51 John Street West
Bradford, ON
L3Z 2B4

T. 905.952.3111
cfcrozier.ca

MEMO

DATE May 1, 2026 **PROJECT NO.** 3114-7873
RE 11179 Derry Road Servicing & SWM Brief

TO Lakhvir Randhawa
FROM Brent Layton, P.Eng.
CC Rob Russell, MCIP, RPP

1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by Century 21 Green Realty Inc. to prepare a Functional Servicing & Stormwater Management Brief to support the Zoning By-Law Amendment and Site Plan Application for a property located at 11179 Derry Road West in the Town of Milton (Town), Halton Region (Region). The subject property is to be re-zoned to support the temporary conversion of a two-storey residential dwelling into an office building under a temporary use Zoning By-Law application

The purpose of this brief is to demonstrate that the proposed change in use to office space will operate in accordance with the Town of Milton guidelines from a functional servicing & stormwater management perspective.

The following reports, drawings, and design standards were referenced during the preparation of this report:

- Engineering & Parks Standards Manual for Grading and Stormwater Management for the Town of Milton (September 2024)
- Watermain and Sanitary Sewer Construction, Derry Road Watermain and Sanitary Sewer Drawing set by Halton Region (December 2022)
- BDC Lowes (Sereda, Carvalho) 24T-20006/M Drawing Set by MGM Consulting Inc. (December 2022)
- BDC Lowes 7095 Fifth Line, Milton, Ontario (SPA Application No. SP-20/21) by MGM Consulting Inc. (February 2024)
- Contours, South Central Ontario [parcel1759454821020 26tera.dwg]. Markham, ON: First Base Solutions, 2002. Available: MapWarehouse <http://maps.firstbasesolutions.com> (Accessed April 21, 2026).

These drawings have been appended to the end of this brief.

The material in this memo reflects best judgment in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. C.F. Crozier & Associates Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

2.0 Property Description

The subject lands cover an area of approximately 0.37 ha and currently consist of an existing residential dwelling. The property, located in the Derry Green Secondary Plan neighbourhood, is bound by new industrial buildings to the north, Derry Road West to the south and future business park lands to the east and west.

The elements envisioned for this development include the temporary conversion of a two-storey residential dwelling into an office building under a temporary use Zoning By-Law application. The intent of this application is to demonstrate the proposed change in use can occur without changes to servicing and stormwater management infrastructure.

3.0 Sanitary Servicing

Please refer to the Sanitary Servicing Assessment (Crozier, May 2026) submitted under a separate report for an assessment and recommendations on the existing septic system.

4.0 Water Servicing

4.1 Existing Water Servicing

The subject lands are serviced by a well located within the site. There is a 900 mm dia. watermain trunk that exists within Derry Road West; however, the subject lands are not serviced by this main, as shown in the Watermain and Sanitary Sewer Construction drawings, Derry Road Watermain and Sanitary Sewer Drawing set by Halton Region (December 2022).

4.2 Design Water Demand

The existing and proposed water demand for the building is expected to be similar in scale to the sanitary design flows, as summarized in the Sanitary Servicing Assessment completed by Crozier under separate cover. Table 1 below summarizes the estimated existing and proposed sewage flows per OBC table 8.2.1.3.A.

Table 1: Total Daily Design Water Flow

Description	**Area** (m^2)	**Unit**	**Unit Flow** (L/day)	**Number of Units**	**Total Flow** (L/day)
Existing Residential	200	4 Bedroom Dwelling	N/A	N/A	**2000**
Proposed Office(1)	100(2)	Per employee per 8-hr shift; or	75	10	750
		Per each 9.3 m^2 floor space	75	11	**825**
Difference in Total Design Daily Sanitary Flow:					**-1175**

(1) Where multiple calculations of water volume are permitted, the calculation resulting in the highest flow shall be used in determining the daily design water flow.
(2) Office floor space is estimated as 50% of the floor area; the remaining floor space is allocated to storage, washrooms, break room, etc.

Based on the results above, the total daily sanitary and water flow is estimated to decrease by 1,175 L/day through the change in use of the building.

4.3 Proposed Water Servicing

The water servicing strategy for the development is to maintain the existing water service from the private on-site well. Given the estimated decrease in daily demand, it is anticipated that the existing well can supply the required flows and pressures to support the change in use.

5.0 Drainage Conditions

5.1 Existing Drainage

The topographic contour data (1m contours, South Central Ontario, First Base Solutions, 2002) provided by Robert Russel Planning Consultants Inc., (April 22, 2026) was reviewed to determine the pre-development drainage conditions. The topographic contour data shows that the subject property drains from north to south towards Derry Road West. Note that a section of the external lands consisting of farmlands located north and northwest of the subject lands drain into the subject lands. Stormwater runoff from the subject lands and contributing external area sheet flow to the south/southeast corner of the property where it is captured in an existing ditch inlet catchbasin and conveyed to the existing storm sewer on Derry Road West.

Refer to **Figure 1** appended to the end of this brief for the Drainage Plan.

5.2 Proposed Grading & Drainage

The on-site grading for the subject lands will remain unchanged and will not alter existing drainage conditions. Stormwater runoff from the subject lands will continue to sheet flow to the south/southeast corner of the property where it is captured in a ditch inlet catchbasin and conveyed to the existing storm sewer on Derry Road West.

The existing and proposed 100-year flows were calculated using the rational method and are summarized in Table 2 below.

Table 2: Rational Method Calculation Summary

Catchment ID	Total Area (ha)	Composite RC	I_{100} (mm/hr)	100 Year Q (L/s)
101	0.37	0.32	235.0(1)	77.7
EXT-1	1.21	0.25	235.0(1)	197.7
Total	**1.58**			**275.4**

(1) I_{100} per table 4.2 of Town of Milton Grading and Stormwater Management Guidelines

The rational method calculations are appended to the end of this brief. Since the peak flows from the development will not be increased, stormwater quantity and quality control is not required.

6.0 Conclusions and Recommendations

Based on the information provided in this report, we offer the following conclusions:

- The existing water supply well is anticipated to be sufficient for the proposed change in use as the demand flows from existing to proposed conditions is expected to decrease by 1175 L/day.
- The on-site grading for the subject lands will not change and existing drainage patterns will be maintained.
- No stormwater management for the site is required as the imperviousness for the subject lands will remain unchanged.

Based on the above conclusions, we recommend the re-zoning of the subject property from the perspective of functional servicing and stormwater management.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.

Brent Layton, P.Eng.
Project Manager

C.F. CROZIER & ASSOCIATES INC.

K.J. Firth, P.Eng
Partner

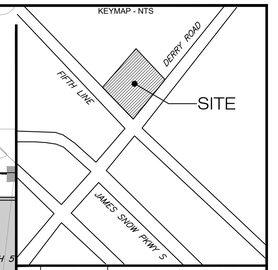
SZ/tc

Encl.

1) Watermain and Sanitary Sewer Construction, Derry Road Watermain and Sanitary Sewer Drawing set by Halton Region (December 2022)
2) BDC Lowes (Sereda, Carvalho) 24T-20006/M Drawing Set by MGM Consulting Inc. (December 2022)
3) BDC Lowes 7095 Fifth Line, Milton, Ontario (SPA Application No. SP-20/21) by MGM Consulting Inc. (February 2024)
4) Drainage Plan (Crozier, May 2026)
5) Rational Method Calculations

\\Crozier-Files\Projects\3100\3114 - Century 21 Green Realty\7873 - 11179 Derry Road\Reports\Civil\7873_Servicing & SWM Brief_FINAL.docx

KEYMAP - NTS



No.	DATE	DRAWING ISSUE DESCRIPTION
1	2024-02-21	AS-BUILT DRAWING

LEGEND

- 194.94 / ~~195.03~~ – AS-BUILT GRADE
- 197.40 EXISTS – MATCH EXISTING GRADE
- DI T/C 198.00 / ~~T/G 194.70~~ – DITCH INLET
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- MH A1 T/C 198.00 / ~~T/G 194.70~~ – SANITARY MANHOLE
- – HEAD WALL
- – BERM
- WV – WATER VALVE
- HYD – FIRE HYDRANT
- – WATER METER
- – BACK FLOW PREVENTER
- – SWALE

BENCHMARK:

ELEVATIONS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS (ORP'S) A & B BY REAL TIME NETWORD (RTN) OBSERVATIONS, UTM ZONE 17, NAD 83 (CSRS) 2010. EXISTING SERVICING INFORMATION IS TAKEN FROM REGION OF HALTON, DRAWING No.: G044 (H-02306)

LICENSED PROFESSIONAL ENGINEER
J. NOZIV
100517316
FEB. 28, 2024
PROVINCE OF ONTARIO

CONSULTANTS:

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Email: mgm@mgm.on.ca
www.mgm.on.ca

CLIENT:

BROCCOLINI

PROJECT:

BDC LOWES
7095 FIFTH LINE, MILTON, ONTARIO
(SPA APPLICATION NO. SP-30/21)

DRAWING:

GRADING PLAN (AS-BUILT)
1 OF 4

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BZ	DK	JB
SCALE: 1:500	PROJECT NO.: 2021-027	SHEET NO.: CV-1
CURRENT ISSUE:	CURRENT REV:	

FUTURE INDUSTRIAL FACILITY
UNDER CONSTRUCTION

WAREHOUSE OFFICE

LABRADOR AVENUE

ORIGINAL PROPERTY LINE

FIFTH LINE

DEDICATED AS PUBLIC HIGHWAY BY BY-LAW NO. 080-2013 INST. NO. HR1124576

SEE DETAIL "A"

PIN 25075-1517 (LT)

BLOCK 1 (0.30 RESERVE)

BLOCK 2 (0.30 RESERVE)

BLOCK 3 (0.30 RESERVE)

9.5m RESERVE

MH 1 MH 2 MH 3 MH 4 MH 5 MH 12L MH 13L MH 14L

DCB CB DCBMH 6

MHA11 MHA12 MHA13 MHA14 MHA15

CBMH10 CBMH11 CBMH12 CBMH13 CBMH14 CBMH15 CBMH16 CBMH17 CBMH19 CBMH20 CBMH52 CBMH53 CBMH54

MH50 MH51

MAX. PONDING ELEV. 194.40

MAX. PONDING ELEV. 194.30

MAX. PONDING ELEV. 195.25

MATCH LINE SEE CV-4

SLOPE @ 15.0%

RAMP GUARD RAILS PER OPSD 980.101

CURB FLUSH WITH ASPHALT

CURB FACE

LANDING ELEVATION 195.79

PR. STAIRS LANDING ELEVATION 195.79

FIFTH LINE WIDENING

PIV

HYD

WV

INDUSTRIAL BLDG

BUILDING AREA:

69,672.58 m2

749,949.4 SF

CLR. HGT: 36'

F.F. 195.80

WAREHOUSE

OFFICE

MAINTENANCE

OFFICE

MATCH LINE SEE CV-1

MATCH LINE SEE CV-3

FIFTH LINE

ORIGINAL PROPERTY LINE

19.0m RESERVE

TEMPORARY DRAINAGE SWALE @ 0.5%

MAX. PONDING ELEV. 195.25

MAX. PONDING ELEV. 195.40

MAX. PONDING ELEV. 195.35

MAX. PONDING ELEV. 195.25

MAX. PONDING ELEV. 195.40

MATCH EXISTING D/S CULVERT INV. 193.52

INV. 193.60

EX.SAN S.INV. 193.90

EX.SAN S.INV. 193.85

SLOPE 3:1 MAX

SLOPE 3:1 MAX

SLOPE 3:1 MAX

SLOPE 3:1 MAX

MATCH EX. GRADES ALONG PROPERTY LINE

START OF WALL T/W 195.35 B/W 195.20

98.6m CONC. RETAINING WALL AS PER OPSD 3120.100 TYPE I

T/W 195.45 B/W 195.08

T/W 195.35 B/W 194.88

T/W 195.45 B/W 194.83

RAMP GUARD RAILS PER OPSD 980.101

CURB FACE

LANDING ELEVATION 195.79

PR. STAIRS LANDING ELEVATION 195.79

CBMH17 T/G 194.89

CBMH18 T/G 195.04

CBMH28 T/G 195.1

CBMH29 T/G 194.75 T/G 194.69

CBMH27 T/G 195.05 T/G 194.97

CBMH10E T/G 195.05 T/G 194.95

CBMH9E T/G 195.00 T/G 194.86

CBMH8E T/G 194.95 T/G 194.88

CBMH7E T/G 194.95 T/G 194.92

CBMH6E T/G 194.95 T/G 194.90

MH50 T/C 194.42

MH51

MHA11 T/G 195.39 T/G 195.25

MHA10 T/G 195.40

MHA9 T/G 195.53

MHA8 T/G 195.32 T/G 195.24

MHA7 T/G 195.53 T/G 195.22

MHA6 T/G 195.24 T/G 195.03

MHA5 T/G 195.18 T/G 195.18

MH11E T/G 195.65 T/G 195.59

MHA16 T/G 194.94 T/G 195.52

193.90 EXISTS

193.75 EXISTS

193.50 EXISTS

193.25 EXISTS

193.50 EXISTS

194.25 EXISTS

194.25 EXISTS

193.75 EXISTS

193.50 EXISTS

193.25 EXISTS

193.00 EXISTS

192.75 EXISTS

192.50 EXISTS

N 45°12'35"W

N 37°51'55"E 172.05

N 37°51'55"E

PIN 25075-1562 (LT)

PART 2, 20R-20788 (REMAINDER)

IB (950) (B)

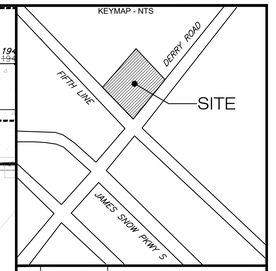
IB (923)

REPLACED WITH SSIB

ORIGINAL TOWNSHIP ROAD ALLOWANCE BETWEEN CONCESSIONS 5 & 6

CONCESSION 6

KEYMAP - NTS



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PROFESSIONAL ENGINEER
J. NOZIV
100517316
FEB. 28, 2024
PROVINCE OF ONTARIO

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Fax: (905)875-1339
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CLIENT:

BROCCOLINI

PROJECT:

BDC LOWES
7095 FIFTH LINE, MILTON, ONTARIO
(SPA APPLICATION NO. SP-30/21)

DRAWING:

GRADING PLAN (AS-BUILT)
2 OF 4

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BZ	DK	JB
SCALE: 1:500	PROJECT NO.: 2021-027	SHEET NO.: CV-2
CURRENT ISSUE:	CURRENT REV:	

+/-19,091 m2
+/-205,500 SF
CLR. HGT: 36'

RECOMMENDED PAVEMENT STRUCTURE THICKNESSES (FLEXIBLE)			
PAVEMENT LAYER	COMPACTION REQUIREMENTS	LIGHT-DUTY PAVEMENT AREAS	HEAVY-DUTY PAVEMENT AREAS
ASPHALTIC CONCRETE (OPSS 310/1150)	MINIMUM 91.5% MRD for HL8/HDBC[1,3] MINIMUM 92.0% MRD for HL3-HS/HL3[3]	40mm HL3 50mm HL8	40mm HL3 (HIGH STABILITY) 80mm HDBC[3]
19mm CRUSHER RUN LIMESTONE (OPSS 1010)	100% SPMDD[2]	150mm	150mm
50mm CRUSHER RUN LIMESTONE (OPSS 1010)	100% SPMDD[2]	200mm	500mm

NOTE: 1. DENOTES MAXIMUM RELATIVE DENSITY, MTO LS-264
2. DENOTES STANDARD PROCTOR MAXIMUM DRY DENSITY, MTO LS-706 (PROCEDURE 3)
3. DENOTES HEAVY DUTY BINDER COURSE (HDBC), OPSS 1150

RECOMMENDED PAVEMENT STRUCTURE OBTAINED FROM GEOTECHNICAL REPORT, DATED AUGUST 20, 2021 (PREPARED BY EXP SERVICES INC, REPORT #BRM-00603959-D0). PAVEMENT STRUCTURE TO BE CONSISTENT WITH LATEST GEOTECHNICAL REPORT.

MATCH LINE SEE CV-4

MATCH LINE SEE CV-2

SWM POND TO BE COMPLETED AS PART OF SUBDIVISION WORKS

STORMWATER MANAGEMENT POND

OVERLAND FLOW ROUTE INLET S 5.4mx26.5m HAND LAID 150mm RIP RAP 300mm THICK ON TERRAFIX 270R OR APPROVED EQUAL. TYP. ALL

MAX. PONDING ELEV. 195.25

MAX. PONDING ELEV. 194.90

MAX. PONDING ELEV. 195.25

VALVE CHAMBER PER RH 402.080 400mm TO 300mm REDUCER

CBMH5E T/G 194.95 T/G 194.89

CBMH4E T/G 194.95 T/G 194.90

CBMH3E T/G 194.95 T/G 194.96

CBMH2E T/G 194.70 T/G 194.62

CBMH2S T/G 195.30 T/G 195.22

CBMH2E T/G 195.30 T/G 195.22

MH1E T/G 193.97 T/G 193.93

MHA1 T/G 195.18

MHA2 T/G 192.50

MHA3 T/G 193.00

MHA4 T/G 195.16

MHA1 (PUMP STAT.) T/G 194.00

MHA2-F T/G 192.21

MHA1-F T/G TBD

SLOPE 3:1 MAX

PROVIDE 2.0m CURB CUT (TYP.)

PR. BERM

END OF WALL T/W 195.40 B/W 195.25

T/W 195.45 B/W 194.83

MATCHING TO EX. GRADES / CONSTRUCTION LIMIT

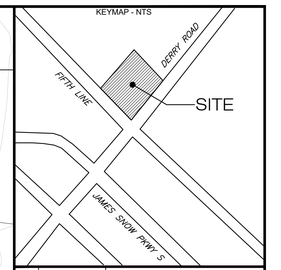
UNDER CONSTRUCTION

DERRY ROAD

CENTRELINE OF THE ORIGINAL TOWNSHIP ROAD ALLOWANCE BETWEEN LOTS 10 AND 11 NEW SURVEY (TRAFALGAR)

EX. 900mm ØM

KEYMAP - NTS



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LICENSED PROFESSIONAL ENGINEER
D. J. KOZYN
100517316
FEB. 28, 2024
PROVINCE OF ONTARIO

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CLIENT:

BROCCOLINI

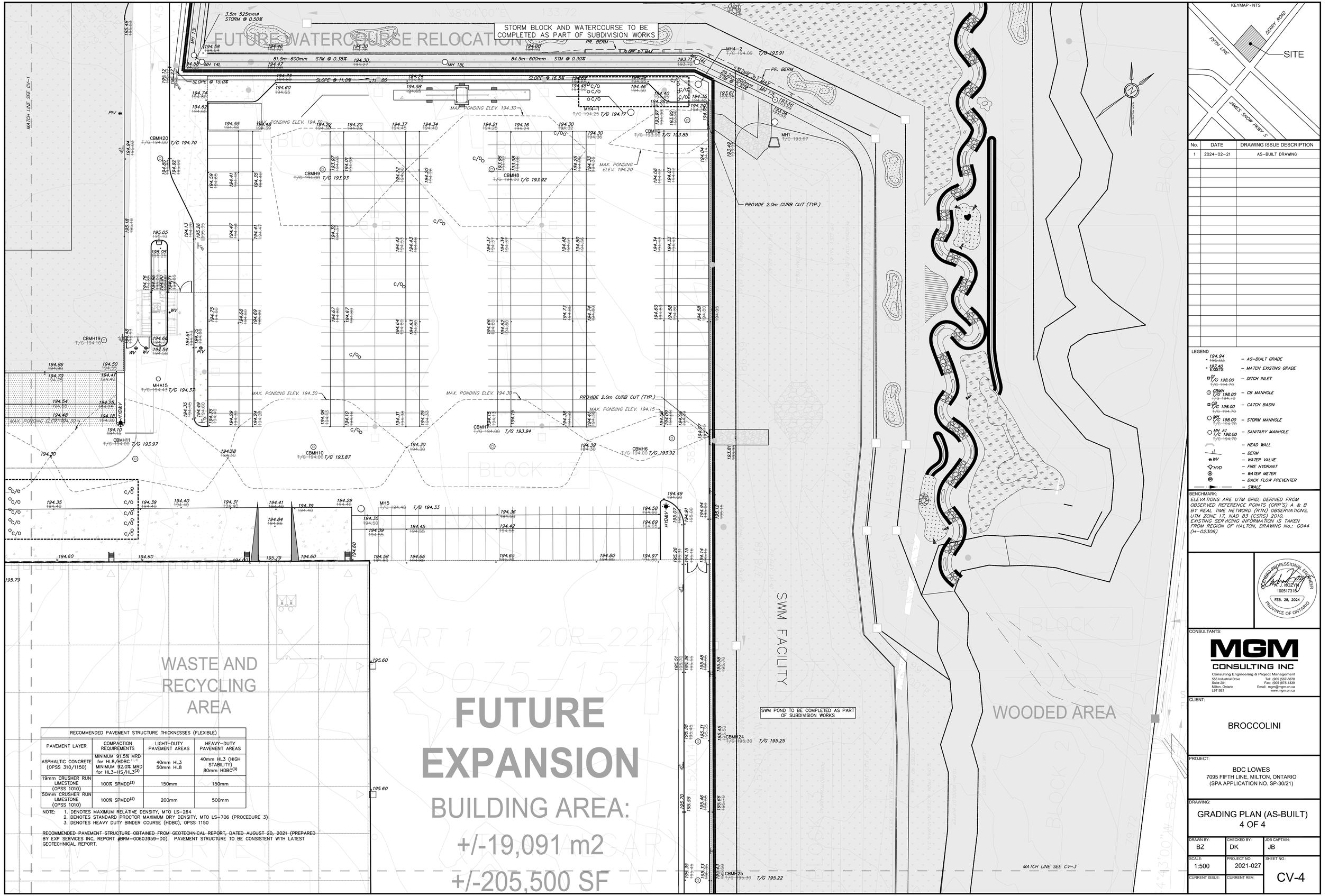
PROJECT:

BDC LOWES
7095 FIFTH LINE, MILTON, ONTARIO
(SPA APPLICATION NO. SP-30/21)

DRAWING:

GRADING PLAN (AS-BUILT)
3 OF 4

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BZ	DK	JB
SCALE: 1:500	PROJECT NO.: 2021-027	SHEET NO.: CV-3
CURRENT ISSUE:	CURRENT REV:	



RECOMMENDED PAVEMENT STRUCTURE THICKNESSES (FLEXIBLE)			
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NOTE: 1. DENOTES MAXIMUM RELATIVE DENSITY, MTO LS–264
2. DENOTES STANDARD PROCTOR MAXIMUM DRY DENSITY, MTO LS–706 (PROCEDURE 3)
3. DENOTES HEAVY DUTY BINDER COURSE (HDBC), OPSS 1150

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GRADING PLAN (AS-BUILT)
4 OF 4

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BZ	DK	JB
SCALE:	PROJECT NO.:	SHEET NO.:
1:500	2021-027	CV-4
CURRENT ISSUE:	CURRENT REV:	

TOWN OF MILTON					
UNDERGROUND STORM SERVICING					
BROCCOLINI INDUSTRIAL DEVELOPMENT					
LOCATION	FROM	TO	LENGTH (m)	SIZE	MATERIAL
Lavador Ave	MH1	MH2	96.9	375	PVC
Lavador Ave	MH2	MH3	51.4	375	PVC
Lavador Ave	MH3	MH4	90.0	450	PVC
Lavador Ave	MH4	MH5	92.0	525	PVC
Lavador Ave	MH5	DCMH6	6.4	525	PVC
Lavador Ave	MH7	MH8	63.3	375	PVC
Lavador Ave	MH8	MH9	29.9	450	PVC
Lavador Ave	MH9	MH10	49.6	450	PVC
Lavador Ave	MH10	MH11	44.3	450	PVC
Lavador Ave	MH11	OGS	5.2	450	PVC
Lavador Ave	OGS	POND	10.8	450	PVC
Lavador Ave to Pond Easement	DCMH6	MH12	6.5	525	PVC
Lavador Ave to Pond Easement	MH12	MH13	56.8	525	PVC
Lavador Ave to Pond Easement	MH13	MH14	3.5	525	PVC
Lavador Ave to Pond Easement	MH 14	MH 15	81.5	600	PVC
Lavador Ave to Pond Easement	MH15	MH16	84.5	600	PVC
Lavador Ave to Pond Easement	MH16	MH17	29.2	600	PVC
Lavador Ave to Pond Easement	MH17	MH18	7.5	600	PVC
Lavador Ave to Pond Easement	MH18	POND	5.8	1500	CONC
Fifth Line to Pond Easement	Ex MH	MH11E	15.0	525	PVC
Fifth Line to Pond Easement	MH11E	MH10E	66.8	825	CONC
Fifth Line to Pond Easement	MH10E	MH9E	64.8	900	CONC
Fifth Line to Pond Easement	MH9E	MH8E	52.4	975	CONC
Fifth Line to Pond Easement	MH8E	MH7E	57.8	975	CONC
Fifth Line to Pond Easement	MH7E	MH6E	57.8	975	CONC
Fifth Line to Pond Easement	MH6E	MH5E	57.8	975	CONC
Fifth Line to Pond Easement	MH5E	MH4E	57.8	975	CONC
Fifth Line to Pond Easement	MH4E	MH3E	57.8	975	CONC
Fifth Line to Pond Easement	MH3E	MH2E	57.8	975	CONC
Fifth Line to Pond Easement	MH2E	MH1E	21.2	1200	CONC
Fifth Line to Pond Easement	MH1E	POND	6.5	1350	CONC

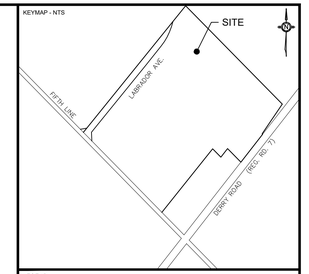
A. PIPES CONNECTING SINGLE CATCH BASIN TO MANHOLES ARE 250mm PVC PIPES
B. PIPES CONNECTING DOUBLE CATCH BASIN TO MANHOLES ARE 300mm PVC PIPES

SUMMARY TABEL–ROAD					
STREET NAME	NUMBER OF LANES	R.O.W WIDTH (m)	C/L LENGTH (m)	PAVEMENT COURSE	PAVEMENT THICKNESS (mm)
LABRADOR AVE	2	26.0	650	ASPHALT SURFACE COURSE ASPHALT BINDER COURSE GRANULAR BASE GRANULAR SUB–BASE	40 100 200 375

TOWN OF MILTON			
STORM STRUCTURE TABLE			
BROCCOLINI INDUSTRIAL DEVELOPMENT			
STRUCTURE	STRUCTURE SIZE	STRUCTURE OPSD	RIM
MH1	1200mm	701.010	196.9
MH2	1200mm	701.010	197.13
MH3	1200mm	701.010	196.78
MH4	1200mm	701.010	196.28
MH5	1500mm	701.011	195.75
MH7	1200mm	701.010	195.43
MH8	1200mm	701.010	195.09
MH9	1200mm	701.010	194.96
MH10	1200mm	701.010	194.72
MH11	1200mm	701.010	194.52
OGS	1800mm	701.012	195.6
DCMH6	1500mm	701.011	195.62
MH12	1200mm	701.010	195.86
MH13	1500mm	701.011	194.93
MH14	1500mm	701.011	194.90
MH15	1500mm	701.010	194.76
MH16	1500mm	701.011	194.60
MH17	1500mm	701.011	194.70
MH18	1500mm	701.011	193.95
MH11E	1800mm	701.012	195.64
MH10E	1800mm	701.012	195.05
MH9E	1800mm	701.012	195.00
MH8E	1800mm	701.012	194.95
MH7E	1800mm	701.012	194.95
MH6E	1800mm	701.012	194.95
MH5E	1800mm	701.012	194.95
MH4E	1800mm	701.012	194.95
MH3E	1800mm	701.012	194.95
MH2E	1800mm	701.012	194.70
MH1E	1800mm	701.012	193.97

A. All SINGLE CATCH BASIN STRUCTURES ARE OPSD 705.010
B. All DOUBLE CATCH BASIN STRUCTURES ARE OPSD 705.020

KEYMAP - NTS



LEGEND

BENCHMARK:
ELEVATIONS ARE GEODETIC, DERIVED BY DIFFERENTIAL GPS OBSERVATIONS, AND ARE REFERRED TO THE CAN–NET REFERENCE STATION, HAVING AN ELEVATION OF 124.16M. UTM–17 NORTH CANADA NAD 83 CSRS

No.	DATE	DRAWING ISSUE DESCRIPTION
1	2021 06 07	FIRST SUBMISSION
2	2021 10 29	SECOND SUBMISSION
3	2022 04 04	THIRD SUBMISSION
4	2022 09 01	ISSUED FOR REVIEW
5	2022 09 07	ISSUED FOR REVIEW
6	2022 09 20	THIRD SUBMISSION (RE-ISSUE)
7	2022 10 07	FOURTH SUBMISSION
8	2022 12 05	FIFTH SUBMISSION

TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

FINAL ACCEPTANCE

Accepted by: Anita Sparre C.E.T. on 2025 / Jan / 30
via Signed Letter. *Director, Dev. Eng.* *Date*

REGIONAL APPROVAL

DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM THE LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM–1070
24T–20006

SIGNED: _____ DATED: _____

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER
M. L. STAIRS
DEC. 5, 2022
PROVINCE OF ONTARIO

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CLIENT:
BROCCOLINI

PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

DRAWING:
PAVEMENT AND STORM CHARTS

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
AK	MLS	JB
SCALE:	PROJECT NO.: 2020-037	SHEET NO.: 00
CURRENT ISSUE: 8	CURRENT REV: 7	

N:\Projects\2020-037\Working Folder\Drawings\Subdivision Drawings\2020-037-A1.dwg

GENERAL NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. ALL WATERMAIN AND SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS) AS AMENDED BY THE REGIONAL MUNICIPALITY OF HALTON.
3. THE LOCATION OF ALL EXISTING WATERMAIN, SANITARY SEWER, UTILITIES AND SERVICES ARE APPROXIMATE. THE CONTRACTOR MUST VERIFY THE LOCATION, VERIFY SIZE AND ELEVATION IN THE FIELD PRIOR TO CONSTRUCTION.
4. DRIVEWAY MATERIAL IS ASPHALT UNLESS OTHERWISE SPECIFIED.
5. UNLESS OTHERWISE NOTED, ALL NEW SANITARY SEWERS ARE TO BE PVC SDR 35 ASTM D3034 WITH GRANULAR 'A' BEDDING AND COVER AS PER OPSD 802.010 WITH GRANULAR 'B' BACKFILL.
6. UNLESS OTHERWISE NOTED, ALL THE EXISTING SANITARY MANHOLES ARE TO BE EITHER REMOVED OR BROKEN DOWN 1.0m BELOW ROAD GRADE AND BACKFILLED WITH NON-SHRINK BACKFILL TO SUBGRADE. THE AFFECTED AREA SHALL BE COMPLETELY RESTORED. FRAMES AND COVERS ARE TO BE SALVAGED AND RETURNED TO THE REGIONAL STORES, 1179 BRONTE RD., OAKVILLE.
7. WATERMAIN MATERIAL IS TO BE EITHER DUCTILE IRON PRESSURE CLASS 350 AS PER AWWA C-150 OR PVC SDR-18 CL-235 AS PER AWWA C-900 OR CPP AS PER C303.
8. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS AND BLOW OFFS REQUIRED FOR TESTING THE NEW WATERMAIN.
9. MAXIMUM ALLOWABLE PIPE JOINT DEFLECTION OF THE WATERMAIN SHALL BE 50% OF THE MANUFACTURER'S SPECIFICATIONS. PIPE BARREL DEFLECTION IS STRICTLY PROHIBITED.
10. CORROSION PROTECTION (ANODES OR PETROLATUM COATING) IS REQUIRED FOR ALL METALIC PIPES, VALVES, FITINGS, SERVICES, AND HYDRANTS AS OUTLINED IN THE REGION OF HALTON WATER AND WASTEWATER LINEAR DESIGN MANUAL, SPECIAL PROVISIONS, AND STANDARD DRAWINGS & DETAILS SECTIONS OF THE CONTRACT.
11. AFTER REMOVING VALVE BOXES AND HYDRANTS, BACKFILL WITH COMPACTED GRANULAR 'A', WHERE EXISTING VALVE CHAMBERS ARE TO BE ABANDONED, ALL VALVES WITHIN THE CHAMBER ARE TO BE LEFT IN PLACE AND THE CHAMBER IS TO BE BROKEN DOWN TO 1.0m BELOW FINAL GRADE AND BACKFILLED WITH NON-SHRINK WITH NON-SHRINK BACKFILL TO SUBGRADE. THE AFFECTED AREA SHALL BE COMPLETELY RESTORED. ALL HYDRANTS SHOWN FOR REMOVAL SHALL BE RETURNED TO REGIONAL STORES AT 1179 BRONTE RD., OAKVILLE. UNLESS OTHERWISE NOTED, ALL VALVES WHICH ARE SHOWN FOR REMOVAL SHALL BE DISPOSED OF BY CONTRACTOR.
12. EXISTING WATERMAIN IS TO BE EITHER REMOVED OR PLUGGED AND ABANDONED AS REQUIRED
13. HYDRANTS ARE TO BE INSTALLED SUCH THAT THE LOWER ROD/STEM LENGTH SHALL NOT EXCEED 1.7m MEASURED FROM THE BREAK-OFF FLANGE.
14. REGIONAL MUNICIPALITY OF HALTON APPROVED MECHANICAL RESTRAINTS ARE TO BE USED ON ALL STANDARD BENDS, VALVES, FITTINGS AND HYDRANTS. REFER TO TABLE.
15. ALL AREA DISTURBED BY CONTRACTOR DURING CONSTRUCTION OF THE WORKS SHOWN HERIN SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AS DETERMINED BY PUBLIC WORKS DEPARTMENT. ALL GRASS AND VEGETATION COVERED AREAS SHALL BE RESTORED BY PLACING 150MM OF TOPSOIL AND NO.1 NURSERY SOD TO ESTABLISH A GRASS COVER TO THE SATISFACTION OF THE CITY/TOWN/REGION UNLESS NOTED OTHERWISE.
16. ALL WORKS AND MATERIALS SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY/TOWN AND REGION OF HALTON STANDARDS AND SPECIFICATIONS, STANDARD DRAWINGS, OPSS AND OPSD, WITH REGIONAL AMENDMENTS, AND SHALL CONSTITUTE PART OF THE ENGINEERING DESIGN AND CONSTRUCTION CONTRACT.
17. ALL WATERMAIN AND WASTEWATER MAIN APPURTENANCES, MATERIALS AND COMPONENTS SHALL COMPLY WITH THE REGION OF HALTON APPROVED PRODUCT LIST FOR WATER AND WASTEWATER SYSTEMS.
18. ALTERNATIVE MATERIALS MAY BE ACCEPTABLE PROVIDED APPROVAL HAS FIRST BEEN OBTAINED FROM THE CITY/TOWN ENGINEER AND/OR THE REGIONAL COMMISSIONER OF PUBLIC WORKS.
19. NO BLASTING IS PERMITTED.
20. MANHOLE AND VALVE CHAMBER COVERS ARE TO BE SET FLUSH WITH BASE COURSE ASPHALT AND ADJUSTED TO FINAL GRADE PRIOR TO INSTALLING TOP LIFT OF ASPHALT.

SANITARY SEWERS

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. ALL WATERMAIN AND SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS) AS AMENDED BY THE REGIONAL MUNICIPALITY OF HALTON
3. THE LOCATION OF ALL EXISTING WATERMAIN, SANITARY SEWER, UTILITIES AND SERVICES ARE APPROXIMATE. THE CONTRACTOR MUST VERIFY THE LOCATION, VERIFY SIZE AND ELEVATION IN THE FIELD PRIOR TO CONSTRUCTION
4. DRIVEWAY MATERIAL IS ASPHALT UNLESS OTHERWISE SPECIFIED.
5. UNLESS OTHERWISE NOTED, ALL NEW SANITARY SEWERS ARE TO BE PVC SDR 35 ASTM D3034 WITH GRANULAR 'A' BEDDING AND COVER AS PER OPSD 802.010 WITH GRANULAR 'B' BACKFILL.
6. UNLESS OTHERWISE NOTED, ALL EXISTING SANITARY LATERALS ARE TO BE REPLACED WITH PVC SDR28, 125mm DIA. CONNECTIONS FOR SINGLE FAMILY AND SEMI-DETACHED DWELLINGS AND 150mm DIA. CONNECTIONS FOR ALL OTHERS, AND ARE TO BE REPLACED FROM THE NEW SEWER MAIN TO EXISTING LATERALS AT THE PROPERTY LINE.
7. UNLESS OTHERWISE NOTED, ALL THE EXISTING SANITARY MANHOLES ARE TO BE EITHER REMOVED OR BROKEN DOWN 1.0m BELOW ROAD GRADE AND BACKFILLED WITH NON-SHRINK BACKFILL TO SUBGRADE. THE AFFECTED AREA SHALL BE COMPLETELY RESTORED. FRAMES AND COVERS ARE TO BE SALVAGED AND RETURNED TO THE REGIONAL STORES, 1179 BRONTE RD., OAKVILLE.

WATERMAIN NOTES

A. PARALLEL INSTALLATIONS

i) UNDER NORMAL CONDITIONS, WATERMAINS SHALL BE LAID WITH AT LEAST 2.5 M HORIZONTAL SEPARATION FROM ANY SEWERS OR SEWER MANHOLES. THE DISTANCE SHALL BE MEASURED FROM THE NEAREST EDGES OR OUTSIDE SURFACES.

ii) UNDER UNUSUAL CONDITIONS, WHERE CONGESTION WITH OTHER UTILITIES WILL PREVENT A CLEAR HORIZONTAL SEPARATION OF 2.5 M, A WATERMAIN MAY BE LAID CLOSER TO A SEWER, PROVIDED THAT THE VERTICAL SEPARATION OF THE SEWER IS AT LEAST 0.5 M BELOW THE WATERMAIN (THE DISTANCE SHALL BE MEASURED FROM THE NEAREST EDGES OR OUTSIDE SURFACES). iii) WHEN THIS VERTICAL SEPARATION CANNOT BE OBTAINED, WHERE APPLICABLE, THE SEWER MAIN SHALL BE CONSTRUCTED WITH JOINTS THAT ARE EQUIVALENT TO WATERMAIN STANDARDS.

B. WATERMAIN AND SEWER CROSSINGS

i) UNDER NORMAL CONDITIONS, WATERMAINS SHALL CROSS ABOVE THE SEWER WITH SUFFICIENT VERTICAL SEPARATION TO ALLOW FOR PROPER BEDDING AND STRUCTURAL SUPPORT OF THE WATERMAIN AND SEWER.

ii) MINIMUM SEPARATION/CLEARANCE SHALL BE 150 MM WHERE WATERMAINS CROSS OVER MAINLINE SEWERS AND LATERALS AND 500 MM WHERE THE WATERMAIN CROSSES UNDER A MAINLINE SEWER AND LATERALS (THE DISTANCE SHALL BE MEASURED FROM THE NEAREST EDGES OR OUTSIDE SURFACES). IF THE MINIMUM COVER OF THE WATERMAIN OR WATER SERVICE CANNOT BE OBTAINED AS A RESULT OF THE WATERMAIN OR WATER SERVICE CROSSING ABOVE THE SEWER, THE WATERMAIN OR WATER SERVICE SHALL BE CONSTRUCTED UNDER THE SEWER OR INSULATED FOR ITS ENTIRE LENGTH USING PRE-INSULATED PIPE UNTIL THE MINIMUM DEPTH (1.7M) IS OBTAINED. WHEN CROSSING OVER A STORM SEWER THE STORM SEWER MUST ALSO BE INSULATED WITH MINIMUM 100 MM EXTRUDED FOAM (HI 100) INSULATION, REFER TO HALTON REGION STANDARD DRAWING RH 408.010 & 408.011. iii) WATERMAIN PASSING UNDER THE SEWER SHALL BE PROTECTED BY PROVIDING ADEQUATE STRUCTURAL SUPPORT FOR THE SEWERS TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING.

iv) WHERE A WATERMAIN CROSSES UNDER A CREEK OR AN OPEN BOTTOM CULVERT, THE MINIMUM COVER OVER THE WATERMAIN CASING BELOW THE CREEK BOTTOM SHALL BE 3.0 M OR AS REQUIRED BY THE APPROPRIATE CONSERVATION AUTHORITY AND GEOTECHNICAL REPORT RECOMMENDATIONS.

v) WHERE A WATERMAIN CROSSES UNDER A CLOSED BOTTOM CULVERT, THE MINIMUM COVER OVER THE WATERMAIN CASING BELOW THE CULVERT BOTTOM SHALL BE 1.7 M OR AS REQUIRED BY THE APPROPRIATE CONSERVATION AUTHORITY AND GEOTECHNICAL REPORT RECOMMENDATIONS.

w) CORROSION PROTECTION (ANODES OR PETROLATUM COATING) IS REQUIRED FOR ALL METALLIC PIPES, VALVES, FITTINGS, SERVICES AND HYDRANTS AS OUTLINED IN THE REGION OF HALTON WATER AND WASTEWATER LINEAR DESIGN MANUAL, SPECIAL PROVISIONS, AND STANDARD DRAWINGS & DETAILS SECTIONS OF THE CONTRACT.

A) THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS AND BLOW OFFS REQUIRED FOR TESTING THE NEW WATERMAIN.

PIPE DEPTH

A. THE TOP OF THE WATERMAIN SHALL HAVE A MINIMUM OF 1.7 M COVER, MEASURED FROM THE TOP OF THE PIPE TO FINISHED GRADE.
B. ON OPEN DITCH OR UNIMPROVED ROADS, AN INCREASED COVER OF MINIMUM 2.3 M SHALL BE PROVIDED TO ALLOW FOR FUTURE ROAD IMPROVEMENTS OR LOWERING OF THE ROAD PROFILE WHEN URBANIZATION OCCURS.
C. IN AREAS WHERE MINIMUM COVER CANNOT BE ACHIEVED OR WHEN FREEZING OF PIPE MAY BE ANTICIPATED (E.G. CULVERTS OR LARGE DIAMETER STORM SEWERS), SPECIAL PROVISION SHALL BE CONSIDERED TO PROTECT PIPE AND SERVICES FROM LIVE LOADING AND FREEZING. UNDER THESE CIRCUMSTANCES APPROVAL FROM HALTON REGION MUST BE OBTAINED VIA DESIGN DEVIATION MEMO.
D. WHERE THE PIPE DEPTH IS GREATER THAN 3.0 M A CHAMBER MUST BE USED. DIRECT BURY OF VALVES AT THIS DEPTH OR GREATER IS NOT PERMITTED, REFER TO 2.6.15.I AND HALTON REGION STANDARD DRAWING RH 405.020.

HYDRANTS

A. HYDRANTS SHALL BE INSTALLED ON ALL DISTRIBUTION WATERMAINS WITH A MAXIMUM 90m SPACING IN COMMERCIAL, INDUSTRIAL OR HIGH DENSITY RESIDENTIAL AREAS, AND A MAXIMUM 150m SPACING IN SINGLE FAMILY RESIDENTIAL AREAS.
B. ALL HYDRANT CONNECTIONS TO THE MAIN LINE REQUIRE AN ANCHOR TEE WITH A 150 MM MECHANICAL JOINT SECONDARY GATE VALVE BOLTED TO THE ANCHOR TEE.
C. ALL HYDRANT CONNECTIONS TO THE MAIN LINE REQUIRE AN ANCHOR TEE WITH A 150 MM MECHANICAL JOINT SECONDARY GATE VALVE BOLTED TO THE ANCHOR TEE.
D. ALL JOINTS ON THE HYDRANT LATERAL ARE REQUIRED TO BE RESTRAINED.
E. WHERE A DEAD END WATERMAIN OCCURS, IT SHALL BE PROVIDED WITH A FIRE HYDRANT AT THE TERMINATION OF THE WATERMAIN.
F. IN NEW RESIDENTIAL AREAS, HYDRANT OFFSET LOCATIONS SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL AREA MUNICIPALITY.
G. HYDRANTS SHALL BE LOCATED OUTSIDE OF DITCH LINE.
H. MINIMUM COVER OVER HYDRANT LATERAL SHALL BE 1.7 M. IF A HYDRANT MAIN VALVE SEAT EXCEEDS 1.7 M, A SUITABLE HYDRANT BOTTOM EXTENSION MUST BE USED AND PLACED BETWEEN BOOT AND HYDRANT BARREL, REFER TO HALTON REGION STANDARD DRAWING RH 407.010.
I. HYDRANT AT HIGH POINTS ALONG THE WATERMAINS SHALL BE ADJUSTED TO ALLOW FOR THE INSTALLATION.
J. AT LEAST ONE HYDRANT SHALL BE INSTALLED BETWEEN VALVES.

TRACER WIRE

A. TRACER WIRE SHALL BE INSTALLED ON ALL NEW INSTALLATIONS OF WATERMAIN PIPE AND SERVICES GREATER THAN 50 MM DIA. FOR LOCATING PURPOSES. A SOLID 10 GAUGE TWU COPPER WIRE SHALL BE INSTALLED ALONG THE TOP OF THE PIPE, STRAPPED TO THE PIPE AT 6 M INTERVALS.
B. THE TRACER WIRE SHALL BE INSTALLED BETWEEN EACH VALVE AND/OR THE END OF THE NEW WATERMAIN TO ENSURE A CONTINUOUS SIGNAL FOR LOCATING THE MAIN. JOINTS IN THE TRACER WIRE BETWEEN VALVES ARE DISCOURAGED, BUT WHEN NECESSARY, SPLICING MUST BE WATERPROOFED (REFER TO OPSD 1109.025) OR USE OUTDOOR WATERPROOF ELECTRICAL CONNECTORS AND DONE IN SUCH A WAY TO ENSURE ELECTRICAL CONDUCTIVITY. AT EACH VALVE, A LOOP OF WIRE IS TO BE BROUGHT UP OUTSIDE THE VALVE BOX TO THE TOP OF THE BOX, REFER TO HALTON REGION STANDARD DRAWING RH 406.010.

PIPE DEPTH

A. THE MINIMUM COVER SHALL BE 2.75 M BELOW THE CENTRE LINE OF THE ROAD ALLOWANCE AND NOT LESS THAN 1.4 M FROM GROUND SURFACE TO ANY OTHER LOCATION. IN OPEN DITCH OR UNIMPROVED ROADS AN INCREASED COVER (3.35 M MINIMUM) SHALL BE PROVIDED TO ALLOW FOR FUTURE ROAD IMPROVEMENTS OR LOWERING OF THE ROAD PROFILE WHEN URBANIZATION OCCURS. IN AREAS WHERE MINIMUM COVER CAN'T BE ACHIEVED, SPECIAL PROVISIONS SHALL BE CONSIDERED TO PROTECT THE PIPE FROM LIVE LOADING AND FREEZING.

MUNICIPAL ROADS

1. GRADE CHANGES IN EXCESS OF 1.0 % TO USE VERTICAL CURVES. LENGTHS OF CURVES SHALL NOT BE LESS THAN DESIGN SPEED (KM/HR).
2. ASPHALT WIDTH TO BE EXPANDED 1.0 M ON 90 ° BENDS.
3. THE FOLLOWING MINIMUM PAVEMENT STRUCTURE DESIGN SHALL BE USED. 40 mm HL-3 HS 100 mm HL-8 HS 150 mm 19 mm Limestone 375 mm Granular 'B 'Type II

CURBS

1. MINIMUM CURB GRADE IS 0.50 % EXCEPT ON CUL-DE-SAC BULBS AND OUTSIDE ROAD ELBOWS WHERE MINIMUM GRADE IS 0.75 %.
2. 'TWO-STAGE THREE-KEY CURB 'IS PREFERRED (REFER TO STD DWG. E-33).
3. TWO-STAGE CURB AND GUTTER (OPSD 600.070) IS ACCEPTABLE.
4. ONE-STAGE (OPSD 600.040) MAY BE CONSIDERED (WRITTEN REQUEST BY OWNER REQUIRED).
5. CURB TO UTILIZE 32 MPA CONCRETE (CSA A23.1).
6. SEMI-MOUNTABLE (ROLL OVER) CURB, WHERE REQUIRED, TO FOLLOW OPSD 600.060.

SIDEWALKS

1. SIDEWALKS SHALL BE PLACED ON UNDISTURBED GROUND OR ON FILL MATERIAL COMPACTED TO 98 %STANDARD PROCTOR DRY DENSITY (SPDD).
2. A 50 MM -100 MM LEVELLING COURSE OF COMPACTED 19 MM CRUSHER RUN LIMESTONE (CRL) IS TO BE USED TO CORRECT SUBGRADE IRREGULARITIES.
3. STANDARD SIDEWALK THICKNESS IS 125 MM.
4. SIDEWALK THROUGH RESIDENTIAL DRIVEWAYS OR ADJACENT TO CURB SHALL BE 150 MM THICK.
5. WHERE A DEPRESSED CURB IS PROVIDED, IT MUST HAVE A MAXIMUM RUNNING SLOPE OF 1:20 AND BE ALIGNED WITH THE DIRECTION OF TRAVEL.

BOULEVARD SODDING

1. BOULEVARDS TO BE GRADED BETWEEN 2 % AND 6 % AWAY FROM PRIVATE PROPERTY.
2. SUBGRADE TO BE COMPACTED TO 98 % SPDD.
3. 300 MM OF HORTICULTURAL GRADE TOPSOIL (SECTION 1.4.27.7 MATERIALS) PLACED, THEN SODDED (SECTION 1.4.28 SODDING) WITH NO.1 NURSERY SOD FROM BACK OF CURB TO PROPERTY LINE. REFER TO STD DWG E-1 TO E-13 FOR BOULEVARD LOCATIONS.
4. NEWLY SODDED AREAS ARE TO BE ROLLED AND WATERED.
5. FINISHED SOD SHALL MATCH THE ELEVATION OF THE SIDEWALK AND CURBS, IF PRESENT.

STORM SEWERS

1. CEMENT ASBESTOS PIPE IS NOT ALLOWED.
2. PVC RIB KORFLO AND HDPE PIPE IS ALLOWED TO A MAXIMUM DIAMETER OF 450 MM.
3. WHERE RIB PIPE IS USED, HIGH PERFORMANCE STONE MUST BE USED FOR BOTH BEDDING AND COVER MATERIAL.
4. A NATIVE TRENCH BACKFILL MATERIAL TO BE COMPACTED TO 95 % SPDD. THE UPPER 600 MM OF THE TRENCH ON THE TRAVELLED PORTION OF THE ROAD MUST TO BE COMPACTED TO 98 % SPDD AND UNTRAVELED PORTIONS TO 95 % SPDD.
5. GRANULAR BACKFILL TO BE COMPACTED TO 98 % SPDD.
6. PRIOR TO THE ISSUANCE OF BUILDING PERMITS, THE CONTRACTOR, CONSULTANT AND TOWN STAFF MUST VISUALLY INSPECT THE STORM SYSTEM.
7. THE OWNER IS RESPONSIBLE FOR PROVIDING TWO VIDEO INSPECTIONS OF ALL STORM SEWER PIPES INCLUDING MANHOLES, CATCH BASIN LEADS, AND REAR LOT CATCH BASINS. THE FIRST VIDEO INSPECTION SHALL BE COMPLETED PRIOR TO BUILDING PERMIT ISSUANCE AND THE SECOND SHALL BE COMPLETED PRIOR TO THE PLACEMENT OF TOP COURSE ASPHALT.
8. STORM SEWER VIDEO INSPECTIONS MUST BE IN CONFORMANCE WITH OPSS-409 MUNI AND SHALL INCLUDE A WRITTEN REPORT BY THE CONSULTANT, WHICH WILL INCLUDE THEIR RECOMMENDATIONS, BASED ON THEIR REVIEW AND ASSESSMENT OF THE STORM SEWER VIDEO AND CONTRACTOR 'S REPORT. ANY REQUIRED REPAIRS SHALL BE COMPLETED AND RE-VIDEOED TO THE TOWN 'S SATISFACTION. VIDEOS TO BE PERFORMED NO MORE THAN 90 DAYS PRIOR TO SUBMISSION.

REGIONAL NOTES

GENERAL NOTES

1. THE LOCATION OF ALL UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THESE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE LOCATION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
2. ALL AREAS DISTURBED BY THE CONTRACTOR DURING THE CONSTRUCTION OF THE WORKS SHOWN HEREIN SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AS DETERMINED BY PLANNING AND PUBLIC WORKS DEPARTMENT. ALL GRASS AND VEGETATION COVERED AREAS SHALL BE RESTORED BY PLACING 100MM OF TOPSOIL AND NO. 1 NURSERY SOD TO ESTABLISH A GRASS COVER TO THE SATISFACTION OF THE CITY/TOWN UNLESS NOTED OTHERWISE.
3. CITY/TOWN OF ? AND REGION OF HALTON STANDARD DRAWINGS AND O.P.S.D. WITH REGIONAL AMENDMENTS FOR SANITARY SEWERS AND WATERMAINS SHALL CONSTITUTE PART OF THE ENGINEERING DESIGN AND CONSTRUCTION CONTRACT.
4. ALTERNATIVE MATERIALS MAY BE ACCEPTABLE, PROVIDED APPROVAL HAS FIRST BEEN OBTAINED FROM THE CITY/TOWN ENGINEER AND/OR THE REGIONAL COMMISSIONER OF PLANNING AND PUBLIC WORKS.
5. NO BLASTING IS PERMITTED.
6. ANY AREAS WITHIN R.O.W. WHICH REQUIRE FILL IN EXCESS OF 0.30M ARE SUBJECT TO COMPACTION TESTS AND SUCH TESTS MUST SHOW A MIN. COMPACTION OF 95% S.P.D. AT ALL DEPTHS.
7. MANHOLE AND VALVE CHAMBER COVERS ARE TO BE SET FLUSH WITH BASE COURSE ASPHALT AND ADJUSTED TO FINAL GRADE PRIOR TO INSTALLING TOP LIFT OF ASPHALT.
8. ALL TRENCHES WITHIN EXISTING RIGHT-OF-WAY ARE TO BE BACKFILLED IN ACCORDANCE WITH TOWN OF ?REQUIREMENTS.

SANITARY SEWER NOTES

1. SANITARY MANHOLES AS PER O.P.S.D 701.010 WITH FRAMES AND COVERS AS PER O.P.S.D. 401.01 TYPE 'A' UNLESS OTHERWISE NOTED ON THE DRAWINGS.
2. BENCHING IN MANHOLES TO BE AS PER O.P.S.D. 701.021 AS AMENDED BY THE REGION OF HALTON. BENCHING IN SANITARY MANHOLES TO BE TO THE OBVERT OF THE PIPE.
3. SAFETY PLATFORMS AS PER O.P.S.D. 404.020 TO BE INSTALLED ONLY IN MANHOLES WHERE DEPTHS EXCEED 10.0M AS DIRECTED BY THE REGION AND AS INDICATED ON THE PROFILE DRAWINGS.
4. SANITARY SEWER PIPE SHALL BE PVC SDR35 CONFORMING TO A.S.T.M. D3034 UNLESS OTHERWISE NOTED.
5. SANITARY SERVICE CONNECTIONS TO BE 125MM DIA FOR SINGLE RESIDENTIAL CONNECTIONS AND 150MM DIA FOR DUAL RESIDENTIAL AND SINGLE NON-RESIDENTIAL CONNECTIONS. SANITARY SERVICE CONNECTIONS TO BE MINIMUM 2% GRADE AND SHALL BE NON-WHITE IN COLOUR.
6. SERVICES TO BE MIN. 2.15M AND MAX. 2.75M DEEP AT PROPERTY LINE. RISERS SHALL BE USED WHERE NOTED AS PER OPSD 1006.01.
7. CLASS 'B' BEDDING ON ALL SEWERS AND CONNECTIONS TO BE AS PER O.P.S.D. 1005.02 UNLESS NOTED OTHERWISE
8. GRANULAR BACKFILL AROUND MANHOLES SHALL BE COMPACTED BY MECHANICAL MEANS TO A MINIMUM OF 95%S.P.D.

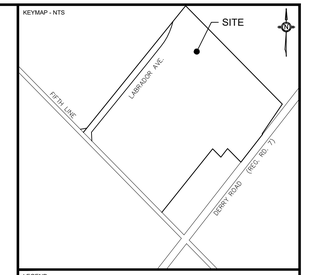
WATERMAIN NOTES

1. WATERMAINS 150MM TO 300MM DIAMETER TO BE P.V.C. CL235 (DR-18) WITH GASKETED JOINTS.
2. WATER SERVICE CONNECTIONS TO BE AS PER O.P.S.D. 1104.01. PIPE FOR ALL SERVICE CONNECTIONS UP TO 50MM DIA. SHALL BE TYPE K SOFT COPPER TUBING.
3. A MIN. HORIZONTAL SEPARATION OF 2.5M MUST BE MAINTAINED BETWEEN WATERMAINS AND SANITARY OR STORM SEWERS, INCLUDING SERVICE LATERALS.
4. A MIN. VERTICAL SEPARATION OF 0.15M BETWEEN WATERMAINS AND SEWERS MUST BE MAINTAINED IF WATERMAIN IS INSTALLED ABOVE SEWER OR 0.50M IF SEWER IS ABOVE WATERMAIN.
5. WATERMAIN BEDDING TO BE SUITABLE GRANULAR BEDDING MATERIAL AS PER O.P.S.D. 1102.01, CLASS 'B.
6. ALL HYDRANTS AS PER O.P.S.D. 1105.01 TO HAVE STEAMER CONNECTIONS. HYDRANTS TO BE SUPPLIED WITH:
   - TWO (2) 63.5MM (2 ½') WITH CSA STANDARD THREAD, 63.5MM I.D., 79.4 O.D., 5 THREADS PER 25MM, 31.75MM SQUARE OPERATING NUT; AND
   - ONE (1) 100MM (4') STORZ PUMPER CONNECTION AS PER CAN/ULC #S-520, 31.75MM SQUARE OPERATING NUT, AND STORZ CAP PAINTED GLOSS BLACK.
7. HYDRANTS SHALL BE INSTALLED SUCH THAT THE ROD STEM LENGTH SHALL NOT EXCEED 1.7M MEASURED FROM THE BREAK-OFF FLANGE. IF HYDRANT BARREL LENGTH EXCEEDS 1.7M THEN A HYDRANT THAT CAN BE RAISED FROM THE BOTTOM WITHOUT INCREASING ROD LENGTH IS TO BE USED.
8. ALL METALLIC WATERMAINS, FITTINGS, HYDRANTS AND RESTRAINERS TO HAVE CATHODIC PROTECTION IN ACCORDANCE WITH REGION OF HALTON STANDARD DRAWINGS RH 420.01 AND RH 420.02..
9. ALL SACRIFICIAL ANODES SHALL CONFORM TO A.S.T.M. B-418 TYPE II AND SHALL BE MADE OF HIGH GRADE ELECTROLYTIC ZINC, 99.99% PURE.
10. ANODE INSTALLATION IS NOT REQUIRED WITHIN VALVE-CHAMBERS, DRAIN CHAMBERS OR AIR RELEASE CHAMBERS.
11. ALL WELD CONNECTIONS TO BE COATED WITH 'TC MASTIC' OR APPROVED EQUIVALENT.
12. FOR ALL ANODES CONNECTED TO NEW PIPE, FITTINGS OR TO EXISTING METALLIC WATERMAINS, A CADWELDER AND CA-15 OR EQUIVALENT CARTRIDGE SHALL BE USED. ANODE INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH MANUFACTURES REQUIREMENTS
13. WHERE NEW PIPE IS TO BE CONNECTED TO EXISTING DUCTILE IRON OR CAST IRON PIPE A 14.5KG MAGNESIUM ANODE IS TO BE CONNECTED TO THE FIRST LENGTH OF EXISTING PIPE, AS PER REGION OF HALTON STANDARD DRAWING RH 420.01.
14. ALL VALVES TO OPEN LEFT (COUNTER-CLOCKWISE) AND SHALL HAVE 50MM SQUARE STANDARD AWWA OPERATING NUT.
15. ALL PLUGS, CAPS, TEES, AND BENDS SHALL BE MECHANICALLY RESTRAINED AS PER MANUFACTURERS SPECIFICATIONS. RESTRAINTS SHALL MEET UNI-B-13-92.
16. RECOMMENDED RESTRAINED LENGTH ARE AS FOLLOWS:

DIAMETER	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE	PLUG	REDUCER
300mm	4.0m	2.0m	1.0m	0.5m	0.5m	13.5m	400X300
400mm	5.5m	2.5m	1.5m	0.5m	0.5m	17.5m	7.5m

17. WHERE WATERMAIN IS PLACED IN FILL OR IN PREVIOUSLY DISTURBED GROUND ALL JOINTS TO BE MECHANICALLY RESTRAINED.
18. MINIMUM DEPTH OF COVER OVER WATERMAIN SHALL BE 1.70M MEASURED FROM THE ROAD CENTRELINE ELEVATION.
19. THE DEPTH OF WATER SERVICES AT PROPERTY LINE SHOULD BE A MINIMUM OF 1.7M AND A MAXIMUM OF 2.0M. THE DISTANCE BETWEEN THE GROUND ELEVATION AND THE TOP OF THE ROD SHOULD BE BETWEEN 0.5M AND 1.0M.
20. WATER SERVICES CROSSING THE STORM SEWER TO HAVE MIN. 1.70M OF COVER. WHERE THIS CANNOT BE ACHIEVED, WATER SERVICE IS TO CROSS UNDER STORM SEWER.
21. GATE VALVES CONFORMING TO A.W.W.A. C500 STANDARDS ARE REQUIRED ON WATERMAINS 300MM AND UNDER. LINE GATE VALVES SHALL HAVE AUGER OF SCREW TYPE VALVE BOXES.
22. ALL WATERMAIN FITTINGS SHALL HAVE MECHANICAL JOINTS.
23. VERTICAL AND HORIZONTAL ALIGNMENT OF WATERMAIN TO BE ACHIEVED BY DEFLECTION OF JOINTS AS PER MANUFACTURER'S SPECIFICATIONS. DEFLECTION IN THE BARREL IS NOT PERMITTED.
24. TRACER WIRE IS TO BE INSTALLED ON ALL NEW INSTALLATIONS OF PVC WATERMAIN PIPE FOR LOCATING PURPOSES. A SOLID 10 GAUGE T.W.U. COPPER WIRE IS TO BE INSTALLED ALONG THE PIPE, STRAPPED TO THE PIPE AT 6 METRE INTERVALS. JOINTS IN THE WIRE BETWEEN VALVES ARE NOT PERMITTED.
25. THE INSPECTOR MAY TEST THE TRACING WIRE FOR CONDUCTIVITY. IF THE TRACING WIRE IS NOT CONTINUOUS FROM VALVE TO VALVE, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, REPLACE OR REPAIR THE WIRE.
26. ALL WATER CUSTOMERS SUPPLIED BY A WATERMAIN TO BE SHUT DOWN SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST 24 HOURS IN ADVANCE OF THE SHUT DOWN AS PER REGION OF HALTON SPECIFICATIONS. NOTIFICATION SHALL TAKE PLACE UNDER THE ENGINEER'S DIRECTION.

KEYMAP - NTS



LEGEND

BENCHMARK:
ELEVATIONS ARE GEODETIC, DERIVED BY DIFFERENTIAL GPS OBSERVATIONS, AND ARE REFERRED TO THE CAN-NET REFERENCE STATION, HAVING AN ELEVATION OF 124.16M. UTM-17 NORTH CANADA NAD 83 CSRS

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TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

FINAL ACCEPTANCE

Accepted by: Anita Sparre C.E.T. on 2025 / Jan / 30
via Signed Letter. *Director, Dev. Eng.* *Date*

REGIONAL APPROVAL

DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM THE LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER M. L. STAIRS DEC. 5, 2022 PROVINCE OF ONTARIO

MGM CONSULTING INC
Consulting Engineering & Project Management
555 Industrial Drive Tel: (905)567-8678
Suite 201 Fax: (905)875-1339
Milton, Ontario Email: mgm@mgm.on.ca
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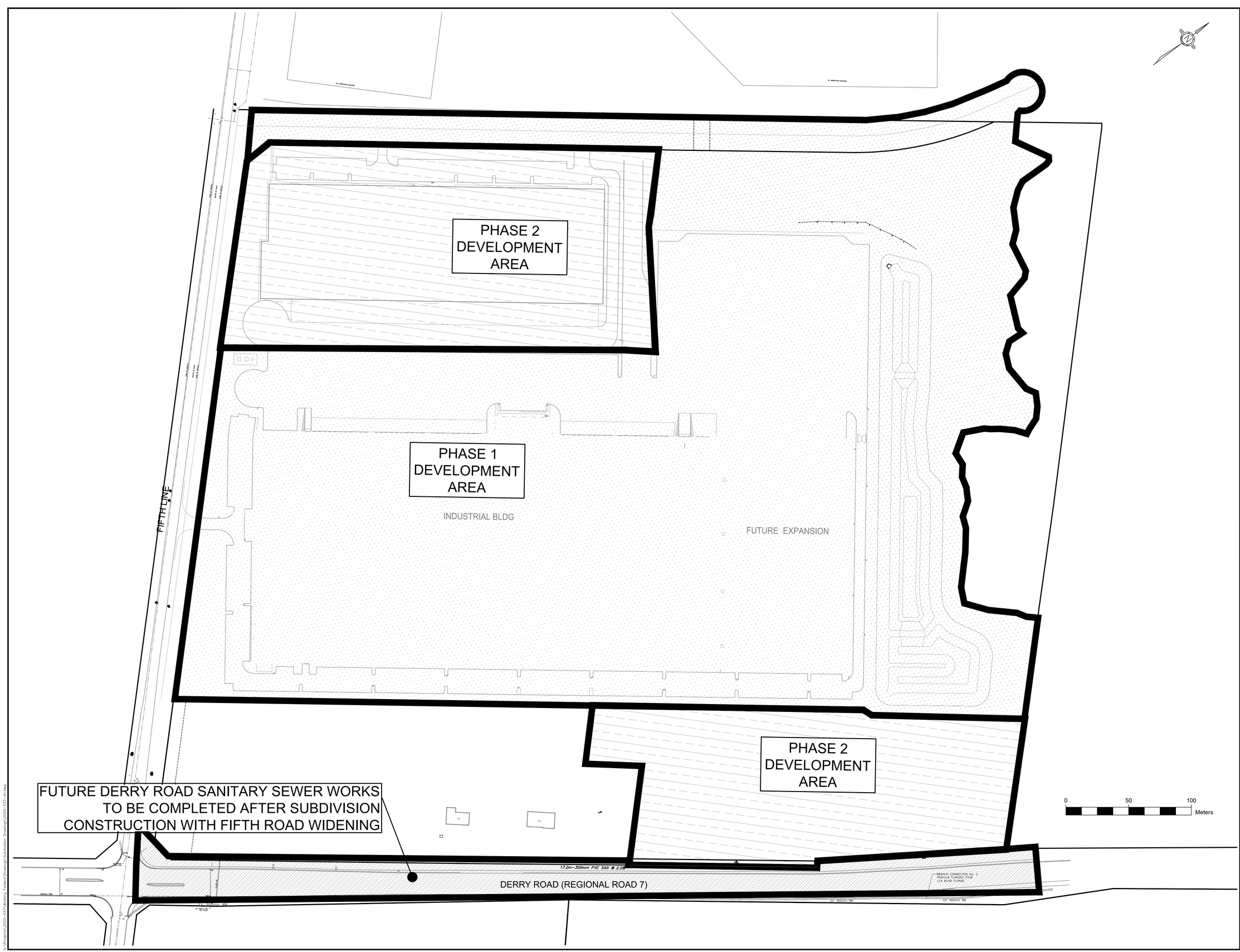
CLIENT:
BROCCOLINI

PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

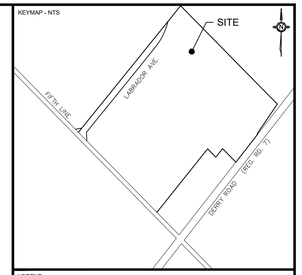
DRAWING:
GENERAL NOTES

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: NTS	PROJECT NO.: 2020-037	SHEET NO.: 100
CURRENT ISSUE: 11	CURRENT REV: 10	

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KEYMAP - NTS



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REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER
M. L. STAIRS
DEC. 5, 2022
PROVINCE OF ONTARIO

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BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

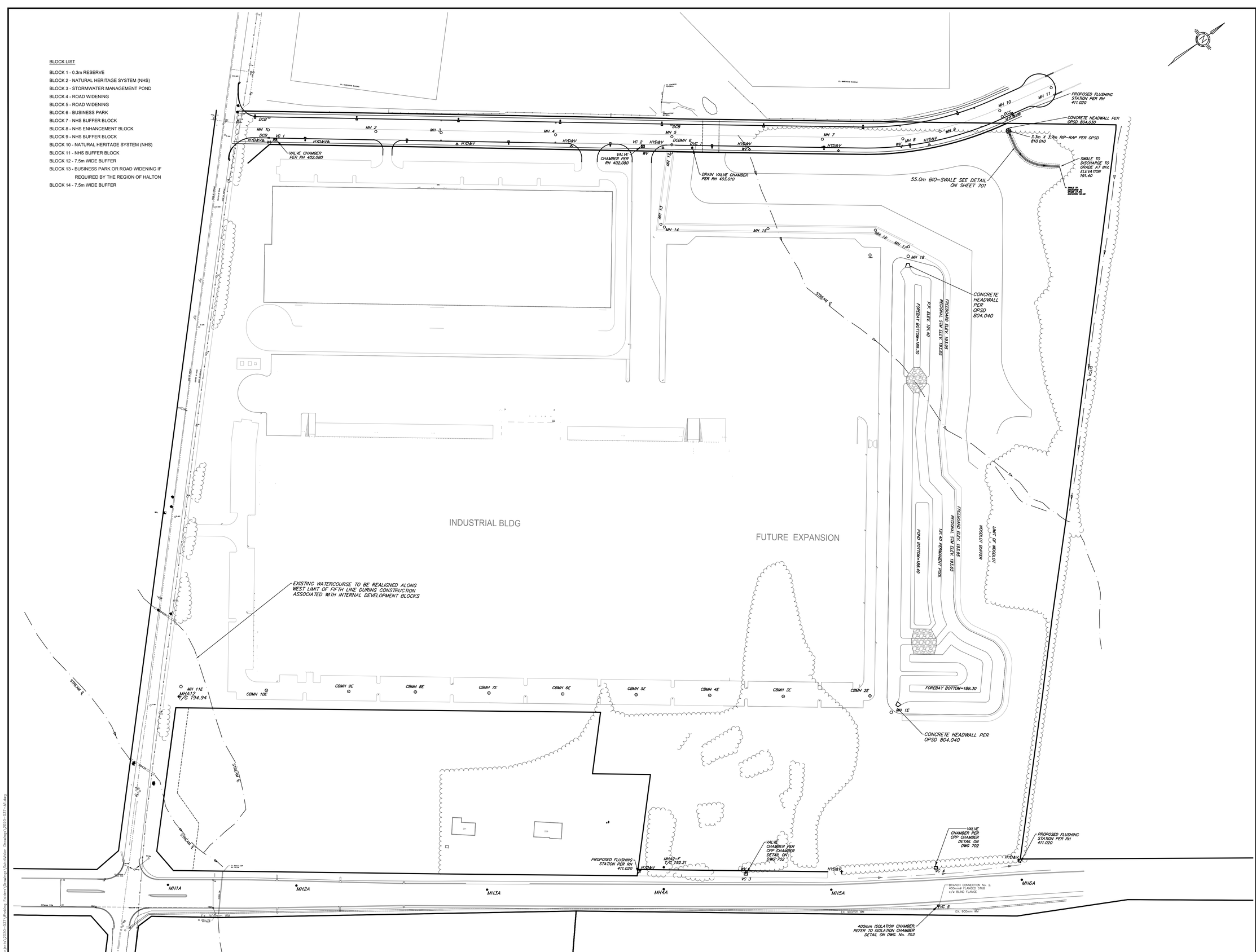
DRAWING:
PHASING PLAN

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: 1:1250	PROJECT NO.: 2020-037	SHEET NO.: 101
CURRENT ISSUE: 10	CURRENT REV: 9	

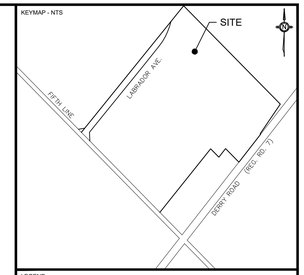
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BLOCK LIST

BLOCK 1 - 0.3m RESERVE
BLOCK 2 - NATURAL HERITAGE SYSTEM (NHS)
BLOCK 3 - STORMWATER MANAGEMENT POND
BLOCK 4 - ROAD WIDENING
BLOCK 5 - ROAD WIDENING
BLOCK 6 - BUSINESS PARK
BLOCK 7 - NHS BUFFER BLOCK
BLOCK 8 - NHS ENHANCEMENT BLOCK
BLOCK 9 - NHS BUFFER BLOCK
BLOCK 10 - NATURAL HERITAGE SYSTEM (NHS)
BLOCK 11 - NHS BUFFER BLOCK
BLOCK 12 - 7.5m WIDE BUFFER
BLOCK 13 - BUSINESS PARK OR ROAD WIDENING IF REQUIRED BY THE REGION OF HALTON
BLOCK 14 - 7.5m WIDE BUFFER



KEYMAP - NTS



LEGEND

CB	- PROPOSED CATCH BASIN
CBMH	- PROPOSED CB MANHOLE
DCBMH	- PROPOSED DCB MANHOLE
MH	- PROPOSED STORM MANHOLE
HYD	- PROPOSED FIRE HYDRANT
WV	- PROPOSED WATER VALVE
DI	- PROPOSED DITCH INLET
	- PROPOSED LIGHT STANDARD
	- PROPOSED STREET TREE
MHA	- PROPOSED SANITARY MANHOLE

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REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER
M. L. STAIRS
DEC. 5 2022
PROVINCE OF ONTARIO

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Consulting Engineering & Project Management
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Email: mgm@mgm.on.ca
www.mgm.on.ca

CLIENT:
BROCCOLINI

PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

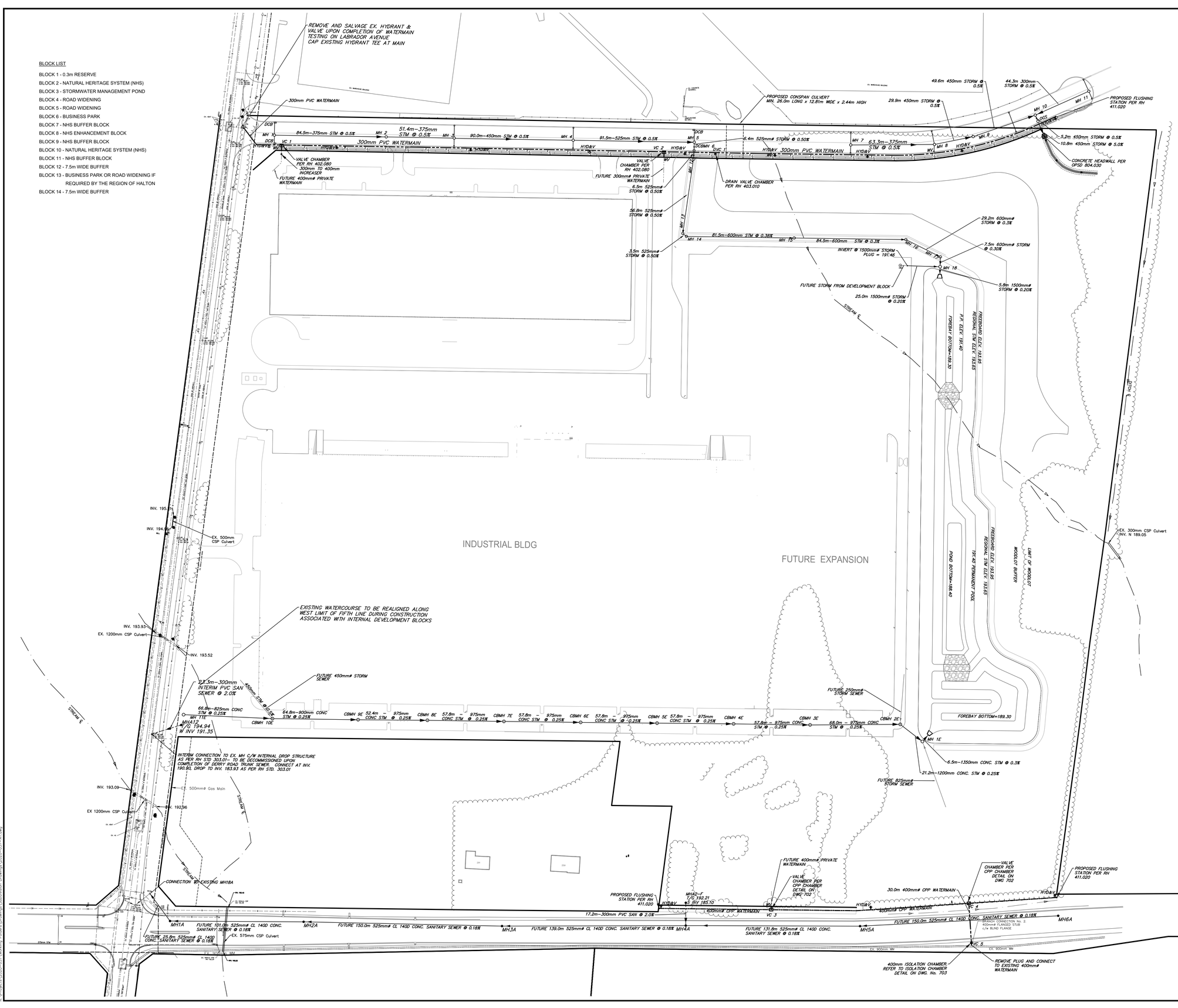
DRAWING:
GENERAL PLAN ABOVE GROUND SERVICES

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: 1:1250	PROJECT NO.: 2020-037	SHEET NO.: 102
CURRENT ISSUE: 12	CURRENT REV: 11	

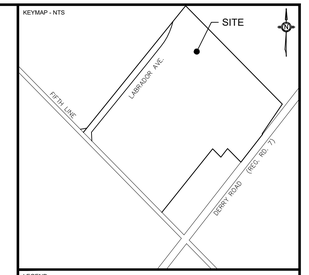
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- HYD - PROPOSED FIRE HYDRANT
- WV - PROPOSED WATER VALVE
- PROPOSED WATERMAIN
- PROPOSED STORM SEWER
- PROPOSED BELL
- PROPOSED HYDRO
- PROPOSED CABLE
- PROPOSED GAS
- EXISTING TREE LINE

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TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

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REGIONAL DEVELOPMENT FILE: DM–1070
24T–20006

SIGNED: _____ DATED: _____

Halton REGION

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CLIENT: BROCCOLINI

PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

DRAWING:
GENERAL PLAN
UNDERGROUND SERVICES

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: 1:1250	PROJECT NO.: 2020-037	SHEET NO.: 103
CURRENT ISSUE: 15	CURRENT REV: 14	

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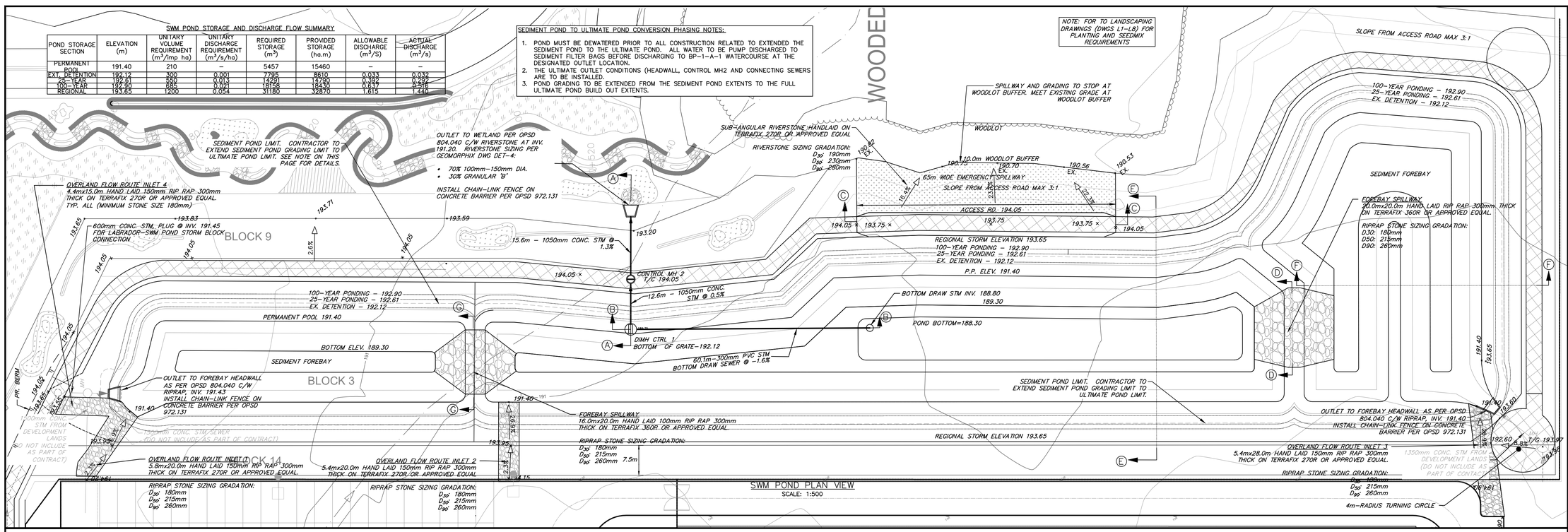
SWM POND STORAGE AND DISCHARGE FLOW SUMMARY

POND STORAGE SECTION	ELEVATION (m)	UNITARY VOLUME REQUIREMENT (m^3/imp ha)	UNITARY DISCHARGE REQUIREMENT (m^3/s/ha)	REQUIRED STORAGE (m^3)	PROVIDED STORAGE (ha.m)	ALLOWABLE DISCHARGE (m^3/S)	ACTUAL DISCHARGE (m^3/s)
PERMANENT POOL	191.40	210	–	5457	15460	–	–
EXT. DETENTION	192.12	300	0.001	7795	8610	0.033	0.032
25–YEAR	192.61	550	0.013	14291	14790	0.342	0.292
100–YEAR	192.90	685	0.021	16108	16430	0.617	0.516
REGIONAL	193.65	1200	0.054	31180	32870	1.615	1.440

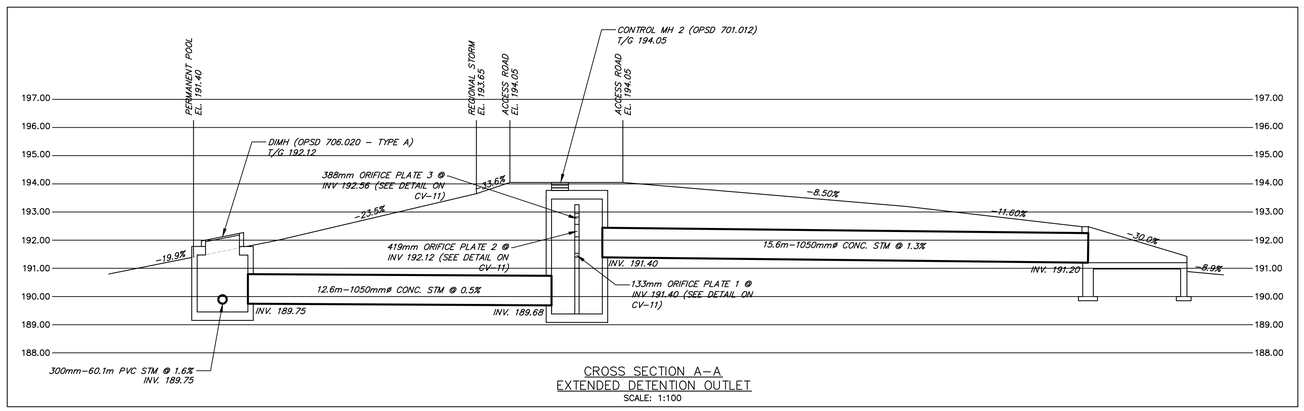
SEDIMENT POND TO ULTIMATE POND CONVERSION PHASING NOTES:

1. POND MUST BE DEWATERED PRIOR TO ALL CONSTRUCTION RELATED TO EXTENDED THE SEDIMENT POND TO THE ULTIMATE POND. ALL WATER TO BE PUMP DISCHARGED TO SEDIMENT FILTER BAGS BEFORE DISCHARGING TO BP–1–A–1 WATERCOURSE AT THE DESIGNATED OUTLET LOCATION.
2. THE ULTIMATE OUTLET CONDITIONS (HEADWALL, CONTROL MH2 AND CONNECTING SEWERS ARE TO BE INSTALLED.
3. POND GRADING TO BE EXTENDED FROM THE SEDIMENT POND EXTENTS TO THE FULL ULTIMATE POND BUILD OUT EXTENTS.

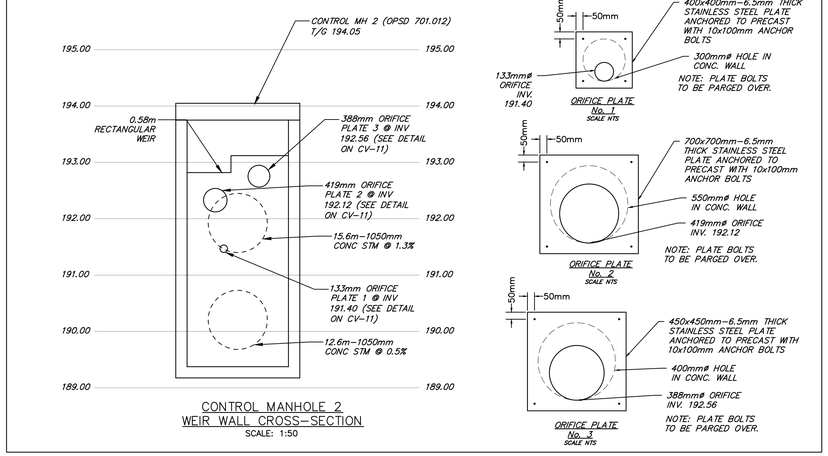
NOTE: FOR TO LANDSCAPING DRAWINGS (DWGS L1–L8) FOR PLANTING AND SEEDMIX REQUIREMENTS



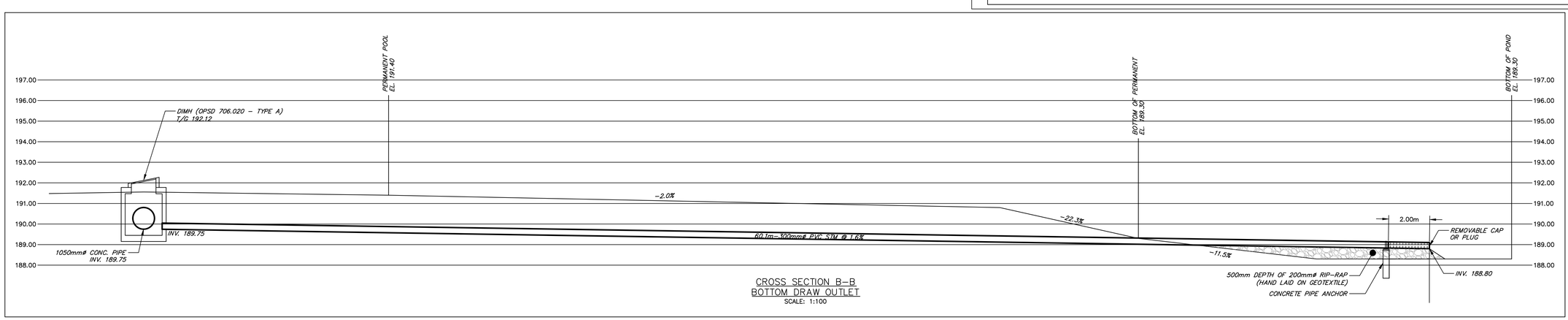
SWM POND PLAN VIEW
SCALE: 1:500



CROSS SECTION A–A
EXTENDED DETENTION OUTLET
SCALE: 1:100

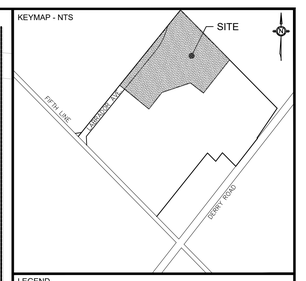


CONTROL MANHOLE 2
WEIR WALL CROSS–SECTION
SCALE: 1:50



CROSS SECTION B–B
BOTTOM DRAW OUTLET
SCALE: 1:100

KEYMAP - NTS



LEGEND

195.10 PROPOSED ELEVATION
2.0% PROPOSED SLOPE
193.0 EXISTING CONTOUR

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TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

FINAL ACCEPTANCE

Accepted by: Anita Sparre C.E.T. on 2025 / Jan / 30
via Signed Letter. *Director, Dev. Eng.* *Date*

REGIONAL APPROVAL

REGION DESIGN OF WATER &/OR WASTEWATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM AREA MUNICIPALITY.

SIGNED: _____ DATED: _____

The Applicant should be aware that the approval of the water system on private property is the responsibility of the Local Municipality. Regardless, the Applicant must ensure that the Region of Halton's standards and specifications are met and may be obtained through the Data Management Group at 905–825–6032) Furthermore, all water quality tests must be completed to the Region of Halton's satisfaction, before the water supply can be turned on.

Halton REGION

CONSULTANT:
REGISTERED PROFESSIONAL ENGINEER M. L. STAIRS DEC. 5, 2022 PROVINCE OF ONTARIO
MGM CONSULTING INC
Consulting Engineering & Project Management
555 Industrial Drive Suite 201 Milton, Ontario L9T 5E1
Tel: (905)567-8678 Fax: (905)875-1339 Email: mgm@mgm.on.ca www.mgm.on.ca

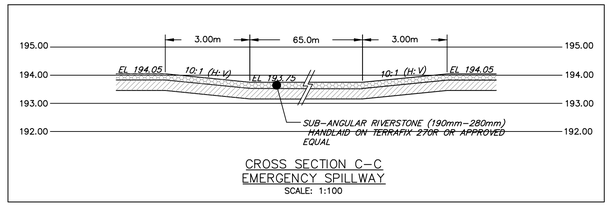
CLIENT: BROCCOLINI

PROJECT: BDC LOWES (SEREDA, CARVALHO) 24T-20006/M

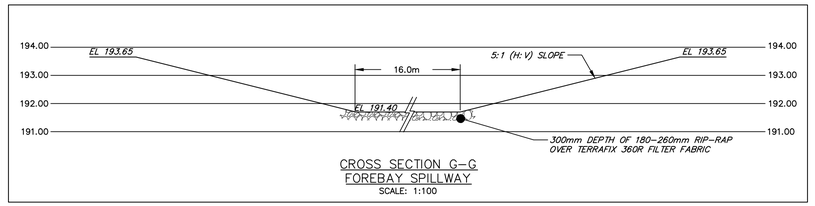
DRAWING: STORMWATER MANAGEMENT POND 1

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: AS NOTED	PROJECT NO.: 2020-037	SHEET NO.: 104
CURRENT ISSUE: 12	CURRENT REV: 11	

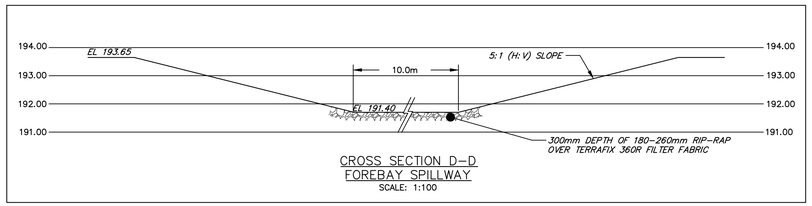
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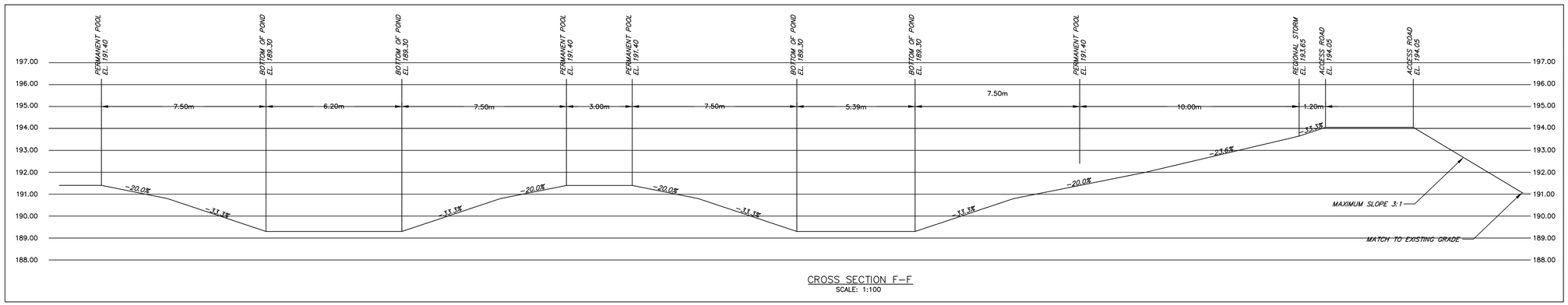
CROSS SECTION C-C
EMERGENCY SPILLWAY
SCALE: 1:100



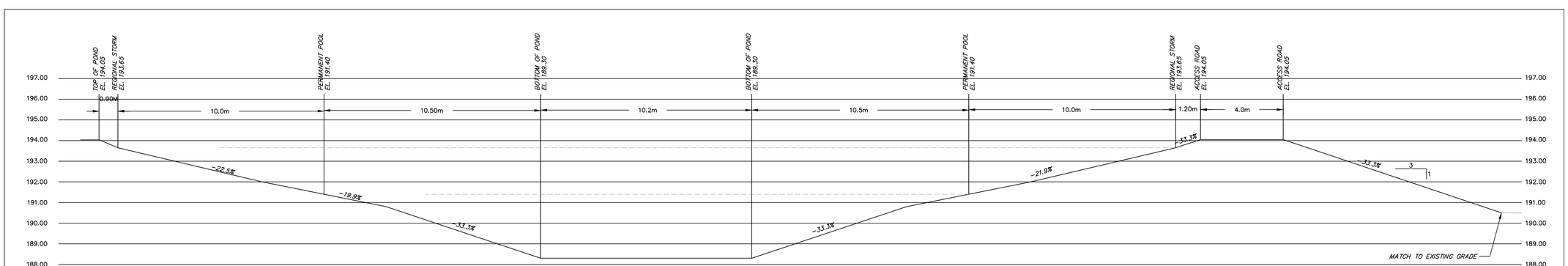
CROSS SECTION G-G
FOREBAY SPILLWAY
SCALE: 1:100



CROSS SECTION D-D
FOREBAY SPILLWAY
SCALE: 1:100

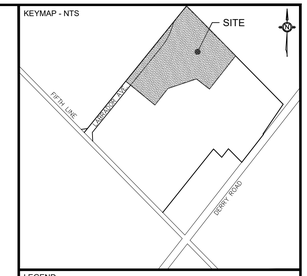


CROSS SECTION F-F
SCALE: 1:100



CROSS SECTION E-E
SCALE: 1:100

KEYMAP - NTS



LEGEND

195.10	PROPOSED ELEVATION
21.0%	PROPOSED SLOPE
193.0	EXISTING CONTOUR

BENCHMARK:
ELEVATIONS ARE GEODETIC, DERIVED BY DIFFERENTIAL GPS OBSERVATIONS, AND ARE REFERRED TO THE CAN-NET REFERENCE STATION, HAVING AN ELEVATION OF 124.16M. UTM-17 NORTH CANADA NAD 83 CSRS

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1	2021 06 07	FIRST SUBMISSION
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3	2022 02 07	ISSUED FOR ECA APPROVAL
4	2022 02 28	ISSUED FOR CH PERMIT APPROVAL
5	2022 03 11	REV. PER CH COMMENTS
6	2022 03 31	ISSUED TO CLIENT
7	2022 04 01	ISSUED TO CLIENT
8	2022 04 04	THIRD SUBMISSION
9	2022 06 30	REV. HEADWALLS
10	2022 09 01	ISSUED FOR REVIEW
11	2022 09 20	THIRD SUBMISSION (RE-ISSUE)
12	2022 12 05	FIFTH SUBMISSION

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CLIENT:
BROCCOLINI

PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

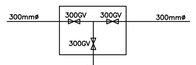
DRAWING:
STORMWATER MANAGEMENT POND 2

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: AS NOTED	PROJECT NO.: 2020-037	SHEET NO.: 105
CURRENT ISSUE: 12	CURRENT REV: 11	

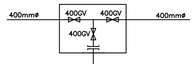
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BLOCK LIST

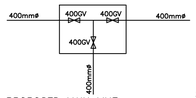
BLOCK 1 - 0.3m RESERVE
BLOCK 2 - NATURAL HERITAGE SYSTEM (NHS)
BLOCK 3 - STORMWATER MANAGEMENT POND
BLOCK 4 - ROAD WIDENING
BLOCK 5 - ROAD WIDENING
BLOCK 6 - BUSINESS PARK
BLOCK 7 - NHS BUFFER BLOCK
BLOCK 8 - NHS ENHANCEMENT BLOCK
BLOCK 9 - NHS BUFFER BLOCK
BLOCK 10 - NATURAL HERITAGE SYSTEM (NHS)
BLOCK 11 - NHS BUFFER BLOCK
BLOCK 12 - 7.5m WIDE BUFFER
BLOCK 13 - BUSINESS PARK OR ROAD WIDENING IF REQUIRED BY THE REGION OF HALTON
BLOCK 14 - 7.5m WIDE BUFFER



PROPOSED MAIN LINE
VALVE CHAMBER No. 1 & 2 SCHEMATIC
AS PER RH 402.080

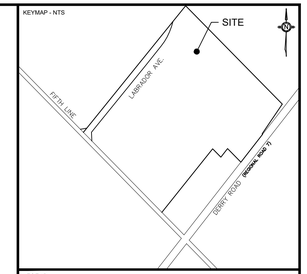


PROPOSED MAIN LINE
VALVE CHAMBER No. 3 SCHEMATIC
AS PER RH 402.080 (MODIFIED)
4.2m x 3.0m



PROPOSED MAIN LINE
VALVE CHAMBER No. 4 SCHEMATIC
AS PER RH 402.080 (MODIFIED)
4.2m x 3.0m

NOTE: ALL BUILDINGS TO HAVE INDIVIDUAL PRESSURE REDUCING VALVES ON DOMESTIC LINES



LEGEND

- HYD - PROPOSED FIRE HYDRANT
- WV - PROPOSED WATER VALVE
- PROPOSED WATERMAIN

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REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: _____ DATED: _____

Halton REGION

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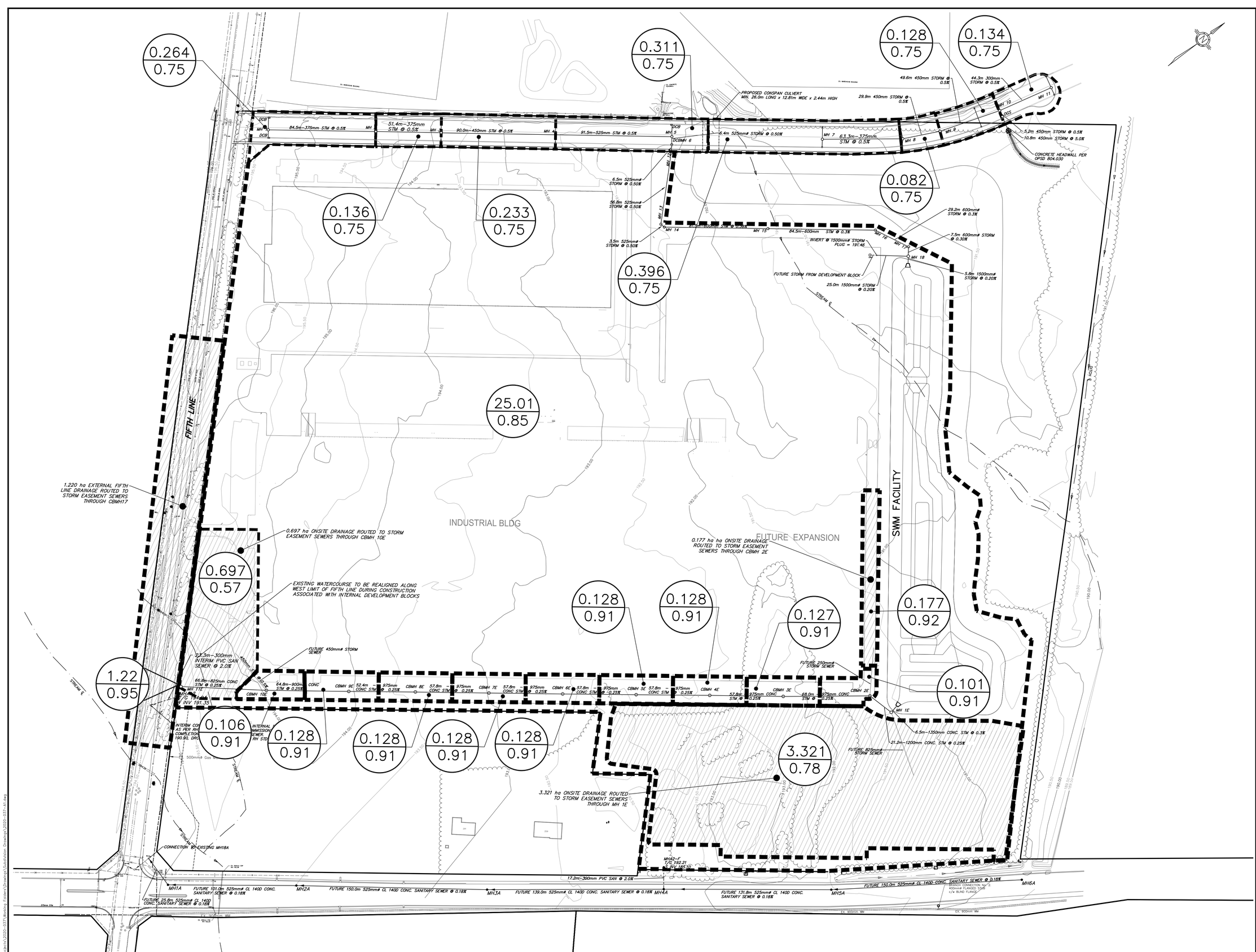
CLIENT: BROCCOLINI

PROJECT: BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

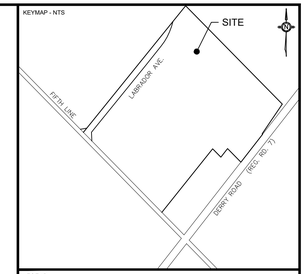
DRAWING: GENERAL WATERMAIN PLAN

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: 1:1250	PROJECT NO.: 2020-037	SHEET NO.: 107
CURRENT ISSUE: 11	CURRENT REV: 10	

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KEYMAP - NTS



LEGEND

DRAINAGE AREA BOUNDARY

28.77 — DRAINAGE AREA (Ha)
0.85 — RUNOFF COEFFICIENT

1.22 — EXTERNAL DRAINAGE AREA (Ha)
0.95 — RUNOFF COEFFICIENT

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24T–20006

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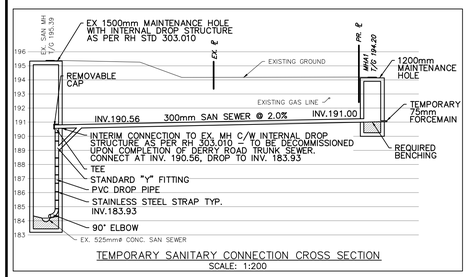
CLIENT:
BROCCOLINI

PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

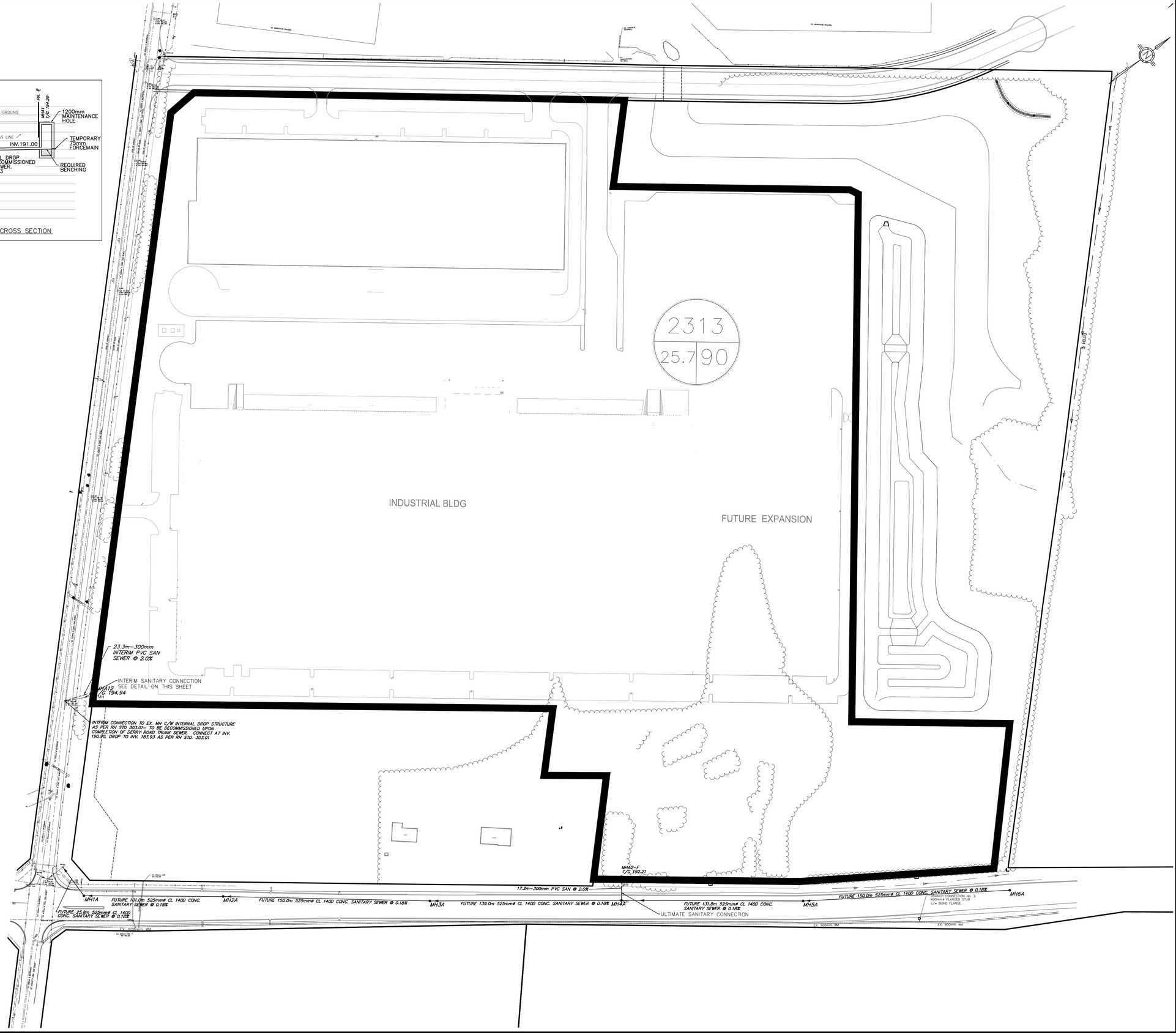
DRAWING:
STORM DRAINAGE PLAN

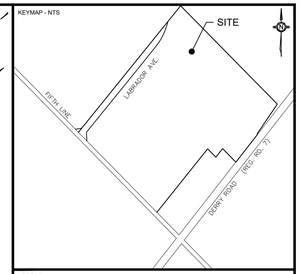
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BN	MLS	JB
SCALE: 1:1250	PROJECT NO.: 2020-037	SHEET NO.: 200
CURRENT ISSUE: 10	CURRENT REV: 9	

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TEMPORARY SANITARY CONNECTION CROSS SECTION
SCALE: 1:200





LEGEND

DRAINAGE AREA BOUNDARY

2313
POPULATION
PERSONS PER HECTARE
DRAINAGE AREA (Ha)

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REGIONAL DEVELOPMENT FILE: DM–1070
24T–20006

SIGNED: _____ DATED: _____

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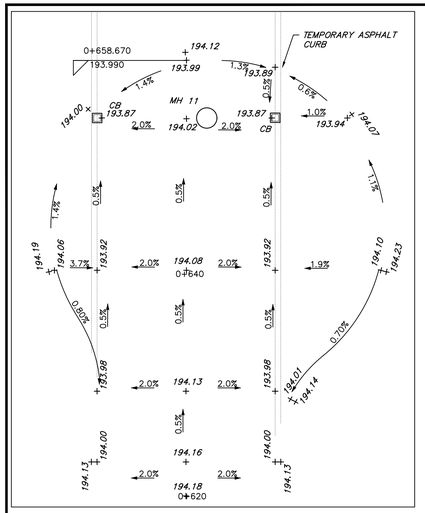
CLIENT:
BROCCOLINI

PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

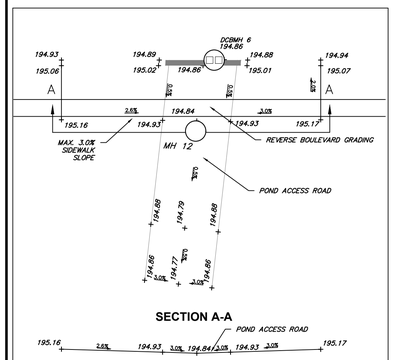
DRAWING:
SANITARY DRAINAGE PLAN

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE:	PROJECT NO.:	SHEET NO.:
1:1250	2020-037	300
CURRENT ISSUE:	CURRENT REV:	
9	8	

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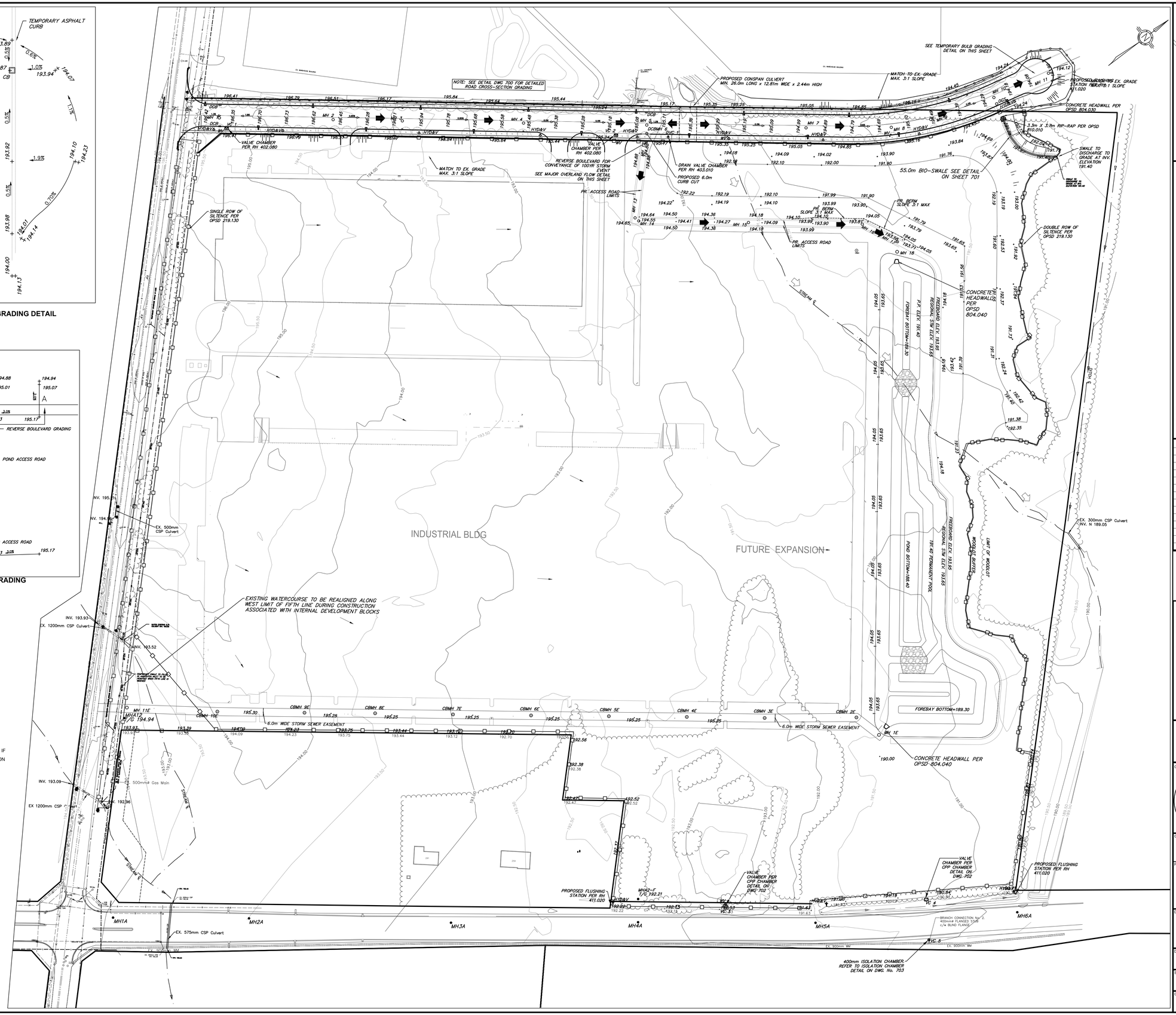
TEMPORARY TURNING CIRCLE GRADING DETAIL
SCALE 1:250



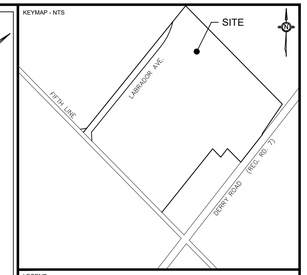
MAJOR OVERLAND FLOW GRADING
SCALE 1:250

BLOCK LIST

BLOCK 1 - 0.3m RESERVE
BLOCK 2 - NATURAL HERITAGE SYSTEM (NHS)
BLOCK 3 - STORMWATER MANAGEMENT POND
BLOCK 4 - ROAD WIDENING
BLOCK 5 - ROAD WIDENING
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BLOCK 14 - 7.5m WIDE BUFFER



KEYMAP - NTS



LEGEND

- 185.12 - PROPOSED GRADE ELEVATION
- 156.41 EXIST - MATCH EXISTING GRADE
- 364.00 - ORIGINAL GROUND CONTOUR
- PROPOSED MAJOR OVERLAND FLOW
- EXISTING OVERLAND FLOW
- PROPOSED DIRECTION OF FLOW
- EXISTING DIRECTION OF FLOW
- CB - PROPOSED CATCH BASIN
- CBMH - PROPOSED CB MANHOLE
- DCBMH - PROPOSED DCB MANHOLE
- MH - PROPOSED STORM MANHOLE
- HYD - PROPOSED FIRE HYDRANT
- WV - PROPOSED WATER VALVE
- DI - PROPOSED DITCH INLET

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24T-20006

SIGNED: _____ DATED: _____

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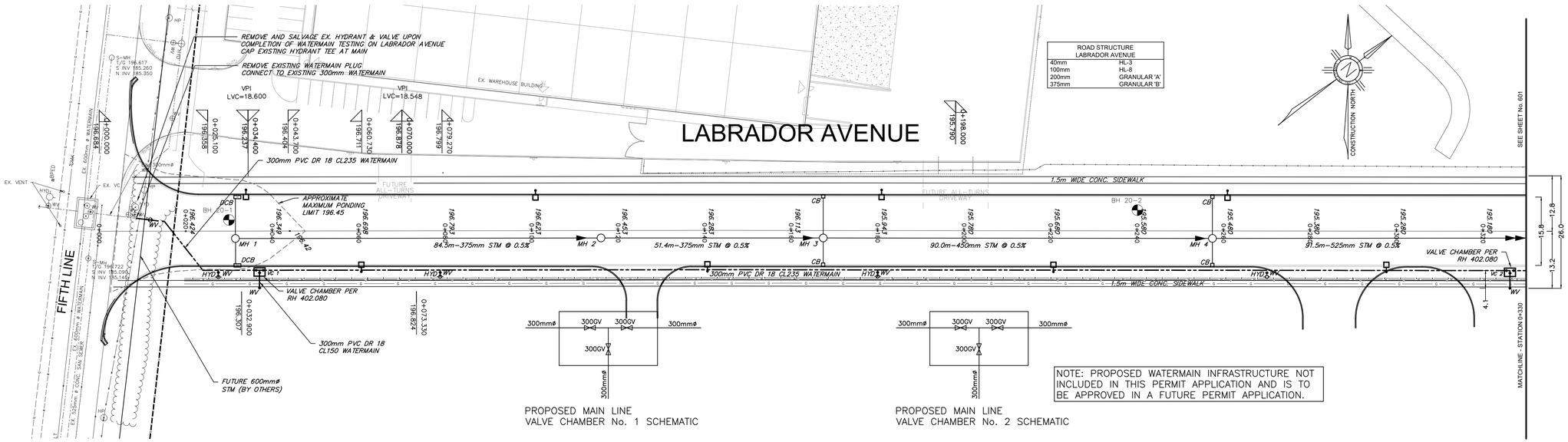
CLIENT:
BROCCOLINI

PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

DRAWING:
GRADING PLAN

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: 1:1250	PROJECT NO.: 2020-037	SHEET NO.: 500
CURRENT ISSUE: 9	CURRENT REV: 8	

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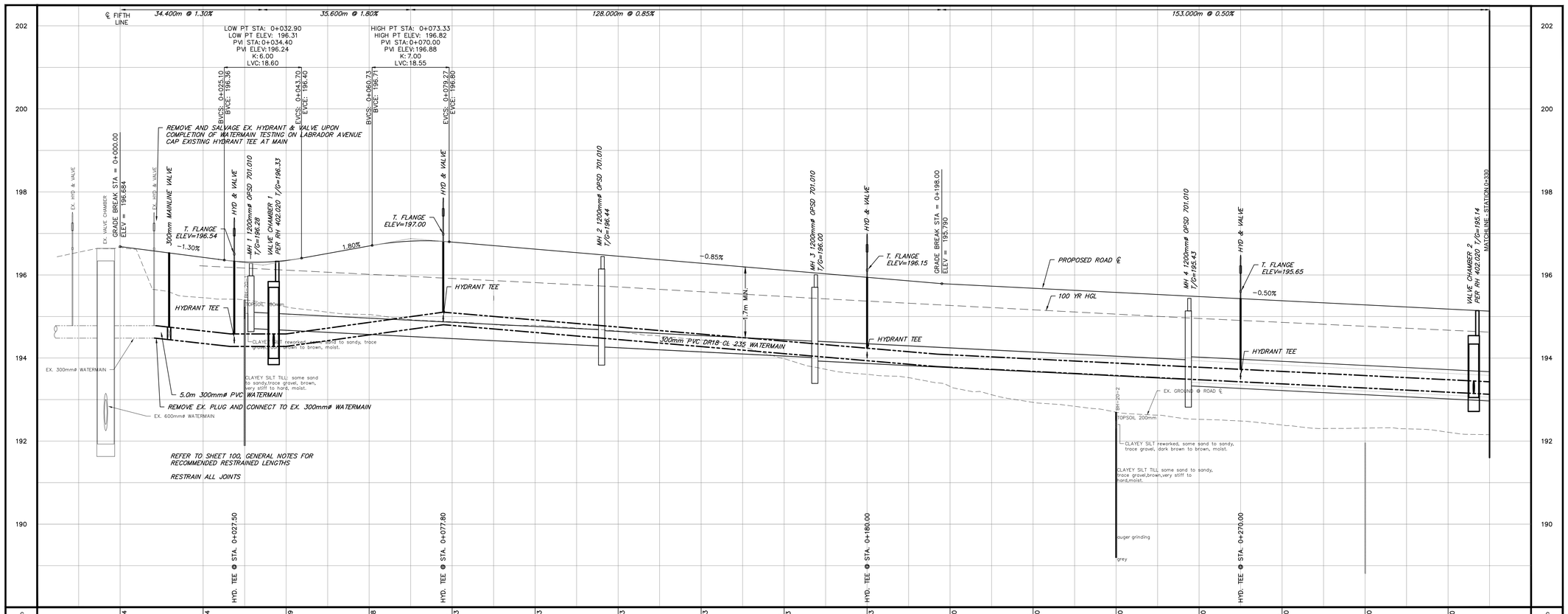


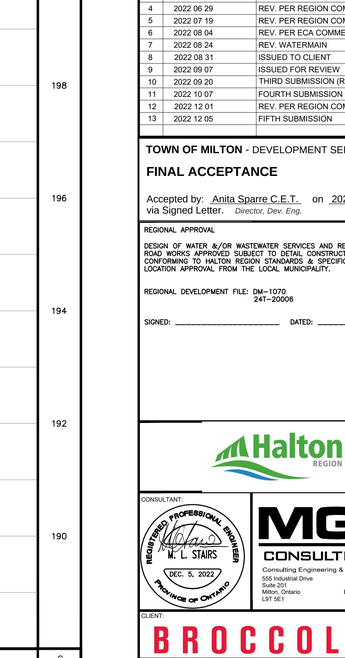
PROPOSED MAIN LINE
VALVE CHAMBER No. 1 SCHEMATIC

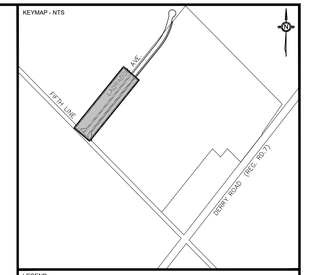
PROPOSED MAIN LINE
VALVE CHAMBER No. 2 SCHEMATIC

ROAD STRUCTURE LABRADOR AVENUE	
40mm	HL-3
100mm	HL-8
200mm	GRANULAR 'A'
375mm	GRANULAR 'B'

NOTE: PROPOSED WATERMAIN INFRASTRUCTURE NOT INCLUDED IN THIS PERMIT APPLICATION AND IS TO BE APPROVED IN A FUTURE PERMIT APPLICATION.







LEGEND

- CB - PROPOSED CATCH BASIN
- CBMH - PROPOSED CB MANHOLE
- DCBMH - PROPOSED DCB MANHOLE
- MH - PROPOSED STORM MANHOLE
- HYD - PROPOSED FIRE HYDRANT
- WV - PROPOSED WATER VALVE
- DI - PROPOSED DITCH INLET
- PROPOSED LIGHT STANDARD
- PROPOSED STREET TREE

BENCHMARK:
ELEVATIONS ARE GEODETIC, DERIVED BY DIFFERENTIAL GPS OBSERVATIONS, AND ARE REFERRED TO THE CAN-NET REFERENCE STATION, HAVING AN ELEVATION OF 124.16M. UTM-17 NORTH CANADA NAD 83 CSRS

No.	DATE	DRAWING ISSUE DESCRIPTION
1	2021 06 07	FIRST SUBMISSION
2	2021 10 29	SECOND SUBMISSION
3	2022 04 04	THIRD SUBMISSION
4	2022 06 29	REV. PER REGION COMMENTS
5	2022 07 19	REV. PER REGION COMMENTS
6	2022 08 04	REV. PER ECA COMMENTS
7	2022 08 24	REV. WATERMAIN
8	2022 08 31	ISSUED TO CLIENT
9	2022 09 07	ISSUED FOR REVIEW
10	2022 09 20	THIRD SUBMISSION (RE-ISSUE)
11	2022 10 07	FOURTH SUBMISSION
12	2022 12 01	REV. PER REGION COMMENTS
13	2022 12 05	FIFTH SUBMISSION

TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

FINAL ACCEPTANCE

Accepted by: Anita Sparre C.E.T. on 2025 / Jan / 30
via Signed Letter. *Director, Dev. Eng.* *Date*

REGIONAL APPROVAL

DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM THE LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:
REGISTERED PROFESSIONAL ENGINEER
M. L. STAIRS
DEC. 5, 2022
PROVINCE OF ONTARIO

MGM CONSULTING INC
Consulting Engineering & Project Management
555 Industrial Drive
Suite 201
Milton, Ontario
L9T 5E1
Tel: (905)567-8678
Fax: (905)875-1339
Email: mgm@mgm.on.ca
www.mgm.on.ca

CLIENT:
BROCCOLINI

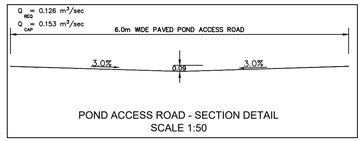
PROJECT:
BDC Lowes (Sereda, Carvalho)
DM- 1070 & 24T-20006/M

DRAWING:
WATERMAIN & SANITARY SEWER CONSTRUCTION
LABRADOR AVENUE
FROM FIFTH LINE TO 330m EAST OF FIFTH LINE
STA 0+000 TO STA 0+330

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: H 1:500 V 1:50	PROJECT NO.: 2020-037	SHEET NO.: 600
CURRENT ISSUE: 13	CURRENT REV: 12	

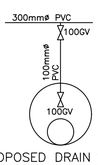
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ROAD STRUCTURE LABRADOR AVENUE	
40mm	HL-3
100mm	HL-8
200mm	GRANULAR 'A'
375mm	GRANULAR 'B'

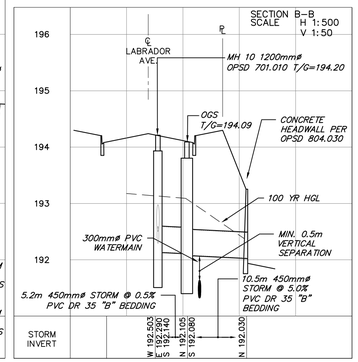


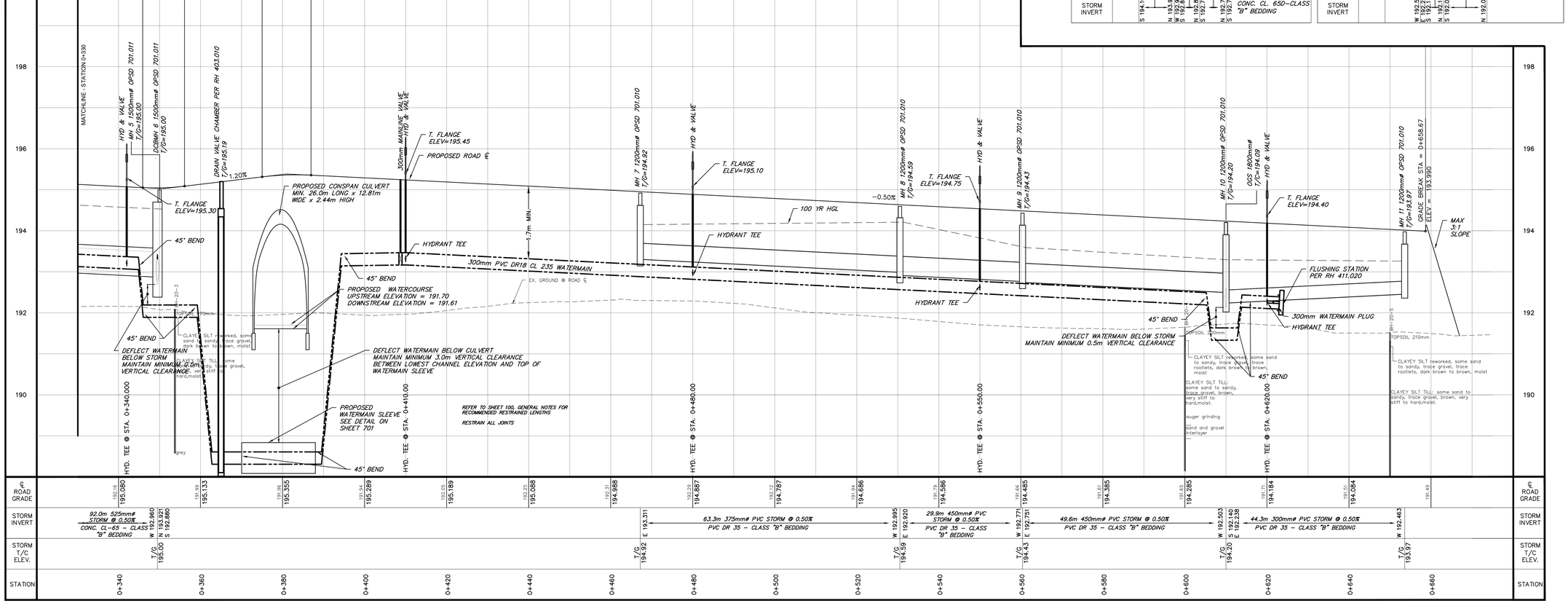
POND ACCESS ROAD - SECTION DETAIL
SCALE 1:50

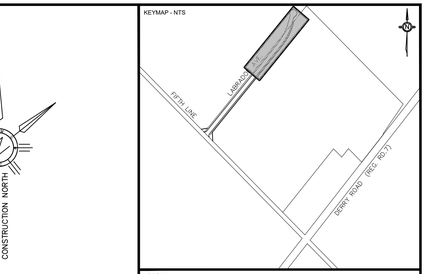
NOTE: PROPOSED CULVERT INFRASTRUCTURE NOT INCLUDED IN THIS PERMIT APPLICATION AND IS TO BE APPROVED IN A FUTURE PERMIT APPLICATION.



PROPOSED DRAIN VALVE CHAMBER No. 1 SCHEMATIC PER RH STD. DWG. 403.010







LEGEND

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- CBMH - PROPOSED CB MANHOLE
- DCBMH - PROPOSED DCB MANHOLE
- MH - PROPOSED STORM MANHOLE
- HYD - PROPOSED FIRE HYDRANT
- WV - PROPOSED WATER VALVE
- DI - PROPOSED DITCH INLET
- PROPOSED LIGHT STANDARD
- PROPOSED STREET TREE

BENCHMARK:
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No.	DATE	DRAWING ISSUE DESCRIPTION
3	2022 04 04	THIRD SUBMISSION
4	2022 06 29	REV. PER REGION COMMENTS
5	2022 07 19	REV. PER REGION COMMENTS
6	2022 08 04	REV. PER ECA COMMENTS
7	2022 08 24	REV. WATERMAIN
8	2022 08 31	ISSUED TO CLIENT
9	2022 09 07	ISSUED FOR REVIEW
10	2022 09 20	THIRD SUBMISSION (RE-ISSUE)
11	2022 09 22	ISSUED FOR CH PERMIT
12	2022 10 06	REV. PER REGION COMMENTS
13	2022 10 07	FOURTH SUBMISSION
14	2022 10 13	REV. ISSUED FOR CH PERMIT
15	2022 12 01	REV. PER REGION COMMENTS
16	2022 12 05	FIFTH SUBMISSION

TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

FINAL ACCEPTANCE

Accepted by: Anita Sparre C.E.T. on 2025 / Jan / 30
via Signed Letter. *Director, Dev. Eng.* *Date*

REGIONAL APPROVAL

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REGIONAL DEVELOPMENT FILE: DM–1070
24T–20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:
REGISTERED PROFESSIONAL ENGINEER M. L. STAIRS DEC. 5, 2022 PROVINCE OF ONTARIO

MGM CONSULTING INC
Consulting Engineering & Project Management
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Suite 201 Fax: (905)875-1339
Milton, Ontario Email: mgm@mgm.on.ca
L9T 5E1 www.mgm.on.ca

CLIENT: BROCCOLINI

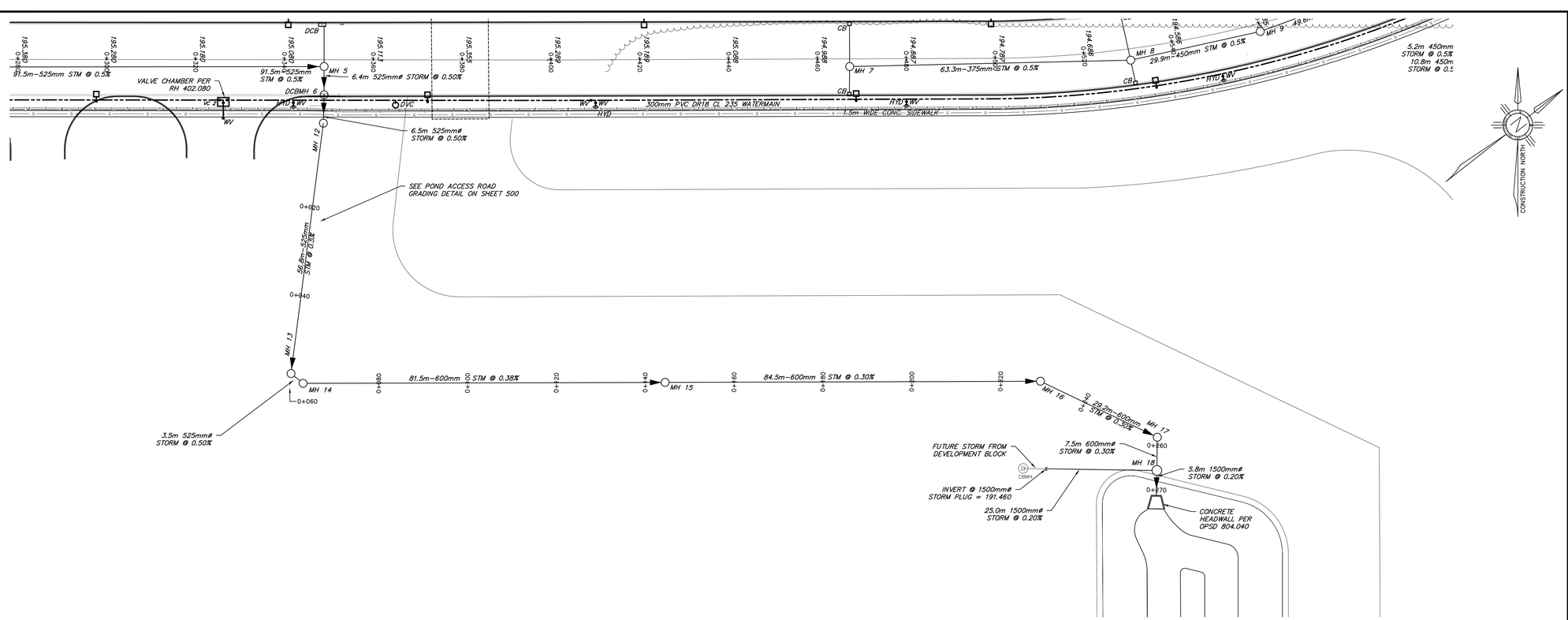
PROJECT: BDC Lowes (Sereda, Carvalho)
DM- 1070 & 24T-20006/M

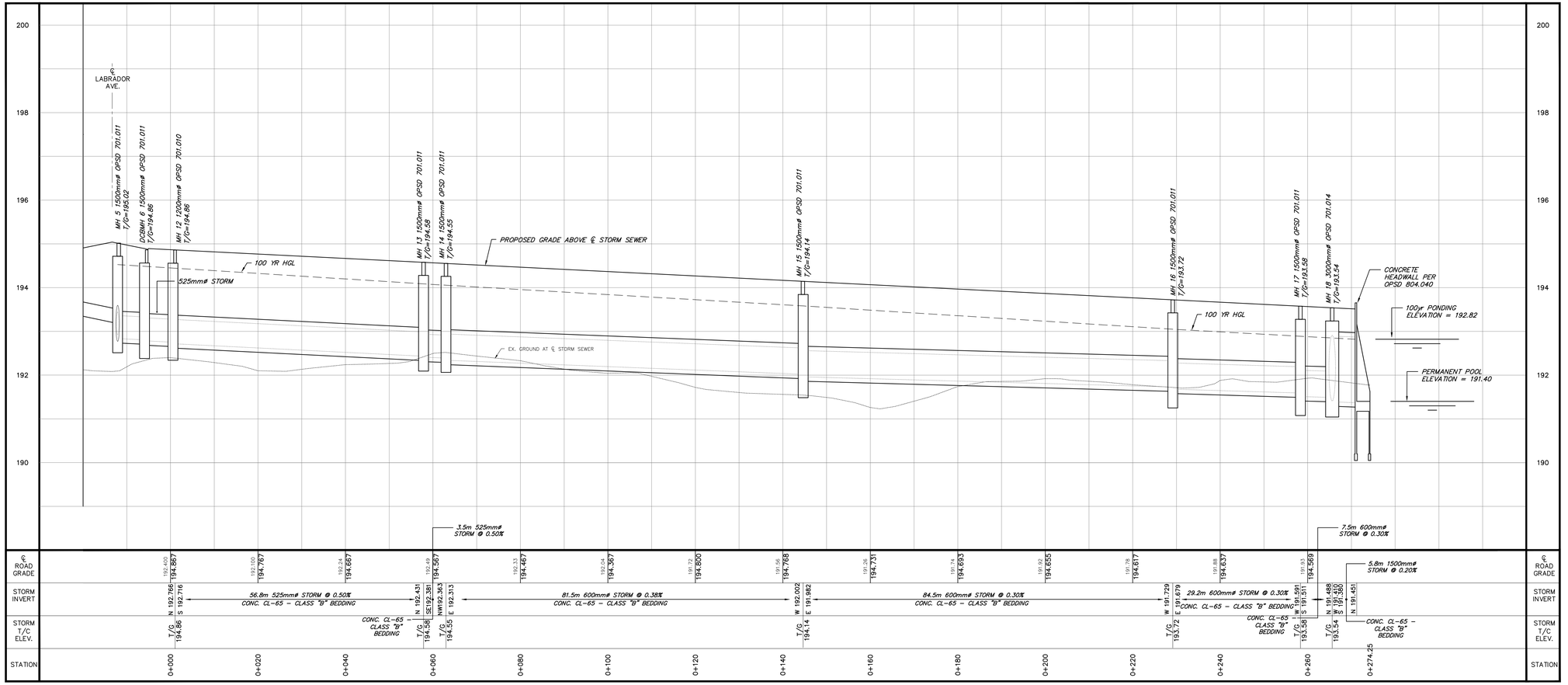
DRAWING: WATERMAIN & SANITARY SEWER CONSTRUCTION LABRADOR AVENUE FROM 300m EAST OF FIFTH LINE TO 660m EAST OF FIFTH LINE STA 0+330 TO STA 0+658.67

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: H 1:500 V 1:50	PROJECT NO.: 2020-037	SHEET NO.: 601
CURRENT ISSUE: 16	CURRENT REV: 15	

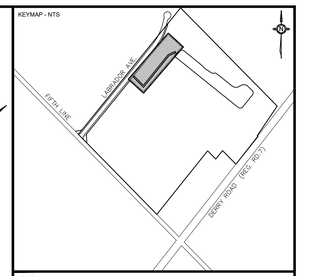
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KEYMAP - NTS



LEGEND

- CB - PROPOSED CATCH BASIN
- CBMH - PROPOSED CB MANHOLE
- DCBMH - PROPOSED DCB MANHOLE
- MH - PROPOSED STORM MANHOLE
- HYD - PROPOSED FIRE HYDRANT
- WV - PROPOSED WATER VALVE
- DI - PROPOSED DITCH INLET
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- PROPOSED STREET TREE

BENCHMARK:
ELEVATIONS ARE GEODETIC, DERIVED BY DIFFERENTIAL GPS OBSERVATIONS, AND ARE REFERRED TO THE CAN–NET REFERENCE STATION, HAVING AN ELEVATION OF 124.16M. UTM–17 NORTH CANADA NAD 83 CSRS

No.	DATE	DRAWING ISSUE DESCRIPTION
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2	2021 10 29	SECOND SUBMISSION
3	2022 01 21	ISSUED FOR TENDER
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TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

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REGIONAL DEVELOPMENT FILE: DM–1070
24T–20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER M. L. STAIRS DEC 5, 2022 PROVINCE OF ONTARIO

MGM CONSULTING INC
Consulting Engineering & Project Management
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CLIENT:
BROCCOLINI

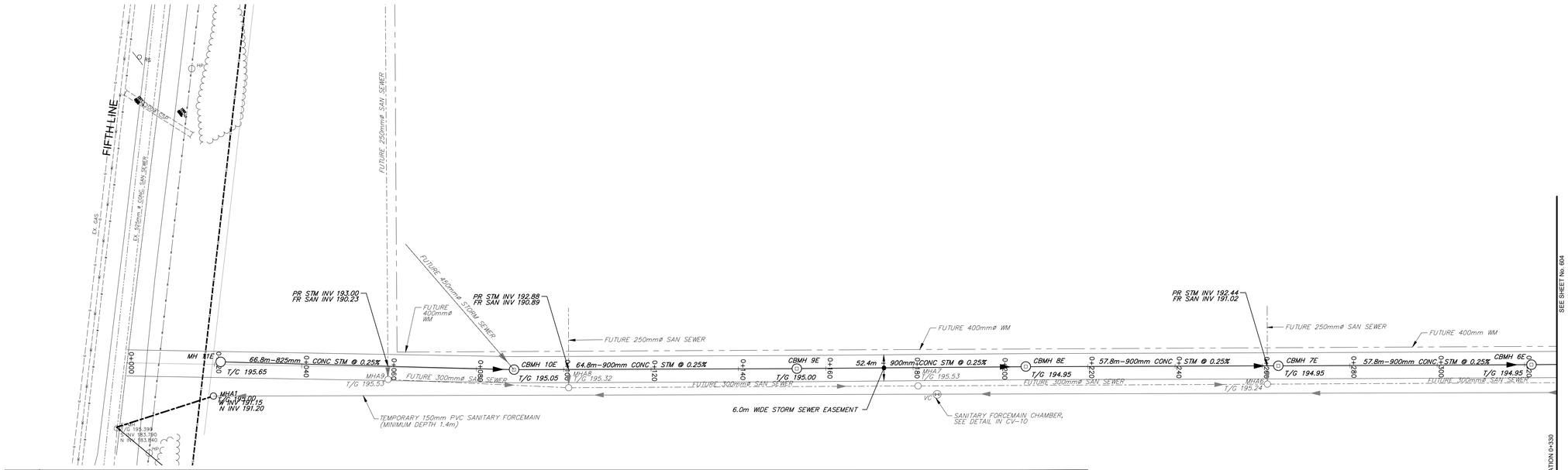
PROJECT:
BDC Lowes (Sereda, Carvalho)
DM- 1070 & 24T-20006/M

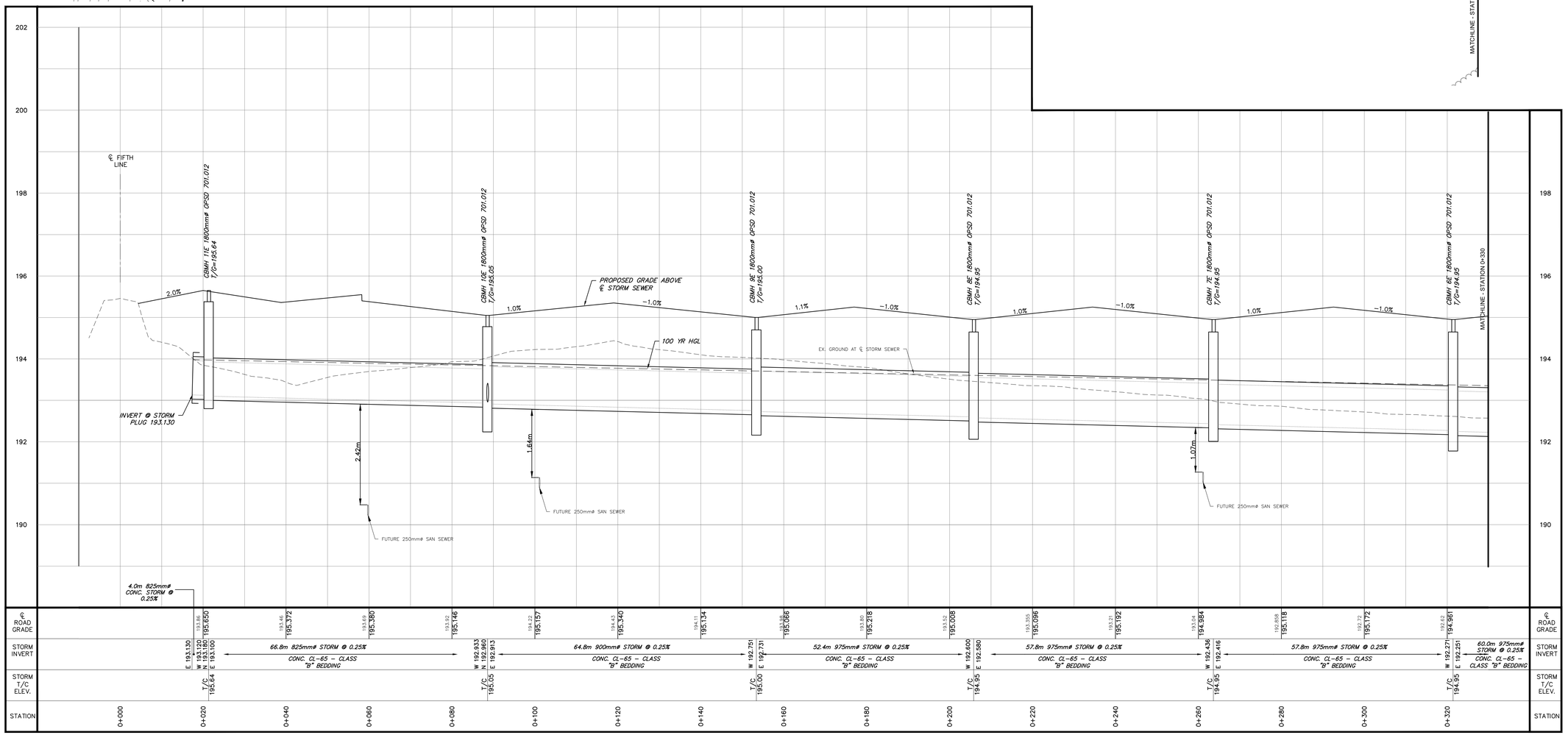
DRAWING:
STORM BLOCK PLAN / PROFILE
STA. 0+000 TO 0+274.25

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: H 1:500 V 1:50	PROJECT NO.: 2020-037	SHEET NO.: 602
CURRENT ISSUE: 9	CURRENT REV: 8	

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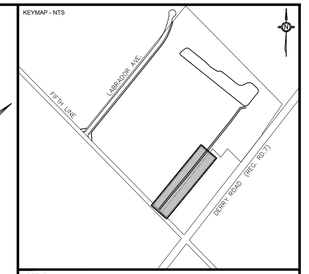
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10 5 0 10

KEYMAP - NTS



LEGEND

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1	2021 06 07	FIRST SUBMISSION
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9	2022 12 05	FIFTH SUBMISSION

TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

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REGIONAL DEVELOPMENT FILE: DM–1070
24T–20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER
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DEC. 5, 2022
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CLIENT:

BROCCOLINI

PROJECT:

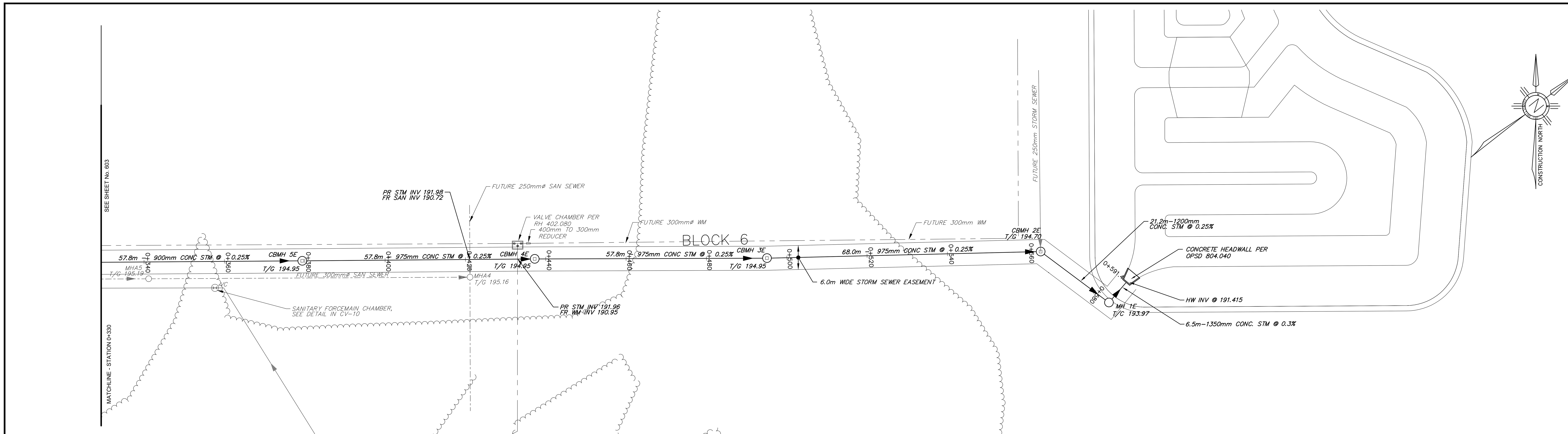
BDC Lowes (Sereda, Carvalho)
DM- 1070 & 24T-20006/M

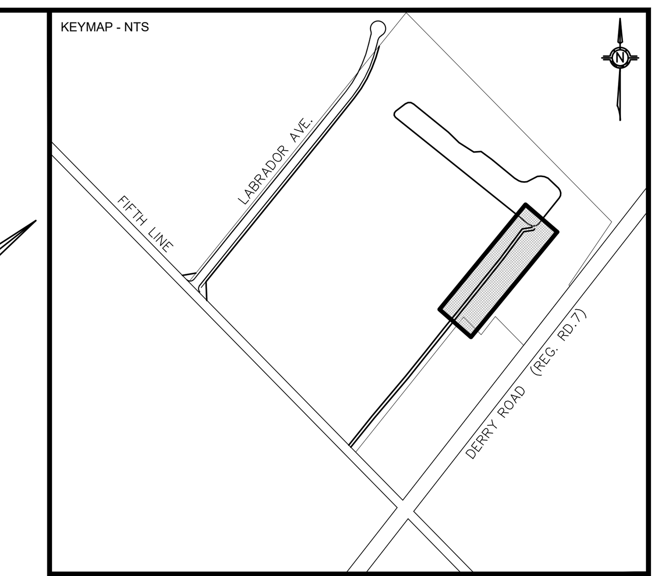
DRAWING:

STORM EASEMENT
PLAN / PROFILE
STA. 0+000 TO 0+330.00

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: H 1:500 V 1:50	PROJECT NO.: 2020-037	SHEET NO.: 603
CURRENT ISSUE: 9	CURRENT REV: 8	

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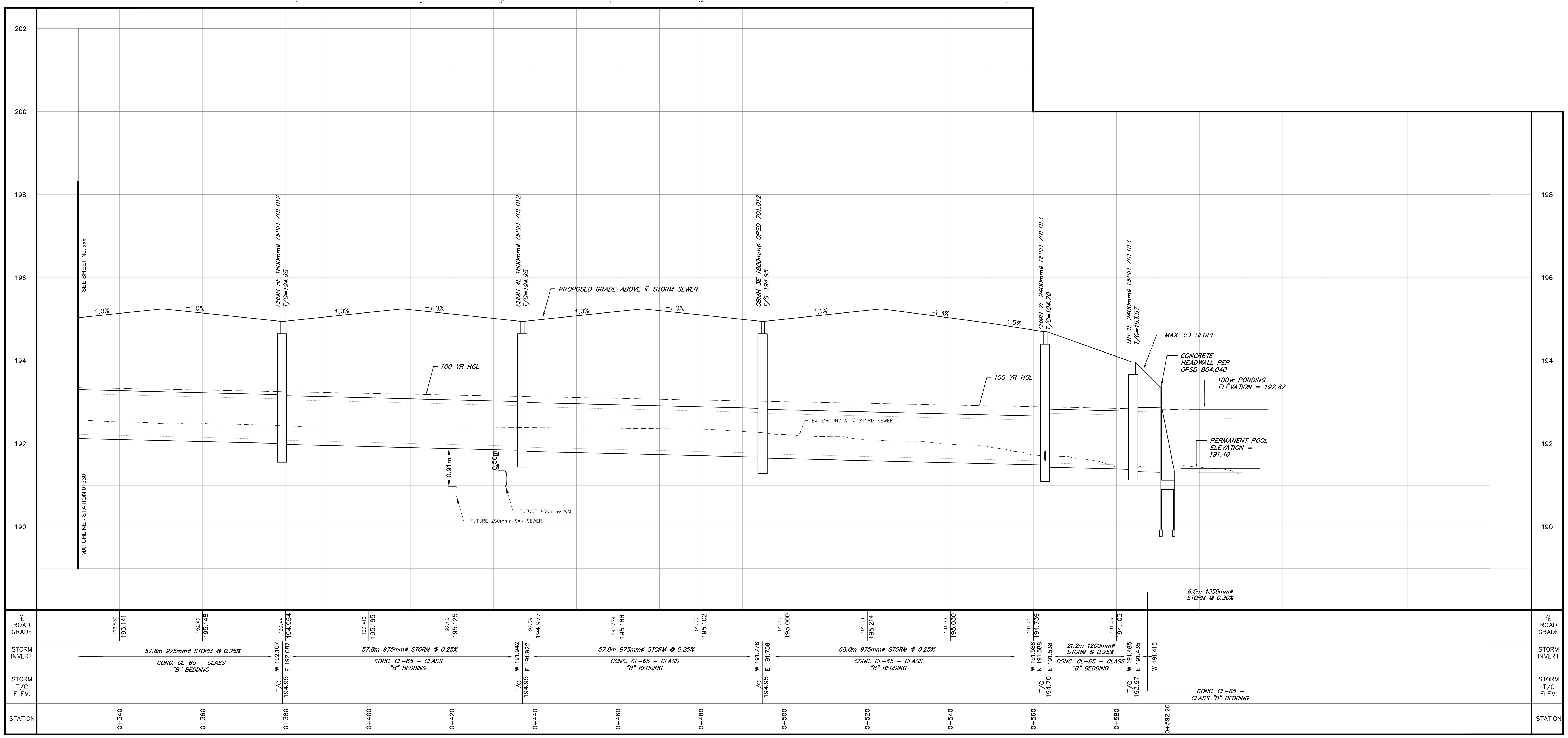




LEGEND

CB	- PROPOSED CATCH BASIN
CBMH	- PROPOSED CB MANHOLE
DCBMH	- PROPOSED DCB MANHOLE
MH	- PROPOSED STORM MANHOLE
HYD	- PROPOSED FIRE HYDRANT
WV	- PROPOSED WATER VALVE
DI	- PROPOSED DITCH INLET
	- PROPOSED LIGHT STANDARD
	- PROPOSED STREET TREE

BENCHMARK:
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1	2021 06 07	FIRST SUBMISSION
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3	2022 01 14	ISSUED FOR TENDER
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TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

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REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: ____________ DATED: ____________

Halton REGION

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DEC. 5, 2022
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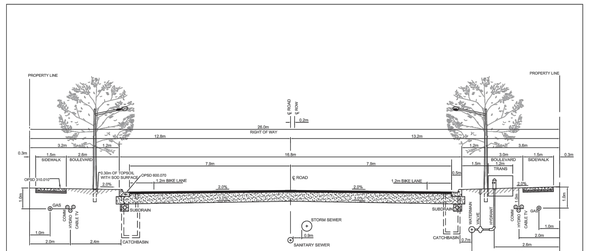
CLIENT:
BROCCOLINI

PROJECT:
BDC Lowes (Sereda, Carvalho)
DM- 1070 & 24T-20006/M

DRAWING:
STORM EASEMENT
PLAN / PROFILE
STA. 0+330 TO 0+592.20

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: H 1:500 V 1:50	PROJECT NO.: 2020-037	SHEET NO.: 604
CURRENT ISSUE: 9	CURRENT REV: 8	

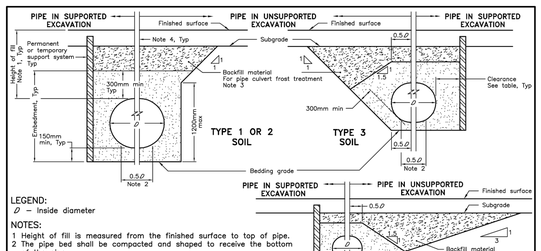
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NOTE:
1. CABLE AND BELL PEDESTALS TO BE ALIGNED WITH LIGHT STANDARDS
2. SIDEWALKS ARE TO BE PLACED ON BOTH SIDES OF THE R.O.W., UNLESS JUSTIFIED BY THE PEDESTRIAN ROUTING PLAN
3. CURB AND GUTTER PER OPSD 600.070
4. SINGLE AND DOUBLE LOADED REFERS TO BUILDINGS FRONTING THE R.O.W ON ONE OR BOTH SIDES, NOT TO SIDEWALK LOCATIONS.

MINIMUM ROAD STRUCTURE	
SURFACE COARSE	40mm HL3 HGH ST.STABILITY
BINDER COARSE	100mm HL8
BASE	150mm 19mm LIMESTONE
SUB BASE	375mm GRANULAR 'B', TYPE II

TOWN OF MILTON	SCALE: N.T.S.	MILTON
26m ROAD ALLOWANCE - MAJOR COLLECTOR - SINGLE OR DOUBLE LOADED	DATE: MARCH 2017	
	STD. NO. E-1-5	

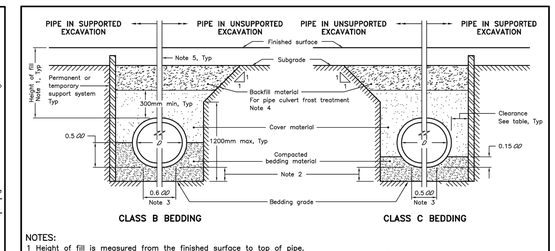


LEGEND:
Ø – Inside diameter

NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Condition of excavation is symmetrical about centreline of pipe.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C All dimensions are in metres unless otherwise shown.

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION		
	OPSD 802.010	



CLASS B BEDDING

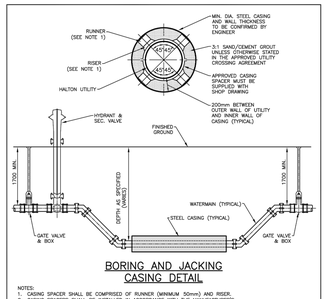
CLASS C BEDDING

NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The minimum bedding depth below the pipe shall be 0.15Ø in no case shall this dimension be less than 150mm or greater than 300mm.
3 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
4 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
5 Condition of excavation is symmetrical about centreline of pipe.
A Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
B All dimensions are in metres unless otherwise shown.

LEGEND:
Ø – Inside diameter
ØØ – Outside diameter

CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

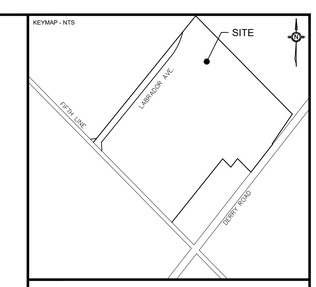
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 3
RIGID PIPE BEDDING, COVER, AND BACKFILL TYPE 1 OR 2 SOIL – EARTH EXCAVATION		
	OPSD 802.030	



BORING AND JACKING CASING DETAIL

NOTES:
1. CASING SPACER SHALL BE COMPRISED OF RUNNER (MINIMUM 50mm) AND RISER.
2. CASING SPACERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS (WOOD BLOCKING IS NOT AN APPROVED OR EQUIVALENT PRODUCT).
3. SPECIAL CARE MUST BE TAKEN TO ENSURE THAT ALL COMPONENT PARTS ARE INSTALLED IN A MANNER THAT ENSURES THAT NO DAMAGE OCCURS DURING CONTROL OF THE SPACERS OR THE PIPE INSERTION.
4. THE LINER CASING AND PIPE SHALL BE SEALED WRAPPED WITH HIGH QUALITY RUBBER END SEALS. THEY MUST BE SECURED WITH TYPE 316 STAINLESS STEEL BANDS TO PREVENT ENTRY OF WATER OR EXCESS MOISTURE. THE PIPE SHALL BE CENTERED AND RESTRAINED.
5. CORROSION PROTECTION IS REQUIRED. CATHODIC PROTECTION USING APPROPRIATELY SIZED AND NUMBER OF ANODES (MINIMUM 14.5kg, MAGNESIUM) MUST BE INSTALLED FOR ALL STEEL CASINGS.

THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: December 2018	Rev. 0	NTS
BORING AND JACKING DETAIL FOR STEEL CASING ONLY	REGION STANDARD	RH 412.010	



BENCHMARK:
ELEVATIONS ARE GEODETIC, DERIVED BY DIFFERENTIAL GPS OBSERVATIONS, AND ARE REFERRED TO THE CAN-NET REFERENCE STATION, HAVING AN ELEVATION OF 124.16M. UTM-17 NORTH CANADA NAD 83 CSRS

No.	DATE	DRAWING ISSUE DESCRIPTION
1	2021 06 07	FIRST SUBMISSION
2	2022 01 14	SECOND SUBMISSION
3	2022 04 04	THIRD SUBMISSION
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6	2022 09 20	THIRD SUBMISSION (RE-ISSUE)
7	2022 10 06	REV. PER REGION COMMENTS
8	2022 10 07	FOURTH SUBMISSION
9	2022 12 05	FIFTH SUBMISSION

TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

FINAL ACCEPTANCE

Accepted by: Anita Sparre C.E.T. on 2025 / Jan / 30
via Signed Letter. *Director, Dev. Eng.* *Date*

REGIONAL APPROVAL

REGION DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER M. L. STAIRS DEC. 5, 2022 PROVINCE OF ONTARIO

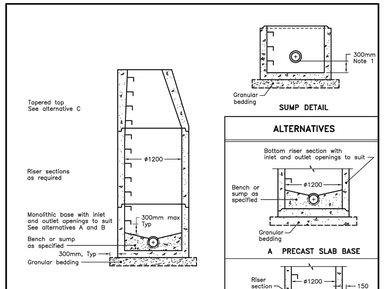
MGM CONSULTING INC
Consulting Engineering & Project Management
555 Industrial Drive Tel: (905)567-8678
Suite 201 Fax: (905)875-1339
Milton, Ontario Email: mgm@mgm.on.ca
L9T 5E1 www.mgm.on.ca

CLIENT:
BROCCOLINI

PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

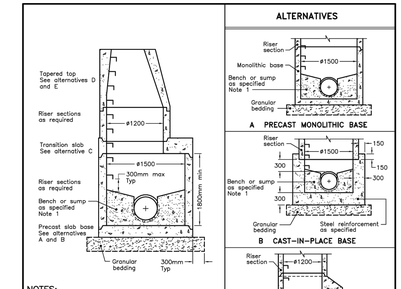
DRAWING:
CONSTRUCTION DETAILS SHEET 1

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: ----	PROJECT NO.: 2020-037	SHEET NO.: 700
CURRENT ISSUE: 9	CURRENT REV: 8	



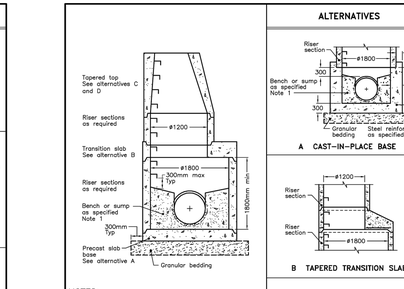
NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE CATCH BASIN 600x600mm		
	OPSD 705.010	



NOTES:
1 Flexible and composite pavement shall be placed 5mm above the adjacent edge of gutter.
2 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
3 For slipforming procedure a 5% batter is acceptable.
A Stage I surface shall be cleaned of foreign material prior to placement of Stage II material.
B Treatment at entrances shall be according to OPSD 351.010.
C Outlet treatment shall be according to the OPSD 610 Series.
D The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail, when it shall be according to the OPSD 900 Series.
E All dimensions are in millimetres unless otherwise shown.

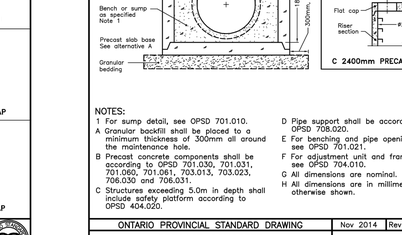
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
CONCRETE BARRIER CURB WITH STANDARD GUTTER TWO STAGE CONSTRUCTION		
	OPSD – 600.070	



NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
3 Minimum clearance between beam recess and hole for pipe shall be 300mm or minimum clearance can be 150mm with addition of two 15M size rebar on 45 degree diagonal.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1680

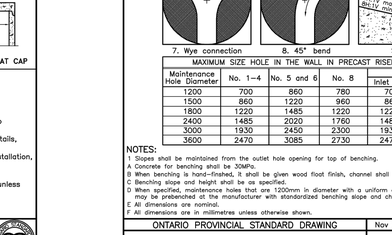
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE TWIN INLET CATCH BASIN 600 x 1450mm		
	OPSD 705.020	



NOTES:
1. STOP SIGNS AND ALL OTHER REGULATORY AND WARNING SIGNS TO BE PLACED AS PER THE ONTARIO TRAFFIC MANUAL.
2. STREET NAME SIGNS SHALL NOT BE INSTALLED ON THE SAME POLE AS THE STOP SIGN. THE ONLY EXCEPTION IS AT A FOUR-WAY INTERSECTION WITH ALL DIRECTIONS CONTROLLED BY STOP SIGNS.
3. STREET NAME SIGNS TO BE PLACED 1.0 - 1.5m FROM BACK OF CURB IN URBAN LOCATIONS, AND BACK EDGE OF SHOULDER IN RURAL LOCATIONS.
4. ALL DIMENSIONS IN METRES UNLESS OTHERWISE NOTED.

LEGEND
Ra-1 : STOP SIGN (60m x 60mm)
Ra-101 : STOP SIGN (75mm x 75mm)
: STREET NAME SIGNS
Rb-51 : NO PARKING SIGN
: FIRE HYDRANT

TOWN OF MILTON	Scale: N.T.S.	MILTON
TRAFFIC CONTROL AND PAVEMENT MARKINGS	Date: JULY 2017	
	Std. No. T - 12	



TOWN OF MILTON	Scale: N.T.S.	MILTON
SUBDRAINS FOR CURBS/ROADS	Date: MARCH 2017	
	Std. No. E - 24	

NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER		
	OPSD 701.010	

NOTES:
1 For sump detail, see OPSD 701.010.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.040, 701.041, 703.011, 703.021, and 706.010.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.021.
D Pipe support shall be according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1500mm DIAMETER		
	OPSD 701.011	

NOTES:
1 For sump detail, see OPSD 701.010.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.050, 701.051, 703.012, 703.022, and 706.020.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.022.
D Pipe support shall be according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1800mm DIAMETER		
	OPSD 701.012	

NOTES:
1 For sump detail, see OPSD 701.010.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.060, 701.061, 703.013, 703.023, 706.030 and 706.031.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support shall be according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 2400mm DIAMETER		
	OPSD 701.013	

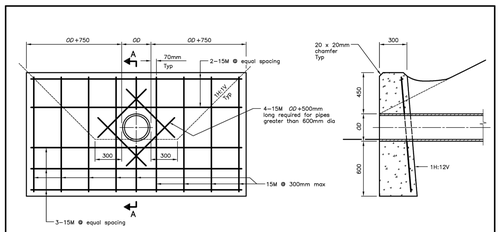
MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS

Maintenance Hole Diameter	No. 1–4	No. 5 and 6	No. 8	No. 7	
				Inlet Hole	Outlet Hole
1200	700	860	780	700	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

NOTES:
1 Slopes shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand–finished, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be prebenched at the manufacturer with standardized benching slope and channel orientation.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES		
	OPSD 701.021	

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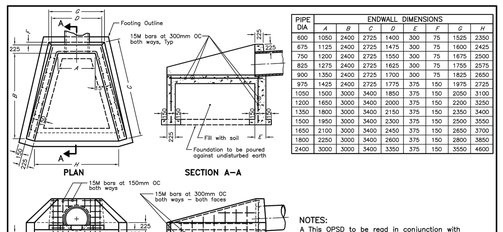
FRONT ELEVATION

SECTION A–A

LEGEND:
OD – Outside diameter of pipe

NOTES:
A This OPSD to be read in conjunction with OPSD 3940.150.
B If a steel grate is required, refer to OPSD 804.05.
C Class of concrete: 30MPa.
D Cover to reinforcing bars 70mm ± 20mm.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 2
CONCRETE HEADWALL FOR PIPE LESS THAN 900mm DIAMETER		
OPSD 804.030		



PLAN

SECTION A–A

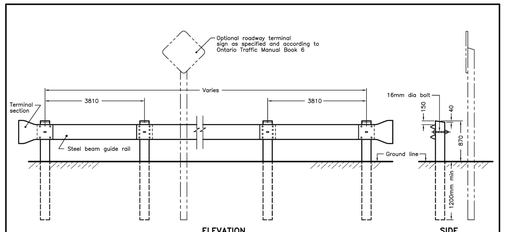
FRONT VIEW

SIDE VIEW

PIPE DIA	ENDWALL DIMENSIONS A	B	C	D	E	F	G	H
600	1050	2400	2725	1400	300	75	1525	2350
675	1125	2400	2725	1475	300	75	1600	2425
750	1200	2400	2725	1550	300	75	1675	2500
825	1275	2400	2725	1625	300	75	1755	2575
900	1350	2400	2725	1700	300	75	1825	2650
975	1425	2400	2725	1775	375	150	1975	2725
1050	1500	3000	3400	1850	375	150	2050	3100
1200	1650	3000	3400	2000	375	150	2200	3250
1350	1800	3000	3400	2150	375	150	2350	3400
1500	1950	3000	3400	2300	375	150	2500	3550
1650	2100	3000	3400	2450	375	150	2650	3700
1800	2250	3000	3400	2600	375	150	2800	3850
2400	3000	3000	3400	3350	375	150	3550	4600

NOTES:
A This OPSD to be read in conjunction with OPSD 3940.150.
B Class of concrete: 30MPa.
C Cover to reinforcing bars: 75mm ±20mm.
D Granular backfill to be placed to 300mm min thickness on all sides.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 1
CONCRETE HEADWALL FOR SEWER OR CULVERT PIPE OUTLET		
OPSD 804.040		

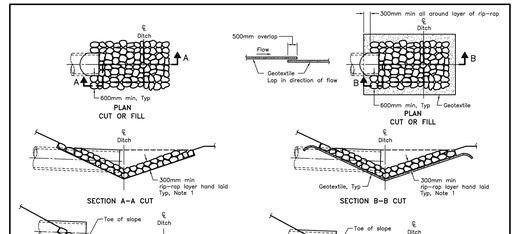


ELEVATION

SIDE

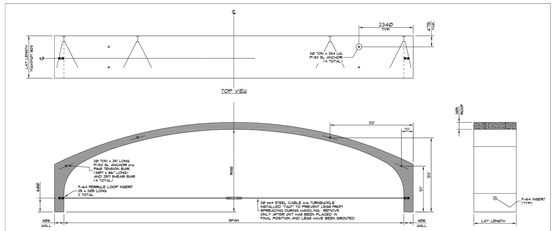
NOTES:
A Steel beam guide rail mounting heights shall be as specified.
B This OPSD to be read in conjunction with OPSD 912.101.
C Posts: Size 200x200mm nominal, 190x190mm ±1.5mm dressed, tops to have 25mm chamfer.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2008	Rev 1
GUIDE RAIL SYSTEM, STEEL BEAM BARRICADE INSTALLATION		
OPSD 912.532		



NOTES:
1 The thickness of the rip-rap layer shall be at least 1.5 times the rip-rap mean diameter.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
GENERAL RIP–RAP LAYOUT FOR SEWER AND CULVERT OUTLETS		
OPSD 810.010		



SUPER SPAN SERIES 305mm THICK SPAN	RISE	MASS (kg)	'G'	'H'	'I'	'J'
2,438 (8')	2,440 (8')	28,380	808	2,948	1,441	2,853
2,743 (9')	2,740 (9')	29,370	595	2,561	1,603	2,661
	3,048 (10')	27,360	318	2,258	1,761	2,772
	3,350 (11')	28,350	261	2,338	1,846	2,781
	3,660 (12')	29,350	218	2,213	2,324	3,384
3,048 (10')	3,050 (10')	29,760	783	3,340	1,610	2,846
3,353 (11')	3,350 (11')	30,760	512	3,160	1,769	2,955
	3,660 (12')	31,760	322	2,978	1,962	3,248
	3,960 (13')	33,760	322	2,748	2,248	3,868

NOTES
1. UNITS TO BE DESIGNED TO SUIT SITE CONDITIONS AND TO CONFORM TO APPLICABLE CODES.
2. CLASS OF CONCRETE: 'HYL' 40 MPa.
3. LIFT HARDWARE TOLERANCE ±25 mm IN EACH DIRECTION.
4. ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE.
5. ALL PERIMETER EDGES TO BE CHAMFERED 20 mm.
6. PLATE SHOWN IN TABLE IS FOR LIFT LENGTH OF 1,875 mm.
7. ALL LIFTING HARDWARE IS DUTON SUPERIOR OR APPROVED EQUAL.

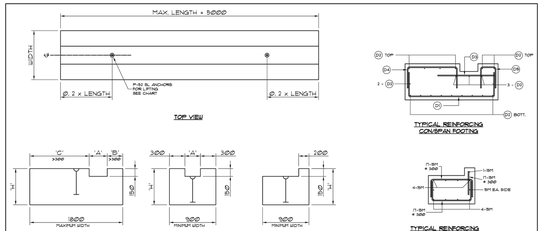
SHIPPING
1. ALL UNITS ARE SHIPPED FLUMEPOP ORIENTATION.
2. ALL UNITS ARE SHIPPED ON A FLATBED TRAILER, ONE UNIT PER TRUCK.
3. UNITS WITH A RISE OF 3658 mm AND GREATER REQUIRE A SPECIAL SIDE LOAD TRAILER.

CONSPAN CANADA

SUPER SPAN SERIES 305mm THICK
TYPICAL DETAILS FOR HANDLING, LOADING AND SHIPPING

FIGURE 4-9

F-04-3RDDUG REV 01 DECEMBER 2019



CON/SPAN FOOTINGS (*MASS DETERMINED FOR LENGTH = 5000 mm AND H = 1,500 mm) WIDTH (mm)	MASS (kg)	(G)	(H)	(J)	NUMBER & SIZE OF LIFT ANCHORS
500	1,240	11 - 15M @ 300	8M	4 BOTT. + 4 TOP	2 x 8 TON x 245 mm LONG
1200	9,851	11 - 15M @ 300	8M	5 BOTT. + 4 TOP	2 x 8 TON x 245 mm LONG
1500	12,383	11 - 15M @ 300	8M	7 BOTT. + 5 TOP	2 x 12 TON x 340 mm LONG
1800	14,945	11 - 15M @ 300	8M	5 BOTT. + 6 TOP	2 x 12 TON x 340 mm LONG

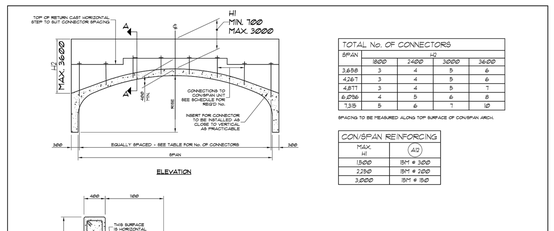
NOTES
1. FOOTINGS TO BE DESIGNED (BY OTHERS) TO SUIT JOB SITE CONDITIONS AND TO CONFORM TO APPLICABLE CODES.
2. CLASS OF CONCRETE: 30 MPa.
3. LIFT HARDWARE LOCATION TOLERANCE ±25 mm IN EACH DIRECTION.
4. ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE.
5. 'A' = 300 FOR SHORT SPAN UNITS
'A' = 600 FOR MEDIUM SPAN UNITS AND FOR LONG SPAN SERIES
6. REINFORCEMENT SHOWN IS MINIMUM REQUIRED FOR HANDLING PURPOSES. ADDITIONAL REINFORCING MAY BE REQUIRED TO SATISFY ALL LOADING CONDITIONS.
7. FOOTING POPOUGING CAN ACCOMODATE MAXIMUM H = 1500 mm.

CONSPAN CANADA

PRECAST FOOTINGS
TYPICAL DETAILS

FIGURE 3-3

F-03-3RDDUG REV 04 JUNE 2009



TOTAL No. OF CONNECTORS SPAN	1200	2400	3000	3600
3,658	3	4	5	6
4,267	3	4	5	6
4,877	3	4	5	7
5,096	4	5	6	8
7,315	5	6	7	10

SPACING TO BE MEASURED ALONG TOP SURFACE OF CONSPAN ARCH.

CON/SPAN REINFORCING MAX H1	AD
1,500	15M @ 300
2,250	15M @ 200
3,000	15M @ 150

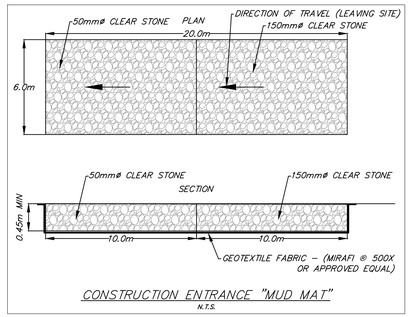
NOTES
1. UNITS TO BE DESIGNED (BY OTHERS) TO SUIT JOB SITE CONDITIONS AND TO CONFORM TO APPLICABLE CODES.
2. CLASS OF CONCRETE: 35 MPa
3. COVER TO REINFORCING STEEL: 60 ± 10
4. ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE.
5. ADJUST SPACING OF BAR 'AD' IN END CONSPAN UNIT AS NOTED IN SCHEDULE.
6. ALL EXPOSED EDGES TO BE CHAMFERED 20 mm.
7. THE REQUIRED NUMBER + SPACING OF CONNECTIONS BETWEEN UNITS TO BE DETERMINED FOR EACH PROJECT. SEE STANDARD CONNECTION DETAILS FOR HEADWALLS.

CONSPAN CANADA

SINGLE, DETACHED HEADWALL
TYPICAL DETAILS

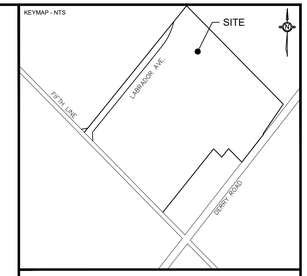
FIGURE 6-2

F-06-2RDDUG REV 00 JUNE 2009



CONSTRUCTION ENTRANCE "MUD MAT"
N.T.S.

BENCHMARK:
ELEVATIONS ARE GEODETIC, DERIVED BY DIFFERENTIAL GPS OBSERVATIONS, AND ARE REFERRED TO THE CAN–NET REFERENCE STATION, HAVING AN ELEVATION OF 124.16M. UTM–17 NORTH CANADA NAD 83 CSRS



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TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

FINAL ACCEPTANCE

Accepted by: Anita Sparre C.E.T. on 2025 / Jan / 30
via Signed Letter. *Director, Dev. Eng.* *Date*

REGIONAL APPROVAL

REGION DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM–1070
24T–20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER M. L. STAIRS DEC. 5, 2022 PROVINCE OF ONTARIO

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Consulting Engineering & Project Management
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CLIENT:

BROCCOLINI

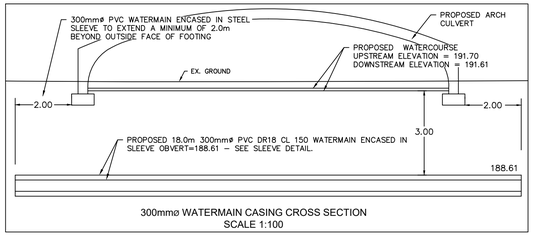
PROJECT:

BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

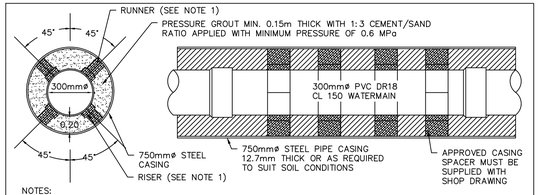
DRAWING:

CONSTRUCTION DETAILS
SHEET 2

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE:	PROJECT NO.:	SHEET NO.:
----	2020-037	701
CURRENT ISSUE:	CURRENT REV:	
8	7	

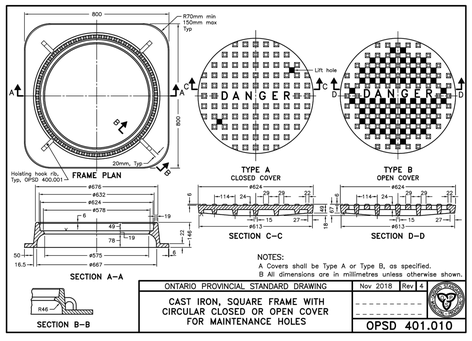


300mmø WATERMAIN CASING CROSS SECTION
SCALE 1:100



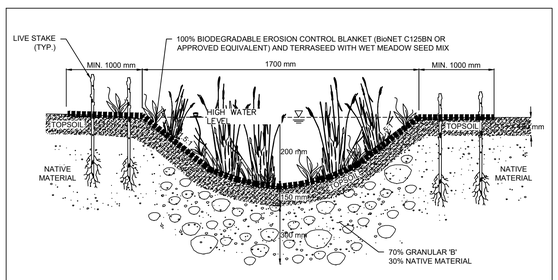
NOTES:
1. CASING SPACER SHALL BE COMPRISED OF RUNNER (MINIMUM 50mm) AND RISER.
2. CASING SPACERS SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS. (WOOD BLOCKING IS NOT AN APPROVED OR EQUIVALENT PRODUCT)
3. SPECIAL CARE MUST BE TAKEN TO ENSURE THAT ALL COMPONENT PARTS ARE CORRECTLY ASSEMBLED AND EVENLY TIGHTENED, AND THAT NO DAMAGE OCCURS DURING TIGHTENING OF THE SPACERS OR THE PIPE INSERTION.
4. THE LINER CASING AND PIPE SHALL BE WRAPPED WITH HIGH QUALITY RUBBER END SEALS. THEY MUST BE SECURED WITH TYPE 316 STAINLESS STEEL BANDS TO PREVENT ENTRY OF WATER OR EXCESS MOISTURE.
5. THE PIPE IN THE CASING IS REQUIRED TO BE CENTERED AND RESTRAINED.
6. CORROSION PROTECTION IS REQUIRED. CATHODIC PROTECTION USING APPROPRIATELY SIZED AND NUMBER OF ANODES (MIN. 14.4Kg MAGNESIUM) MUST BE INSTALLED FOR ALL STEEL CASINGS.

300mmø WATERMAIN SLEEVE DETAIL - NTS

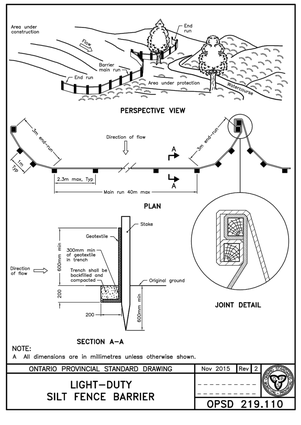


NOTES:
A Covers shall be Type A or Type B, as specified.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 4
CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES		
OPSD 401.010		

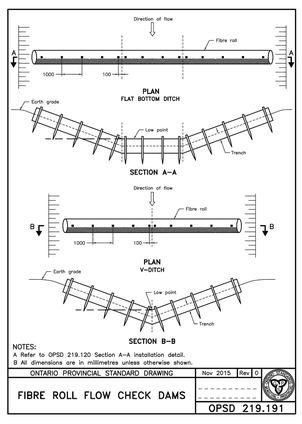


TYPICAL BIOSWALE CROSS SECTION
N.T.S.



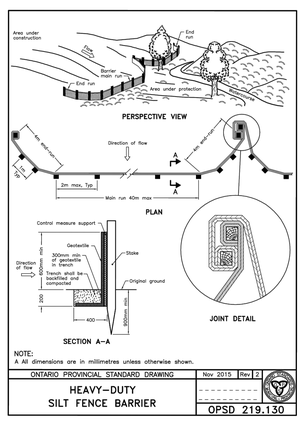
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT–DUTY SILT FENCE BARRIER		
OPSD 219.110		



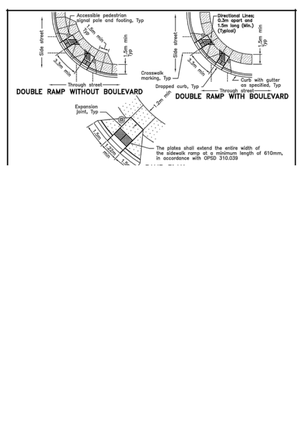
NOTES:
A Refer to OPSD 219.120 Section A–A installation detail.
B All dimensions are in millimetres unless otherwise shown.

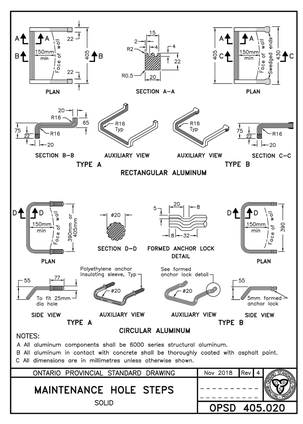
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 0
FIBRE ROLL FLOW CHECK DAMS		
OPSD 219.191		



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
HEAVY–DUTY SILT FENCE BARRIER		
OPSD 219.130		

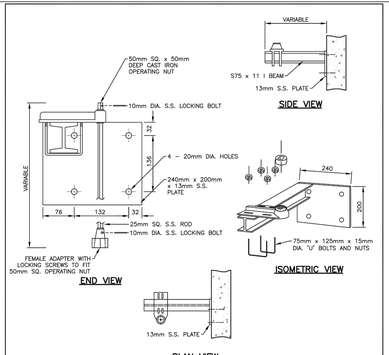




NOTES:
A All aluminum components shall be 6000 series structural aluminum.
B All aluminum in contact with concrete shall be thoroughly coated with asphalt paint.
C All dimensions are in millimetres unless otherwise shown.

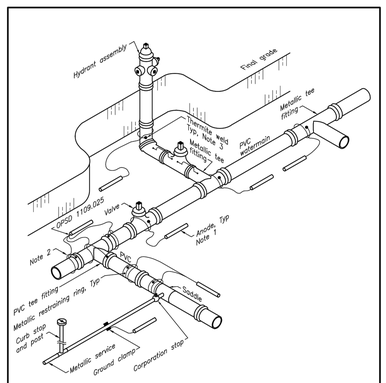
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 4
MAINTENANCE HOLE STEPS SOLID		
OPSD 405.020		

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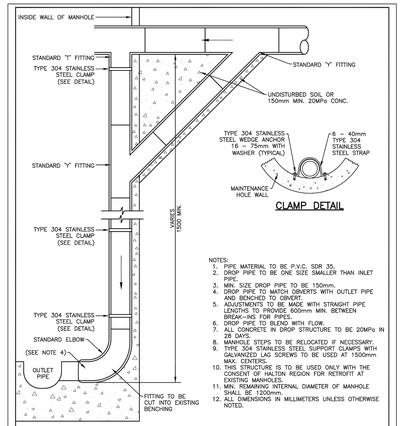
NOTES:
1. ALL STEEL (INCLUDING FASTENERS) TO BE TYPE 316 STAINLESS STEEL.
2. ON EXISTING CHAMBERS FASTEN BRACKET TO WALL USING 15mm DIA. X 75mm LONG LAG SCREWS WITH 75mm LONG EXPANSION SHIELDS.
3. ON PROPOSED CHAMBERS FASTEN BRACKET TO WALL USING 15mm DIA. X 200mm LONG BOLTS WITH WASHERS AND NUTS.
4. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.

THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: August 2018	Rev. 1	NTS
WALL BRACKET DETAIL FOR VALVE STEM EXTENSION			
	REGION STANDARD	RH	405.020



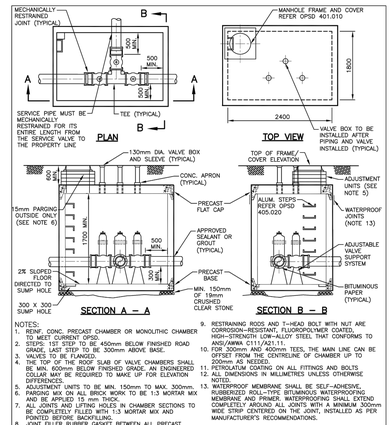
NOTES:
1 Anode shall be placed at least 1.0m away from the water system pipe and appurtenances and as deep as the bottom of the pipe and appurtenances or as specified in Contract Documents.
2 Anode connecting wire shall be loosely wrapped around pipes and fittings and knotted.
3 Protective coating shall be applied to all thermite welds.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2020	Rev 3
CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS		
	OPSD 1109.011	



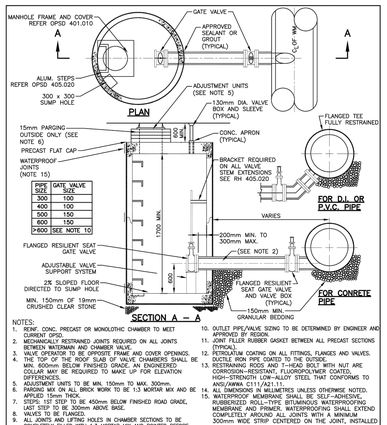
NOTES:
1. PIPE MATERIAL TO BE P.V.C. SDR 35.
2. DROP PIPE TO BE ONE SIZE SMALLER THAN INLET PIPE.
3. MIN. SIZE DROP PIPE TO BE 150mm.
4. DROP PIPE TO BE INSTALLED WITH OUTLET PIPE AND BENCHED TO OBVERT.
5. ADJUSTMENTS TO BE MADE WITH STRAIGHT PIPE LENGTHS TO PROVIDE 600mm MIN. BETWEEN ELBOWS AT TOP AND BOTTOM.
6. DROP PIPE TO BE BLIND WITH FLOW.
7. ALL CONCRETE IN DROP STRUCTURE TO BE 20MPa IN 28 DAYS.
8. MANHOLE STEPS TO BE RELOCATED IF NECESSARY.
9. TYPE 304 STAINLESS STEEL SUPPORT CLAMPS WITH GALVANIZED LAG SCREWS TO BE USED AT 1500mm MAX. CENTERS.
10. THIS STRUCTURE IS TO BE USED ONLY WITH THE CONSENT OF HALTON REGION FOR RETROFIT AT EXISTING MANHOLES.
11. ALL REMAINING INTERNAL DIAMETER OF MANHOLE SHALL BE 1200mm.
12. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED.

THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: August 2018	Rev. 3	NTS
INTERNAL DROP STRUCTURE FOR MANHOLES SPECIAL CONSIDERATION ONLY			
	REGION STANDARD	RH	303.01



NOTES:
1. REINF. CONC. PRECAST CHAMBER OR MONOLITHIC CHAMBER TO MEET CURRENT OPSD.
2. STEPS: 1ST STEP TO BE 450mm BELOW FINISHED ROAD GRADE, LAST STEP TO BE 300mm ABOVE BASE.
3. VALVES TO BE FLANGED.
4. THE TOP OF THE ROOF SLAB OF VALVE CHAMBERS SHALL BE MIN. 600mm BELOW FINISHED GRADE, AN ENGINEERED COLLAR MAY BE REQUIRED TO MAKE UP FOR ELEVATION DIFFERENCES.
5. ADJUSTMENT UNITS TO BE MIN. 150mm TO MAX. 300mm.
6. PARGING MIX ON ALL BRICK WORK TO BE 1:3 MORTAR MIX AND BE APPLIED 15 mm THICK.
7. ALL JOINTS AND LIFTING HOLES IN CHAMBER SECTIONS TO BE COMPLETELY FILLED WITH 1:3 MORTAR MIX AND POINTED BEFORE BACKFILLING.
8. JOINT FILLER RUBBER GASKET BETWEEN ALL PRECAST SECTIONS (TYPICAL).
9. RESTRAINING RODS AND 1–HEAD BOLT WITH NUT ARE CORROSION–RESISTANT, FLUOROPOLYMER COATED, HIGH–STRENGTH LOW–ALLOY STEEL THAT CONFORMS TO ANSI/AWWA C111/A21.11.
10. FOR 300mm AND 400mm TEES, THE MAIN LINE CAN BE OFFSET FROM THE CENTRELINE OF CHAMBER UP TO 200mm AS NEEDED.
11. PETROLATUM COATING ON ALL FITTINGS AND BOLTS
12. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
13. RUBBERIZED MEMBRANE SHALL BE SELF–ADHESIVE, RUBBERIZED ROLL–TYPE BITUMINOUS WATERPROOFING MEMBRANE AND PRIMER. WATERPROOFING SHALL EXTEND COMPLETELY AROUND ALL JOINTS WITH A MINIMUM 300mm WIDE STRIP CENTERED ON THE JOINT, INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.

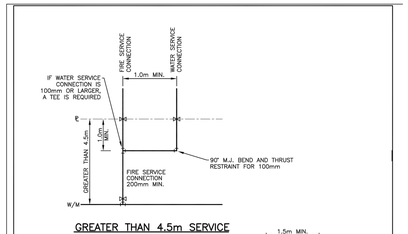
THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: July 2019	Rev. 0	NTS
PRECAST VALVE CHAMBERS FOR MAXIMUM 3 VALVES 150mm TO 300mm			
	REGION STANDARD	RH	402.080



PIPE SIZE	GATE VALVE SIZE
300	100
400	150
500	150
600	150
>600	SEE NOTE 10

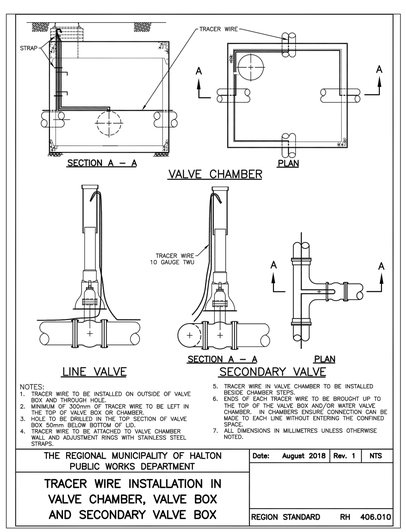
NOTES:
1. REINF. CONC. PRECAST OR MONOLITHIC CHAMBER TO MEET CURRENT OPSD.
2. MECHANICALLY RESTRAINED JOINTS REQUIRED ON ALL JOINTS BETWEEN WATERMAIN AND GATE VALVE.
3. VALVE OPERATOR TO BE OPPOSITE FRAME AND COVER OPENINGS.
4. THE TOP OF THE ROOF SLAB OF VALVE CHAMBERS SHALL BE MIN. 600mm BELOW FINISHED GRADE, AN ENGINEERED COLLAR MAY BE REQUIRED TO MAKE UP FOR ELEVATION DIFFERENCES.
5. ADJUSTMENT UNITS TO BE MIN. 150mm TO MAX. 300mm.
6. PARGING MIX ON ALL BRICK WORK TO BE 1:3 MORTAR MIX AND BE APPLIED 15mm THICK.
7. STEPS: 1ST STEP TO BE 450mm BELOW FINISHED ROAD GRADE, LAST STEP TO BE 300mm ABOVE BASE.
8. ALL VALVES TO BE FLANGED.
9. ALL JOINTS AND LIFTING HOLES IN CHAMBER SECTIONS TO BE COMPLETELY FILLED WITH 1:3 MORTAR MIX AND POINTED BEFORE BACKFILLING.
10. OUTLET PIPE/VALVE SIZING TO BE DETERMINED BY ENGINEER AND APPROVED BY REGION.
11. JOINT FILLER RUBBER GASKET BETWEEN ALL PRECAST SECTIONS (TYPICAL).
12. PETROLATUM COATING ON ALL FITTINGS, FLANGES AND VALVES, DUCTILE IRON PIPE COATED TO THE OUTSIDE.
13. RESTRAINING RODS AND 1–HEAD BOLT WITH NUT ARE CORROSION–RESISTANT, FLUOROPOLYMER COATED, HIGH–STRENGTH LOW–ALLOY STEEL THAT CONFORMS TO ANSI/AWWA C111/A21.11.
14. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
15. WATERPROOF MEMBRANE SHALL BE SELF–ADHESIVE, RUBBERIZED ROLL–TYPE BITUMINOUS WATERPROOFING MEMBRANE AND PRIMER. WATERPROOFING SHALL EXTEND COMPLETELY AROUND ALL JOINTS WITH A MINIMUM 300mm WIDE STRIP CENTERED ON THE JOINT, INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.

THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: March 2019	Rev. 2	NTS
1200mm PRECAST DRAIN CHAMBER			
	REGION STANDARD	RH	403.010



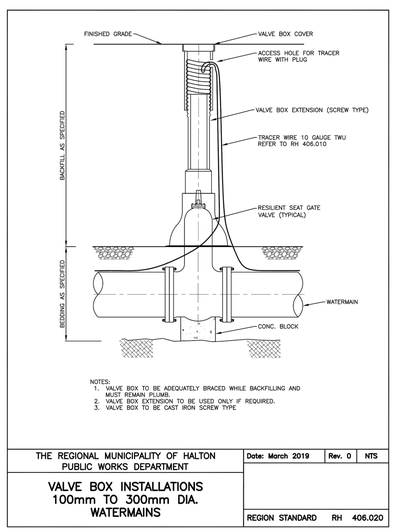
NOTES
1. COMPRESSION TYPE FITTINGS ONLY. NO SOLDERED JOINTS ARE PERMITTED BEFORE THE WATER METER.
2. WATER SERVICE CONNECTION 25, 38, 50 TO BE TYPE "K" SOFT COPPER, 100 AND LARGER TO BE PVC OR DI.
3. FIRE SERVICE CONNECTION TO BE MIN. 200mm.
4. IF THE WATERMAIN IS 4.5m OR LESS FROM THE PROPERTY LINE, THEN 2 SEPARATE CONNECTIONS ARE REQUIRED.
5. TAPPING SLEEVE TO BE PRESSURE TESTED BY CONTRACTOR BEFORE MAIN IS TAPPED.
6. ALL SERVICE CONNECTIONS FOR PVC PIPE MUST BE DIRECTLY DRILLED FOR CONNECTIONS 50mm OR LESS TO HAVE A MAIN STOP, CURB STOP AND BOX. ALL SERVICES GREATER THAN 50mm REQUIRE A TAPPING SLEEVE AND VALVE OR AN ANCHOR TEE WITH A GATE VALVE AND BOX AT THE MAIN IN ADDITION TO A PROPERTY LINE GATE VALVE AND BOX.
7. ALL GATE VALVES TO HAVE VALVE BOXES.
8. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.

THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: August 2018	Rev. 2	NTS
WATER SERVICE AND FIRE SERVICE CONNECTION INSTALLATIONS			
	REGION STANDARD	RH	409.010



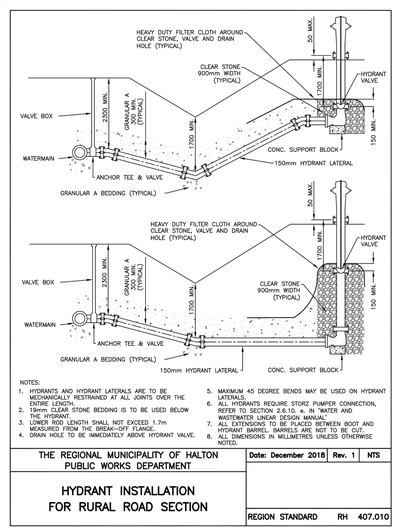
NOTES:
1. TRACER WIRE TO BE INSTALLED ON OUTSIDE OF VALVE BOX AND THROUGH HOLE.
2. MINIMUM OF 300mm OF TRACER WIRE TO BE LEFT IN THE TOP OF VALVE BOX OR CHAMBER.
3. HOLE TO BE DRILLED IN THE TOP SECTION OF VALVE BOX 50mm BELOW BOTTOM OF LID.
4. TRACER WIRE TO BE ATTACHED TO VALVE CHAMBER AND VALVE ADJUSTMENT RINGS WITH STAINLESS STEEL STRAPS.
5. TRACER WIRE IN VALVE CHAMBER TO BE INSTALLED BESIDE CHAMBER STEPS.
6. ENDS OF EACH TRACER WIRE TO BE BROUGHT UP TO THE TOP OF THE VALVE BOX AND/OR WATER VALVE CHAMBER. IN CHAMBERS ENSURE CONNECTION CAN BE MADE TO EACH LINE WITHOUT ENTERING THE CONFINED SPACE.
7. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.

THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: August 2018	Rev. 1	NTS
TRACER WIRE INSTALLATION IN VALVE CHAMBER, VALVE BOX AND SECONDARY VALVE BOX			
	REGION STANDARD	RH	406.010



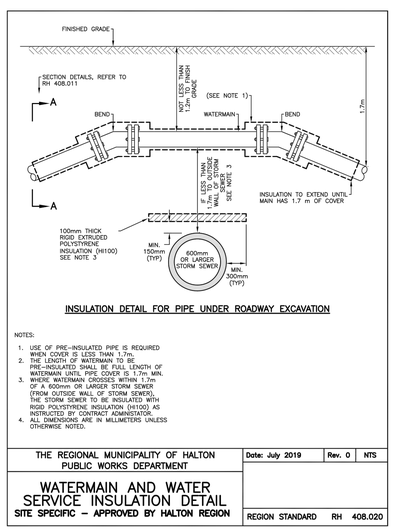
NOTES:
1. VALVE BOX TO BE ADEQUATELY BRACED WHILE BACKFILLING AND MUST REMAIN PLUMB.
2. VALVE BOX EXTENSION TO BE USED ONLY IF REQUIRED.
3. VALVE BOX TO BE CAST IRON SCREW TYPE

THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: March 2019	Rev. 0	NTS
VALVE BOX INSTALLATIONS 100mm TO 300mm DIA. WATERMAINS			
	REGION STANDARD	RH	406.020



NOTES:
1. HYDRANTS AND HYDRANT LATERALS ARE TO BE MECHANICALLY RESTRAINED AT ALL JOINTS OVER THE ENTIRE LENGTH.
2. GRANULAR A STONE BEDDING IS TO BE USED BELOW THE HYDRANT.
3. LOWER ROD LENGTH SHALL NOT EXCEED 1.7m MEASURED FROM THE BREAK–OFF FLANGE.
4. DRAIN HOLE TO BE IMMEDIATELY ABOVE HYDRANT VALVE.
5. MAXIMUM 45 DEGREE BENDS MAY BE USED ON HYDRANT LATERALS.
6. ALL HYDRANTS REQUIRE STORZ PUMPER CONNECTION, REFER TO SECTION 2.6.10. e. IN WATER AND WASTEWATER LINEAR DESIGN MANUAL.
7. PROVIDE RESTRAINT ROD BETWEEN BOOT AND HYDRANT BARREL. BARRELS ARE NOT TO BE CUT.
8. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.

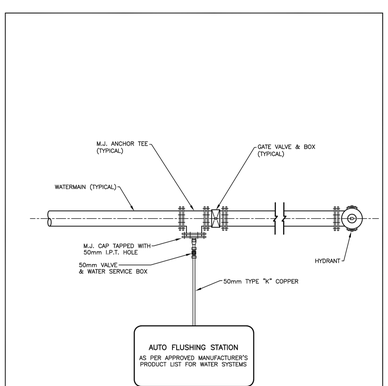
THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: December 2018	Rev. 1	NTS
HYDRANT INSTALLATION FOR RURAL ROAD SECTION			
	REGION STANDARD	RH	407.010



INSULATION DETAIL FOR PIPE UNDER ROADWAY EXCAVATION

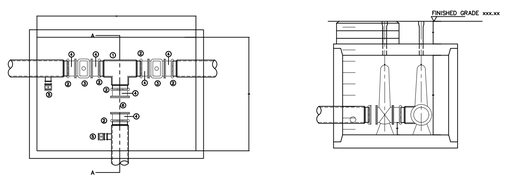
NOTES:
1. USE OF PRE–INSULATED PIPE IS REQUIRED WHEN COVER IS LESS THAN 1.7m.
2. THE LENGTH OF WATERMAIN TO BE PRE–INSULATED SHALL BE FULL LENGTH OF WATERMAIN UNTIL PIPE COVER IS 1.7m MIN.
3. WHERE WATERMAIN CROSSES WITHIN 1.7m OF A 600mm OR LARGER STORM SEWER (FROM OUTSIDE WALL OF STORM SEWER), THE STORM SEWER TO BE INSULATED WITH RIGID POLYSTYRENE INSULATION (HI100) AS INSTRUCTED BY CONTRACT ADMINISTATOR.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: July 2019	Rev. 0	NTS
WATERMAIN AND WATER SERVICE INSULATION DETAIL SITE SPECIFIC – APPROVED BY HALTON REGION			
	REGION STANDARD	RH	408.020



THE REGIONAL MUNICIPALITY OF HALTON PUBLIC WORKS DEPARTMENT	Date: December 2018	Rev. 0	NTS
AUTOMATIC FLUSHING STATION DETAIL			
	REGION STANDARD	RH	411.020

VALVE CHAMBER 3
4.2m x 3.0m PRECAST CONCRETE VALVE CHAMBER

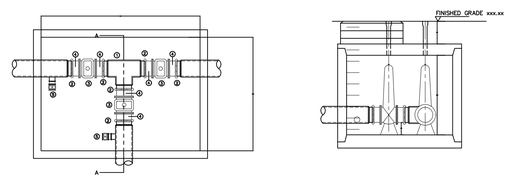


PLAN VIEW
1:50

SECTION A–A
1:50

NO.	CHAMBER MATERIAL LIST
1.	400mm CPP TEE
2.	400mm VICTAULIC COUPLING
3.	400mm FLANGED GATE VALVE C/W 50mm OPERATING NUT
4.	400mm–200mm LONG D.I. SPACER, FLANGED END TO GROOVE END
5.	150mm GATE VALVE (DRAIN)
6	BLIND FLANGE DISCONNECTION

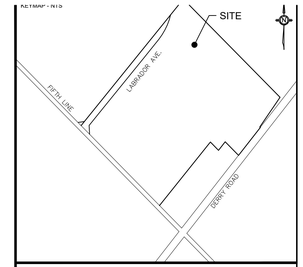
VALVE CHAMBER 4
4.2m x 3.0m PRECAST CONCRETE VALVE CHAMBER



PLAN VIEW
1:50

SECTION A–A
1:50

NO.	CHAMBER MATERIAL LIST
1.	400mm CPP TEE
2.	400mm VICTAULIC COUPLING
3.	400mm FLANGED GATE VALVE C/W 50mm OPERATING NUT
4.	400mm–200mm LONG D.I. SPACER, FLANGED END TO GROOVE END
5.	150mm GATE VALVE (DRAIN)



BENCHMARK:
ELEVATIONS ARE GEODETIC, DERIVED BY DIFFERENTIAL GPS OBSERVATIONS, AND ARE REFERRED TO THE CAN–NET REFERENCE STATION, HAVING AN ELEVATION OF 124.16M. UTM–17 NORTH CANADA NAD 83 CSRS

No.	DATE	DRAWING ISSUE DESCRIPTION
1	2021 06 07	FIRST SUBMISSION
2	2022 01 14	SECOND SUBMISSION
3	2022 04 04	THIRD SUBMISSION
4	2022 08 31	ISSUED TO CLIENT
5	2022 09 07	ISSUED FOR REVIEW
6	2022 09 20	THIRD SUBMISSION (RE-ISSUE)
7	2022 10 07	FOURTH SUBMISSION
8	2022 11 02	REV AS PER REGION COMMENTS
9	2022 12 01	REV AS PER REGION COMMENTS
10	2022 12 05	FIFTH SUBMISSION

TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

FINAL ACCEPTANCE

Accepted by: Anita Sparre C.E.T. on 2025 / Jan / 30
via Signed Letter. *Director, Dev. Eng.* *Date*

REGIONAL APPROVAL

REGION DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM–1070
24T–20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER M. L STAIRS DEC. 5, 2022 PROVINCE OF ONTARIO

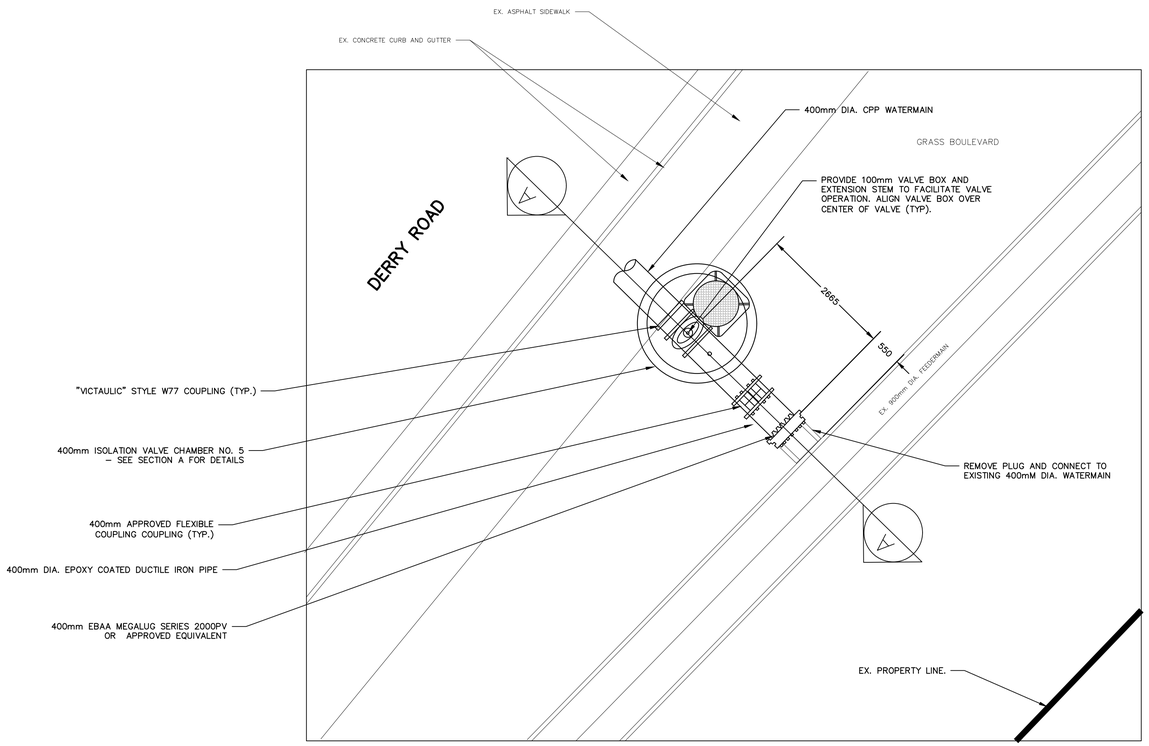
MGM CONSULTING INC
Consulting Engineering & Project Management
555 Industrial Drive
Suite 201
Milton, Ontario
L9T 5E1
Tel: (905)567-8678
Fax: (905)875-1339
Email: mgm@mgm.on.ca
www.mgm.on.ca

CLIENT:
BROCCOLINI

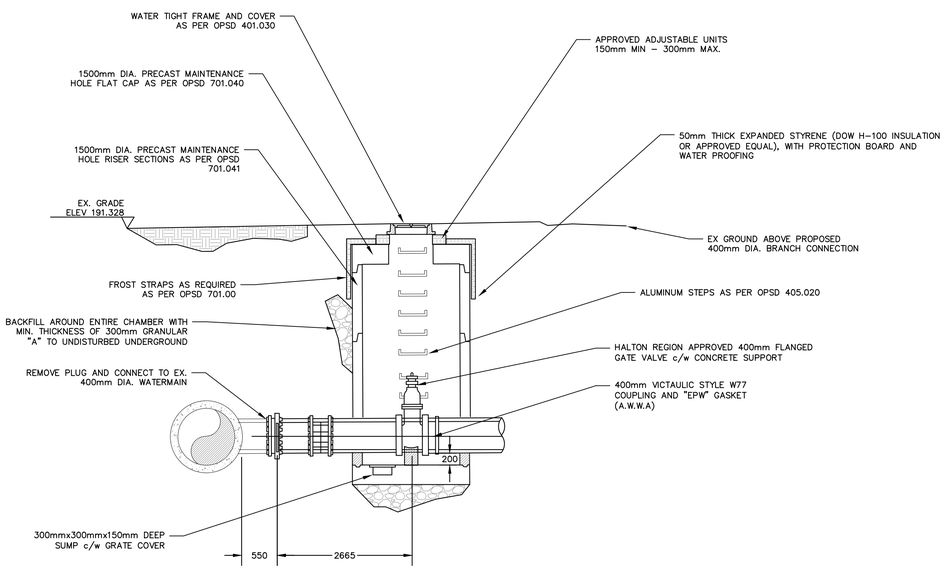
PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

DRAWING:
CONSTRUCTION DETAILS
SHEET 3

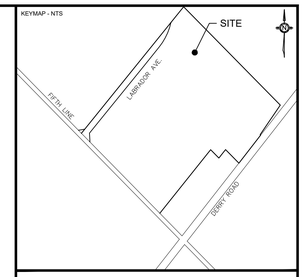
DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: ----	PROJECT NO.: 2020-037	SHEET NO.: 702
CURRENT ISSUE: 10	CURRENT REV: 9	



VALVE CHAMBER No. 5 CONNECTION (PLAN)
SCALE 1:50



SECTION A
SCALE 1:50



BENCHMARK:
ELEVATIONS ARE GEODETIC, DERIVED BY DIFFERENTIAL GPS OBSERVATIONS, AND ARE REFERRED TO THE CAN-NET REFERENCE STATION, HAVING AN ELEVATION OF 124.16M. UTM-17 NORTH CANADA NAD 83 CSRS

No.	DATE	DRAWING ISSUE DESCRIPTION
1	2022 11 02	REV AS PER REGION COMMENTS
2	2022 12 05	FIFTH SUBMISSION

TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

FINAL ACCEPTANCE

Accepted by: Anita Sparre C.E.T. on 2025 / Jan / 30
via Signed Letter. *Director, Dev. Eng.* *Date*

REGIONAL APPROVAL

REGION DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER
M. L. STAIRS
DEC. 5, 2022
PROVINCE OF ONTARIO

MGM CONSULTING INC
Consulting Engineering & Project Management
555 Industrial Drive
Suite 201
Milton, Ontario
L9T 5E1
Tel: (905)567-8678
Fax: (905)875-1339
Email: mgm@mgm.on.ca
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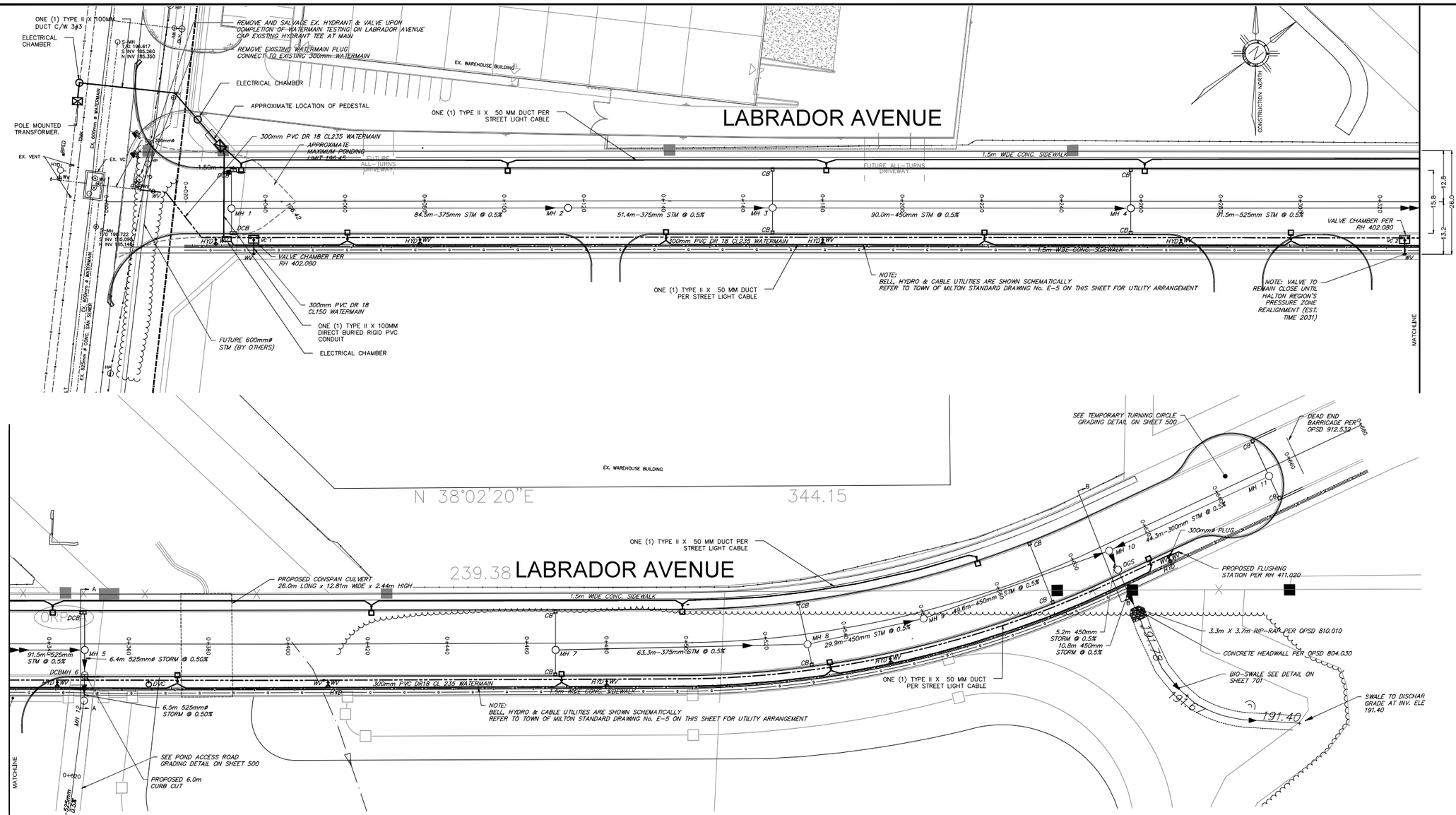
CLIENT:
BROCCOLINI

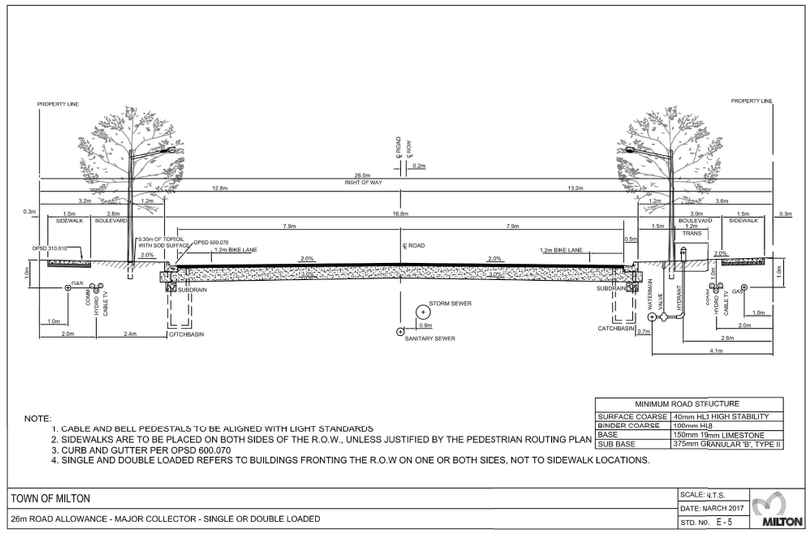
PROJECT:
BDC LOWES (SEREDA, CARVALHO)
24T-20006/M

DRAWING:
CONSTRUCTION DETAILS
SHEET 4

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE:	PROJECT NO.:	SHEET NO.:
AS NOTED	2020-037	703
CURRENT ISSUE:	CURRENT REV:	
2	1	

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NOTE:
1. CABLE AND BELL PEDESTALS TO BE ALIGNED WITH LIGHT STANDARDS
2. SIDEWALKS ARE TO BE PLACED ON BOTH SIDES OF THE R.O.W., UNLESS JUSTIFIED BY THE PEDESTRIAN ROUTING PLAN
3. CURB AND GUTTER PER OPSD 600.070
4. SINGLE AND DOUBLE LOADED REFERS TO BUILDINGS FRONTING THE R.O.W ON ONE OR BOTH SIDES, NOT TO SIDEWALK LOCATIONS.

MINIMUM ROAD STFUCTURE	
SURFACE COARSE	40mm HL3 HIGH STABILITY
BINDER COARSE	100mm HL8
BASE	150mm 19mm LIMESTONE
SUB BASE	375mm GRANULAR 'B', TYPE II

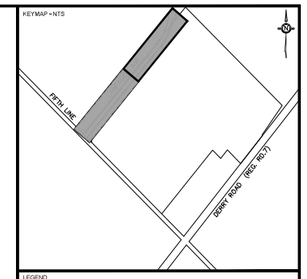
TOWN OF MILTON	SCALE: N.T.S.
	DATE: MARCH 2017
26m ROAD ALLOWANCE - MAJOR COLLECTOR - SINGLE OR DOUBLE LOADED	STD. NO. E-5

Approved by Mike Bresolin - Enbridge Gas Inc.- January 9, 2023

Approved by Milton Hydro
Digitally signed by Approved by Milton Hydro
Date: 2022.12.16 15:58:58 -05'00'

Approved by Amanda McQuay for Bell Canada - Jan. 4, 2023

KEYMAP - NTS



LEGEND

- CB - PROPOSED CATCH BASIN
- CBMH - PROPOSED CB MANHOLE
- DCBMH - PROPOSED DCB MANHOLE
- MH - PROPOSED STORM MANHOLE
- HYD - PROPOSED FIRE HYDRANT
- WV - PROPOSED WATER VALVE
- DI - PROPOSED DITCH INLET
- PROPOSED LIGHT STANDARD
- PROPOSED STREET TREE
- PROPOSED GAS
- PROPOSED BELL
- PROPOSED HYDRO
- PROPOSED CABLE

BENCHMARK:
ELEVATIONS ARE GEODETIC, DERIVED BY DIFFERENTIAL GPS OBSERVATIONS, AND ARE REFERRED TO THE CAN-NET REFERENCE STATION, HAVING AN ELEVATION OF 124.16M. UTM-17 NORTH CANADA NAD 83 CSRS

No.	DATE	DRAWING ISSUE DESCRIPTION
1	2021 06 07	FIRST SUBMISSION
2	2021 10 29	SECOND SUBMISSION
3	2022 04 04	THIRD SUBMISSION
4	2022 09 07	ISSUED FOR REVIEW
5	2022 09 20	THIRD SUBMISSION (RE-ISSUE)
6	2022 10 07	FOURTH SUBMISSION
7	2022 11 16	REV LIGHTING PLAN
8	2022 11 25	REV LIGHTING PLAN

TOWN OF MILTON - DEVELOPMENT SERVICES DEPT.

FINAL ACCEPTANCE

Accepted by: Anita Sparre C.E.T. on 2025 / Jan / 30
via Signed Letter. Director, Dev. Eng. Date

REGIONAL APPROVAL

DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM THE LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: _____ DATED: _____

Halton REGION

CONSULTANT:

REGISTERED PROFESSIONAL ENGINEER M. L. STAIRS NOV 25, 2023 PROVINCE OF ONTARIO

MGM CONSULTING INC
Consulting Engineering & Project Management
555 Industrial Drive Tel (905)647-8675
Suite 201 Fax (905)875-1339
Milton, Ontario Email mgm@mgm.on.ca
L9T 5E1 www.mgm.on.ca

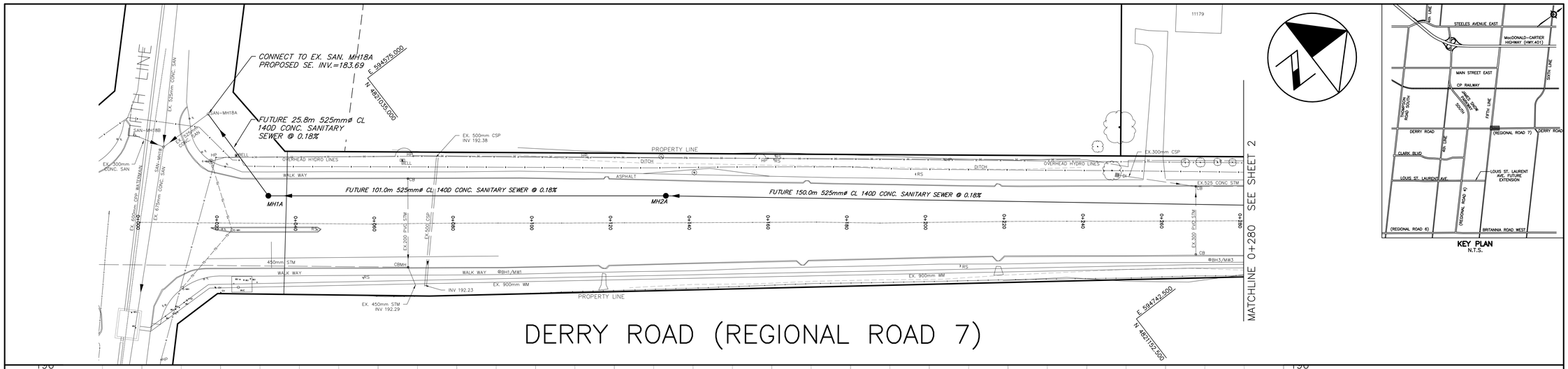
CLIENT: BROCCOLINI

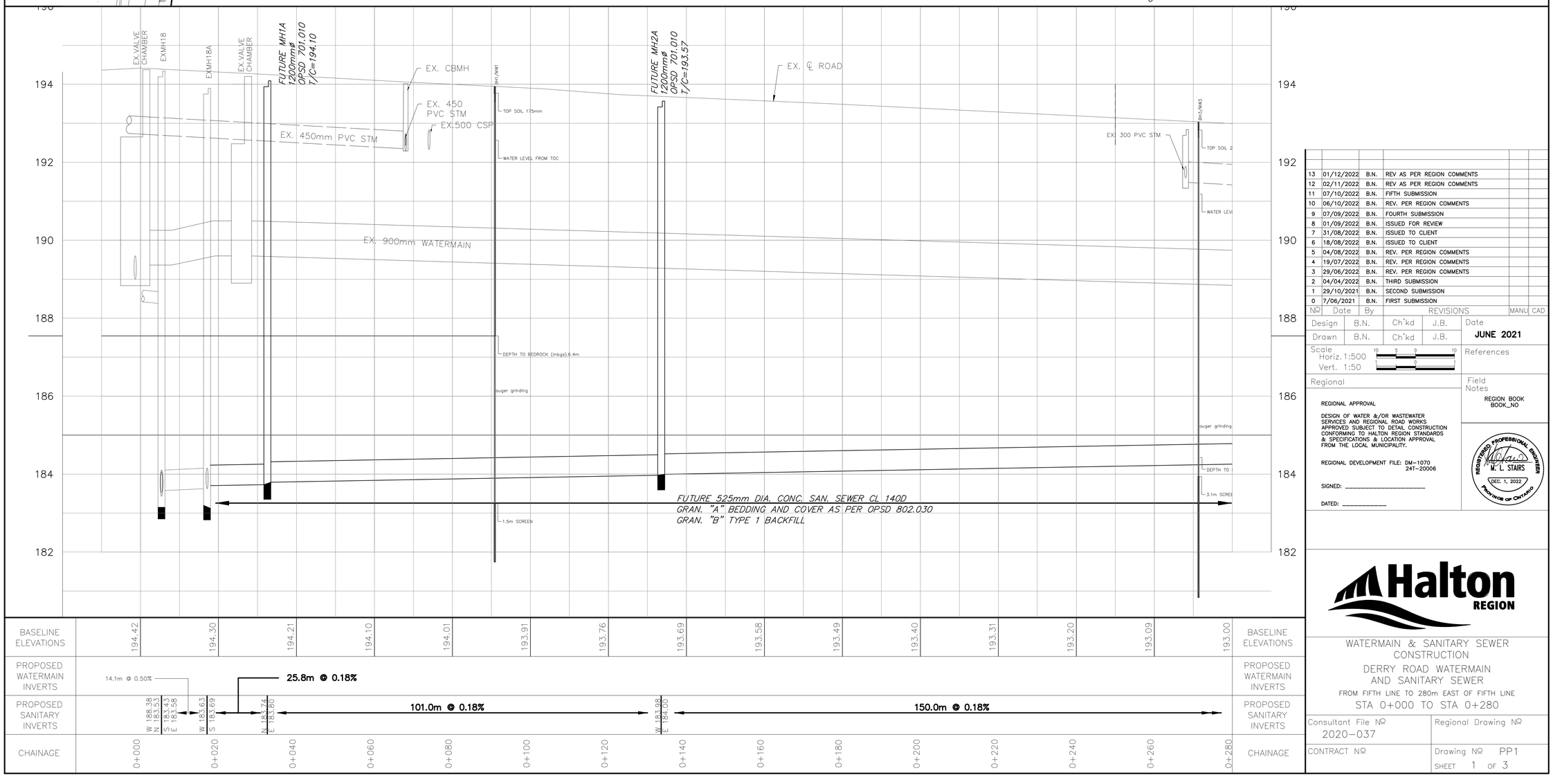
PROJECT: BDC Lowes (Sereda, Carvalho)
DM- 1070 & 24T-20006/M

DRAWING: COMPOSITE UTILITY PLAN

DRAWN BY:	CHECKED BY:	JOB CAPTAIN:
BN	MLS	JB
SCALE: 1:500	PROJECT NO.: 2020-037	SHEET NO.: 900
CURRENT ISSUE: 8	CURRENT REV: 7	

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BASELINE ELEVATIONS	194.42 · 194.30 · 194.21 · 194.10 · 194.01 · 193.91 · 193.76 · 193.69 · 193.58 · 193.49 · 193.40 · 193.31 · 193.20 · 193.09 · 193.00
PROPOSED WATERMAIN INVERTS	14.1m @ 0.50% · 25.8m @ 0.18%
PROPOSED SANITARY INVERTS	W 188.38 N 187.93 S 183.45 E 183.50 · W 185.63 S 183.69 · N 187.74 E 183.80 · 101.0m @ 0.18% · W 183.98 E 184.00 · 150.0m @ 0.18%
CHAINAGE	0+000 · 0+020 · 0+040 · 0+060 · 0+080 · 0+100 · 0+120 · 0+140 · 0+160 · 0+180 · 0+200 · 0+220 · 0+240 · 0+260 · 0+280

№	Date	By	REVISIONS	MANU	CAD
13	01/12/2022	B.N.	REV AS PER REGION COMMENTS		
12	02/11/2022	B.N.	REV AS PER REGION COMMENTS		
11	07/10/2022	B.N.	FIFTH SUBMISSION		
10	06/10/2022	B.N.	REV. PER REGION COMMENTS		
9	07/09/2022	B.N.	FOURTH SUBMISSION		
8	01/09/2022	B.N.	ISSUED FOR REVIEW		
7	31/08/2022	B.N.	ISSUED TO CLIENT		
6	18/08/2022	B.N.	ISSUED TO CLIENT		
5	04/08/2022	B.N.	REV. PER REGION COMMENTS		
4	19/07/2022	B.N.	REV. PER REGION COMMENTS		
3	29/06/2022	B.N.	REV. PER REGION COMMENTS		
2	04/04/2022	B.N.	THIRD SUBMISSION		
1	29/10/2021	B.N.	SECOND SUBMISSION		
0	7/06/2021	B.N.	FIRST SUBMISSION		

Design	B.N.	Ch'kd	J.B.
Drawn	B.N.	Ch'kd	J.B.

Date: JUNE 2021

Scale: Horiz. 1:500, Vert. 1:50

References

Regional

REGIONAL APPROVAL

DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM THE LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: _____

DATED: _____

Field Notes

REGION BOOK
BOOK_NO

REGISTERED PROFESSIONAL ENGINEER
M. L. STAIRS
DEC. 1, 2022
PROVINCE OF ONTARIO

Halton REGION

WATERMAIN & SANITARY SEWER CONSTRUCTION
DERRY ROAD WATERMAIN AND SANITARY SEWER
FROM FIFTH LINE TO 280m EAST OF FIFTH LINE
STA 0+000 TO STA 0+280

Consultant File № 2020-037

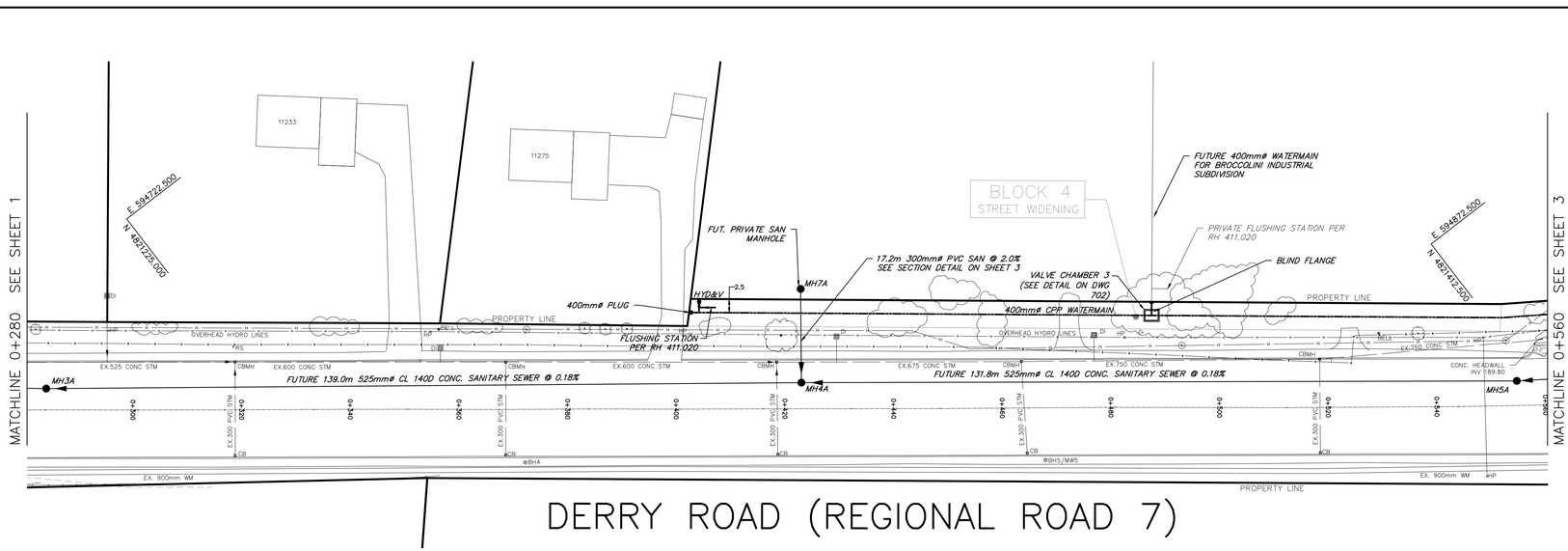
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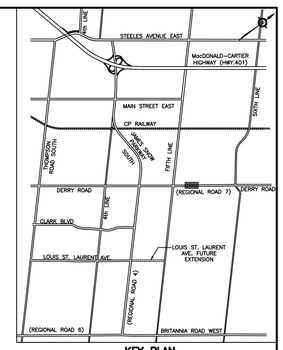
CONTRACT №

Drawing № PP1

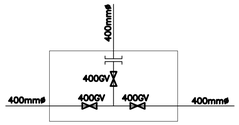
SHEET 1 OF 3

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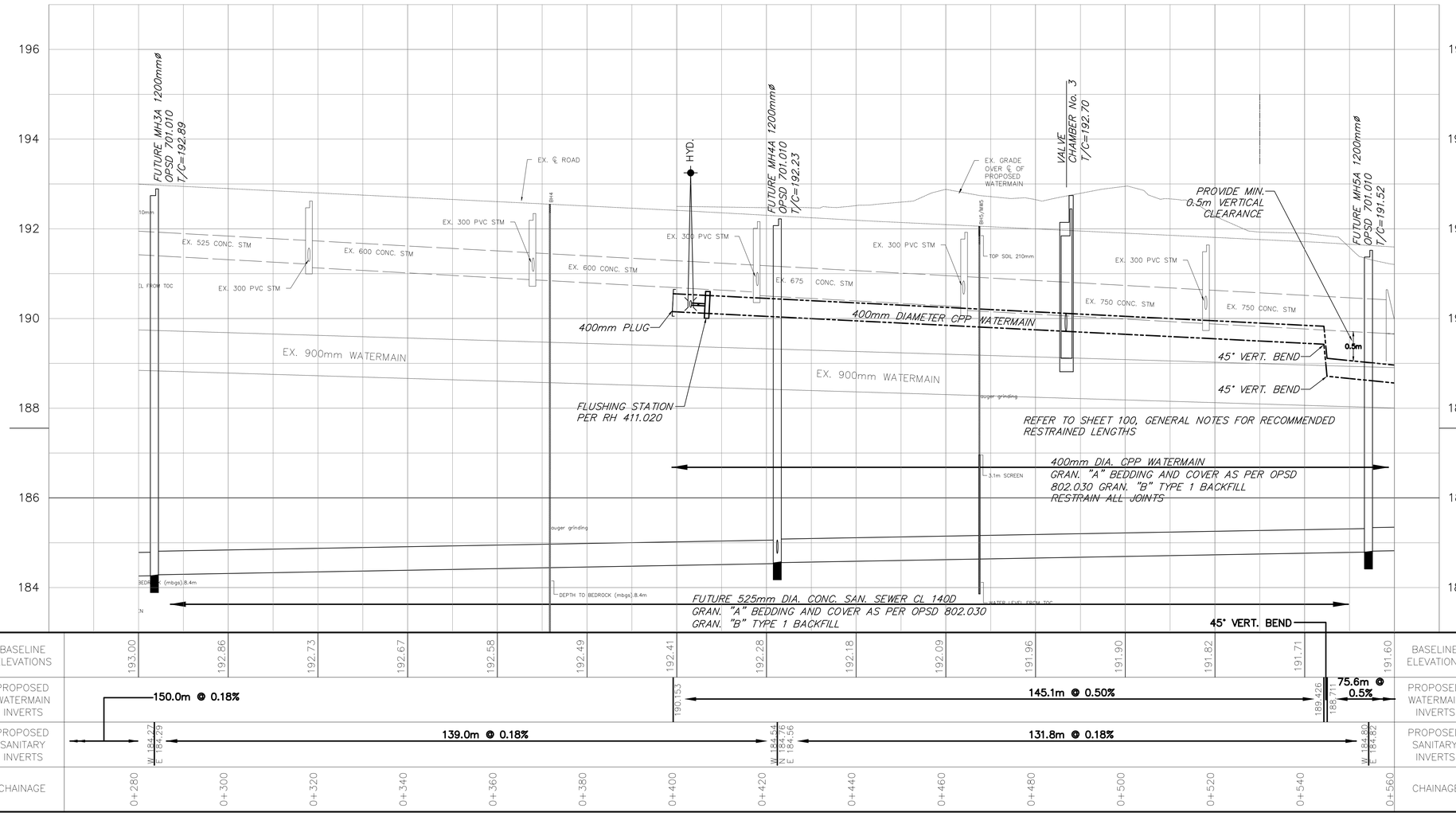




KEY PLAN
N.T.S.



PROPOSED MAIN LINE
VALVE CHAMBER No. 3 SCHEMATIC



BASELINE ELEVATIONS	193.00		192.86		192.73		192.67		192.58		192.49		192.41		192.28		192.18		192.09		191.96		191.90		191.82		191.71		191.60	BASELINE ELEVATIONS
PROPOSED WATERMAIN INVERTS	150.0m @ 0.18%												190.153		145.1m @ 0.50%										189.426		188.711	75.6m @ 0.5%		PROPOSED WATERMAIN INVERTS
PROPOSED SANITARY INVERTS	W 184.27 E 184.29		139.0m @ 0.18%										W 184.44 E 184.46		131.8m @ 0.18%														W 184.80 E 184.82	PROPOSED SANITARY INVERTS
CHAINAGE	0+280		0+300		0+320		0+340		0+360		0+380		0+400		0+420		0+440		0+460		0+480		0+500		0+520		0+540		0+560	CHAINAGE

No	Date	By	REVISIONS	MANU	CAD
13	01/12/2022	B.N.	REV AS PER REGION COMMENTS		
12	02/11/2022	B.N.	REV AS PER REGION COMMENTS		
11	07/10/2022	B.N.	FIFTH SUBMISSION		
10	06/10/2022	B.N.	REV. PER REGION COMMENTS		
9	07/09/2022	B.N.	FOURTH SUBMISSION		
8	01/09/2022	B.N.	ISSUED FOR REVIEW		
7	31/08/2022	B.N.	ISSUED TO CLIENT		
6	18/08/2022	B.N.	ISSUED TO CLIENT		
5	04/08/2022	B.N.	REV. PER REGION COMMENTS		
4	19/07/2022	B.N.	REV. PER REGION COMMENTS		
3	29/06/2022	B.N.	REV. PER REGION COMMENTS		
2	04/04/2022	B.N.	THIRD SUBMISSION		
1	29/10/2021	B.N.	SECOND SUBMISSION		
0	7/06/2021	B.N.	FIRST SUBMISSION		

Design	B.N.	Ch'kd	J.B.	Date JUNE 2021
Drawn	B.N.	Ch'kd	J.B.	

Scale Horiz. 1:500 Vert. 1:50

References

Regional

Field Notes

REGION BOOK
BOOK_NO

REGIONAL APPROVAL

DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM THE LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM-1070
24T-20006

SIGNED: _____

DATED: _____

REGISTERED PROFESSIONAL ENGINEER
M. L. STAIRS
DEC. 1, 2022
PROVINCE OF ONTARIO

Halton REGION

WATERMAIN & SANITARY SEWER CONSTRUCTION
DERRY ROAD WATERMAIN AND SANITARY SEWER

FROM 280m EAST OF FIFTH LINE TO 560m EAST OF FIFTH LINE

STA 0+280 TO STA 0+560

Consultant File №
2020-037

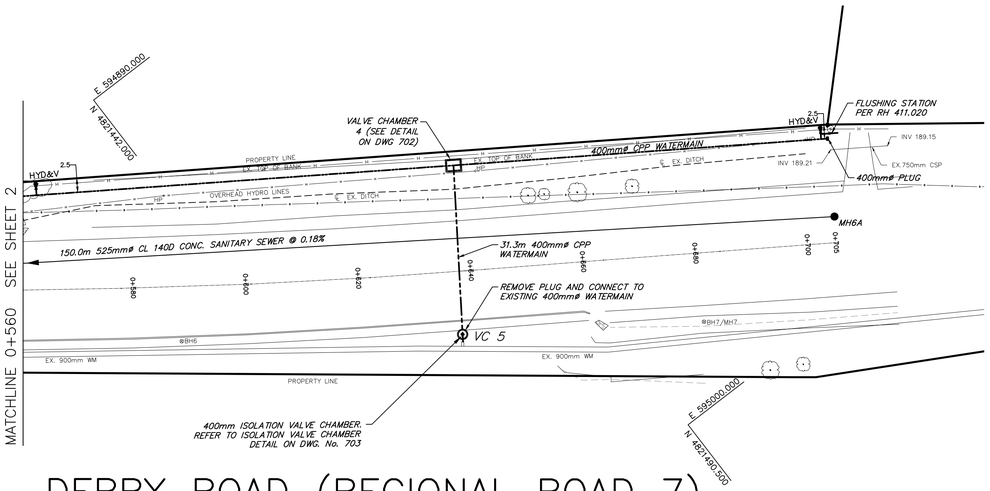
Regional Drawing №

CONTRACT №

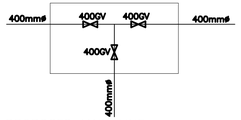
Drawing № PP2

SHEET 2 OF 3

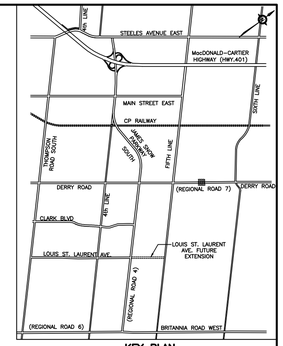
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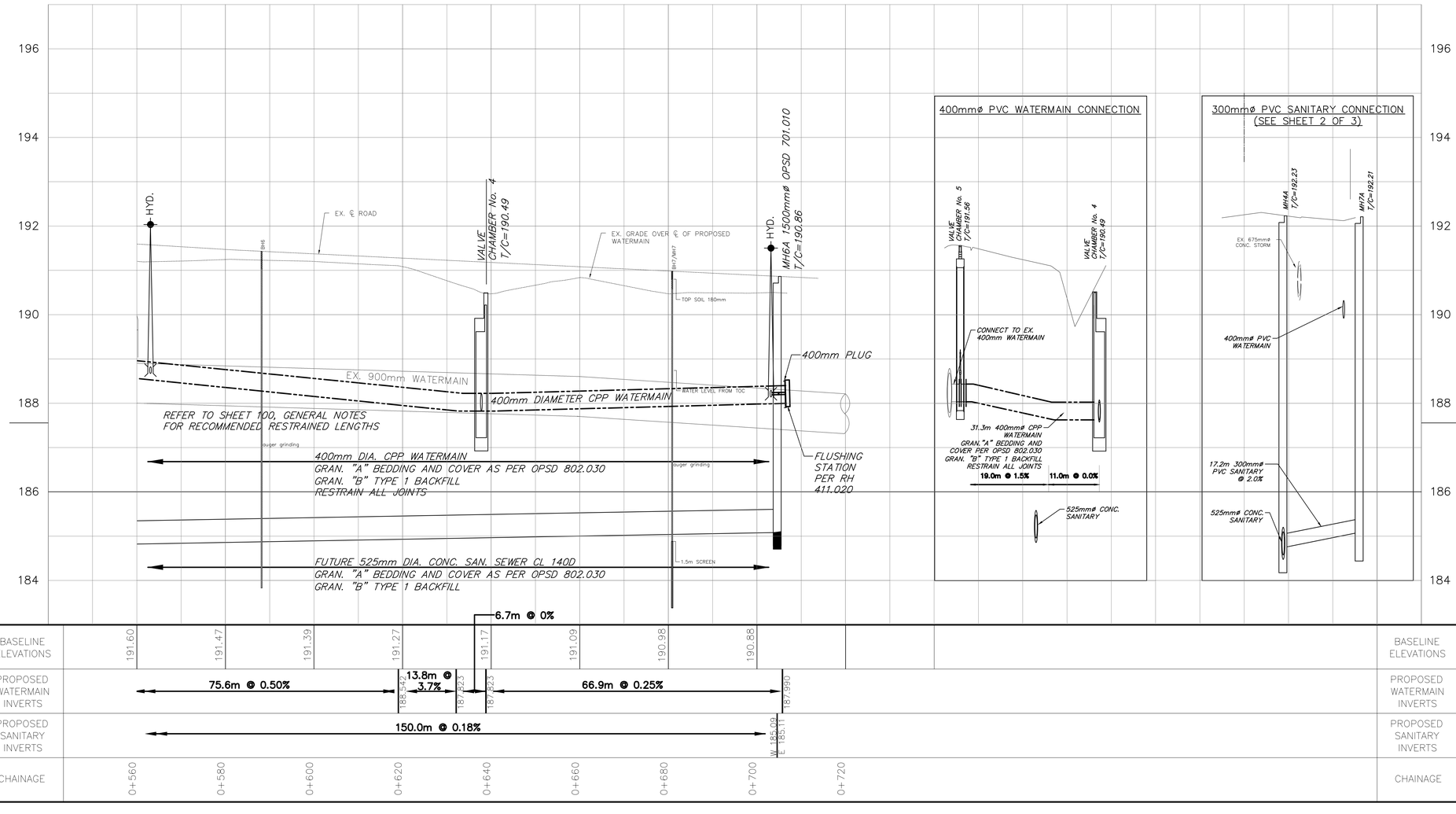
DERRY ROAD (REGIONAL ROAD 7)



PROPOSED MAIN LINE
VALVE CHAMBER No. 4 SCHEMATIC



KEY PLAN
N.T.S.



400mmø PVC WATERMAIN CONNECTION

300mmø PVC SANITARY CONNECTION (SEE SHEET 2 OF 3)

№	Date	By	REVISIONS	MANU CAD
13	01/12/2022	B.N.	REV AS PER REGION COMMENTS	
12	02/11/2022	B.N.	REV AS PER REGION COMMENTS	
11	07/10/2022	B.N.	FIFTH SUBMISSION	
10	06/10/2022	B.N.	REV. PER REGION COMMENTS	
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4	19/07/2022	B.N.	REV. PER REGION COMMENTS	
3	29/06/2022	B.N.	REV. PER REGION COMMENTS	
2	04/04/2022	B.N.	THIRD SUBMISSION	
1	29/10/2021	B.N.	SECOND SUBMISSION	
0	7/06/2021	B.N.	FIRST SUBMISSION	

Design	B.N.	Ch'kd	J.B.	Date
Drawn	B.N.	Ch'kd	J.B.	JUNE 2021

Scale Horiz. 1:500 Vert. 1:50

References

Regional

Field Notes

REGION BOOK BOOK_NO

REGIONAL APPROVAL

DESIGN OF WATER &/OR WASTEWATER SERVICES AND REGIONAL ROAD WORKS APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM THE LOCAL MUNICIPALITY.

REGIONAL DEVELOPMENT FILE: DM-1070 24T-20006

SIGNED: _____

DATED: _____

REGISTERED PROFESSIONAL ENGINEER M. L. STAIRS DEC. 1, 2022 PROVINCE OF ONTARIO

Halton REGION

WATERMAIN & SANITARY SEWER CONSTRUCTION

DERRY ROAD WATERMAIN AND SANITARY SEWER

FROM 560m EAST OF FIFTH LINE TO 705m EAST OF FIFTH LINE

STA 0+560 TO STA 0+705

Consultant File № 2020-037

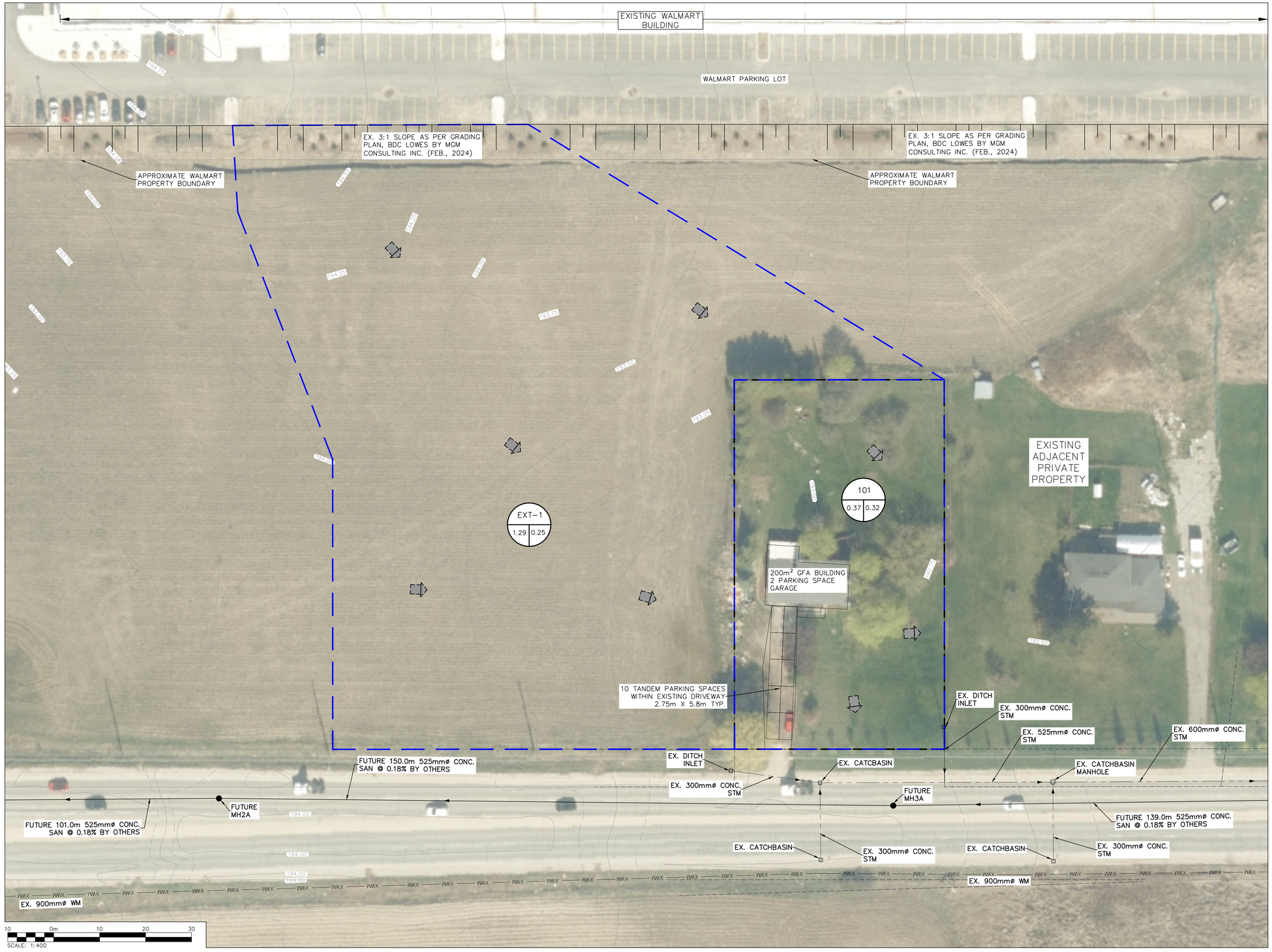
Regional Drawing №

CONTRACT №

Drawing № PP3

SHEET 3 OF 3

N:\Projects\2020-037\Working Folders\Drawings\Subdivision Drawings\2020-037-Derry Road-PP.dwg





LEGEND

- EXISTING PROPERTY LIMITS
- 252.00 EXISTING MAJOR CONTOUR (1.00m)
- 252.50 EXISTING MINOR CONTOUR (0.50m)
- OVERLAND FLOW DIRECTION
- 206 / 0.32 | 0.70 CATCHMENT I.D. / AREA (ha) | C-RUNOFF COEFFICIENT
- STORM DRAINAGE CATCHMENT
- EX. STORM SEWER PIPES
- EX. STORM SEWER MANHOLES
- EX. STORM SEWER CATCH BASINS
- EX. STORM SEWER CATCH BASIN MANHOLES
- FUTURE SANITARY SEWER PIPES BY OTHERS
- FUTURE SANITARY SEWER MANHOLES BY OTHERS
- EX. WATERMAIN TRUNK

NOTE:

ALL SERVICING INFRASTRUCTURE ALONG DERRY ROAD WERE REFERENCED FROM DESIGN DRAWING SETS LISTED BELOW AND ARE APPROXIMATE ONLY:

- THE WATERMAIN AND SANITARY SEWER CONSTRUCTION DESIGN DRAWINGS, DERRY ROAD WATERMAIN AND SANITARY SEWER DRAWING SET BY HALTON REGION (DECEMBER 2022)
- BDC LOWES (SEREDA, CARVALHO) 24t-20006/M DRAWING SET BY MGM CONSULTING INC. (DECEMBER 2022)

ALL EXTERNAL GRADING AND DRAINAGE INFORMATION NORTH/NORTHWEST OF THE SUBJECT LANDS WERE REFERENCED FROM DESIGN DRAWING SET LISTED BELOW AND ARE APPROXIMATE ONLY:

- BDC LOWES 7095 FIFTH LINE, MILTON, ONTARIO (SPA APPLICATION NO. SP-20/21) BY MGM CONSULTING INC. (FEBRUARY 2024)

1. THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE MODIFICATION AND/OR REPRODUCTION OF ANY PART OF THIS DRAWING IS STRICTLY PROHIBITED WITHOUT WRITTEN AUTHORIZATION FROM THIS OFFICE.
2. THE DIGITAL FILES CONTAIN INTELLECTUAL AND DIGITAL DATA PROPERTY THAT IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO C.F. CROZIER & ASSOCIATES INC. PRIOR TO CONSTRUCTION.
4. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
6. DO NOT SCALE DRAWINGS.

TEMPORARY BENCHMARKS

DATUM: CGVD 2028:78
COORDINATES ARE IN NAD83-UTM 17N (CANADA)
CONTOURS, SOUTH CENTRAL ONTARIO
[PARCEL1759454821020261ERA.DWG] MARKHAM ON: FIRST BASE SOLUTIONS, 2022. AVAILABLE: MAPWAREHOUSE <HTTP://MAPS.FIRSTBASESOLUTIONS.COM> (ACCESSED APRIL 21, 2026).
BENCHMARK:

Town

No.	ISSUE	DATE: YYYY/MM/DD
1	ISSUED FOR 1st SUBMISISON	2026/05/01

Engineer

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

Engineer

Project
11179 DERRY ROAD WEST
TOWN OF MILTON

Drawing
DRAINAGE PLAN

CROZIER CONSULTING ENGINEERS

Drawn By	Design By	Project
S.Z.	S.Z.	3114-7873
Check By	Check By	Drawing
B.L.	B.L.	FIG. 1

CROZIER
CONSULTING ENGINEERS

Project:	11179 Derry Road
Project No.:	3114-7873
Created By:	SZ
Checked By:	BL
Date:	2026-04-29
Updated:	2026-04-29

Catchment ID	Areas & Runoff Coefficients				Total Area	Composite RC	I_{100} (mm/hr)	100 Year Q (L/s)
	Grass	RC	Roof/Asphalt	RC				
101	0.33	0.25	0.04	0.90	0.37	0.32	235.0	**77.7**
EXT-1	1.21	0.25	0.00	0.90	1.21	0.25	235.0	**197.7**
Total	1.54	0.25	0.04	0.90	1.58			275.4

I_{100} per table 4.2 of Town of Milton Grading and Stormwater Management Guidelines