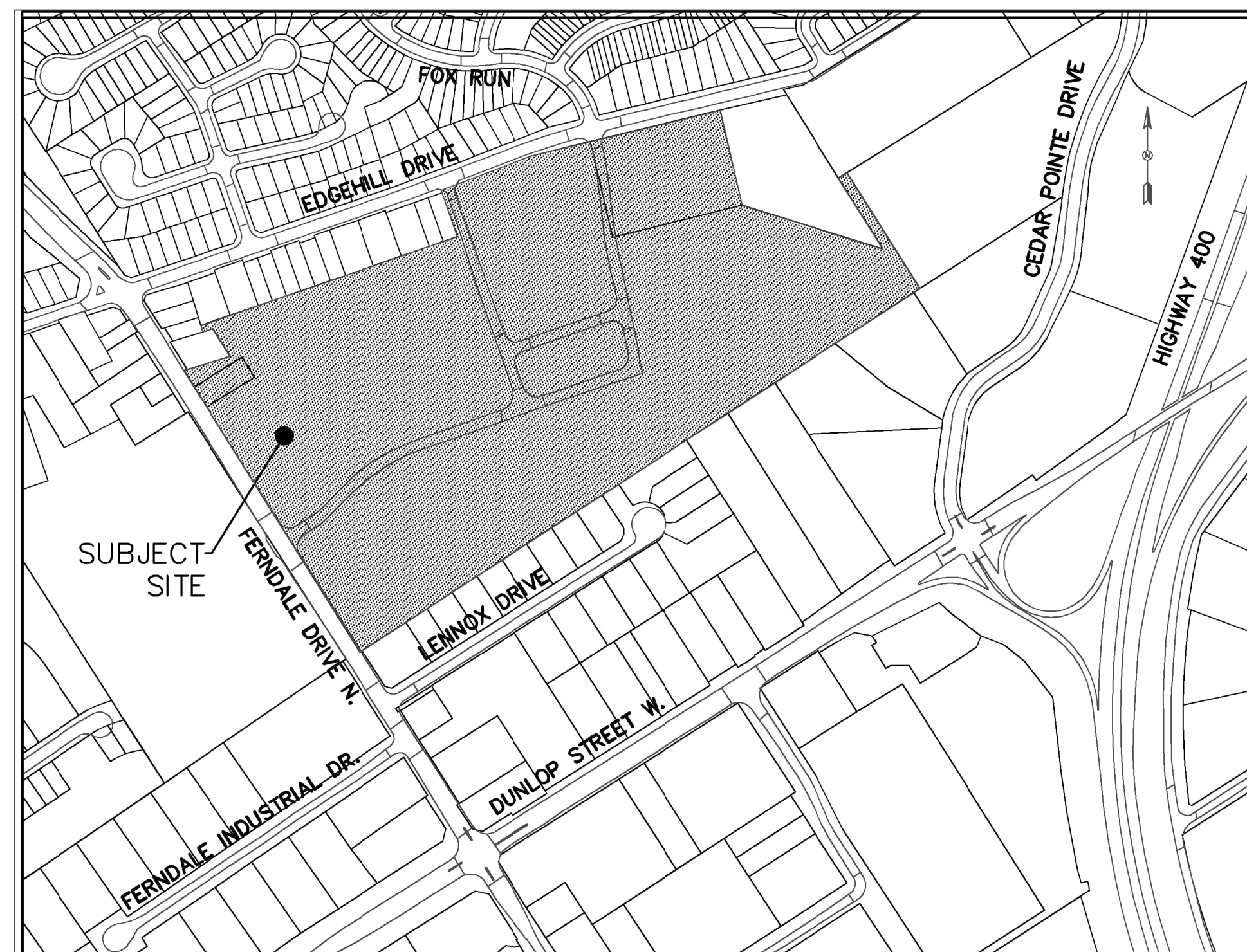




INFRASTRUCTURE DEPARTMENT

BARRIE OPERATIONS CENTRE CITY OF BARRIE

JULY 2023



KEY PLAN
NOT TO SCALE

LIST OF DRAWINGS

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ISSUED FOR SITE PLAN APPLICATION

PROJECT # 60693639

GENERAL NOTES

1. DRAWINGS

- A. THE NOTES ON THIS SHEET APPLY TO ALL WORKS UNDER THIS CONTRACT UNLESS OTHERWISE NOTED ON THE PLAN AND PROFILE DRAWINGS AND/OR SPECIFIC DETAIL DRAWINGS.
- B. THE STANDARD DRAWINGS OF THE CITY OF BARRIE, INNPWER, ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS (OPSS) AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) CONSTITUTE PART OF THE PLANS OF THIS CONTRACT.
- C. ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY CITY OF BARRIE AND INNPWER DRAWINGS AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS.
- D. THE STANDARD DRAWINGS INCLUDED WITH THESE PLANS ARE PROVIDED FOR CONVENIENCE ONLY AND ARE NOT TO BE CONSTRUED TO BE A COMPLETE SET FOR THE PURPOSE OF THE CONTRACT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL RELEVANT STANDARD DRAWINGS AND SPECIFICATIONS AS REQUIRED FOR THIS CONTRACT.

2. MEASUREMENTS

- A. ALL DIMENSIONS ARE IN METRES, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES, UNLESS SPECIFIED OTHERWISE.
- B. 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
 - A. EXISTING SERVICES AND UTILITIES SHOWN ON THESE CONTRACT DRAWINGS ARE BASED ON THE BEST INFORMATION AVAILABLE AND THEIR LOCATIONS ARE NOT GUARANTEED. THE CONTRACTOR SHALL INTERPRET THIS INFORMATION AS HE WISHES WITH THE UNDERSTANDING THAT THE OWNER DISCLAIMS ALL RESPONSIBILITY FOR ITS ACCURACY AND/OR SUFFICIENCY. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.
 - B. EXISTING SURVEY COMPLETED BY OTHERS.
 - C. A RIGHT OF WAY ACTIVITY PERMIT IS REQUIRED FROM THE R.O.W.A. DEPARTMENT PRIOR TO THE COMMENCEMENT OF WORK WITHIN ANY CITY RIGHT-OF-WAY.
 - D. PRIOR TO COMMENCING ANY WORK INSTALL SNOW FENCING ALONG THE DRIP LINE OF THE DESIGNATED TREES AS SHOWN ON THE DRAWINGS. REFERENCE SHOULD ALSO BE MADE TO THE TREE PRESERVATION REQUIREMENTS AS SHOWN ON THE LANDSCAPE ARCHITECT'S PLAN. MAINTAIN THE TREES AT ALL TIMES TO ENSURE THAT ACCESS TO THE AREA BENEATH THE TREES IS PREVENTED. STORAGE OF EQUIPMENT AND SUPPLIES SHALL NOT BE PERMITTED WITHIN THIS AREA.
 - E. 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.
 - F. NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
 - G. GRANULAR MATERIAL, USED FOR BACKFILL, SHALL BE PLACED IN LAYERS 150mm IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.
 - H. UTILITY CROSSINGS, WHERE REQUIRED, SHALL BE SUPPORTED AS PER APPLICABLE UTILITY AGENCY REQUIREMENTS.
 - I. THE CONTRACTOR IS RESPONSIBLE (IF REQUIRED) FOR SUPPORTING ANY EXISTING UTILITIES AND/OR STRUCTURES IN ACCORDANCE WITH THE SPECIFICATIONS OF THE UTILITY COMPANY CONCERNED.
 - J. ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY INFRASTRUCTURE DEPARTMENT. ALL GRASS AND VEGETATION COVERED AREAS SHALL BE RESTORED BY PLACING 200mm OF APPROVED TOPSOIL AND NURSERY SOO UNLESS NOTED OTHERWISE.
 - K. WRITTEN PERMISSION SHALL BE OBTAINED BY THE OWNER OF THE LANDS EXTERNAL TO THE SUBJECT PROPERTY PRIOR TO UNDERTAKING ANY WORK ON THEIR PROPERTY. THE WORK TO BE UNDERTAKEN ON THESE LANDS INCLUDES TREE REMOVAL AND CONSTRUCTING SERVICED ROADWAYS. GRADING AS REQUIRED TO MATCH EXISTING GROUND INTO THE PROPOSED STREET LINE. ELEVATIONS SHALL BE DONE AT A MAXIMUM SLOPE OF 3:1. FURTHERMORE, ALL DISTURBED AREAS WITHIN THE ADJACENT LANDS SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER.
 - L. ALL GRADING MUST CONFORM TO THE CITY OF BARRIE LOT GRADING POLICIES CURRENTLY IN EFFECT.
 - M. A SITE ALTERATION PERMIT IS REQUIRED FROM THE INFRASTRUCTURE DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTH WORKS ON SITE.

- 4. ROADS
 - A. THE ROAD PAVEMENT STRUCTURE SHALL CONSIST OF THE FOLLOWING:
HEAVY DUTY:
 - 40mm HL3 ASPHALT
 - 70mm HL4 OR HL5 ASPHALT
 - 150mm GRANULAR "A"
 - 450mm GRANULAR "B"
 - B. NATIVE SUBGRADE SHALL HAVE A CROSSFALL OF 3%.
 - C. NATIVE SUBGRADE TO BE COMPACTED TO MINIMUM 95% STANDARD PROCTOR MAXIMUM DRY DENSITY AND SHALL BE PROOF ROLLED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO INSTALLATION OF GRANULARS.
 - E. ALL CURB AND GUTTER SHALL BE CONSTRUCTED AS PER THE ENGINEERING DRAWINGS AS FOLLOWS: - BARRIER CURB AS PER OPSD 600.040
 - F. ALL CURBS SHALL BE DEPRESSED AT ALL WALKWAY, DRIVEWAY AND SIDEWALK LOCATIONS.
 - G. ALL CURB RADI TO BE 8.0 METRES AT THE EDGE OF ASPHALT, UNLESS SHOWN OTHERWISE.
 - H. CONCRETE STRENGTH FOR CURB AND GUTTER TO BE 30 MPa AT 28 DAYS.
 - I. SIDEWALKS TO COMPLY WITH OPSD 310.010 AND ARE TO BE 1.5 METRES WIDE. MINIMUM THICKNESS AS FOLLOWS:
 - COMMERCIAL DRIVEWAY 200mm (REINFORCEMENT AS PER OPSS IF REQUIRED)
 - WHEN NO DRIVEWAY IS PRESENT, 125mm.
 - J. SIDEWALKS TO BE CONSTRUCTED ON 150mm GRANULAR "A" BEDDING UNLESS OTHERWISE SPECIFIED BY THE DIRECTOR OF DEVELOPMENT SERVICES.
 - K. CONCRETE STRENGTH FOR SIDEWALK TO BE 30 MPa AT 28 DAYS.
 - L. DRIVEWAY GRADES TO BE A MINIMUM OF 2.0% AND A MAXIMUM OF 7.0%.
 - M. CONCRETE CURB AND GUTTER TERMINATIONS SHALL CONFORM WITH OPSD 608.01 WHERE SPECIFIED.
 - N. GRADE AND CROSS FALL ADJUSTMENT OF MAINTENANCE HOLE AND CATCH BASIN FRAMES WILL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE. THE TOP ADJUSTMENT UNIT OF ALL CATCH BASIN AND MAINTENANCE HOLES SHALL BE RUBBER.
 - O. ADJUSTMENT UNITS MUST BE IDENTIFIED TO MEET ALL PERTINENT OPS, CSA, ASTM AND WFO-DSM LIST, OR OTHER INDUSTRY GUIDELINES FOR MATERIALS, PERFORMANCE AND USE AS APPLICABLE.
 - P. ADJUSTMENT UNITS AND JOINTS WILL BE SEALED AND OR PARGED IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATIONS AND GUIDELINES.
 - Q. MORTAR IS TO BE USED FOR LEVELLING 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.
 - R. NON-COMPRESSIBLE BACK FILL WILL BE USED DURING REBUILDING, ADJUSTING, OR ANY OTHER APPLICABLE CATCH BASIN OR MAINTENANCE HOLE WORKS.

5. SANITARY SEWERS

- A. SANITARY SEWER TO BE LOCATED AS SHOWN ON DRAWING.
- B. MAXIMUM PIPE DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY CSA, OPS OR MANUFACTURERS RECOMMENDED SPECIFICATIONS. FLEXIBLE PIPE SHALL BE PVC DR35 OR APPROVED EQUIVALENT, WITH RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO CSA (B-182.2.3.4), RIGID PIPE SHALL BE REINFORCED CONCRETE WITH A STRENGTH OF 100N/mm/m CONFORMING TO CSA STANDARD A257.2-M1982 CLASS 1000. PIPE JOINTS TO BE RUBBER GASKET AS PER CSA STANDARD A257.3.
- C. FLEXIBLE SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.010 (GRANULAR "A" FOR BEDDING AND COVER MATERIAL). RIGID SEWERS SHALL BE CONSTRUCTED WITH CLASS "B" BEDDING (GRANULAR "A" MATERIAL) AS PER OPSD 802.030, 802.031 AND 802.032 AS APPLICABLE. MATERIAL MAY BE REPLACED ONLY BY APPROVAL OF THE DIRECTOR OF DEVELOPMENT SERVICES.
- D. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6.0 METRES UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF DEVELOPMENT SERVICES.
- E. PRECAST MAINTENANCE HOLES SHALL BE IN ACCORDANCE WITH OPSD 701.010 (1200mm DIAMETER). PRECAST MAINTENANCE HOLES GREATER THAN 5.0 METRES DEEP SHALL BE CONSTRUCTED WITH A SAFETY PLATFORM IN ACCORDANCE WITH OPSD 404.020. FRAME AND COVER SHALL BE IN ACCORDANCE WITH OPSD 401.01 TYPE "A".
- F. MAINTENANCE HOLE TOPS ARE TO BE SET TO BASE COURSE ASPHALT GRADE, AND THEN ADJUSTED TO FINAL GRADE WHEN TOP LIFT OF ASPHALT IS PLACED, GRADE AND CROSS FALL ADJUSTMENT SHALL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE AND THE TOP ADJUSTMENT UNIT SHALL BE RUBBER. ALL ADJUSTMENTS SHALL CONFORM TO R300A AND S606
- G. ALL CONNECTIONS TO THE SANITARY MAIN SHALL BE MADE WITH PRE-MANUFACTURED APPROVED TEES.
- H. MAINTENANCE HOLE BENCHING SHALL CONFORM WITH OPSD 701.021.
- I. DROP STRUCTURES SHALL CONFORM WITH OPSD 103.020 FOR EXTERNAL AND S605 FOR INTERNAL IF MAINTENANCE HOLE IS 1500mm OR GREATER

7. STORM SEWER

- A. MAXIMUM PIPE DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY CSA, OPS OR MANUFACTURERS RECOMMENDED SPECIFICATION. FLEXIBLE PIPE SHALL BE PVC DR35 OR APPROVED EQUIVALENT, WITH RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO CSA (B-182.2.3.4), RIGID PIPE SHALL BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 65N/mm/m CONFORMING TO CSA STANDARD A257.2-M1982 CLASS 650 and OPSD 807.01. PIPE JOINTS TO BE RUBBER GASKET AS PER CSA STANDARD A257.3.
- B. STORM SEWER MINIMUM SIZE IS 300mm DIA. ALL STORM PIPE WITH A DEPTH OF COVER EQUAL TO OR GREATER THAN 6.0 METRES SHALL BE REINFORCED CONCRETE PIPE. ALL STORM PIPE WITH AN INSIDE DIAMETER GREATER THAN 900mm, IRRESPECTIVE OF DEPTH, SHALL ALSO BE REINFORCED CONCRETE PIPE.
- C. STORM SEWER TO BE LOCATED AS SHOWN ON DRAWINGS.
- D. STORM SEWERS SHALL BE CONSTRUCTED AS PER OPSD 802.030, 802.031, AND 802.032, AS APPLICABLE, WITH CLASS "B" BEDDING (GRANULAR "A" MATERIAL) FOR RIGID PIPE AND OPSD 802.010 (GRANULAR "A" BEDDING AND COVER MATERIAL) FOR FLEXIBLE PIPE, UNLESS APPROVED OTHERWISE BY THE DIRECTOR OF DEVELOPMENT SERVICES.
- E. PRECAST MAINTENANCE HOLES SHALL BE 1200mm DIAMETER UNLESS OTHERWISE SPECIFIED, AND SHALL BE IN ACCORDANCE WITH OPSD 701.010, 701.011, 701.012 AND 701.013. PRECAST MAINTENANCE HOLES GREATER THAN 5.0m DEEP SHALL BE CONSTRUCTED WITH A SAFETY PLATFORM IN ACCORDANCE WITH OPSD 404.020. FRAME AND COVER SHALL BE IN ACCORDANCE WITH OPSD 401.01 TYPE "A".
- F. CATCHBASINS TO BE 600mm SQUARE PRECAST CONCRETE TO OPSD 705.010, OR WHERE SPECIFIED, 600mm X 1450mm PRECAST CONCRETE TO OPSD 705.020. FRAME AND GRATE TO OPSD 400.02 AND FISH TYPE COVER AS PER OPSD 400.050. DITCH INLET CATCHBASINS TO BE AS PER OPSD 705.030 OR 705.040, AS SPECIFIED COMPLETE WITH FRAME AND GRATE TO OPSD 403.010. DITCH INLET CATCHBASN SLOPES ARE TO BE 3:1 UNLESS NOTED OTHERWISE.
- G. PLACE ALL CATCH-BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIAMETER FOR SINGLE, 300mm DIAMETER FOR DOUBLE AND TO BE PVC DR 35.
- H. ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MAINTENANCE HOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD 708.01 OR 708.03. CATCHBASIN LATERALS CONNECTED TO MAINTENANCE HOLE SHALL HAVE A MAXIMUM INVERT TO INVERT DROP OF 900mm.
- I. MAINTENANCE HOLE BENCHING SHALL CONFORM WITH OPSD 701.021. MAINTENANCE HOLE DROP STRUCTURE TO BE AS PER OPSD 103.020 OR S605
- J. MAINTENANCE HOLE AND CATCHBASIN TOPS ARE TO BE SET TO BASE COURSE ASPHALT GRADE, AND THEN ADJUSTED TO FINAL GRADE WHEN TOP LIFT OF ASPHALT IS PLACED. GRADE AND CROSSFALL ADJUSTMENT SHALL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE AND THE TOP ADJUSTMENT UNIT SHALL BE RUBBER. ALL ADJUSTMENTS SHALL CONFORM TO R300A2 AND S606.
- K. PRECAST CONCRETE MAINTENANCE HOLE TEES SHALL CONFORM WITH OPSD 707.010.
- L. PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 100 N/m/m/m CERTIFIED TO C.S.A. STANDARD A247.2-1982, CLASS 100-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974, CLASS I) OR PVC CERTIFIED TO C.S.A. STANDARDS 182.2 AND 182.4.I PIPE JOINTS TO BE RUBBER GASKET AS PER CSA STANDARD A257.3.

6. WATERMAINS

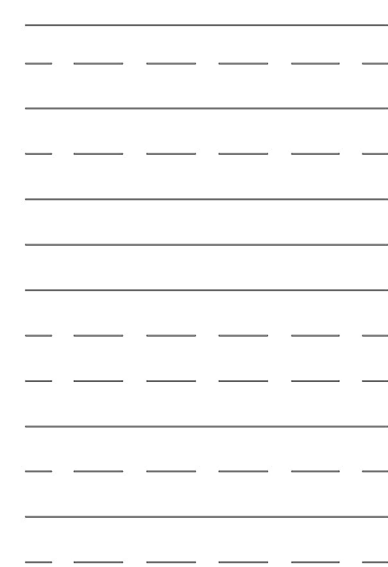
- A. WATERMAIN MATERIAL TO BE POLYVINYL CHLORIDE (PVC) CLASS 150 (DR18) OR DUCTILE IRON CLASS 52. PVC WATERMAIN SHALL INCLUDE #12 HIGH STRENGTH COPPER CLAD (HS-CSS) TRACER WIRE AND SHALL BE INSTALLED ON THE TOTAL LENGTH OF THE WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT. ALL SPLICES TO UTILIZE CONNECTORS AS PER THE APPROVED MANUFACTURES LIST.
- B. PVC PUSH-ON FITTINGS MEETING AWWA SPECIFICATION C-807 AND CSA B137.2 MAY BE USED ON PVC WATERMAIN 150mm TO 200mm IN DIAMETER. DUCTILE IRON FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C153 OR AWWA C110. MECHANICAL JOINTS SHALL CONFORM TO AWWA C111.
- C. ALL MECHANICAL JOINT FITTINGS SHALL HAVE SACRIFICIAL ANODES "PROTECTO CAPS" INSTALLED ON EVERY BOLT.
- D. WATERMAIN AND WATER SERVICES TO BE LOCATED AS SHOWN ON DRAWING.
- E. THE MINIMUM HORIZONTAL SEPARATION BETWEEN THE WATERMAIN AND THE SANITARY/STORM SEWER IS TO BE 2.5 METRES.
- F. A MINIMUM OF 0.5 METRES VERTICAL CLEARANCE BETWEEN THE WATERMAIN AND ALL UTILITIES MUST BE KEPT, WHILE STILL MAINTAINING A MINIMUM DEPTH OF COVER AT ALL TIMES.
- G. WATERMAINS SHALL BE INSTALLED WITH A MINIMUM COVER OF 1.7m OVER THE MAINS.
- H. THE CONTRACTOR SHALL INFORM THE CITY OF BARRIE WATER OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF COMMENCING WORK. 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 PER THE CURRENT BY-LAW FEES. THE CITY'S WATER OPERATIONS STAFF WILL SWAB, PERSSURE TEST, CHLORINATE AND FLUSH ALL NEW WATERMAINS.
- I. WATERMAIN SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD 802.010 (1) (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, OR * ALTERNATIVE.
- I.A. * ALTERNATIVE EMBEDMENT MATERIAL - SAND MEETING GRADATION REQUIREMENTS OF OPSS:MUNI 1004.05.05 COMPACTED TO 95% PROCTOR DENSITY. GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METERS, THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING AND TOP OF PIPE).
- J. ALL FILL AREAS SHALL BE FILLED TO SUB-GRADE PRIOR TO INSTALLATION. FILL AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY PRIOR TO THE INSTALLATION OF THE WATERMAIN.
- K. WHERE THE WATERMAIN ELEVATION EXCEEDS THE ELEVATION OF ANY OTHER UTILITY/SERVICE AND WHERE THE VERTICAL SEPARATION BETWEEN THE WATERMAIN AND THE OTHER SERVICE EXCEED THE HORIZONTAL SEPARATION, THEN THE WATERMAIN SHALL BE RESTRAINED. REFER TO DRAWING W512 SHOWING A TYPICAL RESTRAINED WATERMAIN.
- L. PIPE DEFLECTION SHOULD BE USED WHEREVER POSSIBLE TO MINIMIZE THE USE OF BENDS. WHEREVER IT IS NECESSARY TO DEFLECT FROM A STRAIGHT LINE, EITHER IN THE VERTICAL OR HORIZONTAL PLANE, THE AMOUNT OF DEFLECTION SHALL NOT EXCEED THAT REQUIRED FOR SATISFACTORY MAKING UP OF THE JOINT, AS DIRECTED BY THE MANUFACTURER.
- M. CONCRETE THRUST BLOCKS ARE TO INSTALLED AT ALL TEES, BENDS, HYDRANTS, ENDS OF MAINS AND CONNECTIONS 100mm AND LARGER, AS PER OPSD 1103.010.
- N. AT ALL THRUST BLOCK LOCATIONS IN FILL AREAS, ALL SEGMENTS OF THE FITTING AND THE WATERMAIN SHALL BE TIED USING ENDO UNDERGROUND BELL JOINT CLAMPS OR EQUIVALENT, OR TIE-RODS INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. WHERE THE DEFLECTION ANGLE AT THE THRUST BLOCK IS MORE THAN 45; ADDITIONAL TIE-ROD ASSEMBLIES SHALL BE INSTALLED FOR AT LEAST 10 METRES EACH SIDE OF THE THRUST BLOCK. IMPORTED GRANULAR FILL (GRANULAR "B" OR EQUIVALENT) IS TO BE USED BEHIND THE THRUST BLOCK AND FOR A MINIMUM DISTANCE OF 2 METRES EACH SIDE OF THE THRUST BLOCK. THE IMPORTED GRANULAR FILL IS TO BE COMPACTED TO A MINIMUM OF 100% STANDARD PROCTOR MAXIMUM DRY DENSITY. PRIOR TO CONSTRUCTION OF THE THRUST BLOCKS, THE CONTRACTOR SHALL OBTAIN THE WRITTEN APPROVAL OF THE BACKFILL FROM A QUALIFIED GEOTECHNICAL ENGINEER. TIE-RODS AND CLAMPS SHALL BE GIVEN TWO COATS OF BITUMASTIC PAINT.
- O. FIRE HYDRANTS TO BE CANADA CENTURY OR CONCORD-DAIGLE INC. CONFORMING TO CITY OF BARRIE SPECIFICATION BSD-507. HYDRANT TEES TO BE ANCHOR STYLE WITH ADJUSTABLE FLANGE. RESTRAINT WILL BE REQUIRED ON ALL FIRE HYDRANTS. THRUST BLOCKS, AS PER OPSD 1103.010 AND 1103.020. ADDITIONAL RESTRAINING DEVICES IN ADDITION TO STANDARD THRUST BLOCKING MAY BE REQUIRED WHERE SOIL CONDITIONS WARRANT AT THE CITY'S DISCRETION.
- P. HYDRANT FLANGE ELEVATIONS SHALL BE SET AT A GRADE THAT WILL GIVE A FLANGE ELEVATION OF 50mm TO 100mm ABOVE THE FINAL GRADE.
- Q. HYDRANTS SHALL BE LOCATED AS SHOWN ON DRAWINGS.
- R. HYDRANTS SHALL BE INSTALLED ON ALL DEAD-END WATERMAINS. AT THE DISCRETION OF THE CITY COMMISSIONER REPRESENTATIVE, A BLOW-OFF MAY BE UTILIZED INSTEAD OF A HYDRANT.
- T. SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM FROM JOINTS (ENDS OF PIPES).
- V. SWABBING SCHEDULE TO BE SUPPLIED BY A WATER OPERATIONS FIELD REPRESENTATIVE. ALL RISERS ARE TO BE RESTRAINED OR THRUST BLOCKED.
- S. ALL VALVES ARE TO BE RESILIENT SEAT GATE VALVES COMPLETE WITH VALVE BOX. VALVES SHALL BE LOCATED AT INTERSECTIONS SO AS TO BE IN THE BOULEVARD BEHIND THE CURB RADIUS. 500mm VALVES TO BE BUTTERFLY VALVES.
- T. VALVES IN EXCESS OF 1.7m IN DEPTH SHALL REQUIRE A VALVE STEM EXTENSION.
- U. OPERATION OF FIRE HYDRANTS AND VALVES ON POTABLE WATER BY OTHER THAN THE CITY'S WATER OPERATIONS BRANCH 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.
- V. TRACING WIRE (12# TWJ STRANDED COPPER) TO BE INSTALLED AS PER W500B ON THE TOTAL LENGTH OF ALL PVC WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND CONNECTED TO FLANGE BOLT.
- W. RISER PIPES ARE TO BE INSTALLED AS PER W510 AND REMOVED AS DIRECTED.
- X. CONTRACTOR IS RESPONSIBLE FOR ALL TIE-INS INCLUDING MATERIALS AND EXCAVATION UNDER THE SUPERVISION OF THE CITY OF BARRIE. ONE INITIAL TIE-IN COMPLETE WITH CONTROL VALVE MAY BE INSTALLED IN PLACE OF A BY-PASS COMPLETE WITH CHECK VALVE AND SHUT OFF.
- Y. THE CITY OF BARRIE WILL SWAB, PRESSURE TEST, CHLORINATE AND FLUSH THE NEW WATERMAINS. ANY SWABBING, PRESSURE TESTING, CHLORINATION AND FLUSHING BEYOND THE INITIAL PROCEDURE WILL BE CHARGED BACK TO THE CONTRACTOR. THE CONTRACTOR WILL MAKE ALL CONNECTIONS TO THE EXISTING WATERMAINS INCLUDING EXCAVATION, BACKFILL AND MATERIALS AS REQUIRED.
- Z. CONTRACTOR TO BE RESPONSIBLE FOR INSTALLATION AND MATERIALS TO INSTALL INITIAL TIE-IN REQUIRED TO FACILITATE THE SWABBING AND PRESSURE TESTING OF THE NEWLY INSTALLED DISTRIBUTION SYSTEM PRIOR TO CONNECTING OF THE EXISTING SYSTEM. PRESSURE TESTS TO 1,035 kPa (150psi) FOR TWO HOURS, WITHOUT PRESSURE DROP. WATERMAIN TO BE SWABBED AND CHLORINATED BY THE CITY OF BARRIE WITH CONTRACTORS ASSISTANCE. UPON SUCCESSFUL TEST RESULTS OF THE CONTRACTORS INSTALLED SYSTEM, THE TEMPORARY BY PASSES ARE TO BE REMOVED. CHLORINATE AT 50 mg/L CONCENTRATION FOR 24 HOURS. COLLECT SAMPLES FOR BACTERIOLOGICAL TESTING.

9. WATER SERVICES

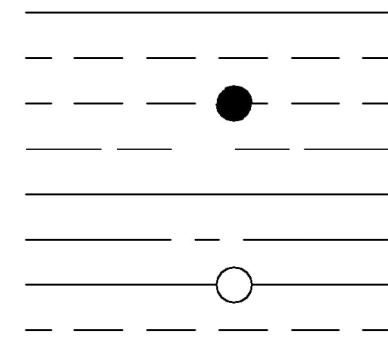
- A. WATER SERVICE SHALL BE 50mm IN DIAMETER, TYPE "K" (W.H.) THIRD PARTY SOFT COPPER TUBING.
- B. A MINIMUM HORIZONTAL SEPARATION OF 2.5m SHALL BE MAINTAINED BETWEEN WATER AND SEWER SERVICE LATERALS, UNLESS SHOWN OTHERWISE.
- C. THE MINIMUM DEPTH OF COVER IS 1.7m.
- D. NEW CURB STOPS AND SERVICE BOXES SHALL BE LOCATED AS SHOWN ON DRAWING (REFER TO DRAWING W511).
- E. NO COUPLINGS WILL BE ALLOWED BETWEEN THE CURB STOP AND MAIN
- F. INSULATE WATER SERVICES AT UTILITY CROSSINGS WITH STYROFOAM H-40 INSULATION WHERE 0.5m SEPERATION CANNOT BE MAINTAINED.

EXISTING

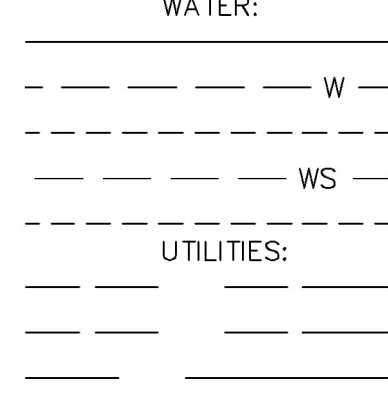
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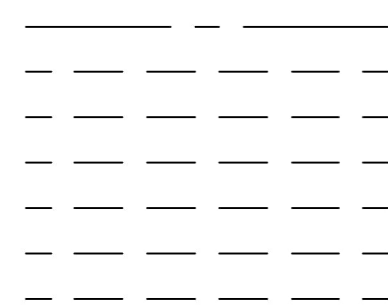
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WATER:

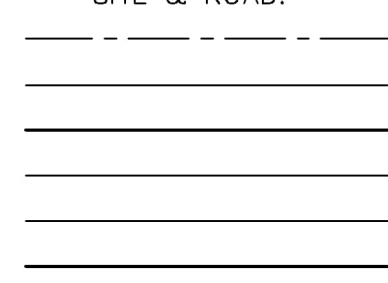


UTILITIES:

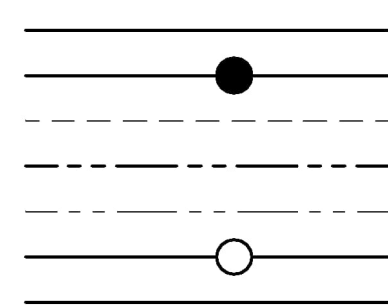


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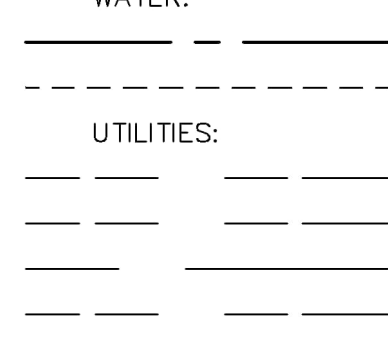
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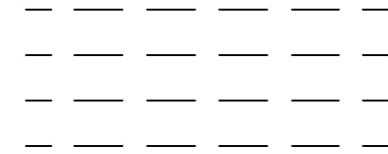
SEWER:



WATER:



UTILITIES:



- EX. BUILDINGS
- EX. CURB
- EX. DITCH, SWALE
- EASEMENT LINE
- EX. FENCE
- LOT LINE
- MISCELLANEOUS
- EX. EDGE OF PAVEMENT
- EX. PROFILE
- RIGHT OF WAY
- EX. EDGE OF SHOULDER
- TOP OR BOTTOM SLOPE,BERM
- EX. SIDEWALK

- EX. SANITARY LABELS, NOTES
- EX. SANITARY MAIN
- EX. SANITARY MAINTENANCE HOLE
- SANITARY SERVICE
- EX. STORM LABELS, NOTES
- EX. STORM MAIN
- EX. STORM MAINTENANCE HOLE
- EX. CULVERT
- EX. STORM SERVICE, CB CONNECTION

- EX. NOTES, VALVE, HYDRANT ETC.
- EX. WATER MAIN
- EX. WATER MAIN IN PROFILE
- EX. WATER SERVICE
- EX. SPRINKLER SYSTEM

- EX. UNDERGROUND BELL
- EX. UNDERGROUND CABLE TV
- EX. UNDERGROUND GAS
- EX. UNDERGROUND HYDRO
- EX. UNDERGROUND CONDUIT (TRAFFIC LIGHTS ETC.)
- EX. ABOVEGROUND TRAFFIC (SIGNAL LOOPS, CONDUIT)
- EX. ABOVEGROUND BELL
- EX. ABOVEGROUND CABLE TV
- EX. ABOVEGROUND GAS
- EX. ABOVEGROUND HYDRO
- EX. ABOVEGROUND TRAFFIC

- CENTRELINE AND/OR BASELINE
- DITCH LINE
- PAVEMENT EDGE
- LANE AND PAVEMENT MARKING
- SHOULDER EDGE
- SIDEWALK

- SANITARY MAIN
- SANITARY MAINTENANCE HOLE
- SANITARY SERVICE
- STORM MAIN / SUBDRAIN / SERVICE
- LEAD / SUBDRAIN / SERVICE
- STORM MAINTENANCE HOLE
- CULVERTS

- WATER MAIN
- WATER SERVICE

- UNDERGROUND BELL
- UNDERGROUND CABLE TV
- UNDERGROUND GAS MAIN
- UNDERGROUND HYDRO
- UNDERGROUND CONDUIT (TRAFFIC LIGHTS ETC.)
- ABOVEGROUND BELL
- ABOVEGROUND CABLE TV
- ABOVEGROUND GAS MAIN
- ABOVEGROUND HYDRO



PROJECT

BARRIE OPERATIONS CENTRE

CITY OF BARRIE

CLIENT

CITY OF BARRIE

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VERTICAL CONTROL MONUMENTS

BENCHMARKS:
TBM#1 FL 237.75m
TOP OF NORTHEAST CORNER OF CONCRETE PAD FOR COMMUNICATIONS CABINET, SE OF ENTRANCE FROM FERNDALE DRIVE. N44.378904, E-79.722307

TBM#2 FL 242.81m
DOUBLE NAILS IN EAST FACE OF HYDRO POLE, SE CORNER OF WESTERLY ENTRANCE FROM EDGEHILL DRIVE. N44.382244, E-79.720227

TBM#3 FL 241.74m
DOUBLE NAILS IN EAST FACE OF HYDRO POLE, SE CORNER OF EASTERLY ENTRANCE FROM EDGEHILL DRIVE. N4.382670, E-79.718332

REGISTRATION



ISSUE/REVISION

NO.	DATE	DESCRIPTION
1	2023-07-25	FOR SITE PLAN APPLICATION
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60693639

SHEET TITLE

STAGE 1
GENERAL NOTES
AND LEGEND

SHEET NUMBER

GN

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BENCHMARKS:
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TOP OF NORTHEAST CORNER OF CONCRETE PAD FOR
COMMUNICATIONS CABINET, SE OF ENTRANCE FROM
FERDALE DRIVE. N44.378904, E-79.722307

TBM#2 EL. 242.81m
DOUBLE NAILS IN EAST FACE OF HYDRO POLE, SE
CORNER OF WESTERLY ENTRANCE FROM EDGEHILL
DRIVE. N44.382244, E-79.720227

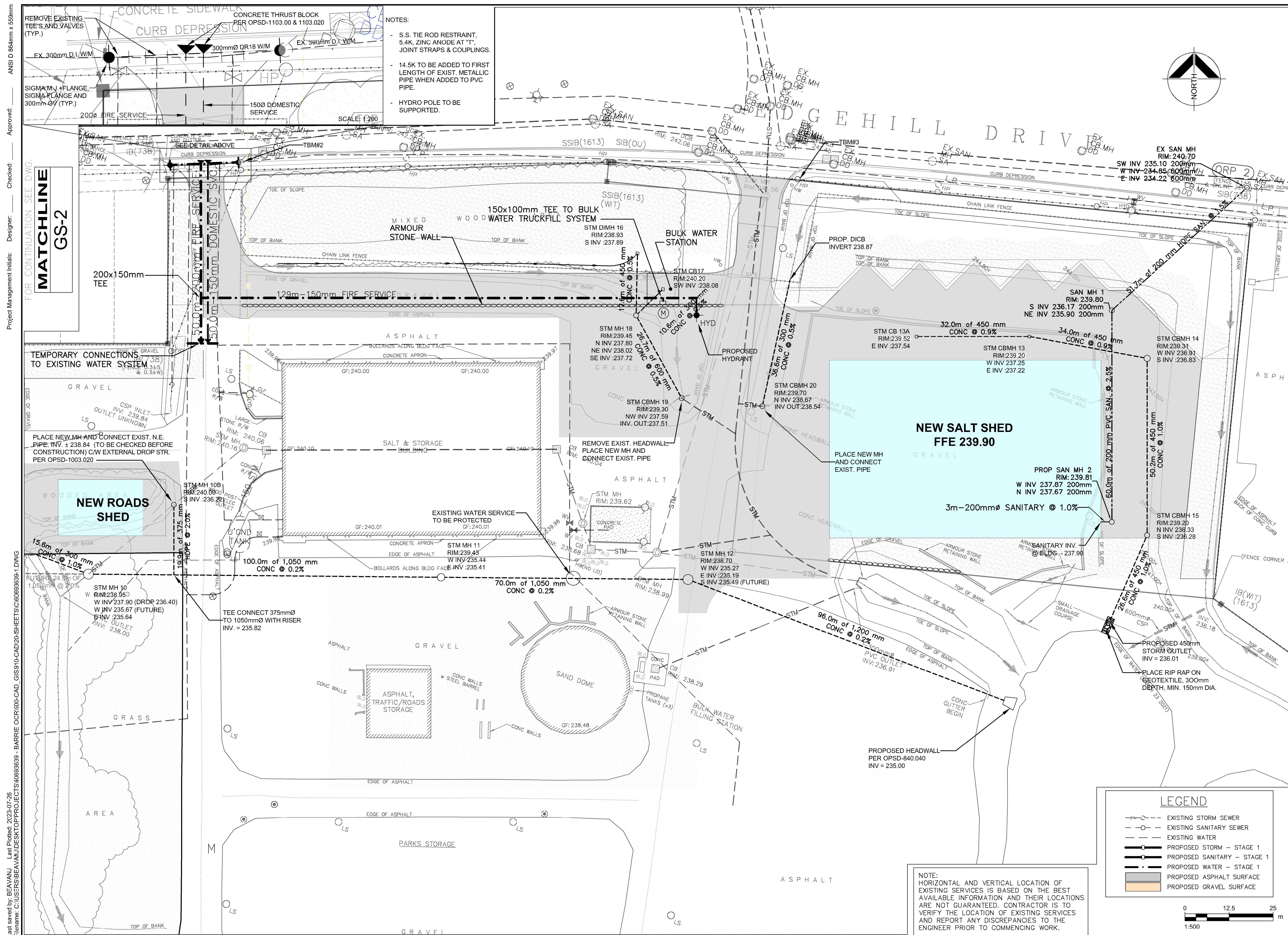
TBM#3 EL. 241.74m
DOUBLE NAILS IN EAST FACE OF HYDRO POLE, SE
CORNER OF EASTERLY ENTRANCE FROM EDGEHILL
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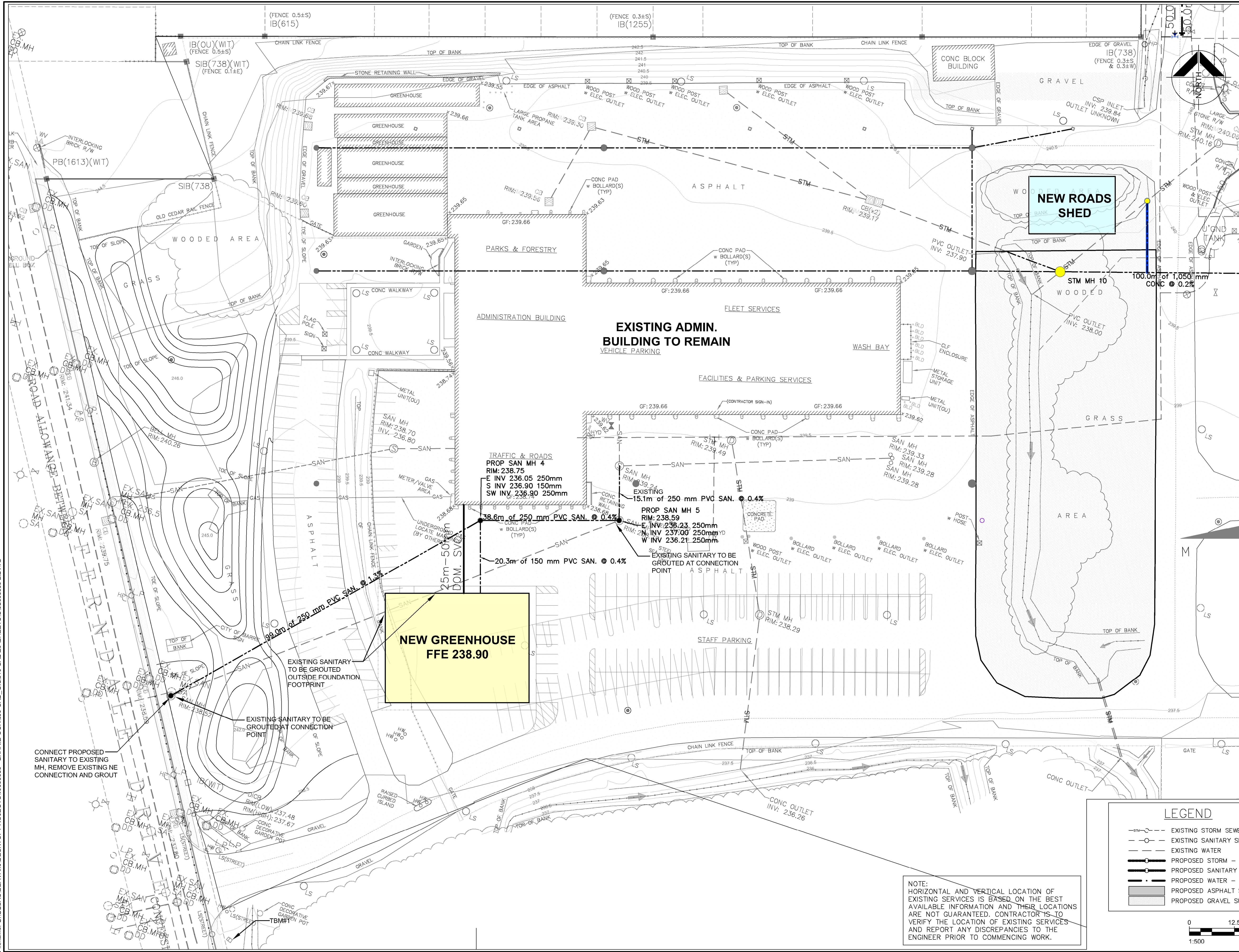
1	2023-07-25	FOR SITE PLAN APPLICATION
I/R	DATE	DESCRIPTION

60693639

STAGE 1
PLAN - GENERAL SERVICING-1

GS-1



**AECOM**

PROJECT

BARRIE OPERATIONS CENTRE

CITY OF BARRIE

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VERTICAL CONTROL MONUMENTS

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DOUBLE NAILS IN EAST FACE OF HYDRO POLE, SE CORNER OF EASTERLY ENTRANCE FROM EDGEHILL DRIVE. N4.382670, E-79.718332

REGISTRATION



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1/R	DATE	DESCRIPTION
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PROJECT NUMBER

60693639

SHEET TITLE

STAGE 1
PLAN - GENERAL SERVICING-2

SHEET NUMBER

GS-2

NOTES:
1.0 GENERAL

- 1.1 ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARDS, ONTARIO PROVINCIAL STANDARD DRAWINGS AND ONTARIO PROVINCIAL STANDARD SPECIFICATIONS UNLESS NOTED OTHERWISE AND/OR SPECIFIED.
- 1.2 ALL LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES SHOWN ON THE PLAN ARE FOR REFERENCE PURPOSES ONLY; THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION – GAS, HYDRO, TELEPHONE, OR ANY OTHER.
- 1.3 CONTRACTOR RESPONSIBLE FOR ACQUIRING ROAD OCCUPANCY PERMIT.
- 1.4 ALL WORK WITHIN THE CITY OF BARRIE RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE CITY OF BARRIE STANDARDS AND SPECIFICATIONS UNLESS NOTED OTHERWISE.
- 1.5 ALL DIMENSIONS AND ELEVATIONS TO BE CHECKED AND VERIFIED ON THE SITE BY THE CONTRACTOR AND ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
- 1.6 EXISTING TOPOGRAPHIC SURVEY DATA BY OTHERS.
- 1.7 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 DIRECTOR OF ENGINEERING DEPARTMENT. CONTRACTOR TO REMOVE ALL SILT FENCING UPON RECEIVING APPROVAL FROM ENGINEERING DEPARTMENT.
- 2.0 ABOVE GROUND WORKS
- 2.1 DISTURBED AREAS WITHIN ROAD ALLOWANCE TO BE REINSTATED TO ORIGINAL CONDITION OR BETTER.
- 2.2 ALL GRADING TO CONFORM TO THE CITY OF BARRIE, LOT GRADING AND DRAINAGE POLICIES.
- 2.3 ALL ASPHALT CUTS EXTERNAL TO THE SITE TO BE SAWCUT. ASPHALT TO BE REINSTATED AS PER CITY OF BARRIE STANDARDS.
- 2.4 ALL VALVE STOPS, CATCHBASINS AND MAINTENANCE HOLES SHALL BE ADJUSTED TO GRADE PRIOR TO INSTALLATION OF ASPHALT.
- 2.5 GRANULAR BASE TO BE COMPACTED IN LAYERS NOT EXCEEDING 150mm, COMPACTED TO MINIMUM 100% SPMDD.
- 2.6 COMPACTION OF GRANULAR BASE AND OR SUB GRADE MATERIAL NOT MEETING SPECIFIED STANDARDS SHALL BE REPLACED OR WORKED TO MEET ACCEPTABLE COMPACTION RESULTS AS DIRECTED BY ENGINEER.
- 2.7 ASPHALT TO BE COMPACTED TO A MINIMUM OF 97% MARSHALL DENSITY.

3.0 SANITARY SEWER

- 3.1 SANITARY PIPE TO BE PVC DR35 WITH RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO CSA (B-182.2,3,4)
- 3.2 SANITARY SEWERS SHALL BE CONSTRUCTED AS PER OPSD 802.030 OR 802.031, AS APPLICABLE, WITH CLASS "B" BEDDING (GRANULAR "A" MATERIAL) FOR RIGID PIPE AND OPSD 802.010 (GRANULAR "A" BEDDING AND COVER MATERIAL) FOR FLEXIBLE PIPE, UNLESS APPROVED OTHERWISE BY THE DIRECTOR OF ENGINEERING.
- 3.3 SANITARY LATERALS TO BE PVC SDR 28 MINIMUM DIAMETER 200mm RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO CSA (B-182-2,3,4)
- 3.4 ALL CONNECTIONS TO NEW MAINS SHALL BE WITH PRE-MANUFACTURED APPROVED TEES.
- 3.5 SANITARY MAINTENANCE HOLES TO BE OPSD 701.010. MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT ASPHALT IS PLACED. ALL ADJUSTMENT WILL BE IN ACCORDANCE WITH BSD-N2.
- 4.0 STORM SEWER
- 4.1 STORM PIPE (1050mmø) TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 100 N/m/mm CERTIFIED TO C.S.A. STANDARD A247.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257-2-1974, CLASS III). STORM PIPE UP TO 600mmø TO BE PVC CERTIFIED TO C.S.A. STANDARDS 182.2 AND 182.4, C/W GRAN 'A' BEDDING & COVER TO 0.3m ABOVE PIPE.
- 4.2 STORM SEWERS SHALL BE CONSTRUCTED AS PER OPSD 802.030 OR 802.031 AS APPLICABLE, WITH CLASS "B" BEDDING (GRANULAR "A" MATERIAL) FOR RIGID PIPE AND OPSD 802.010 (GRANULAR "A" BEDDING AND COVER MATERIAL) FOR FLEXIBLE PIPE, UNLESS APPROVED OTHERWISE BY THE DIRECTOR OF ENGINEERING.
- 4.3 CATCHBASINS TO BE 600mm SQUARE PRECAST CONCRETE TO OPSD 705.010, FRAME AND GRATE TO OPSD 400.020. STORM MAINTENANCE HOLES TO BE 1200mmø PRECAST PER OPSD 701.010 C/W FRAME AND COVER PER OPSD 401.010 TYPE 'A' CLOSED MAINTENANCE HOLES OR OPSD 400.020 FOR CATCHBASIN MANHOLES. PRECAST DOUBLE CATCH BASIN MAINTENANCE HOLES TO BE OPSD 701.011 AND 703.010.
- 4.4 PLACE ALL CATCHBASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIAMETER.
- 4.5 ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MAINTENANCE HOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD-708.01. CATCHBASIN LATERALS CONNECTED TO MAINTENANCE HOLES SHALL HAVE A MAXIMUM INVERT TO INVERT DROP OF 900mm.
- 4.6 MAINTENANCE HOLE AND CATCHBASIN TOPS ARE TO BE SET TO BASE COURSE ASPHALT GRADE, AND THEN ADJUSTED TO FINAL GRADE WHEN TOP LIFT OF ASPHALT IS PLACED.
- 4.7 CULVERTS SHALL BE INSTALLED WITH BEDDING AS PER OPSD 802.010, TYPE I BACKFILL SHALL BE NATIVE MATERIAL COMPACTED TO 98% SPMDD.
- 4.8 ALL CSP PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURERS INSTALLATION GUIDELINES AND THE O.C.P.A.OR UNIBELL GUIDELINES.

5.0 WATERMAIN

- 5.1 CONTRACTOR TO INFORM THE CITY OF BARRIE ENGINEERING DEPARTMENT MINIMUM 48 HOURS IN ADVANCE OF COMMENCING WORK.
- 5.2 ALL WATER SERVICES INSTALLED ON ROAD ALLOWANCE AND PRIVATE PROPERTY MUST BE INSPECTED BY THE CITY OF BARRIE PRIOR TO BACKFILLING.
- 5.3 WATER SERVICES SHALL BE COMPRISED OF:
1 – 50mm ø COPPER PIPE C/W #12 STRANDED TRACER WIRE (DOMESTIC SERVICE).
1 – 150mm ø PVC DR18 PIPE C/W #12 STRANDED TRACER WIRE (FIRE SERVICE).
- 5.4 ALL TEES, BENDS AND CONNECTIONS 100mm DIAMETER AND LARGER TO HAVE CONCRETE THRUST BLOCKS AS PER OPSD-1103.010 AND 1103.020.
- 5.5 IMPORTED FILL (MTO) GRANULAR "B" OR EQUIVALENT IS TO BE USED BEHIND THE THRUST BLOCKS FOR A MINIMUM DISTANCE OF 2.0m EACH SIDE OF THRUST BLOCK. FILL TO BE COMPACTED TO A MINIMUM OF 100% STANDARD PROCTOR MAXIMUM DRY DENSITY. PRIOR TO CONSTRUCTION OF THRUST BLOCKS, CONTRACTOR TO OBTAIN WRITTEN APPROVAL OF THE BACKFILL FROM A QUALIFIED GEOTECHNICAL ENGINEER.
- 5.6 WATERMAIN SHALL HAVE 0.5m VERTICAL CLEARANCE AND 2.5m HORIZONTAL CLEARANCE FROM ANY SEWER OR MAINTENANCE HOLE. (USE STYROFOAM INSULATION BETWEEN WATERMAIN AND SEWER).
- 5.7 THE MINIMUM COVER ON ALL WATERMAINS AND SERVICES SHALL BE 1.7m WITH BEDDING AND BACKFILL AS PER OPSD-802.010(GRANULAR A EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND 802.030 OR 802.031 CLASS "B" (GRANULAR A BEDDING MATERIAL, GRANULAR A OR SELECT NATIVE COVER MATERIAL) FOR RIGID PIPE UNLESS APPROVED BY THE DIRECTOR OF ENGINEERING OR * ALTERNATIVE EMBEDMENT MATERIAL(SAND MEETING GRADATION REQUIREMENTS OF OPSD 1004.05.05 COMPACTED TO 95% PROCTOR DENSITY. GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METERS.THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE(HAUNCHES, BEDDING AND TOP OF PIPE.) REFER TO BSD-N10.
- 5.8 ALL NATIVE BACKFILL TO BE FREE OF ORGANICS AND COMPACTED TO 95% S.P.P.D. IN MAXIMUM LIFTS OF 200mm.
- 5.9 ALL HYDRANTS MUST BE RESTRAINED.
- 5.10 ALL PRIVATE FIRE HYDRANTS TO BE PAINTED RED.
- 5.11 STEAM PORT ON PRIVATE FIRE HYDRANTS TO FACE FIRE ROUTE.
- 5.12 ALL EXISTING WATERMAIN VALVES AND HYDRANTS TO BE OPERATED BY CITY OF BARRIE.
- 5.13 CONTRACTOR IS TO PERFORM A HYDROSTATIC PRESSURE TEST ON ALL NEW WATERMAIN. TEST IS TO BE WITNESSED AND PROVIDED BY A MEMBER OF THE CITY OF BARRIE ENGINEERING DEPARTMENT.
- 5.14 CONTRACTOR TO COORDINATE CITY OF BARRIE ENGINEERING DEPARTMENT TO SWAB, CHLORINATE AND FLUSH NEW WATERMAINS.
- 5.15 WATER METER SHALL BE ONE SIZE LARGER THAN DOMESTIC WATER SERVICE.
- 5.16 TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER CLAD (HSS-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 MANUFACTURES PRODUCTS FOR LINEAR WATER SYSTEMS LIST.



PROJECT

BARRIE OPERATIONS CENTRE

CITY OF BARRIE

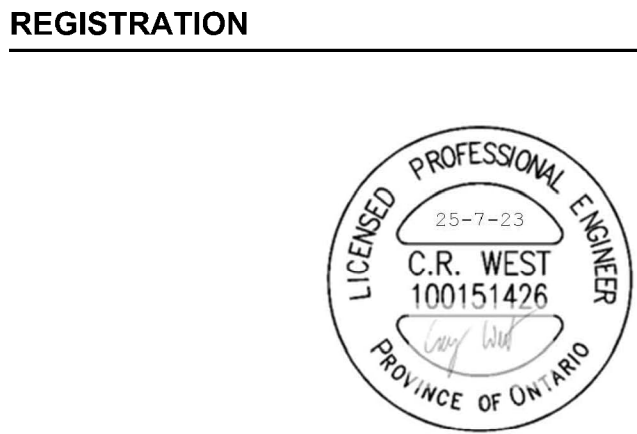
CLIENT

CITY OF BARRIE

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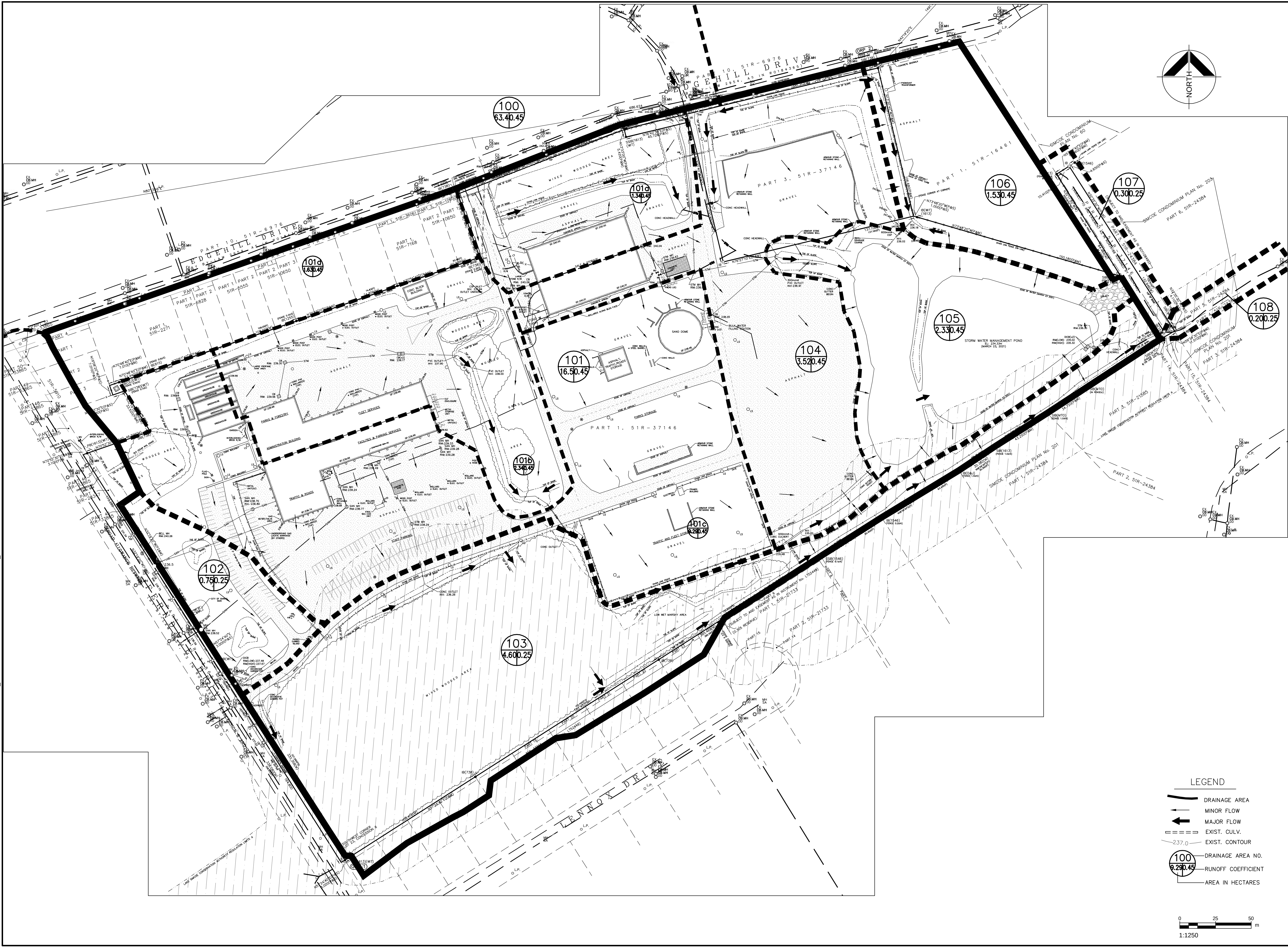
60693639

SHEET TITLE

STAGE 1
NOTES - GENERAL SERVICING

SHEET NUMBER

GS-3



AECOM

PROJECT
BARRIE OPERATIONS CENTRE
CITY OF BARRIE

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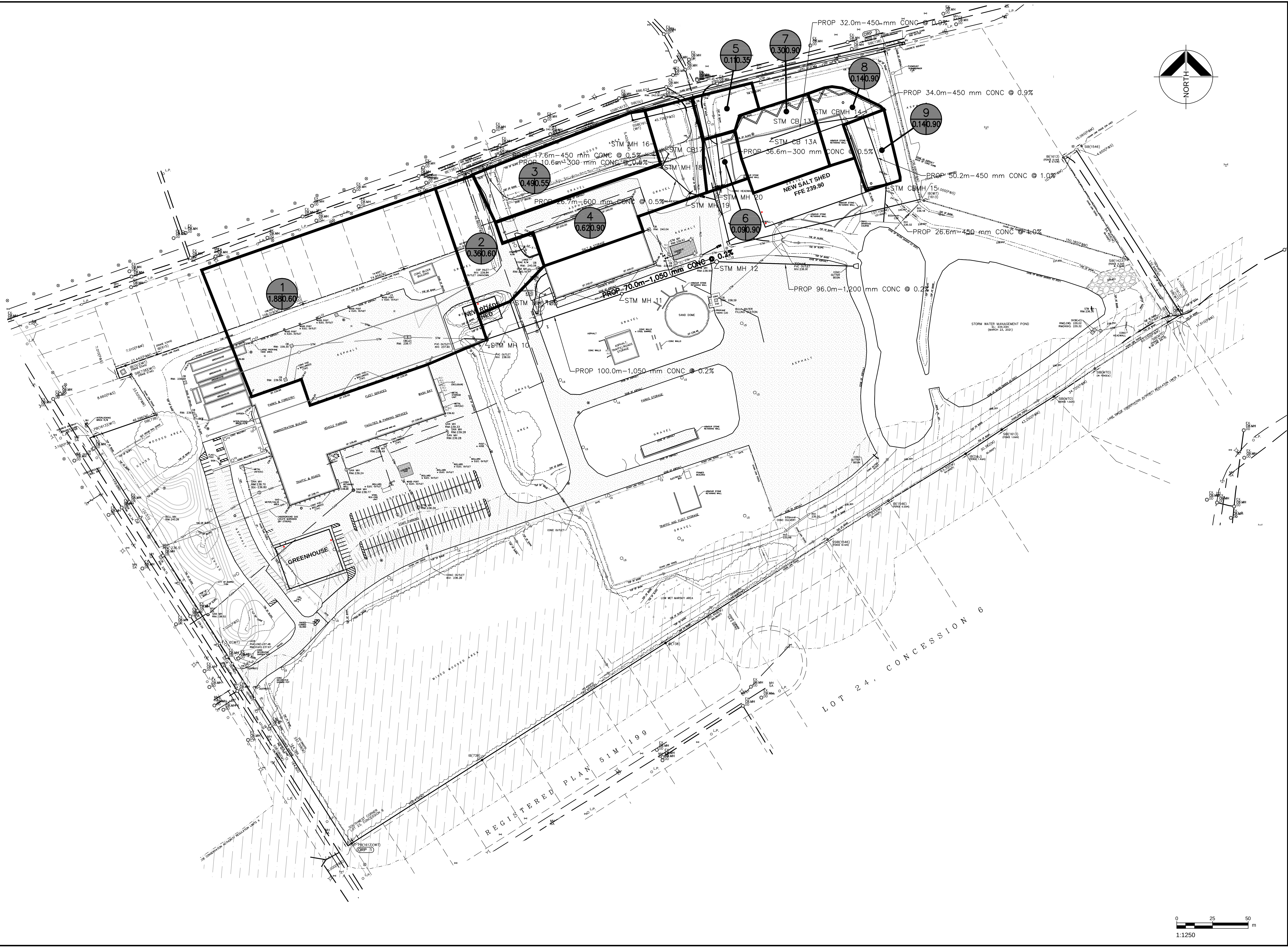
LICENSED PROFESSIONAL ENGINEER
C.R. WEST
100151426
PROVINCE OF ONTARIO

ISSUE/REVISION		
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SHEET TITLE
STORM WATER MANAGEMENT PRE-DEVELOPMENT

SHEET NUMBER
STM1



PROJECT
BARRIE OPERATIONS CENTRE
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SHEET TITLE

STORM WATER MANAGEMENT
POST-DEVELOPMENT

SHEET NUMBER

STM2

5 Year

A = 843.019
B = 4.582
C = 0.763
Runoff Coefficient Adjustment = 1

CITY of BARRIE
STORM SEWER DESIGN SHEET (v1.0)
Barrie Ops Centre - Stage 1
July 24, 2023

Acceptable
Review
Incorrect

File No: 60693639
Design Sheet: 1
Calculated By: M. Ego - R. Provencal
Checked By: R. Provencal

Catchment Area	Street Name	Maintenance Hole Number		Runoff Calculations								Hydraulic Calculations							
				Runoff Coefficient C	Runoff Coefficient w/ Adjustment C'	Area A Ha	Incremental C'*A	Total C'*A	Time of Concentration		Intensity mm/hr	Total Q m³/s	Diameter mm	Mannings N	Length m	Slope %	Q _{pipe} m³/s	Velocity m/s	Capacity
									Total minutes	Flow Time In Pipe minutes									Check Q / Q _{pipe} %
		From	To																
	New Main Sewer Line (Stage 1)																		
	Existing External Area 1.88Ha @ C 0.60 and area 0.36 @ C 0.60	10	11	0.600	0.600	2.240	1.344	1.344	10.642	1.182	105.577	0.394	1050	0.013	100.000	0.200	1.221	1.410	32.3%
		11	12	0.900	0.900	0.000	0.000	1.344	11.824	0.740	99.723	0.372	1050	0.013	70.000	0.250	1.365	1.577	27.3%
	Stage 2 Allowance	Future	Future	0.900	0.900	1.820	1.638	1.638	10.000	0.602	109.105	0.496	900	0.013	46.000	0.200	0.810	1.273	61.3%
		Future	Future	0.900	0.900	0.580	0.522	2.160	10.602	0.838	105.786	0.635	900	0.013	64.000	0.200	0.810	1.273	78.4%
		Future	12	0.900	0.900	0.000	0.000	2.160	11.441	0.720	101.537	0.609	900	0.013	55.000	0.200	0.810	1.273	75.3%
		12	HW	0.900	0.900	0.000	0.000	3.504	12.564	1.038	96.422	0.939	1200	0.013	96.000	0.200	1.744	1.542	53.8%
	East of New Salt Shed	13A	13	0.900	0.900	0.300	0.270	0.270	10.000	0.314	109.105	0.082	450	0.013	32.000	0.900	0.270	1.701	30.3%
		13	14	0.900	0.900	0.000	0.000	0.270	10.314	0.333	107.348	0.081	450	0.013	34.000	0.900	0.270	1.701	29.8%
		14	15	0.900	0.900	0.140	0.126	0.396	10.647	0.467	105.551	0.116	450	0.013	50.200	1.000	0.285	1.793	40.7%
		15	HW	0.900	0.900	0.140	0.126	0.522	11.114	0.247	103.148	0.150	450	0.013	26.600	1.000	0.285	1.793	52.5%
	Bulk Water Area	DI16	CBMH18	0.550	0.550	0.490	0.270	0.270	10.000	0.231	109.105	0.082	450	0.013	17.600	0.500	0.202	1.268	40.5%
		CBMH18	CBMH19	0.900	0.900	0.620	0.558	0.828	10.231	0.290	107.802	0.248	600	0.013	26.700	0.500	0.434	1.536	57.1%
	West of New Salt Shed	DICB	EX. MH	0.444	0.444	0.200	0.089	0.089	10.000	0.629	109.105	0.027	300	0.013	36.500	0.500	0.068	0.967	39.3%



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SHEET TITLE
STORM WATER DESIGN SHEET

SHEET NUMBER
STM3

TEMPORARY STOCKPILE PARAMETERS

1. THE HEIGHT OF THE STOCKPILE SHALL NOT EXCEED 8.0 METRES.
2. THE SIDE-SLOPE OF THE STOCKPILE SHALL NOT EXCEED 2:1.
3. THE MAXIMUM HEIGHT (8.0m) AND SLOPE (2:1) ARE CONSIDERED TO BE MINIMUM STANDARDS AND WILL NEED TO BE VERIFIED BY AN ENGINEER AS IT RELATES TO SATURATED SOIL FAILURE AND HEALTH AND SAFETY ISSUES.
4. THE BOTTOM OF THE STOCKPILE SHALL BE LOCATED A MINIMUM OF 15.0 METRES FROM THE MUNICIPAL ROADWAY.
5. THE BOTTOM OF THE STOCKPILE SHALL BE LOCATED A MINIMUM OF 8.0 METRES FROM THE PROPERTY-LINE/ALTERATION LIMIT.
6. A SWALE ("V" CHANNEL) SHALL BE LOCATED AT THE TOE OF THE STOCKPILE SIDE-SLOPE TO CATCH SEDIMENT.
7. THE AREA BETWEEN THE SEDIMENT TRAP ("V" CHANNEL) AND THE SILT FENCE SHALL BE FLAT (LESS THAN 10%).
8. THE EXTERIOR SIDE-SLOPES OF THE STOCKPILE (BOUNDING THE ALTERATION LIMIT) SHALL RECEIVE STORM RUN-OFF FROM THAT OF THE SIDE-SLOPE ONLY (DRAINAGE SHALL BE HANDLED INTERNALLY WITH THE USE OF APPROPRIATE CUT-OFF SWALES, GRANULAR EROSION CONTROL DEVICES, BASINS, ETC.).

SCHEDULE OF WORK

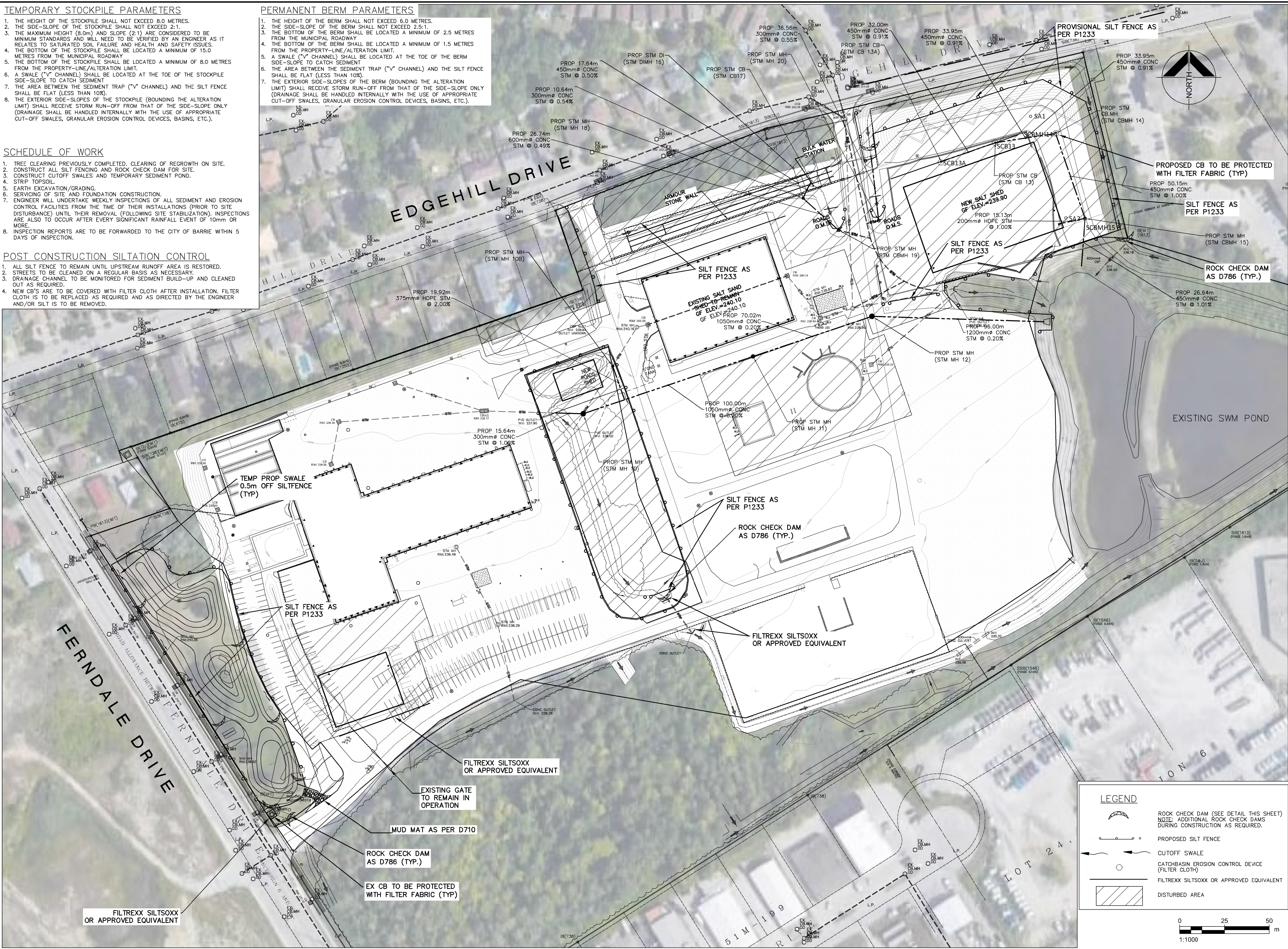
1. TREE CLEARING PREVIOUSLY COMPLETED, CLEARING OF REGROWTH ON SITE.
2. CONSTRUCT ALL SILT FENCING AND ROCK CHECK DAM FOR SITE.
3. CONSTRUCT CUTOFF SWALES AND TEMPORARY SEDIMENT POND.
4. STRIP TOPSOIL.
5. EARTH EXCAVATION/GRADING.
6. SERVING OF SITE AND FOUNDATION CONSTRUCTION.
7. ENGINEER WILL UNDERTAKE WEEKLY INSPECTIONS OF ALL SEDIMENT AND EROSION CONTROL FACILITIES FROM THE TIME OF THEIR INSTALLATIONS (PRIOR TO SITE DISTURBANCE) UNTIL THEIR REMOVAL (FOLLOWING SITE STABILIZATION). INSPECTIONS ARE ALSO TO OCCUR AFTER EVERY SIGNIFICANT RAINFALL EVENT OF 10mm OR MORE.
8. INSPECTION REPORTS ARE TO BE FORWARDED TO THE CITY OF BARRIE WITHIN 5 DAYS OF INSPECTION.

POST CONSTRUCTION SILTATION CONTROL

1. ALL SILT FENCE TO REMAIN UNTIL UPSTREAM RUNOFF AREA IS RESTORED.
2. STREETS TO BE CLEANED ON A REGULAR BASIS AS NECESSARY.
3. DRAINAGE CHANNEL TO BE MONITORED FOR SEDIMENT BUILD-UP AND CLEANED OUT AS REQUIRED.
4. NEW CB'S ARE TO BE COVERED WITH FILTER CLOTH AFTER INSTALLATION. FILTER CLOTH IS TO BE REPLACED AS REQUIRED AND AS DIRECTED BY THE ENGINEER AND/OR SILT IS TO BE REMOVED.

PERMANENT BERM PARAMETERS

1. THE HEIGHT OF THE BERM SHALL NOT EXCEED 6.0 METRES.
2. THE SIDE-SLOPE OF THE BERM SHALL NOT EXCEED 2.5:1.
3. THE BOTTOM OF THE BERM SHALL BE LOCATED A MINIMUM OF 2.5 METRES FROM THE MUNICIPAL ROADWAY.
4. THE BOTTOM OF THE BERM SHALL BE LOCATED A MINIMUM OF 1.5 METRES FROM THE PROPERTY-LINE/ALTERATION LIMIT.
5. A SWALE ("V" CHANNEL) SHALL BE LOCATED AT THE TOE OF THE BERM SIDE-SLOPE TO CATCH SEDIMENT.
6. THE AREA BETWEEN THE SEDIMENT TRAP ("V" CHANNEL) AND THE SILT FENCE SHALL BE FLAT (LESS THAN 10%).
7. THE EXTERIOR SIDE-SLOPES OF THE BERM (BOUNDING THE ALTERATION LIMIT) SHALL RECEIVE STORM RUN-OFF FROM THAT OF THE SIDE-SLOPE ONLY (DRAINAGE SHALL BE HANDLED INTERNALLY WITH THE USE OF APPROPRIATE CUT-OFF SWALES, GRANULAR EROSION CONTROL DEVICES, BASINS, ETC.).



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PROJECT

BARRIE OPERATIONS CENTRE

CITY OF BARRIE

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www.aecom.com

VERTICAL CONTROL MONUMENTS

BENCHMARKS:
TBM#1 FL. 237.75m
TOP OF NORTHEAST CORNER OF CONCRETE PAD FOR COMMUNICATIONS CABINET, SE OF ENTRANCE FROM FERNDALE DRIVE. N44.378904, E-79.722307

TBM#2 FL. 242.81m
DOUBLE NAILS IN EAST FACE OF HYDRO POLE, SE CORNER OF WESTERLY ENTRANCE FROM EDGEHILL DRIVE. N44.382244, E-79.720227

TBM#3 FL. 241.74m
DOUBLE NAILS IN EAST FACE OF HYDRO POLE, SE CORNER OF EASTERLY ENTRANCE FROM EDGEHILL DRIVE. N4.382670, E-79.718332

REGISTRATION



ISSUE/REVISION

1/R	DATE	DESCRIPTION
1	2023-07-25	FOR SITE PLAN APPLICATION

PROJECT NUMBER

60693639

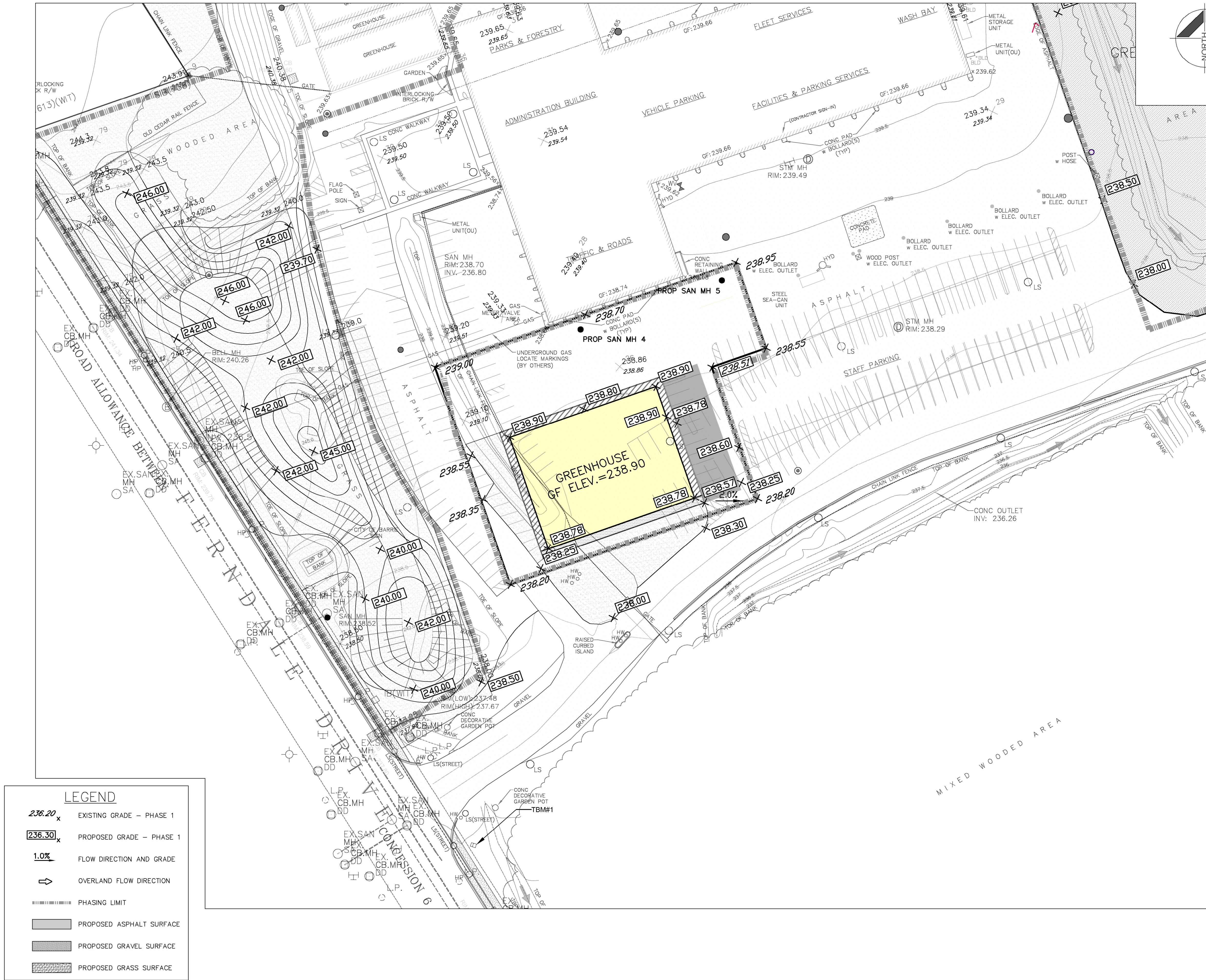
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**STAGE 1
EROSION AND SEDIMENT CONTROL
PLAN**

SHEET NUMBER

ESC-1

ESC-2



PROJECT
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REGISTRATION

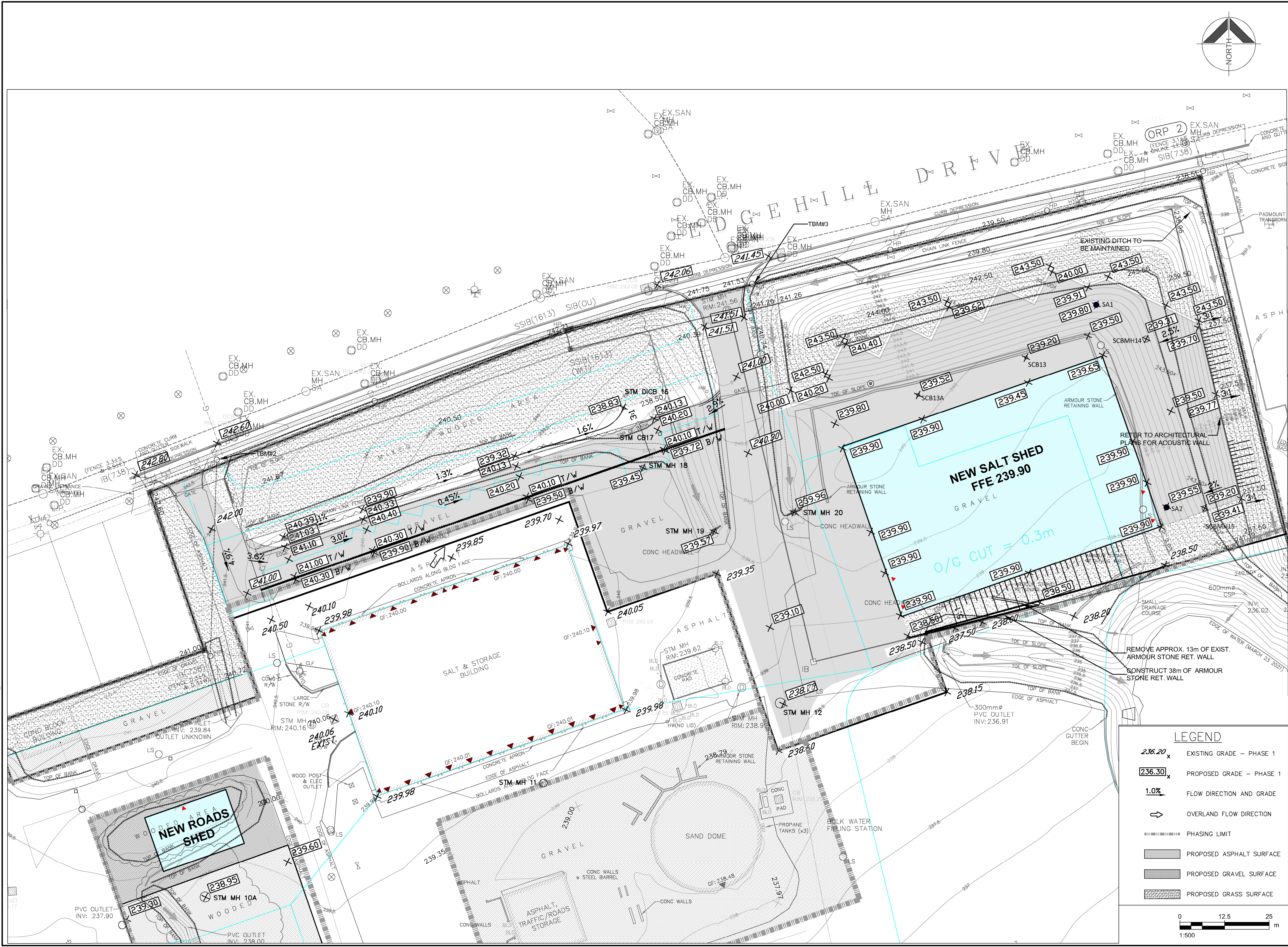


ISSUE/REVISION		
1	2023-07-24	FOR SITE PLAN APPROVAL
I/R	DATE	DESCRIPTION

PROJECT NUMBER
60693639

SHEET TITLE
STAGE 1
GRADING PLAN - GREENHOUSE

SHEET NUMBER
GP1



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TBM#3 EL. 241.74m
DOUBLE NAILS IN EAST FACE OF HYDRO POLE, SE CORNER OF EASTERLY ENTRANCE FROM EDGEHILL DRIVE. N4.382670, E-79.718332

REGISTRATION



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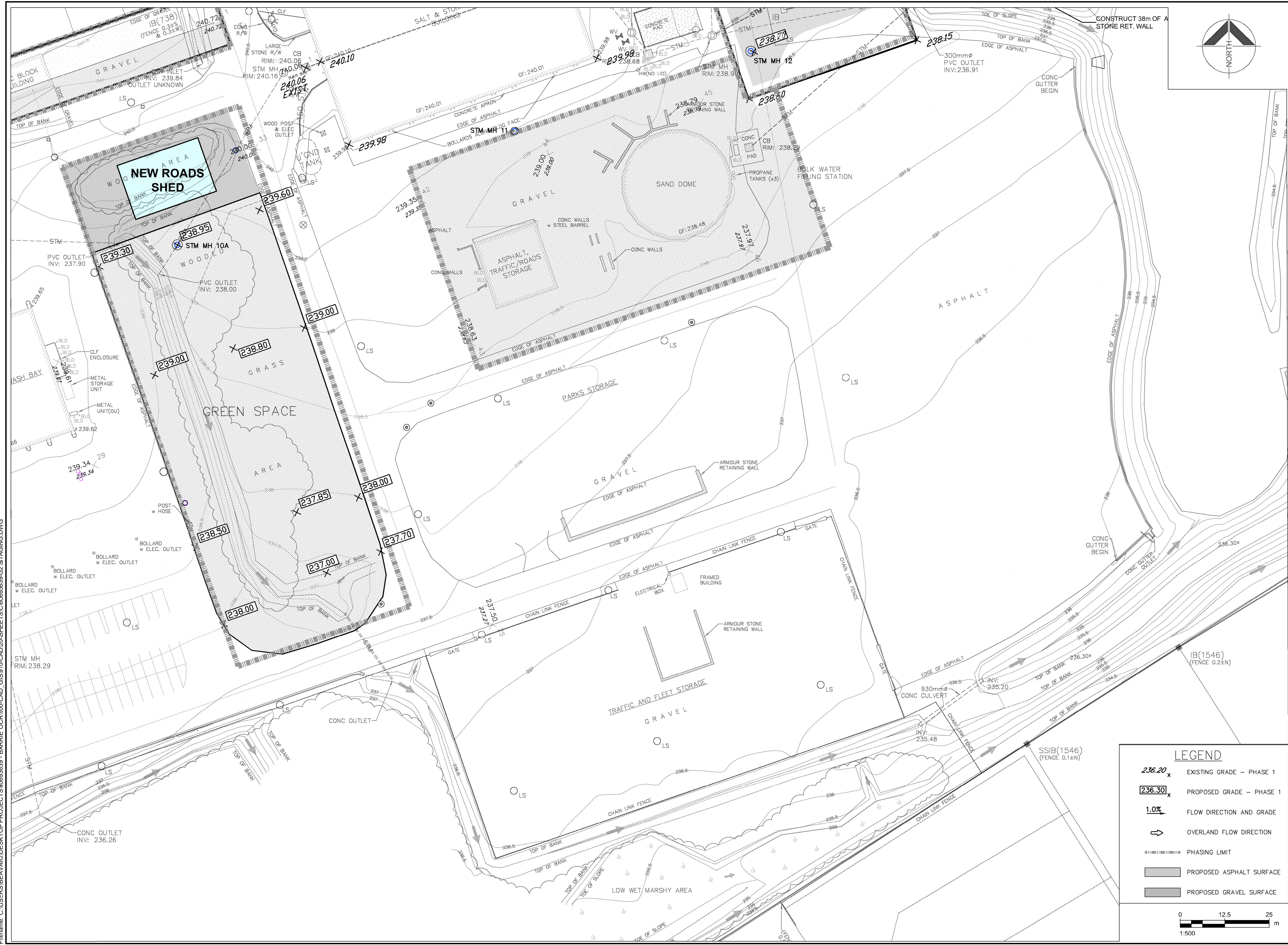
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STAGE 1
GRADING PLAN - SALT SHED
AND BULK WATER

SHEET NUMBER

GP2

ANSI D 864mm x 559mm
Approved: _____
Checked: _____
Designer: _____
Project Management Initials: _____
Last saved by: BEN/ANU Last Plotted: 2023.07.26
Filename: C:\USERS\BEVAN\DESKTOP\PROJECTS\06093639 - BARRIE OCR\00-CAD - GIS\910-CAD\20-SHEETS\06093639-G2 STAGING.DWG



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REGISTRATION



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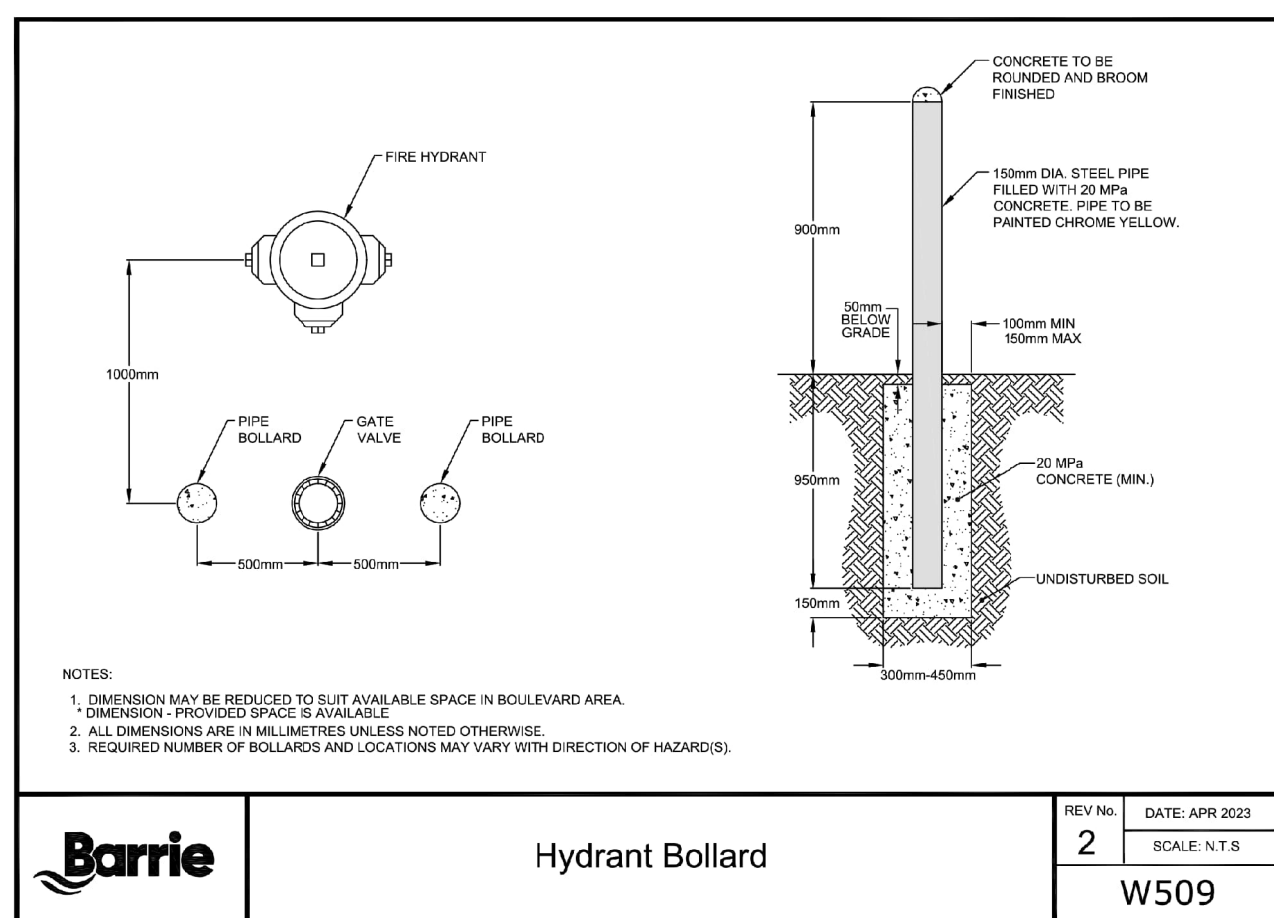
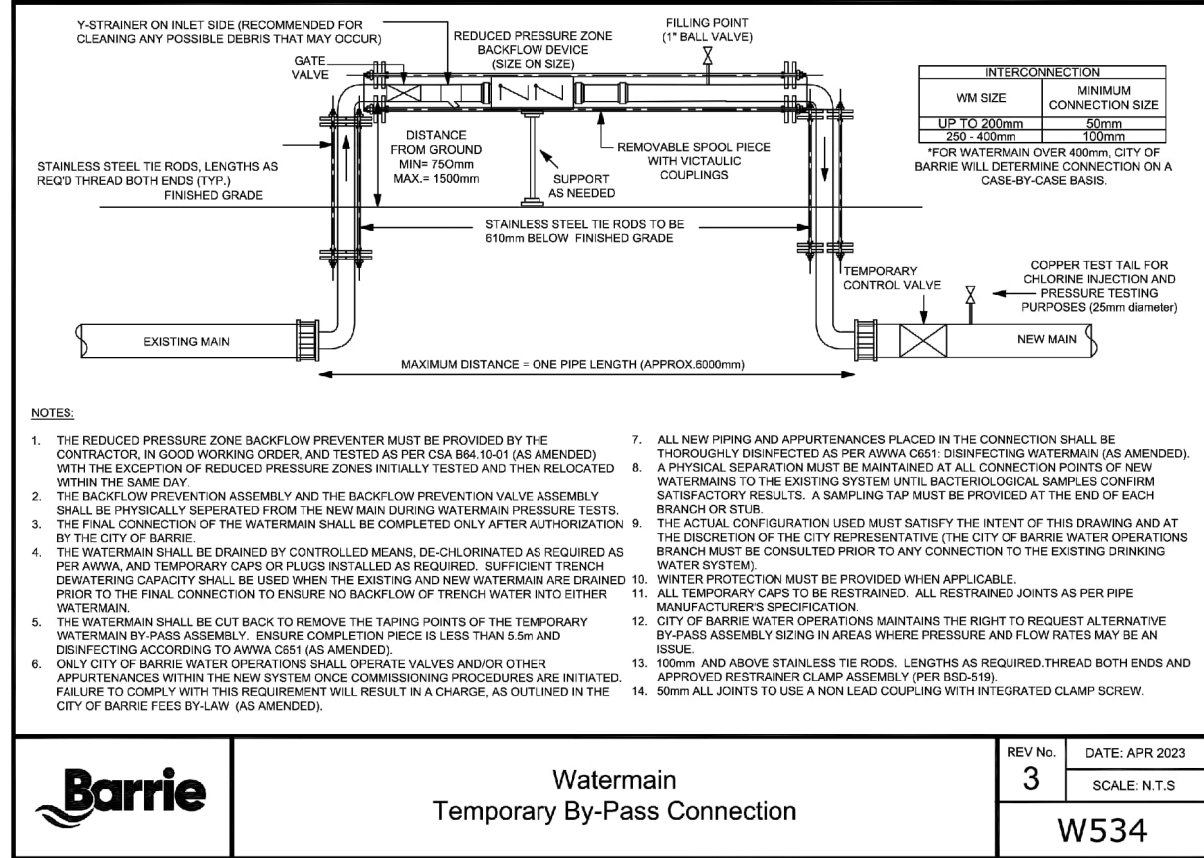
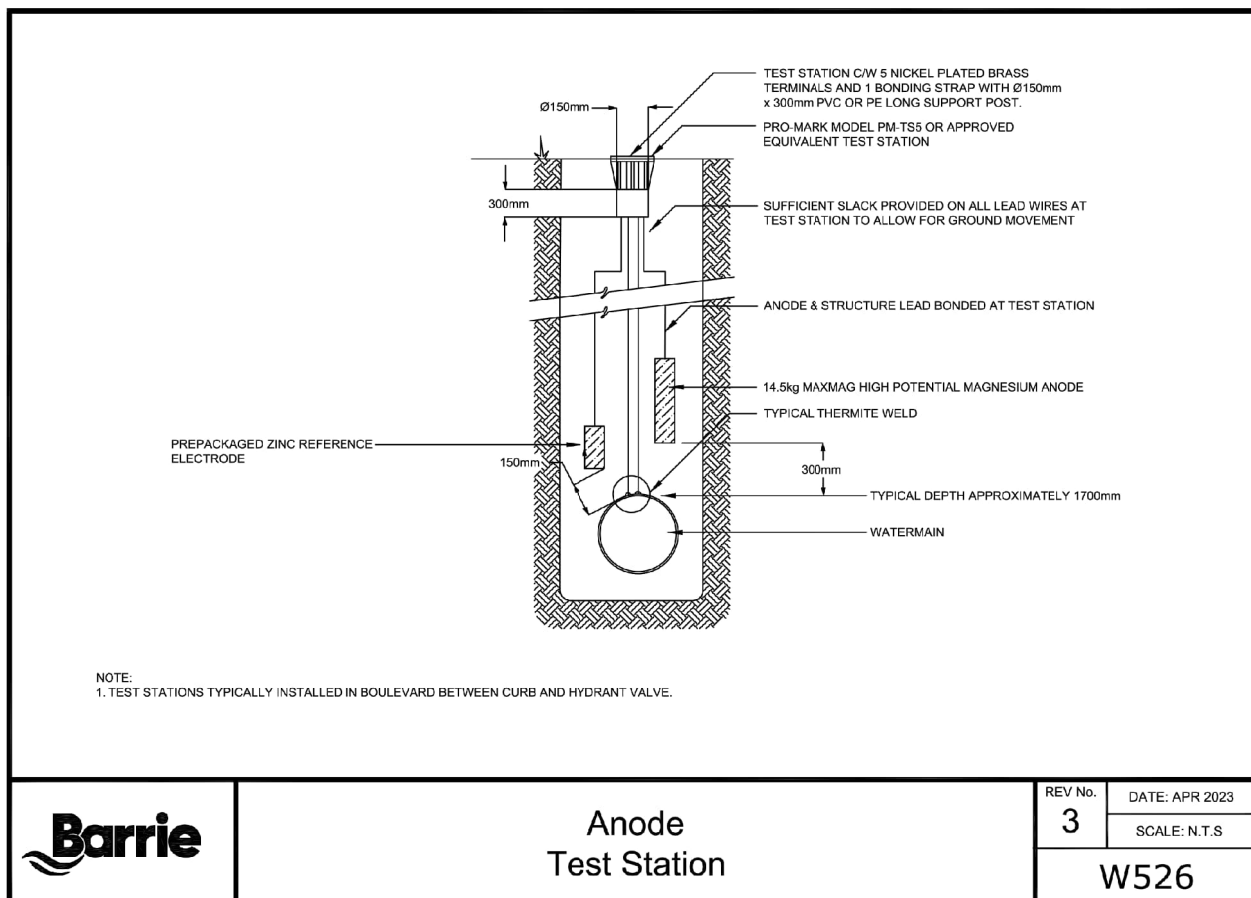
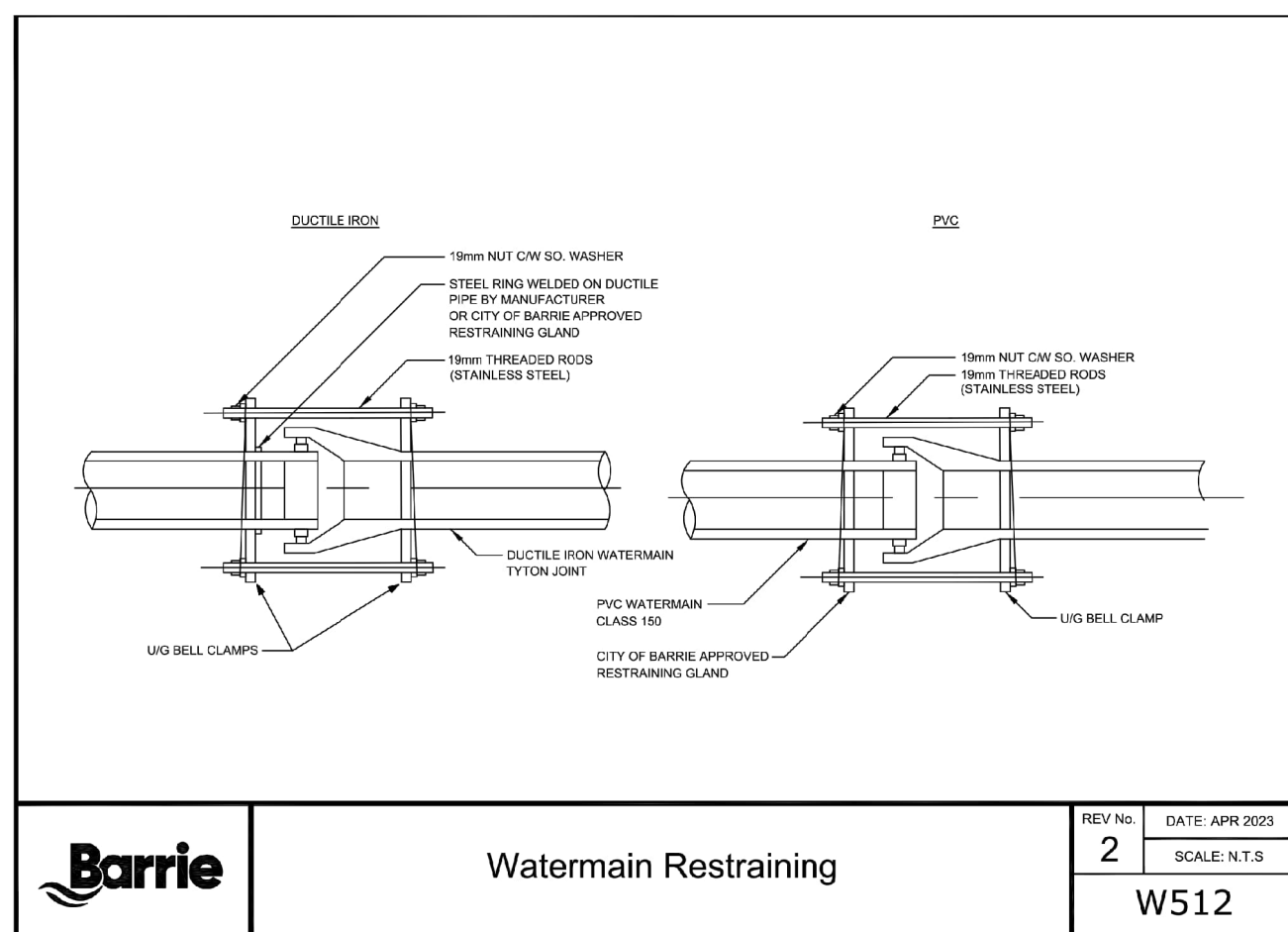
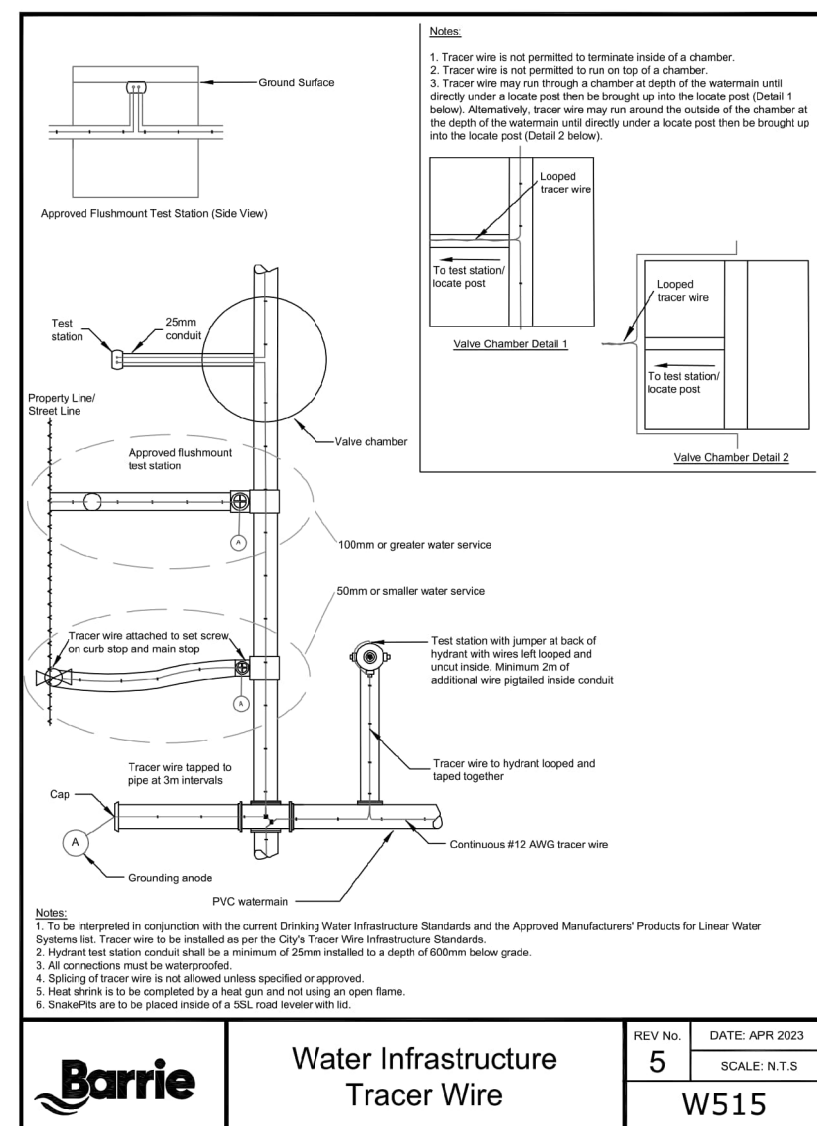
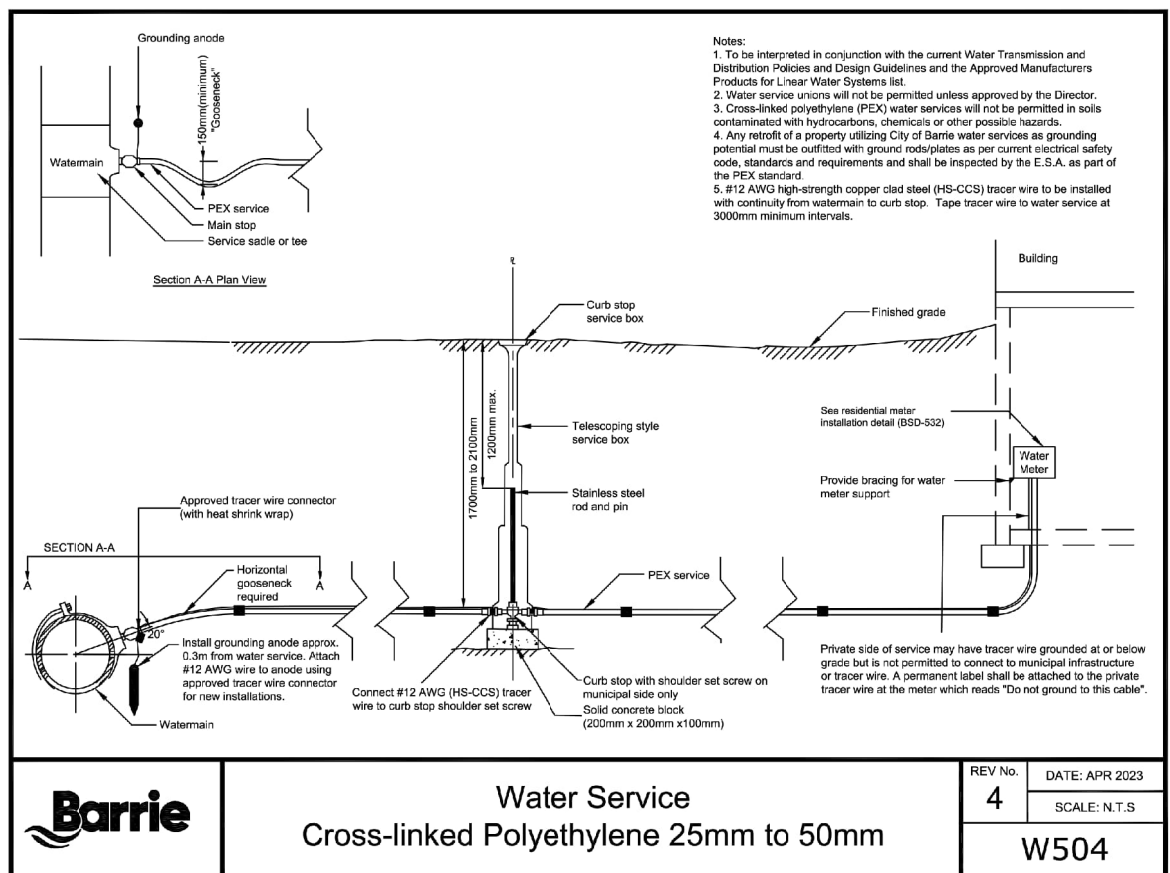
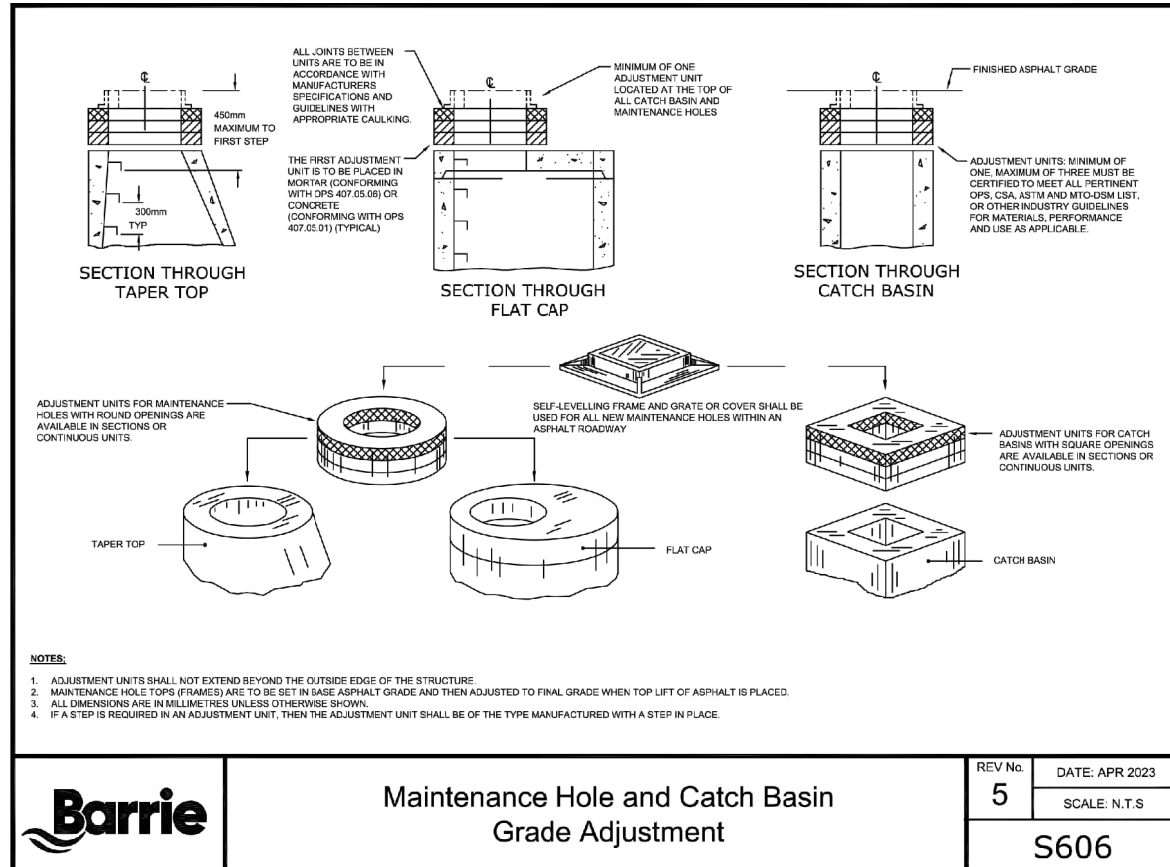
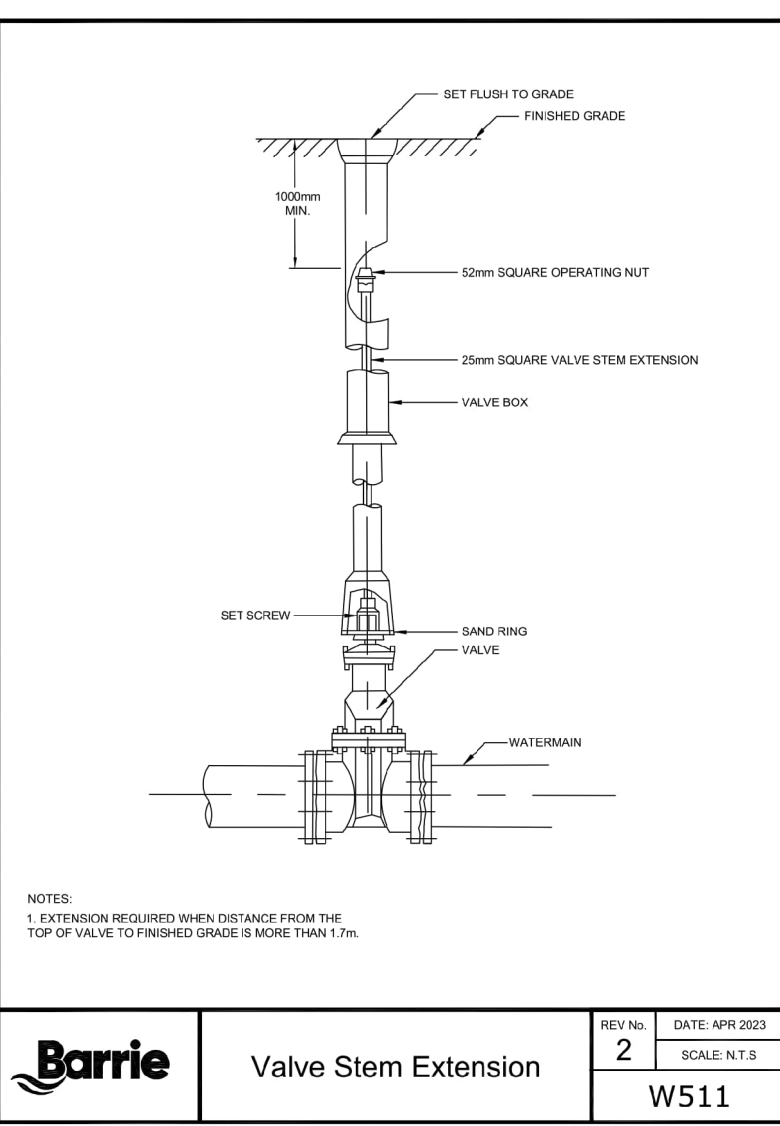
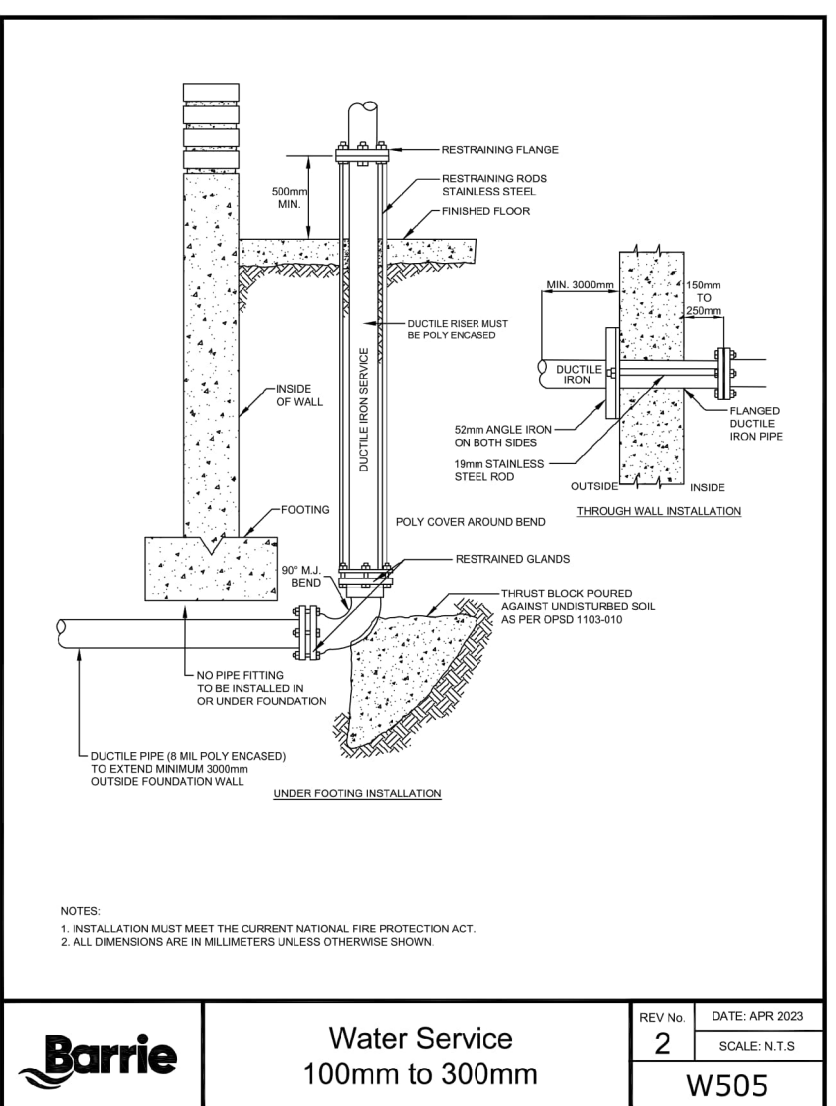
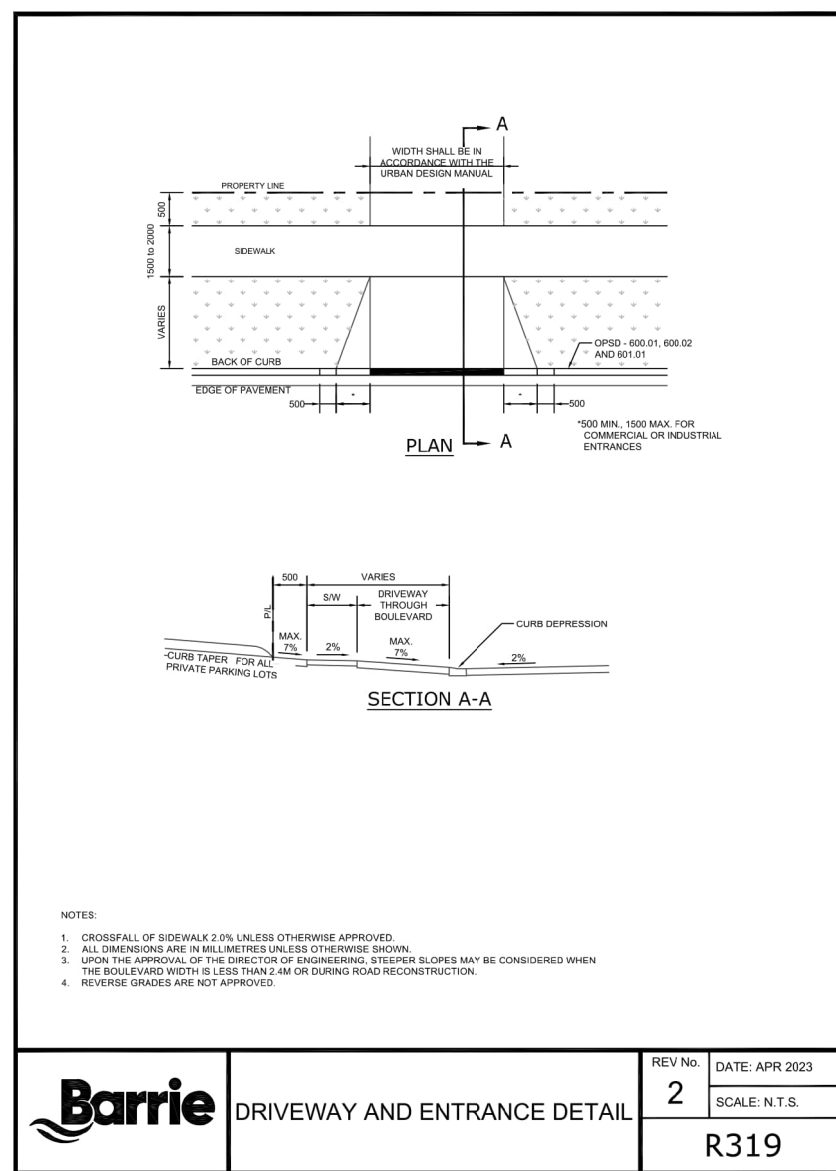
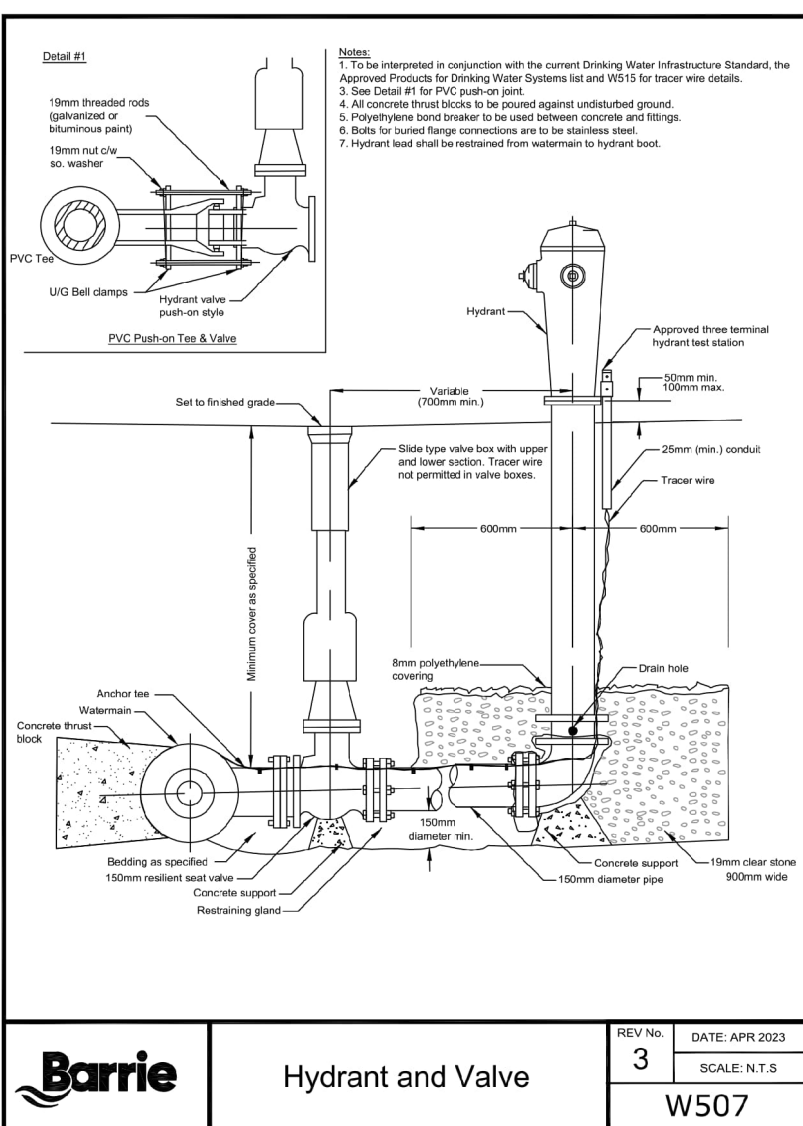
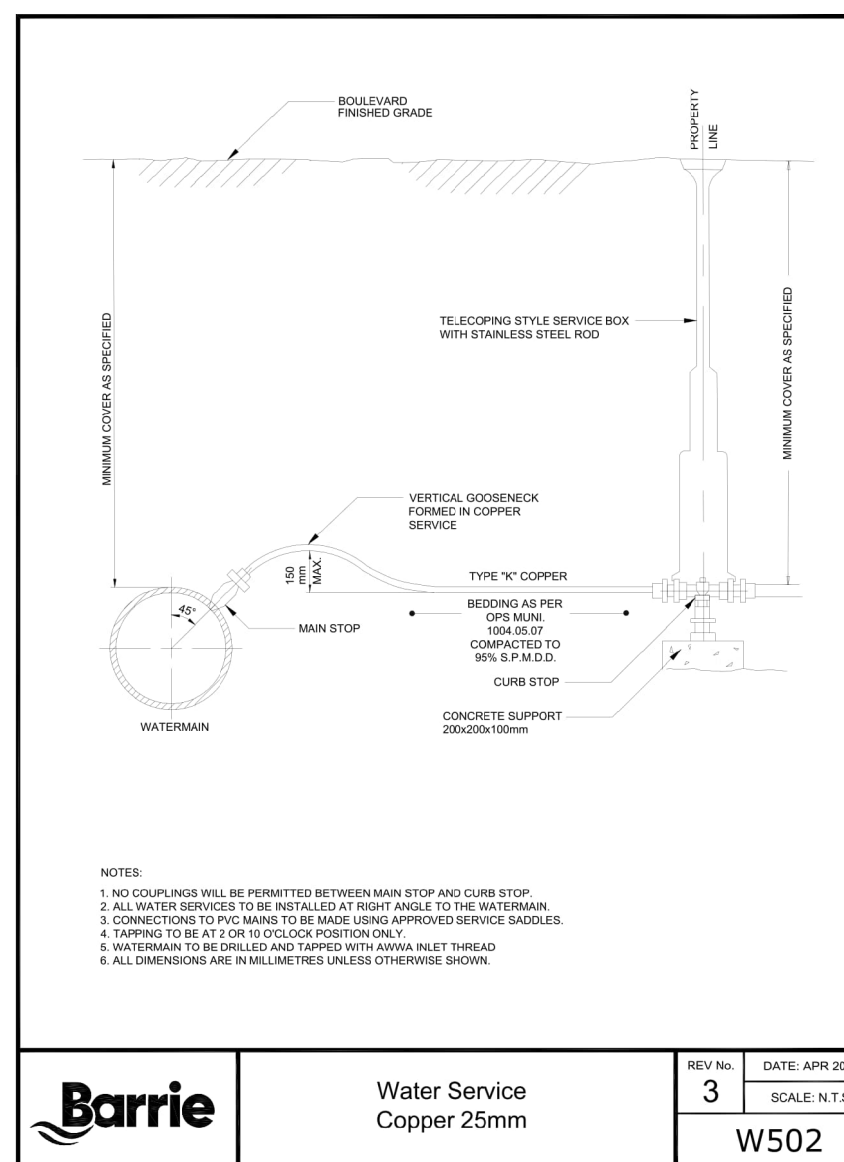
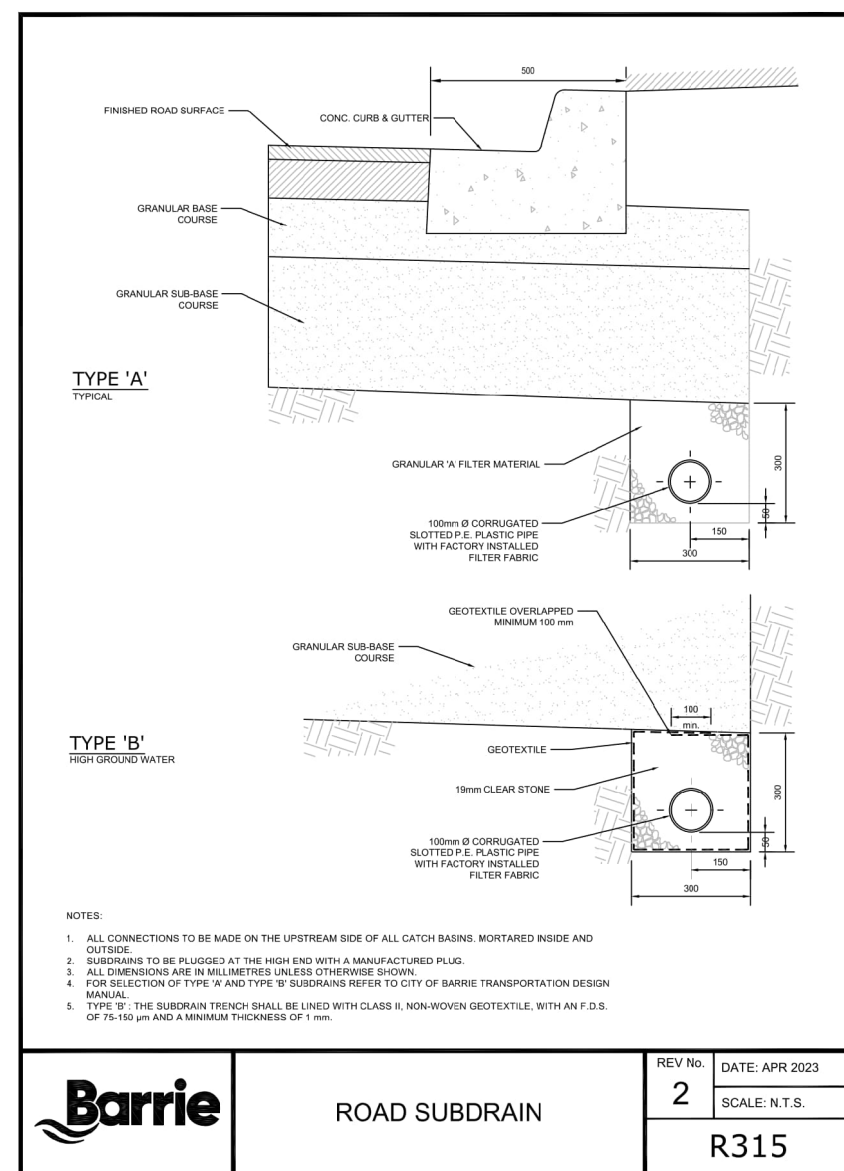
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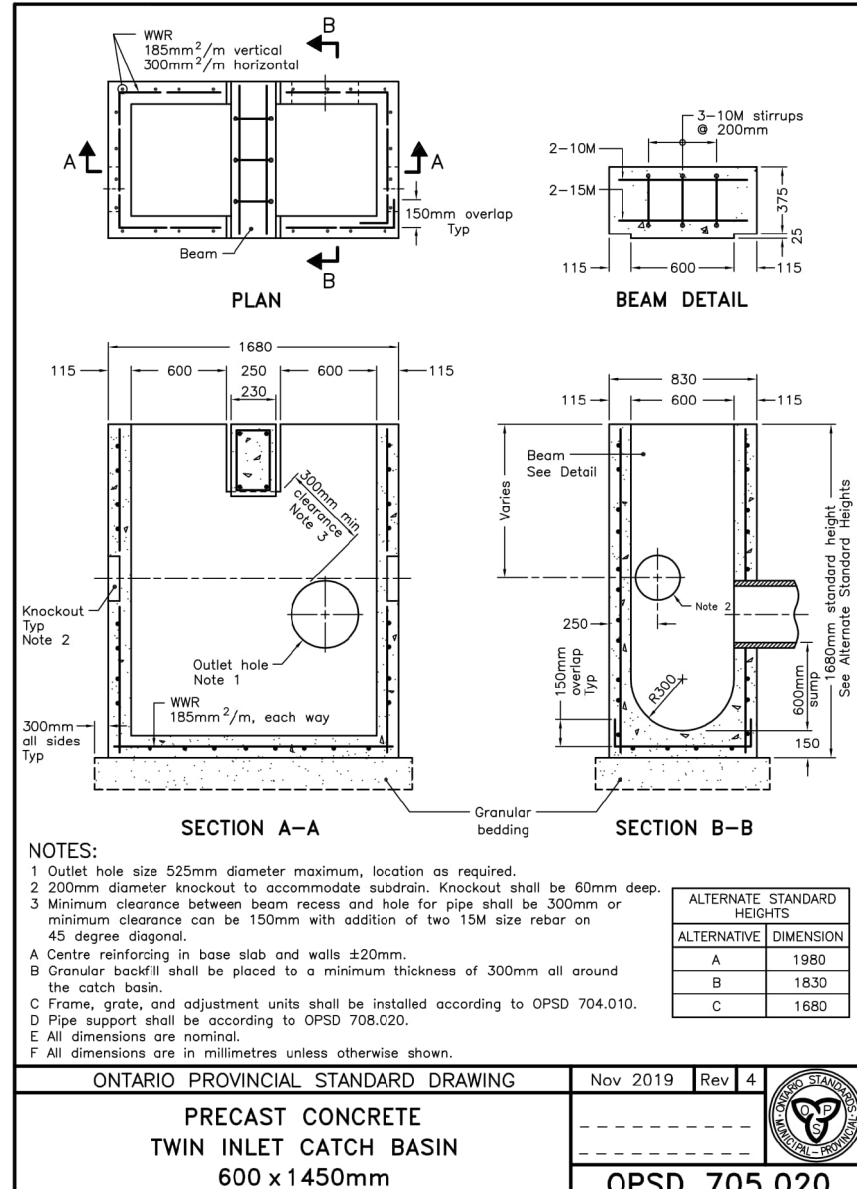
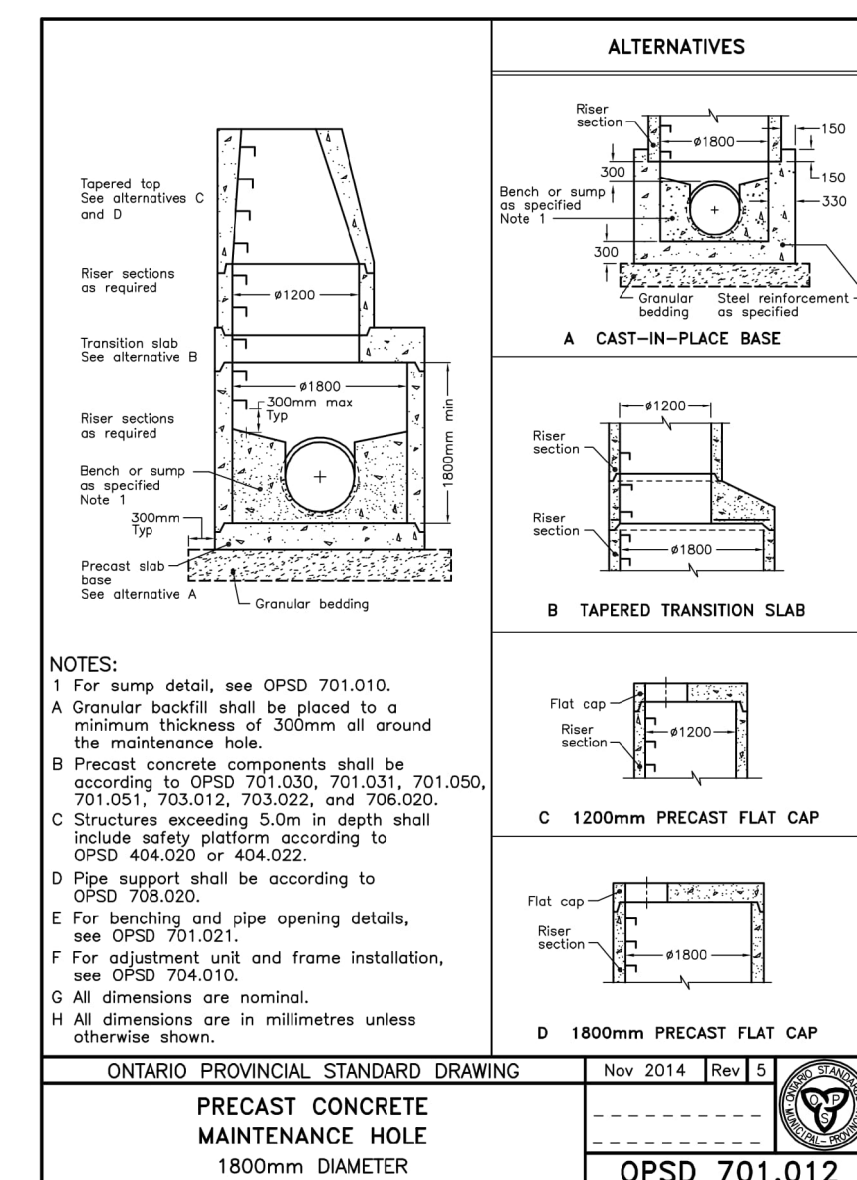
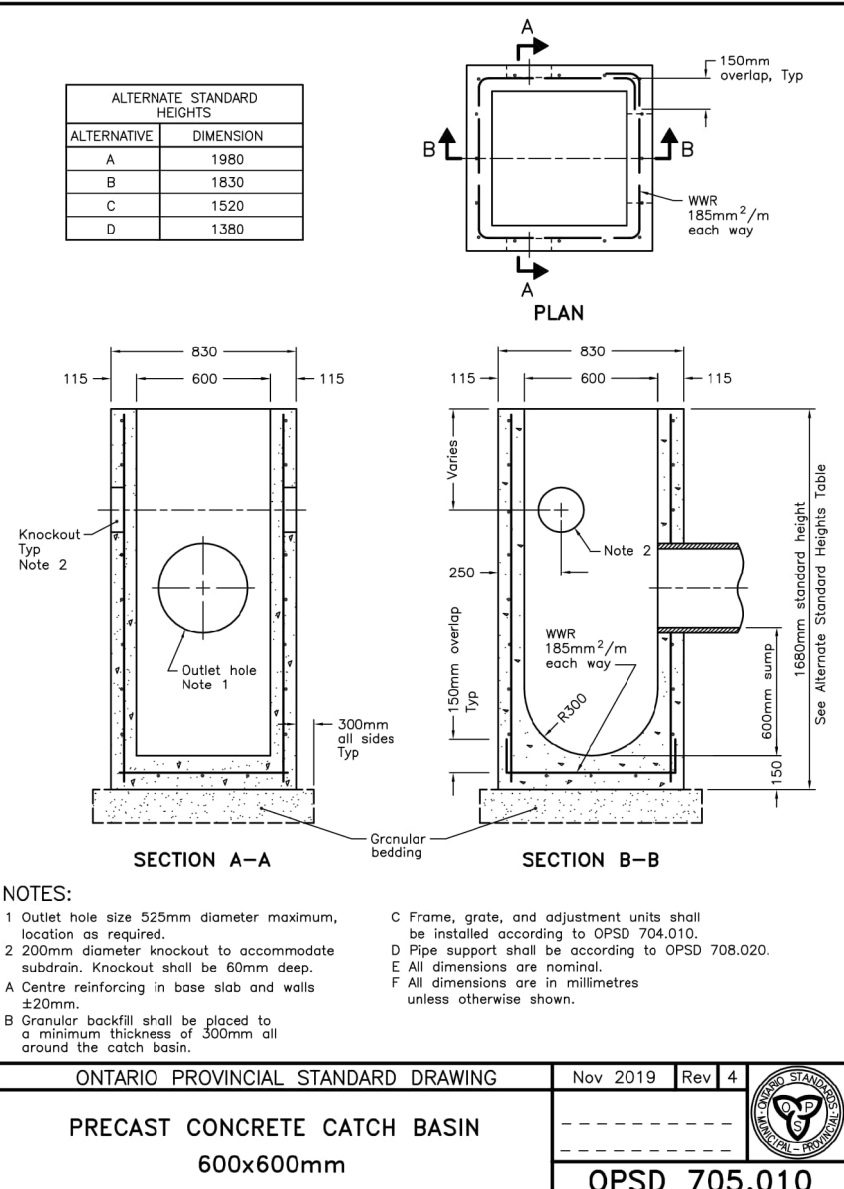
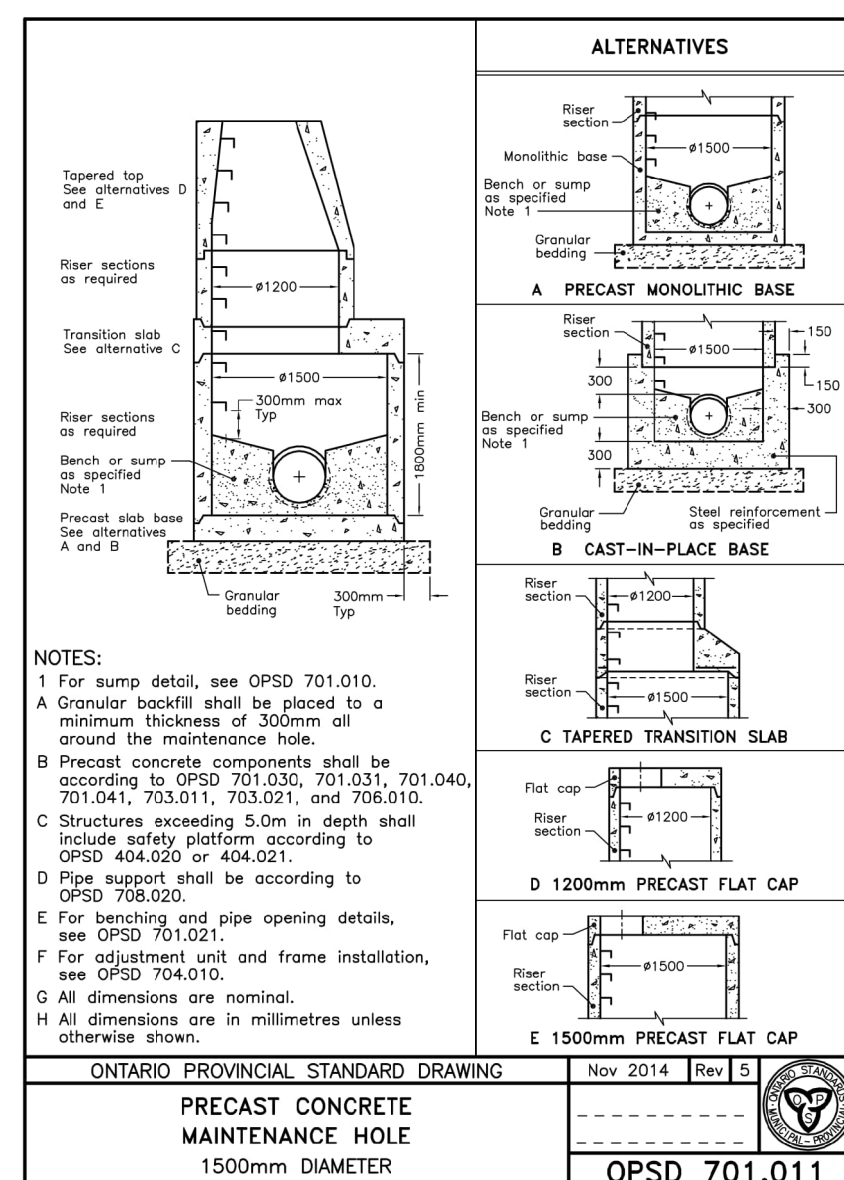
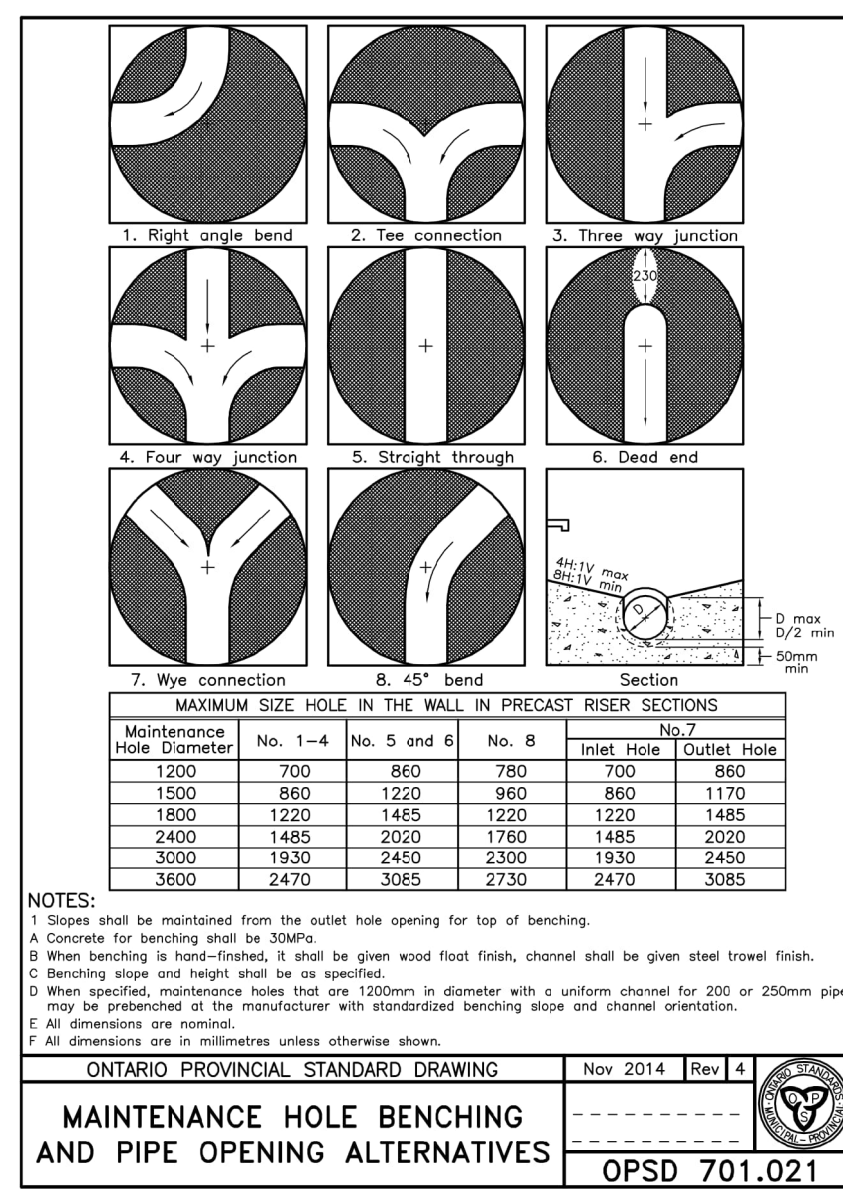
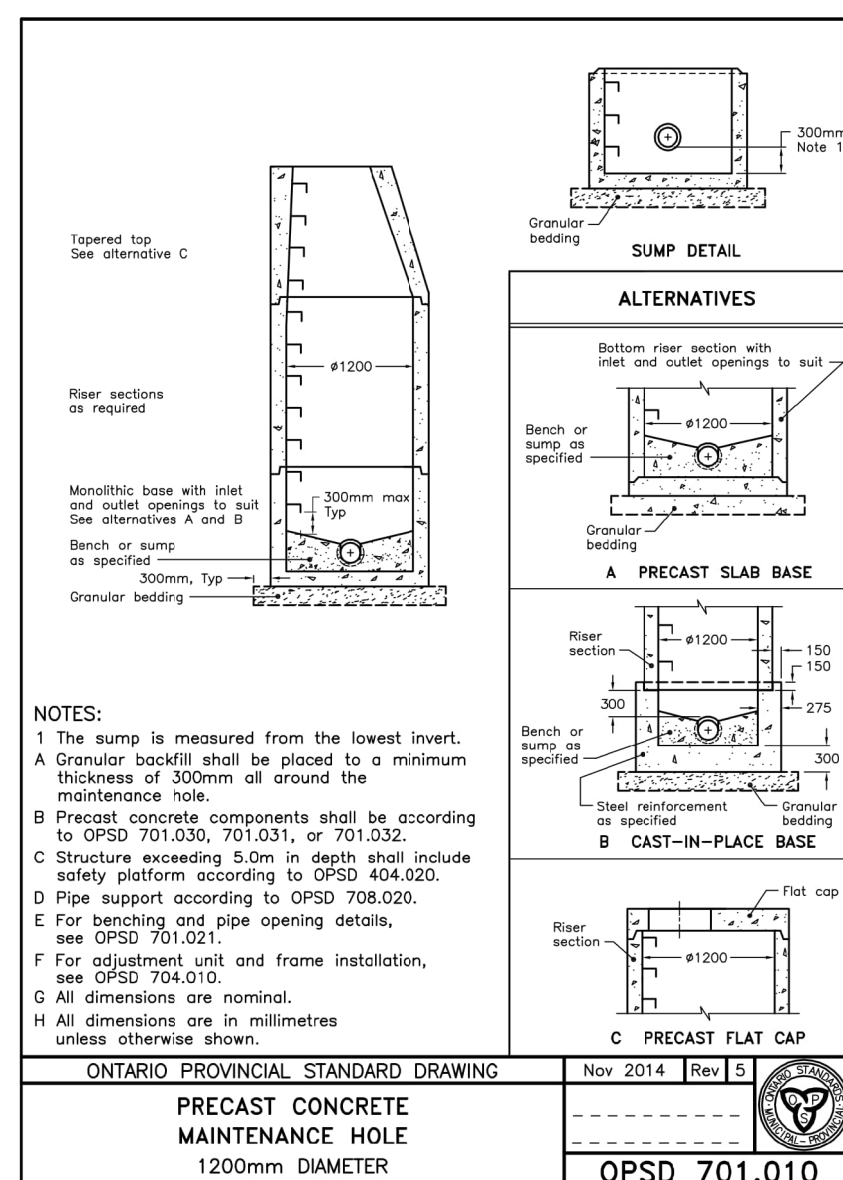
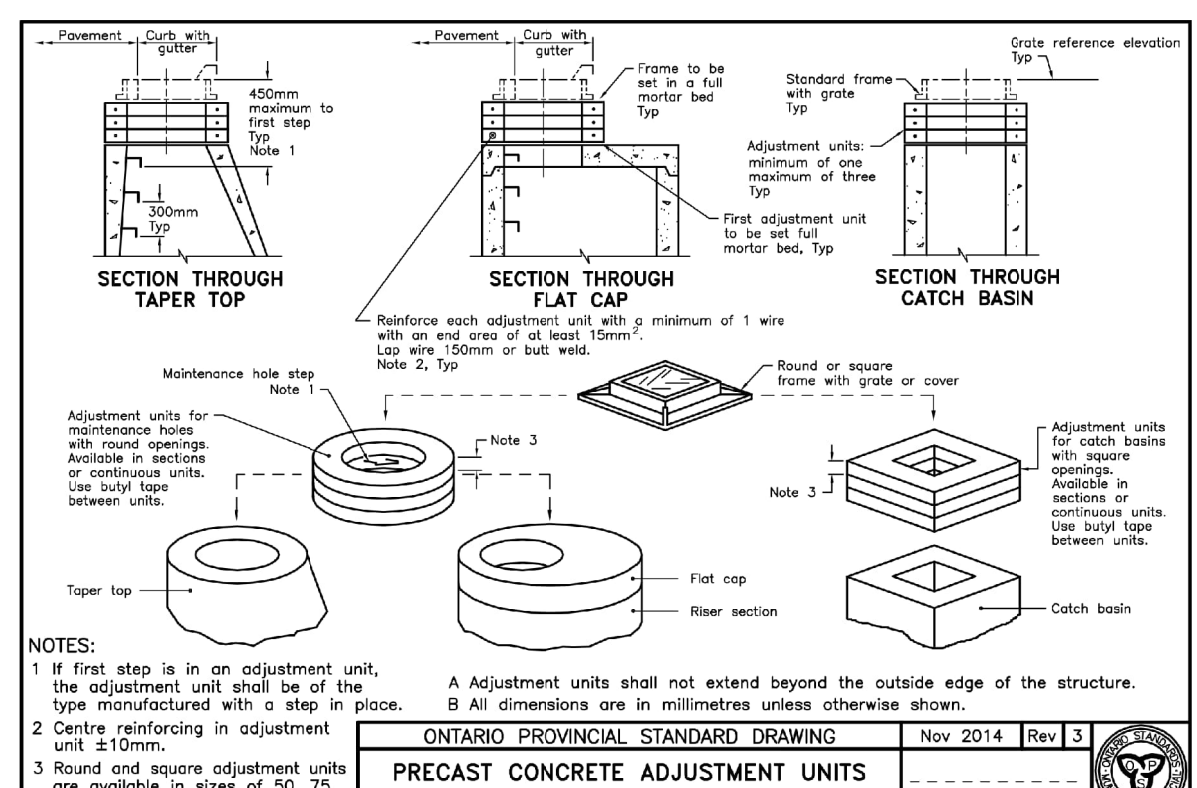
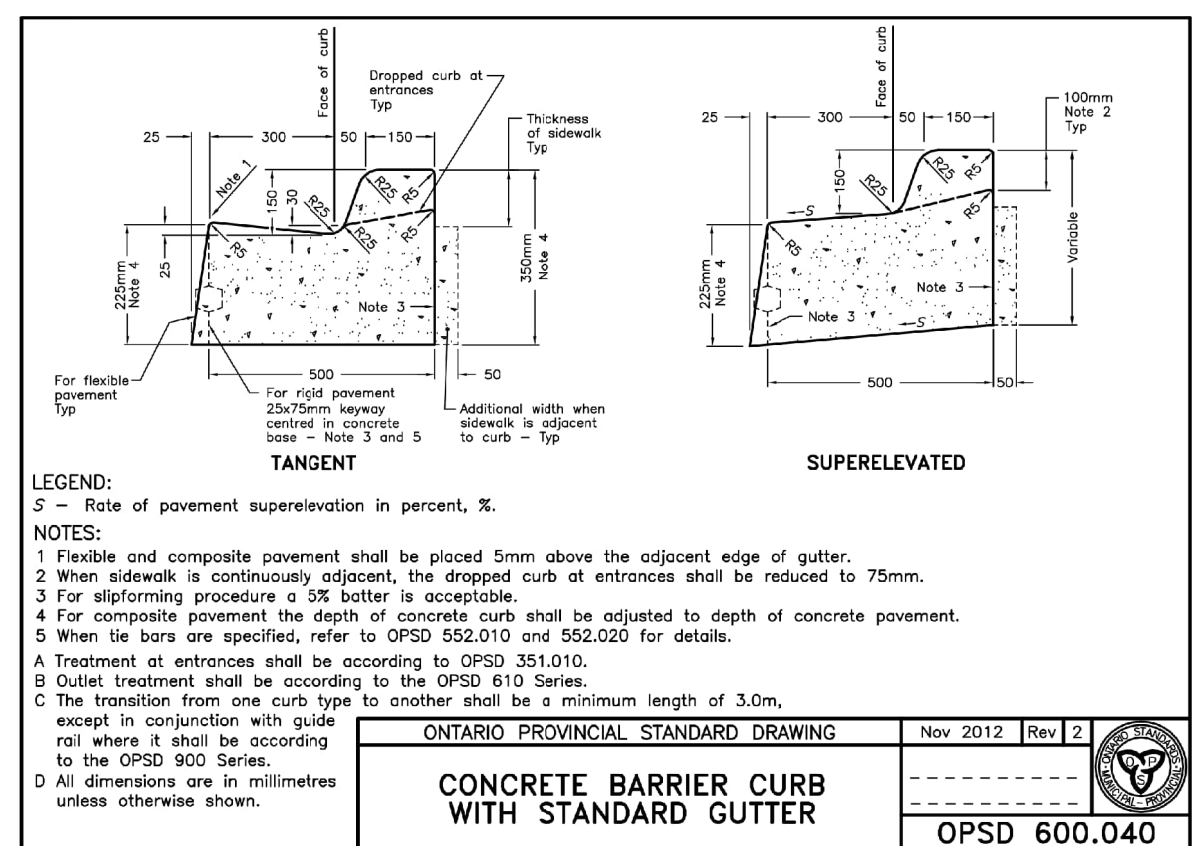
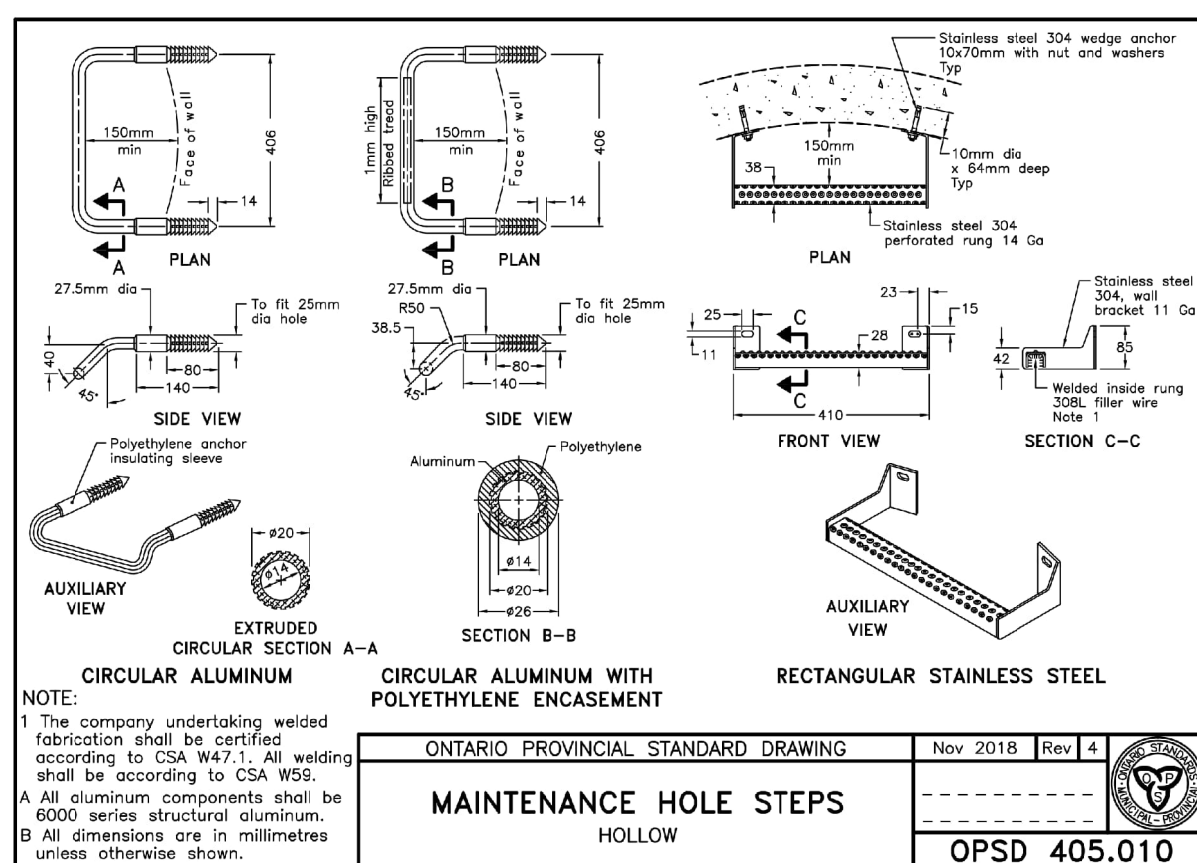
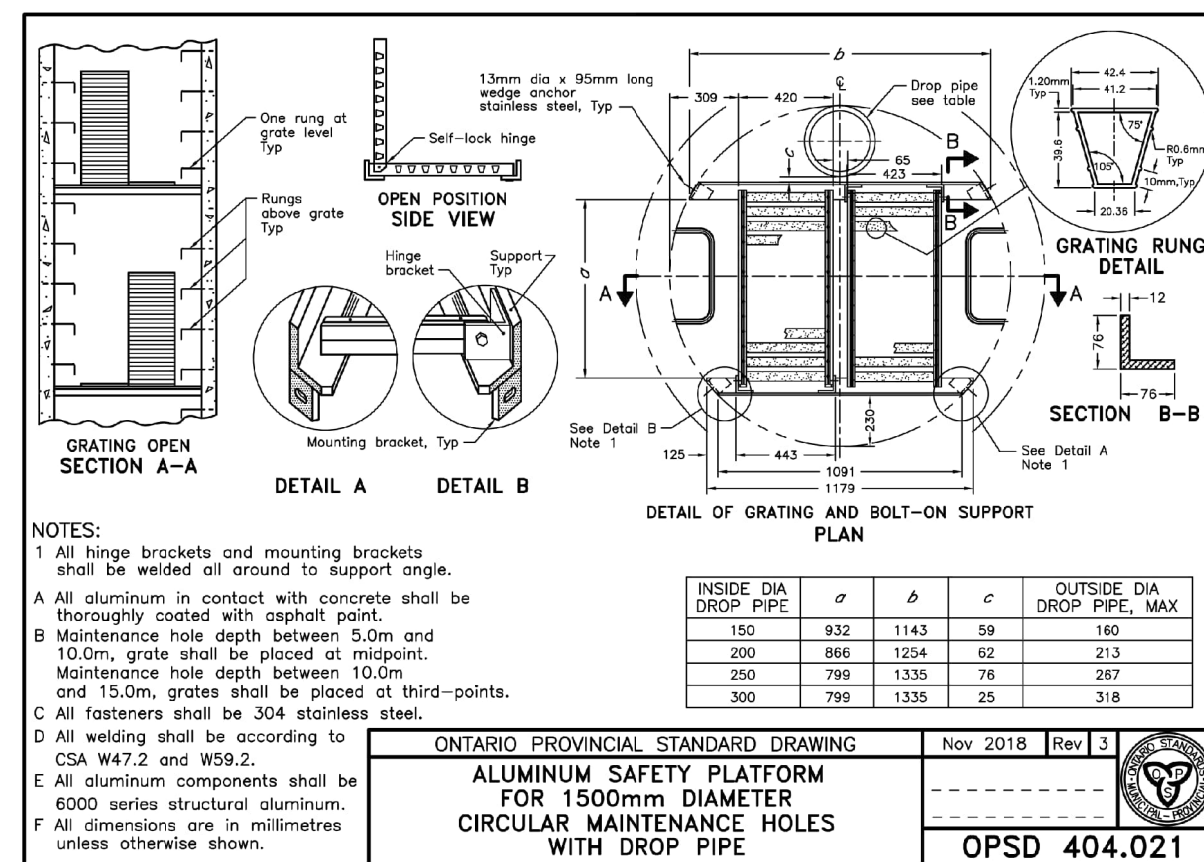
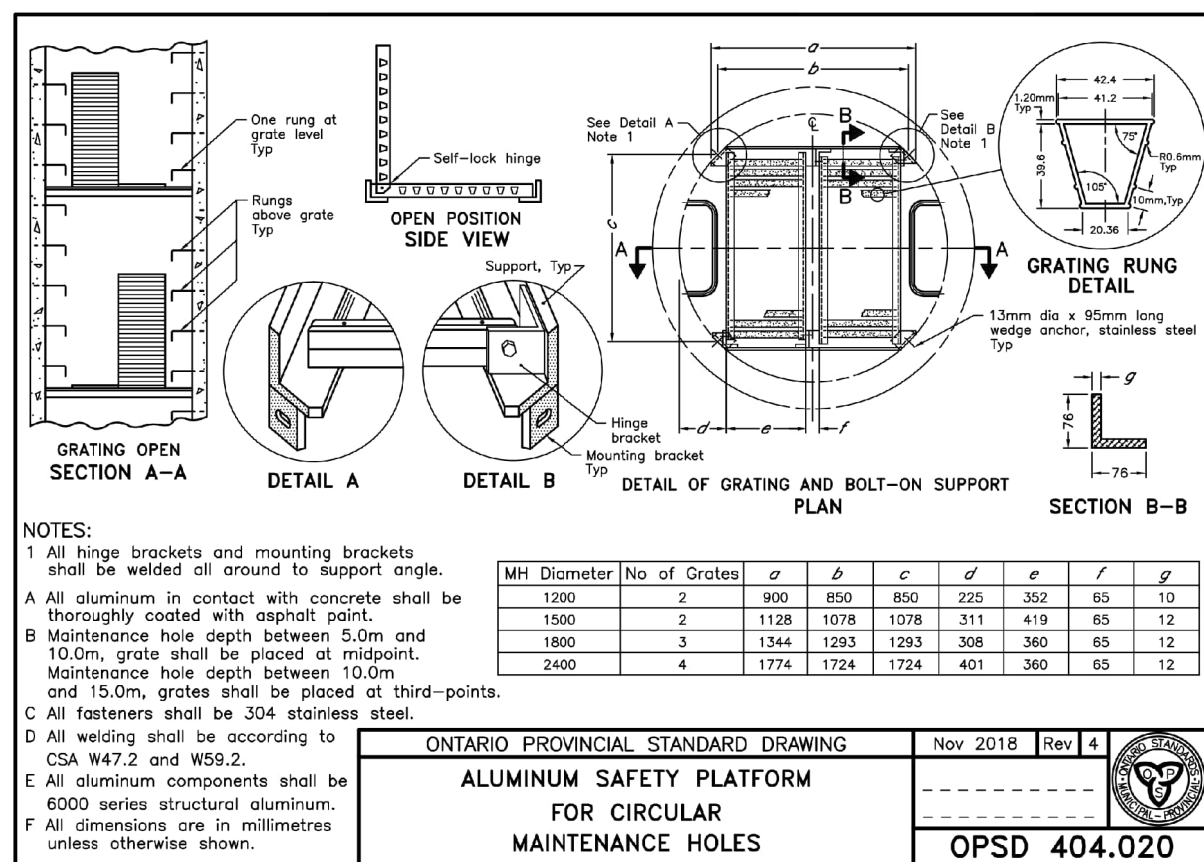
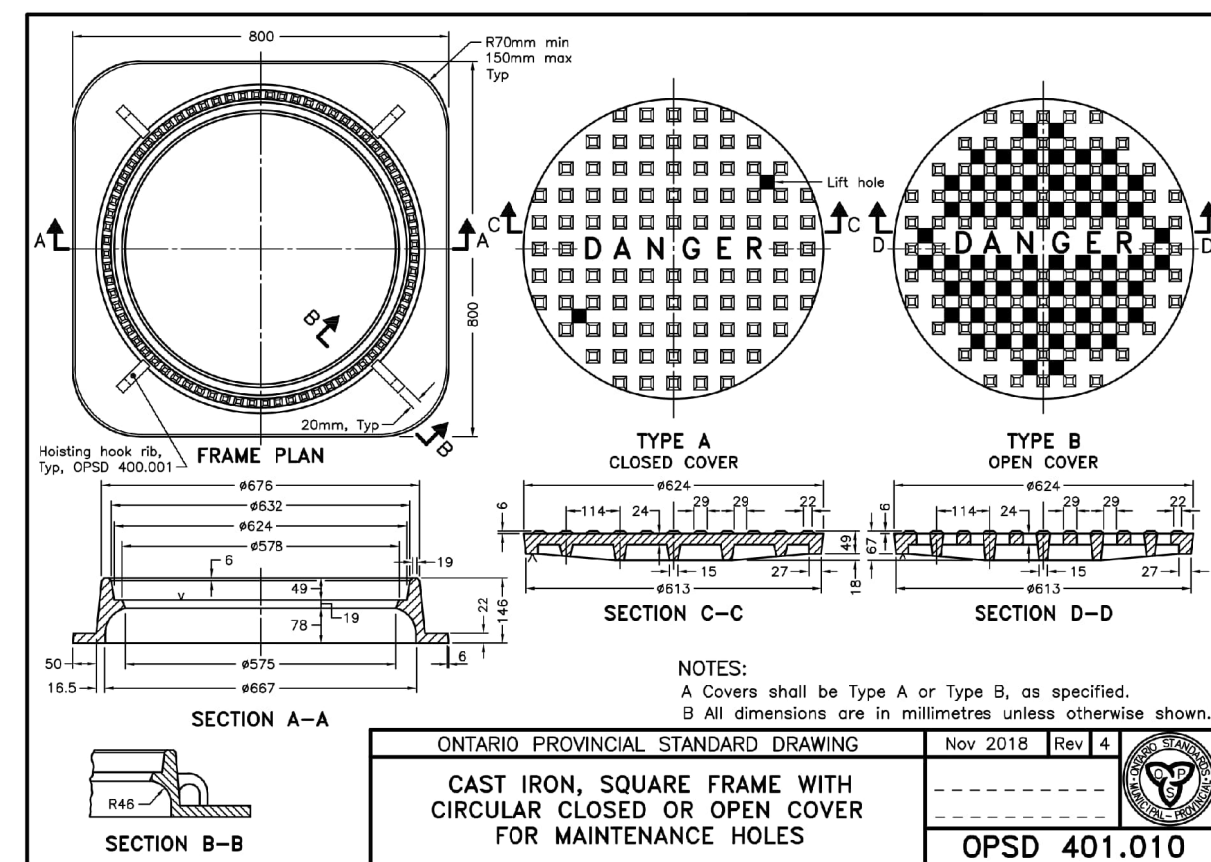
SHEET TITLE

STAGE 1
GRADING PLAN - GREEN SPACE

SHEET NUMBER

GP3





AECOM

PROJECT

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SHEET TITLE

STAGE 1
OPSD
STANDARD DETAILS

SHEET NUMBER

DET2

