

GENERAL NOTES - STORM SEWER

STORM SEWER

- STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.
- PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE, 300mm DIA. DOUBLE.
- 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 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
- MAINTENANCE HOLE TOPS (FRAMES) AND CATCH BASIN (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 ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2.
- STORM SEWER TO BE LOCATED OFFSET 3.0m SOUTH OR EAST OF CENTRELINE UNLESS OTHERWISE SPECIFIED.
- ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MANHOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD-708.01 OR 708.03.
- PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 50 N/m/mm CERTIFIED TO C.S.A. STANDARD A247.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974, CLASS II) OR PVC CERTIFIED TO C.S.A. STANDARDS 182.2 AND 182.4.
- STORM SEWER TO BE MINIMUM 300mm DIAMETER WITH JOINTS CONFORMING TO C.S.A. STANDARD A257.3.
- ALL PIPE BEDDING MUST CONFORM TO OPSD, MAXIMUM COVER TABLE. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6 METRES UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF ENGINEERING.
- ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURES INSTALLATION GUIDES AND THE O.C.P.A. OR UNIBELL GUIDELINES.
- 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 TO BE CAPPED AT THE UPSTREAM END AND IS TO OUTLET INTO THE NEAREST CATCHBASIN DOWNSTREAM. DEPTH OF SEWER IS TO BE EQUAL TO SUBDRAIN DEPTH. NOT TO BE DIRECTLY CONNECTED TO FOUNDATION DRAINS.

CITY OF BARRIE STANDARD

GENERAL NOTES
STORM SEWERS

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| 4. | NOTE 'K' - SUMP PUMP DISCHARGE PIPING | B.R. | 2003.01.07 | APR'D: | R.G.N. | DATE: | 92.05.15 |
| 3. | NOTE 'Y' & 'C' - "DIRECTOR OF ENGINEERING" | B.R. | 2002.10.28 | APR'D: | R.G.N. | DATE: | 92.05.15 |
| 2. | NOTE 'C' OPSD NUMBER REVISION | K.C. | 2000.03.16 | DRAWN: | L.A.J. | SCALE: | N.T.S. |
| 1. | NOTE 'D' CHANGED | K.C. | 98.03.30 | APR'D: | R.G.N. | DATE: | 92.05.15 |
| NO. | REVISION | APR'D | DATE | BSD-N5 | | | |

GENERAL NOTES

1. DRAWINGS

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

2. MEASUREMENTS

- ALL DIMENSIONS ARE IN METRES, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES, UNLESS SPECIFIED OTHERWISE.

3. GENERAL

- ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARD DRAWINGS (BSD) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).
- ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY CITY OF BARRIE STANDARD DRAWINGS (BSD) AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).
- 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.
- 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.
- A SITE ALTERATION PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTH WORKS ON THE SITE.
- NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
- GRANULAR MATERIAL, USED FOR BACKFILL, SHALL BE PLACED IN LAYERS 150mm IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.
- ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT.
- 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 CITY ENGINEERING DEPARTMENT.

CITY OF BARRIE STANDARD

GENERAL NOTES

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| 3. | 3. NOTE: 3.E. REVISED & 3.I. ADDED | J.S. | 05.01.10 | APR'D: | R.G.N. | DATE: | 92.05.15 |
| 2. | 3.D. - "ENGINEERING DEPARTMENT" | B.R. | 02.10.28 | APR'D: | R.G.N. | DATE: | 92.05.15 |
| 1. | 3.E. TOPSOIL PERMIT | B.R. | 01.12.06 | APR'D: | R.G.N. | DATE: | 92.05.15 |
| NO. | REVISION | APR'D | DATE | BSD-N6 | | | |

GENERAL NOTES - WATERMAIN

- CONTRACTORS SHALL INFORM THE CITY OF BARRIE WATER OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO PERFORM WORK ON WATER INFRASTRUCTURE.
- OPERATION OF HYDRANTS AND VALVES ON THE POTABLE WATER SYSTEM BY OTHER THAN QUALIFIED WATER OPERATIONS STAFF IS PROHIBITED BY CURRENT BY-LAW. CITY SERVICE FEES ARE PER THE CURRENT FEES BY-LAW. THE CITY'S WATER OPERATIONS STAFF WILL SWAB, PRESSURE TEST, CHLORINATE AND FLUSH ALL NEW WATERMANS.
- MINIMUM COVER OVER WATERMAIN SHALL BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWERS SHALL BE 2.5m WHERE WATERMAIN CONFLICTS WITH SEWER PIPES. DEFLECT WATERMAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5m CLEARANCE BETWEEN WATERMAIN AND SEWERS. MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES.
- WATERMAIN SHALL BE INSTALLED IN BEDDING AS PER OPSD 802.010 (GRANULAR 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS 'B' (GRANULAR 'A' BEDDING MATERIAL, GRANULAR 'A' OR SELECT NATIVE COVER MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. ALTERNATIVE EMBEDMENT MATERIAL - SAND MEETING GRADATION REQUIREMENTS OF OPSD MIN 100 (SET COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY) IS PERMISSIBLE WHERE NOTED IN STANDARD DETAILS. GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 100 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING, TOP OF PIPE AND COVER).
- COPPER WATER MAINS AND SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSD MIN 104 (S.E.07)
- RESTRAINING WILL BE REQUIRED ON ALL HYDRANTS. THRUST BLOCKS AS PER OPSD 1103.010 AND 1103.020. RESTRAINING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKING WHERE SOIL CONDITIONS WARRANT AT THE CITY'S DISCRETION.
- NEW WATERMANS TO BE PVC DR18 CL150 MINIMUM, DUCTILE IRON CL52 AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.
- TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER CLAD (HS-CSS) AND SHALL BE INSTALLED ON THE TOTAL LENGTH OF ALL WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT. ALL SPLICES TO UTILIZE CONNECTORS AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.
- ALL WATER SERVICES SHALL BE MINIMUM 25mm TYPE 'K' COPPER OR 25mm CROSS-LINKED POLYETHYLENE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. WATER SERVICE SADDLES SHALL BE USED WHEN TAPPING INTO PVC WATERMAIN.
- SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 0.6m FROM JOINTS. (ENDS OF PIPE)
- RISER PIPES ARE TO BE INSTALLED AS PER BSD-510, AND REMOVED AS DIRECTED. SWABBING SCHEDULE TO BE SUPPLIED BY A WATER OPERATIONS FIELD REPRESENTATIVE. ALL RISERS ARE TO BE RESTRAINED OR THRUST BLOCKED.
- ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.



GENERAL NOTES - WATERMAIN

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| REV No. | DATE: MAY 2015 |
| 2 | SCALE: N.T.S. |

APPROVED
DATE: May 2015
A. ZIAUDDIN
DIRECTOR OF ENGINEERING

BSD-500

GENERAL NOTES - SANITARY SEWER

SANITARY SEWERS

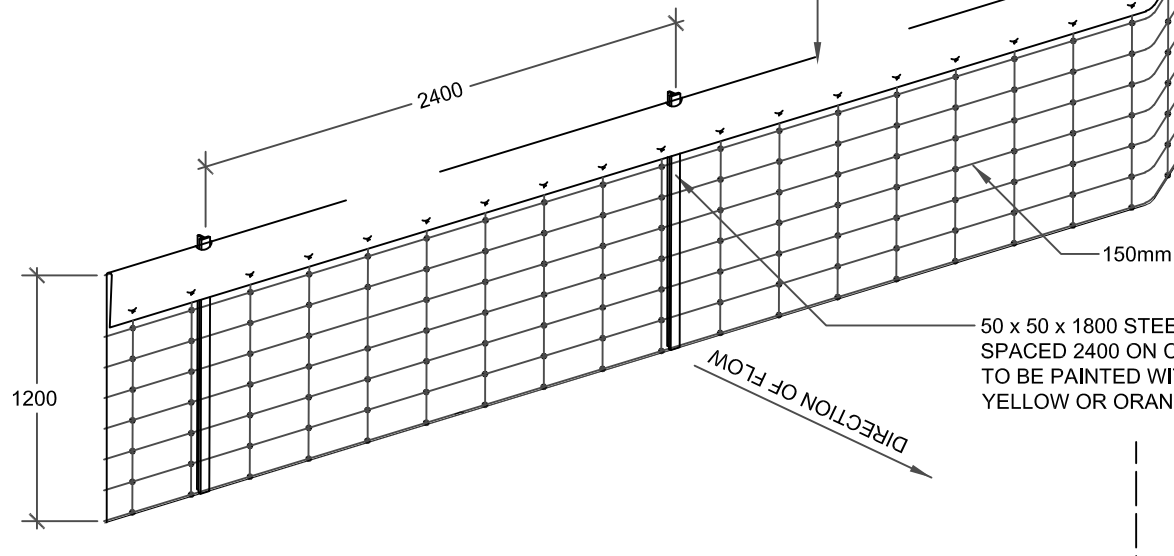
- SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD.
- SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD-802.010, (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
- MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS RECOMMENDED SPECIFICATIONS.
- PVC, CONCRETE AND PROFILE WALL PVC SEWERS SHALL HAVE RUBBER GASKET TYPE JOINTS AND SHALL BE CERTIFIED TO CONFORM TO ALL APPLICABLE CURRENT C.S.A. SPECIFICATIONS.
- CONCRETE SANITARY SEWERS SHALL HAVE A MINIMUM STRENGTH OF 50 N/m/mm CONFORMING TO CSA STANDARD A257.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974, CLASS II).
- 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 ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2.
- 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 MANUFACTURES GUIDELINES.

CITY OF BARRIE STANDARD

GENERAL NOTES
SANITARY SEWERS

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| 4. | NOTE 'B' - "ENGINEERING" | B.R. | 2002.10.28 | APR'D: | R.G.N. | DATE: | 92.05.15 |
| 3. | NOTE 'B' OPSD NUMBER REVISION | K.C. | 2000.03.16 | APR'D: | R.G.N. | DATE: | 92.05.15 |
| 2. | NOTE 'F' CHANGED | K.C. | 98.03.30 | APR'D: | R.G.N. | DATE: | 92.05.15 |
| 1. | CHANGES TO B. TO G. | K.C. | 95.04.24 | APR'D: | R.G.N. | DATE: | 92.05.15 |
| NO. | REVISION | APR'D | DATE | BSD-N3 | | | |

NON-WOVEN U.V. STABILIZED GEOTEXTILE TO BE STRETCHED TIGHT AND FOLDED OVERTOP OF FENCE A MINIMUM OF 300mm AND WIRE FASTENED



CEDAR FENCE POST TO BE PLACED AT EACH TERMINUS OR CHANGE OF DIRECTION. POSTS ARE TO BE DIRECT BURIED WITH A MINIMUM 1000 EMBEDMENT
NOTE: CEDAR POSTS ARE REQUIRED WHERE FENCE LENGTHS EXCEED 150 LINEAR METERS AND ARE NOT REQUIRED WITHIN THE MUNICIPAL BOULEVARDS

- 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.
- SILT / SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW
- SILTATION CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFORM TO M.T.O. DRAINAGE MANUAL VOLUME 2 "CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT"
- 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.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
- 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



SILTATION CONTROL
FENCING

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| REV No. | DATE: OCT 2017 |
| 2 | SCALE: N.T.S. |

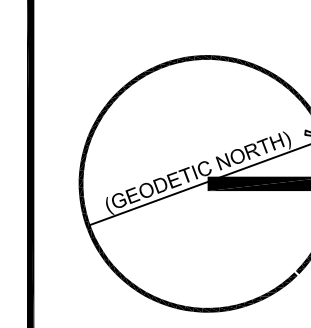
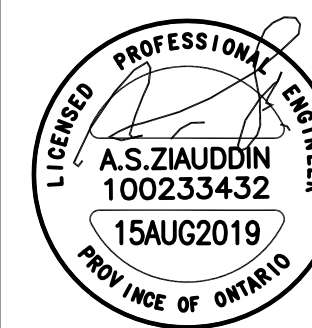
APPROVED
DATE:
A. ZIAUDDIN
DIRECTOR OF ENGINEERING

BSD-1233
FORMERLY BSD-23A



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15th AUGUST 2019

THIS DRAWING TO BE READ WITH CONJUNCTION OF OTHER CIVIL DRAWINGS, ARCHITECTURAL SITE PLAN, MECHANICAL & PLUMBING DRAWINGS.

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| 1 | 15 AUG. 2019 | ISSUED FOR SPA | AZ |
| No. | Date | Version | Dwn. |

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PROJECT:
**PROPOSED ADDITION
TO FAIRFIELD INN AND
SUITES (MARRIOTT)
261 ESSA ROAD
BARRIE, ONTARIO**

DRAWING TITLE:
**DETAIL
&
STANDARDS**

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| DRAWN BY: AZ | DATE: 15 MAY, 2019 |
| CHECKED BY: AZ | SCALE: 1:350 |
| PROJECT NO.: | DRAWING NO.: |
| 13-15 | C4 |