



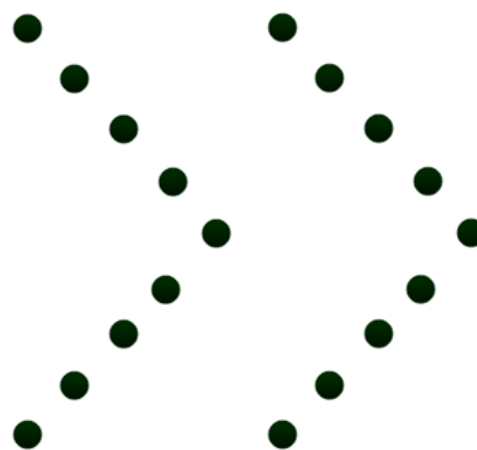
**hanley pepper**

consulting engineers - civil and structural

**St Joseph's Boys National School**

**Planning ref SD21A/0317**

**Response to Condition No 6**





DOCUMENT CONTROL SHEET

CURRENT ISSUE					
Issue No: 1	Date: 10.07.23	Reason for Issue: Response to Condition of Planning			Customer Approval (If required)
Sign-Off	Originator	Checker	Reviewer	Approver	
Print Name	Michael Jackson	Susan Brusey		M. Jackson	
Signature					
Date					

PREVIOUS ISSUES							
o.	Date	Originator	Checker	Reviewer	Approver	Customer	Reason for Issue

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## 1. Introduction

Hanley Pepper were requested by Louis Burke Architects to provide a report to satisfy Condition number 6 on the grant of permission for the SNU extension to St Joseph's Boys National School, Boot Road.

Condition number 6 deals with surface water issues regarding the extension. The report below responds to the points raised.

## 2. Background & Description

The proposed project is a single storey extension to an existing school to house an SNU, Special Needs Unit.

## 3. Condition No 6

Condition number 6 states:

*Prior to the commencement of development, the Applicant shall submit the following information for the written agreement of the Planning Authority:*

- a) *A drawing in plan and cross-sectional view showing the distance between foundation of proposed development and existing surface water drain south of same. There shall be no loading on existing surface water drain. Provide a report and drawing what access to existing surface water drain will be available to maintain same.*
- b) *Submit a report and drawing showing how surface water will be attenuated for proposed development. Surface water can be attenuated by means of SuDS (Sustainable Drainage Systems). The report shall show what surface water attenuation is required in m<sup>3</sup> and what surface water attenuation is provided in m<sup>3</sup>.*
- c) *The applicant shall show in a drawing and report what SuDS features are proposed for the development. Examples of SuDS include and are not limited to Rain Gardens, Green Roofs, Water Butts, Planter boxes, Permeable Paving, Grasscrete.*
- d) *The applicant shall ensure that there is complete separation of the foul and surface water drainage for the proposed development.*
- e) *All works for this development shall comply with the requirements of the Greater Dublin Regional Code of Practice for Drainage Works.*

*REASON: In the interest of public health and to ensure adequate water and wastewater facilities*

## 4. Responses

- a) See appendix A for drawing 43.211-HP-00-ZZ-DR-S-03001 showing the relationship on plan and in section between the existing surface water pipe and the proposed school foundation. As can be seen from the drawing the pipe is sufficiently far away from the school foundation so that, the foundation will not impose and additional pressure on the pipe and that future access of the pipe will not undermine the school foundation. There are concrete and tarmac roadways and access routes that will provide access to the required manholes for any maintenance issues.
- b) See Appendix B for calculation for attenuation required for the new extension. The new roof area is circa 129m<sup>2</sup>. Based on an allowable runoff of 2l/s this would require an attenuation volume of 310litres. This attenuation will be provided by installing three number planter boxes of size 2.0 long by 1.0 wide by 1.0m tall planter boxes with 300mm of pea gravel to base to provide water storage. At a void ratio of 30% this will provide  $3 \times 2.0 \times 1.0 \times 0.3 = 0.54\text{m}^3$ , 540 litres which exceeds the required volume.

The planter boxes will be connected to the rainwater pipes and positioned on site as below figure. The bottom 300mm will be filled with pea gravel. By utilising this method, the runoff water will be used for irrigation of the planter boxes and will also provide filtering of water to remove leaves and debris as well as provide the required attenuation volume.

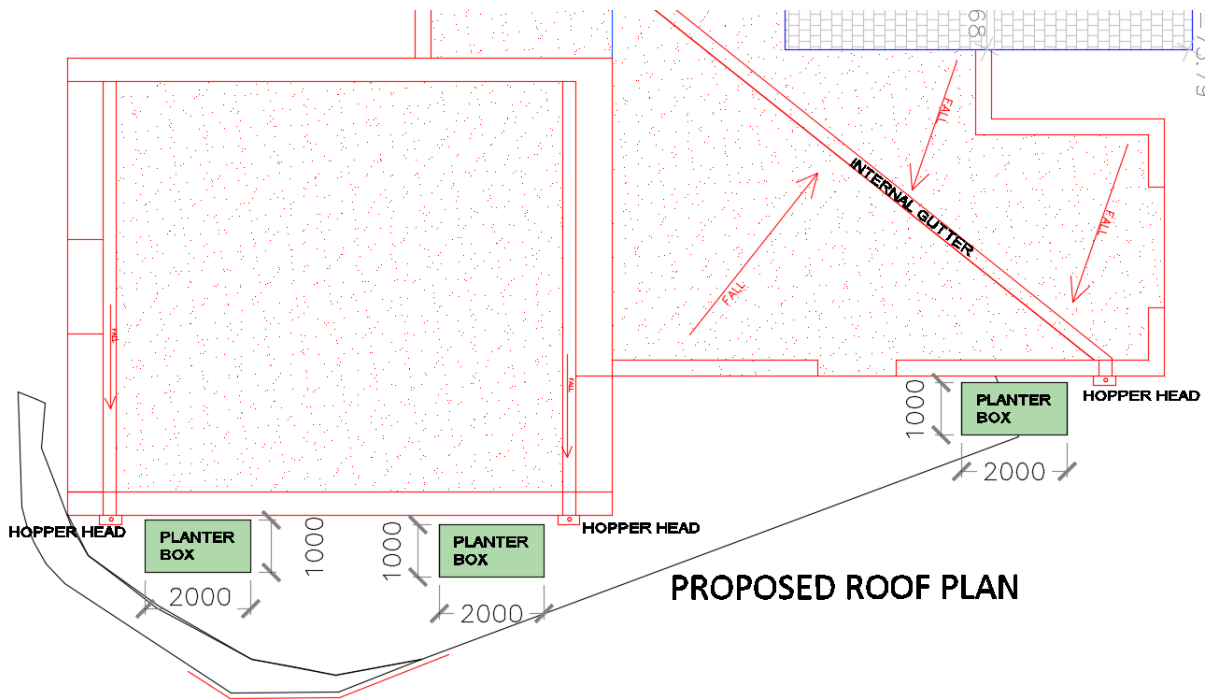


Figure 1 Layout of planter boxes

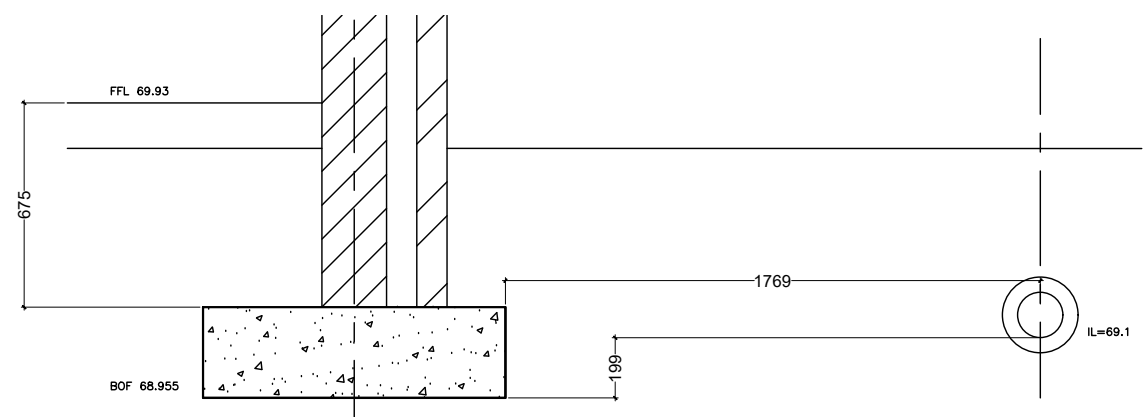
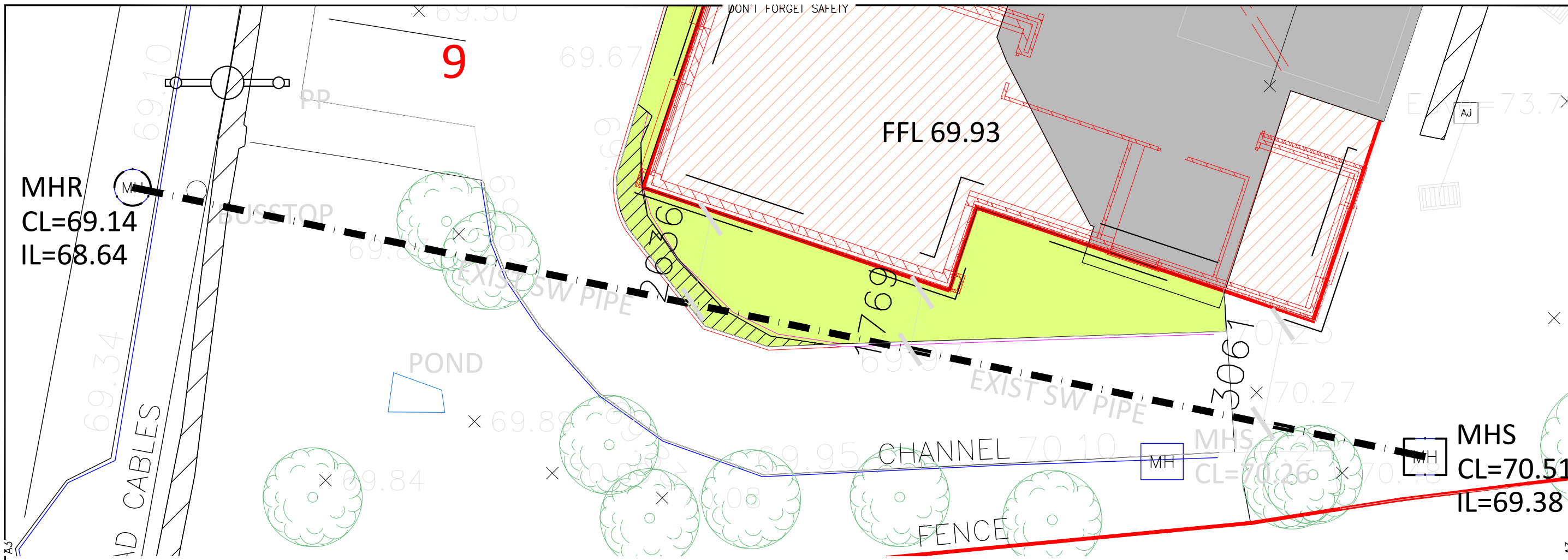
- c) As noted above planter boxes as per Figure 1 will be provided on the rainwater pipes to the new extension. Drawing 43.211-HP-00-ZZ-DR-S-03002 illustrates the layout.
- d) We can confirm that the design shows the surface water and foul water systems as separate systems and the construction will be monitored to check it is installed in this manner.
- e) Noted, all works will comply with the requirements of the Greater Dublin Regional Code of Practice for Drainage Works.

## Appendix A

### Drawings

**43.211-HP-00-ZZ-DR-S-03001 Existing Surface Water Drain**

**43.211-HP-00-ZZ-DR-S-03002 Proposed Suds Features**



SECTION AT CLOSEST POINT OF WALL AND PIPE

REV	DESCRIPTION	DATE	DRWN BY	CHKD BY

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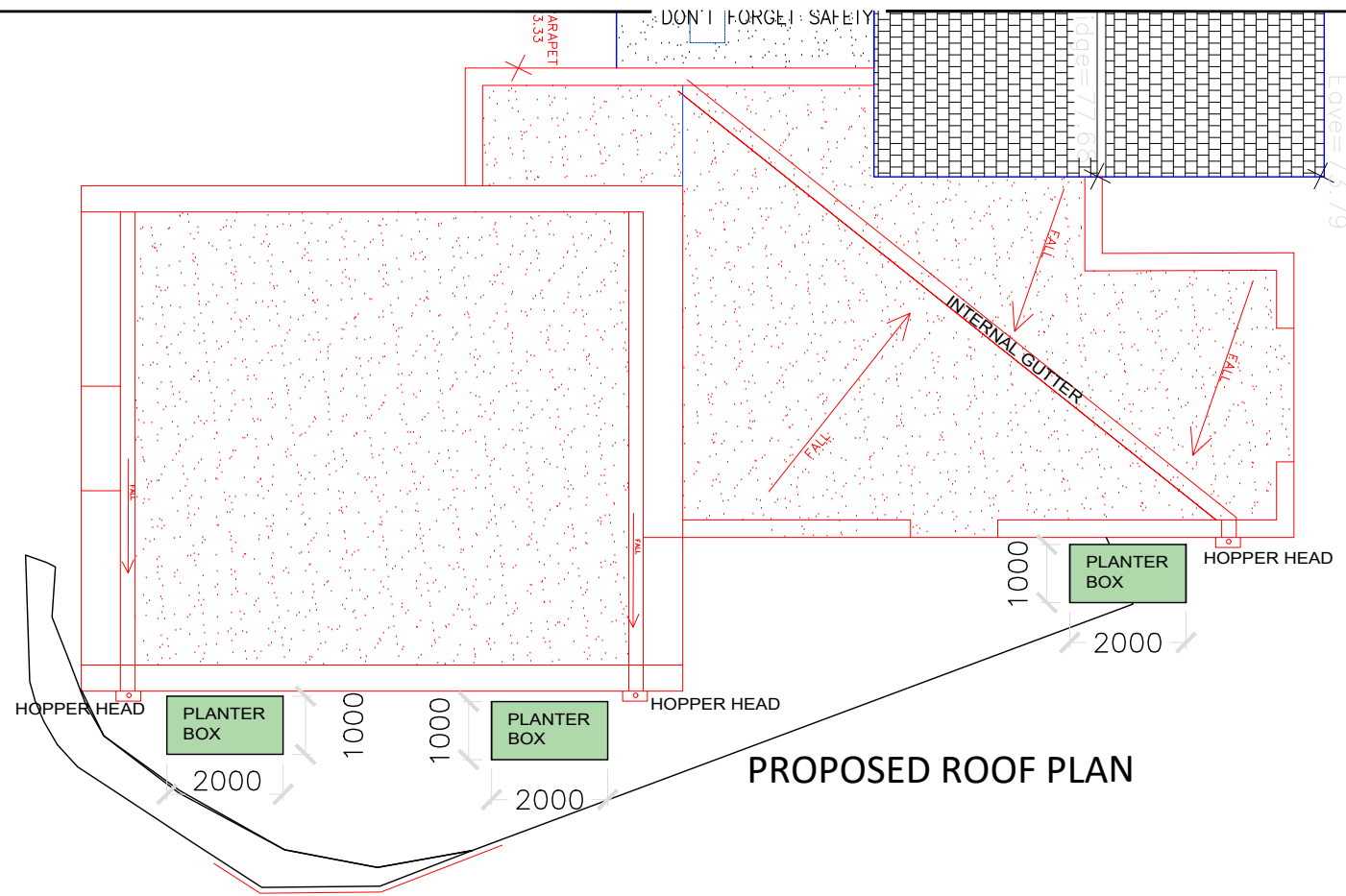


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## **Appendix B**

### **Surface water attenuation calculations**

**Project :** St Joseph's National School      **Architect :** Louis Burke  
**Job No :** 43.3211

**ATTENUATION DESIGN RETURN PERIOD** 100 Yrs  
**Site Area:** 50.00 Ha.      0.5000 km<sup>2</sup>  
**Development Site Area:** 0.01 Ha.  
**Development Drained Area:** 0.01 Ha.

Area = 0.0001 km<sup>2</sup>  
 SAAR = 743 mm  
 SOIL = 0.30  
 $QBAR = .00108 \times Area (km^2)^{0.89} \times (SAAR)^{1.17} \times ((SOIL)^{2.17})$   
 QBAR for 50Acre Site = 0.0977 m<sup>3</sup>/sec = 97.70506864 Litres/sec  
 QBAR for Development Site = 0.0001 m<sup>3</sup>/sec = 2 Litres/sec

**Surface Water Attenuation Design**

Contribution Areas	Hectares	% impervious Equivalent Area	
Extension Roof	0.013	80	0.01 Hectares
<b>Total</b>	<b>0.0129</b>		<b>0.010 Hectares</b>

Min Interception Volume Required = 5mm of rainfall over equivalent impervious area  
 = 0.52 m<sup>3</sup>  
 Equivalent Runoff Area = 103.20 m<sup>2</sup>

Duration (minutes)	Runoff Area (m <sup>2</sup> )	Rainfall (mm)	10% Allowance for climate Change	Total surface Water	Total Permitted discharge (Q2 *Duration)	Storage required M3
10	103.20	17.20	18.92	1.95	1.20	0.75
15	103.20	20.30	22.33	2.30	1.80	0.50
30	103.20	25.10	27.61	2.85	3.60	-0.75
60	103.20	31.00	34.10	3.52	7.20	-3.68
120	103.20	38.30	42.13	4.35	14.40	-10.05
240	103.20	47.30	52.03	5.37	28.80	-23.43
360	103.20	53.60	58.96	6.08	43.20	-37.12
720	103.20	66.30	72.93	7.53	86.40	-78.87
1440	103.20	81.90	90.09	9.30	172.80	-163.50
2880	103.20	94.40	103.84	10.72	345.60	-334.88

**Max Storage Capacity Required** **0.75**

**Revised Critical volume** 0.83 m<sup>3</sup> allowing for 10% increase for simplified assumptions  
**Required Attenuation Volume** 0.31 m<sup>3</sup> (ie Critical Vol - Min Interception vol)