



## Technical Memo

**To:** DSEL – Adam Fobert, P.Eng  
**Copy To:** File  
**From:** Lino Belgiorgio, P.Eng  
**Approved:** Peter Rüsçh, P.Eng  
**Date:** December 11, 2012  
**Subject:** Caivan – Richmond: Proposed Sump Pump Detail

### 1. Introduction

David Schaeffer Engineering Limited has retained Hatch Mott MacDonald (HMM) to review and provide input into a proposed sump pump arrangement for the Caivan – Richmond development. HMM has reviewed the Ontario Building Code (OBC) with respect to the proposed sump pump arrangement and provides the comments following below.

### 2. Provisions in the Ontario Building Code

The Ontario Building Code, Part 7, Section 7.4, Sub-section 7.4.5, Paragraph 7.4.5.3 reads [partially] as follows:

#### 7.4.5.3. Connection of Subsoil Drainage Pipe to a Sanitary Drainage System

(1) Except as permitted in Sentence (2), no foundation drain or subsoil drainage pipe shall connect to a sanitary drainage system.

(2) Where a storm drainage system is not available or soil conditions prevent drainage to a culvert or dry well, a foundation drain or subsoil drainage pipe may connect to a sanitary drainage system.

### 3. Discussion

(refer to the attached sketch)

The proposed elevations are such that the discharge of the foundation drain via gravity to a culvert or a storm water drainage system is not possible.

The use of a sump pump located below the dwelling's basement floor, is proposed for the collection and discharge of the foundation drain flows.

We understand that soil conditions do not permit the discharge of the sump pump flows to the exterior ground surface or to a dry well system.

Consequently, the proposal is to discharge the sump pump flows to the storm drainage sewer via a 100 mm sewer pipe, extending from just inside the basement wall to the municipality's storm water sewer.



The 100 mm sewer pipe would terminate inside the basement with a 100 mm Y. The Y's straight leg would have a [screwed] cap for use as a cleanout.

The sump pump discharge will be connected to the Y's 45° leg and consist of 40 or 50 mm dia. pipe with a check valve, isolation valve and union.

The sump pump discharge would rise some 300 mm above the 100 year HGL before turning down and connecting to the sewer termination. Use of a backwater valve ahead of the 100 mm Y, is not considered necessary as potential backflow would be inhibited by the rise of the pump discharge elevation coupled with the sump pump check valve. The sump pump vent would terminate at the exterior of the dwelling.

Given that the pump discharge will be from a 40 or 50 mm pipe to a 100 mm pipe, there will be a free air surface at the junction of the Y connection, therefore siphoning will not be an issue. Provided a pump has been selected to operate within the preferred operating range [fairly close to best efficiency point], the sump pump arrangement will work as intended.

We trust that the above information meets your requirement, please do not hesitate to contact the undersigned for any additional clarifications that you may require.

Yours very truly,

Hatch Mott MacDonald Ltd.

A blue ink signature of Peter Rüsç, consisting of a fluid, cursive line.

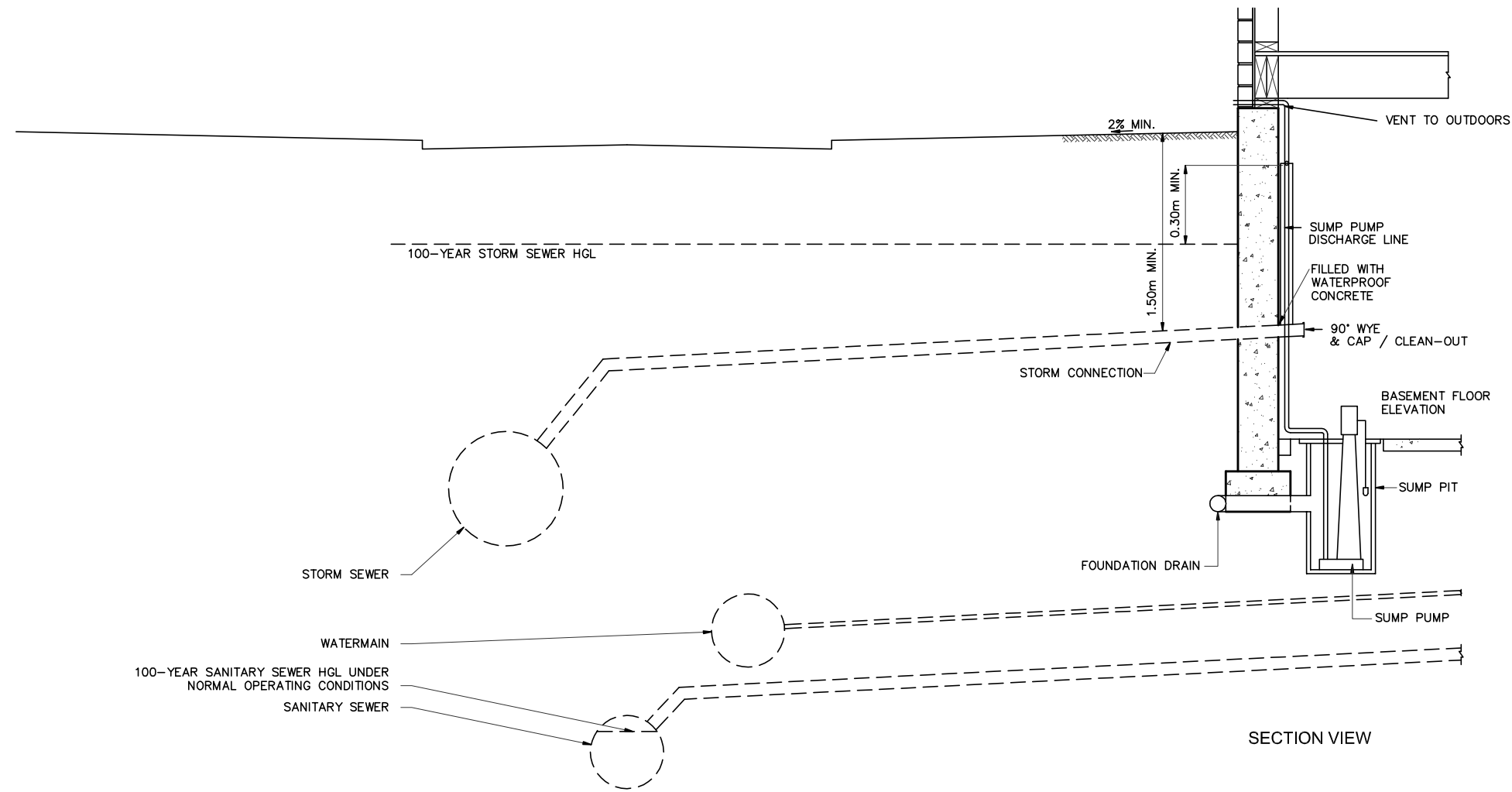
**Peter Rüsç, P. Eng**  
**Senior Project Manager**

A blue ink signature of Lino Belgiorgio, written in a cursive style.

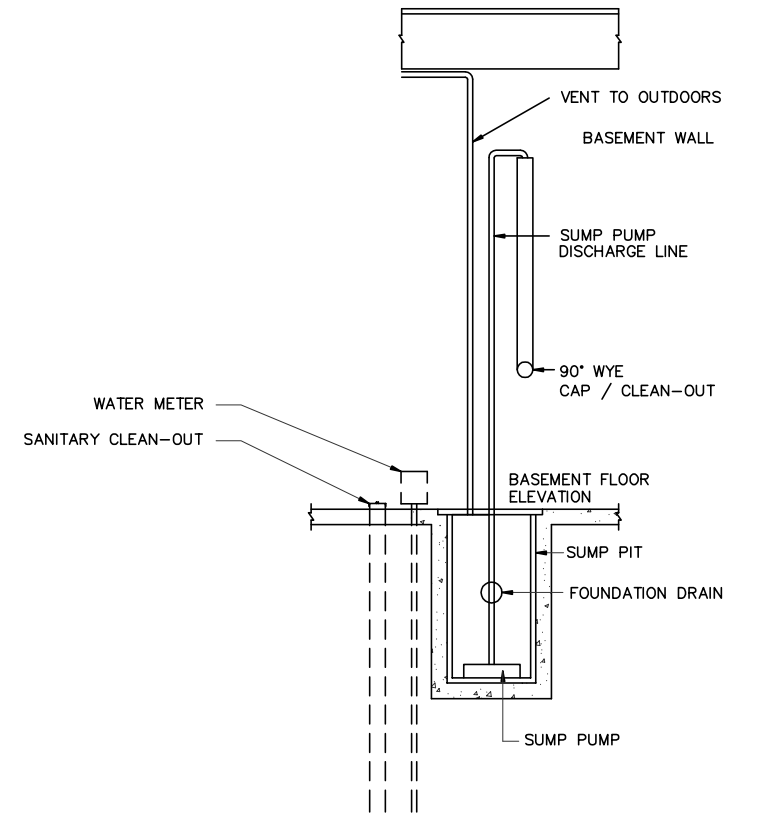
**Lino Belgiorgio, P.Eng.**  
**Senior Project Engineer**

Attachment

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SECTION VIEW



FRONT VIEW



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### SUMP PUMP - DETAIL

DATE:	DEC 2012
SCALE:	N.T.S.
PROJECT No.:	11-468
FIGURE	18