



1668GE – VALLDATA HOUSE, BOWERHILL

DRAINAGE STRATEGY

June 2026

Document

Project name	Valldata House
Project ref	1668GE
Project address	2a Halifax Road, Bowerhill, Melksham
Client	JJ Lee Cartons
Document name	Drainage Strategy
Document ref	1668GE-001
Document author	Alan Dixon BSc (Hons) CEng MICE
Approved by	Cath Parsons BEng (Hons) PgDip CEng MStructE

Version Control

Version	Date	Author	Description
1	08/05/26	Alan Dixon	First issue.
2	08/06/26	Alan Dixon	Report updated to accommodate latest site plan

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APPENDIX

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1 Introduction

This report provides a foul and surface water drainage strategy for the proposed office block extension of Valldata House, 2a Halifax Road in Bowerhill, Melksham.

The development proposal comprises an extension to the existing office on the north elevation of the building. Access to the site will remain as existing off Halifax Road. Refer to the Proposed Block Plan (1353-010 B) prepared by Simon Morray-Jones enclosed within appendix B of this report

2 The Existing Site

The application site covers 5445m² (0.544ha) of land occupied by the existing building, asphalt car park and soft landscaping strips separating the site from the highway. Refer to the Topographical Survey (19388/26) prepared by Site Surveying Services enclosed within appendix B this report.

The site is located within flood zone 1 and is bounded to the north and east by estate roads and to the south and west by industrial buildings. Land use in the vicinity is predominantly industrial and residential.

2.1 Existing ground conditions

British Geological Survey (BGS) mapping indicates that the site is underlain by the Oxford Clay Mudstone Group.

LandIS Soilscales Viewer describes the soils as Loamy and clayey with impeded drainage.

Defra's Multi-Agency Geographic Information for the Countryside (MAGIC) map indicates that the geology underlying the site is classified as an unproductive Secondary aquifer with low groundwater vulnerability. The site is not located within a Groundwater Sources Protection Zone.

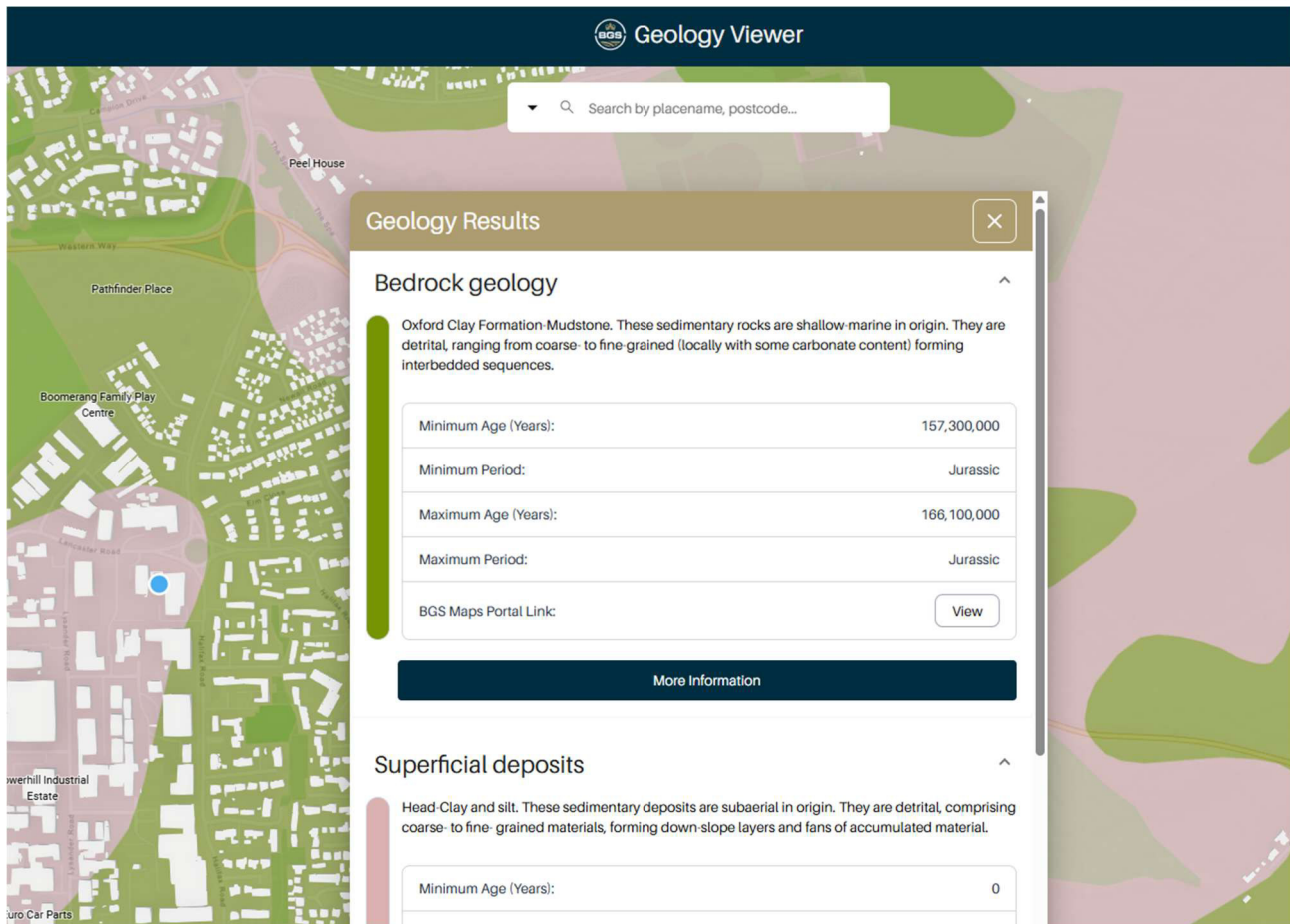


Figure 1: Bedrock Geology - Extract from British Geological Survey Geology of Britain Viewer

Source: <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer>

2.2 Existing Watercourses and Drainage Features

There are no watercourses within the vicinity of the development. The nearest watercourse to the site is approximately 250m to the northwest, an unnamed tributary to the River Avon.

Asset records obtained from Wessex Water indicate a 150mm dia public surface water sewer entering the site from the east, which increases to 225mm dia within the site boundary before exiting to the north. The head of a public foul water sewer also starts within the northern extent of the site.

Refer to Wessex Water sewer records within appendix C of this report.

2.3 Existing surface water drainage arrangement

Roof water runoff from the existing building and impermeable asphalt car park is collected by rainwater pipes and road gullies, which are connected to the public surface water sewer crossing the site.

The existing surface water drainage system does not contain any SuDS features and freely discharges its surface water flows.

2.4 Flood Risk Summary

Source of Potential Flooding to the Development Site	Flood Risk	Mitigation/Comments
Fluvial	Low	The site is located within Flood Zone 1 (Low Risk)
Public Sewers / Drains	Low	Wessex Water records indicate a surface water sewer crossing the site. External levels over this sewer and chambers fall away from the building and proposed extension, therefore any sewer failure would not result in flooding of the building.
Overland Flow	Low	EA mapping indicates a small area of surface water flood risk within the eastern car park owing to levels within the car park falling towards the building. This area is drained by road gullies and is outside of the area of proposed works. There is no surface water flooding indicated within the proposed extension area and is therefore at a low risk of flooding from this source.
Groundwater	Low	Wiltshire Council Level 1 SFRA lists the site as having a negligible risk from groundwater flooding due to the nature of the local geological deposits.
Artificial Sources	Low	EA Mapping confirms that the site is not located within an area at risk of flooding from this source.

3 Surface Water Drainage Proposals

Refer to Giraffe Engineering Drawing 1668GE-D01 [Drainage Layout] in appendix A.

This section of the report addresses how flood risk generated as a result of developing the site will be managed to ensure that flood risks are not increased on and off the site.

Wiltshire Council requirements for brownfield sites, where disposal of surface water via infiltration is not viable, requires post development discharges to provide a 30% betterment over existing discharges for all storm events between the 1 in 1year and 1 in 100year return period events.

To provide this betterment over the existing arrangement, and future proof against climate change, all existing rainwater catchments from within the proposed office block area of works will be directed to the new on-site SuDS devices. Existing run off from this 600m² (0.06Ha) catchment are summarised in the table below. The 30% reduction in flow rates for the 1:1, 1:30 and 1:100 year events are included within this table and are the target rates post development.

The front unaltered portion of the building and eastern car park drainage will remain as existing.

Storm Return Period	Average Rainfall Intensity (i) 15 Minute Winter Profile	Flow Rate (l/s)	30% reduction target (l/s)
1 year	31.6	6.27	4.39
30 year	77.6	15.40	10.78
100 year	100.8	20	14

Refer to the existing brownfield runoff calculations enclosed in appendix D of this report.

3.1 Drainage Hierarchy

The surface water drainage strategy for the site has been prepared according to the drainage discharge hierarchy from CIRIA C753 The SuDS Manual, where the first available option will be utilised as follows.

Technique		Summary
1	Infiltration to the maximum extent that is practical	Not viable – Poor infiltration properties of the clay mudstone sub-soil will not support infiltration devices.
2	To surface water body	Not viable – No reachable watercourse available.
3	To a surface water sewer, highway drain or another drainage system	Proposed solution – Attenuated and flow controlled discharge to the existing surface water sewer, providing a 30% betterment over existing discharge rates.
4	To a combined sewer	Not Required

3.2 Attenuation Design

Calculations indicate SuDS attenuation of 12.7m³ will be required to accommodate the proposed development area, for storm events up to and including the 100year + 45% climate change event with peak outflow rates reduced to provide a 30% betterment on existing discharge rates, as summarised below and included within the Infordrainage calculations within appendix E.

Storm Return Period	Existing Flow Rate (l/s)	30% reduction target (l/s)	Designed outflow rate (l/s)	Betterment Provided (%)
1 year	6.27	4.39	4.4	30
30 year	15.40	10.78	9.9	35.7
100 year	20	14	9.9 (Including 45% climate change increase)	50.5

Stormwater will be attenuated within a cellular attenuation tank located below the green space to the north of the building, which provides 18.62m³ of storage.

3.3 Design Exceedance

Should the drainage system or SuDS fail under extreme events or blockages, floodwaters will be directed away from the property toward the boundary, mirroring the existing development arrangement.

3.4 Adoption

The onsite drainage components will remain private and be the maintenance responsibility of the property owners.

3.5 Maintenance

Regular inspection and maintenance are important for the effective operation of the SuDS systems as designed. The regular maintenance of SuDS should be carried out in line with C753 The SUDS Manual (CIRIA, November 2015) or as per manufacturer's specification.

Pipework and Catchpits

It is not envisaged that silt build up within the pipework systems will require rigorous maintenance. Notwithstanding this, a suitable maintenance regime for the systems will comprise of routine inspection (every six months) and silt removal as necessary.

Cellular Attenuation Tank

Silt build up within the cellular crate systems should not require a rigorous maintenance regime so long as silt is removed from upstream catch pits and inspection chambers on a regular basis. Camera access can be gained via inspection chambers and inlet pipework to the tank. Silt removal can be achieved by jetting the inspection tunnels, where a standard jet head with rear facing nozzles should be used. The head should be fed to the far end of the crate tunnel via the nearest inspection chamber, activated and retracted. As the nozzle is removed, debris will be swept back into the inspection chamber where it can then be removed with the use of a standard gully sucker.

4 Foul Water Drainage Proposals

Refer to Giraffe Engineering Drawing 1668GE-D01 [Drainage Layout] in appendix A.

4.1 Proposal

New foul water appliances will be connected to the existing private foul water drainage network serving the building within the site.

4.2 Adoption

The foul water drainage components will remain private and be the maintenance responsibility of the property owners.

5 Conclusions

While the proposed building extension will not generate an increase in impermeable surface area, surface water runoff from the building will be directed to sustainable drainage systems that store stormwater and discharge at a restricted flow rate to provide a 30% betterment over the existing arrangement, in line with the local flood authority requirements.

On site storage will be provided within a cellular attenuation tank Sustainable Urban Drainage Systems (SUDS). The SUDS features have been designed to accommodate the 1 in 100 year storm, including a 45% allowance for climate change, in accordance with NPPF guidance.

The proposed SUDS and all other foul and surface water drainage components will be maintained by the owners of the property.

These proposals demonstrate that the development is achievable without worsening of flood risk to the site and local area, while providing an improvement in discharge to the public sewer network.

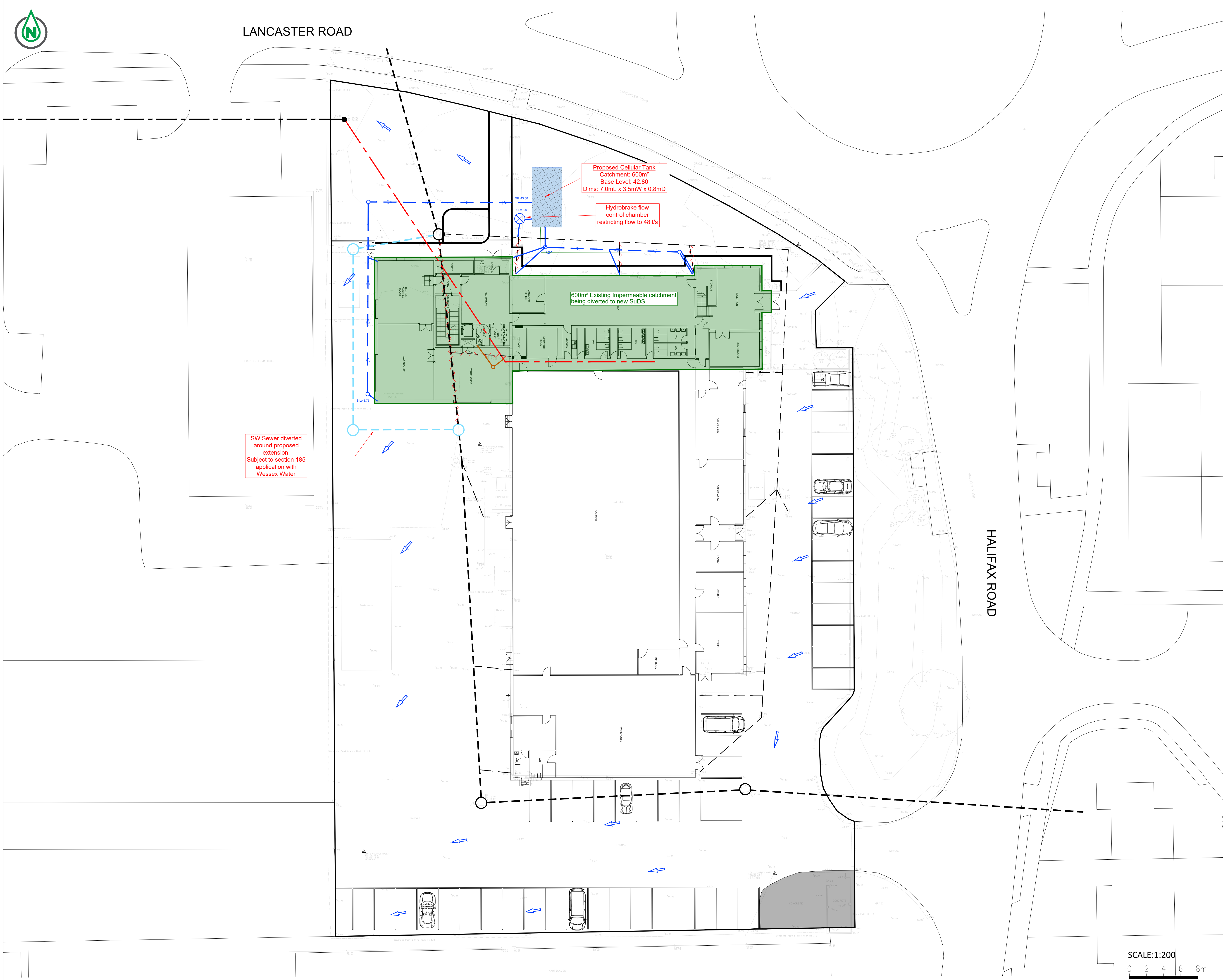
APPENDIX A

Drawings By Giraffe Engineering

Drawing ref. 1668GE-D01 A

Drainage Strategy

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General Notes

1. Dimensions on this drawing shall not be scaled.
2. All dimensions to be checked on site.
3. All differences between this documentation and conditions on site must be immediately reported to engineer.
4. All temporary works are to be designed and carried out by appointed contractor.
5. Drawing issued for planning purposes only, not for construction.

Specification

Drawings to be read in conjunction with design statement and specifications.

Construction Design and Management (CDM) Regulations 2015



Health and safety risks associated with the design proposals are highlighted using this symbol, and documented in the Designer's Risk Register.

KEY:

- Existing Surface Water Sewer
- Existing Private Surface Water Drain & Inspection Chamber
- Proposed Diverted Surface Water Sewer
- Proposed Private Surface Water Drain, Inspection Chamber & Invert Level
- Proposed Surface Water Catchpit Chamber
- Proposed Cellular Soakaway
- Flow Control Chamber
- Flood Flow Route (Over 1:100yr+45% storm event)
- Existing Drain To Be Removed
- Existing Foul Water Sewer
- Existing Private Foul Water Drain & Inspection Chamber
- Proposed Private Foul Water Drain & Inspection Chamber

FOR COMMENT

A		Drainage updated to latest layout	08-06-26	AD
/		First issue	08-05-26	AD
Rev.		Description	Date	Author



GIRAFFE ENGINEERING

WWW.GIRAFFEENGINEERING.COM
INFO@GIRAFFEENGINEERING.COM
01249 704524

5 UNION ROAD, CHIPPENHAM
WILTSHIRE SN15 1HW

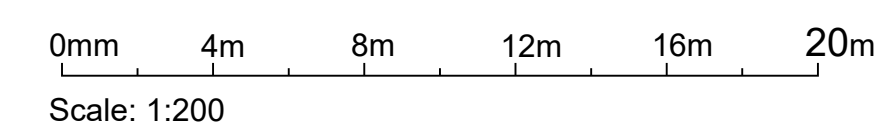
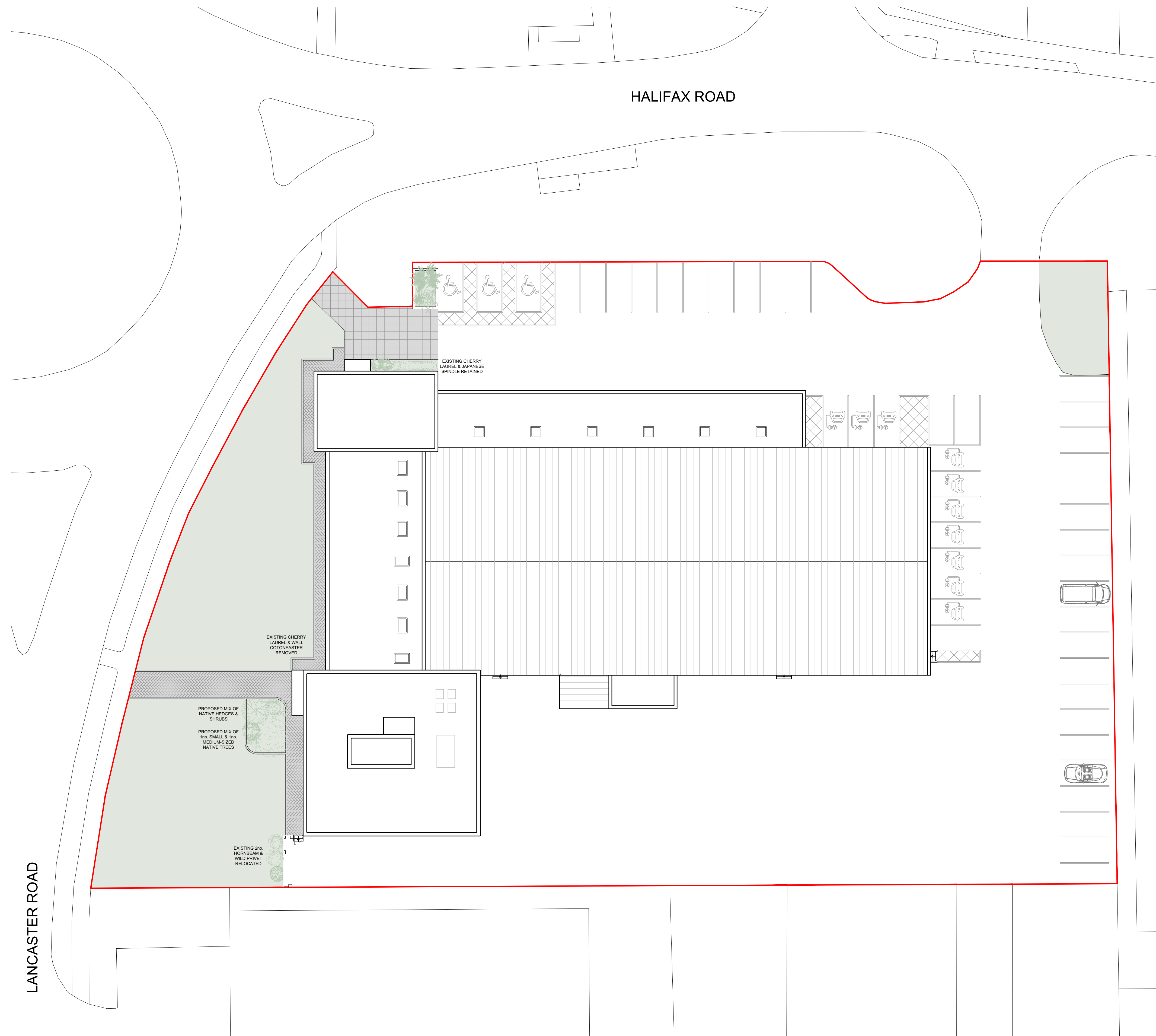
PROJECT NAME		PROJECT No.	
Valldata House		1668GE	
DRAWING NAME			
Proposed Drainage Strategy			
DRAWN BY	CHECKED BY	APPROVED BY	REVISION
AD	CP	RP	
SCALE	DATE CREATED		
1:200@A1	May 2026		
		D01	A

APPENDIX B

Drawings By Others

Drawing ref. 1353-010 B Proposed Block Plan (Simon Morray-Jones)

Drawing ref. 19388-26 Topographical Survey (Sitech Surveying Services)



SIMON MORRAY-JONES
CHARTERED ARCHITECTS & DESIGNERS

21 MILSOM STREET, BATH BA1 1DE
TEL: 01225 787900 FAX: 01225 787901
EMAIL: sm-j@sm-j.com

PLANNING

Notes
© SIMON MORRAY-JONES ARCHITECTS LTD. ALL DIMENSIONS TO BE CHECKED ON SITE.
ANY DISCREPANCIES TO BE REPORTED TO THE ARCHITECT.
DO NOT SCALE FOR CONSTRUCTION PURPOSES.

B - Issue to LPA for Planning approval
A - First Issue - Preliminary issue to Client for comments/approval
Revision

03.06.2026
18.03.2026
Date

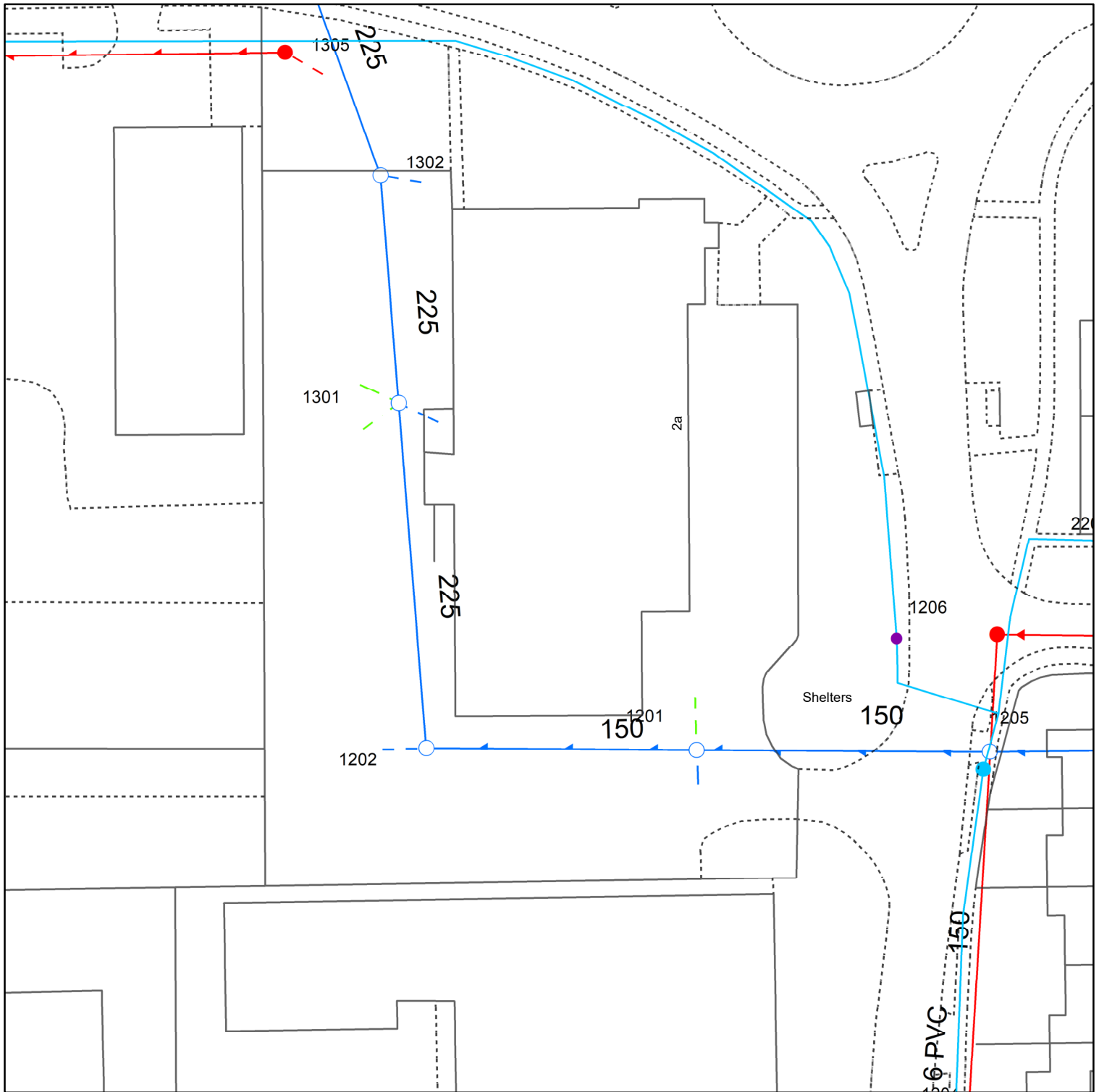
Client JJ Lee Cartons					
Project Valldata House, 2a Halifax Rd, Bowerhill, Wiltshire, SN12 6YY					
Drawing Title Proposed - Block Plan					
Scale @ A1 1:200	Drawn By IL	Date 13.03.2026	Job Number 1353	Drawing Number 010	Revision B

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APPENDIX C

Wessex Water Sewer Records

Wessex Water Network Map

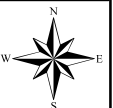


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WATER MAINS		SEWERS		STRATEGIC		PUBLIC		PRIVATE		SECTION 104		OTHER WESSEX PIPES		NON-WESSEX / UNKNOWN	
	Distribution		Foul		Surface								Rising Mains		Private Rising Mains
	Washout		Surface										Standby Rising Mains		Culverted Watercourse
	Raw Water		Combined										EDM		Highway Drain
	Abandoned		Abandoned										Effluent Disposal		Use Unknown
	Private												Overflow		Status Unknown
													Syphon		
Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow). Some styles of line and symbol are shown on the key in sample/typical colours.															
FITTINGS		STRUCTURES													
	Hydrant		Manhole - Foul		Pumping Station - Surface										
	Other		Manhole - Surface		Pumping Stn - Foul/Combined										
			Manhole - Combined		Gully										
			Inlet		Vent Column										
			Outfall		Rodding Eye										
			Lamphole		Catchpit										
			Bifurcation - Foul		Flushing Chamber										
			Bifurcation - Surface		Soakaway										
			Bifurcation - Combined		Non Return Valve										
			Combined Sewage Overflow		Air Valve		Hatch Box		Washout						
OTHER STRUCTURES Attenuation Tank Chamber Storage Tank Tunnel Interceptor															
Wessex Water YTL GROUP															

Information in this map is provided for identification purposes only. No warranty as to accuracy is given or implied. The precise route of pipe work may not exactly match that shown. Wessex Water does not accept liability for inaccuracies. Sewers and lateral drains adopted by Wessex Water under the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011 are to be plotted over time and may not yet be shown. In carrying out any works, you accept liability for the cost of any repairs to Wessex Water apparatus damaged as a result of your works. You are advised to commence excavations using hand tools only. Mechanical digging equipment should not be used until pipe work has been precisely located. If you are considering any form of building works and pipe work is shown within the boundary of your property or a property to be purchased (or very close by) a surveyor should plot its exact position prior to commencing works or purchase. If you are proposing to build over or near Wessex Water's apparatus you should contact the Developer Services Team, tel: 01225 526333 or e-mail: developer.enquiries@wessexwater.co.uk to discuss your proposals. Details of assets within Wessex Water's land ownership are unavailable through this service.

Date: 18/04/2024
Centre: 391134, 162290
Scale: 1:625
(when printed at A4 size)



APPENDIX D

Existing Runoff Calculations

Runoff from Existing Impermeable Areas

The industry-standard Modified Rational Method has been used in the calculation of runoff rates from existing impermeable areas which are to be provided with a new drainage system to serve the increased impermeable catchment area.

It uses the following equation to calculate the peak rate of runoff generated by each catchment area of the development.

$$Q_p = 2.78 C_v C_R i A$$

Where:

2.78 = Coefficient which accounts for the differences in units used for the inputs and outputs of the equation.

C_v = 0.9 Volumetric Runoff

C_R = 1.3 (Routing Coefficient)

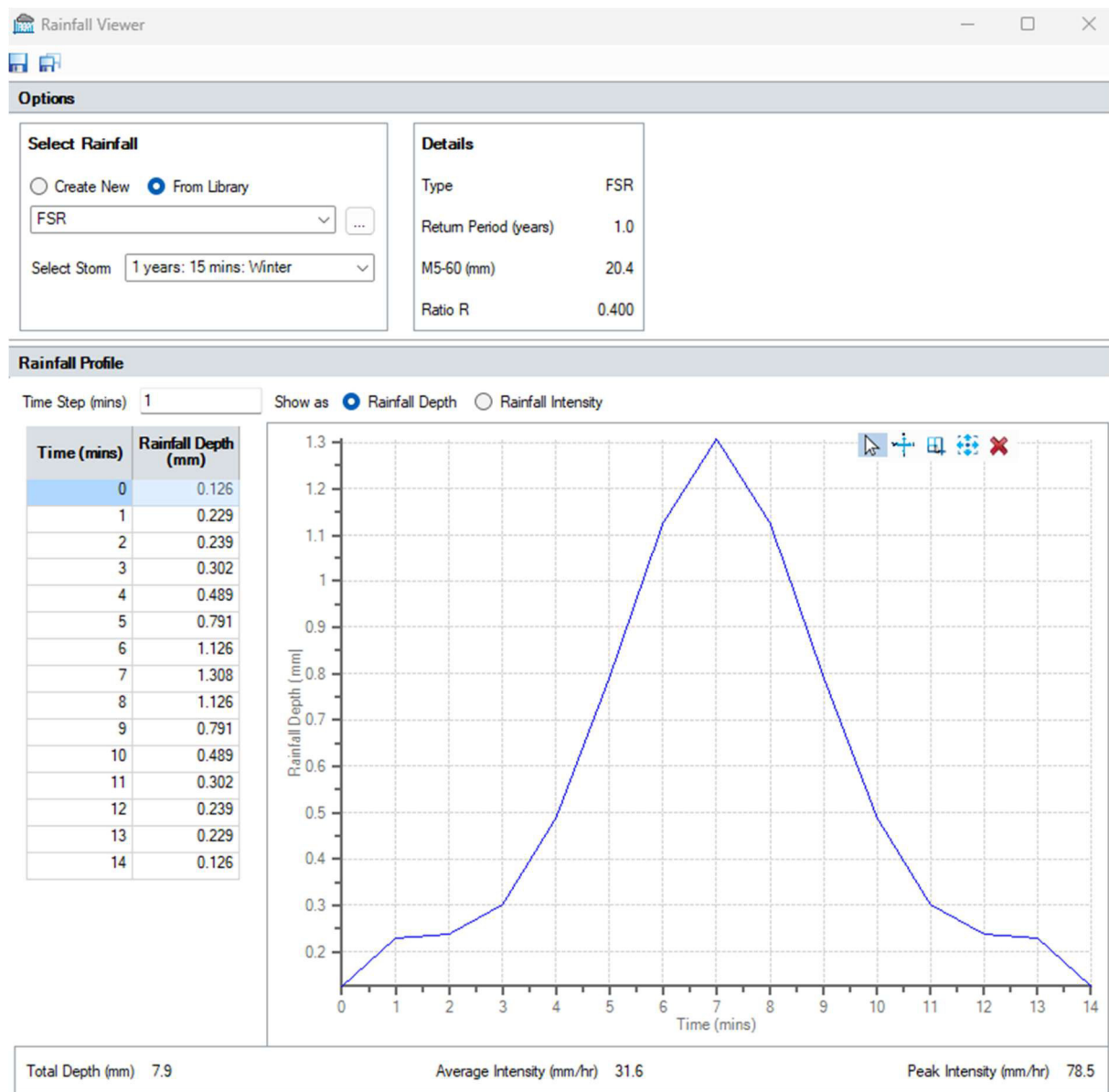
i = Rainfall Intensity (mm/hr)

A = Area (0.061ha)

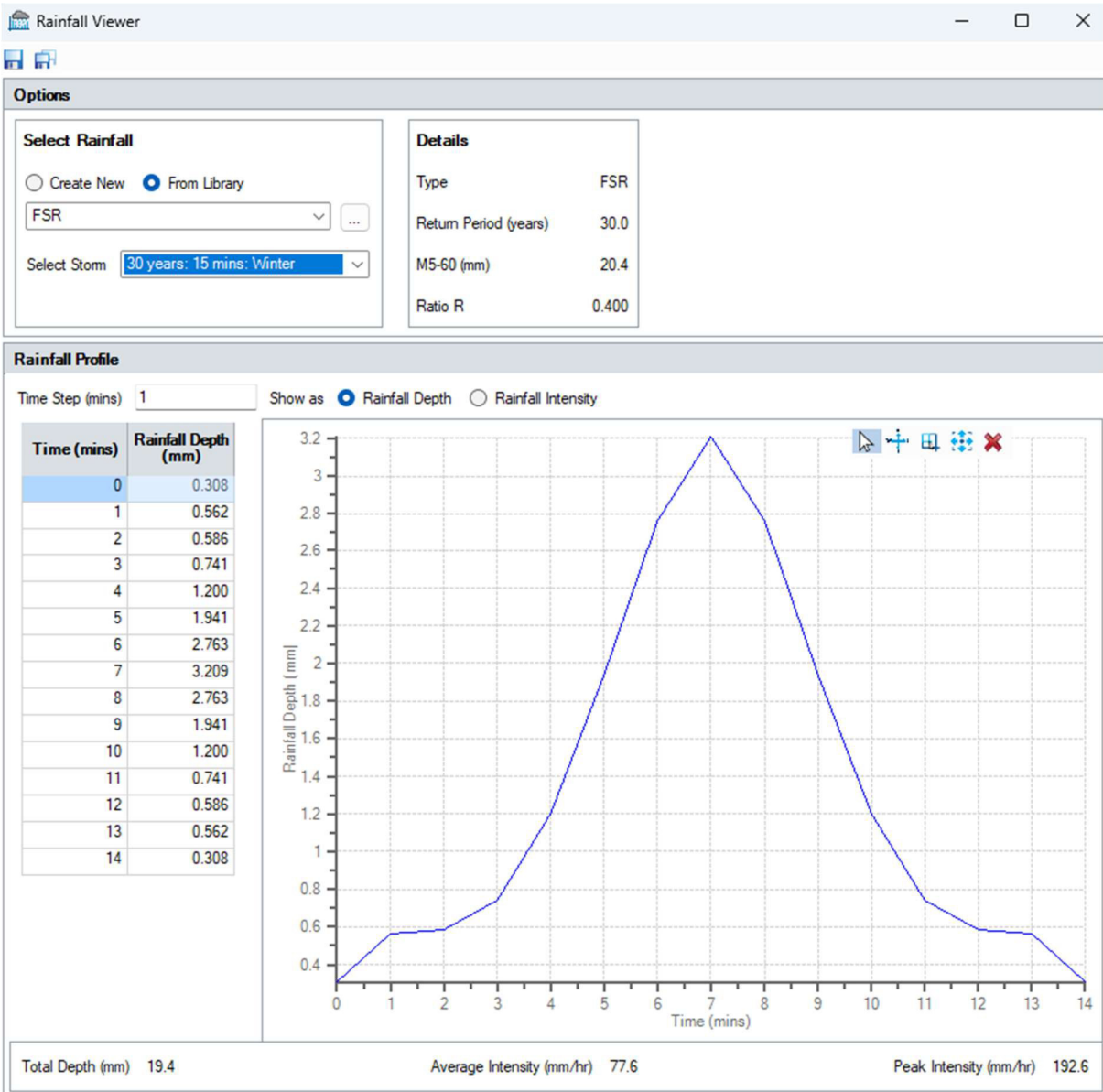
Rainfall intensity data has been obtained from the Infodrainage design software by Autodesk, peak rainfall intensities have been generated for a range of storm return periods for a 15-minute duration winter storm. Output from the software is shown below along with a table summarising the average rainfall intensity.

Storm Return Period	Average Rainfall Intensity (i) 15 Minute Winter Profile	Flow Rate (Qp)
1 year	31.6	6.27
30 year	77.6	15.40
100 year	100.8	20

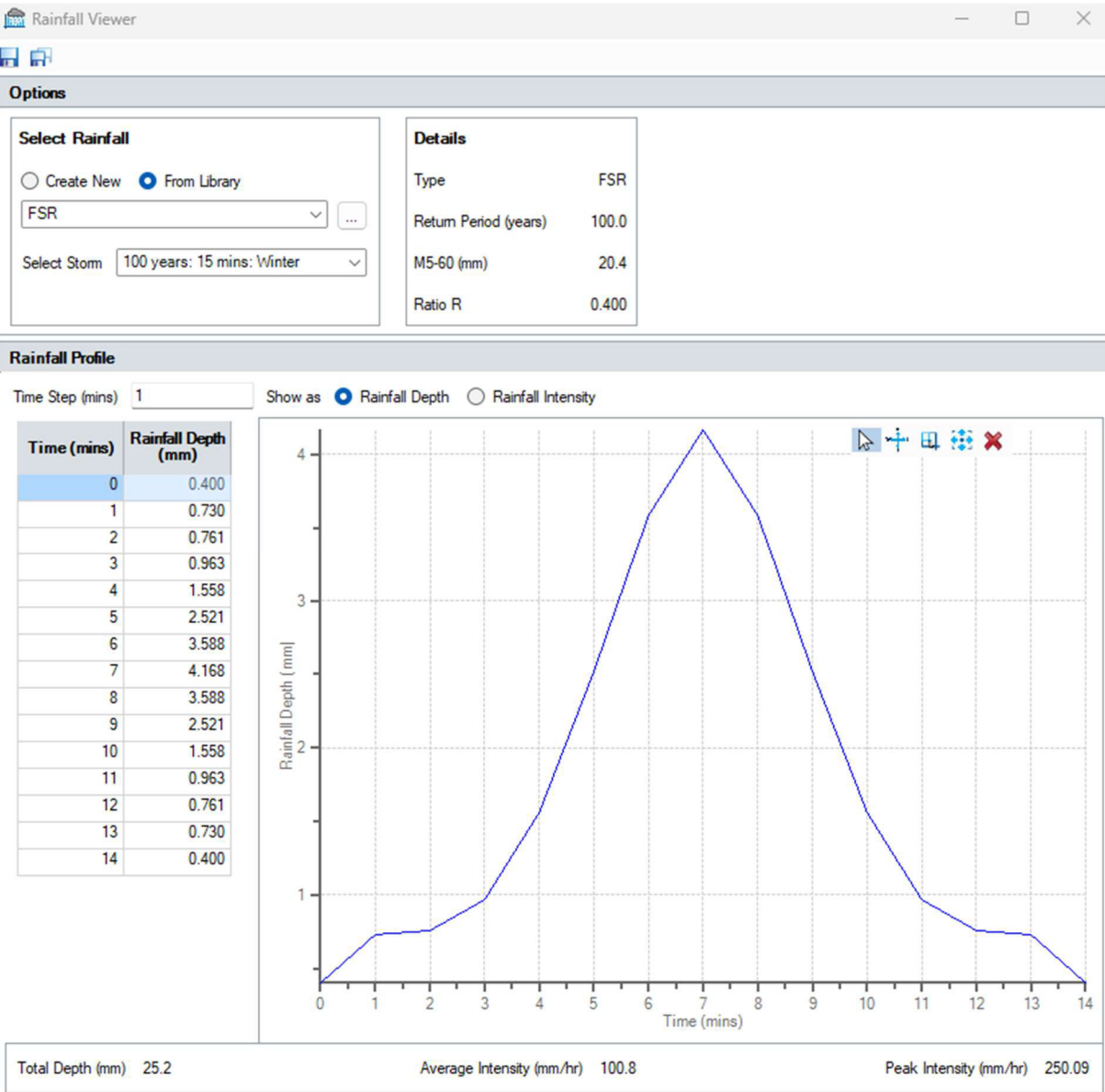
1 Year, 15 minute winter



30 Year, 15 minute winter



100 Year, 15 minute winter



APPENDIX E

Infodrainage Calculations

Project: 2a Halifax Road Bower Hill	Date: 07/06/2026			
	Designed by: AD	Checked by:	Approved By:	
Report Details: Type: Inflows Storm Phase: Phase	Title: SW Drainage Design			



Catchment Area

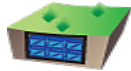
Type : Catchment Area

Area (ha)	0.06
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Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project: 2a Halifax Road Bower Hill	Date: 07/06/2026			
	Designed by: AD	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Storm Phase: Phase	Title: SW Drainage Design			



Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	44.500
Depth (m)	0.800
Base Level (m)	42.800
Number of Crates Long	7
Number of Crates Wide	7
Number of Crates High	2
Porosity (%)	95
Crate Length (m)	1
Crate Width (m)	0.5
Crate Height (m)	0.4
Total Volume (m³)	19.520

Inlets

Inlet

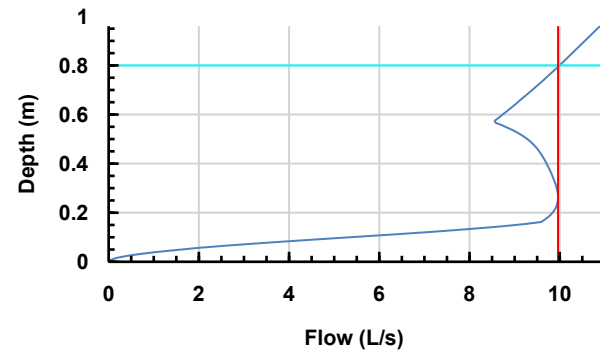
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area
Bypass Destination	(None)
Capacity Type	No Restriction

Project: 2a Halifax Road Bower Hill	Date: 07/06/2026			
	Designed by: AD	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Storm Phase: Phase	Title: SW Drainage Design			

Outlets

Outlet

Outgoing Connection	(None)
Outlet Type	Hydro-Brake®
Invert Level (m)	42.800
Design Depth (m)	0.800
Design Flow (L/s)	10.0
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	☒
Unit Reference	SHE-0149-1000-0800-1000



Project: 2a Halifax Road Bower Hill	Date: 07/06/2026			
	Designed by: AD	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Title: SW Drainage Design			



FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Cellular Storage	FSR: 1 years: +0 %: 15 mins: Winter	42.888	42.888	0.088	0.088	8.4	2.071	0.000	0.000	4.4	3.328		89.392

Project: 2a Halifax Road Bower Hill	Date: 07/06/2026			
	Designed by: AD	Checked by:	Approved By:	
	Report Details: Type: Stormwater Controls Summary Storm Phase: Phase			
Title: SW Drainage Design				

Status

OK

Project: 2a Halifax Road Bower Hill	Date: 07/06/2026			
	Designed by: AD	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Title: SW Drainage Design			



FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Cellular Storage	FSR: 30 years: +0 %: 15 mins: Winter	43.005	43.005	0.205	0.205	20.6	4.772	0.000	0.000	9.9	8.884		75.554

Project: 2a Halifax Road Bower Hill	Date: 07/06/2026			
	Designed by: AD	Checked by:	Approved By:	
	Report Details: Type: Stormwater Controls Summary Storm Phase: Phase			
Title: SW Drainage Design				

Status

OK

Project: 2a Halifax Road Bower Hill	Date: 07/06/2026			
	Designed by: AD	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Title: SW Drainage Design			



FSR: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Cellular Storage	FSR: 100 years: +45 %: 30 mins: Winter	43.346	43.346	0.546	0.546	26.4	12.689	0.000	0.000	9.9	23.548	10	34.995

Project: 2a Halifax Road Bower Hill	Date: 07/06/2026			
	Designed by: AD	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Title: SW Drainage Design			

Status

OK