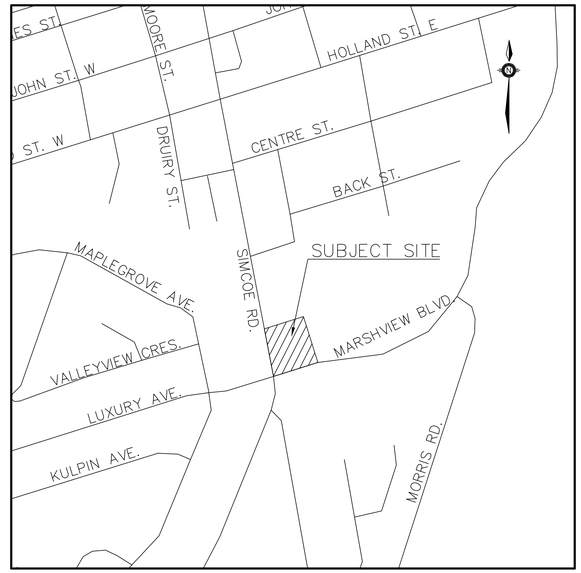
COUNTY OF SIMCOE
BRADFORD AFFORDABLE HOUSING
125 SIMCOE ROAD



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TOWN OF BRADFORD WEST GWILLIMBURY
125 SIMCOE ROAD
BRADFORD WEST GWILLIMBURY, ON, L3Z 1Y3

COUNTY OF SIMCOE
1110 HIGHWAY 26
MIDHURST, ON, L0L 1X0

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

GENERAL NOTES – GENERAL

1. THE NOTES ON THE STREET APPLY TO ALL WORKS UNLESS OTHERWISE NOTED ON THE PLAN AND PROFILE DRAWINGS AND/OR SPECIFIC DETAIL DRAWINGS.
2. THE STANDARD DRAWINGS OF THE TOWN OF BRADFORD WEST GWILLIMBURY, ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS (OPSS) AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) CONSTITUTE PLANS OF THIS CONTRACT
3. ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY TOWN OF BRADFORD WEST GWILLIMBURY STANDARD DRAWINGS, AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL RELEVANT STANDARD DRAWINGS AND SPECIFICATIONS AS REQUIRED FOR THE CONTRACT.
5. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS SHOWN ON THE ENGINEERING DRAWINGS ARE IN METERS OR MILLIMETERS.
6. ALL DIMENSIONS AND ELEVATIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
7. EXISTING SERVICES AND UTILITIES SHOWN ON THESE CONTRACT DRAWINGS ARE BASED ON THE BEST INFORMATION AVAILABLE AND THEIR LOCATION 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.
8. ALL PRIMARY HYDRO, TELECOMMUNICATION CABLE, GAS LINES AND CABLE T.V. SHALL BE PLACED UNDERGROUND IN THE LOCATIONS SHOWN ON THE ROAD SECTIONS LISTED IN THE STANDARD DRAWINGS.
9. THE STREET LIGHTING SYSTEM SHALL BE DESIGNED BY A QUALIFIED CONSULTING ENGINEER IN ACCORDANCE WITH THE ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA(IESNA) LATEST EDITION STANDARDS AND APPROVED BY THE TOWN. STREET LIGHTING SYSTEMS FOR ROADWAYS IN THE TOWN OF BRADFORD WEST GWILLIMBURY SHALL MET THE REQUIREMENTS OF THE HYDRO AUTHORITY.
10. 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 TOWN.
11. NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
12. GRANULAR MATERIAL USED FOR BACKFILL, SHALL BE PLACED IN LAYERS 150MM IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.
13. ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, TO THE SATISFACTION OF THE TOWN. ALL GRASS AND VEGETATION COVERED AREAS SHALL BE RESTORED BY PLACING 100MM OF APPROVED TOPSOIL AND NURSERY SOD OR AS DIRECTED BY THE TOWN
14. FOR GENERAL GRADING NOTES REFER TO GRADING PLANS.

GENERAL NOTES – ROADS

1. THE ROAD PAVEMENT MINIMUM STRUCTURE SHALL CONSIST OF THE FOLLOWING AND WILL BE CONFIRMED BY A SOILS CONSULTANT AND APPROVED BY THE TOWN:

   LOCAL ROAD :
   - 40MM HL3 SURFACE COURSE ASPHALT
   - 50MM HL8 BASE COURSE ASPHALT
   - 150MM GRANULAR 'A'
   - 375MM GRANULAR 'B'

   BOULEVARD AND DITCHES; – 100MM TOPSOIL AND SO.

   NATIVE SUBGRADE SHALL HAVE A CROSS–FALL OF 3% AND THE MATERIAL SHALL BE APPROVED BY A SOIL CONSULTANT AND IS SUBJECTED TO APPROVAL BY THE TOWN.
2. NATIVE SUBGRADE TO BE COMPACTED TO MINIMUM 95% STANDARD PROCTOR MINIMUM DRY DENSITY AND SHALL BE PROOF ROLLED.
3. 100MM DIAMETER PERFORATED, FILTER CLOTH WRAPPED PLASTIC CORRUGATED SUB–DRAINS WILL BE REQUIRED TO RUN CONTINUOUS ALONG BOTH SIDES OF ALL ROADS WITH CURB AND GUTTER.
4. CONCRETE CURB AND GUTTER CONFORMING TO OPSD 600.040 OR 600.070 (TWO STAGE) SHALL BE USED. CONCRETE STRENGTH IS TO BE A MINIMUM OF 30MPA AT 28 DAYS WITH 7% +/– 1.5% AIR ENTRAINMENT.
5. DRIVEWAY DEPRESSIONS SHALL BE FORMED IN THE CURB AS PER BWG STANDARD RAWING B109
6. SIDEWALK CONSTRUCTION SHALL COMPLY WITH OPSD 310.010 AND OPSD 310.030 AND SHALL BE CONSTRUCTED ON 150MM OF GRANULAR A ON A COMPACTED FOUNDATION, CONCRETE STRENGTH IS TO BE A MINIMUM OF 30MPA AT 28 DAYS WITH 7% +/– 1.5% AIR ENTRAINMENT.
7. ALL FENCING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TOWN OF BRADFORD WEST GWILLIBUR DESIGN STANDARDS.
8. ALL GRADE MUST CONFORM TO THE TOWN OF BRADFORD WEST GWILLIBUR LOT GRADING AND DRAINAGE POLICIES CURRENTLY IN EFFECT.
9. PROVIDE FROST TAPERS FOR ROAD CROSSING CULVERTS AS PER OPSD 803.030
10. DRIVEWAY CULVERTS TO BE MINIMUM 400MM DIAMETER CSP, WITH THICKNESS OF 1.6MM WITH MANUFACTURED END TREATMENT OR EQUIVALENT END PROTECTION.
11. RESIDENTIALDRIVEWAYS TO BE CONSTRUCTED WITH AMINIMUM OF 150MM GRANULAR 'A' OR AS APPROVED BY THE TOWN. DRIVEWAYS ARE TO BE PAVED WITH AMINIMUM 50MM ORHL3 ASPHALT AS PER TOWN STANDARD B109 FROM STREET TO GARAGE. OR TO DWELLING.
12. ROAD OCCUPANCY PERMIT IS REQUIRED FROM THE COUNTY OF SIMCOE AND/OR THE TOWN WORKS DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY WORK IN HEIR RESPECTIVE RIGHT–OF–WAYS. A MINIMUM 48 HOUR NOTICE IS REQUIRED.

GENERAL NOTES – SANITARY SERVICE LATERAL

1. DOUBLE SANITARY LATERAL CONNECTIONS TO BE LOCATED AT THE COMMON PROPERTY LINE OR AS INDICATED ON THE DRAWING
2. PIPE TO BE MINIMUM 150 MM DIAMETER PVC SDR28, RUBBER GASKET TYPE JOINTS. AND SHALL CONFORM TO C.S.A (B–182.2,3,4) COLOR TO BE GREEN
3. CROWLE FITTINGS SHALL BE INSTALLED ON SERVICES AT PROPERTY LINE.
4. MINIMUM DEPTH OF LATERAL AT PROPERTY LINE SHALL BE 2.7M MEASURED FROM THE SEWER OBVERT TO FINISHED GROUND SURFACE ELEVATION, UNLESS NOTED OTHERWISE.
5. MINIMUM PIPE SLOPE TO BE 2% MAXIMUM 8%(SEE OPSD 1006.020)
6. SANITARY LATERAL CONNECTIONS TO BE EXTENDED 2.5M BEYOND PROPERTY LINE IN TO THE LOTS.
7. THE LOCATION OF THE END OF EACH LATERAL TO BE MARKED 2.5M PAST THE PROPERTY LINE WITH A 50MM*100MM WOOD MARKER. PAINTED GREEN EXTENDING FROM SERVICE INVERT TO 300MM ABOVE PROPOSED FINISHED GROUND LEVEL.
8. ALL CONNECTIONS TO THE NEW SANITARY SHALL BE MADE WITH APPROVED SADDLES
9. ALL CONNECTIONS TO EXISTING SANITARY MAINS SHALL BE MADE WITH APPROVED SADDLES

GENERAL NOTES – SANITARY SEWERS

1. SANITARY SEWER TO BE GENERALLY LOCATED 1.5M NORTH OR EAST OF THE CENTERLINE OF THE ROAD UNLESS NOTED OTHERWISE
2. PVC PIPE MAY ONLY BE USED ON SANITARY SEWERS UP TO AND INCLUDING 375MM IN DIAMETER. REINFORCED CONCRETE SHALL BE USED FOR SEWERS 450MM DIAMETER AND LARGER.

   REINFORCED CONCRETE SHALL BE STEEL REINFORCED AND CONFIRM TO C.S.A. SPECIFICATION A275.2,CLASS 50–D,65–D,100–D AND 140–D AS REQUIRED.

   PVC SHALL CONFORM TO C.S.A SPECIFICATION B182.2 OR LATEST REVISIONS THEROF, DIMENSION RATIO (DR) OF PVC PIPE SEWER SHALL NOT EXCEED 35.
3. ALL SANITARY SERVICE CONNECTIONS FOR RESIDENTIAL USES SHALL BE CONSTRUCTED OF THE FOLLOWING PIPE MATERIALS AND SPEC

   PVC CSA B182.1
   CLASS; A; A: A: A: DR28MINIMUM
   MATERIAL: PVC COMPOUND 12454–B, 12454–C, 12364–C, ALL CONFORMING TO
   JOINTS: A: A: A: B: BEL AND SPIGDT WITH RUBBER GASKETS MOE APPROVED SUPPLIER

   FLEXIBLE PPE SHALL BE PVC DR35 OR APPROVED EQUIVALENT,WITH RUBBER GASKET TYPE JOINTS AND SHALL CONFIRM TO C.S.A (B–182.2,3,4). RIGID PIPE SHALL BE REINFORCED CONCRETE CONFIRMING TO C.S.A STANDARD A257.2–M19B2 CLASS100D. PIPE JOINTS TO BE RUBBER GASKETS AS PER C.S.A STANDARDS A257.3 MAXIMUM PIPE DEFLECTION FROM COMPINED LIVE AND DEADLOADING SHALL NOT EXCEED ANY CSA, OPS OR MANUFACTURERS RECOMMENDED SPECIFICATIONS.
4. THE TYPE OF BEDDING SHALL BE SELECTED TO SUIT LOADING AND PROPOSED CONSTRUCTION CONDITIONS. FLEXIBLE SEWER SHALL BE CONSTRUCTED WITH BEDDING AND BACKFILL AS PER OPSD802.010 (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 TOWN
5. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH DEPTH OF COVER GREATER THAN 6 MM UNLESS SPECIFICALLY APPROVED BY THE ENGINEER.
6. TRENCH BACKFILL SHOULD BE PLACED IN 200MM LIFTS AND COMPACTED TO 95%SPMDD.
7. 'CLAY PLUGS' SHALL BE USED IN THE TRENCH AND BE PLACED 2 TO 3 METER UPSTREAM FROM ANY MANHOLE WHIC IS SUSPECTED OF BEING SUSCEPTIBLE TO HIGH WATER LEVELS OF INFLOW/INFILTRATION
8. SANITARY MANHOLES SHALL BE IN ACCORDANCE WITH OPSD MANHOLE DETAILS. PRECAST MANHOLES SHALL CONFORMTO ASTM SPECIFICATION C478 LATEST VERSION. PRECAST MANHOLES SHALL BE IN ACCORDANCE WITH OPSD 701.010(1200MM DIAMETER). PRECAST MANHOLE GREATER THAN 5M DEEP SHALL BE CONSTRUCTED WITH A SAFETY PLATFORM IN ACCORDANCE WITH OPSD 404.020. FRAME AND COVER SHALL BE IN ACCORDANCE WITH OPSD 401.010 TYPE "A"
9. MAINTENANCE HOLE TOPS(FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE, AND THEN ADJUSTED TO FINAL GRADE WHEN TP LIFT OF ASPHALT IS PLACED. GRADE AND CROSSFALL ADJUSTMENTS SHALL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE. CONCRETE MODULAR ADJUSTMENT RINGS ARE TO BE USED TO ADJUST THE MANHOLE TO FINAL GRADE.
10. ALL PIPE CONNECTIONS AT MANHOLES SHALL BE COMPLETED USING KORE–N–SEAL RUBBER GASKETED ASSEMBLIES, OR APPROVED EQUAL. ALL CONNECTIONS TO THE SANITARY MAIN SHALL BE MADE WITH PRE–MANUFACTURED APPROVED TEES
11. MANHOLE BENCHING SHALL CONFORM WITH OPSD 701.021 WITH BENCHING TO THE OBVERT.
12. DROP STRUCTURES SHALL CONFORM WITH OPSD 1003.010 AND 1003.020.

GENERAL NOTES – STORM SEWER

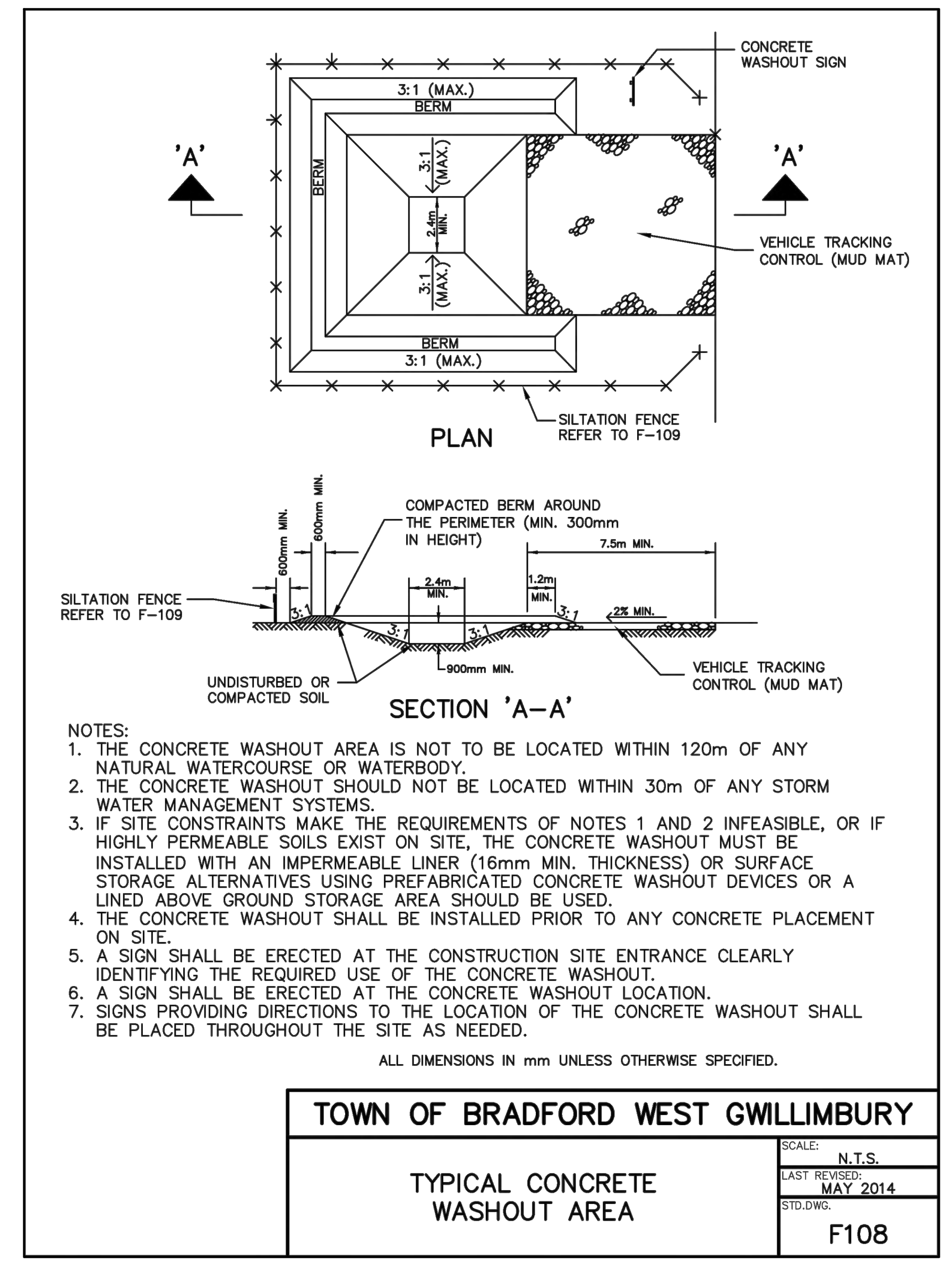
1. STORM SEWER TO BE LOCATED TYPICALLY 1.5M TO THE WEST OR SOUTH OF CENTERLINE OF THE ROAD
2. PIPE SHALL BE CONCRETE WITH A MINIMUM DIAMETER OF 300MM AND SHALL CONFORM TO THE REQUIREMENTS OF C.S.A. SPECIFICATION A257–M 1982 FOR THE CLASSES SHOWN BELOW;
   a) NON– REINFORCED CONCRETE PIPE, CSA STANDARD A257.1 CLASS 1,2,3.
   b) REINFORCED CONCRETE PIPE, CSA STANDARD A257,2 STRENGTH CLASS 50–D, 65–D, 100–D AND 140–D.
3. ALL STORM SEWERS OVER 450MM DIAMETER SHALL BE CONSTRUCTED WITH REINFORCED CONCRETE PIPE.
4. SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD 802.030, UNLESS OTHERWISE SPECIFIED BY A GEOTECHNICAL CONSULTANT AND APPROVED BY THE TOWN
5. TRENCH BACKFILL SHOULD BE PLACED IN 200MM LIFTS AND COMPACTED TO 95% SPMDD.
6. ALL STORM SEWER MANHOLES TO BE BENCHED IN ACCORDANCE WITH OPSD 701.021.
7. DROP STRUCTURES SHALL BE CONFORM WITH OPSD 1003.010 AND 1003.020.
8. MANHOLE TO ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE, FRAME AND COVER TO BE PER OPSD 401.010, TYPE 'B'. GRADE AND CROSSFALL ADJUSTMENT SHALL BE MADE USING PRODUCTS SPECIFICALLY MANUFACTURED FOR THAT PURPOSE, CONCRETE MODULAR ADJUSTMENT RING ARE TO BE USED TO ADJUST THE MANHOLE TO FINAL GRADE.
9. CATCHBASINS MUST BE OF THE PRECAST TYPE AS SHOWN ON THE OPSD DRAWING 701.01 OR 705.02.
10. CATCHBASINS LEADS SHALL BE HIGH DENSITY POLYETHYLENE PIPE OR PVC PIPE WITH MINIMUM SIZE AS FOLLOWS:

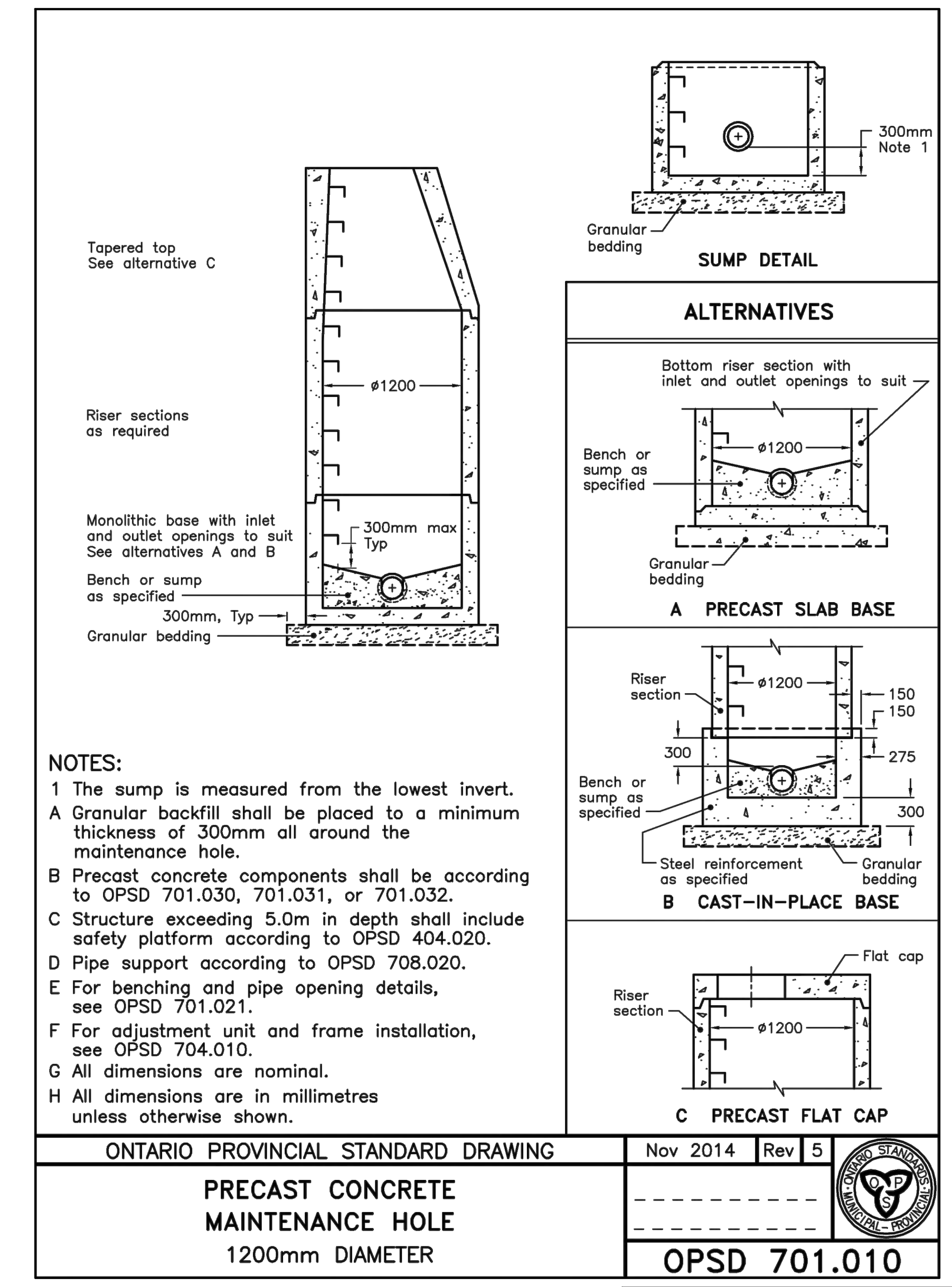
SINGLE CATCHBASIN	250MM DIAMETER
DOUBLE CATCHBASIN	300MM DIAMETER
REAR LOT CATCHBASIN	250MM DIAMETER

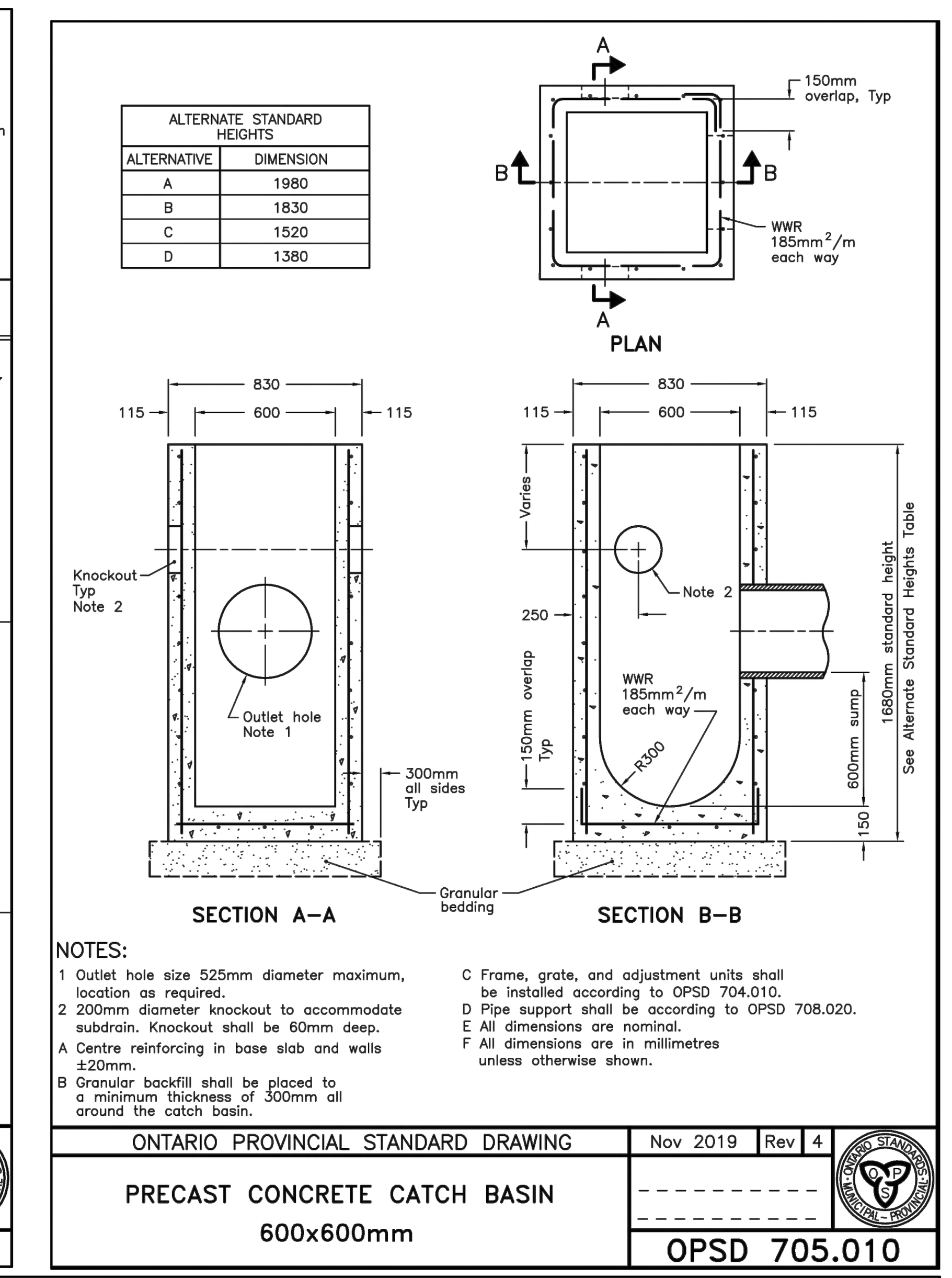
11. THE FRAM AND GRATE FOR CATCHBASINS SHALL BE OPSD 400.100 CATCHBASIN GRATES ARE TO BE RAMPED USING HOT– MIX ASPHALT. CATCHBASINS AT LOW POINTS SHALL BE SET TO BASE ASPHALT AND ADJUSTED TO SURFACE COURSE
12. REAR LOT CATCHBASIN LEAD TO BE CONCRETE ENCASED FROM THE PROPERTY LINE TO THE CATCHBASIN, FRAME AND GRATE TO BE BIRDCAGE STYLE AS PER OPSD 400.120.
13. WHERE CATCHBASIN ARE CONNECTED DIRECTLY TO SEWERS, PRE MANUFACTURED TEES SHALL BE USED
14. STORM SEWERS SHALL BE 150MM DIAMETER PVC OR 28, WHITE IN COLOR, ALL OTHER DETAILS ARE SAME AS THOSE FOR SANITARY SERVICE EXCEPT, WOOD MARKERS TO BE PAINTE BLACK

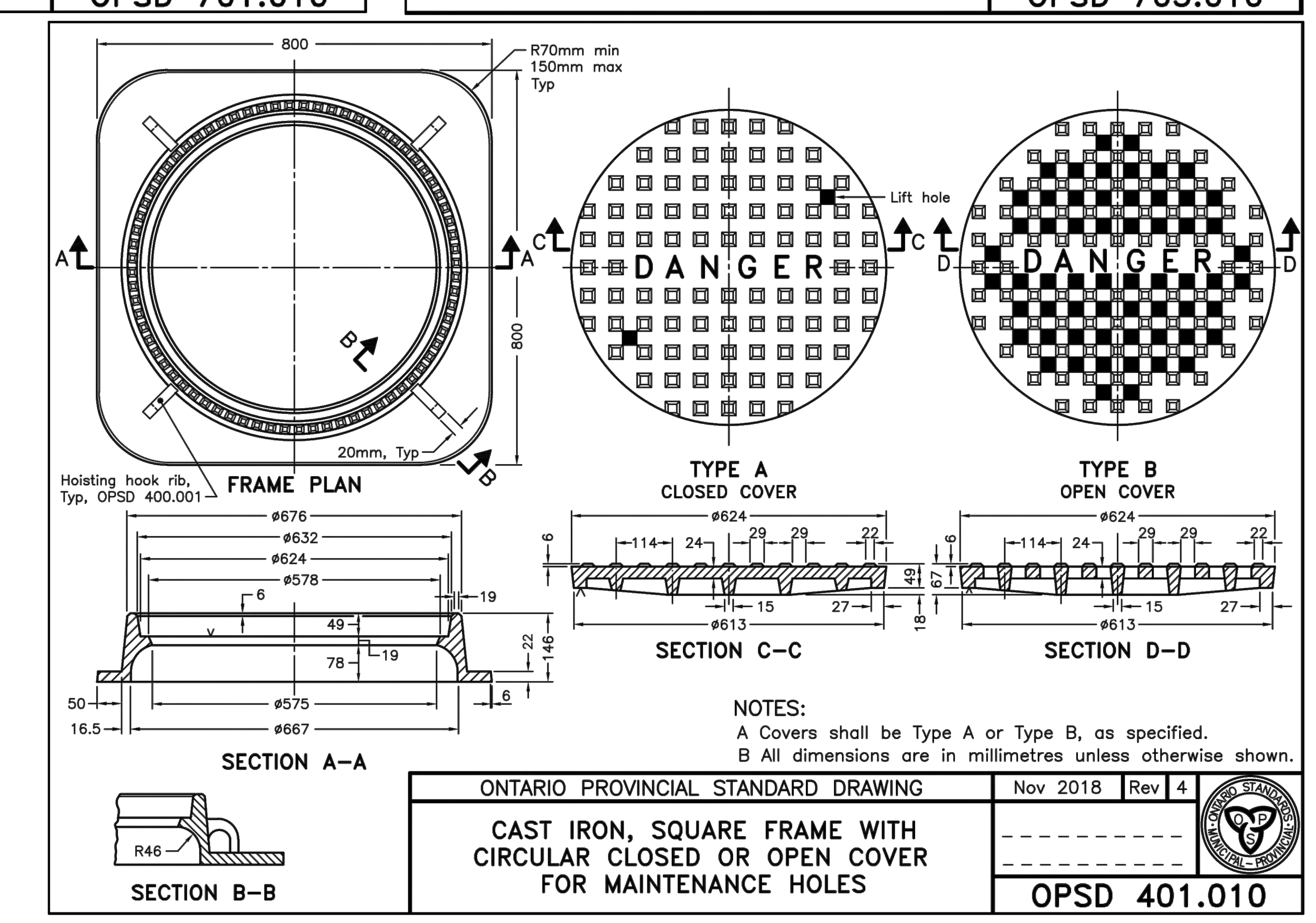
GENERAL NOTES – WATER SERVICES

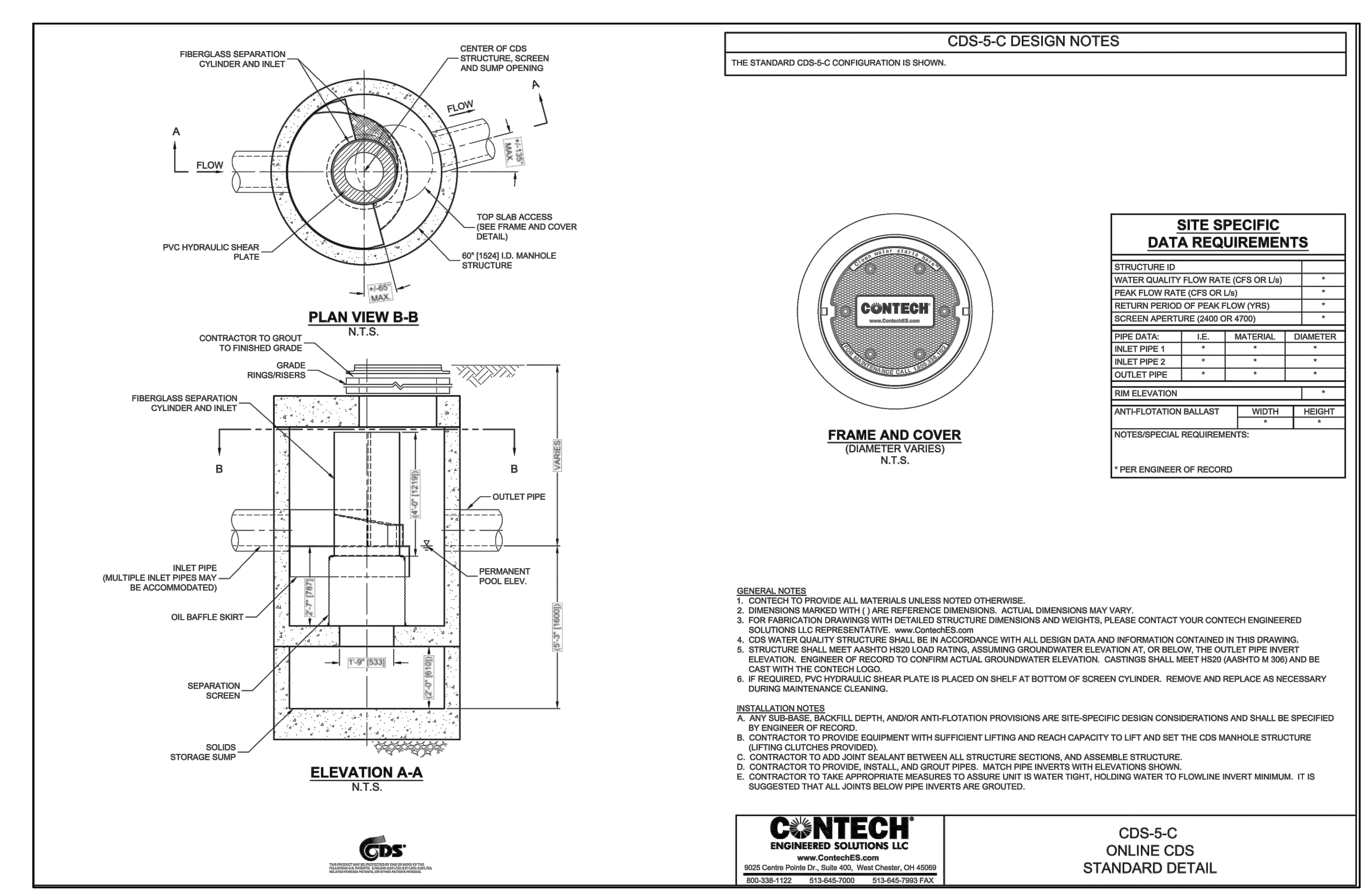
1. EACH HOUSING UNIT SHALL HAVE SEPARATE 19MM MINIMUM DIAMETER, TYPE K COPPER WATER SERVICE
2. WATER SEERVICE TO BE LOCATED AT THE CENTRE OF THE LOT.(SEE DWG C101& C102)
3. THE MINIMUM DEPTH OF COVER IS 1.8M
4. WATER SERVICE SHALL BE INSTALLED TO AVOID DRIVEWAY APPROACHES
5. NO COUPLING WILL BE ALLOWED BETWEEN THE CURB STOP AND MAN STOP.
6. STAINLESS STEEL SERVICE SADDLES SHALL BE USED WHEN TAPPING INTO THE PVC WATER MAIN.
7. A REMOTE READOUT WATER METER WILL BE REQUIRED ON EACH RESIDENCE. MAKE AND MODEL IS TO BE ROCKWELL/SENSUS ECR METER($\frac{5}{8}$' *$\frac{3}{4}$') COMPLETE WITH A REMOTE READER LOCATED ON AN OUTSIDE WALL, ADJACENT TO THE METER.(SEE DWG D106)











NO.	REVISION NOTE	DATE	BY
3.	2ND SUBMISSION	04/20/22	JP
2.	1ST SUBMISSION	12/15/21	AA
1.	REVISED FOR COUNCIL REPORT	04/30/21	AA

BENCHMARK: ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE TOWN OF BRADFORD BENCHMARK N° 848154 HAVING A PUBLISHED ELEVATION OF 237.913 METRES.

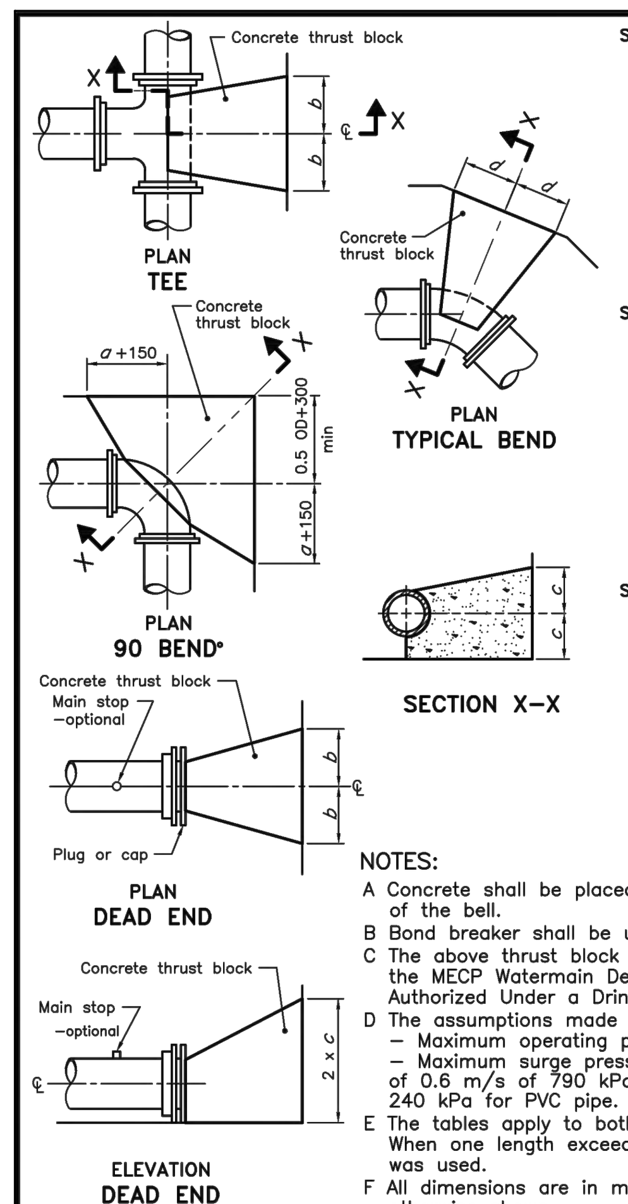
LICENSED PROFESSIONAL ENGINEER
G. M. PEARSON
100061986
4/20/22
PROVINCE OF ONTARIO

COUNTY OF SIMCOE
AFFORDABLE HOUSING – BRADFORD WEST GWILLIMBURY, 125 SIMCOE ROAD

NOTES AND DETAILS

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE	AS SHOWN	PROJECT #	20055
DRAWN BY	AA	VERT SCALE		DRAWING #	ND–1
CHECKED BY	MWD	DATE	JUNE 2020	REVISION #	3



SOILS WITH TYPICAL BEARING STRENGTH OF 100 TO 199 kPa

PIPE DIA	Dimensions a	b	c	d
100	150	250	200	200
150	250	400	250	300
200	400	550	300	450
250	500	650	400	500
300	650	800	450	650
350	700	900	550	700
400	900	1050	600	850

SOILS WITH TYPICAL BEARING STRENGTH OF 200 TO 299 kPa

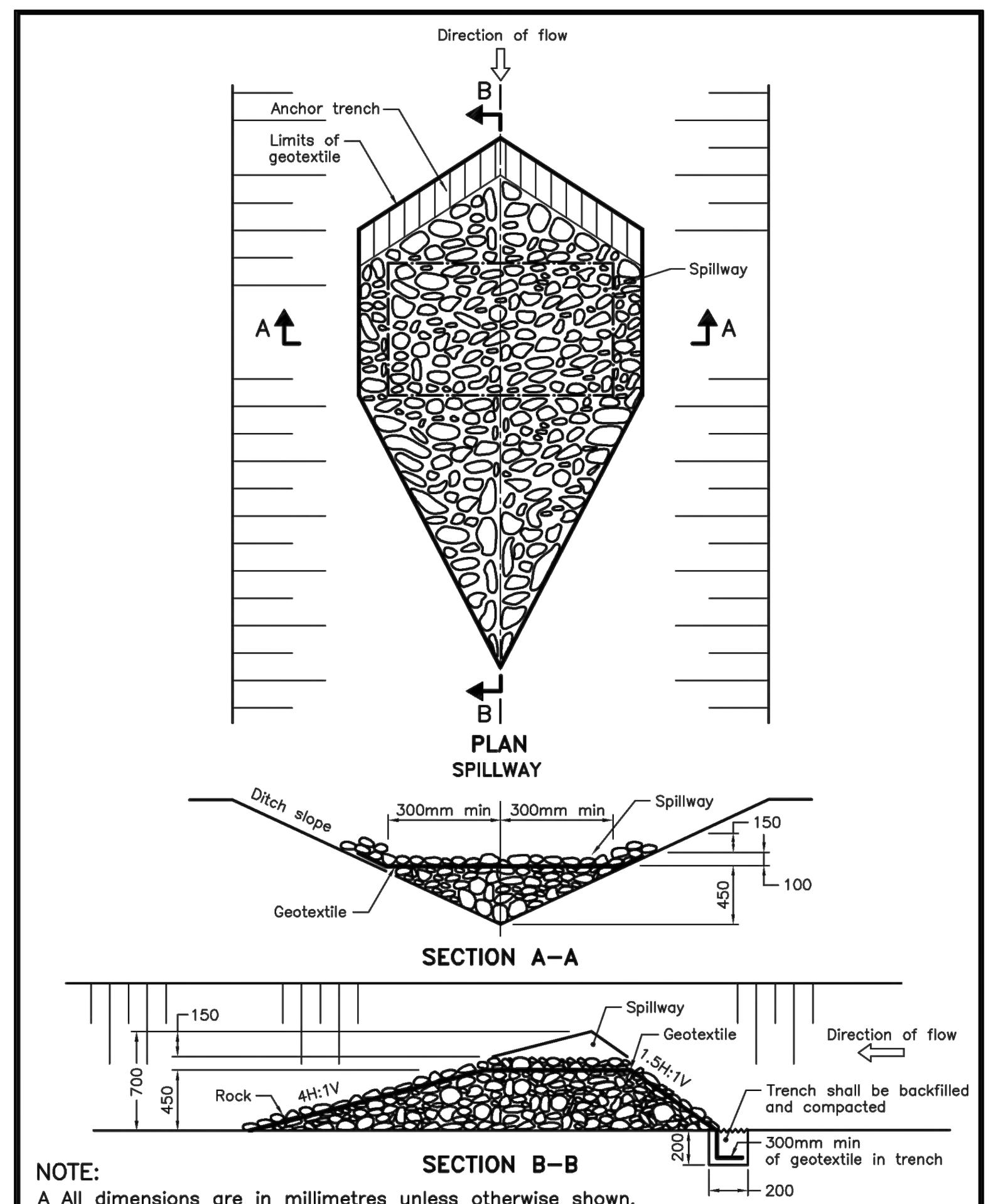
PIPE DIA	Dimensions a	b	c	d
100	150	200	150	150
150	250	250	200	200
200	400	350	250	300
250	500	450	300	350
300	650	500	350	400
350	700	600	400	500
400	900	750	400	600

SOILS WITH TYPICAL BEARING STRENGTH OF 300 kPa AND OVER

PIPE DIA	Dimensions a	b	c	d
100	150	150	150	150
150	250	200	200	200
200	400	300	200	250
250	500	400	250	300
300	650	450	300	300
350	700	550	350	350
400	900	650	350	450

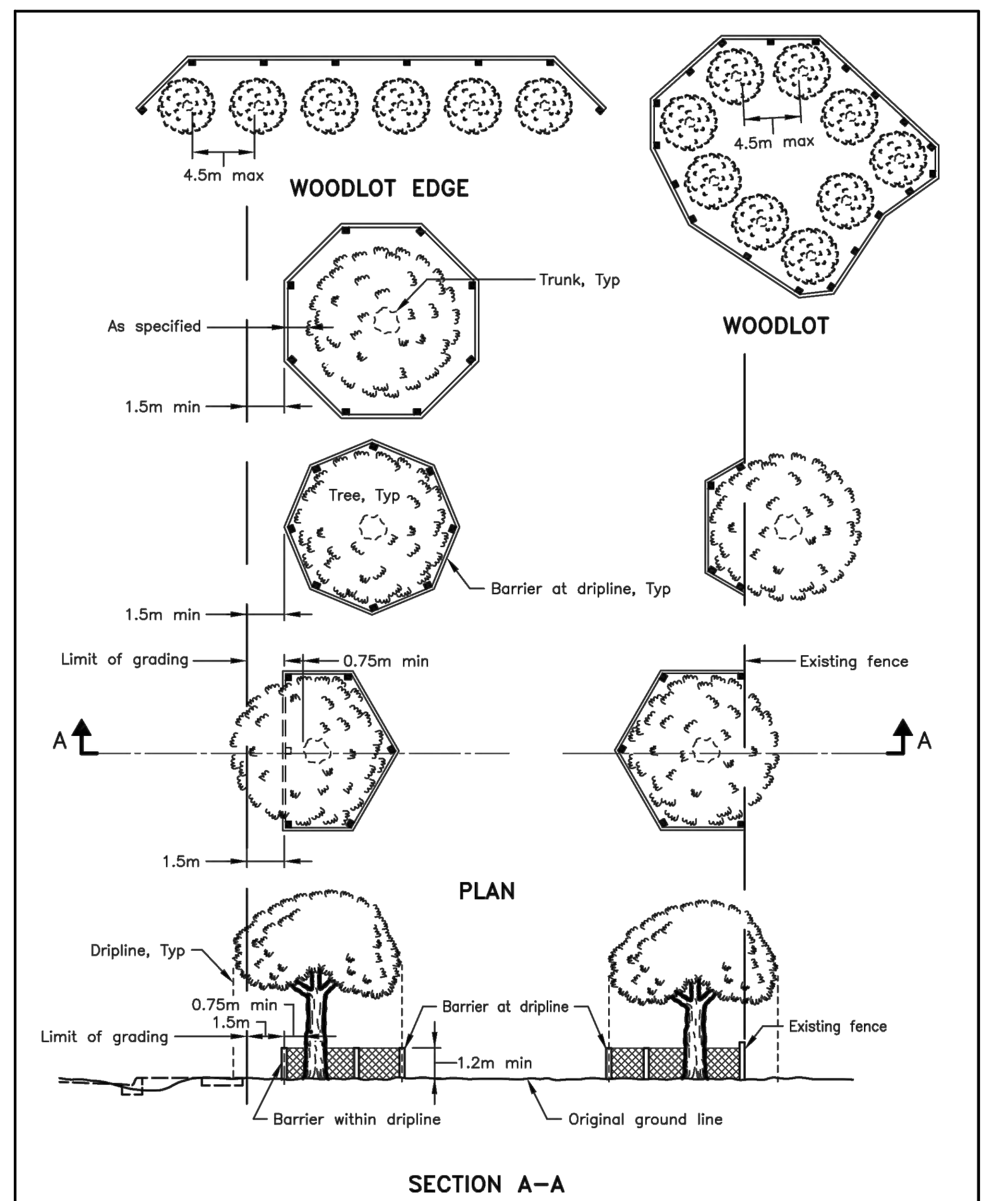
NOTES:
A Concrete shall be placed to within 50mm of the face of the bell.
B Bond breaker shall be used between concrete and fittings.
C The above thrust block dimensions meet or exceed the MECP Watermain Design Criteria for Future Alterations Authorized Under a Drinking Water Works Permit.
D The assumptions made for the above calculations are:
– Maximum operating pressure of 690 kPa,
– Maximum surge pressure with a flow velocity change of 0.6 m/s of 790 kPa for Class 52 DI pipe and 240 kPa for PVC pipe.
E The tables apply to both ductile iron and PVC pipe. When one length exceeded the other, the longer length was used.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2018 | Rev 3
CONCRETE THRUST BLOCKS FOR TEES, PLUGS, AND HORIZONTAL BENDS
OPSD 1103.010

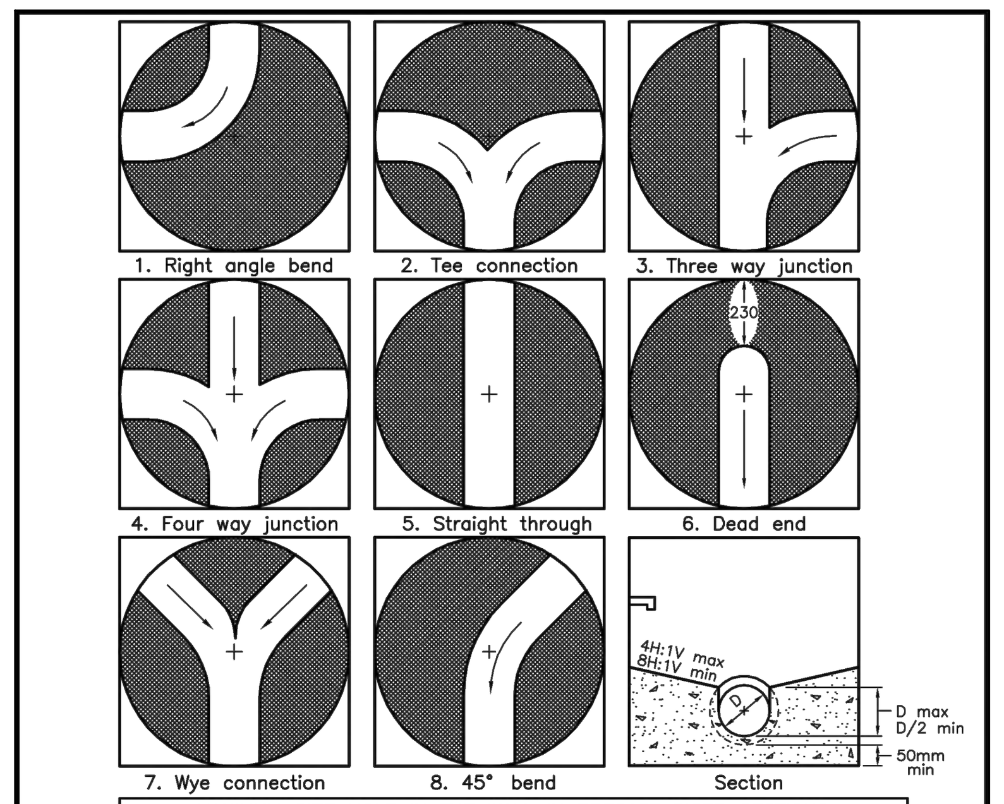


NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2015 | Rev 2
TEMPORARY ROCK FLOW CHECK DAM
V–DITCH
OPSD 219.210



ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2019 | Rev 1
BARRIER FOR TREE PROTECTION
OPSD 220.010



MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS

Maintenance Hole Diameter	No. 1–4	No. 5 and 6	No. 8	No.7 Inlet Hole	No.7 Outlet Hole
1200	700	860	780	700	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

NOTES:
1 Slopes shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand–finshed, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be prebenched at the manufacturer with standardized benching slope and channel orientation.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2014 | Rev 4
MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES
OPSD 701.021

StormTech ADS

STORMTECH SC-740 CHAMBER

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

STORMTECH SC-740 CHAMBER
(not to scale)

Nominal Chamber Specifications

Size (L x W x H)
85.4" x 51" x 30"
2,170 mm x 1,295 mm x 762 mm

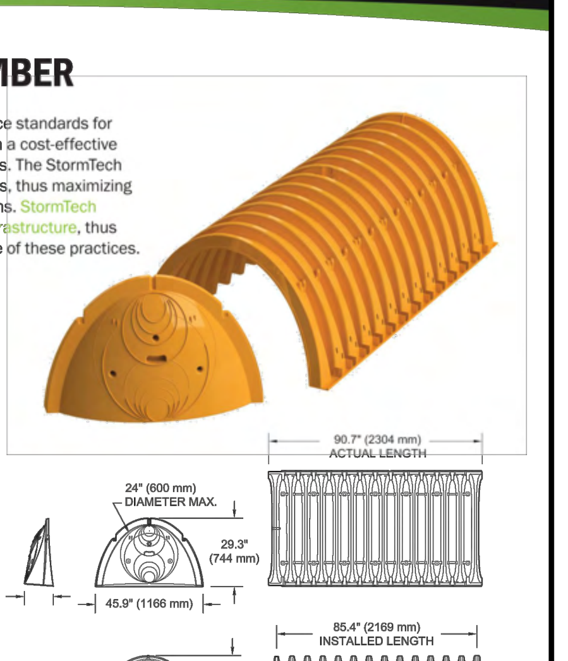
Chamber Storage
45.9 ft³ (1.30 m³)

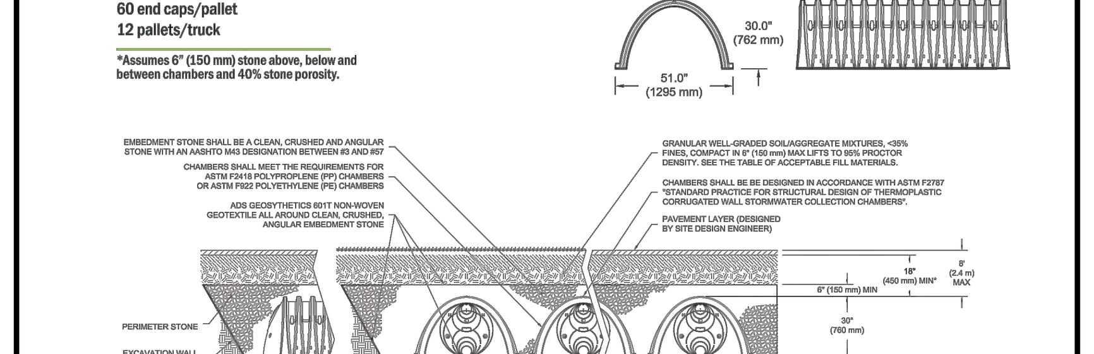
Min. Installed Storage*
74.9 ft³ (2.12 m³)

Weight
74.0 lbs (33.6 kg)

Shipping
30 chambers/pallet
60 end caps/pallet
12 pallets/truck

*Assumes 6" (150 mm) stone above, below and between chambers and 40% stone porosity.





StormTech ADS

SC-740 CUMULATIVE STORAGE VOLUMES PER CHAMBER

Assumes 40% Stone Porosity. Calculations are Based Upon a 6" (150 mm) Stone Base Under Chambers.

Depth of Water in System Inches (mm)		Cumulative Chamber Storage ft³ (m³)	Total System Cumulative Storage ft³ (m³)
42 (1067)	Stone Cover	45.90 (1.300)	74.90 (2.121)
41 (1041)		45.90 (1.300)	73.77 (2.089)
40 (1016)		45.90 (1.300)	72.64 (2.057)
39 (991)		45.90 (1.300)	71.52 (2.025)
38 (965)		45.90 (1.300)	70.39 (1.993)
37 (940)		45.90 (1.300)	69.26 (1.961)
36 (914)		45.90 (1.300)	68.14 (1.929)
35 (889)		45.85 (1.298)	66.98 (1.897)
34 (864)		45.69 (1.294)	65.75 (1.862)
33 (838)		45.41 (1.286)	64.46 (1.825)
32 (813)		44.81 (1.269)	62.97 (1.783)
31 (787)		44.01 (1.246)	61.36 (1.737)
30 (762)		43.06 (1.219)	59.66 (1.689)
29 (737)		41.98 (1.189)	57.89 (1.639)
28 (711)		40.80 (1.155)	56.05 (1.587)
27 (686)		39.54 (1.120)	54.17 (1.534)
26 (660)		38.18 (1.081)	52.23 (1.479)
25 (635)		36.74 (1.040)	50.23 (1.422)
24 (610)		35.22 (0.997)	48.19 (1.365)
23 (584)		33.64 (0.953)	46.11 (1.306)
22 (559)		31.99 (0.906)	44.00 (1.246)
21 (533)		30.29 (0.858)	1.85 (1.185)
20 (508)		28.54 (0.808)	39.67 (1.123)
19 (483)		26.74 (0.757)	37.47 (1.061)
18 (457)		24.89 (0.705)	35.23 (0.997)
17 (432)		23.00 (0.651)	32.96 (0.939)
16 (406)		21.06 (0.596)	30.68 (0.869)
15 (381)		19.09 (0.541)	28.36 (0.803)
14 (356)		17.08 (0.484)	26.03 (0.737)
13 (330)		15.04 (0.426)	23.68 (0.670)
12 (305)		12.97 (0.367)	21.31 (0.608)
11 (279)		10.87 (0.309)	18.92 (0.535)
10 (254)		8.74 (0.247)	16.51 (0.468)
9 (229)		6.58 (0.186)	14.09 (0.399)
8 (203)		4.41 (0.125)	11.66 (0.330)
7 (178)		2.21 (0.063)	9.21 (0.264)
6 (152)	Stone Foundation	0 (0)	6.76 (0.191)
5 (127)		0 (0)	5.63 (0.160)
4 (102)		0 (0)	4.51 (0.128)
3 (76)		0 (0)	3.38 (0.096)
2 (51)		0 (0)	2.25 (0.064)
1 (25)		0 (0)	1.13 (0.032)

Note: Add 1.13 ft³ (0.032 m³) of storage for each additional inch (25 mm) of stone foundation.

STORAGE VOLUME PER CHAMBER FT³ (M³)

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm) 6 (150)	12 (300)	18 (450)
SC-740 Chamber	45.9 (1.3)	74.9 (2.1)	81.7 (2.3)	88.4 (2.5)

Note: Assumes 6" (150 mm) stone above chambers, 6" (150 mm) row spacing and 40% stone porosity.

AMOUNT OF STONE PER CHAMBER

ENGLISH TONS (yds³)	Stone Foundation Depth 6"	12"	18"
SC-740	3.8 (2.8)	4.6 (3.3)	5.5 (3.9)
METRIC KILOGRAMS (m³)	150 mm	300 mm	450 mm
SC-740	3,450 (2.1)	4,170 (2.5)	4,490 (3.0)

Note: Assumes 6" (150 mm) of stone above and between chambers.

VOLUME EXCAVATION PER CHAMBER YD³ (M³)

	Stone Foundation Depth 6 (150)	12 (300)	18 (450)
SC-740	5.5 (4.2)	6.2 (4.7)	6.8 (5.2)

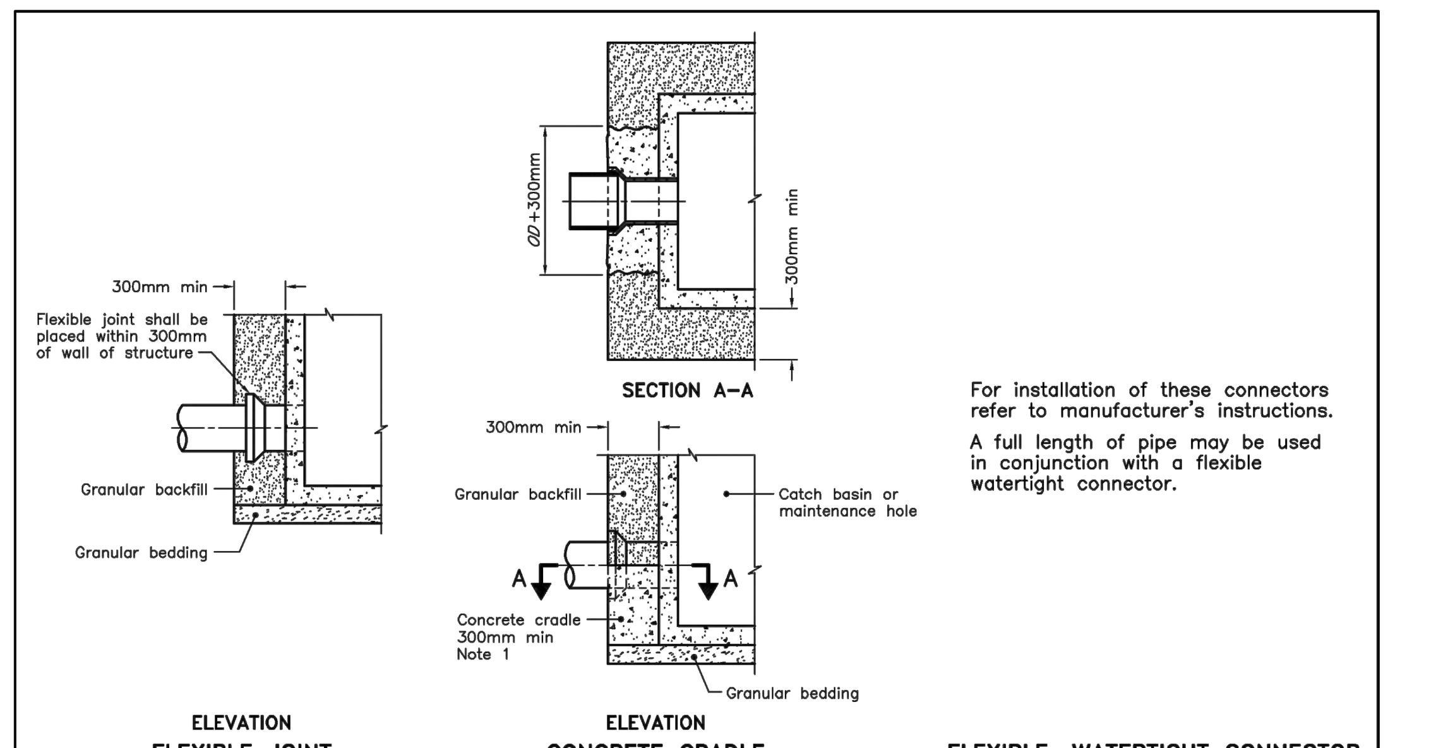
Note: Assumes 6" (150 mm) of row separation and 18" (450 mm) of cover. The volume of excavation will vary as depth of cover increases.

Working on a project? Visit us at www.stormtech.com and utilize the StormTech Design Tool

For more information on the StormTech SC-740 Chamber and other ADS products, please contact our Customer Service Representatives at 1-800-821-6710

THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS™

Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

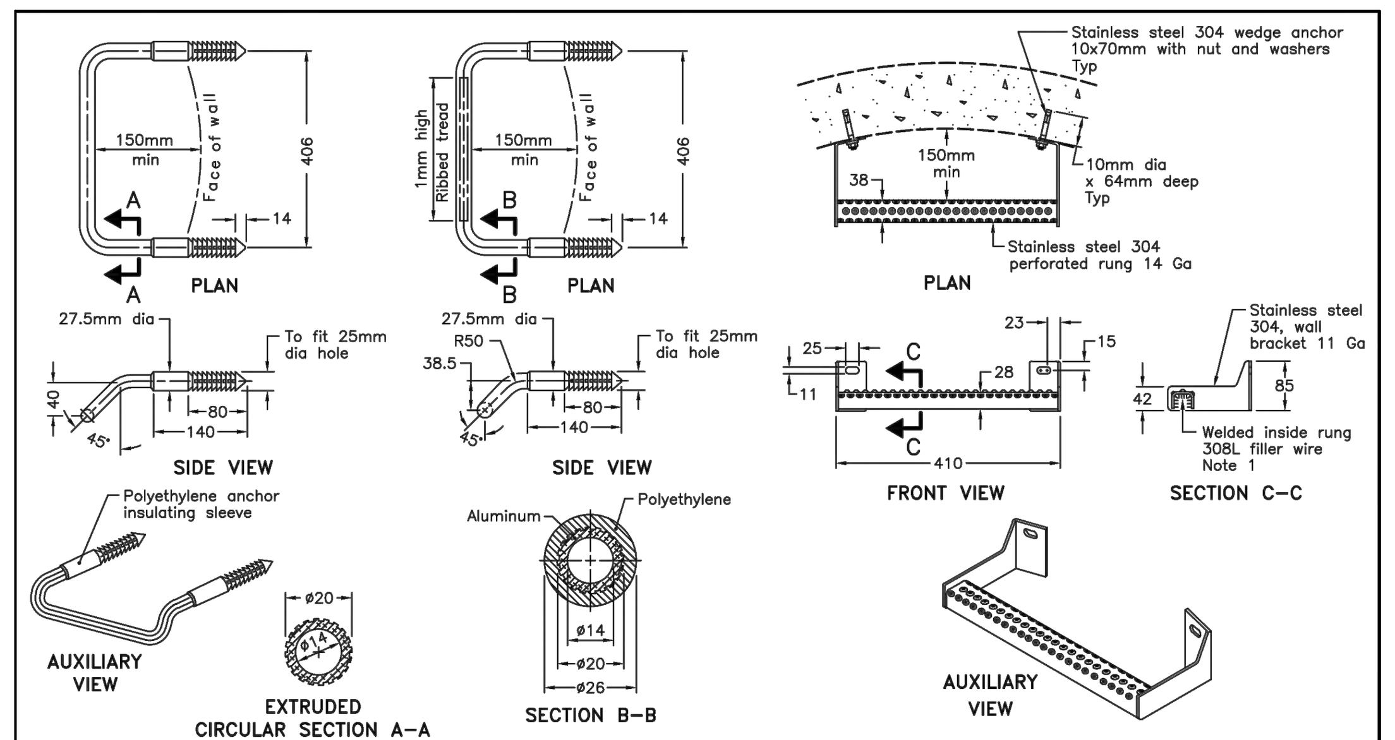


For installation of these connectors refer to manufacturer's instructions.
A full length of pipe may be used in conjunction with a flexible watertight connector.

FLEXIBLE, WATERTIGHT CONNECTOR RIGID AND FLEXIBLE PIPE

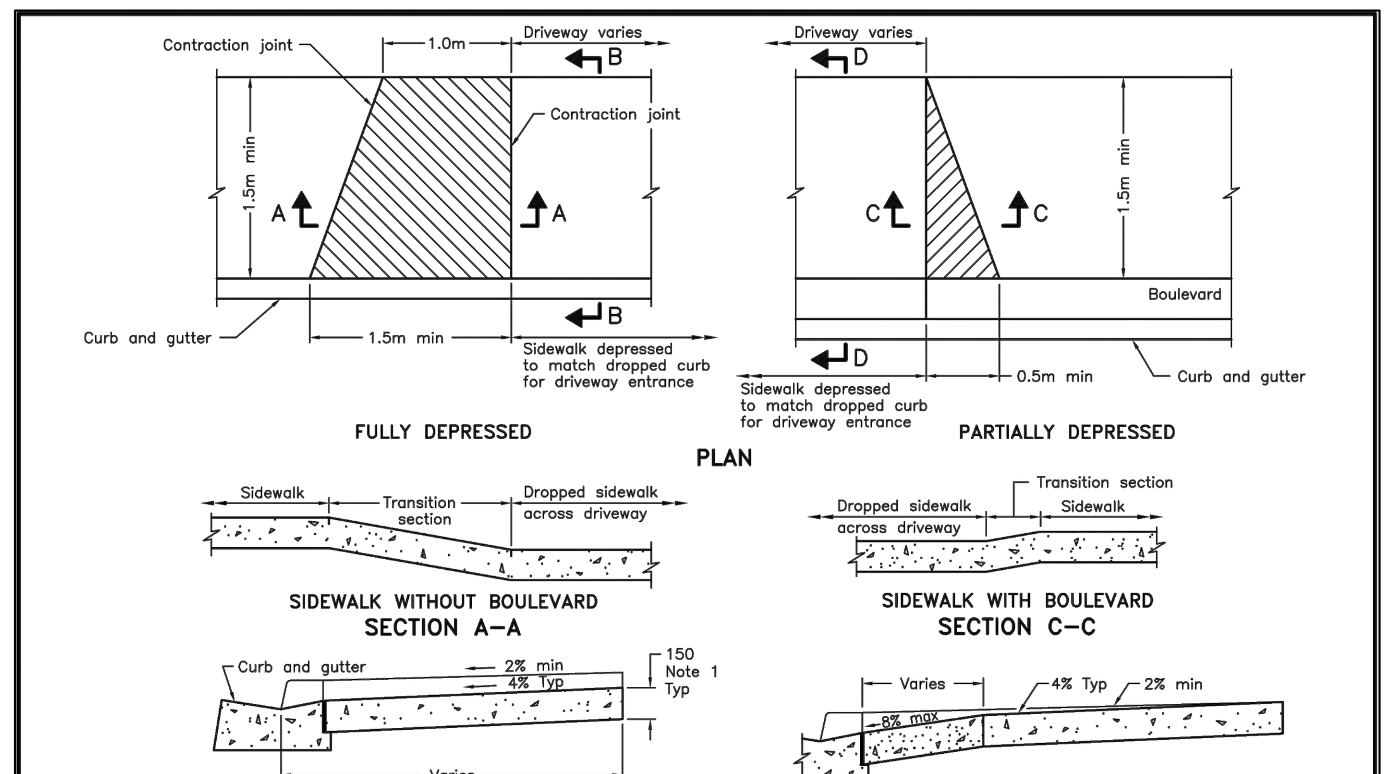
NOTES:
1 Pipe shall be supported with concrete or unshrinkable fill to the first pipe joint.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2016 | Rev 4
SUPPORT FOR PIPE AT CATCH BASIN OR MAINTENANCE HOLE
OPSD 708.020



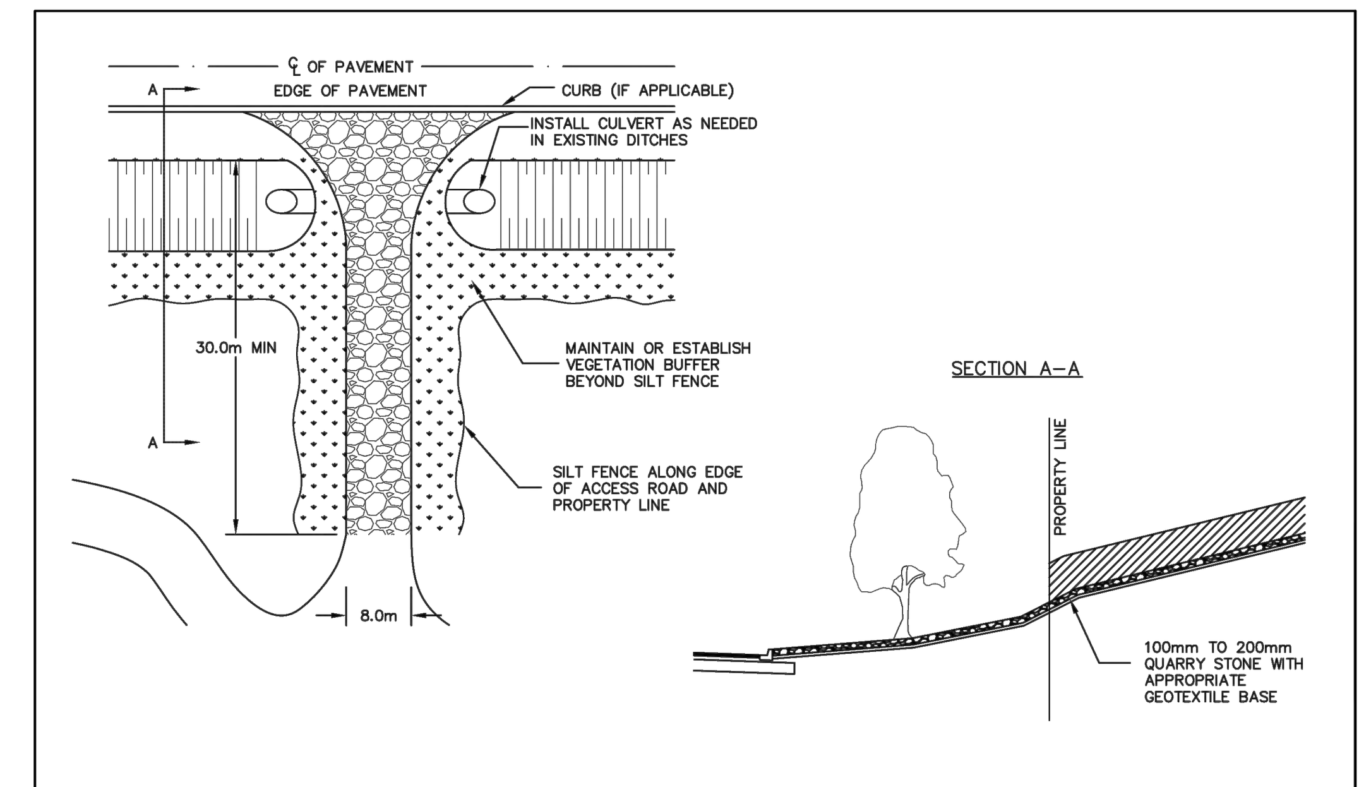
NOTE:
1 The company undertaking welded fabrication shall be certified according to CSA W47.1. All welding shall be according to CSA W59.
A All aluminum components shall be 6000 series structural aluminum.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2018 | Rev 4
MAINTENANCE HOLE STEPS
HOLLOW
OPSD 405.010



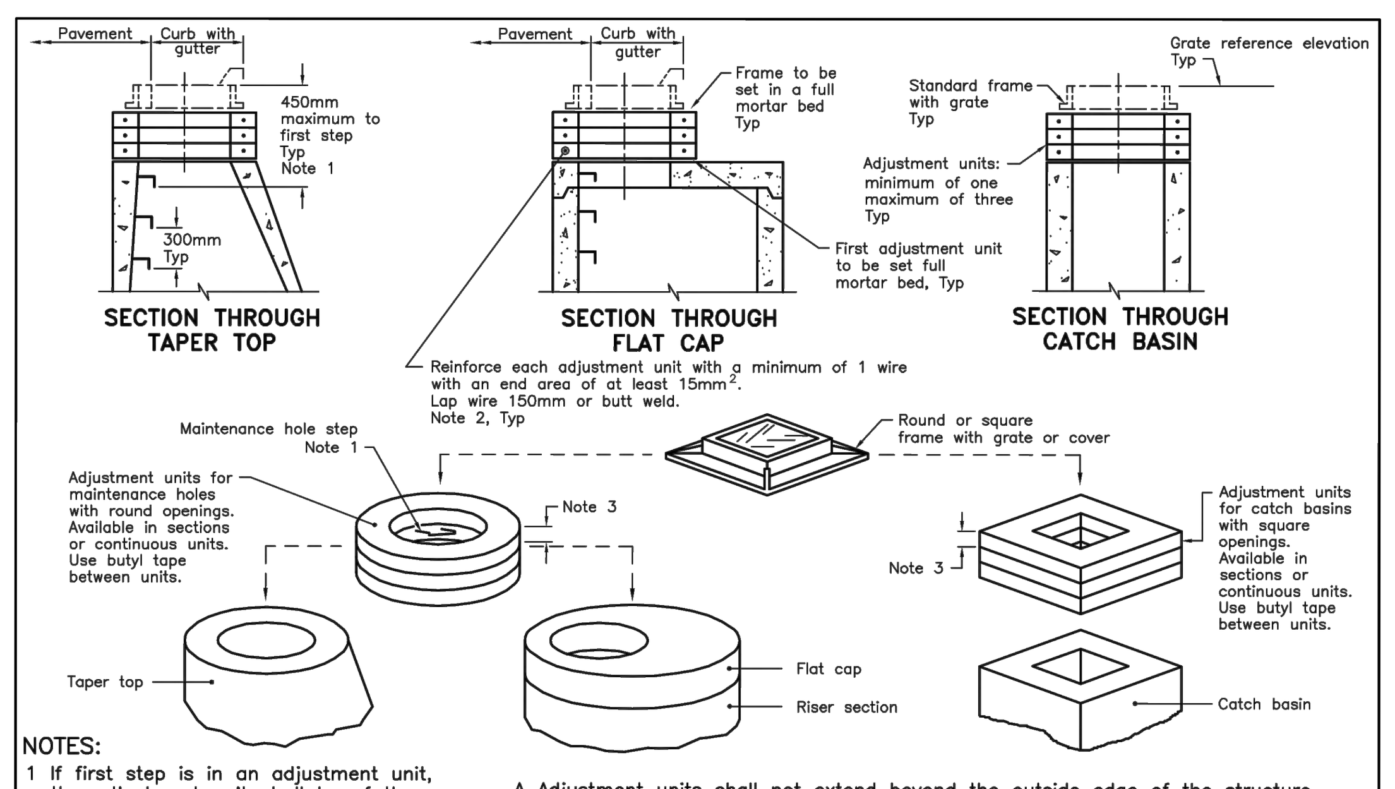
NOTES:
1 At commercial and industrial driveways, the thickness shall be 200mm.
A For contraction joint detail, see OPSD 310.010.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2019 | Rev 3
CONCRETE SIDEWALK DRIVEWAY ENTRANCE DETAILS
OPSD 310.050



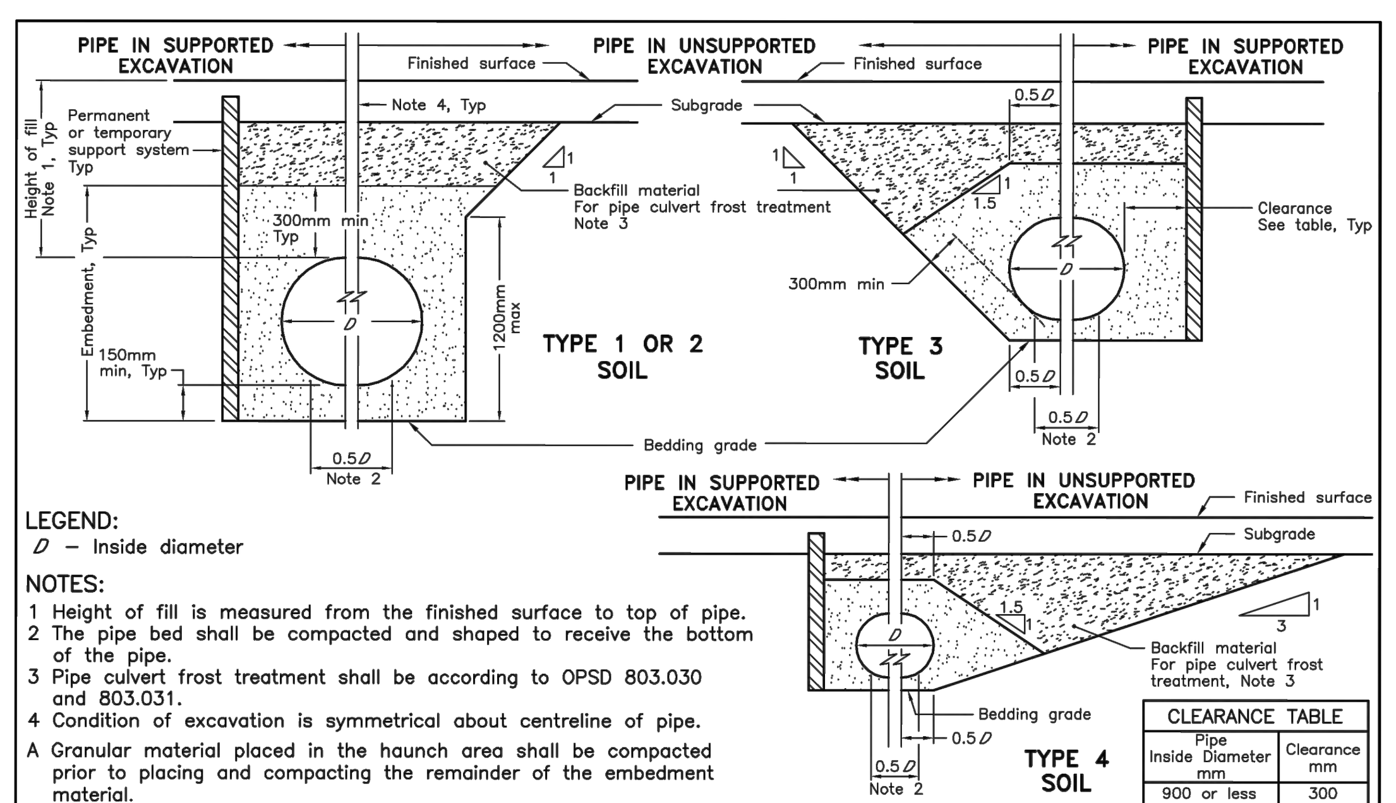
NOTES:
1. PURPOSE OF CONSTRUCTION MAT IS TO MINIMIZE TRANSPORTATION OF SEDIMENT ONTO ROADWAYS.
2. CONSTRUCTION MAT IS TO BE INSTALLED AS THE FIRST STEP IN THE SITE ALTERATION PROCESS.
3. CONSTRUCTION MATS ARE REQUIRED WHERE PAVED ROADS ARE WITHIN 300m OF THE SITE.

CONSTRUCTION ENTRANCE MAT
SCALE: N.T.S.
LAST REVISED: NOV 2014
STD.DWG.



NOTES:
1 If first step is in an adjustment unit, the adjustment unit shall be of the type manufactured with a step in place.
2 Centre reinforcing in adjustment unit ±10mm.
3 Round and square adjustment units are available in sizes of 50, 75, 100, 150, and 300mm.
A Adjustment units shall not extend beyond the outside edge of the structure.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2014 | Rev 3
PRECAST CONCRETE ADJUSTMENT UNITS FOR MAINTENANCE HOLES, CATCH BASINS, AND VALVE CHAMBERS
OPSD 704.010

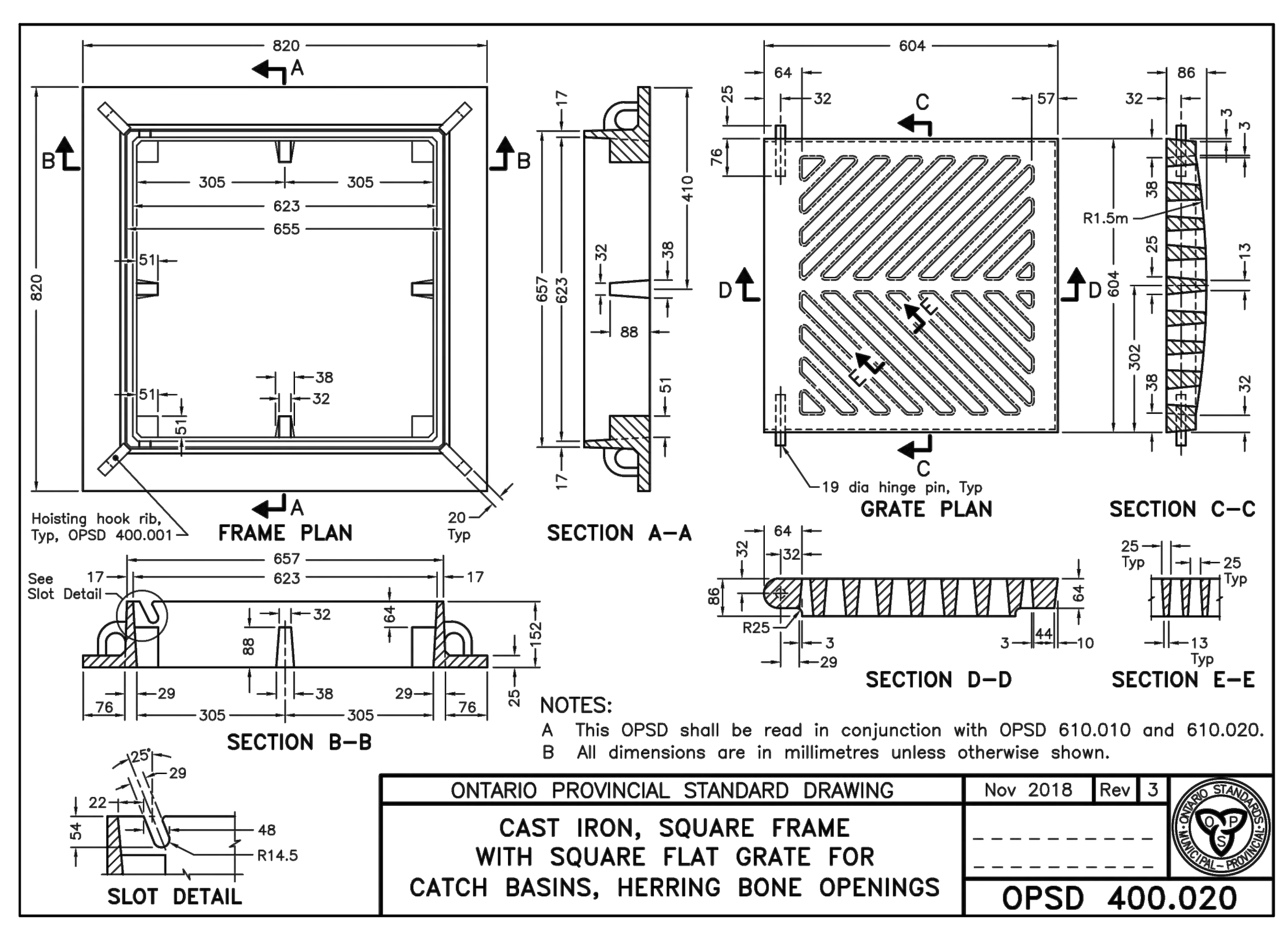


CLEARANCE TABLE Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

LEGEND:
D – Inside diameter

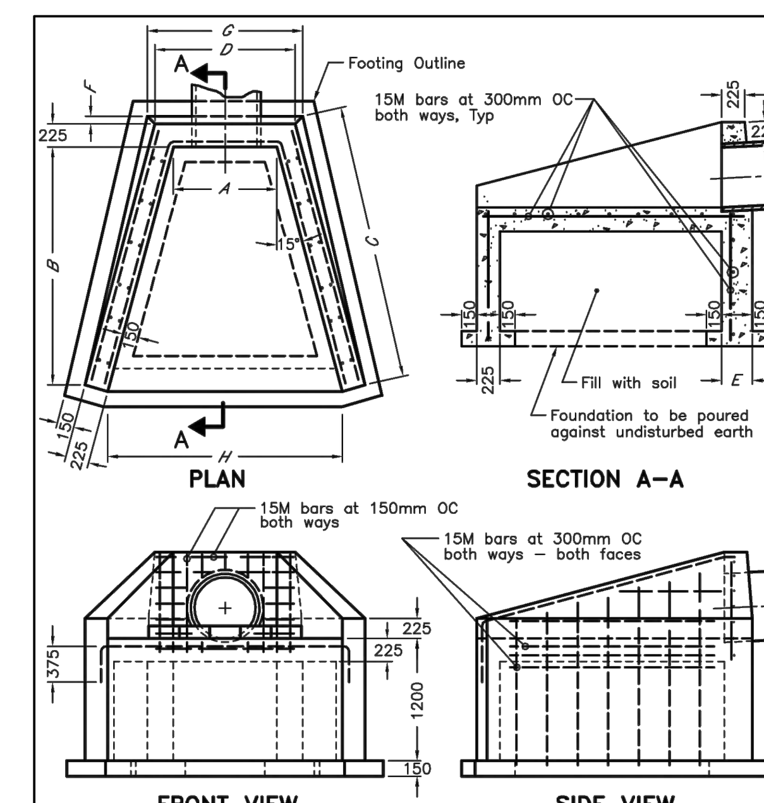
NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Condition of excavation is symmetrical about centreline of pipe.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C All dimensions are in metres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2014 | Rev 3
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION
OPSD 802.010



NOTES:
A This OPSD shall be read in conjunction with OPSD 610.010 and 610.020.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2018 | Rev 3
CAST IRON, SQUARE FRAME WITH SQUARE FLAT GRATE FOR CATCH BASINS, HERRING BONE OPENINGS
OPSD 400.020



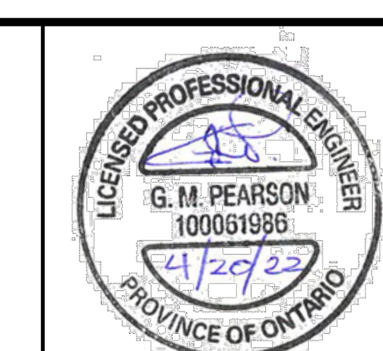
PIPE DIA	ENDWALL DIMENSIONS A	B	C	D	E	F	G	H
600	1050	2400	2725	1400	300	75	1525	2350
675	1125	2400	2725	1475	300	75	1600	2425
750	1200	2400	2725	1550	300	75	1675	2500
825	1275	2400	2725	1625	300	75	1755	2575
900	1350	2400	2725	1700	300	75	1825	2650
975	1425	2400	2725	1775	375	150	1975	2725
1050	1500	3000	3400	1850	375	150	2050	3100
1200	1650	3000	3400	2000	375	150	2200	3250
1350	1800	3000	3400	2150	375	150	2350	3400
1500	1950	3000	3400	2300	375	150	2500	3550
1650	2100	3000	3400	2450	375	150	2650	3700
1800	2250	3000	3400	2600	375	150	2800	3850
2400	3000	3000	3400	3350	375	150	3550	4600

NOTES:
A This OPSD to be read in conjunction with OPSD 3940.150.
B Class of concrete: 30MPa.
C Cover to reinforcing bars: 75mm ±20mm.
D Granular backfill to be placed to 300mm min thickness on all sides.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2017 | Rev 1
CONCRETE HEADWALL
FOR SEWER OR CULVERT PIPE OUTLET
OPSD 804.040

NO.	REVISION NOTE	DATE	BY
3.	2ND SUBMISSION	04/20/22	JP
2.	1ST SUBMISSION	12/15/21	AA
1.	REVISED FOR COUNCIL REPORT	04/30/21	AA

BENCHMARK: ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE TOWN OF BRADFORD BENCHMARK N° 848154 HAVING A PUBLISHED ELEVATION OF 237.913 METRES.



COUNTY OF SIMCOE
AFFORDABLE HOUSING – BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

NOTES AND DETAILS

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY AA	HORIZ SCALE	PROJECT # 20055
DRAWN BY AA	VERT SCALE	DRAWING # ND–2
CHECKED BY MWD	DATE JUNE 2020	REVISION # 3

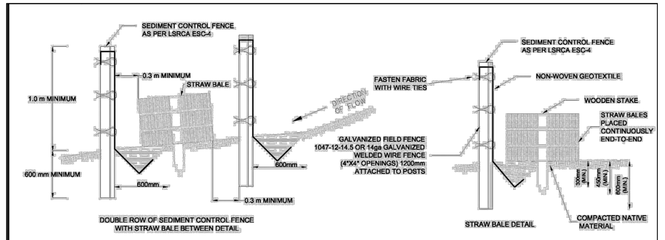
EROSION AND SEDIMENT CONTROL NOTES:

1. ALL SEDIMENT CONTROL MEASURES SUCH AS SEDIMENT CONTROL FENCE, TEMPORARY PONDS, CONSTRUCTION ACCESS MATS, SEDIMENT TRAPS, SWALES AND CHECK DAMS MUST BE INSTALLED PRIOR TO THE COMMENCEMENT OF SITE WORKS.
2. SEDIMENT CONTROLS SHOULD BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY SIGNIFICANT RAINFALL EVENT. REPAIRS TO ESC MEASURES MUST BE COMPLETED IN A TIMELY MANNER TO PREVENT SEDIMENT MIGRATION.
3. ADDITIONAL MATERIALS SUCH AS CLEAR STONE, FILTER FABRIC, PUMPS, HOSES AND SILTSOXX TO BE KEPT ONSITE AT ALL TIMES FOR CONDUCTING REPAIRS TO SEDIMENT CONTROL MEASURES.
4. ALL DISTURBED AREAS LEFT INACTIVE FOR MORE THAN THIRTY DAYS ARE TO BE STABILIZED.
5. THE STABILIZATION SEED MIXTURE IS TO BE AS SPECIFIED ON THE EROSION AND SEDIMENT CONTROL PLAN.
6. THE STABILIZATION SEED MIXTURE IS TO BE APPLIED AT A MINIMUM RATE OF 25 kg/ha.
7. ENGINEERED CHANGES TO THE ESC MEASURES MAY BE NEEDED AS SITE CONDITIONS CHANGE THROUGHOUT THE CONSTRUCTION PROCESS. THESE UPDATES MUST REFLECT BEST MANAGEMENT PRACTICES TO CONTROL SEDIMENT AND EROSION ONSITE AND SHOULD BE COMPLETED BASED ON DIRECTION FROM THE SITE ENGINEER. ADDITIONAL MEASURES MAY BE REQUIRED AS DIRECTED BY AN ENGINEER THROUGHOUT THE CONSTRUCTION PROCESS.
8. THE CONSTRUCTION ENTRANCE MAT IS TO BE INSTALLED AS THE FIRST STEP IN THE SITE ALTERATION PROCESS.
9. SEDIMENT CONTROL FENCE IS TO BE INSTALLED DOWNSLOPE OF ALL DISTURBED AREAS. A DOUBLE ROW OF SEDIMENT CONTROL FENCE IS TO BE INSTALLED SURROUNDING ALL NATURAL HERITAGE FEATURES AND AS DIRECTED BY THE SITE ENGINEER. SEDIMENT CONTROL FENCE IS TO BE AS PER LSRCA STANDARD ESC-4 or ESC-5 AS A MINIMUM. LIGHT DUTY SEDIMENT CONTROL FENCE IS NOT ACCEPTABLE.
10. CUT-OFF SWALES OR DITCHES ARE TO BE INSTALLED AS SHOWN ON THE ESC PLANS AND AS NECESSARY BASED ON CHANGING SITE CONDITIONS TO DIRECT OVERLAND FLOW TO THE APPROPRIATE SEDIMENT TRAP OR TEMPORARY SEDIMENT POND.
11. CHECK DAMS ARE TO BE INSTALLED IN ALL SWALES AND DITCHES IN ACCORDANCE WITH DRAWING LSRCA ESC-2, AS A MINIMUM
12. TEMPORARY SEDIMENT TRAP(S) ARE TO BE CONSTRUCTED AT THE BEGINNING OF SITE GRADING AND IF THE SITE DRAINAGE CHANGES DURING CONSTRUCTION. IT MAY BE NECESSARY FOR TEMPORARY SWALES TO BE CONSTRUCTED TO DIRECT SITE FLOWS TO THE TEMPORARY SEDIMENT TRAP(S) DURING ROUGH GRADING AND AS CONSTRUCTION PROGRESSES.
13. TEMPORARY SEDIMENT POND(S) ARE TO BE CONSTRUCTED AT THE BEGINNING OF SITE GRADING AND IF THE SITE DRAINAGE CHANGES DURING CONSTRUCTION. IT MAY BE NECESSARY FOR TEMPORARY SWALES TO BE CONSTRUCTED TO DIRECT SITE FLOWS TO THE TEMPORARY SEDIMENT POND(S) DURING ROUGH GRADING AND AS CONSTRUCTION PROGRESSES.
14. FILTREXX SILTSOXX OR APPROVED EQUIVALENT TO BE INSTALLED DOWNSTREAM FROM SEDIMENT TRAP AND TEMPORARY SEDIMENT POND OUTLETS TO A MINIMUM HEIGHT OF 300mm.
15. IF STOCKPILES ARE USED ON-SITE FOR THE STORAGE OF EXCESS MATERIAL, THEY ARE TO BE IN ACCORDANCE WITH DETAIL DRAWING LSRCA ESC-6 OR BETTER.
16. ANY DEWATERING OCCURRING ONSITE MUST BE IN ACCORDANCE WITH AN APPROVED DEWATERING PLAN. ADDITIONAL DEWATERING REQUIREMENTS MAY BE DEEMED NECESSARY AND SHALL BE IMPLEMENTED AS DIRECTED BY THE ENGINEER, CONTRACT ADMINISTRATOR OR LOCAL MUNICIPALITY.
17. THE SITE TRAILER IS TO BE LOCATED ONLY AT THE DESIGNATED LOCATION SHOWN ON THE PLANS.
18. EQUIPMENT AND HYDROCARBON STORAGE IS TO OCCUR ONLY WITHIN THE DESIGNATED AREA SHOWN ON THE PLANS.
19. REFUELING IS TO TAKE PLACE ONLY WITHIN THE DESIGNATED AREA SHOWN ON THE PLANS AND SHALL BE A MINIMUM OF THIRTY METRES FROM ANY WATERCOURSE OR ENVIRONMENTALLY SENSITIVE AREA.
20. AN APPROVED SPILLS MANAGEMENT PLAN IS TO BE KEPT ONSITE.
21. SPILL CLEANUP EQUIPMENT SUCH AS ABSORPTIVE MEDIA IS TO BE MAINTAINED ONSITE FOR IMMEDIATE USE IN THE EVENT OF A SPILL.
22. SPILLS ARE TO BE REPORTED IMMEDIATELY TO THE MOECC SPILLS ACTION CENTRE AT 1-800-268-6060.
23. THE CONTRACTOR WILL BE RESPONSIBLE FOR CLEAN-UP AND RESTORATION, INCLUDING ALL COSTS, DUE TO THE RELEASE OF SEDIMENT FROM THE SITE.
24. LOW IMPACT DEVELOPMENT (LID) MEASURES ARE NOT TO BE USED AS SEDIMENT CONTROL DEVICES.
25. ADDITIONAL SEDIMENT CONTROL DEVICES MAY BE DEEMED NECESSARY AND AS SITE CONDITIONS CHANGE AND SHALL BE INSTALLED AS DIRECTED BY THE SITE ENGINEER, CONTRACT ADMINISTRATOR OR LOCAL MUNICIPALITY.

NO.	REVISION	DATE
1	SWM GUIDELINES UPDATE	06.2016

EROSION AND SEDIMENT CONTROL PLAN NOTES

DATE: 06.2016
SCALE: NTS
LSRCA ESC-1



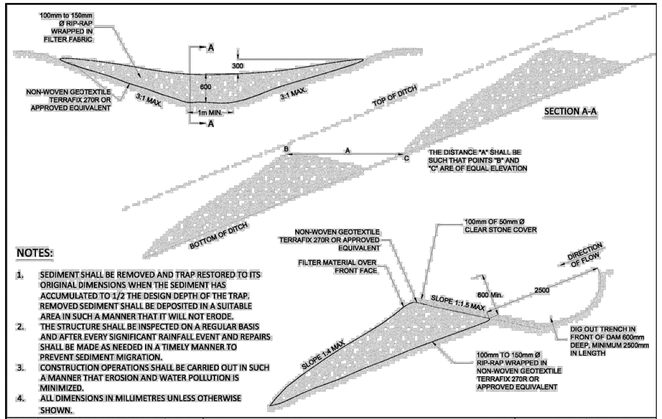
NOTES:

1. SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW.
2. SEDIMENT CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFORM TO MTO DRAINAGE MANUAL VOLUME 2 CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT.
3. SEDIMENT CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TIED INTO THE SOIL A MINIMUM OF 300 mm BY EITHER STATIC SLICING OR TRENCH METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
4. STEEL "I" BAR POSTS ARE TO BE SPACED A MAXIMUM DISTANCE OF 2000 mm ON CENTER.
5. STRAW BALES TO BE PLACED END-TO-END CONTINUOUSLY BETWEEN SEDIMENT CONTROL FENCES.
6. FROZEN GROUND CONDITIONS REQUIRE FILTER FABRIC TO BE BACKFILLED IN TRENCH WITH CLEAR STONE.
7. GEOTEXTILE FABRIC TO BE COMPRISED OF NON-WOVEN U.V. STABILIZED MATERIAL FABRIC TO BE FOLDED OVER TOP OF FENCE A MINIMUM OF 300 mm AND WIRE FASTENED.
8. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
9. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.

NO.	REVISION	DATE
1	SWM GUIDELINES UPDATE	06.2016

DOUBLE ROW SEDIMENT CONTROL FENCE

DATE: 06.2016
SCALE: NTS
LSRCA ESC-5



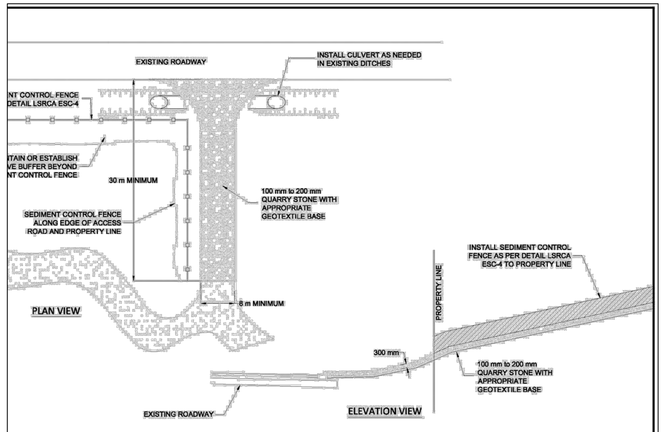
NOTES:

1. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA IN SUCH A MANNER THAT IT WILL NOT ERODE.
2. THE STRUCTURE SHALL BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY SIGNIFICANT RAINFALL EVENT AND REPAIRS SHALL BE MADE AS NEEDED IN A TIMELY MANNER TO PREVENT SEDIMENT MIGRATION.
3. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
4. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.

NO.	REVISION	DATE
1	SWM GUIDELINES UPDATE	06.2016

SWALE AND ROCK CHECK DAM

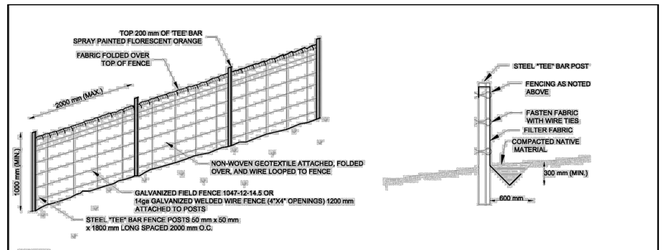
DATE: 06.2016
SCALE: NTS
LSRCA ESC-2



NO.	REVISION	DATE
	SWM GUIDELINES UPDATE	06.2016

CONSTRUCTION ACCESS MAT

DATE: 06.2016
SCALE: NTS
LSRCA ESC-3



NOTES:

1. SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW.
2. SEDIMENT CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFORM TO MTO DRAINAGE MANUAL VOLUME 2 CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT.
3. SEDIMENT CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TIED INTO THE SOIL A MINIMUM OF 300 mm BY EITHER STATIC SLICING OR TRENCH METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% STANDARD PROCTOR DENSITY.
4. STEEL "I" BAR POSTS ARE TO BE SPACED A MAXIMUM DISTANCE OF 2000 mm ON CENTER.
5. FROZEN GROUND CONDITIONS REQUIRE FILTER FABRIC TO BE BACKFILLED IN TRENCH WITH CLEAR STONE.
6. GEOTEXTILE FABRIC TO BE COMPRISED OF NON-WOVEN U.V. STABILIZED MATERIAL FABRIC TO BE FOLDED OVER TOP OF FENCE A MINIMUM OF 300 mm AND WIRE FASTENED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.
8. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SHOWN.

NO.	REVISION	DATE
1	SWM GUIDELINES UPDATE	06.2016

SEDIMENT CONTROL FENCE

DATE: 06.2016
SCALE: NTS
LSRCA ESC-4

MACCAFERRI

TECHNICAL DATA SHEET
Rev: 05, Issue Date 10.22.2012

MACMAT® 10.4 & 20.4
TURF REINFORCEMENT MATS

Product Description
MACMAT® 10.4 and MACMAT® 20.4 are Turf Reinforcement Mats (TRMs). These permanent erosion control mats are composed of UV stabilized nylon monofilaments processed into a three dimensional matrix. MacMat® 10.4 and 20.4 have a high roughness, yet also contain 95% voids which are easily filled with soil by mechanical means, or naturally through accretion and sedimentation in channels. This creates the environment for vegetation to develop through the voids in the TRM.

MacMat® 10.4 and 20.4 conform to the following certifiable minimum average roll values when tested in accordance with appropriate ASTM methods.

Mechanical Properties	Test Method	Units	Typical Roll Values 10.4	20.4
Tensile Strength	ASTM 5035, mod.	kN/m	2.3	3.5
Thickness	ASTM D 5199	mm	10	18
Mass/Unit Area	ASTM D 5261	g/m²	270	406
UV Stability	ASTM D 653, ASTM D 1682, mod.	% strength retained	80	80
Performance Properties[1]		**Units**	**Typical Roll Values**	
Permissible Velocity Product Only	--	m/s	6.1	
30 minute, vegetated	--	m/s	5.8	
50 hour, vegetated	--	m/s	4.2	
Permissible Shear Stress Product Only	--	kN/m²	0.32	0.53
30 minute, vegetated	--	kN/m²	0.38	0.48
50 hour, vegetated	--	kN/m²	0.29	0.38
[1]Performance Properties determined by independent laboratory testing.				
Physical Properties		**Units**	**Typical Value**	
			N10	**N20**
Roll Dimensions (width x length)	--	m	2.44x51.5	2.44x34.3
Roll Area	--	m²	125	83.6
Estimated Roll Diameter	--	cm	111	109
Estimated Roll Weight	--	kg	36	34

Tolerance - Roll length: 1%; Roll width: 4%; Weight +/- 10%

Maccaferri reserves the right to amend product specifications without notice and specifiers are requested to check as to the validity of the specifications they are using.

400 Collier MacMillan Drive, Unit B
Cambridge, ON N1R 7H7
Tel: 519-623-9990
Fax: 519-623-1309

MACCAFERRI CANADA LTD.
email: info@maccaferri.ca
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Montréal, QC tel: 450-420-1845
Calgary, AB tel: 403-244-6556
Edmonton, AB tel: 780-447-2719
Vancouver, BC tel: 604-693-4624

MACCAFERRI

General MacMat Installation

MacMat is packaged in rolls that are easy to ship, store and install. No heavy equipment is needed for installation of matting and a roll can be handled by one or two workers.

Site Preparation

Whether slope or channel, the site must be shaped to the design specifications (grade, geometry, density of soil, etc.) and then dressed to be free of soil clods, clumps, rocks, or vehicle imprints of any significant size that would prevent the MacMat® from lying flush to surface contours.

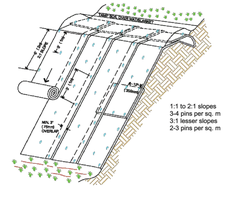
Anchor Trench

Anchor trenches are required to securely fasten the MacMat to the ground surface. In channel applications, the initial anchor trench is installed at the beginning of the channel and intermediate check slots are spaced at approximately 7.5m* intervals downstream depending on flow conditions and whether you soil fill or not. The MacMat® is installed into the bottom of the trench and fastened with pins spaced 1m apart. The anchor trench / intermediate check slots are then backfilled and compacted in a manner as to not damage the MacMat®.

** In lieu of excavated check slots, a double row of pins for a number 1 or 2 rebar pinned across the mat may be used at 7.5m intervals.*

MacMat® Installation

Roll the MacMat® down the slope or channel. The overlap between rolls is 75mm - 100mm. The splice between rolls is between 600mm - 900mm. Shingle the roll in the direction of water flow. Install pins down the center of each mat, staggering them between the outside pins with a spacing interval of 1m - 1.5m. Pins pattern will vary depending upon application, soil type, slope or channel slope, geometry, etc. A rule of thumb for estimating the amount of pins required for a project is:



NO.	REVISION NOTE	DATE	BY
3.	2ND SUBMISSION	04/20/22	JP
2.	1ST SUBMISSION	12/15/21	AA
1.	REVISED FOR COUNCIL REPORT	04/30/21	AA

BENCHMARK: ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE TOWN OF BRADFORD BENCHMARK N° 848154 HAVING A PUBLISHED ELEVATION OF 237.913 METRES.

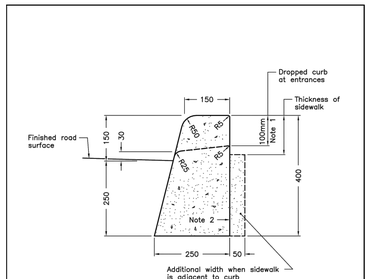
LICENSED PROFESSIONAL ENGINEER
G. M. PEARSON
100091996
21/12/22
PROVINCE OF ONTARIO

COUNTY OF SIMCOE
AFFORDABLE HOUSING – BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

NOTES AND DETAILS

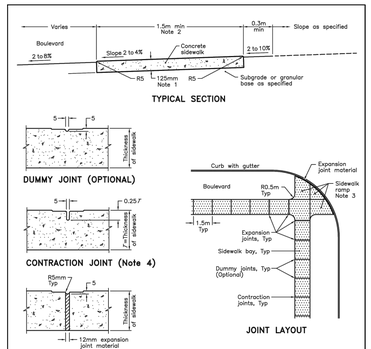
PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE	AS SHOWN
DRAWN BY	AA	VERT SCALE	
CHECKED BY	MWD	DATE	JUNE 2020
PROJECT #	20055		
DRAWING #	ND–3		
REVISION #	3		



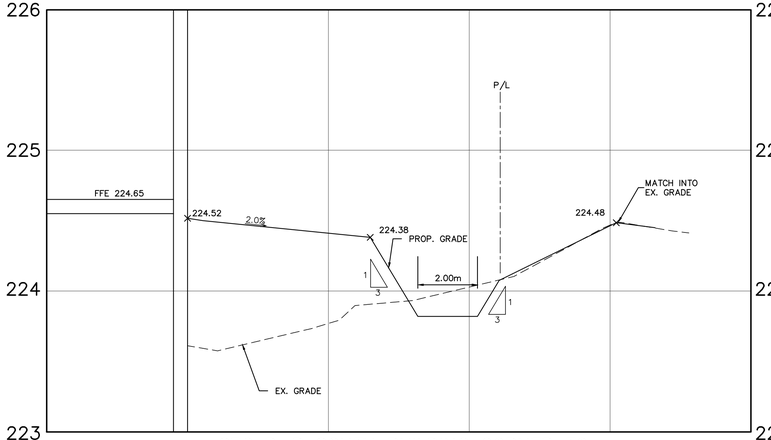
NOTES:
1 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
2 For slipforming procedure a 0% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
CONCRETE BARRIER CURB		OPSD 600.110

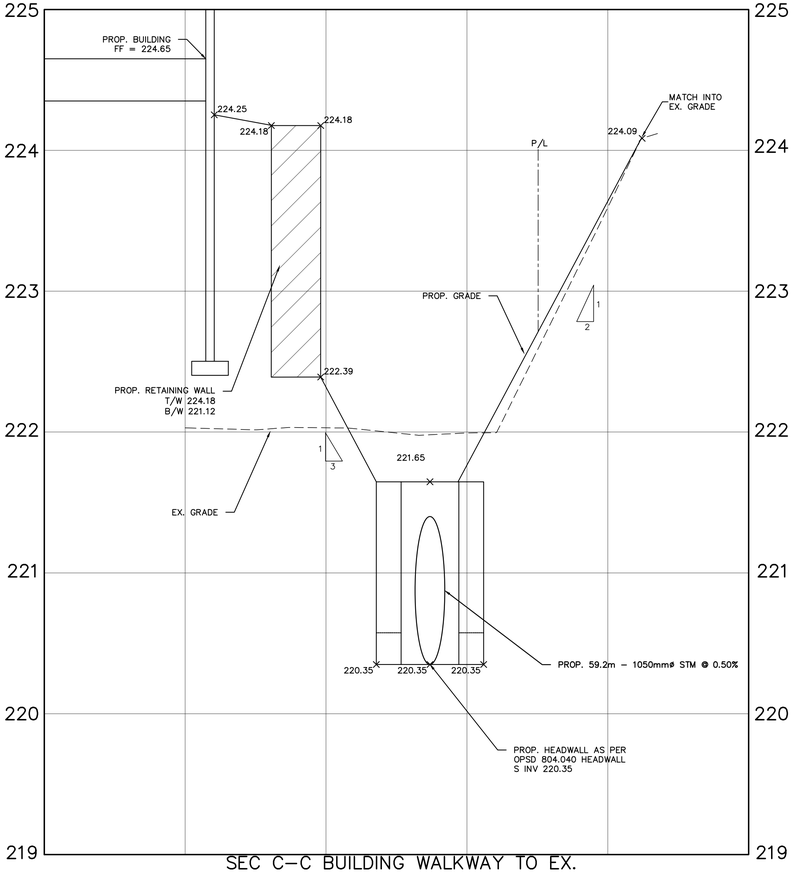


NOTES:
1 Sidewalk thickness at residential driveways and adjacent to curb shall be 150mm. At commercial and industrial driveways, the thickness shall be 200mm.
2 Sidewalk width shall be wider when specified.
3 This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.033, and 310.039.
4 Contraction joint may be tooled or sawcut.
A All dimensions are in millimetres unless otherwise shown.

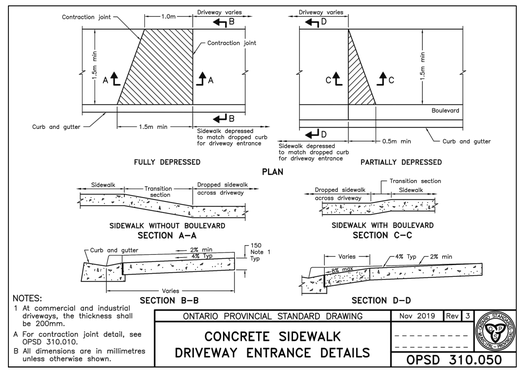
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 3
CONCRETE SIDEWALK		OPSD 310.010



SEC B–B SOUTH BUILDING CORNER TO CHANNEL
SCALE – HORIZ. 1:100
VERT. 1:20

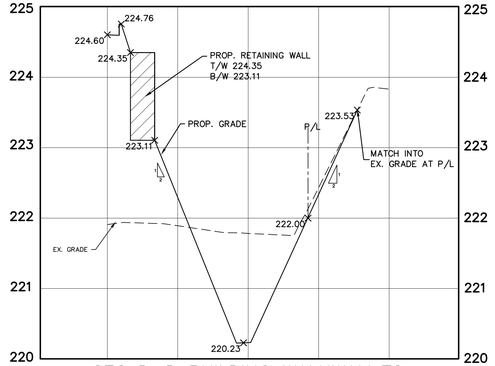


SEC C–C BUILDING WALKWAY TO EX. SIDEWALK
SCALE – HORIZ. 1:100
VERT. 1:20

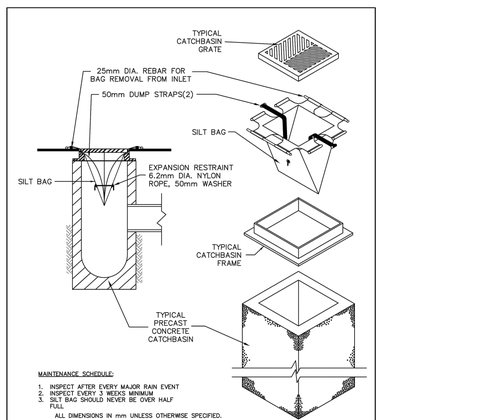


NOTES:
1 At commercial and industrial driveways, the thickness shall be 200mm.
A For contraction joint detail, see OPSD 310.010.
B All dimensions are in millimetres unless otherwise shown.

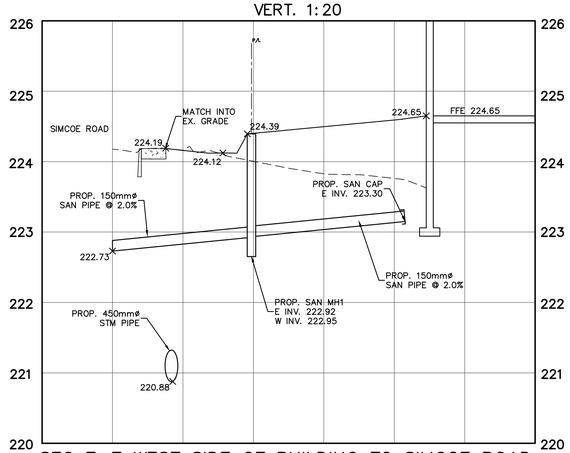
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 3
CONCRETE SIDEWALK DRIVEWAY ENTRANCE DETAILS		OPSD 310.050



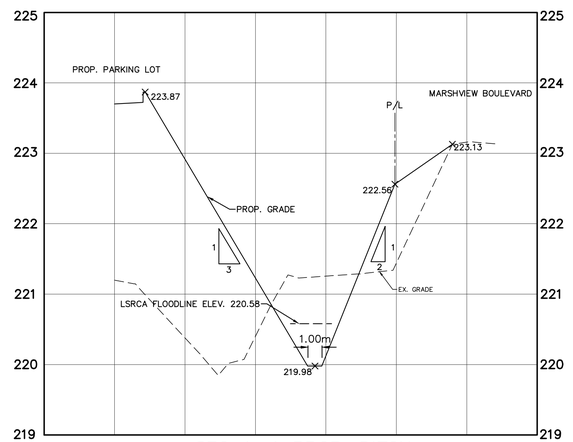
SEC D–D BUILDING WALKWAY TO RETAINING WALL
SCALE – HORIZ. 1:200
VERT. 1:20



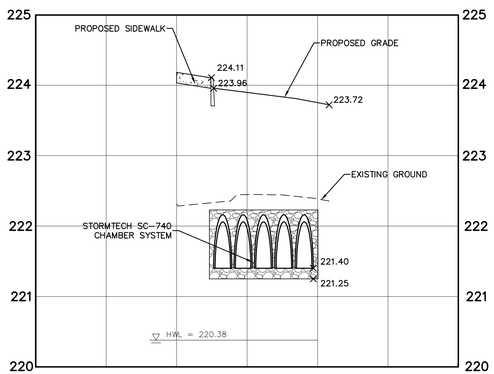
TOWN OF BRADFORD WEST GWILLIMBURY		
TYPICAL CATCHBASIN SILTATION INSERT	SCALE: N.T.S.	
	LAST REVISED: MAY 2014	
	STD.DWG. F107	



SEC F–F WEST SIDE OF BUILDING TO SIMCOE ROAD
SCALE – HORIZ. 1:200
VERT. 1:40



SEC A–A PROP. DITCH
SCALE – HORIZ. 1:200
VERT. 1:40



SEC E–E STORMTECH INFILTRATION CHAMBERS
SCALE – HORIZ: 1:200
VERT: 1:40

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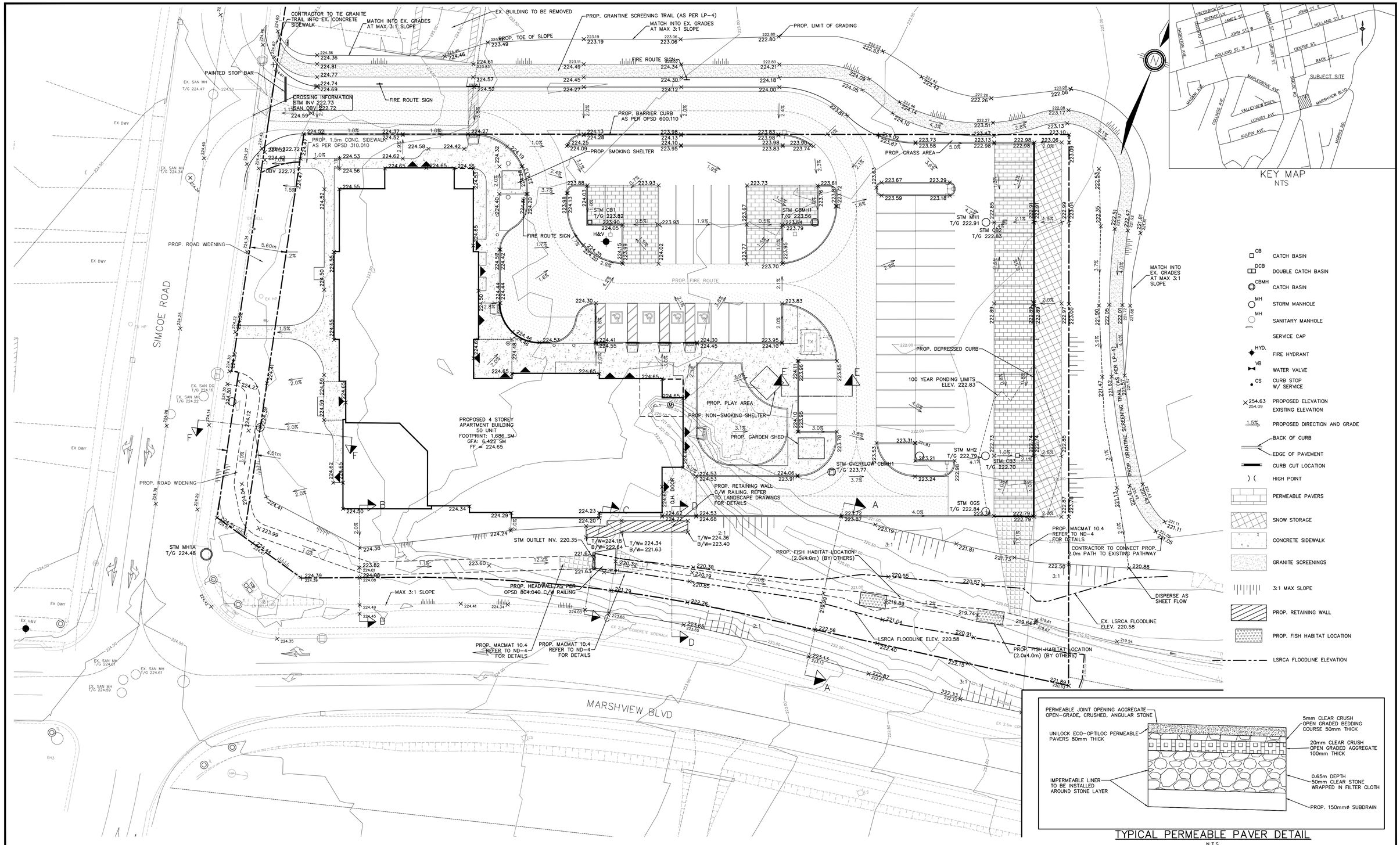
LICENSED PROFESSIONAL ENGINEER G. M. PEARSON 100061986 21/26/22 PROVINCE OF ONTARIO

COUNTY OF SIMCOE
AFFORDABLE HOUSING – BRADFORD WEST GWILLIMBURY, 125 SIMCOE ROAD

NOTES AND DETAILS

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE	AS SHOWN
DRAWN BY	AA	VERT SCALE	
CHECKED BY	MWD	DATE	JUNE 2020
PROJECT #	20055		
DRAWING #	ND–4		
REVISION #	3		



TYPICAL PERMEABLE PAVER DETAIL

N.T.S

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LICENSED PROFESSIONAL ENGINEER G.M. PEARSON 100061986 4/26/22 PROVINCE OF ONTARIO

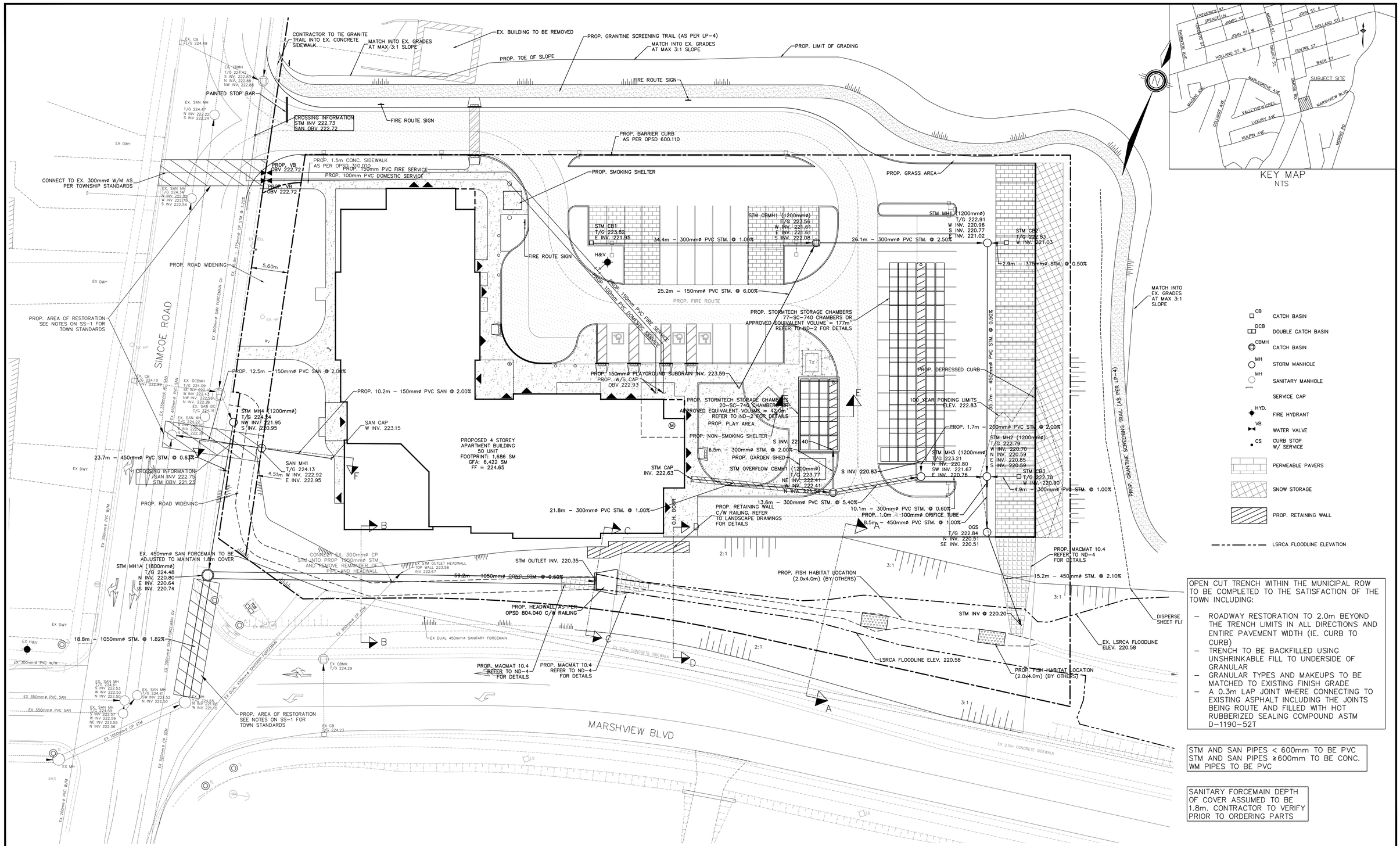
COUNTY OF SIMCOE
AFFORDABLE HOUSING – BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

SITE GRADING PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE 1:250	PROJECT # 20055
DRAWN BY	AA	VERT SCALE	DRAWING # SG-1
CHECKED BY	MWD	DATE JUNE 2020	REVISION # 3

P:\Autodesk Vault\Working Folders\20055 - MCL Simcoe County Affordable Housing, BWG\Engineering\20055 - BASE_Rev.dwg Layout: SG-1 Plotted: Apr 20, 2022 @ 3:15pm by jpesce @ PEARSON ENGINEERING LTD.



OPEN CUT TRENCH WITHIN THE MUNICIPAL ROW TO BE COMPLETED TO THE SATISFACTION OF THE TOWN INCLUDING:

- ROADWAY RESTORATION TO 2.0m BEYOND THE TRENCH LIMITS IN ALL DIRECTIONS AND ENTIRE PAVEMENT WIDTH (IE. CURB TO CURB)
- TRENCH TO BE BACKFILLED USING UNSHRINKABLE FILL TO UNDERSIDE OF GRANULAR
- GRANULAR TYPES AND MAKEUPS TO BE MATCHED TO EXISTING FINISH GRADE
- A 0.3m LAP JOINT WHERE CONNECTING TO EXISTING ASPHALT INCLUDING THE JOINTS BEING ROUTE AND FILLED WITH HOT RUBBERIZED SEALING COMPOUND ASTM D-1190-52T

STM AND SAN PIPES < 600mm TO BE PVC
STM AND SAN PIPES ≥600mm TO BE CONC.
WM PIPES TO BE PVC

SANITARY FORCEMAIN DEPTH OF COVER ASSUMED TO BE 1.8m. CONTRACTOR TO VERIFY PRIOR TO ORDERING PARTS

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LICENSED PROFESSIONAL ENGINEER G.M. PEARSON 100061986 21/26/22 PROVINCE OF ONTARIO

COUNTY OF SIMCOE
AFFORDABLE HOUSING – BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

SITE SERVICING PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE	1:250
DRAWN BY	AA	VERT SCALE	
CHECKED BY	MWD	DATE	JUNE 2020
PROJECT #	20055		
DRAWING #	SS-1		
REVISION #	3		

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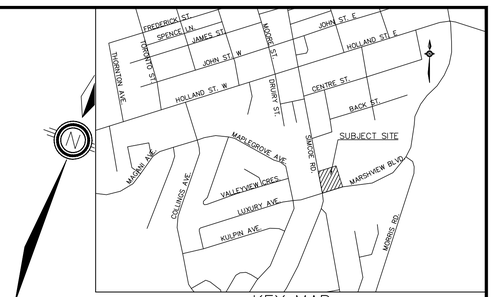

KEY MAP
NTS

CB CATCH BASIN
DCB DOUBLE CATCH BASIN
CBMH CATCH BASIN
MH STORM MANHOLE
OVERLAND FLOW DIRECTION
CATCHMENT AREA 1 | 0.75 RUNOFF COEFFICIENT
1.00 ha
AREA IN HECTARES
CATCHMENT BOUNDARY
EX. LSRCA FLOODLINE ELEVATION = 220.58

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LICENSED PROFESSIONAL ENGINEER G. M. PEARSON 100061996 4/20/22 PROVINCE OF ONTARIO

COUNTY OF SIMCOE
AFFORDABLE HOUSING – BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

PRE DEVELOPMENT STORM
CATCHMENT PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE 1:250	PROJECT # 20055
DRAWN BY	AA	VERT SCALE	DRAWING # STM–1
CHECKED BY	MWD	DATE JUNE 2020	REVISION # 3

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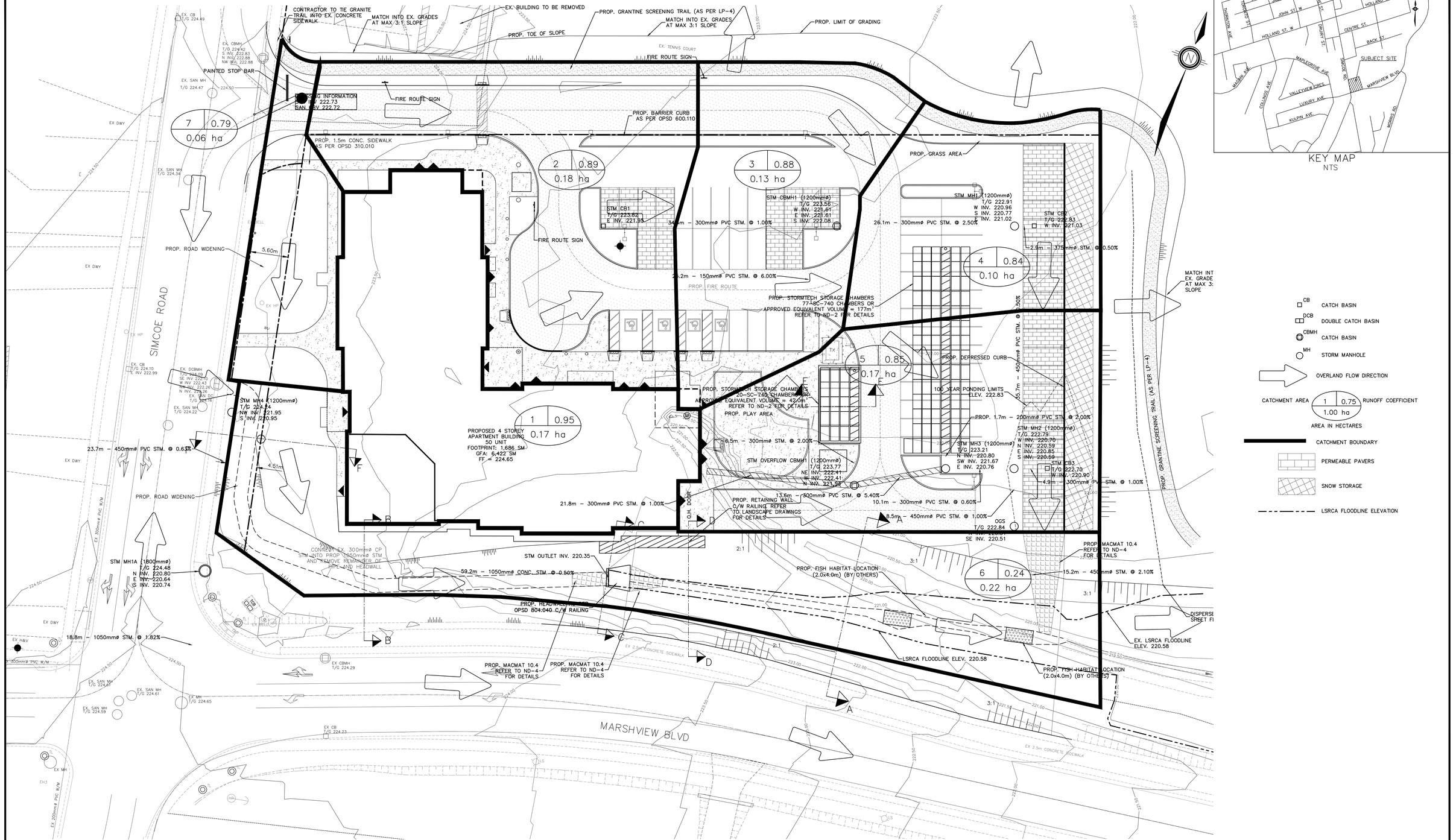

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LICENSED PROFESSIONAL ENGINEER G. M. PEARSON 100061996 PROVINCE OF ONTARIO 4/20/22

COUNTY OF SIMCOE AFFORDABLE HOUSING – BRADFORD WEST GWILLIMBURY, 125 SIMCOE ROAD

POST DEVELOPMENT STORM CATCHMENT PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE 1:250	PROJECT # 20055
DRAWN BY	AA	VERT SCALE	DRAWING # STM-2
CHECKED BY	MWD	DATE JUNE 2020	REVISION # 3

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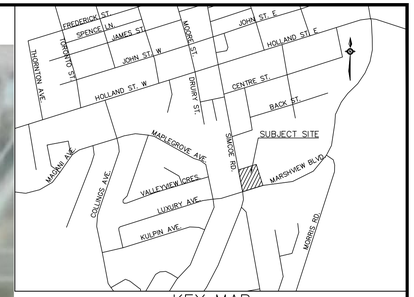

KEY MAP
NTS

EXTERNAL CATCHMENT
AREA TAKEN FROM MORRIS ROAD
DRAIN DRAWINGS DATED JULY 24, 2015
COMPLETED BY K.SMART ASSOCIATES LTD.

NO.	REVISION NOTE	DATE	BY
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LICENSED PROFESSIONAL ENGINEER
G. M. PEARSON
100061986
11/29/23
PROVINCE OF ONTARIO

COUNTY OF SIMCOE
AFFORDABLE HOUSING – BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

EXTERNAL STORM
CATCHMENT PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE 1:1500	PROJECT # 20055
DRAWN BY	AA	VERT SCALE	DRAWING # STM-3
CHECKED BY	MWD	DATE JUNE 2020	REVISION # 3

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1. ENGINEER TO BE NOTIFIED PRIOR TO INITIATION OF ANY ON SITE WORKS.
2. SILT FENCE AND CONSTRUCTION ACCESS MATS TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORKS ONSITE.
3. VEGETATION REMOVAL MAY COMMENCE AFTER ALL SILT FENCE IS INSTALLED AND APPROVED BY THE ENGINEER.
4. EROSION CONTROL MEASURES TO BE MAINTAINED AS DIRECTED BY THE ENGINEER DURING THE CONSTRUCTION PERIOD. ADDITIONAL CONTROL MEASURES MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
5. ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH SEED, SOD, MULCH OR OTHER ADEQUATE COVERING, AS INSTRUCTED BY THE ENGINEER.
6. THERE IS TO BE STOCKPILING OF MATERIAL ON SITE. CONTRACTOR TO REMOVE SOIL IMMEDIATELY.
7. CONTRACTOR RESPONSIBLE FOR MUD TRACKING, PREVENTION AND MAINTENANCE ON SURROUNDING ROADS. ONGOING STREET SWEEPING AND DUST CONTROL ARE THE RESPONSIBILITY OF THE DEVELOPER AND MUST BE KEPT UNDER CONTROL ON ALL ROADWAYS TO THE SATISFACTION OF THE TOWN.
8. FILTER CLOTH WILL BE PLACED ON THE CATCHBASINS ON PUBLIC STREETS ALONG THE PROPERTY FRONTAGE.
9. THE LEVEL OF EFFORT REQUIRED FOR THE IMPLEMENTATION OF DUST CONTROL MEASURES WILL VARY DEPENDING ON LEVEL OF ACTIVITY, EXTENT OF PRECIPITATION, SOIL TYPE AND STAGE OF CONSTRUCTION. APPROPRIATE SCHEDULE AND APPLICATION RELATES FOR DUST CONTROLS WILL BE DETERMINED BY THE CONTRACTOR BASED ON THEIR PREFERRED METHOD OF DUST SUPPRESSION. AT ALL TIMES THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING DUST SUPPRESSION AND MUD TRACKING TO LEVEL DEEMED APPROPRIATE BY THE CONSULTANT AND/OR TOWN STAFF.
10. DURING EXTREME DY SPELLS OR WITH DUST PRONE SANDY SOILS, ADDITIONAL CONTINGENCY MEASURES MAY BE REQUIRED. THE USE OF CALCIUM CHLORIDE APPLICATION ON HAUL ROUTES AND UNVEGETATED AREAS IN LIE OF A WATER APPLICATION TO ENHANCE THE LONGEVITY OF DIST SUPPRESSION.

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LICENSED PROFESSIONAL ENGINEER
G. M. PEARSON
100061986
12/20/22
PROVINCE OF ONTARIO

COUNTY OF SIMCOE
AFFORDABLE HOUSING – BRADFORD
WEST GWILLIMBURY, 125 SIMCOE ROAD

ENVIRONMENTAL PROTECTION AND REMOVALS PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AA	HORIZ SCALE 1:250	PROJECT # 20055
DRAWN BY	AA	VERT SCALE	DRAWING # EPR-1
CHECKED BY	MWD	DATE JUNE 2020	REVISION # 3

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