



Chalvington Barn, Unit C Dittons Business Park, Dittons Road
Polegate, East Sussex. BN26 6HY.

**Flood Risk Assessment
& Drainage Strategy**

for

34 Cyprus Road, Burgess Hill, West Sussex, RH15 8DX

E9542

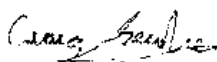
DOCUMENT CONTROL SHEET

Project Name: 34, Cyprus Road, Burgess Hill, West Sussex, RH15 8DX
Project Number: E9542
Client: Russ Drage Architects Ltd
Report Title: Flood Risk Assessment & Drainage Strategy
Reference: RE001



Signed by.....

James Maddin (BSc Hons)
Senior Civil Engineer



Countersigned by.....

Craig Searle (BEng Hons)
Civil Engineer

FOR AND ON BEHALF OF STEPHEN WILSON PARTNERSHIP

Date: March 2025

Rev: A

NB: The copyright at all times remains with STEPHEN WILSON PARTNERSHIP

Document Issue Record

Rev	Date	Description	Prepared	Reviewed	Approved
-	26.02.2025	First Issue	J Maddin	C Searle	D Giles
A	05.03.2025	Second issue	J Maddin	C Searle	D Giles

Contents Page

1	INTRODUCTION AND BRIEF	3
1.1	INTRODUCTION AND BRIEF	3
2	EXISTING SITE CONDITIONS	4
2.1	LOCATION	4
2.2	SITE TOPOGRAPHY	4
2.3	SITE GEOLOGY	4
3	PROPOSED DEVELOPMENT	5
4	FLOOD RISK.....	6
4.1	TIDAL AND FLUVIAL FLOODING	7
4.2	FLOODING FROM THE LAND	9
4.3	FLOODING FROM GROUNDWATER	11
4.4	FLOODING FROM SEWERS, HIGHWAYS AND PRIVATE DRAINS.....	11
4.5	FLOODING FROM RESERVOIRS AND OTHER ARTIFICIAL SOURCES	12
4.6	MID-SUSSEX DISTRICT COUNCIL SFRA	13
4.7	FLOOD RISK SUMMARY	13
4.8	SEQUENTIAL TEST.....	13
4.9	FLOOD RISK MITIGATION	14
5	FOUL WATER STRATEGY.....	15
5.1	PROPOSED DEVELOPMENT FLOWS	15
5.2	FOUL WATER STRATEGY	15
6	SURFACE WATER STRATEGY	16
6.1	EXISTING RUNOFF RATES.....	16
6.2	PROPOSED RUNOFF RATES.....	16
6.3	MANAGING SURFACE WATER.....	17
6.4	SURFACE WATER STRATEGY.....	18
7	DRAINAGE CONSTRUCTION ENVIRONMENTAL MANAGEMENT STRATEGY	20
7.1	GENERAL	20
7.2	MATERIALS STORAGE.....	20
7.3	FUEL & OTHER CHEMICALS	20
7.4	PHYSICAL RISKS	21
7.5	FOUL WATER	22
8	CONCLUSIONS.....	23

List of Appendices

<i>Appendix 1.0</i>	<i>Development Proposals</i>
<i>Appendix 2.0</i>	<i>Foul & Surface Water Calculations</i>
<i>Appendix 3.0</i>	<i>Drainage Proposals & Drainage Maintenance Plan</i>
<i>Appendix 4.0</i>	<i>Flood Risk Maps</i>
<i>Appendix 5.0</i>	<i>Southern Water asset Mapping</i>

1 INTRODUCTION AND BRIEF

1.1 Introduction and Brief

- 1.1.1 This report has been produced to assess the flood risk to and the potential for increased flood risk from the proposed development situated at 34 Cyprus Road, Burgess Hill, West Sussex, RH15 8DX.
- 1.1.2 This document has been produced in accordance with current best practice and recommendations and guidance set out in the Nation Planning Policy Framework (NPPF).
- 1.1.3 Stephen Wilson Partnership has no responsibility to any other parties to whom this report may be circulated, in part or in full, and any such parties rely on the contents of this report solely at their own risk.
- 1.1.4 All copyrights and other intellectual rights in and over this report and its content shall remain vested in Stephen Wilson Partnership. The client and any other person authorised by them is granted an irrevocable royalty-free licence to use and reproduce this report for all purposes relating to the property, but Stephen Wilson Partnership shall not be liable for any use of the report for any purpose other than that for which it was originally prepared.

2 EXISTING SITE CONDITIONS

2.1 Location

- 2.1.1 The site is located at 34 Cyprus Road, Burgess Hill, West Sussex, RH15 8DX. The figure below shows the site in its current context.



Figure 2.1 – Site Location – Approximate Site Boundary Shown in Red.

- 2.1.2 The existing site areas can be summarised as follows:

Total Site Area:	<u>310 m²</u>
Existing Roof Area:	197 m ²
Existing Hardstanding:	31 m ²
Total Impermeable Area	<u>228 m²</u>

2.2 Site Topography

- 2.2.1 The centre of the site may be located by the National Grid Reference 531448, 119106. The site slopes from the South to North.
- 2.2.2 A review of the available topographic information and other sources has identified a three manhole covers at the frontage of the Site. A Site investigation and CCTV investigation would be required to determine their purpose.
- 2.2.3 No surface water features were identified on site by visual inspection.

2.3 Site Geology

- 2.3.1 The British Geological Survey (BGS) map shows that the site is underlain by the Weald Clay Formation. This is mainly comprised of mudstone and sandstone. At the time of writing no intrusive ground investigation works had been carried out.

3 PROPOSED DEVELOPMENT

3.1.1 The proposed development involves the demolition of the existing building, to build a new four-five storey building. The new development will comprise of 14 studio units; staff room; wellbeing room and a commercial space unit on the lower ground floor.

3.1.2 The room allocation is as follows:

- Lower ground floor - Commercial area.
- Ground floor - 2No. studio units, staff room & wellbeing room.
- Level 1, 2 & 3 – 4No. studio units per floor.
- Level 3 - flats on the first floor

3.1.3 The figure below shows the current ground floor proposals.

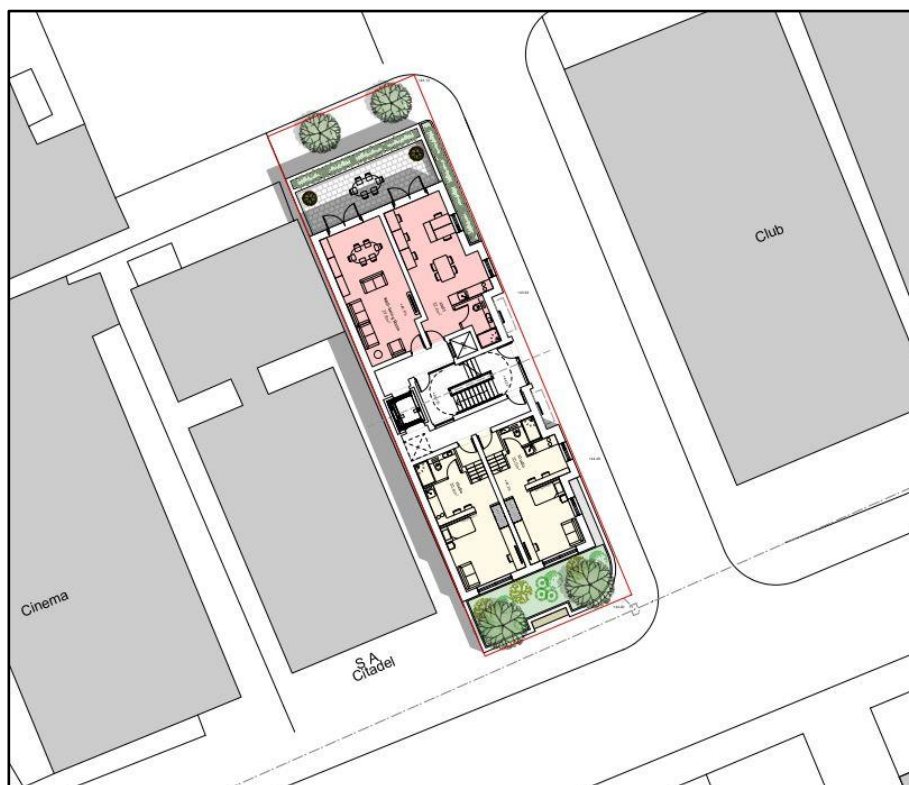


Figure 3.1 – Proposed Ground Floor Plan

3.1.4 The proposed impermeable areas are summarised as follows:

Total Site Area:	<u>310 m²</u>
Proposed Roof Area:	232 m ²
Hard Paved Area	44 m ²
Total Impermeable Area:	<u>276 m²</u>

3.1.5 Development proposals can be found in Appendix 1.

4 FLOOD RISK

Flooding can occur from a range of individual or a combination of sources that include fluvial (main river), tidal (sea), land, groundwater, sewers infrastructure, reservoirs, and other artificial sources.

The Environment Agency website includes Flood Maps which can be referred to for planning purposes in order to identify the flood risk from different sources, for a particular development site.

- Flood Zone 3 comprises land assessed as having a 0.5% (1 in 200) or greater chance of flooding by the sea or a 1% (1 in 100) or greater chance of flooding from rivers, in any one year.
- Flood Zone 2 comprises land assessed as having a 0.01% (1 in 1000) or greater chance of flooding, in any one year.

Areas outside of the blue areas are classified as Flood Zone 1. Flood Zone 1 comprises land assessed as having a <0.01% (1 in 1000) probability of river or sea flooding. Therefore, the risk of flooding from fluvial or tidal sources is considered to be negligible.

Each potential source of flooding has been considered in further details below.

4.1 Tidal and Fluvial Flooding

- 4.1.1 A review of the Environment Agency flood risk map for planning has identified that the development site is situated in Flood Zone 1.
- 4.1.2 The flood risk map for planning can be found in Appendix 4.
- 4.1.3 A review of the Environment Agency online flood risk mapping has identified that the development site is located in an area of very low risk.

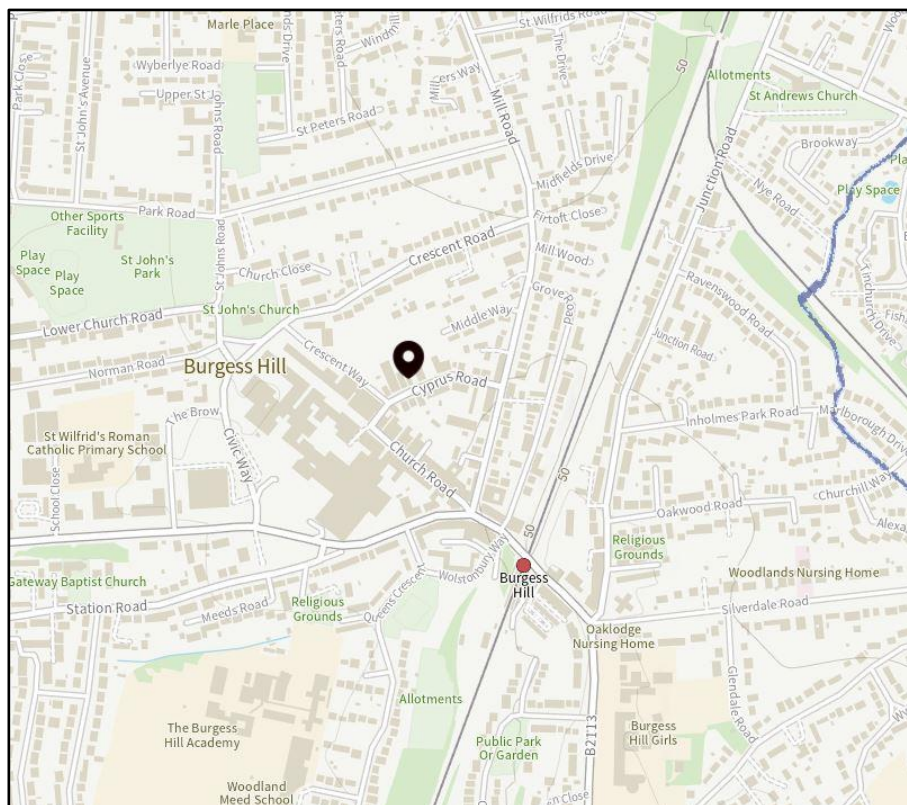


Figure 4.1 – Extract of the Environment Agency's online Flood Risk Map.
Contains OS data © Crown copyright and database rights 2025

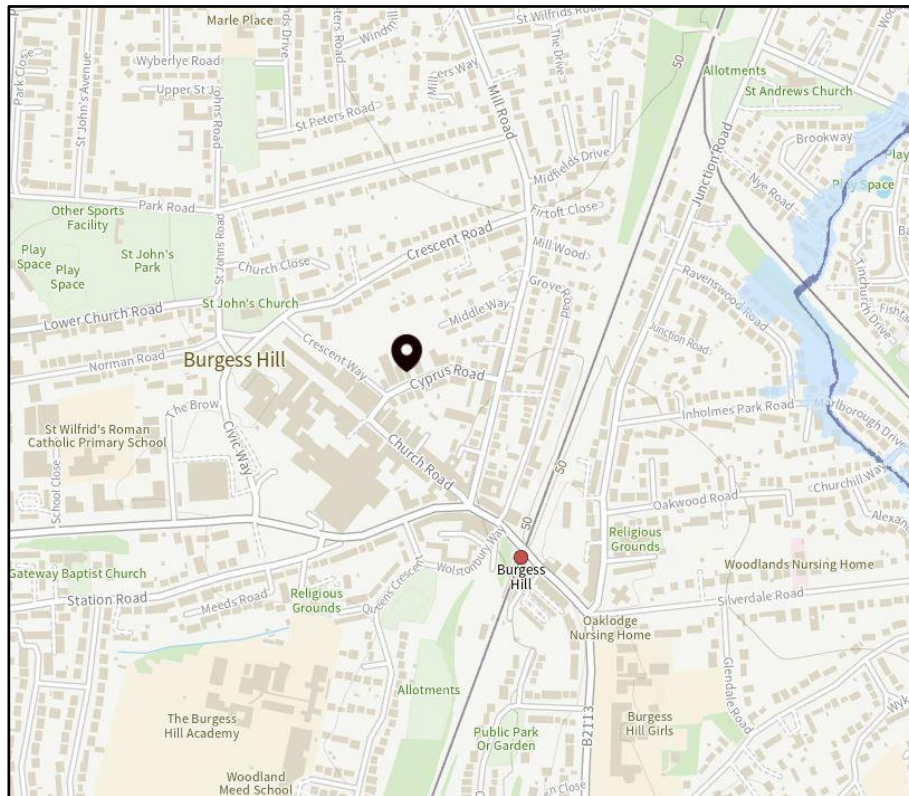


Figure 4.2 – Extract of the Environment Agency's online Flood Risk Map for future flooding.

Contains OS data © Crown copyright and database rights 2025

- 4.1.4 It should be noted that the current Strategic Flood Risk Assessment shows the site to be located in Flood Zone 1.
- 4.1.5 Therefore, the risk of flooding from fluvial or tidal sources is considered to be low.

4.2 Flooding from the Land

- 4.2.1 Intense rainfall, often short duration, that is unable to soak into the ground or enter a drainage system can quickly run off the land and result in localised flooding. Local topography and buildings can influence the direction and depth of flow. It is inevitable that as a result of extreme rainfall, the capacities of existing sewers, surface water attenuation features and other drainage systems will be exceeded on occasion.
- 4.2.2 The Environment Agency website provides surface water flood risk information. This highlights the areas at risk from surface water flooding from overland flows.

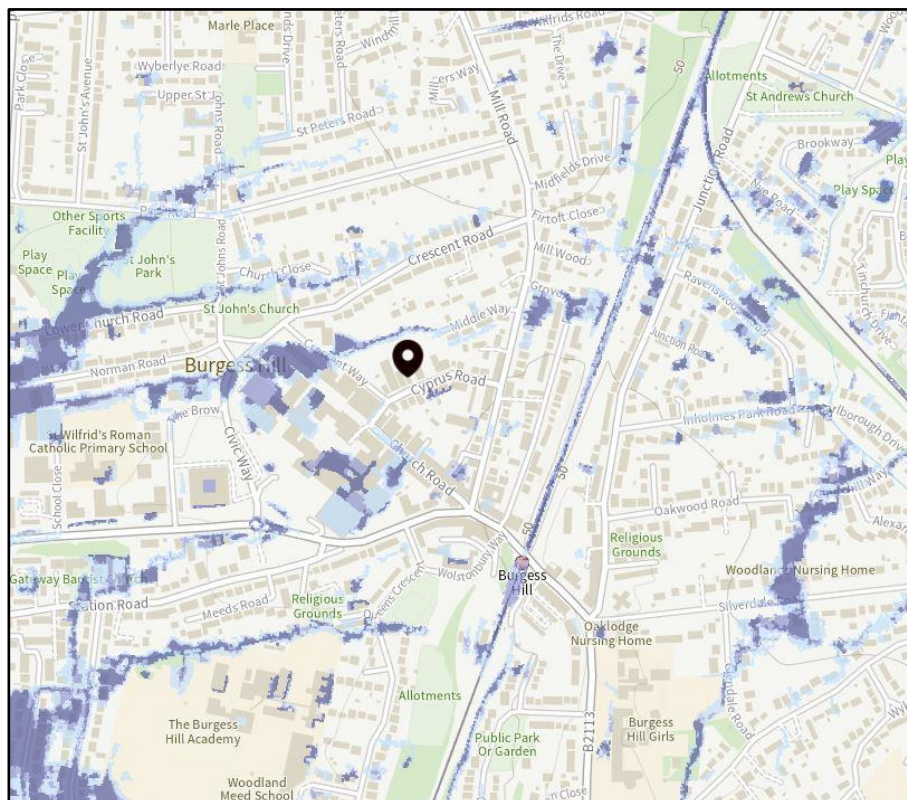


Figure 4.3 – Extract of the Environment Agency's online Flood Risk Map.
Contains OS data © Crown copyright and database rights 2025

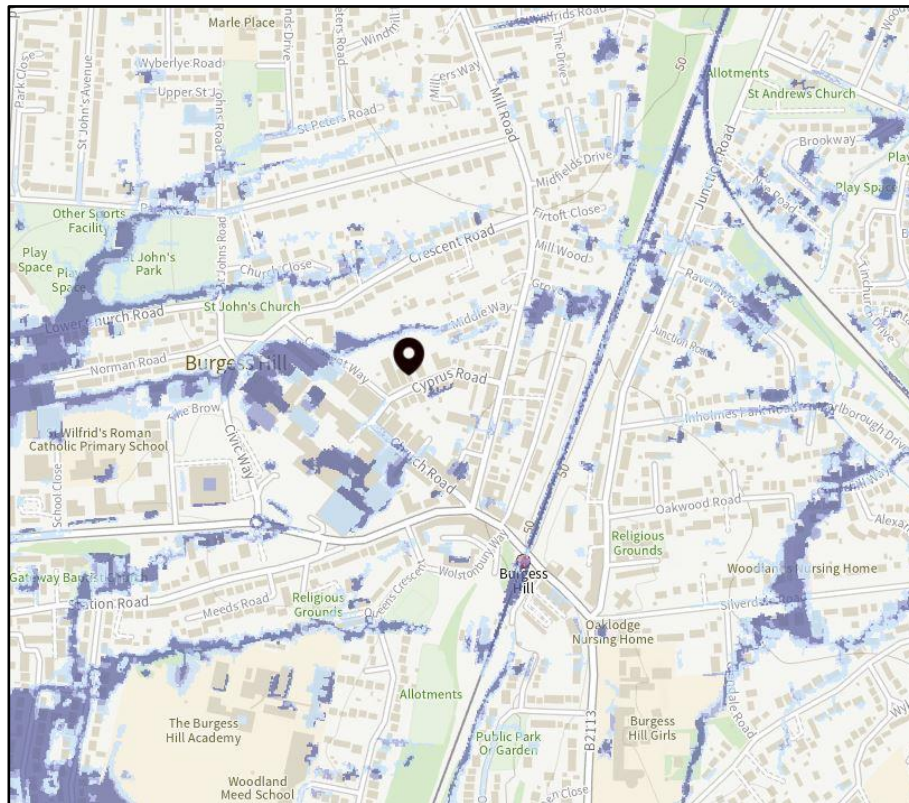


Figure 4.4 – Extract of the Environment Agency's online Flood Risk Map for future flooding.
Contains OS data © Crown copyright and database rights 2025

- 4.2.3 It can be seen from the figures above that the development site is at a very low risk of surface water flooding.
- 4.2.4 Therefore, the risk of flooding from surface water is considered to be low.

4.3 Flooding from Groundwater

- 4.3.1 Groundwater flooding occurs when water levels in the ground rise above surface level. It is most likely to occur in low lying areas underlain by aquifers. These may be extensive regional aquifers, such as chalk, or may be localised sands and gravels.
- 4.3.2 Water levels below the ground rise during the wet winter months and fall again in the summer as the water flows out towards rivers. In very wet winters, water level rise may lead to flooding or normally dry land. Groundwater flooding can sometimes take weeks or months to dissipate because groundwater flows are much slower than surface flows.
- 4.3.3 The existing site falls from the North - South and should groundwater levels rise enough to cause flooding, flood waters would follow the existing topography of the site and flow towards the North away from the development site.
- 4.3.4 It should be noted that no ground investigations to date have been carried out.
- 4.3.5 Therefore, the risk of flooding from groundwater is considered to be low.

4.4 Flooding from Sewers, Highways and Private Drains

- 4.4.1 In urbanised areas, rainwater is frequently drained to surface water or combined water sewers. Flooding can occur when the sewer is overwhelmed by heavy rainfall, becomes blocked or has inadequate capacity. Flood waters will either follow overland exceedance routes or be stored at surface level until they are able to drain away. When this happens to combined sewers there is a risk of land or property being contaminated with raw sewerage.
- 4.4.2 A review of the topographical information and visual inspection identified the presence of 3 unknown manhole covers within the Site boundary. These will need to be inspected to confirm their usage.
- 4.4.3 Should one or more be identified as private drains and was subject to flooding, flood water will follow the existing topography and flow away from the development.
- 4.4.4 The Mid-Sussex District Council (MSDC) Strategic Flood Risk Assessment (SFRA) contains reference to sewer flooding events in Burgess Hill. Due to data protection requirements the data for individual properties is not available. The register of events is comprised of the number of properties within 4 or 5 digit postcode areas that have experienced either internal or external flooding within the last 10 years due to hydraulic incapacity. Postcode RH15 8 has reported 2 internal and 6 external flooding events over the 10-year period.
- 4.4.5 There is no evidence available at the time of writing to confirm that the Site address was subject to any historical flooding event.
- 4.4.6 Therefore, the risk of flooding from sewers, highway drainage and private drains is considered to be low to medium.
- 4.4.7 The design of the surface water drainage system (discussed in further detail in Chapter 6) serving the new development will look to maintain the run-off from the developed site to pre-development levels so that flood risk is not increased.

4.5 Flooding from Reservoirs and other Artificial Sources

- 4.5.1 Non-natural or artificial sources of flooding can include reservoirs, canals and lakes, where water is retained above natural ground level. Reservoir or canal flooding can occur as a result of the facility being overwhelmed and or as a result of dam or bank failure. The latter can happen suddenly resulting in rapidly flowing, deep water that can cause significant threat to life and major property damage.
- 4.5.2 There are no canals or private/publicly owned bodies of water in close proximity to the site. Therefore, the risk of flooding from reservoirs and other artificial sources is considered to be low.

4.6 Mid-Sussex District Council SFRA

4.6.1 A Strategic Flood Risk Assessment (SFRA) has been produced by aegaea, dated July 2024, for the Mid-Sussex District Council (MSDC). This SFRA provides details of the flood risk throughout the district of Lewes. The SFRA and accompanying maps provide the following information about the site. However, it should be noted that the information provided may only be representative of the situation at the time the SFRA was prepared.

- The SFRA has identified the site is situated within Flood Zone 1.
- The development site has not been subject to recorded incidents of fluvial flooding.
- The development site has not been subject to recorded incidents of flooding from overland flows.
- The development site has not been subject to recorded incidents of flooding from groundwater.
- The development site has not been subject to recorded incidents of flooding from existing drainage or public sewers. Records indicate that there has been previous flooding within the RH15 8 postcode, in which the development is located, but not whether the Site address was directly affected. The records indicate that the flooding was caused by a hydraulic incapacity in the foul sewer.
- The development site has not been subject to recorded incidents of flooding from artificial sources.

4.7 Flood Risk Summary

4.7.1 The potential flood risk to the proposed development site has been summarised below:

- | | |
|------------------------------------|-------------------|
| • Fluvial flood risk | Low Risk |
| • Tidal flood risk | Low Risk |
| • Flooding from the land | Low Risk |
| • Flooding from groundwater | Low Risk |
| • Flooding from sewers | Low - Medium Risk |
| • Flooding from drainage | Low Risk |
| • Flooding from artificial sources | Low Risk |

4.7.2 Having considered the potential sources of flooding, all have been identified as having a low risk to the development site.

4.8 Sequential Test

4.8.1 The aim of the sequential test is to locate development in areas with the lowest risk of flooding from any source. Where reasonably available sites are available with a lower flood risk, the development on the site with a higher flood risk should not be permitted.

- 4.8.2 The development site is located in flood zone 1 and is considered to be at low risk of flooding from all sources.
- 4.8.3 It can therefore be considered that the sequential test is not required. It has been assessed if the vulnerability classification of the proposals is suitable for the flood zone the site is situated in, as per the National Planning Policy Framework.
- 4.8.4 Following the information located in *Annex 3: Flood risk vulnerability classification* of the National Planning Policy Framework, the commercial area is considered less vulnerable and the residential component of the Development is considered to be more vulnerable. The development comprises a commercial unit on the lower ground floor, 4 flats on the first floor and a further 2 flats on the second floor, with car parking, cycle parking and bin storage. After review of the detailed flood risk information from the Environment Agency, it can be seen that the site is located in Flood Zone 1 and is considered to be at low risk of flooding from all sources.
- 4.8.5 Using Table 2 of the sequential test, it can be seen that 'less vulnerable' and 'more vulnerable' classification of the development is allowed in a Flood Zone 1. Table 2 is shown as below.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

Table 2 – Flood risk vulnerability and flood zone 'incompatibility'

- 4.8.6 From the table above, it can be seen that the development is considered that the development can be made safe throughout its lifetime.
- 4.8.7 The exception test is not required.

4.9 Flood Risk Mitigation

- 4.9.1 The development site has been identified as not being at risk of flooding, therefore flood mitigation in the proposals will be limited to ensuring ground levels are designed fall away from the building entrances in the event of sewer/surface water flooding occurs.

5 FOUL WATER STRATEGY

5.1 Proposed Development Flows

- 5.1.1 The proposed development comprises the demolition of the existing building, to build a four to five storey building. The new development will comprise of a commercial unit on the lower ground floor, 2 studio units, staff room and wellbeing room on the ground floor and a further 4 studio units on levels 1-3, with bin storage. An assessment of peak foul water flow has been carried out in accordance with BS EN 12056-2:2000.
- 5.1.2 It is believed the proposed development will generate a peak foul flow rate of 5.53l/s (litres/second).
- 5.1.3 A preplanning enquiry with Southern Water will be required to confirm adequate capacity in the public sewers.
- 5.1.4 Full Calculations can be found in Appendix 2.

5.2 Foul Water Strategy

- 5.2.1 It is proposed to discharge the majority of the proposed foul water flows from the Development to the public foul sewer located in Cyprus Road. Connection will be made by either the existing point of connection (subject to CCTV investigation) or a new drainage connection to the sewer.
- 5.2.2 Foul water flows from the lower ground floor will be discharged to the existing public foul water sewer to the rear of the Development Site. Connection will be made via a backdrop connection (max heigh 1.4m) to manhole 4102.
- 5.2.3 The new connections (direct or indirect) will be subject to a S106 agreement with Southern Water.
- 5.2.4 A visual inspection along with topographical data has identified three manhole covers at the front of the Development Site. Further investigations including a CCTV survey would be required to determine the utilities these serve.
- 5.2.5 All private foul water drainage will be designed and constructed in accordance with the requirements of the Building Regulations approved Document H.

6 SURFACE WATER STRATEGY

6.1 Existing Runoff Rates

6.1.1 The site is located on land at 34 Cyprus Road, Burgess Hill, RH15 3DX. The existing impermeable areas can be summarised as follows:

Total Site Area: 310 m²

Existing Roof Area: 197 m²

Existing Hard Paved Area: 31 m²

Total Impermeable Area 228 m²

6.1.2 As the existing development site is partially developed it considered appropriate to determine the existing sites peak run off rates using the modified rational method. These are summarised as follows:

1 in 2 year: 2.349 l/s

1 in 30 year: 4.453 l/s

1 in 100 year: 5.769 l/s

6.1.3 Full Calculations can be found in Appendix 2.

6.2 Proposed Runoff Rates

6.2.1 The proposed development comprises the demolition of the existing building, to build a four to five storey building. The new development will comprise of a commercial unit on the lower ground floor, 2 studio units, staff room and wellbeing room on the ground floor and a further 4 studio units on levels 1-3, with bin storage. The proposed developments impermeable areas are summarised as follows:

Total Site Area: 310 m²

Proposed Roof Area: 232 m²

Proposed Hard Paved Area 44 m²

Total Impermeable Area: 276 m²

6.2.2 Peak rates of run-off have been calculated using the modified rational method and include a 45% allowance for climate change. These are summarised as follows:

1 in 2 year: 4.124 l/s

1 in 30 year: 7.816 l/s

1 in 100 year: 10.126 l/s

6.2.3 Full Calculations can be found in Appendix 2.

6.2.4 The Development proposals result in a slight increase in impermeable area, however the largest factor in the increase in surface water runoff is the application of the 45% climate change allowance. Methods for managing surface water and restricting runoff are discussed in further detail in section 6.3.

6.3 Managing Surface Water

- 6.3.1 Discharging surface water to the public sewerage network should only be considered after all other methods of disposal have been investigated and proven not to be viable.
- 6.3.2 In accordance with Building Regulations, positive connection to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal methods have been examined and proven to be impractical.
- 6.3.3 The hierarchy of disposal techniques are:
- Use of infiltration techniques, such as porous surfaces in non-clay areas,
 - Attenuation in ponds or opens storage structures for gradual release,
 - Attenuation in buried storage structures for gradual release,
 - Discharge to a water course,
 - Discharge to a surface water sewer,
 - Discharge to a combined water sewer,
- 6.3.4 The management of surface water should be assessed in accordance with the guidance set out in Ciria Report C753. The natural catchment processes should be followed as closely as possible, therefore a “management train” is required. This concept is fundamental to successful management of surface water and employs drainage techniques in series to incrementally reduce pollution, flow rates and volumes.
- 6.3.5 Wherever possible, surface water should be managed in small cost effective landscaped features located within small sub catchments rather than being conveyed to and managed in large systems at the bottom of the drained area.
- 6.3.6 The techniques that are higher in the hierarchy are preferred to those further down so that prevention and control of water at source should always be considered before larger site wide controls.

6.4 Surface Water Strategy

- 6.4.1 The British Geological Survey (BGS) map shows that the site is underlain by the Weald Clay Formation.
- 6.4.2 At the time of writing no intrusive ground investigation works had been carried out.
- 6.4.3 Rainwater harvesting (RWH) has been considered, however RWH systems are rarely able to manage the total surface water runoff from a development. To function correctly as a disposal method requires the volume of runoff from the building and hardstanding areas to balance perfectly with the demand from the proposed development. Therefore, to provide a conservative approach to the surface water management system it has been assumed that any RWH will be surcharged and at maximum capacity and additional methods of discharge will be required. In addition due to the limited space the use of RWH systems is not viable.
- 6.4.4 Infiltration is not feasible as the site is underlain by Weald Clay, which offers limited soakage potential. Therefore, infiltration has been discounted as a viable discharge option.
- 6.4.5 The proposed development is for a building which will cover most of the site. In accordance with part H of the building regulations, soakaways must be situated a minimum of 5m away from foundations. Due to the spatial constraints, this will mean infiltration is not a viable means of surface water disposal. Surface water will be disposed of through the public surface water sewer to rear of the Development.
- 6.4.6 There are no watercourses or open water features within close proximity of the Development.
- 6.4.7 Attenuation will be provided in a sealed geocellular storage tank beneath the hardsurfaced area to the rear (North) of the Site.
- 6.4.8 Runoff from the proposed roof areas and hard paved areas will be collected via a traditional positive drainage system and discharged to the public surface water sewer to the rear of the Development Site.
- 6.4.9 Surface Water discharge to the public surface water sewer to the rear of the Development Site will be controlled by a flow control device, which will restrict flows to less than the pre-development flow rate of the 1:2-year storm event for all rainfall events up to and including the 1in100 year plus 45% allowance for climate change.
- 6.4.10 The discharge rate will be restricted to 1.0l/s and provides the following betterment on all storms up to and including the 1in100 year plus 45% allowance for climate change.

Storm Event	Existing (l/s)	Proposed (l/s)	Betterment (%)
2	2.349	1.0	57.5
30	4.453	1.0	77.5
100	5.769	1.0	82.5
100+45% CC	-	1.0	>82.5

- 6.4.11 The new connection will be subject to a S106 agreement with Southern Water.

- 6.4.12 A preplanning enquiry with Southern Water will be required to confirm adequate capacity in the public sewers.
- 6.4.13 Full drainage proposals can be found in Appendix 3.0.
- 6.4.14 It should be noted that the surface water drainage systems shall be developed during the detailed design of this project and is subject to change. However, the sustainable principles of this strategy shall be followed.

7 DRAINAGE CONSTRUCTION ENVIRONMENTAL MANAGEMENT STRATEGY

7.1 General

7.1.1 The Principal Contractor and any sub-contractors will be required to conduct their activities in accordance with the relevant EA PPG guidance, in order to prevent pollution by potential contaminants. An inventory of potential pollution sources associated with the construction process and details regarding the management of these sources will be documented by the Principal Contractor and updated as construction progresses if new potential pollution sources are identified. Contaminants associated with construction may be:

- Chemical: such as fuels, oils, lubricants, surfactants and other cleaning chemicals, and flocculants; or
- Physical: such as dust and other airborne particulates, silts and sediments.

7.2 Materials Storage

7.2.1 Potential sources and pathways of pollution from residential construction works may include:

- Direct disturbance of the banks and bed of channels during watercourse crossing construction, repair and/or upgrade works;
- Dust, peat disturbance and spoil management on site;
- Pumping of standing water required for de-watering of excavations such as manholes, pipe runs etc, or as required for drainage management purposes;
- Run-off entering watercourses from:
 - Exposed ground, excavations and material stockpiles (aggregate and excavated/overburden peat and soil), tracks and haul routes;
 - Tracks and culverts at watercourse crossings;
- Cement and cement wash where cement grout or concrete is being applied;
- Plant washing and vehicle wheel-wash areas;
- Fuel and chemical storage/refuelling areas;
- Leaking/vandalised plant and equipment; and
- Sewage and wastewater from the temporary construction compound.

7.3 Fuel & Other Chemicals

7.3.1 There is potential for spillages of hydrocarbons and other chemicals that could potentially migrate to surface water or groundwater and adversely affect water quality. Spillages could be associated with delivery vehicles and mechanised construction plant or from any areas where fuels or other materials are temporarily stored on the Site. To reduce the likelihood of contaminants impacting migrating to surface or groundwater, hydrocarbons and other chemicals such as fuels will be located away from sensitive environment receptors such as surface watercourses and will be stored appropriately:

- The storage of potentially polluting materials will be kept to a minimum and, where less hazardous or inert materials are reasonably available, these will be specified;
- Any obvious potential pollutant sources such as mobile plant, materials storage, and temporary waste storage facilities will be located away from

watercourses and where practicable, operation of construction plant will observe a buffer distance from watercourses (tbc);

- All fuels, oils and potential contaminants, as well as waste oils, will be stored within the construction compounds in secure, fit for purpose containers within bunded containment as appropriate and in accordance with the latest Government guidance. The bunded containment shall have a capacity of 110% of the volume to be stored and will have impervious, secured walls and base. There shall be no fuel storage outside the construction compound;
- All materials stored within the Site will be checked regularly for containment integrity, quantity stored and security of storage;
- Generally, re-fuelling and maintenance of mobile plant and machinery will be carried out at a designated location within the construction compound only, at a dedicated impermeable refuelling pad. The pad will be bunded and equipped with a collection sump. Refuelling will be carried out using an approved mobile fuel bowser with a suitable pump and hose.
- Drip trays will be mandatory beneath all stationary construction vehicles and spill kits, absorbent mats and absorbent sands will be available on Site and will be deployed to contain drips and small spillages and all relevant staff will be trained in their appropriate use. Any spills will be cleaned up as soon as possible with any contaminated sands bagged up and disposed of correctly;
- The wheel-washing facility will also comprise an impermeable bunded area enabling wash water to be collected and stored to prevent runoff of polluted water to down gradient watercourses. This will also ensure that mud and debris from the Site is not transferred to roads outside the site boundary and potentially polluting substances such as fuels, oils and other chemicals are captured. The water will either be treated and tested prior to discharge. The method of disposal of all wastewater will be agreed with the EA and or the local authority prior to construction commencing; and
- All vehicles on site will be fitted with oil spill kits. In addition, all vehicles delivering hydrocarbons to site will be fitted with oil spill kits and will ensure that sand trays are placed below any oil or fuel filling activities. Spare oil spill kits will be held in the site office at all times.

7.4 Physical Risks

7.4.1 To limit potential pollution impacts from either hardcore and/or excavated material entering watercourses, or increased sediment levels within surface water runoff, the principle contractor will be required to adhere to the following measures and controls as a minimum:

- Any excavated soil or peat that will be used in the construction of access tracks (e.g. to dress the sides of the tracks once backfilled) are to be temporarily placed on the furthest side away from any identified watercourse or drain;
- The provision of buffer strips around watercourses or drainage channels on sections of track adjacent to watercourse crossings;
- Procedures during excavations and soil handling for both routine working and during any environmental emergencies to control and mitigate both erosion and dust generation; and
- All areas of stockpiled arisings should be inspected by the Principal Contractor at maximum one week intervals and following heavy rainfall or thaw conditions.

7.5 Foul Water

Foul water from the on-site facilities at the construction works compound will be removed from site by an appropriately licensed contractor or discharged to the foul public sewer if there is an existing connection.

8 CONCLUSIONS

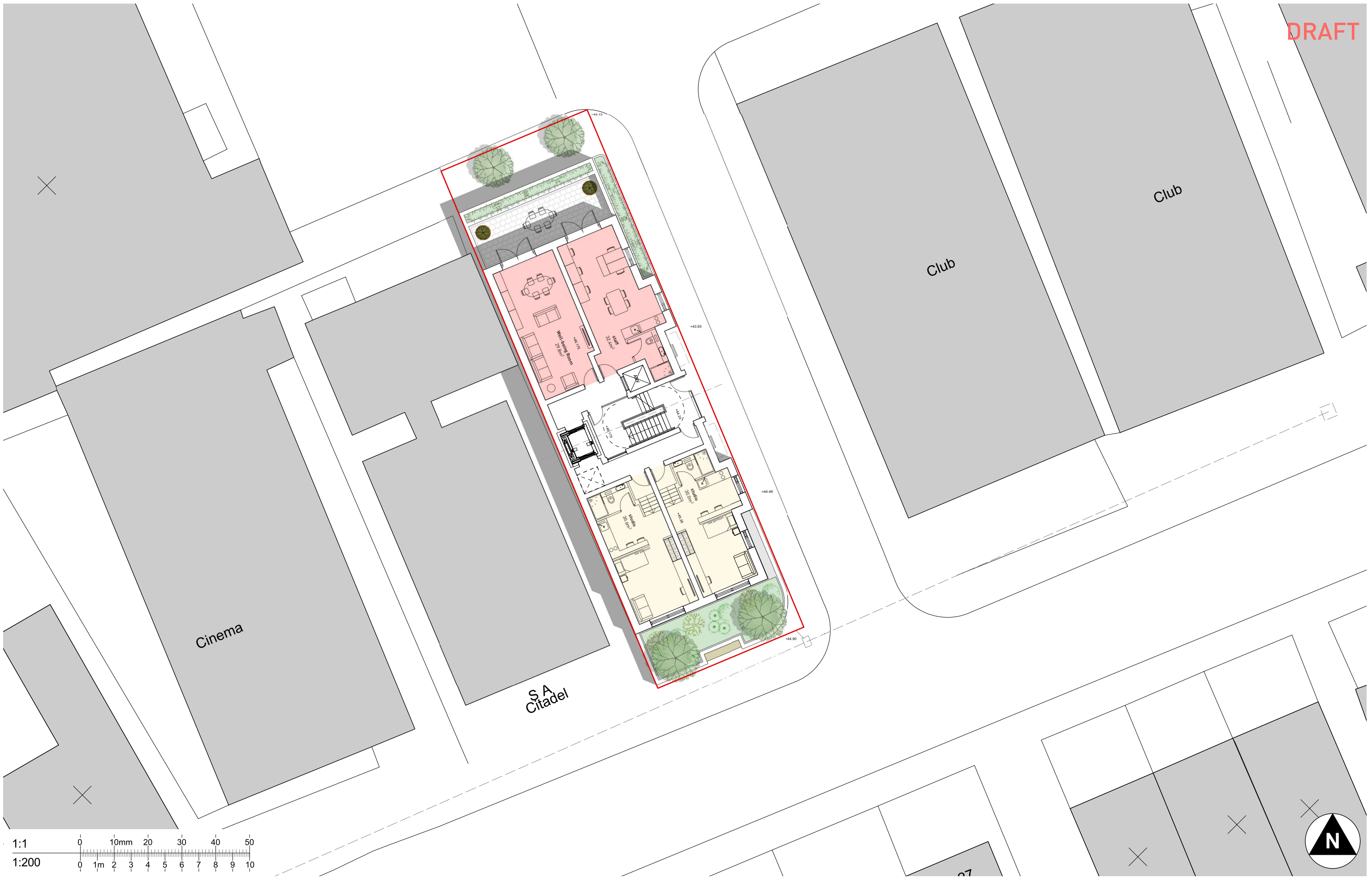
8.1.1 This report has concluded the following:

- The proposed development involves the demolition of the existing building, to build a new four-five storey building. The new development will comprise of 14 studio units; staff room; wellbeing room and a commercial space unit on the lower ground floor.
- A review of the Environment Agency online mapping tool has identified that the development site is situated in Flood Zone 1.
- The risk of flooding from all sources has been assessed and is considered to be low. It is believed the main risk of flooding to the site, would be flooding from offsite sewers following an hydraulic failure.
- An assessment of peak foul water flow has been carried out in accordance with BS EN 12056-2:2000. It is believed the proposed development will generate a peak foul flow rate of 5.53l/s.
- It is proposed to discharge the majority of the proposed foul water flows from the Development to the public foul sewer located in Cyprus Road, connection will be made by either the existing point of connection (subject to CCTV investigation) or a new drainage connection to the sewer.
- Foul water flows from the lower ground floor will be discharged to the existing public foul water sewer to the rear of the Development Site. Connection will be made via a backdrop connection (max height 1.4m) to manhole 4102.
- Surface Water discharge to the public surface water sewer to the rear of the Development Site will be controlled by a flow control device to pre-development flow rate of 1.0/s for all rainfall events up to and including the 1in100 year plus 45% allowance for climate change.
- Whilst discharging at the restricted rate described above, the balance will be attenuated within a sealed geocellular storage tank beneath the ground at the North end of the Site
- Surface Water discharge to the public surface water sewer to the rear of the Development Site will be controlled by a flow control device to discharge rate of 1.0/s. Attenuation will be provided by a sealed geocellular storage tank. Connection to the sewer will be subject to a S106 agreement with Southern Water.

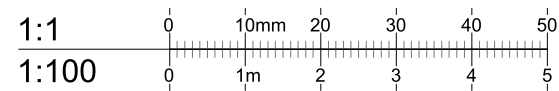
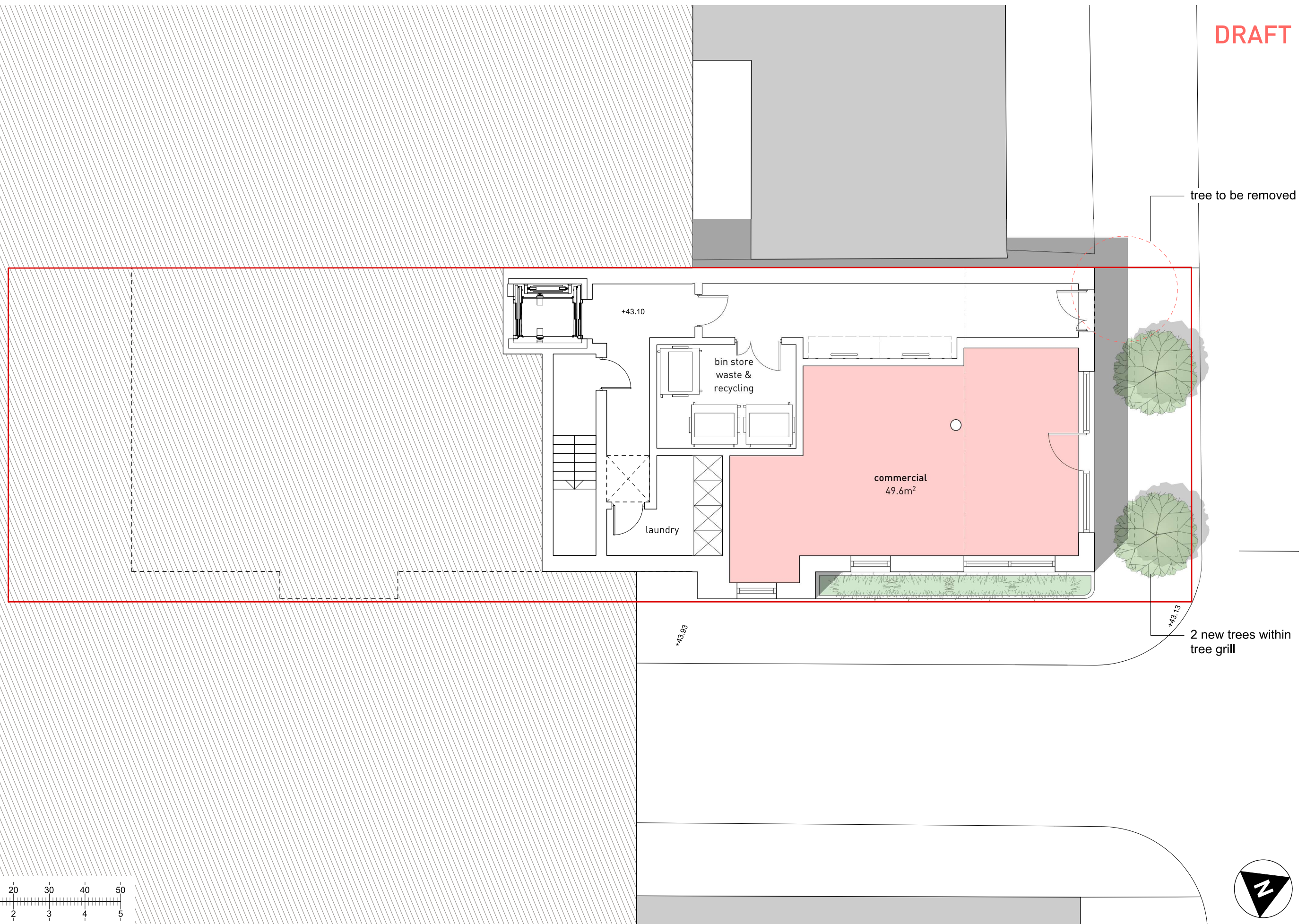
Appendix 1.0

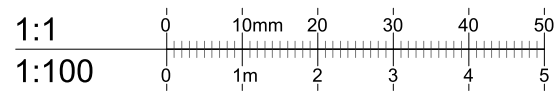
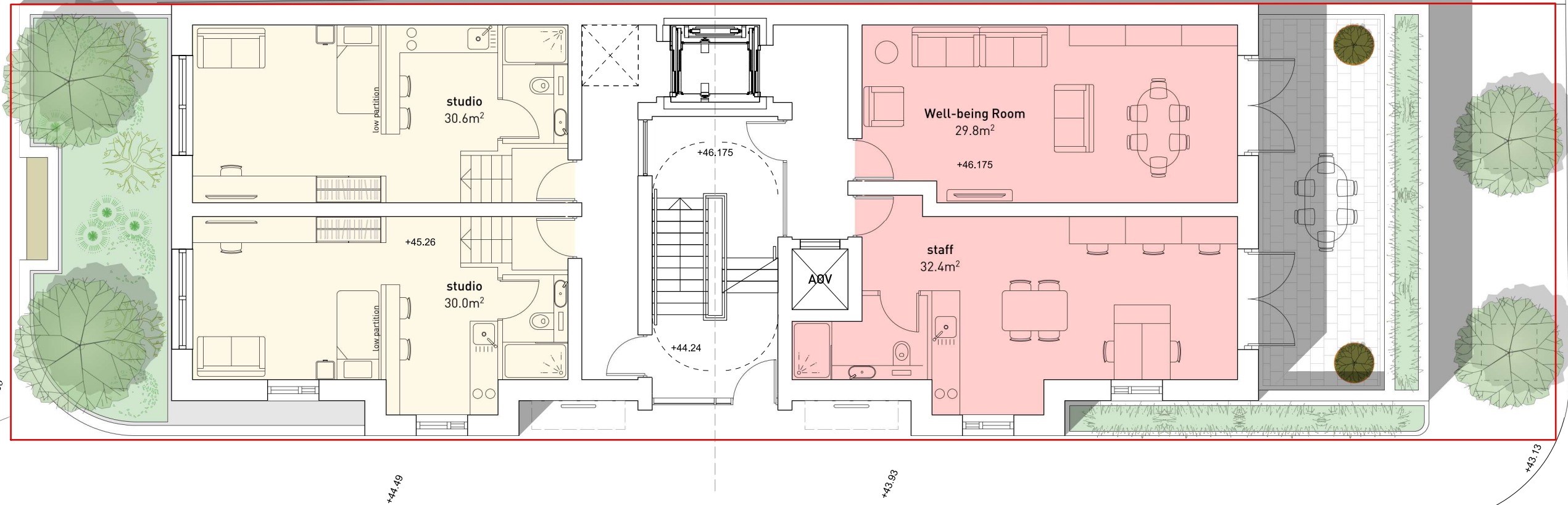
Development Proposals

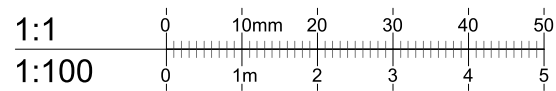
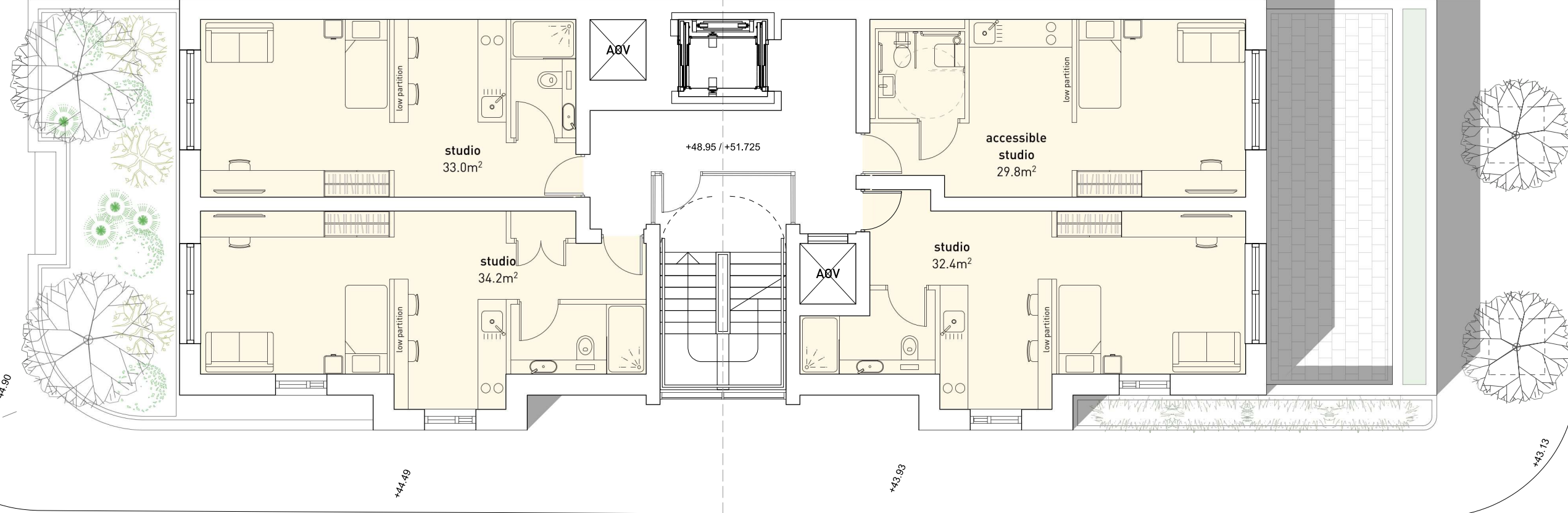
DRAFT

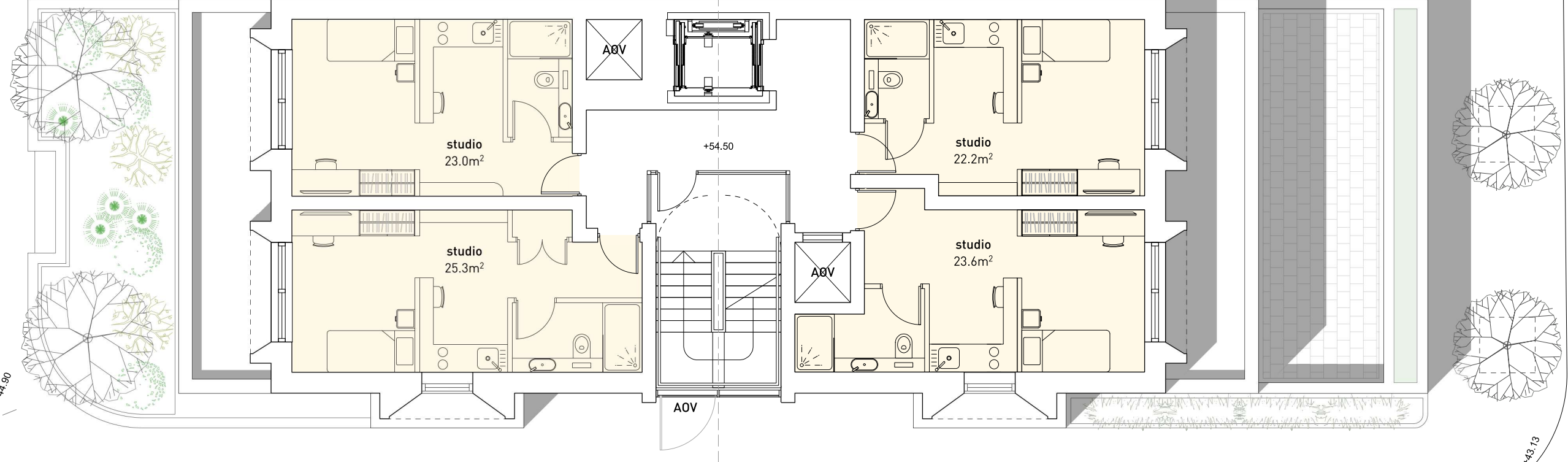


DRAFT



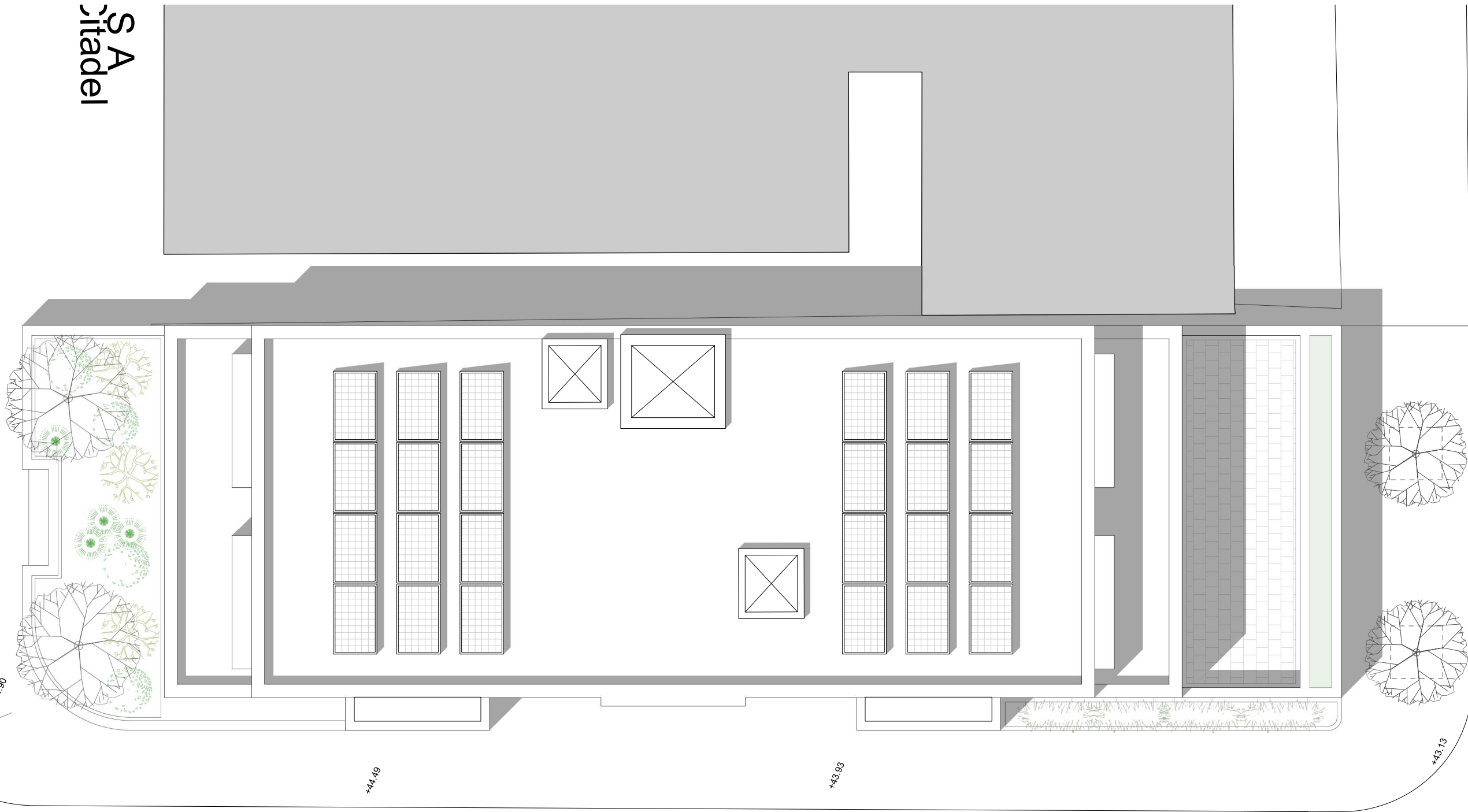






1:1
1:100
0 10mm 20 30 40 50
0 1m 2 3 4 5





1:1
1:100
0 10mm 20 30 40 50
0 1m 2 3 4 5



Appendix 2.0

Foul & Surface Water Calculations

Project:

34, Cyprus Road, RH15 8DX

Job no:

E9542

Sheet no:

1 of 1

Discharge Unit Calculation

Date:

24.02.2025

Calculation by:

JWM

File:

Commerical

Checked by:

DG

BS EN 12056-2:2000 Gravity drainage systems inside buildings*Part 2: Sanitary pipework, layout and calculation*

See also BS EN 752-4 1998 National annex NC.2.2 Determination of flow.

Typical Frequency factors (k)**Discharge units (DU) to BS EN 12056-2:2000 pg 16 Table 2 System Type I****Type of building****K**

Dwelling, guesthouse, office (intermittent use)

0.50

Hospital, school, restaurant, hotel (frequent use)

0.70

Toilets/showers open to the public (congested use)

1.00

Laboratory buildings (special use)

1.20Type of building select from table above (k_{DU})**0.70****Discharge units (DU) to BS EN 12056-2:2000 pg 16 Table 2 System Type I****Type of appliance****Quantity****DU l/s****Net DU**

Washbasin, bidet

1**0.5**

0.5

Shower without plug

0**0.6**

0.0

Urinal (single)

0**0.8**

0.0

Slab urinal (per person)

0**0.2**

0.0

Bath

0**0.8**

0.0

Kitchen sink

1**0.8**

0.8

Dishwasher (household)

0**0.8**

0.0

Washing machine (to 6kg)

0**0.8**

0.0

Washing machine (to 12kg)

0**1.5**

0.0

WC (6l cistern)

2**2.0**

4.0

WC (7.5l cistern)

0**2.0**

0.0

WC (9l cistern)

0**2.5**

0.0

4**5.30****Note:** Discharges from non-domestic appliances (e.g commercial kitchens)

should be determined individually

Input other appliances**Quantity****DU l/s (input individual figure)**

0.00

0.00

0.00

$$Q = K \sqrt{\sum DU}$$

Wastewater design flow rate

Q = 1.61 l/s

Project:

34, Cyprus Road, RH15 8DX

Job no:

E9542

Sheet no:

1 of 1

Discharge Unit Calculation

Date:

24.02.2025

Calculation by:

JWM

File:

Residential

Checked by:

DG

BS EN 12056-2:2000 Gravity drainage systems inside buildings*Part 2: Sanitary pipework, layout and calculation*

See also BS EN 752-4 1998 National annex NC.2.2 Determination of flow.

Typical Frequency factors (k)**Discharge units (DU) to BS EN 12056-2:2000 pg 16 Table 2 System Type I****Type of building****K**

Dwelling, guesthouse, office (intermittent use)

0.50

Hospital, school, restaurant, hotel (frequent use)

0.70

Toilets/showers open to the public (congested use)

1.00

Laboratory buildings (special use)

1.20Type of building select from table above (k_{DU})**0.50****Discharge units (DU) to BS EN 12056-2:2000 pg 16 Table 2 System Type I****Type of appliance****Quantity****DU l/s****Net DU**

Washbasin, bidet

15**0.5**

7.5

Shower without plug

15**0.6**

9.0

Urinal (single)

0**0.8**

0.0

Slab urinal (per person)

0**0.2**

0.0

Bath

0**0.8**

0.0

Kitchen sink

15**0.8**

12.0

Dishwasher (household)

0**0.8**

0.0

Washing machine (to 6kg)

0**0.8**

0.0

Washing machine (to 12kg)

2**1.5**

3.0

WC (6l cistern)

15**2.0**

30.0

WC (7.5l cistern)

0**2.0**

0.0

WC (9l cistern)

0**2.5**

0.0

62**61.50****Note:** Discharges from non-domestic appliances (e.g commercial kitchens)

should be determined individually

Input other appliances**Quantity****DU l/s (input individual figure)**

0.00

0.00

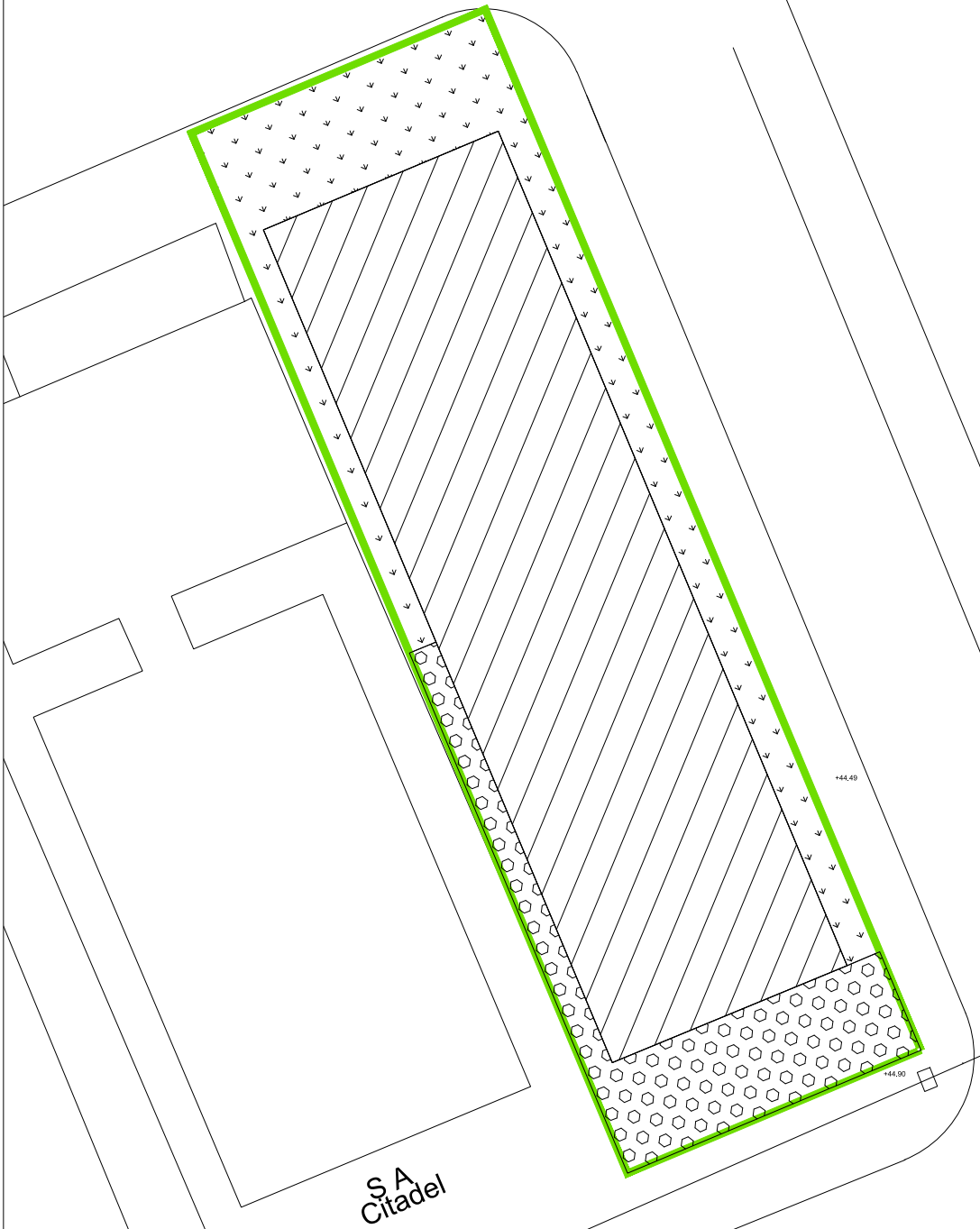
0.00

$$Q = K \sqrt{\sum DU}$$

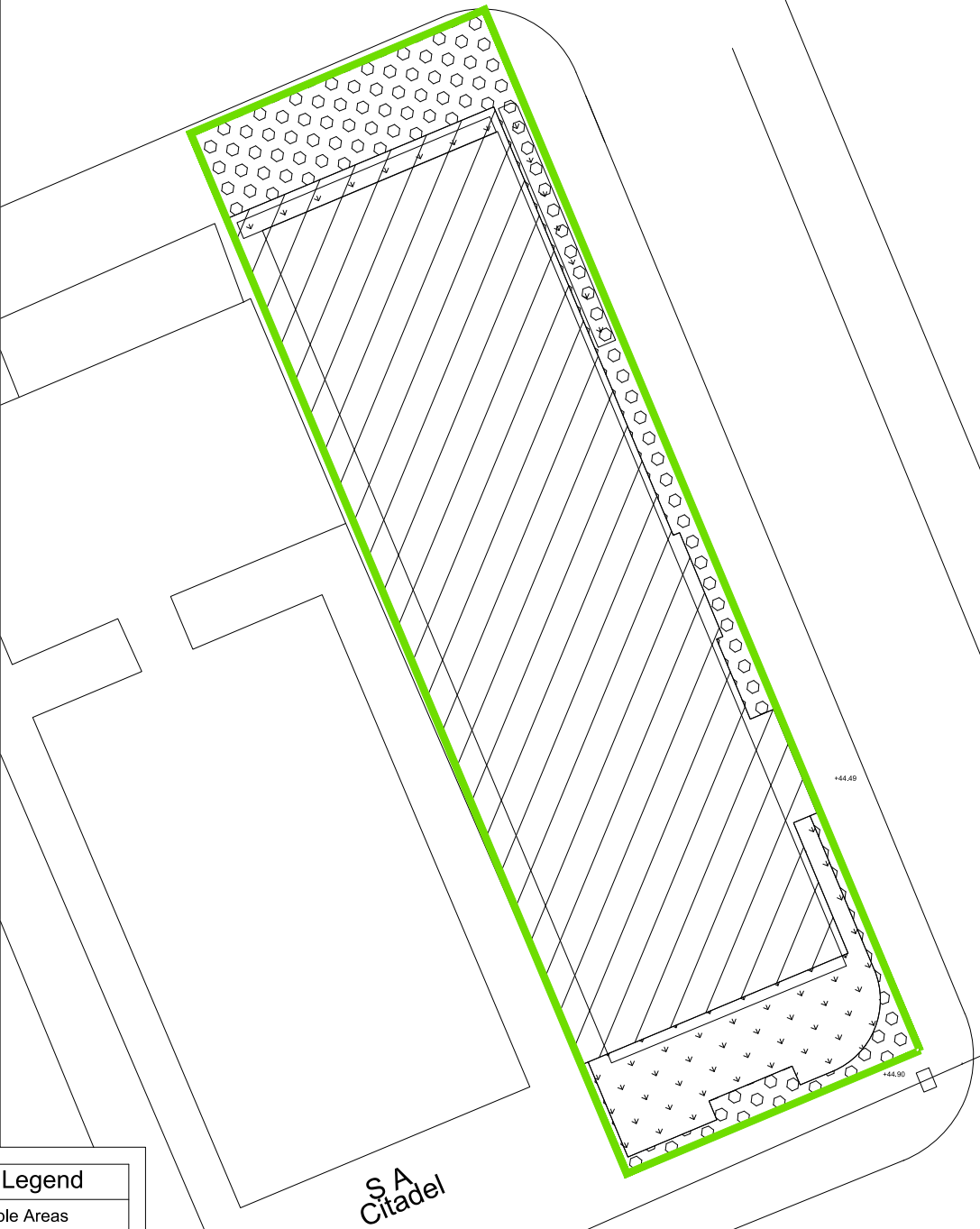
Wastewater design flow rate

Q = 3.92 l/s

Existing Impermeable Area
Scale 1-100



Proposed Impermeable Area
Scale 1-100



Drawing Legend	
Impermeable Areas	
	Roofed Areas
	Hard Paved Areas
Permeable Areas	
	Soft Landscaped Areas

Predevelopment Impermeable Areas	
Total Site Area -	310m ²
Existing Roof Area -	197m ²
Existing Hard Paved -	31m ²
Total Impermeable Area -	228m ²

Post-development Impermeable Areas	
Total Site Area -	310m ²
Existing Roof Area -	232m ²
Existing Hard Paved -	44m ²
Total Impermeable Area -	276m ²



NOTES:

1. This drawing is to be read in conjunction with all other SWP drawings, and with all relevant architect's and engineer's drawings and specification and any discrepancies found are to be reported immediately to the engineer.
2. No dimensions are to be scaled from this drawing, unless noted otherwise all dimensions are in millimeters and all levels are in metres from the site datum.
3. All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
4. The electronic information from this drawing can not be guaranteed as dimensionally drawn exact, figured dimensions must be used for setting out and detailing. swp logos and company information must be removed from copies if information is re-used.
5. The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.
6. The main contractor is responsible for all occurrences of ground water during the construction period.
7. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care and attention whilst undertaking the works.
8. The contractor must comply with all current legislation relating to health & safety.
9. All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any swp drawings, the manufacturers instructions must be used.

COLOURED
DRAWING
REQUEST A COLOURED COPY IF
THIS STAMP IS NOT RED

PO1	24.02.2025	PRELIMINARY ISSUE
REV.	DATE	DESCRIPTION
PRELIMINARY		
 STEPHEN WILSON PARTNERSHIP LTD Chalvington Barn, Dittons Business Park, Dittons Road, POLEGATE, BN26 6HY Telephone: 01323 412020 E-mail: info@swpeast.co.uk • Website: www.swpeast.co.uk		
CLIENT RUSS DRAGE ARCHITECTS LTD		
ARCHITECT RUSS DRAGE ARCHITECTS LTD		
JOB TITLE 34 CYPRUS ROAD, BURGUSS HILL, RH15 8DX		
DRAWING TITLE IMPERMEABLE AREAS PRE' & POST DEVELOPMENT		
SCALE AT A1 1:100	DATE FEB '25 ENG. JWM	DRAWN JWM CHECKED DMG
RIBA STATUS STAGE 4 - TECHNICAL DESIGN		
DRAWING STATUS S3	DRAWING SUITABILITY PROJECT	REVIEW AND COMMENT
JOB No. E9542	DRAWING No. 9542-SWP-ZZ-XX-DP-C-1100	REV. P01



**STEPHEN WILSON
PARTNERSHIP LTD**

Chawington Barn, Dinton Business Park, Dinton Road,
POLEGAT, BN26 6HY Telephone: 01323 412020
E-mail: info@swp.co.uk Website: www.swp.co.uk

Title	34 Cyprus Road, Burgess Hill RH15, 8DX	Job No:	E9542
Decription :	Estimate of Existing and Proposed Peak	By:	JWM
	Run-Off Rate using the Modified Rational Method	Date:	Feb-25
		Sheet No:	1

Existing Site

Pre-Developed Site: Estimate Surface Water Run-Off Using the Modified Rational Method

Site Area = 310 M²

Existing Impermeable Area = 228 M²

Average Rate of Rainfall

2 Year 15 Minute Event (M2-15D) = 38.047 mm/hr (i)

30 Year 15 Minute Event (M30-15D) = 72.116 mm/hr (i)

100 Year 15 Minute Event (M100-15D) = 93.420 mm/hr (i)

Average Rainfall Values from FSR Data taken from the MicroDrainage Software

Peak Rate of Run-Off (Q_p)

$Q_p = C \cdot A_p \cdot i$ Where $C = C_v \cdot C_R$

$C_v = 0.75$ (Volumetric Co-efficient)

$C_R = 1.3$ (Routing Co-efficient)

$Q_{p2} = 2.349$ l/s

$Q_{p30} = 4.453$ l/s

$Q_{p100} = 5.769$ l/s



**STEPHEN WILSON
PARTNERSHIP LTD**

Chawington Barn, Dinton Business Park, Dinton Road,
POLEGATE, BN26 6HY Telephone: 01323 412020
E-mail: info@swp.co.uk • Website: www.swp.co.uk

Title	34 Cyprus Road, Burgess Hill RH15, 8DX	Job No:	E9542
Decription :	Estimate of Existing and Proposed Peak	By:	JWM
Run-Off Rate using the Modified Rational Method		Date:	Feb-25
		Sheet No:	2

Proposed Development

Total Impermeable Area = 276 m²

Adjust Average Rainfall for Climate Change in Accordance with the Requirements of the NPPF Technical Guidance, +45% with FSR Data

M2-15D +45% = 55.168 mm/hr (i)

M30-15D +45% = 104.568 mm/hr (i)

M100 - 15D +45% = 135.459 mm/hr (i)

Proposed Peak Rate of Run-Off (Q_p)

Q_{p2} = 4.124 l/s

Q_{p30} = 7.816 l/s

Q_{p100} = 10.126 l/s

Title	34 Cyprus Road, Burgess Hill, RH15 8DX	Job No:	E9542
Description :	Surface Water Calculations	By:	JWM
		Date:	Feb-25
		Sheet No:	1

Design Data

M5-60(mm) = 20.000

Ratio R = 0.342

CV Value 1.0

Design Criteria

Design Storm = 100Yr + 45% Climate Change Allowance

Discharge Rate = 1.0l/s

Surface water from the Site currently discharges unrestricted to the public sewers the proposed discharge rate provides the following betterment:

<i>Storm Event</i>	<i>Existing (l/s)</i>	<i>Proposed (l/s)</i>	<i>Betterment (%)</i>
2	2.349	1.0	57.5
30	4.453	1.0	77.5
100	5.769	1.0	82.5
100+45 %CC	-	1.0	>82.5

Discharge Point = Public Manhole Reference: 4512

Connection to public sewer subject to S106 agreement with Southern Water

Total Drained Area = 288m² or 0.029Ha

Results

Attenuation to be provided by geocellular storage tank 6.0m(L) x 2.5m(W) x 1.2m (Deep) and provides 17.10m³ of storage based on a 95% void ratio

Please refer to attached sheets

Stephen Wilson Partnership Ltd							Page 1																																																																																																																																																																																																																																																																																		
99 South Street Eastbourne BN20 4LU			E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:100 +45%CC																																																																																																																																																																																																																																																																																						
Date 25/02/2025 17:58 File E9542 Storage Calcs 2.SRCX			Designed by SWP Ltd Checked by SWP Ltd																																																																																																																																																																																																																																																																																						
Micro Drainage			Source Control 2020.1.3																																																																																																																																																																																																																																																																																						
Summary of Results for 100 year Return Period (+45%) Half Drain Time : 154 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Control (l/s)</th><th>Max Σ Outflow (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>41.573</td><td>0.673</td><td>0.0</td><td>0.8</td><td>0.8</td><td>8.9</td><td>O K</td></tr><tr><td>30 min Summer</td><td>41.779</td><td>0.879</td><td>0.0</td><td>0.9</td><td>0.9</td><td>11.7</td><td>O K</td></tr><tr><td>60 min Summer</td><td>41.956</td><td>1.056</td><td>0.0</td><td>1.0</td><td>1.0</td><td>14.0</td><td>O K</td></tr><tr><td>120 min Summer</td><td>42.046</td><td>1.146</td><td>0.0</td><td>1.0</td><td>1.0</td><td>15.2</td><td>O K</td></tr><tr><td>180 min Summer</td><td>42.041</td><td>1.141</td><td>0.0</td><td>1.0</td><td>1.0</td><td>15.2</td><td>O K</td></tr><tr><td>240 min Summer</td><td>42.017</td><td>1.117</td><td>0.0</td><td>1.0</td><td>1.0</td><td>14.9</td><td>O K</td></tr><tr><td>360 min Summer</td><td>41.969</td><td>1.069</td><td>0.0</td><td>1.0</td><td>1.0</td><td>14.2</td><td>O K</td></tr><tr><td>480 min Summer</td><td>41.918</td><td>1.018</td><td>0.0</td><td>0.9</td><td>0.9</td><td>13.5</td><td>O K</td></tr><tr><td>600 min Summer</td><td>41.869</td><td>0.969</td><td>0.0</td><td>0.9</td><td>0.9</td><td>12.9</td><td>O K</td></tr><tr><td>720 min Summer</td><td>41.819</td><td>0.919</td><td>0.0</td><td>0.9</td><td>0.9</td><td>12.2</td><td>O K</td></tr><tr><td>960 min Summer</td><td>41.725</td><td>0.825</td><td>0.0</td><td>0.9</td><td>0.9</td><td>11.0</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>41.557</td><td>0.657</td><td>0.0</td><td>0.8</td><td>0.8</td><td>8.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>41.346</td><td>0.446</td><td>0.0</td><td>0.7</td><td>0.7</td><td>5.9</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>41.119</td><td>0.219</td><td>0.0</td><td>0.7</td><td>0.7</td><td>2.9</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>40.960</td><td>0.060</td><td>0.0</td><td>0.7</td><td>0.7</td><td>0.8</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>40.924</td><td>0.024</td><td>0.0</td><td>0.6</td><td>0.6</td><td>0.3</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>40.912</td><td>0.012</td><td>0.0</td><td>0.5</td><td>0.5</td><td>0.2</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>40.905</td><td>0.005</td><td>0.0</td><td>0.4</td><td>0.4</td><td>0.1</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>40.900</td><td>0.000</td><td>0.0</td><td>0.4</td><td>0.4</td><td>0.0</td><td>O K</td></tr><tr><td>15 min Winter</td><td>41.574</td><td>0.674</td><td>0.0</td><td>0.8</td><td>0.8</td><td>9.0</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>135.459</td><td>0.0</td><td>9.8</td><td>21</td></tr><tr><td>30 min Summer</td><td>91.350</td><td>0.0</td><td>13.2</td><td>35</td></tr><tr><td>60 min Summer</td><td>58.739</td><td>0.0</td><td>17.0</td><td>64</td></tr><tr><td>120 min Summer</td><td>36.390</td><td>0.0</td><td>21.1</td><td>120</td></tr><tr><td>180 min Summer</td><td>27.048</td><td>0.0</td><td>23.5</td><td>148</td></tr><tr><td>240 min Summer</td><td>21.775</td><td>0.0</td><td>25.3</td><td>180</td></tr><tr><td>360 min Summer</td><td>16.058</td><td>0.0</td><td>27.9</td><td>250</td></tr><tr><td>480 min Summer</td><td>12.914</td><td>0.0</td><td>29.9</td><td>318</td></tr><tr><td>600 min Summer</td><td>10.897</td><td>0.0</td><td>31.6</td><td>388</td></tr><tr><td>720 min Summer</td><td>9.479</td><td>0.0</td><td>33.0</td><td>456</td></tr><tr><td>960 min Summer</td><td>7.600</td><td>0.0</td><td>35.3</td><td>590</td></tr><tr><td>1440 min Summer</td><td>5.556</td><td>0.0</td><td>38.7</td><td>856</td></tr><tr><td>2160 min Summer</td><td>4.052</td><td>0.0</td><td>42.3</td><td>1252</td></tr><tr><td>2880 min Summer</td><td>3.235</td><td>0.0</td><td>45.0</td><td>1560</td></tr><tr><td>4320 min Summer</td><td>2.350</td><td>0.0</td><td>49.1</td><td>2208</td></tr><tr><td>5760 min Summer</td><td>1.871</td><td>0.0</td><td>52.1</td><td>2928</td></tr><tr><td>7200 min Summer</td><td>1.570</td><td>0.0</td><td>54.6</td><td>3672</td></tr><tr><td>8640 min Summer</td><td>1.361</td><td>0.0</td><td>56.8</td><td>4360</td></tr><tr><td>10080 min Summer</td><td>1.206</td><td>0.0</td><td>58.7</td><td>0</td></tr><tr><td>15 min Winter</td><td>135.459</td><td>0.0</td><td>9.8</td><td>21</td></tr></table>									Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status	15 min Summer	41.573	0.673	0.0	0.8	0.8	8.9	O K	30 min Summer	41.779	0.879	0.0	0.9	0.9	11.7	O K	60 min Summer	41.956	1.056	0.0	1.0	1.0	14.0	O K	120 min Summer	42.046	1.146	0.0	1.0	1.0	15.2	O K	180 min Summer	42.041	1.141	0.0	1.0	1.0	15.2	O K	240 min Summer	42.017	1.117	0.0	1.0	1.0	14.9	O K	360 min Summer	41.969	1.069	0.0	1.0	1.0	14.2	O K	480 min Summer	41.918	1.018	0.0	0.9	0.9	13.5	O K	600 min Summer	41.869	0.969	0.0	0.9	0.9	12.9	O K	720 min Summer	41.819	0.919	0.0	0.9	0.9	12.2	O K	960 min Summer	41.725	0.825	0.0	0.9	0.9	11.0	O K	1440 min Summer	41.557	0.657	0.0	0.8	0.8	8.7	O K	2160 min Summer	41.346	0.446	0.0	0.7	0.7	5.9	O K	2880 min Summer	41.119	0.219	0.0	0.7	0.7	2.9	O K	4320 min Summer	40.960	0.060	0.0	0.7	0.7	0.8	O K	5760 min Summer	40.924	0.024	0.0	0.6	0.6	0.3	O K	7200 min Summer	40.912	0.012	0.0	0.5	0.5	0.2	O K	8640 min Summer	40.905	0.005	0.0	0.4	0.4	0.1	O K	10080 min Summer	40.900	0.000	0.0	0.4	0.4	0.0	O K	15 min Winter	41.574	0.674	0.0	0.8	0.8	9.0	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	135.459	0.0	9.8	21	30 min Summer	91.350	0.0	13.2	35	60 min Summer	58.739	0.0	17.0	64	120 min Summer	36.390	0.0	21.1	120	180 min Summer	27.048	0.0	23.5	148	240 min Summer	21.775	0.0	25.3	180	360 min Summer	16.058	0.0	27.9	250	480 min Summer	12.914	0.0	29.9	318	600 min Summer	10.897	0.0	31.6	388	720 min Summer	9.479	0.0	33.0	456	960 min Summer	7.600	0.0	35.3	590	1440 min Summer	5.556	0.0	38.7	856	2160 min Summer	4.052	0.0	42.3	1252	2880 min Summer	3.235	0.0	45.0	1560	4320 min Summer	2.350	0.0	49.1	2208	5760 min Summer	1.871	0.0	52.1	2928	7200 min Summer	1.570	0.0	54.6	3672	8640 min Summer	1.361	0.0	56.8	4360	10080 min Summer	1.206	0.0	58.7	0	15 min Winter	135.459	0.0	9.8	21
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																																																																																		
15 min Summer	41.573	0.673	0.0	0.8	0.8	8.9	O K																																																																																																																																																																																																																																																																																		
30 min Summer	41.779	0.879	0.0	0.9	0.9	11.7	O K																																																																																																																																																																																																																																																																																		
60 min Summer	41.956	1.056	0.0	1.0	1.0	14.0	O K																																																																																																																																																																																																																																																																																		
120 min Summer	42.046	1.146	0.0	1.0	1.0	15.2	O K																																																																																																																																																																																																																																																																																		
180 min Summer	42.041	1.141	0.0	1.0	1.0	15.2	O K																																																																																																																																																																																																																																																																																		
240 min Summer	42.017	1.117	0.0	1.0	1.0	14.9	O K																																																																																																																																																																																																																																																																																		
360 min Summer	41.969	1.069	0.0	1.0	1.0	14.2	O K																																																																																																																																																																																																																																																																																		
480 min Summer	41.918	1.018	0.0	0.9	0.9	13.5	O K																																																																																																																																																																																																																																																																																		
600 min Summer	41.869	0.969	0.0	0.9	0.9	12.9	O K																																																																																																																																																																																																																																																																																		
720 min Summer	41.819	0.919	0.0	0.9	0.9	12.2	O K																																																																																																																																																																																																																																																																																		
960 min Summer	41.725	0.825	0.0	0.9	0.9	11.0	O K																																																																																																																																																																																																																																																																																		
1440 min Summer	41.557	0.657	0.0	0.8	0.8	8.7	O K																																																																																																																																																																																																																																																																																		
2160 min Summer	41.346	0.446	0.0	0.7	0.7	5.9	O K																																																																																																																																																																																																																																																																																		
2880 min Summer	41.119	0.219	0.0	0.7	0.7	2.9	O K																																																																																																																																																																																																																																																																																		
4320 min Summer	40.960	0.060	0.0	0.7	0.7	0.8	O K																																																																																																																																																																																																																																																																																		
5760 min Summer	40.924	0.024	0.0	0.6	0.6	0.3	O K																																																																																																																																																																																																																																																																																		
7200 min Summer	40.912	0.012	0.0	0.5	0.5	0.2	O K																																																																																																																																																																																																																																																																																		
8640 min Summer	40.905	0.005	0.0	0.4	0.4	0.1	O K																																																																																																																																																																																																																																																																																		
10080 min Summer	40.900	0.000	0.0	0.4	0.4	0.0	O K																																																																																																																																																																																																																																																																																		
15 min Winter	41.574	0.674	0.0	0.8	0.8	9.0	O K																																																																																																																																																																																																																																																																																		
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																																																																																					
15 min Summer	135.459	0.0	9.8	21																																																																																																																																																																																																																																																																																					
30 min Summer	91.350	0.0	13.2	35																																																																																																																																																																																																																																																																																					
60 min Summer	58.739	0.0	17.0	64																																																																																																																																																																																																																																																																																					
120 min Summer	36.390	0.0	21.1	120																																																																																																																																																																																																																																																																																					
180 min Summer	27.048	0.0	23.5	148																																																																																																																																																																																																																																																																																					
240 min Summer	21.775	0.0	25.3	180																																																																																																																																																																																																																																																																																					
360 min Summer	16.058	0.0	27.9	250																																																																																																																																																																																																																																																																																					
480 min Summer	12.914	0.0	29.9	318																																																																																																																																																																																																																																																																																					
600 min Summer	10.897	0.0	31.6	388																																																																																																																																																																																																																																																																																					
720 min Summer	9.479	0.0	33.0	456																																																																																																																																																																																																																																																																																					
960 min Summer	7.600	0.0	35.3	590																																																																																																																																																																																																																																																																																					
1440 min Summer	5.556	0.0	38.7	856																																																																																																																																																																																																																																																																																					
2160 min Summer	4.052	0.0	42.3	1252																																																																																																																																																																																																																																																																																					
2880 min Summer	3.235	0.0	45.0	1560																																																																																																																																																																																																																																																																																					
4320 min Summer	2.350	0.0	49.1	2208																																																																																																																																																																																																																																																																																					
5760 min Summer	1.871	0.0	52.1	2928																																																																																																																																																																																																																																																																																					
7200 min Summer	1.570	0.0	54.6	3672																																																																																																																																																																																																																																																																																					
8640 min Summer	1.361	0.0	56.8	4360																																																																																																																																																																																																																																																																																					
10080 min Summer	1.206	0.0	58.7	0																																																																																																																																																																																																																																																																																					
15 min Winter	135.459	0.0	9.8	21																																																																																																																																																																																																																																																																																					
©1982-2020 Innovyze																																																																																																																																																																																																																																																																																									

Stephen Wilson Partnership Ltd							Page 2
99 South Street Eastbourne BN20 4LU			E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:100 +45%CC				
Date 25/02/2025 17:58 File E9542 Storage Calcs 2.SRCX			Designed by SWP Ltd Checked by SWP Ltd				
Micro Drainage			Source Control 2020.1.3				
Summary of Results for 100 year Return Period (+45%)							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	41.782	0.882	0.0	0.9	0.9	11.7	O K
60 min Winter	41.963	1.063	0.0	1.0	1.0	14.1	O K
120 min Winter	42.063	1.163	0.0	1.0	1.0	15.5	O K
180 min Winter	42.051	1.151	0.0	1.0	1.0	15.3	O K
240 min Winter	42.022	1.122	0.0	1.0	1.0	14.9	O K
360 min Winter	41.954	1.054	0.0	1.0	1.0	14.0	O K
480 min Winter	41.879	0.979	0.0	0.9	0.9	13.0	O K
600 min Winter	41.805	0.905	0.0	0.9	0.9	12.0	O K
720 min Winter	41.734	0.834	0.0	0.9	0.9	11.1	O K
960 min Winter	41.600	0.700	0.0	0.8	0.8	9.3	O K
1440 min Winter	41.362	0.462	0.0	0.7	0.7	6.1	O K
2160 min Winter	41.020	0.120	0.0	0.7	0.7	1.6	O K
2880 min Winter	40.935	0.035	0.0	0.6	0.6	0.5	O K
4320 min Winter	40.910	0.010	0.0	0.5	0.5	0.1	O K
5760 min Winter	40.900	0.000	0.0	0.4	0.4	0.0	O K
7200 min Winter	40.900	0.000	0.0	0.3	0.3	0.0	O K
8640 min Winter	40.900	0.000	0.0	0.3	0.3	0.0	O K
10080 min Winter	40.900	0.000	0.0	0.2	0.2	0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	91.350	0.0	13.2	35			
60 min Winter	58.739	0.0	17.0	62			
120 min Winter	36.390	0.0	21.1	118			
180 min Winter	27.048	0.0	23.5	152			
240 min Winter	21.775	0.0	25.3	188			
360 min Winter	16.058	0.0	27.9	266			
480 min Winter	12.914	0.0	30.0	342			
600 min Winter	10.897	0.0	31.6	416			
720 min Winter	9.479	0.0	33.0	488			
960 min Winter	7.600	0.0	35.2	630			
1440 min Winter	5.556	0.0	38.7	912			
2160 min Winter	4.052	0.0	42.3	1192			
2880 min Winter	3.235	0.0	45.0	1500			
4320 min Winter	2.350	0.0	49.1	2172			
5760 min Winter	1.871	0.0	52.1	0			
7200 min Winter	1.570	0.0	54.6	0			
8640 min Winter	1.361	0.0	56.8	0			
10080 min Winter	1.206	0.0	58.7	0			
©1982-2020 Innovyze							

Stephen Wilson Partnership Ltd		Page 3
99 South Street Eastbourne BN20 4LU	E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:100 +45%CC	
Date 25/02/2025 17:58 File E9542 Storage Calcs 2.SRCX	Designed by SWP Ltd Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	1.000
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.342	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+45

Time Area Diagram

Total Area (ha) 0.029

Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)
0 4	0.015	4 8	0.014

Stephen Wilson Partnership Ltd		Page 4
99 South Street Eastbourne BN20 4LU	E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:100 +45%CC	
Date 25/02/2025 17:58	Designed by SWP Ltd	
File E9542 Storage Calcs 2.SRCX	Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Model Details

Storage is Online Cover Level (m) 43.100

Cellular Storage Structure

Invert Level (m) 40.900 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	14.0	14.0	1.201	0.0	35.6
1.200	14.0	35.6			

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0045-1000-1200-1000
Design Head (m) 1.200
Design Flow (l/s) 1.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 45
Invert Level (m) 40.860
Minimum Outlet Pipe Diameter (mm) 75
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	1.0
Flush-Flo™	0.196	0.7
Kick-Flo®	0.398	0.6
Mean Flow over Head Range	-	0.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.7	1.200	1.0	3.000	1.5	7.000	2.2
0.200	0.7	1.400	1.1	3.500	1.6	7.500	2.3
0.300	0.7	1.600	1.1	4.000	1.7	8.000	2.4
0.400	0.6	1.800	1.2	4.500	1.8	8.500	2.4
0.500	0.7	2.000	1.3	5.000	1.9	9.000	2.5
0.600	0.7	2.200	1.3	5.500	2.0	9.500	2.6
0.800	0.8	2.400	1.4	6.000	2.1		
1.000	0.9	2.600	1.4	6.500	2.2		

©1982-2020 Innovyze

Stephen Wilson Partnership Ltd							Page 1
99 South Street Eastbourne BN20 4LU			E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:100				
Date 25/02/2025 17:59 File E9542 Storage Calcs 2.SRCX			Designed by SWP Ltd Checked by SWP Ltd				
Micro Drainage			Source Control 2020.1.3				
<u>Summary of Results for 100 year Return Period</u>							
Half Drain Time : 116 minutes.							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	41.349	0.449	0.0	0.7	0.7	6.0	O K
30 min Summer	41.482	0.582	0.0	0.7	0.7	7.7	O K
60 min Summer	41.586	0.686	0.0	0.8	0.8	9.1	O K
120 min Summer	41.619	0.719	0.0	0.8	0.8	9.6	O K
180 min Summer	41.605	0.705	0.0	0.8	0.8	9.4	O K
240 min Summer	41.581	0.681	0.0	0.8	0.8	9.1	O K
360 min Summer	41.537	0.637	0.0	0.8	0.8	8.5	O K
480 min Summer	41.492	0.592	0.0	0.8	0.8	7.9	O K
600 min Summer	41.447	0.547	0.0	0.7	0.7	7.3	O K
720 min Summer	41.403	0.503	0.0	0.7	0.7	6.7	O K
960 min Summer	41.317	0.417	0.0	0.7	0.7	5.5	O K
1440 min Summer	41.132	0.232	0.0	0.7	0.7	3.1	O K
2160 min Summer	40.995	0.095	0.0	0.7	0.7	1.3	O K
2880 min Summer	40.942	0.042	0.0	0.7	0.7	0.6	O K
4320 min Summer	40.913	0.013	0.0	0.5	0.5	0.2	O K
5760 min Summer	40.902	0.002	0.0	0.4	0.4	0.0	O K
7200 min Summer	40.900	0.000	0.0	0.3	0.3	0.0	O K
8640 min Summer	40.900	0.000	0.0	0.3	0.3	0.0	O K
10080 min Summer	40.900	0.000	0.0	0.3	0.3	0.0	O K
15 min Winter	41.350	0.450	0.0	0.7	0.7	6.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Summer	93.420	0.0	6.8	21			
30 min Summer	63.000	0.0	9.1	35			
60 min Summer	40.510	0.0	11.7	62			
120 min Summer	25.097	0.0	14.6	106			
180 min Summer	18.654	0.0	16.2	138			
240 min Summer	15.017	0.0	17.4	172			
360 min Summer	11.074	0.0	19.3	242			
480 min Summer	8.907	0.0	20.6	310			
600 min Summer	7.515	0.0	21.8	380			
720 min Summer	6.537	0.0	22.7	448			
960 min Summer	5.242	0.0	24.3	582			
1440 min Summer	3.832	0.0	26.7	812			
2160 min Summer	2.794	0.0	29.2	1144			
2880 min Summer	2.231	0.0	31.0	1476			
4320 min Summer	1.621	0.0	33.8	2200			
5760 min Summer	1.291	0.0	35.9	2912			
7200 min Summer	1.083	0.0	37.7	0			
8640 min Summer	0.938	0.0	39.2	0			
10080 min Summer	0.831	0.0	40.5	0			
15 min Winter	93.420	0.0	6.8	21			
©1982-2020 Innovyze							

Stephen Wilson Partnership Ltd							Page 2
99 South Street Eastbourne BN20 4LU			E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:100				
Date 25/02/2025 17:59 File E9542 Storage Calcs 2.SRCX			Designed by SWP Ltd Checked by SWP Ltd				
Micro Drainage			Source Control 2020.1.3				
Summary of Results for 100 year Return Period							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	41.485	0.585	0.0	0.7	0.7	7.8	O K
60 min Winter	41.592	0.692	0.0	0.8	0.8	9.2	O K
120 min Winter	41.628	0.728	0.0	0.8	0.8	9.7	O K
180 min Winter	41.606	0.706	0.0	0.8	0.8	9.4	O K
240 min Winter	41.574	0.674	0.0	0.8	0.8	9.0	O K
360 min Winter	41.506	0.606	0.0	0.8	0.8	8.1	O K
480 min Winter	41.436	0.536	0.0	0.7	0.7	7.1	O K
600 min Winter	41.367	0.467	0.0	0.7	0.7	6.2	O K
720 min Winter	41.294	0.394	0.0	0.7	0.7	5.2	O K
960 min Winter	41.131	0.231	0.0	0.7	0.7	3.1	O K
1440 min Winter	40.975	0.075	0.0	0.7	0.7	1.0	O K
2160 min Winter	40.920	0.020	0.0	0.6	0.6	0.3	O K
2880 min Winter	40.907	0.007	0.0	0.5	0.5	0.1	O K
4320 min Winter	40.900	0.000	0.0	0.3	0.3	0.0	O K
5760 min Winter	40.900	0.000	0.0	0.3	0.3	0.0	O K
7200 min Winter	40.900	0.000	0.0	0.2	0.2	0.0	O K
8640 min Winter	40.900	0.000	0.0	0.2	0.2	0.0	O K
10080 min Winter	40.900	0.000	0.0	0.2	0.2	0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	63.000	0.0	9.1	34			
60 min Winter	40.510	0.0	11.7	62			
120 min Winter	25.097	0.0	14.5	114			
180 min Winter	18.654	0.0	16.2	144			
240 min Winter	15.017	0.0	17.4	182			
360 min Winter	11.074	0.0	19.3	260			
480 min Winter	8.907	0.0	20.7	334			
600 min Winter	7.515	0.0	21.8	408			
720 min Winter	6.537	0.0	22.7	482			
960 min Winter	5.242	0.0	24.3	590			
1440 min Winter	3.832	0.0	26.7	794			
2160 min Winter	2.794	0.0	29.2	1104			
2880 min Winter	2.231	0.0	31.0	1472			
4320 min Winter	1.621	0.0	33.8	0			
5760 min Winter	1.291	0.0	35.9	0			
7200 min Winter	1.083	0.0	37.7	0			
8640 min Winter	0.938	0.0	39.2	0			
10080 min Winter	0.831	0.0	40.5	0			
©1982-2020 Innovyze							

Stephen Wilson Partnership Ltd		Page 3
99 South Street Eastbourne BN20 4LU	E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:100	
Date 25/02/2025 17:59	Designed by SWP Ltd	
File E9542 Storage Calcs 2.SRCX	Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	1.000
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.342	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.029

Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)
0 4	0.015	4 8	0.014

Stephen Wilson Partnership Ltd		Page 4
99 South Street Eastbourne BN20 4LU	E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:100	
Date 25/02/2025 17:59	Designed by SWP Ltd	
File E9542 Storage Calcs 2.SRCX	Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Model Details

Storage is Online Cover Level (m) 43.100

Cellular Storage Structure

Invert Level (m) 40.900 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	14.0	14.0	1.201	0.0	35.6
1.200	14.0	35.6			

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0045-1000-1200-1000
Design Head (m) 1.200
Design Flow (l/s) 1.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 45
Invert Level (m) 40.860
Minimum Outlet Pipe Diameter (mm) 75
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	1.0
Flush-Flo™	0.196	0.7
Kick-Flo®	0.398	0.6
Mean Flow over Head Range	-	0.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.7	1.200	1.0	3.000	1.5	7.000	2.2
0.200	0.7	1.400	1.1	3.500	1.6	7.500	2.3
0.300	0.7	1.600	1.1	4.000	1.7	8.000	2.4
0.400	0.6	1.800	1.2	4.500	1.8	8.500	2.4
0.500	0.7	2.000	1.3	5.000	1.9	9.000	2.5
0.600	0.7	2.200	1.3	5.500	2.0	9.500	2.6
0.800	0.8	2.400	1.4	6.000	2.1		
1.000	0.9	2.600	1.4	6.500	2.2		

©1982-2020 Innovyze

Stephen Wilson Partnership Ltd							Page 1																																																																																																																																																																																																																																																																																	
99 South Street Eastbourne BN20 4LU			E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:30																																																																																																																																																																																																																																																																																					
Date 25/02/2025 18:00 File E9542 Storage Calcs 2.SRCX			Designed by SWP Ltd Checked by SWP Ltd																																																																																																																																																																																																																																																																																					
Micro Drainage			Source Control 2020.1.3																																																																																																																																																																																																																																																																																					
<u>Summary of Results for 30 year Return Period</u> Half Drain Time : 81 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Control (l/s)</th><th>Max Σ Outflow (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>41.234</td><td>0.334</td><td>0.0</td><td>0.7</td><td>0.7</td><td>4.4</td><td>O K</td></tr><tr><td>30 min Summer</td><td>41.328</td><td>0.428</td><td>0.0</td><td>0.7</td><td>0.7</td><td>5.7</td><td>O K</td></tr><tr><td>60 min Summer</td><td>41.392</td><td>0.492</td><td>0.0</td><td>0.7</td><td>0.7</td><td>6.5</td><td>O K</td></tr><tr><td>120 min Summer</td><td>41.403</td><td>0.503</td><td>0.0</td><td>0.7</td><td>0.7</td><td>6.7</td><td>O K</td></tr><tr><td>180 min Summer</td><td>41.389</td><td>0.489</td><td>0.0</td><td>0.7</td><td>0.7</td><td>6.5</td><td>O K</td></tr><tr><td>240 min Summer</td><td>41.370</td><td>0.470</td><td>0.0</td><td>0.7</td><td>0.7</td><td>6.3</td><td>O K</td></tr><tr><td>360 min Summer</td><td>41.330</td><td>0.430</td><td>0.0</td><td>0.7</td><td>0.7</td><td>5.7</td><td>O K</td></tr><tr><td>480 min Summer</td><td>41.287</td><td>0.387</td><td>0.0</td><td>0.7</td><td>0.7</td><td>5.1</td><td>O K</td></tr><tr><td>600 min Summer</td><td>41.234</td><td>0.334</td><td>0.0</td><td>0.7</td><td>0.7</td><td>4.4</td><td>O K</td></tr><tr><td>720 min Summer</td><td>41.185</td><td>0.285</td><td>0.0</td><td>0.7</td><td>0.7</td><td>3.8</td><td>O K</td></tr><tr><td>960 min Summer</td><td>41.105</td><td>0.205</td><td>0.0</td><td>0.7</td><td>0.7</td><td>2.7</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>41.003</td><td>0.103</td><td>0.0</td><td>0.7</td><td>0.7</td><td>1.4</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>40.939</td><td>0.039</td><td>0.0</td><td>0.7</td><td>0.7</td><td>0.5</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>40.919</td><td>0.019</td><td>0.0</td><td>0.6</td><td>0.6</td><td>0.3</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>40.903</td><td>0.003</td><td>0.0</td><td>0.4</td><td>0.4</td><td>0.0</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>40.900</td><td>0.000</td><td>0.0</td><td>0.3</td><td>0.3</td><td>0.0</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>40.900</td><td>0.000</td><td>0.0</td><td>0.3</td><td>0.3</td><td>0.0</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>40.900</td><td>0.000</td><td>0.0</td><td>0.2</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>40.900</td><td>0.000</td><td>0.0</td><td>0.2</td><td>0.2</td><td>0.0</td><td>O K</td></tr><tr><td>15 min Winter</td><td>41.235</td><td>0.335</td><td>0.0</td><td>0.7</td><td>0.7</td><td>4.5</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Discharge Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>72.116</td><td>0.0</td><td>5.2</td><td>20</td></tr><tr><td>30 min Summer</td><td>48.169</td><td>0.0</td><td>7.0</td><td>34</td></tr><tr><td>60 min Summer</td><td>30.811</td><td>0.0</td><td>8.9</td><td>62</td></tr><tr><td>120 min Summer</td><td>19.110</td><td>0.0</td><td>11.1</td><td>100</td></tr><tr><td>180 min Summer</td><td>14.274</td><td>0.0</td><td>12.4</td><td>134</td></tr><tr><td>240 min Summer</td><td>11.553</td><td>0.0</td><td>13.4</td><td>168</td></tr><tr><td>360 min Summer</td><td>8.575</td><td>0.0</td><td>14.9</td><td>238</td></tr><tr><td>480 min Summer</td><td>6.931</td><td>0.0</td><td>16.1</td><td>308</td></tr><tr><td>600 min Summer</td><td>5.872</td><td>0.0</td><td>17.0</td><td>372</td></tr><tr><td>720 min Summer</td><td>5.126</td><td>0.0</td><td>17.8</td><td>432</td></tr><tr><td>960 min Summer</td><td>4.134</td><td>0.0</td><td>19.2</td><td>550</td></tr><tr><td>1440 min Summer</td><td>3.048</td><td>0.0</td><td>21.2</td><td>778</td></tr><tr><td>2160 min Summer</td><td>2.244</td><td>0.0</td><td>23.4</td><td>1108</td></tr><tr><td>2880 min Summer</td><td>1.805</td><td>0.0</td><td>25.1</td><td>1472</td></tr><tr><td>4320 min Summer</td><td>1.326</td><td>0.0</td><td>27.7</td><td>2200</td></tr><tr><td>5760 min Summer</td><td>1.064</td><td>0.0</td><td>29.6</td><td>0</td></tr><tr><td>7200 min Summer</td><td>0.898</td><td>0.0</td><td>31.3</td><td>0</td></tr><tr><td>8640 min Summer</td><td>0.782</td><td>0.0</td><td>32.7</td><td>0</td></tr><tr><td>10080 min Summer</td><td>0.696</td><td>0.0</td><td>33.9</td><td>0</td></tr><tr><td>15 min Winter</td><td>72.116</td><td>0.0</td><td>5.2</td><td>20</td></tr></table>								Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status	15 min Summer	41.234	0.334	0.0	0.7	0.7	4.4	O K	30 min Summer	41.328	0.428	0.0	0.7	0.7	5.7	O K	60 min Summer	41.392	0.492	0.0	0.7	0.7	6.5	O K	120 min Summer	41.403	0.503	0.0	0.7	0.7	6.7	O K	180 min Summer	41.389	0.489	0.0	0.7	0.7	6.5	O K	240 min Summer	41.370	0.470	0.0	0.7	0.7	6.3	O K	360 min Summer	41.330	0.430	0.0	0.7	0.7	5.7	O K	480 min Summer	41.287	0.387	0.0	0.7	0.7	5.1	O K	600 min Summer	41.234	0.334	0.0	0.7	0.7	4.4	O K	720 min Summer	41.185	0.285	0.0	0.7	0.7	3.8	O K	960 min Summer	41.105	0.205	0.0	0.7	0.7	2.7	O K	1440 min Summer	41.003	0.103	0.0	0.7	0.7	1.4	O K	2160 min Summer	40.939	0.039	0.0	0.7	0.7	0.5	O K	2880 min Summer	40.919	0.019	0.0	0.6	0.6	0.3	O K	4320 min Summer	40.903	0.003	0.0	0.4	0.4	0.0	O K	5760 min Summer	40.900	0.000	0.0	0.3	0.3	0.0	O K	7200 min Summer	40.900	0.000	0.0	0.3	0.3	0.0	O K	8640 min Summer	40.900	0.000	0.0	0.2	0.2	0.0	O K	10080 min Summer	40.900	0.000	0.0	0.2	0.2	0.0	O K	15 min Winter	41.235	0.335	0.0	0.7	0.7	4.5	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	15 min Summer	72.116	0.0	5.2	20	30 min Summer	48.169	0.0	7.0	34	60 min Summer	30.811	0.0	8.9	62	120 min Summer	19.110	0.0	11.1	100	180 min Summer	14.274	0.0	12.4	134	240 min Summer	11.553	0.0	13.4	168	360 min Summer	8.575	0.0	14.9	238	480 min Summer	6.931	0.0	16.1	308	600 min Summer	5.872	0.0	17.0	372	720 min Summer	5.126	0.0	17.8	432	960 min Summer	4.134	0.0	19.2	550	1440 min Summer	3.048	0.0	21.2	778	2160 min Summer	2.244	0.0	23.4	1108	2880 min Summer	1.805	0.0	25.1	1472	4320 min Summer	1.326	0.0	27.7	2200	5760 min Summer	1.064	0.0	29.6	0	7200 min Summer	0.898	0.0	31.3	0	8640 min Summer	0.782	0.0	32.7	0	10080 min Summer	0.696	0.0	33.9	0	15 min Winter	72.116	0.0	5.2	20
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status																																																																																																																																																																																																																																																																																	
15 min Summer	41.234	0.334	0.0	0.7	0.7	4.4	O K																																																																																																																																																																																																																																																																																	
30 min Summer	41.328	0.428	0.0	0.7	0.7	5.7	O K																																																																																																																																																																																																																																																																																	
60 min Summer	41.392	0.492	0.0	0.7	0.7	6.5	O K																																																																																																																																																																																																																																																																																	
120 min Summer	41.403	0.503	0.0	0.7	0.7	6.7	O K																																																																																																																																																																																																																																																																																	
180 min Summer	41.389	0.489	0.0	0.7	0.7	6.5	O K																																																																																																																																																																																																																																																																																	
240 min Summer	41.370	0.470	0.0	0.7	0.7	6.3	O K																																																																																																																																																																																																																																																																																	
360 min Summer	41.330	0.430	0.0	0.7	0.7	5.7	O K																																																																																																																																																																																																																																																																																	
480 min Summer	41.287	0.387	0.0	0.7	0.7	5.1	O K																																																																																																																																																																																																																																																																																	
600 min Summer	41.234	0.334	0.0	0.7	0.7	4.4	O K																																																																																																																																																																																																																																																																																	
720 min Summer	41.185	0.285	0.0	0.7	0.7	3.8	O K																																																																																																																																																																																																																																																																																	
960 min Summer	41.105	0.205	0.0	0.7	0.7	2.7	O K																																																																																																																																																																																																																																																																																	
1440 min Summer	41.003	0.103	0.0	0.7	0.7	1.4	O K																																																																																																																																																																																																																																																																																	
2160 min Summer	40.939	0.039	0.0	0.7	0.7	0.5	O K																																																																																																																																																																																																																																																																																	
2880 min Summer	40.919	0.019	0.0	0.6	0.6	0.3	O K																																																																																																																																																																																																																																																																																	
4320 min Summer	40.903	0.003	0.0	0.4	0.4	0.0	O K																																																																																																																																																																																																																																																																																	
5760 min Summer	40.900	0.000	0.0	0.3	0.3	0.0	O K																																																																																																																																																																																																																																																																																	
7200 min Summer	40.900	0.000	0.0	0.3	0.3	0.0	O K																																																																																																																																																																																																																																																																																	
8640 min Summer	40.900	0.000	0.0	0.2	0.2	0.0	O K																																																																																																																																																																																																																																																																																	
10080 min Summer	40.900	0.000	0.0	0.2	0.2	0.0	O K																																																																																																																																																																																																																																																																																	
15 min Winter	41.235	0.335	0.0	0.7	0.7	4.5	O K																																																																																																																																																																																																																																																																																	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)																																																																																																																																																																																																																																																																																				
15 min Summer	72.116	0.0	5.2	20																																																																																																																																																																																																																																																																																				
30 min Summer	48.169	0.0	7.0	34																																																																																																																																																																																																																																																																																				
60 min Summer	30.811	0.0	8.9	62																																																																																																																																																																																																																																																																																				
120 min Summer	19.110	0.0	11.1	100																																																																																																																																																																																																																																																																																				
180 min Summer	14.274	0.0	12.4	134																																																																																																																																																																																																																																																																																				
240 min Summer	11.553	0.0	13.4	168																																																																																																																																																																																																																																																																																				
360 min Summer	8.575	0.0	14.9	238																																																																																																																																																																																																																																																																																				
480 min Summer	6.931	0.0	16.1	308																																																																																																																																																																																																																																																																																				
600 min Summer	5.872	0.0	17.0	372																																																																																																																																																																																																																																																																																				
720 min Summer	5.126	0.0	17.8	432																																																																																																																																																																																																																																																																																				
960 min Summer	4.134	0.0	19.2	550																																																																																																																																																																																																																																																																																				
1440 min Summer	3.048	0.0	21.2	778																																																																																																																																																																																																																																																																																				
2160 min Summer	2.244	0.0	23.4	1108																																																																																																																																																																																																																																																																																				
2880 min Summer	1.805	0.0	25.1	1472																																																																																																																																																																																																																																																																																				
4320 min Summer	1.326	0.0	27.7	2200																																																																																																																																																																																																																																																																																				
5760 min Summer	1.064	0.0	29.6	0																																																																																																																																																																																																																																																																																				
7200 min Summer	0.898	0.0	31.3	0																																																																																																																																																																																																																																																																																				
8640 min Summer	0.782	0.0	32.7	0																																																																																																																																																																																																																																																																																				
10080 min Summer	0.696	0.0	33.9	0																																																																																																																																																																																																																																																																																				
15 min Winter	72.116	0.0	5.2	20																																																																																																																																																																																																																																																																																				
©1982-2020 Innovzye																																																																																																																																																																																																																																																																																								

Stephen Wilson Partnership Ltd							Page 2
99 South Street Eastbourne BN20 4LU			E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:30				
Date 25/02/2025 18:00 File E9542 Storage Calcs 2.SRCX			Designed by SWP Ltd Checked by SWP Ltd				
Micro Drainage			Source Control 2020.1.3				
<u>Summary of Results for 30 year Return Period</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	41.330	0.430	0.0	0.7	0.7	5.7	O K
60 min Winter	41.396	0.496	0.0	0.7	0.7	6.6	O K
120 min Winter	41.404	0.504	0.0	0.7	0.7	6.7	O K
180 min Winter	41.382	0.482	0.0	0.7	0.7	6.4	O K
240 min Winter	41.351	0.451	0.0	0.7	0.7	6.0	O K
360 min Winter	41.282	0.382	0.0	0.7	0.7	5.1	O K
480 min Winter	41.196	0.296	0.0	0.7	0.7	3.9	O K
600 min Winter	41.125	0.225	0.0	0.7	0.7	3.0	O K
720 min Winter	41.066	0.166	0.0	0.7	0.7	2.2	O K
960 min Winter	40.987	0.087	0.0	0.7	0.7	1.2	O K
1440 min Winter	40.926	0.026	0.0	0.6	0.6	0.4	O K
2160 min Winter	40.907	0.007	0.0	0.5	0.5	0.1	O K
2880 min Winter	40.900	0.000	0.0	0.4	0.4	0.0	O K
4320 min Winter	40.900	0.000	0.0	0.3	0.3	0.0	O K
5760 min Winter	40.900	0.000	0.0	0.2	0.2	0.0	O K
7200 min Winter	40.900	0.000	0.0	0.2	0.2	0.0	O K
8640 min Winter	40.900	0.000	0.0	0.2	0.2	0.0	O K
10080 min Winter	40.900	0.000	0.0	0.1	0.1	0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	48.169	0.0	7.0	34			
60 min Winter	30.811	0.0	8.9	60			
120 min Winter	19.110	0.0	11.1	104			
180 min Winter	14.274	0.0	12.4	140			
240 min Winter	11.553	0.0	13.4	180			
360 min Winter	8.575	0.0	14.9	256			
480 min Winter	6.931	0.0	16.1	320			
600 min Winter	5.872	0.0	17.0	380			
720 min Winter	5.126	0.0	17.8	438			
960 min Winter	4.134	0.0	19.2	544			
1440 min Winter	3.048	0.0	21.2	752			
2160 min Winter	2.244	0.0	23.4	1100			
2880 min Winter	1.805	0.0	25.1	0			
4320 min Winter	1.326	0.0	27.7	0			
5760 min Winter	1.064	0.0	29.6	0			
7200 min Winter	0.898	0.0	31.3	0			
8640 min Winter	0.782	0.0	32.7	0			
10080 min Winter	0.696	0.0	33.9	0			
©1982-2020 Innovyze							

Stephen Wilson Partnership Ltd		Page 3
99 South Street Eastbourne BN20 4LU	E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:30	
Date 25/02/2025 18:00 File E9542 Storage Calcs 2.SRCX	Designed by SWP Ltd Checked by SWP Ltd	
Micro Drainage Source Control 2020.1.3		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	30	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	1.000
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.342	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.029

Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)
0 4	0.015	4 8	0.014

©1982-2020 Innovyze

Stephen Wilson Partnership Ltd		Page 4
99 South Street Eastbourne BN20 4LU	E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:30	
Date 25/02/2025 18:00	Designed by SWP Ltd	
File E9542 Storage Calcs 2.SRCX	Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Model Details

Storage is Online Cover Level (m) 43.100

Cellular Storage Structure

Invert Level (m) 40.900 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	14.0	14.0	1.201	0.0	35.6
1.200	14.0	35.6			

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0045-1000-1200-1000
Design Head (m) 1.200
Design Flow (l/s) 1.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 45
Invert Level (m) 40.860
Minimum Outlet Pipe Diameter (mm) 75
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	1.0
Flush-Flo™	0.196	0.7
Kick-Flo®	0.398	0.6
Mean Flow over Head Range	-	0.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.7	1.200	1.0	3.000	1.5	7.000	2.2
0.200	0.7	1.400	1.1	3.500	1.6	7.500	2.3
0.300	0.7	1.600	1.1	4.000	1.7	8.000	2.4
0.400	0.6	1.800	1.2	4.500	1.8	8.500	2.4
0.500	0.7	2.000	1.3	5.000	1.9	9.000	2.5
0.600	0.7	2.200	1.3	5.500	2.0	9.500	2.6
0.800	0.8	2.400	1.4	6.000	2.1		
1.000	0.9	2.600	1.4	6.500	2.2		

©1982-2020 Innovyze

Stephen Wilson Partnership Ltd							Page 2
99 South Street Eastbourne BN20 4LU			E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:10				
Date 25/02/2025 18:00 File E9542 Storage Calcs 2.SRCX			Designed by SWP Ltd Checked by SWP Ltd				
Micro Drainage			Source Control 2020.1.3				
Summary of Results for 10 year Return Period							
Storm Event	Max Level(m)	Max Depth(m)	Max Infiltration(l/s)	Max Control(l/s)	Max Σ Outflow(l/s)	Max Volume(m³)	Status
30 min Winter	41.217	0.317	0.0	0.7	0.7	4.2	O K
60 min Winter	41.256	0.356	0.0	0.7	0.7	4.7	O K
120 min Winter	41.246	0.346	0.0	0.7	0.7	4.6	O K
180 min Winter	41.215	0.315	0.0	0.7	0.7	4.2	O K
240 min Winter	41.180	0.280	0.0	0.7	0.7	3.7	O K
360 min Winter	41.112	0.212	0.0	0.7	0.7	2.8	O K
480 min Winter	41.052	0.152	0.0	0.7	0.7	2.0	O K
600 min Winter	41.006	0.106	0.0	0.7	0.7	1.4	O K
720 min Winter	40.973	0.073	0.0	0.7	0.7	1.0	O K
960 min Winter	40.934	0.034	0.0	0.6	0.6	0.4	O K
1440 min Winter	40.912	0.012	0.0	0.5	0.5	0.2	O K
2160 min Winter	40.900	0.000	0.0	0.4	0.4	0.0	O K
2880 min Winter	40.900	0.000	0.0	0.3	0.3	0.0	O K
4320 min Winter	40.900	0.000	0.0	0.2	0.2	0.0	O K
5760 min Winter	40.900	0.000	0.0	0.2	0.2	0.0	O K
7200 min Winter	40.900	0.000	0.0	0.2	0.2	0.0	O K
8640 min Winter	40.900	0.000	0.0	0.1	0.1	0.0	O K
10080 min Winter	40.900	0.000	0.0	0.1	0.1	0.0	O K
Storm Event	Rain(mm/hr)	Flooded Volume(m³)	Discharge Volume(m³)	Time-Peak(mins)			
30 min Winter	37.705	0.0	5.5	33			
60 min Winter	24.003	0.0	6.9	60			
120 min Winter	14.902	0.0	8.6	98			
180 min Winter	11.182	0.0	9.7	134			
240 min Winter	9.094	0.0	10.5	170			
360 min Winter	6.790	0.0	11.8	238			
480 min Winter	5.513	0.0	12.8	300			
600 min Winter	4.688	0.0	13.6	356			
720 min Winter	4.106	0.0	14.3	412			
960 min Winter	3.328	0.0	15.4	516			
1440 min Winter	2.474	0.0	17.2	748			
2160 min Winter	1.838	0.0	19.2	0			
2880 min Winter	1.487	0.0	20.7	0			
4320 min Winter	1.103	0.0	23.0	0			
5760 min Winter	0.892	0.0	24.8	0			
7200 min Winter	0.757	0.0	26.3	0			
8640 min Winter	0.662	0.0	27.6	0			
10080 min Winter	0.591	0.0	28.8	0			
©1982-2020 Innovyze							

Stephen Wilson Partnership Ltd		Page 3
99 South Street Eastbourne BN20 4LU	E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:10	
Date 25/02/2025 18:00	Designed by SWP Ltd	
File E9542 Storage Calcs 2.SRCX	Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	1.000
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.342	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.029

Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)
0 4	0.015	4 8	0.014

©1982-2020 Innovyze

Stephen Wilson Partnership Ltd		Page 4
99 South Street Eastbourne BN20 4LU	E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:10	
Date 25/02/2025 18:00	Designed by SWP Ltd	
File E9542 Storage Calcs 2.SRCX	Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Model Details

Storage is Online Cover Level (m) 43.100

Cellular Storage Structure

Invert Level (m) 40.900 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	14.0	14.0	1.201	0.0	35.6
1.200	14.0	35.6			

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0045-1000-1200-1000
Design Head (m) 1.200
Design Flow (l/s) 1.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 45
Invert Level (m) 40.860
Minimum Outlet Pipe Diameter (mm) 75
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	1.0
Flush-Flo™	0.196	0.7
Kick-Flo®	0.398	0.6
Mean Flow over Head Range	-	0.8

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.7	1.200	1.0	3.000	1.5	7.000	2.2
0.200	0.7	1.400	1.1	3.500	1.6	7.500	2.3
0.300	0.7	1.600	1.1	4.000	1.7	8.000	2.4
0.400	0.6	1.800	1.2	4.500	1.8	8.500	2.4
0.500	0.7	2.000	1.3	5.000	1.9	9.000	2.5
0.600	0.7	2.200	1.3	5.500	2.0	9.500	2.6
0.800	0.8	2.400	1.4	6.000	2.1		
1.000	0.9	2.600	1.4	6.500	2.2		

©1982-2020 Innovyze

Stephen Wilson Partnership Ltd		Page 3
99 South Street Eastbourne BN20 4LU	E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:2	
Date 25/02/2025 18:01 File E9542 Storage Calcs 2.SRCX	Designed by SWP Ltd Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	2	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	1.000
M5-60 (mm)	20.000	Shortest Storm (mins)	15
Ratio R	0.342	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.029

Time (mins)	Area	Time (mins)	Area
From: To:	(ha)	From: To:	(ha)
0 4	0.015	4 8	0.014

Stephen Wilson Partnership Ltd		Page 4
99 South Street Eastbourne BN20 4LU	E9542 34 Cyprus Road Burgess Hill, RH15 8DX SW Calculations 1:2	
Date 25/02/2025 18:01	Designed by SWP Ltd	
File E9542 Storage Calcs 2.SRCX	Checked by SWP Ltd	
Micro Drainage		Source Control 2020.1.3

Model Details

Storage is Online Cover Level (m) 43.100

Cellular Storage Structure

Invert Level (m) 40.900 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	14.0	14.0	1.201	0.0	35.6
1.200	14.0	35.6			

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0045-1000-1200-1000
Design Head (m) 1.200
Design Flow (l/s) 1.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 45
Invert Level (m) 40.860
Minimum Outlet Pipe Diameter (mm) 75
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	1.0
Flush-Flo™	0.196	0.7
Kick-Flo®	0.398	0.6
Mean Flow over Head Range	-	0.8

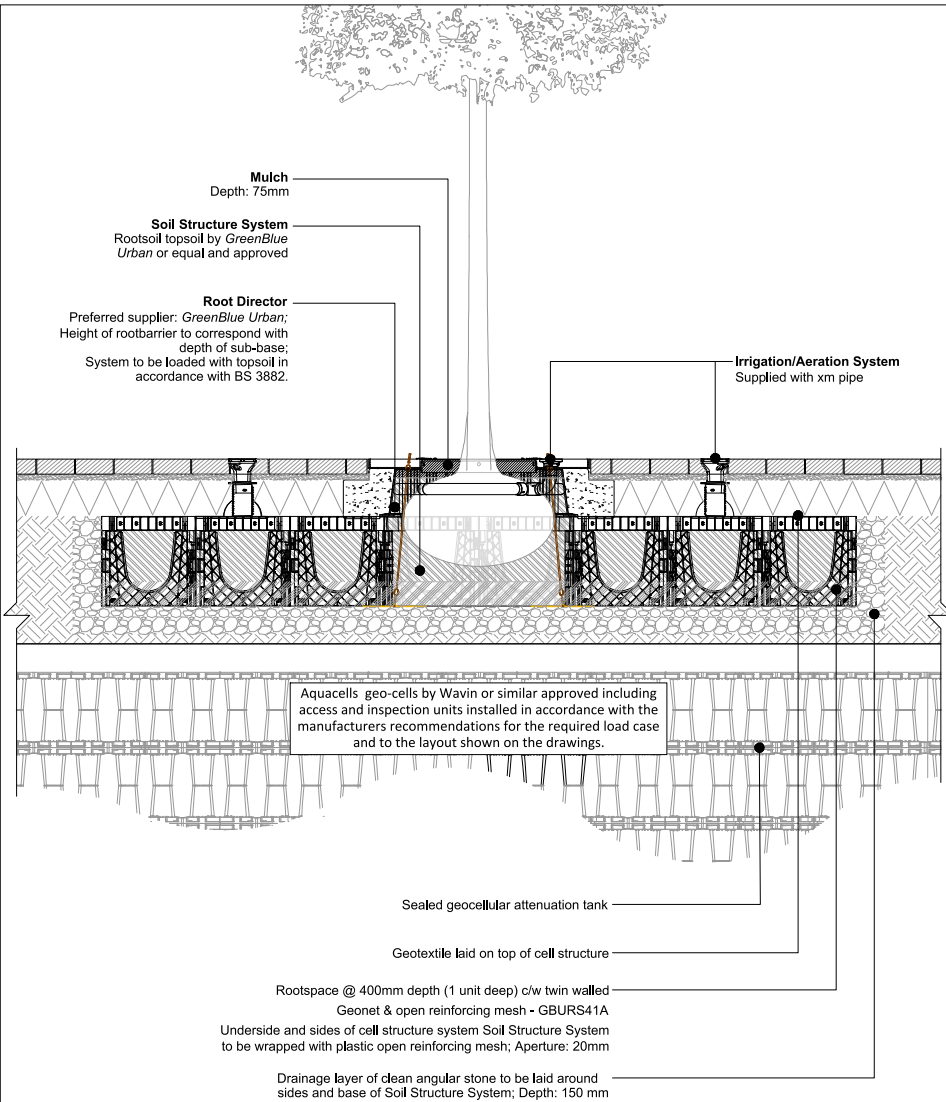
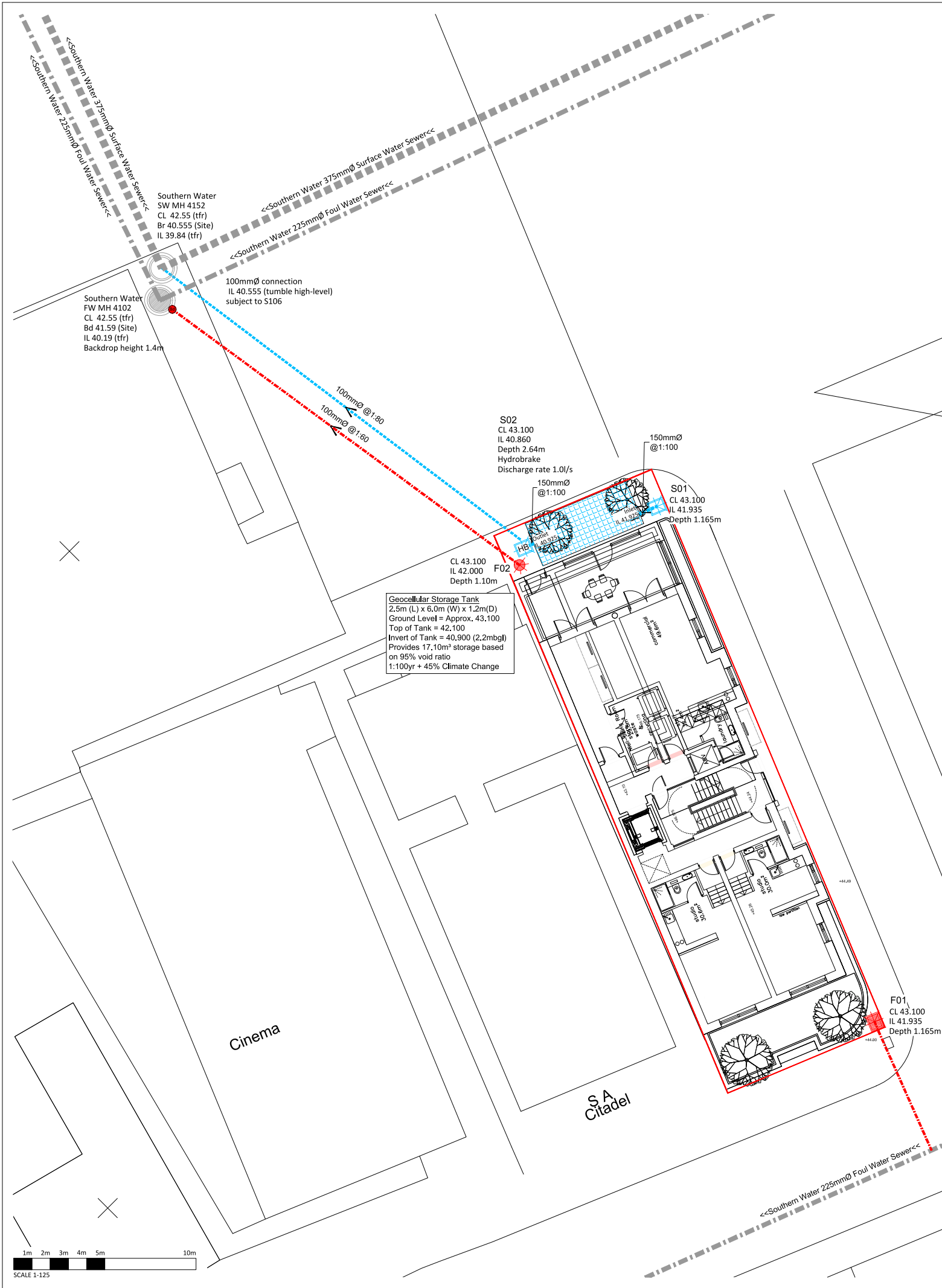
The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.7	1.200	1.0	3.000	1.5	7.000	2.2
0.200	0.7	1.400	1.1	3.500	1.6	7.500	2.3
0.300	0.7	1.600	1.1	4.000	1.7	8.000	2.4
0.400	0.6	1.800	1.2	4.500	1.8	8.500	2.4
0.500	0.7	2.000	1.3	5.000	1.9	9.000	2.5
0.600	0.7	2.200	1.3	5.500	2.0	9.500	2.6
0.800	0.8	2.400	1.4	6.000	2.1		
1.000	0.9	2.600	1.4	6.500	2.2		

©1982-2020 Innovyze

Appendix 3.0

Drainage Proposals & Drainage Maintenance Plan



Typical Section Through Tree Planting and Stormwater Attenuation
Rootspace System by GreenBlue Urban or similar approved
Scale 1-20

Drawing Legend	
Surface Water Drainage	
	Existing surface water drainage
	Existing surface water manhole
	Proposed surface water drainage
	Type C Precast concrete Rectangular Manhole
	Type D inspection chamber Flexible Construction
	Proposed Hydrobrake or similar approved flow control restricted to 1.0l/s
	Sealed geocellular storage tank
Foul Water Drainage	
	Existing foul water sewer
	Existing foul water manhole
	Proposed foul water drainage
	Type D inspection chamber Flexible Construction
	Backdrop connection to public sewer, max height 1.4m. To be constructed in accordance with DCG standards.

- All RWP and SVP positions are to be confirmed by the Architect at detailed design phase
- Surface water discharge restricted to 1.0l/s using Hydrobrake.
Ref No. SHE-0042-1000-1600-1000
- Groundworker responsible for recording photographic evidence of drainage installation prior to backfilling
- Full CCTV survey of drainage to be undertaken on completion works.
- Geocellular storage tank is lined with an impermeable membrane and is fully sealed against the ingress of groundwater
- All pipework shall be 100mmØ unless noted otherwise
- All pipework shall be installed at a gradient of 1:80 unless noted otherwise
- Cover levels shown are indicative only and subject to final adjustment on site
- Connection to public sewers subject to S106 notice with Southern Water
- Topographical survey and site layout global position to be confirmed and co-ordinated prior to commencing the construction

- NOTES:
- This drawing is to be read in conjunction with all other SWP drawings, and with all relevant architect's and engineer's drawings and specification and any discrepancies found are to be reported immediately to the engineer.
 - No dimensions are to be scaled from this drawing, unless noted otherwise all dimensions are in millimeters and all levels are in metres from the site datum.
 - All dimensions to be checked on site. All details and dimensions relating to sub-contractors work must be checked and agreed between the sub-contractor or supplier and the general contractor.
 - The electronic information from this drawing can not be guaranteed as dimensionally drawn exact. figured dimensions must be used for setting out and detailing, swp logos and company information must be removed from copies if information is re-used.
 - The main contractor is responsible for the design of all temporary works, and is also responsible for the safe maintenance and stability of existing buildings at all times.
 - The main contractor is responsible for all occurrences of ground water during the construction period.
 - Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care and attention whilst undertaking the works.
 - The contractor must comply with all current legislation relating to health & safety.
 - All products specified shall be installed in strict accordance with the manufacturers recommendations and instructions. If there are discrepancies between that information and the details on any swp drawings, the manufacturers instructions must be used.

COLOURED
DRAWING
REQUEST A COLOURED COPY IF
THIS STAMP IS NOT RED

P02	05.03.2025	TREE PLANTING DETAIL ADDED
P01	25.02.2025	PRELIMINARY ISSUE
REV.	DATE	DESCRIPTION
PRELIMINARY		
 STEPHEN WILSON PARTNERSHIP LTD Chalvington Barn, Dittons Business Park, Dittons Road, POLEGATE, BN26 6HY Telephone: 01323 412020 E-mail: info@swpcast.co.uk • Website: www.swpcast.co.uk		
CLIENT RUSS DRAGE ARCHITECTS LTD		
ARCHITECT RUSS DRAGE ARCHITECTS LTD		
JOB TITLE 34 CYPRUS ROAD, BURGESS HILL, RH15 8DX		
DRAWING TITLE SCHEMATIC DRAINAGE LAYOUT		
SCALE AT A1 1:125	DATE FEB '25	DRAWN JWM
	ENG. JWM	CHECKED DMG
RBA STATUS STAGE 4 - TECHNICAL DESIGN		
DRAWING STATUS S3 REVIEW AND COMMENT		
JOB No. E9542	DRAWING No. 9542-SWP-ZX-XX-DP-C-1101	REV. P02



Chalvington Barn, Unit C Dittons Business Park, Dittons Road
Polegate, East Sussex. BN26 6HY.

Sustainable Drainage Systems Maintenance Plan

for

34 Cyprus Road, Burgess Hill, West Sussex, RH15 8DX

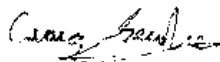
E9542

DOCUMENT CONTROL SHEET

Project Name: 34, Cyprus Road, Burgess Hill, West Sussex, RH15 8DX
Project Number: E9542
Client: Russ Drage Architects Ltd
Report Title: Sustainable Drainage Systems Maintenance Plan
Reference: RE002



Signed by.....
James Maddin (BSc Hons)
Senior Civil Engineer



Countersigned by.....
Craig Searle (BEng Hons)
Civil Engineer

FOR AND ON BEHALF OF STEPHEN WILSON PARTNERSHIP

Date: February 2025

Rev: -

NB: The copyright at all times remains with STEPHEN WILSON PARTNERSHIP

Document Issue Record

Rev	Date	Description	Prepared	Reviewed	Approved
-	26.02.2025	First Issue	J Maddin	C Searle	D Giles

Contents Page

1	INTRODUCTION	2
1.1	INTRODUCTION	2
1.2	TERMS OF REFERENCE	2
2	DRAINAGE STRATEGY	3
2.1	SURFACE WATER DRAINAGE STRATEGY.....	3
2.2	FOUL WATER DRAINAGE STRATEGY	3
3	MAINTENANCE REQUIREMENTS.....	4
3.1	GENERAL	4
3.2	MAINTENANCE RESPONSIBILITY	4
3.3	MAINTENANCE REQUIREMENTS.....	4
3.4	PIPE NETWORK	5
3.5	HYDROBRAKE FLOW CONTROLS	6
3.6	GEO-CELLULAR STORAGE TANKS.....	6
3.7	ACCIDENTAL SPILLAGES	7
4	CONTACT DETAILS AND RECORD OF MAINTENANCE.....	8
4.1	CONTACT DETAILS OF INDIVIDUAL/INDIVIDUALS RESPONSIBLE FOR THIS PLAN.....	8
4.2	RECORD OF MAINTENANCE AND PHOTOGRAPHIC EVIDENCE	8
	APPENDIX 1.0 – RECORD OF MAINTENANCE	1

1 INTRODUCTION

1.1 Introduction

- 1.1.1 This statement details the drainage strategy and maintenance requirements for the proposed surface and foul water systems at the development above. A copy of this statement should be provided to the party responsible for maintaining the drainage system and should also be included within the Maintenance Manuals for the development.
- 1.1.2 The maintenance detailed in this document must be undertaken throughout the lifetime of the development. Failure to undertake this maintenance may result in the drainage system not operating as designed, increasing the risk of flooding.
- 1.1.3 The drawing detailing the strategy of the drainage system are referenced in the latest version of 9542-SWP-ZZ-XX-DP-C-1101.

1.2 Terms of Reference

- 1.2.1 Sustainable Drainage Systems (SuDS) are a sequence of water management practices and facilities designed to drain surface water in a manner that will provide a more sustainable approach than what has been the conventional practice. SuDS are designed to mimic natural drainage flows and typically manage rainfall close to where it falls. Benefits include the effective management of runoff from hard standing surfaces, such as pavements and driveways, by reducing the volume, frequency and flow rate of surface water runoff during extreme storm events. They provide protection and/or enhancement of water quality (reducing pollution from runoff), are sympathetic to the environment and the needs of the local community and provide an attractive habitat for wildlife in urban locations.
- 1.2.2 The purpose of this management plan is to demonstrate how SuDS, which have been implemented at this particular residential development, will be maintained in compliance with various requirements and best practice guidance, including but not limited to, the National Planning Policy Framework (NPPF) and SuDS Manual (CIRIA, 2015).
- 1.2.3 The maintenance plan aims to:
- Summarise the surface and foul water drainage strategy
 - Summarise the various SuDS features used within the site;
 - Establish who is responsible for the maintenance of the drainage including the SuDS components;
 - Set out how to maintain the incorporated components following construction;
 - Ensure that all those involved in the maintenance and operation of the SuDS understand their functionality and maintenance requirements in terms of supporting long-term performance.

Maintenance inspections should be recorded in Appendix 1.0 of this report to ensure that the document stays up to date.

2 DRAINAGE STRATEGY

2.1 Surface Water Drainage Strategy

- 2.1.1 The ground conditions are likely yield poor soakage rates, which mean infiltration is not a viable means of surface water disposal. Surface water will be disposed of through the public surface water sewer to rear of the Development.
- 2.1.2 The proposed development is for a building which will cover most of the site. In accordance with part H of the building regulations, soakaways must be situated a minimum of 5m away from foundations. Due to the spatial constraints, this will mean infiltration is not a viable means of surface water disposal. Surface water will be disposed of through the public surface water sewer to rear of the Development.
- 2.1.3 Surface Water discharge to the public surface water sewer to the rear of the Development Site will be controlled by a flow control device, which will restrict flows to less than the pre-development flow rate of the 1:2 year storm event for all rainfall events up to and including the 1in100 year plus 45% allowance for climate change.
- 2.1.4 Whilst discharging at the restricted rate described above the balance will be attenuated within a sealed geocellular storage tank beneath the ground at the North end of the Site.

2.2 Foul Water Drainage Strategy

- 2.2.1 It is proposed to install new drainage connections to serve the development, which will discharge to the existing public foul sewer on Cyprus Road and the existing public foul sewer to the rear of the Development using a new drainage connection.

3 MAINTENANCE REQUIREMENTS

3.1 General

- 3.1.1 Only trained personnel will be permitted to undertake maintenance of SuDS features and drainage where responsibility lies with Private Management Companies. This work must be carried out in accordance with the Confined Space Regulations. To facilitate this maintenance, manholes, inspection chambers and other apparatus are located, where they are reasonably accessible.

3.2 Maintenance Responsibility

- 3.2.1 All drainage within the site boundary will be the responsibility of a private management company.
- 3.2.2 The details for the private management company are to be confirmed.

3.3 Maintenance Requirements

- 3.3.1 Whilst the drainage system has been designed to operate with as little maintenance as possible, there are key operations that must regularly be undertaken to ensure that it remains in optimal condition, most of which are general housekeeping tasks that should be undertaken for any drainage system. These operations are summarised below together with recommended frequencies:
- 3.3.2 Periodic desilting of gully sumps and threshold drains. These should be emptied at least as follows (but with an annual inspection and additional cleansing if required): On completion of drainage works, Year 1, Year 3, then every 5 years. The desilting of these items is required to underground storage tanks and flow control device operate as per the design, and do not become blocked.
- 3.3.3 Periodic jetting or rodding of pipework as required to clear blockages.
- 3.3.4 Gratings on any gullies and threshold drains to be kept clear of debris.
- 3.3.5 The drainage components beneath external areas (under landscaping, hard surfacing and car parking) will be easily accessible for maintenance purposes.
- 3.3.6 Ease of access for maintenance and inspection is essential; the manhole lids will be kept as lightweight as practicable. Frequent street sweeping in the catchment areas will increase the time interval in which the system has to be cleaned out.
- 3.3.7 The following maintenance regime would be recommended as a minimum, but actions and frequencies should be adjusted to suit the specific requirements of this development. However, the previous discussed, component specific regimes and any manufacturer's specific recommendations should always be followed.

Maintenance Schedule	Required Works/Action	Frequency
Routine Maintenance	Inspect and identify incorrect operation.	Monthly
	Debris removal from catchment area using sweeping and vacuuming.	3 Monthly
	Removal of sediment from pre-treatment components	Annually

3.4 Pipe Network

- 3.4.1 All pipe work will be visually inspected at least once a month for the first three months after installation and then a minimum of once year.
- 3.4.2 Flushing of the system can be achieved using a jetting system with a 150 bar pump pressure (ie. approximately 80 bar at the nozzle) at a discharge flow of 300 l/min. The jet nozzle should be introduced to the system via the Inspection manhole and the integral inspection / maintenance tunnel.

Any silt & debris should be flushed to the inspection or catchpit manhole and removed in accordance with the Management Company policy for waste management.

Below Ground Pipe Network Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Remove sediment from pre-treatment inlet structures and inspection chambers.	Annually or as required
	Maintain vegetation to designed limits within the vicinity of below ground drainage pipes and tanks to avoid damage to system.	Annually, or as required
Remedial actions	Repair physical damage if necessary	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually and after large storms

3.5 Hydrobrake Flow Controls

- 3.5.1 The Hydro-brake vortex flow control provides customised water quantity management for surface water flows and for a variety of applications. The Hydro-brake has no moving parts and no power requirements and provides reliable, low-maintenance, engineered flood management as part of green infrastructure developments.
- 3.5.2 Periodic desilting of the Hydrobrake sump as well as checking the emergency drain down mechanism is in good working order. The sump should be emptied/checked at least as follows (but with an annual inspection and additional cleansing if required): On completion of drainage works, Year 1, Year 3, then every 5 years.
- 3.5.3 Specific manufacturers guidance should take precedence over the contents of this maintenance plan.

3.6 Geo-cellular Storage Tanks

- 3.6.1 Inspection at inlets and outlets is recommended after every major storm and at regular intervals according to the specific maintenance plan for the site, silt traps and catchpits should be routinely inspected and cleaned out to minimise debris reaching the tank. It is important to prevent construction debris from entering the drainage system.
- 3.6.2 Refer to manufacturer's specific requirements.
- 3.6.3 The schedule below provides guidance on the type of operational and maintenance requirements that may be appropriate, the list of actions is exhaustive, and some actions may not always be required.

Geo-cellular Storage Tank maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchments surface (where it may cause risk to performance)	Monthly
	Remove sediment from pre-treatment structure and/or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediments build-up and remove if necessary	Every 5 years or as required

- 3.6.4 Reference should be made to manufacturer's maintenance instructions.

3.7 Accidental Spillages

- 3.7.1 It is not envisaged that any materials are to be stored onsite once the development is completed, which could cause major spills and potential pollution issues within the drainage system. If this situation alters in the future a specialist will be required to be contacted to confirm if any upgrades to the existing system are required.
- 3.7.2 Minor spillages of fuels and oils from motor vehicles will be dealt with by the permeable paving and deep trapped gullies, by biodegrading / collecting the hydrocarbons respectively.

4 CONTACT DETAILS AND RECORD OF MAINTENANCE

4.1 Contact Details of Individual/Individuals Responsible for This Plan

4.1.1 In the event of concern over any matter related to drainage, please contact:

Name:.....

Address:.....

.....

.....

Phone:.....

Email:.....

4.2 Record of Maintenance and Photographic Evidence

4.2.1 Please provide a record of all inspections (including all photographic evidence) in Appendix

APPENDIX 1.0 – RECORD OF MAINTENANCE

RECORD OF MAINTENANCE

GENERAL INFORMATION			
Site ID	34 Cyprus Road, Burgess Hill		
Site Address/ Location	34, Cyprus Road, Burgess Hill, West Sussex, RH15 8DX		
Elements forming the SuDS scheme	Gullies, manholes and catchpits,, geocellular tank and threshold drains	Inspection frequency	As required
Type of development	Retail and residential	Approved Drawing Ref(s)	9542-SWP-ZZ-XX-DP-C-1101

	Inspection date				Inspection date			
	Details	Y/N	Action required	Date completed	Details	Y/N	Action required	Date completed
GENERAL INSPECTION ITEMS								
Are covers/ fittings correctly secured.								
If no, state location and problem.								
Cause								

	Details	Y/N	Action required	Date completed	Details	Y/N	Action required	Date completed
SILT/ SEDIMENT ACCUMULATION								
Is there accumulation at inlets (or other defined accumulation zones such as the gullies, threshold drains, catchpits) If yes, state location, depth (mm) and extent. Is removal required? If yes, state waste disposal requirements and confirm all waste management requirements have been complied with (consult EA or SEPA).								
SYSTEM BLOCKAGES/ LITTER BUILD UP								
Is there evidence of litter accumulation in the system? If yes, is this a blockage risk?								

	Details	Y/N	Action required	Date completed	Details	Y/N	Action required	Date completed
OTHER OBSERVATIONS								
INFORMATION APPENDED (Photos etc.)								

Appendix 4.0

Flood Risk Maps

Flood map for planning

Your reference
E9542

Location (easting/northing)
531446/119105

Created
4 Feb 2025 15:42

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following:**

- bigger than 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence **which** sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2024 OS AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
531446/119105

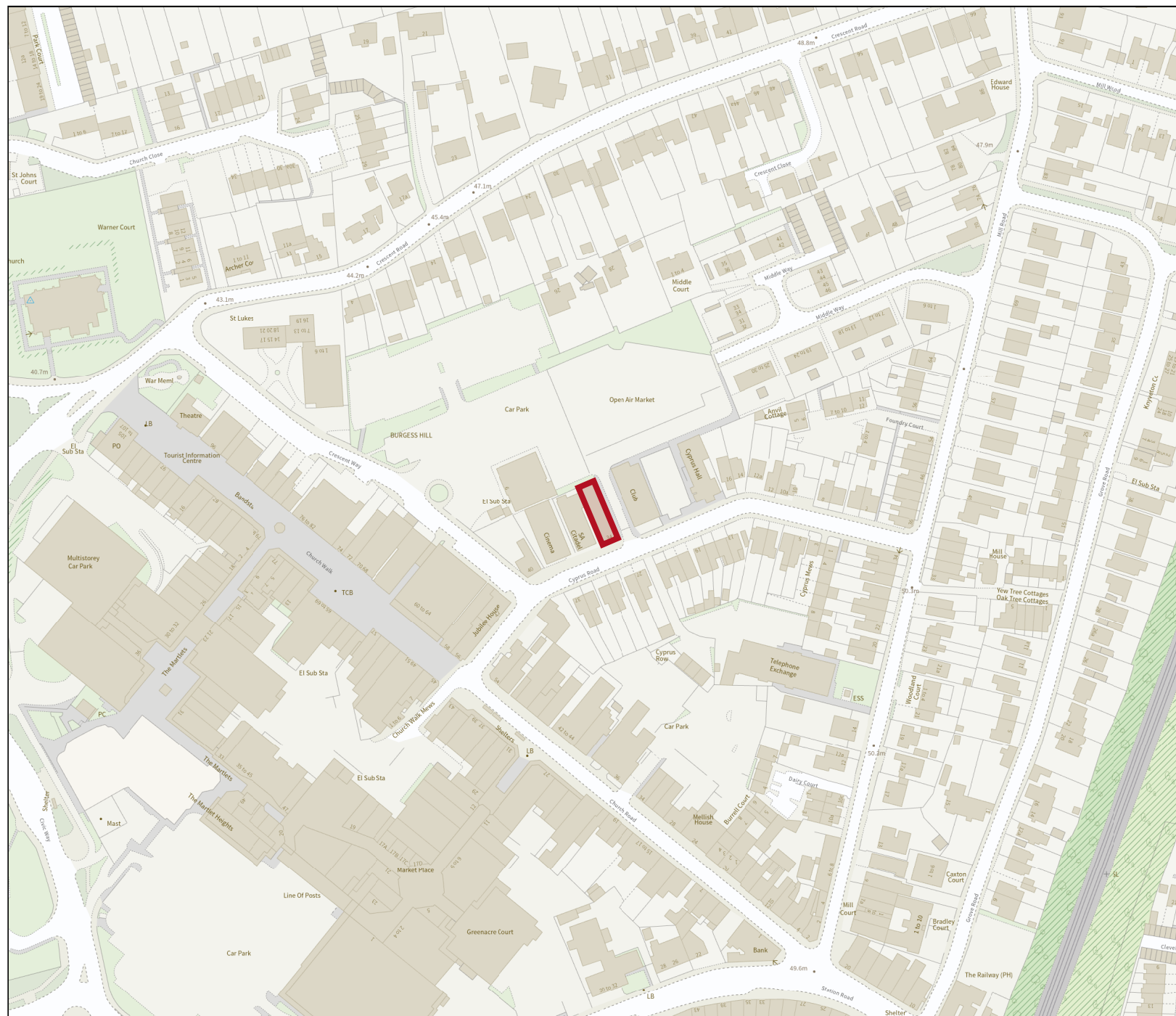
Scale
1:2500

Created
4 Feb 2025 15:42

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area

0 20 40 60m

Page 2 of 2



Rivers and sea map

Yearly chance of flooding

 Flood area (extent)

 High chance

 Medium chance

 Low chance

 Very low chance

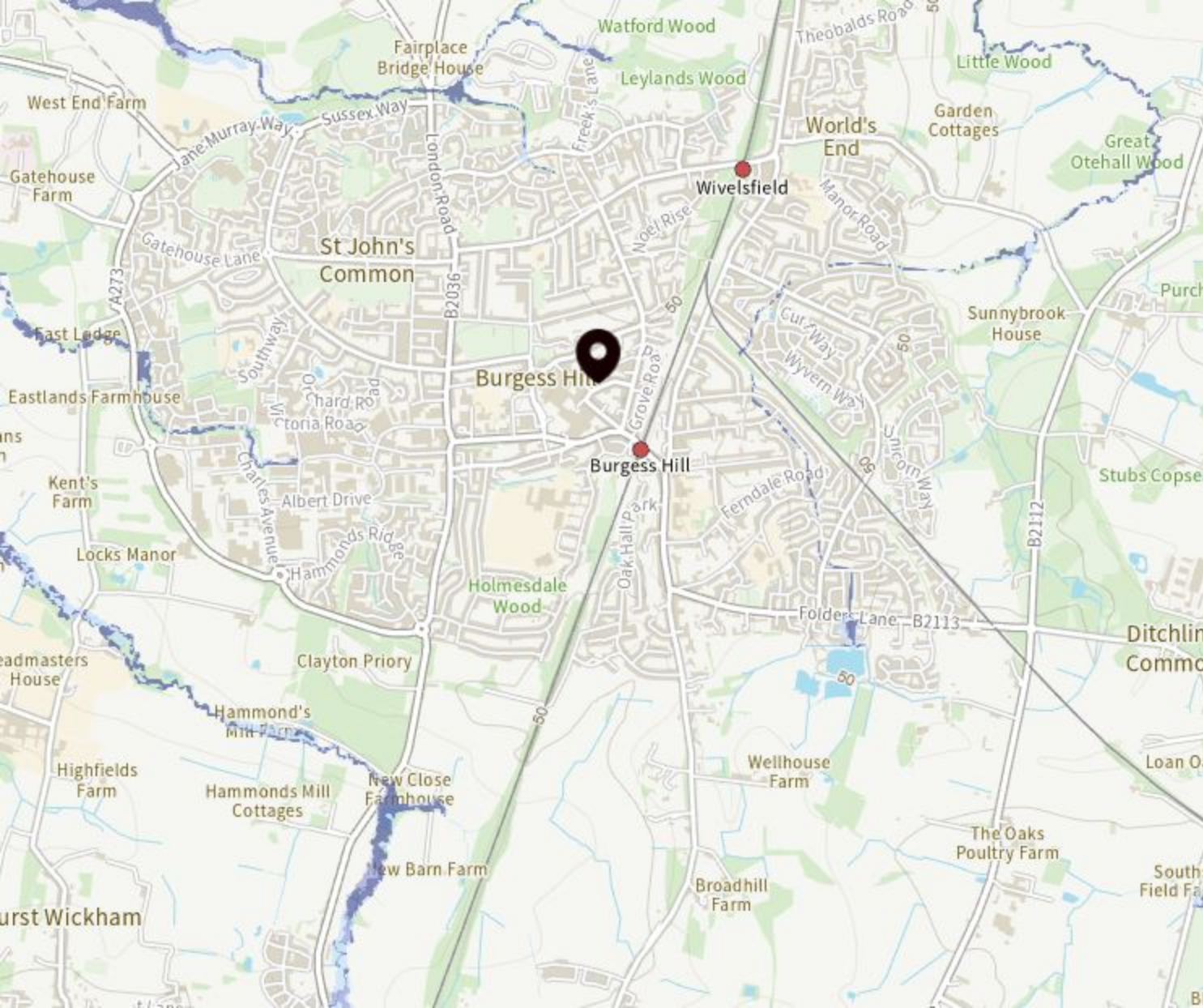
Yearly chance of flooding between 2036 and 2069

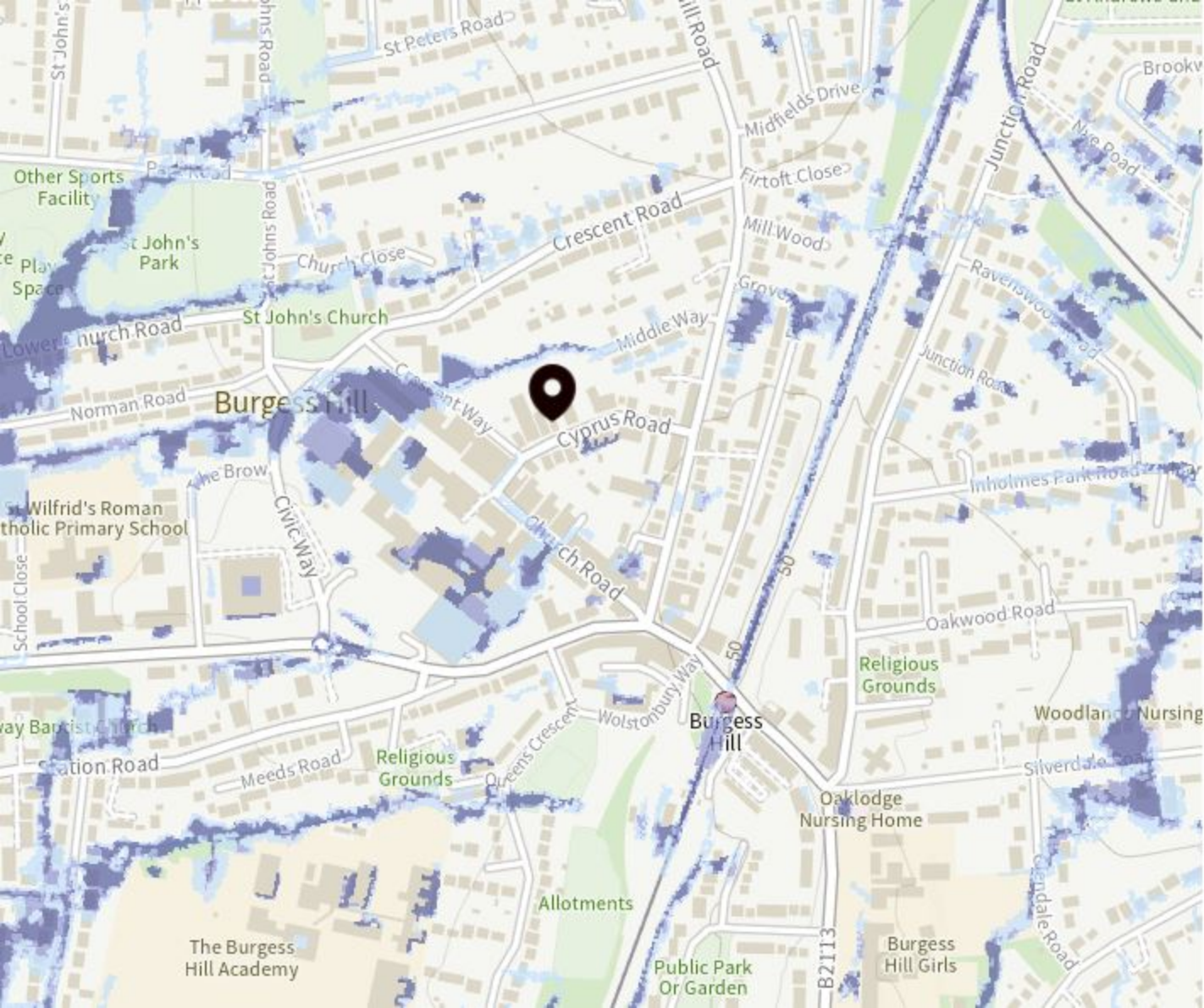
 Flood area (extent)

Map details

☒ Show flooding

☒  Selected address





Surface water map

Yearly chance of flooding

 Flood area (extent)

 High chance

 Medium chance

 Low chance

Yearly chance of flooding between 2040 and 2060

 Flood area (extent)

Map details

☒ Show flooding

☒  Selected address

Appendix 5.0

Southern Water Asset Mapping

