

## **Appendix B**

### ***Design Drawings and Details***

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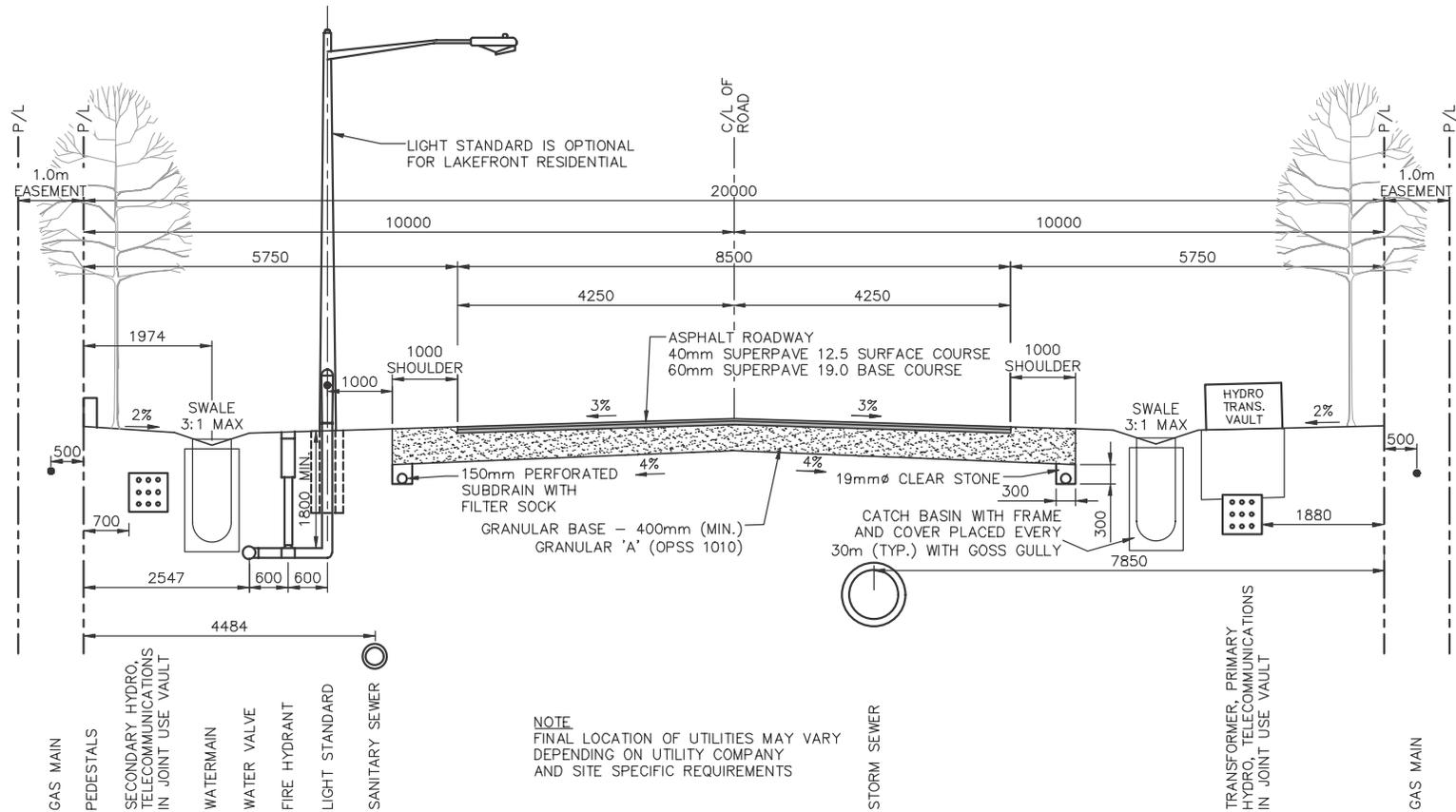
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**NOTES:**

1. THE ABOVE CROSS SECTION IS INTENDED TO BE A GUIDELINE FOR LOCATION OF UTILITY CORRIDORS WITHIN NEW SUBDIVISIONS AND ROADWAYS. THE CORRIDOR LOCATIONS SHOULD ALSO BE CONSIDERED WHERE POSSIBLE WHEN NEW UTILITY PLANTS ARE TO BE CONSTRUCTED WITHIN EXISTING ROAD ALLOWANCES.
2. VERTICAL DIMENSIONS TO UTILITY PLANT ARE GUIDELINES ONLY AND SHOULD BE CONFIRMED WITH THE UTILITY COMPANY. DIMENSIONS SHOWN ARE TO TOP OF FINISHED GRADE, AND IT IS THEREFORE ESSENTIAL THAT GRADING BE COMPLETED TO OUTER EDGE OF RIGHT-OF-WAY BEFORE UTILITY INSTALLATION AND BE WITHIN 15cm OF FINAL GRADE.
3. NO TWO (2) ABOVE GROUND UTILITIES ON THE SAME LOT FRONTAGE.
4. HYDRO AND TELECOMMUNICATIONS TO BE INSTALLED IN JOINT TRENCH.
5. SIDEWALK TO BE 1.50m WIDTH ONE SIDE OF R.O.W. ONLY FOR LOCAL STREETS. SIDEWALK TO BE 1.50m WIDTH BOTH SIDES OF R.O.W. FOR COLLECTOR AND ARTERIAL STREETS. 2.5m MULTI-USE PATH MAY BE REQUESTED IN LIEU OF SIDEWALK. PATH MUST BE CONSTRUCTED WITH 75mm ASPHALT AND 250mm OF GRAN 'A'. GRANULAR BASE MUST BE A MINIMUM 150mm WIDER ON EACH SIDE OF ASPHALT.
6. WATER SERVICE CURB STOPS MUST BE PLACED AT PROPERTY LINE.
7. SANITARY & STORM CLEANOUTS ON PROPERTY LINE WITH APPROVED METAL CAPS.
8. ADDITIONAL CONDUIT SHALL BE INSTALLED IN JOINT USE TRENCH

DRAWING: 01/20/2021 REVISED: 06/01/2021 20m R.O.W. (SEMI-URBAN DEVELOPMENT) - CS-1B  
 DATE: 2022-01-24 11:15:17 AM 1:100 SCALE 1:1 PLOT SCALE: 1:1000



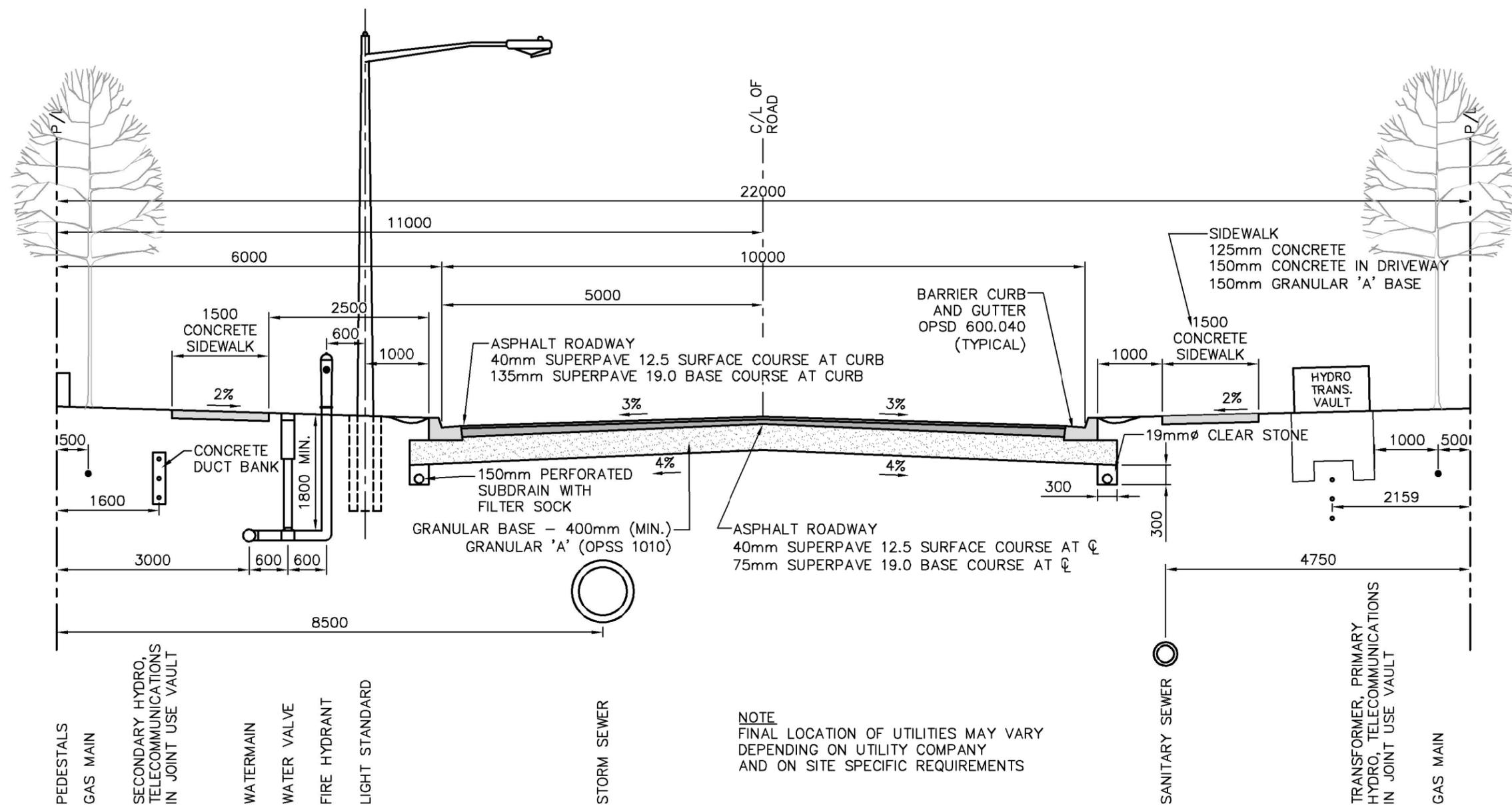
No.	Revision Date
2	January 14, 2022
1	June 01, 2021

Town of Essex Development Manual

**Figure CS-1B**  
 Typical Road Cross Section  
 20m R.O.W. - SEMI-URBAN DEVELOPMENT

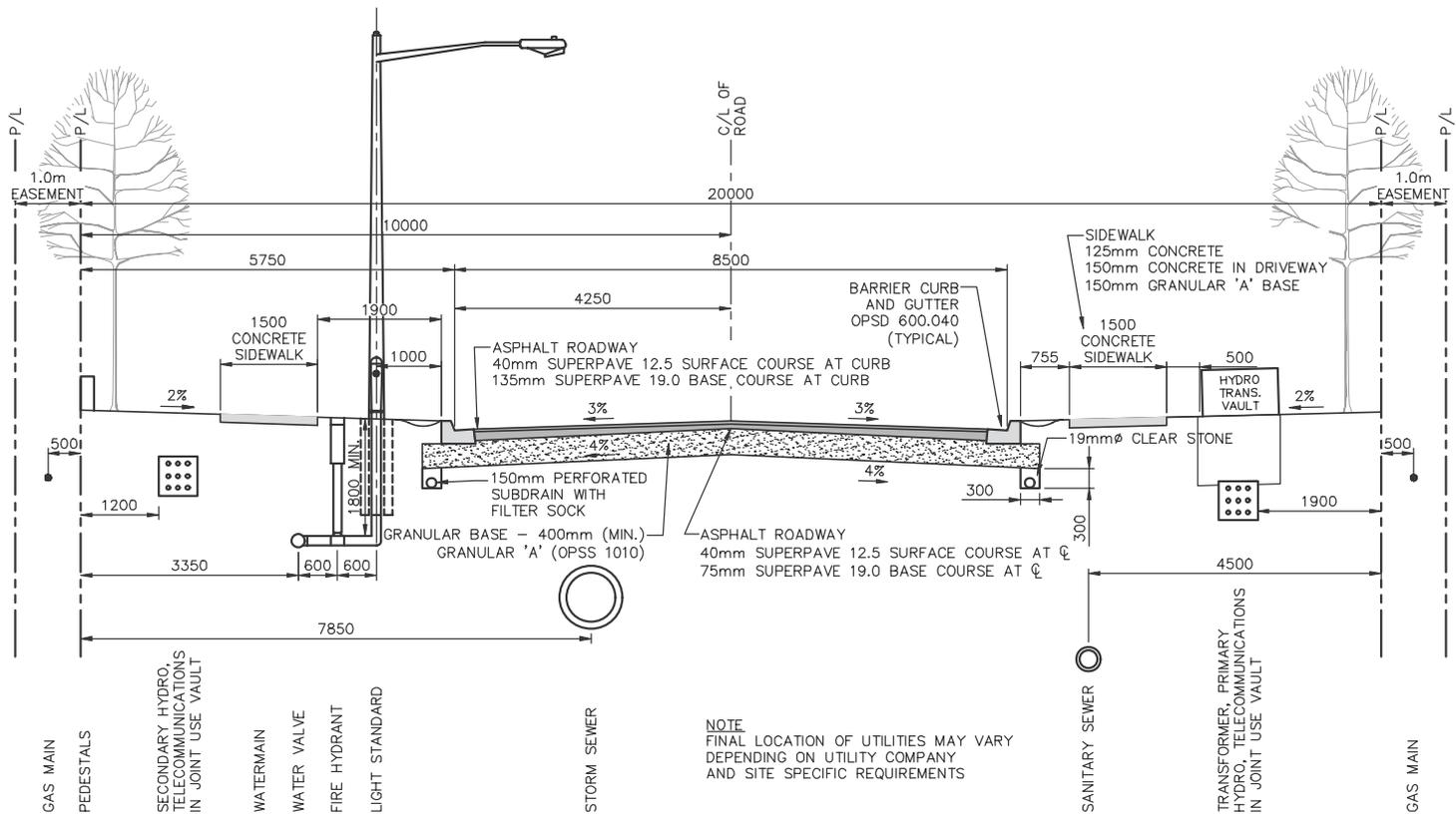






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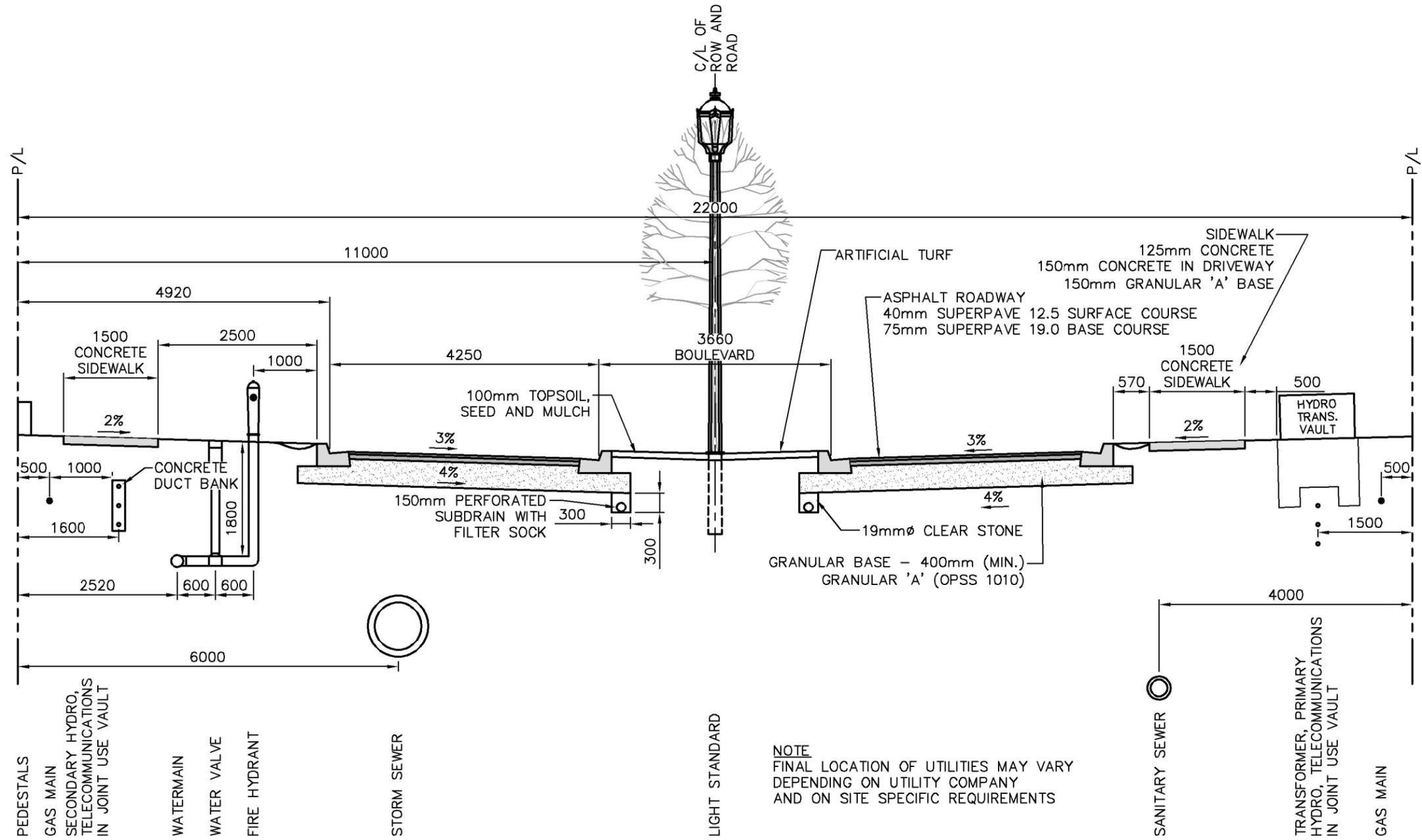


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DRAWING: 01 (REV. 01) TOWN OF ESSEX DEVELOPMENT MANUAL, 2021, 2020, 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995, 1994, 1993, 1992, 1991, 1990, 1989, 1988, 1987, 1986, 1985, 1984, 1983, 1982, 1981, 1980, 1979, 1978, 1977, 1976, 1975, 1974, 1973, 1972, 1971, 1970, 1969, 1968, 1967, 1966, 1965, 1964, 1963, 1962, 1961, 1960, 1959, 1958, 1957, 1956, 1955, 1954, 1953, 1952, 1951, 1950, 1949, 1948, 1947, 1946, 1945, 1944, 1943, 1942, 1941, 1940, 1939, 1938, 1937, 1936, 1935, 1934, 1933, 1932, 1931, 1930, 1929, 1928, 1927, 1926, 1925, 1924, 1923, 1922, 1921, 1920, 1919, 1918, 1917, 1916, 1915, 1914, 1913, 1912, 1911, 1910, 1909, 1908, 1907, 1906, 1905, 1904, 1903, 1902, 1901, 1900, 1899, 1898, 1897, 1896, 1895, 1894, 1893, 1892, 1891, 1890, 1889, 1888, 1887, 1886, 1885, 1884, 1883, 1882, 1881, 1880, 1879, 1878, 1877, 1876, 1875, 1874, 1873, 1872, 1871, 1870, 1869, 1868, 1867, 1866, 1865, 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**NOTES:**

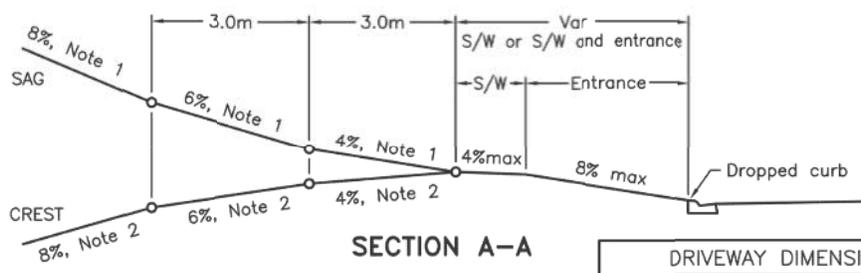
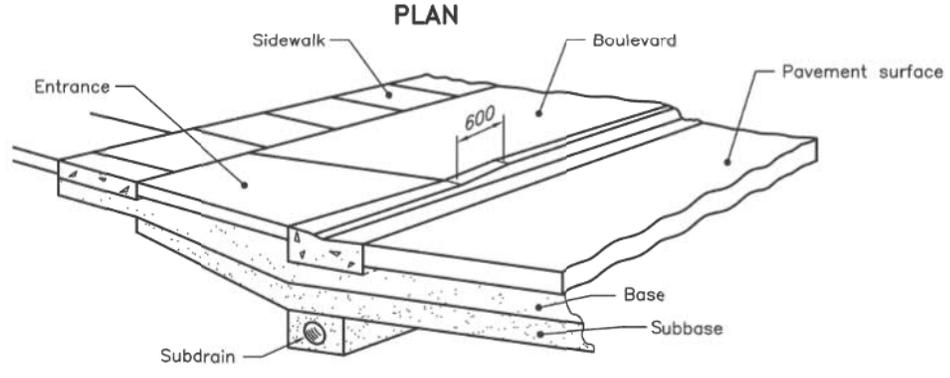
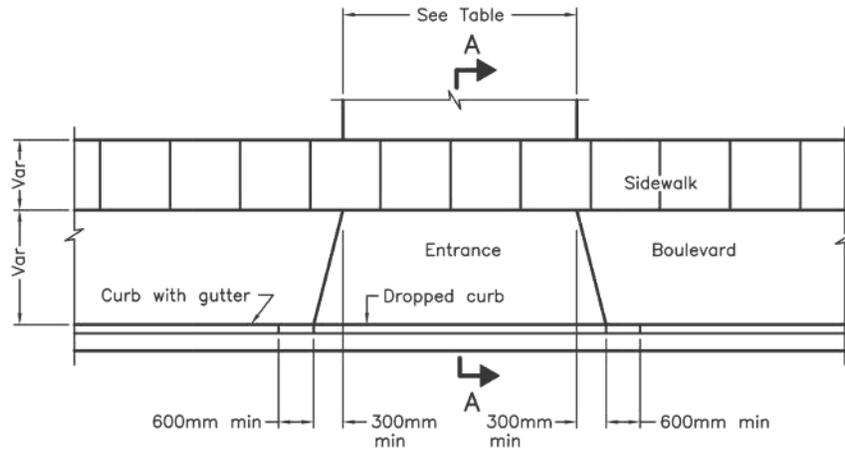
1. THE ABOVE CROSS SECTION IS INTENDED TO BE A GUIDELINE FOR LOCATION OF UTILITY CORRIDORS WITHIN NEW SUBDIVISIONS AND ROADWAYS. THE CORRIDOR LOCATIONS SHOULD ALSO BE CONSIDERED WHERE POSSIBLE WHEN NEW UTILITY PLANTS ARE TO BE CONSTRUCTED WITHIN EXISTING ROAD ALLOWANCES.
2. VERTICAL DIMENSIONS TO UTILITY PLANT ARE GUIDELINES ONLY AND SHOULD BE CONFIRMED WITH THE UTILITY COMPANY. DIMENSIONS SHOWN ARE TO TOP OF FINISHED GRADE, AND IT IS THEREFORE ESSENTIAL THAT GRADING BE COMPLETED TO OUTER EDGE OF RIGHT-OF-WAY BEFORE UTILITY INSTALLATION AND BE WITHIN 15cm OF FINAL GRADE.
3. NO TWO (2) ABOVE GROUND UTILITIES ON THE SAME LOT FRONTAGE.
4. HYDRO AND TELECOMMUNICATIONS TO BE INSTALLED IN JOINT TRENCH.
5. SIDEWALK TO BE 1.50m WIDTH ONE SIDE OF R.O.W. ONLY FOR LOCAL STREETS. SIDEWALK TO BE 1.50m WIDTH BOTH SIDES OF R.O.W. FOR COLLECTOR AND ARTERIAL STREETS. 2.5m MULTI-USE PATH MAY BE REQUESTED IN LIEU OF SIDEWALK. PATH MUST BE CONSTRUCTED WITH 75mm ASPHALT AND 250mm OF GRAN 'A'. GRANULAR BASE MUST BE A MINIMUM 150mm WIDER ON EACH SIDE OF ASPHALT.
6. WATER SERVICE CURB STOPS MUST BE PLACED AT PROPERTY LINE.
7. SANITARY & STORM CLEANOUTS ON PROPERTY LINE WITH APPROVED METAL CAPS.



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**Figure CS-3A**  
 Typical Road Cross Section - 22m R.O.W.  
 Collector Road with Boulevard (Without Parking)





**NOTES:**

- 1 Maximum upgrade shall be 10%.
- 2 Maximum downgrade shall be 8%.
- A All dimensions are in millimetres unless otherwise shown.

DRIVEWAY DIMENSIONS				
LAND USE	WIDTH m			
	Single		Double	
	min	max	min	max
Residential	3.0	4.3	6.0	7.3

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2009	Rev	1	
<b>URBAN RESIDENTIAL ENTRANCE</b>				
<b>OPSD 351.010</b>				

**NOTES**

- 1. SEE DETAIL D-3 FOR STANDARD CROSS SECTIONS
- 2. CONCRETE DRIVEWAYS TO BE 150mm (6") COMPACTED GRANULAR 'A' AND 150mm (6") 30 MPa CONCRETE (AIR ENTRAINED 6% +/- 1.5 %).
- 3. ASPHALT DRIVEWAYS TO BE 250mm (10") COMPACTED GRANULAR 'A' AND 75mm (3") ASPHALT SURFACE.
- 4. PAVING STONE DRIVEWAYS TO BE 250mm (10") COMPACTED GRANULAR 'A' WITH PAVING STONE SURFACE.
- 5. ONLY ONE DRIVEWAY PER LOT IS PERMITTED.

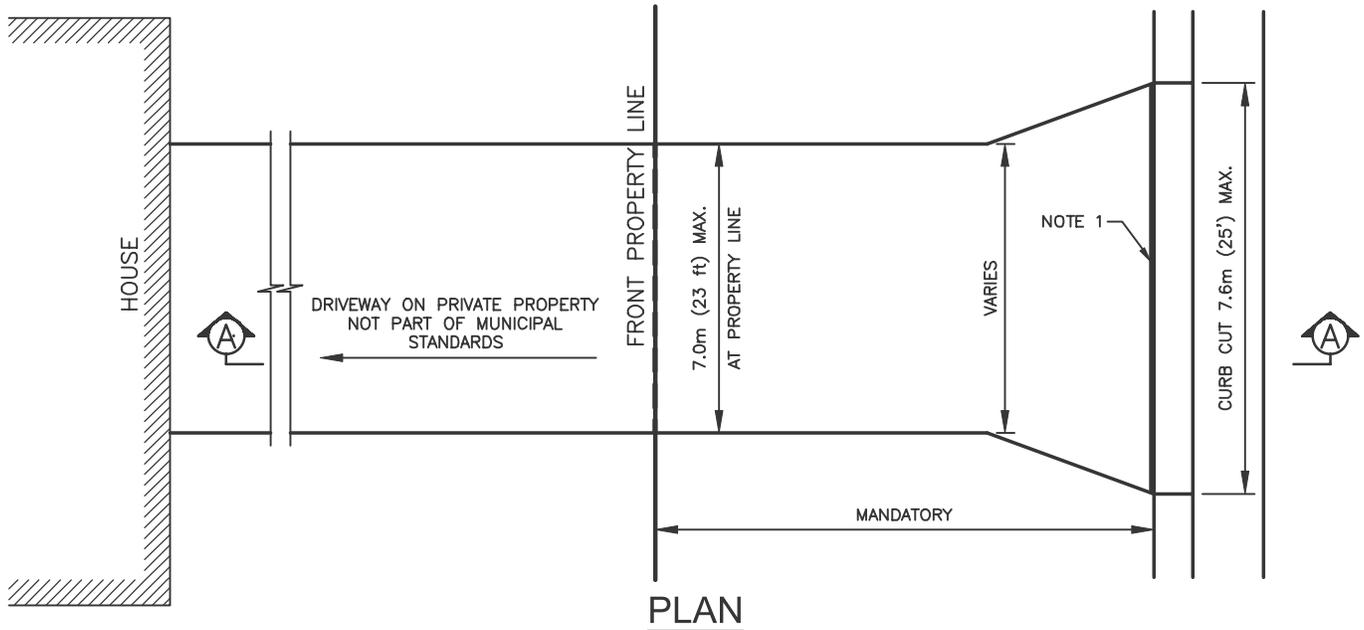


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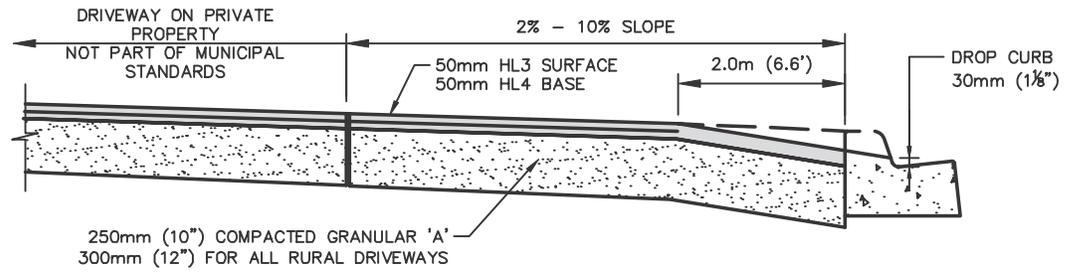
**Figure D-1**  
Urban Residential Entrance  
OPSD 351.010

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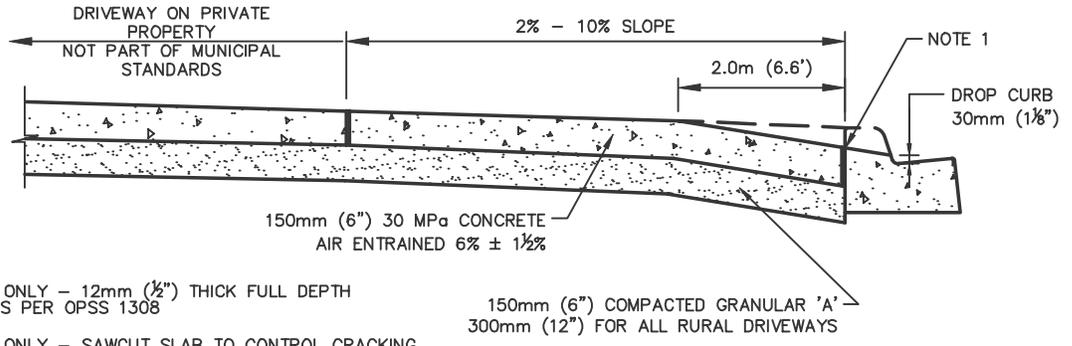


**PLAN**

**ASPHALT SECTION A-A**



**CONCRETE SECTION A-A**



**NOTES**

1. FOR CONCRETE DRIVEWAYS ONLY – 12mm (1/2") THICK FULL DEPTH PREMOLDED JOINT FILLER AS PER OPSS 1308
2. FOR CONCRETE DRIVEWAYS ONLY – SAWCUT SLAB TO CONTROL CRACKING.
3. ONLY ONE DRIVEWAY PER LOT IS PERMITTED.

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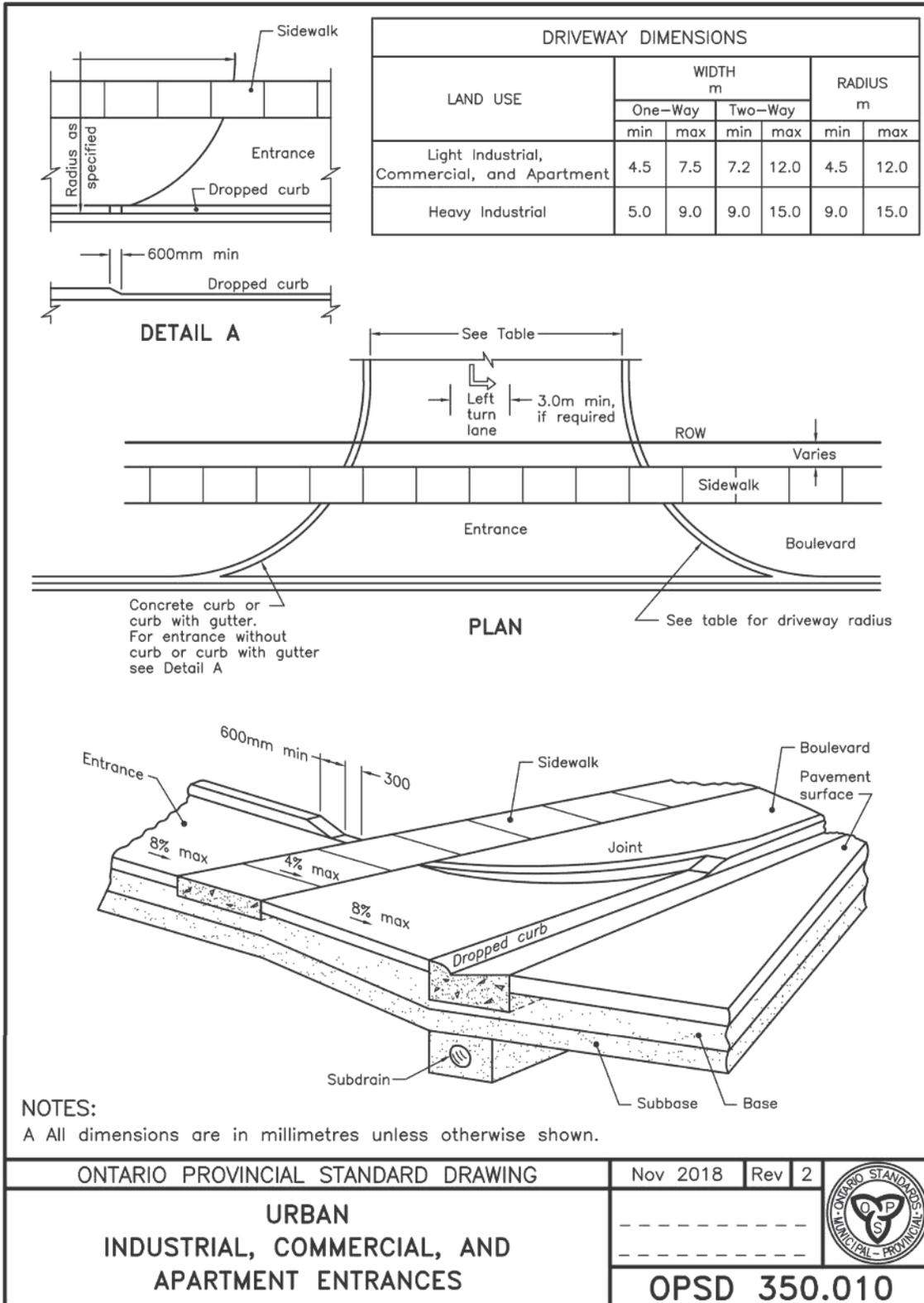


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**Figure D-1A**

Residential Driveway Entrance Without Sidewalks



**NOTES**

1. CONCRETE SURFACES MUST HAVE 250mm OF COMPACTED GRANULAR 'A' AND 150mm OF 30 MPa CONCRETE, AIR ENTRAINED 6% +/- 1.5%.
2. ASPHALT SURFACE MUST HAVE 200mm OF COMPACTED GRANULAR 'A' AND 225mm OF ASPHALT SURFACE.



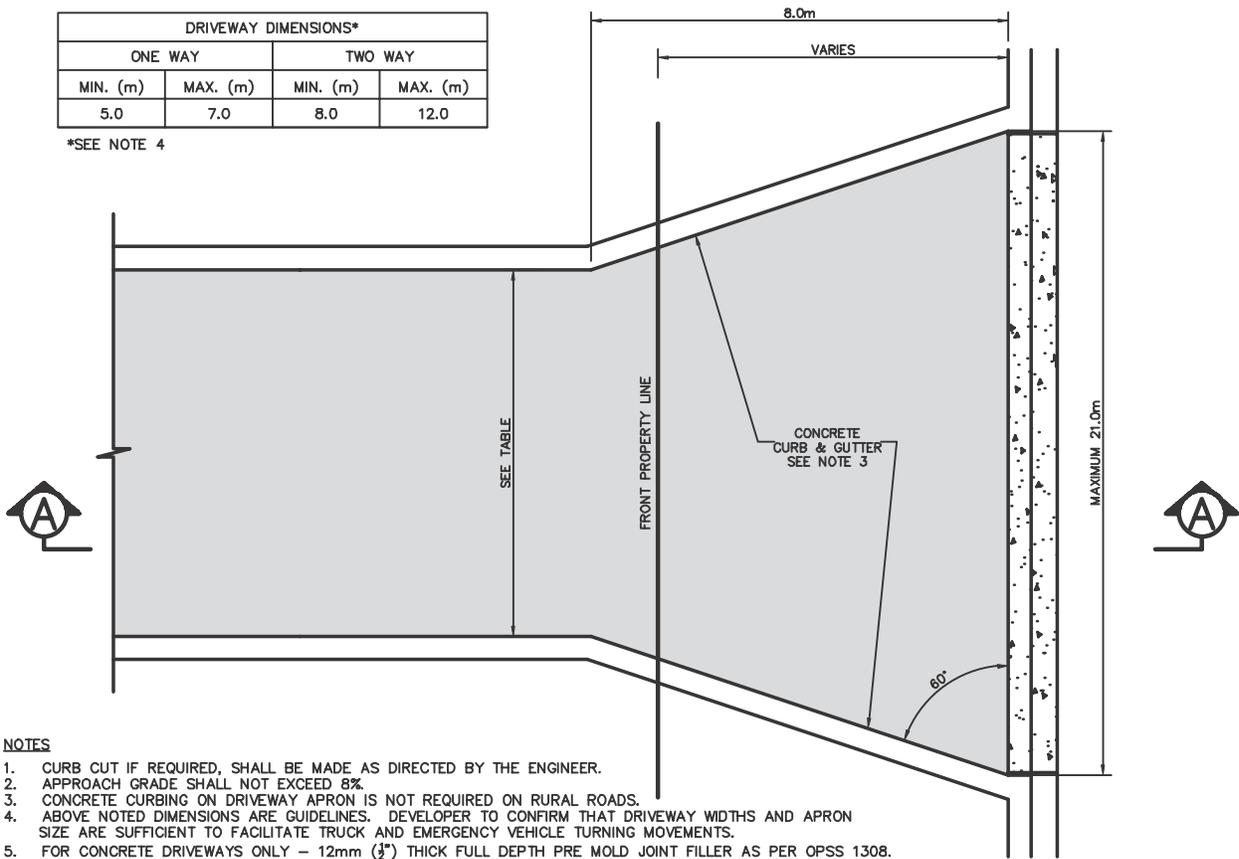
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**Figure D-2**  
Urban Industrial, Commercial, & Apartment Entrance - OPSD 350.010

DRIVEWAY DIMENSIONS*			
ONE WAY		TWO WAY	
MIN. (m)	MAX. (m)	MIN. (m)	MAX. (m)
5.0	7.0	8.0	12.0

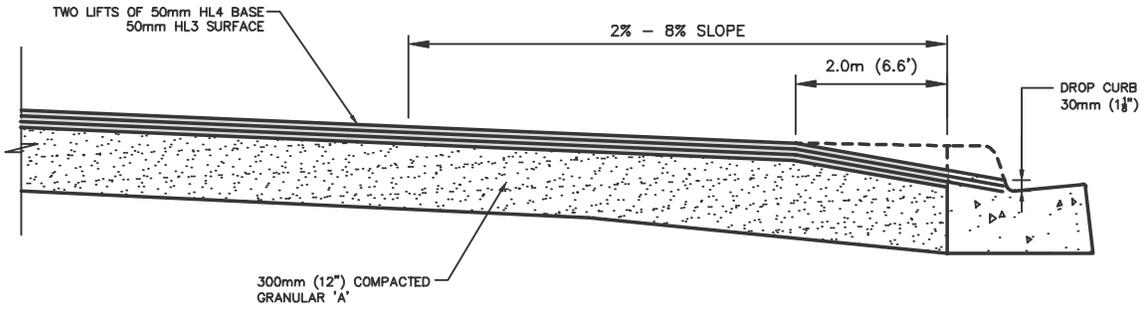
\*SEE NOTE 4



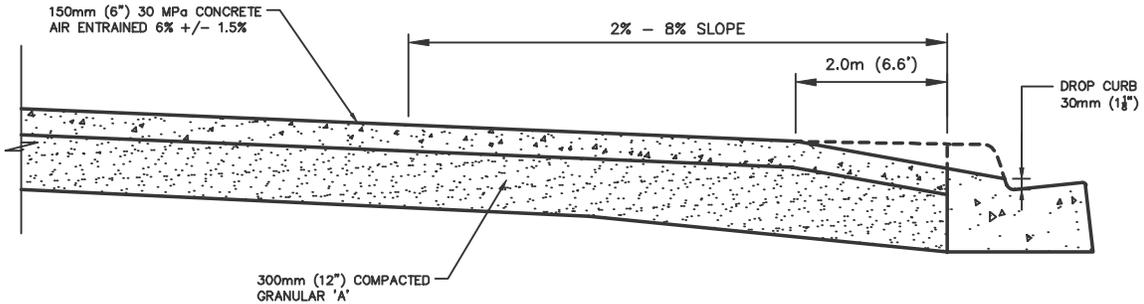
**NOTES**

1. CURB CUT IF REQUIRED, SHALL BE MADE AS DIRECTED BY THE ENGINEER.
2. APPROACH GRADE SHALL NOT EXCEED 8%.
3. CONCRETE CURBING ON DRIVEWAY APRON IS NOT REQUIRED ON RURAL ROADS.
4. ABOVE NOTED DIMENSIONS ARE GUIDELINES. DEVELOPER TO CONFIRM THAT DRIVEWAY WIDTHS AND APRON SIZE ARE SUFFICIENT TO FACILITATE TRUCK AND EMERGENCY VEHICLE TURNING MOVEMENTS.
5. FOR CONCRETE DRIVEWAYS ONLY - 12mm (½") THICK FULL DEPTH PRE MOLD JOINT FILLER AS PER OPSS 1308.
6. FOR CONCRETE DRIVEWAYS ONLY - SAWCUT SLAB TO CONTROL CRACKING
7. WIRE MESH IS NOT PERMITTED TO BE PLACED WITHIN THE MUNICIPAL SECTIONS OF THE DRIVEWAY.

**ASPHALT SECTION A-A**



**CONCRETE SECTION A-A**



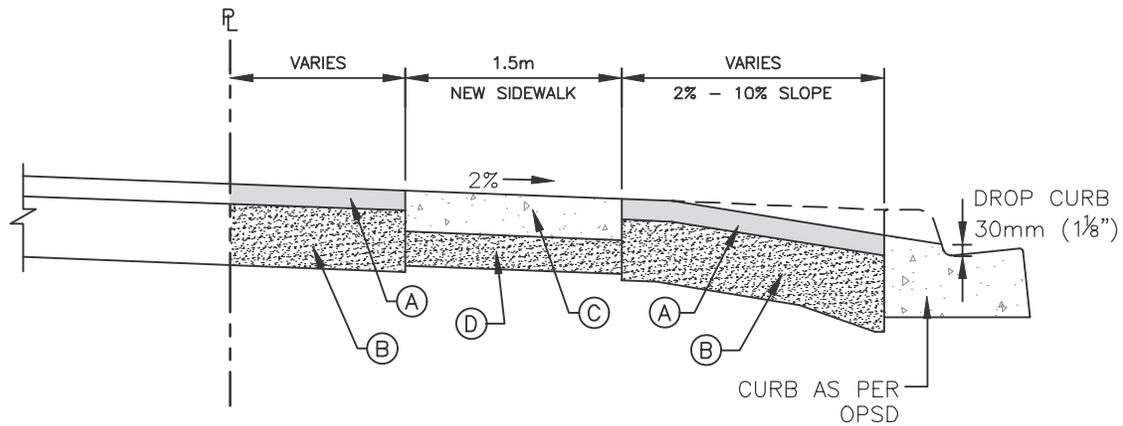
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**Figure D-2A**  
 INDUSTRIAL DRIVEWAY ENTRANCE  
 WITHOUT SIDEWALK



SECTION

	URBAN RESIDENTIAL DRIVEWAY		RURAL RESIDENTIAL DRIVEWAY		
	ASPHALT	CONCRETE	ASPHALT	CONCRETE	GRAVEL
A	50mm (2") HL3 SURFACE 50mm (2") HL4 BASE	150mm (6") 30 MPa CONCRETE	50mm (2") HL3 SURFACE 50mm (2") HL4 BASE	150mm (6") 30 MPa CONCRETE	N/A
B	250mm (10") COMPACTED GRANULAR 'A'	150mm (6") COMPACTED GRANULAR 'A'	300mm (12") COMPACTED GRANULAR 'A'	150mm (6") COMPACTED GRANULAR 'A'	300mm (12") COMPACTED GRANULAR 'A'
C	150mm (6") 32 MPa CONCRETE	150mm (6") 32 MPa CONCRETE	150mm (6") 32 MPa CONCRETE	150mm (6") 32 MPa CONCRETE	150mm (6") 32 MPa CONCRETE
D	150mm (6") COMPACTED GRANULAR 'A'	150mm (6") COMPACTED GRANULAR 'A'	150mm (6") COMPACTED GRANULAR 'A'	150mm (6") COMPACTED GRANULAR 'A'	150mm (6") COMPACTED GRANULAR 'A'

	INDUSTRIAL, COMMERCIAL & RESIDENTIAL DRIVEWAY	
	ASPHALT	CONCRETE
A	50mm (2") HL3 SURFACE TWO LIFTS OF 50mm (2") HL4 BASE	200mm (8") 30 MPa CONCRETE
B	300mm (12") COMPACTED GRANULAR 'A'	200mm (8") COMPACTED THICKNESS G.B.C.'A'
C	200mm (8") 32 MPa CONCRETE	200mm (8") 32 MPa CONCRETE
D	200mm (8") COMPACTED GRANULAR 'A'	200mm (8") COMPACTED GRANULAR 'A'

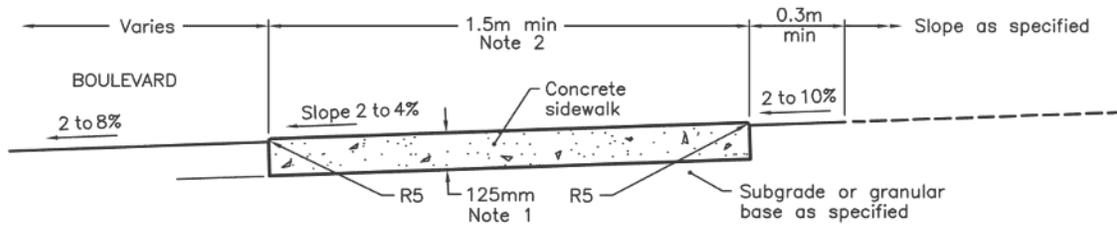
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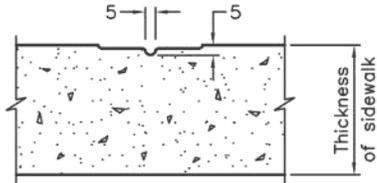
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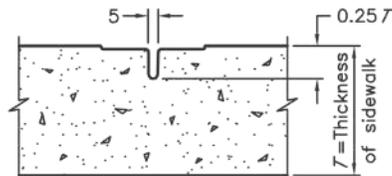
**Figure D-3**  
Residential, Industrial, Commercial,  
& Apartment Entrances - Sections



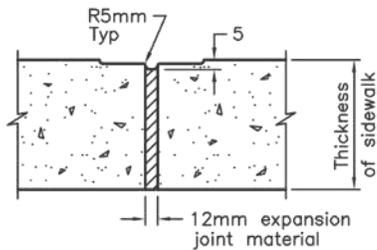
TYPICAL SECTION



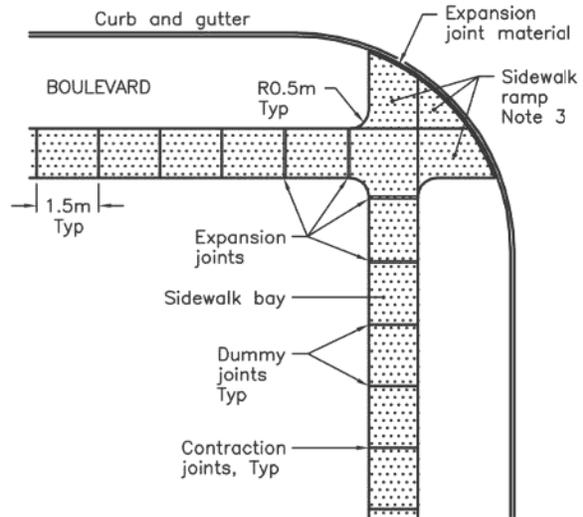
DUMMY JOINT (OPTIONAL)



CONTRACTION JOINT



EXPANSION JOINT



JOINT LAYOUT

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, 310.032, 310.033 and 310.039.
- A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2015	Rev 2	
CONCRETE SIDEWALK		-----		
		OPSD 310.010		

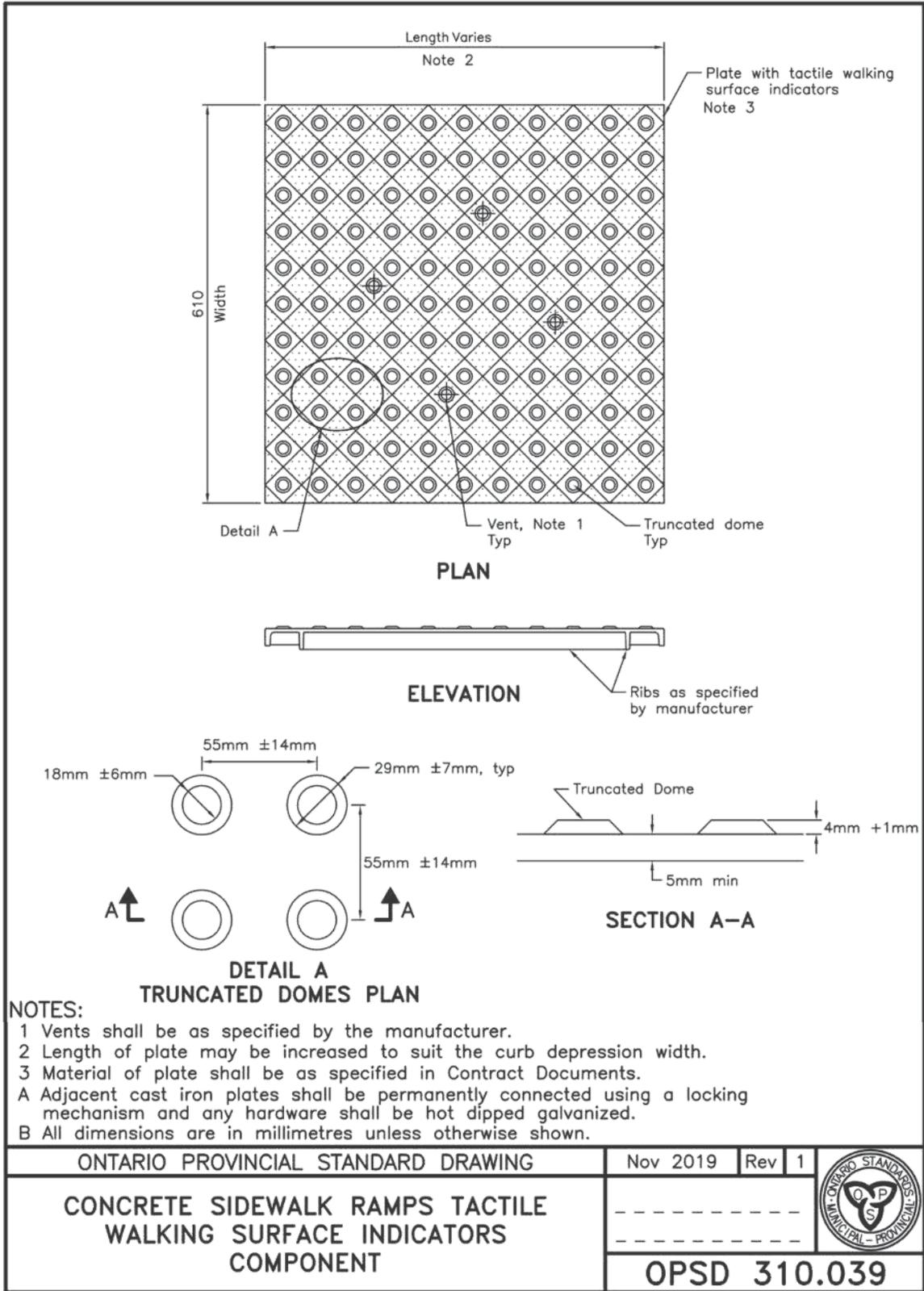
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**Figure D-4**  
 CONCRETE SIDEWALK  
 OPSD 310.010 (MODIFIED)



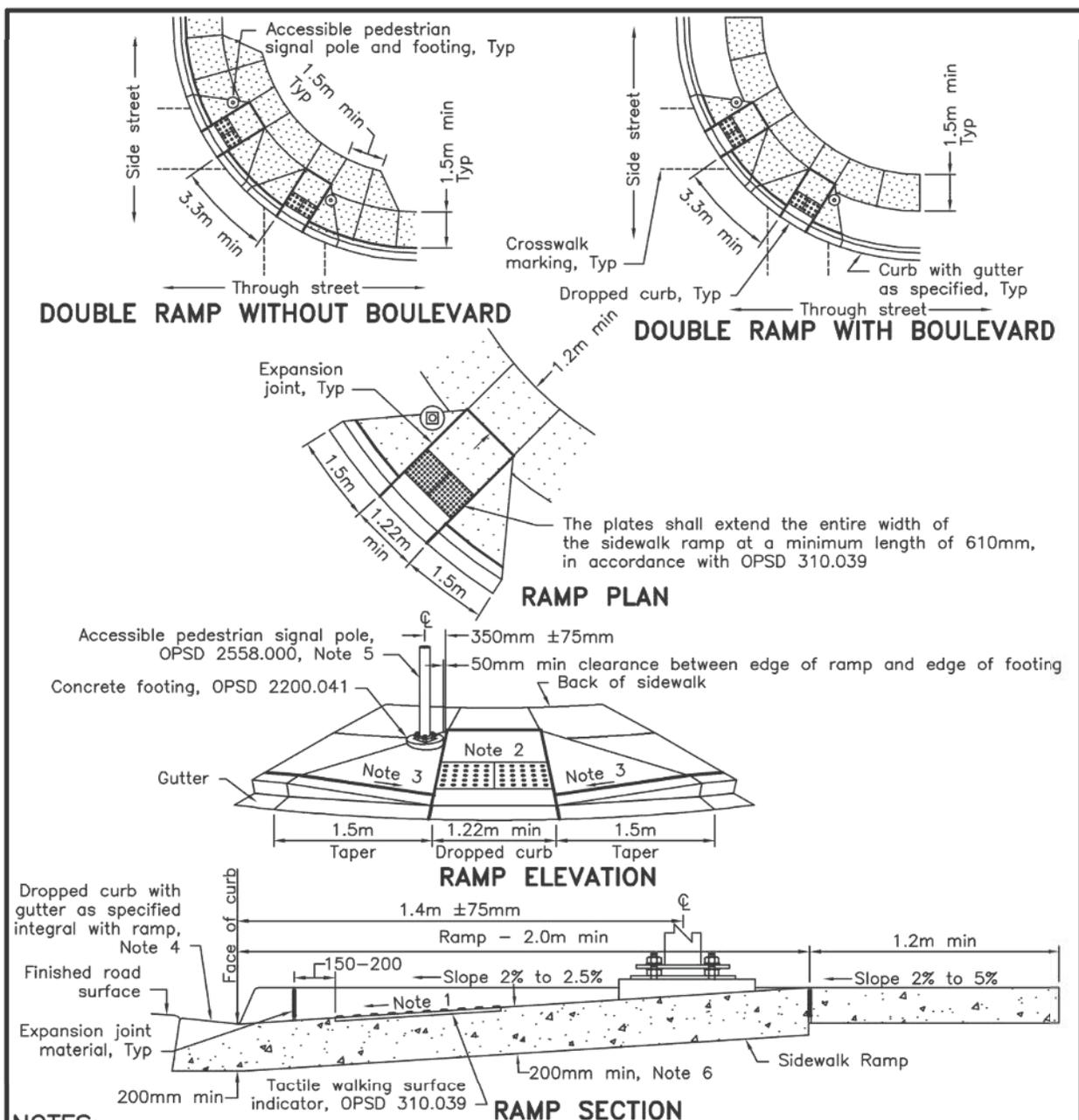
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**Figure D-5**  
 TACTILE PLATES  
 OPSD 310.039



- NOTES:**
- 1 Slope of ramp shall not exceed 8%.
  - 2 Cross slope of ramp shall not exceed 2% in either direction.
  - 3 Cross slope of flared side of ramp shall not exceed 8%.
  - 4 Dropped curb at ramp shall be modified to eliminate 30 mm step at gutter.
  - 5 Accessible pedestrian signal to have tactile arrow that aligns with direction of crosswalk.
  - 6 Minimum thickness of ramp is 200mm. Minimum thickness of sidewalk and flared sides adjacent to ramp is 150mm.
- A Where only one crosswalk is present at an intersection, only one curb ramp is required.  
 B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 1	
<b>CONCRETE SIDEWALK RAMPS AT SIGNALIZED INTERSECTIONS</b>	-----	-----	
<b>OPSD 310.030</b>			

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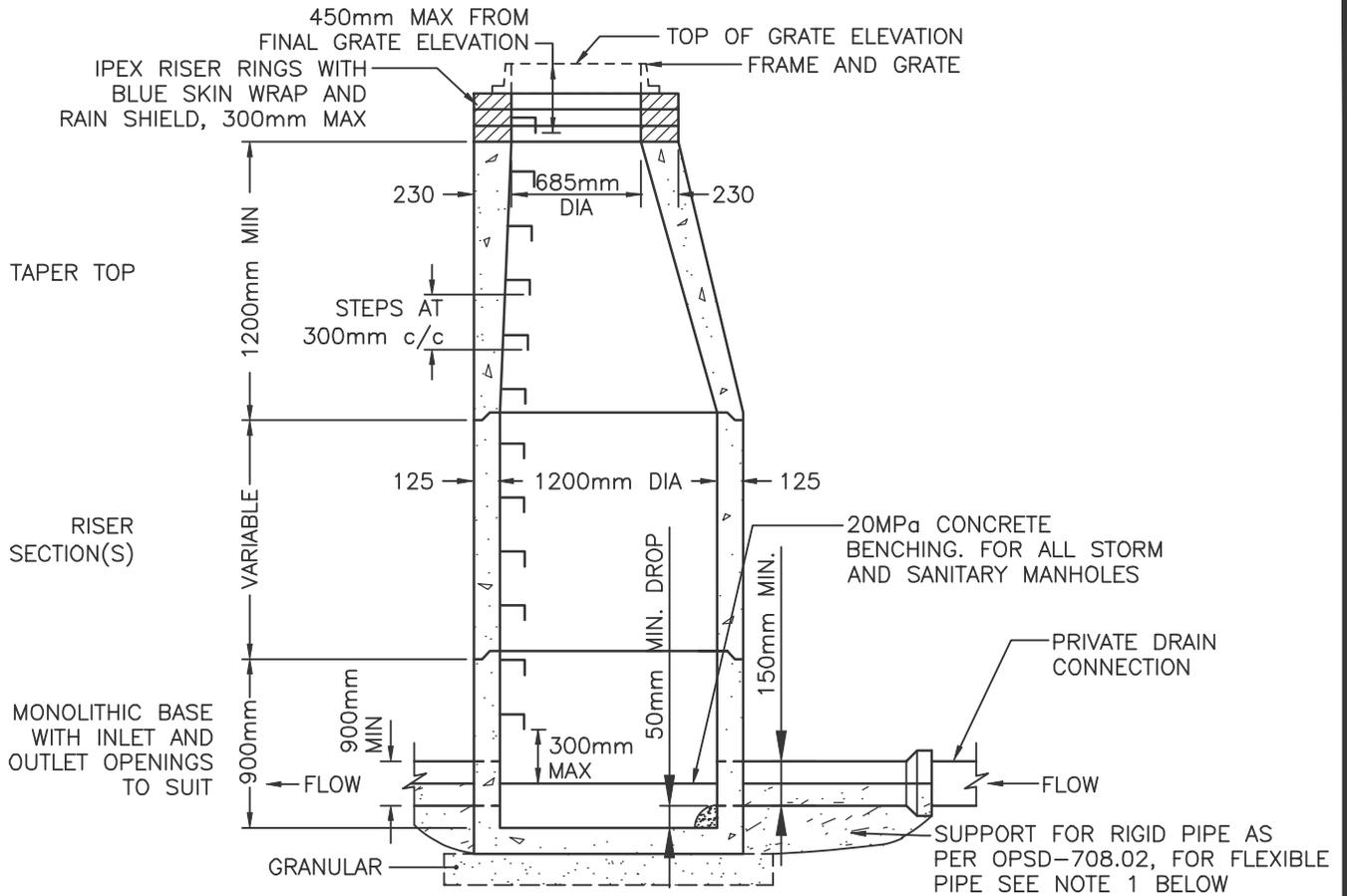
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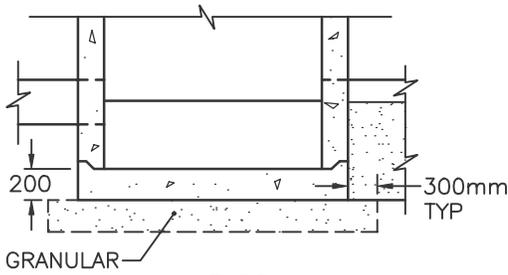
**Figure D-6**  
 CONCRETE SIDEWALK RAMPS AT  
 SIGNALIZED INTERSECTION





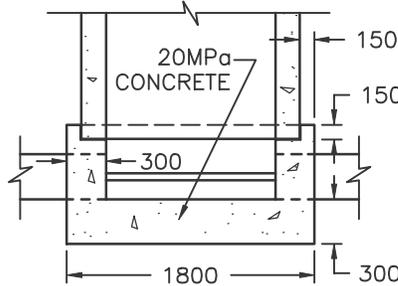


BOTTOM RISER SECTION WITH INLET AND OUTLET OPENINGS TO SUIT

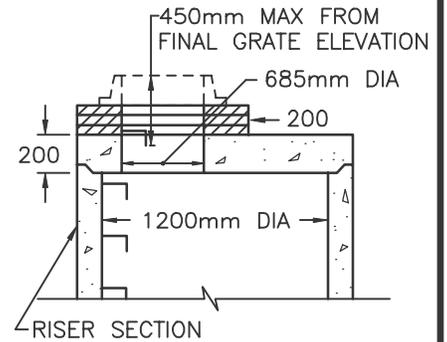


TYPE A  
PRECAST SLAB BASE

ALTERNATIVES



TYPE B  
CAST IN PLACE BASE



TYPE C  
PRECAST FLAT TOP

FLEXIBLE JOINT 300mm MAX. FROM MANHOLE WALL, IN LIEU OF CONCRETE CRADLE.

TYPE D

APPROVED FLEXIBLE WATERTIGHT PIPE CONNECTOR IN MH OPENING IN LIEU OF CONCRETE CRADLE.

TYPE E

PIPE SUPPORT AT MANHOLE

**NOTES:**

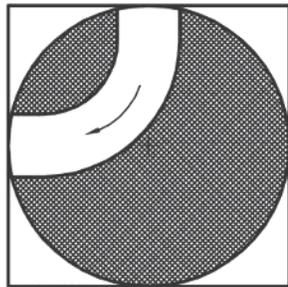
- FOR FLEXIBLE PIPE USE TYPES 'D' OR 'E' PIPE SUPPORT ONLY.
- GRANULAR BACKFILL TO BE PLACED TO A MINIMUM THICKNESS OF 300mm ALL AROUND.
- SPECIAL BASE DESIGN REQUIRED FOR DEPTHS GREATER THAN 10.0m.
- FILL LIFTING HOLES AND PIPE CONNECTIONS AND PARGE ADJUSTMENT UNITS ON OUTSIDE 15mm THICK WITH 1:3 NON-SHRINK MORTAR MIX.
- PRECAST CONCRETE COMPONENTS AS PER OPSD-701.03.
- USE ALTERNATIVE BASE, TOP, PIPE SUPPORT OR CONNECTOR, STEPS, FRAME AND COVER AND/OR BENCHING WHERE SPECIFIED.
- STRUCTURES EXCEEDING 5.0m IN DEPTH TO INCLUDE SAFETY GRATE AS PER OPSD-404.02.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.



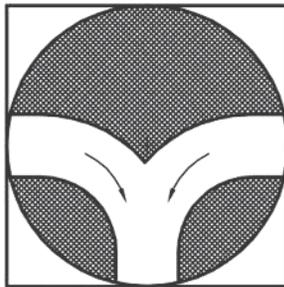
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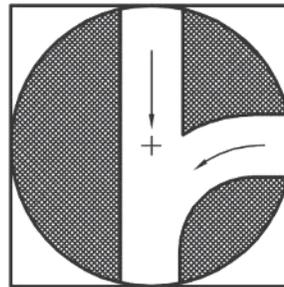
**Figure S-1**  
SAMPLING MANHOLE  
1200mm DIAMETER



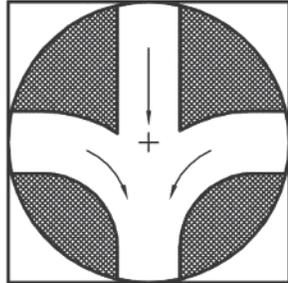
1. Right angle bend



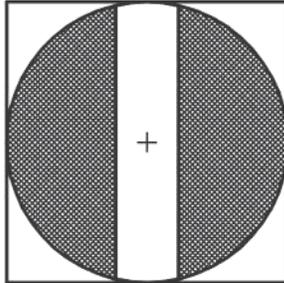
2. Tee connection



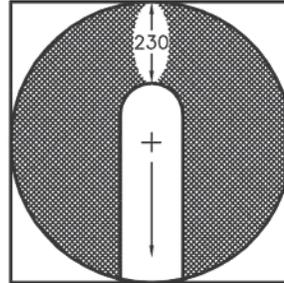
3. Three way junction



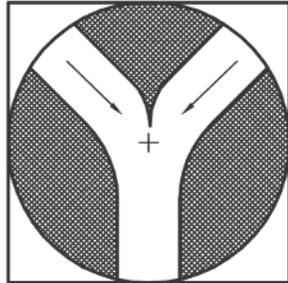
4. Four way junction



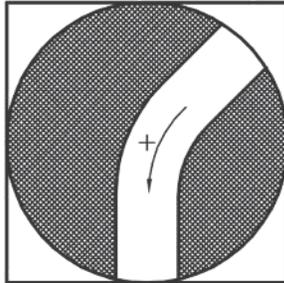
5. Straight through



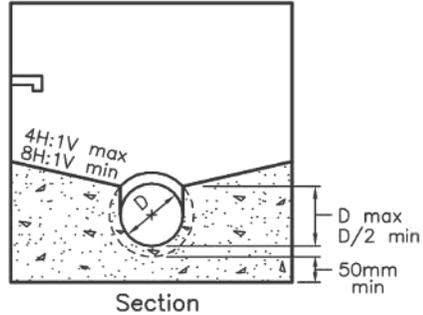
6. Dead end



7. Wye connection



8. 45° bend



Section

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	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-finished, it shall be given wood float finish, channel shall be given steel trowel finish.
- C Benchng 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	
<b>MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES</b>	-----		
<b>OPSD 701.021</b>			



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**Figure S-2**  
MAINTENANCE HOLE BENCHING  
AND PIPE OPENING DETAILS

Tapered top  
See alternatives C  
and D

Riser sections  
as required

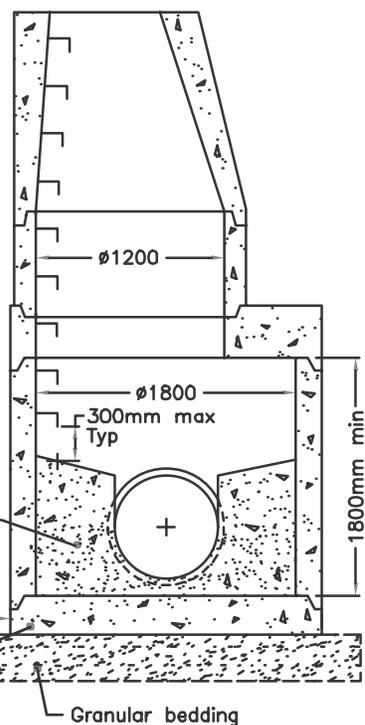
Transition slab  
See alternative B

Riser sections  
as required

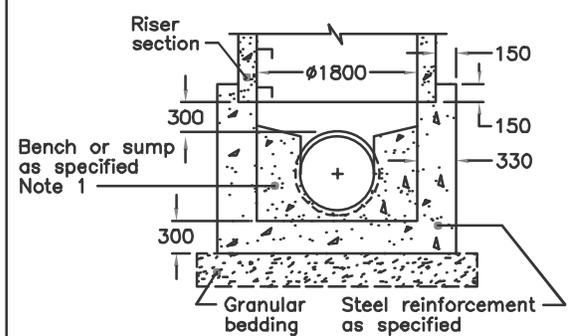
Bench or sump  
as specified  
Note 1

300mm  
Typ

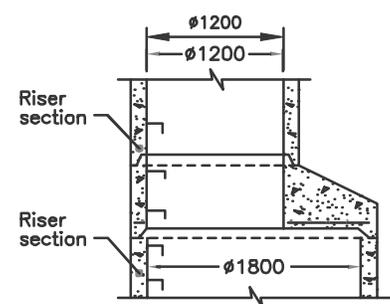
Precast slab  
base  
See alternative A



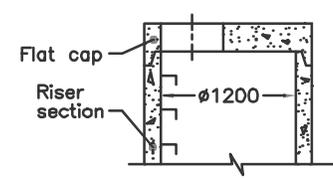
### ALTERNATIVES



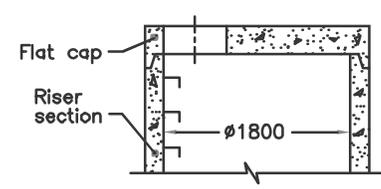
**A CAST-IN-PLACE BASE**



**B TAPERED TRANSITION SLAB**



**C 1200mm PRECAST FLAT CAP**



**D 1800mm PRECAST FLAT CAP**

**NOTES:**

- 1 For sump detail, see OPSD 701.010.
- A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
- B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.050, 701.051, 703.012, 703.022, and 706.020.
- C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.022.
- D Pipe support shall be according to OPSD 708.020.
- E For benching and pipe opening details, see OPSD 701.021.
- F For adjustment unit and frame installation, see OPSD 704.010.
- G All dimensions are nominal.
- H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING

**PRECAST CONCRETE  
MAINTENANCE HOLE**  
1800mm DIAMETER

Nov 2014 Rev 5



**OPSD 701.012**

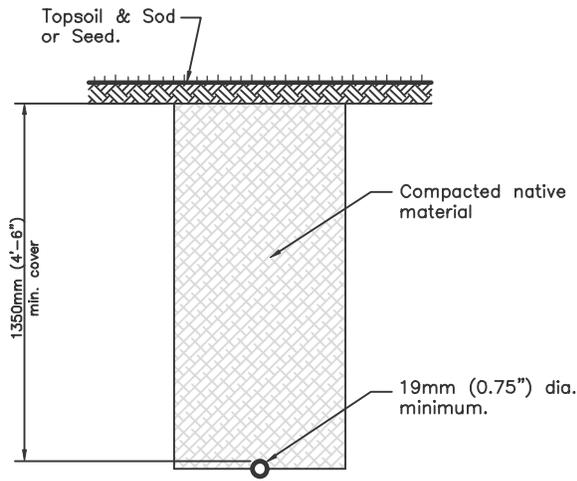


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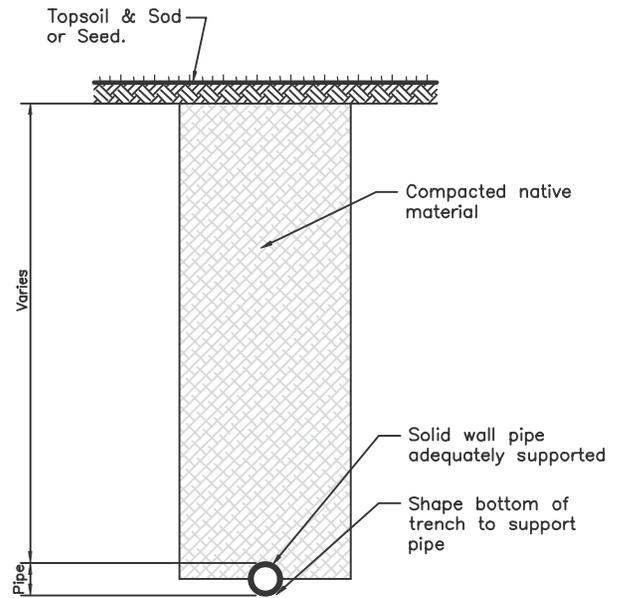
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**Figure S-3**  
**PRECAST MAINTENANCE HOLE**  
1800mm DIAMETER

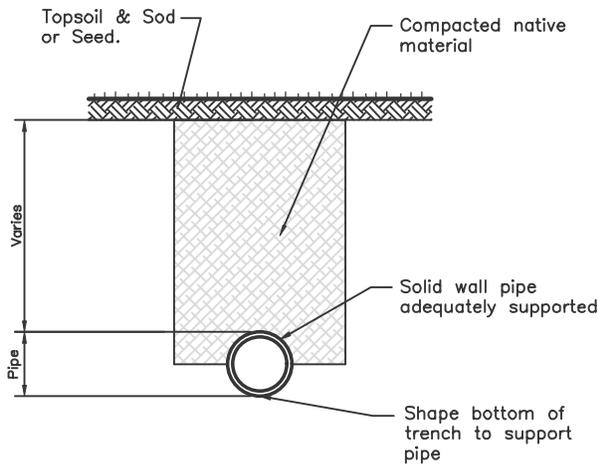
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 PLOT DATE: 2022-01-24 @ 11:15:34 AM PLOT STYLE: DILLON-STANDARD.CTB



**WATER**

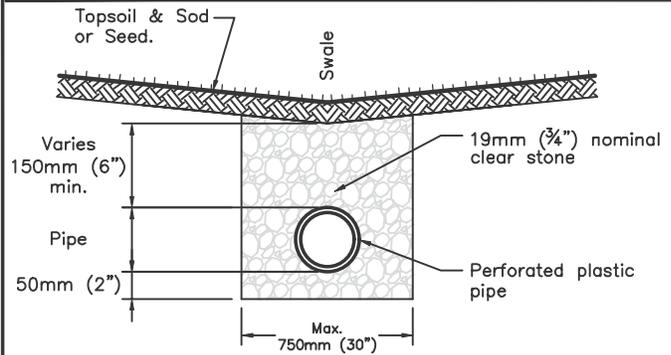


**SANITARY DRAIN**



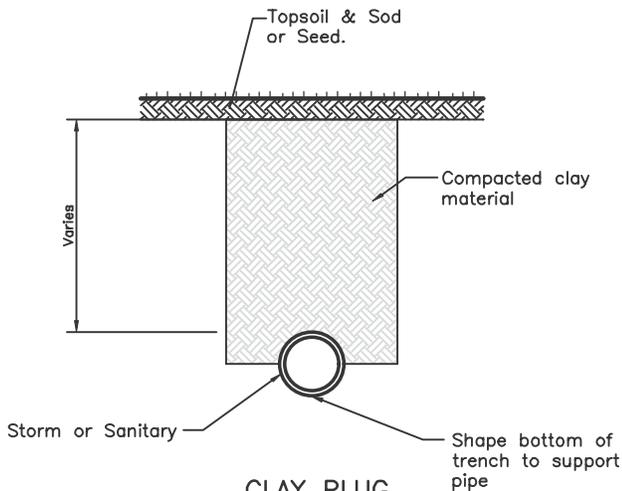
**STORM DRAIN – SOLID PIPE**

From 3.0m (10') back of house to front lot line.



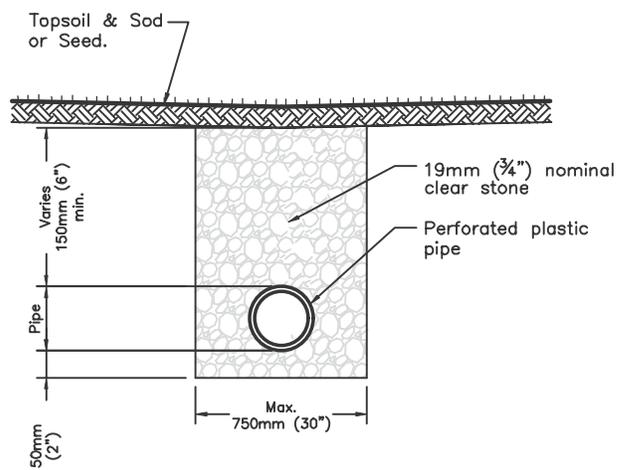
**REAR YARD DRAIN**

Setback 1.5m (5') from rear property line.



**CLAY PLUG**

To extend 3.0m (10') along trench.



**STORM DRAIN – PERFORATED PIPE**

From rear yard to 3.0m (10') from back of house.

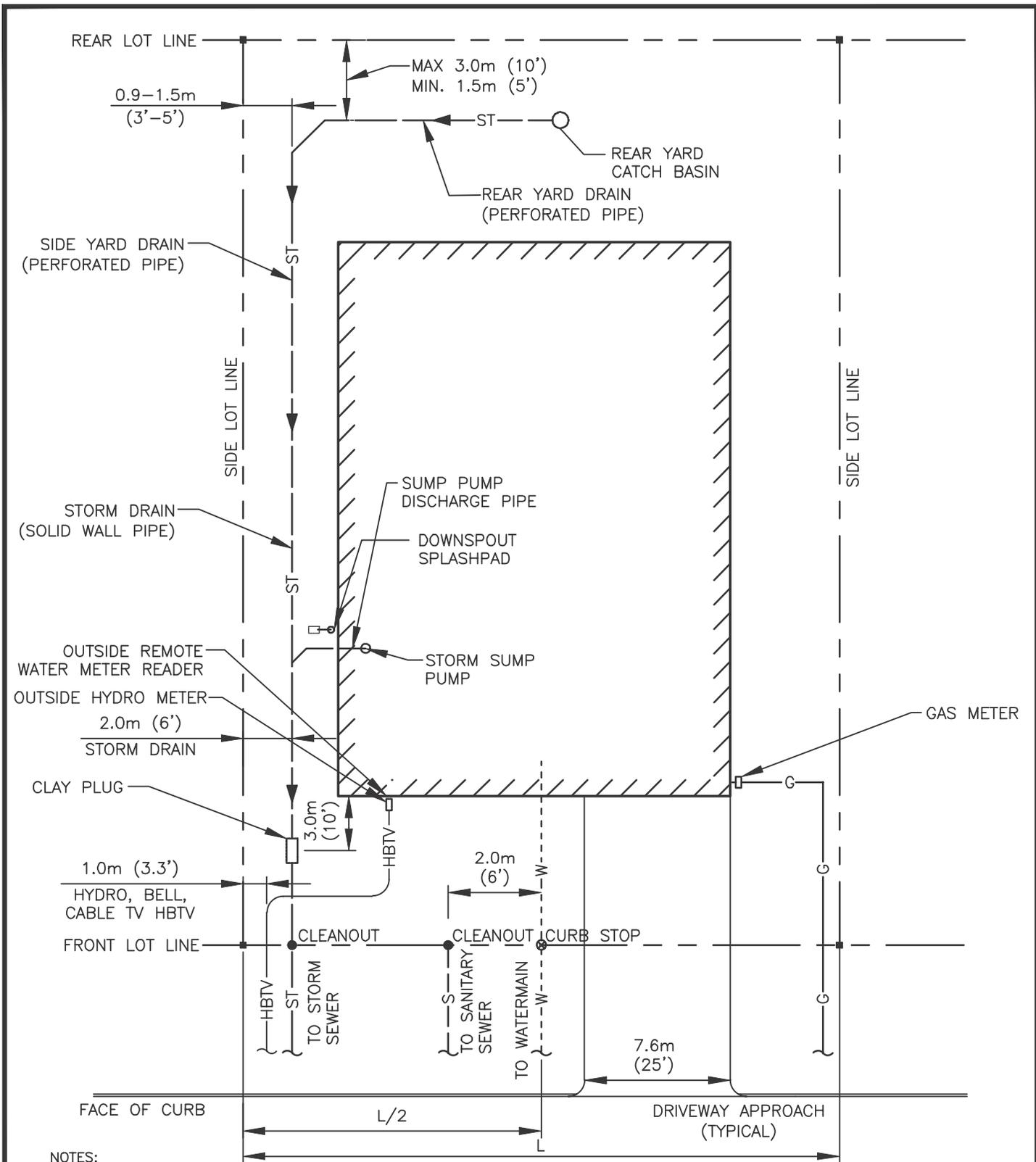
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**Figure S-4**  
 PRIVATE SERVICE CONNECTIONS  
 BEDDING AND BACKFILL



**NOTES:**

1. OFFSETS SHOWN ARE TYPICAL, THEY MAY VARY BASED ON SERVICING DRAWINGS.
2. SEE O.B.C. FOR CLEANOUT SPACING.
3. REAR YARD CATCH BASIN LOCATION TO BE APPROVED BY TOWN.
4. AVOID SANITARY CLEANOUT IN DRIVEWAYS AND WATER VALVE BOXES.
5. MAINTAIN 1.5m SEPARATION BETWEEN SERVICES IF POSSIBLE.
6. GASKET FITTINGS ONLY.
7. DOWNSPOUTS DISCHARGE TO GROUND SURFACE UNLESS OVER SIDEWALKS, DRIVEWAYS, OR OTHER HARD SURFACES.
8. ALL CLEANOUT CAPS TO BE FOUNDRY STEEL CLEANOUT CAP

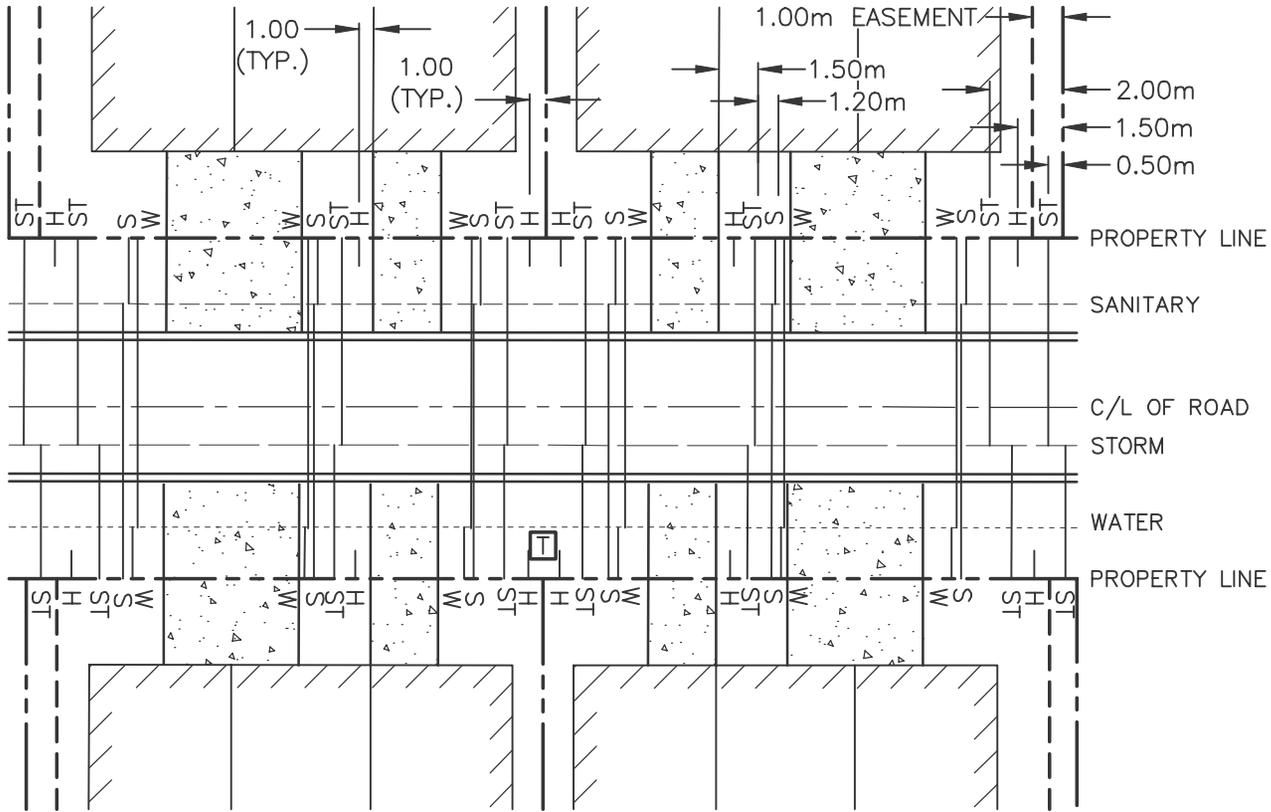
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**Figure S-5**  
SINGLE LOT SERVICE LOCATIONS



**NOTE:**  
 SERVICE CONNECTION TO BE KEPT OUT OF DRIVEWAYS WHERE POSSIBLE

**NOTE:**  
 SANITARY AND WATER SERVICES TO BE INSTALLED IN THE SAME TRENCH WITH SHELF WITH 0.5m HORIZONTAL SEPARATION.

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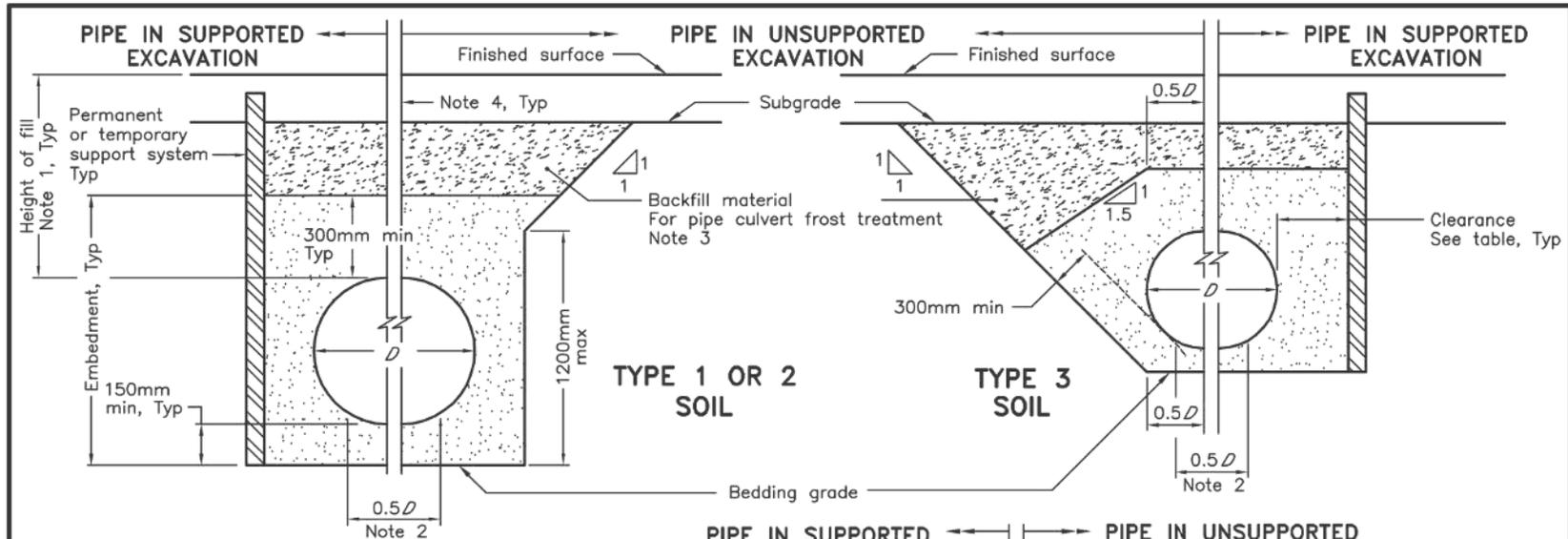


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**Figure S-6**  
 MULTI-UNIT LOT SERVICE LOCATIONS

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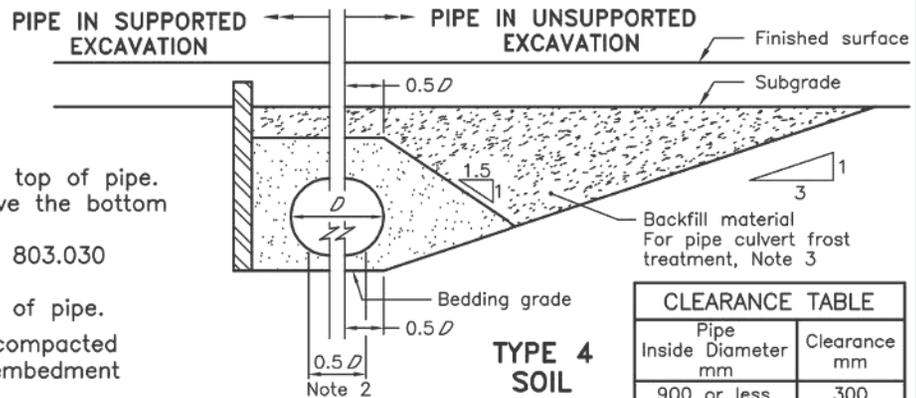


**LEGEND:**

$D$  - 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.



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

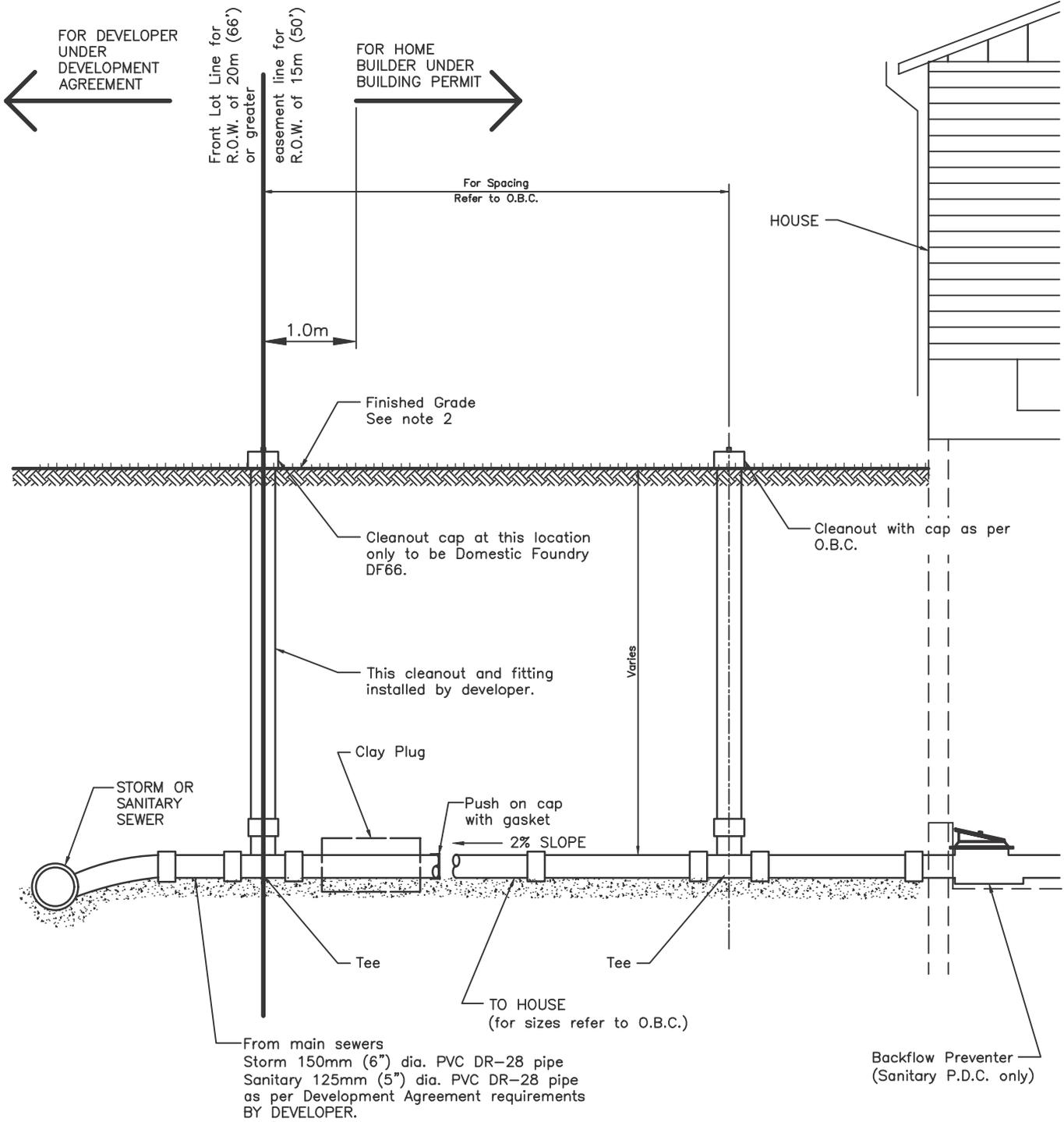
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3	
<b>FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION</b>	-----		
<b>OPSD 802.010</b>			

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**Figure S-7**  
 FLEXIBLE PIPE EMBEDMENT AND  
 BACKFILL EARTH EXCAVATION - OPSD 802.010



From main sewers  
 Storm 150mm (6") dia. PVC DR-28 pipe  
 Sanitary 125mm (5") dia. PVC DR-28 pipe  
 as per Development Agreement requirements  
 BY DEVELOPER.

**NOTE**

1. All materials to be in compliance with O.B.C. and installed as per manufacturers recommendations.
2. All cleanouts to be visible for inspection. Do NOT bury.
3. Another 2.5m of pipe is required inside property.
4. No glued fittings underground.
5. Alternative location for service connection to be approved by Chief Building Official

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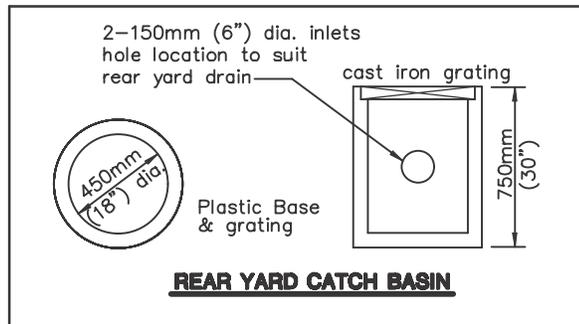
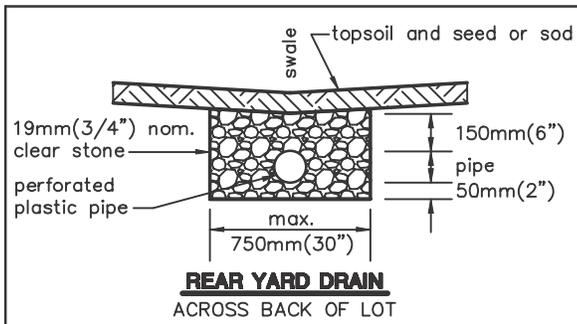
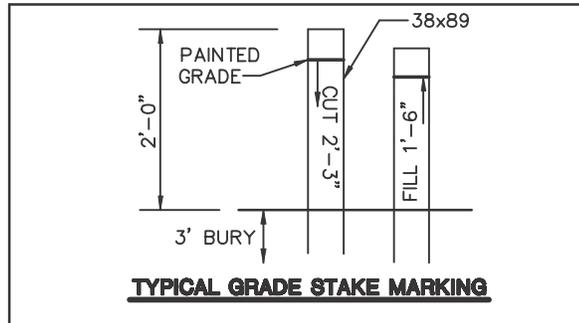
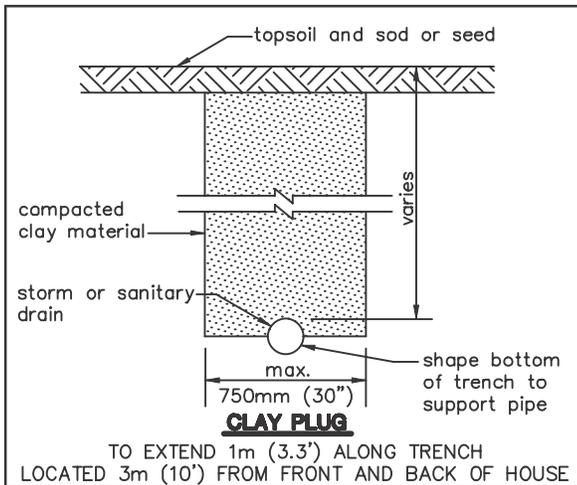
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**Figure S-8**  
 SANITARY AND STORM SERVICE CLEAN OUT

**NOTES:**

1. Place a 38x89x1500mm long (2"x4"x5') wood stake at each lot corner and at side yards adjacent to house. Mark the cut or fill to finished grade from top of stake on each stake. All stakes to remain in place until Chief Building Official approves final lot grading.
2. Optional Big "O" for storm drainage.
3. Reference Elevation –



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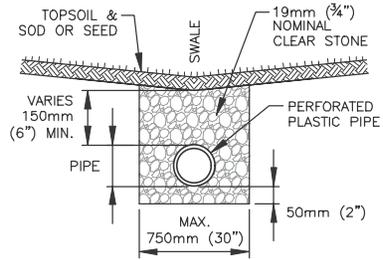


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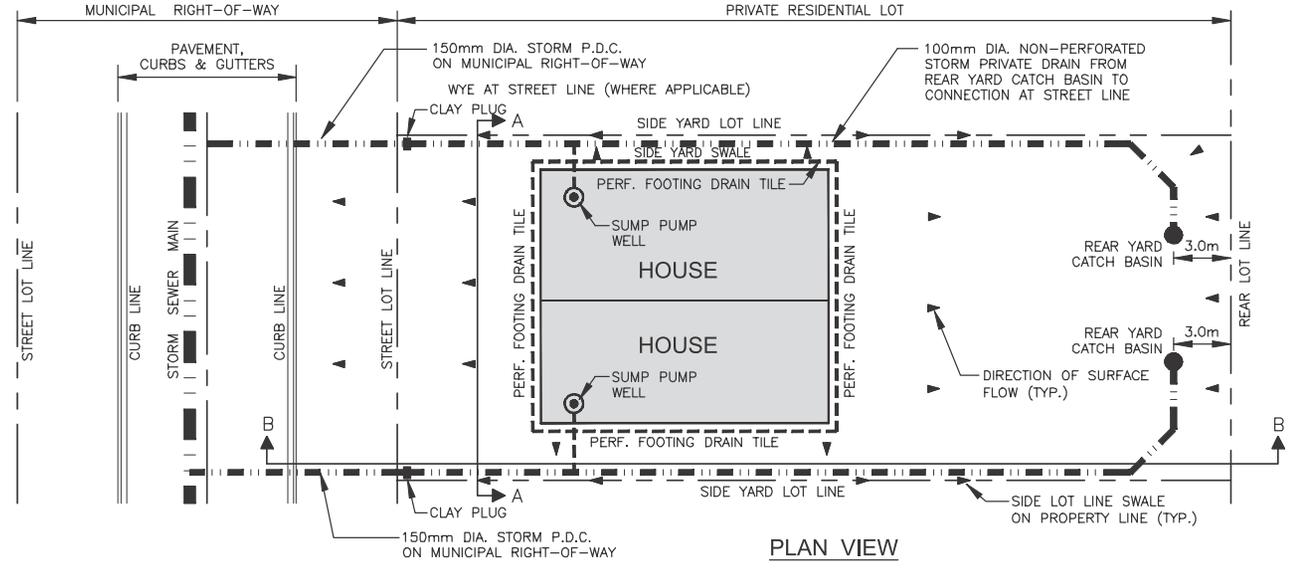
**Figure LG-1**  
**LOT GRADING AND SERVICES DETAIL SHEET**





NOTE:  
SETBACK 1.5m (5')  
FROM REAR PROPERTY LINE.

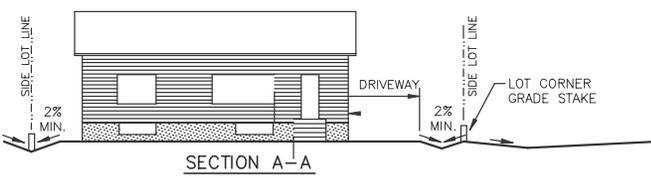
**REAR YARD DRAIN**



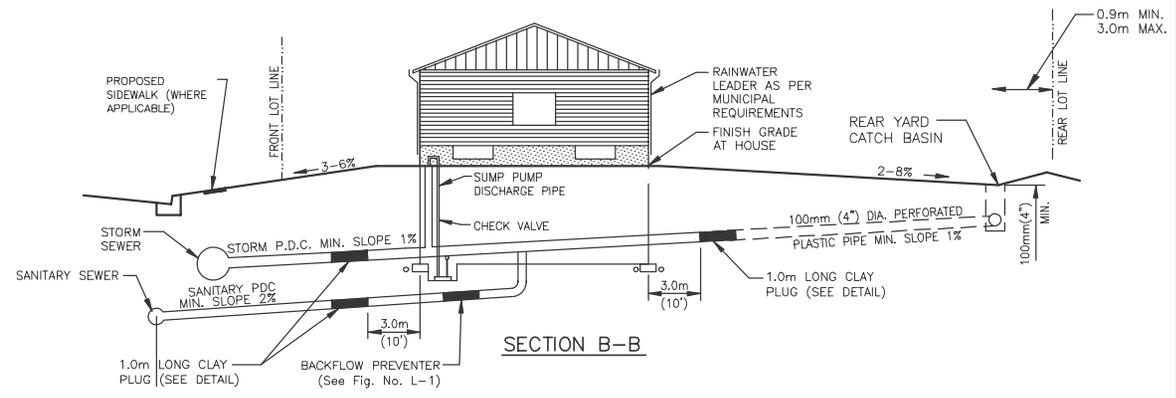
**PLAN VIEW**

**ABUTTING SIDE YARD CONDITION**  
side yard swale on side lot line - grade to front and rear of lot

**ABUTTING REAR YARD CONDITION**  
side yard swale between house and side lot line on lot - grade to front and rear of lot



**SECTION A-A**



**SECTION B-B**

DRAWING: 01 PLAN, REVISION: 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.



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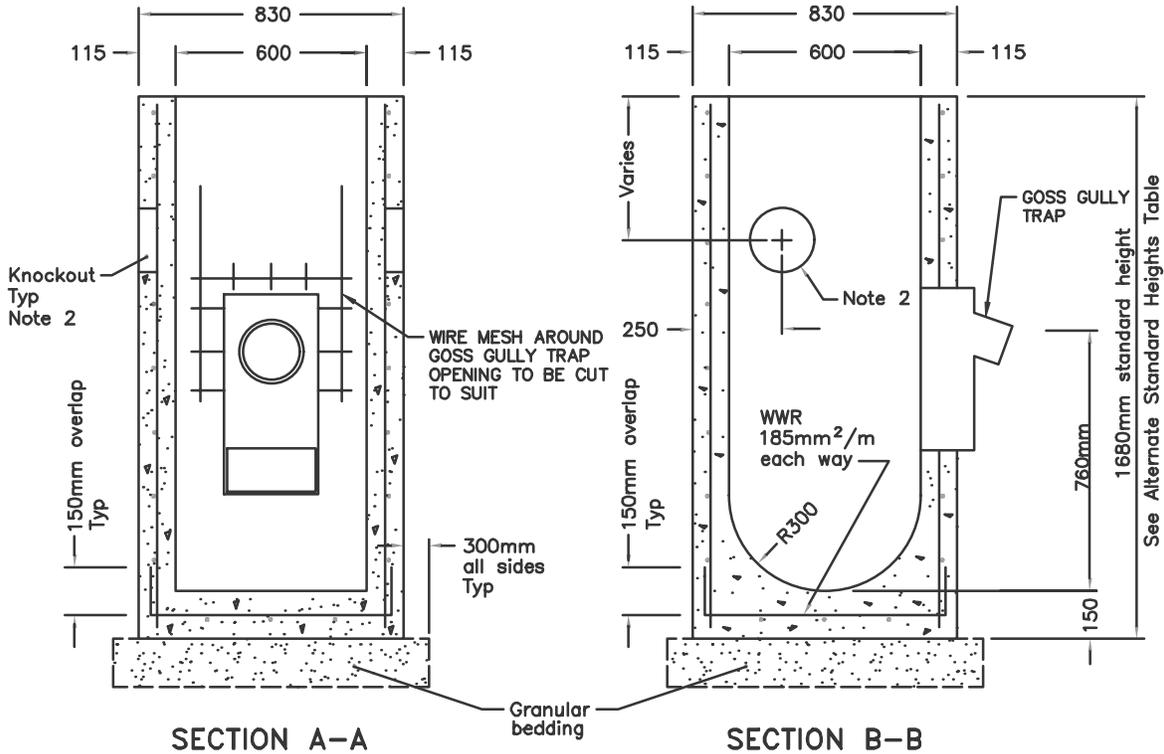
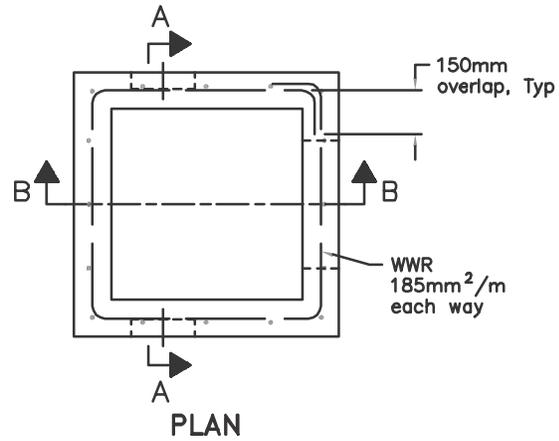
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**Figure LG3**  
LOT GRADING AND DRAINAGE  
SEMI-DETACHED





ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1520
D	1380



**NOTES:**

- 1 Outlet hole size 525mm diameter maximum, location as required.
- 2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
- A Centre reinforcing in base slab and walls  $\pm 20$ mm.
- B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
- C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
- D Pipe support shall be according to OPSD 708.020.
- E All dimensions are nominal.
- F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2014	Rev 3	
PRECAST CONCRETE CATCH BASIN		-----		
600x600mm		OPSD 705.010		

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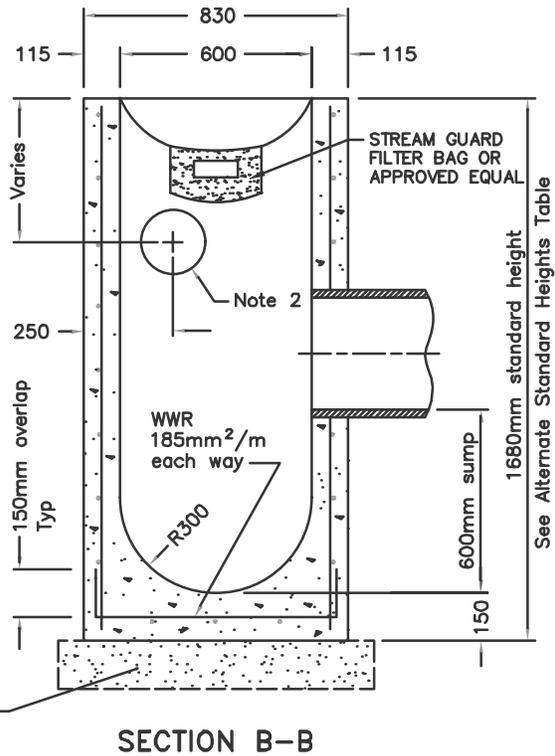
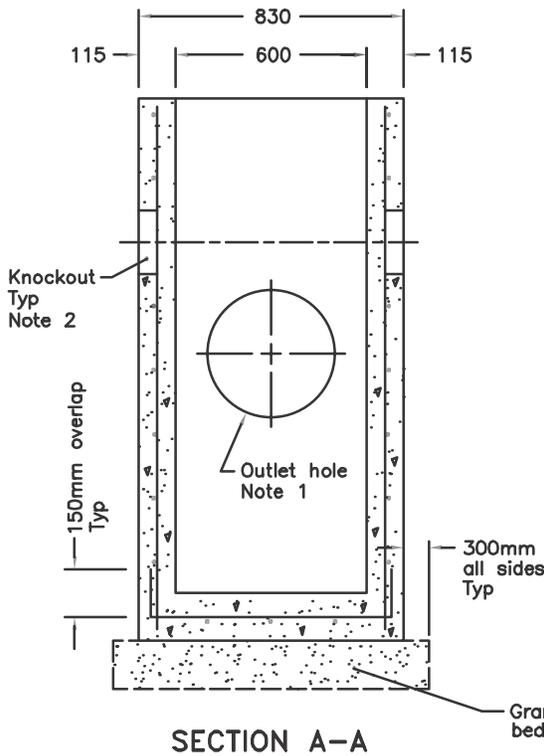
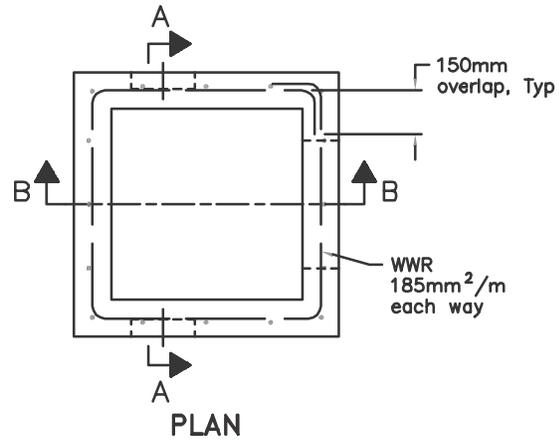


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**Figure ST-1**  
 PRECAST CONCRETE CATCHBASIN  
 (WITH GOSS GULLY TRAP)

ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1520
D	1380



**NOTES:**

- 1 Outlet hole size 525mm diameter maximum, location as required.
- 2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
- A Centre reinforcing in base slab and walls  $\pm 20$ mm.
- B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
- C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
- D Pipe support shall be according to OPSD 708.020.
- E All dimensions are nominal.
- F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2014	Rev 3	
PRECAST CONCRETE CATCH BASIN		-----		
600x600mm		OPSD 705.010		

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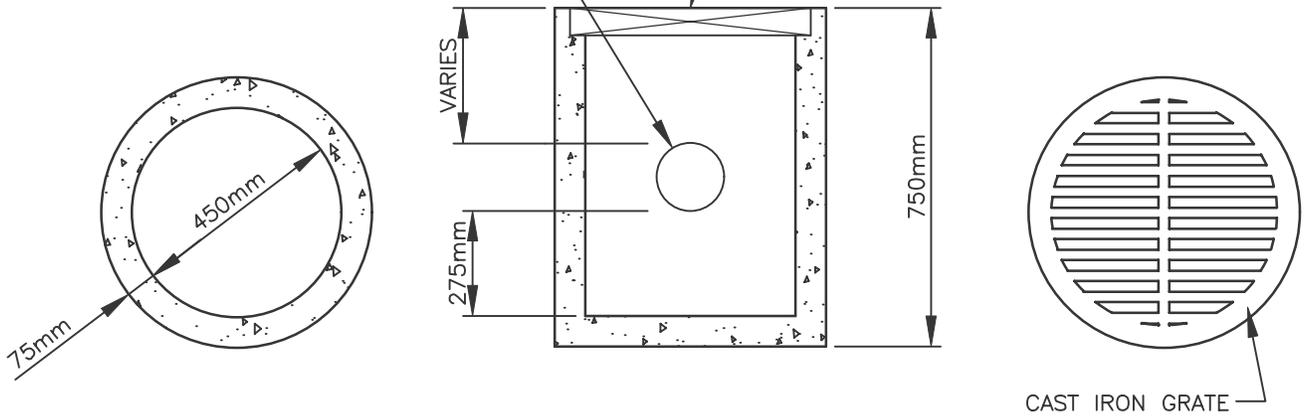


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**Figure ST-2**  
 PRECAST CONCRETE CATCHBASIN  
 (WITH FILTER CLOTH)

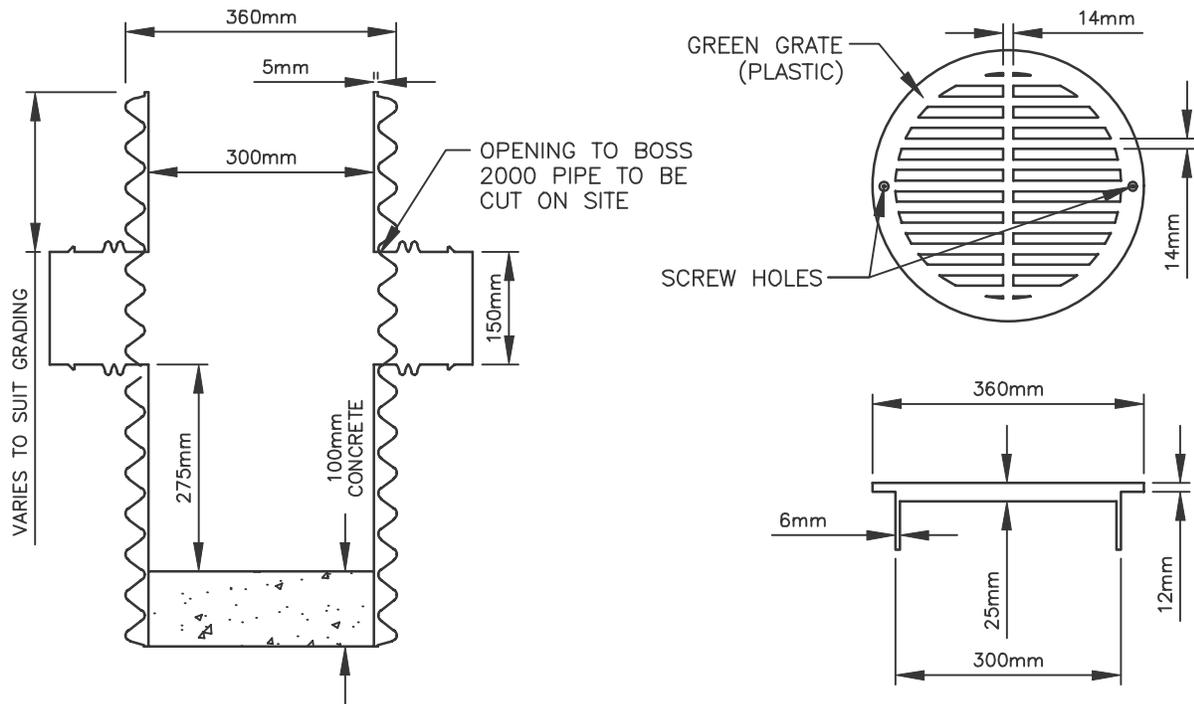
2-150mm DIA. INLETS.  
HOLE LOCATION TO  
SUIT REAR YARD DRAIN.



**NOTE:**

1. CONCRETE TO BE 30 MPa, AIR ENTRAINED 6% ± 1 ½%.
2. ALTERNATE REAR YARD CATCH BASINS MAY BE ACCEPTABLE. CHECK WITH CHIEF BUILDING OFFICIAL.

REAR YARD CATCH BASIN  
(CONCRETE)



REAR YARD CATCH BASIN  
(PLASTIC)

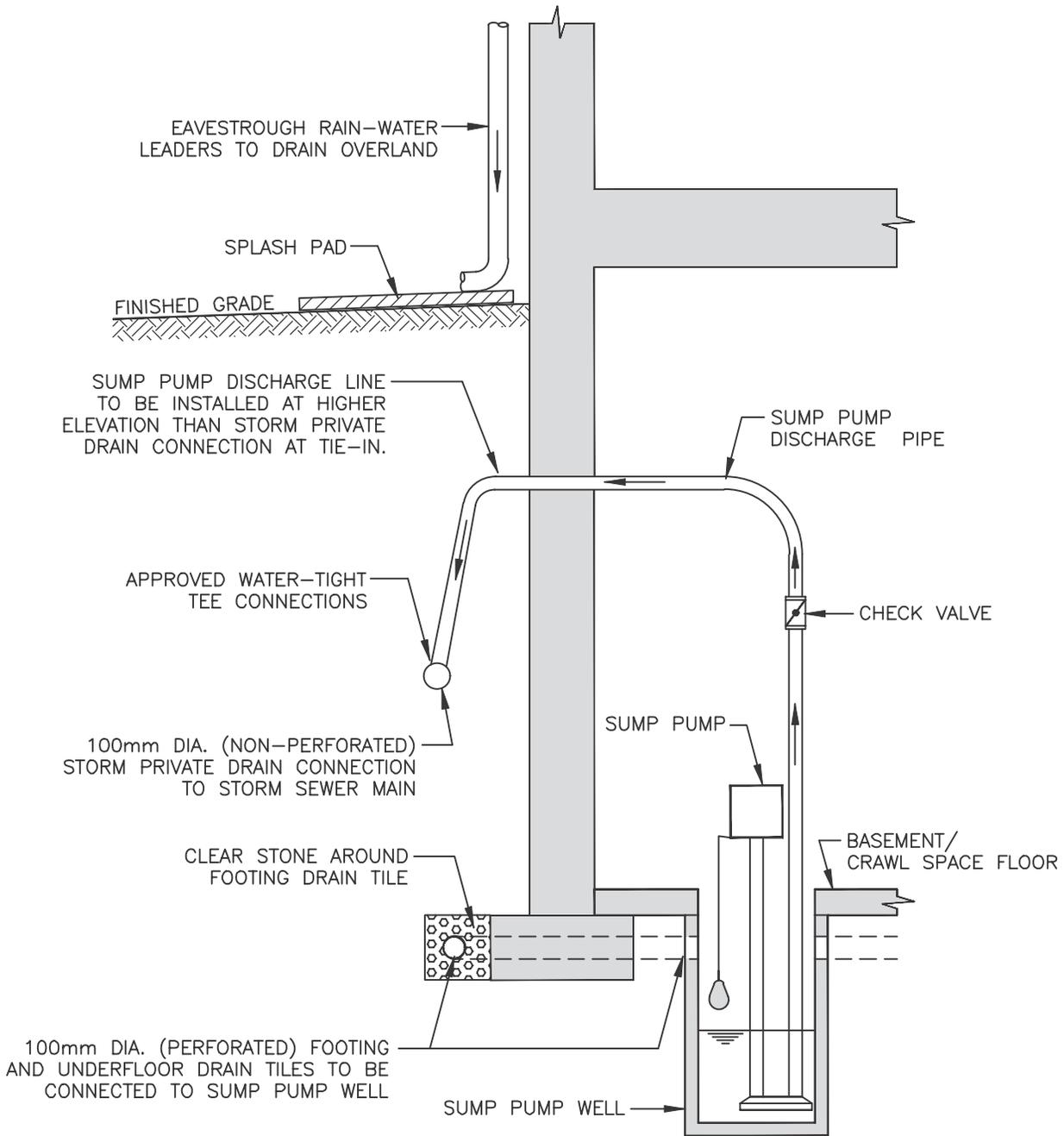
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**Figure ST-3**  
REAR YARD CATCHBASIN



**NOTES:**

1. PERFORATED FOOTING DRAIN, WITH CROSS-OVERS CONNECTED TO SUMP PIT.
2. ALL PLUMBING/DRAINAGE PIPING AND FITTINGS SHALL BE INSTALLED TO CONFORM TO THE ONTARIO BUILDING CODE AND LATEST AMENDMENTS.
3. SUPPORT PIPING TO WALL. DRAWING IS FOR ILLUSTRATION PURPOSE ONLY.

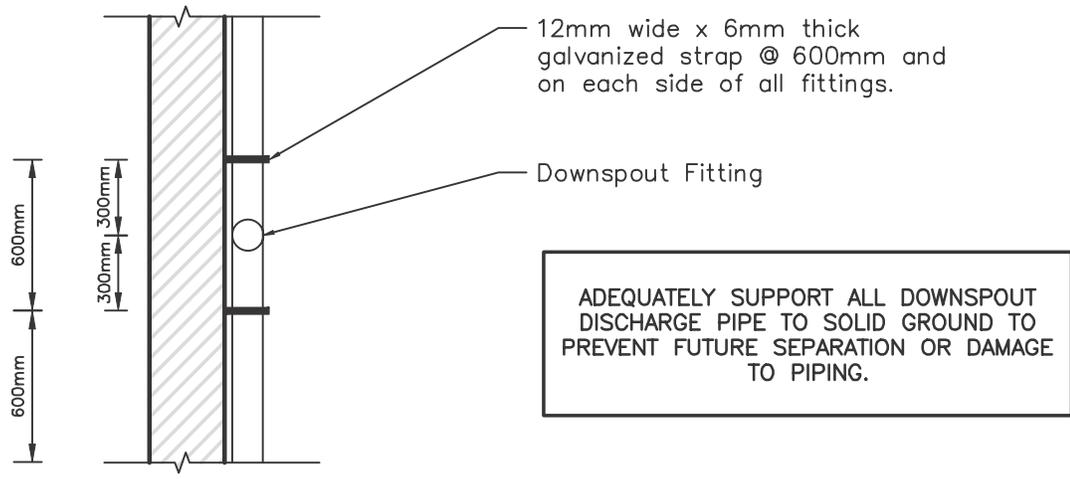
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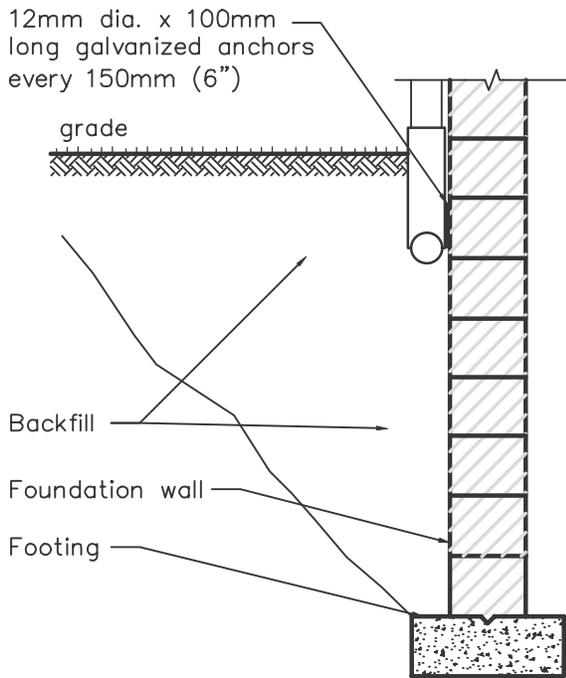
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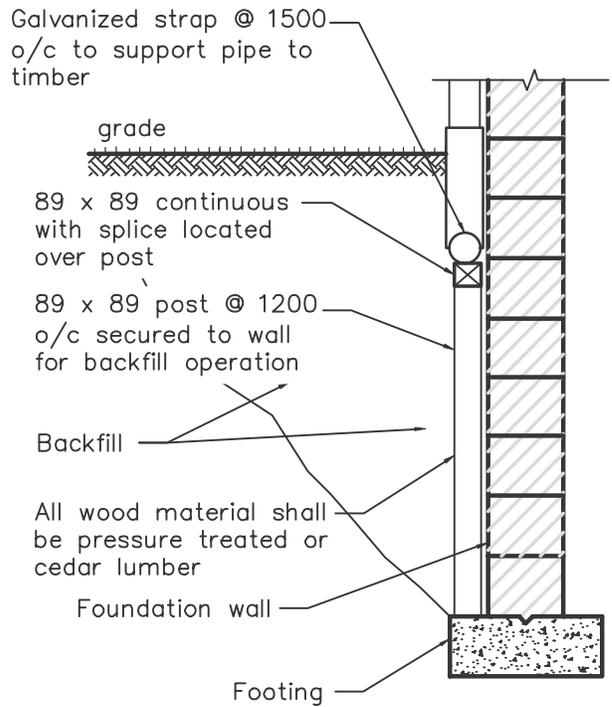
**Figure ST-4**  
 FOOTING DRAIN, SUMP PUMP AND  
 DISCHARGE PIPE DETAILS



PLAN



WALL SECTION ALTERNATIVE NO. 1  
(PREFERRED)



WALL SECTION ALTERNATIVE NO. 2

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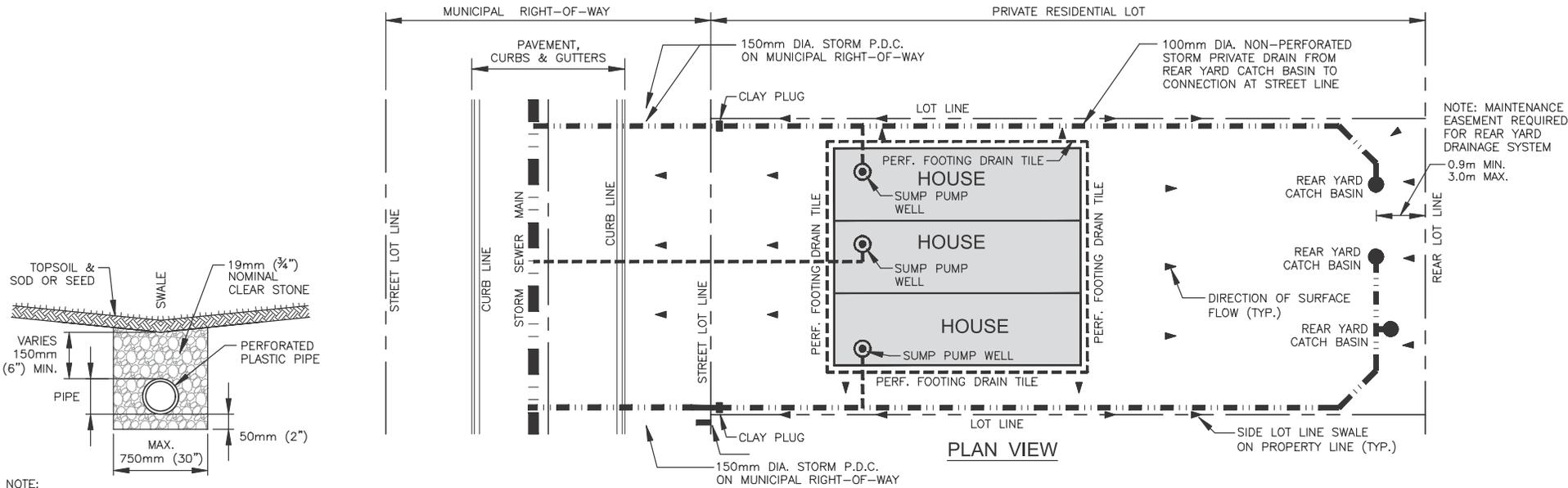
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**Figure ST-5**  
**DOWNSPOUT DISCHARGE PIPE SUPPORT**

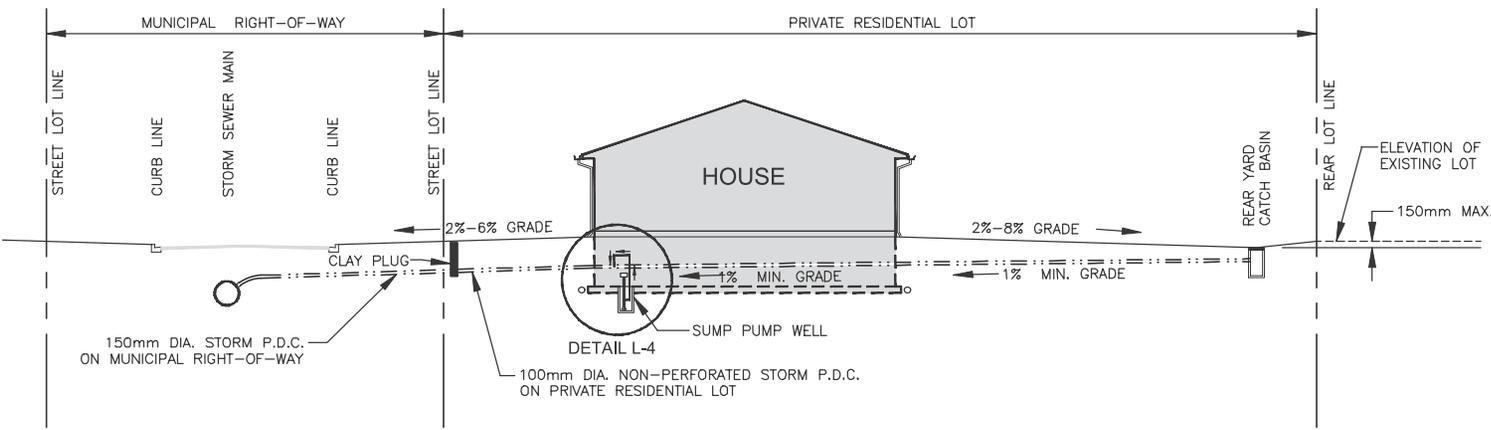
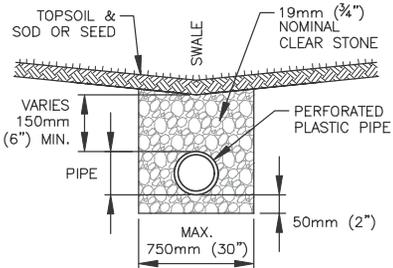






NOTE:  
SETBACK 1.5m (5')  
FROM REAR PROPERTY LINE.

**REAR YARD DRAIN**



**PROFILE VIEW**

DRAWING: 01 PLAN, REVISION: 01/2021, PROJECT: 2020-2021, SHEET: 01 OF 04, DATE: 01/2021, DRAWN BY: J. BROWN, CHECKED BY: M. BROWN, APPROVED BY: M. BROWN, TOWN OF ESSEX, 100 MAIN STREET, WESTPORT, MA 01886



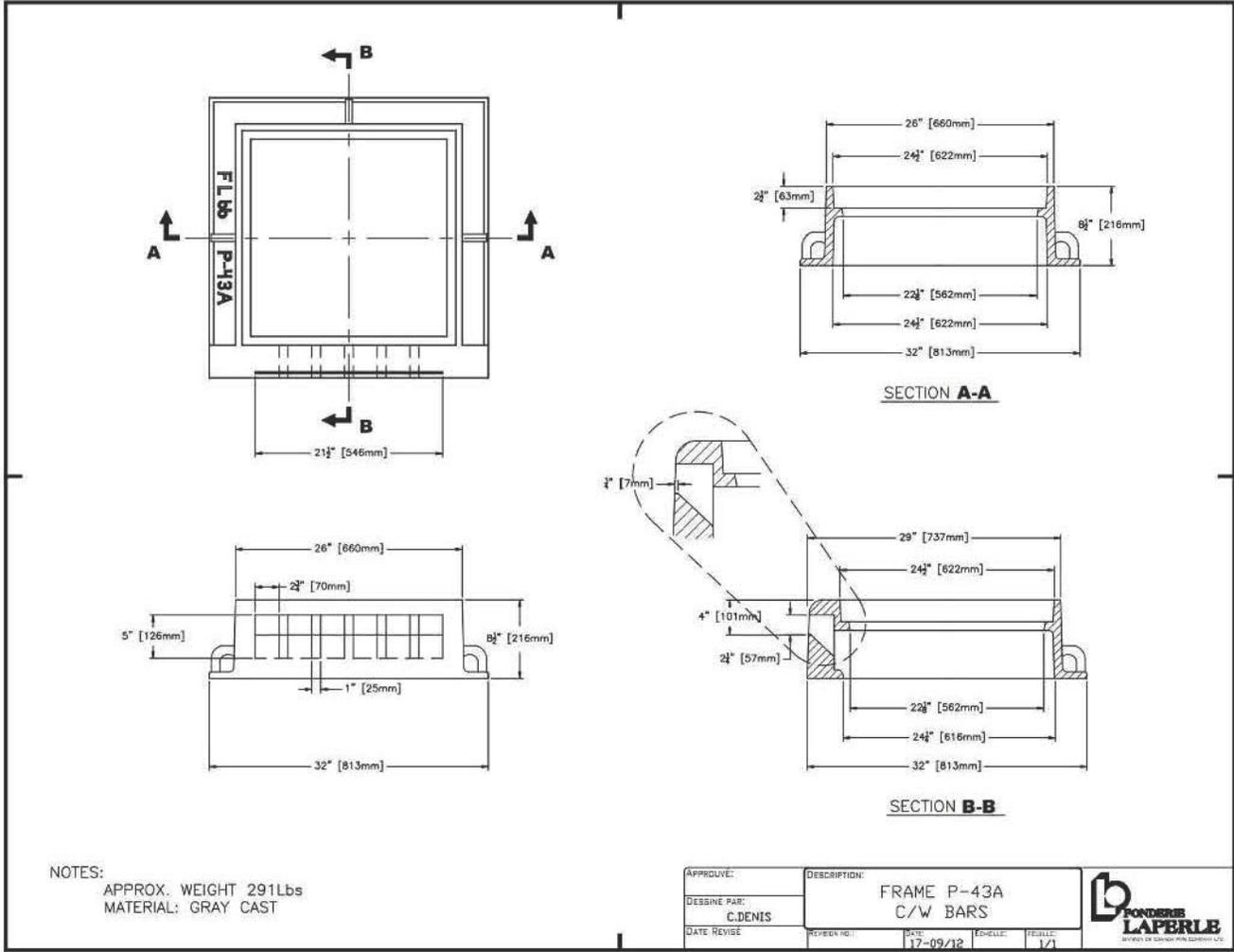
No.	2	January 14, 2022
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**Figure ST-8**

**SUGGESTED METHOD OF INSTALLATION FOR A 3-UNIT TOWNHOUSE STORM DRAINAGE SYSTEM**





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PLOT DATE: 2022-01-24 @ 11:16:01 AM PLOT SCALE: 1:1 PLOT STYLE: DILLON-STANDARD.COTB

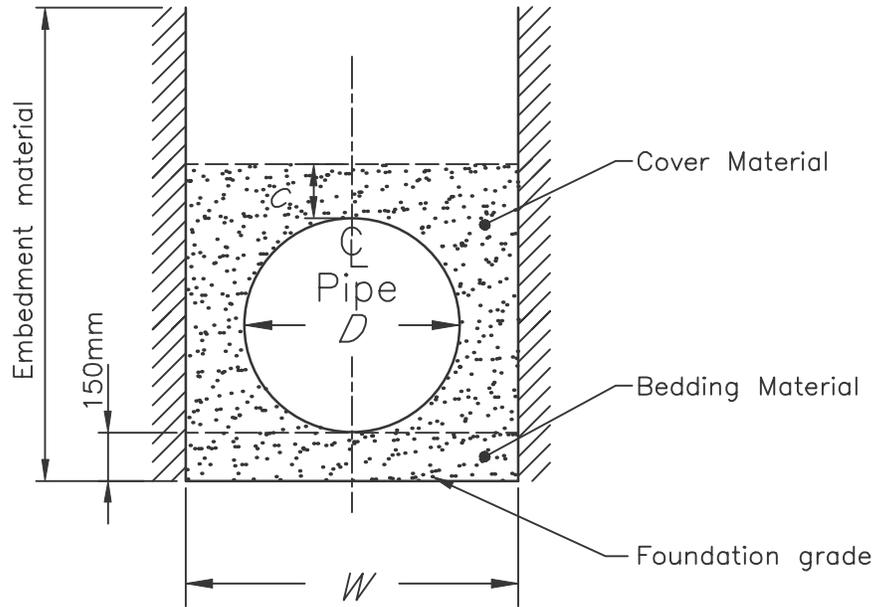


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**Figure ST-10**  
INLET CATCH BASIN FRAME  
WITH BARS DETAIL

## PIPE IN TRENCH



## EARTH AND ROCK EXCAVATION

### NOTES:

1. Backfill according to OPSD-803.04
2. All dimensions are in millimetres or metres unless otherwise shown.
3. Bedding material to be in accordance with the Ontario Building Code

### LEGEND:

- $D$  - Inside diameter
- $W$  - Minimum width of bedding:  
 $D + 800\text{mm}$  for  $D \leq 1000\text{mm}$   
 $1.67D$  for  $1000\text{mm} < D < 1800\text{mm}$   
 $D + 1200\text{mm}$  for  $D \geq 1800\text{mm}$ .
- $c$  - Pipe Diameter  $< 600\text{mm}$   $c = 300\text{mm}$ ,  
- Pipe Diameter  $\geq 600\text{mm}$   $c = \frac{\text{Dia.} + 300}{4}$

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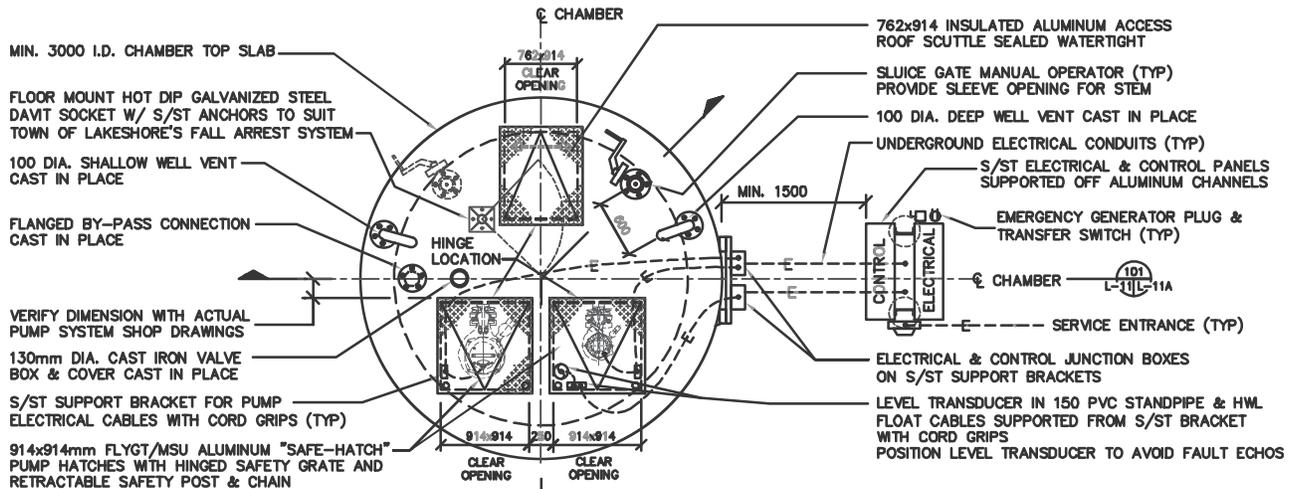


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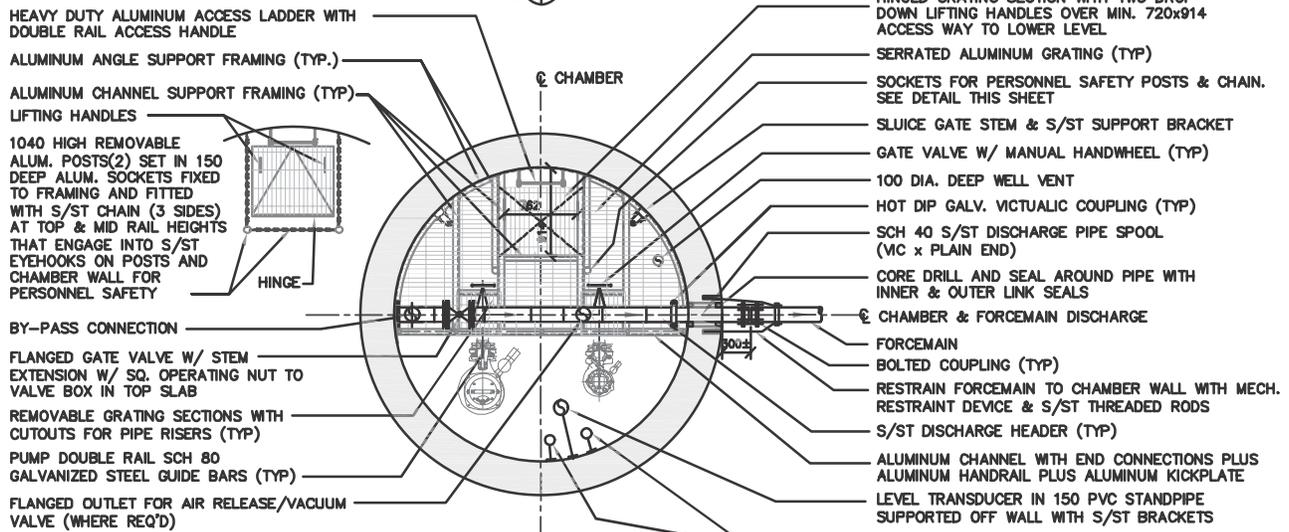
**Figure SA-1**  
 BEDDING FOR SANITARY SEWERS  
 FLEXIBLE PIPE





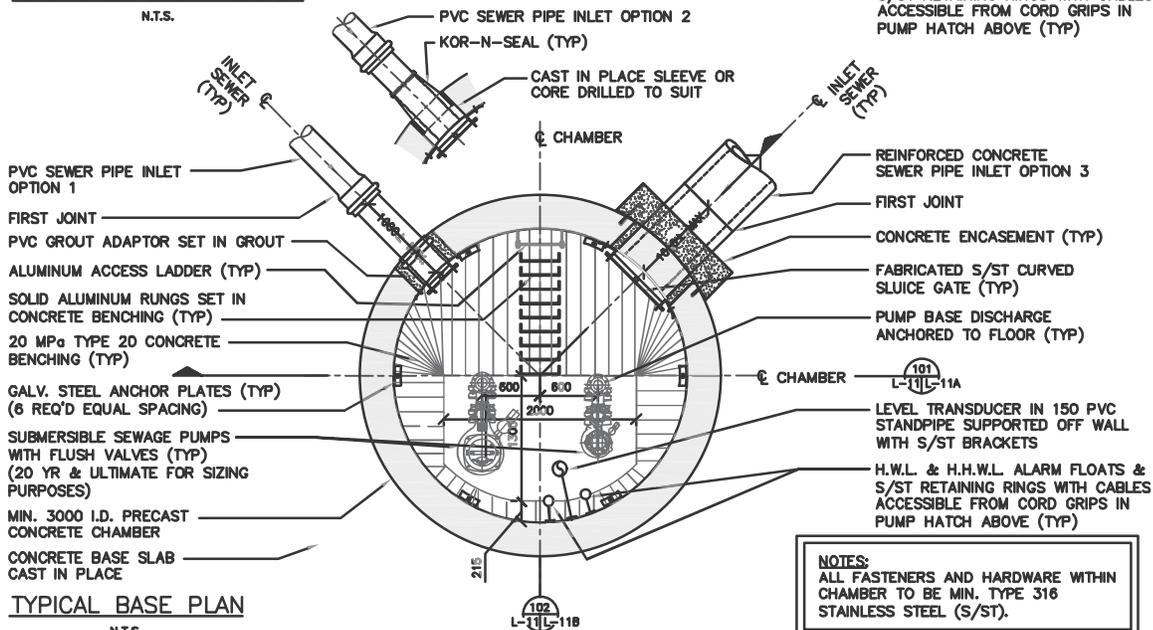
**TYPICAL TOP PLAN**

N.T.S.



**TYPICAL PLATFORM PLAN**

N.T.S.



**TYPICAL BASE PLAN**

N.T.S.

**NOTES:**  
ALL FASTENERS AND HARDWARE WITHIN CHAMBER TO BE MIN. TYPE 316 STAINLESS STEEL (S/S/T).

This standard drawing serves as a reference to assist the Engineer in the design and preparation of detailed construction drawings. Contemplated changes/deviations/customization of the design/arrangement/configuration depicted in this drawing to suit a specific design/situation/circumstance/location/etc. shall first be reviewed with and approved by the Town of Lakeshore on a case by case basis prior to implementation.

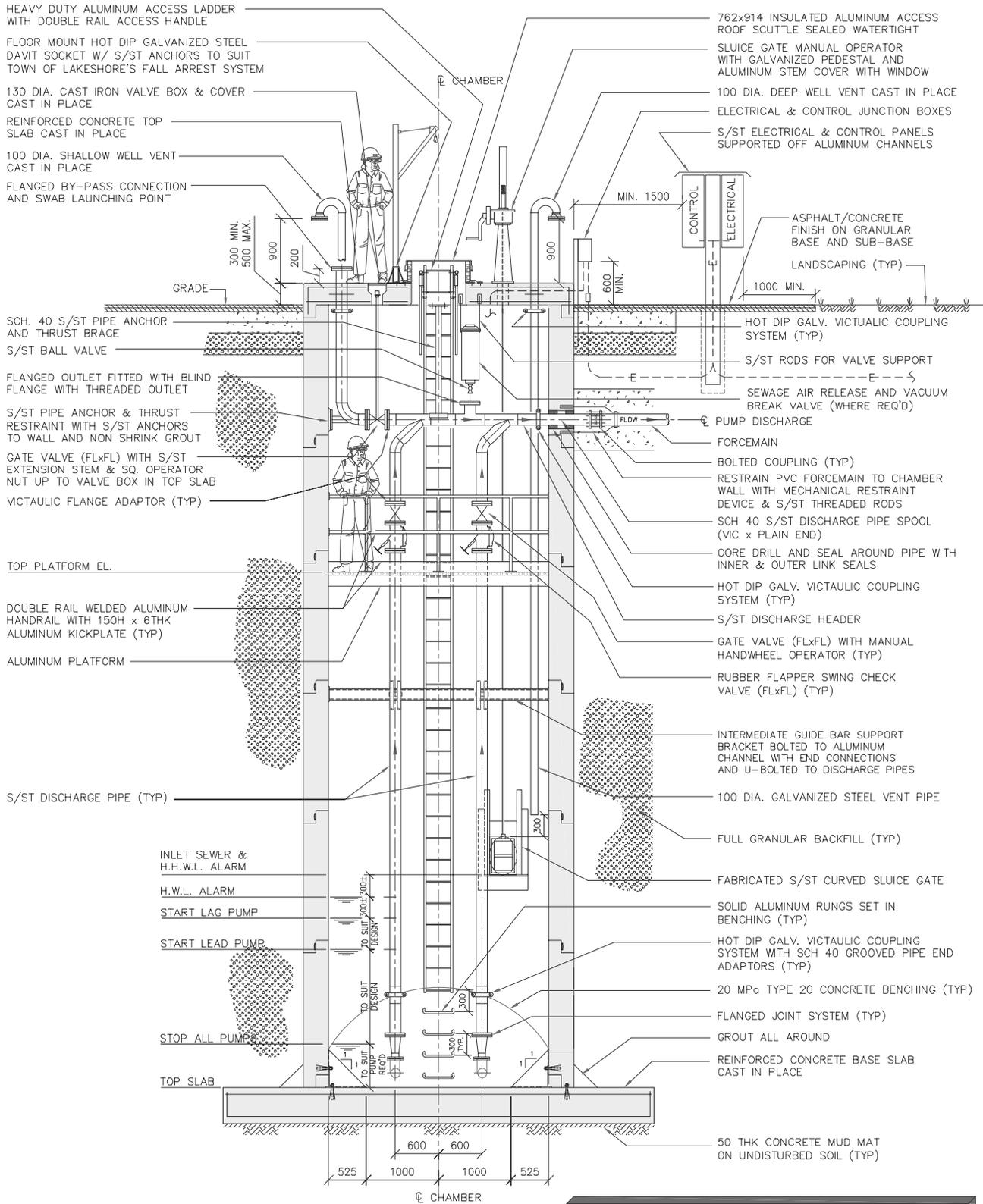
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**Figure SA-3**  
**TYPICAL SANITARY PUMP STATION (3000mm DIA.)**  
**PLAN VIEWS**



**NOTES:**  
 ALL FASTENERS AND HARDWARE WITHIN CHAMBER TO BE MIN. TYPE 316 STAINLESS STEEL (S/ST).

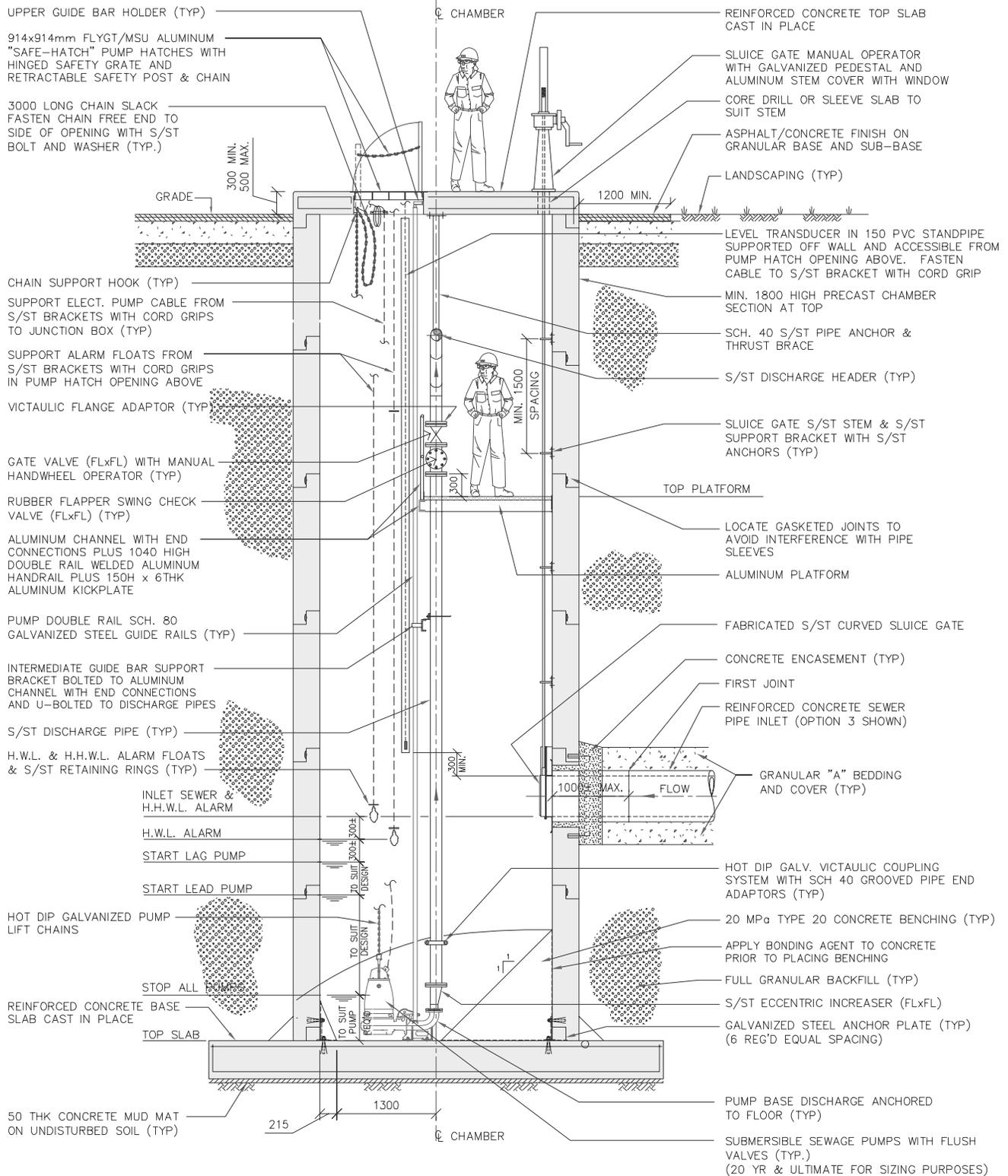
This standard drawing serves as a reference to assist the Engineer in the design and preparation of detailed construction drawings. Contemplated changes/deviations/customization of the design/arrangement/configuration depicted in this drawing to suit a specific design/situation/circumstance/location/etc. shall first be reviewed with and approved by the Town of Lakeshore on a case by case basis prior to implementation.

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**Figure SA-4**  
 TYPICAL SANITARY PUMP STATION (3000mm DIA.)  
 CROSS SECTION



NOTES:  
 ALL FASTENERS AND HARDWARE WITHIN  
 CHAMBER TO BE MIN. TYPE 316  
 STAINLESS STEEL (S/ST).

This standard drawing serves as a reference to assist the Engineer in the design and preparation of detailed construction drawings. Contemplated changes/deviations/customization of the design/arrangement/configuration depicted in this drawing to suit a specific design/situation/circumstance/location/etc. shall first be reviewed with and approved by the Town of Lakeshore on a case by case basis prior to implementation.

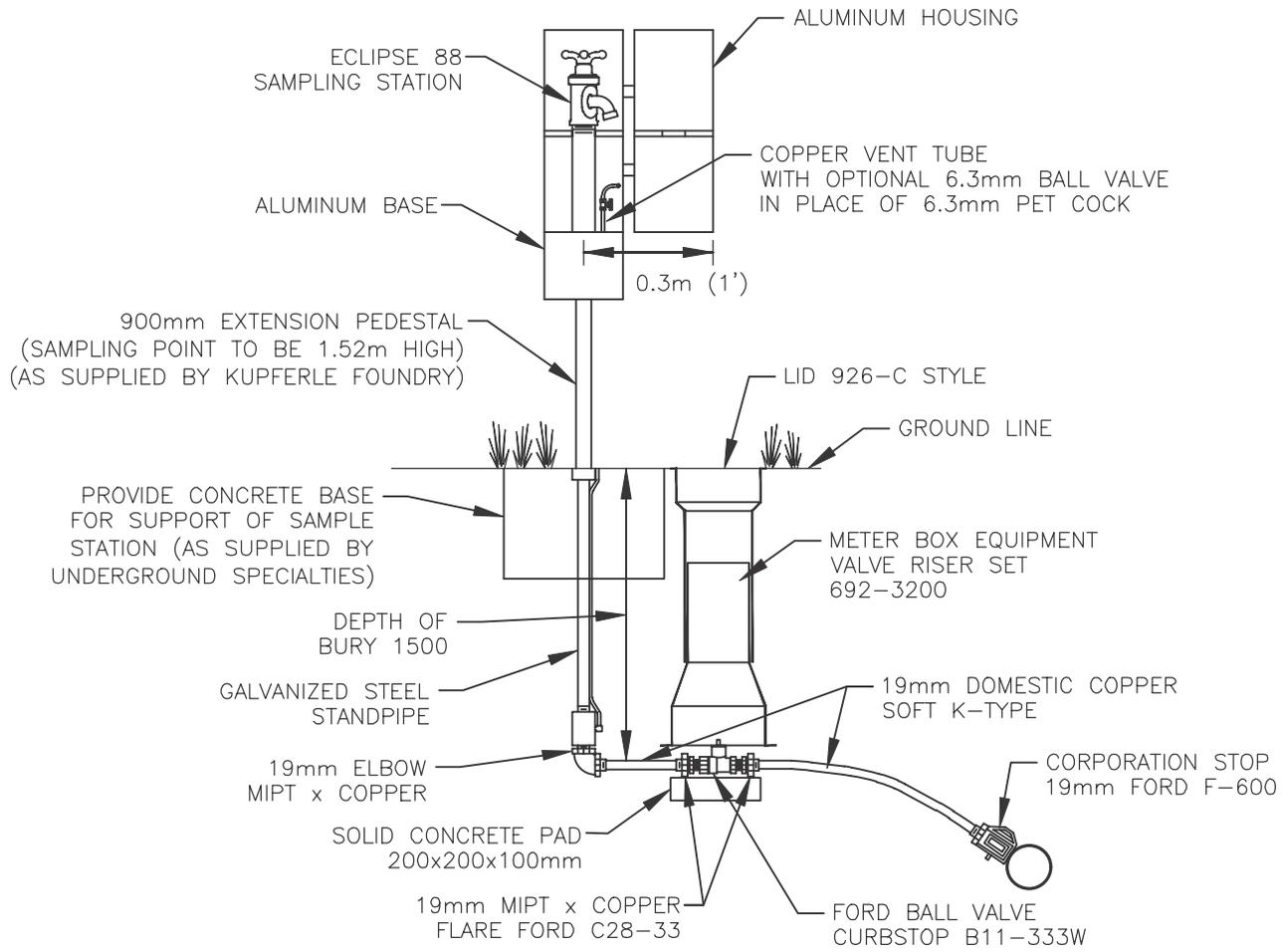
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**Figure SA-5**  
**TYPICAL SANITARY PUMP STATION (3000mm DIA.)**  
**CROSS SECTION**



**NOTES:**

1. SAMPLING STATIONS SHALL BE 1.5m BURY, WITH A 19mm FIP INLET, AND A (19mm HOSE OR UNTHREADED) NOZZLE.
2. ALL STATIONS SHALL BE ENCLOSED IN A LOCKABLE, NONREMOVABLE, ALUMINUM-CAST HOUSING.
3. WHEN OPENED, THE STATION SHALL REQUIRE NO KEY FOR OPERATION, AND THE WATER WILL FLOW IN AN ALL BRASS WATERWAY.
4. ALL WORKING PARTS WILL ALSO BE OF BRASS AND BE REMOVABLE FROM ABOVE GROUND WITH NO DIGGING. EXTERIOR PIPING SHALL BE GALVANIZED STEEL (BRASS PIPE ALSO AVAILABLE).
5. A COPPER VENT TUBE WILL ENABLE EACH STATION TO BE PUMPED FREE OF STANDING WATER TO PREVENT FREEZING AND TO MINIMIZE BACTERIA GROWTH.
6. ECLIPSE NO. 88 SAMPLING STATION SHALL BE MANUFACTURED BY KUPFERLE FOUNDRY, ST. LOUIS, MO 63102.

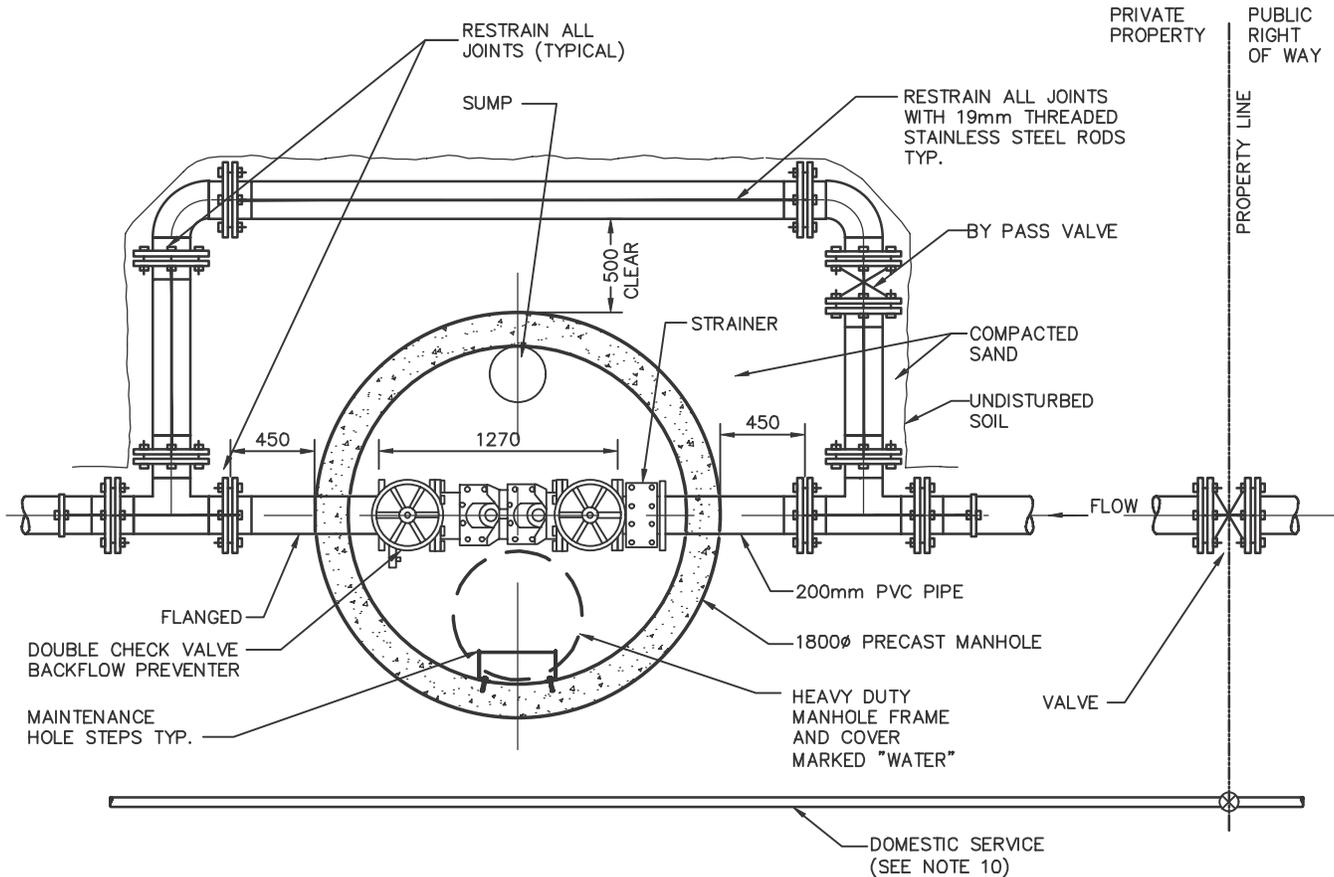
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**Figure W-1**  
 ECLIPSE No. 88  
 WATER SAMPLING STATION



## SECTION PLAN

### GENERAL NOTES

1. PRECAST CHAMBERS SHALL HAVE 600mm CLEARANCE AROUND ALL PIPING FOR MAINTENANCE PURPOSES.
2. METERS SHALL BE AS MANUFACTURED BY NEPTUNE OR APPROVED EQUAL.
3. BACKFLOW PREVENTERS SHALL BE AS MANUFACTURED BY WATTS OR APPROVED EQUAL.
4. STRAINER DEVICE SHALL BE AS MANUFACTURED BY NEPTUNE OR APPROVED EQUAL.
5. PROPERTY LINE VALVES SHALL BE AS MANUFACTURED BY MUELLER OR APPROVED EQUAL.
6. REMOTE READER SHALL BE APPROVED BY TOWN OF ESSEX.
7. MANHOLES DESIGNED TO CARRY CL-625-ONT TRUCK TO CANADIAN HIGHWAY BRIDGE DESIGN CODE, CAN/CSA-S6-00
8. MANHOLE RUNGS TO BE AS PER OPSD 405-020
9. STAMPED SHOP DRAWINGS BEARING THE SEAL OF A PROFESSIONAL ENGINEER OF ONTARIO TO BE SUBMITTED
10. DOMESTIC WATER SERVICE TO BE CONNECTED SEPARATELY TO WATERMAIN ON PUBLIC RIGHT-OF-WAY.

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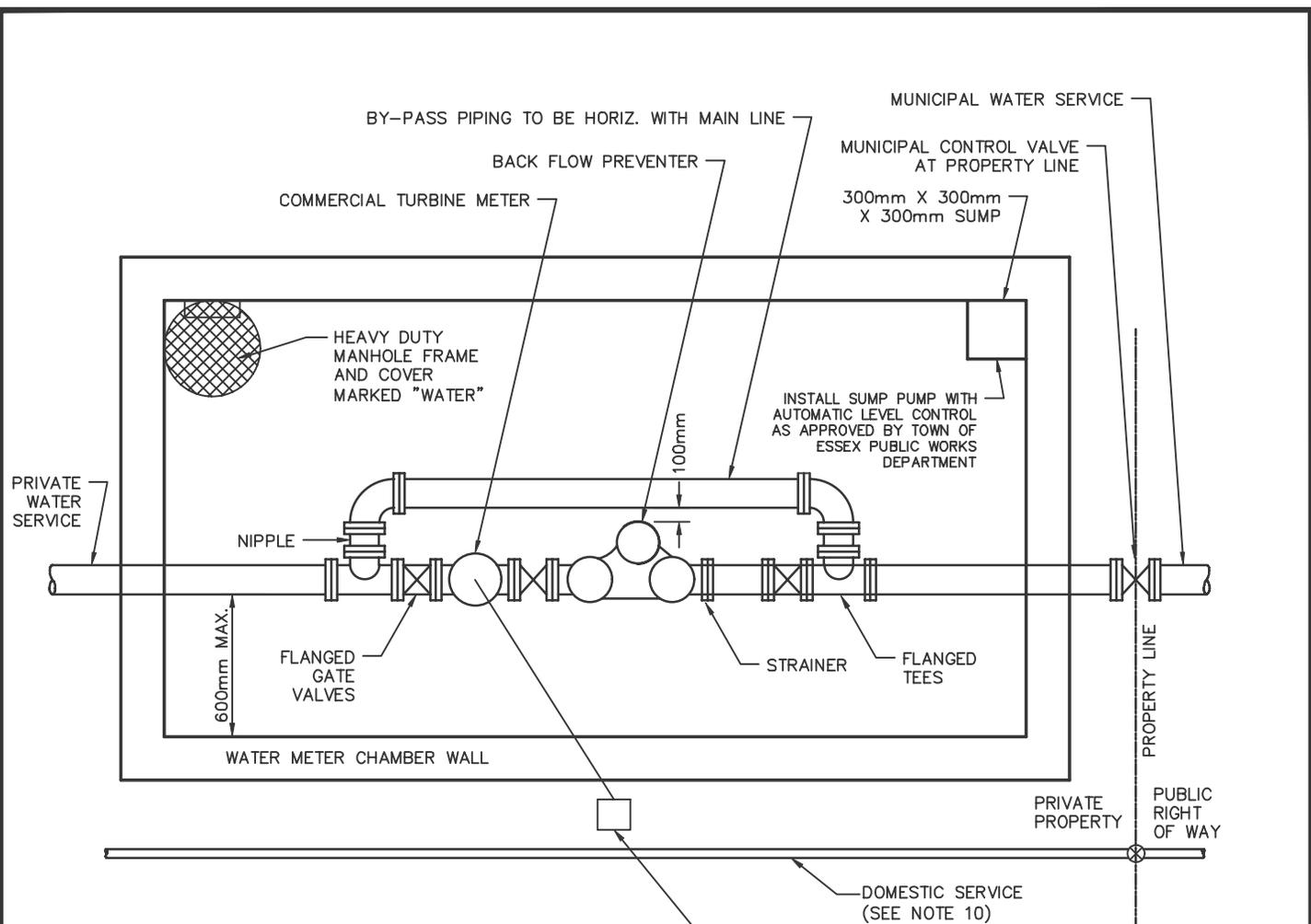
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**Figure W-2**

ECLIPSE No. 88

BACKFLOW PREVENTION CHAMBER



**GENERAL NOTES**

1. PRECAST CHAMBERS SHALL HAVE 600mm CLEARANCE AROUND ALL PIPING FOR MAINTENANCE PURPOSES.
2. METERS SHALL BE AS MANUFACTURED BY NEPTUNE OR APPROVED EQUAL.
3. BACKFLOW PREVENTERS SHALL BE AS MANUFACTURED BY WATTS OR APPROVED EQUAL.
4. STRAINER DEVICE SHALL BE AS MANUFACTURED BY NEPTUNE OR APPROVED EQUAL.
5. PROPERTY LINE VALVES SHALL BE AS MANUFACTURED BY MUELLER OR APPROVED EQUAL.
6. REMOTE READER SHALL BE APPROVED BY THE TOWN OF ESSEX.
7. MANHOLES DESIGNED TO CARRY CL-625-ONT TRUCK TO CANADIAN HIGHWAY BRIDGE DESIGN CODE, CAN/CSA-S6-00
8. MANHOLE RUNGS TO BE AS PER OPSD 405-020
9. STAMPED SHOP DRAWINGS BEARING THE SEAL OF A PROFESSIONAL ENGINEER OF ONTARIO TO BE SUBMITTED.
10. DOMESTIC WATER SERVICE TO BE CONNECTED SEPARATELY TO WATERMAIN ON PUBLIC RIGHT-OF-WAY.

100mm x 100mm x 2500mm LONG PRESSURE TREATED POST FOR REMOTE METER READING MIN. EMBEDMENT 1200mm BELOW GRADE

MINIMUM CHAMBER SIZES	WIDTH	LENGTH	HEIGHT
50mm DIA. WATER SERVICE	1.7m	3.0m	2.4m
100mm DIA. WATER SERVICE	2.1m	4.5m	2.4m
150mm DIA. WATER SERVICE	2.4m	5.1m	2.4m

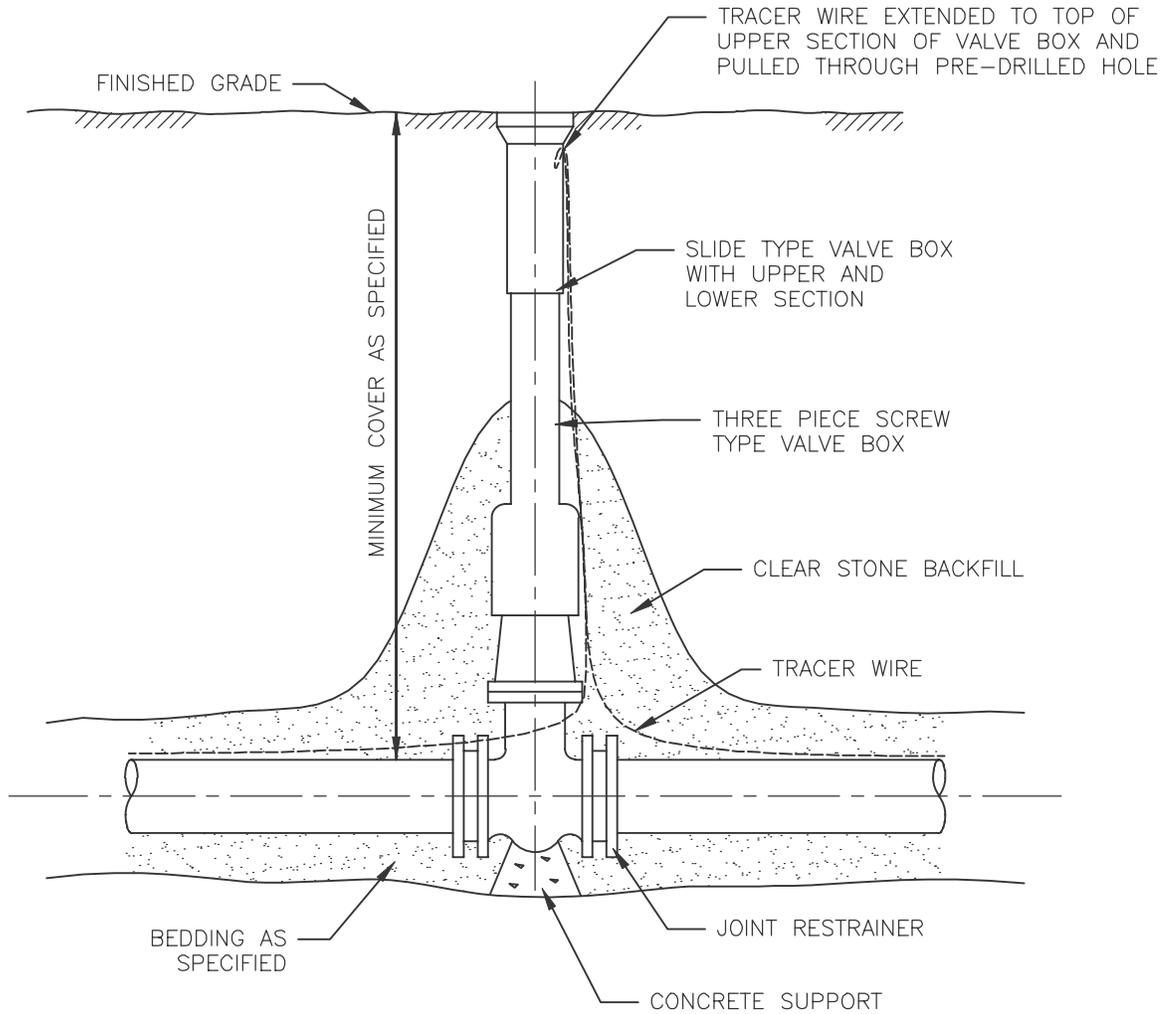
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**Figure W-3**  
BACKFLOW PREVENTION WITH WATER METER



**NOTES:**

- A ALL CONCRETE THRUST BLOCKS TO BE POURED AGAINST UNDISTURBED GROUND.
- B BOND BREAKER TO BE USED BETWEEN THE CONCRETE AND THE FITTINGS AND APPURTENANCES.
- C BOLTS AND NUTS FOR BURIED FLANGE TO FLANGE CONNECTIONS ARE TO BE STAINLESS STEEL.
- D FLANGE OF STANDPIPE EXTENSIONS NOT TO BE IN FROST ZONE.
- E ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
- F USE DENSO WRAPPING IF REQUIRED BY PUBLIC WORKS. (PROJECT SPECIFIC)

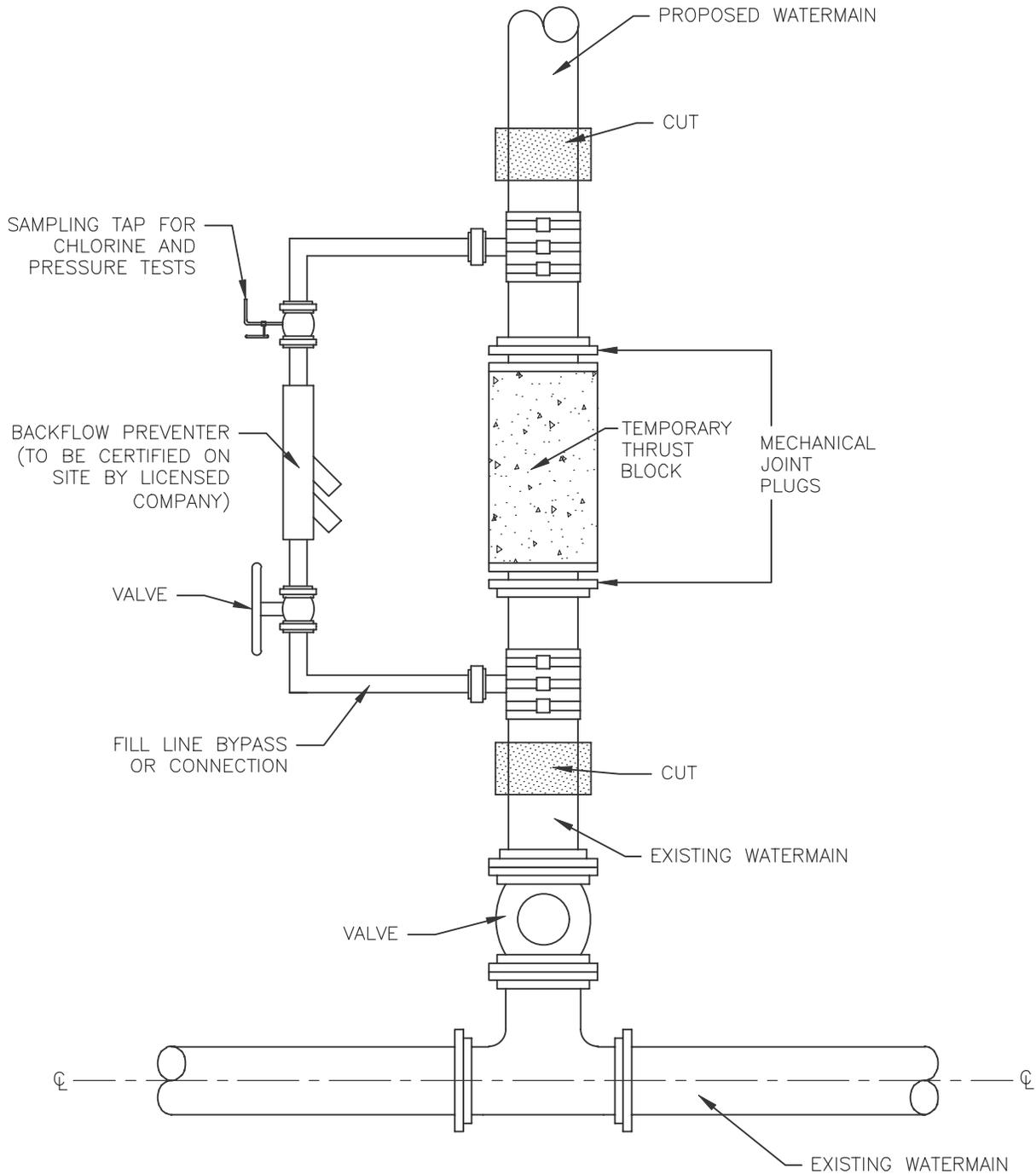
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**Figure W-4**  
WATER VALVE



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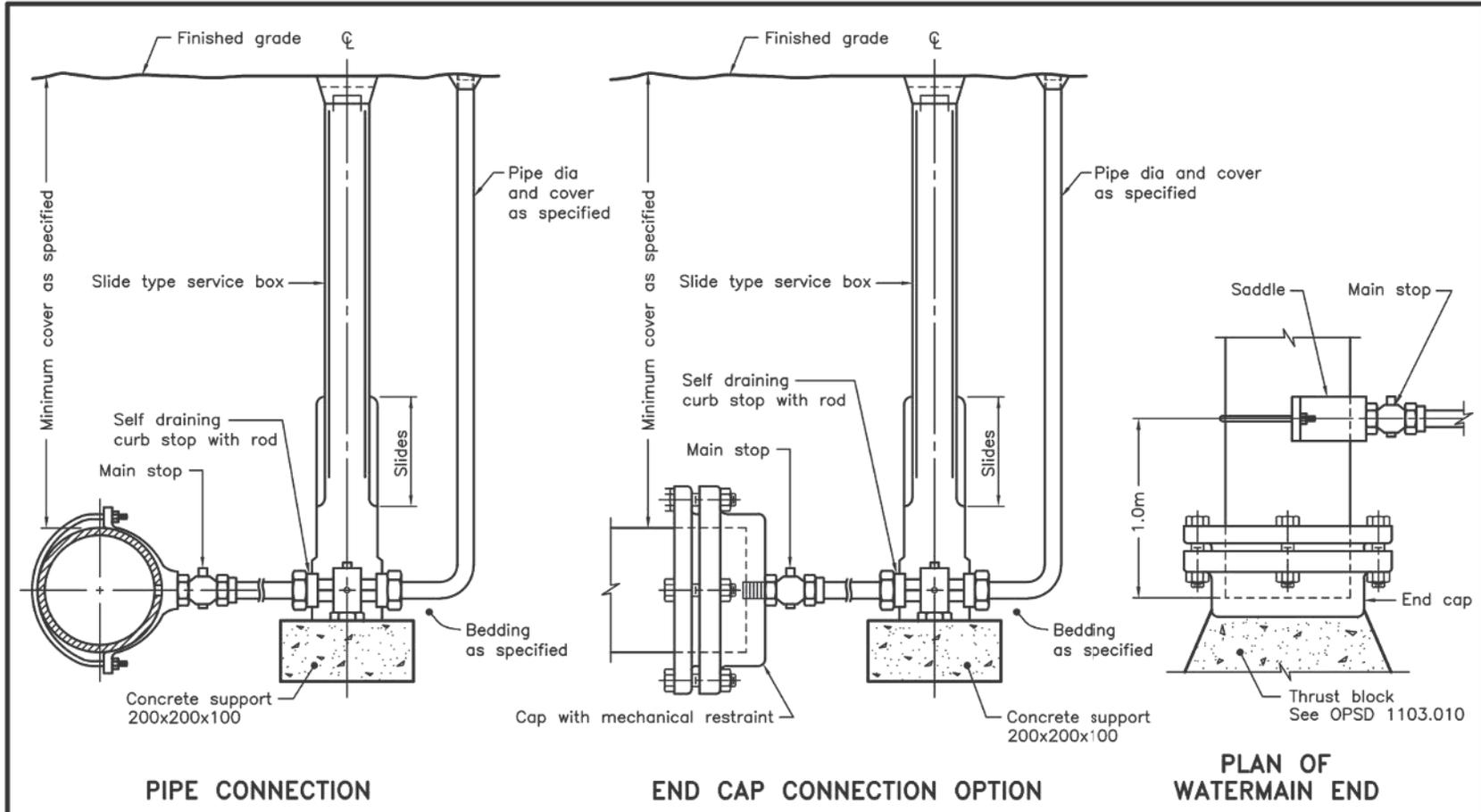


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**Figure W-5**  
 CONNECTION OF NEW WATERMAIN  
 TO EXISTING WATERMAIN

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 PLOT DATE: 2022-01-24 @ 11:16:33 AM PLOT SCALE: 1:1 PLOT STYLE: DILLON-STANDARD.COTB



**NOTES:**  
 A Backfill material within 500mm of service box shall be native or imported, as specified.  
 B Refer to applicable regulations for end of pipe treatment.  
 C All dimensions are in millimetres unless otherwise shown.

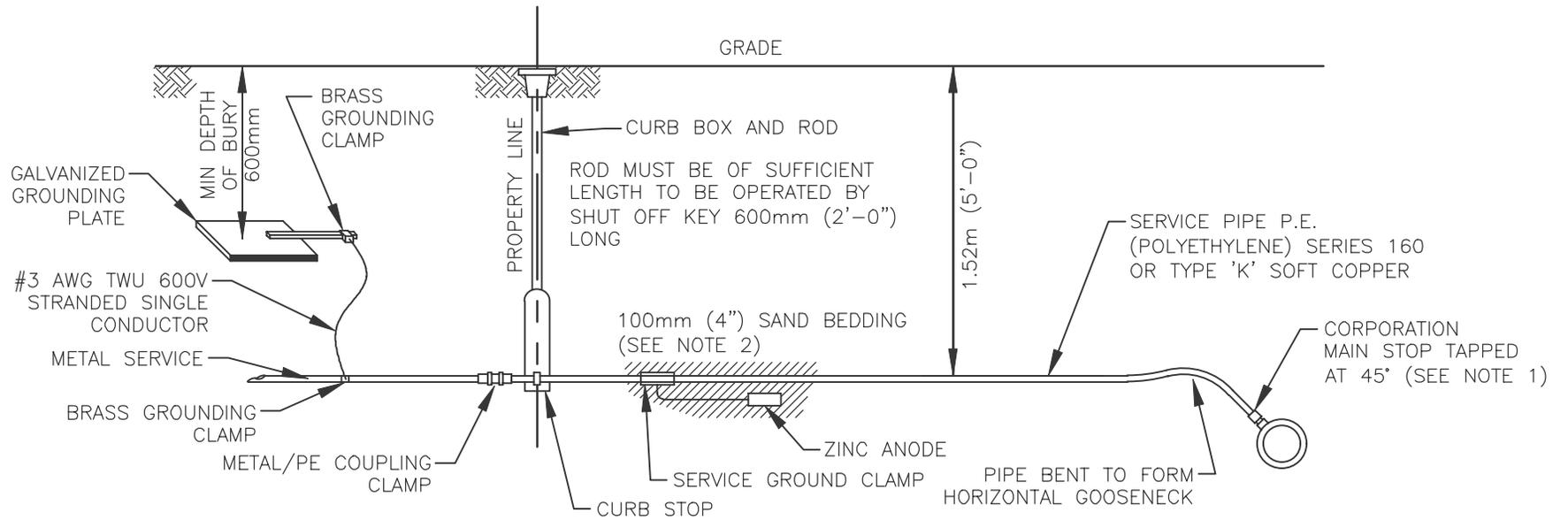
ONTARIO PROVINCIAL STANDARD DRAWING		Nov 2018	Rev 3
<b>BLOW OFF INSTALLATION</b>			
		<b>OPSD 1104.030</b>	



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**Figure W-6**  
 TYPICAL WATERMAIN BLOW-OFF  
 OPSD 1104.030



**NOTES:**

1. SERVICE SADDLE WILL BE REQUIRED.
2. FOR A PLASTIC SERVICE PIPE AND ANODE IS NOT REQUIRED
3. FOR COPPER SERVICES:
  - A. SERVICES ARE TO BE PROTECTED BY A ZINC ANODE.
  - B. SERVICE GROUND CONNECTOR TO BE COATED WITH T.C. MASTIC OR WRAPPED WITH "SCOTCHFILL" ELECTRICAL PUDDY OR APPROVED EQUAL.
  - C. ANODE TO BE PLACED AT LEAST 3'-4"(1000mm) AWAY FROM WATER SERVICE AND AS DEEP AS THE BOTTOM OF THE SERVICE.

FILENAME: C:\PW\WORKING DIRECTORY\PROJECTS 2020\338KP\UMS45610\203349-FIG-CON 06 DEC 14.DWG PLOTTED BY: PINSONNEAULT, LOUIS  
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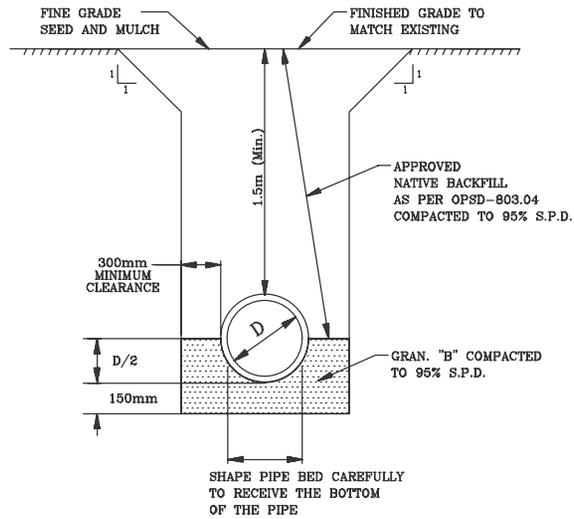
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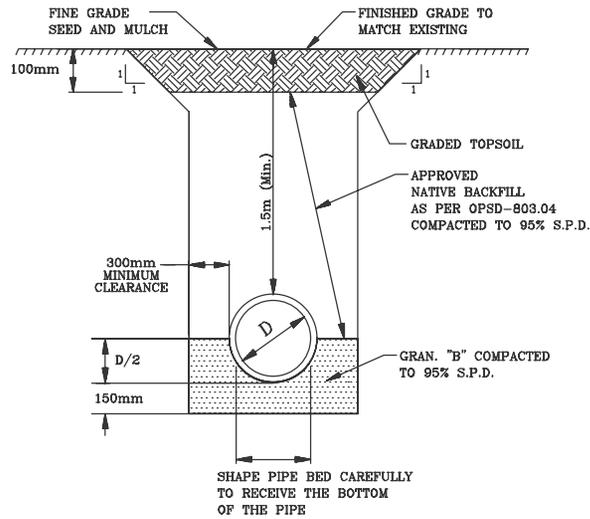
**Figure W-7**  
 STANDARD INSTALLATION OF A  
 3/4" (19mm) TO 2" (50mm) WATER SERVICE



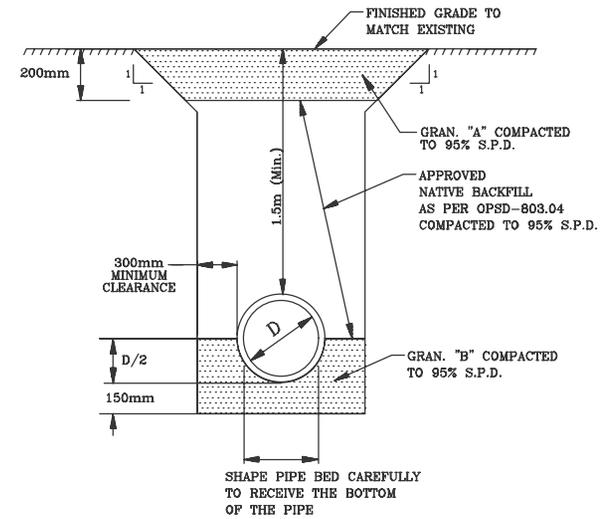
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WITHIN GRASSED AREAS



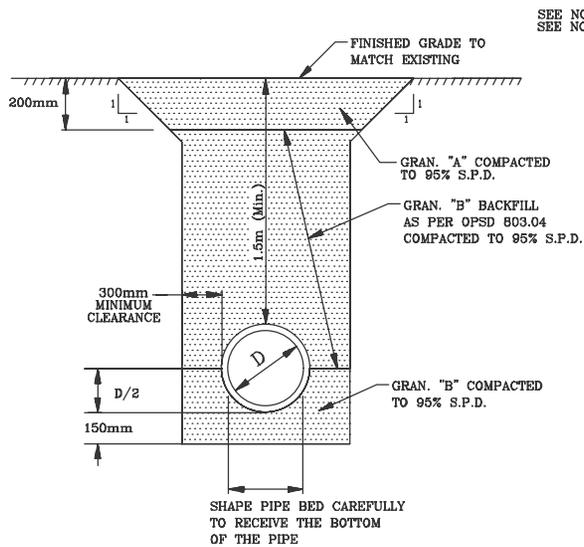
WITHIN DESIGNATED LAWN AREAS



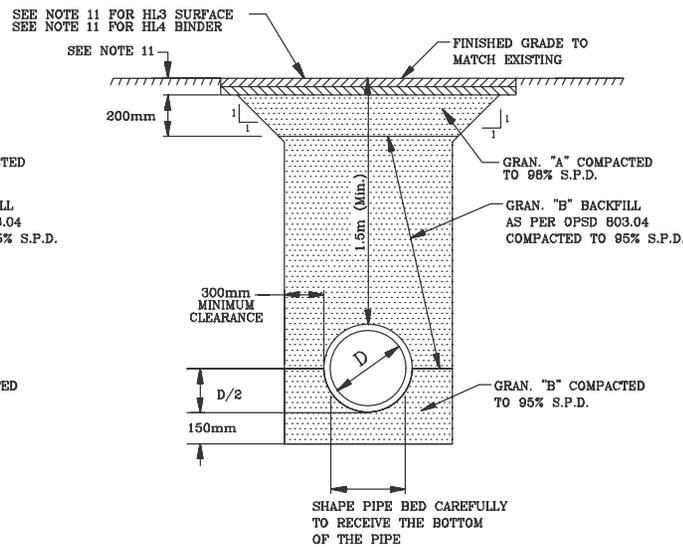
WITHIN GRANULAR ROAD SHOULDER

NOTES:

1. ALL EXCAVATIONS SHALL MEET REQUIREMENTS OF OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
2. CO-ORDINATE ALL UTILITY LOCATES IN FIELD PRIOR TO CONSTRUCTION.
3. ROAD CROSSINGS TO BE BORED OR OPEN CUT AS SPECIFIED.
4. ALL THRUST BLOCKS TO BE CONSTRUCTED AS SHOWN IN OPSD 1103.010
5. STANDARD 25mm DIAMETER WATER SERVICE CONNECTIONS TO BE AS SHOWN IN OPSD 1104.020 AND OPSD 1104.010. FINAL LOCATIONS TO BE CONFIRMED AT TIME OF CONSTRUCTION.
6. HYDRANT INSTALLATION TO BE AS SHOWN IN OPSD 1105.010 OFFSET AS DIRECTED IN FIELD.
7. RESTORE DRIVEWAYS AND ROADWAYS TO MATCH EXISTING. (SEE SPECS.)
8. RESTORE ALL OPEN DRAINS TO MATCH ORIGINAL GRADE AND CONTOUR CONDITIONS.
9. RESTORE ALL GRASSED AREAS AND DESIGNATED LAWN AREAS AS SPECIFIED.
10. ALL CULVERTS END WALL TREATMENT AND TILE DRAINS REMOVED DURING THE PROCESS OF COMPLETING THE WORK ARE TO BE RESTORED TO MATCH EXISTING CONDITIONS. DAMAGED MATERIALS ARE TO BE REPLACED WITH APPROVED NEW MATERIALS OF SIMILAR SIZE.
11. THICKNESS OF HL3 SURFACE AND HL4 BINDER SHALL BE AT LEAST THE SAME THICKNESS AS ASPHALT ORIGINALLY REMOVED



WITHIN GRANULAR/NATIVE MATERIAL DRIVEWAY CROSSINGS



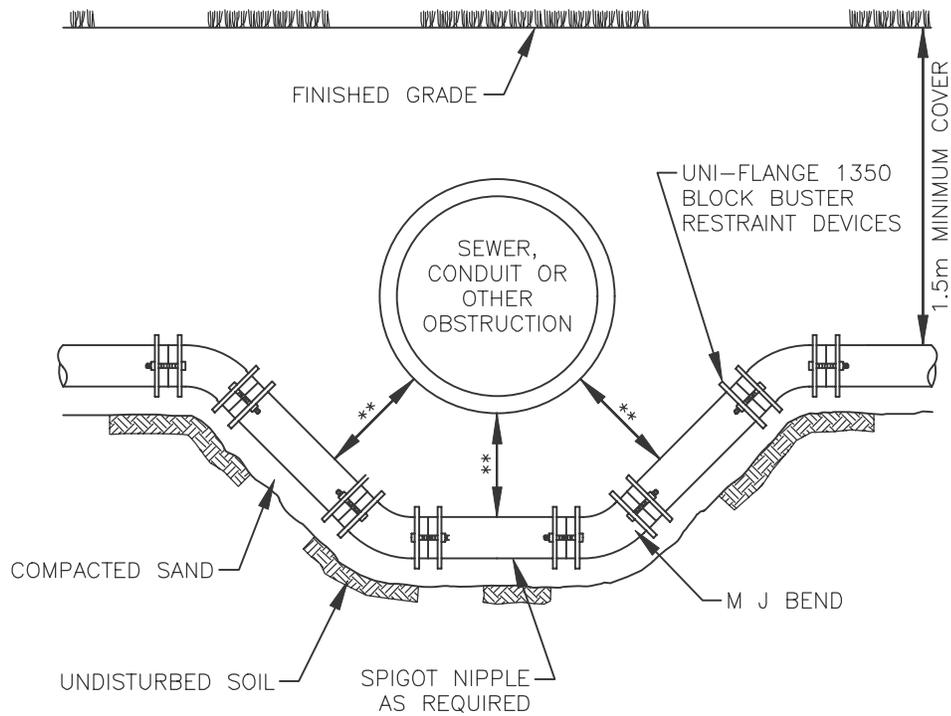
WITHIN ASPHALT AREAS



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**Figure W-9**  
 TYPICAL WATER CONNECTION FOR  
 INSTITUTIONAL / COMMERCIAL / INDUSTRIAL



NOTES:

1. RETAINER GLANDS SHALL BE INSTALLED AT EACH MECHANICAL JOINT.
2. \*\* 1.0m MIN SEPARATION AT ROADSIDE CULVERTS.
3. \*\* 2.5m MIN SEPARATION AT OPEN/CLOSED MUNICIPAL DRAINS

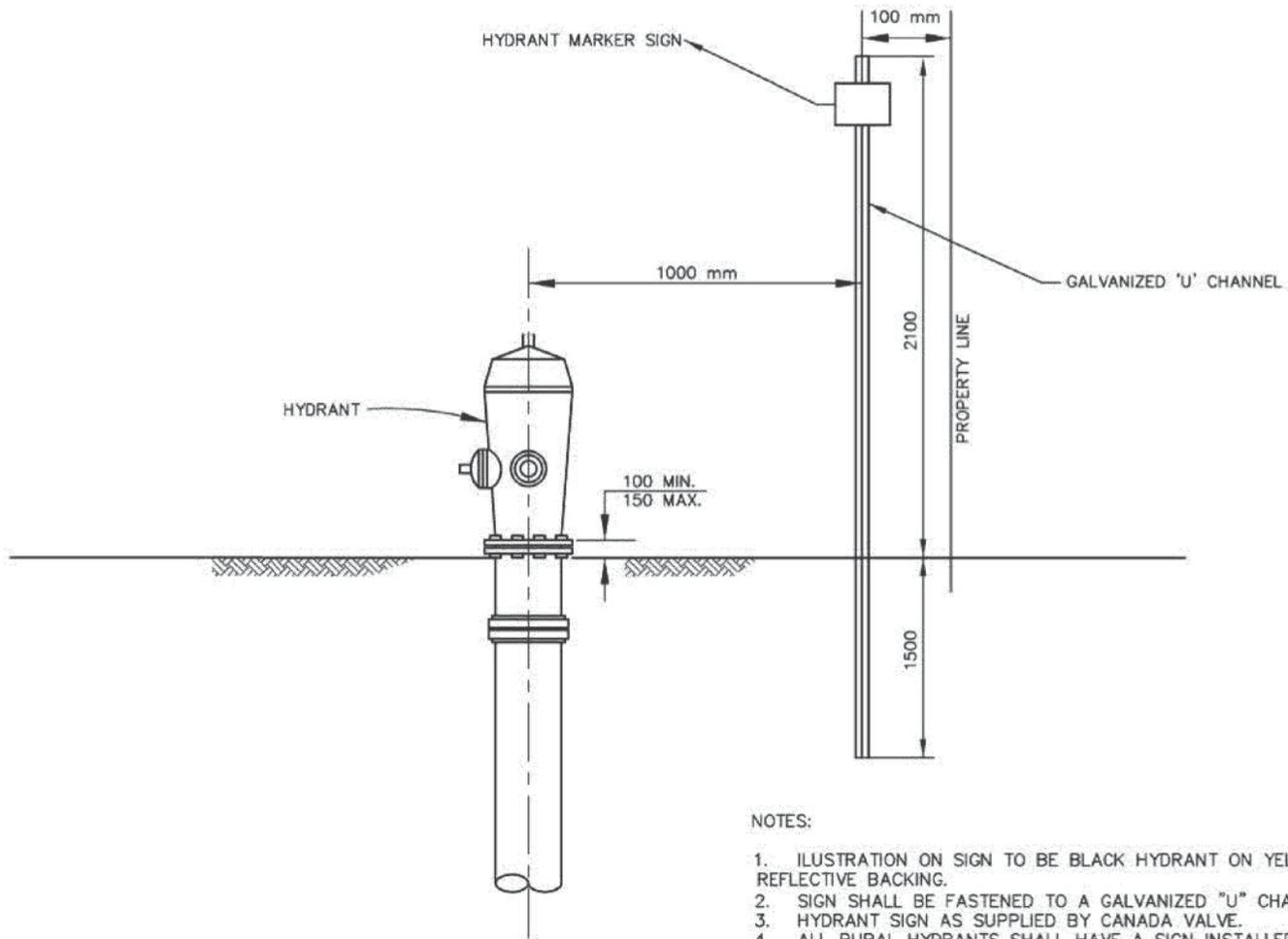
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**Figure W-10**  
 WATERMAIN DEFLECTION UNDER SEWER



NOTES:

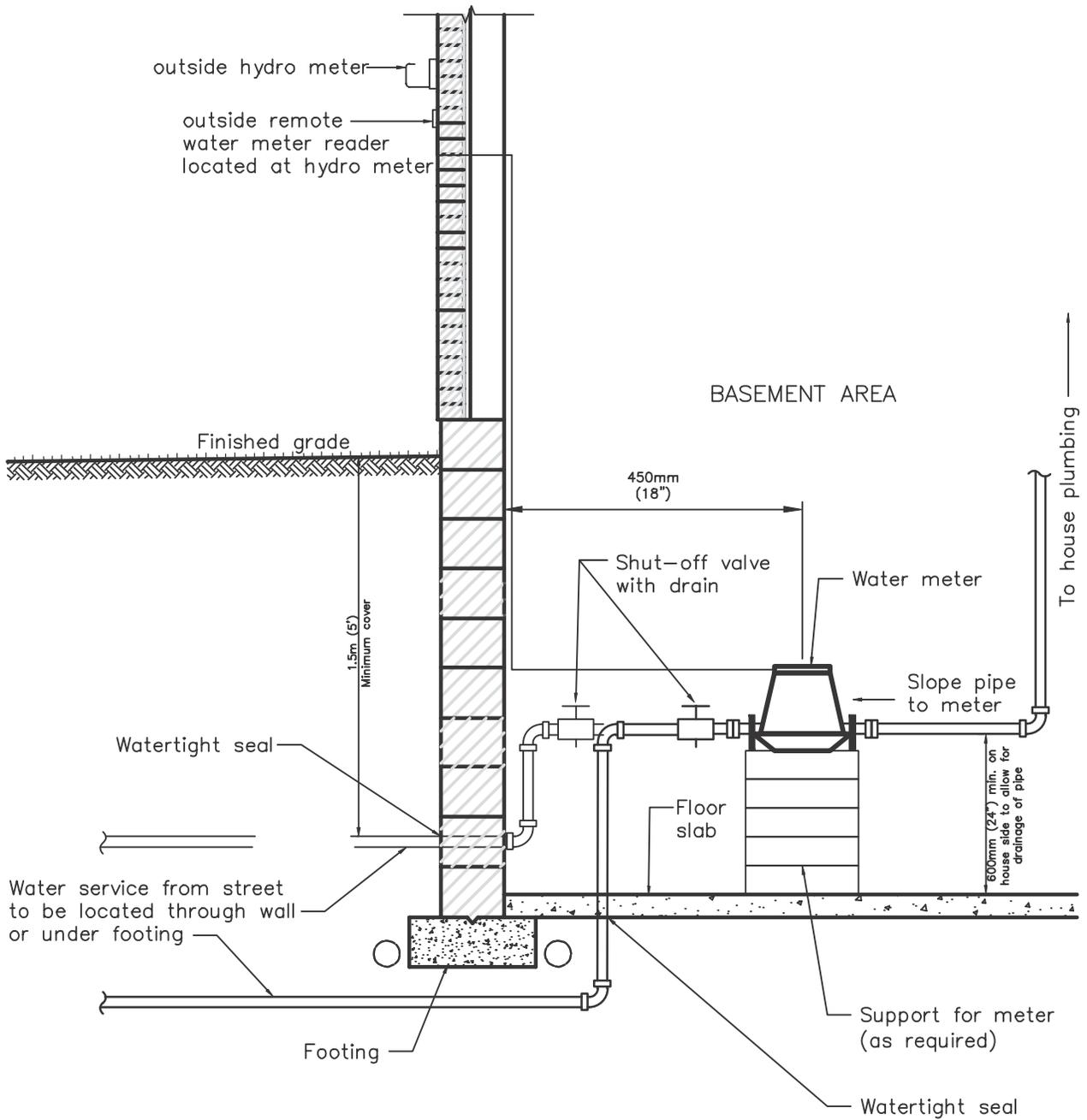
1. ILLUSTRATION ON SIGN TO BE BLACK HYDRANT ON YELLOW REFLECTIVE BACKING.
2. SIGN SHALL BE FASTENED TO A GALVANIZED "U" CHANNEL.
3. HYDRANT SIGN AS SUPPLIED BY CANADA VALVE.
4. ALL RURAL HYDRANTS SHALL HAVE A SIGN INSTALLED.
5. URBAN HYDRANTS SHALL HAVE SIGNS IF REQUIRED BY THE TOWN OF ESSEX.



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**Figure W-11**  
 STANDARD HYDRANT MARKER



**NOTE:**

1. Secure meter and piping to structure.

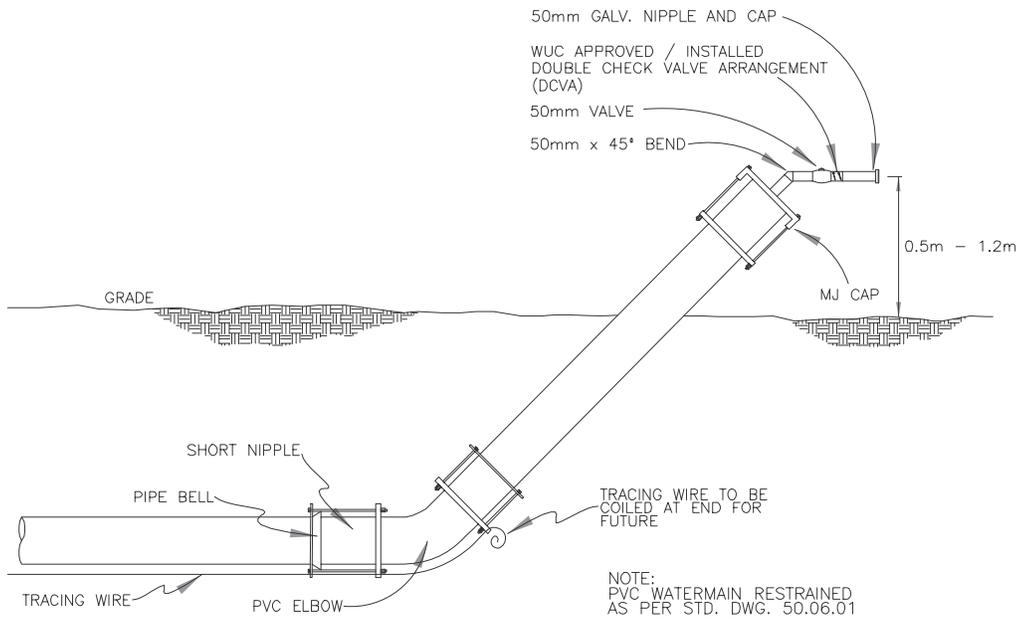
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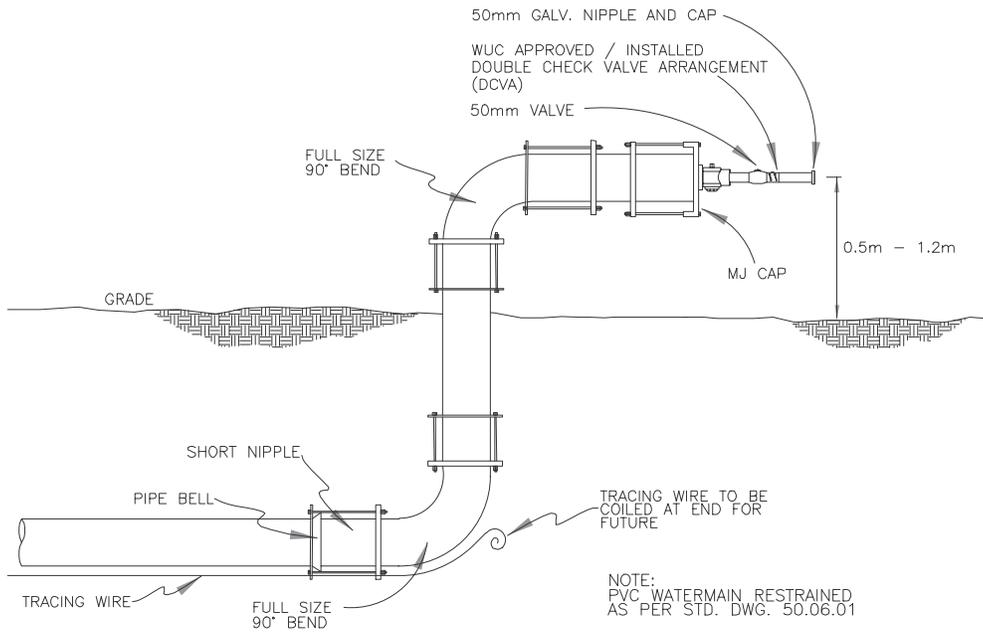
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**Figure W-12**  
INTERNAL WATER METER



NOTE:  
 ALL 50mmØ BLOW-OFF ASSEMBLIES SHALL  
 BE CONSTRUCTED FROM NEW PIPE MATERIALS.



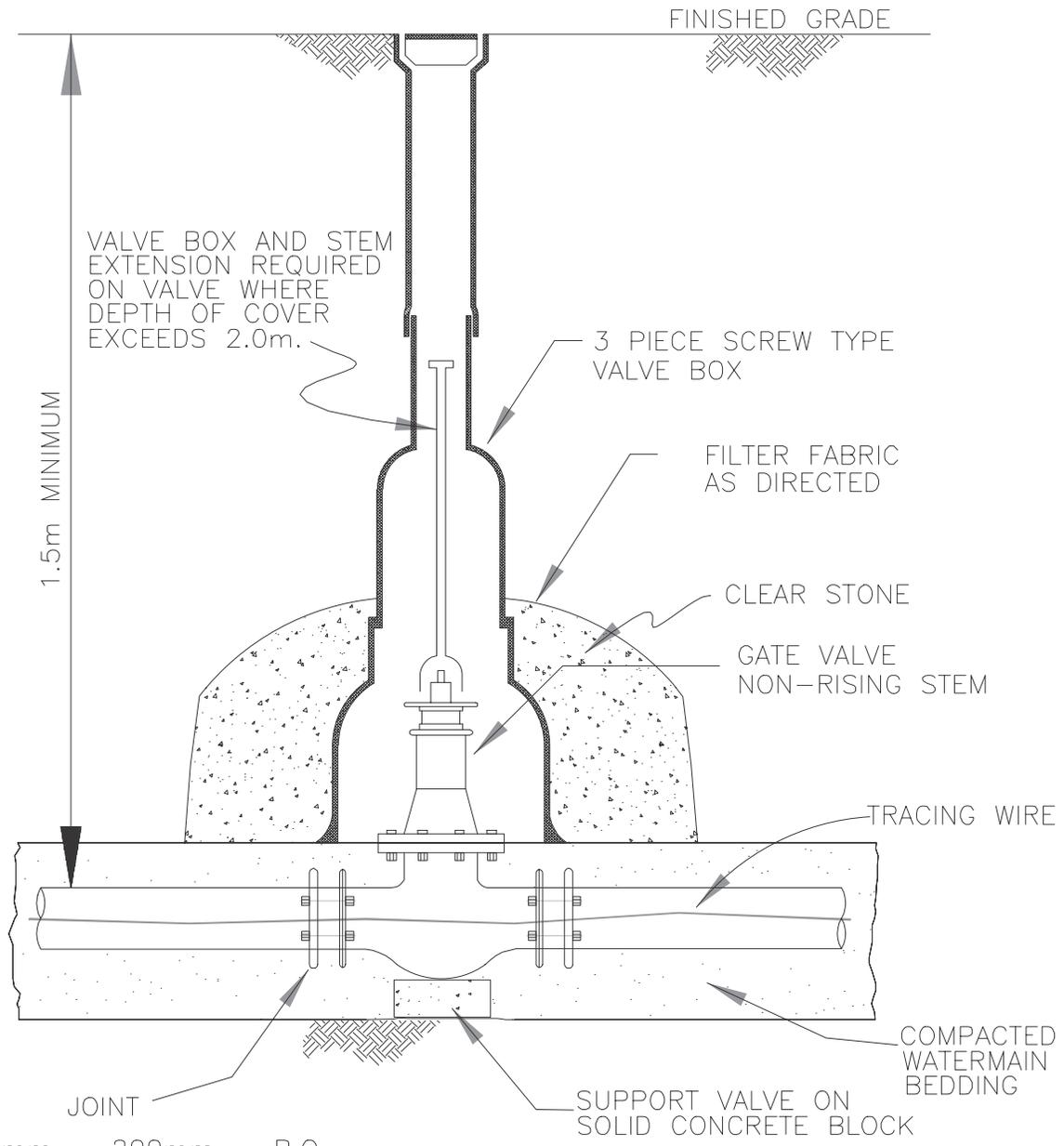
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**Figure W-13**  
 TEMPORARY FULL SIZE BLOW OFF DETAILS



100mm – 200mm – P.O.  
 250mm – 300mm – M.J. WITH APPROVED  
 RESTRAING GLAND RINGS

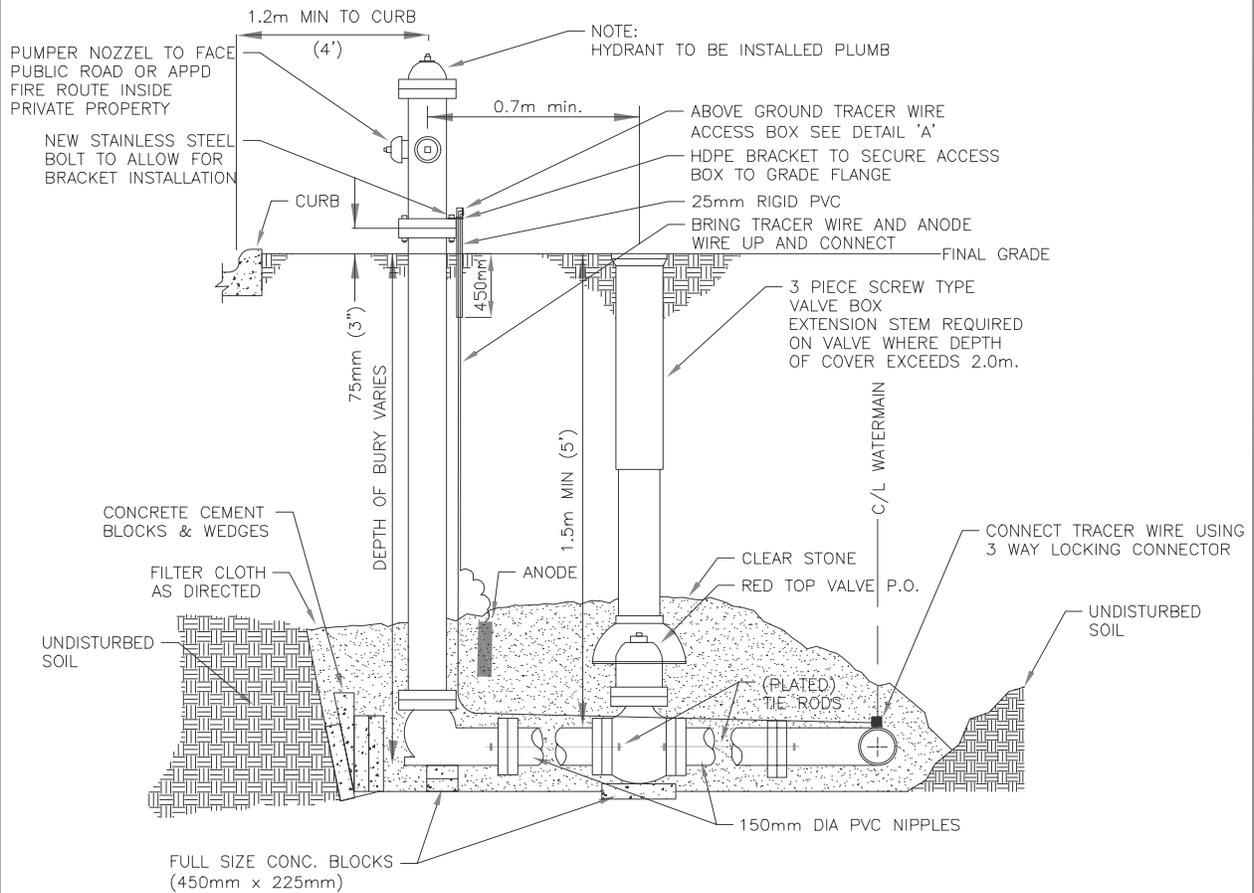
**NOTE:**  
 COMPACT ALL BACKFILL  
 AROUND ALL VALVE BOXES TO  
 ASSURE THAT THEY REMAIN  
 VERTICLE AFTER TRENCH  
 SETTLES.

FILENAME: C:\PW\WORKING DIRECTORY\PROJECTS 2020\33\HW\DWG\45610\_203349-FG-CON.CG DEC 14.DWG PLOTTED BY: PINSONNEAULT, LOUIS  
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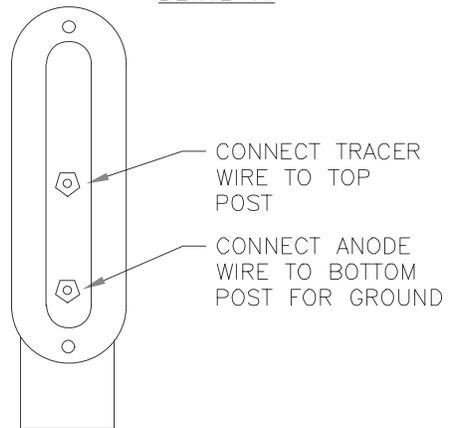


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**Figure W-14**  
 VALVE SETTING ON A PVC WATERMAIN



DETAIL 'A'



COBRA T2 TEST STATION

NOTES:

1. ALL STEEL BOLTS AND TIE RODS TO BE CAPPED WITH SAC CAPS.
2. ALL HYDRANTS ON PUBLIC R.O.W. SHALL BE FLOW TESTED, COLOUR CODED AND PAINTED AS PER WUC STD DWG 50.04.03



FIRE HYDRANT INSTALLATION WITH TEE AND VALVE

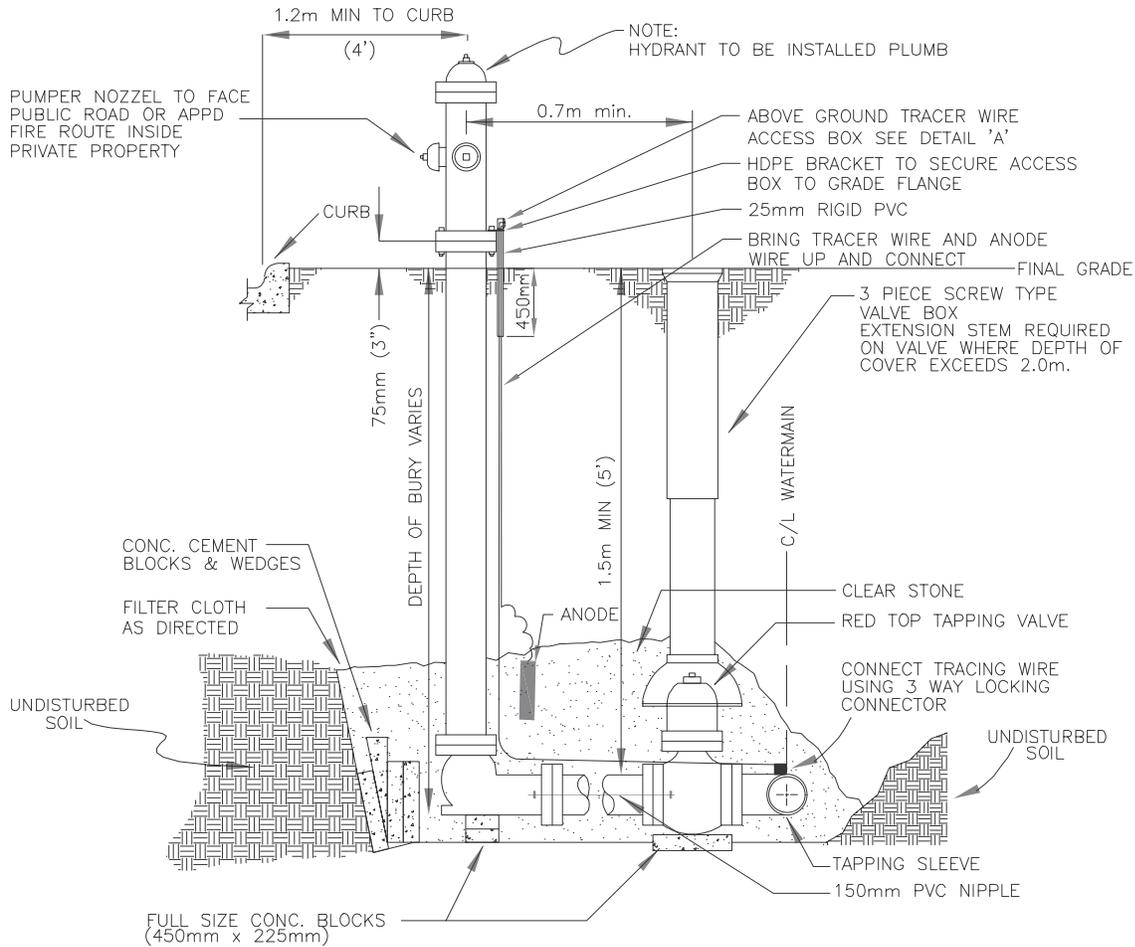
DRAWN BY:	CHECKED BY:	APPROVED BY:	REVISION DATE:	DWG. NO.:
	V.S.	N.P.	NOVEMBER 2015	50.04.01



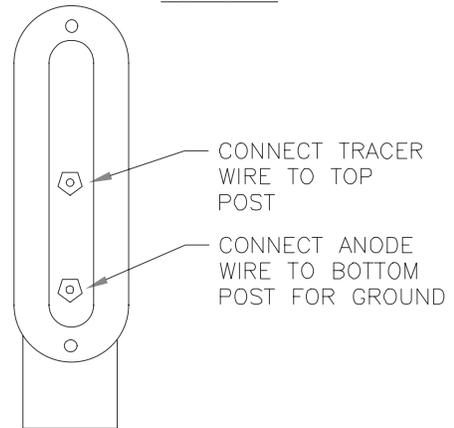
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**Figure W-15**  
FIRE HYDRANT INSTALLATION WITH TEE AND VALVE

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DETAIL 'A'



COBRA T2 TEST STATION

NOTES:

1. ALL STEEL BOLTS AND TIE RODS TO BE CAPPED WITH SAC CAPS.
2. ALL HYDRANTS ON PUBLIC R.O.W. SHALL BE FLOW TESTED, COLOUR CODED AND PAINTED AS PER WUC STD DWG 50.04.03



WINDSOR UTILITIES COMMISSION

FIRE HYDRANT INSTALLATION WITH TAPPING VALVE

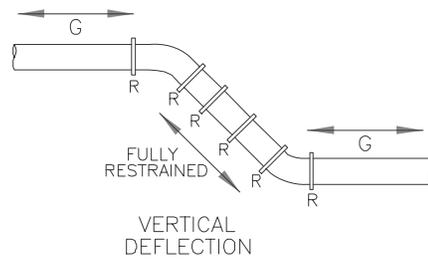
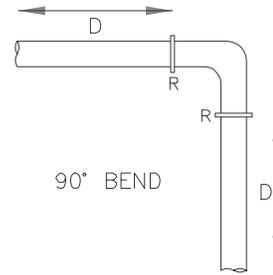
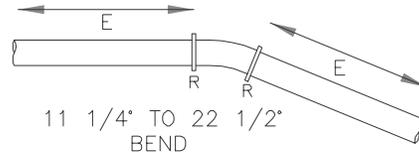
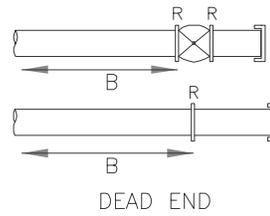
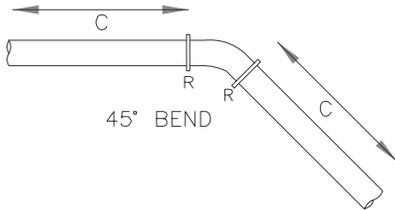
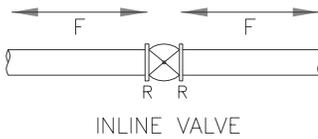
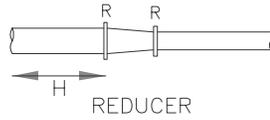
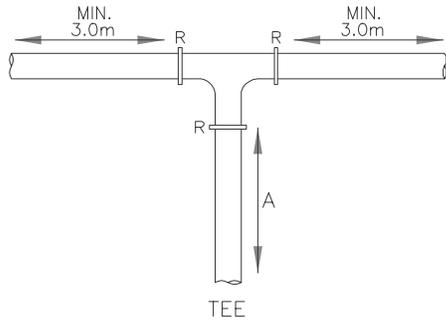
DRAWN BY:	CHECKED BY: V.S.	APPROVED BY: N.P.	REVISION DATE: NOVEMBER 2015	DWG. NO.: 50.04.02
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**Figure W-16**  
FIRE HYDRANT INSTALLATION WITH TAPPING VALVE

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PVC PIPE THRUST RESTRAINT										
MIN. LENGTH OF PVC WM. TO BE RESTRAINED (m)										
PIPE DIA. / LENGTH	100mm (4")	150mm (6")	200mm (8")	250mm (10")	300mm (12")	350mm (14")	400mm (16")	450mm (18")	500mm (20")	600mm (24")
A	0.0	0.0	3.0	6.0	9.0	12.0	15.0	18.0	21.0	27.0
B	9.0	12.0	15.0	18.0	21.0	24.0	27.0	30.0	33.0	39.0
C	3.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0	9.0	9.0
D	6.0	6.0	9.0	9.0	12.0	12.0	15.0	15.0	18.0	21.0
E	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	6.0	6.0
F	3.0	6.0	6.0	9.0	9.0	12.0	12.0	15.0	15.0	18.0
G	3.0	6.0	6.0	9.0	9.0	12.0	12.0	15.0	15.0	18.0
H	0.0	6.0	6.0	6.0	6.0	6.0	12.0	12.0	12.0	12.0

**NOTE:**

- 'R' DENOTES RESTRAINT DEVICE
- RESTRAINT LENGTHS BASED ON 'CL' TYPE SOIL CONDITIONS TYPICALLY FOUND AT A DEPTH OF 1.5 METERS. REFER TO ASTM D2487 FOR COMPLETE DESCRIPTION. IN AREAS WHERE SAND IS PREVALENT OR PIPE IS SITUATED BELOW WATER TABLE, RESTRAINED LENGTHS WILL BE DETERMINED BY THE ENGINEER.
- REDUCER DIMENSION 'H' ASSUMES ONE REDUCTION IN PIPE SIZE. IF REDUCTION IS GREATER THAN ONE PIPE SIZE, RESTRAINED LENGTH WILL BE DETERMINED BY THE ENGINEER.



**PVC PIPE JOINT THRUST RESTRAINT**

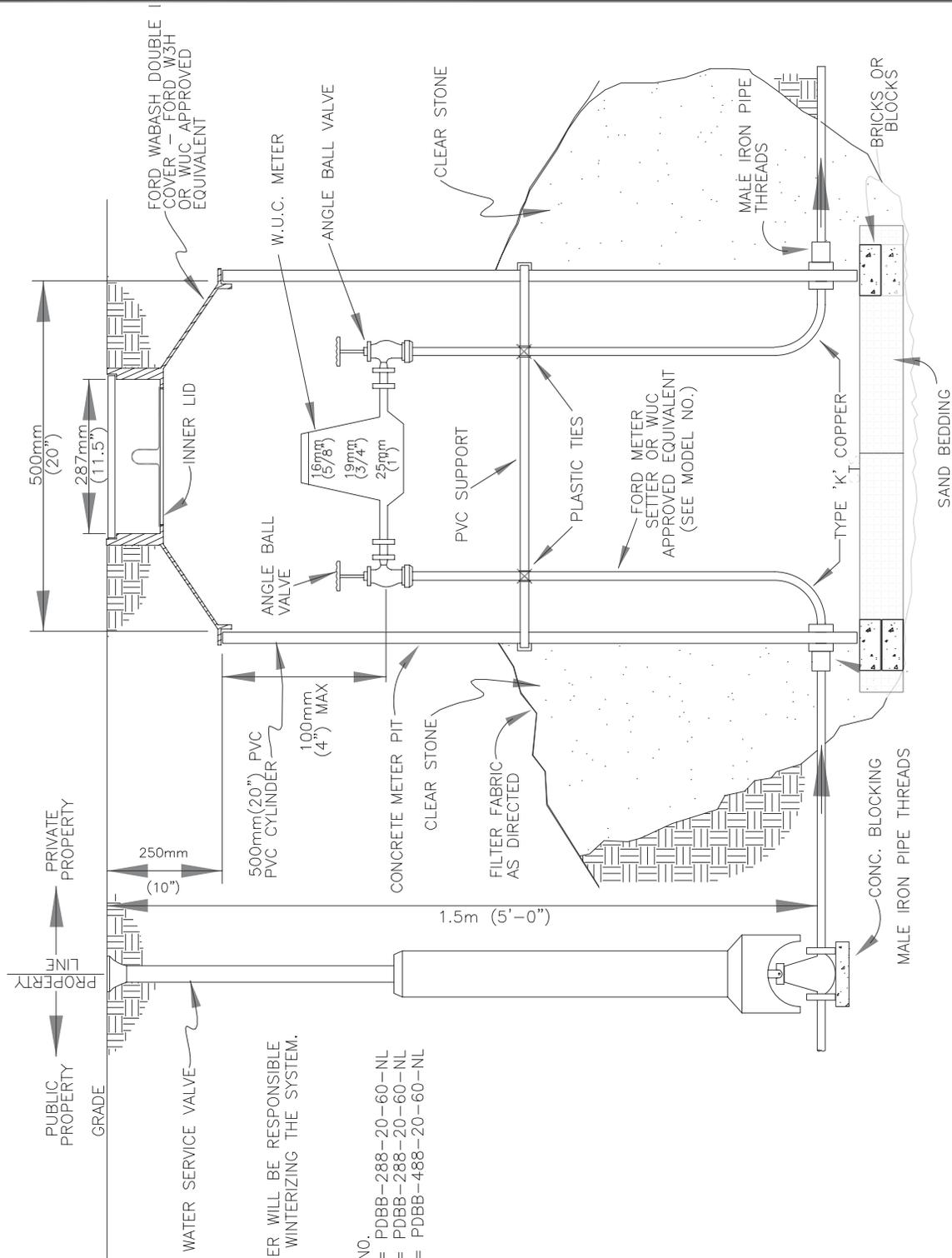
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	V.S.	N.P.	JUNE 04/2010	50.06.01



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**Figure W-17**  
PVC PIPE JOINT THRUST RESTRAINT

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**NOTE:**  
 1. OWNER WILL BE RESPONSIBLE FOR WINTERIZING THE SYSTEM.

**MODEL NO.**  
 16mm = PDBB-288-20-60-NL  
 19mm = PDBB-288-20-60-NL  
 25mm = PDBB-488-20-60-NL



### CONCRETE METER PIT FOR 16mm, 19mm AND 25mm METERS IN BLVD

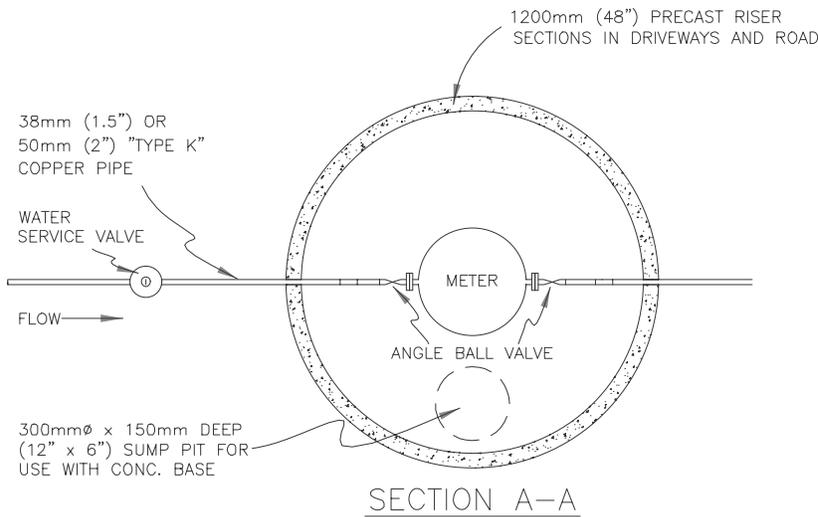
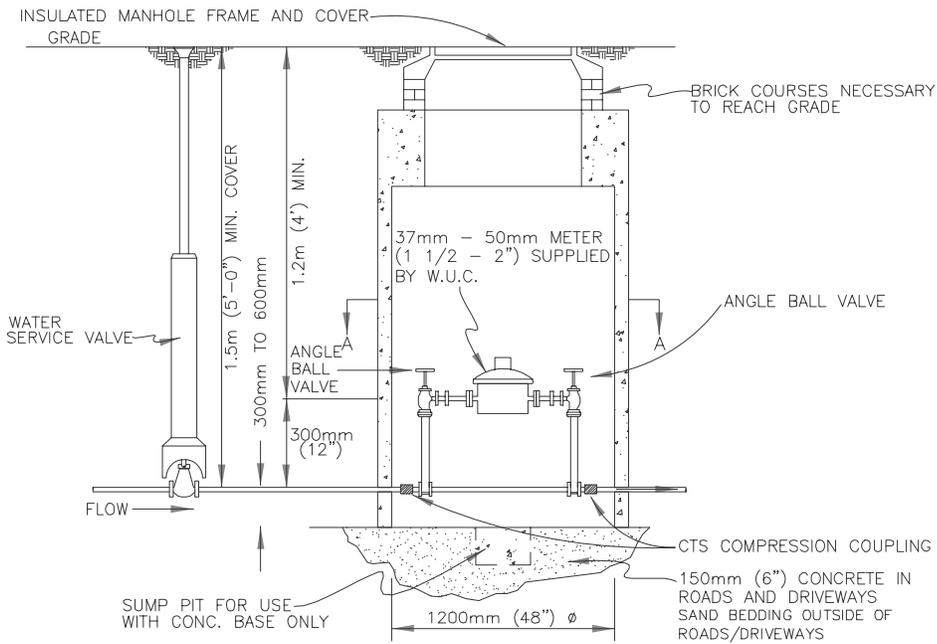
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**Figure W-18**  
 CONCRETE METER PIT FOR 16mm, 19mm AND 25mm METERS IN BLVD

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**NOTE:**  
 1. OWNER WILL BE RESPONSIBLE FOR WINTERIZING THE SYSTEM

FORD 70 SERIES COPPER SETTER OR EQUIVALENT MODEL NO.  
 37mm = VBB76-12-44-66-G-NL  
 50mm = VBB77-12-44-77-G-NL



**CONCRETE METER PIT AND SETTERS FOR FLANGED METER SETTINGS - 40mm AND 50mm**

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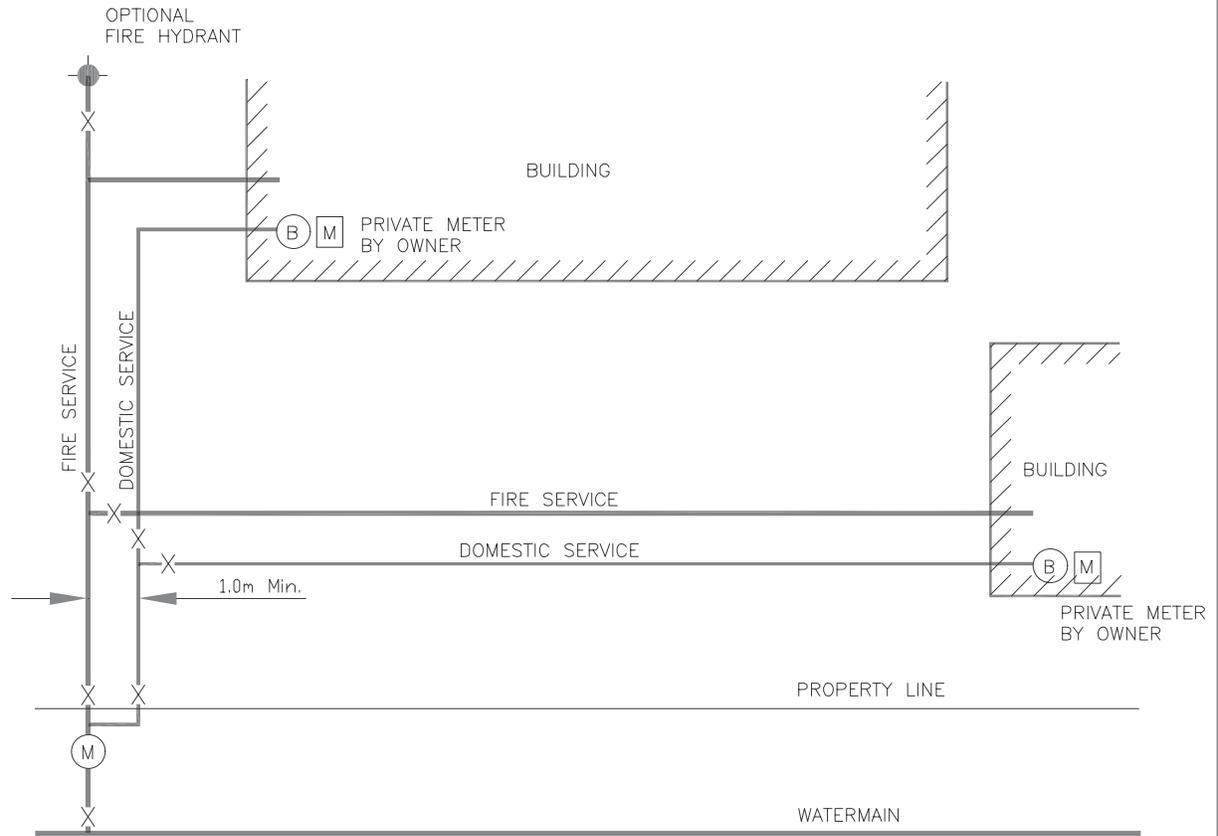


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**Figure W-19**  
 CONCRETE METER PIT AND SETTERS FOR FLANGED METER SETTINGS - 40mm AND 50mm

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 PLOTTED BY: ESKRITT, SERRA



**LEGEND**

- (B) BACKFLOW PREVENTER
- (M) METER IN CHAMBER
- [M] PRIVATE METER BY OWNER
- X VALVE & BOX

NOTE:  
 PREMISE BACKFLOW PREVENTERS ON NEW INSTALLATIONS SHALL BE RP TYPE AND BE INSTALLED AS THE SERVICE ENTERS THE BUILDING BEFORE ANY CONNECTIONS OCCUR.



**WATER SERVICING FOR MULTIPLE BUILDINGS ON ONE LOT FOR INDUSTRIAL, COMMERCIAL, INSTITUTIONAL**

DRAWN BY:	CHECKED BY: B.J.O.	APPROVED BY: N.P.	REVISION DATE: MAY/2016	DWG. NO.: 50.09.01
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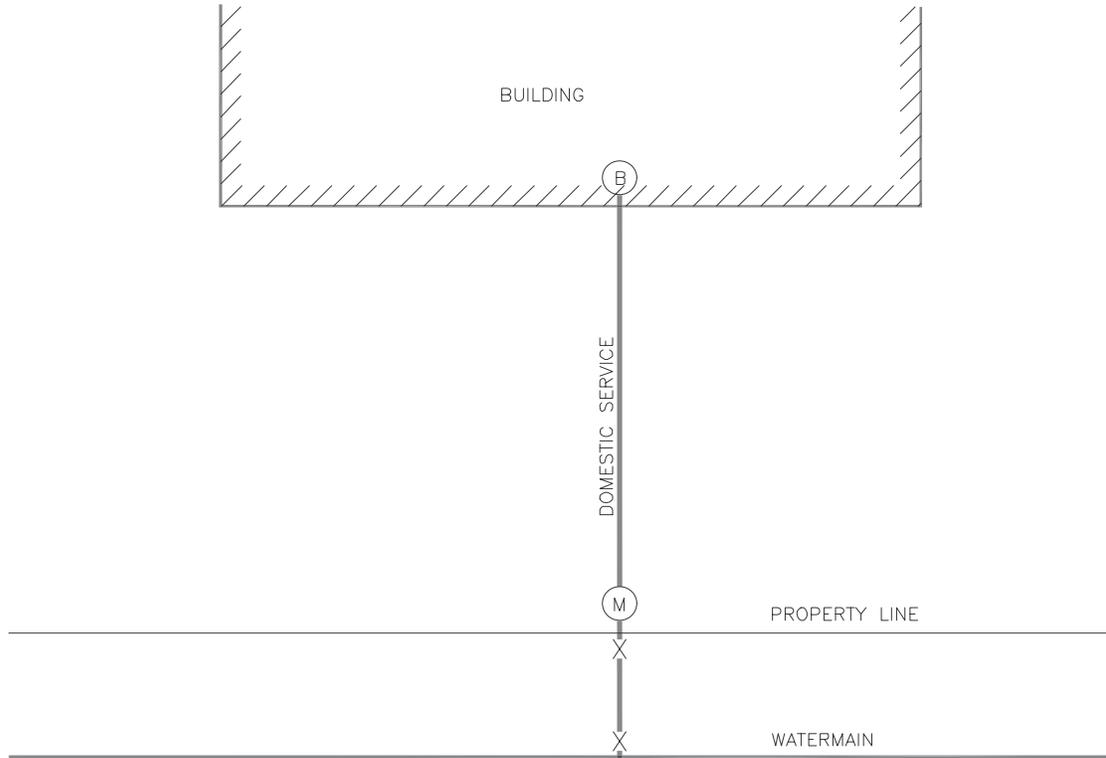


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**Figure W-20**

**WATER SERVICING FOR MULTIPLE BUILDINGS ON ONE LOT FOR INDUSTRIAL, COMMERCIAL, INSTITUTIONAL**



**LEGEND**

- (B) BACKFLOW PREVENTER
- (M) METER IN CHAMBER
- X VALVE & BOX

NOTE:  
 PREMISE BACKFLOW PREVENTERS ON NEW INSTALLATIONS SHALL BE RP TYPE AND BE INSTALLED AS THE SERVICE ENTERS THE BUILDING BEFORE ANY CONNECTIONS OCCUR.



**DOMESTIC WATER SERVICE FOR INDUSTRIAL, COMMERCIAL, INSTITUTIONAL**

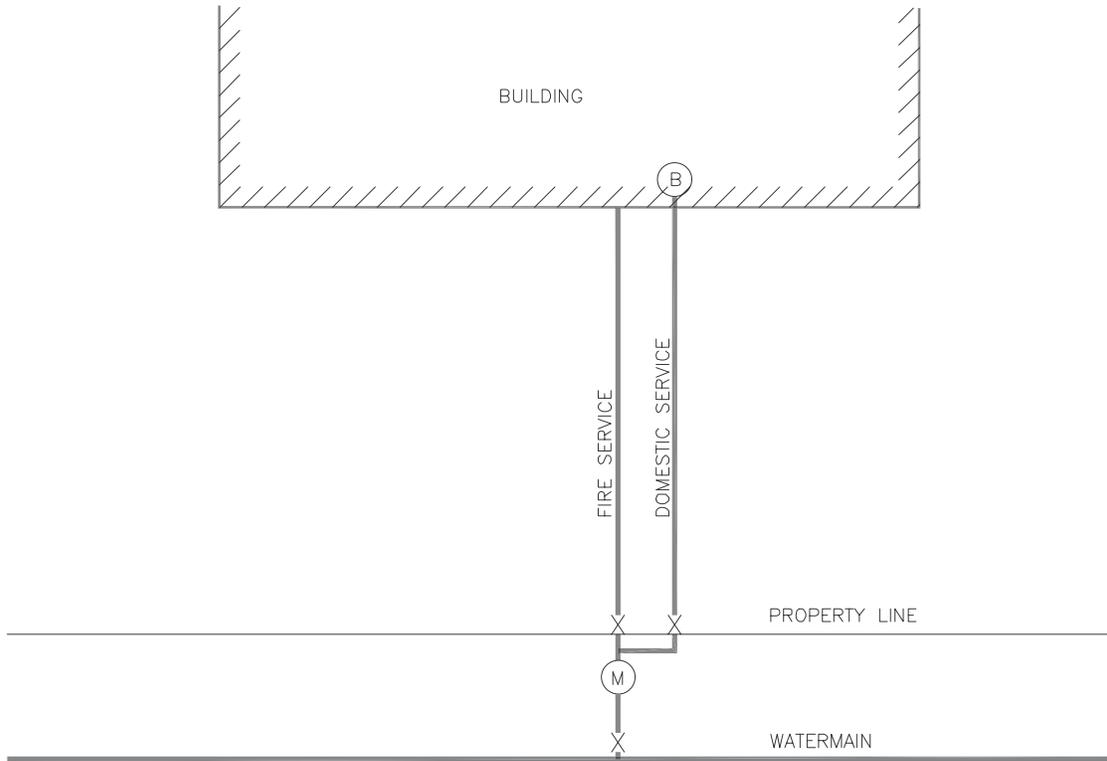
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**Figure W-21**  
 DOMESTIC WATER SERVICE FOR INDUSTRIAL, COMMERCIAL, INSTITUTIONAL



**LEGEND**

- (B) BACKFLOW PREVENTER
- (M) METER IN CHAMBER
- X VALVE & BOX

NOTE:  
PREMISE BACKFLOW PREVENTERS ON NEW INSTALLATIONS SHALL BE RP TYPE AND BE INSTALLED AS THE SERVICE ENTERS THE BUILDING BEFORE ANY CONNECTIONS OCCUR.



**FIRE AND DOMESTIC WATER SERVICING FOR INDUSTRIAL, COMMERCIAL, INSTITUTIONAL**

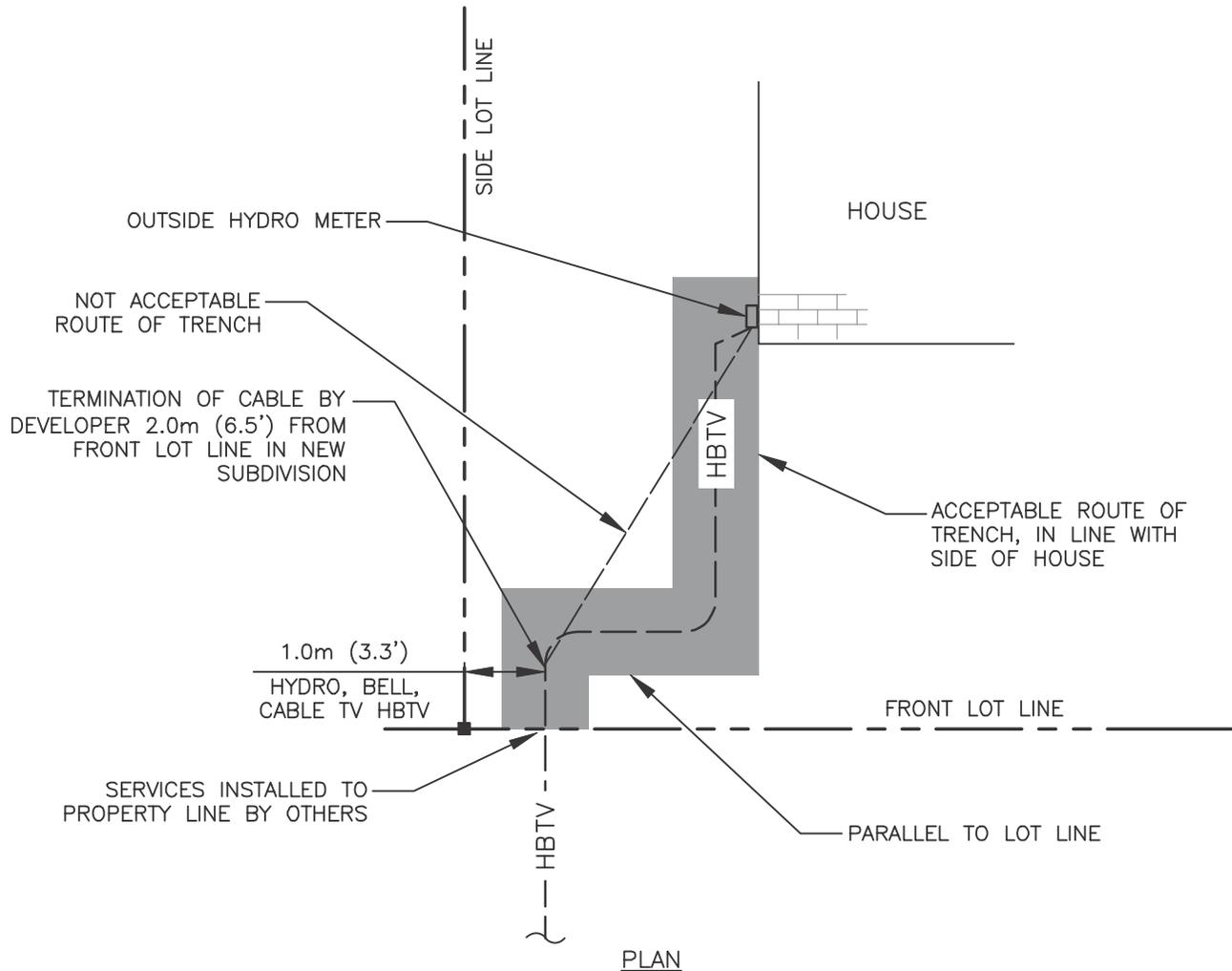
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**Figure W-22**  
**FIRE AND DOMESTIC WATER SERVICING FOR INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL**

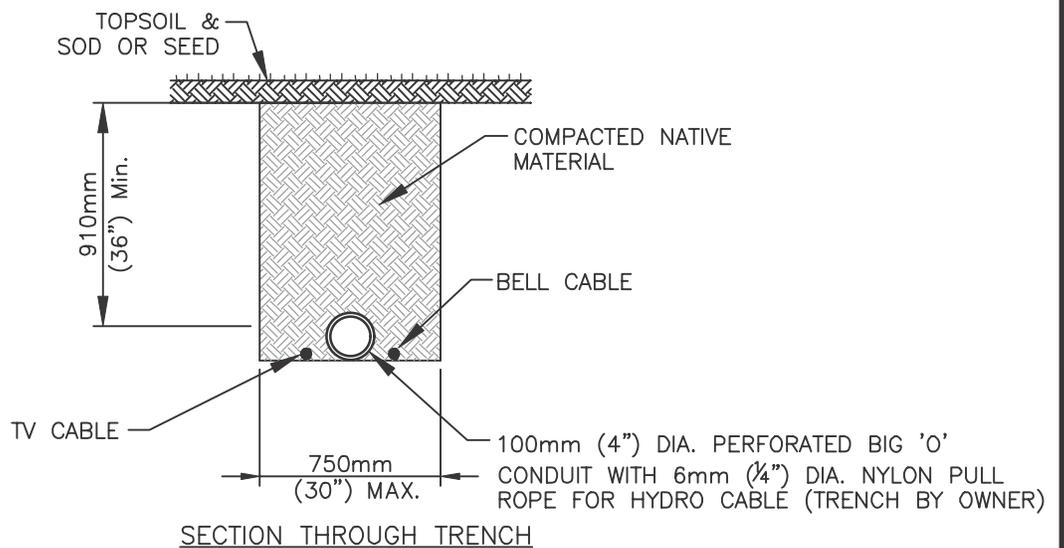
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PLAN

**NOTE:**

1. OBTAIN APPROVAL FROM ENTEGRUS/HYDRO ONE OFFICE FOR METER LOCATION ON HOUSE.
2. DO NOT BURY BIG 'O' CONDUIT UNTIL AFTER HYDRO CABLE INSTALLATION AND AFTER INSPECTION BY ENTEGRUS/HYDRO ONE.



SECTION THROUGH TRENCH

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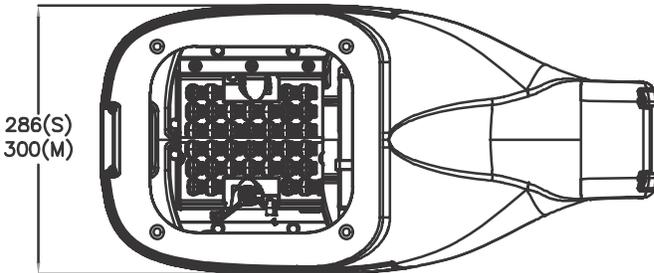
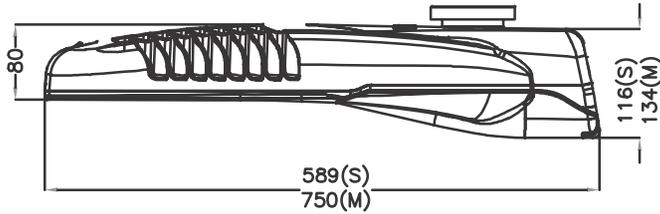
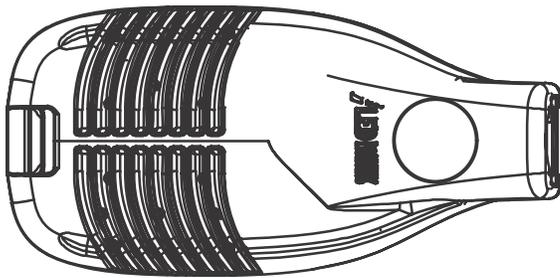
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**Figure U-1**  
TRENCH FOR HYDRO, BELL AND  
CABLE TV SERVICES

**LUMINAIRE SPECIFICATIONS**

CATALOGUE NO.: NXT-xxS/M-0-7-2ES/4AH  
 MANUFACTURER: LED ROADWAY  
 IES DESIGNATION: TYPE II STANDARD;  
 UNLESS OTHERWISE APPROVED  
 LIGHT SOURCE: LED  
 LINE VOLTAGE: 120V  
 OPTIONS: NEMA PHOTOCELL RECEPTACLE  
 PHOTOCELL  
 PAINT: BLACK  
 (TO BE CONFIRMED)



286(S)  
300(M)

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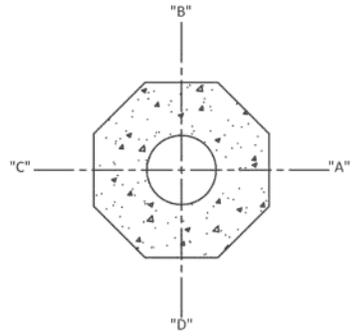
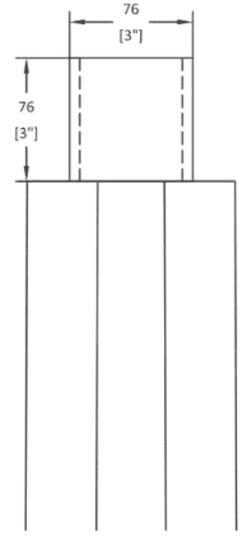
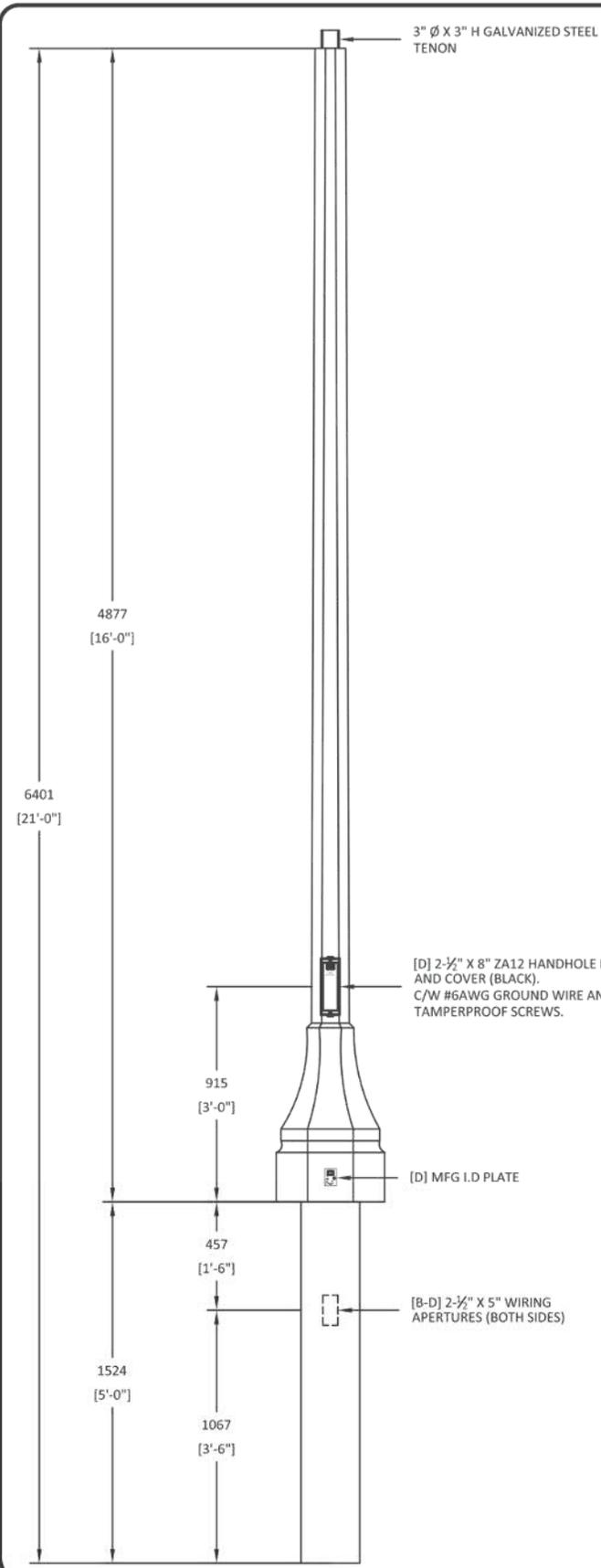


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**Figure E-1**  
STANDARD STREET LIGHTING  
LED SOURCE





NOTES:  
 1. ALL POLES TO BE MANUFACTURED TO CSA A14(LATEST REVISION) SPECIFICATION FOR SPUN CONCRETE POLES.

IT IS RECOMMENDED THAT A PROFESSIONAL ENGINEER EVALUATE THE SOIL CONDITIONS ON SITE, CONFIRMING REQUIRED BURIAL DEPTH, HOLE DIAMETER AND MATERIAL TO BE USED.

	<b>UTILITY STRUCTURES INC.</b> 61 BONGARD AVE   OTTAWA, ON   CANADA   K2E 6V2 T: 613 225.6398 F: 613 225.1681 TF: 800 267 6466 www.utilitystructures.com		
	POLE CODE: <b>WE-210-A-3-BE-30</b>		
POLE STYLE:	<b>WESTMOUNT</b>	LENGTH:	<b>21'-0" [6.4m]</b>
COLOR:	<b>BLACK ECLIPSE</b>	FINISH:	<b>ETCHED</b>
COATING:	<b>ACRYLIC SEALER</b>	APPROX. WEIGHT:	<b>1335 lbs</b>
TIP DIA.:	<b>5 1/16" Ø</b>	QUANTITY:	<b>17</b>
BUTT DIA.:	<b>9 3/4" Ø</b>	CLASS:	<b>A</b>
PROJECT NAME:	<b>Kimball S.D</b>	CUST. PO#:	---
CUSTOMER NAME:	<b>Acuity Brands</b>		
DRAWN BY:	<b>L.V</b>	APR'V'D BY:	<b>R.C</b>
		REVISION #:	<b>1</b>
		POLE DRAWING #:	<b>we210aEssex</b>

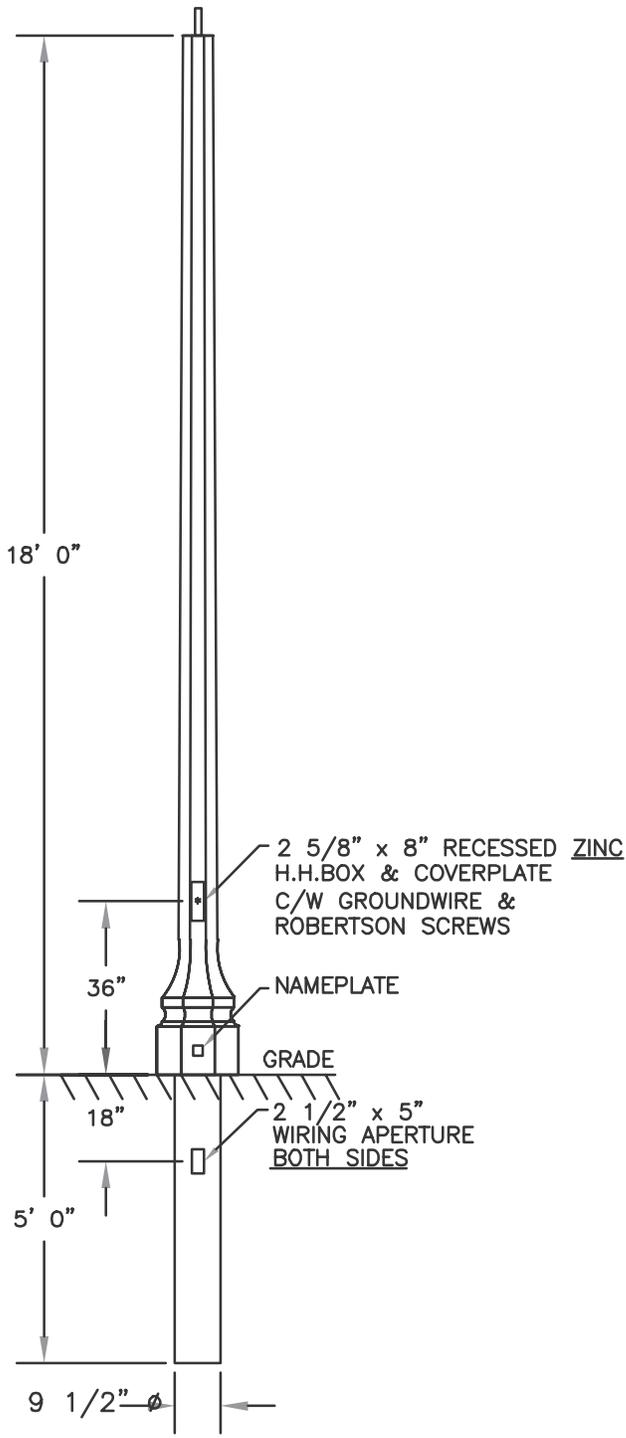
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 PLOT DATE: 2022-01-24 @ 11:17:20 AM PLOT SCALE: 1:1 PLOT STYLE: DILLON-STANDARD.CTB



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1	June 01, 2021

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**Figure E-3**  
 DECORATIVE GLASS STREET LIGHTING  
 LED SOURCE



**POLE SPECIFICATIONS**

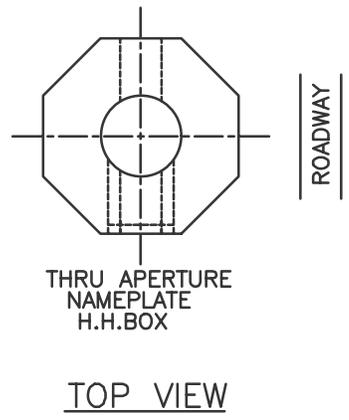
CATALOGUE NO.: KBH18-E10  
 DB 140-35/40  
 MANUFACTURER: STRESSCRETE  
 SECTION: OCTAGONAL  
 COLOUR: MIDNIGHT LACE  
 FINISH: ETCHED  
 POLE TOP: 6 3/16" FL/FL  
 POLE BUTT: 9 1/2" Ø  
 POLE LENGTH: 18' 0"  
 (ABOVE GROUND)  
 APPROX WEIGHT: 1,410 lbs  
 MIN. RACEWAY: 1 1/8" Ø

**COATINGS REQUIRED:**  
 -2 COATS ACRYLIC (JB)  
 FULL LENGTH

**POLE SPECIFICATIONS**

CATALOGUE NO.: KBH18-E11  
 DB 140-35/40  
 MANUFACTURER: STRESSCRETE  
 SECTION: OCTAGONAL  
 COLOUR: ECLIPSE  
 FINISH: ETCHED  
 POLE TOP: 6 3/16" FL/FL  
 POLE BUTT: 9 1/2" Ø  
 POLE LENGTH: 18' 0"  
 (ABOVE GROUND)  
 APPROX WEIGHT: 1,410 lbs  
 MIN. RACEWAY: 1 1/8" Ø

**COATINGS REQUIRED:**  
 -2 COATS ACRYLIC (JB)  
 FULL LENGTH



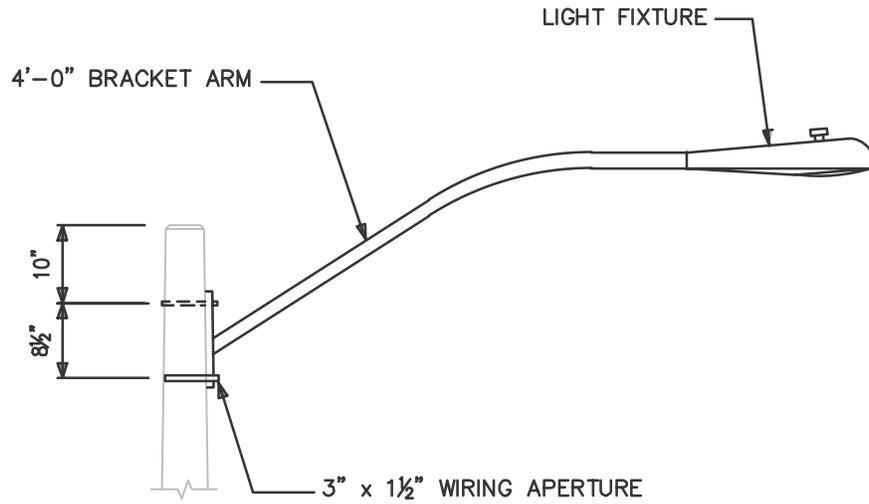
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**Figure E-4**  
 STREET LIGHTING  
 DECORATIVE POLE



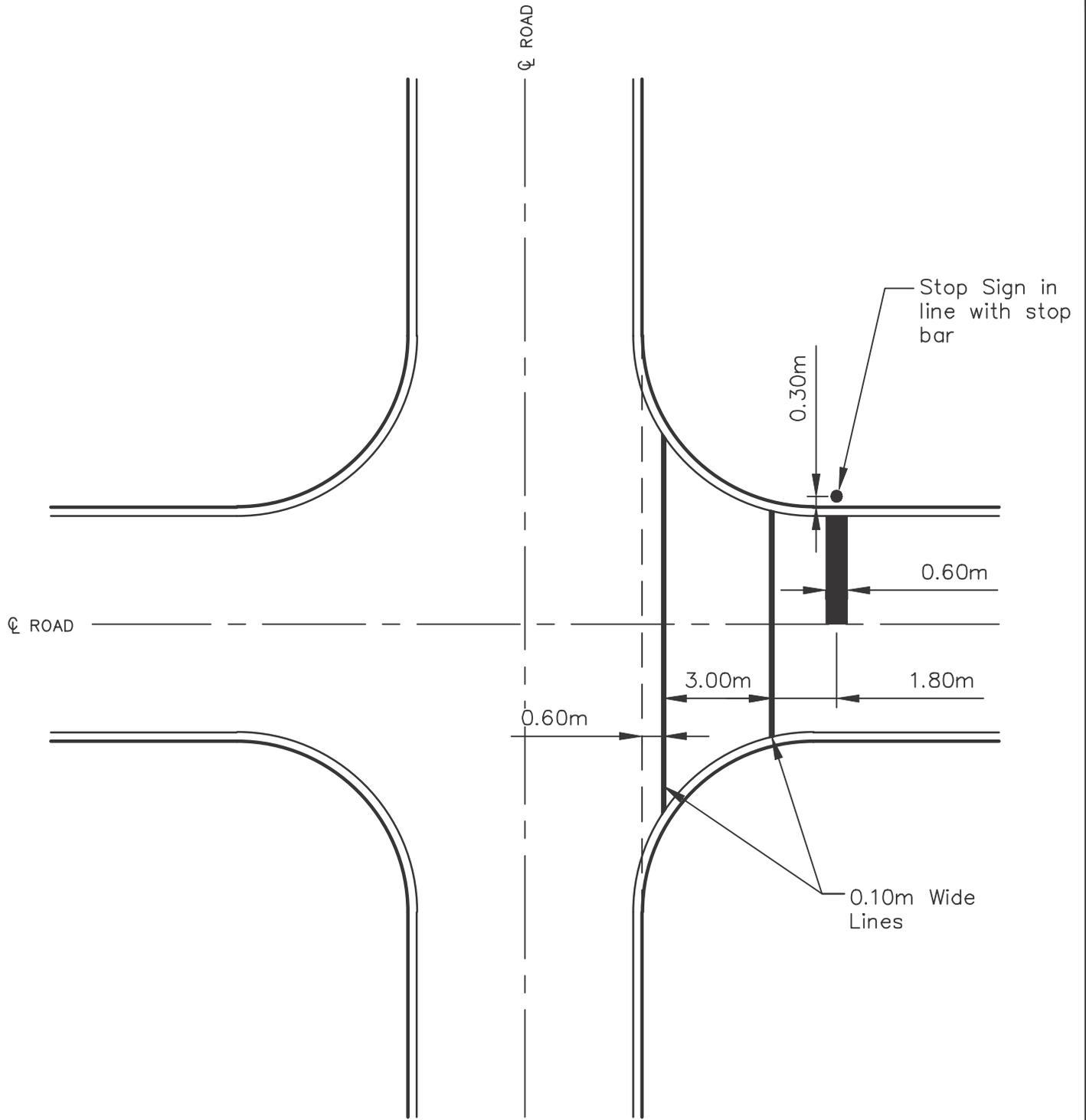
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 PLOT DATE: 2022-01-24 @ 11:17:22 AM PLOT STYLE: DILLON-STANDARD.CTB



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**Figure E-5**  
 STREET LIGHTING  
 STANDARD ARM



**NOTE**

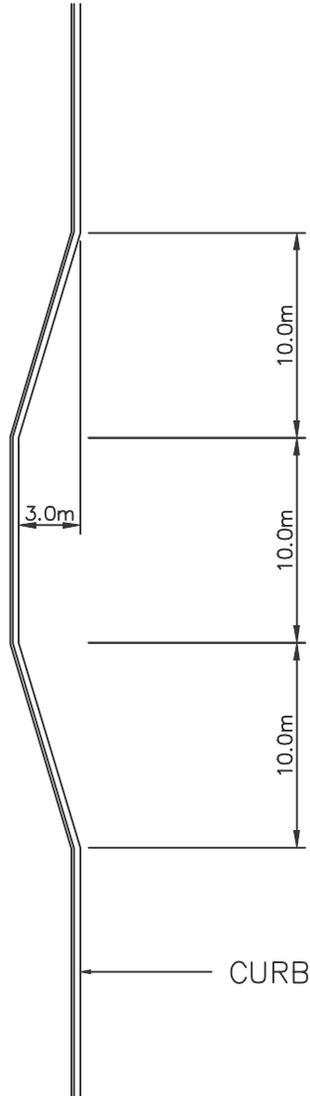
1. All Dimensions are referenced to back of curb.



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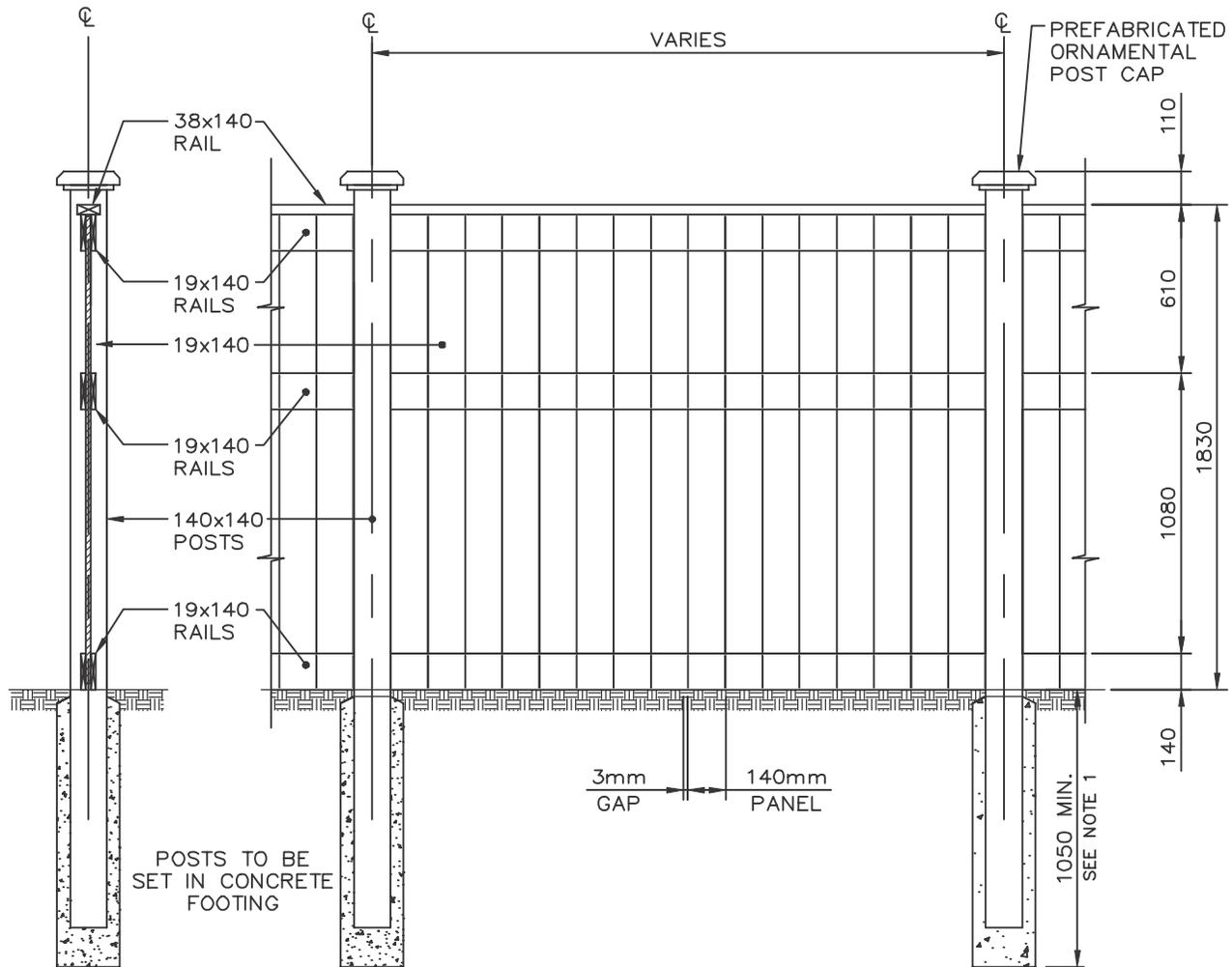
**Figure R-1**  
 TYPICAL CROSSWALK LINE PAINTING PLAN



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**Figure R-2**  
 TYPICAL COMMUNITY MAILBOX CAR BAY



**TYPICAL WOOD SCREEN FENCE PANEL**  
N.T.S.

**NOTES**

- 1 DESIGN TO BE COMPLETED BY A PROFESSIONAL ENGINEER.
- 2 ALL LUMBER TO BE PRESSURE TREATED WOOD. AFTER ERECTING FENCE, ALL CUT ENDS TO BE TREATED.
- 3 AS SUPPLIED BY CREATIVE HOMESCAPES OR APPROVED EQUAL.

FILENAME: C:\PW\WORKING DIRECTORY\PROJECTS 2020\33049\04845610\203349-FG-CON CG DEC 14.DWG PLOTTED BY: PINSONNEAULT, LOUIS  
 PLOT DATE: 2022-01-24 @ 11:17:25 AM PLOT STYLE: DILLON-STANDARD.CTB



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**Figure R-3**  
1830mm HIGH WOOD FENCE DETAIL

# NOTICE

## NO THRU TRAFFIC

SUBDIVISION SECTION AND ROADS

NOT ASSUMED

BY THE MUNICIPALITY

## USE AT YOUR OWN RISK

FILENAME: C:\PW\WORKING DIRECTORY\PROJECTS 2020\33\WP\UNASSUMED\203349-FG-CON CG DEC 14.DWG PLOTTED BY: PINSONNEAULT, LOUIS  
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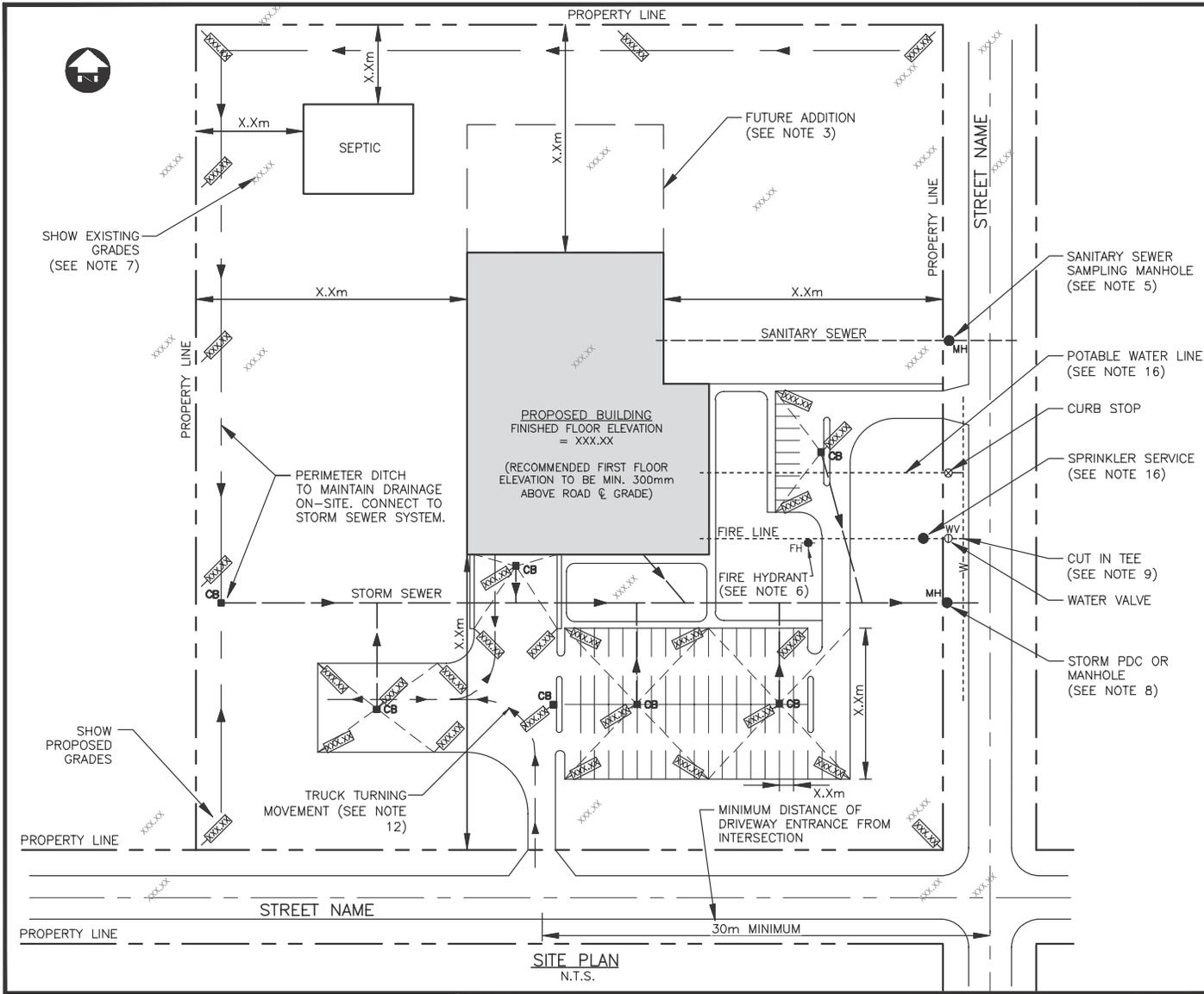


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**Figure R-4**  
UNASSUMED DEVELOPMENT SIGN

PLANS: 01/19/2021 REVISED: 02/03/2021 11:17:28 AM NOT SCALE TO POST SHALL BE SHOWN IN PROPORTION TO THE PLAN DATE: 2022-01-24 @ 11:17:28 AM NOT SCALE TO POST SHALL BE SHOWN IN PROPORTION TO THE PLAN



- GENERAL NOTES:**
1. SITE SERVICES: TYPE, SIZE, SLOPE, DEPTH AND LOCATIONS TO BE SHOWN.
  2. DEVELOPER SHALL SUBMIT REQUIRED STUDIES AS MAY BE REQUIRED FOR EACH DEVELOPMENT. (FOR LIST OF POSSIBLE STUDIES REQUIRED, SEE DEVELOPMENT MANUAL).
  3. FUTURE PHASING TO BE SHOWN IF APPLICABLE.
  4. PLAN MUST SHOW THE LOCATION, SIZE, HEIGHT, TYPE, AND DISTANCE FROM PROPERTY LINES OF ALL EXISTING AND PROPOSED BUILDINGS AND STRUCTURES ON THE SUBJECT LAND (INCLUDING SEPTIC SYSTEMS).
  5. ALL PROPERTY LINES AND EASEMENTS SHALL BE ACCURATELY SHOWN, DIMENSIONED AND LABELED. ANY PROPERTY REQUIRED FOR FUTURE ROAD WIDENINGS AS REQUIRED BY THE MUNICIPALITY SHALL BE ACCURATELY SHOWN.
  6. SANITARY SAMPLING MANHOLE AS PER FIGURE S-1 LOCATED AT PROPERTY LINE.
  7. FIRE HYDRANT LOCATIONS TO BE SHOWN AND SUBMISSION MADE TO THE TOWN OF ESSEX CHIEF FOR APPROVAL.
  8. EXISTING GRADES TO BE SHOWN ON THIS LOT AND ADJACENT PROPERTY. ALSO INDICATE FINISHED FLOOR ELEVATION OF ADJACENT BUILDINGS.
  9. UNLESS OTHERWISE NOTED IN SUBDIVISION SERVICING AGREEMENT, CONTROL STORM WATER RUNOFF RATES TO PRE-DEVELOPMENT CONDITIONS. ORIFICE LOCATED IN MANHOLE AT PROPERTY LINE PREFERRED. CALCULATIONS ARE REQUIRED TO BE SUBMITTED.
  10. CONNECTIONS TO EXISTING WATERMAINS TO BE CUT-IN-TEES.
  11. ALL WORK ON PUBLIC RIGHT-OF-WAY REQUIRES A PUBLIC WORKS PERMIT, RESTORE TO EXISTING CONDITION WITH FULL GRANULAR BACKFILL ('A' OR 'B') COMPACTED TO 100% S.P.D. (GEOTECH CERTIFIED) OR UNSHRINKABLE FILL.
  12. PARKING, DRIVEWAYS, AND LOADING SPACES TO BE PAVED. DRIVEWAYS, PARKING AISLES, PARKING SPACES, LOADING SPACES TO BE DIMENSIONED.
  13. TRUCK TURNING MOVEMENTS FOR LOADING AND DELIVERIES TO BE CONFINED WITHIN PRIVATE PROPERTY. (NO BACKING IN OFF ROADWAY). SEE ZONING BY-LAW.
  14. NOTE USE OF BUILDING, (3.1.2.1 ONTARIO BUILDING CODE CLASSIFICATION). OCCUPANT LOAD, SPRINKLERED, COMBUSTIBLE, NON-COMBUSTIBLE.
  15. SEE DEVELOPMENT MANUAL FOR APPLICABLE MUNICIPALITY STANDARDS.
  16. AS-CONSTRUCTED DRAWINGS ARE REQUIRED AND ARE TO BE SUBMITTED TO THE MUNICIPALITY.
  17. APPROXIMATE LOCATION OF ALL NATURAL AND ARTIFICIAL FEATURES (I.E. BUILDINGS, ROADS, RAILWAYS, WATERCOURSES, DRAINAGE, WOODED AREAS) ARE TO BE SHOWN IN THE SUBJECT AREA.
  18. LANDSCAPING TO BE IN ACCORDANCE WITH SPCA.

**SITE PLAN**  
N.T.S.



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