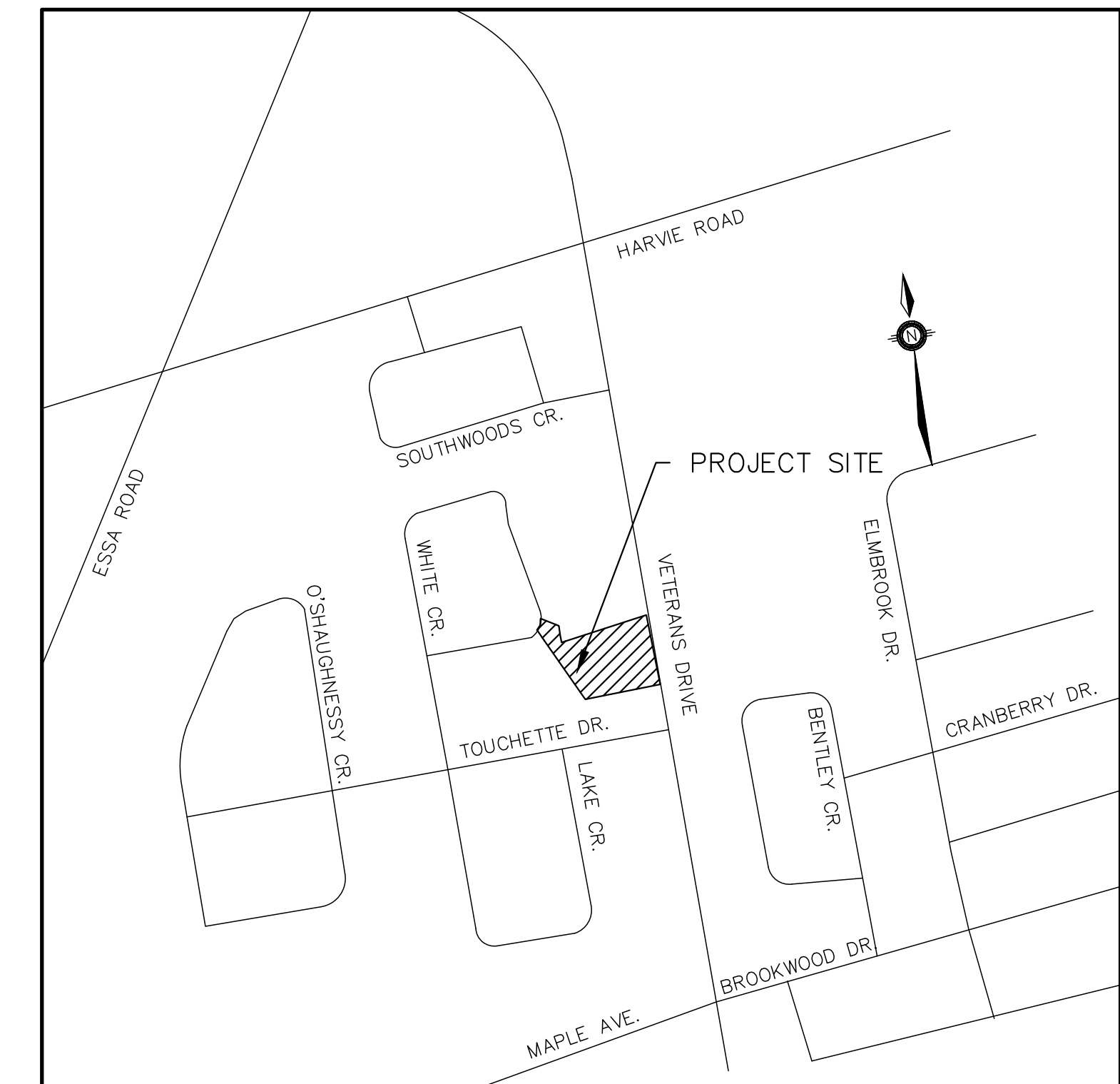


WHITE CRESCENT
104 WHITE CRESCENT
CITY OF BARRIE

DRAWING LIST

ND-1	NOTE AND DETAILS
SG-1	SITE GRADING PLAN
SS-1	SITE SERVICING PLAN
STM-1	POST DEVELOPMENT STORM CATCHMENT PLAN
PS-1	PAVEMENT MARKING AND SIGNAGE PLAN
EP-1	EROSION SEDIMENT CONTROL PLAN



CITY OF BARRIE
70 COLLIER ST.
BARRIE, ON
L4M 4T5

MICHLER HOLDINGS LTD.
27 CUTTING CRESENT
KING, ON
L7B 0E6



PEARSON
ENGINEERING LTD.

PEARSONENG.COM PH. 705.719.4785

1. DRAWINGS

- A. 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

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

3. GENERAL

- A. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARD DRAWINGS (BSD) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).
- B. ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY CITY OF BARRIE STANDARD DRAWINGS (BSD) AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).
- C. 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.
- D. 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.
- E. A SITE ALTERATION PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTH WORKS ON THE SITE.
- 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. ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT.
- I. 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.
- J. ANY EXISTING ON SITE WELLS, BOREHOLES EQUIPPED WITH PEIZOMETERS AND SEPTIC SYSTEMS, IF THERE ARE ANY, ARE DECOMMISSIONED IN ACCORDANCE WITH CURRENT MINISTRY OF THE ENVIRONMENT GUIDELINES (O. REG. 903).
- K. CONTRACTOR TO DEVELOP A SPILL CONTINGENCY PLAN PRIOR TO CONSTRUCTION. ALL SPILLS SHALL BE REPORTED TO THE MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE SPILLS ACTION CENTRE AT 1-800-268-6060

4. WATERMAIN

- A. 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.
- B. 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 WATERMAINS.
- C. 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.
- D. 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 OPSS:MUNI1004.05.07 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 150 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING, TOP OF PIPE AND COVER).

- E. COPPER WATER MAINS AND SERVICES 19mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSS:MUNI 1004.05.07.
- F. 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.

- G. NEW WATERMAINS TO BE PVC DR18 CL150 MINIMUM; DUCTILE IRON CL52AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.
- H. TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER GLAD (HS-CSS) AND SHALL BE INSTALLED ON THE TOTAL LENGTH OF ALL WATERMAINS 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.

- I. 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.
- J. SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0M AND A MINIMUM OF 0.6M FROM JOINTS. (ENDS OF PIPE)
- K. 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.
- L. ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.
- M. AFTER CHLORINATION TESTING, THE DISCHARGE OF SUPER CHLORINATED WATER MUST BE TREATED TO ELIMINATE ANY SOURCES OF CHLORINE PRIOR TO DISCHARGING TO THE NATURAL ENVIRONMENT. SAMPLING VERIFICATION MUST BE COMPLETED AND RECORDED TO ENSURE NO RESIDUAL CHLORINE IS DETECTED. RECORD MUST BE RETAINED FOR ONE YEAR AND PROVIDED TO THE CITY UPON REQUEST.

5. SANITARY

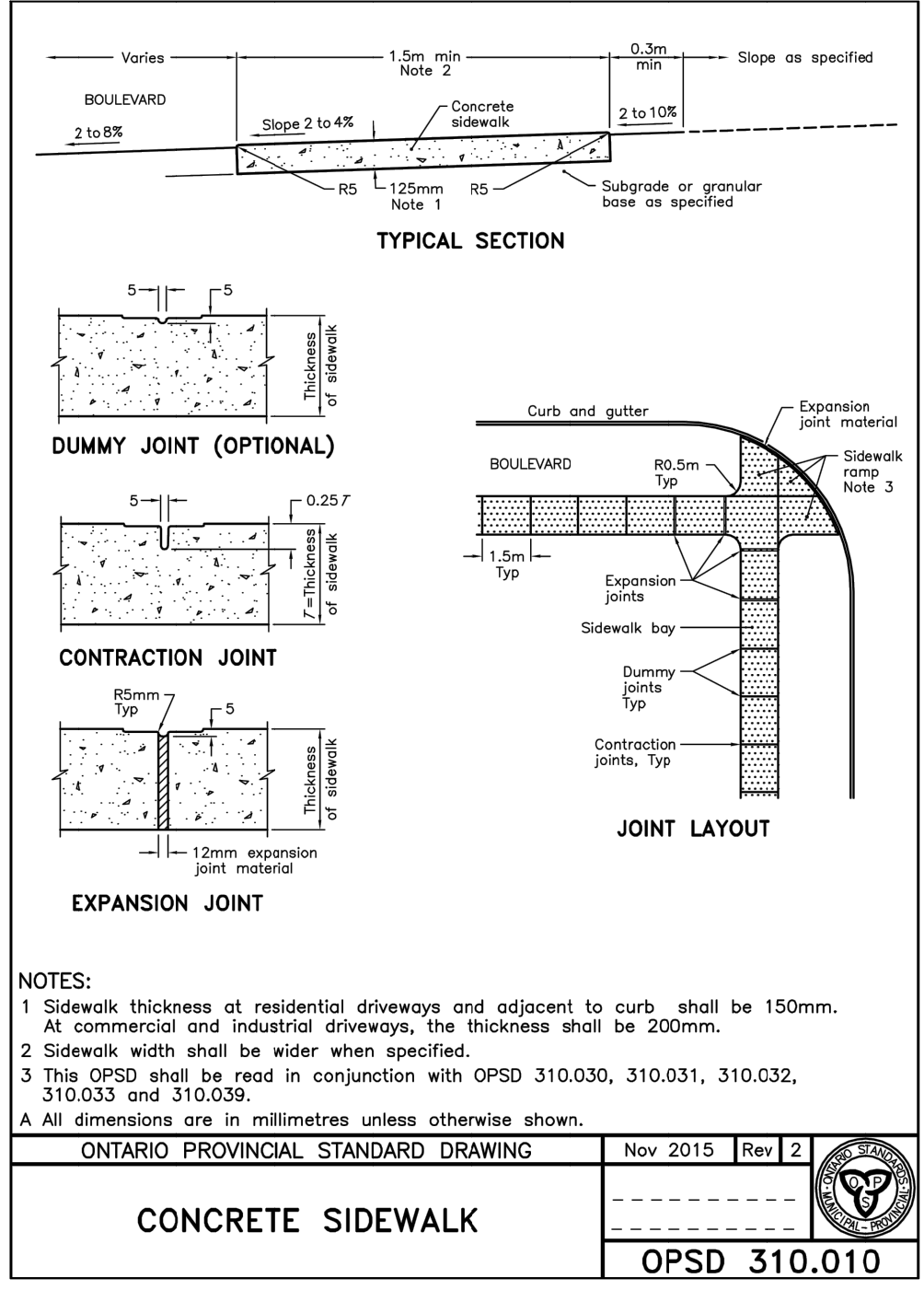
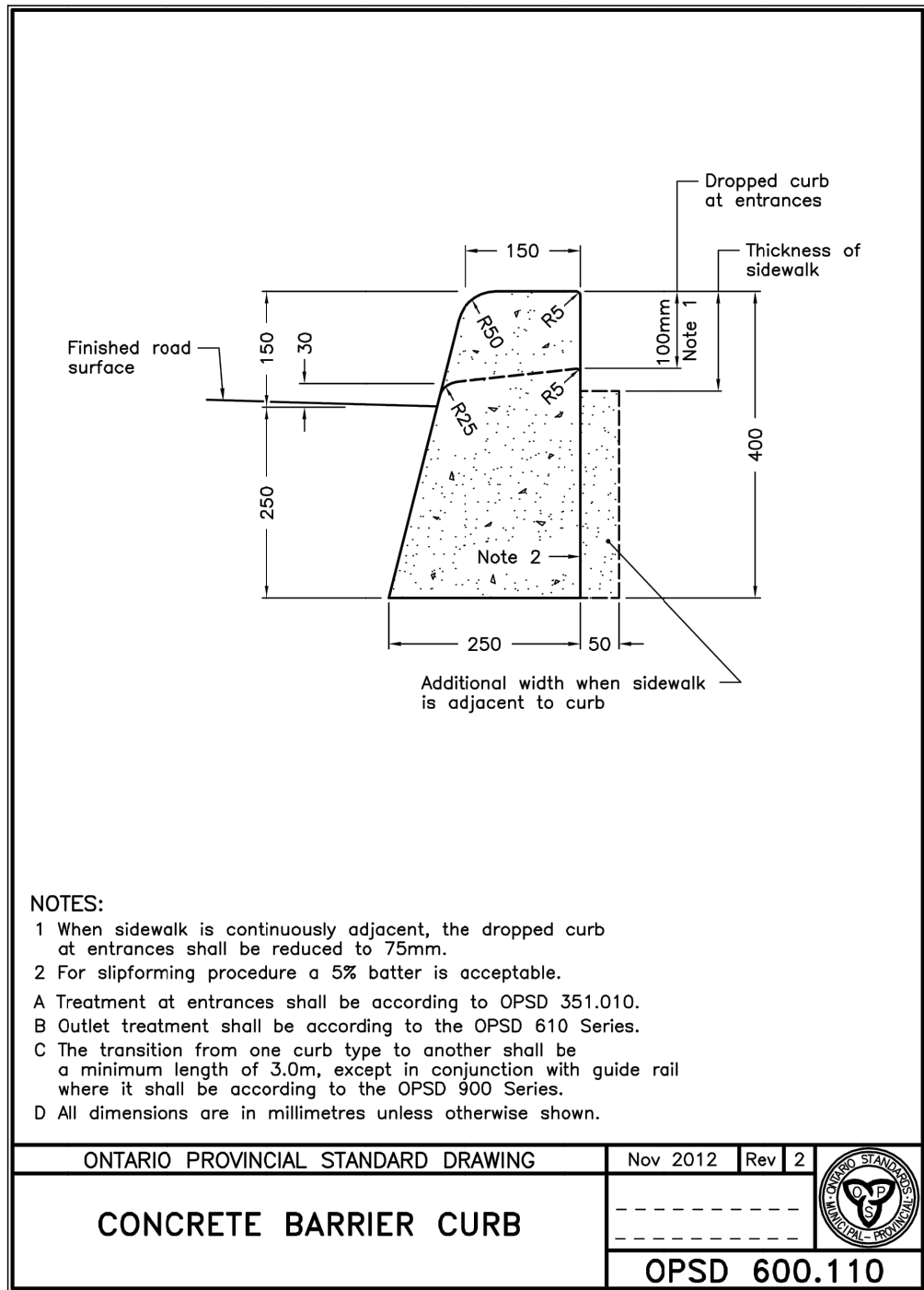
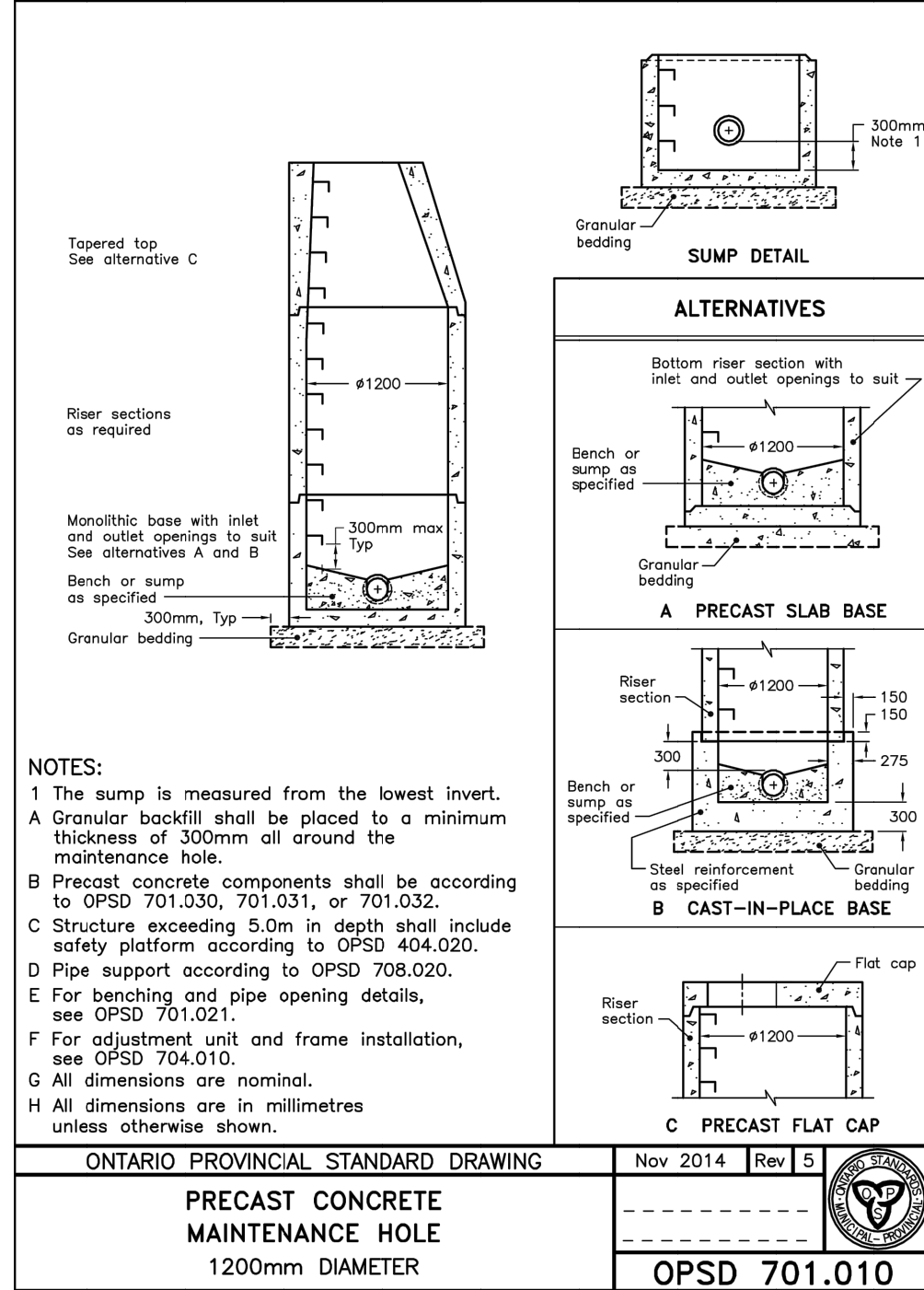
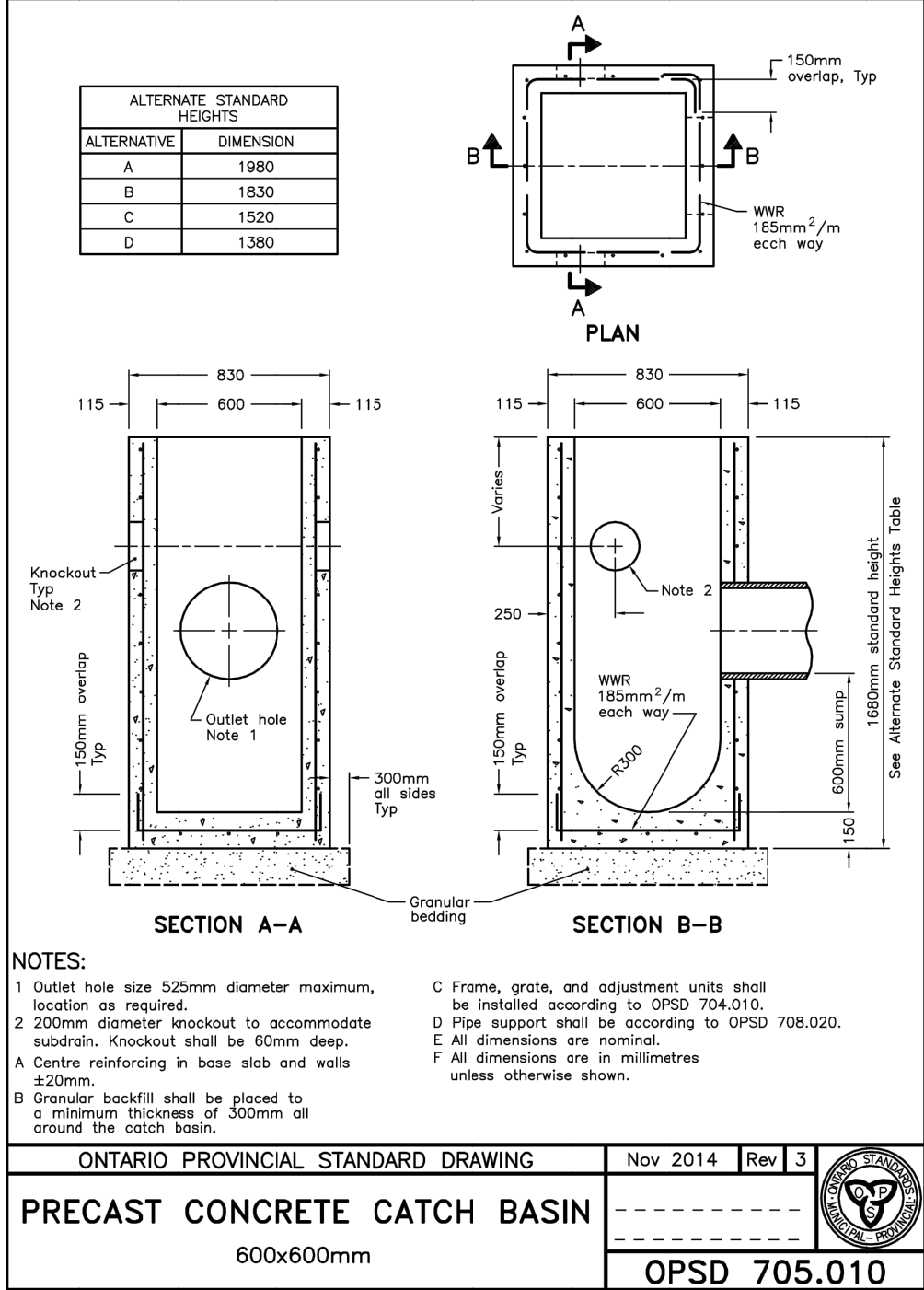
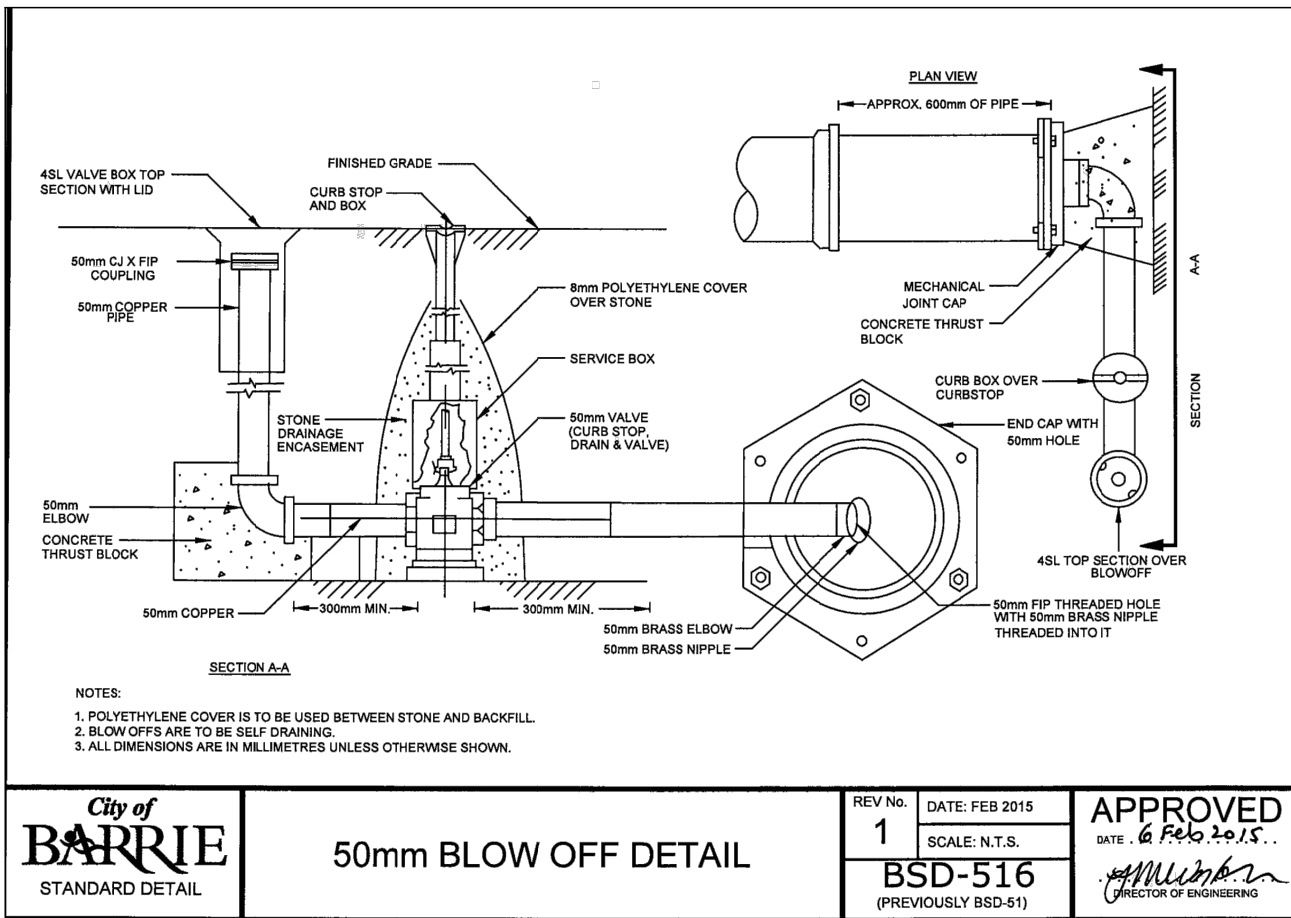
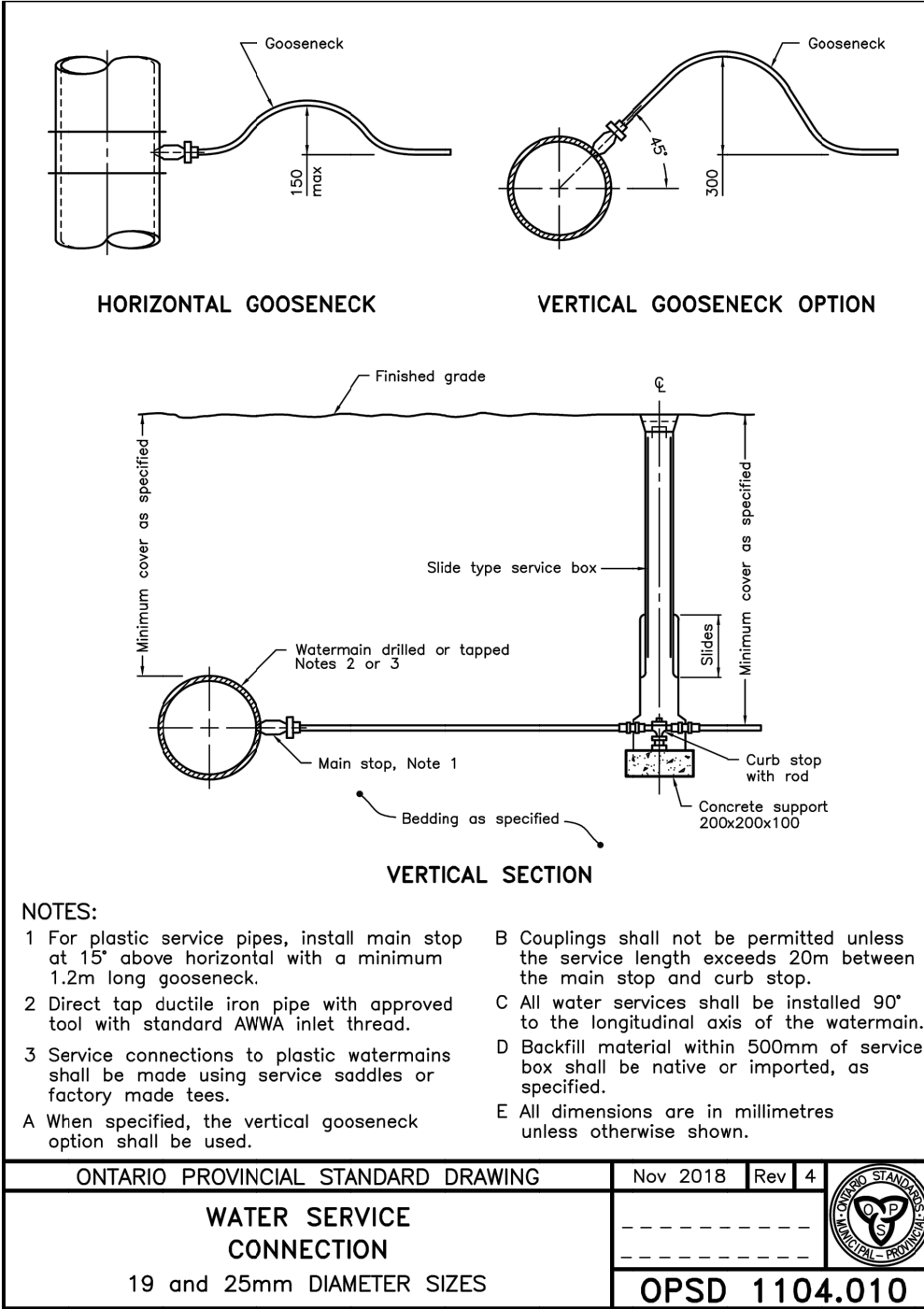
- A. SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD-802.010, (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
- B. MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS RECOMMENDED SPECIFICATIONS.
- C. 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.
- D. 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).
- E. 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 IN ACCORDANCE WITH BSD-N2.
- F. 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.
- G. PIPE TO BE MINIMUM 100 mm DIA. PVC SDR28, RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO C.S.A. (B-182.2.3.4) (COLOURED) FOR A RESIDENTIAL HOUSE AND 150mm MINIMUM DIA. PVC SDR28 FOR INDUSTRIAL/COMMERCIAL DEVELOPMENT.
- H. 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.

6. STORM SEWER

- A. STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.
- B. PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE, 300mm DIA. DOUBLE.
- C. 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.
- D. 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.
- E. STORM SEWER TO BE LOCATED OFFSET 3.0m SOUTH OR EAST OF CENTRELNE UNLESS OTHERWISE SPECIFIED.
- F. 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.
- G. PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH 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.
- H. STORM SEWER TO BE MINIMUM 300mm DIAMETER WITH JOINTS CONFORMING TO C.S.A. STANDARD A257.3.
- I. 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.
- J. ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURES INSTALLATION GUIDES AND THE O.C.P.A. OR UNIBELL GUIDELINES.
- K. 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 CARPED 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.

PAVEMENT STRUCTURE

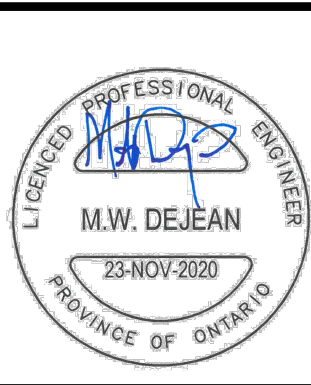
HL3	~40mm
HL4 OR HL8	~70mm
GRANULAR A	~150mm
GRANULAR B	~300mm



NO.	REVISION NOTE	DATE	BY
3.	AS PER CITY COMMENTS	11/23/20	PG
2.	AS PER CITY COMMENTS	01/08/20	ZZ
1.	REVISED AS PER ZONING COMMENTS	04/03/19	ZZ

BENCHMARK:

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE CITY OF BARRIE BENCH MARK No 03120030018 HAVING A PUBLISHED ELEVATION OF 306.589 METRES.

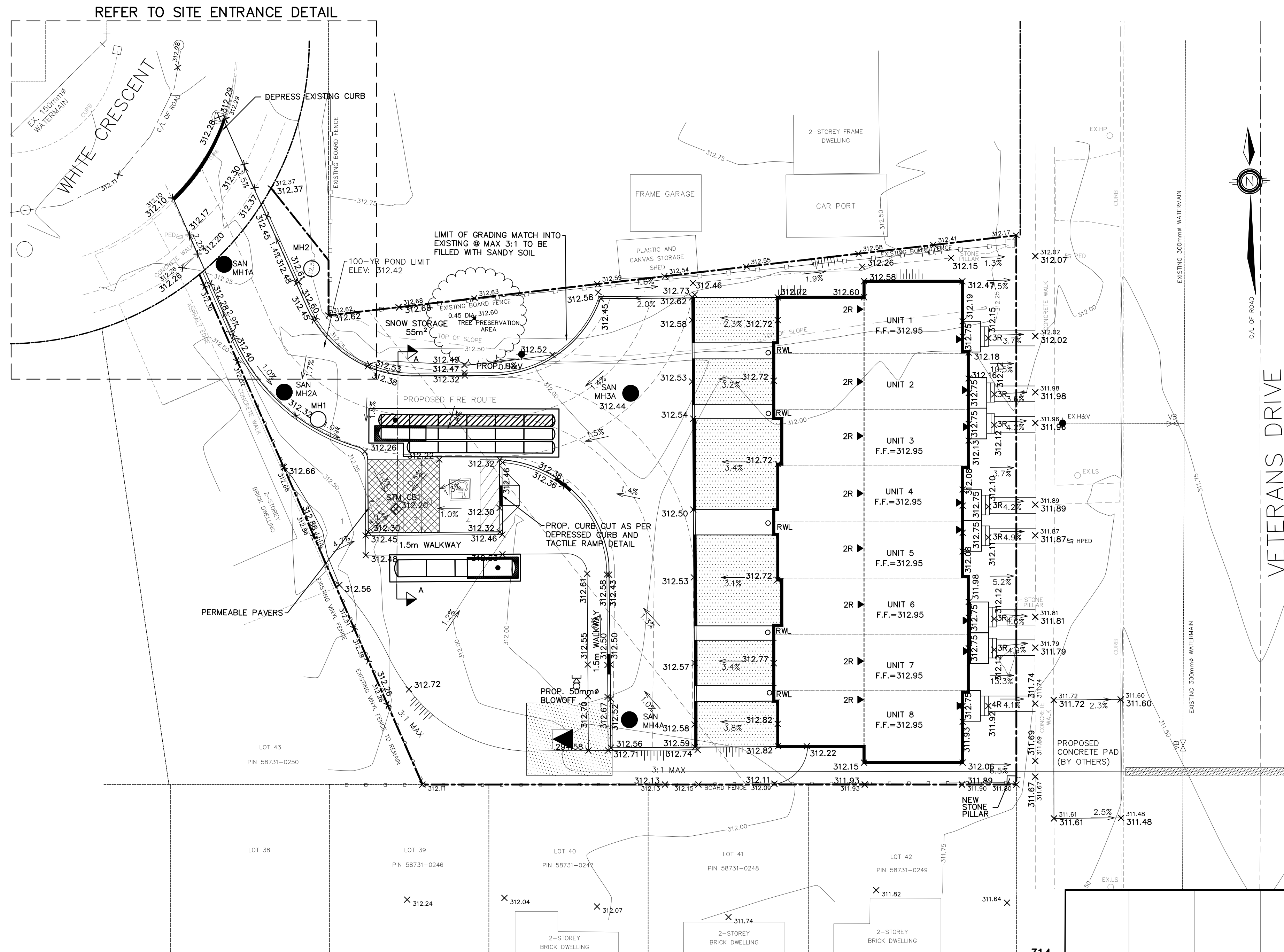


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BARRIE, ON

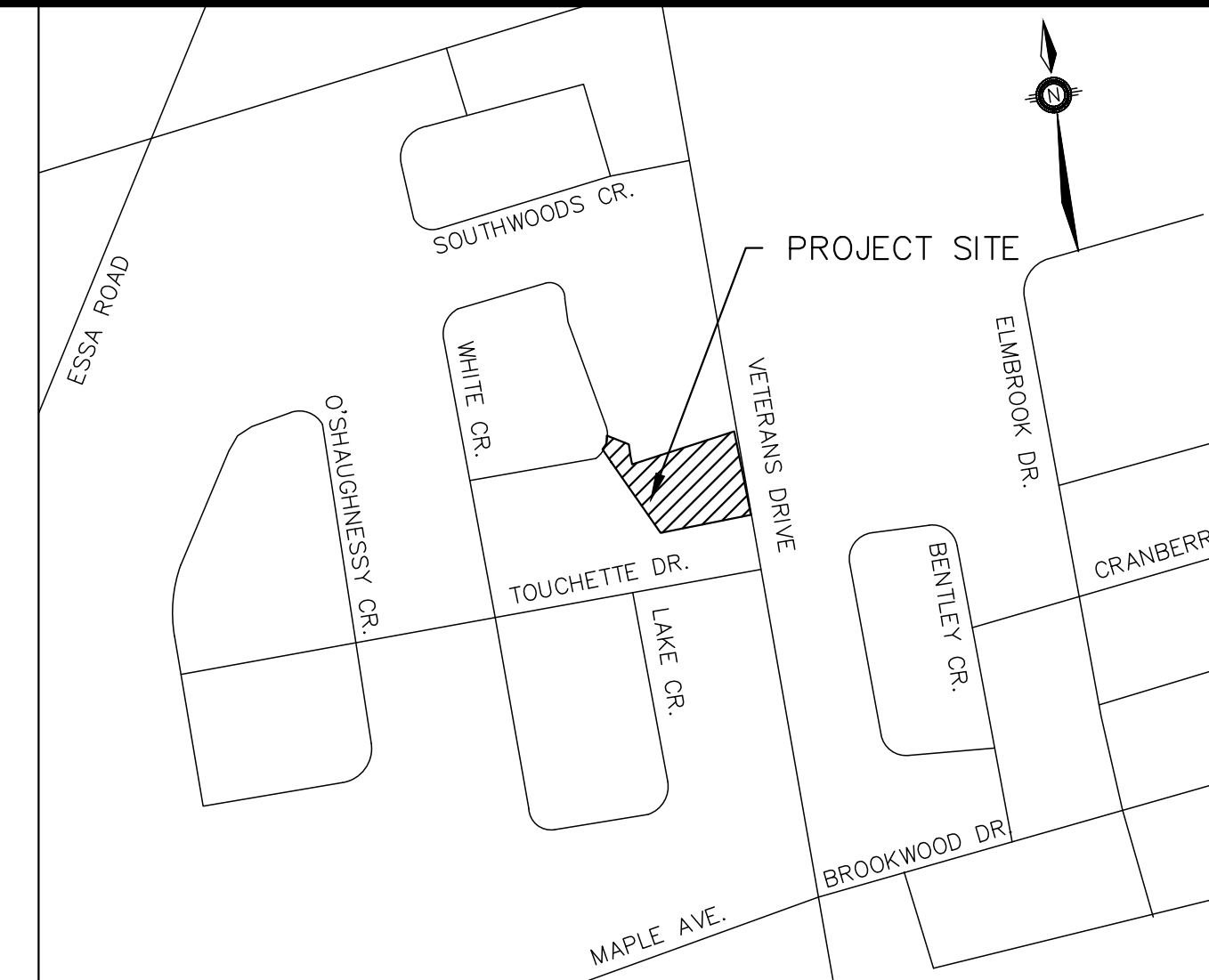
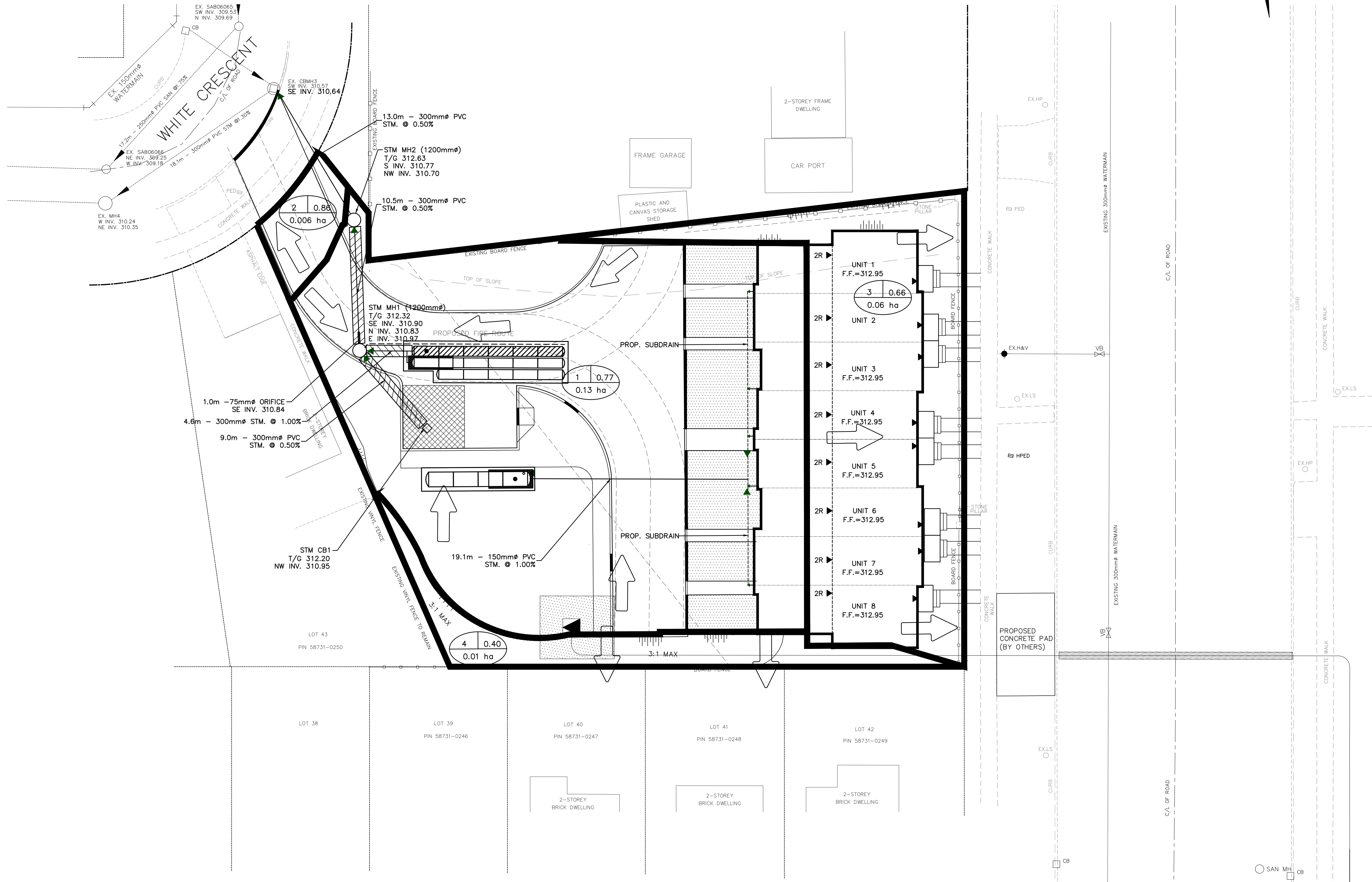
NOTES AND DETAILS

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DESIGNED BY	MM/MD
DRAWN BY	ZZ
CHECKED BY	GMP
HORIZ SCALE	PROJECT # 18058
VERT SCALE	DRAWING # ND-1
DATE	REVISION # 3
DECEMBER 2018	

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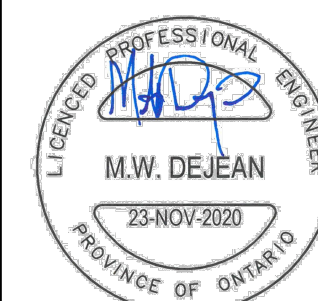
KEY PLAN
NTS

LEGEND

- CB CATCH BASIN
- CBMH CATCH BASIN MANHOLE
- MH STORM MANHOLE
- SMH SANITARY MANHOLE
- SERVICE CAP
- HYD. FIRE HYDRANT
- VB WATER VALVE
- CS 25mm WATER SERVICE C/W CURB STOP
- × 254.63
254.09 PROPOSED ELEVATION
EXISTING ELEVATION
- 1.5% PROPOSED DIRECTION AND GRADE
- BACK OF CURB
- EDGE OF PAVEMENT
- CURB CUT LOCATION
-) (HIGH POINT
- ➔ OVERLAND FLOW DIRECTION
- CATCHMENT AREA (1 0.75) RUNOFF COEFFICIENT
1.00 ha
AREA IN HECTARES
- CATCHMENT BOUNDARY

BENCHMARK:

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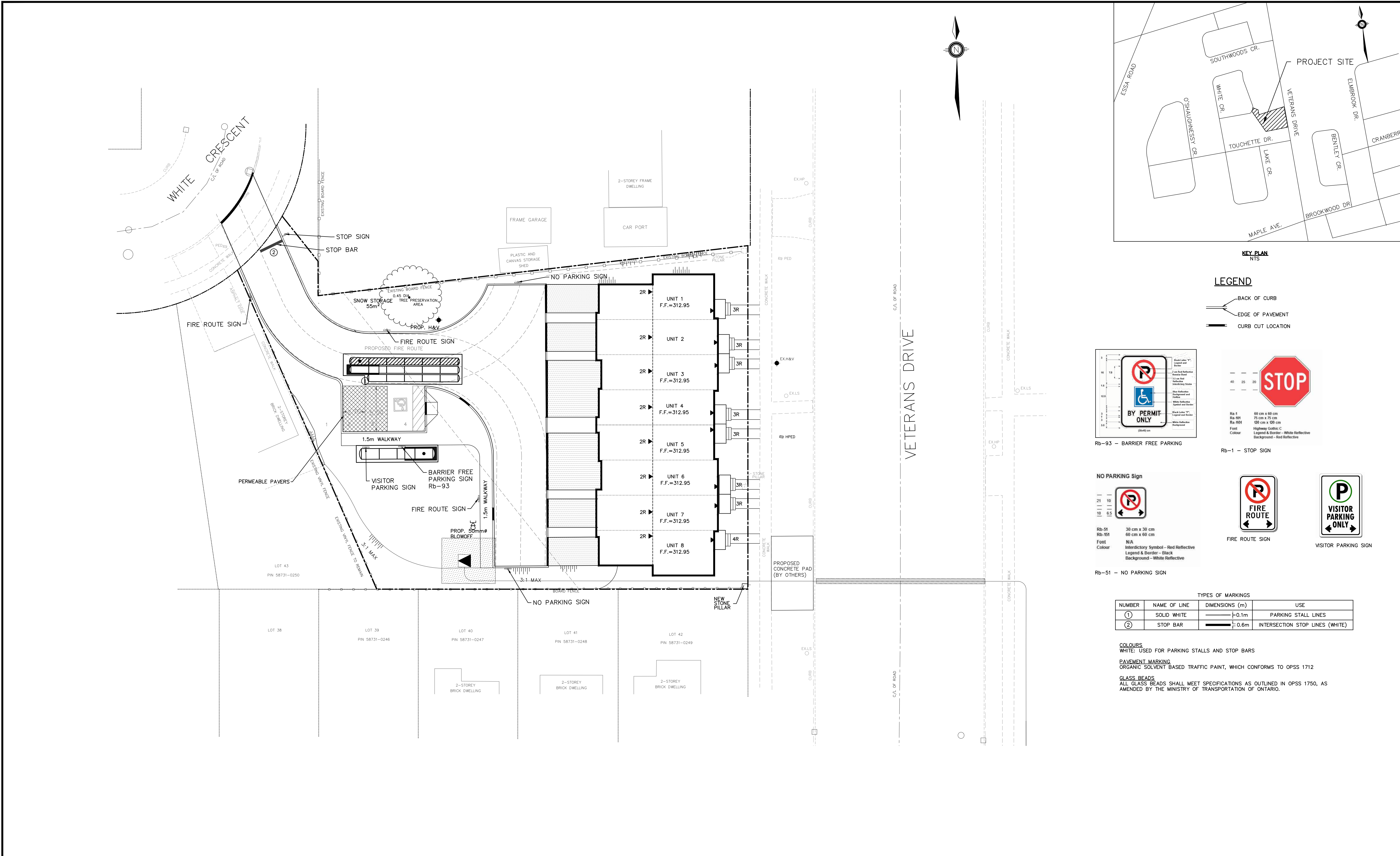
POST DEVELOPMENT STORM CATCHMENT PLAN



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DESIGNED BY	NW/MD	HORIZ SCALE	1:200	PROJECT #	18058
DRAWN BY	ZZ	VERT SCALE		DRAWING #	STM-1
CHECKED BY	GMP	DATE	DECEMBER 2018	REVISION #	3

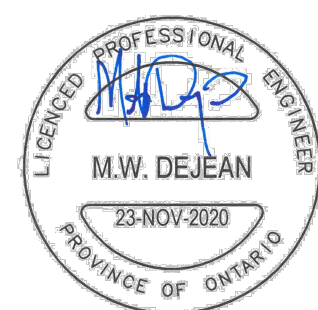
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2.	AS PER CITY COMMENTS	01/08/20	ZZ
1.	REVISED AS PER ZONING COMMENTS	04/03/19	ZZ



3.	AS PER CITY COMMENTS	11/23/20	PG
2.	AS PER CITY COMMENTS	01/08/20	ZZ
1.	REVISED AS PER ZONING COMMENTS	04/03/19	ZZ
NO.	REVISION NOTE	DATE	BY

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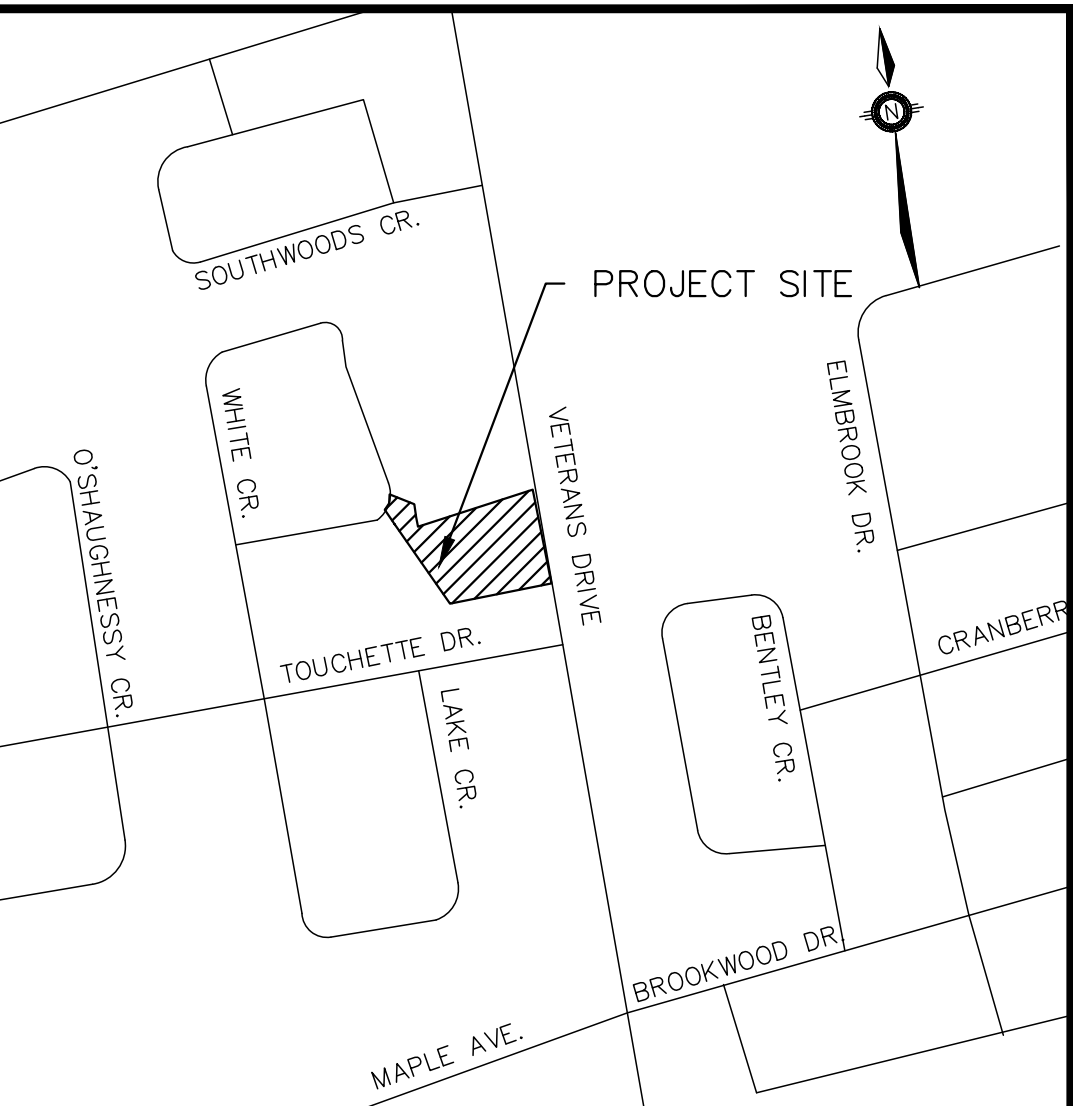
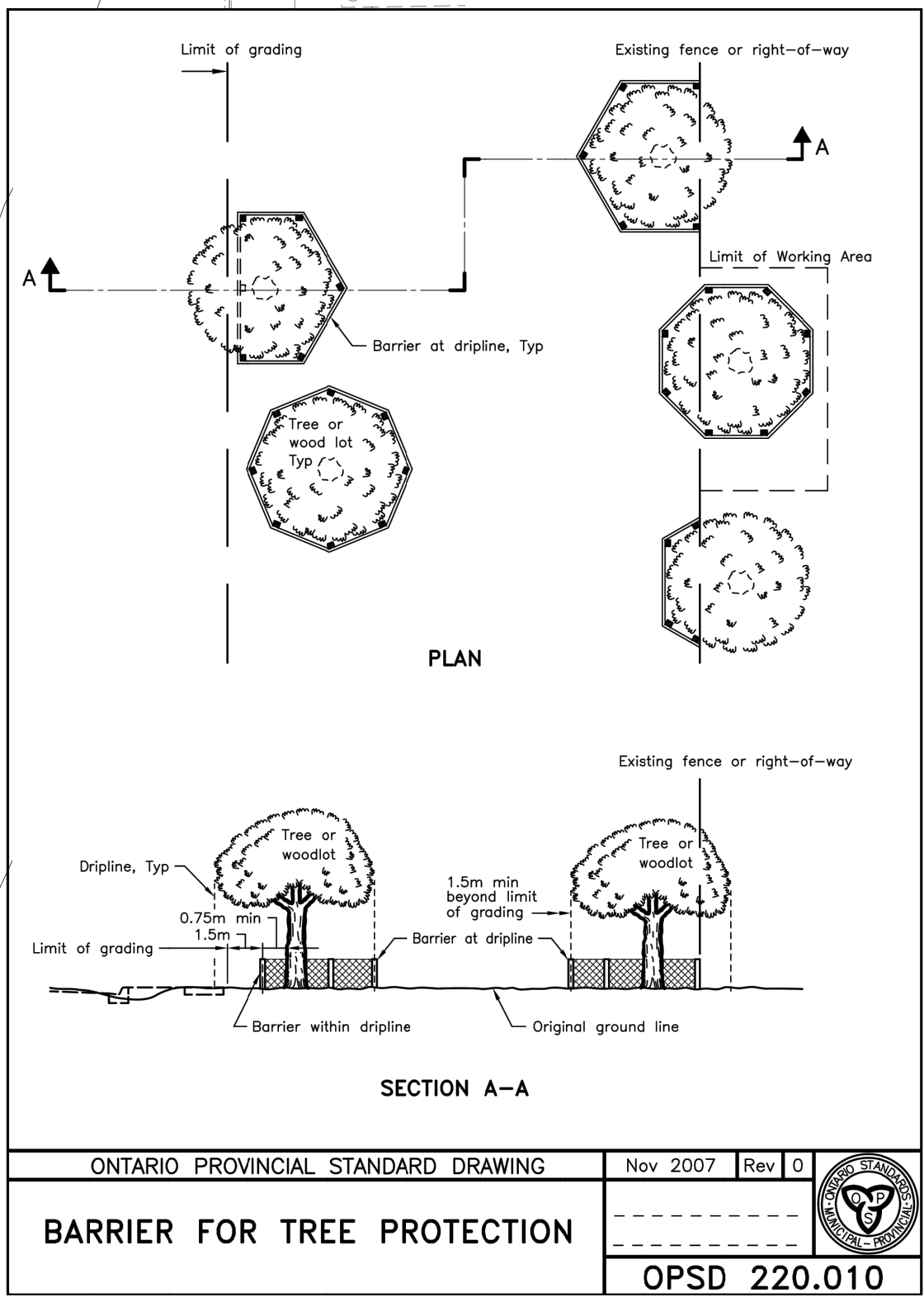
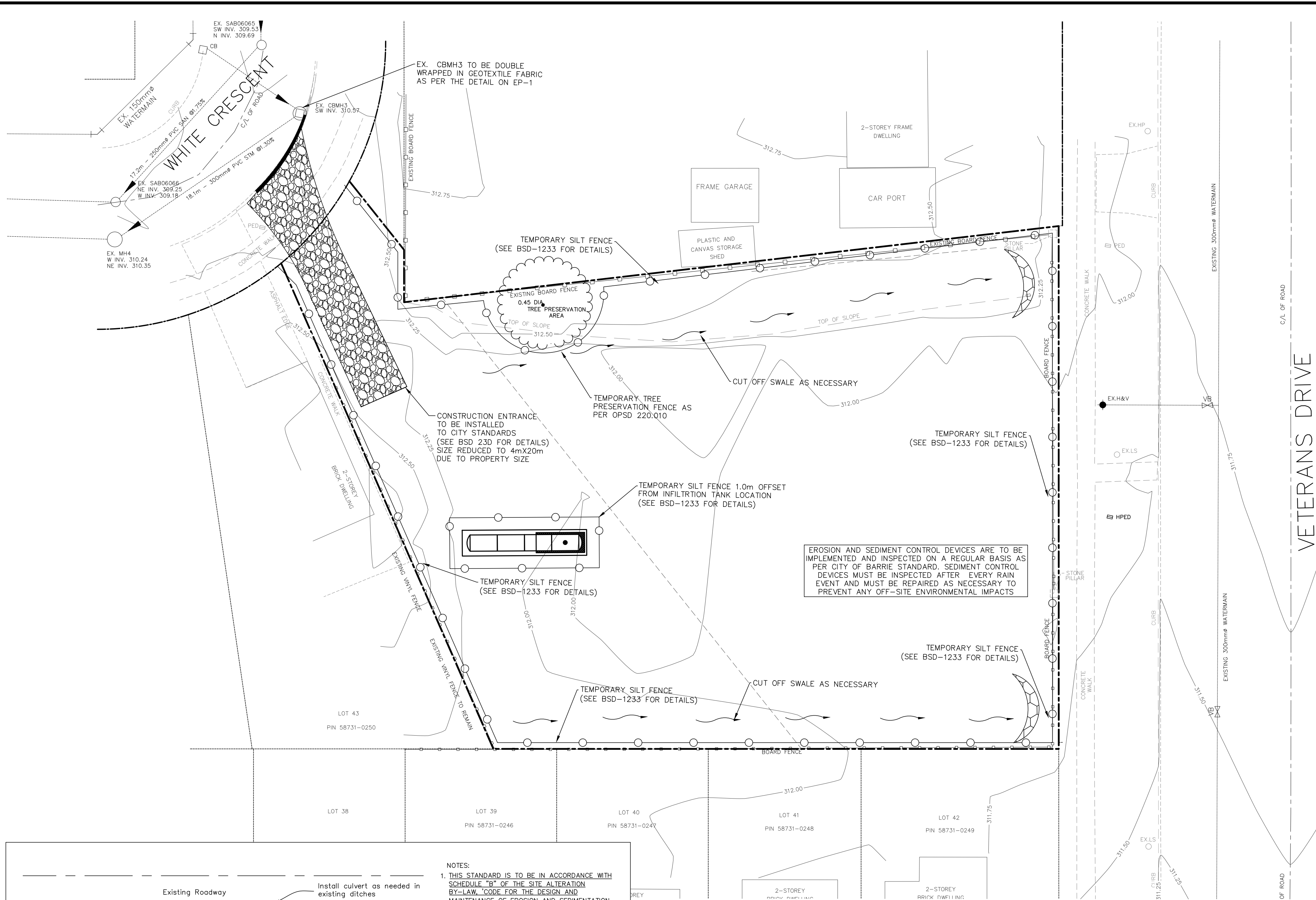


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PAVEMENT MARKING
AND SIGNAGE PLAN

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DRAWN BY	ZZ	VERT SCALE	
CHECKED BY	GMP	DATE	DECEMBER 2018
		PROJECT #	18058
		DRAWING #	PS-1
		REVISION #	3

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KEY PLAN
NTS

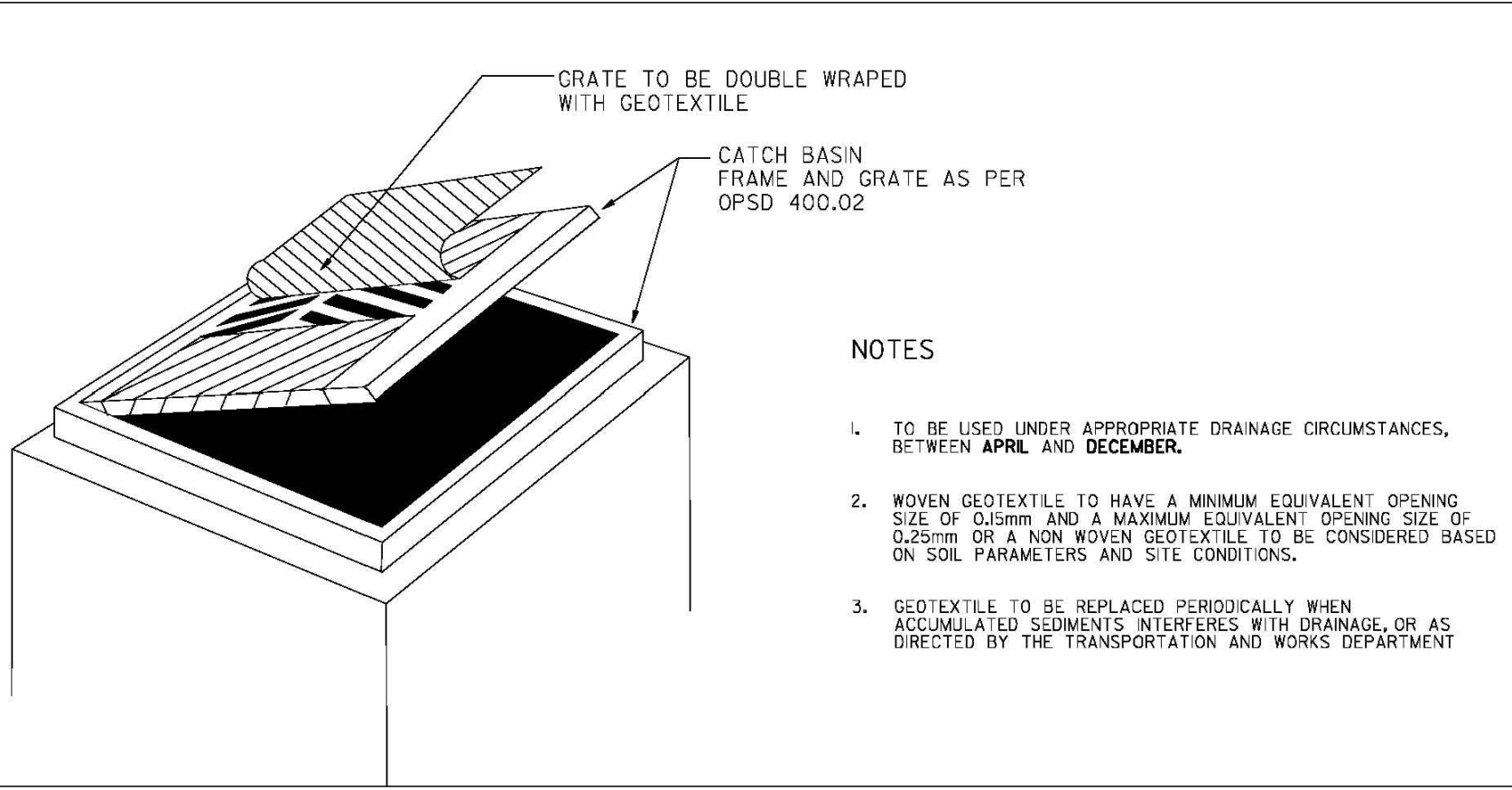
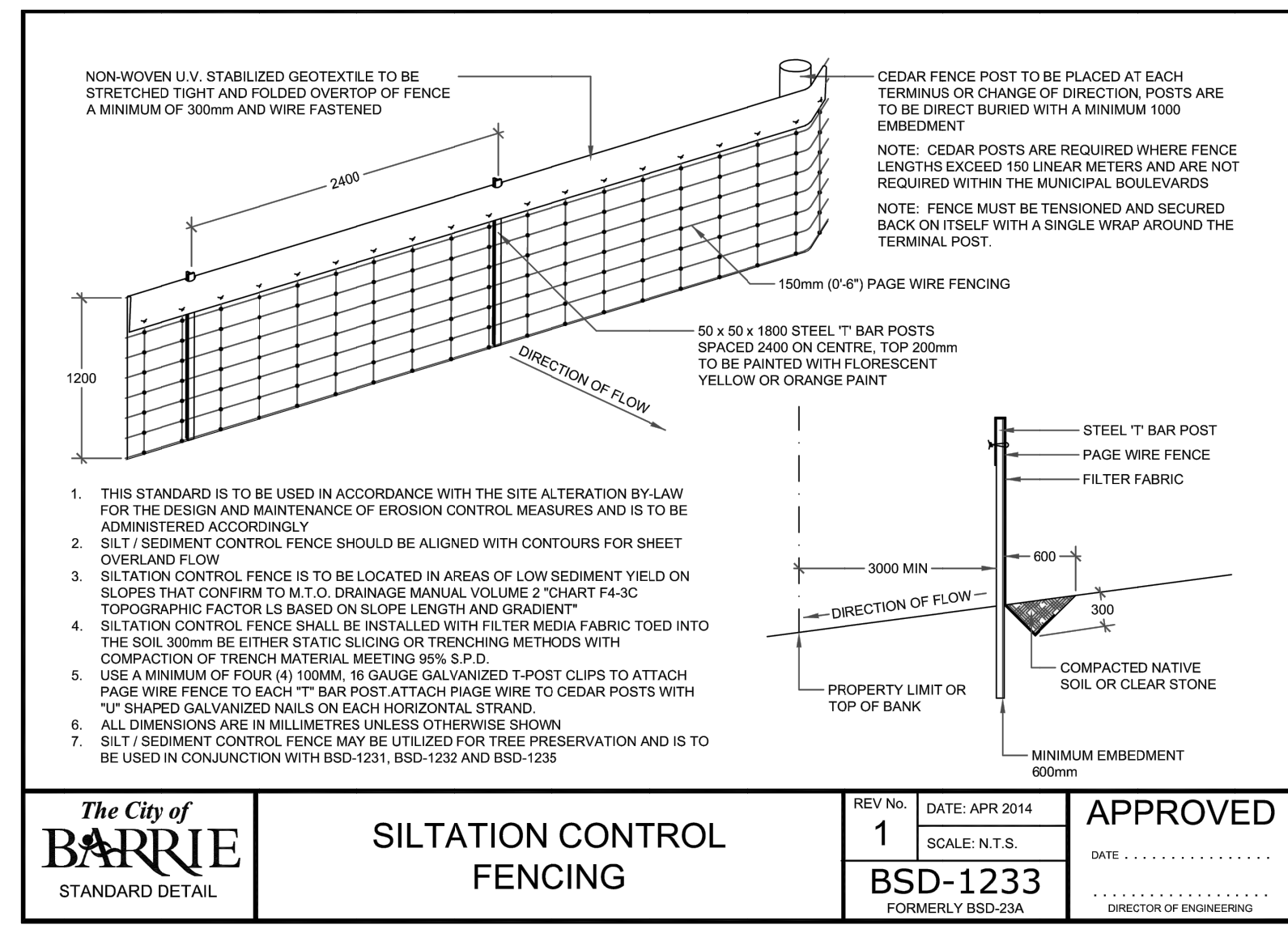
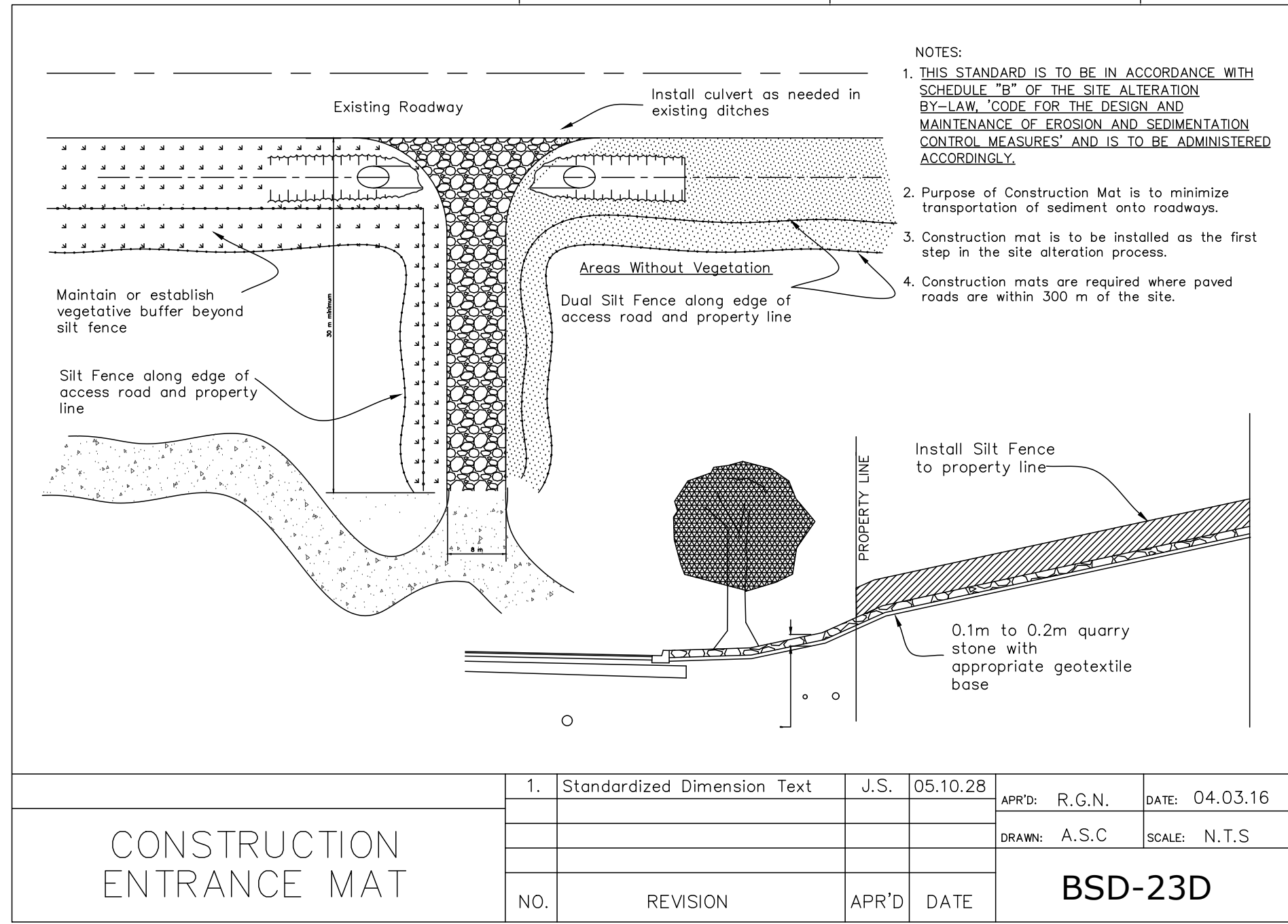
LEGEND

- CB CATCH BASIN
- CBMH CATCH BASIN MANHOLE
- MH STORM MANHOLE
- MH SANITARY MANHOLE
- SC SERVICE CAP
- HYD. FIRE HYDRANT
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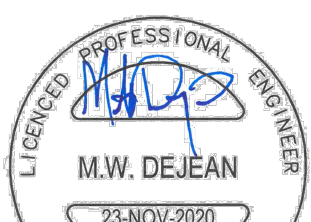
CATCHMENT AREA 1 0.75 RUNOFF COEFFICIENT
1.00 ha
AREA IN HECTARES

CATCHMENT BOUNDARY



BENCHMARK:

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EROSION SEDIMENT
CONTROL PLAN

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DRAWN BY	ZZ	VERT SCALE		DRAWING #	EP-1
CHECKED BY	GMP	DATE	DECEMBER 2018	REVISION #	3