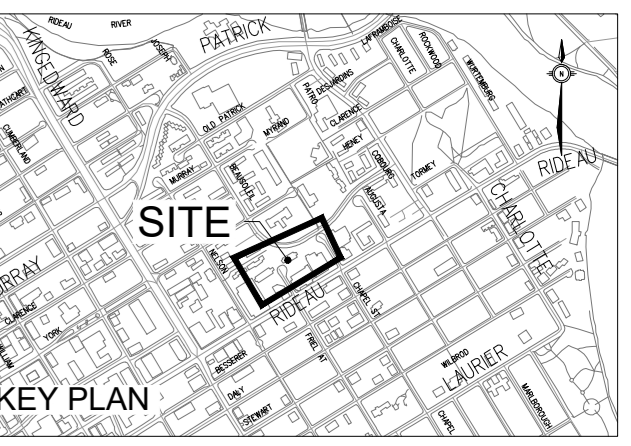


INDEX		
DWG	DESCRIPTION	REVISION
C000	COVER	00
C001	SITE SERVICING PLAN	03
C002	GRADING PLAN	03
C003	EROSION AND SEDIMENT CONTROL PLAN	03
C101	DETAILS (1 OF 4)	03
C102	DETAILS (2 OF 4)	03
C103	DETAILS (3 OF 4)	03
C104	DETAILS (4 OF 4)	03
C700	REMOVALS PLAN	03
C701	ROOF DRAIN LAYOUT & PONDING	03
C800	EXISTING DRAINAGE AREA PLAN	03
C801	PROPOSED DRAINAGE AREA PLAN	03

OCH FRIEL STREET / CHAPEL 200/201 FRIEL STREET



ISSUED

No.	Date	Description
0	2023 MAR 22	ISSUED FOR SITE PLAN APPROVAL
1	2023 MAY 12	ISSUED FOR 100% SCHEMATIC DESIGN
2	2023 MAY 18	ISSUED FOR REZONING AND SITE PLAN CONTROL - RESUBMISSION #1
3	2023 JUL 13	ISSUED FOR SITE PLAN CONTROL - RESUBMISSION #2

LEGEND

- NEW AREA DRAIN (REFER TO MECHANICAL FOR CONTINUATION)
- NEW CATCH-BASIN
- ▬ NEW STORM SEWER
- ▬ NEW SANITARY SEWER
- ▬ NEW WATERMAIN
- ⊕ NEW WATER VALVE AND VALVE BOX (W24)
- EXISTING STORMS/SANITARY MANHOLE
- ▬ EXISTING STORM SEWER
- ▬ EXISTING SANITARY SEWER BY
- ▬ EXISTING WATERMAIN
- ▼ NEW ENTRANCE
- ▭ STORMWATER MANAGEMENT CISTERN
- ▭ SITE BOUNDARY
- ▬ EDGE OF SUBSTRUCTURE
- ▭ ENTRANCE OF PARKING GARAGE ACCESS RAMP
- ▬ PROPERTY LINE

CATCH BASIN DATA

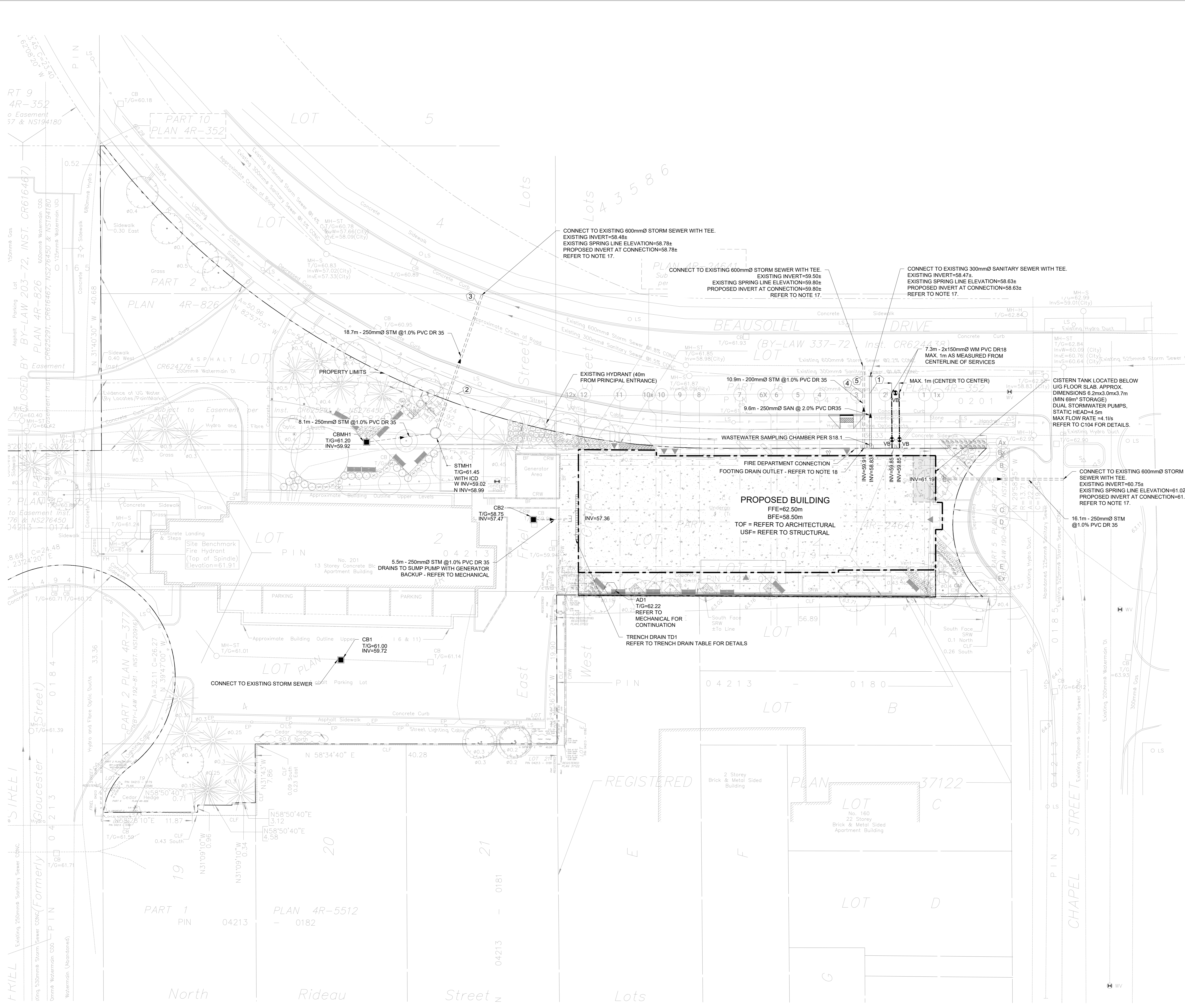
NO.	COVER	STRUCT.	ELEVATION		NOTES	CB CONNECTION		
			T/FRAME	LOW/INV		DIA (mm)	TYPE	LENGTH (m)
CB1	S22	705.010B	61.00	59.72		250	PVC DR35	N/A
CB2	S22	705.010B	58.78	57.50		250	PVC DR35	5.5
CBMH1	S28.1	701.011	61.20	59.92		250	PVC DR35	7.5

NEW STORM STRUCTURE

NO.	COVER	STRUCT.	ELEVATION		LOCATION		NOTES
			T/FRAME	INVERTS	NORTHING	EASTING	
STMH1	S24.1 OR OPSD 401.010 TYPE B	701.011	61.45	59.02 (N) 58.99 (SW)	5032694.90	368763.08	

PIPE CROSSING TABLE

NO.	PIPE	CLEARANCE OVER	STRUCT.	WM INV	STM OBV
1	200mmØ WM 0.97m	CLEARANCE OVER	250mmØ SAN	WM INV=59.90	STM OBV=58.93
2	200mmØ WM 0.30m	CLEARANCE OVER	250mmØ STM	WM INV=59.50	STM OBV=59.20
3	250mmØ STM 0.48m	CLEARANCE OVER	600mmØ STM	STM INV=58.78	SAN OBV=58.30
4	200mmØ WM 0.41m	CLEARANCE OVER	200mmØ SAN	WM INV=59.48	STM OBV=59.07
5	200mmØ STM 0.60m	CLEARANCE OVER	600mmØ SAN	STM INV=58.88	SAN OBV=58.28



- NOTES:**
- GENERAL**
 - TOPOGRAPHICAL SURVEY PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. DATED SEPT 13, 2022. MTD ZONE 9, GEODETIC DATUM CGVD-1928-1978.
 - SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING.
 - REFER TO "SITE SEWERAGE AND STORMWATER MANAGEMENT DESIGN BRIEF" PREPARED BY MORRISON HERSHFIELD.
 - REFER TO GEOTECHNICAL INVESTIGATION REPORT (AUG 2017) GEOTECH REPORT (04-29-17) PREPARED BY PATTERSON GROUP FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT SHALL REVIEW EXCAVATIONS PRIOR TO THE PLACEMENT OF GRANULAR MATERIAL.
 - CONTRACTOR TO VERIFY ALL EXISTING UTILITY ELEVATIONS AT CONNECTION AND CROSSING LOCATIONS PRIOR TO CONSTRUCTION AND ADVISE THE ENGINEER OF ANY DISCREPANCIES.
 - UNLESS DIRECTED OTHERWISE ANY DAMAGED ASPHALT OR CURB (REGARDLESS OF WHETHER WITHIN OR EXTERNAL TO THE SITE) SHALL BE REINTEGRATED IN ACCORDANCE WITH CITY STD. DET. R10 AND S1.
 - UNLESS DIRECTED OTHERWISE THE CONTRACTOR SHALL REINSTATE ALL SIGNS, LIGHTING AND OTHER STREET FURNITURE DISTURBED BY THE WORK.
 - THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT TRAFFIC MANAGEMENT PLANS FOR WORK IN RIGHT OF WAY IN ACCORDANCE WITH OTM BOOK 7.
 - THE CONTRACTOR SHALL PROVIDE ANY TEMPORARY SERVICING NEEDED, AND SHALL ALSO COORDINATE WITH OTHER TRADES AS NECESSARY.

- SEWERS**
- ALL STORM SEWERS, SANITARY SEWERS AND CATCH BASINS LEADS SHALL BE PVC DR 35 UNLESS OTHERWISE SPECIFIED.
 - REFER TO CITY STD. DETAIL S6 ON DRAWING C102 FOR SEWER INSTALLATION.
 - CONTRACTOR SHALL MAINTAIN EXISTING SEWER FLOWS DURING CONSTRUCTION IN ACCORDANCE WITH CITY OF OTTAWA SPECIFICATIONS.
 - ALL MAINTENANCE HOLES, CATCHBASINS AND AREA DRAINS SHALL BE ADJUSTED TO POST-CONSTRUCTION GRADE.
 - LEAKAGE TEST (SANITARY SEWER ONLY) AND CCTV INSPECTION SHALL BE COMPLETED AS PER CITY OF OTTAWA SPECIFICATIONS PRIOR TO THE INSTALLATION OF BASE COURSE ASPHALT.
 - BACKWATER VALVES TO BE INSTALLED AS PER CITY OF OTTAWA STANDARD S14 & S14.2.
 - CONTRACTOR TO CONFIRM EXACT ELEVATION OF SEWER PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES. ROAD CUT REINSTATEMENT AS PER CITY OF OTTAWA STANDARD R10. CONNECTION TO SEWERMAN PER S11.1.
 - FOOTING DRAINS OUTLET TO THE BUILDING'S SUMP PUMP. THE BUILDING SUMP PUMP IS CONNECTED TO THE BACKUP GENERATOR.
- WATERMANS**
- REFER TO CITY STD. DETAIL W17 ON DRAWING C102 FOR WATERMAIN INSTALLATION.

- ALL WATERMAIN MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF OTTAWA STANDARD SPECIFICATIONS AND STANDARD DRAWINGS. PVC PIPE TO BE CLASS 150 DR18 TO LATEST EDITION OF A.W.W.A. SPECIFICATION C900 AND CSA B137.3 LATEST AMENDMENT WITH GASKETED BELL AND SPIGOT COUPLINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A WATER PERMIT AS REQUIRED FROM THE CITY OF OTTAWA, AND COMPLYING WITH ALL CITY OF OTTAWA REQUIREMENTS. THE CITY MAY REQUIRE THAT CERTAIN ACTIVITIES (E.G. VALVE OPERATION, CONNECTION OF NEW WATER SERVICE TO EXISTING WATERMAIN, DISINFECTION) BE CARRIED OUT ONLY BY CITY FORCES.
- ALL VALVES 300mm DIAMETER AND SMALLER SHALL INCLUDE A VALVE BOX AS PER W24.
- THE NEW WATERMAIN IS TO BE INSTALLED WITH A MINIMUM OF 2.4m COVER WHERE 2.4m COVER IS NOT POSSIBLE, PROVIDE INSULATION IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAILS W22 & W23.
- THRUST RESTRAINT SHALL BE PROVIDED BY BOTH RESTRAINING/RETAINING RINGS AND THRUST BLOCKS AT ALL DEAD END CAPS, PLUGS, VALVES, BENDS AND REDUCERS AS PER CITY OF OTTAWA STANDARD DETAILS W25.3, W25.4, W25.5 AND W25.6. ALL TEMPORARY THRUST RESTRAINTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- TRACER WIRE SHALL BE PROVIDED FOR ALL NEW PVC WATERMANS IN ACCORDANCE WITH THE SPECIFICATIONS AND CITY OF OTTAWA STANDARD DETAIL W36.
- CATHODIC PROTECTION SHALL BE PROVIDED FOR ALL NEW WATERMANS IN ACCORDANCE WITH THE SPECIFICATIONS AND CITY OF OTTAWA STANDARD DETAILS W39, W40, W41, W42 AND W47. CATHODIC PROTECTION OF EXISTING WATERMANS SHALL ALSO BE PROVIDED AT CONNECTIONS BETWEEN EXISTING AND NEW WATERMANS.

- ADJUST ALL VALVE CHAMBERS, VALVE BOXES AND HYDRANTS TO FINISHED GRADE.
- UTILITY NOTE**
- THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR SUPPORTING AND PROTECTING ANY EXISTING UTILITIES AS REQUIRED, IN ACCORDANCE WITH THE UTILITY OWNERS' REQUIREMENTS. CONTRACTOR IS REQUIRED TO OBTAIN LOCATES, IN ADVANCE OF EXCAVATION WORK, AND FORWARD COPIES OF THE LOCATES TO THE CONSULTANT AND THE OWNER PRIOR TO EXCAVATION.
 - ALL CROSSING OF EX. UTILITIES TO BE IN ACCORDANCE WITH CITY STD. DET. S10.

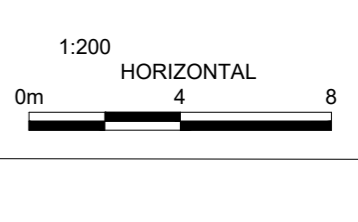
TRENCH DRAIN DATA

NO.	TRENCH DRAIN WIDTH	GRATE	ELEVATION		TO CONNECTION			
			T/FRAME	LOW/INV	DIA (mm)	TYPE	LENGTH (m)	INV.
TD1	100mm	STAINLESS STEEL, ACCESSIBLE, HEEL SAFE, LIGHT DUTY (ACO 447044480 OR EQUIVALENT)	58.50	57.70	200	PVC DR35	1.2	REFER TO MECHANICAL

NOTE: POLYMER CONCRETE TRENCH DRAIN WITH 2% INTERNAL SLOPE AND MATCHING CATCH BASIN, UNLESS OTHERWISE SPECIFIED.

INLET CONTROL DEVICE DATA TABLE - STMH1

DESIGN EVENT	ICD TYPE	DIAMETER OF OUTLET PIPE (mm)	DESIGN FLOW (L/s)	WATER ELEVATION (m)	REQUIRED VOLUME (m³)	TOTAL VOLUME PROVIDED (m³)
1:5 YR	HYDROVEX 50VHV-2	250mmØ PVC	2.1	60.17	4.9	42
1:100 YR	HYDROVEX 50VHV-2	250mmØ PVC	3.0	61.32	9.1	42

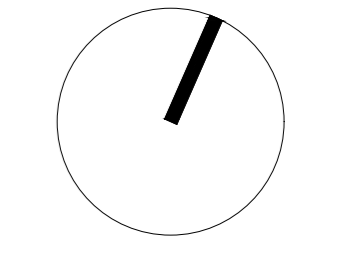


OCH FRIEL STREET / CHAPEL
200201 FRIEL STREET
221021

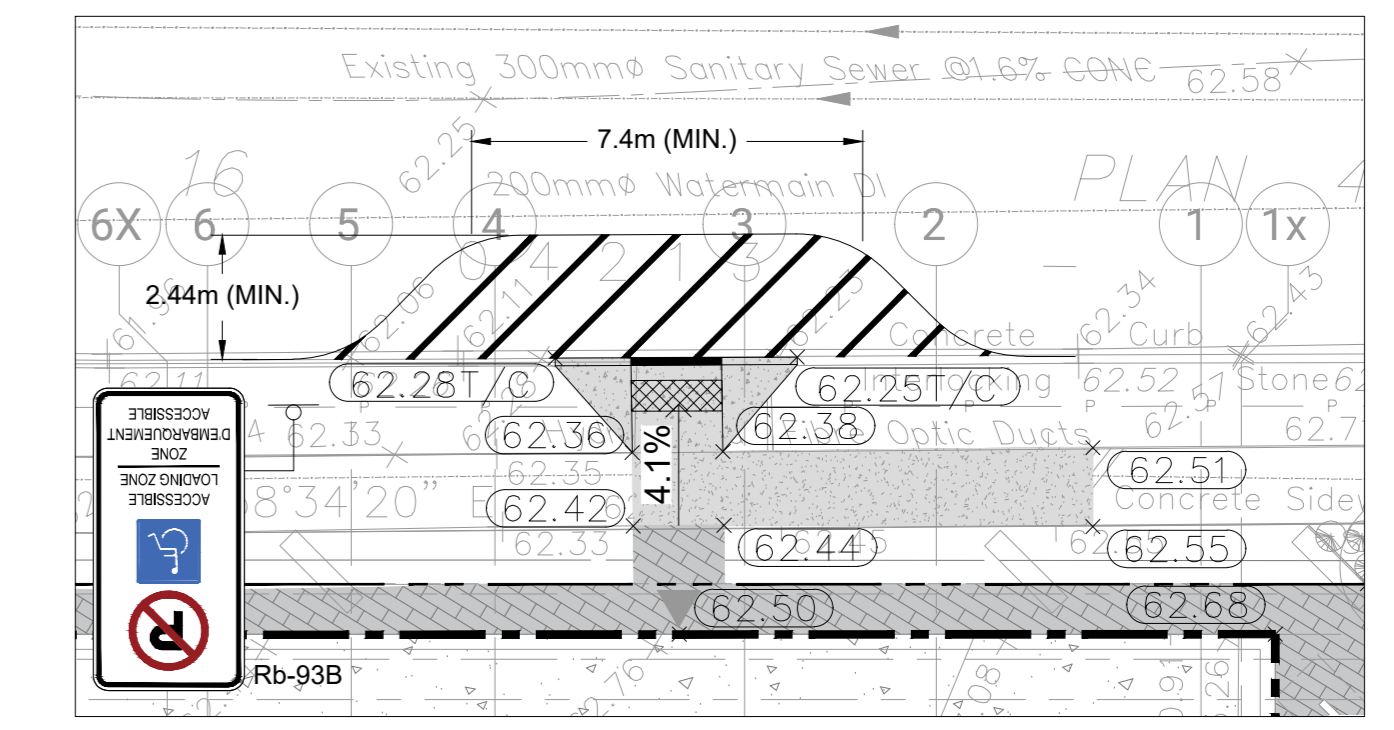
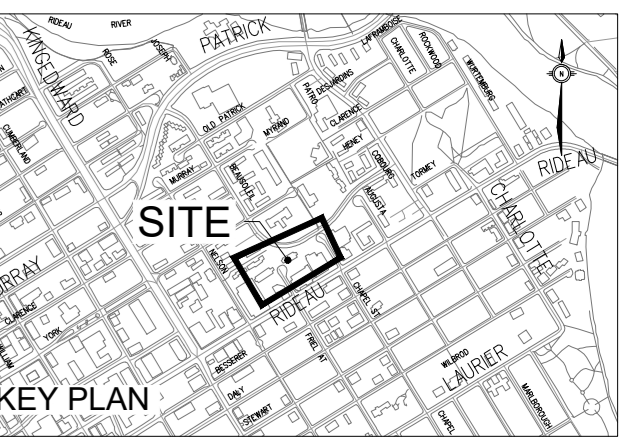
SITE SERVICING PLAN

Scale: 1:200
Project No: 220282300
Date: 13/07/23

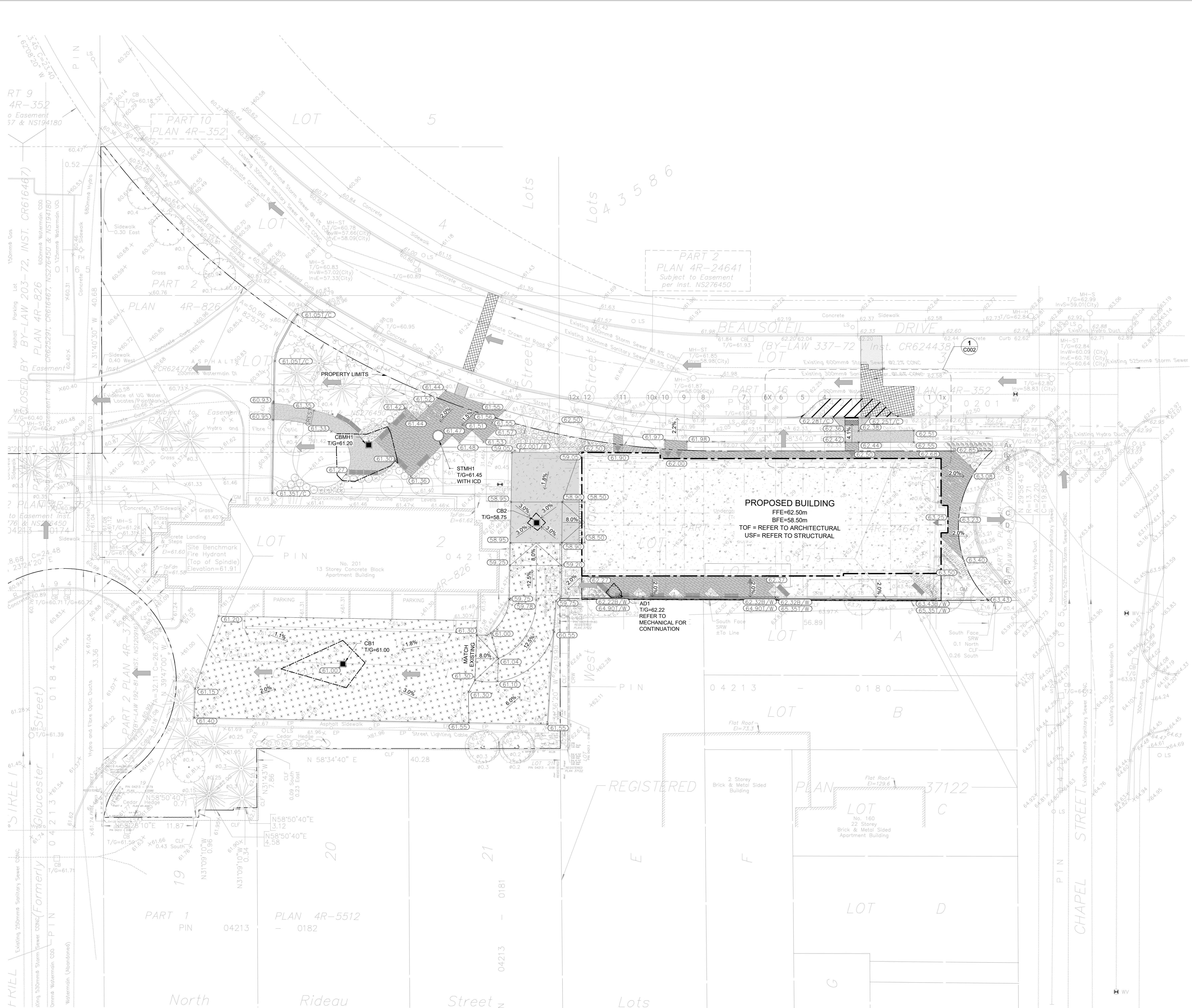
C001
#18930



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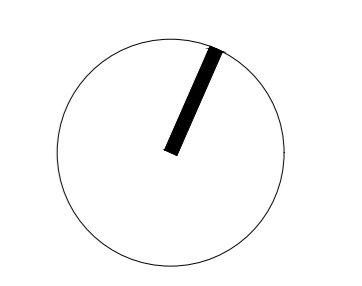
1 PASSENGER LOADING ZONE DETAIL
SCALE: 1:150



- NOTES:**
1. ALL ELEVATIONS ARE GEODETIC AND IN METERS UNLESS OTHERWISE NOTED.
 2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS.
 3. REFER TO ARCHITECTURAL AND LANDSCAPE DRAWINGS FOR LAYOUT, DIMENSIONS AND SURFACE FINISHES.
 4. ALL ELEVATIONS BY CURBS ARE EDGE OF PAVEMENT UNLESS OTHERWISE INDICATED.
 5. REINSTATE ALL DISTURBED/DAMAGED AREAS TO THEIR ORIGINAL CONDITION OR BETTER.
 6. PROVIDE POSITIVE DRAINAGE, MATCHING EXISTING OVERALL DRAINAGE PATTERN INDICATED.
 7. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA AND/OR ONTARIO PROVINCIAL STANDARDS.
 8. ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
 9. SUBGRADE FOR THE PAVED AREAS SHALL BE PROOF ROLLED WITH A LARGE (10 TONNE MINIMUM) STEEL DRUM ROLLER UNDER DRY CONDITIONS. ANY SOFT AREAS EXPOSED FROM THE PROOF ROLLING SHOULD BE SUBEXCAVATED TO A DEPTH OF 500mm AND REPLACED WITH COMPACTED SUBGRADE FILL.
 10. ALL AREAS SHALL DRAIN AT A MINIMUM OF 1%. ANY DISCREPANCIES PREVENTING THIS SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONTINUING WORK.
 11. BLEND NEW EARTHWORK INTO EXISTING, PROVIDING VERTICAL CURVES OR ROUNDING AT ALL TOP AND BOTTOM OF SLOPES.
 12. CONCRETE SIDEWALKS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DRAWING SC14 AND SC14 UNLESS SHOWN OTHERWISE.
 13. CONCRETE BARRIER CURBS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DRAWING SC11 UNLESS SHOWN OTHERWISE.
 14. SAW CUT AND KEY GRIND ASPHALT AT ALL TIE-INS PER CITY OF OTTAWA STANDARD R10.
 15. REINSTATE ANY LINE PAINTING DISTURBED BY THE WORK.
 16. REFER TO GEOTECHNICAL INVESTIGATION REPORT (AUG 2017 GEOTECH REPORT PG4129-1) PREPARED BY PATTERSON GROUP FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT SHALL REVIEW EXCAVATIONS PRIOR TO THE PLACEMENT OF GRANULAR MATERIAL.

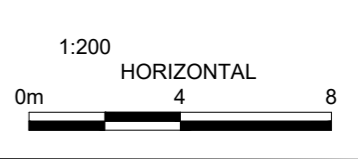
6. THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR SUPPORTING AND PROTECTING ANY EXISTING UTILITIES, AS REQUIRED, IN ACCORDANCE WITH THE UTILITY OWNERS' REQUIREMENTS. CONTRACTOR IS REQUIRED TO OBTAIN LOCATES, IN ADVANCE OF EXCAVATION WORK, AND FORWARD COPIES OF THE LOCATES TO THE CONSULTANT AND THE OWNER PRIOR TO EXCAVATION. HAND EXCAVATION IS REQUIRED PER UTILITY OWNERS' REQUIREMENTS.
7. CONTRACTOR IS RESPONSIBLE TO KEEP THE ROADS FREE AND CLEAN FROM THE MUD OR DEBRIS.
8. SWALES MUST HAVE MINIMUM 1.5% LONGITUDINAL AND SIDE SLOPE AND MAX 3H:1V SIDE SLOPE (S29).
9. BENCHMARK NOTE:
TOPOGRAPHICAL SURVEY PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. DATED SEPT 13, 2022. MTM ZONE 9, GEODETIC DATUM CGVD-1988-1979
SITE BENCHMARK: HYDRANT TOP OF SPINDLE ELEV. 61.91

- LEGEND**
- NEW AREA DRAIN
 - ⊙ PROPOSED MANHOLE
 - (61.55) PROPOSED ELEVATION
 - × (62.75) PROPOSED TOP OF CURB ELEVATION
 - × (62.75) PROPOSED TOP OF WALL ELEVATION
 - 2.0% PROPOSED SLOPE DIRECTION
 - ← MAJOR OVERLAND FLOW PATH
 - PAVERS - REFER TO LANDSCAPE
 - × × LIGHT/HEAVY DUTY ASPHALT PAVING
 - LIGHT DUTY CONCRETE
 - HEAVY DUTY CONCRETE
 - 40mm MILLING & REINSTATEMENT WITH HL3 OR SP12.5 ASPHALTIC CONCRETE
 - EXISTING ELEVATION
 - EXISTING MANHOLE
 - CONCRETE CURB AS PER SC 1.1
 - PONDING ELEVATION (MAX 110mm)
 - ▼ NEW ENTRANCE
 - ▼ ENTRANCE OF PARKING GARAGE ACCESS RAMP
 - - - PROPERTY LINE

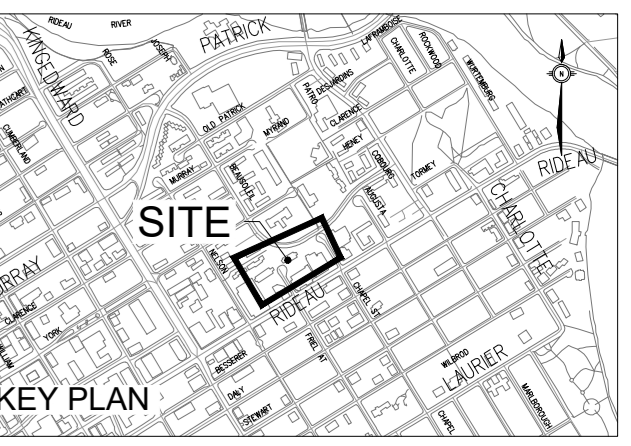


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OCH FRIEL STREET / CHAPEL
200201 FRIEL STREET
221021



Scale: 1:200
Project No: 22082200
Date: 13/07/23

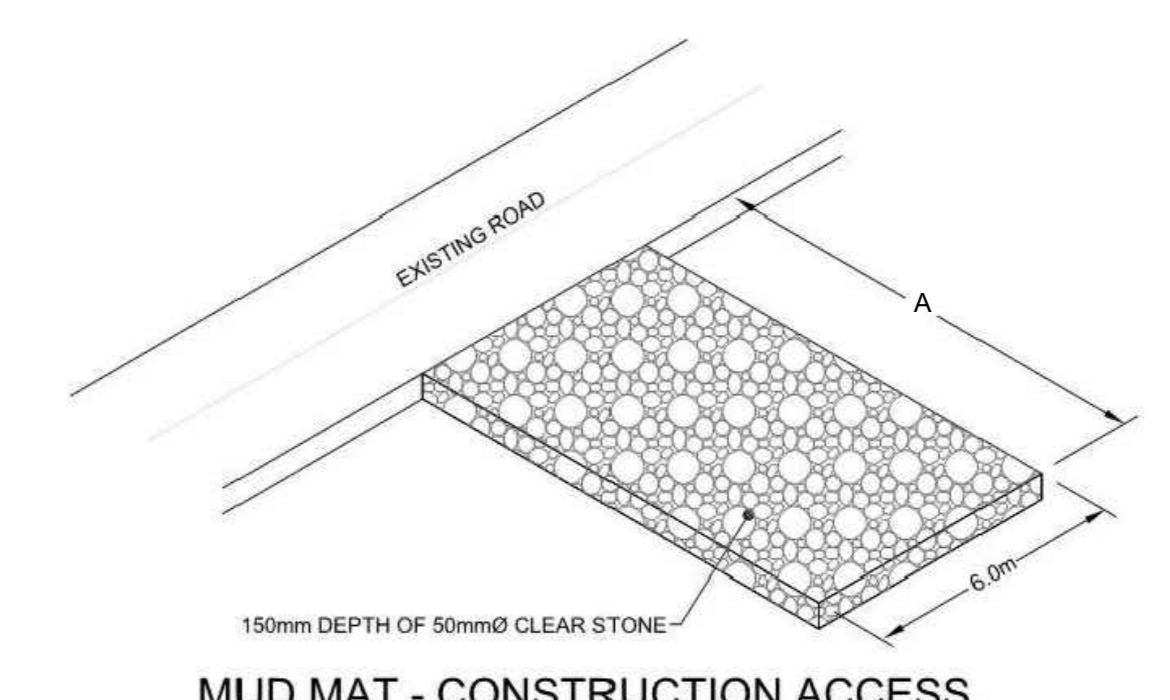


ISSUED

No.	Date	Description
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3	2023 JUL 13	ISSUED FOR SITE PLAN CONTROL - RESUBMISSION #2

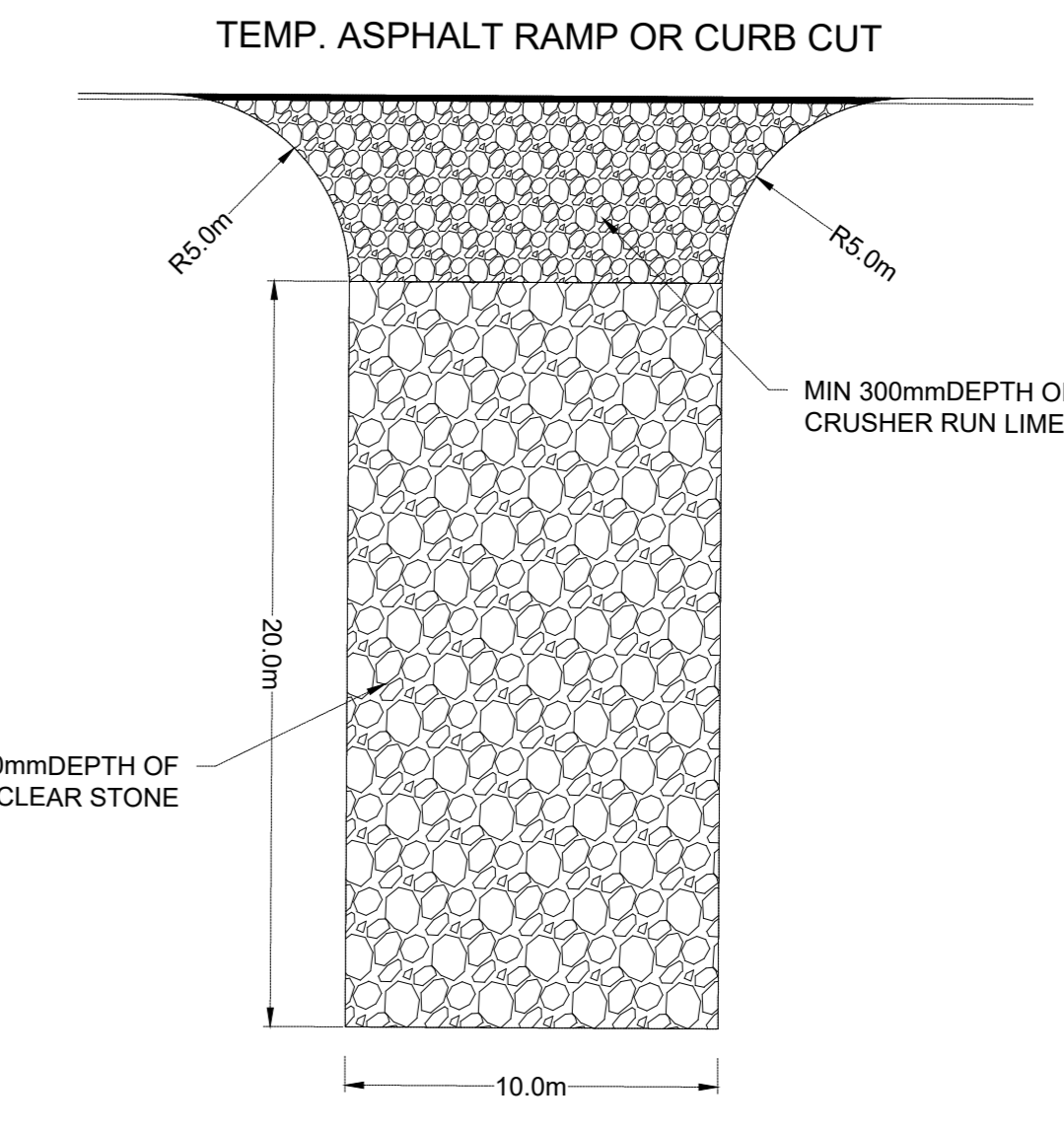
LEGEND

- LIGHT DUTY SILT FENCE BARRIER (PER OPSD 219.110)
- CATCH BASIN PROTECTION (SILT SACK WITHIN CB, OR SURROUND CB WITH SILT SOCK)
- SEDIMENT CAPTURE FILTER SOCK HELD IN PLACE USING SANDBAGS



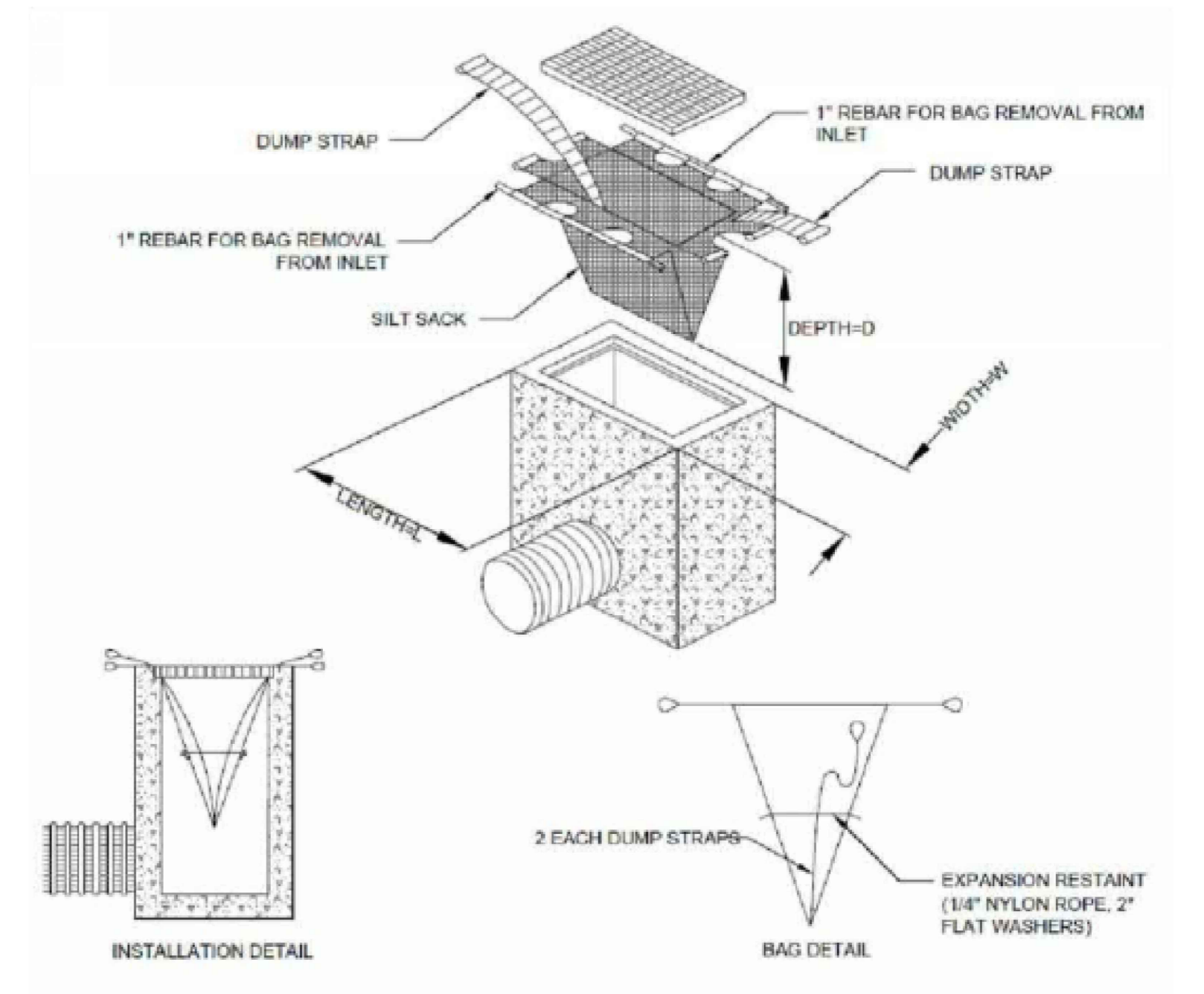
MUD MAT - CONSTRUCTION ACCESS
N.T.S.

A - TO BE DETERMINED ON SITE IN CONJUNCTION WITH CONSTRUCTION MANAGER



TEMP. ASPHALT RAMP OR CURB CUT
N.T.S.

- NOTES:**
- INSTALL AT ALL SITE ACCESS LOCATIONS.
 - TEMPORARY CONSTRUCTION ACCESS SHALL BE REMOVED ON COMPLETION OF THE WORK AND ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.



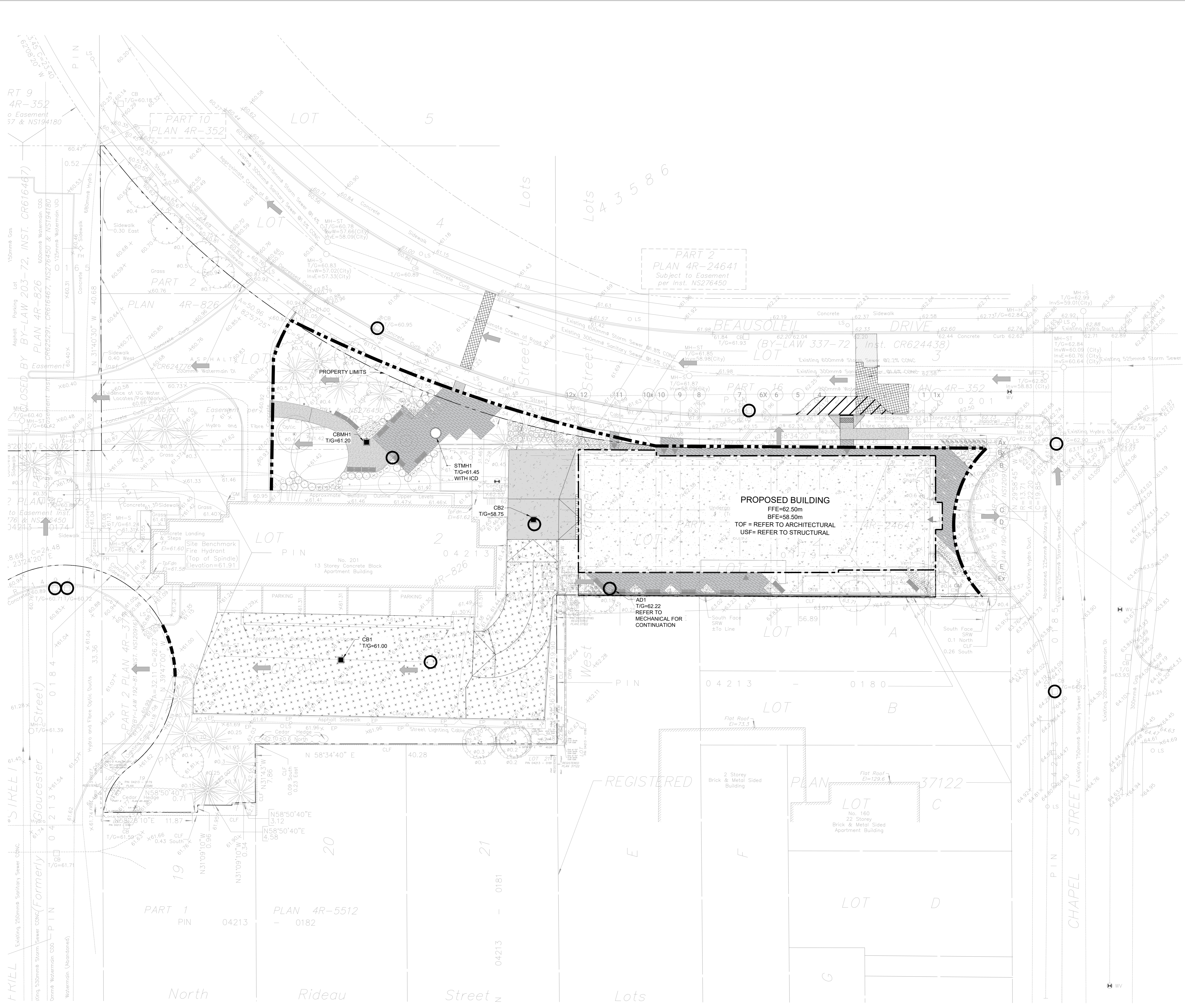
INLET SEDIMENT CONTROL DEVICE
N.T.S.



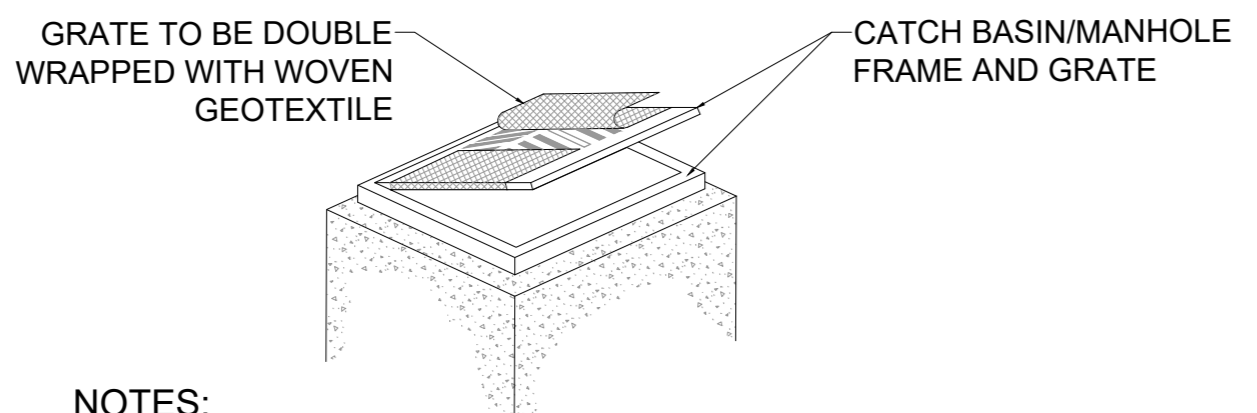
CONTRACTOR MUST CHECK & VERIFY ALL DIMENSIONS ON THE JOB. 50:100 SCALE DRAWING.
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200201 FRIEL STREET
221021

EROSION & SEDIMENT CONTROL PLAN
Scale: 1:200
Project No: 220282200
Date: 13/07/23
C003
#18930

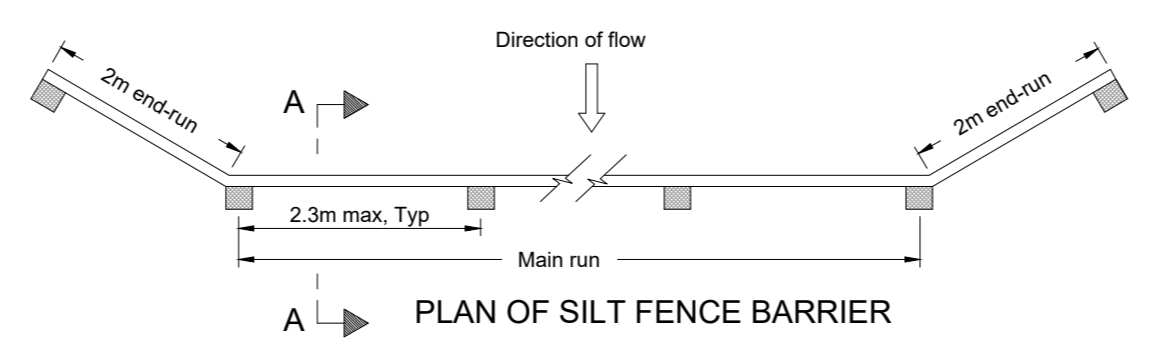


- EROSION AND SEDIMENT CONTROL**
- THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE. DURING CONSTRUCTION ACTIVITIES THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, USING CATCH BASIN SEDIMENT PROTECTION AND INSTALLING SILT FENCES AND OTHER EFFECTIVE SEDIMENT TRAPS. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
 - EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE IMPLEMENTED PRIOR TO CONSTRUCTION AND REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED.
 - REGULAR INSPECTION AND MAINTENANCE OF THE EROSION AND SEDIMENT MEASURES SHALL BE UNDERTAKEN. THE IMPLEMENTATION AND ADJUSTMENT AND/OR CORRECTIVE MAINTENANCE OF THE EROSION AND SEDIMENT MEASURES IS AN INTEGRAL PART OF THE PLAN AND MUST BE PERFORMED.
 - CONTRACTOR IS RESPONSIBLE TO KEEP THE ROADS FREE AND CLEAN FROM MUD AND DEBRIS, AS A MINIMUM THIS SHALL INCLUDE SWEEPING LIBRARY ROAD DAILY DURING EXCAVATION WORK.
 - THE SEDIMENT AND EROSION CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA SITE INSPECTOR OR CONSERVATION AUTHORITY.



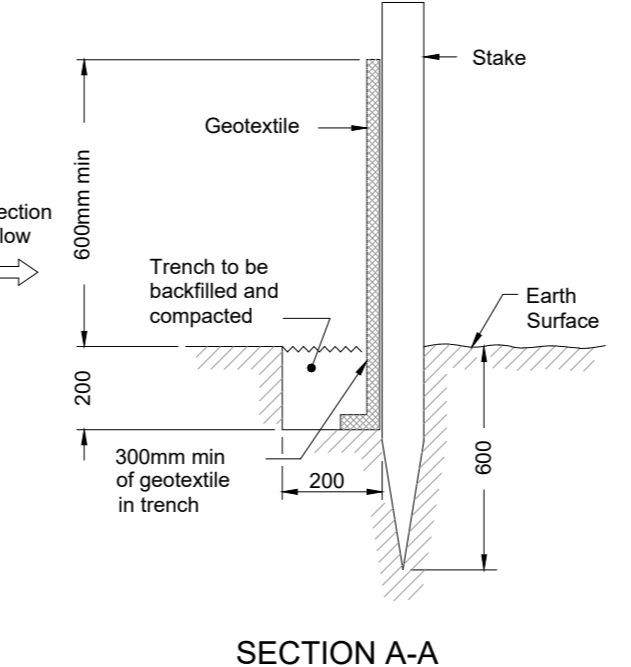
- NOTES:**
- TO BE USED UNDER APPROPRIATE DRAINAGE CIRCUMSTANCES, DURING THE CONSTRUCTION PERIOD.
 - WOVEN GEOTEXTILE TO HAVE A MINIMUM EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm.
 - WOVEN GEOTEXTILE TO BE REPLACED PERIODICALLY WHEN ACCUMULATED SEDIMENTS INTERFERE WITH DRAINAGE.
 - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

CATCH BASIN /MANHOLE PROTECTION DETAIL
N.T.S.

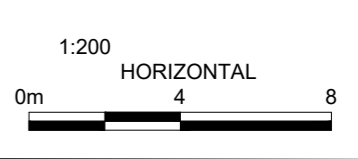


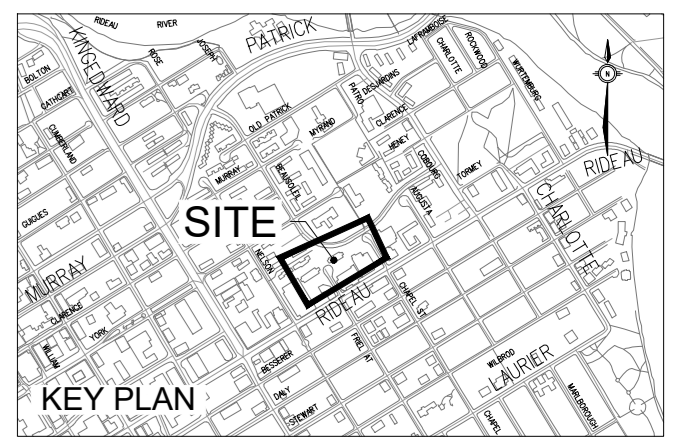
- NOTES:**
- WOVEN GEOTEXTILE TO HAVE A MINIMUM EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm.
 - WOVEN GEOTEXTILE TO HAVE A HORIZONTAL OVERLAP OF 100mm AT JOINTS.
 - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

LIGHT DUTY SILT FENCE BARRIER
AS PER OPSD 219.110
N.T.S.



SECTION A-A





ISSUED

No.	Date	Description
0	2023 MAR 22	ISSUED FOR SITE PLAN APPROVAL
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3	2023 JUL 13	ISSUED FOR SITE PLAN CONTROL - RESUBMISSION #2

INSULATION REFERENCE TABLE

DISTANCE FROM C.S. OR U.V. WALL	REQUIRED INSULATION THICKNESS (TABLE 2.2)
2400 - 3600 mm	50 mm
3600 - 5000 mm	75 mm
5000 - 6000 mm	100 mm
6000 - 9000 mm	125 mm

NOTES:

- FOR WATERMAIN & SERVICES IN PROXIMITY TO EXISTING EXHAUSTION HOLES, COLLECTORS, ETC.
- INSULATION SHALL SETBACK 3000 mm EACH WAY FROM THE ENDS OF THE STRUCTURE, TRUNCATED TO THE WATERMAIN.
- STAGGER JOINTS OF MULTIPLE SHEETS.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
- INSULATION CAN BE AT OTHER LOCATION OR BOTH.

Ottawa THERMAL INSULATION OF WATERMAINS AT OPEN STRUCTURES
DATE: MAY 2021
REV: FEB 2004
DWG. No.: W23

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
- FOR 200 AND 300mm DIA VALVES ADD BEDDING BELOW THE CONCRETE BLOCKS AS REQUIRED TO RAISE BELL HIGH ENOUGH TO PREVENT CONTACT WITH THE VALVE BODY.

WATCHING INDICATES SOFT AREA TO BE REINFORCED WITH AN INJECTION GROUTING SYSTEM

Ottawa VALVE BOX ASSEMBLY
DATE: MAY 2021
REV: MARCH 2019
DWG. No.: W24

NOTES:

- FOR WATERMAIN 100mm (NOMINAL) TO 400mm (NOMINAL).
- BARREL TO INVERT SEPARATION (S) SHALL BE 800mm MINIMUM.
- THRUST BLOCKS FOR MAINS LARGER THAN 400mm (NOMINAL) SHALL BE PER SPECIAL DESIGN.
- FOR 300mm (NOMINAL) AND ABOVE (NOMINAL) BENDS SHALL BE MAX. 22° 30'.
- CONCRETE FOR THRUST BLOCKS SHALL BE 50 MPa.
- REFER TO W2.3 FOR RESTRAINED LENGTH REQUIREMENTS.
- REFER TO W2.3 AND W2.4 FOR THRUST BLOCK REQUIREMENTS.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
- DESIGNED TO MEET THE INTENT OF THE SOIL WATERMAIN DESIGN CRITERIA JUNE 2012.

Ottawa WATERMAIN CROSSING BELOW SEWER
DATE: MAY 2021
REV: MARCH 2023
DWG. No.: W25

NOTES:

- FOR WATERMAIN 100mm (NOMINAL) TO 400mm (NOMINAL).
- BARREL TO BARREL SEPARATION (S) SHALL BE 200mm MINIMUM.
- THRUST BLOCKS FOR MAINS LARGER THAN 400mm (NOMINAL) SHALL BE PER SPECIAL DESIGN.
- FOR 300mm (NOMINAL) AND ABOVE (NOMINAL) BENDS SHALL BE MAX. 22° 30'.
- CONCRETE FOR THRUST BLOCKS SHALL BE 50 MPa.
- REFER TO W2.3 FOR RESTRAINED LENGTH REQUIREMENTS.
- REFER TO W2.3 AND W2.4 FOR THRUST BLOCK REQUIREMENTS.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
- DESIGNED TO MEET THE INTENT OF THE SOIL WATERMAIN DESIGN CRITERIA JUNE 2012.

Ottawa WATERMAIN CROSSING OVER SEWER
DATE: MAY 2021
REV: MARCH 2023
DWG. No.: W25.2

NOTES:

- CONCRETE SHALL BE PLACED TO WITHIN 50mm OF FACE OF THE BELL.
- BOND BREAKER TO BE USED BETWEEN CONCRETE AND FITTINGS.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
- REFER TO W2.4 FOR ADDITIONAL REQUIREMENTS.
- THRUST BLOCKS SHALL BE 30 MPa CONCRETE AND AS SHOWN ON ABOVE DRAWINGS UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR. THE BLOCK SHALL BE CENTERED ON THE THRUST FORCE AND SHALL ALSO PARTIALLY COVER THE FITTING TO DISTRIBUTE THE FORCE. THE SOLE OF THE BLOCK SHALL BE 80mm FROM THE JOINT ON EITHER SIDE OF THE BEND OR TEE.
- IF THE CONCRETE WHERE POSSIBLE SHALL BE PLACED AGAINST UNDISTURBED SOIL AT THE BOTTOM AND SIDE OF THE TRENCH WHERE IT IS NOT POSSIBLE, THE FILL BETWEEN THE BEARING SURFACE AND THE UNDISTURBED SOIL MUST BE COMPACTED IN ACCORDANCE WITH D-029.
- EXCEPT FOR THE ADDITION OF WATER, CONCRETE FOR THRUST BLOCKS SHALL COME FROM A CONCRETE SUPPLIER. ALL READY MIX FROM A CONCRETE SUPPLIER SHALL BE PLACED AND CURED IN ACCORDANCE WITH THE CONTRACTOR'S RESPONSIBILITY FOR THE PURPOSE OF MAKING CONCRETE THRUST BLOCKS. WORKERS SHALL NOT BE ACCEPTED.

Ottawa CONCRETE THRUST BLOCKS FOR PVC AND DI PIPE 400mm AND UNDER
DATE: MAY 2021
REV: MARCH 2016
DWG. No.: W25.3

1. SOIL DESCRIPTION: VERY FINE SANDS, SANDY CLAYS, CLAYS
SOILS WITH TYPICAL BEARING STRENGTH OF 100 TO 199 KPa

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	250	250	200	200
152	400	400	250	300
203	550	550	300	450
254	650	650	400	500
305	800	800	450	650
406	1050	1050	600	850

2. SOIL DESCRIPTION: SILTY SAND, GRAVELS OR CLAYEY SAND GRAVEL MIXTURES, MODERATE AMOUNT OF FINES.
SOILS WITH TYPICAL BEARING STRENGTH OF 200 TO 299 KPa

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	200	200	150	150
152	250	250	200	200
203	350	350	250	270
254	450	450	300	350
305	500	500	350	400
406	750	750	400	600

3. SOIL DESCRIPTION: SANDS, GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE FINES.
SOILS WITH TYPICAL BEARING STRENGTH OF 300 KPa AND OVER

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	150	150	150	150
152	200	200	200	200
203	300	300	200	230
254	400	400	250	270
305	450	450	300	300
406	650	650	350	450

NOTES:

- THE ABOVE THRUST BLOCK DIMENSIONS MEET OR EXCEED THE WATERMAIN DESIGN CRITERIA FOR FUTURE ALTERATIONS AUTHORIZED UNDER A DRAINING WATER WORKS PERMIT.
- THE ASSUMPTIONS MADE FOR THE ABOVE CALCULATIONS ARE AS FOLLOWS:
 - IN MAXIMUM SURFACE PRESSURE OF 100 psf
 - IN MAXIMUM SURFACE PRESSURE WITH A LOW VELOCITY CHANGE OF 0.8 m/s
 - IN MAXIMUM SURFACE PRESSURE WITH A LOW VELOCITY CHANGE OF 0.8 m/s
- THE TABLES APPLY TO BOTH DUCTILE IRON AND PVC, WHERE ONE LENGTH EXCEEDED THE OTHER THE LONGER LENGTH WAS USED.
- DIMENSIONS MAY BE REDUCED BY UP TO 10% AS THE BEARING SURFACE AREA OF THE THRUST BLOCK IS NOT REDUCED.
- TO BE USED IN CONJUNCTION WITH W2.3.

Ottawa THRUST BLOCK DIMENSION TABLES FOR PVC AND DI PIPE 400mm AND UNDER
DATE: MAY 2021
REV: MARCH 2011
DWG. No.: W25.4

NOTES:

- ANY JOINT THAT FALLS WITHIN THE RESTRAINED LENGTH (L) SHALL BE RESTRAINED SEE DRAWING W2.4.
- TO REDUCE THE NUMBER OF RESTRAINTS REQUIRED THE USE OF FULL PIPE LENGTHS IS RECOMMENDED IN THESE AREAS.

Ottawa RESTRAINING AND RETAINING RINGS FOR PVC AND DI PIPE 400mm AND UNDER
DATE: MAY 2021
REV: NONE
DWG. No.: W25.5

TABLE OF RESTRAINED LENGTHS FOR DI AND PVC WATERMAIN PIPE IN STANDARD GRANULAR 'A' EMBEDMENT IN SOILS OF BEARING CAPACITY OF 100 KPa AND OVER

REDUCERS	LARGER DIAMETER SIDE (TO BE RESTRAINED)				
	100mm	150mm	200mm	250mm	300mm
100mm	N/A	3	6	8	10
150mm	N/A	N/A	4	6	9
200mm	N/A	N/A	N/A	3	6
250mm	N/A	N/A	N/A	N/A	4
300mm	N/A	N/A	N/A	N/A	N/A
400mm	N/A	N/A	N/A	N/A	N/A

PIPE DIAMETER

	100mm	150mm	200mm	250mm	300mm	400mm
DEAD ENDS, CAPS, PLUGS, VALVES						
BEFORE CAPS AND EITHER SIDE OF VALVES - L	5	6	9	10	12	16
VERTICAL BENDS						
LENGTH THROUGH SIDE - LLS	3	4	5	6	7	9
LENGTH LOW SIDE - LLS	1.5	2	2.5	3	3.5	4.5
TEES						
LENGTH ALONG THE BRANCH - L	1	1	1	1	1	1
LENGTH ALONG THE RUN - Lr	3	3	3	3	3	3
HORIZONTAL BENDS						
11.25, 22.5, AND 45 DEGREE BENDS	1	1.5	1.5	2	2	2.5

NOTES:

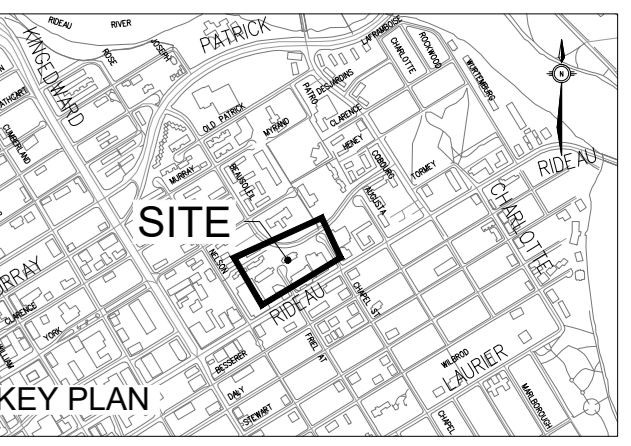
- THE ABOVE RESTRAINED LENGTHS MEET OR EXCEED THE WATERMAIN DESIGN CRITERIA FOR FUTURE ALTERATIONS AUTHORIZED UNDER A DRAINING WATER WORKS PERMIT.
- THE ASSUMPTIONS MADE FOR THE ABOVE CALCULATIONS ARE AS FOLLOWS:
 - IN MAXIMUM OPERATING PRESSURE OF 100 psf
 - OR 115 psf (115 psf FOR CLASS 52 DI AND FOR PVC MAX. SURGE IS 95 psf)
 - IN TEST PRESSURE OF 180 psf AND A SAFETY FACTOR OF 1.8 SHALL BE USED (WHICH RESULTS IN 225 psf MAXIMUM PRESSURE)
 - TYPE 'A' TRENCH BEDDING.
 - DEPTH TO BENT 2.4 METRES EXCEPT FOR VERTICAL BENDS WHERE THE DEPTH SHALL BE AT 1.8 METRES.
 - EMBEDMENT MATERIAL GRANULAR 'A' WITH CHARACTERISTICS OF ASTM D2459 GP.
 - IF SOILS ARE DESCRIBED AS POORLY SORTED GRAVELS AND SAND-GRAVEL MIXES WITH LITTLE OR NO FINES.
 - (L) MUST BE OF SOLID PIPE WITHOUT JOINTS, FITTINGS, ETC.
 - THE TABLES APPLY TO BOTH DUCTILE IRON AND PVC, WHERE ONE LENGTH EXCEEDED THE OTHER THE LONGER LENGTH WAS USED.
 - RESTRAINED LENGTHS ARE IN METRES.

Ottawa TABLES OF RESTRAINED LENGTHS FOR PVC AND DI PIPE 400mm AND UNDER
DATE: MAY 2021
REV: MARCH 2011
DWG. No.: W25.6



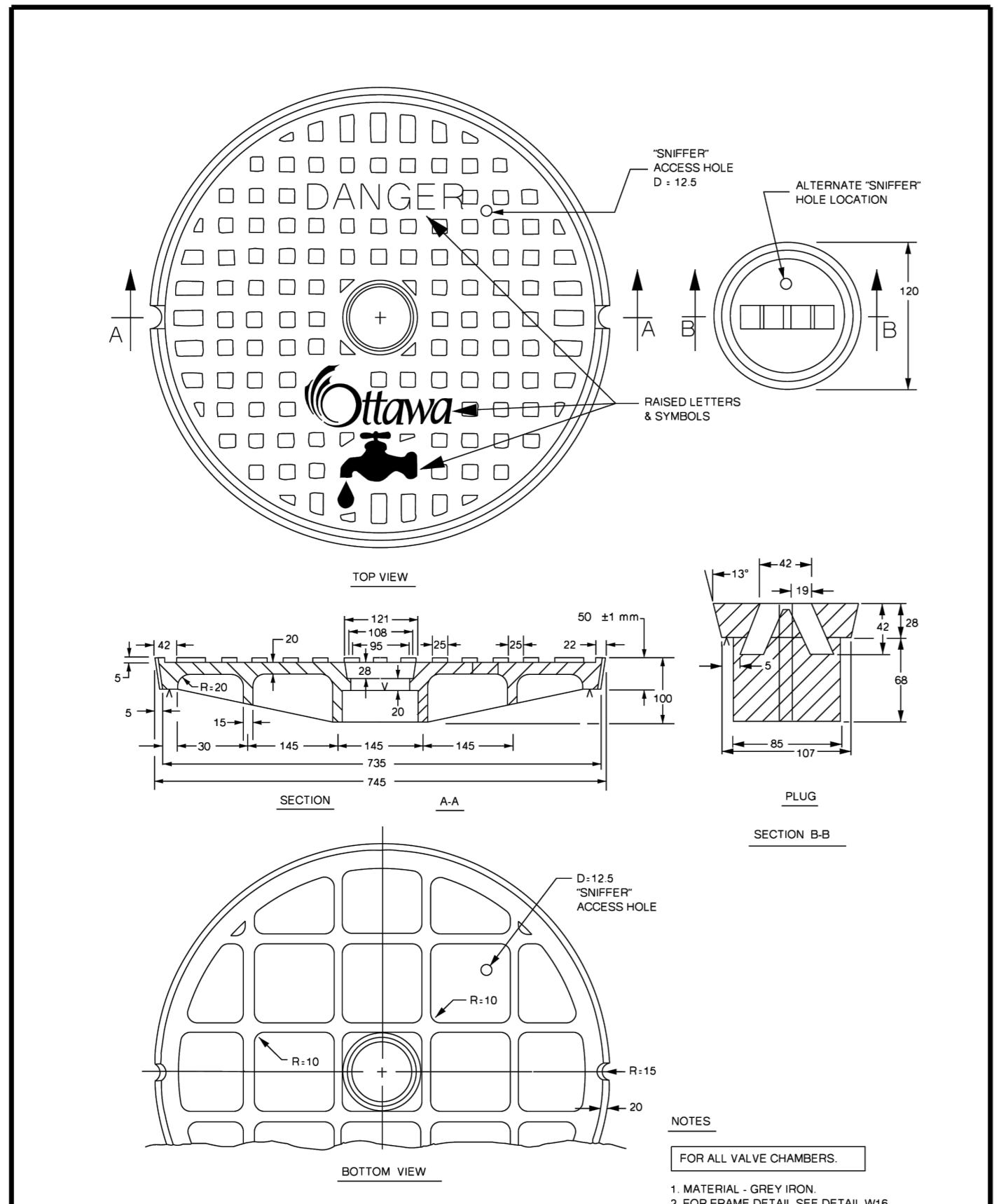
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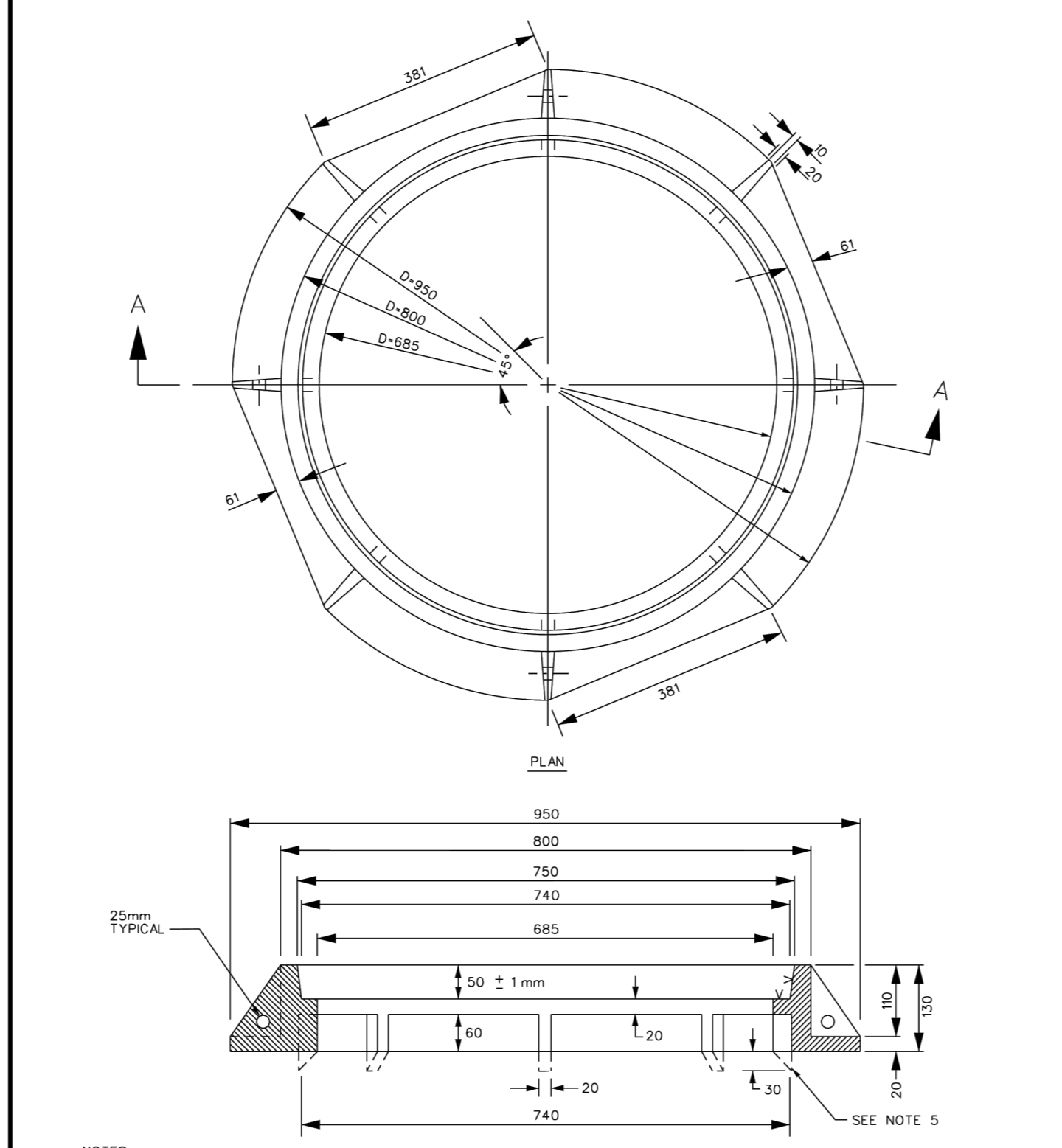
ISSUED

No.	Date	Description
0	2023 MAR 22	ISSUED FOR SITE PLAN APPROVAL
1	2023 MAY 12	ISSUED FOR 100% SCHEMATIC DESIGN
2	2023 MAY 18	ISSUED FOR REZONING AND SITE PLAN CONTROL - RESUBMISSION #1
3	2023 JUL 13	ISSUED FOR SITE PLAN CONTROL - RESUBMISSION #2



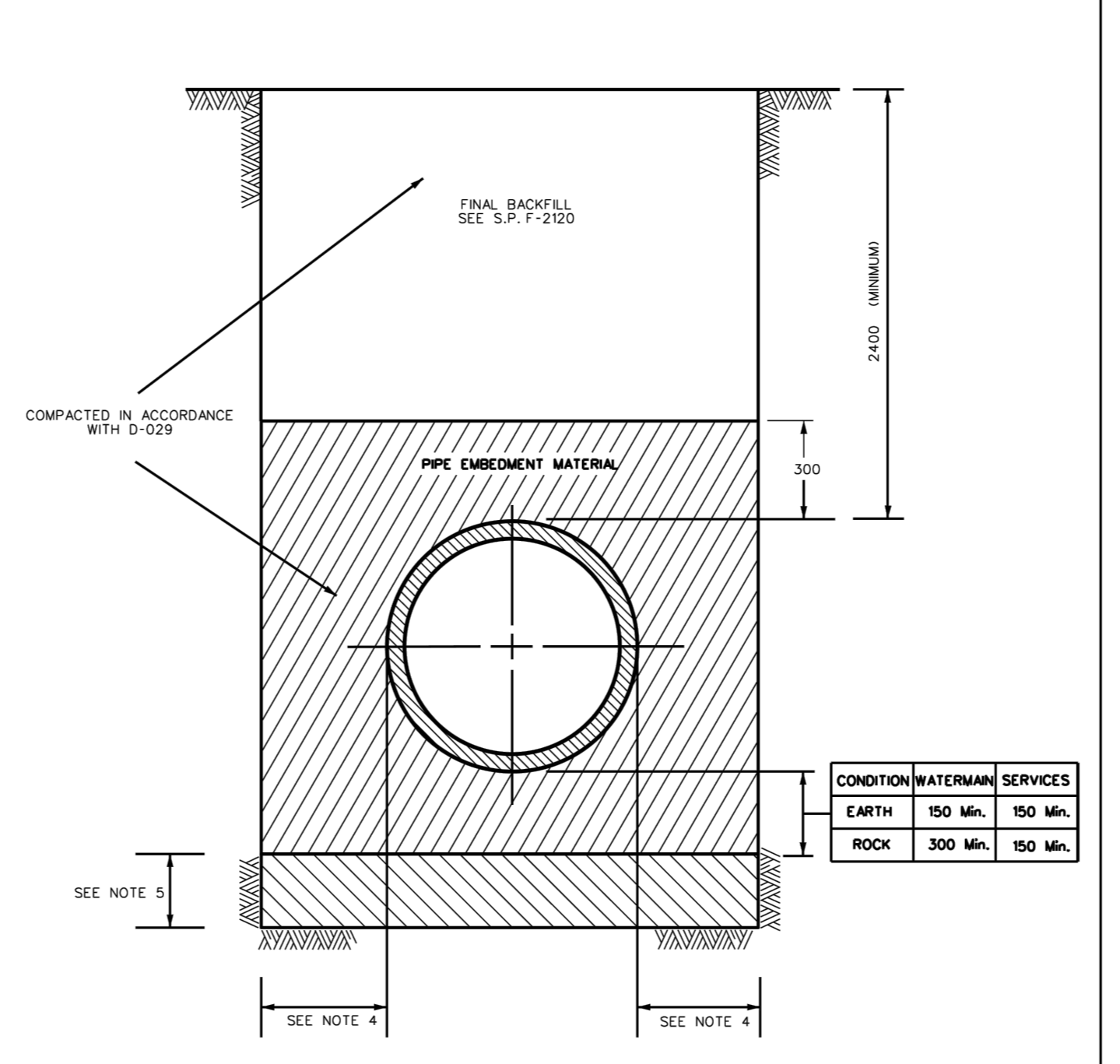
Ottawa STANDARD COVER FOR VALVE CHAMBERS

DATE:	MAY 2001
REV:	MARCH 2019
DWG. No.:	W15



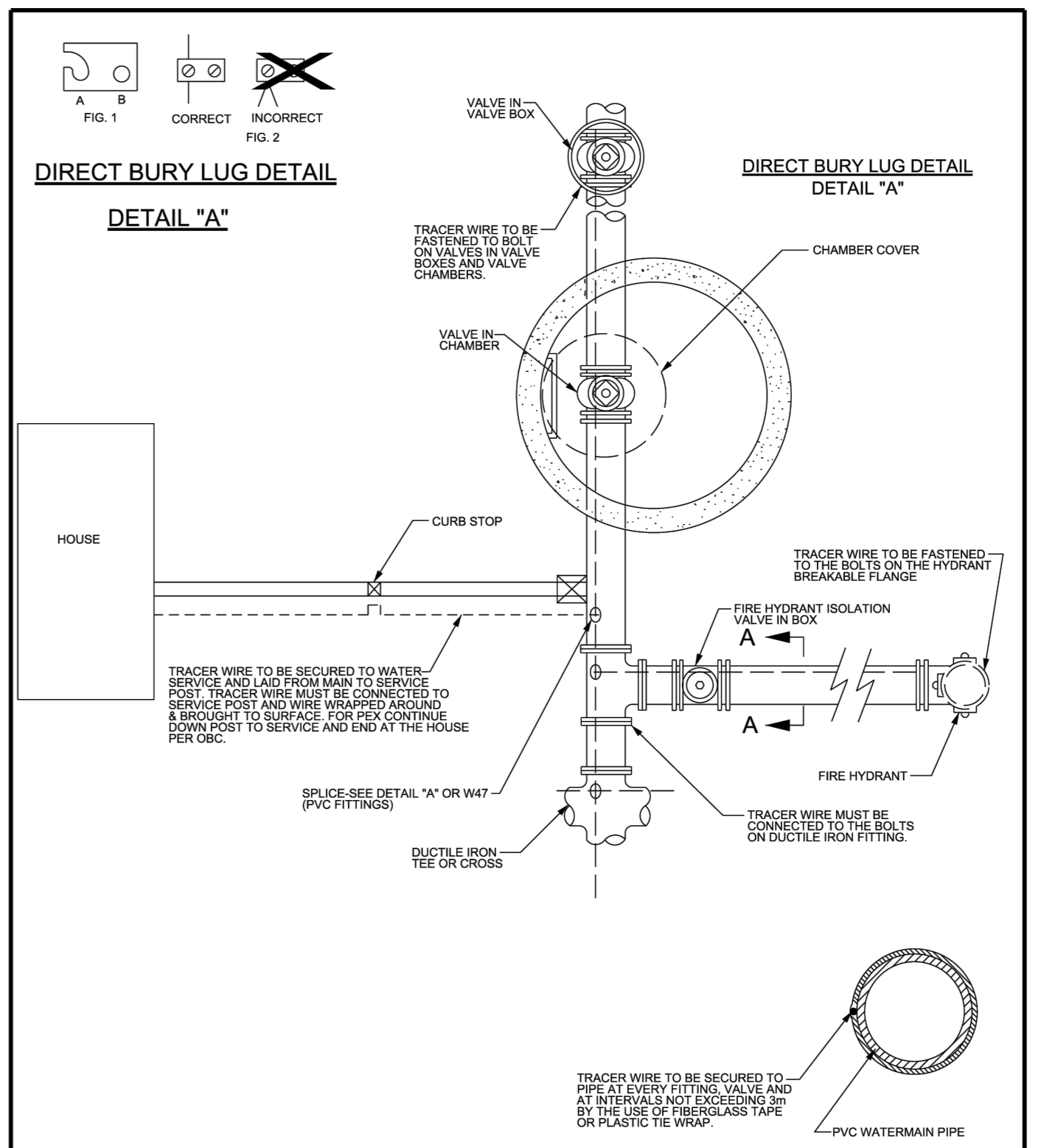
Ottawa STANDARD FRAME FOR VALVE CHAMBERS (MODIFIED OPSD-401.020)

DATE:	MAY 2001
REV:	MARCH 2016
DWG. No.:	W16



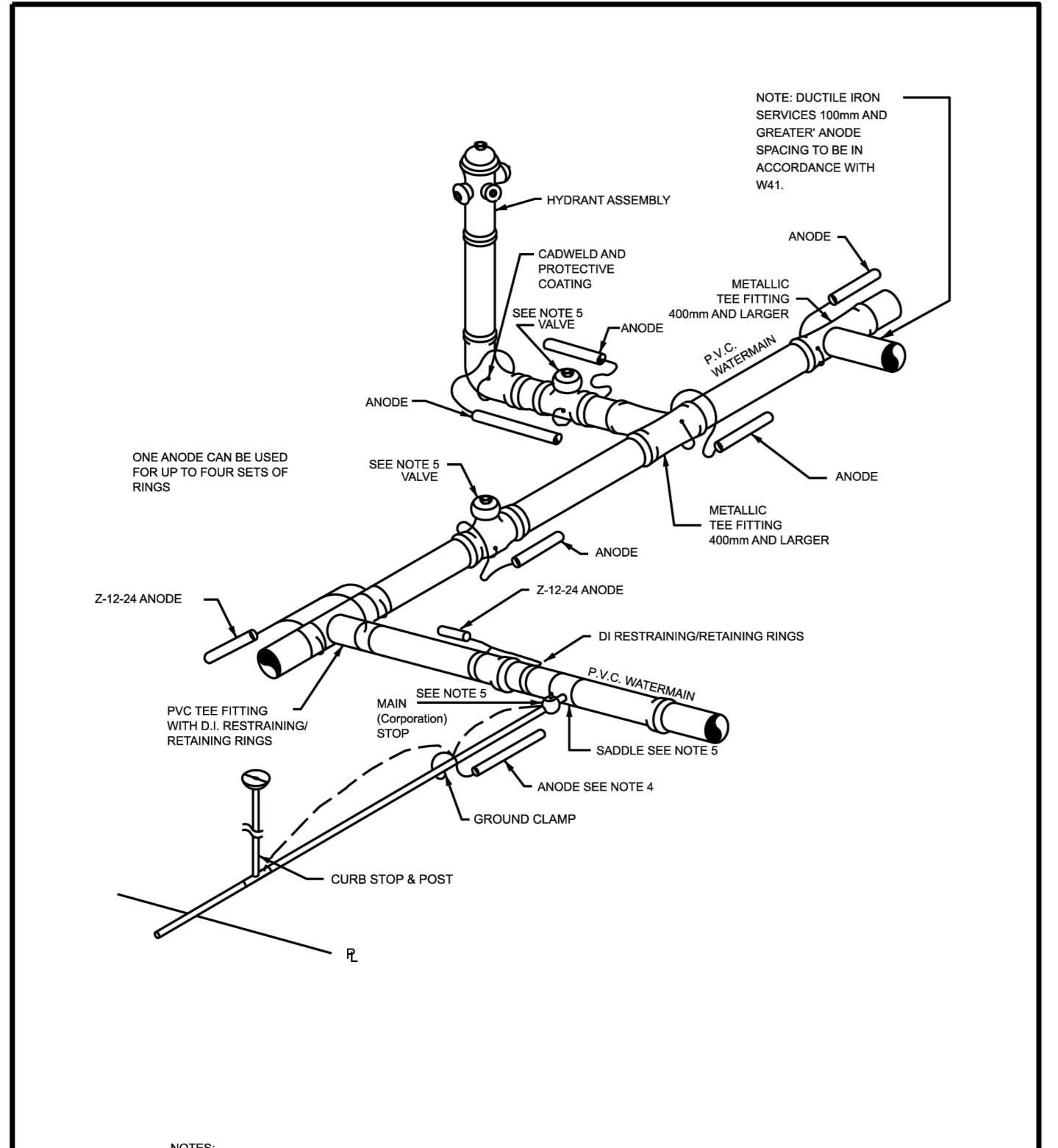
Ottawa STANDARD TRENCH DETAIL

DATE:	MAY 2001
REV:	MARCH 2018
DWG. No.:	W17



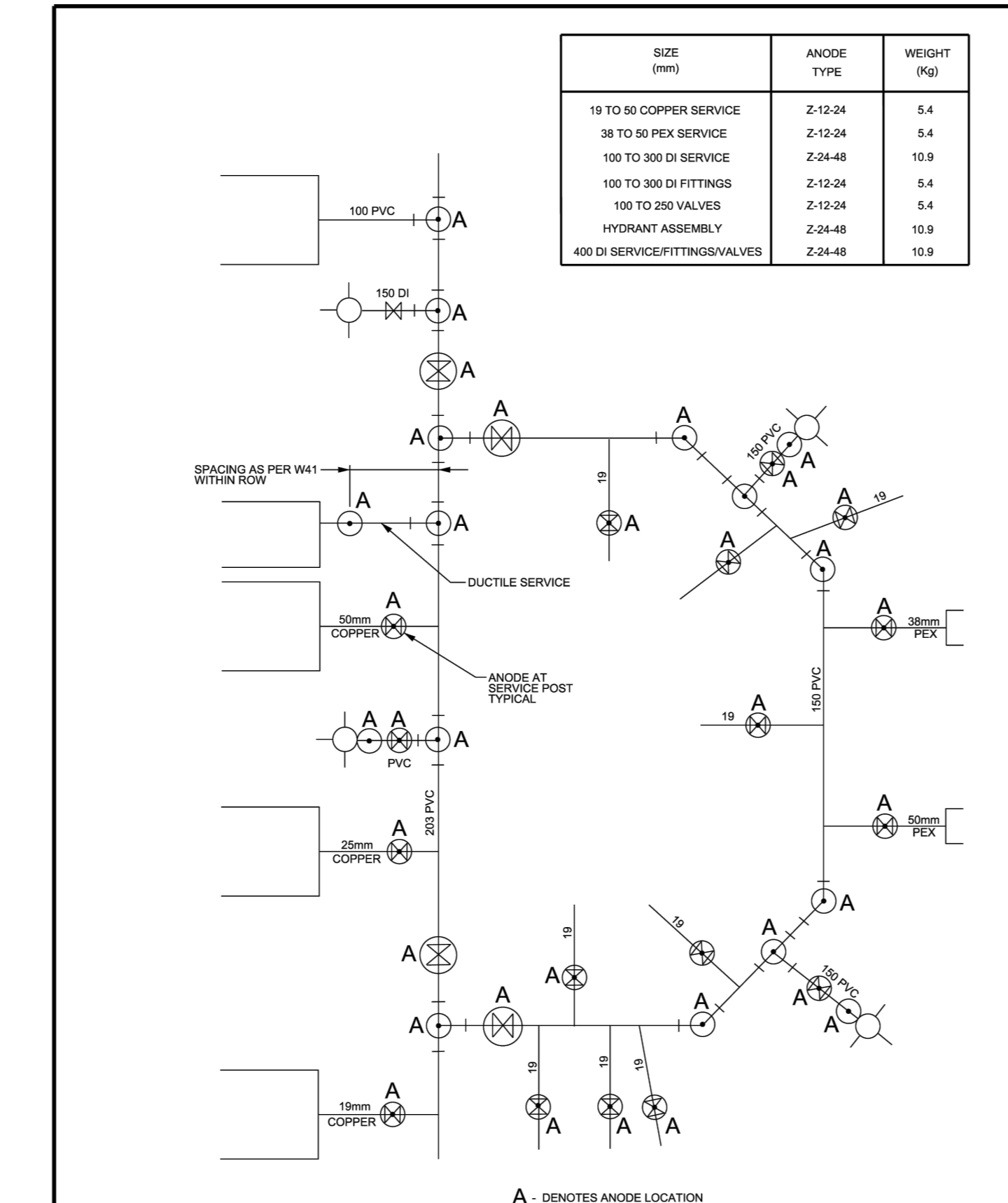
Ottawa TRACER WIRE INSTALLATION

DATE:	MAY 2001
REV:	MARCH 2014
DWG. No.:	W36



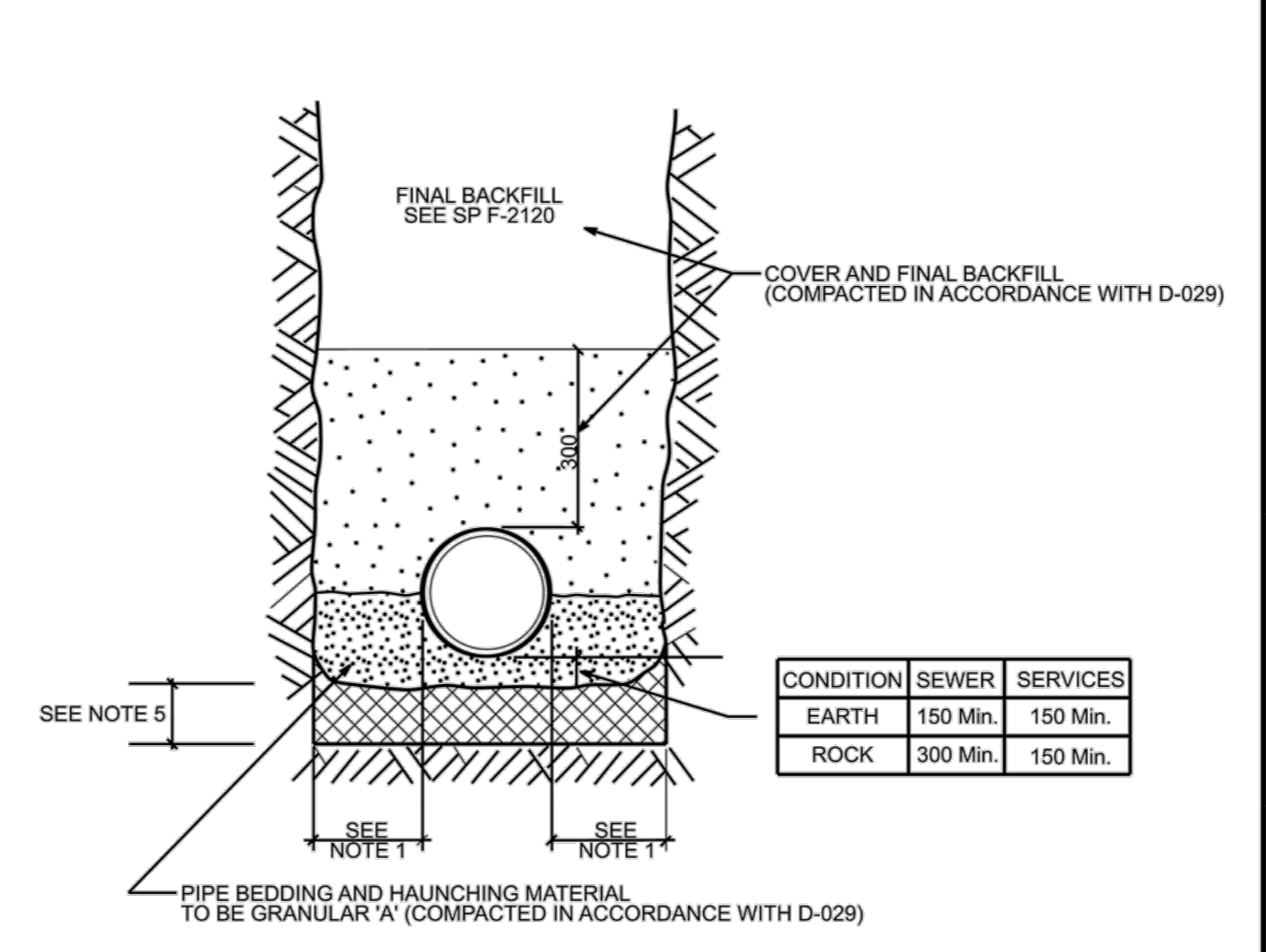
Ottawa CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS

DATE:	MAY 2001
REV:	MARCH 2019
DWG. No.:	W40



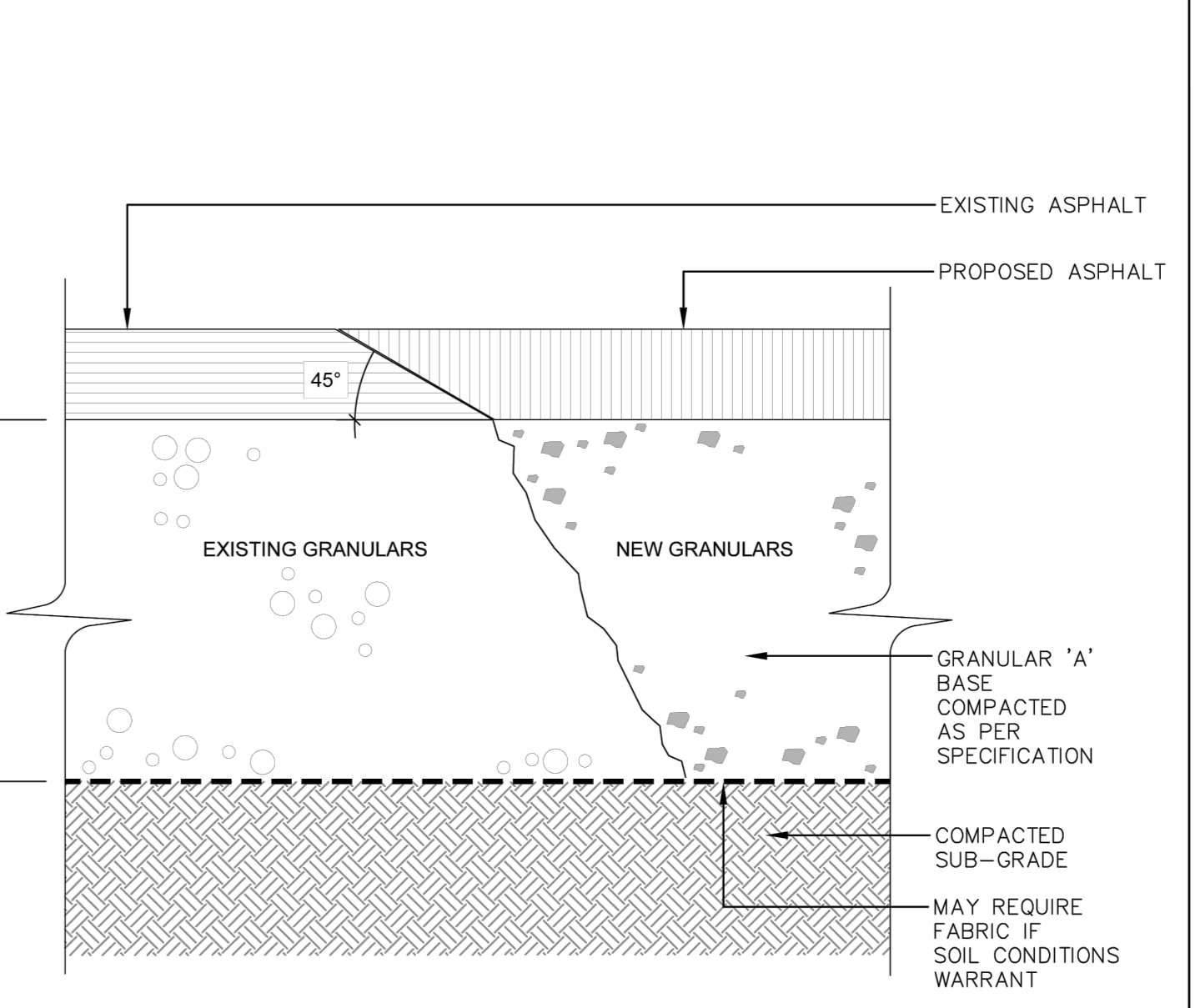
Ottawa TYPICAL ANODE INSTALLATION PVC WATERMAIN

DATE:	MAY 2001
REV:	MARCH 2014
DWG. No.:	W42



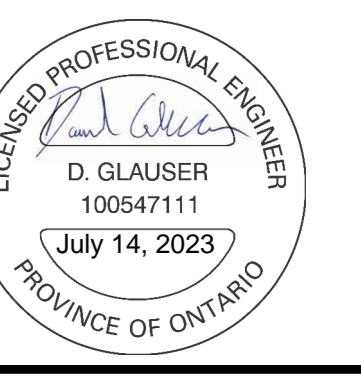
Ottawa SINGLE TRENCH (SEWER & SEWER SERVICES)

DATE:	MAY 2001
REV:	MARCH 2021
DWG. No.:	S6



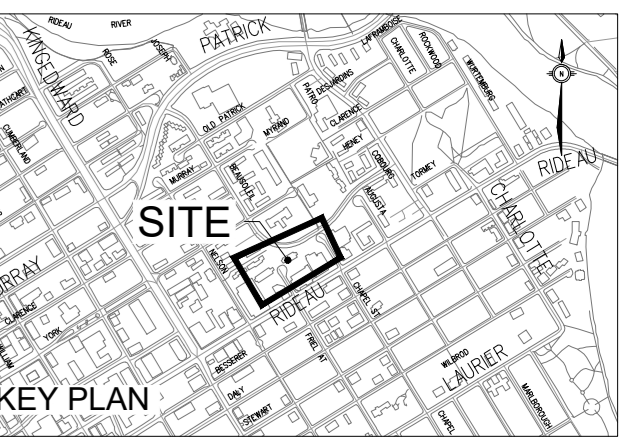
Ottawa ASPHALT REINSTATEMENT

DATE:	JAN 2015
REV:	
DWG. No.:	R25

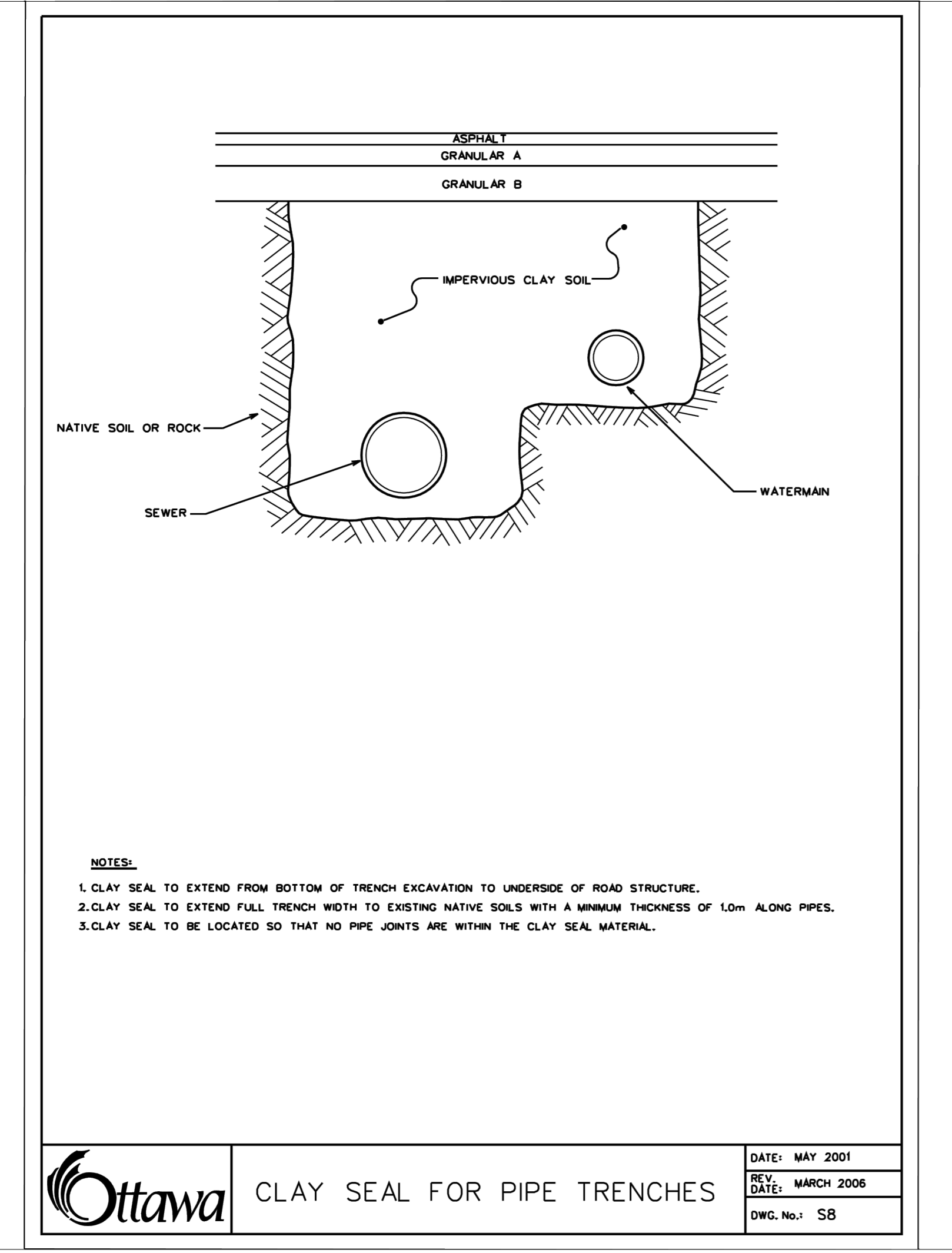


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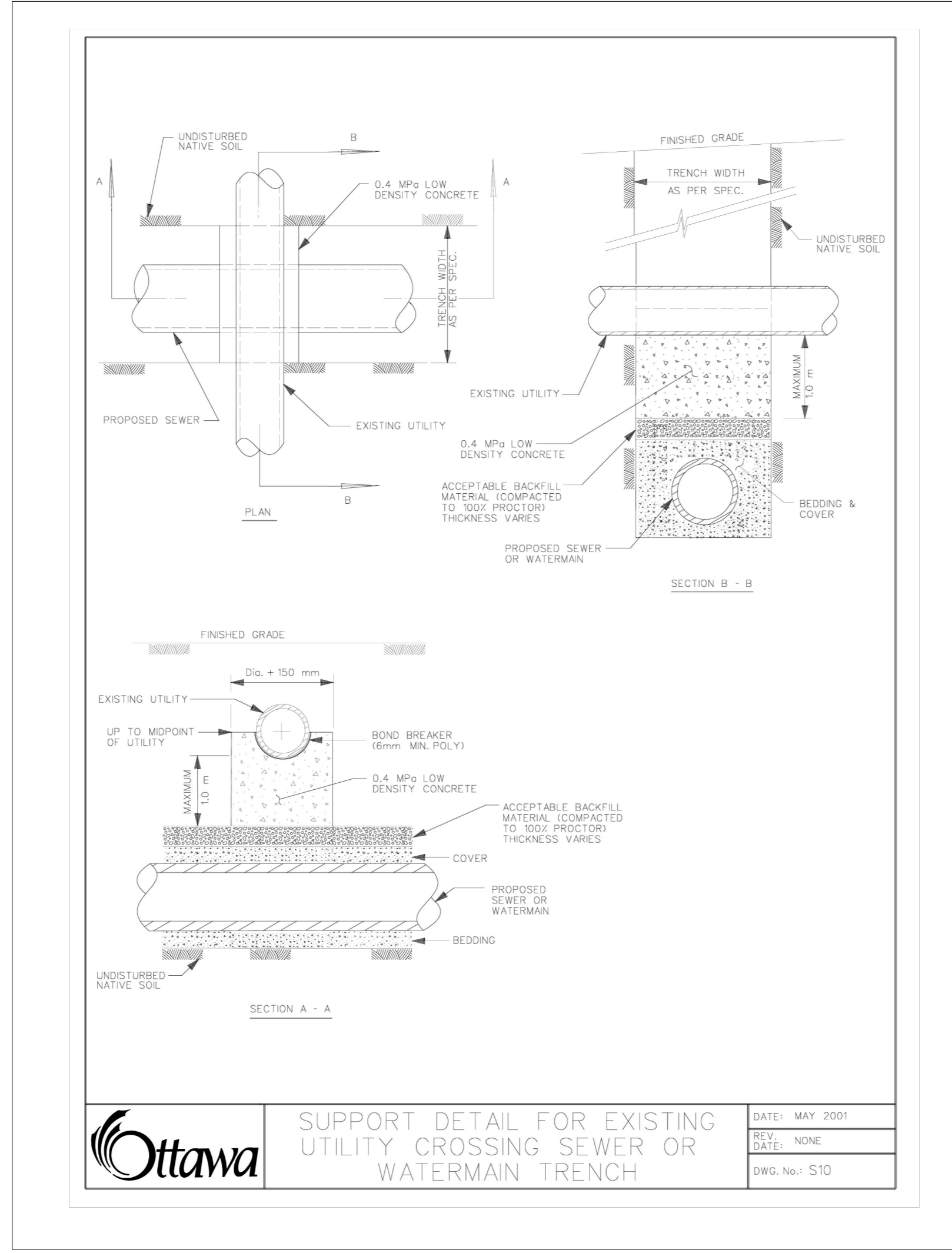
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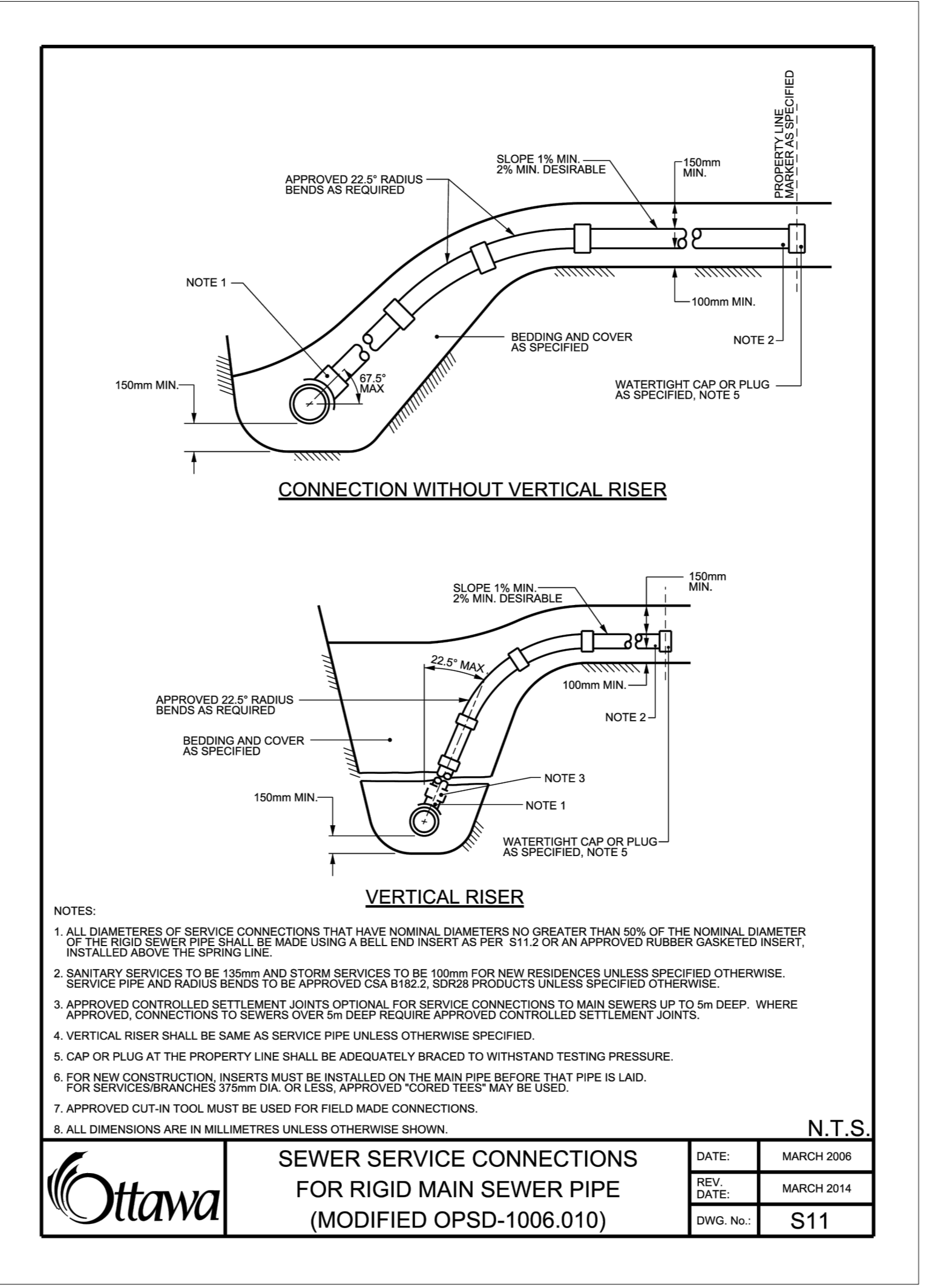
No.	Date	Description
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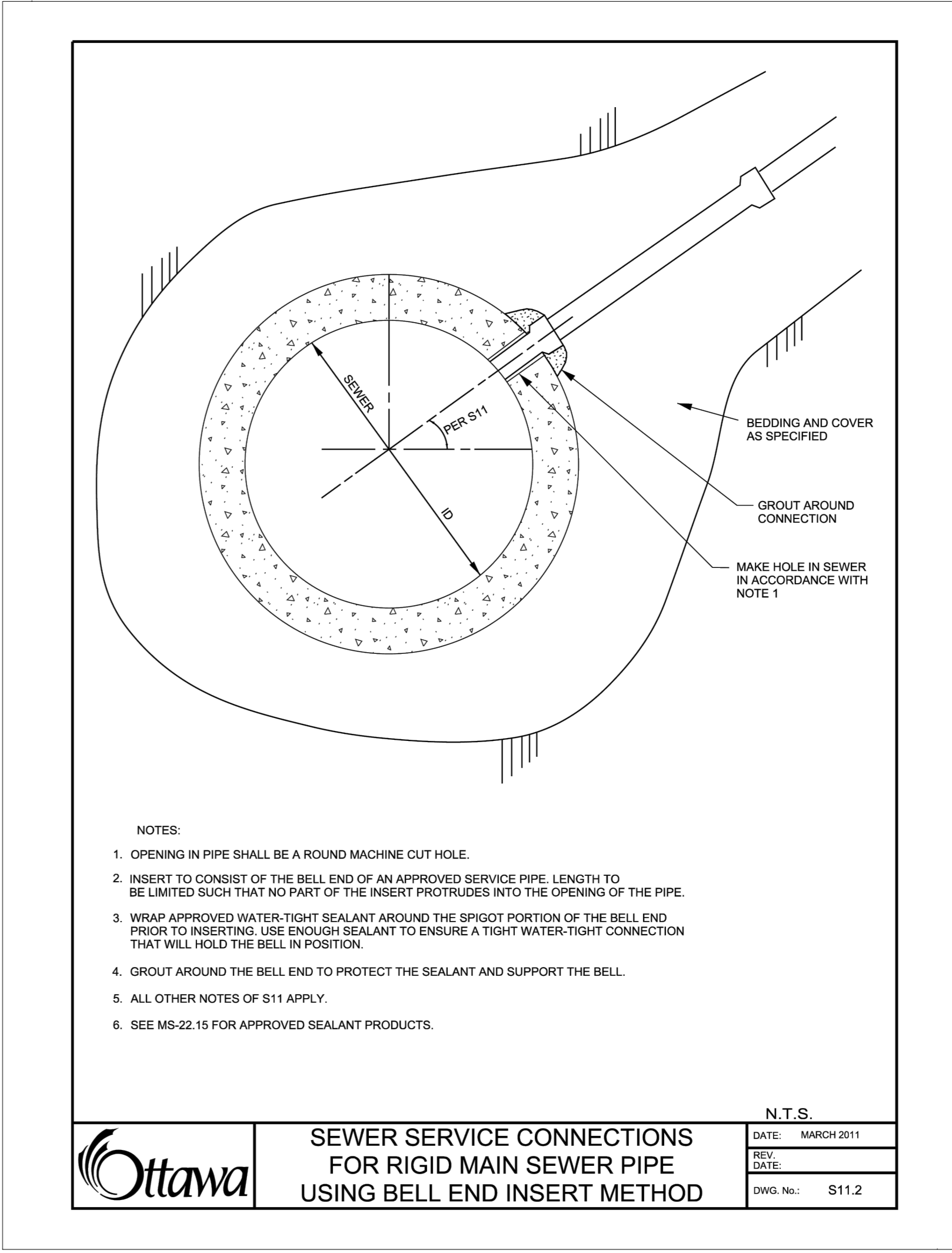
Ottawa CLAY SEAL FOR PIPE TRENCHES
 DATE: MAY 2001
 REV: MARCH 2006
 DWG. No.: SB



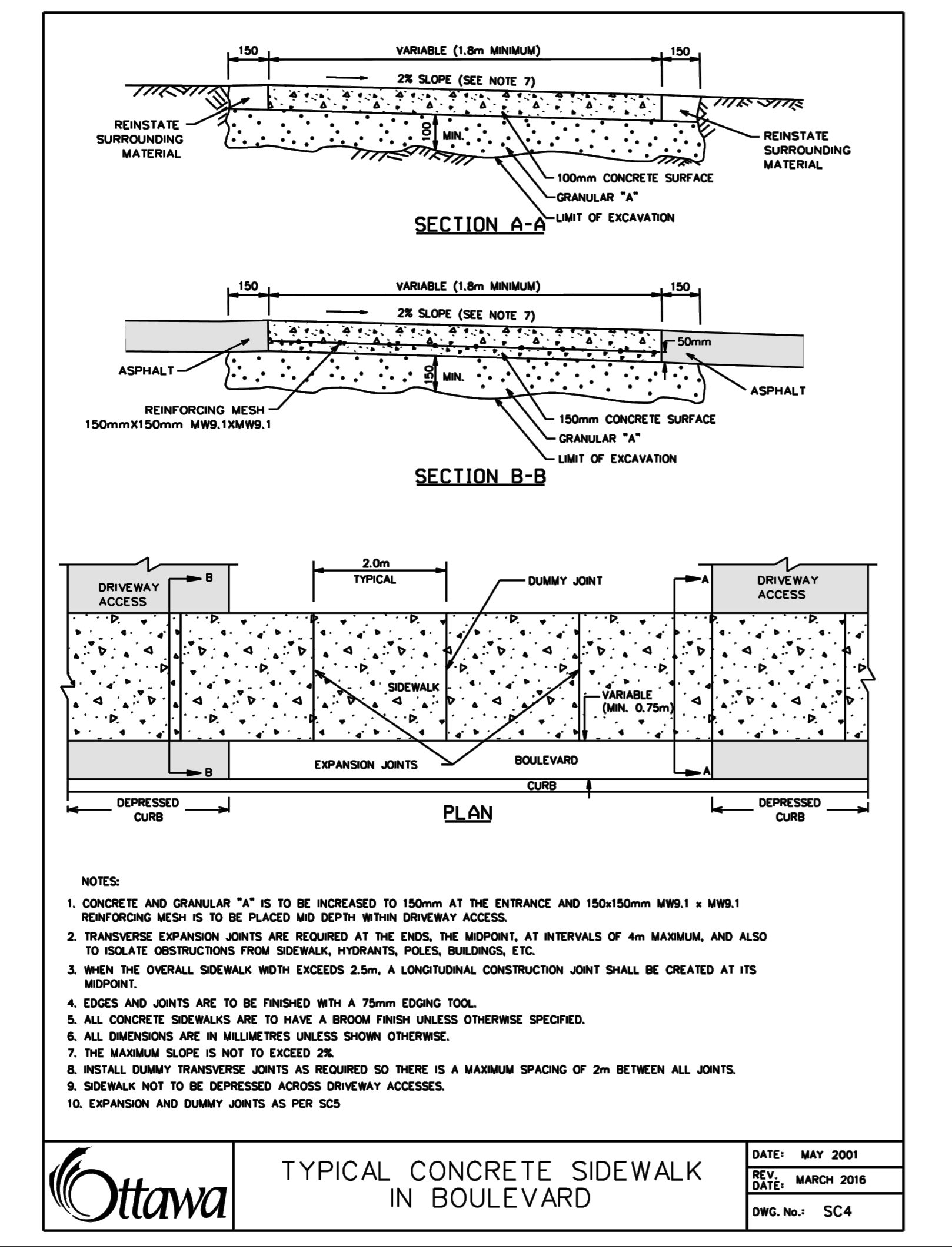
Ottawa SUPPORT DETAIL FOR EXISTING UTILITY CROSSING SEWER OR WATERMAIN TRENCH
 DATE: MAY 2007
 REV: 1996
 DWG. No.: SYD



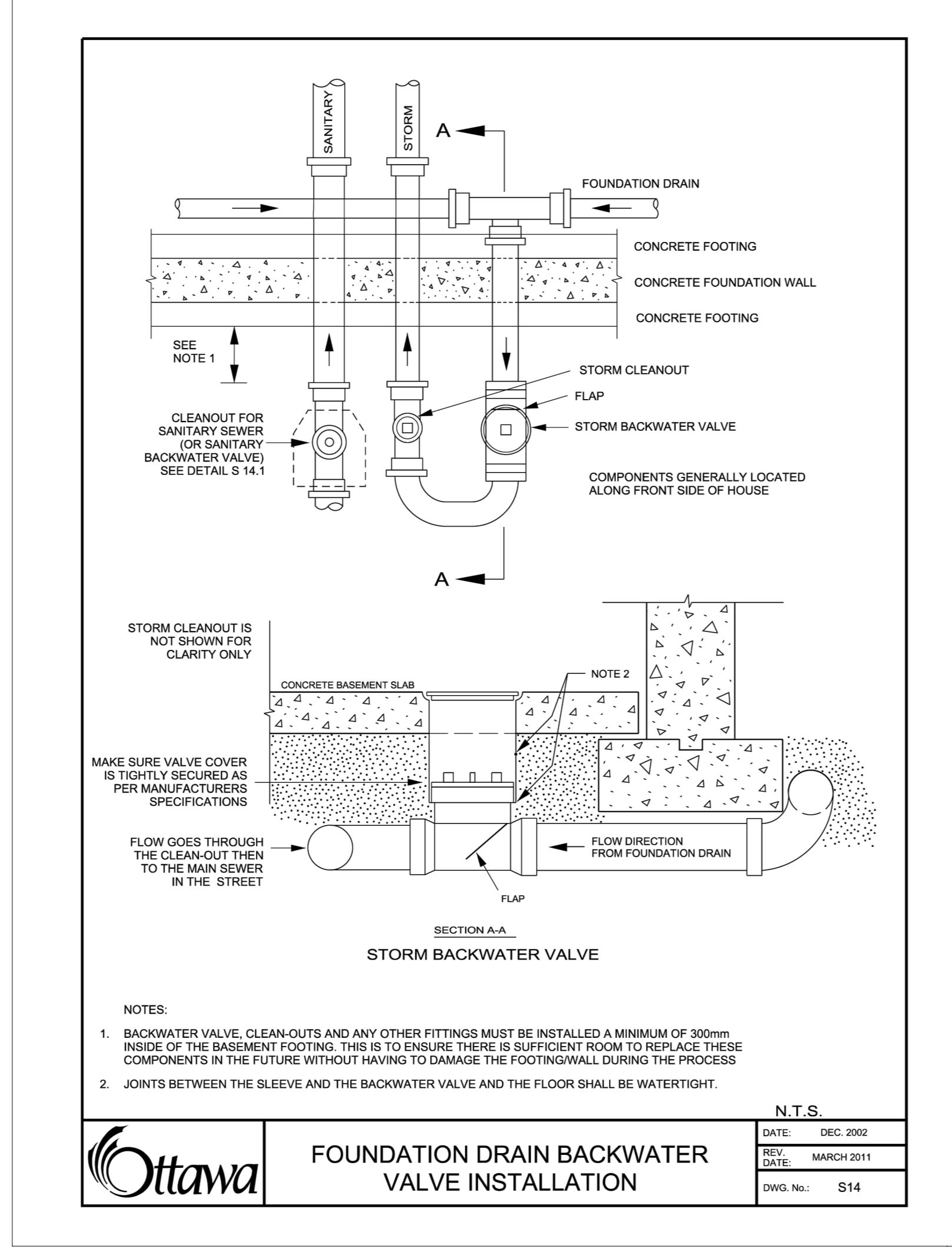
Ottawa SEWER SERVICE CONNECTIONS FOR RIGID MAIN SEWER PIPE (MODIFIED OPSD-1006.010)
 DATE: MARCH 2008
 REV: MARCH 2014
 DWG. No.: S11



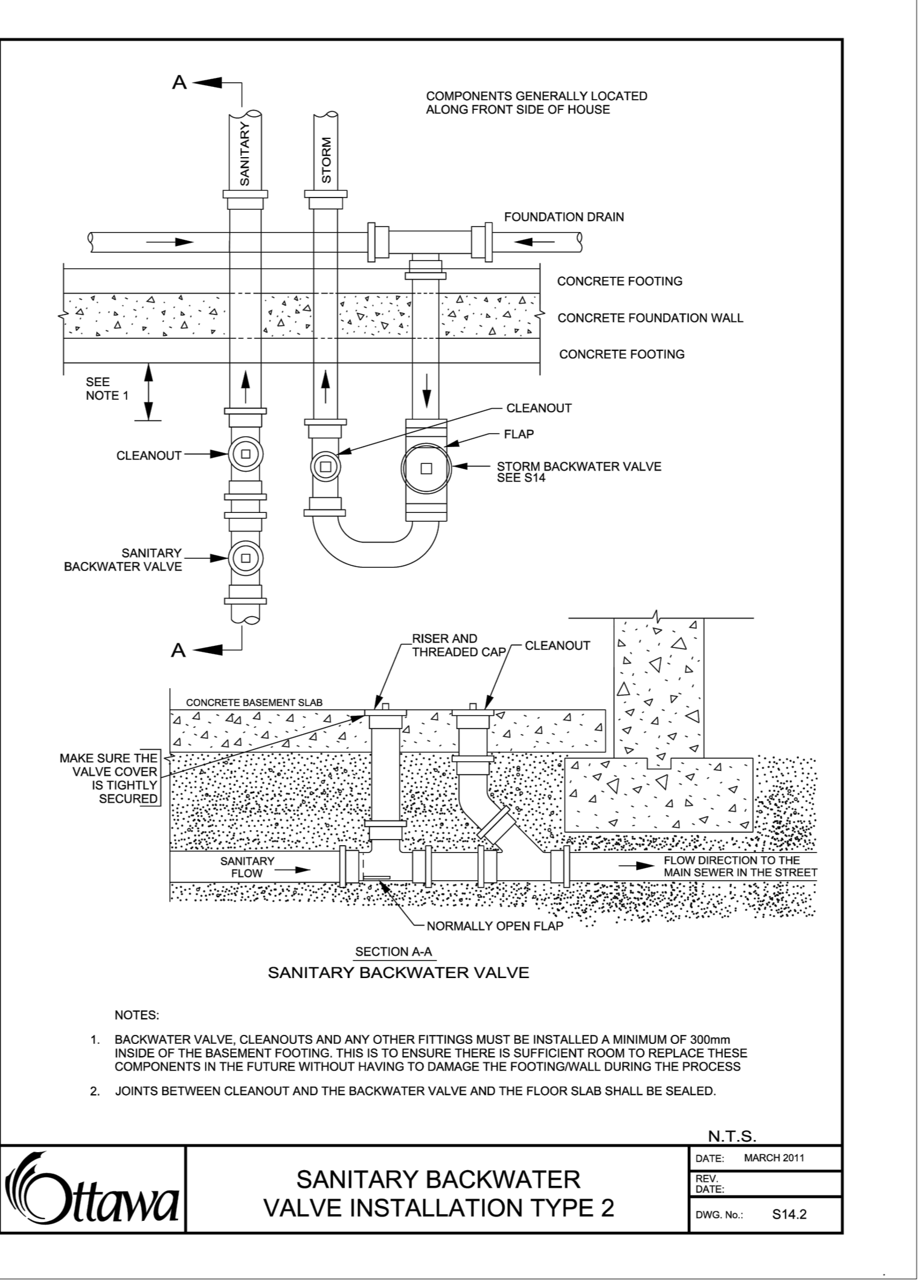
Ottawa SEWER SERVICE CONNECTIONS FOR RIGID MAIN SEWER PIPE USING BELL END INSERT METHOD
 DATE: MARCH 2011
 REV: MARCH 2014
 DWG. No.: S11.2



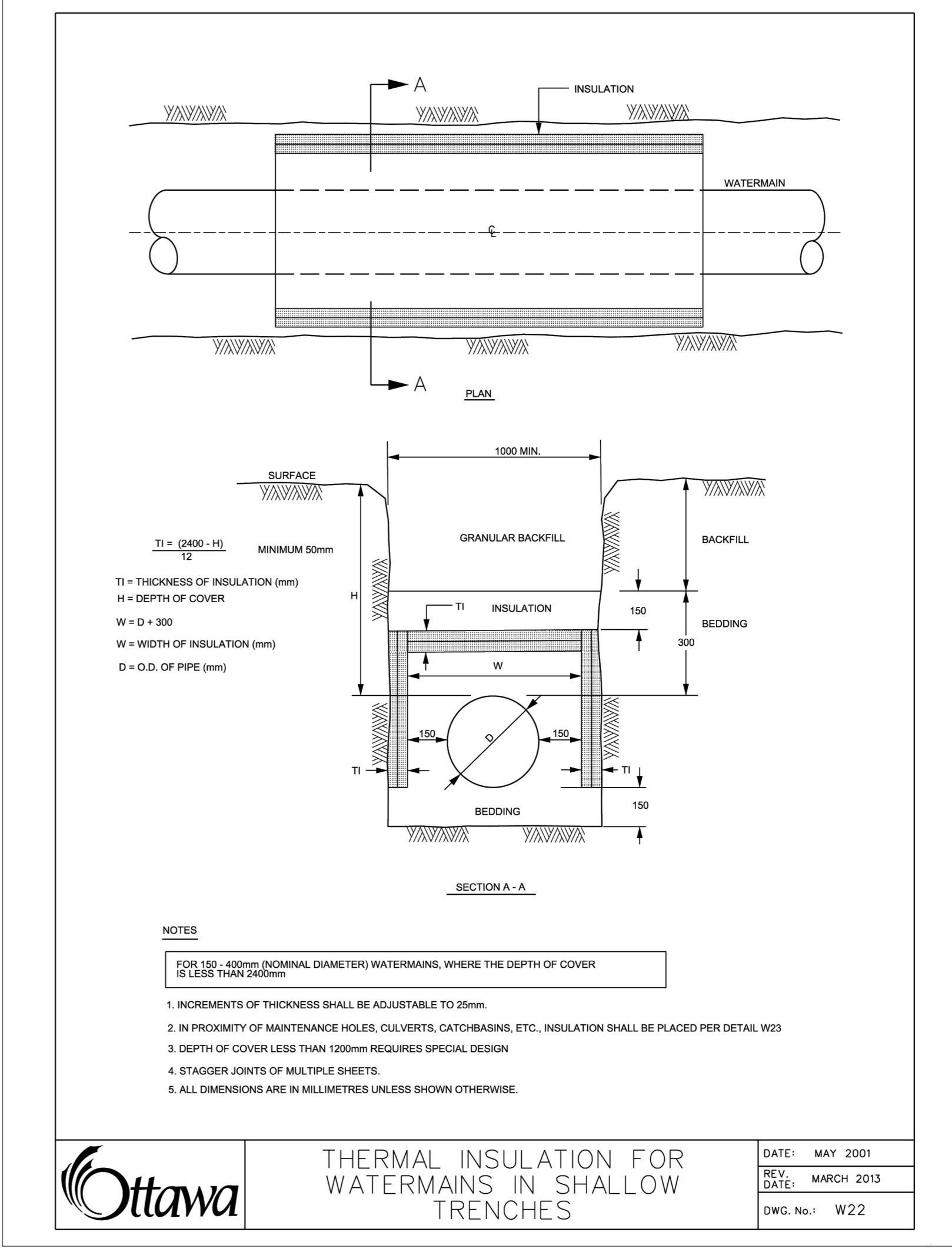
Ottawa TYPICAL CONCRETE SIDEWALK IN BOULEVARD
 DATE: MAY 2001
 REV: MARCH 2016
 DWG. No.: SC4



Ottawa FOUNDATION DRAIN BACKWATER VALVE INSTALLATION
 DATE: DEC 2002
 REV: MARCH 2011
 DWG. No.: S14



Ottawa SANITARY BACKWATER VALVE INSTALLATION TYPE 2
 DATE: MARCH 2011
 REV: MARCH 2014
 DWG. No.: S14.2

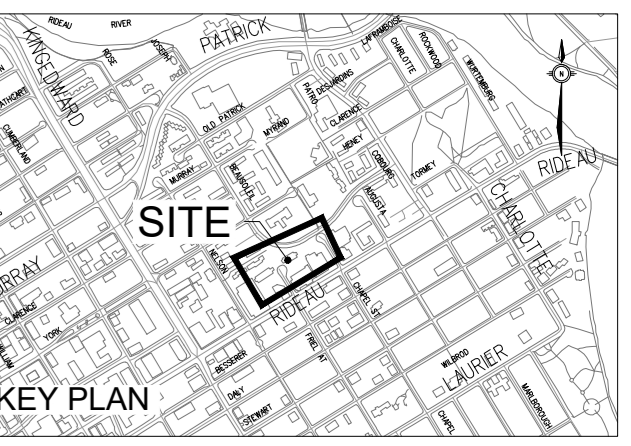


Ottawa THERMAL INSULATION FOR WATERMANS IN SHALLOW TRENCHES
 DATE: MAY 2001
 REV: MARCH 2013
 DWG. No.: W22



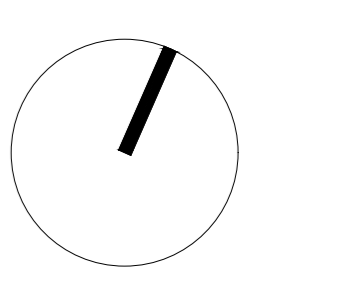
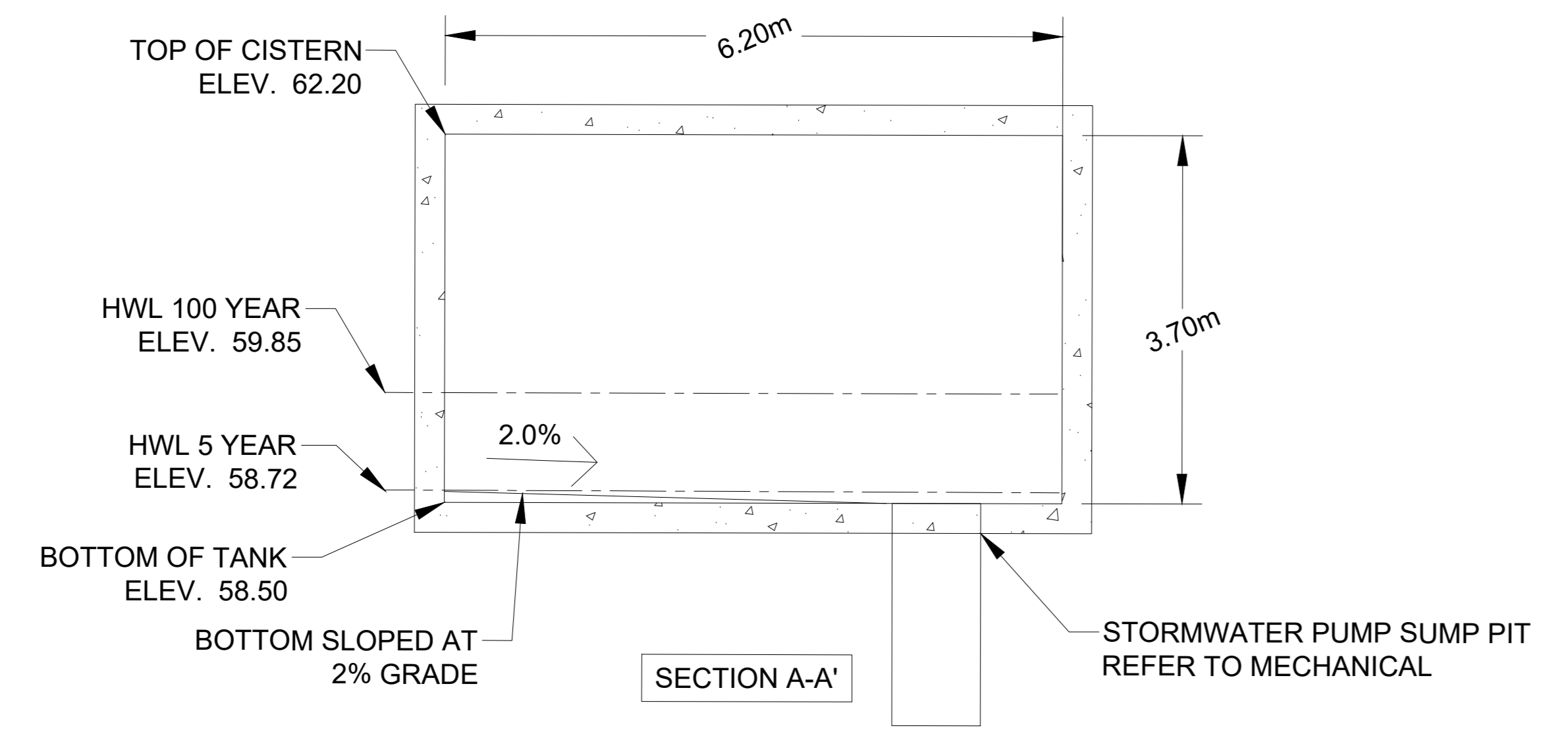
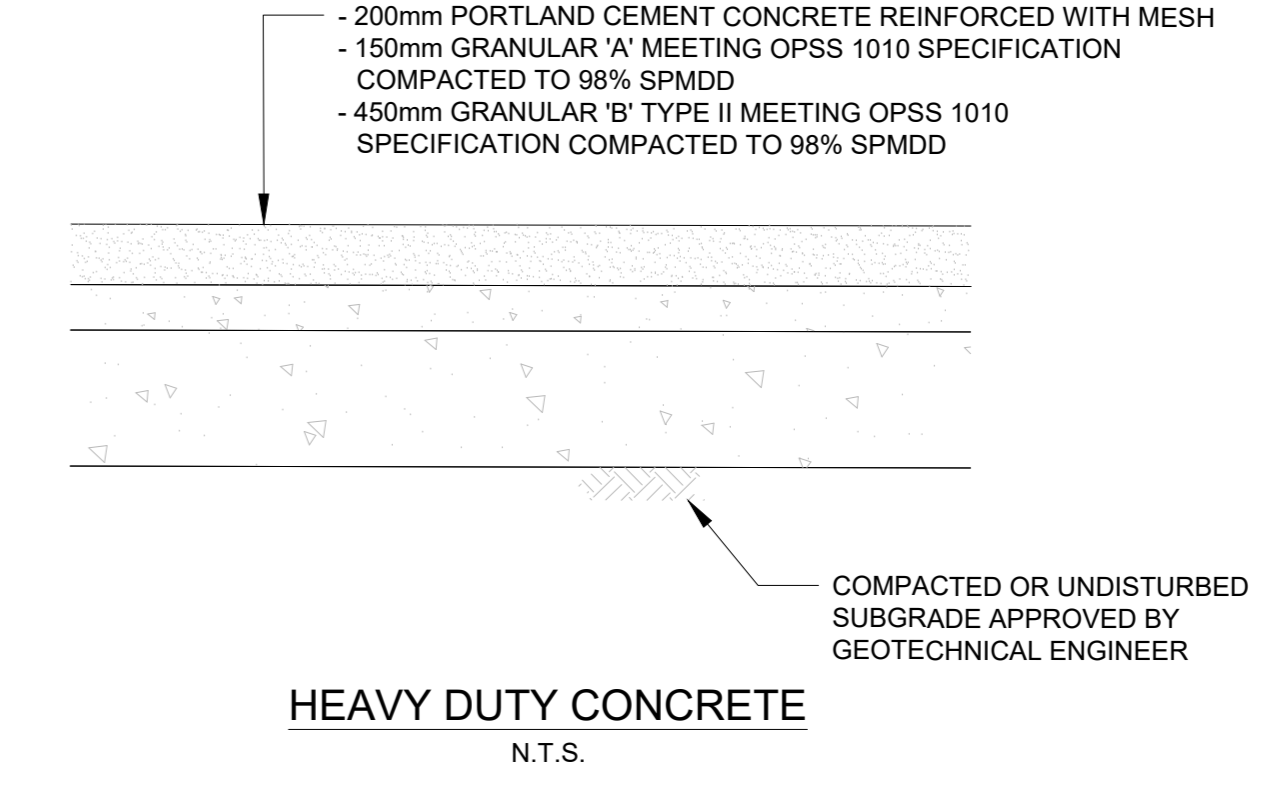
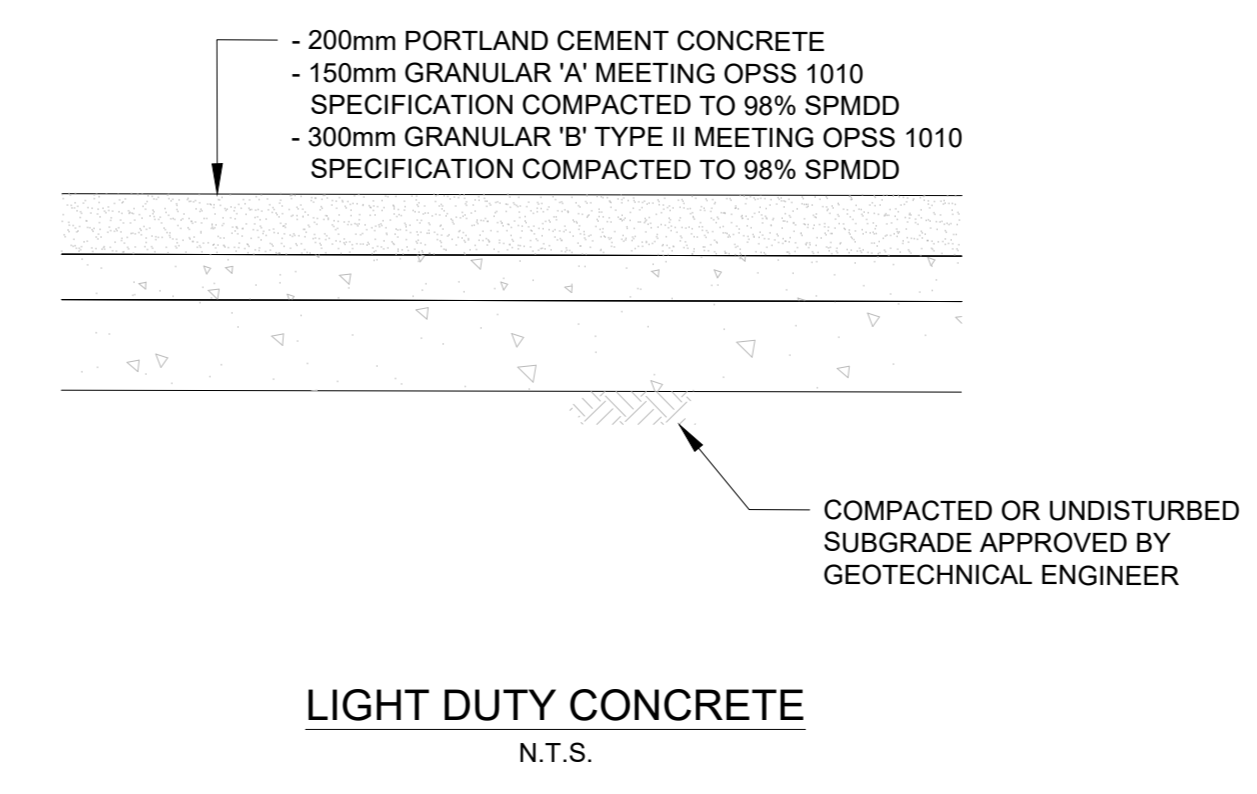
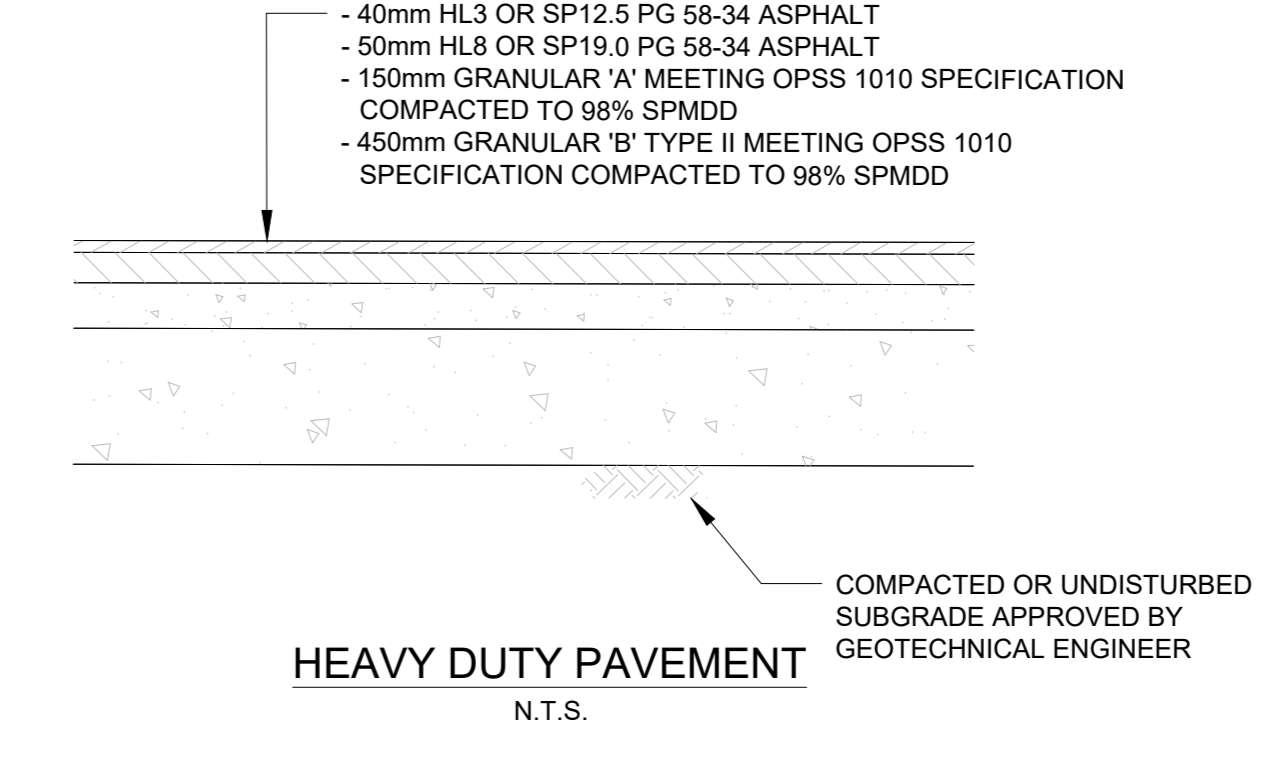
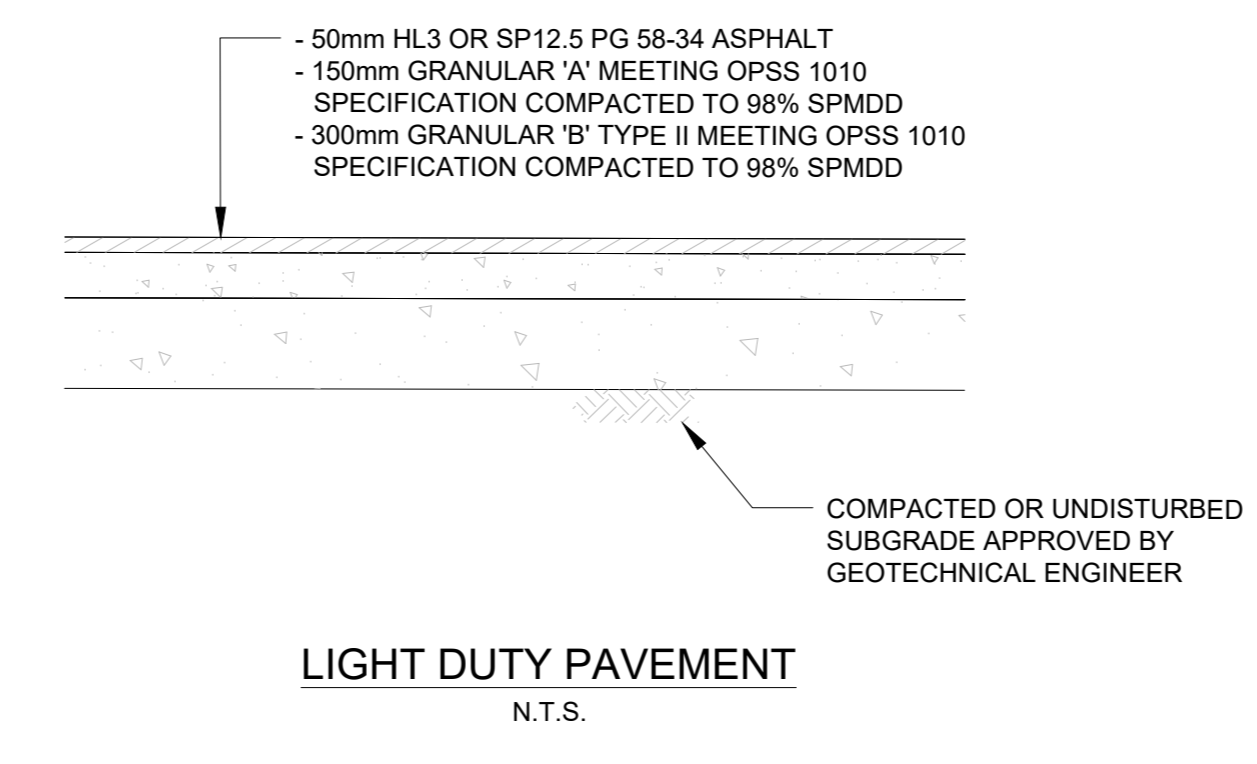
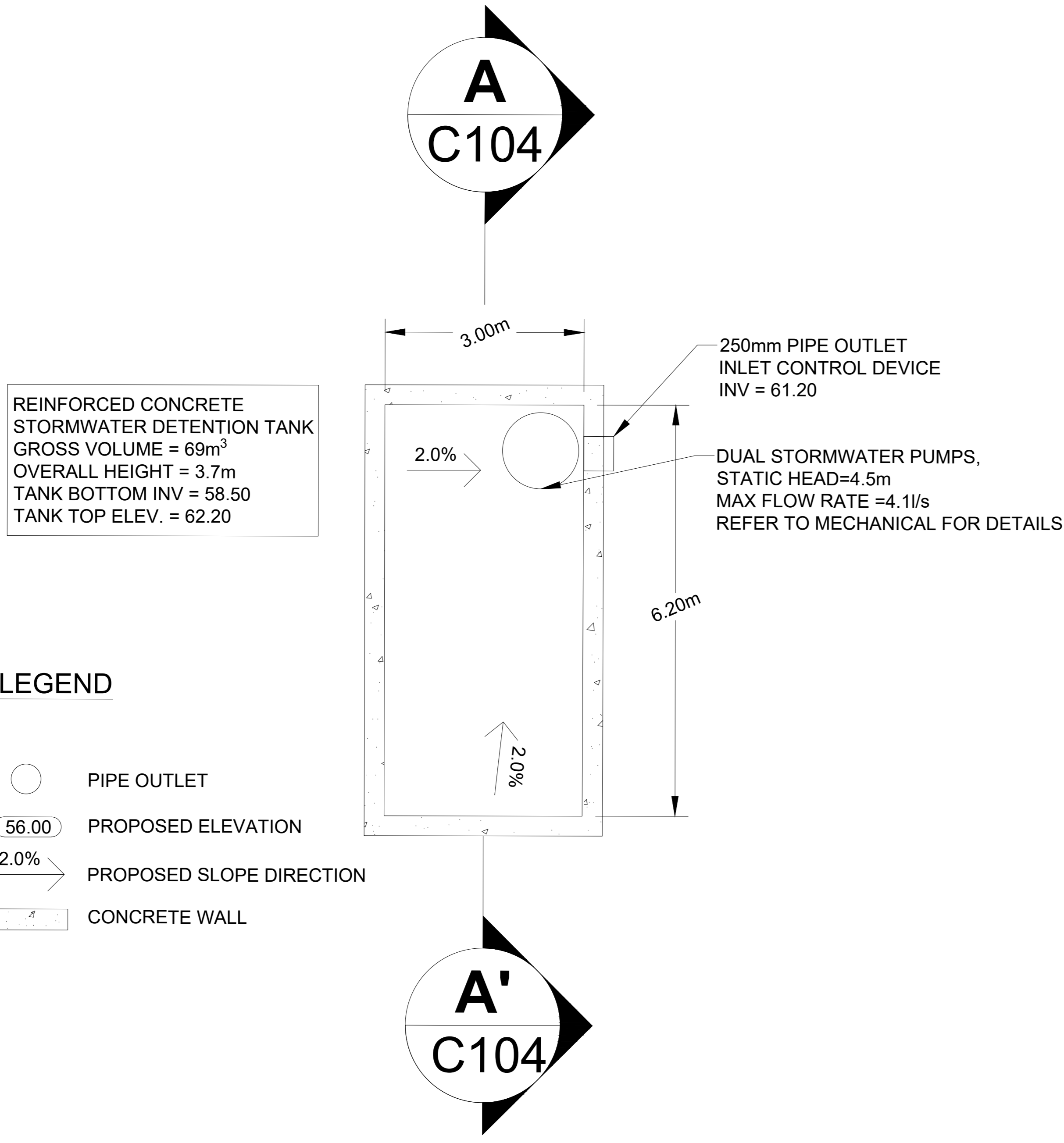
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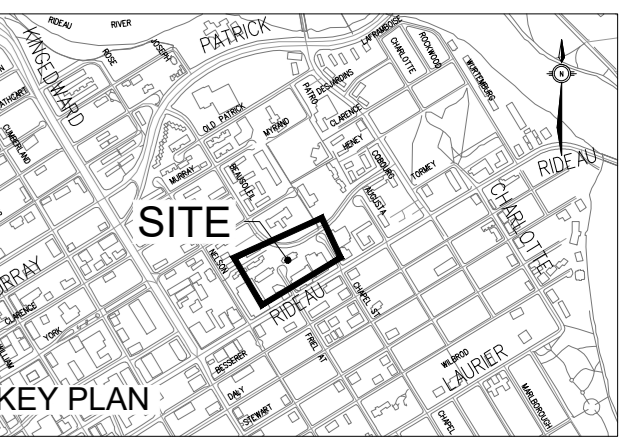
ISSUED

No.	Date	Description
0	2023 MAR 22	ISSUED FOR SITE PLAN APPROVAL
1	2023 MAY 12	ISSUED FOR 100% SCHEMATIC DESIGN
2	2023 MAY 18	ISSUED FOR REZONING AND SITE PLAN CONTROL - RESUBMISSION #1
3	2023 JUL 13	ISSUED FOR SITE PLAN CONTROL - RESUBMISSION #2



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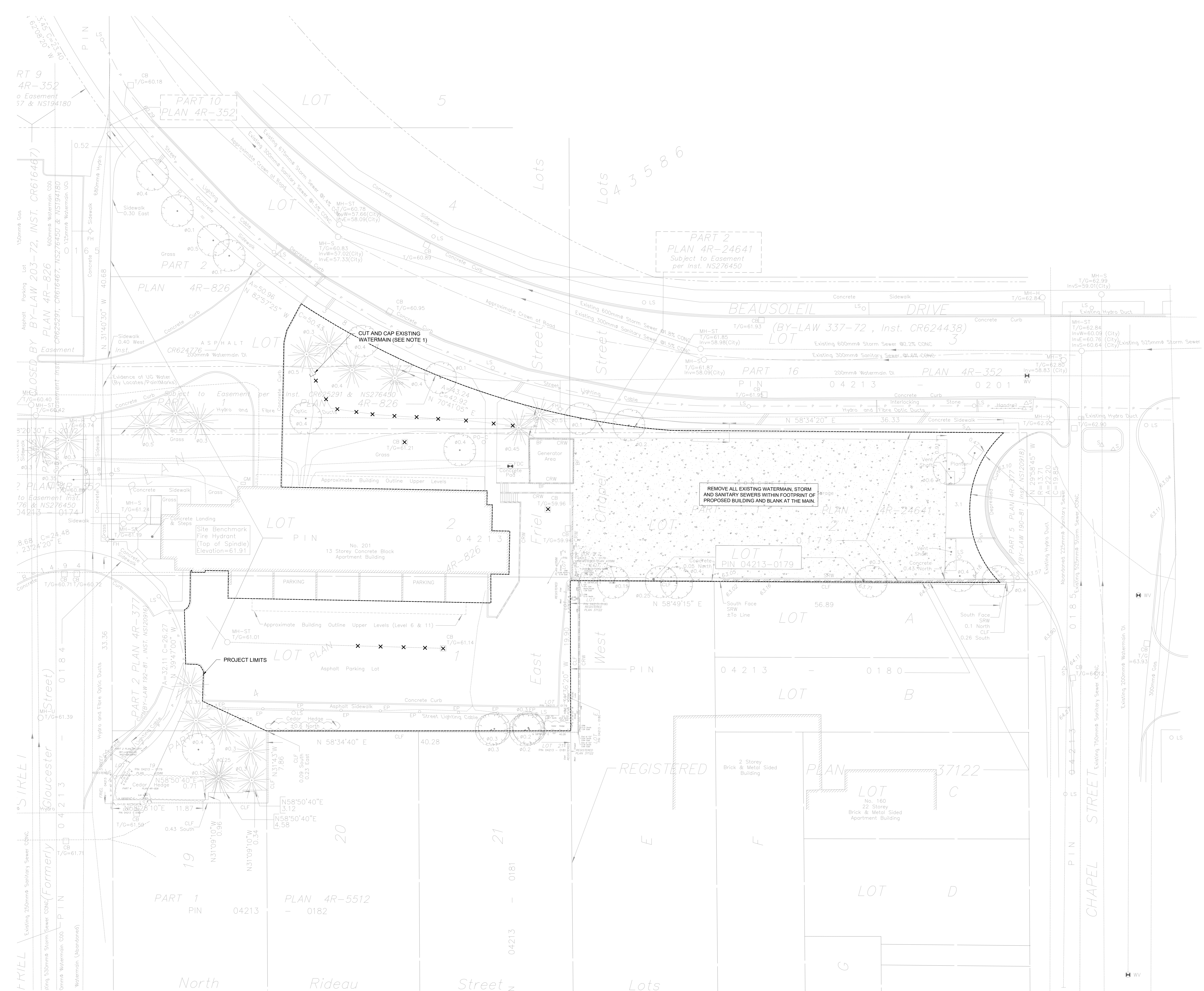


ISSUED

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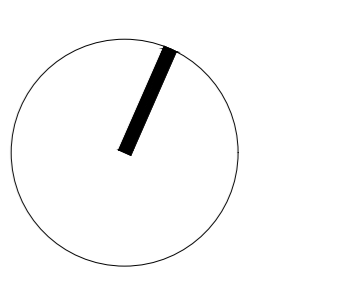
LEGEND

x x x EXISTING WATERMAIN OR SEWER, VALVE CHAMBER, MAINTENANCE HOLE OR CATCH BASIN TO BE REMOVED OR ABANDONED (REMOVE IF WITH EXCAVATION LIMITS)



NOTES:

1. COMPLETE ALL REMOVALS AND ABANDONMENTS IN ACCORDANCE WITH OPSS MUNI. 510.

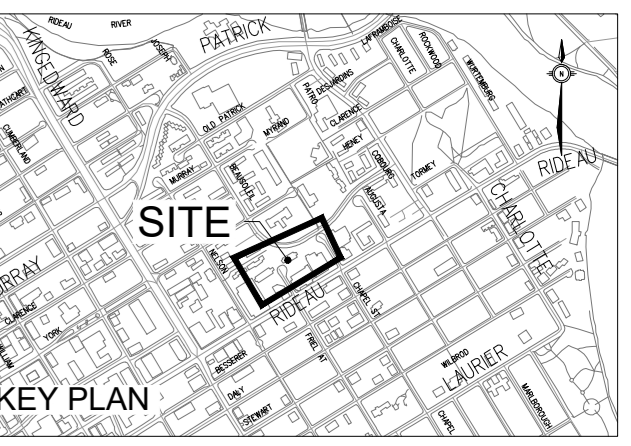


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Scale: 1:200
Project No: 220282000
Date: 13/07/23

REMOVALS PLAN
0034
C700
#18930



- ISSUED**
- | No. | Date | Description |
|-----|-------------|---|
| 0 | 2023 MAR 22 | ISSUED FOR SITE PLAN APPROVAL |
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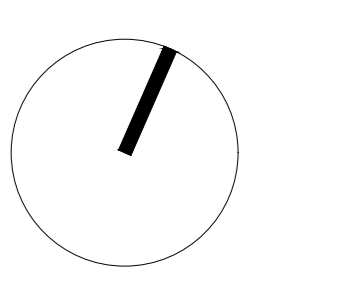
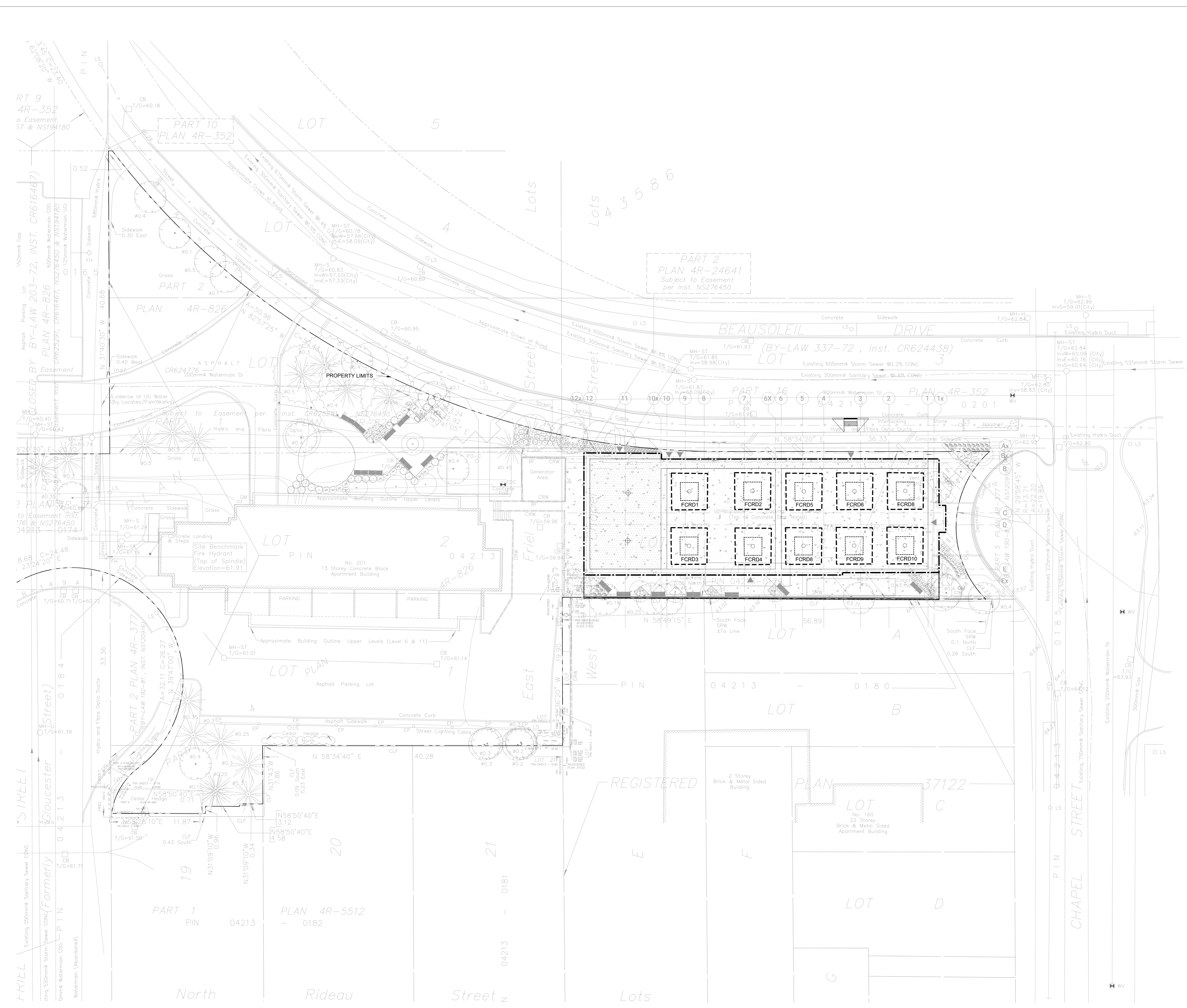
LEGEND

- FLOW CONTROLLED ROOF DRAIN
- UNCONTROLLED FLOW ROOF DRAIN
- AMENITY/UNOCCUPIABLE ROOF - NO FLOW CONTROL
- 5 YR=22mm DEPTH
- 100 YR=60mm DEPTH

PRODUCT HEAD vs. FLOW

PONDING DEPTH (m)	FLOW (L/s)				
	OPEN	3/4	1/2	1/4	CLOSED
0.025	0.315	0.315	0.315	0.315	0.315
0.05	0.631	0.631	0.631	0.631	0.315
0.075	0.946	0.867	0.789	0.710	0.315
0.1	1.262	1.104	0.946	0.789	0.315
0.125	1.577	1.341	1.104	0.867	0.315
0.15	1.893	1.577	1.262	0.946	0.315

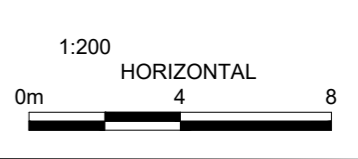
- NOTES:**
- PRODUCT - ADJUSTABLE ACCUTROL WEIR SETTING - 3/4 FLOW RATE APPROX. 0.8L/s IN 100-YR EVENT
 - FOR SCUPPER / EMERGENCY OVERFLOW LOCATIONS / ELEVATION REFER TO ARCHITECTURAL

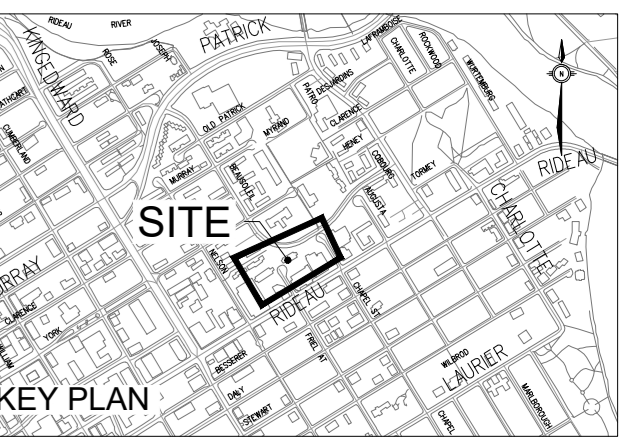


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OCH FRIEL STREET / CHAPEL
200001 FRIEL STREET
221021

ROOF DRAIN LAYOUT & PONDING
Scale: 1:200
Project No: 220282000
Date: 13/07/23
C701
#18930





ISSUED

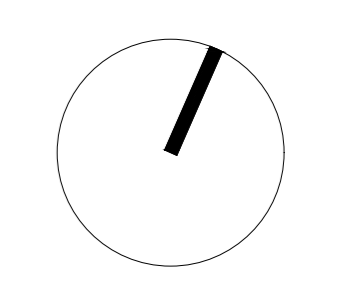
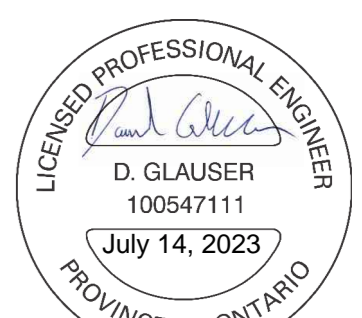
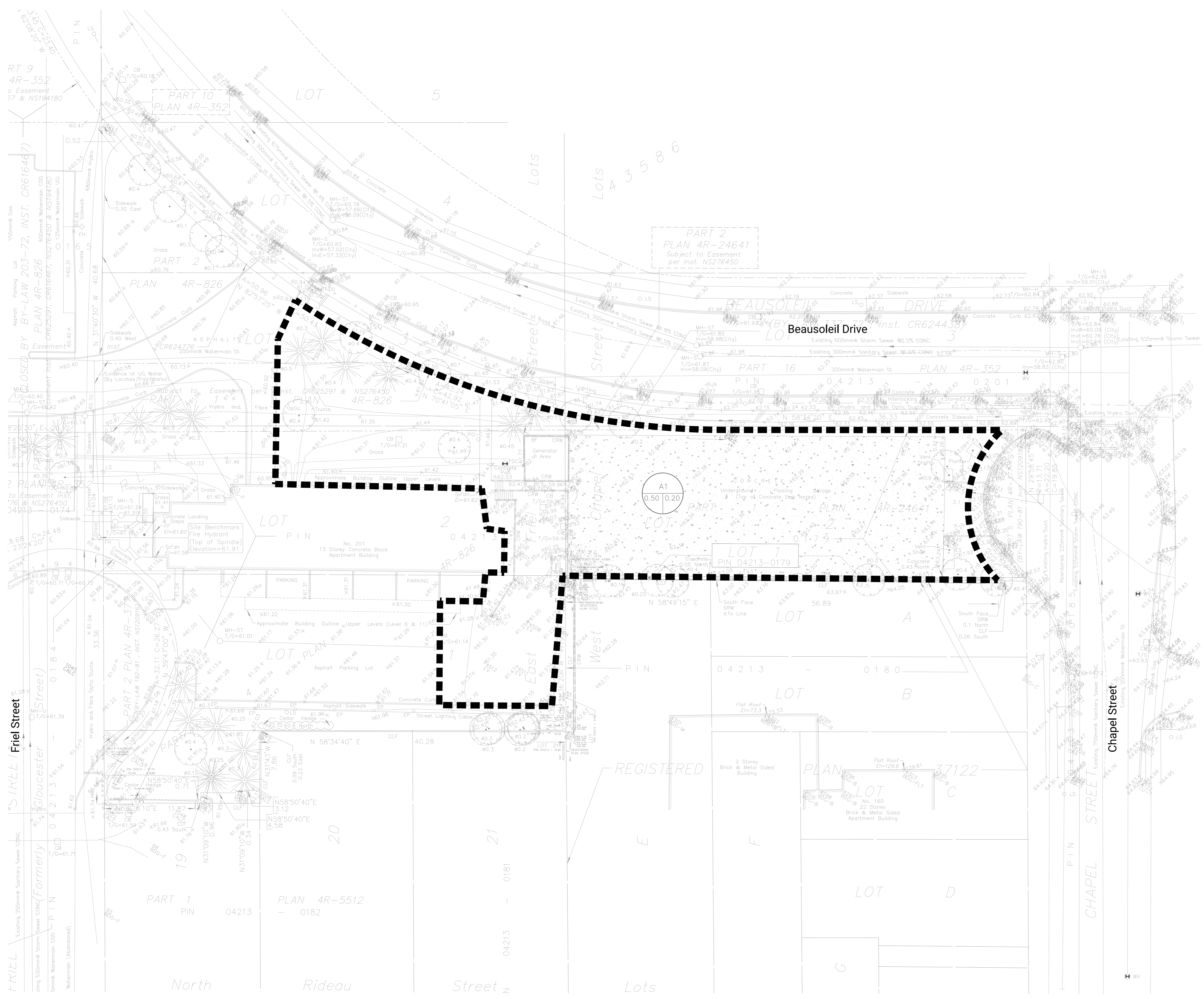
No.	Date	Description
0	2023 MAR 22	ISSUED FOR SITE PLAN APPROVAL
1	2023 MAY 12	ISSUED FOR 100% SCHEMATIC DESIGN
2	2023 MAY 18	ISSUED FOR REZONING AND SITE PLAN CONTROL - RESUBMISSION #1
3	2023 JUL 13	ISSUED FOR SITE PLAN CONTROL - RESUBMISSION #2

LEGEND

AREA ID DRAINAGE AREA CHARACTERISTICS

RUNOFF COEFFICIENT % AREA ha

CATCHMENT AREAS

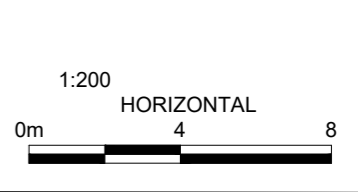


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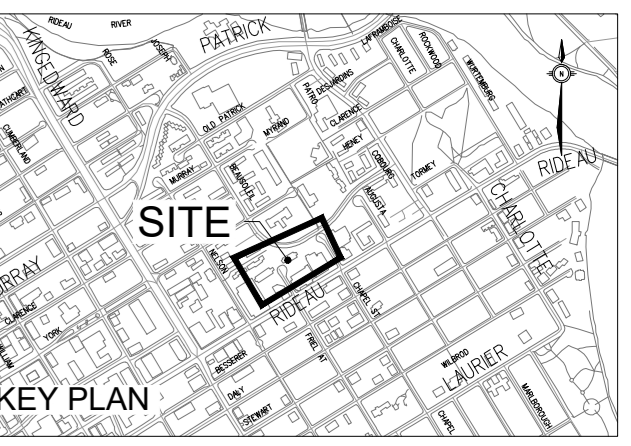
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200001 FRIEL STREET
221021



EXISTING DRAINAGE AREA PLAN
Scale: 1:200
Project No: 220282000
Date: 13/07/23

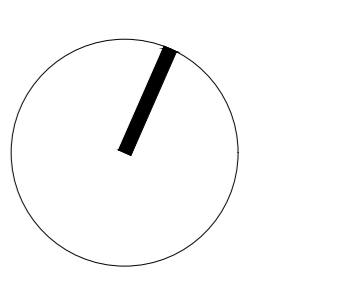
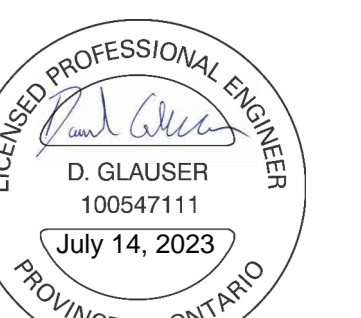
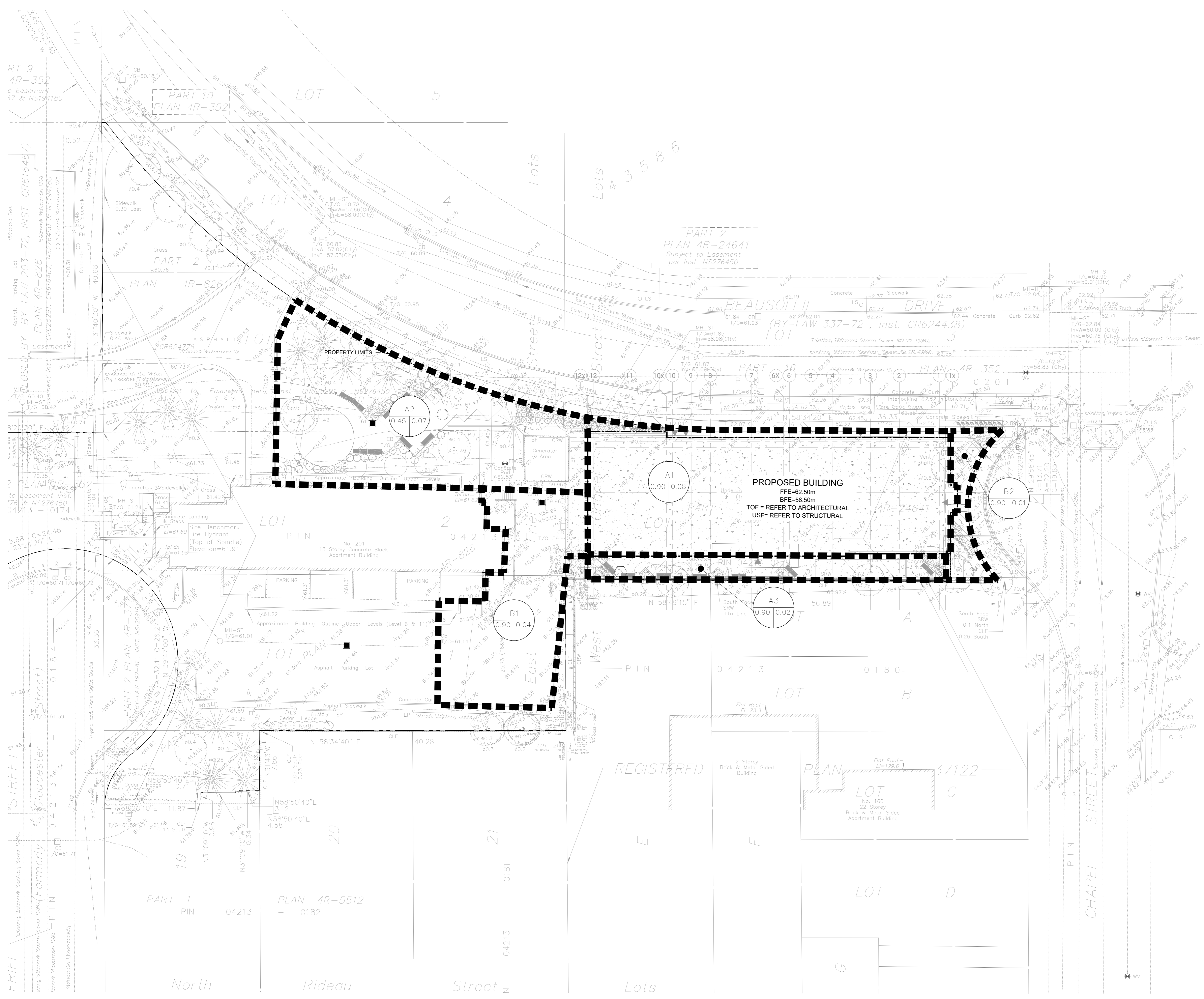
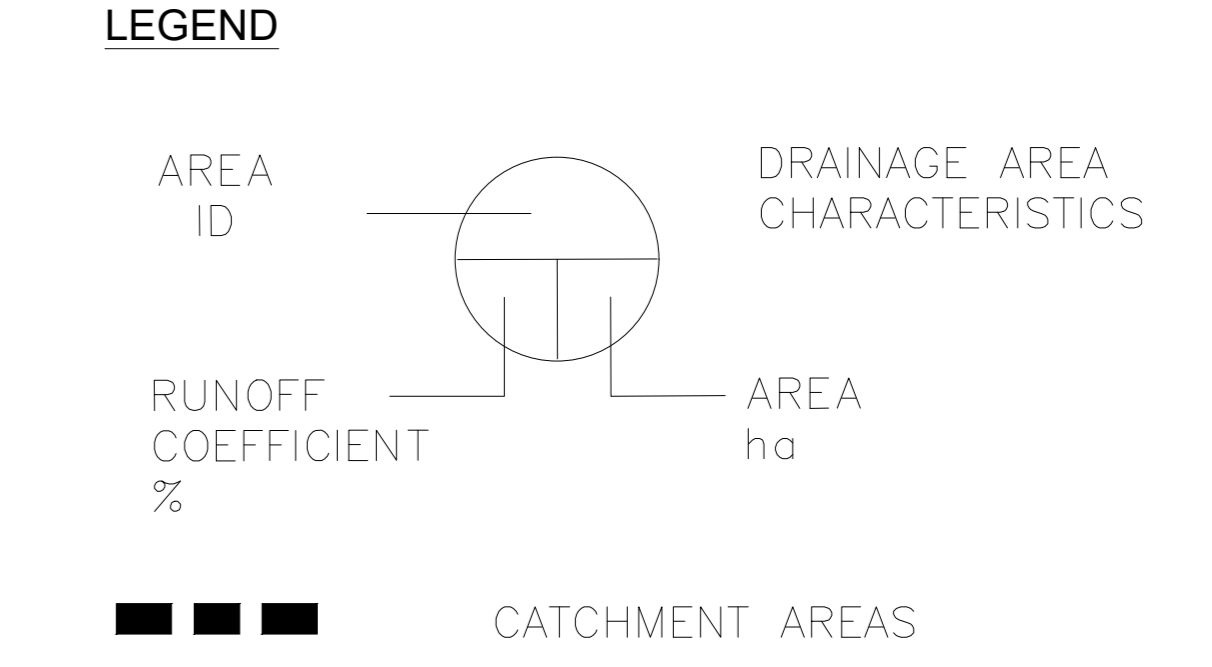
C800
#18930



ISSUED

No.	Date	Description
0	2023 MAR 22	ISSUED FOR SITE PLAN APPROVAL
1	2023 MAY 12	ISSUED FOR 100% SCHEMATIC DESIGN
2	2023 MAY 18	ISSUED FOR ZONING AND SITE PLAN CONTROL - RESUBMISSION #1
3	2023 JUL 13	ISSUED FOR SITE PLAN CONTROL - RESUBMISSION #2

NOTES
1. A1, A2 & A3 ARE PROPOSED CONTROLLED CATCHMENTS.
B1 & B2 ARE PROPOSED UNCONTROLLED CATCHMENTS.



CONTRACTOR MUST CHECK & VERIFY ALL DIMENSIONS ON THE JOB. 50:50 SCALE DRAWING.
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OCH FRIEL STREET / CHAPEL
200201 FRIEL STREET
221021

PROPOSED DRAINAGE AREA PLAN
Scale: 1:200
Project No: 220282300
Date: 13/07/23
C801
#18930

