Servicing Report

Revision 0

CANADIAN CAPITAL DEVELOPMENTS RESIDENTIAL APARTMENT
225 Franktown Road

October 2025

Jp2g Project # 25-1022A

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS

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Appendices

Author and Review Panel

Prepared by:

Michael Fadock, MASc., P.Eng. Development Lead | Senior Project Manager Jp2g Consultants Inc.

1 Introduction

1.1 Background

Jp2g Consultants Inc. was retained to assist Canadian Capital Developments to provide civil engineering services in support of a preparing the site servicing, lot grading, and stormwater management of a residential re-development located in Carleton Place. The development is located at the corner of Nelson Street East and Franktown Road and is 0.262 ha in area.

The Subject Lands are developed with an existing single detached dwelling. The lands are generally flat and with undulating grades that lead to Nelson Street East and drain northeast. The property has an existing entrance off of Nelson Street.

The development consists of a two story, 20 unit, residential apartment building, complete with privacy fencing, landscaping, walkways/sidewalk, and a parking lot with a relocated entrance.

Both Nelson Street East and Franktown Road are municipal roads, and access is only proposed from Nelson Street East. Municipal watermain, municipal sanitary main, and municipal storm sewer main are available within the Nelson Street right-of-way. Municipal record drawings indicate that some water and sanitary services were previously extended to the property line. New municipal water, municipal stormwater, and municipal sanitary services are proposed for the building and will be brought out to Nelson Street East. Any existing services along the frontage of the subject lands that are not required for the development will be removed.

The Architectural Site Plan and Existing Conditions plan are included as Appendix A to this report.

2 Roads and Grading

2.1 Nelson Street East

Walker Road is a 66ft (20m) wide dedicated municipal right-of-way. The road is an urban section, complete with asphalt, curb, and gutter. No modifications to the existing street section is suggested, and only service cut reinstatements are required to accommodate the proposed development.

The parking lot is graded to meet accessibility requirements and maintain positive drainage to catchbasins at selected low spots. The barrier free accessible path of travel to the building from the barrier free parking space is set to less than or equal to 3.0%. All other paved grades are between approximately 0.5% and 4.5% to avoid runoff accumulation. The finished floor elevation of the proposed building is set to match the existing sidewalk on Franktown Road. All other landscaping grades are 3:1 or less and see-sawed to provide multiple collection points.

The detailed lot grading and drainage plans are included as part of Appendix A to this report.

3 Sanitary

3.1 Existing Conditions

There is an existing 200mm diameter sanitary sewer main at approximately the centerline of Nelson Street East. The direction of drainage is northeast at approximately 1% grade. Reviewing downstream grades the worst case sewer grade on Nelson appears to be 0.37%, which corresponds to a full flowing capacity of 20.81 L/s.

The existing dwelling and residential land use generate approximately 0.11 L/s total flow. With the proposed twenty (20) residential units at 2.5 ppdu, 340 liters/capita/day, and a peaking factor of 4.0, sanitary flows increase to 0.88 L/s. This represents 4.2% of the sanitary main capacity on Nelson Street East, and is not regarded as resulting in any downstream capacity constraints.

The Carleton Place Wastewater Treatment Plant (WWTP) is rated to treat 7,900 cu.m/day and in 2023 was operating at 82% capacity. The municipality is currently undertaking a municipal class EA to upgrade plant capacity.

3.2 Proposed Sanitary Design

The development is proposed to be serviced by new 150mm diameter municipal sanitary sewer service connected to the existing manhole on Nelson Street West. Based on the proposed building plans, the building will be slab- on-grade construction, with no basement. There is sufficient fall based on the grading and servicing plans to provide gravity outlets to the sanitary system by the proposed lateral at a typical 2% installation grade, this is adequate to convey all anticipated flows from the building.

This development is considered as minor infilling and is not anticipated to adversely impact the downstream sewer capacity or WWTP capacity. The proposed development is anticipated to generate an additional 6.5 cu.m/day in sanitary flows, which is not regarded as creating any capacity issues.

Refer to Appendix B for the sanitary sewer design sheets for the development.

4 Water

A 300mm diameter municipal watermain is located within the southwest-bound lane of Nelson Street East. There is an existing hydrant located within 90m of all entrances and approximately 20m from the building face. Both Franktown and Nelson provide adequate staging for fire fighting. This nearby hydrant is colour coded blue, which is AA rated, meaning it is capable of delivering greater than 1,500 gpm or 95 L/s. The 2021, 2026, and 2031 max day + fire flow scenarios and average day demand results produced by JLR in their 2021 water model update for Carleton Place indicate that the corner of Franktown and Nelson Street East is able to supply 150 L/s at a pressure of 50-80 psi. This is within the typical MOE range for water pressure.

The site will require a new 150mm water main service to extend services to the building, complete with valving at the property line. This is sufficient to provide adequate firefighting volumes and pressures for a small residential apartment.

5 Stormwater Management

5.1 Existing Conditions

The subject lands are located on an existing developed parcel of land. All runoff sheet drains to the adjacent roadways, where drainage is conveyed along the roadside gutters and collected periodically via catchbasins. Based upon a runoff coefficient of 0.20 for landscaped surfaces, 0.50 for gravel, and 0.90 for buildings and hardscaping (asphalt/concrete), the composite existing conditions runoff coefficient is 0.435. The time of concentration is 10 minutes based upon the small site area. Pre-development runoff rates for the 5 and 100 year storm event are:

Storm Event	Pre-Development Release Rate
5 Year	32.8 L/s
100 Year	56.1 L/s

5.2 Proposed Conditions

The redevelopment of the subject lands will result in the creation of additional hard surfaces. A composite post development runoff coefficient of 0.72 indicates that post-development flows (uncontrolled) will increase relative to pre-development. As a result the site will be required to implement quantity controls (on-site detention) to reduce the rate of runoff to the pre-development levels. The municipality has also requested post-development quantity control measures be implemented to control runoff from the site to 80% TSS removal.

Storm Event	Post-Development Release Rate (uncontrolled)
5 Year	54.6 L/s
100 Year	105 L/s

Post-development quantity controls will be implemented through an Ipex Tempest high flow (HF) inlet control device (ICD) preset to flow curve E. Preset flow curve E corresponds to 33 lps release at 0.30 m head and 53 lps at 0.68 m head. Modified rational method calculations demonstrate that runoff can effectively be detained on site to match pre-development release rates using the selected ICD.

Storm Event	Release Rate (controlled)	Head	Onsite Storage Required
5 Year	33 lps	0.30m	13 cu.m.
100 Year	53 lps	0.68m	32 cu.m.

Based upon the stormwater and grading design, water can be stored within the u/g pipe (5.7 cu.m.), cultec 180 XLHD chamber system (28.4 cu.m.), and within the parking lot up to the 136.95 elevation (22 cu.m.). In total, there is 56.1 cu.m. of available storage on the property, 34 cu.m. below ground, and a further 22 cu.m. in the parking lot. Any detention that results in storage above the 136.95 elevation will cause drainage to leave the site

via the entrance to Nelson Street East. Based upon the above, the building FFE (137.30) and entrance are provided with sufficient freeboard.

All roofwater leaders & downspouts shall be tied into the proposed storm sewer as to avoid uncontrolled releases of water to the adjacent roadways and sidewalks.

To provide for water quality control, the site has been provided with an Oil Grit Separator (OGS) from Imbrium, the Stormceptor EF4 is able to provide 93% TSS removal for site runoff.

Please refer to Appendix C for detailed supporting stormwater calculations.

6 Conclusions and Recommendations

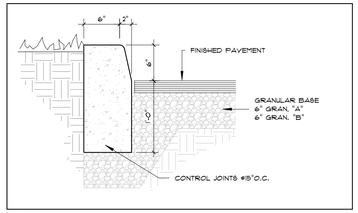
Based upon our review, the proposed development can be serviced by connection to existing municipal roadways, new municipal gravity sanitary sewer connections, new municipal watermain connection, and new municipal stormwater connection. No adverse impacts are anticipated on those municipal services as a result of the approval, detailed design, and construction of this development. This Servicing Report should be filed in support of the development application and any other required filings.

The detailed design of the Site Plan will implement the following measures:

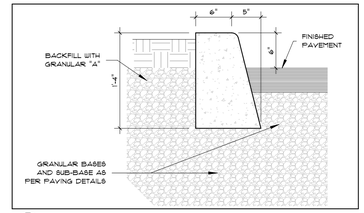
- All utility, road, and grading designs are to be prepared in accordance with the Municipality's standards and requirements, as well as other authorities having jurisdiction.
- Provision of onsite water quantity controls via a combination of underground chambers and above ground storage together with an ICD to reduce post-development runoff to the pre-developments rates.
- Providing onsite water quality controls via an OGS to reduce TSS.

End of report.

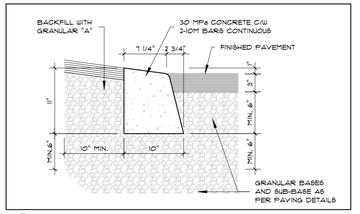
Appendix A
DESIGN DRAWINGS



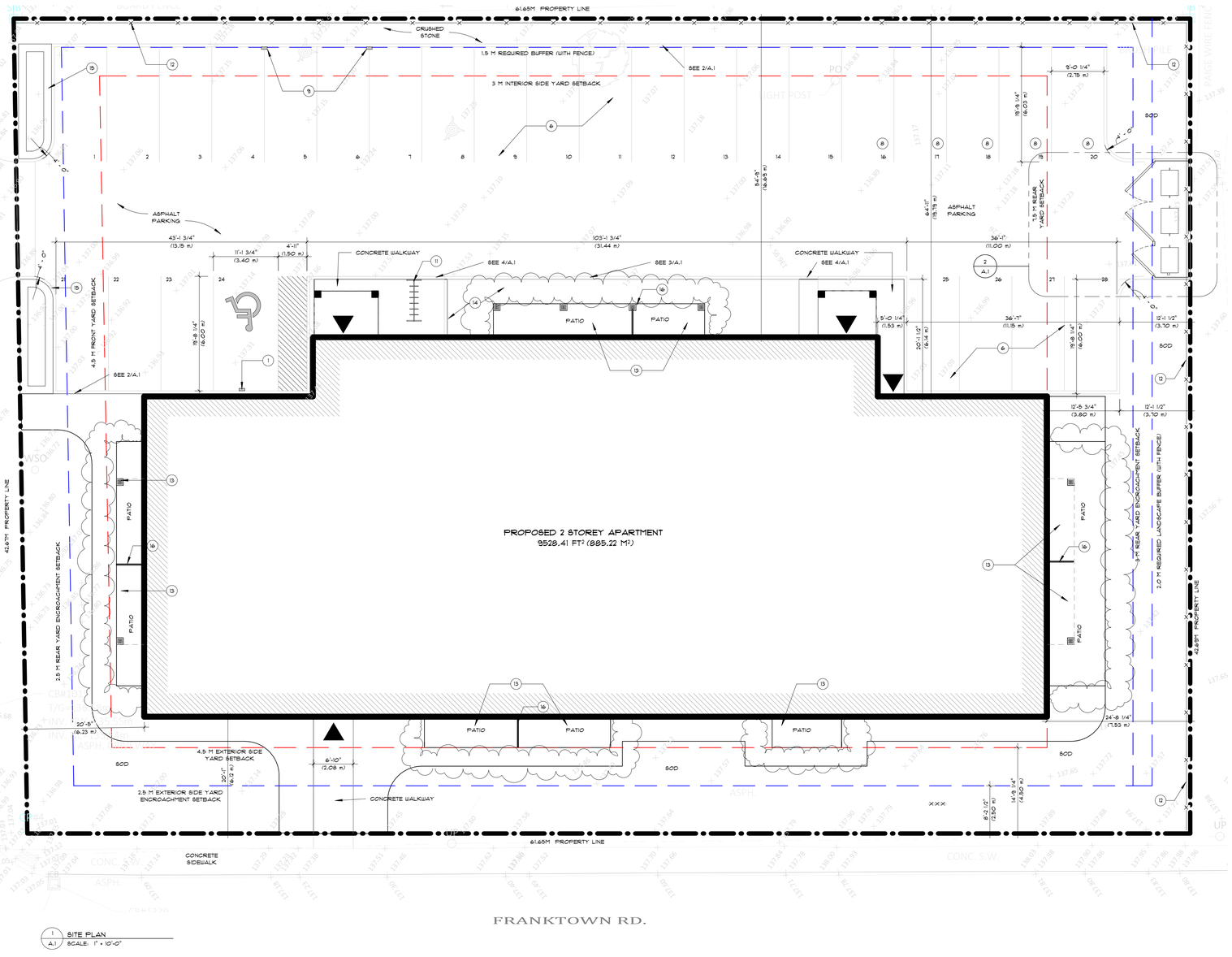
2 A.1 CURB DETAIL
SCALE: 1" = 1'-0"



3 A.1 CURB DETAIL - BARRIER
SCALE: 1" = 1'-0"



4 A.1 CURB DETAIL - DEPRESSED
SCALE: 1" = 1'-0"



1 A.1 SITE PLAN
SCALE: 1" = 10'-0"

PRELIMINARY - NOT FOR CONSTRUCTION

ZONING CHART

ZONE:	GROUP C (3.2.2.55)
LOT AREA (MIN.):	2616.56 m²
TOTAL BUILDING AREA	887.15 m²
GROSS BUILDING	1,784.38 m²
FRONT YARD SETBACK (MIN):	4.5 M
EXTERIOR SIDE YARD (MIN.):	4.5 M
INTERIOR SIDE YARD (MIN.):	3 M
REAR YARD DEPTH (MIN.):	7.5 M
SOFT LANDSCAPING	25.2 %
HARDSCAPE (INC. ASPHALT PARKING)	38 %
TOTAL NUMBER OF UNITS	20
NUMBER OF STANDARD PARKING SPACES 1.25 PER DUELLING UNIT - 1.25 x 20 = 25 .25 PER DUELLING UNIT - .25 x 20 = 5 (VISITOR)	28
NUMBER OF BARRIER FREE PARKING SPACES	1
PARKING STALL 4 BARRIER FREE DIMENSIONS	2.75m x 6m / 3.4m x 6m
BICYCLE PARKING	12

SYMBOL LEGEND

- PROPOSED BUILDING/ADDITION
- PROPERTY LINE
- SITE SETBACKS
- BARRIER FREE PARKING SYMBOL PAINTED ON ASPHALT IN BLUE/ WHITE SCHEME
- BARRIER FREE TRANSFER SPACE PAINTED ON ASPHALT IN YELLOW
- —X—X—X— PROPOSED FENCE. REFER TO LANDSCAPE PLAN.

LEGEND

1. ACCESSIBLE PARKING SIGNAGE ON POST. SEE LANDSCAPE PLAN
2. CONCRETE SIDEWALK
3. NEW CONCRETE CURB
4. NEW SOD
5. HYDRO POLE
6. PROPOSED NEW PARKING
7. NEW ASPHALT PARKING
8. VISITOR PARKING
9. ELECTRIC CHARGING STATION
10. POLE SITE LIGHTING (FINAL SITE LIGHTING TO BE CONFIRMED ON PHOTOMETRIC PLAN)
11. BICYCLE RACK 2-SIDED MAGLIN MBR300 6 RING (6) CAPACITY RACK C/W GRAPHITE FINISH. SURFACE MOUNTED TO 3.3m x 2.8m CONCRETE PAD (BY OTHERS)
12. 1.8m HIGH SOLID PRIVACY FENCE (COLOUR, MEDIUM GRAY)
13. UNIT PAVERS (TBD) OVER COMPACTED GRANULAR BASE
14. GARDEN (REFER TO LANDSCAPE PLAN)
15. STONE FINISH RAISED GARDEN
16. PRIVACY SCREEN (TBD)

NOTES:
- REFER TO GENERAL NOTES FOR ALL TYPICAL CONSTRUCTION NOTES + DETAILS. WHEN DRAWINGS OR NOTES REFERENCE O.B.C. IN ALL CASES PLEASE REFER TO THE LATEST VERSION OF THE ONTARIO BUILDING CODE 2012.
- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH EACHOTHER, SPECIFICATIONS + OTHER CONTRACT DOCUMENTS.

LEGEND:
- (1) EXTERIOR DOOR + WINDOW TAG (SEE SCHEDULE
- (1) DOOR TAG (SEE SCHEDULE on A.O.s)
- W1 EXTERIOR WALL TYPE (SEE A.O.s)
- P1 INTERIOR PARTITION WALL TYPE (SEE A.O.s)
- F1 FLOOR TYPE (SEE A.O.s)
- R1 ROOF TYPE (SEE A.O.s)
- P1 POST TYPE (SEE A.O.s)
- L1 LINTEL TYPE (SEE A.O.s)

LEGEND:
- F1 PAD FOOTING TYPE (SEE A.O.s)
- WF1 WALL FOOTING TYPE (SEE A.O.s)
- SCO SMOKE/CARBON DETECTOR TO O.B.C. 9.10.19
- (1) CONSTRUCTION NOTE (SEE FLOOR PLANS)
- EXHAUST FAN (VENT TO EXTERIOR)
- NON-FREEZE HOSE BIB

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bellarchitecture.ca

VERSION NO. 1

SEAL:

NOTES:
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- IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK + VERIFY ALL DIMENSIONS ON SITE + REPORT ALL ERRORS AND/OR OMISSIONS TO THE DESIGNER PRIOR TO COMMENCEMENT.
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REVISIONS

NO	ITEM	DATE
1	ISSUED FOR SITE PLAN APPLIC.	09/23/2025

PROJECT
LEPINE APARTMENT BUILDING
255 FRANKTOWN RD.
CARLETON PLACE

CLIENT
CANADIAN CAPITAL DEVELOPMENTS - AARON DOBBY

DRAWING
SITE PLAN

SCALE	AS INDICATED
DRAWN BY	AIT
DATE	JUNE 2025
CHKED BY	TJG
APPRD BY	JCB
PROJECT NO.	225-07
SHEET NO.	A.1

A - SUGAR MAPLE

B - BALSAM FIR

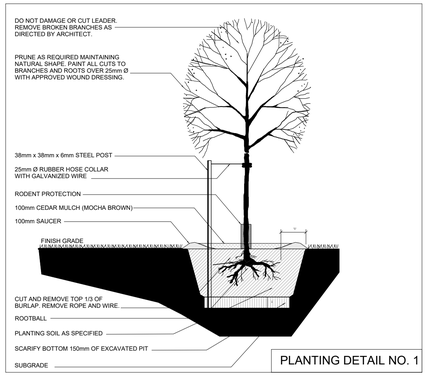
C - SUNBURST LOCUST

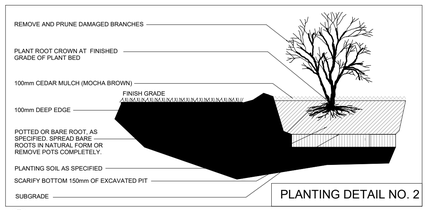
D - MOCK ORANGE

E - ANTHONY WATERER SPIREA

F - COMMON BOXWOOD

G - DAYLILY





2 L.1 PLANTING DETAILS
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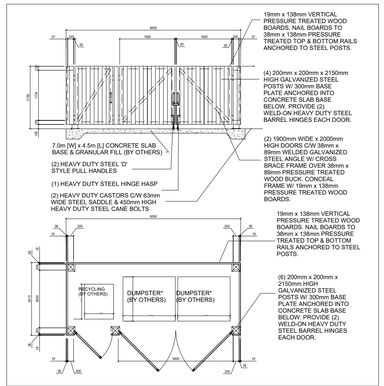


3 L.1 GARBAGE ENCLOSURE DETAILS
SCALE: N.T.S.

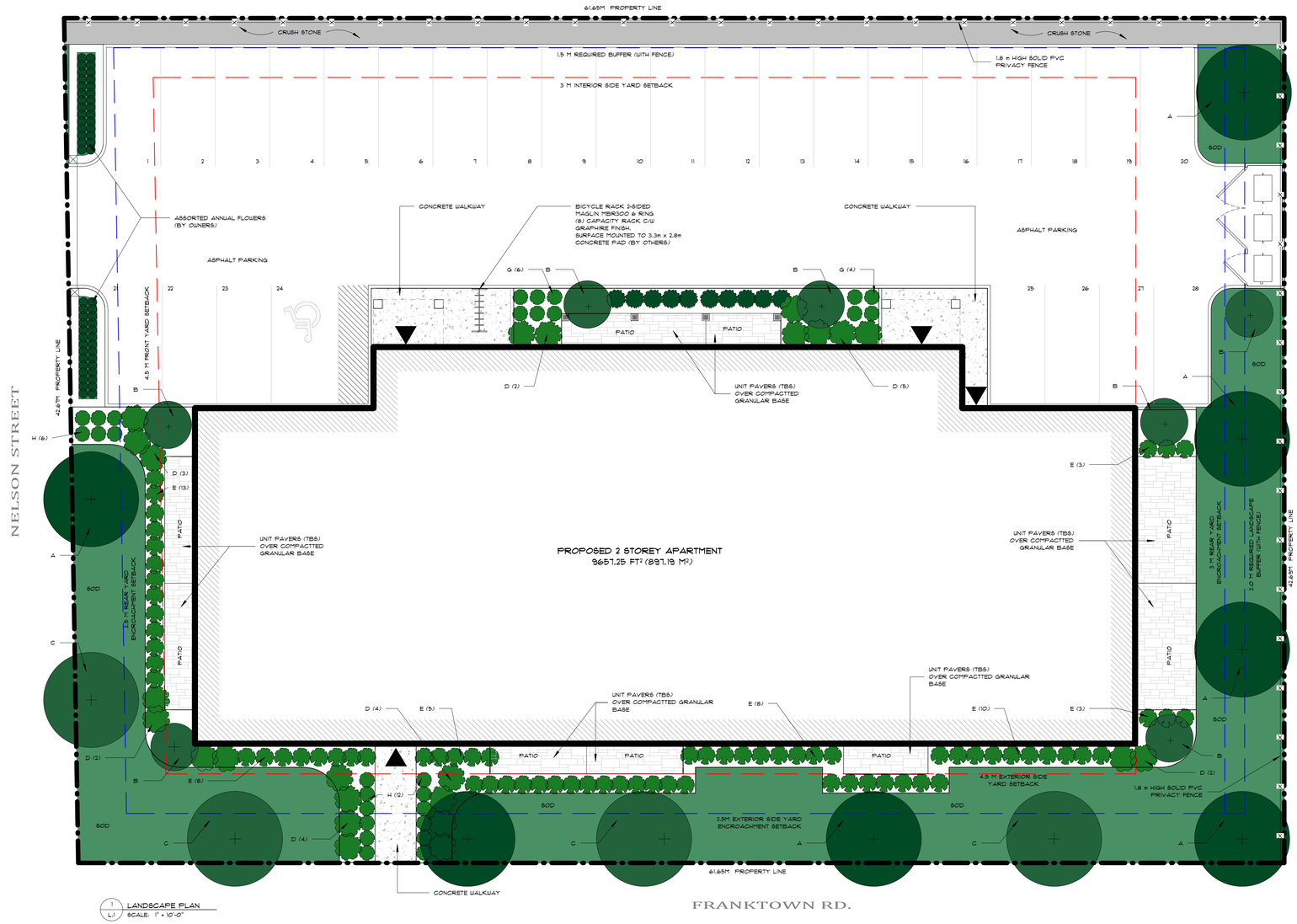
ACCESSIBLE PARKING SIGN (APS)	DIRECTIONAL FIRE ACCESS ROUTE SIGN (FARS)	VISITOR PARKING ONLY SIGN (VPO)

SIGNAGE NOTES:

1. ALL SIGNS TO BE 300mm W x 450mm HIGH ALUMINUM AND SET ON A PERMANENT GALVANIZED STEEL POST.
2. LOCATE THE SIGNS AS PER THE ARCHITECTURAL SITE PLAN WHERE NOTED BY THE SYMBOL.
3. ALL SIGNS TO BE VISIBLE DAY AND NIGHT WITH SCOTCH LIGHT REFLECTIVE VINYL BACKGROUND & LETTERING.
4. MOUNT THE BOTTOM EDGE OF THE ACCESSIBLE PARKING & VISITOR PARKING SIGNS AT 300mm ABOVE THE ASPHALT SURFACE.
5. MOUNT THE BOTTOM EDGE OF THE FIRE ACCESS ROUTE SIGN AT 2000mm ABOVE THE ASPHALT SURFACE & SPACED MAX. 25m APART.
6. PROVIDE MULTI-DIRECTIONAL ARROWS IDENTIFYING THE FIRE ACCESS ROUTE OR A SINGLE DIRECTIONAL ARROW INDICATING THE LIMIT OF THE FIRE ACCESS ROUTE.

LANDSCAPING PLANTING SCHEDULE

TAG	TYPE	NAME	SPECIES	QTY	SIZE	REMARKS
A	DECIDUOUS TREE	SUGAR MAPLE	ACER SACCHARUM	7	60mm CALIPER	B&B SINGLE STEM
B	CONIFEROUS TREE	BALSAM FIR	ABIES BALSAMEA	7	180cm	B&B
C	DECIDUOUS TREE	SUNBURST LOCUST	GLEDOTSIA TRIACANTHOS	4	60mm CALIPER	B&B SINGLE STEM
D	DECIDUOUS TREE	MOCK ORANGE	PHILADELPHUS X VIRGINALIS (DWARF)	13	50cm HEIGHT	POTTED, 150cm O/C
E	DECIDUOUS SHRUB	ANTHONY WATERER SPIREA	SPIREA BUMALDA ANTHONY WATERER	11	50cm HEIGHT	POTTED, 60cm O/C
F	CONIFEROUS SHRUB/HEDGE	COMMON BOXWOOD	BUXUS SEMPERVIRENS	10	150cm HEIGHT	POTTED, 60cm O/C
G	PERENNIAL	DAYLILY	HEMEROCALLIS	30	10cm POT	POTTED, 50cm O/C



1 L.1 LANDSCAPE PLAN
SCALE: 1" = 10'-0"

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LEPINE APARTMENT BUILDING
255 FRANKTOWN RD.
CARLETON PLACE

CLIENT
CANADIAN CAPITAL DEVELOPMENTS - AARON DOBBY

DRAWING
LANDSCAPE PLAN

SCALE	AS NOTED
DRAWN BY	AIT
DATE	JUNE 2025
CHKED BY	JCB
APPRD BY	JCB
PROJECT NO.	225-07
SHEET NO.	L.1

CONTROL POINT AND BENCHMARK SCHEDULE

LOCATION	POINT	DESCRIPTION	COORDINATES		ELEVATIONS
			NORTHING	EASTING	
NELSON ST. WEST & FRANKTOWN RD.	CP#1	SET MAGNAIL IN CONCRETE CURB	4998396.091	410875.654	137.119
FRANKTOWN RD.	CP#2	SET MAGNAIL IN CONCRETE CURB	4998349.469	410917.673	138.007
NELSON ST. EAST	CP#3	SET MAGNAIL ON CONCRETE CURRB	4998438.028	410916.878	136.916
NELSON ST. EAST & FRANKTOWN RD.	CP#4	FOUND MAGNAIL IN ASPHALT DRIVWAY	4998403.58	410891.596	137.011
NELSON ST. EAST & FRANKTOWN RD	BM#5	FIRE HYDRANT TOP OF SPINDLE	4998414.XXX	410886.XXX	137.612
HIGHWAY7 & HIGHWAY15	STATION #00820128021	BRASS CAP ON CONCRETE LIGHT STANDARD	4997756.XXX	411443.XXX	136.452(P) 136.451(M)
UTM, ZONE 18, NAD 83 (CSRS)					
VERTICAL DATUM : CGVD2013					

DISCLAIMER NOTES

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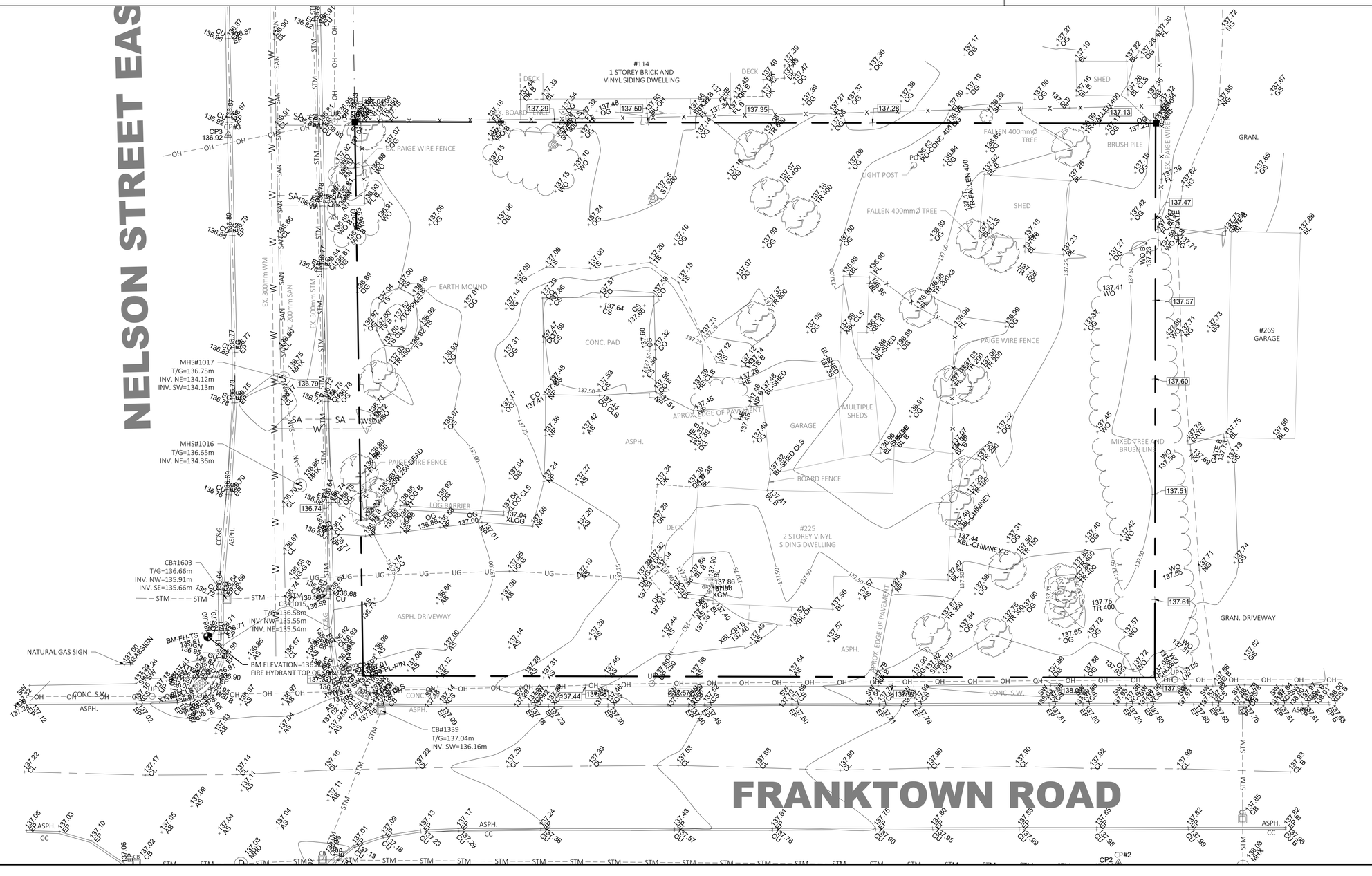
2. WHERE THERE ARE ALLEGED ERRORS, OMISSIONS, INCONSISTENCIES OR AMBIGUITIES PRESENT IN THE CONTRACT DOCUMENTS, THE CONTRACTOR MUST SEEK CLARIFICATION FROM JP2G. ANY COSTS OR SCHEDULE DELAYS WHICH RESULT AS A FAILURE TO CONTACT JP2G FOR DIRECTION SHALL BE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
3. DO NOT SCALE DRAWINGS. REFER ANY DIMENSIONAL CLARIFICATIONS AND/OR POSSIBLE TRADE INTERFERENCE/CONFLICTS TO JP2G FOR CLARIFICATION PRIOR TO COMMENCEMENT OF THE WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH SUBTRADES AND SHALL ADDRESS CONSTRUCTION TEAM COORDINATION ITEMS PRIOR TO ISSUING REQUESTS FOR INFORMATION FROM JP2G.
5. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.



NOT FOR CONSTRUCTION

No.	YYYY-MM-DD	BY	DESCRIPTION
1	2025-10-08	MNF	ISSUED FOR MUNICIPAL REVIEW & DEVELOPMENT PERMIT

STAMP

STAMP

PROJECT

DOBBY APARTMENTS

225 FRANKTOWN ROAD, CARLETON PLACE, ONTARIO, K7C 2NB

DRAWING

EXISTING CONDITIONS PLAN

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS
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T: 613-735-2507
PEMBROKE@JP2G.COM

Jp2g PROJECT No.: 25-1022A

NORTH

TRUE NORTH

DRAFTED:	T.NAULT
DESIGNED:	MNF
REVIEWED:	MNF
APPROVED:	MNF

SCALE 1:150 (0 m, 2.5, 5, 7.5 m)

SHEET # **EX.01**

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STAMP

STAMP

PROJECT

DOBBY APARTMENTS

225 FRANKTOWN ROAD, CARLETON PLACE, ONTARIO, K7C 2NB

DRAWING

SITE GRADING PLAN

Jp2g Consultants Inc.
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12 INTERNATIONAL DRIVE, PEMBROKE, ON, K8A 6W5
T: 613-735-2507
PEMBROKE@JP2G.COM

Jp2g PROJECT No.: 25-1022A

NORTH

TRUE NORTH

DRAFTED:	T.NAULT
DESIGNED:	MNF
REVIEWED:	MNF
APPROVED:	MNF

SCALE 1:100 (0 m, 1, 2, 3, 4, 5 m)

SHEET # SGP.1

DWG NAME: J:\1-ARLTEK\CR-NE\2025\25-1022A - CARLETON PLACE DOBBY APARTMENTS\0-DRAWINGS\1-CNC\CNC25-1022A-DESIGN_RECOVER.DWG, LAYOUT: LGP SAVED ON 2025-10-01

#114
1 STOREY BRICK AND
VINYL SIDING DWELLING

DECK

DECK

SHED

EX. BOARD FENCE

4.5m 300Ø
0.5% STM

FALLEN 400mmØ TREE

BRUSH PILE

EX. PAIGE WIRE FENCE

DOGHOUSE MANHOLE

2m 300Ø - 0.5% STM STUBBED OUT OF U/G CHAMBER

2m 300Ø 0.5% STM STUBBED INTO U/G CHAMBER

LIGHT POST

S1

S2

S3

S4

6.5m 300Ø
0.5% STM

SD

TIE 40m LONG
150mm SUBDRAIN INTO S3

16 X 180 XLHD CULTEC SYSTEM
28.3 m³ STORAGE AVAILABLE

FALLEN 400mmØ TREE

SHED

TWO 1.2m x 1.8m AND
ONE 1.2m x 1.2m BINS

REMOVE EXISTING WATER AND SANITARY SERVICE

22 m³ AVAILABLE PARKING LOT STORAGE TO 136.95

EARTH MOUND

CONCRETE PAD

EX. 300mm WM

EX. 300mm STM

EX. 200mm SAN

CONCRETE WALKWAY

LANDSCAPE

PATIO

PATIO

CONCRETE WALKWAY

18m 300Ø
0.5% STM

CONC. PAD

PAIGE WIRE FENCE

NELSON STREET

FIND AND CONNECT TO EXISTING WATERMAIN WITH TAPPING SLEEVE AND VALVE. 24m OF 150mm SERVICE PIPE C/W VALVE AT PROPERTY LINE.

APROX. EDGE OF PAVEMENT

MULTIPLE SHEDS

GARAGE

ASPH.

PROPOSED 2 STOREY

20 UNIT APARTMENT

BUILDING AREA = 978SM [10,527SF]

FFE =

BOARD FENCE

MIXED TREE AND BRUSH LINE

PAIGE WIRE FENCE

REMOVE EXISTING WATER SERVICE BACK TO MAIN.

LOG BARRIER

PATIO

PATIO

PATIO

BREAK INTO EXISTING MANHOLE AT 134.46 INV. REBENCH FOR SMOOTH FLOW. 10m OF 150mm PVC SAN SERVICE PIPE AT 2% NOMINAL SLOPE

DECK

#225
2 STOREY VINYL
SIDING DWELLING

18m 300Ø
0.5% STM

HYD
GAS
M

CB#1015
T/G=136.58m
INV. NW=135.55m
INV. NE=135.54m

ASPH. DRIVEWAY

SITE TRIANGLE

PATIO

PATIO

PATIO

DB

S9

S8

S7

15m 300Ø
0.5% STM

9m 300Ø
0.5% STM

22m 300Ø
0.5% STM

ASPH.

APROX. EDGE OF PAVEMENT

S5

S6

18.13m

BM ELEVATION=136.80m
FIRE HYDRANT TOP OF SPINDLE

CP #4

CONC. S.W.

CONC. S.W.

ASPH.

CB#1339
T/G=137.04m
INV. SW=136.16m

FRANKTOWN ROAD

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ALL PIPE WITH LESS THAN 1.8m COVER TO BE INSULATED PER OPSD 1109.030 WITH 3 SHEETS (75mm) RIGID BOARD XPS INSULATION RATED TO AT LEAST 40PSI COMPRESSION

NOT FOR CONSTRUCTION

No.	YYYY-MM-DD	BY	DESCRIPTION
1	2025-10-08	MNF	ISSUED FOR MUNICIPAL REVIEW & DEVELOPMENT PERMIT

STAMP

STAMP

PROJECT

DOBBY APARTMENTS

225 FRANKTOWN ROAD, CARLETON PLACE, ONTARIO, K7C 2N8

DRAWING

SITE SERVICING PLAN

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS
12 INTERNATIONAL DRIVE, PEMBROKE, ON, K8A 6W5
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APPROVED: MNF

SCALE 1:100

SHEET # SSP.1

NOTES

1. GENERAL

1.1. THE CONTRACT DRAWING REFERENCES ARE COMPLIMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL.

1.2. THE LOCATION OF EXISTING UTILITIES SHOWN ON THESE DRAWINGS IS APPROXIMATE. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR THE FIELD LOCATION OF ALL UTILITIES PRIOR TO COMMENCING CONSTRUCTION. THE GENERAL CONTRACTOR IS TO CONFIRM THE LOCATION OF EXISTING UTILITIES AND ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER.

1.3. GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND HAVING ON SITE A COPY OF THE ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS (OPSS) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) RELEVANT TO THIS CONTRACT.

1.4. GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL PERMITS RELATED TO SERVICE CONNECTIONS INCLUDING THIRD PARTY UTILITY COSTS.

1.5. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE GEOTECHNICAL REPORTS, ARCHITECTURAL SITE PLAN, AND BUILDING PLANS INCLUDING BUT NOT LIMITED TO STRUCTURAL, MECHANICAL, ELECTRICAL, AND LANDSCAPING PLANS.

1.6. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING SITE WORKS CONTRACTORS WITH STRUCTURAL / MECHANICAL / ELECTRICAL / UTILITY CONTRACTORS.

1.7. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST PROVINCIAL STANDARDS UNLESS OTHERWISE STATED.

1.8. THE LATEST OPSD SHALL TAKE PRECEDENCE OVER DETAILS ON THIS DRAWING, WHERE APPLICABLE.

1.9. GENERAL CONTRACTOR TO UNCOVER EXISTING UTILITIES WELL IN ADVANCE OF PIPE LAYING IN ORDER TO CORRECT GRADE PROBLEMS AS REQUIRED, IF REQUIRED.

1.10. THE GENERAL CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS ON THE JOB AND REPORT ANY DISCREPANCY TO THE ENGINEER BEFORE PROCEEDING WITH THE WORKS.

1.11. THE APPROVAL OF THE PLANS DOES NOT EXEMPT THE GENERAL CONTRACTOR FROM THE RESPONSIBILITY OF OBTAINING, BUT NOT LIMITED TO, THE FOLLOWING PERMITS: ROAD CUT, SEWER PERMIT, RELOCATION OF SERVICES, ENCROACHMENT AGREEMENTS, APPROACH PERMITS, ROAD OCCUPANCY PERMITS, BUILDING PERMITS, OR OTHER PERMITS REQUIRED FROM AUTHORITIES HAVING JURISDICTION, ETC...

1.12. ALL CONSTRUCTION WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.

1.13. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING THE SUPPLY, INSTALLATION AND REMOVAL OF ALL NECESSARY SIGNAGE, DELINEATORS, MARKERS AND BARRIERS. ALL TRAFFIC CONTROL SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS IN BOOK 7 OF THE ONTARIO TRAFFIC MANUAL.

1.14. ALL AREAS DISTURBED BY THE GENERAL CONTRACTOR'S CONSTRUCTION SHALL BE RESTORED TO EXISTING CONDITIONS AS INDICATED ON THE OWNER'S CONTRACT DRAWINGS AND IN ACCORDANCE WITH OPSS 507.

1.15. ANY HYDRO POLES OR BELL POLES THAT ARE IN DANGER OF BEING UNDERMINED ARE TO BE BRACED. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO HAVE POLES BRACED TO THE SATISFACTION OF THE APPROPRIATE UTILITY. THE GENERAL CONTRACTOR SHALL CARRY ALL COSTS ASSOCIATED WITH THE BRACING OF POLES.

1.16. GENERAL CONTRACTOR TO MAINTAIN ALL EXISTING SERVICES UNTIL NEW SERVICES HAVE BEEN INSTALLED AND ACCEPTED.

1.17. THE CONTRACTOR IS RESPOSIBLE FOR COMPLIANCE WITH PROVINCIAL EXCESS SOIL REGULATION O.REG 406/19,

1.18. ALL TREES AND ROOTS TO BE COMPLETELY REMOVED AND DISPOSED OF OFF SITE.

1.19. TRENCHING TO FOLLOW OPSD 802.010 (TYPE 3 or 4 SOILS).

1.20. ALL STRUCTURES TO HAVE FROST STRAPS AS PER OPSD 701.100.

2. WATERMAIN

2.1. WATERMAIN TO BE 150mmØ PVC(O).DR 18 (235PSI RATED) WITH FACTORY INSTALLED BELL AND SPIGOT. BLUE BRUTE, BIONAX OR OTHER APPROVED EQUIVALENT C900 OR C909 PIPE MEETING OPSS 441 REQUIREMENTS.

2.2. THE CONTRACTOR SHALL CONFIRM THE ELEVATION OF THE EXISTING WATERMAIN AT ALL CONNECTION POINTS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

2.3. CONTRACTOR TO INSTALL TRACER WIRE ON ALL NEW PVC WATERMAIN AND NON-CONDUCTIVE (PLASTIC) SERVICE INSTALLATIONS. NEW PVC WATERMAIN TO FOLLOW OPSD 1109.011. TRACER WIRE TO INCLUDE CATHODIC PROTECTION. TRACER WIRE TO LOOP ABOVE GROUND AT HYDRANTS AND VALVES, FOR TESTING ACCESS. TRACER WIRE TO BE TESTED FOR CONTINUITY.

2.4. TRACER WIRE SHALL BE: 10 GAUGE, STRANDED, PLASTIC COATED TRACER WIRE TWU 75°C 600V OR APPROVED EQUIVALENT.

2.5. ALL WATERMAIN TEES, PLUGS, AND HORIZONTAL BENDS REQUIRE THRUST BLOCKS AS PER OPSD 1103.010. VERTICAL BENDS REQUIRE THRUST BLOCKS AS PER OPSD 1103.020. RETAINING GLAND RINGS TOGETHER WITH THRUST BLOCKS REQUIRED WHERE THRUST BLOCKS CANNOT BE CONSTRUCTED ON SOLID GROUND.

2.6. ALL VALVES AND FITTINGS TO HAVE 3 PART DENSO WRAP AND ANODE PROTECTION IN ACCORDANCE WITH OPSS 441. HYDRANT TO BE: YELLOW, 115mm 'CENTURY' MODEL FROM MUELLER OR MCAVITY BRIGADIER HAVING: TWO HOSE NOZZLES, ONE PUMPER NOZZLE, CAPS/CHAINS, 150mm BASE, OPENING COUNTER CLOCKWISE, SELF DRAINING, AND COMPLETE WITH A PACKAGED ZINC ANODE TYPE Z-24-48.

2.7. BEDDING AND BACKFILL FOR WATERMAIN SHALL BE AS PER OPSD 802.010 .

2.8. THE CONTRACTOR IS TO MARK THE END OF THE WATERMAIN AND WATERMAIN SERVICES WITH A 2" x 4" THAT HAS THE TOP 300mm PAINTED BLUE. THE 2" x 4" SHALL EXTEND A MINIMUM OF 600mm ABOVE THE FINISHED GRADE.

2.9. THE CONTRACTOR SHALL CONFIRM THE ELEVATION OF THE EXISTING WATERMAIN AT ALL CONNECTION POINTS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

2.10. MINIMUM COVER ON THE WATER SERVICE SHALL BE 2.2m FROM PROPOSED FINISH GRADE TO THE TOP OF PIPE.

2.11. THE MINIMUM VERTICAL DISTANCE BETWEEN THE WATERMAIN AND EITHER A STORM SEWER OR SANITARY SEWER IS 500mm. ALL WATER SERVICES REQUIRE 2.5m HORIZONTAL SEPARATION FROM SANITARY MANHOLES, STORM MANHOLES AND CATCH BASINS WHERE POSSIBLE.

2.12. ALL WATERMAIN TESTING INCLUDING CHLORINATION, BACTERIOLOGICAL, PRESSURE AND FLOW IS TO BE IN ACCORDANCE WITH THE CITY OF PEMBROKE REQUIREMENTS. CONTRACTOR TO SUPPLY THE ENGINEER WITH TWO (2) COPIES OF ALL TEST RESULTS. THE CONTRACTOR OR GENERAL CONTRACTOR IS TO SUPPLY ENGINEER WITH THE PROPOSED TESTING PROCEDURE A MINIMUM OF TWO WEEKS PRIOR TO TESTING.

2.13. THE SITE SERVICING CONTRACTOR IS TO TERMINATE THE WATER SERVICE 1.0m OUTSIDE THE PROPOSED BUILDING FOUNDATION WALL. THE WATER SERVICE SHALL BE MARKED WITH A 2" x 4" PAINTED BLUE. THE 2" x 4" SHALL EXTEND 0.6m ABOVE FINISHED GRADE. THE 2" x 4" SHALL BE CLEARLY LABELED "WATER". LOCATION OF WATER CONNECTION TO BE VERIFIED AGAINST BUILDING PLANS AND MODIFIED AS NECESSARY.

3. WATER SERVICES (n/a)

4. SEWER MAIN

4.1. STORM SEWER MAIN TO BE PVC DR 35 PVC or HDPE 320 KPA DUAL WALL SMOOTH INTERIOR WALL PIPE TYPE WITH FACTORY INSTALLED BELL & SPIGOT JOINT MEETING OPSS 410 REQUIREMENTS, DIMENSIONS AS DETAILED ON DRAWINGS.

4.2. SANITARY MAIN TO BE PVC DR 35 SMOOTH INTERIOR WALL TYPE WITH FACTORY INSTALLED BELL & SPIGOT JOINT MEETING OPSS 410 REQUIREMENTS, DIMENSIONS AS DETAILED ON DRAWINGS.

4.3. SANITARY SERVICES TO BE PVC SMOOTH INTERIOR WALL TYPE WITH FACTORY INSTALLED BELL & SPIGOT JOINT MEETING OPSS REQUIREMENTS, DIMENSIONS AS DETAILED ON DRAWINGS. CONNECTIONS TO NEW SANITARY MAIN TO BE MADE WITH PREFABRICATED TEES OR SADDLE TEES. SADDLE TEES TO INCLUDE: ROYAL MUNICIPAL SOLUTION H SERIES SADDLES INCLUDING H4108-4R OR OTHER CITY AND ENGINEER APPROVED EQUIVALENT.

4.4. THE STORM AND SANITARY SEWERS ARE TO BE FLUSHED UPON COMPLETION OF ALL SITE WORKS, AND ALL CATCH BASINS AND STORM MANHOLES ARE TO BE CLEANED AND VACUUMED OUT. THIS NOTE APPLIES TO ALL MANHOLES AND CATCH BASINS ON SITE AND FOR ONE STRUCTURE DOWNSTREAM OF THE CONNECTION POINT.

4.5. THE SITE SERVICING CONTRACTOR IS TO TERMINATE THE STORM AND SANITARY SEWERS 1.0m OUTSIDE THE PROPOSED BUILDING FOUNDATION WALL. THE SANITARY AND STORM SERVICES TO THE PROPOSED BUILDING SHALL BE MARKED WITH A 2" x 4" PAINTED GREEN. THE 2" x 4" SHALL EXTEND 0.6m ABOVE FINISHED GRADE. THE 2" x 4" SHALL BE CLEARLY LABELED "SANITARY" OR "STORM" RESPECTIVELY. LOCATION OF SEWER CONNECTION TO BE VERIFIED AGAINST BUILDING PLANS AND MODIFIED AS NECESSARY.

4.6. BEDDING AND BACKFILL FOR STORM AND SANITARY SEWER SHALL BE GRANULAR 'A' AS PER OPSD 802.010.

4.7. ALL CATCH BASINS AND/OR MANHOLES SHALL HAVE FILTER FABRIC PLACED UNDER THE LID, IMMEDIATELY AFTER INSTALLATION, TO CONTROL ANY SILT THAT MAY ENTER THE STORM SEWER. THE CONTRACTOR SHALL ENSURE THE FILTER FABRIC IS NOT 'SEALED' IN PLACE DURING THE PLACEMENT OF ASPHALT. ALL FILTER FABRIC IS TO BE MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL REMOVE ALL FILTER FABRIC UPON COMPLETION OF THE PROJECT OR AFTER BEING NOTIFIED BY THE ENGINEER.

4.8. ALL NEW STORM AND SANITARY SEWER MAINS SHALL BE VIDEO TAPED AFTER CONSTRUCTION IS COMPLETE AND AFTER THE SEWERS HAVE BEEN CLEANED THE CONTRACTOR SHALL PROVIDE TWO DIGITAL COPIES OF THE VIDEO AND REPORTS TO THE CONSULTANT.

5. SITE

5.1. SITE PAVEMENT TO BE CONSTRUCTED AS FOLLOWS: 40mm HL4 ASPHALT SURFACE, 50mm HL4 ASPHALT BASE AS PER OPSS 1150, 150mm GRANULAR 'A' BASE AS PER OPSS MUNI 1010, 300mm GRANULAR 'B' TYPE iii SUB-BASE AS PER OPSS MUNI 1010

5.2. ALL GRANULAR MATERIAL TO CONFORM WITH OPSS MUNI 1010 REQUIREMENTS.

5.3. ASPHALT IS TO BE PLACED, SPREAD, AND COMPACTED IN ACCORDANCE WITH OPSS FORM 310. ASPHALT PERFORMANCE GRADE IS TO BE 58-34 AS PER OPSS 1101.

5.4. ALL EXISTING ASPHALT EDGES FOR JOINING SHALL BE SAW CUT CLEAN PRIOR TO ANY PAVING OPERATION. WHERE EXISTING PAVEMENT CONSISTS OF MORE THAN ONE LIFT, THE UPPER COURSE SHALL BE STEPPED BACK 300mm FROM THE LOWER JOINT.

5.5. ALL GRANULAR BASE MATERIALS SHALL BE COMPACTED TO 100% STANDARD PROCTOR MAX. DRY DENSITY. ALL ASPHALT MATERIALS SHALL BE COMPACTED TO 97% MAX. BULK DENSITY.

5.6. INSPECTION OF SUB-GRADE REQUIRED BY GEOTECHNICAL CONSULANT PRIOR TO PLACEMENT OF PAVEMENT STRUCTURE. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COST AND COORDINATION OF INSPECTIONS WITH GEOTECHNICAL CONSULTANT. COPIES OF ALL TESTING RESULTS TO BE SUBMITTED TO DESIGN ENGINEER.

5.7. AREAS REQUIRING RAISING MAY BE BACKFILLED WITH NATURAL, NON-ORGANIC, EXCAVATED MATERIAL WHICH SHALL BE COMPACTED TO MINIMUM 95% SPMDD.

5.8. ALL MATERIALS (CONCRETE, ASPHALT, ETC.) THAT ARE TO BE REMOVED MUST BE DISPOSED OF IN ACCORDANCE WITH THE LATEST MINISTRY OF THE ENVIRONMENT GUIDELINES AND LOCAL MUNICIPAL BYLAWS.

5.9. ALL LANDSCAPED AREAS ARE TO BE FINISHED WITH 100mm TOPSOIL AND NURSERY SOD UNLESS OTHERWISE NOTED. SOD IS TO BE STAKED ON SLOPES 4:1 OR STEEPER USING BIODEGRADABLE PINS.

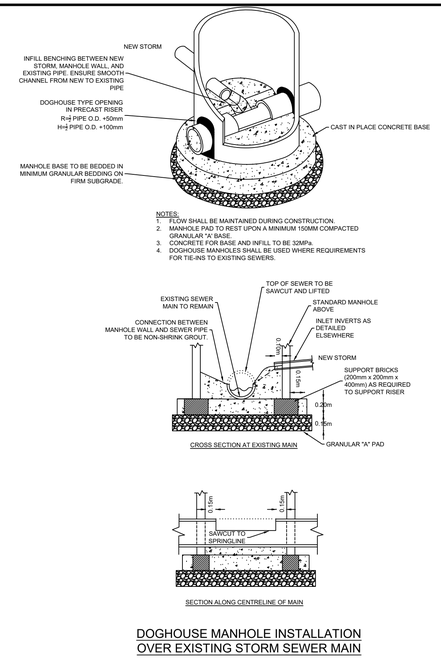
5.10. ALL SERVICES AND UTILITIES ARE TO BE SUPPORTED AS PER OPSD 1007.010.

5.11. THE CONTRACTOR SHALL NOTIFY ALL EMERGENCY SERVICES WELL IN ADVANCE OF ROADWAY INTERRUPTIONS. MINIMUM 72 HOURS NOTICE UNLESS DIRECTED OTHERWISE.

5.12. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL SURVEY LAYOUT.

5.13. THE GENERAL CONTRACTOR IS TO ENSURE NO DEBRIS IS TRACKED ONTO ANY MUNICIPAL ROADS.

5.14. GENERAL CONTRACTOR TO ADJUST ALL EXISTING CATCH BASINS, MANHOLES, VALVE BOXES TO MATCH NEW PROPOSED GRADES.

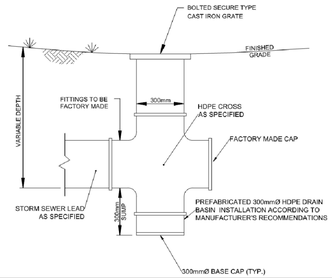


DOGHOUSE MANHOLE INSTALLATION
OVER EXISTING STORM SEWER MAIN

STRUCTURE SCHEDULE

STRUCTURE	TYPE	SPEC	FRAME AND GRATE	SUMP	TOP OF FRAME	INVERTS						COMMENTS
						NORTH	NORTHWEST	SOUTH	SOUTH EAST	NORTHEAST	SOUTHWEST	
S1	CBMH	1200mm DOGHOUSE	400.020	N/A	136.750				300 135.53	300 EX-135.470	300 EX-135.476	
S2	OGS	STORMCEPTOR EF4	401.010 TYPE A CLOSED	PER MANUFACTURER	136.950		300mm - 135.56		300 135.585			
S3	CBMH	1200mm 701.010	400.020	0.30m	136.800		300mm - 135.60 C/W ICD HF "E" CURVE		300mm - 135.75 150mm - 135.60			IPEX TEMPEST ICD 30 LPS @ 0.30m HEAD AND 53 LPS @ 0.68m HEAD
S4	CBMH	1200mm 701.010	400.020	0.30m	136.800		300 135.79	300 135.81				180XLHD CULTEC SYSTEM BETWEEN S4 AND S3
S5	CBMH	1200mm 701.010	400.020	0.30m	137.175	300 135.90					300 135.90	
S6	CB	705.010	400.020	0.60m	136.938		300 136.00			300 136.00		
S7	DB	ST-2A		0.30m	137.162		300 136.11		300 136.11			
S8	DB	ST-2A		0.30m	137.344		300 136.16		300 136.16			
S9	DB	ST-2A		0.30m	137.032				300 136.230			

CBMH - CATCHBASIN MANHOLE, OGS - OIL GRIT SEPARATOR, STMH - STORM MANHOLE, DB - DRAINAGE BASIN, CB - CATCHBASIN



DRAINAGE BASIN
STANDARD DRAWING
ST-2A

CONTROL / MONUMENTS / PROPERTY / SURVEY

- IB / SIB — IRON BAR / STANDARD IRON BAR
- RIB — ROUND IRON BAR
- CC — CUT CROSS
- CM — CONCRETE MONUMENT
- NL / CP — NAIL / CONTROL POINT
- BM ## — BENCHMARK
- PROPERTY LINE / RIGHT-OF-WAY / EASEMENT

GROUND FEATURES / SURFACE OBJECTS / GRADING

- BH / PO — BORE HOLE / PROBE HOLE
- 100.00 — NEW GRADING ELEVATIONS
- × 100.00 — EXISTING GRADE ELEVATIONS
- DIRECTION OF FLOW — DIRECTION OF SURFACE DRAINAGE
- 3:1 OR 0.0% — SURFACE GRADING (GRADE OR SLOPE%)
- FENCE LINES
- FENCE GATE
- HEDGES / WOOD OUTLINE
- TREES
- STUMP
- ROAD SIGN
- RIP-RAP
- BOL / BOL — BOLLARD
- EDGE OF ASPHALT / PAVEMENT
- ROAD CENTERLINE
- EDGE OF ASPHALT / PAVEMENT CURB GUTTER LINE BACK OF CURB
- GRAVEL EDGE
- GRAVEL SHOULDER
- DAYLIGHTING / GRADING LIMIT
- TOP OF BANK

LEGEND

WATER / STORM / SANITARY

- WV / WV — WATER GATE VALVE
- FH / FH — FIRE HYDRANT
- WSO / WSO — WATER/CURB SHUT OFF
- W / W — WELL
- EXISTING WATERMAIN
- ABANDONED WATERMAIN
- NEW WATERMAIN - PLAN
- WATER SERVICE CONNECTION
- WC / WC — WATER CHAMBER
- D / D — EXISTING DRAINAGE MAINTENANCE HOLE OR EXISTING CATCHBASIN MAINTENANCE HOLE
- NEW DRAINAGE MAINTENANCE HOLE OR NEW CATCHBASIN MAINTENANCE HOLE
- CB / CB — CATCH BASIN (SINGLE)
- TCB / TCB — TWIN CATCH BASIN
- DI / DI / DI / DI / DI — DITCH INLETS
- DW / DW — DRY WELL
- DB / DB — DRAINAGE (YARD) BASIN
- STM — EXISTING STORM SEWER
- NEW STORM SEWER - PLAN
- ST — STORM SERVICE CONNECTION
- SD — SUBDRAIN
- CULVERT
- S / S — EXISTING SANITARY MAINTENANCE HOLE
- NEW SANITARY MAINTENANCE HOLE
- SAN — EXISTING SANITARY SEWER
- SA — SANITARY SERVICE CONNECTION

UTILITIES

- UP / UP — UTILITY POLE
- BH / BH — HYDRO / BELL POLE
- BP / BP — BELL POLE
- PO / PO — POLE (OTHER)
- I / AN — POLE ANCHOR
- PED / PED — PEDESTAL (BELL/CABLE/OTHER)
- HYDRO TRANSFORMER
- LS / LS — STREET LIGHTS
- TL / TL — TRAFFIC LIGHT POLE
- HH / HH — TRAFFIC SIGNAL HAND HOLE
- OH — HYDRO LINE (EXISTING ABOVE)
- OH — HYDRO LINE (NEW ABOVE)
- UH — HYDRO LINE (EXISTING UNDERGROUND)
- UH — HYDRO LINE (NEW UNDERGROUND)
- UB — BELL LINE (EXISTING UNDERGROUND)
- UB — BELL LINE (NEW UNDERGROUND)
- UC — CABLE LINE (EXISTING UNDERGROUND)
- UC — CABLE LINE (NEW UNDERGROUND)
- UTL — UTILITY LINE (OTHER)
- UG — GAS LINE (EXISTING)
- UG — GAS LINE (NEW)
- GAS V / GAS V — GAS VALVE
- H / H — MAINTENANCE HOLE HYDRO
- C / C — MAINTENANCE HOLE COMMUNICATIONS
- GAS M / GAS M — GAS METER
- HYD M / HYD M — HYDRO METER

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NOT FOR CONSTRUCTION

No.	YYYY-MM-DD	BY	DESCRIPTION
1	2025-10-08	MNF	ISSUED FOR MUNICIPAL REVIEW & DEVELOPMENT PERMIT

STAMP

STAMP

PROJECT

DOBBY APARTMENTS

225 FRANKTOWN ROAD, CARLETON PLACE, ONTARIO, K7C 2NB

DRAWING

GENERAL NOTES

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS
12 INTERNATIONAL DRIVE, PEMBROKE, ON, K8A 6W5
T: 613-735-2507
PEMBROKE@JP2G.COM

NORTH

TRUE NORTH

SCALE 1:250 H= 1:250 V= 1:50

0 m 2 4 6 8 10 m

DRAFTED: T.NAULT
DESIGNED: MNF
REVIEWED: MNF
APPROVED: MNF

SHEET # NOTES1

DWG NAME: J:\1-MULTI\DOCS\PEMBROKE\25-1022A - CARLETON PLACE DOBBY APARTMENTS\05 DRAWINGS\1 ONGOING\25-1022A (DESIGN_RECOVER.DWG, LAYOUT: NOTES AND DETAILS, SAVED ON 2025-10-3)

Appendix B
Sanitary Information

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS

PROJECT: **Dobby Apartments**
NO.: **25-1022A**

DESIGNED BY: **Michael Fadock**
DATE: **2025-08-20**
Rev: **1**

STREET	MANHOLE Nos.	RESIDENTIAL AREA THIS SECTION (ha)	RESIDENTIAL AREA TOTAL (ha)	RESIDENTIAL POPULATION THIS SECTION	RESIDENTIAL POPULATION TOTAL	PEAK FLOW FACTOR	FLOW IN L/s RESIDENTIAL FLOW INFIL. 0.28	FLOW IN L/s RESIDENTIAL FLOW SEWAGE 0.00405	TOTAL FLOW IN L/s	PROPOSED SEWER PIPE SIZE (mm)	SLOPE %	CAPACITY IN L/s	FLOW AS % OF TOTAL CAPACITY	VELOCITY IN m/s	COMMENTS
EXISTING															
Nelson Street	u/s manhole	0.26	0.26	2.5	2.5	4.00	0.07	0.04	0.11	125	1.00	9.77	1.2%	0.77	LATERAL - EXISTING CONDITIONS
PROPOSED															
Nelson Street	u/s to MH 1016	0.26	0.26	50.0	50.0	4.00	0.07	0.81	0.88	150	1.00	15.89	5.6%	0.87	LATERAL - **PROPOSED CONDITIONS**
Nelson Street	MH 1016 to MH 1017	0.20	0.46	5	55.0	4.00	0.13	0.89	1.02	200	2.87	57.97	1.8%	1.79	MAIN - **PROPOSED CONDITIONS**
Nelson Street	MH 1016 to MH 1020	1.80	2.26	33	87.5	4.00	0.63	1.42	2.05	200	0.37	20.81	9.9%	0.64	MAIN - **PROPOSED CONDITIONS**

NOTES:
Nelson street population from Franktown to Queen estimated to be 15 units from aerial imagery and ppdu of 2.5

Infiltration is 0.28 Lps / ha
Residential flows based on 340 Lpp / da
340 Lpp / da = 0.00405 Lpp/s
Peaking Factor: 1 + 14/(4+p^0.5)
where p is population in thousands
maximum peaking factor = 4.0

Appendix C
Stormwater Water Information

#114
1 STOREY BRICK AND
VINYL SIDING DWELLING

A1

0.435

0.2618
ha

#225
2 STOREY VINYL
SIDING DWELLING

DECK

EX. BOARD FENCE

EX. PAIGE WIRE FENCE

EARTH MOUND

CONC. PAD

APROX. EDGE OF PAVEMENT

ASPH.

GARAGE

MULTIPLE
SHEDS

SHED

FALLEN 400mmØ
TREE

BRUSH PILE

LIGHT POST

PAIGE WIRE FENCE

BOARD FENCE

LOG BARRIER

ASPH. DRIVEWAY

CONC. S.W.

MIXED TREE &
BRUSH LINE

EX. 300mm WM

EX. 300mm STM

EX. 200mm SAN

CB#1015
T/G=136.58m
INV. NW=135.55m
INV. NE=135.54m

BM ELEVATION=136.80m
FIRE HYDRANT TOP OF SPINDLE

CB#1339
T/G=137.04m
INV. SW=136.16m

DISCLAIMER NOTES

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ISSUES/PROBLEMS WHICH MAY OCCUR AS A RESULT OF A FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY.
2. WHERE THERE ARE ALLEGED ERRORS, OMISSIONS, INCONSISTENCIES OR AMBIGUITIES PRESENT IN THE CONTRACT DOCUMENTS, THE CONTRACTOR MUST SEEK CLARIFICATION FROM JP2G. ANY COSTS OR SCHEDULE DELAYS WHICH RESULT AS A FAILURE TO CONTACT JP2G FOR DIRECTION SHALL BE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
3. DO NOT SCALE DRAWINGS. REFER ANY DIMENSIONAL CLARIFICATIONS AND/OR POSSIBLE TRADE INTERFERENCE/CONFLICTS TO JP2G FOR CLARIFICATION PRIOR TO COMMENCEMENT OF THE WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH SUBTRADES AND SHALL ADDRESS CONSTRUCTION TEAM COORDINATION ITEMS PRIOR TO ISSUING REQUESTS FOR INFORMATION FROM JP2G.
5. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

NOT FOR CONSTRUCTION

No.	YYYY-MM-DD	BY	DESCRIPTION
1	2025-10-08	MNF	ISSUED FOR MUNICIPAL REVIEW & DEVELOPMENT PERMIT

STAMP

STAMP

PROJECT

DOBBY APARTMENTS

225 FRANKTOWN ROAD, CARLETON PLACE, ONTARIO, K7C 2NB

DRAWING

PRE-DEVELOPMENT STORMWATER PLAN

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS
12 INTERNATIONAL DRIVE, PEMBROKE, ON, K8A 6W5
T: 613-735-2507
PEMBROKE@JP2G.COM

Jp2g PROJECT No.: 25-1022A

NORTH

TRUE NORTH

SCALE 1:250
0 m 4 8
2 6 10 m

DRAFTED:	T.NAULT
DESIGNED:	MNF
REVIEWED:	MNF
APPROVED:	MNF

SHEET #

STM-POST

DWG NAME: J:\1-MULTI\DWGS\R-UNE\2025\25-1022A - CARLETON PLACE DOBBY APARTMENTS\00 DRAWINGS\1 ONGOING\25-1022A-DESIGN_RECEIVER.DWG LAYOUT: STM-PRE SAVED ON: 2025-10-10

#114
1 STOREY BRICK AND
VINYL SIDING DWELLING

#225
2 STOREY VINYL
SIDING DWELLING

PROPOSED 2 STOREY

20 UNIT APARTMENT

BUILDING AREA = 978SM [10,527SF]

FFE =

A1 0.72

0.2618 ha

4.5m 300Ø
0.5% STM

2m 300Ø - 0.5% STM STUBBED
OUT OF U/G CHAMBER

2m 300Ø 0.5% STM STUBBED
INTO U/G CHAMBER

6.5m 300Ø
0.5% STM

TIE 40m LONG
150mm SUBDRAIN INTO S3

16 X 180 XLHD CULTEC SYSTEM
28.3 m³ STORAGE AVAILABLE

22 m³ AVAILABLE PARKING LOT STORAGE TO 136.95

REMOVE EXISTING WATER
AND SANITARY SERVICE

18m 300Ø
0.5% STM

15m 300Ø
0.5% STM

24m 300Ø
0.5% STM

22m 300Ø
0.5% STM

S1 S2 S3 S4 S5 S6 S7 S8 S9

DOGHOUSE MANHOLE

CB#1015
T/G=136.58m
INV. NW=135.55m
INV. NE=135.54m

CB#1339
T/G=137.04m
INV. SW=136.16m

BM ELEVATION=136.80m
FIRE HYDRANT TOP OF SPINDLE

NELSON STREET

FRANKTOWN ROAD

DECK
SHED
EX. BOARD FENCE
EX. PAIGE WIRE FENCE
FALLEN 400mmØ
BRUSH PILE
LIGHT POST
EARTH MOUND
CONCRETE WALKWAY
CONC. PAD
PATIO
LANDSCAPE
CONCRETE PAD
TWO 1.8m x 1.8m AND ONE 1.2m BINS
ASPH. DRIVEWAY
SITE TRIANGLE
LO BARRIER
MULTIPLE SHEDS
GARAGE
APROX. EDGE OF PAVEMENT
MIXED TREES AND BRUSH LINE
CONC. S.W.
ASPH.

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DOBBY APARTMENTS

225 FRANKTOWN ROAD, CARLETON PLACE, ONTARIO, K7C 2NB

DRAWING

POST-DEVELOPMENT STORMWATER MANAGEMENT PLAN

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS
12 INTERNATIONAL DRIVE, PEMBROKE, ON, K8A 6W5
T: 613-735-2507
PEMBROKE@JP2G.COM

Jp2g PROJECT No.: 25-1022A

NORTH

TRUE NORTH

DRAFTED:	T.NAULT
DESIGNED:	MNF
REVIEWED:	MNF
APPROVED:	MNF

SCALE 0 m 4 8 2 6 10 m 1:250

SHEET # STM-PRE

DWG NAME: J:\1-MULTI\DBOR\LIM\DWG\25-1022A - CARLETON PLACE\DOBBY APARTMENTS\DRAWINGS\1 ENG\DWG\25-1022A ENGINEERING_RECOVERY ENG LAYOUT - STM+POST SAVED ON 2025-10-10

STORM SEWER DESIGN SHEET

LOCATION		CONTRIBUTING AREA			FLOW				STORM SEWER DESIGN							
1	2	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21
Description		AREA (A) (ha)	RUNOFF COEFF. (C) (--)	SECTION (C*A) [6]x[7] (ha)	TIME OF CONCEN. (Tc) (min)	RAINFALL INTENSITY (I) (mm/hr)	ACTUAL FLOW (Q =2.78*C*A*I) 2.78x[9]x[11] (L/s)	ACTUAL FLOW [12] or CONTROLLED FLOW (L/s)	LENGTH (m)	SLOPE (%)	DIA. (mm)	FULL FLOW CAPACITY (L/s)	% OF PIPE CAPACITY (%)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW IN PIPE (min)	TIME OF CONCEN AFT. PIPE (min)
5 Year	Existing	0.26	0.435	0.113	10.0	104.2	32.8	**32.8**								
5 Y ear	Proposed	0.26	**0.72**	0.188	10.0	104.2	54.6	54.6	100.0	0.50%	300	68.38	80%	0.97	1.72	11.72
							Allowable Release	**32.8**								
							Detention Req.	21.8								

Notes:

Project Name: Dobby Apartr
Jp2g Project No.: 25-1022A
Client Ref No.:

Prepared By: MNF
Reviewed By: MNF
Approved By: MNF
Date: 2025-10-09
Revision: 1

Storm Event: 1:5 Year
Rainfall Intensity Formula: Ottawa IDF

Mannings, n = 0.013

Rational Method: $Q = 2.78 * C * A * I$

where, Q = peak flow (L/s)
C = runoff coefficient
I = average rainfall intensity (n
A = area (ha)

J:\1-MultiDiscipline\2025\25-1022A - Carleton Place Dobby Apartments\13 FSR\Appendix D - Pre & Post Dev Stm Plans; Deep Rvr Stm Routing\[25-1022A STORM SEWER DESIGN.xlsm]Storm Sewer Design 5

STORM SEWER DESIGN SHEET

LOCATION		CONTRIBUTING AREA			FLOW				STORM SEWER DESIGN								
1	2	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22
Descriptoin		AREA (A) (ha)	RUNOFF COEFF. (C) (--)	SECTION (C*A) [6]x[7] (ha)	TIME OF CONCEN. (Tc) (min)	RAINFALL INTENSITY (I) (mm/hr)	ACTUAL FLOW (Q =2.78*C*A*I) 2.78x[9]x[11] (L/s)	ACTUAL FLOW [12] or CONTROLLED FLOW (L/s)	LENGTH (m)	SLOPE (%)	DIA. (mm)	FULL FLOW CAPACITY (L/s)	% OF PIPE CAPACITY (%)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW IN PIPE (min)	TIME OF CONCEN AFT. PIPE (min)	COMMENTS
100 Year	Existing	0.26	0.435	0.113	10.0	178.6	56.1	**56.1**									
100 Year	Proposed	0.26	**0.81**	0.212	10.0	178.6	105.2	105.2	*c=0.72 increased by 1.25, c = 0.81*								
							Allowable Release	**56.1**									
							Req. Detention	49.0									

Notes:

Project Name: Dobby Apartr
Jp2g Project No.: 25-1022A
Client Ref No.:

Prepared By: MNF
Reviewed By: MNF
Approved By: MNF
Date: 2025-10-09
Revision: 1

Storm Event: 1:100 Year
Rainfall Intensity Formula: Ottawa IDF

Mannings, n = 0.013

Rational Method: $Q = 2.78 * C * A * I$

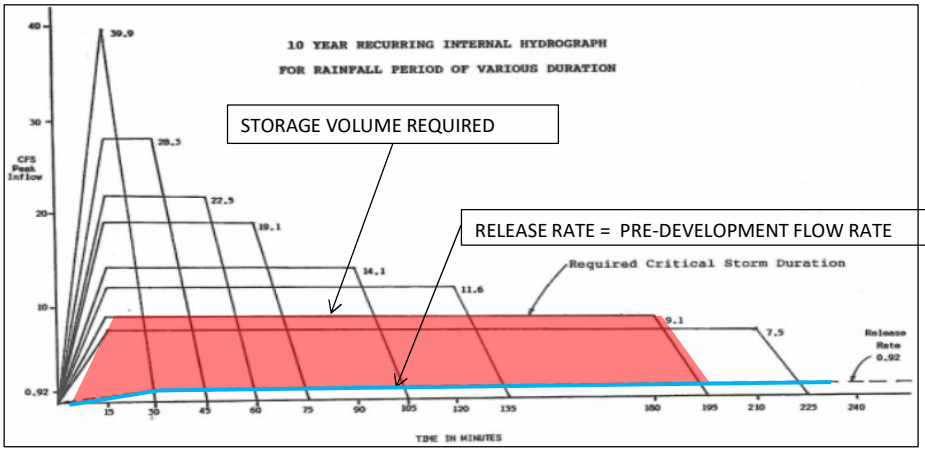
where, Q = peak flow (L/s)
C = runoff coefficient
I = average rainfall intensity (mm/hr)
A = area (ha)

J:\1-MultiDiscipline\2025\25-1022A - Carleton Place Dobby Apartments\13 FSR\Appendix D - Pre & Post Dev Stm Plans; Deep Rvr Stm Routing\[25-1022A STORM SEWER DESIGN.xlsm]Storm Sewer Design 100

Detention Volumes

Objective: Determine Modified Rational Method storage requirements, using final stage storage outflow curves to determine the detention configuration.

Determine Storm Storage Requirements - Modified Rational Method



Determine Pond Storage Requirements

			25 Year	50 Year	100 Year
Site Area	0.262	ha			
C coefficient	0.72		0.79	0.80	0.81
Time of Concentration	10.00	mins	*increases to "c" according to MTO up to 1.25x for 100 year*		

Runoff Parameters

Storm Frequency	A	B	C	Critical Storm Duration	i	Q_{actual}	Q_{allow} (ICD)	Q_{stored}	V_{stored}	System Head
				(min)	(mm/hr)	(l/s)	(l/s)	(l/s)	(m^3)	(m)
2	733.0	0.81	6.20	10	76.8	40.3	28.0	12.2	7	0.21
5	**998.1**	**0.81**	**6.05**	**10**	**104.2**	**54.6**	**33.0**	**21.6**	**13**	**0.31**
10	1174.2	0.82	6.01	10	122.1	64.1	36.8	27.3	16	0.36
25	1402.9	0.82	6.02	10	147.7	85.2	43.6	41.6	24	0.49
50	1569.6	0.82	6.01	10	160.8	93.7	47.8	45.9	28	0.57
100	**1735.7**	**0.82**	**6.01**	**10**	**178.6**	**105.1**	**52.3**	**52.8**	**32**	**0.68**

Stage Storage

Combined Stage storage volumes including above ground volumes provided by AutoCAD Civil3D StageStorage Calculator

	Elevation	System Head	Cumulative Volume (cu.m)	Comment
Underground	135.60	**0.00**	0	**Bottom of Stone for Cultec XLHD180 System**
	135.70	0.10	2.7	
	135.80	0.20	6.9	
	135.90	0.30	13.1	**5 Year Detention Elevation**
	136.00	0.40	19.1	
	136.10	0.50	24.7	
	136.20	0.60	29.4	
	136.30	0.70	32.1	**100 Year Detention Elevation**
	136.40	0.80	34.1	
	136.50	0.90	34.1	
	136.60	1.00	34.1	
	136.70	1.10	34.1	
	136.80	1.20	34.1	Catchbasin t/f
Above ground				
	136.95	1.35	56.1	Entrance Elev.
	137.30	1.70	n/a	Building FFE

CULTEC RECHARGER® 150XLHD STORMWATER CHAMBER

The Recharger® 150XLHD is an 18.5" (470 mm) tall, lower profile chamber and is typically used for installations with depth restrictions or when a larger infiltrative area is required. The Recharger® 150XLHD has the side portal internal manifold feature. HVLV® FC-24 Feed Connectors are inserted into the side portals to create the internal manifold.

Size (L x W x H)	11' x 33" x 18.5"
	3.35 m x 838 mm x 470 mm
Installed Length	10.25'
	3.12 m
Length Adjustment per Run	0.75'
	0.23 m
Chamber Storage	2.65 ft³/ft
	0.25 m³/m
	27.16 ft³/unit
	0.77 m³/unit
Min. Installed Storage	4.89 ft³/ft
	0.45 m³/m
	50.17 ft³/unit
	1.42 m³/unit
Min. Area Required	33.31 ft²
	3.09 m²
Chamber Weight	51.0 lbs
	23.13 kg
Shipping	34 chambers/skid
	1,860 lbs/skid
	12 skids/48' flatbed
Min. Center-to-Center Spacing	3.25'
	0.99 m
Max. Allowable Cover	12'
	3.66 m
Max. Inlet Opening in End Wall	12" HDPE, 15" PVC
	300 mm HDPE, 375 mm PVC
Max. Allowable O.D. in Side Portal	10" HDPE, 10" PVC
	250 mm HDPE, 250 mm PVC
Compatible Feed Connector	HVLV FC-24 Feed Connector

Calculations are based on installed chamber length.
All above values are nominal.
Min. installed storage includes 6" (152 mm) stone base, 6" (152 mm) stone above crown of chamber and typical stone surround at 39"(991 mm) center-to-center spacing.

	Stone Foundation Depth		
	6"	12"	18"
	152 mm	305 mm	457 mm
Chamber and Stone Storage Per Chamber	50.17 ft³	56.83 ft³	63.49 ft³
	1.42 m³	1.61 m³	1.80 m³
Min. Effective Depth	2.54'	3.04'	3.54'
	0.77 m	0.93 m	1.08 m
Stone Required Per Chamber	2.13 yd³	2.75 yd³	3.36 yd³
	1.63 m³	2.10 m³	2.57 m³

Calculations are based on installed chamber length.
Includes 6" (305 mm) stone above crown of chamber and typical stone surround at 39"(991 mm) center-to-center spacing and stone foundation as listed in table.
Stone void calculated at 40%.

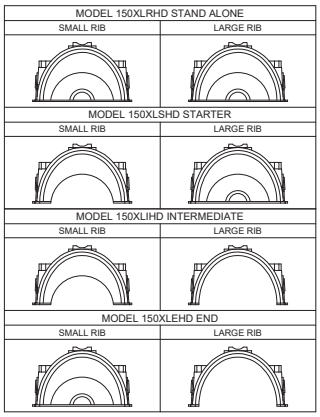
Recharger® 150XLHD Bare Chamber Storage Volumes

Elevation		Incremental Storage Volume				Cumulative Storage	
in.	mm	ft³/ft	m³/m	ft³	m³	ft³	m³
18.5	470	0.006	0.001	0.062	0.002	27.193	0.770
18	457	0.010	0.001	0.103	0.003	27.132	0.768
17	432	0.032	0.003	0.328	0.009	27.029	0.765
16	406	0.077	0.007	0.789	0.022	26.701	0.756
15	381	0.102	0.009	1.046	0.030	25.912	0.734
14	356	0.119	0.009	1.220	0.035	24.867	0.704
13	330	0.134	0.011	1.374	0.039	23.647	0.670
12	305	0.146	0.012	1.497	0.042	22.273	0.631
11	279	0.156	0.014	1.599	0.045	20.777	0.588
10	254	0.165	0.015	1.691	0.048	19.178	0.543
9	229	0.172	0.016	1.763	0.050	17.487	0.495
8	203	0.179	0.017	1.835	0.052	15.724	0.445
7	178	0.184	0.017	1.886	0.053	13.889	0.393
6	152	0.188	0.017	1.927	0.055	12.003	0.340
5	127	0.191	0.018	1.958	0.055	10.076	0.285
4	102	0.193	0.018	1.978	0.056	8.118	0.230
3	76	0.195	0.018	1.999	0.057	6.140	0.174
2	51	0.197	0.018	2.019	0.057	4.141	0.117
1	25	0.207	0.019	2.122	0.060	2.122	0.060
Total		**2.650**	**0.246**	**27.193**	**0.770**	**27.193**	**0.770**

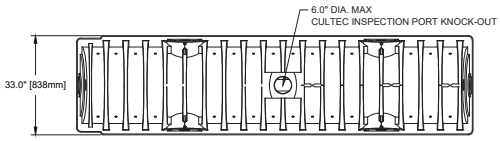
Calculations are based on installed chamber length.

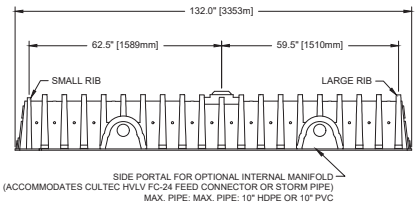
Visit www.cultec.com/downloads.html
for Product Downloads and CAD details.

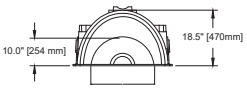
Three View Drawing

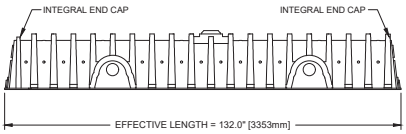


CULTEC RECHARGER 150XLHD CHAMBER STORAGE = 2.65 CF/FT [0.245m³/m]

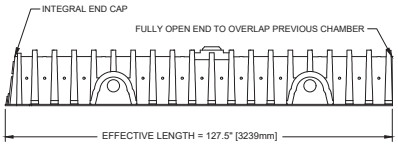




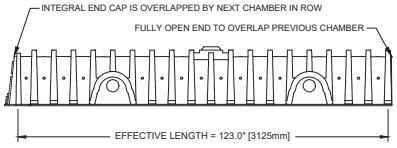




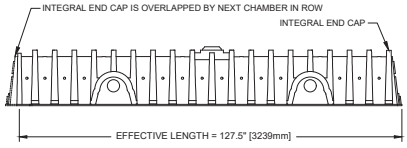
R-MODEL: SINGLE CHAMBER IN ROW



E MODEL: LAST CHAMBER IN ROW

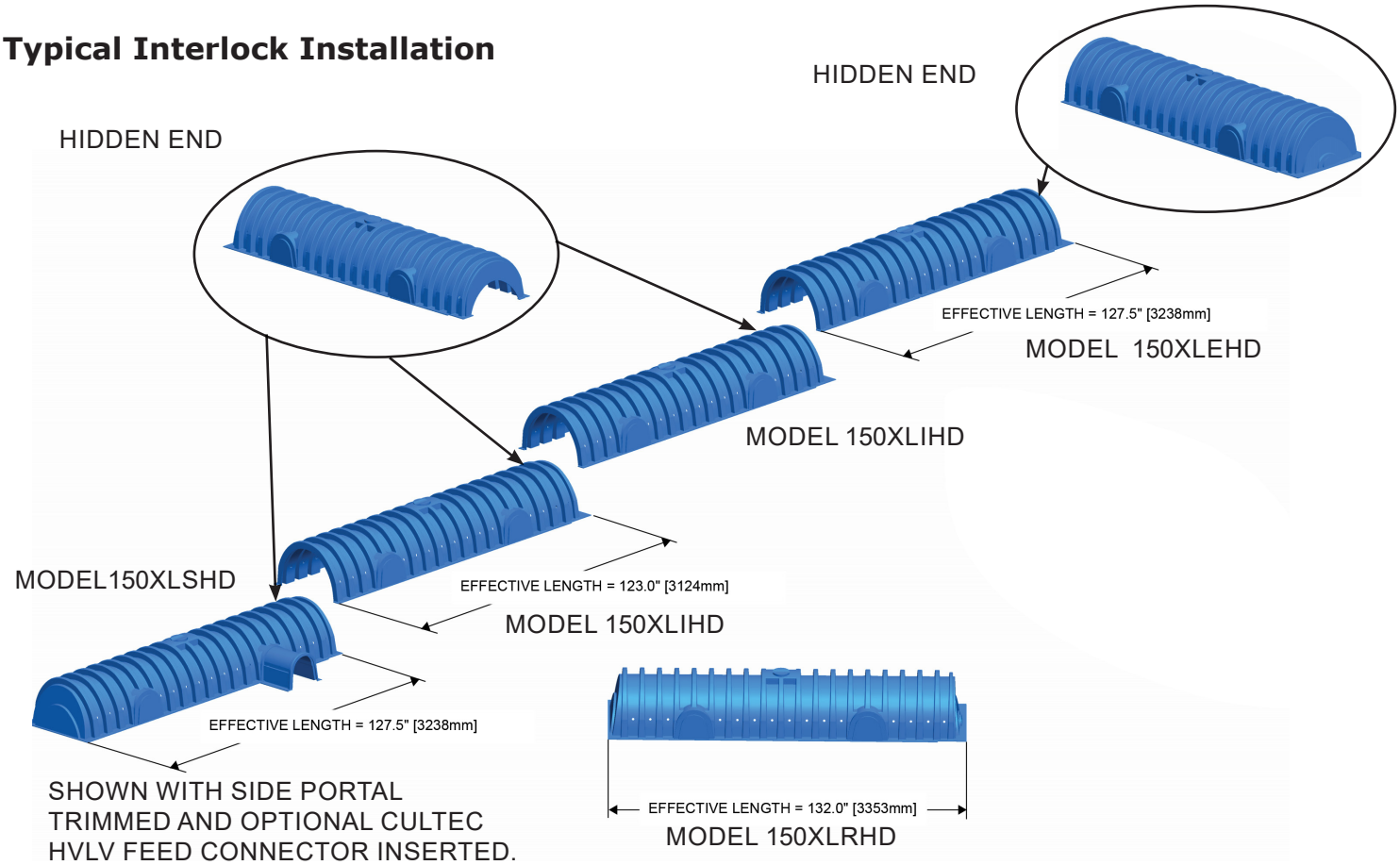


I MODEL: MIDDLE CHAMBER(S) IN ROW



S MODEL: FIRST CHAMBER IN ROW

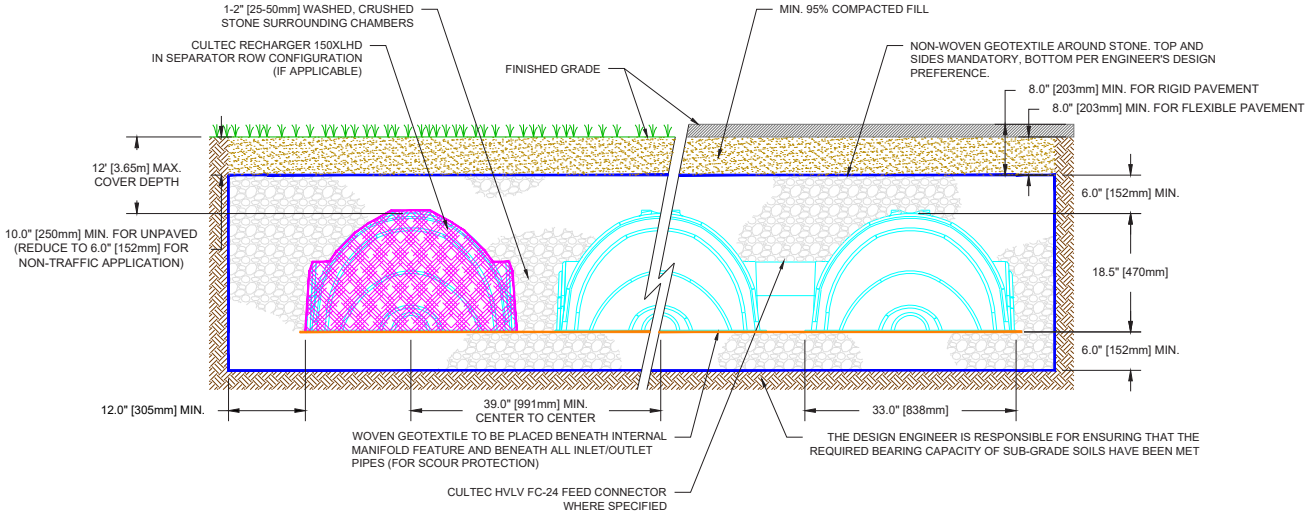
Typical Interlock Installation



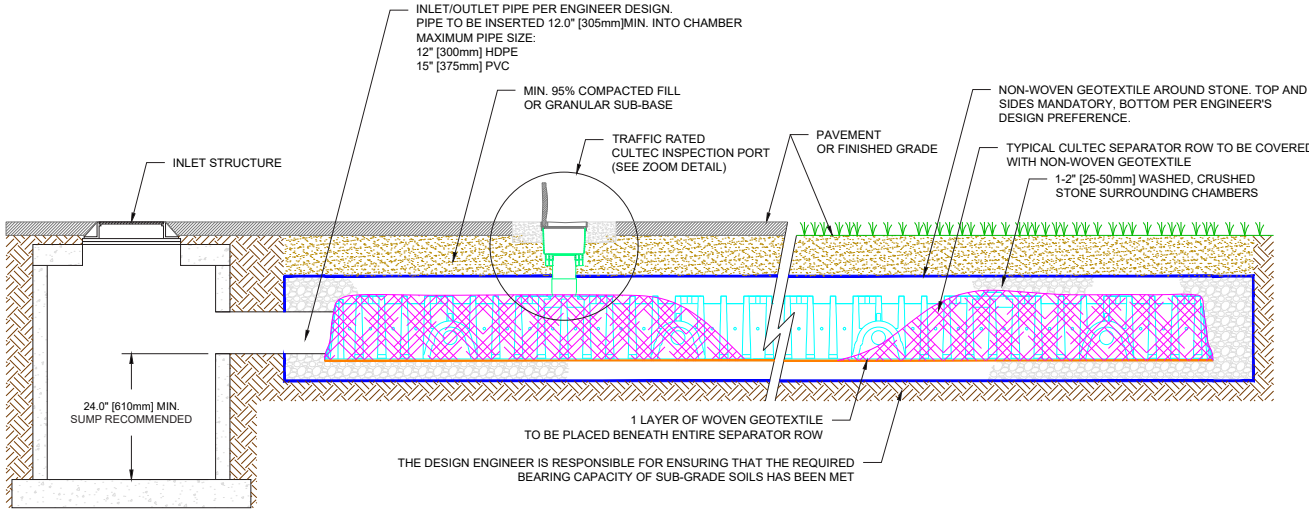
SHOWN WITH SIDE PORTAL TRIMMED AND OPTIONAL CULTEC HVLV FEED CONNECTOR INSERTED.

For more information, contact CULTEC at (203) 775-4416 or visit www.cultec.com.

Typical Cross Section for Traffic Application



Typical Profile View for Traffic Application



CULTEC Recharger® 150XLHD Specifications

GENERAL

CULTEC Recharger® 150XLHD chambers are designed for underground stormwater management. The chambers may be used for retention, recharging, detention or controlling the flow of on-site stormwater runoff.

CHAMBER PARAMETERS

1. The chambers shall be manufactured in the U.S.A. by CULTEC of Brookfield, CT (cultec.com, 203-775-4416).
2. The chambers shall be designed and validated via finite element analysis in accordance with the ASTM F2787 "Standard Practice for Structural Design of Thermoplastic Corrugated Wall Stormwater Collection Chambers". The load configuration shall include:
   a. Instantaneous AASHTO Design Truck live load at minimum cover
   b. Maximum permanent (50-year) cover load
   c. 1-week parked AASHTO design truck load.
3. The installed chamber system shall provide resistance to the loads and load factors as defined in the AASHTO LRFD Bridge Design Specifications Section 12.12, when installed according to CULTEC's recommended installation instructions. The structural design of the chambers shall include the following:
   a. The minimum safety factor for live loads shall be 1.75
   b. The minimum safety factor for dead loads shall be 1.95.
4. The chamber shall be vacuum thermoformed of polyethylene with a black interior and blue exterior.
5. The chamber shall be arched in shape.
6. The chamber shall be open-bottomed.
7. The chamber shall be joined using an interlocking overlapping rib method. Connections must be fully shouldered overlapping ribs, having no separate couplings or separate end walls.
8. The nominal chamber dimensions of the CULTEC Recharger® 150XLHD shall be 18.5 inches (470 mm) tall, 33 inches (838 mm) wide and 11 feet (3.35 m) long. The installed length of a joined Recharger® 150XLHD shall be 10.25 feet (3.12 m).
9. Maximum inlet opening on the chamber end wall is 12 inches (300 mm) HDPE and 15 inches (375 mm) PVC.
10. The chamber shall have two side portals to accept CULTEC HVLV® FC-24 Feed Connectors to create an internal manifold. The nominal I.D. dimensions of each side portal shall be 8.5 inches (216 mm) high by 12 inches (304 mm) wide. Maximum allowable O.D. in the side portal is 10 inches (250 mm) HDPE, PVC.
11. The nominal chamber dimensions of the CULTEC HVLV® FC-24 Feed Connector shall be 12 inches (305 mm) tall, 16 inches (406 mm) wide and 24.2 inches (615 mm) long.
12. The nominal storage volume of the Recharger® 150XLHD chamber shall be 2.650 ft^3 / ft (0.246 m^3 / m) - without stone. The nominal storage volume of a single Recharger 150XLRHD Stand Alone unit shall be 29.15 ft^3 (0.83 m^3) - without stone. The nominal storage volume of a joined Recharger® 150XLIHD Intermediate unit shall be 27.16 ft^3 (0.77 m^3) - without stone. The nominal storage volume of the length adjustment amount per run shall be 1.99 ft^3 (0.18 m^3) - without stone.
13. The nominal storage volume of the HVLV® FC-24 Feed Connector shall be 0.913 ft^3 / ft (0.085 m^3 / m) - without stone.
14. The Recharger® 150XLHD chamber shall have thirty discharge holes bored into the sidewalls of the unit's core to promote lateral conveyance of water.
15. The Recharger® 150XLHD chamber shall have 20 corrugations.
16. The end wall of the chamber, when present, shall be an integral part of the continuously formed unit. Separate end plates cannot be used with this unit.
17. The Recharger® 150XLRHD Stand Alone unit must be formed as a whole chamber having two fully formed integral end walls and having no separate end plates or separate end walls.
18. The Recharger® 150XLSHD Starter unit must be formed as a whole chamber having one fully formed integral end wall and one partially formed integral end wall with a lower transfer opening of 10 inches (254 mm) high x 20.5 inches (521 mm)wide.
19. The Recharger® 150XLIHD Intermediate unit must be formed as a whole chamber having one fully open end wall and one partially formed integral end wall with a lower transfer opening of 10 inches (254 mm) high x 20.5 inches (521 mm) wide.
20. The Recharger® 150XLEHD End unit must be formed as a whole chamber having one fully formed integral end wall and one fully open end wall and having no separate end plates or end walls.
21. The HVLV® FC-24 Feed Connector must be formed as a whole chamber having two open end walls and having no separate end plates or separate end walls. The unit shall fit into the side portals of the Recharger® 150XLHD and act as cross feed connections.
22. Chambers must have horizontal stiffening flex reduction steps between the ribs.
23. The chamber shall have a raised integral cap at the top of the arch in the center of each unit to be used as an optional inspection port or clean-out.
24. The units may be trimmed to custom lengths by cutting back to any corrugation on the large rib end.
25. The chamber shall be manufactured in an ISO 9001:2015 certified facility.
26. Maximum allowable cover over the top of the chamber shall be 12' (3.66 m).
27. The installed chamber system shall be structurally designed to provide resistance to live loads as defined by the AASHTO H-20/HL-93 specification when installed according to CULTEC's recommended installation instructions.

Imbrium® Systems
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

10/09/2025

Province:	Ontario
City:	Carleton Place
Nearest Rainfall Station:	OTTAWA CDA RCS
Climate Station Id:	6105978
Years of Rainfall Data:	20

Site Name:	Apartment

Drainage Area (ha):	0.26
Runoff Coefficient 'c':	0.74

Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	6.21
Oil / Fuel Spill Risk Site?	No
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	241
Estimated Average Annual Sediment Volume (L/yr):	196

Project Name:	Canadian Capital Corporation
Project Number:	25-1022
Designer Name:	michael fadock
Designer Company:	jp2g
Designer Email:	michael.fadock@jp2g.com
Designer Phone:	613-504-1312
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EF4	93
EF5	96
EF6	98
EF8	99
EF10	100
EF12	100

Recommended Stormceptor EF Model: EF4

Estimated Net Annual Sediment (TSS) Load Reduction (%): 93

Water Quality Runoff Volume Capture (%): > 90

imbrium

THIRD-PARTY TESTING AND VERIFICATION

►**Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

►**Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterwavs.

PARTICLE SIZE DISTRIBUTION (PSD)

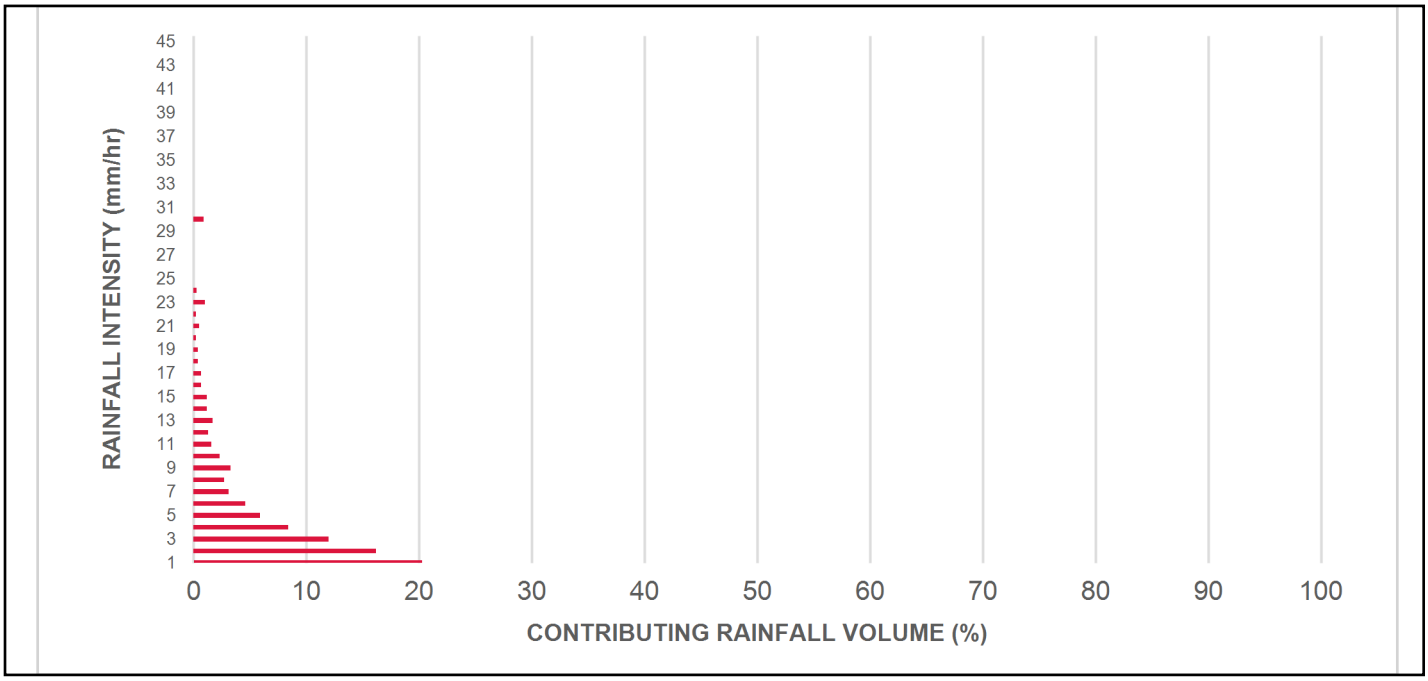
►The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV ***Procedure for Laboratory Testing of Oil-Grit Separators*** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a 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.

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

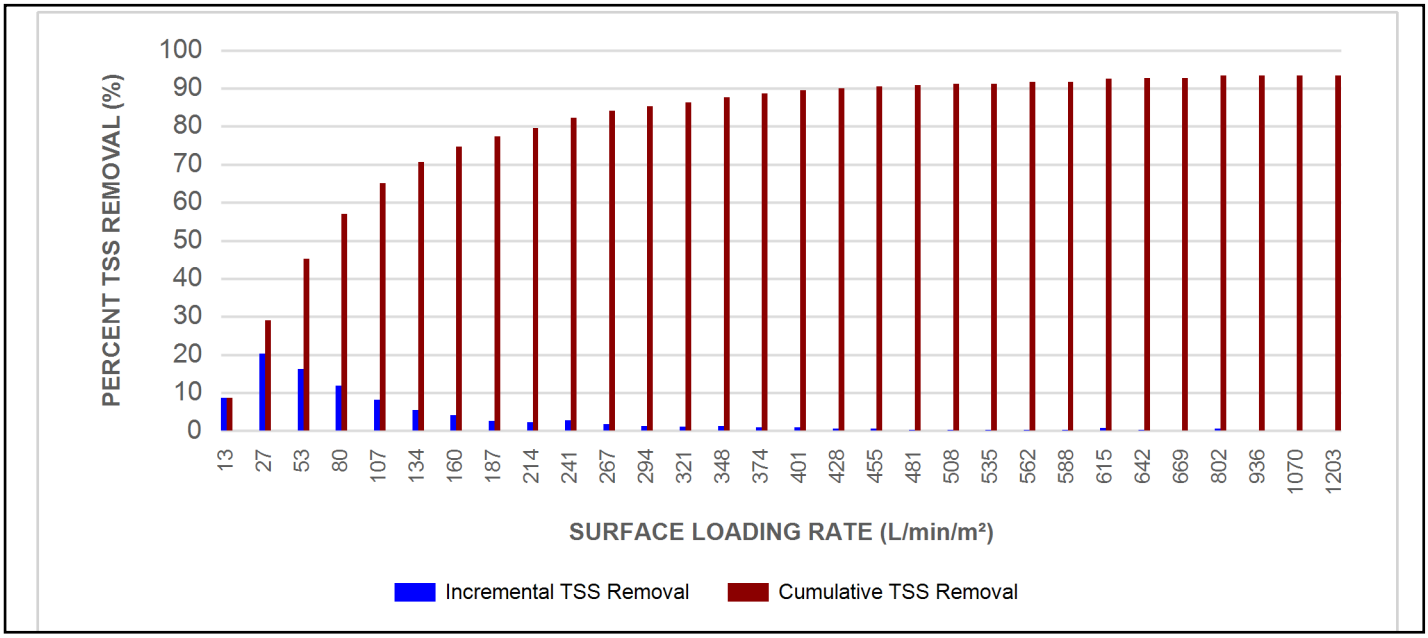
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	0.27	16.0	13.0	100	8.6	8.6
1.00	20.3	29.0	0.53	32.0	27.0	100	20.3	29.0
2.00	16.2	45.2	1.07	64.0	53.0	100	16.2	45.2
3.00	12.0	57.2	1.60	96.0	80.0	98	11.8	57.0
4.00	8.4	65.6	2.14	128.0	107.0	96	8.1	65.1
5.00	5.9	71.6	2.67	160.0	134.0	92	5.5	70.6
6.00	4.6	76.2	3.21	193.0	160.0	88	4.1	74.7
7.00	3.1	79.3	3.74	225.0	187.0	86	2.6	77.3
8.00	2.7	82.0	4.28	257.0	214.0	83	2.3	79.5
9.00	3.3	85.3	4.81	289.0	241.0	81	2.7	82.2
10.00	2.3	87.6	5.35	321.0	267.0	80	1.8	84.1
11.00	1.6	89.2	5.88	353.0	294.0	79	1.2	85.3
12.00	1.3	90.5	6.42	385.0	321.0	78	1.0	86.3
13.00	1.7	92.2	6.95	417.0	348.0	77	1.3	87.7
14.00	1.2	93.5	7.49	449.0	374.0	75	0.9	88.6
15.00	1.2	94.6	8.02	481.0	401.0	74	0.9	89.4
16.00	0.7	95.3	8.56	513.0	428.0	74	0.5	90.0
17.00	0.7	96.1	9.09	546.0	455.0	73	0.5	90.5
18.00	0.4	96.5	9.63	578.0	481.0	73	0.3	90.8
19.00	0.4	96.9	10.16	610.0	508.0	72	0.3	91.1
20.00	0.2	97.1	10.70	642.0	535.0	72	0.2	91.2
21.00	0.5	97.5	11.23	674.0	562.0	71	0.3	91.6
22.00	0.2	97.8	11.77	706.0	588.0	71	0.2	91.7
23.00	1.0	98.8	12.30	738.0	615.0	71	0.7	92.5
24.00	0.3	99.1	12.84	770.0	642.0	70	0.2	92.6
25.00	0.0	99.1	13.37	802.0	669.0	70	0.0	92.6
30.00	0.9	100.0	16.05	963.0	802.0	69	0.6	93.3
35.00	0.0	100.0	18.72	1123.0	936.0	68	0.0	93.3
40.00	0.0	100.0	21.39	1284.0	1070.0	69	0.0	93.3
45.00	0.0	100.0	24.07	1444.0	1203.0	72	0.0	93.3
Estimated Net Annual Sediment (TSS) Load Reduction =								**93 %**

Climate Station ID: 6105978 *Years of Rainfall Data*: 20

RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF5 / EFO5	1.5	5	90	762	30	762	30	710	25
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

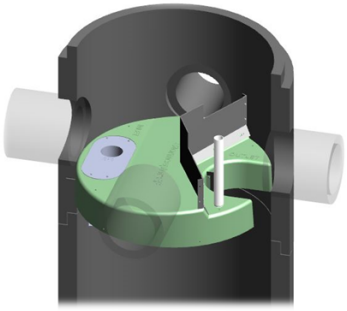
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

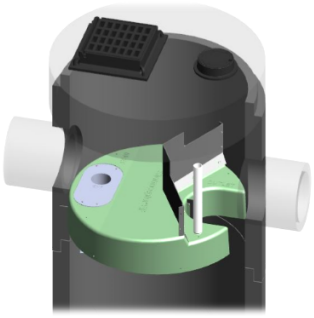
DESIGN FLEXIBILITY

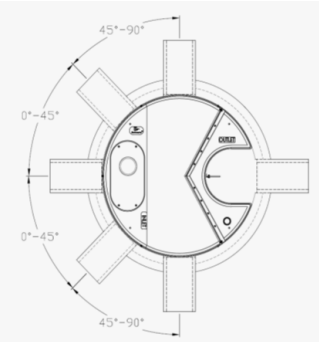
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.
0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.
45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF5 / EFO5	1.5	5	1.62	5.3	420	111	305	10	2124	75	2612	5758
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity
** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREAMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The **minimum** sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	5 ft (1524 mm) Diameter OGS Units:	1.95 m^3 sediment / 420L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.