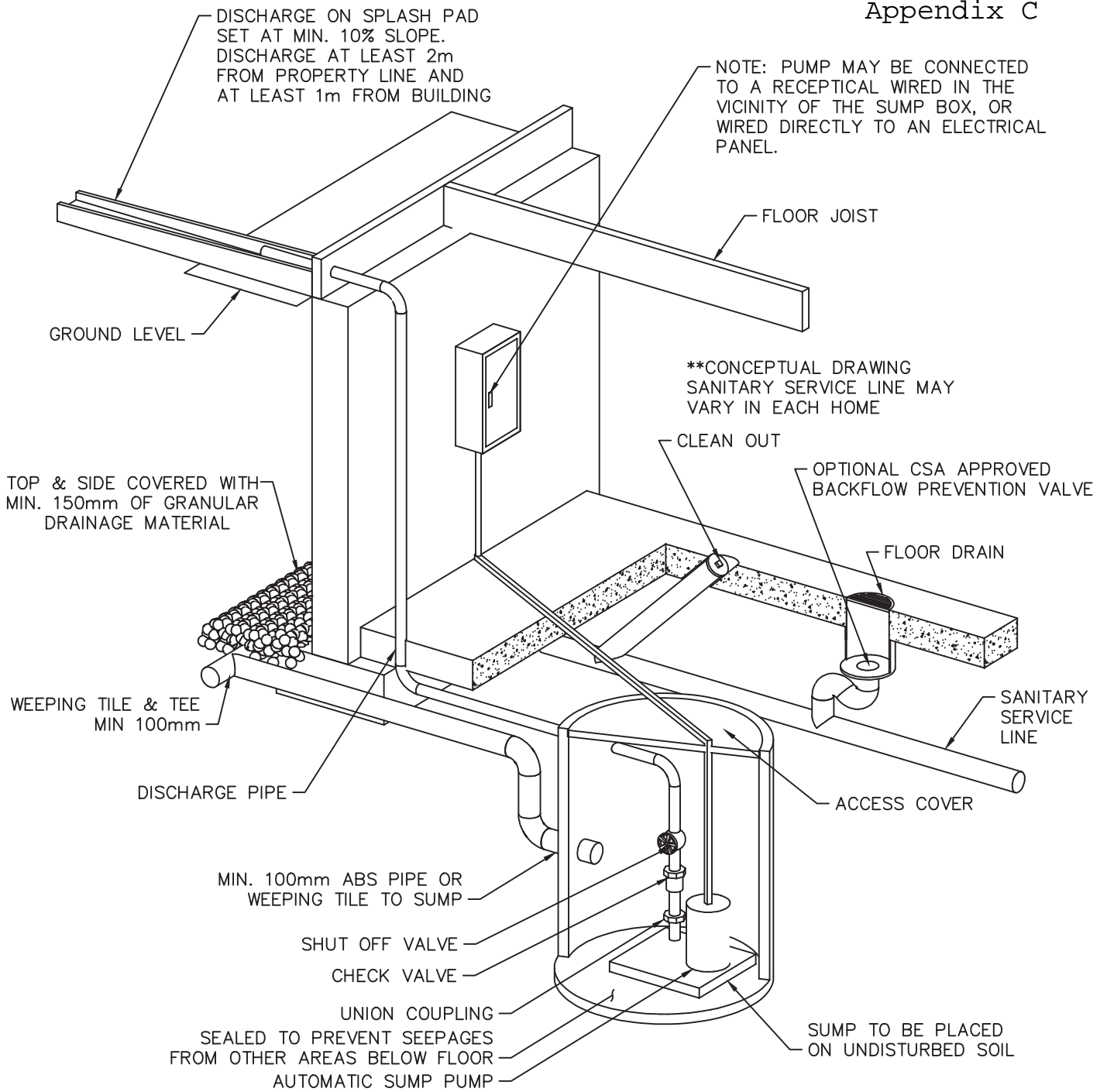


Appendix C



CODE REFERENCE ON SUMP:
 NATIONAL BUILDING CODE SECTION 9.14.2
 FOUNDATION DRAINAGE
 9.14.5.2 SUMP PITS

SUMP PIT MAY BE CONSTRUCTED OF:

- A) CONCRETE
- B) CORROSION RESISTANT STEEL
- C) PLASTIC

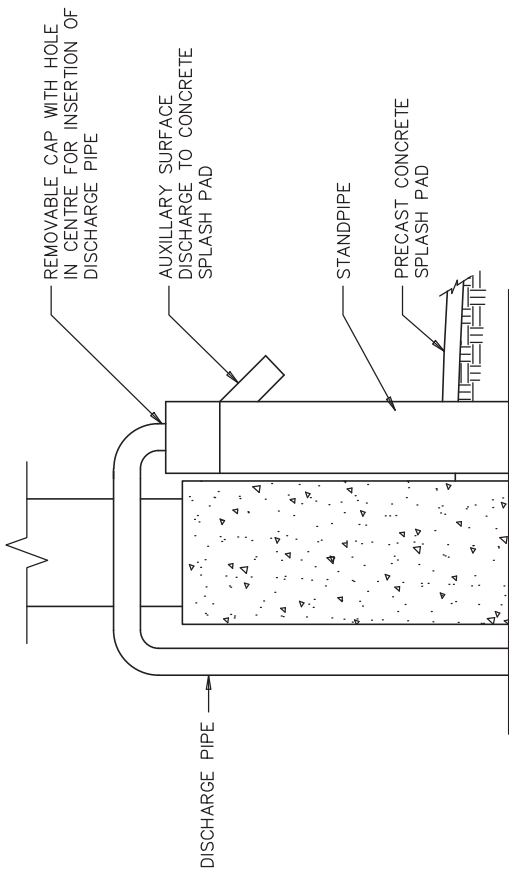
WHERE A SUMP PIT IS PROVIDED IT SHALL BE:

- A) NOT LESS THAN 750mm DEEP.
- B) NOT LESS THAN 0.25sq.m IN AREA, AND
- C) PROVIDED WITH A COVER.

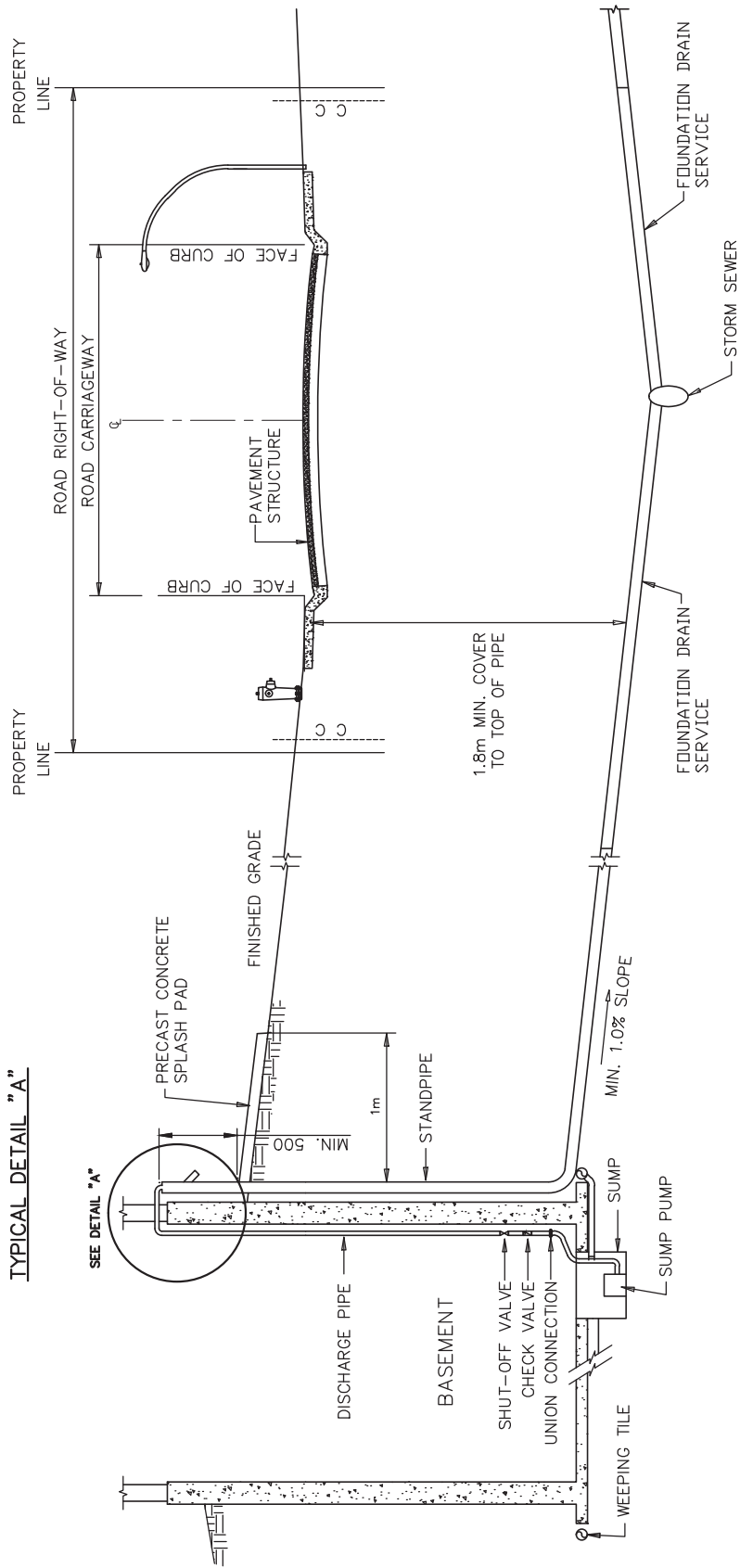
Date	Revisions	By
FEB/09	TITLE BLOCK	JJA
MAR/10	CHANGES TO NOTE & FILE #	ELB
JUL/10	TITLE BLOCK	JJA



CONSTRUCTION STANDARDS			
Sump with Pumped Discharge to Surface			
Designed By:		Approved: Kelly Wyatt	
Date	Scale	S-32	
FEB/09	NTS		
Digital File: STDS-32.dwg			



TYPICAL DETAIL "A"



NOTE:
ROOF LEADERS (DOWNSPOUTS) OR ANY OTHER STORM WATER SOURCE MUST NOT BE CONNECTED TO THE FOUNDATION DRAIN DISCHARGE COLLECTION SYSTEM.

Date	Revisions	By
FEB/09	TITLE BLOCK	JJA
FEB/10	ADDED CHECK VALVE & UNION CONNECTION	ELB
MAR/10	ADDED SHUT-OFF VALVE, TITLE	ELB
JUL/10	TITLE BLOCK	JJA

City of Regina | **REGINA**
Infinite Horizons

CONSTRUCTION STANDARDS

Foundation Drain Discharge to Standpipe

Designed By: _____ Approved: Kelly Wyatt

Date: Jan/11 Scale: NTS S-32A

Digital File: STDS-32A.dwg

1.0 GENERAL

1.1 Scope

- 1.1.1 The work shall consist of the installation of a foundation drain discharge system as required by the City of Regina.

1.2 Background

- 1.2.1 Refer to the *Sewer Service Bylaw No. 5601*.

1.3 Definitions

- 1.3.1 Foundation Drain Discharge System – A group of components which collect subsoil drainage from around a building foundation and discharge it either to the ground surface or a storm sewer.
- 1.3.2 Internal Storm Drainage System – In non-residential or high-density residential developments; a group of components which collect and convey storm drainage, located within the building.
- 1.3.3 Weeping Tile - A perforated pipe that surrounds the foundation of a building and collects excess groundwater.
- 1.3.4 Sump Pit – A low spot in the foundation, into which foundation drainage collects.
- 1.3.5 Sump Pump – A liquid pump which transfers the collected drainage from the sump pit into the discharge pipe.
- 1.3.6 Discharge Pipe – The pipe into which foundation drainage is discharged (or pumped), and which conveys drainage to a discharge location or connection to storm sewer.
- 1.3.7 Standpipe – A partially-buried pipe, located outdoors, connected to a foundation drain service or storm sewer at its lower end; into which foundation drainage is discharged.
- 1.3.8 Granular Drainage Material – Granular material used to collect drainage around the bottom of a foundation.
- 1.3.9 Foundation Drain Service - A sewer pipe within the road right-of-way or public utility lot; into which the standpipe discharges.

2.0 PRODUCTS

2.1 Weeping Tile

2.1.1 Shall be not less than 100 mm in diameter.

2.1.2 Shall conform to the National Building Code of Canada material standards for Drainage Tile and Pipe.

2.2 Granular Drainage Material

2.2.1 Shall consist of crushed stone or other coarse clean granular material containing not more than 10% of material that will pass a 4 mm sieve.

2.3 Sump Pit

2.3.1 Shall be not less than 750mm deep; not less than 0.25m² in area; and provided with a sealed cover designed to resist removal by children and prevent soil gas from entering the building.

2.3.2 Must be constructed of concrete, corrosion-resistant steel, fiberglass, plastic, or other suitable material approved by the Engineer.

2.4 Sump Pump

2.4.1 Shall be equipped with a mechanism to engage the pump when the sump pit has a significant level of water, as well as turn off when the water level is reduced.

2.4.2 Shall be sized to handle the maximum potential flows entering the sump and headloss of the discharge pipe.

2.4.3 Must be CSA approved.

2.5 Discharge Pipe

2.5.1 Shall be sized for optimum flow velocities at pump design conditions.

2.5.2 Shall conform to the National Building Code of Canada material standards for Drainage Tile and Pipe.

2.6 Standpipe

2.6.1 Shall conform to Section 1300 product specifications.

3.0 EXECUTION

3.1 General

- 3.1.1 Buildings that have a foundation drain discharge system are to be constructed such that the drainage is directed to a sump pit and discharged through a sump pump.
- 3.1.2 Where elevations permit, the sump may be gravity drained if a check valve and shut-off valve are installed on the discharge pipe, subject to approval by the Building Standards department.

3.2 Installation of Foundation Drain Discharge System

- 3.2.1 Installation of weeping tile, sump pit, sump pump and discharge pipe shall be in accordance with manufacturer's instructions and *The National Building Code of Canada, 2005*.
- 3.2.2 Weeping tile shall be laid on undisturbed or well compacted soil so that the top of the tile is below the bottom of the floor slab and crawl space.
- 3.2.3 The top and sides of the weeping tile shall be covered with not less than 150 mm of granular drainage material.
- 3.2.4 The sump pit is to be located no less than 0.45 m away from any footing.
- 3.2.5 The sump pump should be set to maintain the normal water level in the sump pit below the lowest level of the weeping tile entering the pit and provide enough capacity in the sump to contain water collected from weeping tile for at least a one hour duration in the case of power failure.
- 3.2.6 Refer to Figure S-32 and S-32A for foundation drain discharging methods. For non-residential or high-density residential developments, discharge can be connected to an internal storm drainage system, subject to approval from the City's Development Engineering and Building Standards departments.
- 3.2.7 Connect the sump pump to a discharge pipe that conveys drainage outside of the building. Non-residential and high-density residential developments may connect the discharge pipe to an internal storm drainage system, subject to approval by Development Engineering and Building Standards departments. A check valve is required to prevent drainage from flowing back into the sump pit. Install a union joint at the connection of the pump and the discharge pipe, to allow for pump maintenance and replacement. A shut-off valve shall be installed downstream of the check valve. Connection should be in accordance with Drawing S-32A.
- 3.2.8 When discharging the sump to an internal storm drainage system on which a building trap is present, the discharge pipe shall connect downstream of the

trap.

- 3.2.9 Sump pump discharge can flow into a standpipe which is connected to a foundation drain service or storm sewer system. The standpipe shall be provided with an auxiliary surface discharge to direct overflow to a splash pad in the event that the storm sewer system is surcharged or when the standpipe may become frozen. Connection shall be in accordance with Drawing S-32A.
- 3.2.10 Sump pump discharge can also directly spill to a splash pad on the ground surface. If discharged to surface, sump pump discharge must be directed at least 1 meter away from the building to prevent of recycling of discharged water and at least 2 meters from property line such that it does not spill onto an adjacent property.
- 3.2.11 Drainage must not spill onto sidewalk or street that may present a hazard or result to ice build-up, creating a slippery surface.
- 3.2.12 Any external underground storm drainage piping, besides the standpipe, should have at least 1.8 m of ground cover above the top-of-pipe to provide frost protection.
- 3.2.13 Draining Discharge into sanitary sewer is not allowed.