GeoSmart Information

SuDSmart Plus

Sustainable Drainage Assessment

Site Address

6 Seamill Park Crescent
Worthing
BN11 2PN

Grid Reference

517015, 103285

Report Prepared for

A. J. Salter & Son

Date

05/03/2026

Report Status

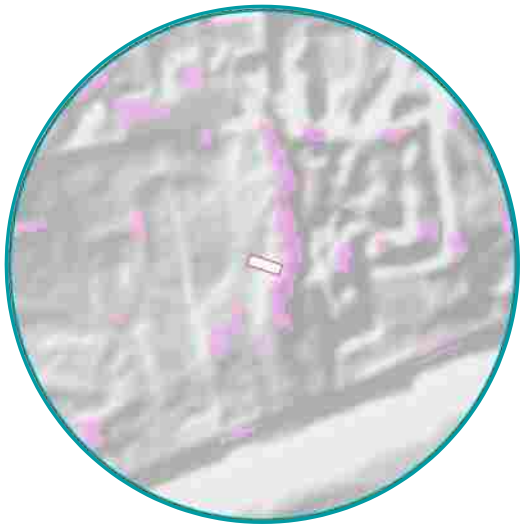
FINAL

Site Area

490 m^2

Report Reference

EF000773R1



Discharge to Sewer

The proposed Sustainable Drainage Scheme (SuDS) strategy is comprised of a rainwater harvesting butt, rainwater planter and attenuation tank to attenuate surface water runoff during the 1 in 100 plus 45% climate change event.

Surface water will be discharged into the public surface water sewer, subject to confirmation from the sewer utility provider and the incorporation of SuDS.

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Version control

Report Version	Date	Report Author	Report Checker	Report Reviewer
EF000773R1	05/03/2026	Annabel Elleray	Jessica Bayliff	Bob Sargent

1 Executive summary

This report assesses the feasibility of a range of Sustainable Drainage Scheme (SuDS) options in support of the Site development process. A SuDS strategy is proposed to ensure surface water runoff can be managed effectively over the lifetime of the development.

SuDS suitability

Risk	Issue	Result
Runoff destination feasibility	Priority 1: rainwater collected for non-potable use	Yes
	Priority 2: infiltration to ground	Low
	Priority 3: discharge to an above ground surface water body	Low
	Priority 4: discharge to surface water sewer	High
	Priority 5: discharge to combined sewer	Low
Flooding	What is the river (fluvial) and/or tidal flood risk at the Site?	Very Low to High
	What is the surface water (pluvial) flood risk at the Site?	Very Low to Medium
	What is the groundwater flood risk at the Site?	Negligible to Low
Pollution	Is the groundwater a protected resource?	No
	Is the surface water feature a protected resource?	N/A

Summary of existing and proposed development

The Site is currently used within a residential capacity as a two-storey detached dwelling, including an associated driveway, landscaping and access. Development proposals comprise the construction of a single-storey rear extension with decking and balustrades, front porch and hip to barn end roof extension, including the incorporation of front and rear dormers.

National Standard 1: Runoff Destinations

Priority 1: collection for non-potable use

In line with DEFRA's national guidance, the potential for the collection of rainwater for non-potable use across the proposed development has been considered.

Rainwater harvesting butts are proposed at the base of the downpipes of the development in order to provide rainwater re-use potential at the Site, as well as to provide biodiversity and amenity benefits. Captured water will be used to water vegetation and ensure their long-term viability as sustainable amenity features. Due to the limited storage capacity and requirement to retain captured rainwater for non-potable use, the volume of runoff which could be attenuated has not been considered within the report.

Priority 2: infiltration to ground

GeoSmart's SuDS Infiltration Potential (SD50) map indicates that the majority of the Site has a Low potential for infiltration, primarily due to the anticipated low permeability of the superficial deposits (and possible contamination risks associated with Made Ground) mapped beneath the eastern section of the Site. An area along the western boundary has High potential for infiltration, associated with the mapped underlying presence of Raised Beach Deposits.

Based on the available hydrogeological information (Section 5), the western section of the Site, where Raised Beach Deposits are mapped, is considered the only area where the soils may be sufficiently permeable to accept infiltration SuDS features. This area is primarily occupied by the building footprint, and an appraisal of the proposed development plans indicates that there is insufficient space for infiltration SuDS at the front of the property, as a 5 m buffer between building foundations and any focused infiltration features cannot be provided as required by Building Regulations (2010).

Therefore, infiltration to ground is unlikely to be feasible.

Priority 3: discharge to above ground surface water body

Ordnance Survey (OS) mapping indicates that there are no surface water features within 100 m of the Site. Therefore, discharge to surface water feature is not feasible.

Priority 4: discharge to surface water sewer

The asset location plan included in Appendix C confirms the Site is located within 5 m of a public surface water sewer. Therefore, discharging surface water runoff to the sewer is likely to be feasible.

Priority 5: discharge to combined sewer

The asset location plan included in Appendix C confirms that there are no public combined sewers within the vicinity of the Site that could feasibly be discharged to. As such, discharge to combined sewer is not considered to be feasible.

Runoff rate and attenuation requirements

Discharging off-Site requires 3.23 m^3 of attenuation to be provided to ensure there is no flooding within the development in all storm events up to and including the 1 in 100 year including a 45% allowance for climate change. This volume is subject to the discharge rate being restricted to 2 l/s (as close to the Greenfield 1 in 1 year rate as possible, without increasing the potential for blockages).

Proposed SuDS strategy

SuDS features comprised of a rainwater harvesting butt, rainwater planter and attenuation tank are proposed to attenuate a minimum of 3.65 m^3 of surface water runoff. The SuDS features would provide some water quality (interception and filtration), amenity and biodiversity benefits prior to discharging runoff into the public surface water sewer.

The proposed SuDS strategy would ensure surface water runoff is stored on-Site in SuDS features for the 1 in 100 year event including a 45% allowance for climate change and will not cause flooding to the proposed development in accordance with DEFRA's national standards for SuDS (2025).

Amenity and biodiversity

The inclusion of SuDS planters at the downpipes where feasible will provide sufficient biodiversity and amenity benefits to the areas of proposed development, keeping surface water at/or close to ground level to provide health and wellbeing benefits for any on-site users. Captured water will be used to water vegetation and ensure their long-term viability as amenity features.

SuDS & drainage network maintenance

The management and maintenance of the SuDS features, in line with the details and schedules outlined in Section 10 of this report, will be undertaken by contractors appointed by the owners and occupiers of the dwelling.

Recommendations / Next steps

As the proposed development is above the public sewer network, a build-over agreement or easement may be required with the relevant utility provider.

2 Proposed SuDS strategy

The most suitable SuDS options are outlined below and a SuDS strategy schematic is shown overleaf. Supporting information is provided in subsequent sections.

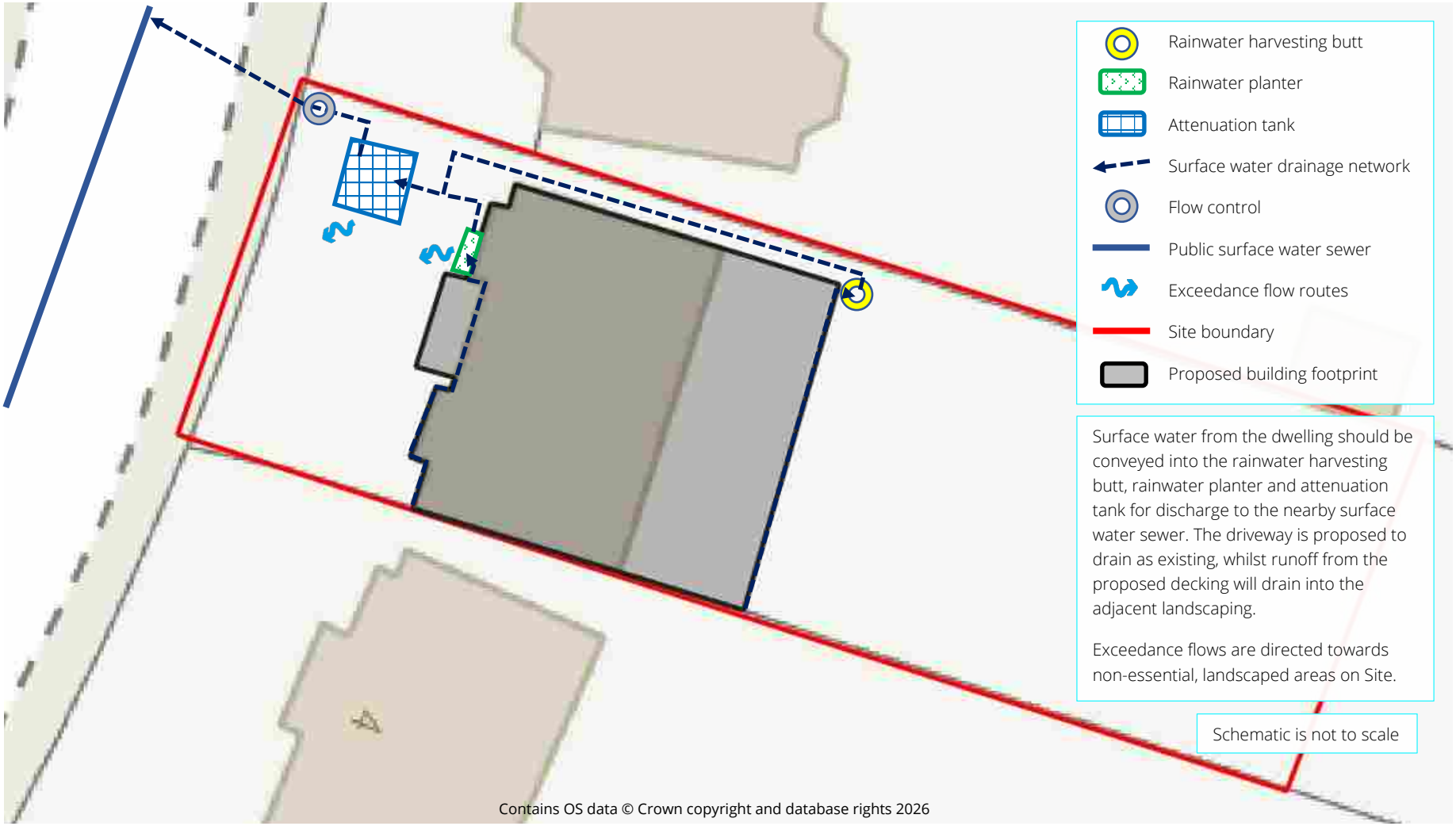
Table 1. Proposed SuDS type, features, discharge location and rate restriction

SuDS type	Source control (interception) and attenuation SuDS.
SuDS features	Rainwater harvesting butt, rainwater planter & attenuation tank.
Discharge location	Public surface water sewer.
Discharge rate	2 l/s (as close to the 1 in 1 year Greenfield runoff rate, without increasing the potential for blockages).

Table 2. Proposed SuDS sizing (dimensions) and attenuation volumes

Rainwater harvesting	To comply with DEFRA's national standards for SuDS (2025), a rainwater harvesting butt should be established for the proposed development. In terms of attenuation storage within this SuDS scheme, the volume of run-off which could be attenuated by rainwater harvesting has not been considered within the preliminary SuDS strategy.
Attenuation tank	An attenuation tank within the driveway area with a length of 2 m, width of 1.6 m and depth of 1.2 m, comprising geo-cellular crates with a 95% void ratio, would provide c. 3.65 m^3 of attenuation.
Rain planter	A rain planter is proposed to be established for the development for water quality and biodiversity purposes. In terms of attenuation storage within this SuDS scheme, the volume of run-off which could be attenuated by the planter has not been considered within the preliminary SuDS strategy.
Total attenuation provided	3.65 m^3
Total attenuation required	3.23 m^3
Freeboard storage provided	0.42 m^3

Figure 1. Proposed SuDS scheme



3 National & local policy context

National Guidance

DEFRA - National standards for sustainable drainage systems (SuDS) (2025)

Standard 1: runoff destinations

A 'SuDS approach' shall be adopted to address the management of surface water by the development and where it should be discharged. Runoff shall be treated as a resource and managed in a way that avoids negative impacts of the development on flood risk, the morphology and water quality of receiving waters and the associated ecology.

Runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:

- priority 1: collected for non-potable use
- priority 2: infiltrated to ground
- priority 3: discharged to an above ground surface water body
- priority 4: discharged to a surface water sewer, or another piped surface water drainage system
- priority 5: discharged to a combined sewer

Note 1: priority 1 is the highest priority and priority 5 is the lowest.

Note 2: for the purposes of this standard, a combined sewer is a sewer intended to receive both foul sewage and surface runoff and does not include a sewer intended to receive only foul sewage, even if it has the capacity to accommodate additional flows or has an element of surface water in it already.

To utilise a lesser priority final destination, appropriate evidence shall be provided that demonstrates all higher priority final destinations have been utilised to the maximum extent practicable. Higher cost alone shall not be a reason to utilise lower priority final destinations.

Where more than one final destination is utilised, each final destination's ability to accept runoff shall be maximised in order of priority.

Standard 2: management of everyday rainfall (interception)

Apply a 'SuDS approach' so that at least the first 5mm of rainfall for the majority of rainfall events does not result in runoff from the site to surface waters or piped drainage systems.

Evidence shall be provided that the approach to managing runoff from 'everyday' rainfall has been developed alongside and in support of the management of runoff quality (standard 4) and the delivery of amenity and biodiversity benefits (standards 5 and 6).

Standard 3: management of extreme rainfall and flooding

A 'SuDS approach' shall be adopted to address the management of development runoff during extreme rainfall, including allowances for climate change and urban creep to:

- protect people and property on the development from flooding of the surface water drainage system
- mitigate any increased flood risk to people and property adjacent to or downstream of the development
- protect the receiving water body from morphological damage or minimise the impact on sewer capacity

When discharging to an infiltration feature, the system shall be appropriately sized to accommodate the design event based on ground conditions and contributing areas.

When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water runoff (rate and volume) for the 1% annual exceedance probability (AEP) event shall be controlled to ensure the runoff from the development does not increase flood risk elsewhere.

When discharging to an above ground surface water body, sewer or other piped drainage system, the surface water runoff rate for the 50% AEP event shall be controlled to ensure development runoff from an event of this magnitude has no negative impact.

Any flooding from the surface water drainage system for events up to the 1% AEP event shall be managed within the development.

Any flooding from off-site sources for the 1% AEP event should be managed on site or safely routed through the site, ensuring any downstream risks are not increased compared to the pre-development scenario.

The risks (both on and off the development) associated with flooding from the surface water drainage system for exceedance events greater than the 1% AEP event shall be appropriately managed.

Standard 4: water quality

Apply a 'SuDS approach' that protects surface waters, groundwater and coastal waters by managing the quality of the surface water runoff to adequately address water quality risks from the development.

The proposed SuDS management train(s) shall be based on a robust water quality risk assessment, appropriate to the pollution hazard and sensitivity of receiving waters, reflecting industry recognised guidance or other quantitative assessment as agreed with the approving body and permitting requirements.

Standard 5: amenity

A 'SuDS approach' shall be adopted that maximises benefits for amenity through the creation of multi-functional places and landscapes.

Standard 6: biodiversity

A 'SuDS approach' shall be adopted to ensure the surface water drainage system maximises biodiversity benefits throughout the development lifecycle.

The surface water drainage system shall add biodiversity value by:

- creating diverse, self-sustaining, resilient local ecosystems which contribute to net gains in biodiversity
- supporting and promoting natural local habitat and species, for example, through local nature recovery strategies (LNRS)
- contributing to the delivery of local biodiversity strategies
- contributing to habitat connectivity

Standard 7: design of drainage for construction, operation, maintenance, decommissioning and structural integrity

A 'SuDS approach' shall be adopted to ensure that surface water drainage systems are designed so they can be easily and safely constructed, operated and maintained taking account of the need to minimise negative impacts on natural resources and the environment.

The designer shall provide a management and maintenance plan that supports the design objectives detailed in standards 1 to 6 and ensures the performance of the surface water drainage system with regards to runoff destinations, everyday and extreme rainfall, water quality, amenity and biodiversity is maintained throughout the lifetime of the development.

Surface water drainage design shall examine for the likelihood and consequences of potential failure scenarios that may occur during the operation phase and safely manage the associated risks.

The surface water drainage system shall be designed to ensure structural integrity of all components under anticipated loading conditions for the design life of the development so that it does not affect the structural integrity of any existing or proposed components within, or adjacent to, the development.

Urban creep

Within developments an urban creep uplift factor shall be applied by adding a percentage increase to the calculated area of the impermeable area within the property curtilages. This shall be 10% for all developments unless there are no external private permeable spaces, for example, flats and apartments, when it shall be 0%.

Ministry of Housing, Communities & Local Government – National Planning Practice Guidance: Flood risk assessments: climate change allowances (2022)

The Peak rainfall intensity allowances section provides advice on the increased rainfall effects on river levels and land and urban drainage systems. As of May 2022, the applicable climate change allowance is defined by specific Management Catchment for the 1 in 30 (≥ 3.3% AEP) and 1 in 100 (< 3.3 to 1% AEP) year event.

As the Site is located within the Adur and Ouse Management Catchment the following climate change allowances are applicable.

Table 3. Adur and Ouse Management Catchment peak rainfall allowances

Adur and Ouse Management Catchment	3.3% Annual exceedance rainfall event		1% Annual exceedance rainfall event	
	2050s	2070s	2050s	2070s
Central	20%	20%	20%	25%
Upper end	35%	40%	45%	45%

The drainage system should be designed to make sure there is no increase in the rate of runoff discharged from the Site for the upper end allowance.

Where on-Site flooding for the upper end allowance presents a significant flood hazard (for example, depths and velocities of surface water runoff cause a significant danger to people), you will need to take further mitigation measures to protect people and property (for example, raising finished floor levels). As a minimum, there should be no significant flood hazard to people from on-Site flooding for the central allowance.

Local policy

Worthing Local Plan (Worthing Borough Council, 2023):

DM20 – Flood Risk and Sustainable Drainage

- The Council will work with relevant bodies to ensure that flood risk in Worthing is managed and reduced. Development should be directed away from areas of highest risk of flooding from any source and opportunities should be taken to reduce flooding through sustainable drainage systems and natural flood management to deliver multi-functional benefits for people and wildlife.

Flood Risk Assessment

- A site specific Flood Risk Assessment must be submitted with planning applications for:
    - sites of 1 hectare or greater in Flood Zone 1;
    - all new development (including minor development and change of use) in Flood Zones 2 and 3;
    - development that would introduce a more vulnerable class on land at increased flood risk in future or subject to other sources of flooding identified by the Strategic Flood Risk Assessment.
- The Flood Risk Assessment should be proportionate to the degree of flood risk and appropriate to the scale, nature and location of development. It will need to demonstrate that:
    - the site has passed the sequential test (this has already been undertaken for all sites allocated in the Local Plan) and within the site the most vulnerable development is located in areas at lowest flood risk from any source unless there are overriding reasons for not doing so;
    - Where required by national policy, demonstrate both parts of the exception test have been passed:
        - the development would provide wider sustainability benefits to the community that outweigh the flood risk; and
        - the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.
    - current and future flooding from all sources including in-combination and cumulative effects, and any residual risk can be safely managed;
    - ensure safe access and egress to and from the development, where necessary as part of an agreed flood warning and evacuation plan;
    - development will not increase flood risk elsewhere, and where possible will reduce the overall level of flood risk; and

- development should be appropriately flood resistant and resilient so in the event of a flood it can be quickly brought back into use without significant refurbishment.

Surface Water Drainage

- The surface water drainage scheme should use Sustainable Drainage Systems, unless there is clear evidence that this would be inappropriate, and be designed to:
  - limit runoff to greenfield 1 year rates for events up to and including the 100 year plus climate change event where possible, and always ensure no increase in flows as a result of development;
  - follow natural drainage flow paths and work with existing site topography;
  - provide adequate capacity for the 30 year plus climate change event to be contained within the drainage system, and demonstrate that the development is safe for the 100 year plus climate change event scenario and does not increase in flood risk off site;
  - incorporate green infrastructure and maximise multi-functional benefits ensuring adequate treatment of surface water prior to discharge to ensure that the quality of local water is not adversely affected;
  - be sensitively located and designed to promote an enhanced landscape/ townscape and good quality spaces that improve public amenity; vi) discharge run-off according to the following hierarchy: (1) into the ground (infiltration), (2) to a surface water body, (3) to a surface water sewer, (4) to a combined sewer. Surface water connections to the public sewerage network should only be made with prior agreement of the relevant sewerage undertaker and where it can be demonstrated that there are no feasible alternatives (this applies to new developments and redevelopments) and where there is no detriment to existing users.
- Clear management arrangements and funding for their ongoing maintenance over the lifetime of the development should be proposed. Planning conditions or obligations will be used to secure these arrangements.

GeoSmart Information

Supplementary Requirements for Surface Water Drainage Proposals (Adur & Worthing Councils, 2022):

SuDS Selection

The following destinations must be considered for surface runoff in order of preference:

- Discharge into the ground (infiltration).
- Controlled discharge to a surface water body.
- Controlled discharge to a surface water sewer.

Surface water must not be discharged into the foul sewer system. Infiltration structures include soakaways, basins, swales and permeable paving. Open SuDS features are encouraged. Structures that span individual property boundaries are discouraged. Discharge to surface water bodies and surface water sewers must be restricted to an agreed rate.

Restricted Discharge

Discharge to a watercourse or surface water sewer must be restricted to the estimated mean greenfield runoff rate (Qbar) for all design storm events. The calculations must be based on the positively drained area, rather than the entire greenfield site area. Runoff rates can be derived from IH124 or a similar approved method.

For brownfield sites, the same criteria applies. If it is deemed that this is not achievable, evidence must be provided and flow should be restricted to as close to Qbar as possible, with a minimum requirement of 50% betterment.

Flow restriction is to be achieved using a suitable controlled outflow with a minimum outflow of 2 l/s, unless otherwise agreed, with satisfactory blockage mitigation measures specified.

Any storage design must be submitted with winter groundwater monitoring data and where applicable, floatation calculations, to ensure there will be no detrimental effect on the structure or storage.

The design must have provision to ensure that there is capacity in the system to contain the critical 1 in 30 year storm event (plus 40%) within the network/ storage features and the 1 in 100 year storm event (plus 45%) safely on site.

All major applications must also include a 10% allowance for urban creep applied to the design.

4 Site analysis

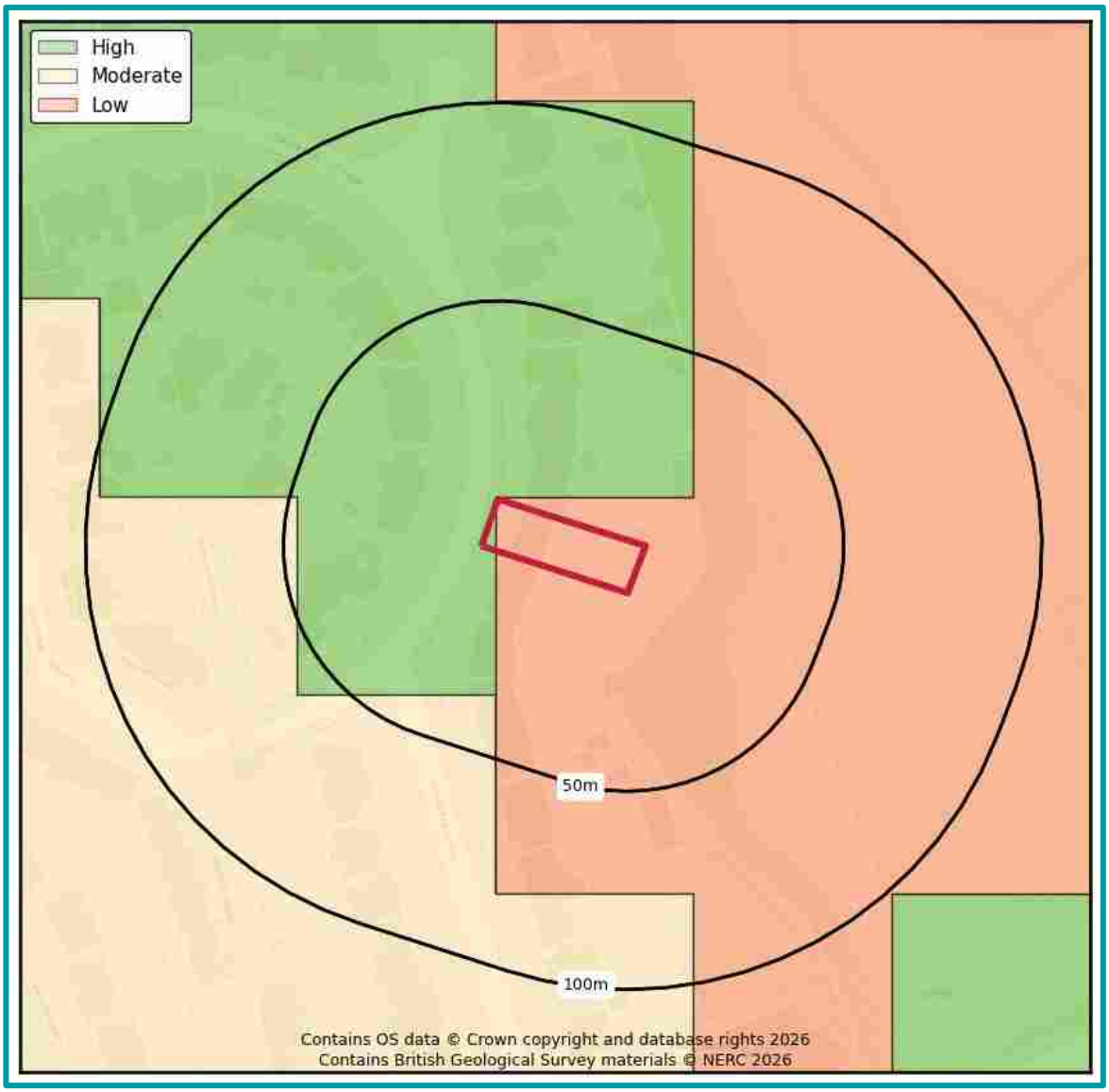
Site location

Figure 2. Aerial Imagery (Bluesky, 2026)



Infiltration suitability

Figure 3. SuDS infiltration suitability (SD50) map (GeoSmart, 2026)



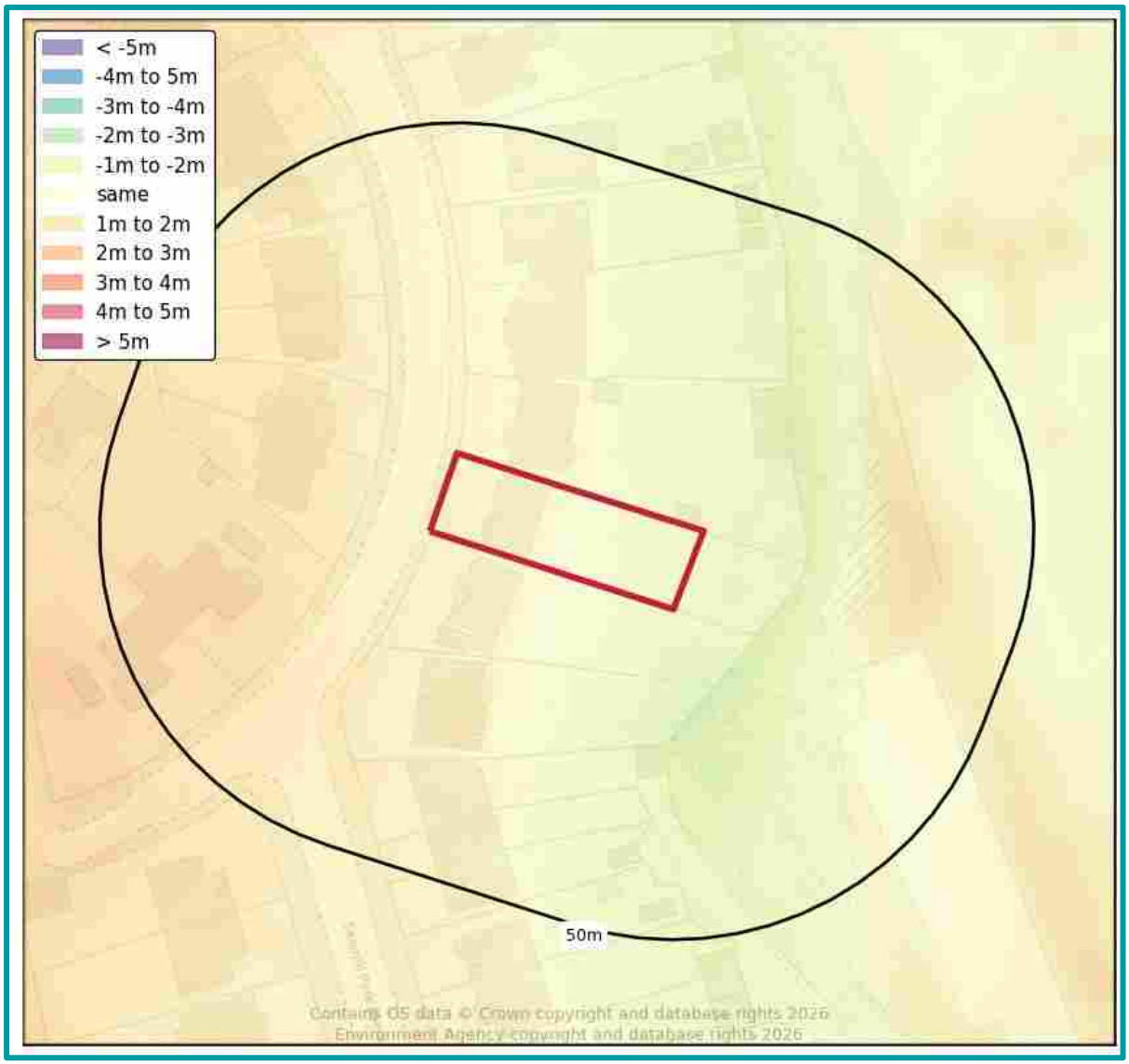
According to GeoSmart's SD50 mapping, there is a Low potential for infiltration SuDS across the majority of the Site. The western boundary is mapped as having a High potential for infiltration, likely corresponding to the mapped presence of Raised Beach Deposits in the west of the Site.

However, further analysis indicates that there is insufficient space within the area mapped as being underlain by Raised Beach Deposits, as a 5 m buffer between building foundations and any focused infiltration features cannot be provided as required by Building Regulations (2010). The eastern part of the Site is mapped as being underlain by Made Ground so would not be suitable for infiltration SuDS.

Therefore, infiltration is not considered to be feasible for the development.

Topography

Figure 4. Site topography (GeoSmart, 2026)



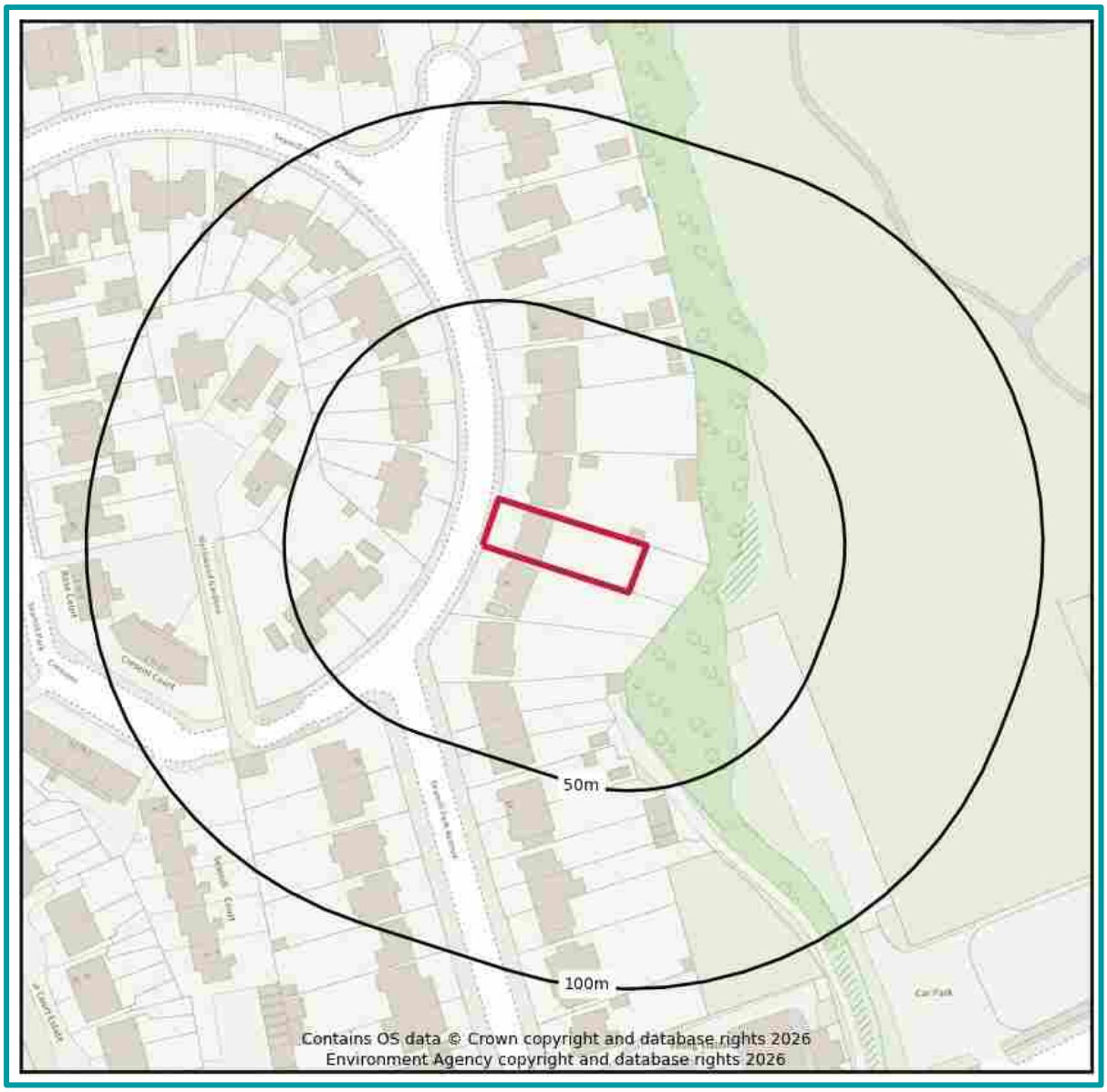
According to a review of the LiDAR DTM5 elevation data for the prevailing area, the ground levels within the vicinity of the Site typically fall to the south east.

The topography on-Site typically falls to the east, with ground levels ranging between 3.17 and 4.75 mAOD. This is based on EA elevation data obtained for the Site to a 1 m resolution with a vertical accuracy of ±150 mm.

Further analysis could be undertaken by visiting the Site or by collecting additional topographic survey data to provide further confirmation of ground levels.

Land designations

Figure 5. Source protection zone map (EA, 2026)

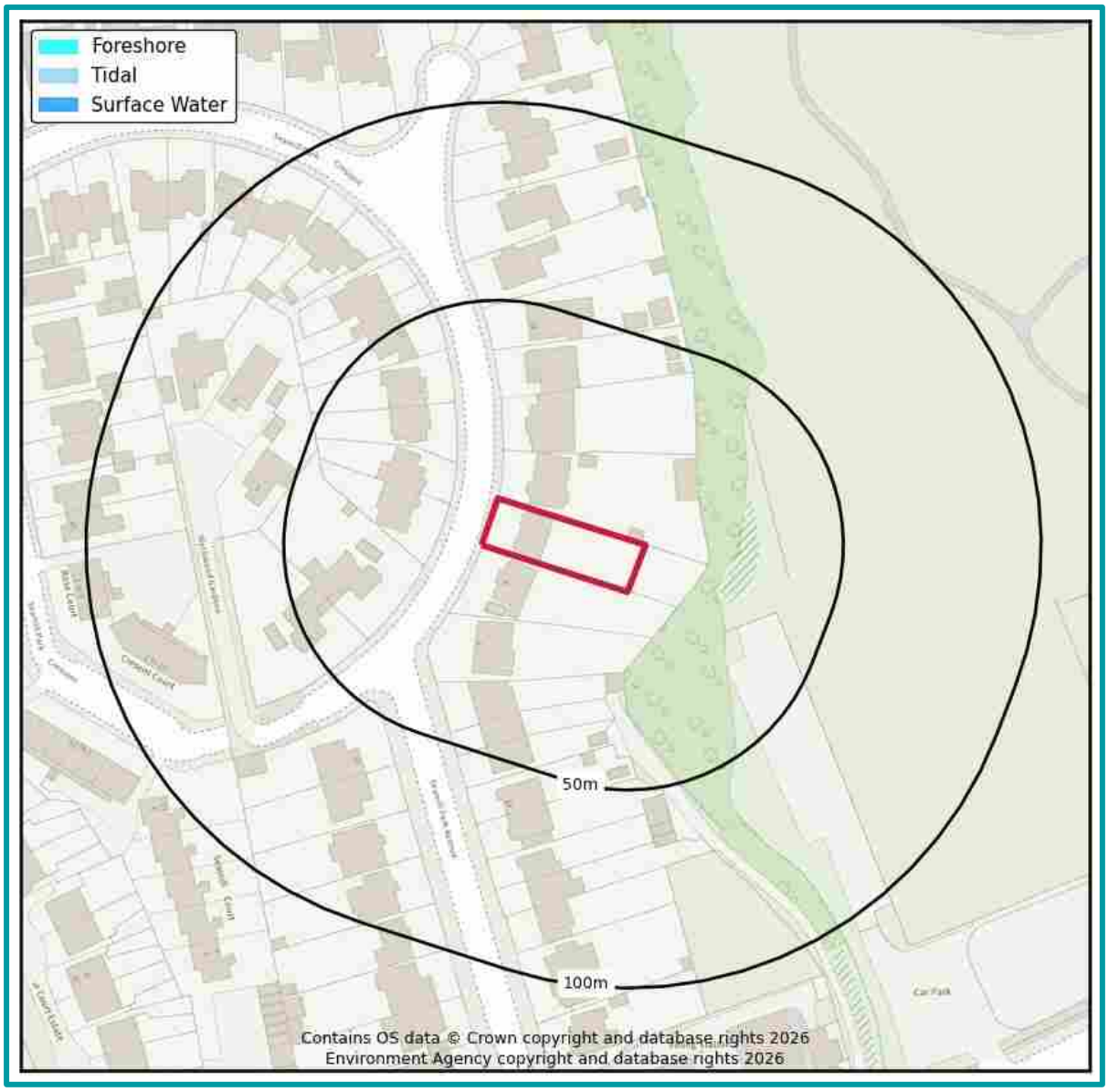


According to DEFRA's Magic Map, the Site is not located within a groundwater Source Protection Zone (SPZ). The mapping also confirms that the Site is not within 250 m of a SSSI or SPA.

If further analysis is required, this would involve a review of Site specific contaminated land data. If hazards are identified, it is recommended that the Local Authority and the Environment Agency are contacted to confirm the susceptibility of any SPZs within the wider area.

Surface water features

Figure 6. Surface water features map (EA, 2026)

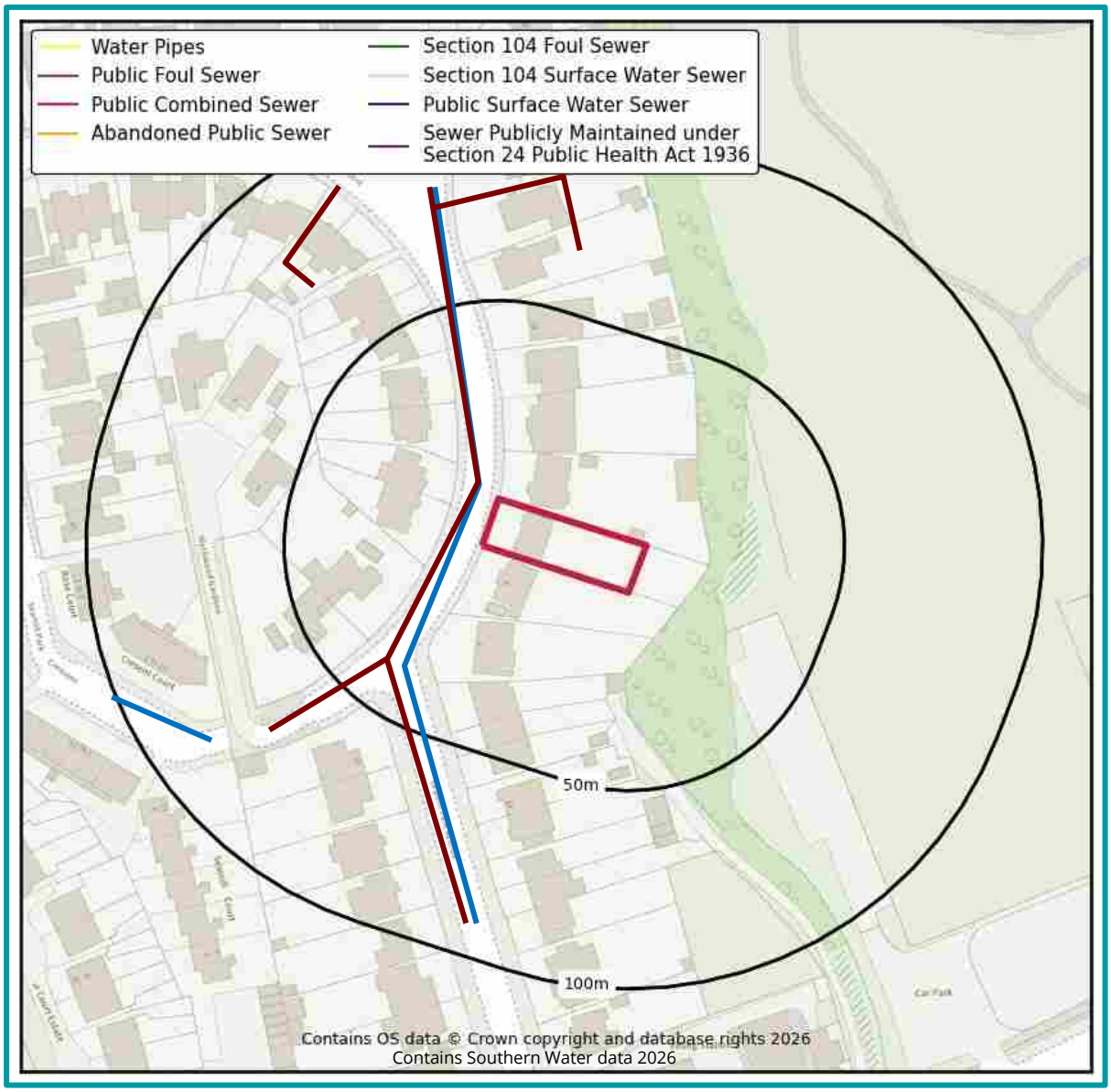


Ordnance Survey (OS) mapping indicates that there are no surface water features within 100 m of the Site. Therefore, discharge to surface water feature is not feasible.

Further analysis could be undertaken by visiting the Site or by contacting the Local Council and the Environment Agency (EA) to confirm the presence, location and condition of any potentially unmapped surface water features.

Sewer features

Figure 7. Sewer features map (OS & Southern Water, 2026)



According to the Southern Water asset location plan obtained for the Site (Appendix C), a public surface water sewer is located c. 5 m to the west of the Site, beneath Seamill Park Crescent. Therefore, discharge to sewer is likely to be appropriate.

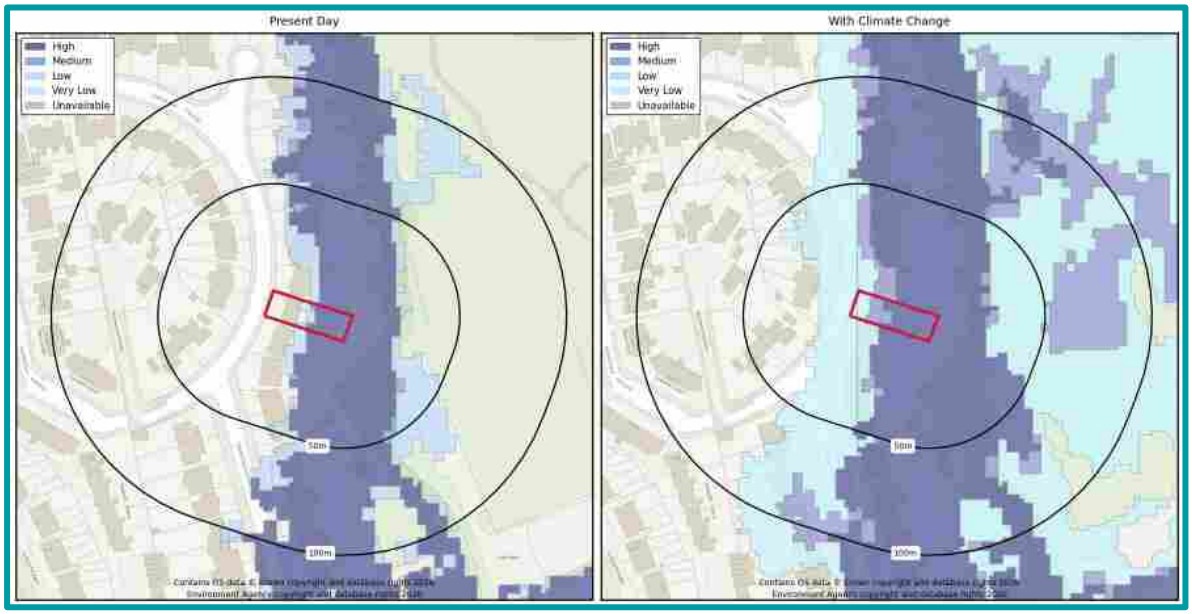
The asset location plan also confirms that there is a public foul sewer within 5 m of the Site; however, discharge of runoff to this location is unlikely to be acceptable under national guidance.

Further analysis of the connections and condition of the public surface water drainage system should be undertaken by carrying out a CCTV survey or by contacting the drainage provider or the Local Council to confirm the presence, location and condition of the sewer. Consultation with the drainage provider would also be required to determine that sufficient

capacity is available to accept the proposed discharge, and to gain permission to connect if required.

Flood risk

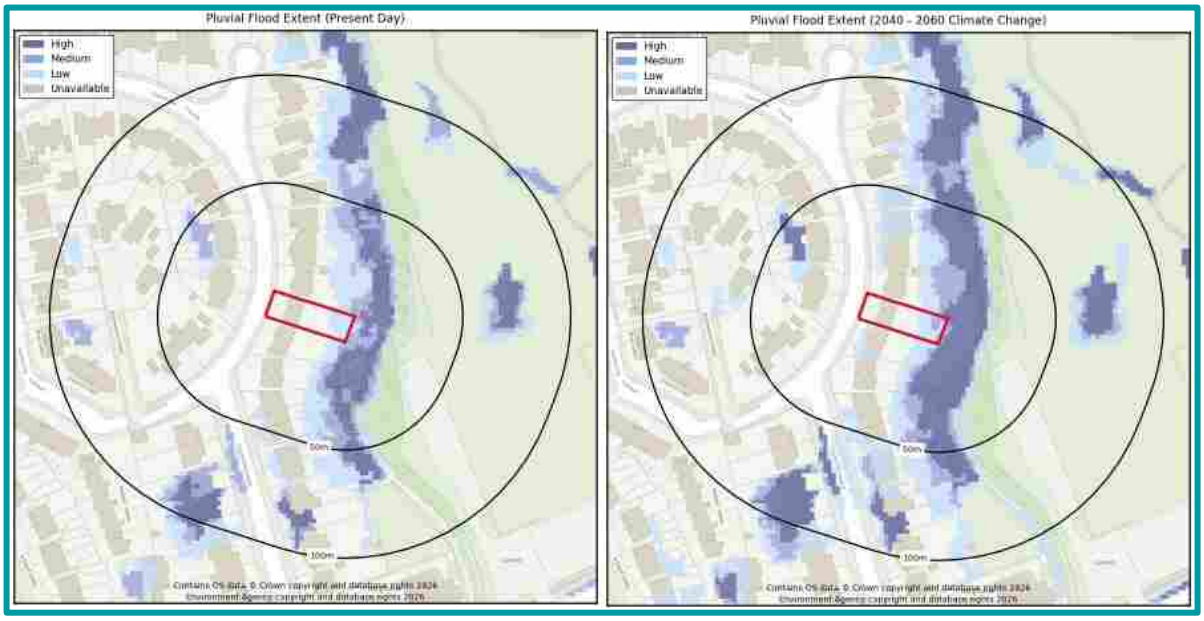
Figure 8. Risk of flooding from rivers & sea map (EA, 2026)



According to the EA's Risk of Flooding from Rivers and the Sea (RoFRS) map, the Site has a variable risk of flooding from Rivers and / or the Sea during both the present day and climate change (2036 to 2069) scenarios, ranging from Very Low to High. Any areas at High or Medium risk should be avoided for any proposed SuDS features where possible.

A separate Flood Risk Assessment has been undertaken (ref: EF000773.01), where the potential risks to the development are discussed further. It should be noted that the risk of tidal flooding to the development was reduced to Very Low following further analysis due to the anticipated absence of internal flooding.

Figure 9. Risk of surface water flooding map (EA, 2026)

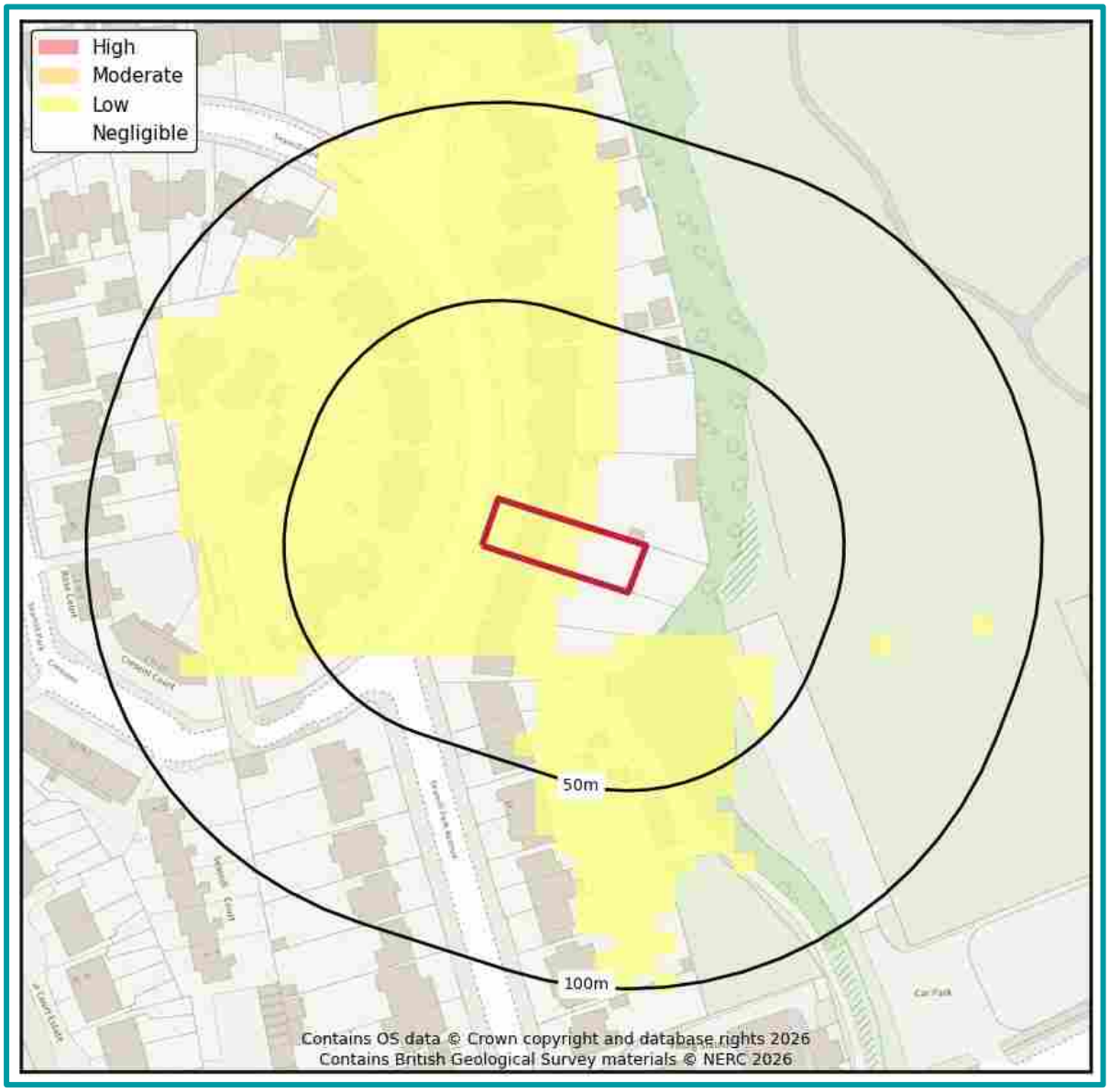


The EA's Risk of Flooding from Surface Water (RoFSW) mapping confirms the Site is considered to be at Very Low to Medium risk of surface water flooding during both the present day and climate change (2050s) scenarios.

The above map shows the extent of flooding during the >3.3% annual probability (AEP) (1 in 30 year – High risk), 3.3 – 1% AEP (1 in 100 year – Medium risk) and 1 – 0.1% AEP (1 in 1000 year – Low risk) events. This confirms there are areas where flooding could occur in the 1 in 100 and 1 in 1000 year events during the present day and climate change scenarios. Flooding in these areas may constrain certain types of SuDS features being used.

Further details are provided within the separate Flood Risk Assessment undertaken for the Site (ref: EF000773.01).

Figure 10. Groundwater flood risk (GW5) map (GeoSmart, 2026)



GeoSmart's Groundwater Flood Risk Screening (GW5) map confirms the Site has a Negligible to Low risk of groundwater flooding during a 1% annual probability (1 in 100 year) event.

5 Site context

Site information

The purpose of this report is to assess the potential for disposing of surface water through a Sustainable Drainage System (SuDS) for the site of 6 Seamill Park Crescent, Worthing, BN11 2PN ('the Site'). The Site is located within a setting of predominantly residential land use.

Development

The Site is currently used within a residential capacity as a two-storey detached dwelling, including an associated driveway, landscaping and access. Development proposals comprise the construction of a single-storey rear extension with decking and balustrades, front porch and hip to barn end roof extension, including the incorporation of front and rear dormers.

Geology, permeability, and thickness

British Geological Survey (BGS) national superficial and bedrock geology mapping confirms the geological formations underlying the Site; each formation may have a range of permeabilities.

Table 4. Site Geology

Geology present on-Site		Likely to be permeable?
Artificial deposits (Figure 11)	Made Ground (MGR) (eastern c. 40% of Site area)	✓
Superficial geology (Figure 11)	Raised Beach Deposits (RBDUU) – sand and gravel (western c. 60% of Site area)	✓*
	Alluvium (ALV) – clay, silt, sand and gravel (eastern c. 40% of Site area)	X
Bedrock geology (Figure 12)	Lambeth Group (LMBE) – clay, silt and sand	X

*** Whilst Raised Beach Deposits are likely to be permeable, spatial constraints mean that a 5 m buffer between building foundations and any focused infiltration features cannot be provided within their extent.**

A review of the BGS borehole database (BGS, 2026) indicates the nearest and most relevant borehole to the Site (ref: TQ10SE107) is located c. 90 m to the south east of the Site boundary at an elevation of c. 4.40 mAOD (estimated using LiDAR) This borehole has a mapped bedrock comprising Seaford Chalk, which is not relevant to the Site, although the artificial and superficial deposits encountered remain appropriate for consideration.

An additional borehole (ref: TQ10SE172) is located c. 170 m to the north of the Site boundary at an elevation of c. 5.36 mAOD (estimated using LiDAR). This borehole is mapped on the boundary between Raised Beach Deposits and River Terrace Deposits, underlain by the Lambeth Group.

A summary of the geological strata encountered by the boreholes is provided within the table below.

Table 5. Summary of BGS borehole information

Strata encountered	BGS borehole TQ10SE107		BGS borehole TQ10SE172	
	Depth to base of stratum (m bgl)	Strata composition	Depth to base of stratum (m bgl)	Strata composition
Made Ground	3.04	Fill	0.30	Concrete
Superficial deposits	5.18	Silty clay with flint gravel	2.68	Sand and flint gravel with cobbles
Bedrock (Lambeth Group / Seaford Chalk Formation)	>8.09 (base of borehole)	Chalk	6.63	Fissured / laminated silty clay
			7.40	Fissured sandy silty clay
			9.00	Silty clay with sand partings
			11.15	Fissured sandy silty clay
			11.75	Fissured laminated silty clay with sandy claystone
			>12.2 (base of borehole)	Shaly lignite and iron pyrites

Following analysis of the underlying geology, the western section of the Site, where Raised Beach Deposits are mapped, is considered the only area where the soils may be sufficiently permeable to accept infiltration SuDS features. This area is primarily occupied by the building footprint, and an appraisal of the proposed development plans indicates that there is insufficient space for infiltration SuDS at the front of the property, as a 5 m buffer between building foundations and any focused infiltration features cannot be provided as required by Building Regulations (2010). Therefore, infiltration SuDS features are not deemed feasible.

Depth to groundwater

The SuDS system should be designed to operate in periods of extreme groundwater levels.

Borehole refs: TQ10SE107 and TQ10SE172 both do not contain any measurements from which the groundwater level can be confirmed.

According to GeoSmart's Groundwater Flood Risk (GW5) map, shallow groundwater is potentially a problem at the Site.

Ground conditions

Infiltration SuDS features are not proposed at the Site; therefore, a detailed investigation into the ground conditions is not required.

Water quality

The Site does not lie within an SPZ, and infiltration features are not proposed; therefore, for the purposes of the sustainable drainage assessment further consideration of the historical land uses (and any associated contamination risks) is not considered necessary.

Figure 11. Superficial Geology (BGS, 2026)

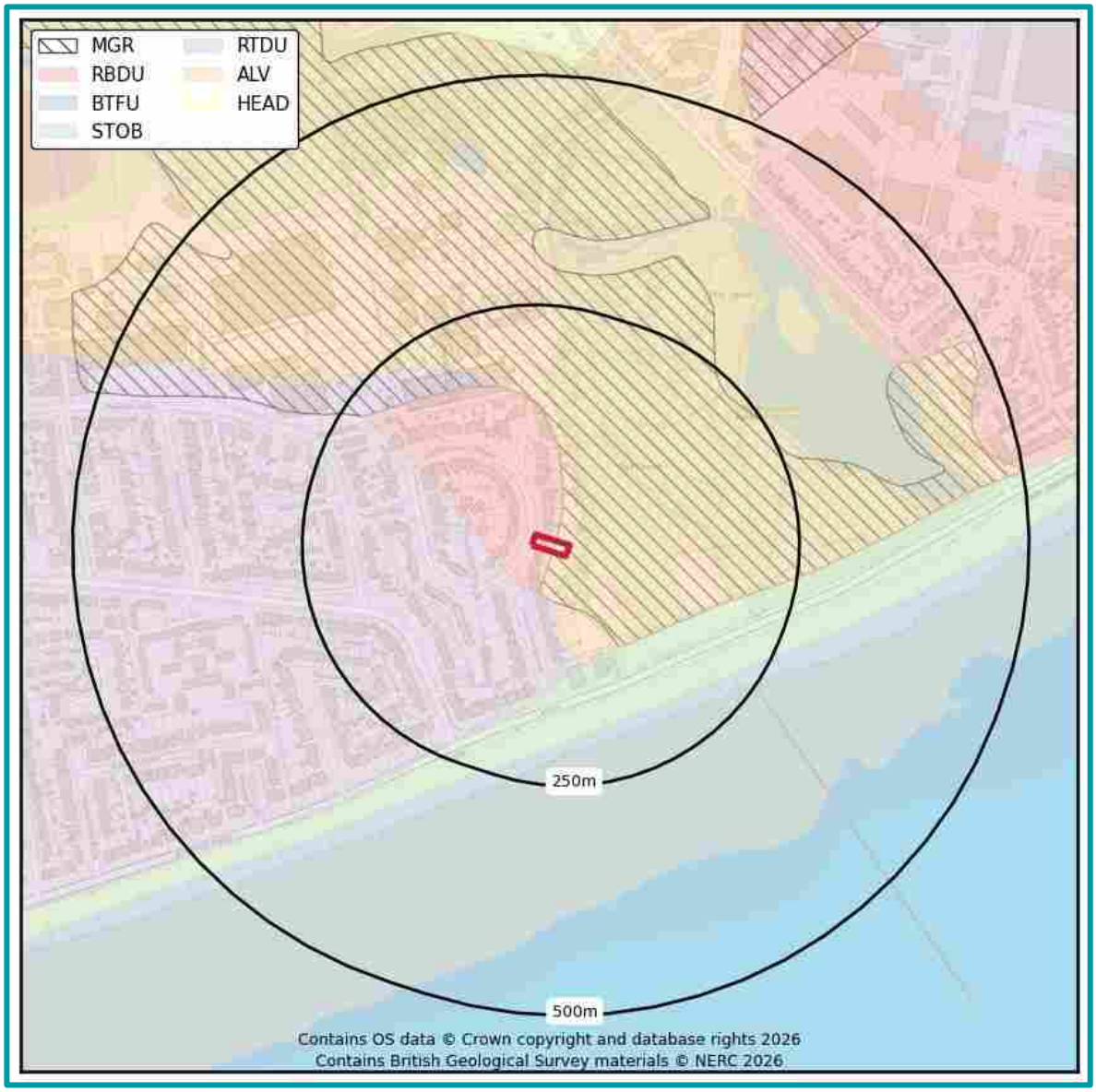
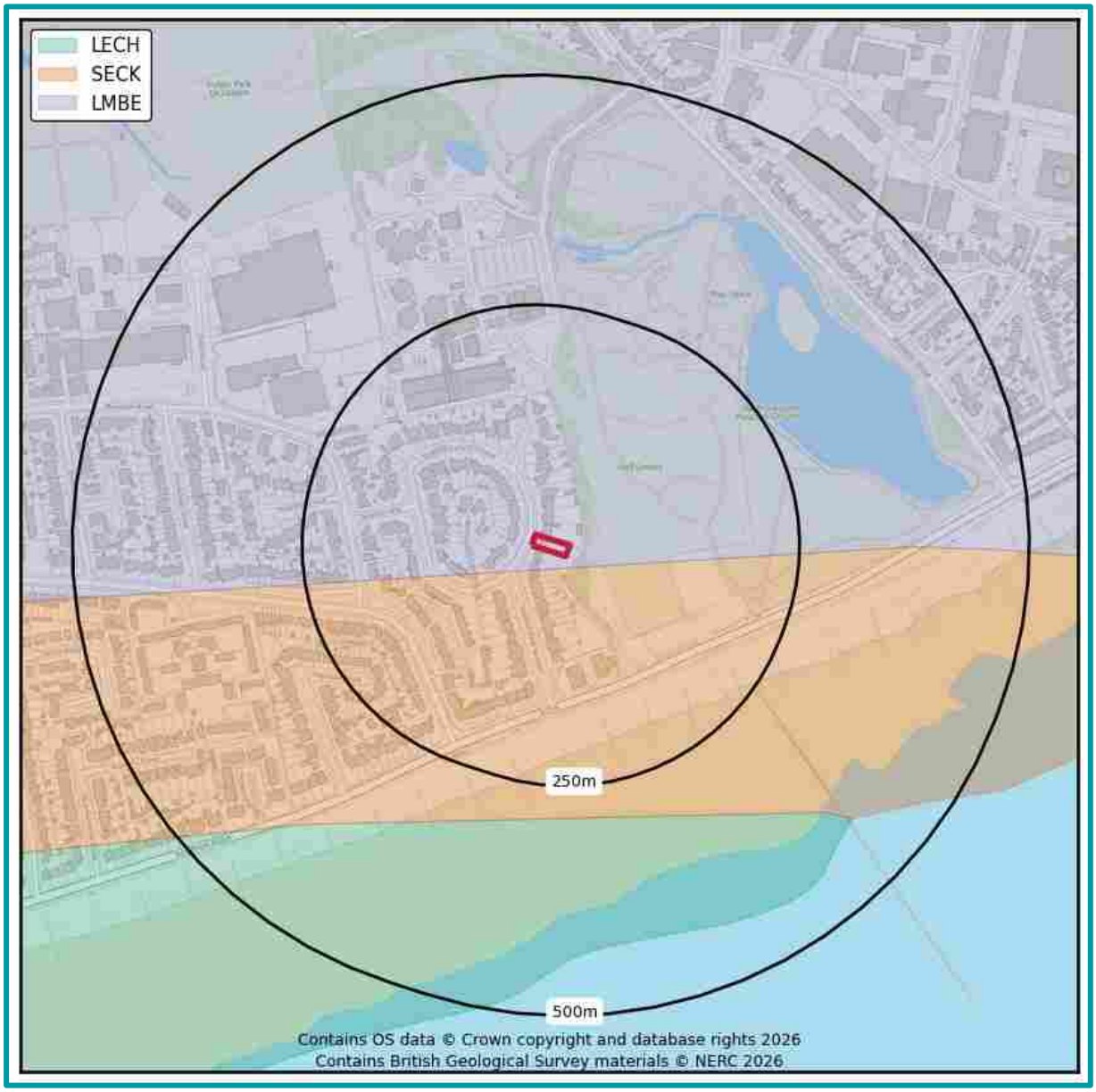


Figure 12. Bedrock Geology (BGS, 2026)



6 Runoff destination

National Standard 1: runoff destinations

Options for the destination for the runoff generated on-Site have been assessed in line with the prioritisation set out in DEFRA's national standards for sustainable drainage systems (2025).

Priority 1: Collection for non-potable use

An assessment of the potential for rainwater collection and re-use across the proposed development has been undertaken, which confirms that there is the potential for the provision of rainwater harvesting measures at the Site. Captured water could be used to water vegetation in order to provide additional amenity and biodiversity benefits.

Priority 2: Discharge to ground

There are no known issues identified relating to Site contamination or the presence of a SPZ. According to GeoSmart's SD50 screening data, the majority of the Site has Low potential for infiltration. An area along the western boundary has High potential for infiltration, associated with the mapped underlying presence of Raised Beach Deposits.

Based on the available hydrogeological information (Section 5), the western section of the Site, where Raised Beach Deposits are mapped, is considered the only area where the soils may be sufficiently permeable to accept infiltration SuDS features. This area is primarily occupied by the building footprint, and an appraisal of the proposed development plans indicates that there is insufficient space for infiltration SuDS at the front of the property, as a 5 m buffer between building foundations and any focused infiltration features cannot be provided as required by Building Regulations (2010).

The eastern section of the Site is underlain by Made Ground, with low permeability superficial deposits and bedrock beneath, and is considered unlikely to be suitable for infiltration SuDS.

On the basis of the above, discharging runoff to the ground is not deemed feasible and is not proposed.

Priority 3: Discharge to above ground surface water body

Ordnance Survey (OS) mapping indicates that there are no surface water features within 100 m of the Site; therefore, discharge to surface water feature is not feasible.

Priority 4: Discharge to surface water sewer

According to the Southern Water asset location plan obtained for the Site (Appendix C), a public surface water sewer is located c. 5 m to the west of the Site; therefore, discharge to sewer is likely to be appropriate.

Priority 5: Discharge to combined sewer

According to the Southern Water asset location plan obtained for the Site (Appendix C), there are no public combined sewers within the vicinity of the Site. Therefore, discharge of runoff to combined sewer is not feasible for the development and is not proposed.

7 Storage, volume and peak flow rate

Urban creep

According to Paragraph 3.3 of the DEFRA National standards for SuDS, urban creep should be taken into account as part of the SuDS design. Urban creep accounts for the potential for impermeable areas to increase over the lifespan of a development, such as extensions to proposed building footprints and increases in patio areas.

As the development proposals comprise the extension of an existing dwelling, no Urban Creep uplift factor is required to be applied to the impermeable surface area and as such the standard proposed impermeable area has been utilised within the calculations.

Surface water runoff

An increase in impermeable areas on-Site will result in greater rainfall runoff. A reduction in runoff will help mitigate flood risk both on and off-Site.

The driveway is not proposed to be modified as part of the development proposals and will utilize the existing drainage arrangements; therefore, it has been excluded from the drainage calculations.

Table 6. Change in impermeable area associated with the development

Total Site area	490 m^2
Impermeable area (and as a percentage of the total area of the proposed development footprint of 404 m^2)†	
Pre-development	Post-development
112 m^2 (28%)	130 m^2 (32%)
Impermeable land use: 82 m^2 building footprint, 30 m^2 hard standing Permeable land use: 292 m^2 landscaped areas	New impermeable land use: 130 m^2 building footprint New permeable land use: 274 m^2 landscaped areas

†An 86 m^2 area, comprising the driveway, is not proposed to be modified as part of the development; therefore, this area has been excluded from the drainage calculations.

Suggested minimum and aspirational storage requirements for an attenuation SuDS scheme for the development footprint are set out below, with more detail provided in subsequent sections.

Table 7. Storage requirements for the proposed development (discharge of runoff to surface water sewer)

Attenuation scenario		Attenuation required (m^3)	Explanation	
Discharge runoff to surface water sewer	1 in 30 year	0.96	Attenuation required to ensure surface water runoff is attenuated in all storm events up to and including the 1 in 30 year (0.25 hour, Critical Storm Duration) event*. Flooding of the Site of 0.71 m^3 should be contained within permeable landscaped areas within the Site to ensure no flooding of internal areas during the 1 in 100 year storm event.	A further 1.56 m^3 should be managed within overland flow routes to ensure there is no increase in flood risk in all events up to the 1 in 100 year including 45% allowance for climate change.
	1 in 100 year	1.67	Attenuation required to ensure surface water runoff is attenuated in all storm events up to and including the 1 in 100 year (0.25 hour, Critical Storm Duration) event*.	
	1 in 100 year including 45% CC	3.23	Attenuation required to ensure surface water runoff is attenuated in all storm events up to and including the 1 in 100 year (0.25 hour, Critical Storm Duration) event including a 45% allowance for climate change*.	

*See Appendix B for associated runoff and discharge calculations. Subject to discharge rates being limited to 2 l/s (as close to the equivalent Greenfield 1 in 1 year rate as possible, without increasing the potential for blockages).

Peak discharge rates

The peak discharge rate is the maximum flow rate at which surface water runoff leaves the Site during a particular storm event, without considering the impact of any mitigation such as storage, infiltration or flow control. Proposed discharge rates (with mitigation) should be no greater than existing rates for all corresponding storm events. If all runoff is disposed of via infiltration, there will be no discharge off-Site.

The table below presents peak discharge rates for a range of storm events used to assess the impact of the proposed development and select the maximum permitted discharge rate.

Table 8. Peak discharge rates associated with the development

Rainfall event	Greenfield runoff rates (l/s)	Existing runoff rates[1] (l/s)	Potential runoff rates without attenuation (l/s)	Potential minus existing (l/s)
QBAR	0.08	N/A	N/A	N/A
6 hour 1 in 1 year	0.07	0.26	0.27	0.02
6 hour 1 in 10 year	0.13	0.42	0.44	0.03
6 hour 1 in 30 year	0.18	0.53	0.57	0.03
6 hour 1 in 100 year	0.25	0.67	0.71	0.04
6 hour 1 in 100 year + 20% CC	N/A	N/A	0.85	0.18
6 hour 1 in 100 year + 45% CC	N/A	N/A	1.03	0.36

[1] Assumes 100% runoff from impermeable surfaces. Assumes Greenfield runoff from permeable surfaces calculated using the IoH124 method.

Relevant national, regional and local planning policy has been consulted in Section 3 to determine restrictions on runoff from previously developed and greenfield sites. In some cases, greenfield rates may be requested, but in practice it is difficult to restrict discharge rates at any one control point to less than 2 l/s, without increasing the risk of any potential blockages occurring in the drainage network.

Total discharge volumes

The table below presents discharge volumes for a range of storm events used to assess the impact of the proposed development and calculate the required storage volumes.

Table 9. Total discharge volumes associated with the development

Rainfall event	Greenfield runoff volume (m^3)	Existing runoff volume[2] (m^3)	Potential runoff volume without attenuation (m^3)	Potential minus existing (m^3)
QBAR	3.58	N/A	N/A	N/A
6 hour 1 in 1 year	3.35	5.52	5.87	0.35
6 hour 1 in 10 year	5.58	9.05	9.60	0.56
6 hour 1 in 30 year	7.01	11.54	12.27	0.73
6 hour 1 in 100 year	8.73	14.38	15.29	0.91
6 hour 1 in 100 year + 20% CC	N/A	N/A	18.34	3.97
6 hour 1 in 100 year + 45% CC	N/A	N/A	22.17	7.79

[2] Assumes 100% runoff from impermeable surfaces. Assumes Greenfield runoff from permeable surfaces, as calculated using the IoH124 method.

Critical storm duration and volume requirements

Storage volumes for a range of return periods including the 1 in 30 year, 1 in 100 year and 1 in 100 year plus climate change (45%) events have been calculated to assess the impact of the proposed development. The required storage volumes for attenuation features have been calculated for the critical storm durations, limited to a maximum discharge rate of 2 l/s (as close to the Greenfield 1 in 1 year rate as possible, without increasing the potential for blockages).

Table 10. Critical Storm Duration and Attenuation volume requirements

Return Period	Runoff rate restriction (l/s)	Critical Storm Duration (hr)	Attenuation volume required (m^3)
1 in 30 year	2	0.25	0.96
1 in 100 year	2	0.25	1.67
1 in 100 year including a 45% climate change	2	0.25	3.23

8 Water quality

A key requirement of any SuDS system is that it protects the receiving water body from the risk of pollution. This can be effectively managed by an appropriate "train" or sequence of SuDS components that are connected in series. The frequent and short duration rainfall events are those that are most loaded with potential contaminants (silts, fines, heavy metals and various organic and inorganic contaminants). Therefore, the first 5-10 mm of rainfall (first flush) should be adequately treated with SuDS.

The minimum number of treatment stages will depend on the sensitivity of the receiving water body and the potential hazard associated with the proposed development SuDS Manual (CIRIA, 2015). The proposed development is Very Low hazard (residential roof water). The Site does not lie within an SPZ and therefore additional treatment stages are not required.

Table 11. Pollution hazard indices for different land use classifications

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very Low	0.2	0.2	0.05
Other roofs (typically commercial/industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads and non-residential car parking within infrequent change (i.e. less than 300 traffic movements/day)	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (e.g. hospitals, retail), all roads except low traffic roads and trunk roads/motorways	Medium	0.7	0.6	0.7
Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other	High	0.8	0.8	0.9

than domestic fuel oil) are to be delivered, handled, storage, used or manufactured: industrial sites; trunk roads and motorways				

Table 12. Indicative SuDS mitigation indices for discharges to surface waters

Type of SuDS component	Mitigation indices		
	TSS	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter drain	0.4	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond	0.7	0.7	0.5
Wetland	0.8	0.8	0.8
Proprietary treatment systems	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area		

As indicated within Tables 11 and 12, the proposed rainwater planter would provide sufficient mitigation indices to treat the Very Low pollution hazard associated with the development.

9 Proposed SuDS strategy

Sustainable drainage systems

DEFRA's national standards for SuDS require the below ground drainage systems to have the capacity to accommodate at least the 1 in 30 year event and to manage the 1 in 100 year event without flooding of on-site buildings and substations. All runoff should be managed on-Site though for the 1 in 100 year event, accounting for the maximum impacts of climate change to ensure flood risk is not increased to third-parties.

A surface water drainage strategy (summarised in Section 2 of this report) includes the following SuDS features to intercept, attenuate and treat surface water runoff.

SuDS Strategy:

Infiltration to ground is not achievable at the Site, and no suitable water features were identified. Therefore, surface water runoff will be managed within SuDS features and discharged to the public surface water sewer.

The driveway is not proposed to be modified as part of the development proposals and will utilize the existing drainage arrangements. The decking to the rear of the property is proposed to drain to the adjacent landscaping areas.

Table 13. Proposed SuDS type, features, discharge location and rate restriction

SuDS type	Source control (interception) and attenuation SuDS.
SuDS features	Rainwater harvesting butt, rainwater planter & attenuation tank.
Discharge location	Public surface water sewer.
Discharge rate	2 l/s (as close to the 1 in 1 year Greenfield runoff rate, without increasing the potential for blockages).

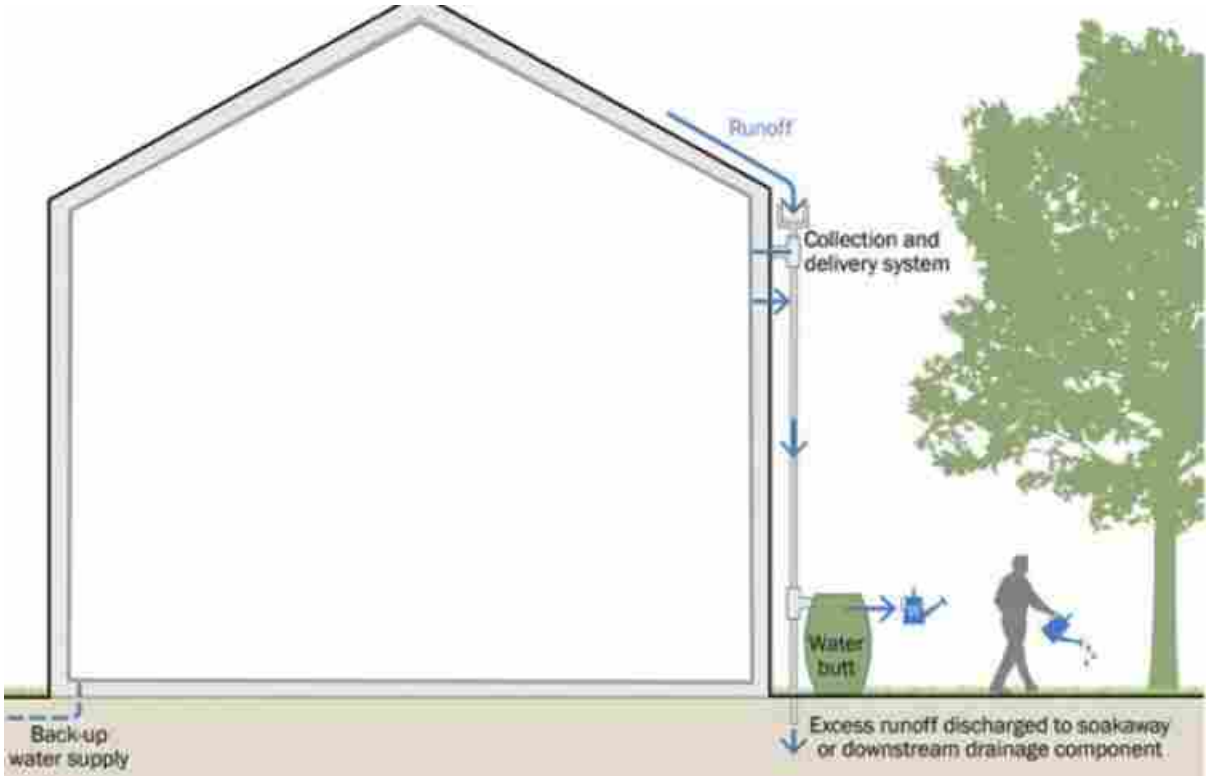
Table 14. Proposed SuDS sizing (dimensions) and attenuation volumes

Rainwater harvesting	To comply with DEFRA's national standards for SuDS (2025), a rainwater harvesting butt should be established for the proposed development. In terms of attenuation storage within this SuDS scheme, the volume of run-off which could be attenuated by rainwater harvesting has not been considered within the preliminary SuDS strategy.
Attenuation tank	An attenuation tank within the driveway area with a length of 2 m, width of 1.6 m and depth of 1.2 m, comprising geo-cellular crates with a 95% void ratio, would provide c. 3.65 m^3 of attenuation.
Rain planter	A rain planter is proposed to be established for the development for water quality and biodiversity purposes. In terms of attenuation storage within this SuDS scheme, the volume of run-off which could be attenuated by the planter has not been considered within the preliminary SuDS strategy.
Total attenuation provided	3.65 m^3
Total attenuation required	3.23 m^3
Freeboard storage provided	0.42 m^3

Rainwater harvesting

Run-off from the proposed development roof should be led into rainwater harvesting butts via rainwater downpipes and guttering. Overflow from the butts should be discharged into the storage system provided by the attenuation tank.

Due to the relatively insignificant amounts of attenuation provided by rainwater harvesting tanks in this instance and the requirement to retain water for non-potable uses such as garden maintenance, the volume of run-off which could be attenuated by rainwater harvesting has not been considered within the report.



Modified from Figure 11.3 of the CIRIA SuDS Manual (C753) (2015)

Attenuation tanks

Attenuation tanks provide a below-ground void space for use of temporary storage via controlled release. They can also be modified to suit specific characteristics of a site.

Rain planters

Rain planters will be used to collect and store surface water prior to discharge into the attenuation tank.

The main elements of the system comprise the inlet, which allows water to evenly distribute into the filter system. The vegetation will influence the performance of the system through direct uptake of any pollutants and by facilitating physical and chemical processes in the soil that remove nutrients. The filter medium is normally sand based which controls the rate at which water filters through the system. This medium is usually 750-1000mm thick, although this can be reduced for smaller catchments (minimum depth – 400mm). The transition layer is required to prevent washing of fines from the filter medium into the drainage layer and must be at least 100mm thick. The drainage layer is used to collect water from the filter medium to allow for access into the perforated pipes.

Due to the relatively insignificant amounts of attenuation provided by rain planters in this instance, the volume of run-off which could be attenuated by rain planters has not been considered within the report.

Flow control devices and systems

Hydrobrake Flow control systems can be used to reduce the runoff rate from the Site. These are usually a device used for controlling water flow into a connecting feature, such as a sewer, to a specific attenuation performance. The design consists of an intake, a volute and an outlet and the configuration is critical to ensure discharge control. For drainage areas which are less than 3 ha, outlet throttle diameters would have to be small (<150mm diameter) to achieve outflow rates which could result in blockage. For most SuDS features, a flow control device will comprise a fixed orifice or a throttle such as a short pipe.

Drainage protection devices

A non-return flap valve is recommended for outflow pipes to reduce the risk of backflow from the sewer during a large scale rainfall event.

Exceedance flows

Exceedance flow routes are included within the proposed SuDS drainage layout. Where possible, exceedance flows should be directed into non-essential areas of the Site such as the garden or driveway. The SuDS system recommended for the Site should provide enough storage that this method would only be utilised during a worst case scenario.

Amenity and biodiversity

The inclusion of SuDS planters at the downpipes where feasible will provide sufficient biodiversity and amenity benefits to the areas of proposed development keeping surface water at/or close to ground level to provide health and wellbeing benefits for any on-site users. Captured water will be used to water vegetation and ensure their long-term viability as amenity features.

10 SuDS maintenance

Regular maintenance is essential to ensure effective operation of the SuDS features over the intended lifespan of the proposed development. The SuDS Manual (C753) (CIRIA, 2015) provides a maintenance schedule for SuDS with details of the necessary required actions as shown in the Table below.

Table 15. SuDS operation and recommended maintenance requirements

Asset type	Maintenance schedule (and frequency)
Hydro-Brake Flow Control	Low amounts of maintenance required as there are no moving parts within the Hydro-Brake® Flow Control. • Initial monthly inspection at the manhole once the construction phase is over. If blockages occur they normally do so at the intake. Hydro-Brake® Flow Controls are fitted with a pivoting by-pass door, which allows the manhole chamber to be drained down should blockages occur. Inspection should be undertaken annually or when a storm event occurs.
Underground drainage pipe network	Regular maintenance: • Remove sediment and debris from pre-treatment devices and floor of inspection tube or chamber (annually). • Cleaning of gutters and any filters on downpipes (annually). • Trimming any roots that may be causing blockages (annually or as required). Monitoring: • Inspect silt traps and note rate of sediment accumulation (monthly in the first year and then annually).
Rainwater harvesting	Regular maintenance: • Inspection of tank for debris and sediment build up (annually and following poor performance). • Inspection of inlets, outlets, overflow areas, pumps and filters (annually and following poor performance). • Cleaning of tank, inlets, outlets, gutters, roof drain filters and withdrawal devices (annually or as required). Remedial actions: • Repair or overflow erosion damage or damage to tank and associated components (as required)
Rainwater planter	Regular maintenance: • Remove litter and debris from basin (monthly).

Asset type	Maintenance schedule (and frequency)
	• Trimming any roots and surrounding grass blockages (as required). Monitoring: • Inspect inlets, outlets and overflows for blockages,(monthly or after a heavy storm). • Inspect inlets and outlets for silt accumulation (half yearly). • Inspect infiltration surfaces for compaction and ponding (monthly).
Attenuation tanks	Regular maintenance: • Remove litter and debris from inlets and outlets (monthly). • Trimming any roots and surrounding grass blockages (as required). Monitoring: • Inspect inlets, outlets and overflows for blockages (monthly or after a heavy storm). • Inspect inlets and outlets for silt accumulation (half yearly). • Inspect infiltration surfaces for compaction and ponding (monthly).

Health and safety considerations for SuDS

GeoSmart reports may include outline strategies or designs to support with development plans. Any drawings or advice provided do not comprise any form of detailed design. Implementation of any conceptual scheme options may constitute 'Construction Work' as defined by CDM Regulations (2015).

The CDM Regulations place specific Health and Safety duties on those commissioning, planning and undertaking construction works. If you are uncertain what this means you should seek the advice of your architect, builder or other competent professional.

GeoSmart does not provide health and safety advisory services but we are required to advise you of your general responsibilities under CDM (visit http://geosmartinfo.co.uk/knowledge-hub/cdm-2015/ for more information).

Please remember that detailed design work should be undertaken by a competent professional who might be your engineer, architect, builder or another competent party.

11 Background information

GeoSmart SuDS Infiltration Suitability Map (SD50)

The GeoSmart SuDS Infiltration Suitability Map (SD50) screens the suitability for infiltration drainage in different parts of the Site and indicates where further assessment is recommended. In producing the SuDS Infiltration Suitability Map (SD50), GeoSmart used data from the British Geological Survey on groundwater levels, geology and permeability to screen for areas where infiltration SuDS may be suitable. The map classifies areas into 3 categories of High, Medium and Low suitability for infiltration SuDS. This can then be used in conjunction with additional data on Site constraints to give recommendations for SuDS design and further investigation.

The primary constraint on infiltration potential is the minimum permeability of the underlying material and in some cases the range in permeability may be considerable, ranging down to low. The map classifies these areas as moderate infiltration suitability requiring further investigation. In cases where the thickness of the receiving permeable horizon is less than 1.5 meters then additional Site investigation is recommended. If the Site is at risk of groundwater flooding for up to the 1% annual occurrence the map classifies these areas as moderate infiltration suitability requiring further investigation.

The GeoSmart SuDS Infiltration Suitability Map (SD50) is a national screening tool for infiltration SuDS techniques but a Site specific assessment should be used before final detailed design is undertaken. Further information on the GeoSmart SuDS Infiltration Suitability Map (SD50) is available at geosmartinfo.co.uk.

How was surface water runoff estimated from the Site?

In accordance with the SuDS Manual (C753) (CIRIA, 2015), the Greenfield runoff from the Site has been calculated using the IoH124 method and is assumed representative of the runoff generated on the undeveloped surfaces that are affected by the proposed development. The method used for calculating the runoff complies with the NPPF (2024). For the impermeable surfaces, it has been assumed that 100% runoff will occur (calculations provided in Appendix B). Rainfall data is derived from the Flood Estimation Handbook (FEH), developed by NERC (2009). Only areas affected by the proposed development are considered in the flow and volume calculations. Permeable areas that remain unchanged are not included in the calculations as it is assumed these will not be actively drained and attenuated.

What is the peak discharge rate?

An estimation of peak runoff flow rate and volume is required to calculate infiltration, storage and discharge requirements. The peak discharge rate is the maximum flow rate at which surface water runoff leaves the Site during a particular storm event, without considering the impact of any mitigation such as storage, infiltration or flow control. Proposed discharge rates (with mitigation) should be no greater than existing rates for all corresponding storm events. If all runoff will be disposed of via infiltration there will be no discharge off-Site. Discharging all flow from Site at the existing 1 in 100 event would increase flood risk during smaller events. Flow restriction is generally required to limit the final discharge from Site during all events as a basic minimum to the green field QBAR rate. A more complex flow restriction which varies the final discharge rate from the Site depending on the storm event will reduce the volume of storage required on-Site. Drainage to infiltration SuDS is subtracted from the total discharge off-Site to achieve a beneficial net effect.

What is the total discharge volume?

The total discharge volume is calculated on the basis of the surface water runoff that has the potential to leave the Site as a result of the assumed 6 hour duration design storm event. The runoff is related to the underlying soil conditions, impermeable cover, rainfall intensity and duration of the storm event. The total volume generated by the current Site is compared to the potential total volume from the developed Site (not taking into consideration any mitigation). The difference provides the minimum total volume that will need to be stored and infiltrated on-Site or released at a controlled rate. Guidance indicates that the total discharge volume should never exceed the runoff volume from the development Site prior to redevelopment for that event and should be as close as is reasonably practicable to the Greenfield runoff volume.

12 Additional Products

The following table includes a list of additional products by GeoSmart:

Additional GeoSmart Products			
	Additional assessment: EnviroSmart Report		Provides a robust desk-based assessment of potential contaminated land issues, taking into account the regulatory perspective. Our EnviroSmart reports are designed to be the most cost effective solution for planning conditions. Each report is individually prepared by a highly experienced consultant conversant with Local Authority requirements. Ideal for pre-planning or for addressing planning conditions for small developments. Can also be used for land transactions. Please contact info@geosmartinfo.co.uk for further information.

13 References and glossary

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GeoSmart Information

Glossary

General terms

Attenuation	Reduction of peak flow and increased duration of a flow event.
Combined sewer	A sewer designed to carry foul sewage and surface water in the same pipe.
Detention basin	A vegetated depression, normally is dry except after storm events, constructed to store water temporarily to attenuate flows. May allow infiltration of water to the ground.
Evapotranspiration	The process by which the Earth's surface or soil loses moisture by evaporation of water and by uptake and then transpiration from plants.
FEH	Flood Estimation Handbook, produced by Centre for Ecology and Hydrology, Wallingford (formerly the Institute of Hydrology).
Filter drain or trench	A linear drain consisting of a trench filled with a permeable material, often with a perforated pipe in the base of the trench to assist drainage, to store and conduct water, but may also be designed to permit infiltration.
First flush	The initial runoff from a site or catchment following the start of a rainfall event. As runoff travels over a catchment it will collect or dissolve pollutants, and the "first flush" portion of the flow may be the most contaminated as a result. This is especially the case for intense storms and in small or more uniform catchments. In larger or more complex catchments pollution.
Flood plain	Land adjacent to a watercourse that would be subject to repeated flooding under natural conditions (see Environment Agency's Policy and practice for the protection of flood plains for a fuller definition).
Greenfield runoff	This is the surface water runoff regime from a site before development, or the existing site conditions for brownfield redevelopment sites.
Impermeable surface	An artificial non-porous surface that generates a surface water runoff after rainfall.
Permeability	A measure of the ease with which a fluid can flow through a porous medium. It depends on the physical properties of the medium, for example grain size, porosity and pore shape.

Runoff	Water flow over the ground surface to the drainage system. This occurs if the ground is impermeable, is saturated or if rainfall is particularly intense.
Sewerage undertaker	This is a collective term relating to the statutory undertaking of water companies that are responsible for sewerage and sewage disposal including surface water from roofs and yards of premises.
Soakaway	A subsurface structure into which surface water is conveyed to allow infiltration into the ground.
Source Protection Zone (SPZ)	Areas where groundwater supplies are at risk from potentially polluting activities and accidental releases of pollutants. They are a policy tool used to control activities close to water supplies intended for human consumption.
Treatment	Improving the quality of water by physical, chemical and/or biological means.

The terms included in this glossary have been taken from CIRIA (2015) guidance.

GeoSmart Information

Data sources

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14 Appendices

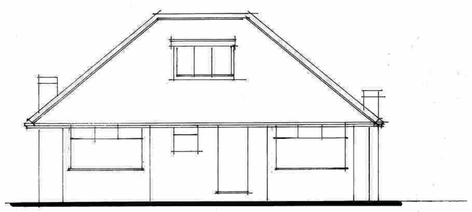


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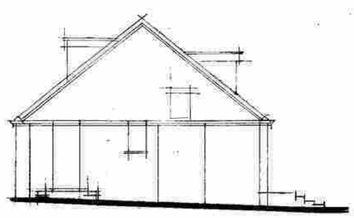
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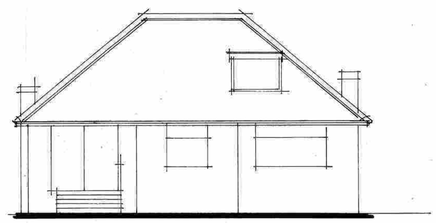
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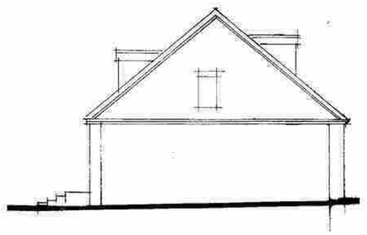
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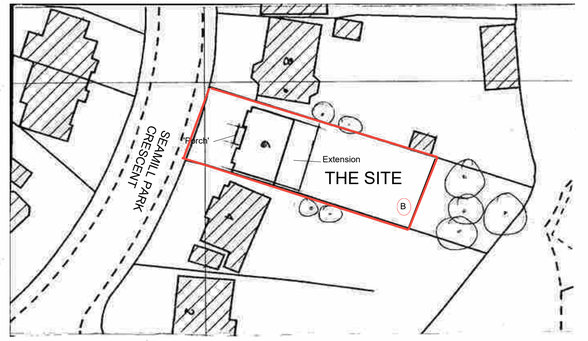
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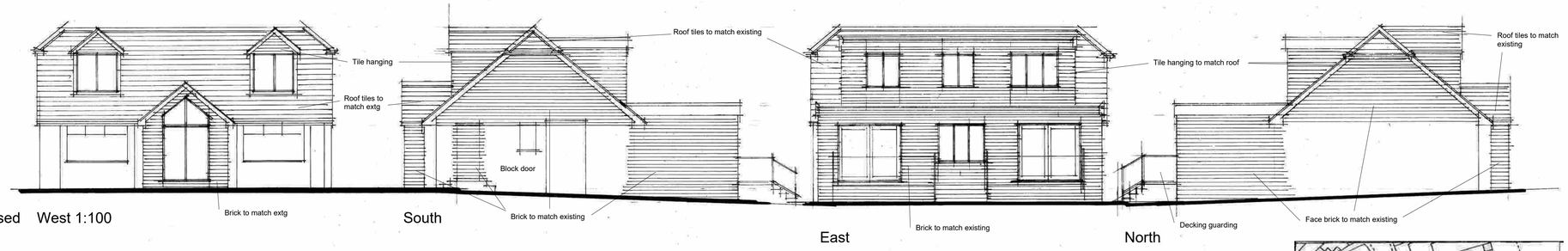
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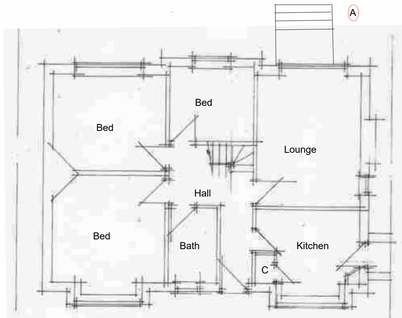
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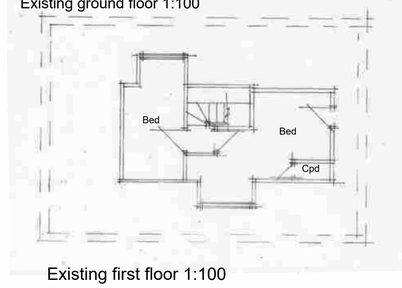
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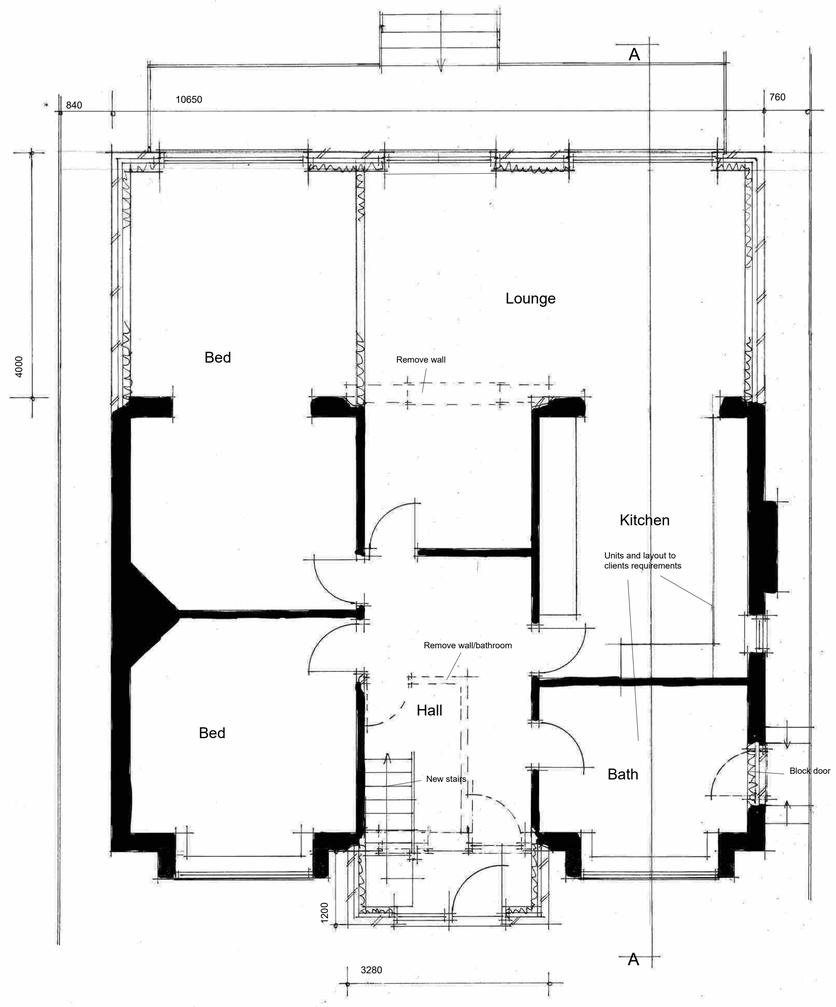
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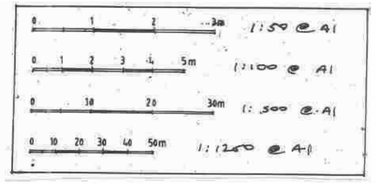
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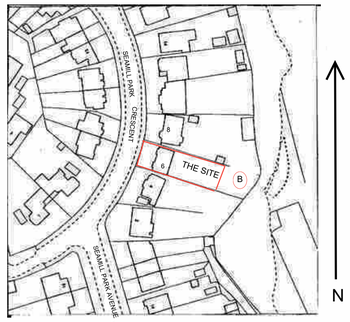


Existing first floor 1:100



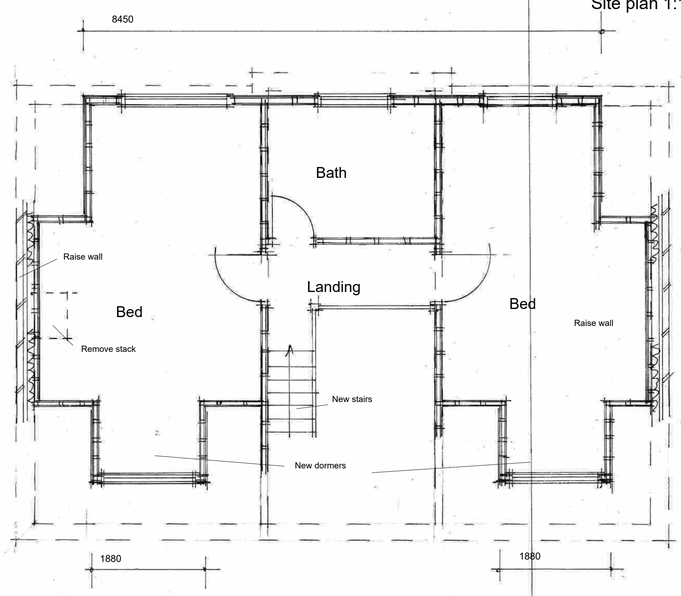
Ground floor plan 1:50



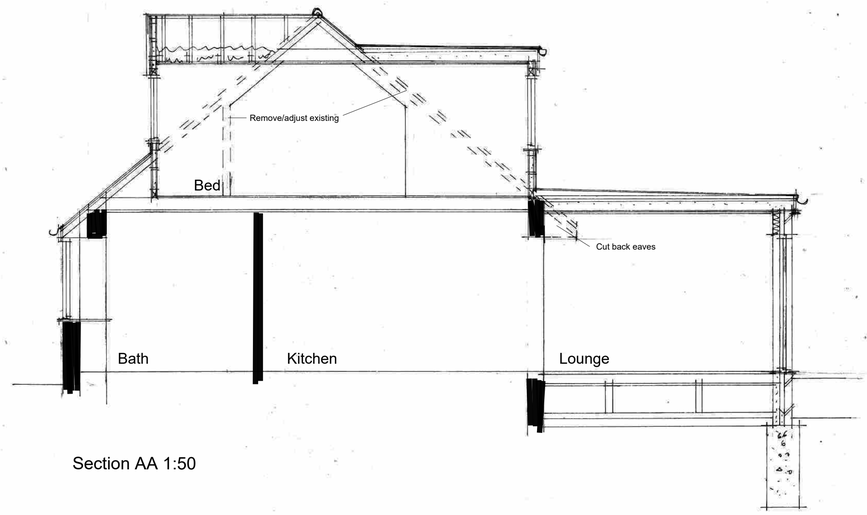


Site plan 1:1250

N for plans



First floor 1:50

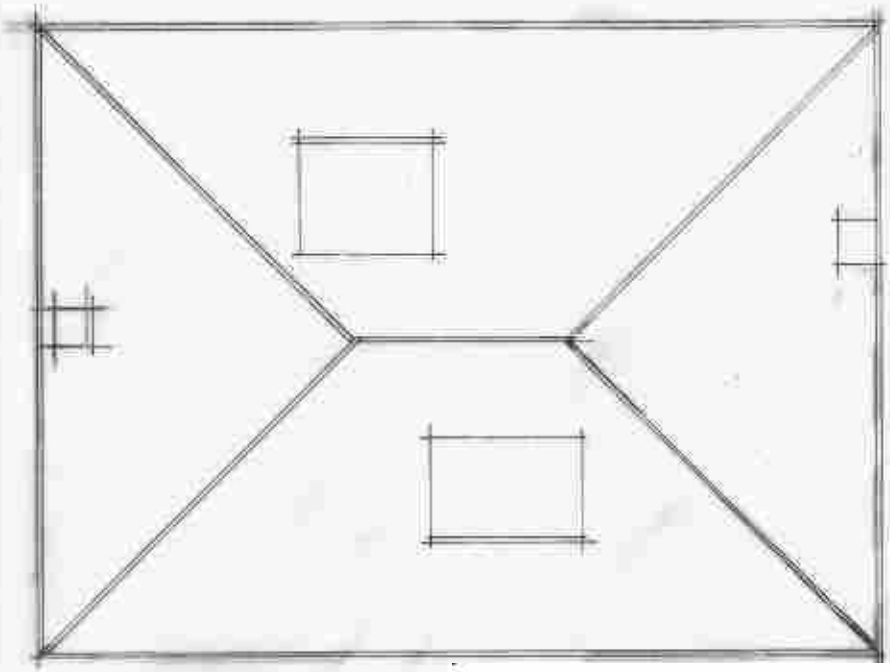


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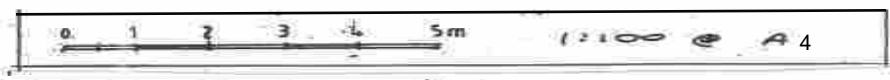
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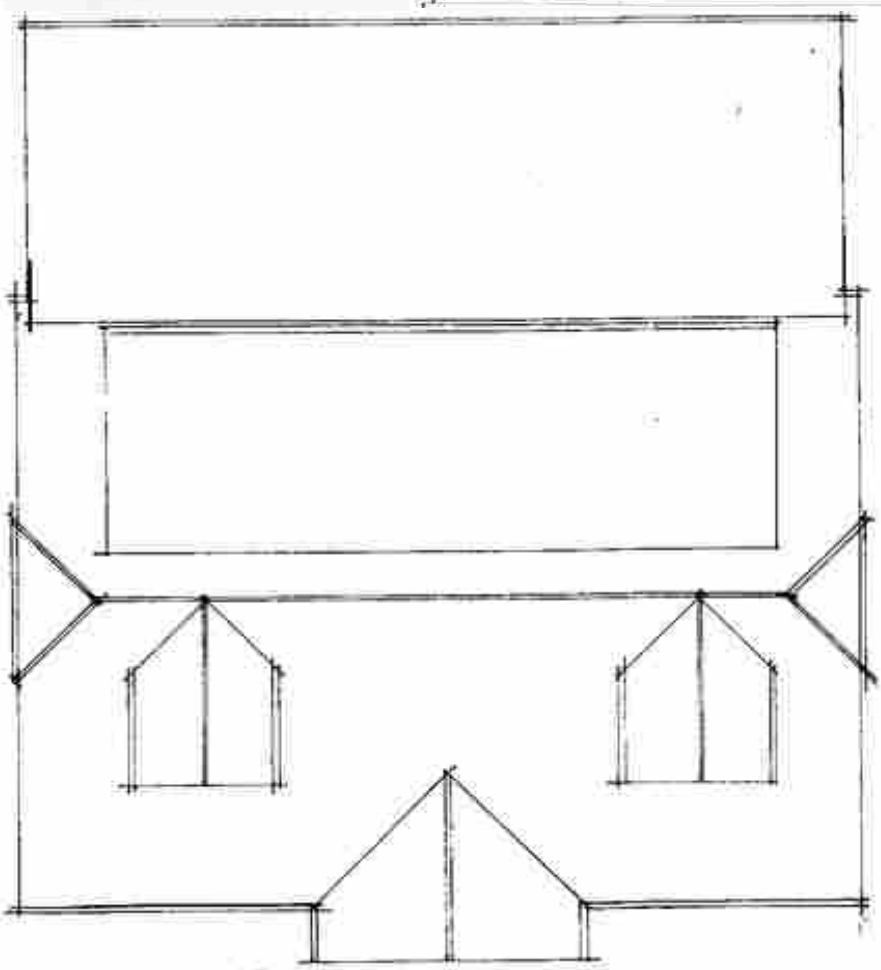
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Address	6 Seamill Park Crescent : Worthing		
Drawing	EXTENSION, ALTERATIONS AND ROOMS IN ROOF	No.	2525:1 B
Scale	1:50 1:100 1:500 1:1250	Drawn IS	Date Aug/Sep 25

AJ SALTER & SON
Architectural Technicians and Surveyors
50 WINDSOR ROAD, WORTHING, WEST SUSSEX, BN11 2LY
Tel/Fax: (01903 209496)
E-mail: ajsalterandson@hotmail.com



Existing roof plan 1:100





Proposed roof plan 1:100

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Architectural Technicians
and Surveyors
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WEST SUSSEX, BN11 2LY
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C			
B			
A	To TP Requirements - porch roof added	Sep 25	IS

Client	Mr. J. McBride		
Address	6 Seamill Park Crescent : Worthing		
Drawing	Roof plans	No.	2525:2a
Scale	1:100	Drawn IS	Date Sep 25

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Appendix B



Rainfall runoff calculations

Input parameters for run-off calculations		
Country	England	
Total site area	490	m^2
Area proposed for development	404	m^2
Current permeable ground cover	292	m^2
Current impermeable ground cover	112	m^2
Proposed permeable ground cover	274	m^2
Proposed impermeable ground cover	130	m^2
Urban Creep Allowance	0%	
Final impermeable ground cover	130	m^2
SPR	0.3	
SAAR	746	mm
Region	7	
Climate change factor	45%	
Discharge Rate (l/s)	2.0	
Run-off coefficient	100%	

Current impermeable area as % of total	28%
Proposed impermeable area as % of total	32%
Change in permeable area (m2)	-18
Change in impermeable area (m2)	18
Change in impermeable area as % of total	4%

Rainfall event	Greenfield run-off rates (l/s)	Existing run-off rates(l/s)	Potential run-off rates without attenuation (l/s)	Potential minus existing (l/s)
QBAR	0.08	N/A	N/A	N/A
6 hour 1 in 1 year	0.07	0.26	0.27	0.02
6 hour 1 in 10 year	0.13	0.42	0.44	0.03
6 hour 1 in 30 year	0.18	0.53	0.57	0.03
6 hour 1 in 100 year	0.25	0.67	0.71	0.04
6 hour 1 in 100 year + 20% CC	N/A	N/A	0.85	0.18
6 hour 1 in 100 year + 45% CC	N/A	N/A	1.03	0.36

Rainfall event	Greenfield run-off volume (m^3)	Existing run-off volume (m^3)	Potential run-off volume without attenuation (m^3)	Potential minus existing (m^3)
QBAR	3.58	N/A	N/A	N/A
6 hour 1 in 1 year	3.35	5.52	5.87	0.35
6 hour 1 in 10 year	5.58	9.05	9.60	0.56
6 hour 1 in 30 year	7.01	11.54	12.27	0.73
6 hour 1 in 100 year	8.73	14.38	15.29	0.91
6 hour 1 in 100 year + 20% CC	N/A	N/A	18.34	3.97
6 hour 1 in 100 year + 45% CC	N/A	N/A	22.17	7.79

Return Period	Runoff rate restriction (l/s)	Critical Storm Duration (hr)	Attenuation Volume Required (m^3)	Volume required above previous return period
1 in 30 year	2.00	0.25	0.96	N/A
6 hour 1 in 100 year	2.00	0.25	1.67	0.71
6 hour 1 in 100 year + 45% CC	2.00	0.25	3.23	1.56

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Appendix C



Southern Water Asset Location Plan



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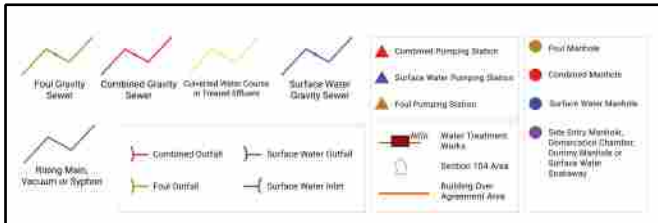
Date: 26/02/26 Scale: 1:1250 Map Centre: 516996,103285 Data updated: 22/02/26 Our Ref: 2041933 - 1

Wastewater Plan A4
Powered by digdat

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2026 Ordnance Survey AC0000808122 .This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.



davidsouth@geosmartinfo.co.uk

EF000773

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert
8202	F	6.40	4.31	-
8203	F	6.57	4.19	-
8205	F	6.87	3.37	-
8206	F	0.00	0.00	-
8301	F	6.07	5.20	-
8302	F	6.39	4.65	-
8304	F	0.00	0.00	-
8305	F	0.00	0.00	-
9201	F	5.31	4.45	-
9202	F	5.00	2.94	-
9304	F	4.43	2.77	-
9305	F	0.00	0.00	-
9307	F	0.00	0.00	-
9308	F	0.00	0.00	-
9309	F	0.00	0.00	-
9311	F	0.00	0.00	-
9312	F	0.00	0.00	-
8250	S	6.08	4.52	-
8251	S	6.25	4.26	-
8252	S	6.56	4.13	-
8253	S	6.61	5.89	-
8254	S	6.49	5.29	-
8255	S	6.81	3.39	-
8350	S	6.04	4.86	-
8351	S	5.95	4.67	-
9250	S	4.90	3.00	-
9251	S	5.80	5.00	-
9352	S	4.74	0.00	-

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

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Tel: 01743 298 100

Email: info@geosmartinfo.co.uk

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The Property Ombudsman scheme

Milford House

43-55 Milford Street

Salisbury

Wiltshire SP1 2BP

Tel: 01722 333306

Fax: 01722 332296

Email: admin@tpos.co.uk

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- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.
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- Liaise, at your request, with anyone acting formally on your behalf.

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Liz Lloyd

Finance Manager

GeoSmart Information Limited

Suite 9-11, 1st Floor,

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Tel: 01743 298 100

support@geosmartinfo.co.uk

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