



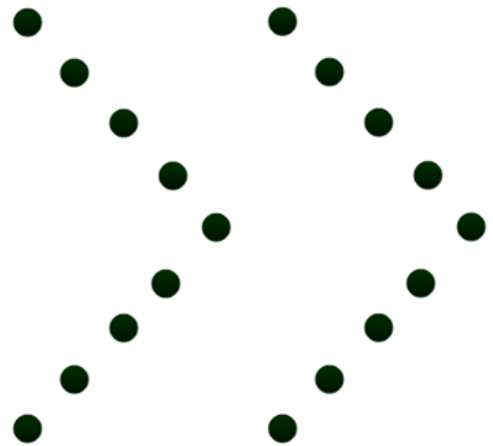
**hanley pepper**

consulting engineers - civil and structural

**Scoil Naomh Aine**

**Planning ref SD22A/0371**

**Response to Condition No 3**





DOCUMENT CONTROL SHEET

CURRENT ISSUE					
Issue No: 1	Date: 11/08/2023	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

Note:

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# 1. Introduction

Hanley Pepper were requested by Louis Burke Architects to provide a report to satisfy Condition number 3 on the grant of permission for the SEN Unit Extension at Scoil Naomh Aine, new Road, Clondalkin, Dublin 22.

Condition number 3 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 SEN unit, special education needs unit.

# 3. Condition No 3

Condition number 3 states:

### SuDS

Prior to the commencement of development, the Applicant shall submit a drawing in plan and cross-sectional views clearly showing proposed Sustainable Drainage Systems (SuDS) features for the development. SuDS features could include but are not limited to:

- Green Roofs
- Water Butts
- Rain Garden
- Other such Suds

REASON: In the interest of sustainable drainage

# 4. Response

The new SEN extension to the school totals 89m<sup>2</sup> in new roof area and is shown in Fig 1 below:

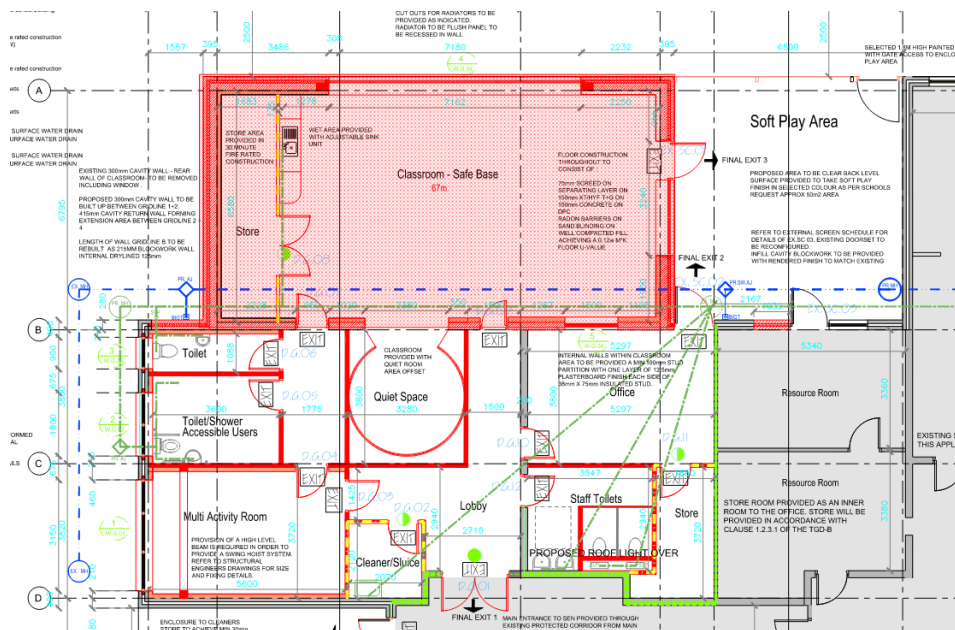
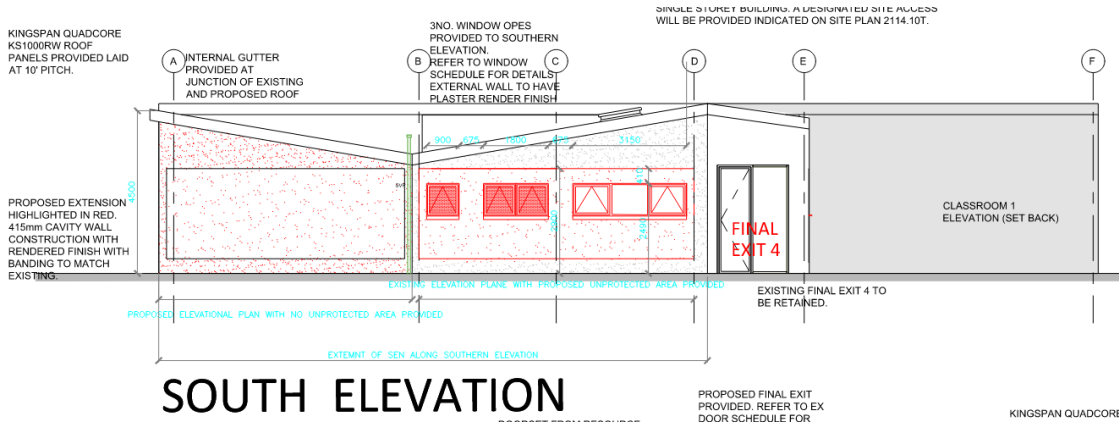


Fig 1 New Sen Extension to School

The roof structure is as per Fig 2 below which shows a central valley between the new extension and the existing building.



## SOUTH ELEVATION

Fig 2 Shape of new roof structure

Due to the shape of the roof and the central valley, it is not possible to split out the rainwater on the extension from the rainwater on the existing roof. By capturing the combined roof water for the shaded area as shown in Fig 3 below we will be capturing approx. 113m<sup>2</sup> of roof which is greater than that of the proposed extension.

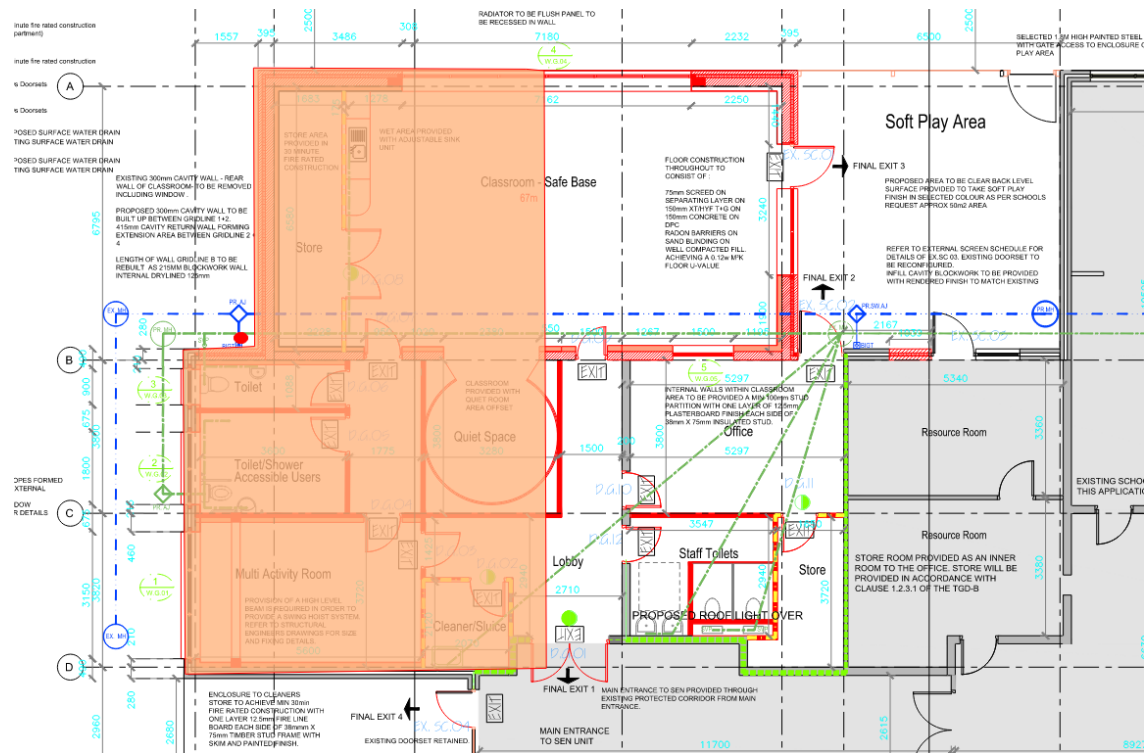


Fig 3 Area of roof captured by RWP shown as red circle

It is proposed to provide a planter box to the side of the new extension. This planter box will be constructed to provide attenuation for the runoff from the selected RWP. See appendix A for calculations which show attenuation required of circa 1.1m<sup>3</sup>. Using a 500mm stone base within the planter and a void ratio of 0.3 this would equate to a planter footprint of 7.2m<sup>2</sup>. A planter of 5x1.5m can be accommodated as per Fig 4 below.

The water from the adjacent rainwater pipe will be discharged into the planter box which will have 500mm of topsoil on geotextile membrane over 500mm of self-draining stone. There will be an overflow outlet from the planter box above the level of the stone to the rainwater gully. This will attenuate the flow from the rainwater pipe, it will provide filtration and removal of any suspended debris from rainwater and will support plant life.

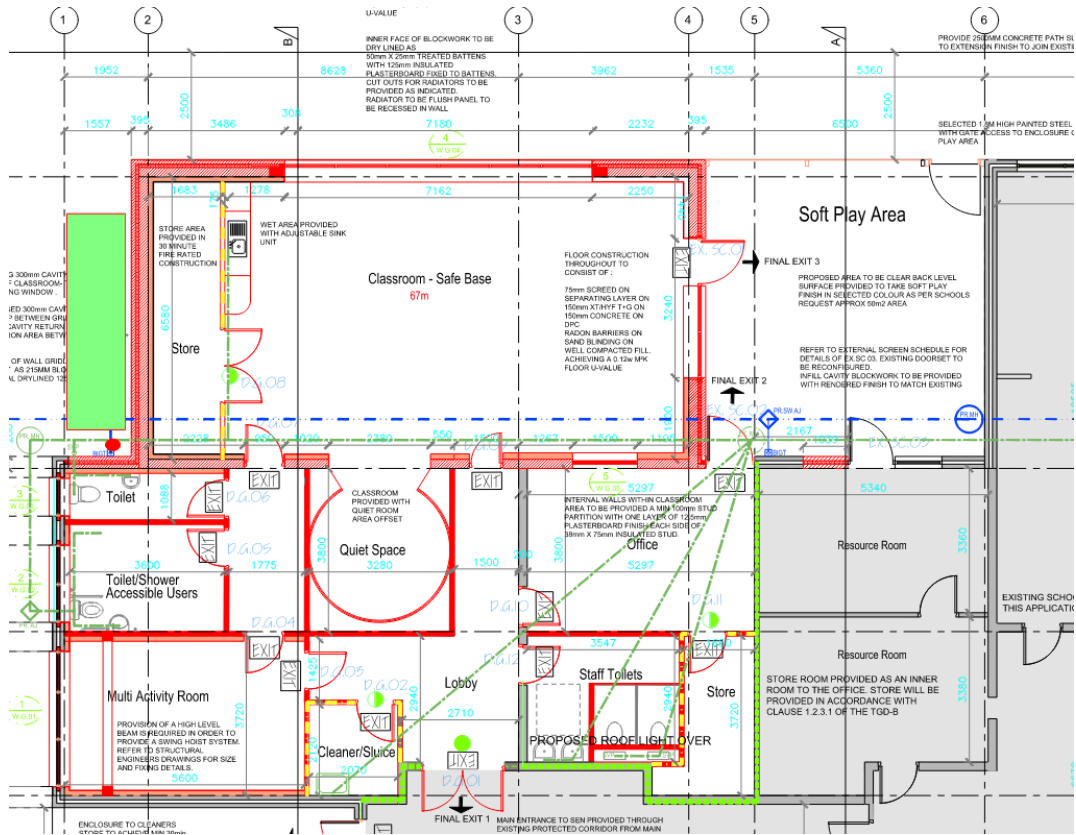


Fig 4 Proposed Planter to side of new extension

## Appendix A

### Attenuation calculation



<b>Project :</b>	Scoil Naomh Aine	<b>Architect :</b>	Louis Burke			
<b>Job No :</b>	43.3215					
<b>ATTENUATION DESIGN RETURN PERIOD</b>						
<b>Site Area:</b>	50.00 Ha.		100 Yrs			
		0.5000 km <sup>2</sup>				
<b>Development Site Area:</b>	0.01 Ha.					
<b>Development Drained Area:</b>	0.01 Ha.					
Area	=	0.0001 km <sup>2</sup>				
SAAR	=	743 mm				
SOIL	=	0.30				
QBAR= .00108xArea (km <sup>2</sup> ) <sup>0.89</sup> x(SAAR) <sup>1.17</sup> x((SOIL) <sup>2.17</sup> )						
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			
<b>Surface Water Attenuation Design</b>						
<b>Contribution Areas</b>	<b>Hectares</b>	<b>% impervious Equivalent Area</b>				
<b>Combined Extension &amp; Existing Roof</b>	<b>0.013</b>	<b>90</b>	<b>0.01 Hectares</b>			
<b>Total</b>	<b>0.0129</b>		<b>0.012 Hectares</b>			
Min Interception Volume Required	=	5mm of rainfall over equivalent impervious area				
	=	0.58 m <sup>3</sup>				
Equivalent Runoff Area	=	116.10 m <sup>2</sup>				
<b>Duration (minutes)</b>	<b>Runoff Area (m<sup>2</sup>)</b>	<b>Rainfall (mm)</b>	<b>10% Allowance for climate Change</b>	<b>Total surface Water</b>	<b>Total Permitted discharge (Q2 *Duration)</b>	<b>Storage required M3</b>
10	116.10	17.20	18.92	2.20	1.20	1.00
15	116.10	20.30	22.33	2.59	1.80	0.79
30	116.10	25.10	27.61	3.21	3.60	-0.39
60	116.10	31.00	34.10	3.96	7.20	-3.24
120	116.10	38.30	42.13	4.89	14.40	-9.51
240	116.10	47.30	52.03	6.04	28.80	-22.76
360	116.10	53.60	58.96	6.85	43.20	-36.35
720	116.10	66.30	72.93	8.47	86.40	-77.93
1440	116.10	81.90	90.09	10.46	172.80	-162.34
2880	116.10	94.40	103.84	12.06	345.60	-333.54
<b>Max Storage Capacity Required</b>						<b>1.00</b>
<b>Revised Critical volume</b>	1.10 m <sup>3</sup> allowing for 10% increase for simplified assumptions					
<b>Required Attenuation Volume</b>	0.52 m <sup>3</sup> (ie Critical Vol - Min Interception vol)					