MASTER LEGEND

EXISTING FEATURES (EX.)

- EX. CONTOUR
- EX. GRADE
- EX. TREELINE
- EX. WATERCOURSE
- EX. DITCH
- EX. WATERMAIN
- EX. WATER SERVICE
- EX. FIRE HYDRANT & VALVE
- EX. SANITARY SEWER & MANHOLE
- EX. SANITARY FORCEMAIN
- EX. SANITARY SERVICE
- EX. STORM SEWER & MANHOLE
- EX. STORM CATCHBASIN
- EX. STORM DOUBLE CATCHBASIN
- EX. STORM CATCHBASIN MANHOLE
- EX. STORM DOUBLE CATCHBASIN MANHOLE
- EX. GAS MAIN
- EX. BELL LINE
- EX. BELL PEDESTAL
- EX. CABLE TELEVISION PEDESTAL
- EX. HYDRO POLE
- EX. LIGHT STANDARD
- EX. SIGN
- EX. BUILDING
- EX. BENCHMARK NUMBER & LOCATION
- EX. BOREHOLE NUMBER & LOCATION

PROPOSED FEATURES (PR.)

- PR. PROPERTY LIMITS
- PR. ELEVATION
- PR. ELEVATION (MATCH EX. ELEVATION)
- PR. SWALE & SLOPE
- PR. DITCH DRAINAGE
- PR. WATERMAIN & VALVE
- PR. WATER SERVICE
- PR. FIRE HYDRANT & VALVE
- PR. WATER VALVE CHAMBER
- PR. WATER QUALITY TESTING STATION
- PR. SANITARY SEWER & MANHOLE
- PR. SANITARY FORCEMAIN
- PR. SANITARY SERVICE
- PR. SANITARY CATCHMENT
- CATCHMENT AREA ID (11)
- AREA (ha) (0.14)
- POPULATION (3.5 p.p.u.)
- PR. STORM SEWER & MANHOLE
- PR. CATCHBASIN
- PR. DOUBLE CATCHBASIN
- PR. CATCHBASIN MANHOLE
- PR. DOUBLE CATCHBASIN MANHOLE
- PR. STORM CATCHMENT
- CATCHMENT AREA ID (102)
- RUNOFF COEFFICIENT (0.23)
- DRAINAGE AREA (ha) (0.78)
- PR. CURB CUT
- PR. CANADA POST COMMUNITY MAIL BOX
- PR. TRANSFORMER
- PR. STOP SIGN
- PR. NAME SIGN
- PR. NO PARKING SIGN
- PR. FENCE
- PR. BUILDING ENVELOPE
- PR. LIGHT DUTY SILT FENCE
- PR. HEAVY DUTY SILT FENCE
- PR. STRAW BALE CHECK FLOW
- PR. ROCK CHECK DAM
- PR. SLOPE (3:1 MAX.)
- PR. TREE PRESERVATION AREA
- PR. TOPSOIL STOCKPILE LOCATION
- TREE PROTECTION ZONE LIMIT

KEY PLAN
SCALE: N.T.S.

430 ESSA ROAD

CITY OF BARRIE

COUNTY OF SIMCOE

PROJECT No.: 13214508

MUNICIPALITY

CITY OF BARRIE
70 COLLIER STREET
P.O. BOX 400
BARRIE, ONTARIO, L4M 4T5

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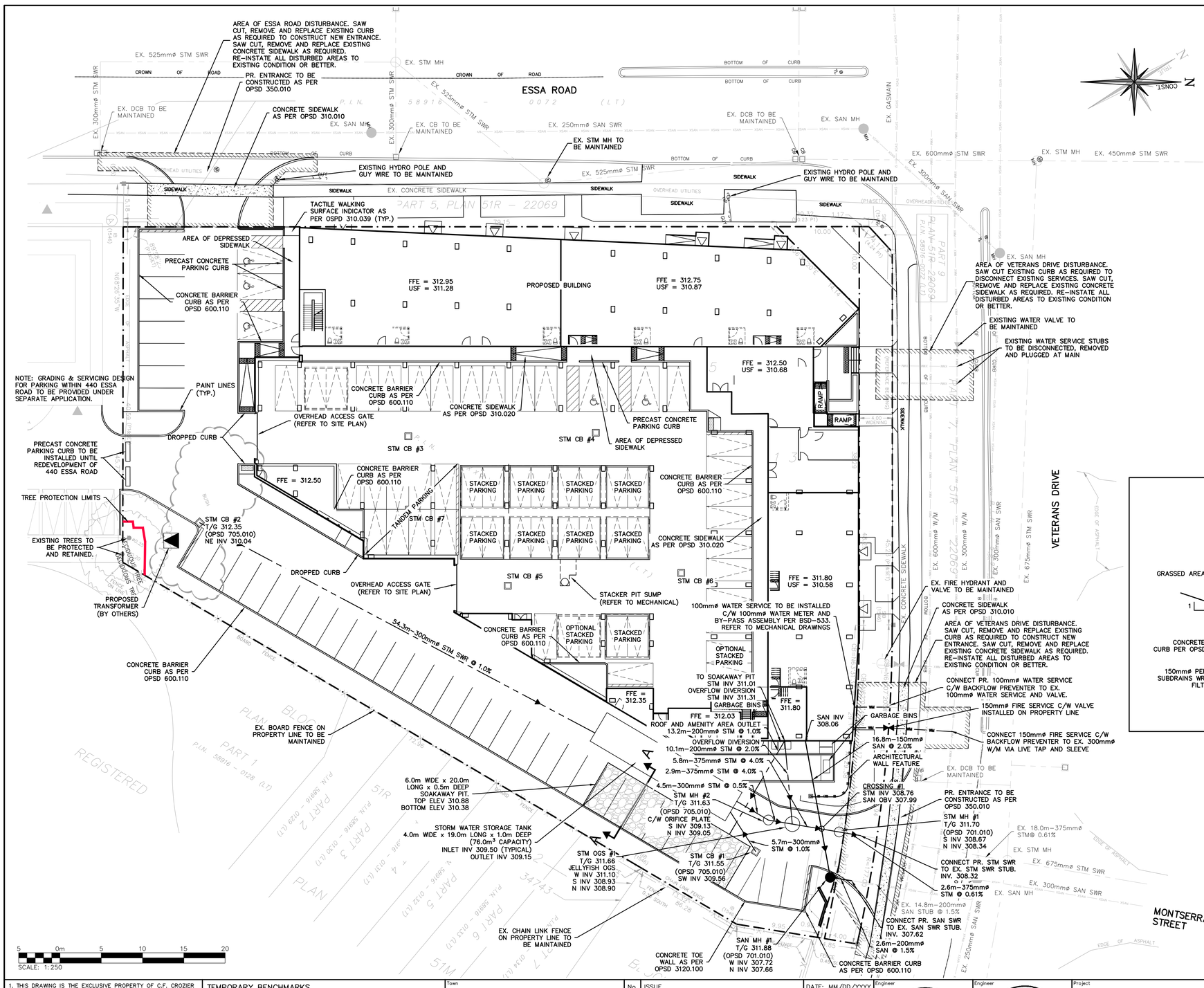
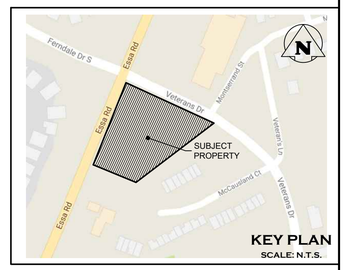
DRAWING	TITLE
101	GENERAL SITE SERVICING PLAN
102	OVERALL SITE GRADING PLAN
103	EROSION AND SEDIMENT CONTROL PLAN
104	CONSTRUCTION NOTES & STANDARD DETAILS
105	PAVEMENT MARKING AND SIGNAGE PLAN





SECTION A-A
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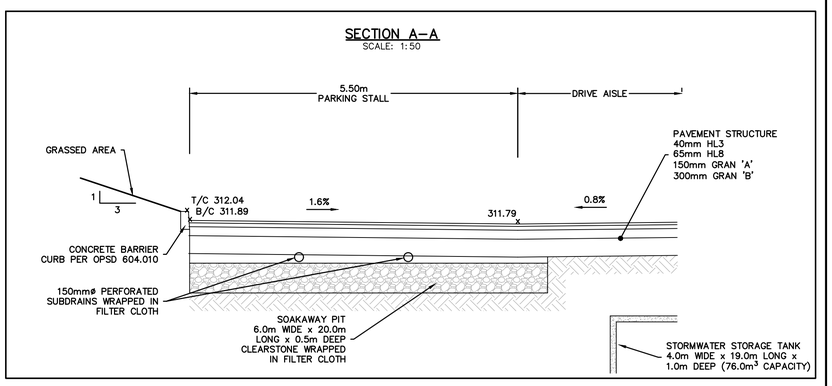
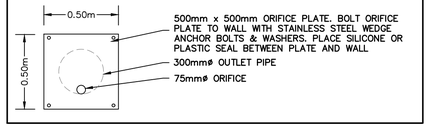


ORIFICE PLATE DETAIL
SCALE 1:20



TEMPORARY BENCHMARKS

TBM#1

SITE BENCHMARK IS THE TOP OF THE FIRE HYDRANT AT THE WEST SIDE OF ESSA ROAD HAVING AN ELEVATION OF 313.60m

TOPOGRAPHIC SURVEY COMPLETED BY RUDY MAK SURVEYING LTD. O.L.S., DATED MARCH 14, 2017.

Town

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR REVIEW	09/08/2017
1	ISSUED FOR FIRST ENGINEERING SUBMISSION	09/19/2017
2	ISSUED FOR SECOND ENGINEERING SUBMISSION	12/14/2017
3	ISSUED FOR THIRD ENGINEERING SUBMISSION	03/16/2018
4	ISSUED FOR BUILDING PERMIT	03/22/2019
5	REVISED SITE PLAN	07/25/2019

Engineer: LICENSED PROFESSIONAL ENGINEER — J. G. KOUTROUBIS — 7/25/19 — PROVINCE OF ONTARIO

Engineer: LICENSED PROFESSIONAL ENGINEER — R.A. ALEXANDER — 100213093 — July 24, 2019 — PROVINCE OF ONTARIO

Project: 430 ESSA ROAD
CITY OF BARRIE

Drawing: GENERAL SITE SERVICING PLAN

CROZIER & ASSOCIATES Consulting Engineers
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
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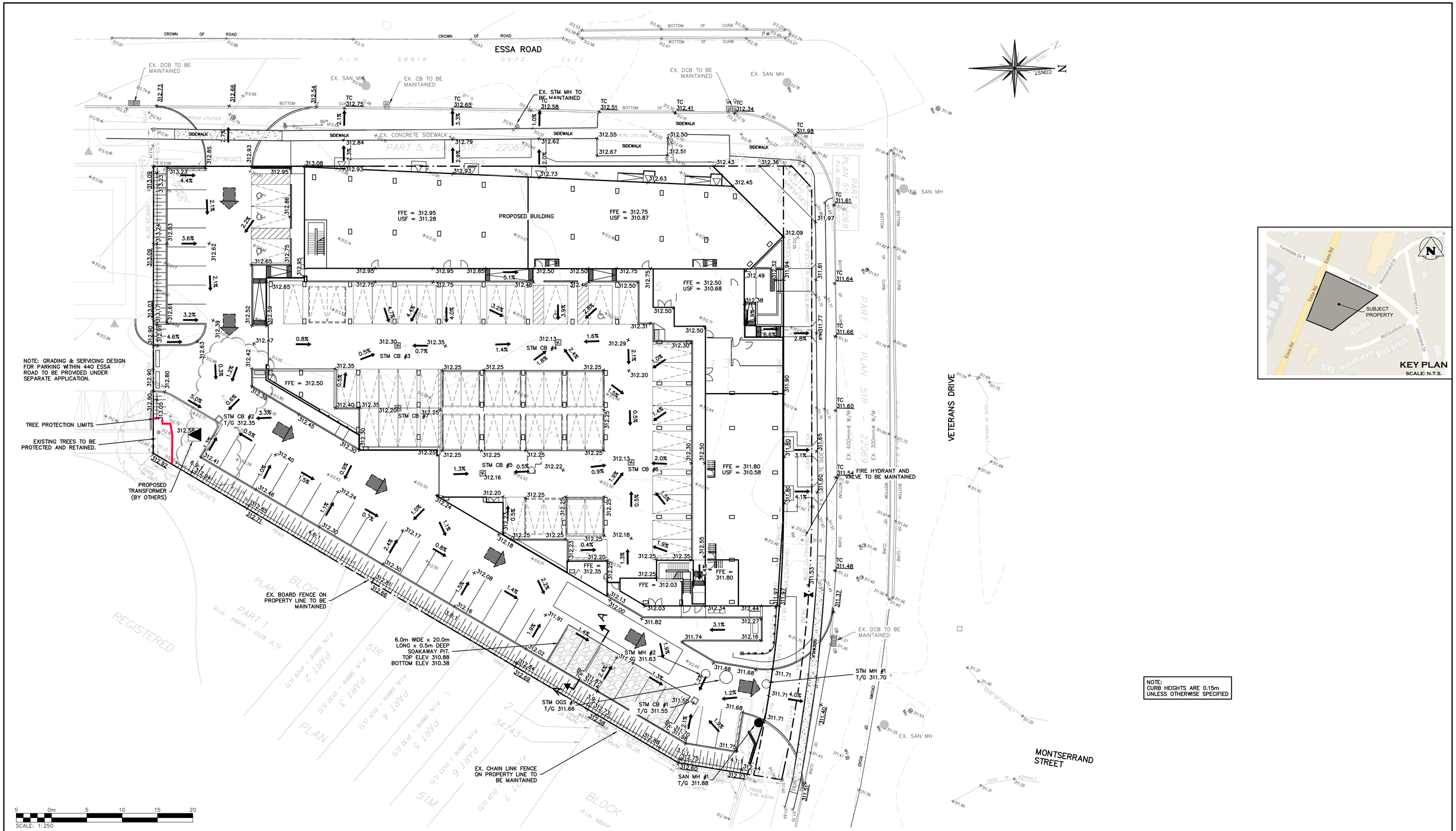
Drawn By	Design By	Project	Check By	Check By	Scale	Drawing
L.W.	L.W.	1321-4508	R.A.	J.K.	1:250	101



NOTE:
CURB HEIGHTS ARE 0.15m
UNLESS OTHERWISE SPECIFIED

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4. DO NOT SCALE THE DRAWINGS.
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Engineer: PROFESSIONAL ENGINEER — J. G. KOUTROUBIS — 7/25/19 — PROVINCE OF ONTARIO

Engineer: LICENSED PROFESSIONAL ENGINEER — R.A. ALEXANDER — 100213083 — PROVINCE OF ONTARIO

Project: 430 ESSA ROAD
CITY OF BARRIE

Drawing: OVERALL SITE GRADING PLAN

CROZIER & ASSOCIATES Consulting Engineers
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Drawn By	Design By	Project	
L.W.	L.W.		1321-4508
Check By	Check By	Scale	Drawing
R.A.	J.K.	1:250	102

SILT SACK TO BE INSTALLED ON EXISTING DOUBLE CATCHBASN. REFER TO DETAIL.

CONSTRUCTION MUD MAT AS PER BSD-230. SEE DETAIL ON DWG. 104.

SILT SACK TO BE INSTALLED ON EXISTING CATCHBASN. REFER TO DETAIL.

ESSA ROAD

EX. DCB TO BE MAINTAINED

EX. CB TO BE MAINTAINED

SILT SACK TO BE INSTALLED ON EXISTING DOUBLE CATCHBASN. REFER TO DETAIL.

PROPOSED BUILDING

TREE PROTECTION FENCING AS PER BSD-1232. SEE DWG 104 FOR DETAIL.

TREE PROTECTION LIMITS

EXISTING TREES TO BE PROTECTED AND MAINTAINED

PROPOSED TRANSFORMER (BY OTHERS)

HEAVY DUTY SILT FENCE AS PER BSD-1233 TO BE INSTALLED ON PROPERTY LINE. SEE DETAIL ON DWG. 104.

EX. BOARD FENCE ON PROPERTY LINE TO BE MAINTAINED

EX. CHAIN LINK FENCE ON PROPERTY LINE TO BE MAINTAINED

EX. FIRE HYDRANT AND VALVE TO BE MAINTAINED

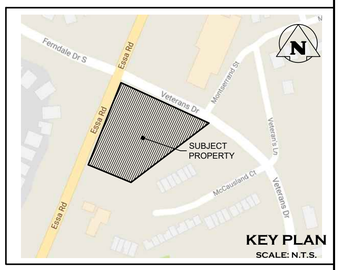
EX. DCB TO BE MAINTAINED

SILT SACK TO BE INSTALLED ON EXISTING DOUBLE CATCHBASN. REFER TO DETAIL.

VETERANS DRIVE

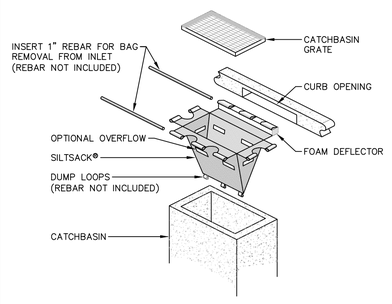
MONTSERRAND STREET

SCALE: 1:250



KEY PLAN
SCALE: N.T.S.

'SILTSACK' DETAIL
SCALE: N.T.S.



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SITE BENCHMARK IS THE TOP OF THE FIRE HYDRANT AT THE WEST SIDE OF ESSA ROAD HAVING AN ELEVATION OF 313.60m

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Engineer: R.A. ALEXANDER 100213093 — PROVINCE OF ONTARIO

Project: 430 ESSA ROAD
CITY OF BARRIE

Drawing: EROSION AND SEDIMENT CONTROL PLAN

CROZIER & ASSOCIATES Consulting Engineers
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Drawn By	Design By	Project	
L.W.	L.W.		1321-4508
Check By	Check By	Scale	Drawing
R.A.	J.K.	1:250	103

CONSTRUCTION NOTES

1. DRAWINGS
1.1. ALL DRAWINGS SHALL BE PRODUCED IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARDS AND SYMBOLS FOR PLAN & PROFILE DRAWINGS, GENERAL SERVICE PLANS AND LOT GRADING PLANS.

2. MEASUREMENT
2.1. ALL DIMENSIONS ARE IN METRES (m), EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES (mm), UNLESS SPECIFIED OTHERWISE.
2.2. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION AND ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.

3. GENERAL
3.1 ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARD DRAWINGS (BSD) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).
3.2 ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY CITY OF BARRIE STANDARD DRAWINGS (BSD) AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).
3.3 LOCATION OF EXISTING SERVICES ARE NOT GUARANTEED. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.
3.4 A ROAD OCCUPANCY PERMIT IS REQUIRED FROM THE ROADS AND PARKS OPERATIONS BRANCH PRIOR TO THE COMMENCEMENT OF WORK WITHIN ANY CITY RIGHT-OF-WAY.
3.5 A SITE ALTERATION PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTH WORKS ON THE SITE.
3.6 NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
3.7 GRANULAR MATERIAL, USED FOR BACKFILL, SHALL BE PLACED IN LAYERS OF 150mm IN DEPTH MAXIMUM AND COMPACTED TO 100% SPMDD.
3.8 ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT.
3.9 ALL SILT CONTROL AND EROSION PROTECTION DEVICES ARE TO BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE GRASS HAS ESTABLISHED GROWTH. SUBJECT TO APPROVAL BY THE ENGINEERING DEPARTMENT.

4. GENERAL
4.1 SINGLE-STAGE CURB AND GUTTER TO COMPLY WITH OPSD 600.040.
4.2 TWO-STAGE CURB AND GUTTERTO COMPLY WITH OPSD 600.070.
4.3 SIDEWALKS TO COMPLY WITH OPSD 310-010 AND ARE TO BE 1.5 METRES WIDE
MINIMUM THICKNESS AS FOLLOWS:
- RESIDENTIAL DRIVEWAY 150mm
- COMMERCIAL/INDUSTRIAL DRIVEWAY 200mm (REINFORCEMENT AS PER OPSS IF REQUIRED)
- WHEN NO DRIVEWAY IS PRESENT, 125mm

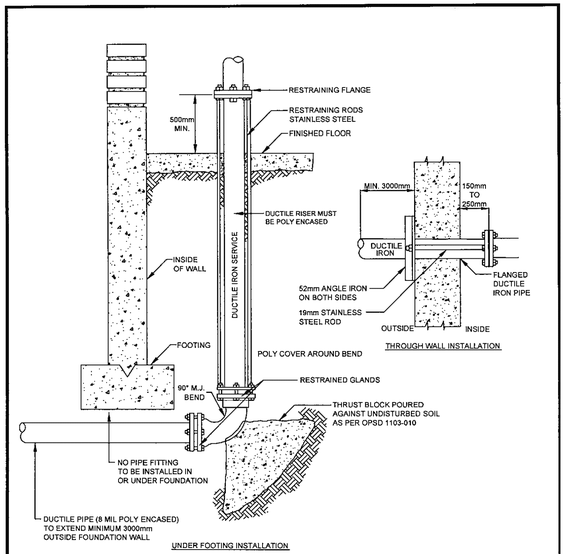
4.4 NATIVE SUBGRADE SHALL HAVE CROSSFALL OF 3% AND MATERIAL SHALL BE APPROVED BY A SOILS CONSULTANT AND IS SUBJECT TO APPROVAL BY THE DIRECTOR OF ENGINEERING.
4.5 THE ROAD BASE SHALL INCORPORATE 100mm DIAMETER SUBDRAIN WITH FACTORY INSTALLED FILTER FABRIC AS PER CITY OF BARRIE STANDARD BSD-34.
4.6 ALL CURB RADII TO BE MINIMUM 10.0 METRES AT THE EDGE OF ASPHALT.
4.7 NATIVE SUBGRADE TO BE COMPACTED TO MINIMUM 95% SPMDD AND SHALL BE PROOF ROLLED.
4.8 GRADE AND CROSSFALL ADJUSTMENTS OF MAINTENANCE HOLE AND CATCHBASIN FRAMES WILL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE. THE TOP ADJUSTMENT OF ALL CATCHBASIN AND MAINTENANCE HOLES SHALL BE RUBBER.
4.9 ADJUSTMENT UNITS MUST BE CERTIFIED TO MEET ALL PERTINENT OPS, CSA, ASTM AND MTO-DSM LIST, OR OTHER INDUSTRY GUIDELINES FOR MATERIALS, PERFORMANCE AND USE AS APPLICABLE.
4.10 ADJUSTMENT UNITS AND JOINTS WILL BE SEALED AND OR PARGED IN COMPLIANCE WITH MANUFACTURERS SPECIFICATIONS AND GUIDELINES.
4.11 MORTAR USED FOR LEVELING OF PRECAST UNITS ONLY. THE THICKNESS OF MORTAR WILL BE 10mm TO FILL ALL VOIDS CREATED BY IRREGULARITIES IN THE PRECAST UNITS TO ENSURE AN EVEN SURFACE ONLY.
4.12 NON COMPRESSIVE BACKFILL WILL BE USED DURING REBUILDING, ADJUSTING, OR ANY OTHER APPLICABLE CATCHBASIN OR MAINTENANCE HOLE WORKS.

5. SANITARY SEWERS
5.1 SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD.
5.2 SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OSD 802.010 (GRAN 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS B (GRAN 'A' BEDDING MATERIAL) FOR RIGID PIPES UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
5.3 MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED AND CSA, OPS, OR MANUFACTURES RECOMMENDED SPECIFICATIONS.
5.4 PVC, CONCRETE AND PROFILE WALL PVC SEWERS SHALL HAVE RUBBER GASKET TYPE JOINTS AND SHALL BE CERTIFIED TO CONFORM TO ALL APPLICABLE CURRENT CSA SPECIFICATIONS.
5.5 CONCRETE SANITARY SEWERS SHALL HAVE A MINIMUM STRENGTH OF 50N/m/mm CONFORMING TO CSA STANDARD A257.2-1982, CLASS 50-D (PREVIOUSLY CSA STANDARD A257.2-1974, CLASS II).
5.6 MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACED. ALL ADJUSTMENTS WILL BE IN ACCORDANCE WITH BSD-N2.
5.7 ALL CONNECTIONS TO NEW SANITARY MAINS SHALL BE PRE-MANUFACTURED, FABRICATED TEES. CONNECTIONS TO EXISTING SANITARY SEWER SHALL BE MADE WITH APPROVED FACTORY MADE TEES OR INSERTA-TEES IN STRICT ACCORDANCE TO MANUFACTURERS GUIDELINES.
5.8 SANITARY LATERAL CONNECTION TO BE LOCATED AT THE CENTRELINE OF THE LOT AND CAPPED.
5.9 LOCATION OF LATERAL TO BE MARKED 2.0m PAST PROPERTY LINE WITH A 50mm x 100mm WOOD MARKER PAINTED GREEN, EXTENDING FROM SERVICE INVERT TO 300mm ABOVE GROUND LEVEL.
5.10 PIPE TO BE MINIMUM 100mm DIA. PVC SDR28, RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO CSA (B-182.2.3.4) (COLOURED) FOR A RESIDENTIAL HOUSE AND 150mm MINIMUM DIA. PVC SDR28 FOR INDUSTRIAL/COMMERCIAL DEVELOPMENT.
5.11 MINIMUM DEPTH OF LATERAL AT PROPERTY LINE SHALL BE 2.4m MEASURED FROM THE SEWER OBVERT TO FINISHED GROUND SURFACE ELEVATION UNLESS NOTED OTHERWISE.
5.12 ALL CONNECTIONS TO NEW SANITARY MAINS SHELL BE PRE-MANUFACTURED, FABRICATED TEES. CONNECTIONS TO EXISTING SANITARY SEWER SHALL BE MADE WITH APPROVED FACTORY MADE TEES OR INSERTA-TEES IN STRICT ACCORDANCE WITH MANUFACTURERS GUIDELINES.
5.13 MINIMUM PIPE SLOPE TO BE 2.0%, MAXIMUM 8.0% (SEE OPSD 1006.010, 1006.020).

6. STORM SEWERS
6.1 STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.
6.2 PLACE ALL CATCHBASIN LATERALS AT 2.0% GRADE UNLESS OTHERWISE NOTES. PIPE SIZE MINIMUM 250mm DIA. SINGLE, 300mm DIA. DOUBLE.
6.3 STORM SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.010 (GRAN 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 (GRAN 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
6.4 MAINTENANCE HOLE TOPS (FRAMES) AND CATCHBASIN TOPS (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO THE FINAL GRADE WHENTHE TOP COURSE ASPHALT IS PLACED. ALL ADJUSTMENT WILL BE IN ACCORDANCE WITH BD-N2.
6.5 STORM SEWER SHALL BE LOCATED OFFSET 3.0m SOUTH OR EAST OF CENTRELINE UNLESS OTHERWISE SPECIFIED.
6.6 ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MANHOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD 708-010 OR 708.030.
6.7 PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 50N/m/mm CERTIFIED TO CSA STANDARD A247.2-1982, CLASS 50-D (PREVIOUSLY CSA STANDARD A257.2-1974, CLASS II) OR PVC CERTIFIED TO CSA STANDARDS 182.2 AND 182.4.
6.8 STORM SEWER TO BE MINIMUM 300mm DIAMETER WITH JOINTS CONFORMING TO CSA STANDARD A257.3.
6.9 ALL PIPE BEDDING MUST CONFORM TO OPSD, MAXIMUM COVER TABLE. NO FLEXIBLE PIPES WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6 METRES UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF ENGINEERING.
6.10 ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURERS INSTALLATIONS GUIDELINES AND THE O.C.P.A. OR UNIBELL GUIDELINES.
6.11 SUMP PUMP DISCHARGE PIPING IN BOULEVARD:
IN THE EVENT OF OVERACTIVE SUMP PUMP ACTIVITY, A 150mm DIAMETER PVC DR-28 SEWER MAY BE INSTALLED, WHEN SO DIRECTED BY THE DIRECTOR OF ENGINEERING, ALONG THE FRONTAGES OF DESIGNATED LOTS, WITH AN OFFSET OF 0.6m FROM BACK OF CURB. THIS SEWER IS THE BE CAPPED AT THE UPSTREAM END AND IS TO OUTLET INTO THE NEAREST CATCHBASIN DOWNSTREAM. DEPTH OF THE SEWER IS TO BE EQUAL TO SUBDRAIN DEPTH, NOT TO BE DIRECTLY CONNECTED TO FOUNDATION DRAINS.

7. WATERMAINS
7.1 CONTRACTOR SHALL INFORM THE CITY OF BARRIE ENGINEERING DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO WORK.
7.2 OPERATIONS OF FIRE HYDRANTS AND VALVES ON POTABLE WATER BY OTHER THAN ENGINEERING DEPARTMENT IS PROHIBITED. BY BY-LAW 1-88 AS AMENDED BY BY-LAW 99-290. THE CITY WILL SWAB, PRESSURE TEST, CHLORINATE AND FLUSH ALL NEW WATERMAINS.
7.3 MINIMUM COVER OVER WATERMAIN IS 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWERS IS THE BE 2.5m. WHERE WATERMAIN CONFLICTS WITH SEWER PIPES, DEFLECT WATERMAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5m CLEARANCE BETWEEN WATERMAINS AND SEWERS. MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES.
7.4.1 WATERMAIN SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD 802.010 (GRAN 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS 'B' (GRAN 'A' BEDDING MATERIAL GRAN 'A' OR SELECT NATIVE COVER MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPOVED BY THEDIRECTOR OF ENGINEERING OR *ALTERNATIVE.
* ALTERNATIVE EMBEDMENT MATERIAL – SAND MEETING GRADATION REQUIREMENTS OF OPS 1004.05.05 COMPACTED TO 95% SPMDD. GEOTECHNCAL CLARIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING AND TOP OF PIPE).
7.4.2 COPPER WATERMAINS AND SERVICES 19mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSS 1004.05.05.
7.5 CONCRETE THRUST BLOCKS ARE TO BE INSTALLED AT ALL TEES, BENDS, HYDRANTS, END OF MAINS AND CONNECTIONS 100mm AND LARGER AS PER OPSD 1103.010 AND 1103.020. RESTRAINING DEVICES MER BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKING WHERE SOIL CONDITIONS WARRANT.
7.6 RESTRAINING WILL BE REQUIRED ON ALL FIRE HYDRANTS.
7.7 NEW WATERMAINS TO BE PVC DR18 CL150, OR DUCTILE IRON CL52.
7.8 TRACING WIRE (#12 TWO STRANDED COPPER) TO BE INSTALLED ON THE TOTAL LENGTH OF ALL NON-METALLIC WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT.
7.9 ALL WATER SERVICES SHALL BE MINIMUM 19mm TYPE 'K' COPPER UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING. WATER SERVICE SADDLES SHALL BE USED WHEN TAPPING INTO PVC WATERMAIN.
7.10 RISER PIPES ARE TO BE INSTALLED AS PER BSD-45 (REV #1), AND REMOVED AS DIRECTED. SWABBING SCHEDULE TO BE SUPPLIED BY A CITY OF BARRIE FIELD REPRESENTATIVE.
7.11 DOMESTIC AND FIRE SERVICE RISER PIPES TO BE BUILT AS PER BSD-505.
7.11 SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 0.6m FROM JOINTS (ENDS OF PIPE).
7.12 ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.

8. EROSION AND SEDIMENT CONTROL
8.1 ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED. SEDIMENT AND EROSION CONTROL MEASURES THAT ARE DESIGNED TO CONTROL RUNOFF FROM SPECIFIC AREAS MUST BE INSTALLED PRIOR TO ANY DISTURBANCE TO SITE.
8.2 THE CONTRACTOR MAY CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES. SUCH MEASURES MUST BE PRESENTED IN WRITING FOR APPROVAL OF THE CONTRACT ADMINISTRATOR AND THE TOWN.
8.3 THE CONTRACTOR SHALL HAVE MATERIALS AVAILABLE ON-SITE TO REPAIR SEDIMENT AND EROSION CONTROL MEASURES IN THE EVENT OF UNFORESEEN CONDITIONS: HIGHWATER, EXTREME RAINFALL EVENTS, ETC.
8.4 MUD MAT TO BE CONSTRUCTED AT ACCESS POINT.
8.5 NO MAINTENANCE OR REPAIR WORK ON CONSTRUCTION EQUIPMENT IS ALLOWED WITHIN 30M OF AN EXISTING WATERCOURSE OR DITCH EXCEPT AS NOTED.
8.6 ALL TEMPORARY SOIL OR DIRT STOCKPILES ARE TO BE PROVIDED WITH THE NECESSARY SEDIMENT AND EROSION CONTROL FEATURES. IF STOCKPILES ARE TO REMAIN FOR A PERIOD LONGER THAN 30 DAYS, STOCKPILES SHALL BE HYDROSEEDED AND SURROUNDED WITH SILT FENCE.
8.7 CONTRACTOR TO ENSURE POSITIVE DRAINAGE THROUGH SITE SUCH THAT NO UPSTREAM OR DOWNSTREAM IMPACT OCCURS DURING CONSTRUCTION ACTIVITIES.
8.9 THE CONTRACTOR WILL BE RESPONSIBLE TO CLEAN ALL ADJACENT ROADWAYS AS REQUIRED OR AS DIRECTED BY THE SITE ENGINEER OR TOWN.
8.10 SILT FENCE MUST BE INSPECTED WEEKLY FOR RIPS OR TEARS, BROKEN STAKES, BLOW-OUTS AND ACCUMULATION OF SEDIMENT.
8.11 SILT FENCE MUST BE INSPECTED IMMEDIATELY AFTER EVERY RAIN STORM EVENT OR AS DIRECTED BY SITE ENGINEER.
8.12 SEDIMENT DEPOSITS MUST BE REMOVED FROM SILT FENCE WHEN ACCUMULATION REACHES 50% OF THE HEIGHT OF THE FENCE.
8.13 ALL SILT FENCES MUST BE REMOVED ONLY WHEN THE ENTIRE SITE IS STABILIZED AND AS DIRECTED BY THE SITE ENGINEER.
8.14 ALL SILT FENCES INSTALLED AT THE LIMIT OF THE DEVELOPMENT ARE TO BE PLACED ON THE PROPERTY LINE.
8.15 GEOTEXTILE (TERRAFIX 270R OR APPROVED EQUAL) TO BE PLACED AS SEPARATION BARRIER BETWEEN EXISTING GROUND AND CLEAR STONE.
8.16 INSPECT MUD MAT WEEKLY TO ASSESS CONDITION AND TO ENSURE OPERATION EFFICIENCY.
8.17 SUPPLY AND PLACE ADDITIONAL STONE TO PREVENT MUD TRACKING AS DIRECTED BY SITE ENGINEER.
8.18 MUD MAT TO REMAIN IN PLACE UNTIL SITE IS STABILIZED OR AS DIRECTED BY SITE ENGINEER.



NOTES:
1. INSTALLATION MUST MEET THE CURRENT NATIONAL FIRE PROTECTION ACT.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

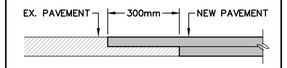
APPROVED
DATE 6 Feb 2015
DIRECTOR OF ENGINEERING

City of BARRIE STANDARD DETAIL

TYPICAL SERVICE ENTRY 100mm TO 300mm DIAMETER PIPE

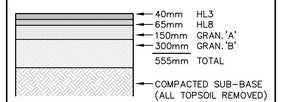
REV No.	DATE: FEB 2015
1	SCALE: N.T.S.
BSD-505 (PREVIOUSLY BSD-61)	

LAP JOINT DETAIL
SCALE: N.T.S.

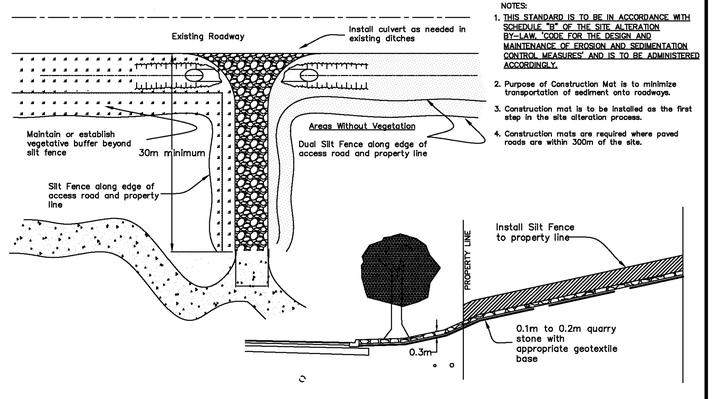


NOTE:
SAWCUT & COLD PLANE 300mm WIDE & 40mm DEEP WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT.

PAVEMENT STRUCTURE
SCALE: N.T.S.

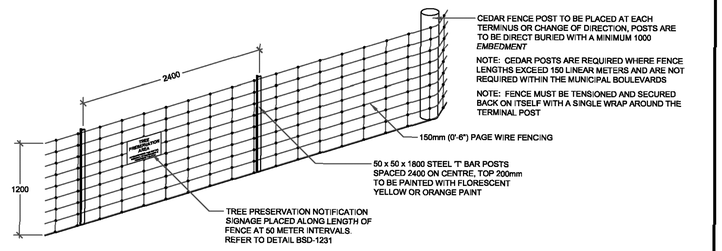


NOTE:
REFER TO CONSTRUCTION NOTES FOR DETAILS ON COMPACTION. PAVEMENT STRUCTURE IS SUBJECT TO CHANGE BASED ON GEOTECHNICAL CONSULTANT'S RECOMMENDATIONS.



NOTES:
1. THIS STANDARD IS TO BE IN ACCORDANCE WITH SCHEDULE "B" OF THE SITE ALTERATION BY-LAW, 'CODE FOR THE DESIGN AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES' AND IS TO BE ADMINISTERED ACCORDINGLY.
2. Purpose of Construction Mat is to minimize transportation of sediment onto roadways.
3. Construction mat is to be installed as the first step in the site alteration process.
4. Construction mats are required where paved roads are within 300m of the site.

CITY OF BARRIE STANDARD	1.	Standardized Dimension Text	J.S.	05.10.28	APR'D: R.G.N.	DATE: 04.03.16
CONSTRUCTION ENTRANCE MAT					DRAWN: A.S.C	SCALE: N.T.S
	NO.	REVISION	APR'D	DATE	BSD-23D	



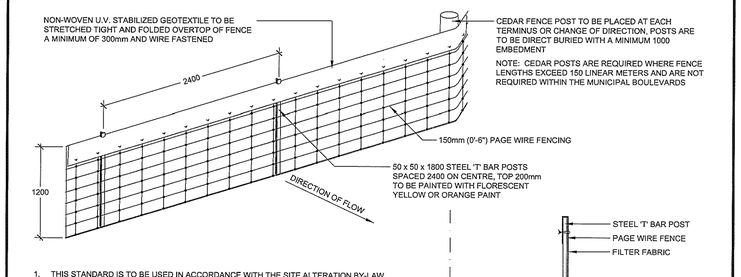
1. THIS DETAIL IS USED IN CONJUNCTION WITH BSD-1233 -SEDIMENTATION CONTROL FENCE.
2. PAGE WIRE FENCE TO BE ATTACHED TO CEDAR RAIL POSTS WITH 'U' SHAPED GALVANIZED NAILS ON EACH HORIZONTAL STRAND.
3. USE A MINIMUM OF FOUR (4) 100MM, 16 GAUGE GALVANIZED T-POST CLIPS TO ATTACH PAGE WIRE FENCE TO EACH 'T' BAR POST.
4. 'T' BARS ARE TO BE DRIVEN INTO THE GROUND TO A MINIMUM DEPTH OF 600mm.
5. ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
6. THIS DETAIL TO BE USED IN CONJUNCTION WITH BSD-1230, BSD-1231, BSD-1234 AND BSD-1235.

The City of BARRIE STANDARD DETAIL

TREE PRESERVATION FENCING

REV No.	DATE: JUNE 2015
1	SCALE: N.T.S.
BSD-1232	

APPROVED
DATE .....
DIRECTOR OF ENGINEERING



1. THIS STANDARD IS TO BE USED IN ACCORDANCE WITH THE SITE ALTERATION BY-LAW FOR THE DESIGN AND MAINTENANCE OF EROSION CONTROL MEASURES AND IS TO BE ADMINISTERED ACCORDINGLY
2. SILT / SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW
3. SILTATION CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFIRM TO M.T.O. DRAINAGE MANUAL VOLUME 2 "CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT"
4. SILTATION CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TOED INTO THE SOIL 300mm BE EITHER STATIC SLICING OR TRENCHING METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% S.P.D.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
6. SILT / SEDIMENT CONTROL FENCE MAY BE UTILIZED FOR TREE PRESERVATION AND IS TO BE USED IN CONJUNCTION WITH BSD-1231, BSD-1232 AND BSD-1235

Barrie STANDARD DETAIL

SILTATION CONTROL FENCING

REV No.	DATE: OCT 2017
1	SCALE: N.T.S.
BSD-1233 FORMERLY BSD-23A	

APPROVED
DATE Oct 10/17
DIRECTOR OF ENGINEERING

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

TEMPORARY BENCHMARKS
TBM#1
SITE BENCHMARK IS THE TOP OF THE FIRE HYDRANT AT THE WEST SIDE OF ESSA ROAD HAVING AN ELEVATION OF 313.60m
TOPOGRAPHIC SURVEY COMPLETED BY RUDY MAK SURVEYING LTD. O.L.S., DATED MARCH 14, 2017.

Town

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR REVIEW	09/08/2017
1	ISSUED FOR FIRST ENGINEERING SUBMISSION	09/19/2017
2	ISSUED FOR SECOND ENGINEERING SUBMISSION	12/14/2017
3	ISSUED FOR THIRD ENGINEERING SUBMISSION	03/16/2018
4	ISSUED FOR BUILDING PERMIT	03/22/2019
5	REVISED SITE PLAN	07/25/2019

Engineer: LICENSED PROFESSIONAL ENGINEER J. G. KOUTROUBIS 7/25/19 PROVINCE OF ONTARIO
Engineer: LICENSED PROFESSIONAL ENGINEER R.A. ALEXANDER 100213093 PROVINCE OF ONTARIO

Project: 430 ESSA ROAD CITY OF BARRIE
Drawing: CONSTRUCTION NOTES AND STANDARD DETAILS

CROZIER & ASSOCIATES Consulting Engineers
THE HARBOUREDGE BUILDING, 40 HURON STREET, SUITE 301, COLLINGWOOD, ON L9Y 4R3
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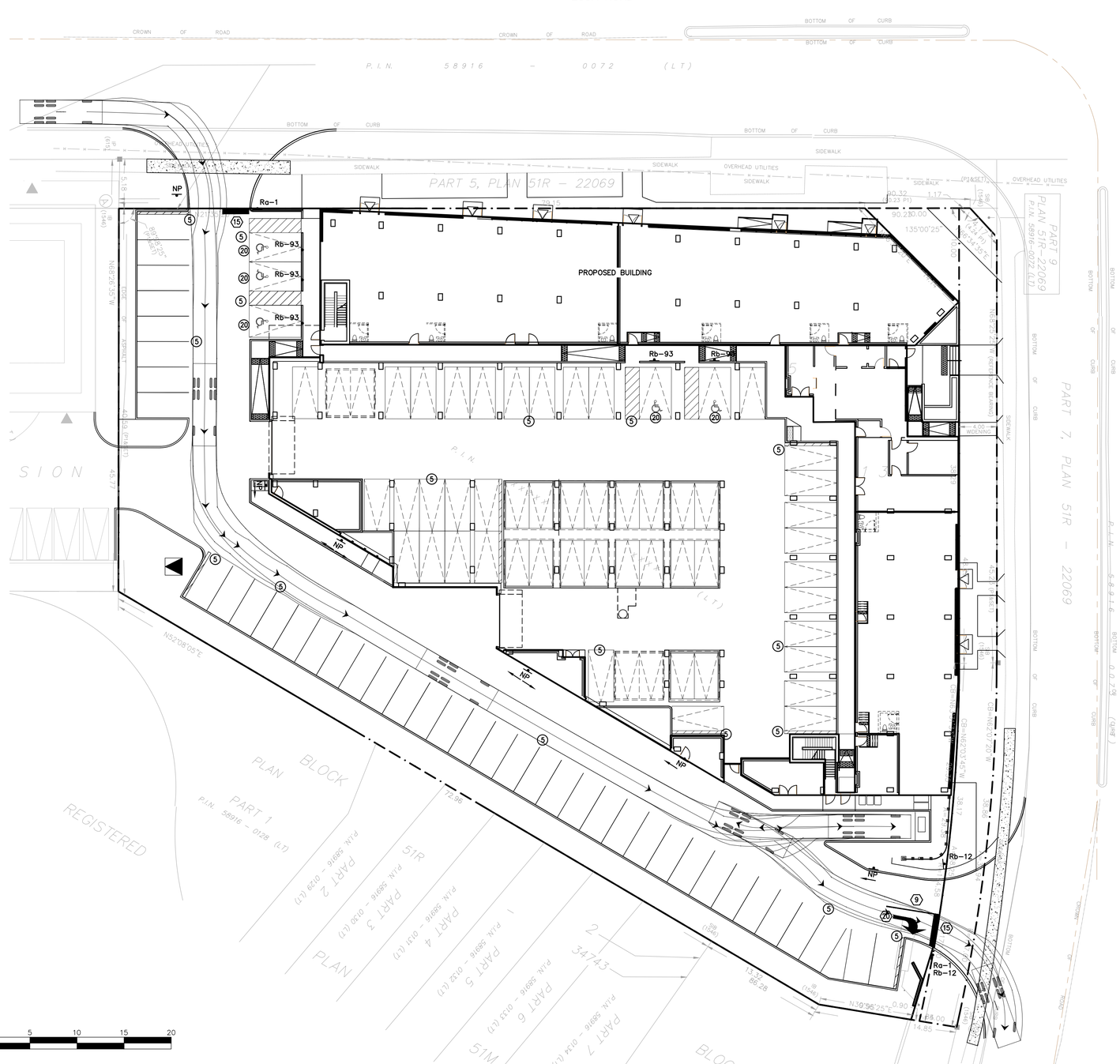
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	L.W.	Design By	L.W.	Project	1321-4508
Check By	R.A.	Check By	J.K.	Scale 1:250	Drawing 104

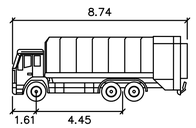


PAVEMENT MARKINGS LEGEND

1	SOLID YELLOW, 10cm
2	SOLID DOUBLE YELLOW, 10cm
3	363 BROKEN YELLOW, 10cm
4	SOLID YELLOW, 20cm
5	SOLID WHITE, 10cm
6	333 BROKEN WHITE, 10cm
7	363 BROKEN WHITE, 10cm
8	393 BROKEN WHITE, 10cm
9	SOLID WHITE, 20cm
10	111 BROKEN WHITE, 20cm
11	333 BROKEN WHITE, 20cm
12	333 BROKEN WHITE, 30cm
13	SOLID WHITE, 30cm
14	SOLID WHITE, 45cm
15	SOLID WHITE, 60cm
20	SYMBOLS
][	LIMITS OF MARKINGS

NOTES:
1. 333, 363, 393, DENOTES PAVEMENT MARKING SPACING. (ie. 3m LINE, 3m GAP, 3m LINE)
2. USE Ⓟ TO DENOTE PAVEMENT MARKING, PAINT
3. USE Ⓣ TO DENOTE PAVEMENT MARKING, TEMPORARY
4. USE Ⓣ⚠ TO DENOTE PAVEMENT MARKING, TEMPORARY–REMOVEABLE
5. USE Ⓓ TO DENOTE PAVEMENT MARKING, DURABLE

KEY PLAN
SCALE: N.T.S.



REFUSE 3AXLEmeters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 35.3

LEGEND

SIGNAGE

- Rb–93 ACCESSIBLE PARKING
- NP NO PARKING/FIRE ROUTE SIGN, SEE DETAIL
- Ra–1 STOP SIGN
- Rb–12 NO LEFT TURN SIGN

NOTE:
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH BOOK 5 (REGULATORY SIGNS) AND BOOK 11 (PAVEMENT, HAZARD & DELINEATION MARKINGS).
2. PAVEMENT MARKINGS FOR PARKING STALLS TO CONFORM TO OPSS 1712.

FIRE ROUTE SIGNAGE AND INSTALLATION SPECIFICATIONS

SIGN REQUIREMENTS

SIGNS SHALL COMPLY WITH THE ATTACHED FIGURE 5.
1. ALL SIGN SHALL HAVE APPROPRIATE RADIUS. CORNER AS PER DIAGRAM OR 4 cm RADIUS.
2. ALL SHARP EDGES REMOVED FROM SIGN BLANKS. COMPLETED SIGNS SHALL HAVE 11mm X 18mm SLOTTED HOLES TO ACCEPT METRIC OR IMPERIAL MOUNTING WITH HOLES 3cm–12cm FROM OUTER EDGE OR AS PER DIAGRAM.
3. CENTRE OF MOUNTING SLOTS SHALL BE EQUAL TO MULTIPLE OF 5.08cm (2 INCHES) CENTRALLY LOCATED ON BLANK. ON STEEL BLANKS, FABRICATIONS SHALL BE FABRICATED BEFORE GALVANIZING AS TO PREVENT CORROSION. ON ALUMINUM BLANKS, FABRICATING SHALL BE PERFORMED PRIOR TO PAINTING AND BAKING.
4. FINISHED SIGNS AND SYMBOLS SHALL BE APPLIED TO 1.63mm UTILITY GRADE ALUMINUM WITH BRIGHT WHITE MILL BAKED FINISH ON BOTH SIDES. ALL INKS SHALL BE FACES TO CONFORM TO REG. 486 OF THE HIGHWAY TRAFFIC ACT.
5. ALL LETTERING TO MEET M.T.O. STANDARDS.
6. ALL COLOURS TO MEET M.T.O. STANDARDS.

CIRCLE TO BE RED IN COLOR NON A WHITE BACKGROUND WITH BLACK LETTERING

INSTALLATION REQUIREMENTS

1. SHALL BE POSTED ON BOTH SIDES OF THE FIRE ROUTE FACING THE FLOW OF TRAFFIC AT A 45 DEGREE ANGLE, 2.13m (7FT) ABOVE GROUND LEVEL AND AT DISTANCES SO THEY CAN BE CLEARLY SEEN BY THE MOTORIST AND NOT MORE THAN 22.86m (75FT) APART.
2. MAY BE MOUNTED FLUSH ON THE BUILDING FACE ALONG THE FIRE ROUTE, 2.13m (7FT) ABOVE GROUND LEVEL AND AT DISTANCES SO THEY CAN BE CLEARLY SEEN BY THE MOTORIST AND NOT MORE THAN 15.24m (50FT) APART.
3. IF A FIRE ROUTE EXCEEDS 6m (19.6FT) IN WIDTH OR IN APPROVED CIRCUMSTANCES, POSTING OF SIGNAGE ON ONE SIDE OF THE ROUTE IS PERMISSIBLE.
4. SIGNS SHALL INDICATE WHERE THE FIRE ROUTE STARTS AND ENDS. IN SOME SITUATIONS WHERE BOTH NO STOPPING/NO PARKING SIGNS ARE REQUIRED, TWO SIGNS MAY BE REQUIRED ON THE SAME POST.

DETAIL 1
FIRE ROUTE SIGN DETAIL
SCALE: N.T.S.

TEMPORARY BENCHMARKS
TBM#1–
TBM#2–
TBM#3–

Town

No.	ISSUE	DATE: MM/DD/YYYY
0	ISSUED FOR REVIEW	08/28/2017
1	ISSUED FOR FIRST ENGINEERING SUBMISSION	09/19/2017
2	ISSUED FOR SECOND ENGINEERING SUBMISSION	12/14/2017
3	ISSUED FOR THIRD ENGINEERING SUBMISSION	03/16/2018
4	REVISED PER AGENCY COMMENTS	04/25/2018
5	ISSUED FOR BUILDING PERMIT	03/22/2019
6	REVISED SITE PLAN	07/25/2019

Engineer: LICENSED PROFESSIONAL ENGINEER J. G. KOUTROUBIS 7/25/19 PROVINCE OF ONTARIO

Engineer: LICENSED PROFESSIONAL ENGINEER R.A. ALEXANDER 100213093 PROVINCE OF ONTARIO

Project: 430 ESSA ROAD CITY OF BARRIE

Drawing: PAVEMENT MARKING AND SIGNAGE PLAN

CROZIER & ASSOCIATES Consulting Engineers
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705 446-3520 F
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Drawn By	Design By	Project	
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Check By	Check By	Scale	Drawing
R.A.	J.K.	1:250	105