers patented solutions that meet local stormwater regulations globally, delivering better urban water outcomes for future generations.

A quarter-century of experience, smart design and engineering, with investment in research and development, and constant innovation has contributed to our products becoming award-winning solutions in the prevention of marine plastic pollution and at-source pre-treatment.

We work with local governments, councils and private businesses, with offices and technology partners in Canada, USA, Australia and New Zealand, to meet private, municipal and federal stormwater quality requirements and regulations.

The EnviroBasin™ is an advanced water quality inlet, or catch basin based oil and grit separator and is the latest innovation in stormwater management.

This all-in-one device incorporates the revolutionary capture power of the LittaTrap™ inlet filter with additional flow-modifying components that enhance the capture and retention of trash and sediment.

The EnviroBasin is ETV verified and meets the standard for Oil and Grit Separators in Canada and when installed on a project as an alternative to conventional catch basins , the EnviroBasin not only removes the need for downstream oil and grit separators (OGS), it can also result in fewer pipes, manholes, and other stormwater infrastructure. Traditional end of pipe OGS units require that all flows regardless of pollutant levels go through the device, often resulting in a larger, more expensive device. The Envirobasin is an at source treatment device so it can be sized accordingly to have increased treatment capacity for high pollutant loading zones or "hot spots" while nonpolluting sources such as rear lots or roof runoff can be left out, preventing unnecessary costs to the customer.

The EnviroBasin is the ultimate pre-treatment device for LID, infiltration, rain gardens, tree cells and urban green infrastructure as it extends the required maintenance frequency of the devices by capturing TSS as well as 100% of gross pollutants which would otherwise bypass in a traditional OGS. The increased volume of gross pollutants (trash, leaves, etc.) clogs these devices much quicker but the EnviroBasin ensures only finer particles make it to these devices as designed.

Referees with experience using Enviropod Technologies in Canada over the past 5+ years:

Bill Trenouth, PhD, P.Eng., PMP
Water Resources Engineer, Water
D +1-519-963-5921
M +1-647-638-2959
AECOM
Citi Plaza, 250 York Street
Suite 410
London, ON N6A 6K2, Canada
T +1-519-673-0510
Email Bill.Trenouth@aecom.com
aecom.com

Bill is a consulting engineer specifying both EnviroBasin and LittaTrap. The LittaTrap is a major component of the

EnviroBasin which provides energy dissipation, gross solids capture while being easy to maintain. The following referees have experience with the LittaTrap and can speak to the ease of use and the benefits to having at source for rainfall runoff treatment.

Anthony Obtinario, P. Eng
Environmental Engineer
City of Brampton
Public Works and Engineering
1975 Williams Parkway
Brampton, ON L6S 6E5
Ph: (416) 553-5237
Email: Anthony.Obtinario@brampton.ca

Jacob Reid, M.Sc., EP
Supervisor of Technical, Stormwater and Rail Operations
Roads, Parks and Fleet Department
City of Barrie
Barrie Operations Centre, 165 Ferndale Drive North, Barrie ON, L4N 9V9
Office: 705-739-4220 X4918 | Cell: 705-627-7111 | Fax: 705-739-4235
Email jacob.reid@barrie.ca
www.barrie.ca

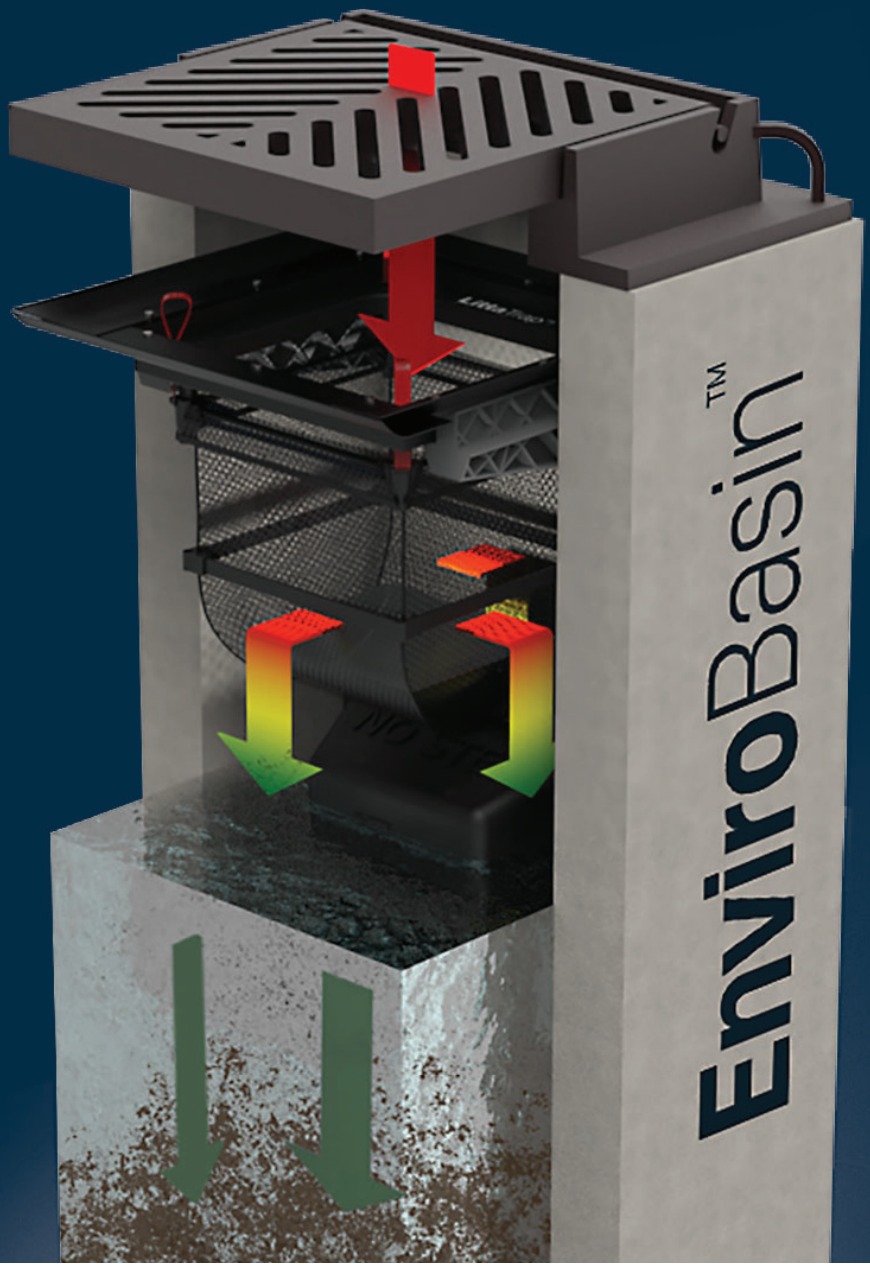
William Withers, HBSc, CET
Water Resources Coordinator
Town of Richmond Hill
Engineering and Infrastructure Services
905-747-6487 | RichmondHill.ca
Email william.withers@richmondhill.ca

The links below will lead to case studies which can be found on the enviropod.com website. These case studies involve the use of LittaTrap only, but there are multiple EnviroBasin case pilot projects underway and we hope to share the results of these studies as soon as they are available.

CASE STUDIES – Ontario, Canada
City of Brampton
City of Barrie
City of Hamilton
City of Kitchener

ENVIROPOD.COM

EnviroBasin™



Operations and Maintenance Guide

ENVIROPOD™
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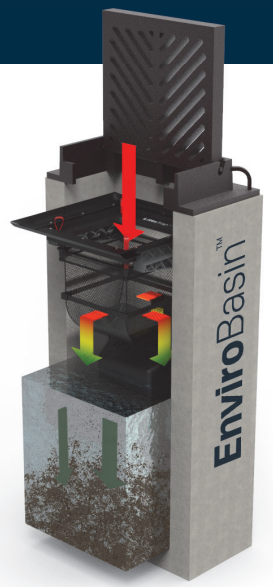
The EnviroBasin™



ISO 14034
ETV VERIFIED

The EnviroBasin™ is an engineered water quality inlet offering two functions:

1. Conveyance of stormwater runoff from ground level into the reticulation system; and
2. Removal of pollutants and improvement of water quality.

The EnviroBasin™ consists of the LittaTrap™ Catch Basin insert installed into a pre-cast catch basin to dissipate energy, promote sedimentation and provide full capture of gross solids 5 mm in diameter and greater in stormwater runoff as shown in the figure right. This is done by the LittaTrap device in conjunction with an energy dissipator dish and submerged outlet baffle.

The system is easy and safe to maintain, with large storage capacity relative to its catchment area. Confined space entry is not required.

FEATURES

- High flow, dry gross solid capture.
- Enhanced nutrient removal.
- Reduced contaminant release.
- Hand maintenance of gross pollutant basket; no vactor truck or confined space entry needed.
- Enhanced energy dissipation and flow distribution.
- >50% sediment removal (Good Harbour Labs, 2017).
- Reduced resuspension.
- Large sediment sump storage volume.
- No confined space entry. Vactor truck maintenance frequency of the sump is reduced.

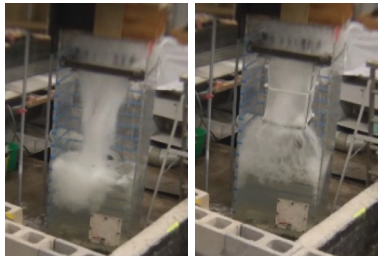


Figure 4: Turbulence in sumped stormwater inlet (left) and EnviroBasin™ (Right)

LOCATION AND CATCHMENT AREA

Each jurisdiction supplies guidance around the hydraulic design, location, and capture capacity of stormwater inlets.Catchment area, gradient, cross fall, configuration, dimensions, and grate all affect the inlet capacity of a catch basin and therefore, the spacing.

The maximum catchment area of the EnviroBasin™ is typically governed by the ability of the peak capture flow of the device, i.e. the inflow for a 5 or 10-year design storm.

Enviropod in conjunction with AECOM Canada have developed a performance estimating tool to determine the Total Suspended Solids (TSS) removal of the Enviropod Envirobasin for a given catchment. The performance estimating tool uses third party performance data obtained from Canadian Environmental Technology Verification Program (CETV) procedure for Laboratory Testing of Oil-Grit Separators ISO testing and historical rainfall data to estimate flow, determine surface loading rate and estimate performance for a catchment area.

Field Trials

EnviroBasin™ Components

Components and Operation

THE ENVIROBASIN™ CONSISTS OF:

Concrete catch basin with a grate and integrated sump

Enviropod Littatrap
– Support bracket
– FIlter Box
– Seals
– Gross Pollutant Basket

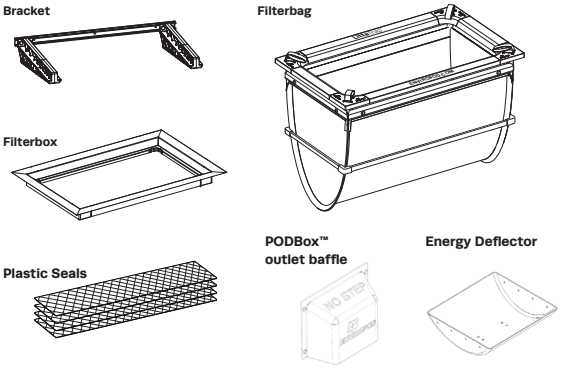
Energy Deflector

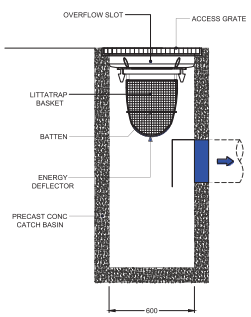
PODBox™ outlet baffle

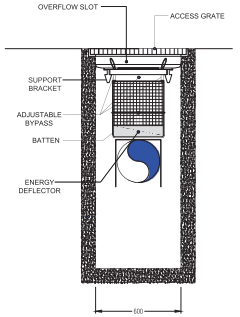
Internal components are injection molded, high density plastic.

Overland flow is diverted into the EnviroBasin™ grated inlet in the same manner as a standard stormwater inlet. Once the flow has dropped below the grate, it is diverted through the gross pollutant basket, where it is intercepted by the patented energy dissipation mechanism. This reverses the direction of flow, distributing the inflow evenly across the surface area of the sump.

This process enhances settling and reduces resuspension of sediment while retaining and storing gross solids in a dry environment.







MODEL AND SIZE SPECIFICATION

The EnviroBasin™ has 3 standard models. Table 1 below details the standard models available.

Catch basin size (mm)	LittaTrap model	Bracket width (mm)	Filter box size (mm)		Seal kit size (mm)		Basket size (mm)		
			Length	Width	Length	Width	Length	Width	Depth
450x450	LT4545	435	377	377	492	492	225	225	400
600x600	LT6060	570	512	512	647	647	362	362	400
900x600	LT9060	872	812	512	947	947	650	362	400

Maintenance

Routine maintenance of LittaTrap by hand or vactor truck (3–12 months dependent on site specific loading).

Periodic maintenance by Vactor truck maintenance of the EnviroBasin™ sump (2–3 years depending on site specific loading).

LittaTrap™ Basket Hand Maintenance

It is recommended the LittaTrap™ basket be emptied when 75% full (generally every 3–12 months). To empty the basket, simply "Lift, Tip, Reuse". The following steps detail hand maintenance:

1. Establish a safe working area per typical catch basin service activity.
2. Remove grate/access cover.
3. Remove the basket with two lifting hooks or lift by hand through the loops on the top of the basket. Excess debris should be scooped out first if the basket is over half full.
4. Pour contents of the basket into a disposal container.
5. Replace grate.

EnviroBasin™ Sump Vactor Maintenance

Steps for vactor maintenance are as detailed below:

1. Establish a safe working area per typical catch pit service activity.
2. Remove grate/access cover.
3. Vacuum accumulated debris from the basket.
4. Vactor the contents from the sump of the catch basin (if required).
5. Inspect the Littatrap™ and EnviroBasin™ for any damage. Reinstall the LittaTrap basket.
6. Replace grate/access cover.

FREE DESIGN AND SIZING SERVICE

Enviropod offers a free design service where the cumulative performance of several EnviroBasin's can be modelled for a specific project based on local rainfall and treatment needs. This service allows stormwater consultants to optimize the number and the location of EnviroBasin's for their projects.

ABOUT ENVIROPOD

EnviroPod is the world's leading catch basin insert technology provider. The company has over 50,000 installations worldwide, including catchment wide retrofits. The EnviroBasin™ is a result of 26 years' of research, implementation and operation of source treatment solutions.

For further information please see www.enviropod.com

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1839 08/22

EnviroBasin™ Project Sizing Report

Project Information:	
Project name:	301 14th Street Simcoe, ON
Province:	Ontario
City:	Simcoe
Project Number:	#209358
Regulator:	LSRCA
Designer Company:	Balan Engineering Corp
Company Suburb/Office:	Ottawa

Site Information	
Total Catchment Area (HA):	1.175
Cumulative Runoff Coefficient (C):	0.6
Rainfall Station/Assessment method:	Brantford Airport
Storm Depth (mm) if using SCS method:	n/a
Climate Station ID:	6140942
Number of Envirobasin units required:	13
Particle Size Distribution*:	ETV PSD

Design Requirements	
Target TSS Removal (%):	60
Required Runoff Volume Capture (%):	90
Estimated Average Annual Sediment Load (kg/yr):	151.872
Estimated Average Annual Sediment Volume (m^3/yr):	3.37
Influent TSS Concentration (mg/L):	200
Maximum Treatment Area per EnviroBasin (m^2):	990

Device Performance	
Average Surface Loading Rate (L/min/m^2):	18.9
Runoff Volume Capture %**:	100
Max Sediment Storage Volume (m^3):	4.212
Max Sediment Storage Mass*** (kg):	6739.2

Number of Envirobasin™ units required:	**13**
Average Weighted Calculated TSS Removal (%):	**60**

Assumptions and limitations of the tool
* All TSS removals calculated by applying ETV testing results to the corresponding Particle sizes
** All treatment flows entering the grate travel through the treatment zone, therefore 100% of the runoff is treated
*** Average density of wet sediment in sump - 1600 kg/m^3
Average sediment loading based on annual rainfall runoff depth of 840mm
The Storm Depth parameter only applies to the SCS Rainfall Event assessment methods
Assumes an event-mean TSS concentration which is congruent with influent concentrations applied during ETV testing
Assumes a particle size distribution congruent with the distributions used during ETV testing
Not suitable for catchment areas too large for the Rational Method to apply
Does not account for snowfall or snowmelt
For preliminary assessment purposes only
Fine PSD Distribution from Stormwater management and Design Practices (MOE, 1994)

Project: #209358 301 14th Street Simcoe, ON

This is a submittal for a storage facility site which requires pretreatment. The Enviropod EnviroBasin™ is a water quality inlet designed and ETV tested to remove over 50% of Sediment and 100% of trash that enters the structure. The sediment capture includes a range of particle sizes and is achieved by using the patented energy dissipation mechanisms which maximize settling in the catch basin sump and reduce scour. There are 13 locations for EnviroBasin™ devices in this project, an example calculation, assumptions and the estimated removal efficiency for EnviroBasin™ are provided below. Table 1 provides the full list of details for each EnviroBasin™.

Catchment treated:

Name: CB#1
Assessment Method: Brantford Airport
Storm Depth: n/a
Catchment Area 904 m^2

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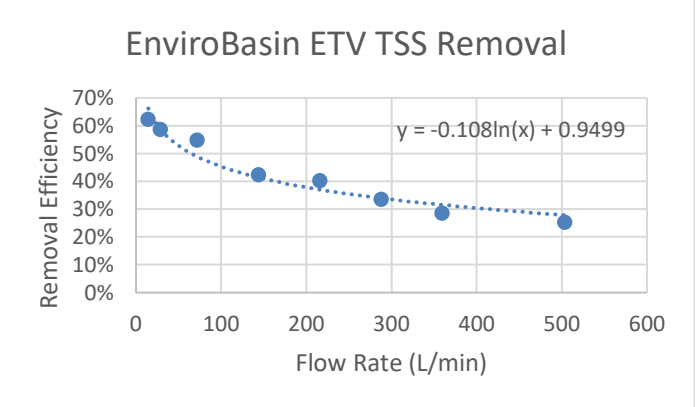
Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5



EnviroBasin Annual TSS Removal Rates			
Catchment Parameters	**Value**	**Results**	**Value**
Assessment Method	Brantford Airport	Average Flow Rate (L/min)	**18.9**
Storm Depth (mm) For Events*	**NA**	Average Surface Loading Rate (L/min/m^2)	**52**
Catchment Area Per EB (ha)	**0.090**	Average Removal Rate (%)	**60%**
Runoff Coefficient	**0.6**	Total Number of EnviroBasin's	**13**

Individual catchment areas were not provided, therefore the treatment area of 1.172 ha was estimated from the plans and divided across the 13 EnviroBasin™. Calculations were carried out using Historical Brantford Airport rainfall with a catchment area of 904 m^2 per EnviroBasin™ and a runoff coefficient of C= 0.6. The C value was not provided, therefore C=0.6 for gravel was used, as detailed in the LRCA Technical Guidelines for Stormwater Management Submissions. Note that a blind lead from each EnviroBasinTM with backflow prevention or another offline solution may be required to prevent throughflow. See submittals pages for further information on alternative solutions.

It is estimated that 60% of TSS will be removed using the 600mm x 600mm EnviroBasin™ with a minimum sump depth of 900mm and the above assumptions.

Drain ID	Depth to invert (m)	Outlet pipe Diameter (mm)	C Factor	Catchment area (A) (ha)	CA* (ha)	EB	Average Flow Rate (L/min)	Average SLR (L/min/m^2)	ETV PSD Removal Efficiency (%)	Weighted ETV PSD Removal Efficiency (%)	Max Sediment Storage (m3)	Notes
CB#1	1.5	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	Individual catchment areas not provided. Area estimated from plan and evenly distributed across total number of EnviroBasin (EB). C factor not provided. C Factor for gravel from LRCA Technical Guidelines for Stormwater Management Submissions, Figure 13, Page 28. Blind lead from EB with backflow preventions or other offline solution may be required to prevent throughflow. See submittals pages for alternative options.
CB#2	1.5	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#3	1.5	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#4	1.55	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#5	1.55	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#6	1.55	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#7	1.6	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#8	1.5	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#9	1.5	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#10	1.5	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#11	1.5	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#12	1.5	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
CB#13	1.5	250	0.6	0.904	0.542	1	18.9	52	60	4.6	0.324	
Total:				**45.2**	**7.051**	**13**	**18.9**	**52**	**60**	**60**	**4.212**	

PRE-INSTALLED BY ENVIROPOD

INSTALLED BY CONTRACTOR

ALL LITTATRAP COMPONENTS PREINSTALLED BY ENVIROPOD

EnviroBasin™ BY ENVIROPOD CANADA LTD
CONTACT : BARRY IRWIN
MOBILE : (437) 214-5419
USA / CANADA : TOLL FREE : (877) 651-0566
EMAIL : barryi@enviropod.com
WEB : www.enviropod.com

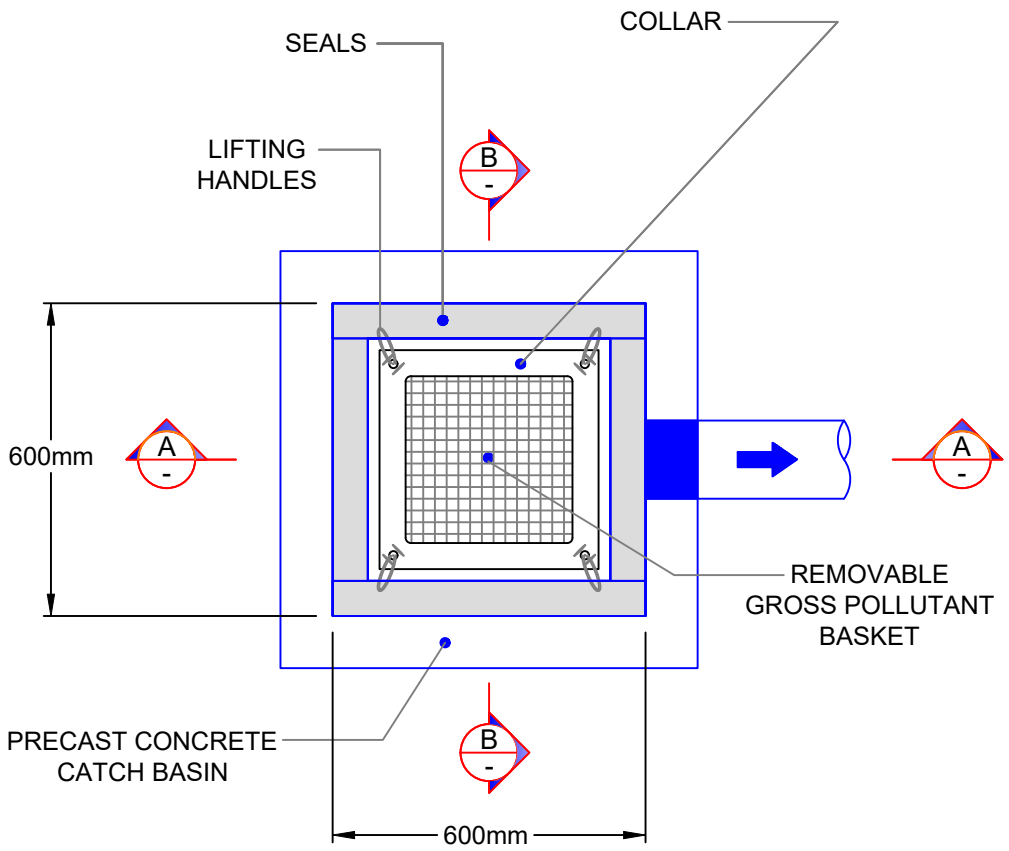
ENVIROBASIN FLOW AND STORAGE SPECIFICATION
MODEL : EB

SCREEN AREA (cm^2)	6250	TRASH STORAGE (LITRES)	43
MAXIMUM HYDRAULIC CAPACITY (L / sec)	88	SEDIMENT STORAGE (m^3)	0.32

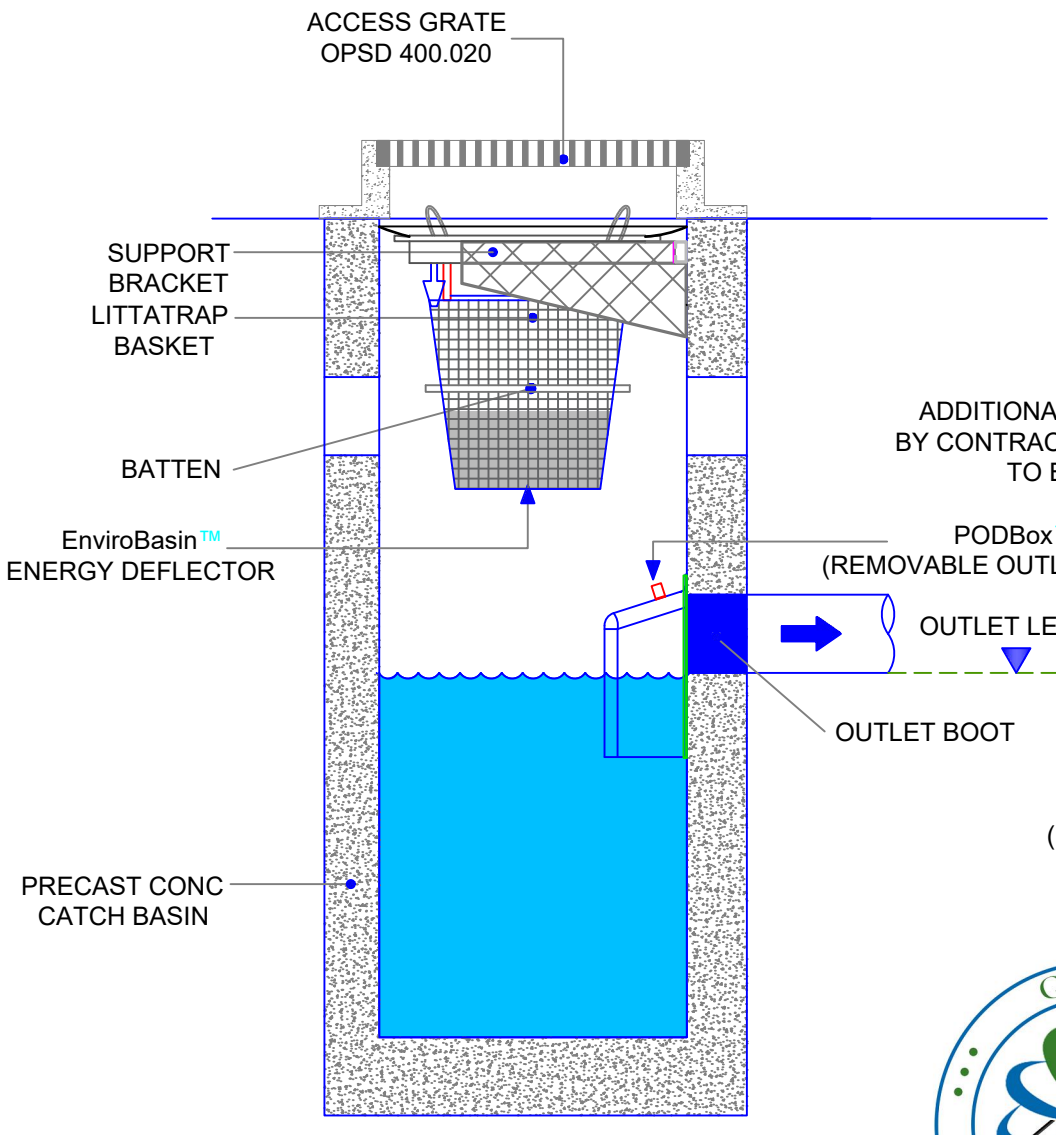
MAXIMUM HYDRAULIC CAPACITY BASED ON FACTORY SET BYPASS DIMENSIONS WITH 200% SAFETY FACTOR.

MAXIMUM OUTLET DIAMETER 12". CONTACT US FOR OTHER SIZED OUTLETS

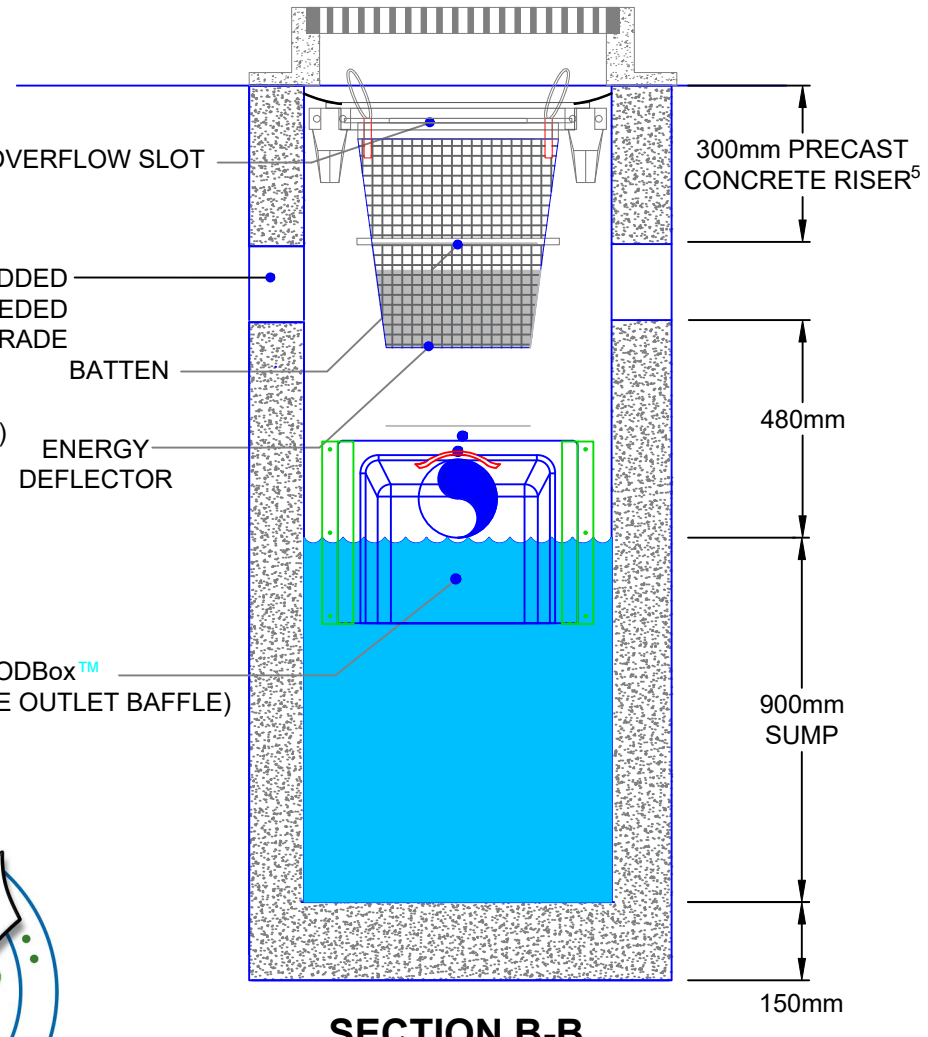
STANDARD DTI IS 930mm.



PLAN VIEW



SECTION A-A



SECTION B-B

THE Enviropod® may be protected by one of the following Canadian, USA or International patent numbers and has other patents pending :
2,810,974, 13/824,376, 15/459,964, 2011302712, 588049

PATENT No.

ENVIROPOD™
A STORMWATER360™ COMPANY

EnviroBasin™
TRASH AND SEDIMENT CAPTURE SPECIFICATION DRAWING
ENVIROPOD CANADA

REV #	DATE	REVISION DESCRIPTION	BY
F	02/14/24	BYPASS TEXT	B.V.
G	07/10/24	OUTLET DIAMETER	B.V.
H	05/11/24	DIMS UPDATED	B.V.
I	08/07/25	HYDRAULIC CAPACITY	B.V.

DATE :	05/11/24	DRG No. :	CAN-EB-20	DRAWN :	R.P.	CHECKED :	M.H.	PROJECT No :	REV :	I

ENVIROPOD.COM

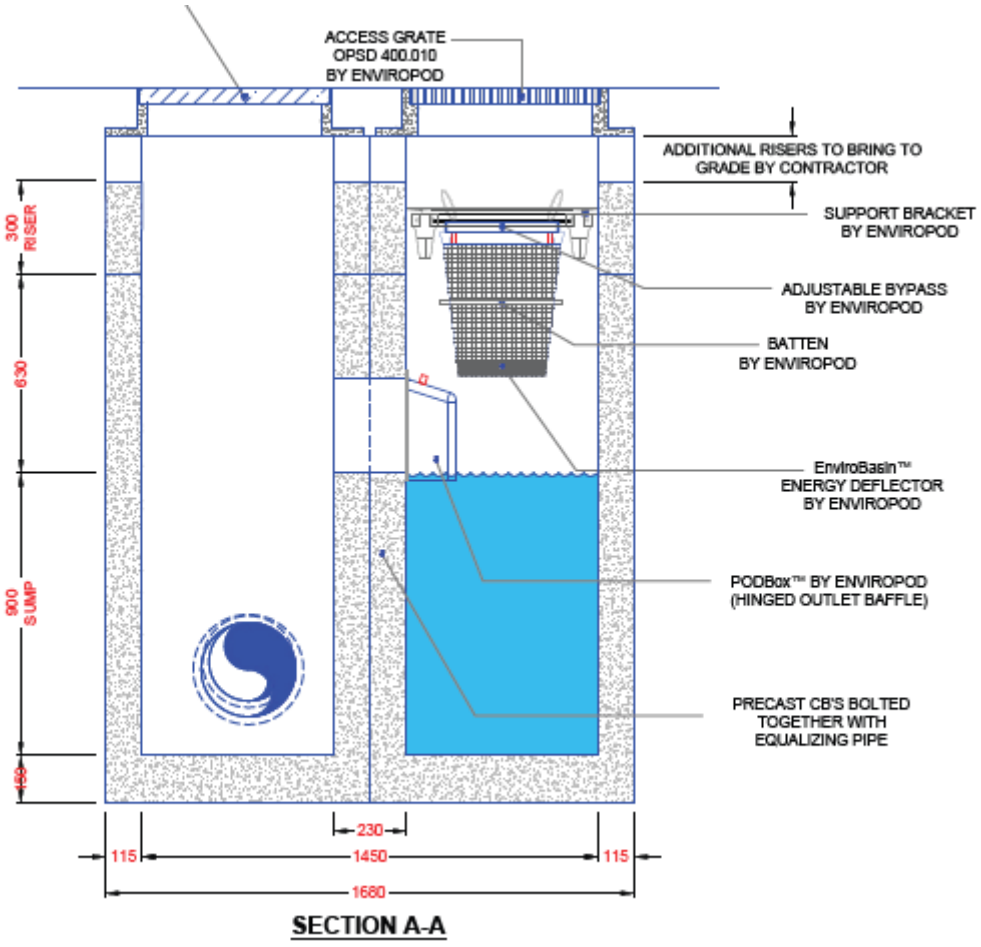
EnviroBasin Through Flow Solutions

Braden Van Leer

Feb 2024

Junction Inlet EnviroBasin

- The Treatment chamber of an EnviroBasin must not have any flow through pipes
  - Subdrains are ok as incoming velocities are expected to be low
- When single CB's are specified in line, the junction EnviroBasin allows for flows to pass through without impacting sediment capture
  - The pipes through the junction section can be at various levels through the junction section, allowing for deeper pipe installation where required
- The design has been updated to be more economical due to rising steel and aluminum costs. The steel plate is no longer required with this design



ENVIROBASIN FLOW AND STORAGE SPECIFICATION
MODEL : EB JUNCTION INLET

SCREEN AREA (cm^2)	6250	TRASH STORAGE (LITRES)	43
BYPASS CAPACITY (L / sec)	88	SEDIMENT STORAGE (m^3)	0.32

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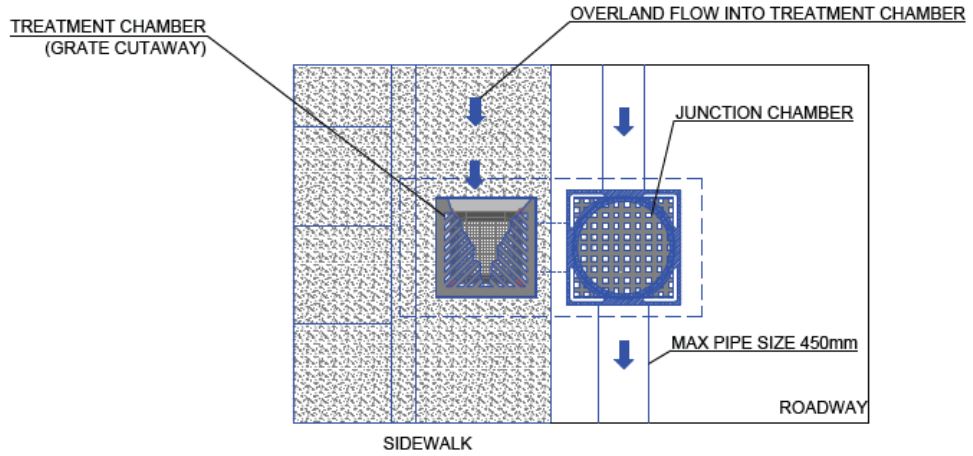
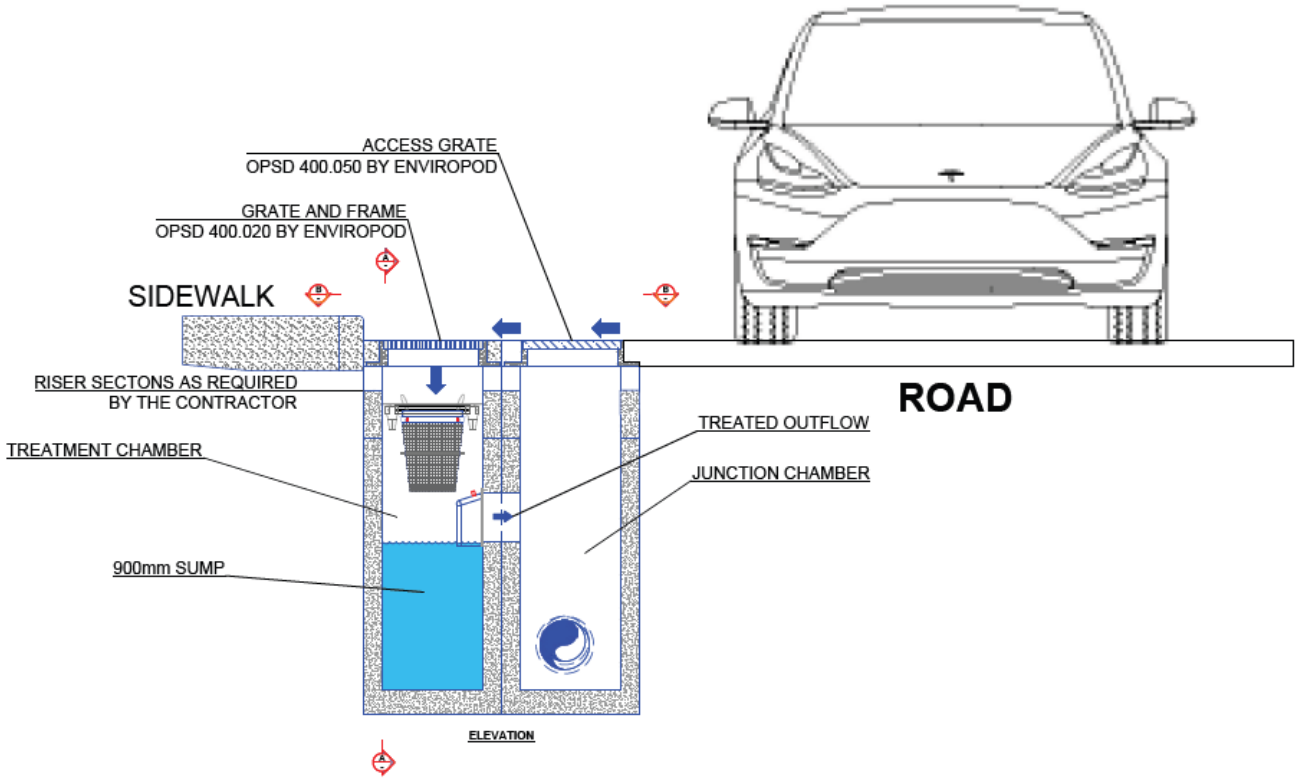
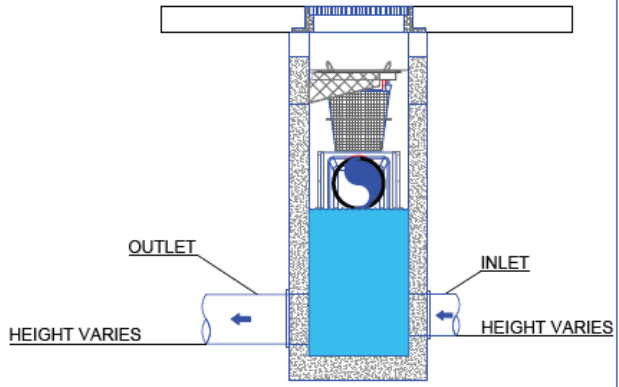


SECTION B-B



ELEVATION

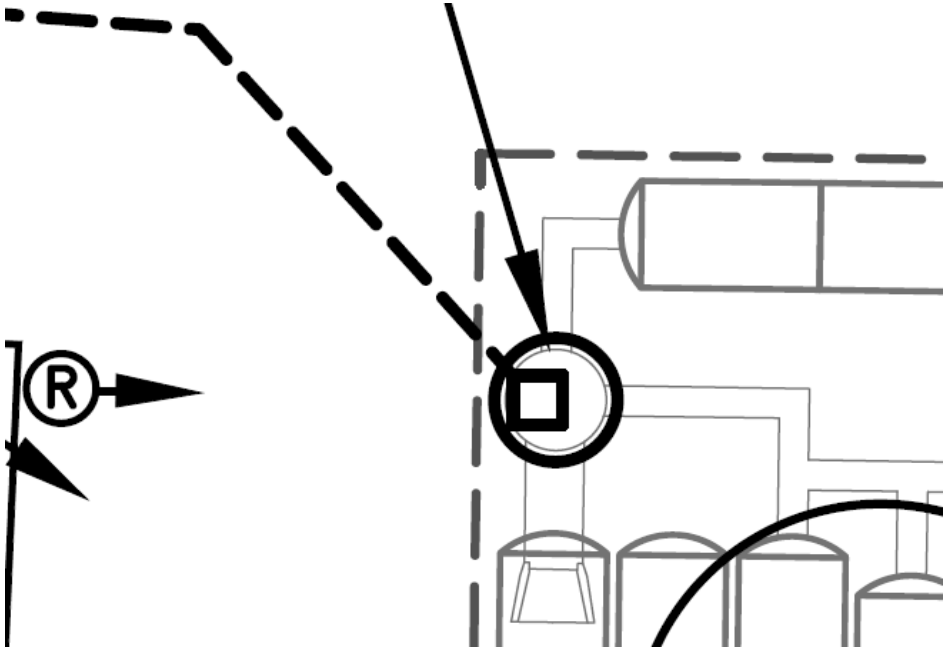


SECTION A-A

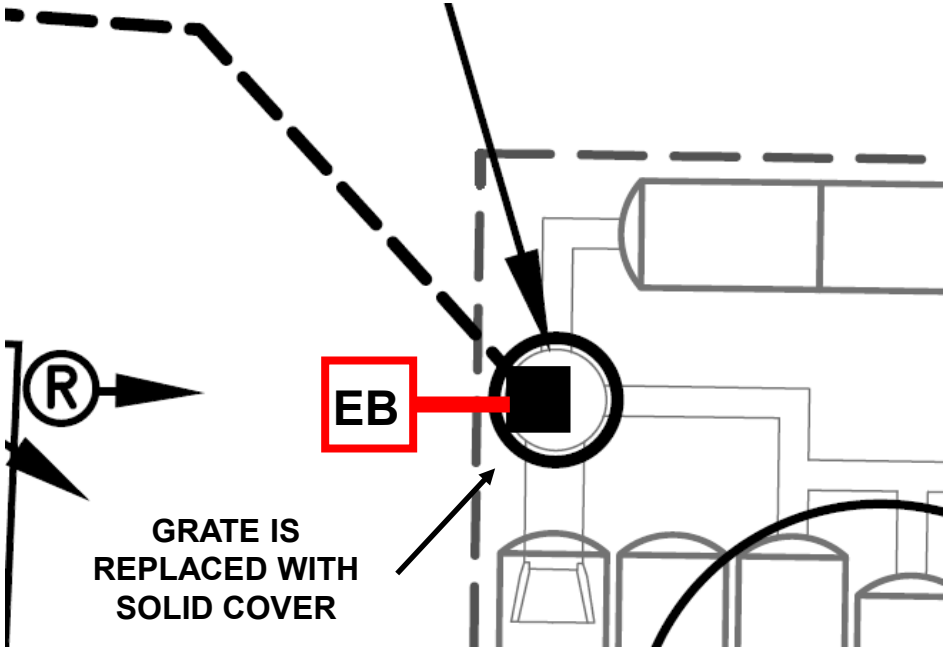
Added EnviroBasin next to manhole

- If there are more than three inlets/outlets or the pipes are too large, it may be more economical to place an EnviroBasin next to the manhole and give the manhole a solid cover

- Twin Inlet EnviroBasins have to be put next to a manhole



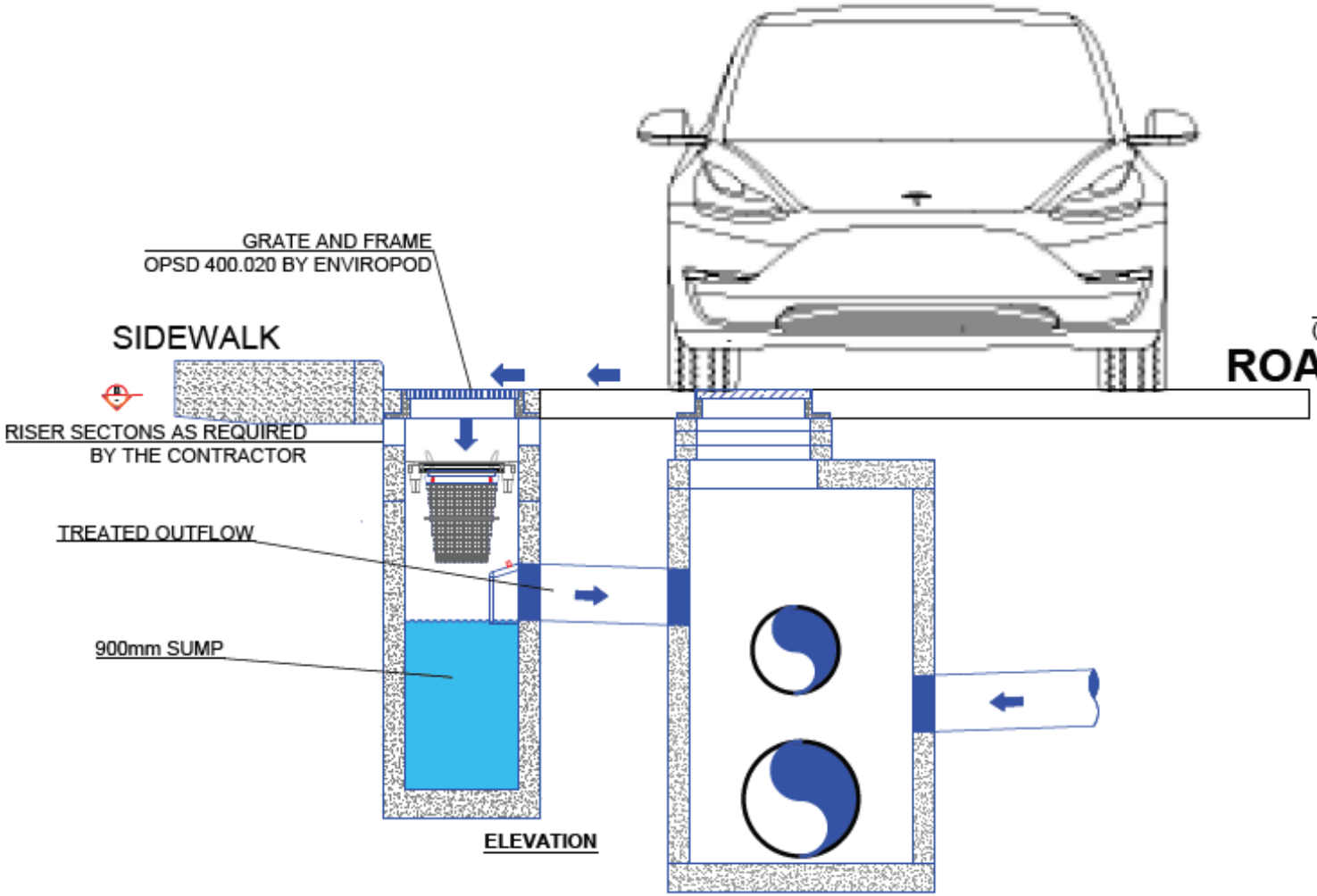
Specified CBMH in catchment requiring treatment

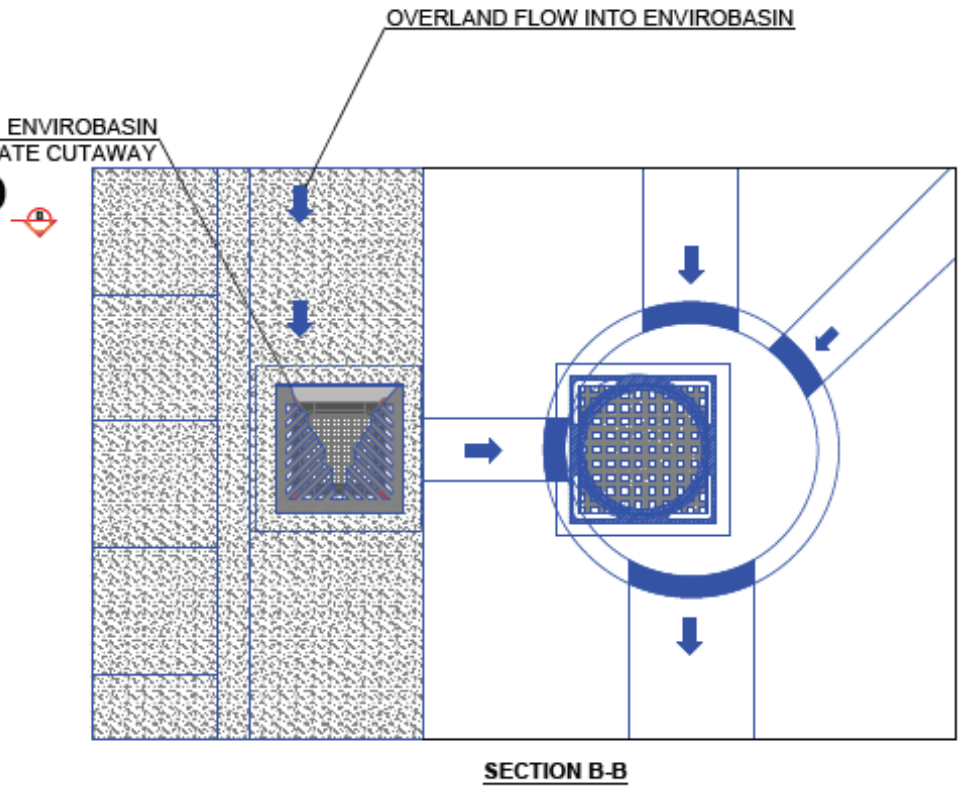


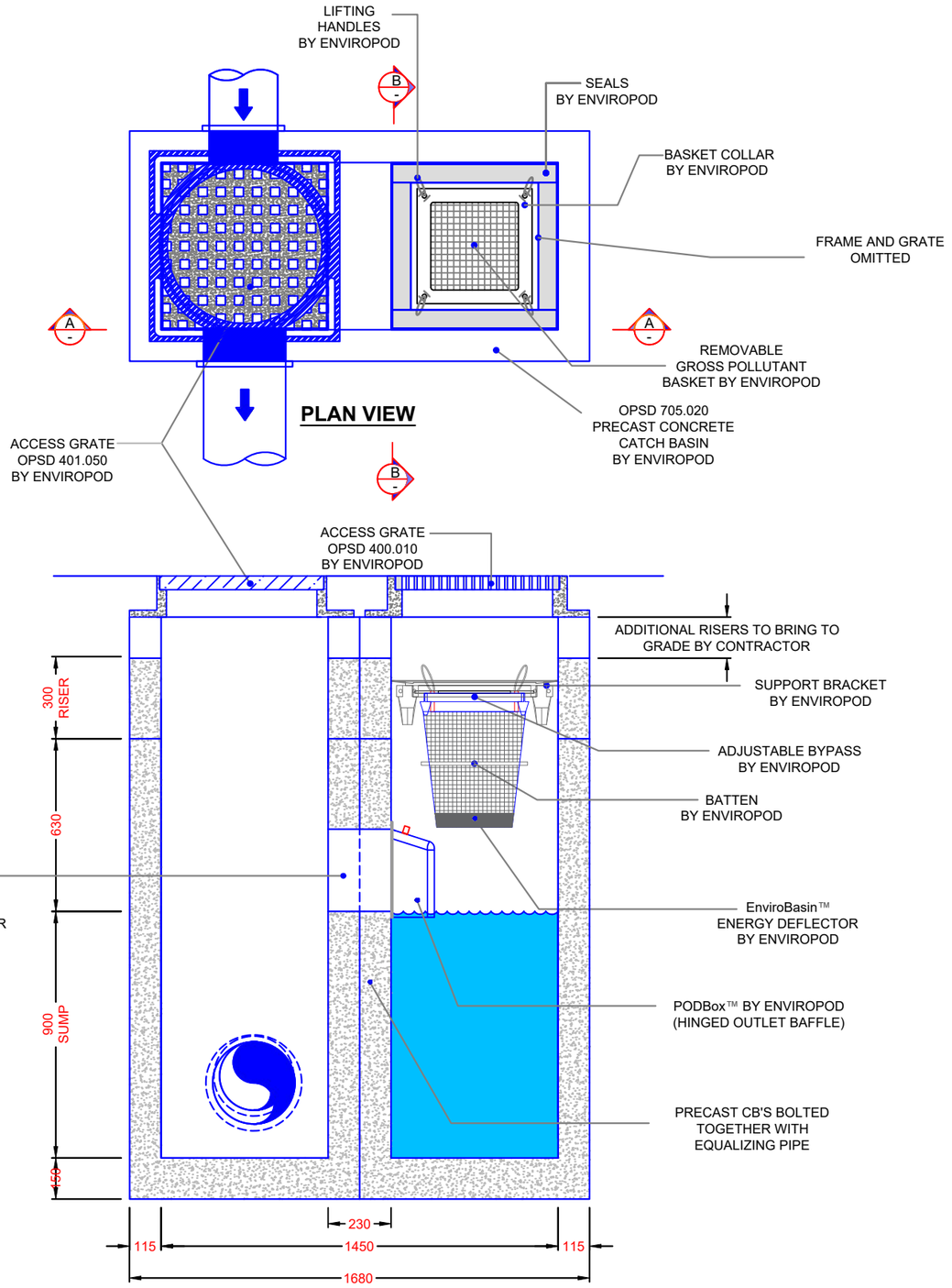
Envirobasin placed in catchment leading into CBMH to provide ETV verified TSS removal instead

Added EnviroBasin next to manhole

- If there are more than three inlets/outlets or the pipes are too large, it may be more economical to place an EnviroBasin next to the manhole and give the manhole a solid cover







ENVIROBASIN FLOW AND STORAGE SPECIFICATION MODEL : EB JUNCTION INLET			
SCREEN AREA (cm^2)	6250	TRASH STORAGE (LITRES)	43
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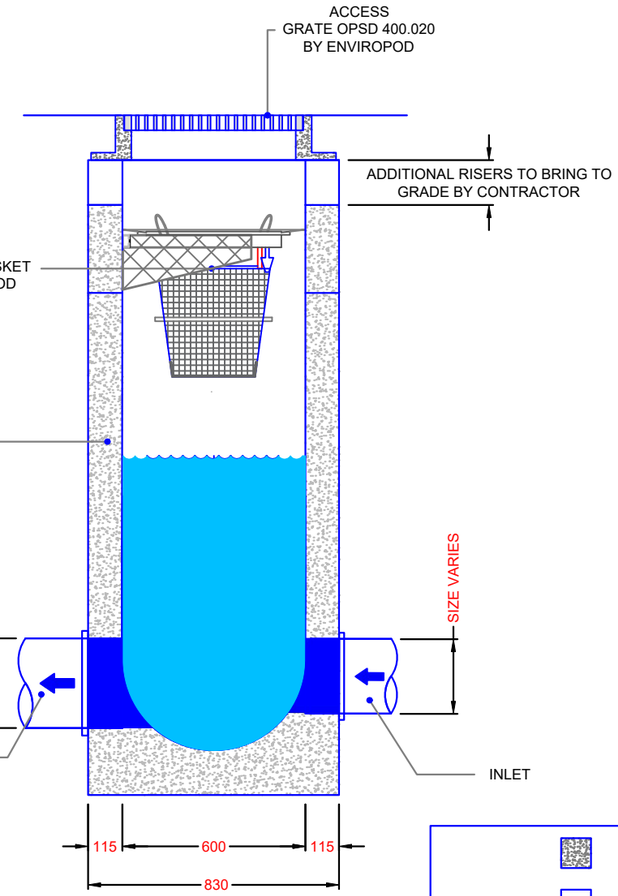

PRE-INSTALLED BY ENVIROPOD

INSTALLED BY CONTRACTOR

ALL LITTATRAP COMPONENTS PREINSTALLED BY ENVIROPOD

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2,810,974, 13/824,376, 15/459,964, 2011302712, 588049

PATENT No.

ENVIROPOD™
A STORMWATER360™ COMPANY

ENVIROBASIN™
TRASH AND SEDIMENT CAPTURE
JUNCTION INLET DESIGN
ENVIROPOD CANADA

DRG No : CAN-JIEB-20 | REV : F | DATE : 04/17/25

JOB NO :			REV	REVISION DETAIL	DATE
PROJECT :			B	UPDATE JUNCTION	10/14/22
			C	VARIOUS EDITS	10/21/22
			D	REMOVE BAFFLE	02/22/24
DRN :	B.V.	10/04/22	E	MAXIMUM OUTLET	08/30/24
CKD :	M.H.	10/04/22	F	OPSD 401.050	04/17/25

ENVIROBASIN FLOW AND STORAGE SPECIFICATION
MODEL : EB JUNCTION INLET

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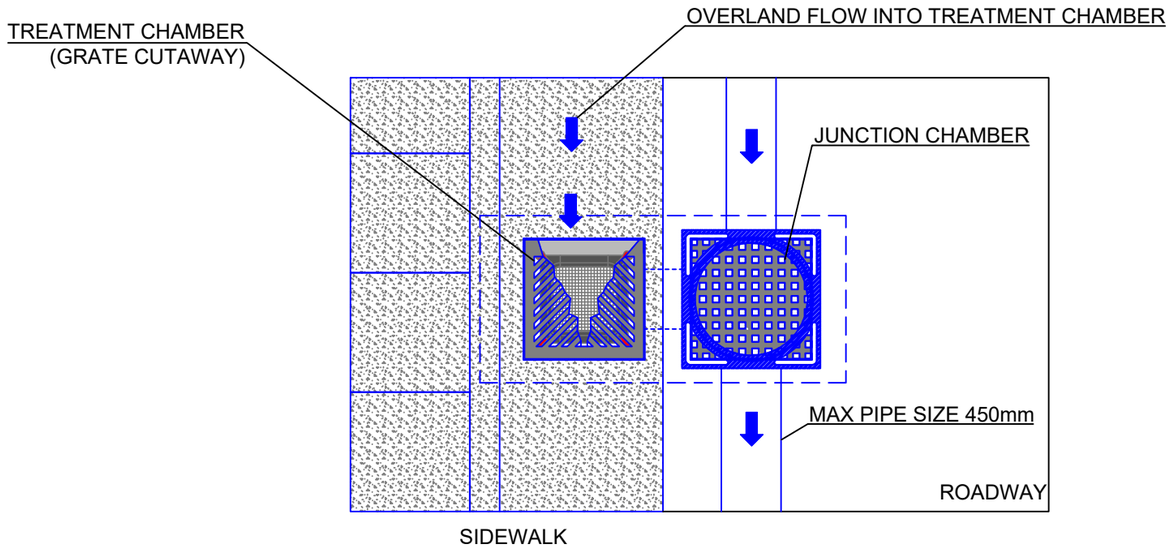
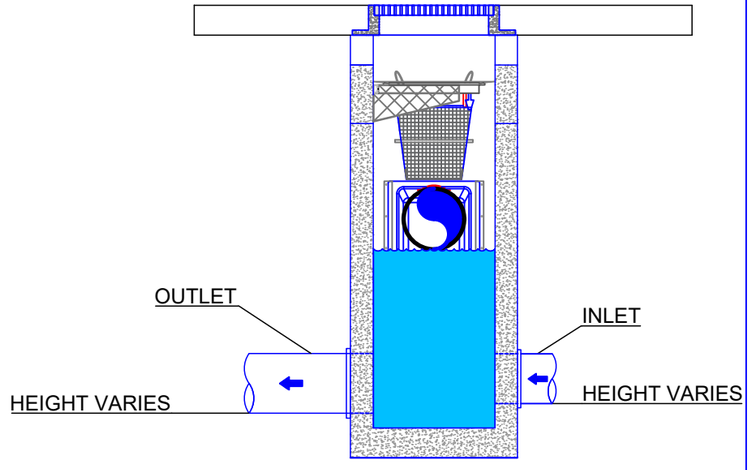


SECTION B-B

ELEVATION



SECTION A-A

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PATENT No.

ENVIROPOD™
A STORMWATER360™ COMPANY

ENVIROPOD®
ENVIROBASIN JUNCTION INLET EXAMPLES
GENERAL ARRANGEMENT

DRG No : CAN-JIEB-ROAD-20 | REV : B | DATE : 03/28/25

JOB NO :
PROJECT :
DRN : B.V. 02/15/24
CKD : M.H. 02/15/24

REV	REVISION DETAIL	DATE
A	FIRST ISSUE	02/15/24
B	RENAME	03/28/25

AECOM Imagine it. Delivered.

Enviropod® International Limited

EnviroBasin TSS Removal Rate Performance Efficiency Estimator

Technical Documentation

Prepared by:

AECOM Canada Ltd.
410 – 250 York Street, Citi Plaza
London, ON N6A 6K2
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Prepared for:

Enviropod® International Limited

Date: June, 2021

Project #: 60653183

Distribution List

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Revision History

Rev #	Date	Revised By:	Revision Description

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- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
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AECOM: 2015-04-13

Authors

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Water Resources Engineer

Report Reviewed By:

Bill Trenouth, Ph.D., P.Eng., CAN-CISEC
Water Resources Engineer

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1. Introduction

Enviropod® International Ltd is the owner and manufacturer of the Enviropod® EnviroBasin system, which is installed into a precast catch basin to treat stormwater. The Enviropod® EnviroBasin™ System employs screening, energy dissipation, flow distribution and gravitational settling to remove pollutants from stormwater runoff. Runoff is treated by capturing and holding gross pollutants, trash and debris in the basket and capturing silts and fine particles in the sump of the catch basin.

The EnviroBasin was tested by Bureau Veritas at Good Harbour Laboratories, following compliance with the ISO 14034 Environmental Technology Verification (ETV) standard and the requirements of the Canadian Environmental Technology Verification Program (CETV) *Procedure for Laboratory Testing of Oil-Grit Separators*, June 6, 2014 - Version 3.0 and all associated Bulletins. In addition, substantial compliance with the proposed ASTM Standard: *Standard Practice for Laboratory Verification of Hydrodynamic Separators for the Treatment of Stormwater* and the *New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device (Jan. 01, 2021)* was followed, however the test was not 100% compliant due to the specific nature of the apparatus. The testing included water quality sample analysis and sediment particle size distribution, and the generated data was used to create a tool estimating the Total Suspended Sediment (TSS) removal rate for the Enviropod® EnviroBasin.

Details of the testing methodology are provided in the Performance Testing of the Enviropod® EnviroBasin™ System for evaluation according to ISO 14034 Environmental Technology Verification (Good Harbour Laboratories, 2021) report.

1.1 Development of the Tool

The EnviroBasin Performance Efficiency Estimator was developed using Microsoft Excel so that the tool would be easily accessible and transparent in its methodology.

A line of best fit, or trendline, was applied to the removal rates measured at each flow rate summarized within the ETV testing results. The removal rates provided are based on percent of the total mass of loaded sediment captured. The regression equation of the trendline was then used to predict removal rates for any given flow rate passing through the LittaTrap. Flow rates passing through an assumed EnviroBasin within the spreadsheet tool are calculated from the rainfall intensity and catchment characteristics using the Rational Method.

The available rainfall intensity options pre-loaded within the tool include historical rainfall data records from four different rain gauges within the Greater Toronto Area spanning time periods of 9-18 years, as well as the 6-hour and 12-hour SCS rainfall distribution events.

For more detailed information involving the data sets and methods utilized by the EnviroBasin Performance Efficiency Estimator, refer to **Section 3**.

1.2 Purposes and Uses

The Envirobasin Performance Efficiency Estimator is intended to provide a preliminary assessment of the event-based and/or long-term TSS removal rates that can reasonably be achieved following installation of a LittaTrap catch basin insert to treat stormwater runoff collected by a catch basin with a defined catchment area and runoff

coefficient. The tool may be used to assess expected annual TSS removal rates if historical rain gauge data are selected, or to assess the removal provided for a storm of a specified rainfall depth.

2. Caveats and Limitations

2.1 Assumptions

2.1.1 Device Size

The Envirobasin Performance Efficiency Estimator assumes that the LittaTrap is correctly installed in a standard 600 mm x 600 mm (24" x 24") catch basin. A larger catch basin may provide different surface loading rates to the system and may not be representative of the data used to develop the sizing tool. The tool also assumes that regular maintenance of the LittaTrap occurs as per the manufacturer's guidelines.

2.1.2 Particle Size Distribution

The removal rates provided by the EnviroBasin Performance Efficiency Estimator are based on the particle size distribution used during the ETV testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff. If sediment particle size distribution loading at the proposed installation location is significantly different, the results of the EnviroBasin treatment may vary. The LittaTrap is designed to capture and retain solids greater than 5 mm (0.2 "), and therefore particle distributions with large proportions of fines will result in less TSS removal by the system. However, energy dissipation provided by the LittaTrap unit is expected to enhance settlement within the Envirobasin sump, leading to some capture of sediments less than 5 mm (0.2 ") in diameter.

The ETV testing particle size distribution is provided in **Table 1** and shown in **Figure 1**.

Table 1: Particle Size Distribution of Test Sediment

Particle Size (µm / ")	Test Sediment Particle Size (% Less Than)				ETV Specification* (% Less Than)
	Sample 1	Sample 2	Sample 3	Average	
1000 (0.039)	100	100	100	100	100
500 (0.020)	94	94	94	94	95
250 (0.010)	87	87	89	88	90
150 (0.006)	78	78	79	78	75
100 (0.004)	58	58	59	59	60
75 (0.003)	50	51	51	51	50
50 (0.002)	42	45	43	43	45
20 (0.0008)	36	35	36	36	35
8 (0.0003)	20	18	19	19	20
5 (0.0002)	13	12	11	12	10
2 (0.0001)	7	5	6	6	5
d_{50}	74 µm (0.0029")	73 µm (0.0029")	71 µm (0.0028")	73 µm (0.0029")	≤ 75 µm (0.0030")

** The median particle size (d_{50}) must not exceed 75 µm.*

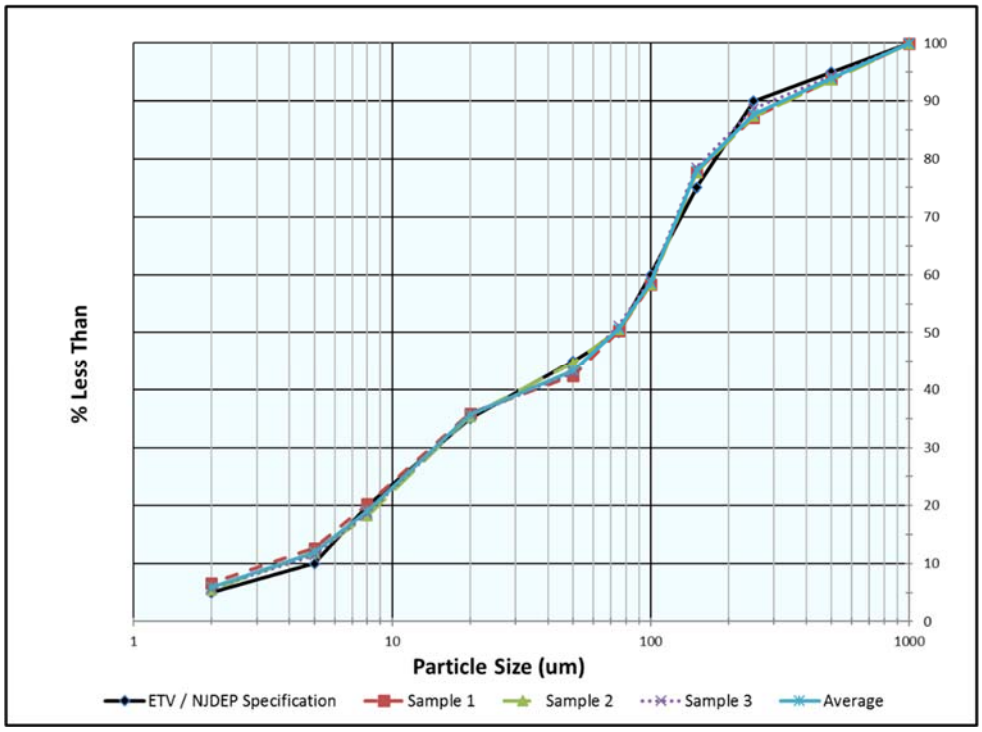

Figure 1: Average Particle Size Distribution of Test Sediment

2.1.3 TSS Concentration

The removal rates provided by the EnviroBasin Performance Efficiency Estimator are based on the influent sediment concentration used during the ETV testing. If sediment concentrations at the proposed installation location are significantly different, the results of the EnviroBasin treatment may vary.

The average sediment loading of the ETV tests is 200 mg/L (0.002 lb/gal, and specific testing concentrations are provided in **Table 1**.

Table 2: Sediment Feed Rate Summary

SLR (L/min/m^2, ft^3/min/ft^2)	Sediment Feed Rate (mg/min, lb/min)		Average Influent Sediment Concentration (mg/L, lb/gal)	QA/QC Compliance (COV < 0.10 and avg. = 200 ± 25 mg/L, 0.002 ± 0.00025 lb/gal)
	Average	COV		
40 (0.13)	2,971 (0.007)	0.045	206 (0.0021)	PASS
80 (0.26)	5,739 (0.013).	0.041	199 (0.0020)	PASS
200 (0.66)	14,482 (0.032)	0.027	204 (0.0020)	PASS
400 (1.31)	29,700 (0.065)	0.031	207 (0.0021)	PASS
600 (1.97)	43,747 (0.096)	0.079	196 (0.0020)	PASS
800 (2.62)	57,327 (0.126)	0.020	200 (0.0020)	PASS
1000 (3.28)	69,087 (0.152)	0.041	191 (0.0019)	PASS
1400 (4.59)	100,674 (0.222)	0.027	202 (0.0020)	PASS

2.2 Limitations

2.2.1 Rainfall Assessment Methods

The EnviroBasin Performance Efficiency Estimator provides the option to assess flows using historical rainfall data from four different rain gauges located within the Greater Toronto Area (GTA), as well as rainfall of a specified depth distributed over a 6-hour or 12-hour SCS distribution curve. The historical rainfall data may not be applicable to locations outside of the GTA. The tool is not currently set up to assess storm distributions aside from the 6-hour and 12-hour SCS events, or to utilize rainfall rates provided by an Intensity-Duration Frequency (IDF) curve.

2.2.2 ETV Testing Limitations

The ETV testing followed a modified version of the OGS testing protocol and utilized specific flow rates, a constant Particle Size Distribution (PSD) and a constant influent TSS concentration (within an experimental margin of error). This is a simplification of real-world processes as wash-off PSD varies over time with changing seasons, changing locations, changing traffic loading, changing rainfall intensities, and other parameters. With respect to rainfall specifically, it should be expected that more intense storms will produce a generally coarser PSD resulting from the increased competence of runoff to carry larger particles. Conversely, for small events it is likely that the PSD will consist of the finer fraction of sediment accumulated within the catchment. In summary, sediment accumulation and wash off are complicated processes and the tool in its current form does not have the ability to characterize these mechanics.

For the purposes of the estimator, a constant PSD and TSS concentration was assumed.

2.2.3 Rational Method Limitations

The Rational Method is not recommended for assessing peak flows from areas larger than 100 ha (247.1 acre and is more applicable to small catchment areas. A typical roadside or parking lot catch basin serves a catchment area less than 1 ha (2.47 acre), and application of a EnviroBasin to service catchment areas exceeding 2 ha (4.94 acre) is not recommended. Therefore, the Rational Method is considered to be applicable to catchment areas which would be served by an individual Envirbasin unit.

Additionally, the EnviroBasin Performance Efficiency Estimator assumes constant rainfall intensity for the duration of the time of concentration when calculating flows from historical rain gauge data. This is a reasonable assumption for small catchments with relatively short times of concentration but may overestimate flow rates for areas with a time of concentration greater than one hour. Due to the catchment area limitations of a single catch basin, this criterion is considered to be sufficiently satisfied under typical circumstances.

2.2.4 Snowfall and Snowmelt Limitations

The EnviroBasin Performance Efficiency Estimator does not utilize historical snowfall data for its assessment and does not take into account snowfall or snowmelt processes when assessing TSS removal rates, as such processes are complex and cannot reasonably be represented without a large number of additional data inputs.

2.2.5 Application Limitations

The LEnviroBasin Performance Efficiency Estimator is intended to provide a preliminary assessment of the removal rates expected from the EnviroBasin, but it does not provide results sufficient for detailed design applications. The effectiveness of any proposed ENvirobasins in specific applications must be confirmed by the design engineer.

3. Data and Methods

3.1 Rational Method

The Rational Method is a simple method for calculating peak flows based on catchment area, runoff coefficient, and rainfall intensity. The following formula is utilized:

$$Q = C \times i \times A$$

Where Q is the peak flow (m^3/s), C is the runoff coefficient, i is the rainfall intensity (m/s), and A is the catchment area (m^2). Typically, the rainfall intensity is provided in units of mm/hour and the catchment area in hectares; conversions are included in the calculations of the tool to convert these values to appropriate units.

Typically, the intensity is derived using the time of concentration and relevant Intensity Duration Frequency (IDF) parameters applicable to the geographic location to provide the peak flow anticipated during specified storm events. However, the EnviroBasin Performance Efficiency Estimator utilizes historical rainfall values or specified depth rainfall distributions to estimate performance, and the rainfall intensity used by the tool is the value provided by each hourly timestep from these data sets. Therefore, the time of concentration is not taken into consideration by the tool.

Runoff coefficients are to be based on land cover and soil type. A typical runoff coefficients for pavement and asphalt is 0.90.

The Rational Method is intended for small-scale applications and is applicable to catchment areas smaller than 100 ha (2.47 acre). The maximum recommended catchment area to be treated by a EnviroBasin is 2 ha (4.94 acre) and a typical roadside or parking lot catch basin serves a catchment area less than 1 ha. Therefore, the rational method is applicable to all relevant catchment areas for EnviroBasin treatment.

3.2 ETV Testing Results

The removal efficiencies determined by the ETV testing are provided in **Table 3**.

Table 3: Removal Efficiencies of the EnviroBasin Based on Particle Size Fractions

Particle Size Fraction (µm, ")	Removal Efficiency (%)							
	40 (L/min/m²) 0.13 (ft³/min/ft²)	**80 (L/min/m²) 0.13 (ft³/min/ft²)**	**200 (L/min/m²) 0.13 (ft³/min/ft²)**	**400 (L/min/m²) 0.13 (ft³/min/ft²)**	**600 (L/min/m²) 0.13 (ft³/min/ft²)**	**800 (L/min/m²) 0.13 (ft³/min/ft²)**	**1000 (L/min/m²) 0.13 (ft³/min/ft²)**	**1400 (L/min/m²) 0.13 (ft³/min/ft²)**
	14 (L/min) 0.49 (ft²/min)	**29 (L/min) 1.02 (ft²/min)**	**72 (L/min) 2.54 (ft²/min)**	**144 (L/min) 5.09 (ft²/min)**	**216 (L/min) 7.63 (ft²/min)**	**288 (L/min) 10.17 (ft²/min)**	**360 (L/min) 12.71 (ft²/min)**	**504 (L/min) 17.80 (ft²/min)**
> 500 (> 0.020)	107	146	95	122	158	99	68	122
250 – 500 (0.010 – 0.020)	106	133	99	113	130	96	67	99
150 – 250 (0.006 – 0.010)	93	100	78	82	64	71	51	48
100 – 150 (0.004 –0.006)	98	94	97	66	49	54	63	31
75 – 100 (0.003 – 0.004)	81	77	56	49	32	36	-66	10
50 – 75 (0.002 – 0.003)	106	55	85	25	18	24	9	2
20 – 50 (0.0008 – 0.002)	41	25	11	12	4	4	0	0
8 – 20 (0.0003 – 0.0008)	25	11	2	1	0	0	0	0
5 – 8 (0.0002 – 0.0003)	0	0	0	0	0	0	0	0
< 5 (< 0.0002)	10	9	9	7	6	6	6	4
Mass Balance Removal Efficiency (%)	62.31	58.65	48.61	41.13	36.92	33.56	28.47	25.23

The EnviroBasin Performance Efficiency Estimator utilizes the mass balance removal efficiency results per flow rate to determine a removal rate curve for the tool. The results are plotted on a graph and the trendline of the data points is used to determine the TSS removal rate of any given flow rate.

The graph and its trendline are shown in **Figure 2**.

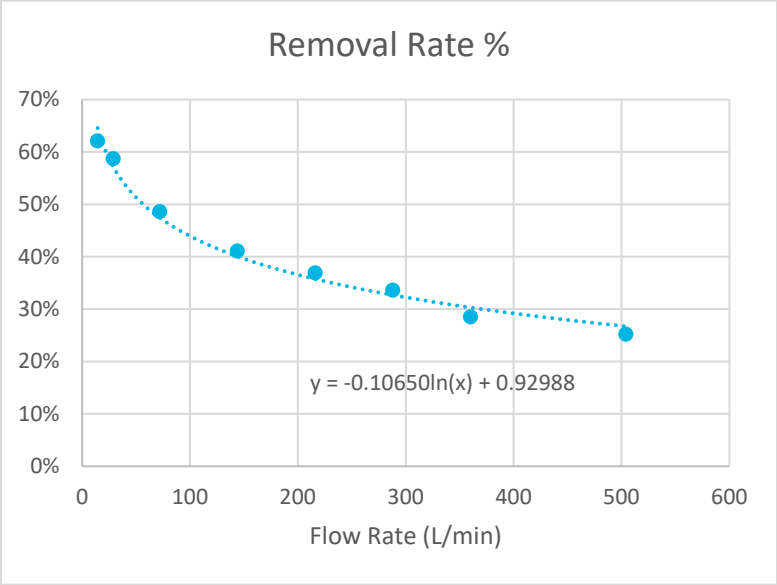

Figure 2: Flow Rate and Mass Balance Removal Efficiency Graph

3.3 City of Toronto Historical Rainfall Data

The Toronto and Region Conservation Authority (TRCA) Open Data Portal provides historical rainfall data for 43 different rain gauges within the Greater Toronto Area (GTA), and is accessible via the following link: https://data.trca.ca/dataset/precipitation

Four rain gauges covering the largest span of time and located in the Northeast, Northwest, Southeast and Southwest portions of the GTA were selected to be utilized in the EnviroBasin Performance Efficiency Estimator. The datasets were retrieved from the data portal in March 2021. A summary of the rain gage names, IDs, locations, and time periods are provided in **Table 4**.

Table 4: TRCA Rain Gauge Summary Table

Location	TRCA ID	Gauge Name	Latitude	Longitude	Start Date	End Date
GTA Northeast	HY011	Bruces Mill CA	43.94637	-79.3419	2002-05-22	2020-09-17
GTA Southeast	HY016	Danforth and Coxwell	43.68236	-79.323	2006-06-23	2020-08-12
GTA Southwest	HY025	Etobicoke at QEW	43.6018	-79.5564	2005-04-26*	2014-12-03*
GTA Northwest	HY033	Heart Lake CA	43.73926	-79.7895	2002-05-22	2020-09-17

**The HY025 dataset includes hourly data for 2005 to 2012, and 5-minute interval data from 2013 to 2014.*

For the GTA Northeast, GTA Southeast, and GTA Northwest gauge stations, all available data are provided as total depth recorded in 5-minute intervals. The GTA Southwest data recorded hour-interval rainfall depths from April 2005 to December 2012, and 5-minute interval depths were recorded from April 2013 to December 2014.

The GTA Northwest and GTA Northeast locations record precipitation from the beginning of May to the end of October each year, while the GTA Southeast and GTA Southwest Locations record precipitation from the beginning of April to the end of December each year. As noted before, snowmelt processes are not considered by the tool.

Due to the size of each dataset, inclusion of all collected rain gauge data in the EnviroBasin Performance Efficiency Estimator was not feasible. Instead, each instance of rainfall recorded over the period of record was extracted from

the datasets provided by the TRCA, and the total frequency for each value of recorded rainfall depth was included in the tool. The mm/hr intensity of each rainfall event was determined by multiplying the 5-minute interval depths by 12, while the hourly interval depth data already provided mm/hr intensity values. This was done to significantly reduce the file size of the spreadsheet.

Using the provided catchment area, runoff coefficient, and total rainfall amount (for the SCS options) parameters, a weighted average of flow rate, surface loading flow rate, and TSS removal rate was determined from the results calculated for each rainfall intensity, multiplied by the number of instances of the specific intensity and divided by the total number of rainfall instances recorded.

3.4 SCS Rainfall Distribution Data

The SCS Rainfall Method was developed by the United States Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS). It generated four synthetic 24-hour rainfall distribution curves that cover all geographical regions of the United States. Type II distributions are typically used for Ontario-based applications, and the 6-hour distribution curve and the 12-hour distribution curve have been included within the EnviroBasin Performance Efficiency Estimator.

The cumulative depth distribution provided in 6-minute intervals are available for download from this website: https://www.hydrocad.net/rainfall/tables.htm

The percent difference between each 6-minute interval was applied to a hyetograph curve that may be used to provide rainfall intensity values over the duration of the storm for any given total rainfall depth. The rainfall intensity is calculated as the percent of the total rainfall depth per 6-minute interval, multiplied by 10 to provide the mm/hr intensity.

The SCS assessment methods require a total rainfall depth to be provided by the user of the EnviroBasin Performance Efficiency Estimator.

4. Example Case Studies

4.1 4-Lane Roadway Example

A EnviroBasin collecting runoff from the two eastern lanes of a 4-lane roadway located in Etobicoke, Ontario. Each lane is 4 m (13.1') wide, and catch basin spacing along the road is 90 m (295.3').

Etobicoke is located in the Southwest portion of the GTA, therefore the GTA Southwest Assessment Method option is selected. The catchment area is computed to be 8 (26.2' m by 90 m (295.3', or 0.072 ha (0.18 acre. The runoff coefficient of asphalt is assumed to be 0.9.

The input and results of the EnvirBasin Performance Efficiency Estimator assessment are shown in **Figure 3**. A 59% TSS removal rate is expected under these conditions.

Enviropod- LittaTrap Annual TSS Removal Rates

Catchment Parameters	Value
Assessment Method	GTA Southwest
Storm Depth (mm) For Events*	0
Catchment Area (ha)	0.072
Runoff Coefficient	0.9

Results	Value
Average Flow Rate (L/min)	29.2
Average Surface Loading Rate (L/min/m^2)	81
Average Removal Rate (%)	59%

Figure 3: 4-Lane Etobicoke Roadway Example

4.2 Parking Lot Example

Four EnviroBasins each collect runoff from an assumed equal portion of a 0.5 ha parking lot. The client wants to estimate the TSS removal rate from the runoff associated with a 15 mm (0.59"), 12-hour SCS design storm provided by a LittaTrap installed in one of these catch basins.

The EnviroBasin collects flow from one quarter of a 0.5 ha (1.24 acre) area, or 0.125 ha (0.31 acre). The 12-hour SCS Rainfall Event Assessment Method option is selected, and a 15 mm (0.59") rainfall depth is specified. The runoff coefficient for asphalt is assumed to be 0.9.

The input and results of the EnviroBasin Performance Efficiency Estimator assessment are shown in **Figure 4**. A 60% TSS removal rate for the catchment area served by theEnviroBasin is expected under these conditions.

Enviropod- LittaTrap Annual TSS Removal Rates

Catchment Parameters	Value
Assessment Method	12 Hour SCS Rainfall Event
Storm Depth (mm) For Events*	15
Catchment Area (ha)	0.125
Runoff Coefficient	0.9

Results	Value
Average Flow Rate (L/min)	23.4
Average Surface Loading Rate (L/min/m^2)	65
Average Removal Rate (%)	60%

Figure 4: 15 mm (0.59") 12 Hour SCS Parking Lot Example

5. Potential Additions and Improvements

5.1 Additional Rainfall Assessment Methods

The EnviroBasin Performance Efficiency Estimator has the potential to be modified to assess additional historical rainfall data sets, as well as additional rainfall distributions, in order to be more widely applicable. The spreadsheet is intended to be easily modified to enhance its applicability to different geographic areas (e.g. through the inclusion of additional precipitation gauge data, modifications to the synthetic design storm distribution type, etc.). The tool also has the potential to be modified to estimate removal efficiency using imperial unit inputs rather than SI unit inputs.

Further refinement of the tool could also allow for assessment of removal rates based on IDF curve rainfall rates, given a specific or assumed general time of concentration.

5.2 Additional Configurations and Refinement

Further refinement of the removal rate curve may be achieved by applying additional data collected from pilot programs and in-situ installations. If testing of double-inlet catch basins or other catch basin configurations which include the EnviroBasin device are completed, the scope of the EnviroBasin Performance Efficiency Estimator may be expanded.

6. References

City of Toronto. (2006). *Wet Weather Flow Management Guidelines.* Toronto, Ontario, Canada: City of Toronto.

Good Harbour Laboratories (2021). *Performance Testing of the Enviropod® LittaTrapTM Catch Basin System for evaluation according to ISO 14034 Environmental Technology Verification.*

HydroCAD (2020). Rainfall Tables. https://www.hydrocad.net/rainfall/tables.htm

Toronto and Region Conservation Authority (2021). Open Data Portal- Precipitation. https://data.trca.ca/dataset/precipitation

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Appendix A – Scaling information

The Envirobasin was tested using a 24" x 24" catch basin which has a sump surface area (S_1) of 4 ft^3. The Town of London in Ontario, Canada requires 24" x 33" catchbasins to a accommodate an additional curb inlet. This inlet has a sump surface area (S_2) of 5.5 ft^3. Using these values, we can find the surface area ratio between the two catch basins and therefore the scaling factor (C_S) by using eq 1 below.

Eq 1 $S_1/S_2 = C_S$; $4.0ft^{3/}5.5ft^3 = 0.73$

The flow rate is captured by multiple parameters and adjusting the flow by the scaling factor would be complicated and likely to introduce undue error, it is assumed that we can instead apply the scaling factor to the area being treated by the AWQI (Advanced Water Quality Inlet) according to the standard flow equation shown below and reach the same removal.

Q=C x I x A

For instance, if an EnviroBasin with a combination grate and curb inlet like above is specified to treat a catchment of 8000 ft^2 it would be multiplied by the scaling factor derived by using Eq 1 above to yield 5,840 ft^2. This value would then be used to estimate the removal efficiency of the EnviroBasin. There are many different configurations available for an EnviroBasin depending on the needs of the designer.