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SAFETY, RESPECT AND DIGNITY FOR ALL

LA SÉCURITÉ, LA DIGNITÉ ET LE RESPECT POUR TOUS

Technical Considerations

GO AND GI PROJECTS

SECTION SU – SITE UTILITIES

Revised April 2012

Canada

TABLE OF CONTENTS

SU-1 SITE UTILITIES – STORM AND SANITARY SEWERS

1. SCOPE

This section sets out technical guidelines and criteria for storm and sanitary sewers serving CSC Institution properties.

2. RELATED SECTIONS

SP–1 – Site Planning and Development
SP–5 – Traffic Circulation & Parking
SU–2 – Wastewater (Sewage) Treatment
SU–3 – Water Utility
M–2 – Plumbing Requirements

3. DESIGN CONSIDERATIONS

3.1 *General*

Design of storm and sanitary sewers shall be based on good engineering practice and conform with all applicable codes, regulations and standards in the specific locality of the work. In addition, the following requirements of CSC shall be given special consideration:

4. SECURITY CONSIDERATIONS

4.1 ***Surface Drainage***

4.1.1 Inside Perimeter Fence

Minimize the use of open channels in areas within the perimeter. In general, surface drainage will be by buried storm sewers. The use of culverts must be submitted to C.S.C. for approval.

4.1.2 Outside Perimeter Fence

For the area 100 m outside the perimeter fence, open channels, wide and shallow rather than narrow and deep shall be used whenever practical. Where culverts are required they shall not permit the entry of an inmate as a possible hiding place. This may be achieved by the use of multiple small culverts rather than a single large size or the installation of metal bars at outlet.

4.2 ***Manhole Covers***

In S-3 to S-7 institutions all manholes and catch basins within the perimeter fence shall be secured with special fastenings to prevent unauthorized entry. Specify standard covers and frames to be modified as follows: (See Figure SU-1-1)

4.2.1 Covers: Drill three equidistant 20 mm holes near the perimeter to receive 16 mm stainless steel hexagon head bolts. Countersink for washers and bolt heads to ensure a flush installation.

4.2.2 Frame: Drill and tap frame to receive the bolts from the cover. Specify lugs if necessary for this purpose.

4.3 Perimeter Fence Crossings

4.3.1 To prevent possible escape routes, minimize the number of sewer pipes larger than 350 mm OD within the perimeter fence by locating larger mains outside the fence with branch connector lines from within.

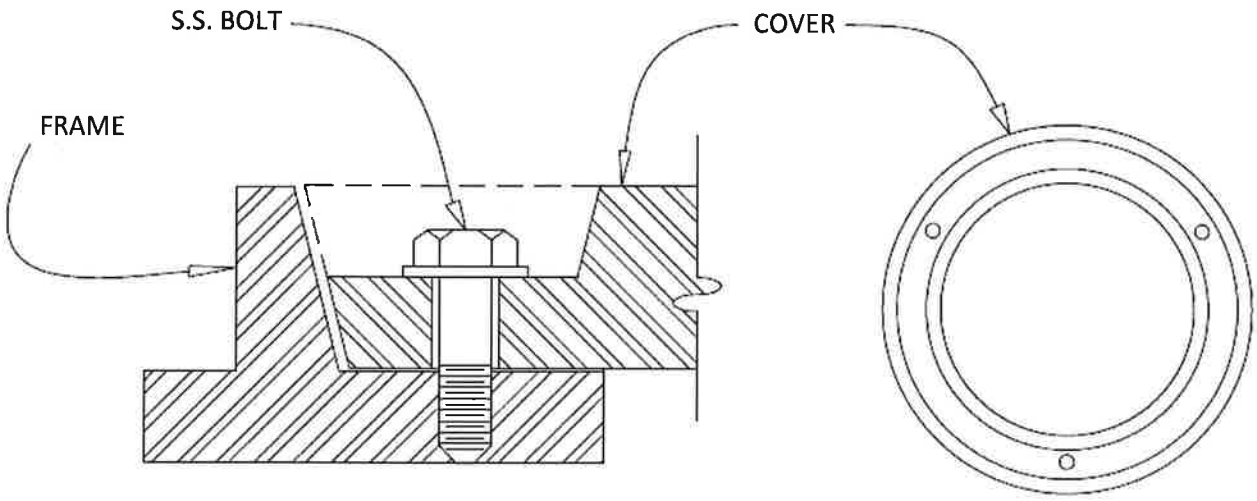
4.3.2 For an S-3 to S-7 institution, if a sewer line larger than 350 mm OD is required to cross the perimeter fences, insure that it cannot be used as an escape route. An acceptable solution is to provide distributing manholes on both sides of the fences and run the required number of 350 mm OD (or smaller) pipes joining the two manholes. Refer to Plates SU-1-2 and SU-1-3 and table 1 for details.

4.4 Perimeter Intrusion Detection System (PIDS)

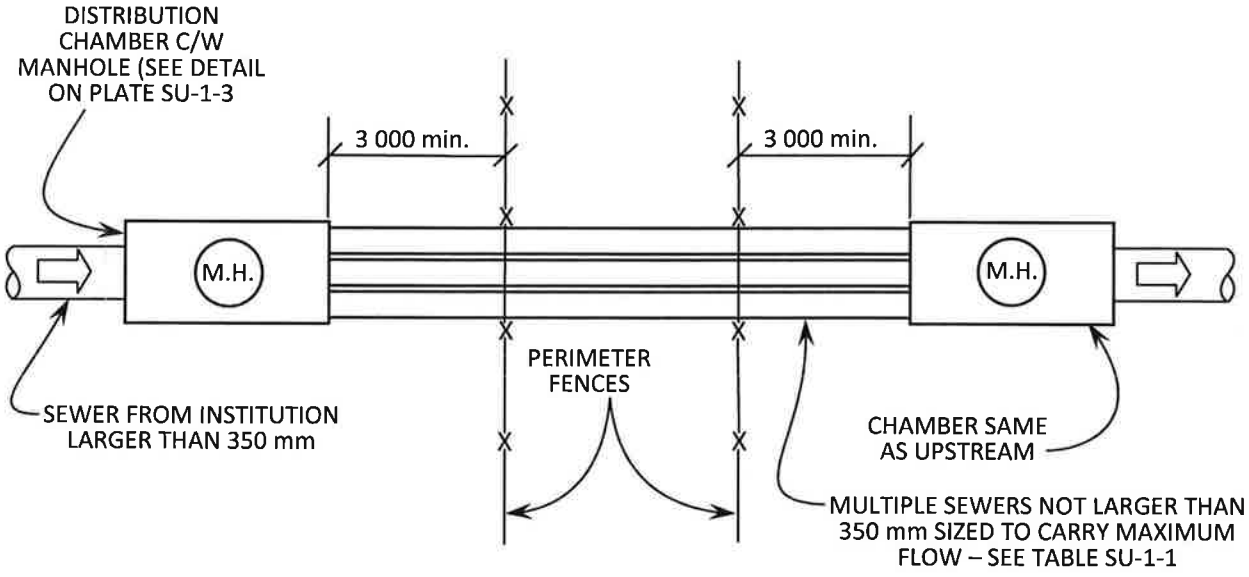
Requirements

4.4.1 Since the PIDS system may be affected by both metal pipes and variable flowing liquids, all pipes crossing the perimeter fence for S-3 through S-7 institutions shall be a minimum of 1.5 m below grade. This requirement need not be followed at the sally port.

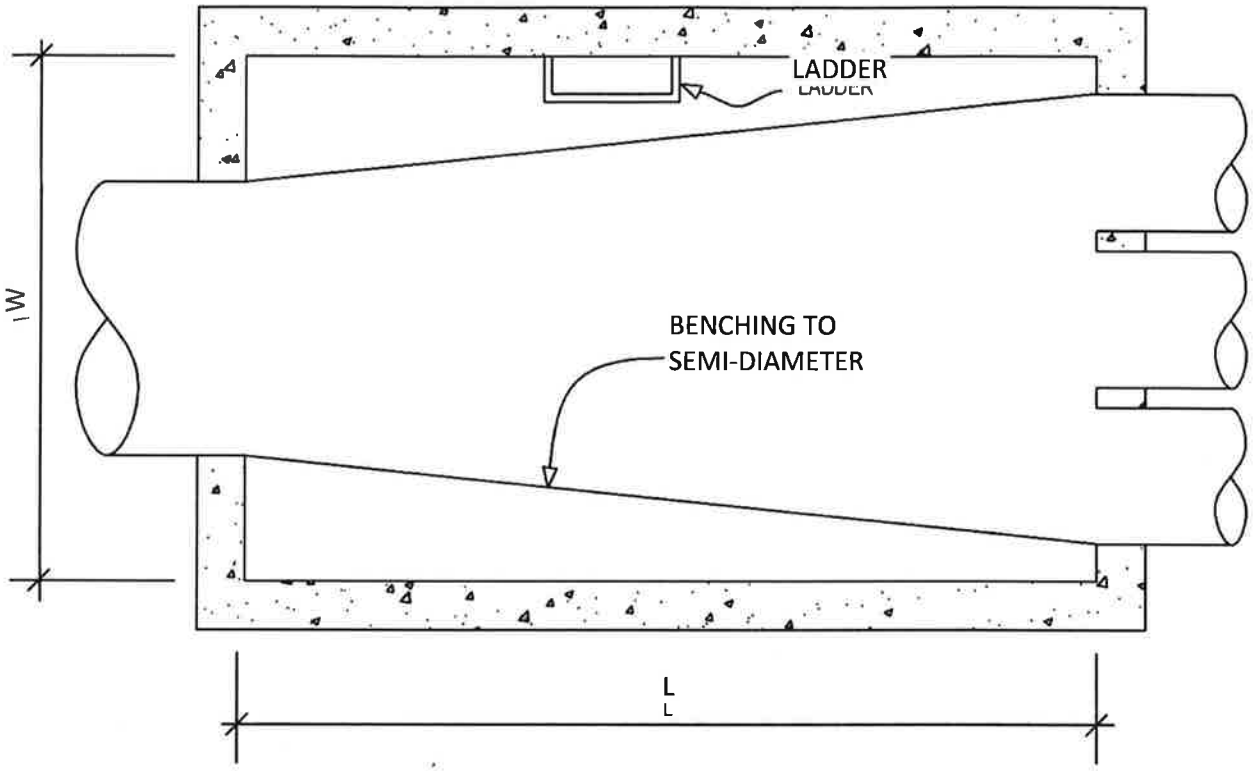
4.4.2 Any liquid flow with changing mass, such as varying flow in partly filled sewer or storm drainage pipes, must also be a minimum of 1.5 m below grade even if the pipes are non metallic.



SU–1–1 – SECURITY MANHOLE COVER



SU–1–2 – LARGE SEWERS CROSSING PERIMETER FENCES – GENERAL LAYOUT PLAN



SU–1–3 – LARGE SEWERS CROSSING PERIMETER FENCES – DISTRIBUTION CHAMBER DETAIL

TABLE SU–1–1 – DISTRIBUTION CHAMBER DIMENSIONS

INLET DIAMETER mm OD	NO. OUTLET PIPES	H mm	W mm			L mm
			1 Tier	2 Tier		
350 to 500	2	30	1 100			2.0 W
600	3	30	1 600			2.0 W
700	4	30	2 000			2.0 W
750	5 (3 + 2)	40		1 600		2.5 W
800	6 (3 + 3)	40		1 600		2.5 W
900	7 (4 + 3)	45		2 000		2.5 W

H = Difference in invert levels between inlet and lowest tier outlet
W = Chamber width internal
L = Chamber length internal