

SuDSmart Design



Sustainable Drainage Assessment

Site Address

Wokingham Theatre
Twyford Road
Wokingham
RG40 5TU

Date

17/10/2025

Report Status

FINAL

Grid Reference

480793, 169738

Site Area

4325 m²

Report Prepared for

Wokingham Theatre

Report Reference

86252R1



Discharge to Sewer

The proposed Sustainable Drainage Scheme (SuDS) strategy is comprised of rainwater harvesting butts, permeable paving and an attenuation tank to attenuate surface water runoff during the 1 in 100 plus 40% climate change event.

Surface water will continue to discharge via the existing connection to the public sewer network, subject to confirmation from the sewer utility provider, and the incorporation of SuDS.

Report Author

Harriet Parker
Consultant

Report Check & Reviewer

David South
Principal Consultant

GeoSmart Information Ltd
Suite 9-11, 1st Floor, Old Bank Buildings,
Bellstone, Shrewsbury, SY1 1HU
+44(0)1743 298 100
info@geosmartinfo.co.uk
www.geosmartinfo.co.uk

1 Executive summary



A Detailed Drainage Design has been completed 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	Medium
	Priority 5: discharge to combined sewer	Low
Flooding	What is the river (fluvial) and/or tidal flood risk at the Site?	Very Low
	What is the surface water (pluvial) flood risk at the Site?	Very Low to High
	What is the groundwater flood risk at the Site?	Negligible
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 commercial capacity by Wokingham Theatre. At present there is the main theatre building with an associated storage building located adjacent to this. The north of the Site comprises of an access road, and an associated car park and landscaped areas are located in the main part of the Site surrounding the existing buildings.

Development proposals are for the construction of a two storey extension to the existing theatre to form a studio block, plus the erection of a link between the main building and a storage barn (which is to be retained on a permanent basis). Proposals also include the closure of the old access and the creation of public parking spaces, formation of a new access and installation of hardstanding to form on-site parking.

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 the Site has a Low potential for infiltration, primarily due to the variable permeability of the underlying geology (London Clay). Infiltration to ground is therefore 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 search included in Appendix E confirms the Site is located within 45 m of the public surface water sewer network. Due to the short distance to nearby sewers discharging surface water runoff to the sewer is potentially feasible.

As the Site has previously been developed, an existing suitable discharge point is believed to be already present on Site. A survey of the existing drainage should be undertaken to confirm.

Priority 5: discharge to combined sewer

The asset location plan included in Appendix E 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.

Amenity and Biodiversity

The inclusion of rainwater harvesting butts at the downpipes on Site will provide collected water for re-use in landscaped areas of the Site. Captured water will be used to water vegetation and ensure their long-term viability as amenity features.

Runoff rate and attenuation requirements

Discharging off-Site requires 99.37 m³ 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 40% allowance for climate change. This volume is subject to the discharge rate

being restricted to 2 l/s (as close to the equivalent Greenfield 1 in 100 year rate as possible, without increasing the potential for blockages).

SuDS features comprised of rainwater harvesting butts, permeable paving and an attenuation tank are proposed to attenuate a minimum of 99.37 m³ of surface water runoff.

Recommendations / Next steps

The capacity of the public sewer network should be confirmed with the utility provider and permission to connect gained where required.

2 Site analysis

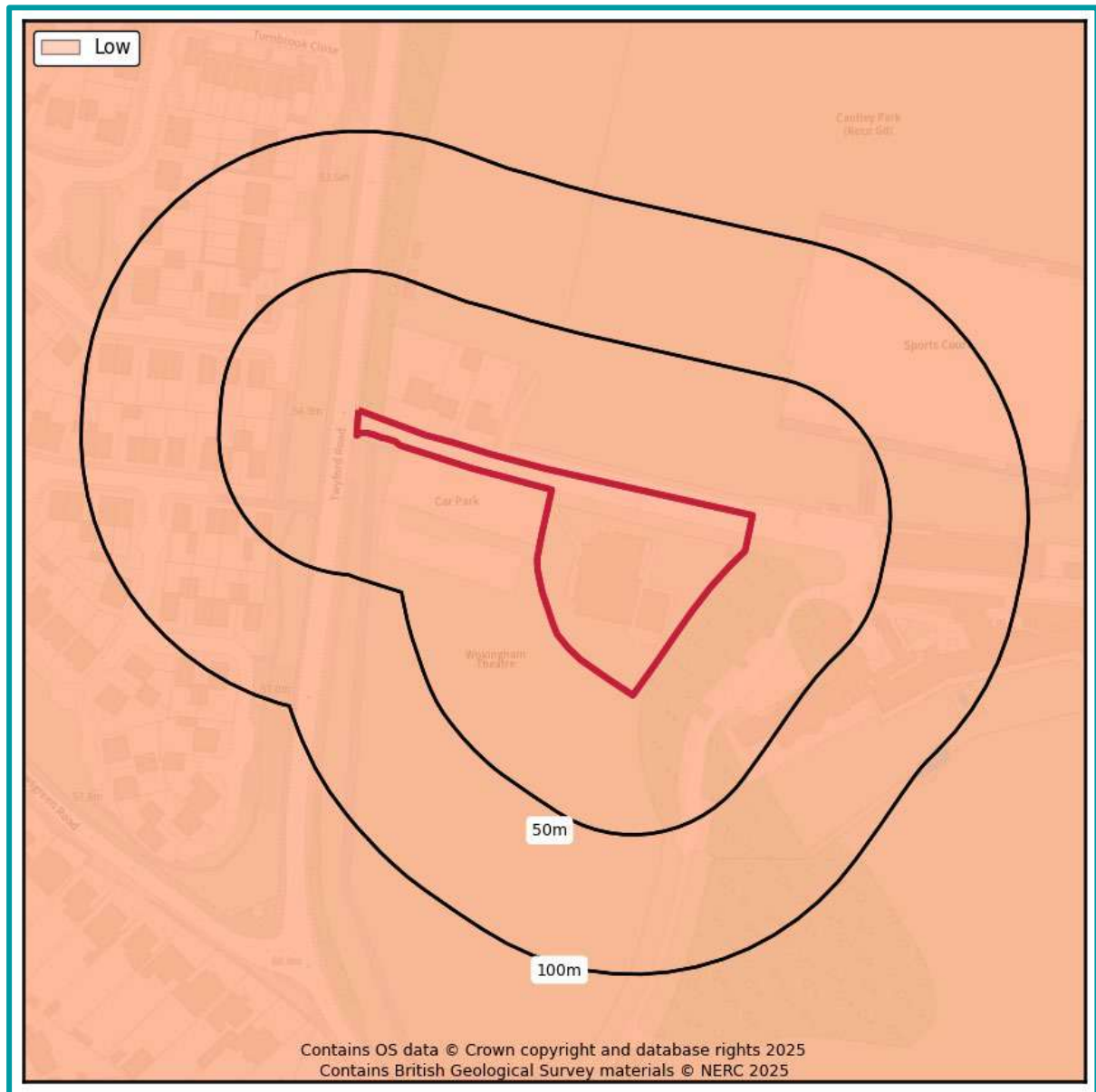


Site location

Figure 1. Aerial Imagery (Bluesky, 2025)



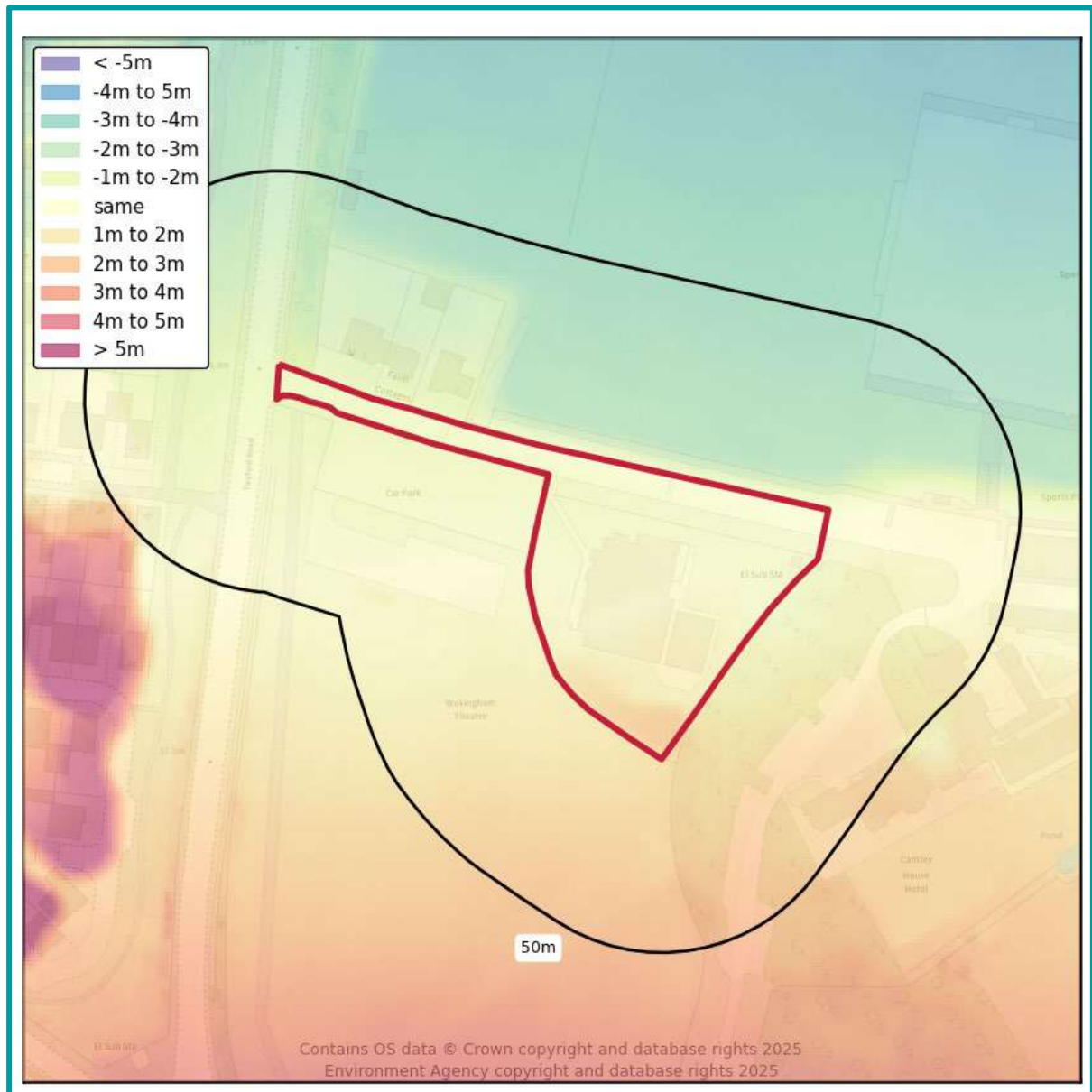
Figure 2. SuDS infiltration suitability (SD50) map (GeoSmart, 2025)



The GeoSmart SuDS Infiltration Suitability Map (SD50) screens the potential for infiltration drainage at the Site and indicates where further assessment is recommended. The map combines information on the thickness and permeability of the underlying material and the depth to the high groundwater table. It supports conceptual Site drainage design and the planning of further Site investigation.

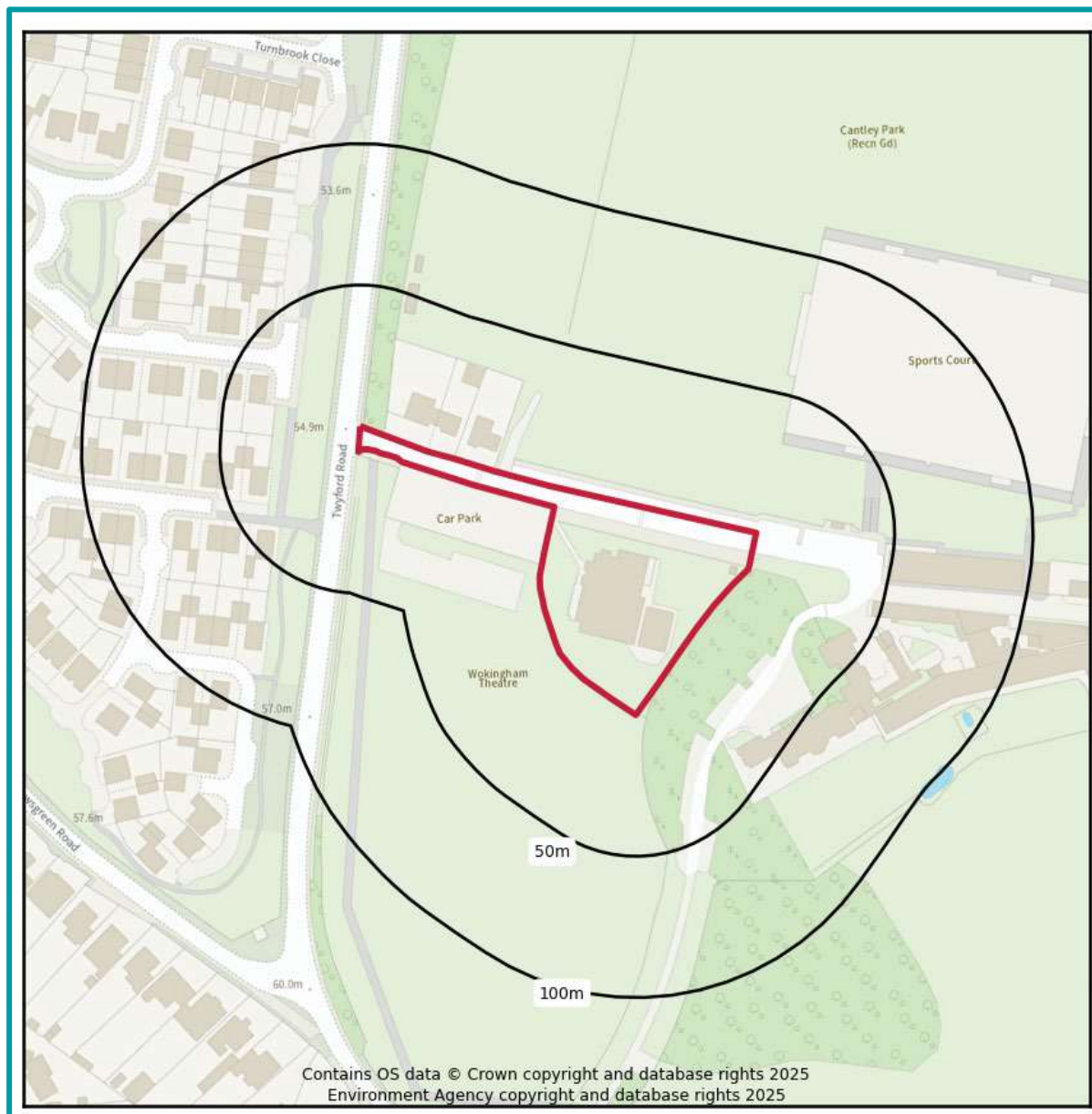
There is a Low potential for infiltration SuDS across the Site. It is likely that the underlying geology at the Site has low permeability which would limit the effectiveness of a proposed infiltration SuDS scheme.

Figure 3. Site topography (GeoSmart, 2025)



An assessment of the topography at the Site has been undertaken using LiDAR DTM5 elevation data to identify the general slope and any localised depressions. The mapping shows a comparison between average ground levels on the Site with ground levels in the surrounding area. The mapping confirms the overall Site is generally on a gradual slope.

Figure 4. Source protection zone map (EA, 2025)

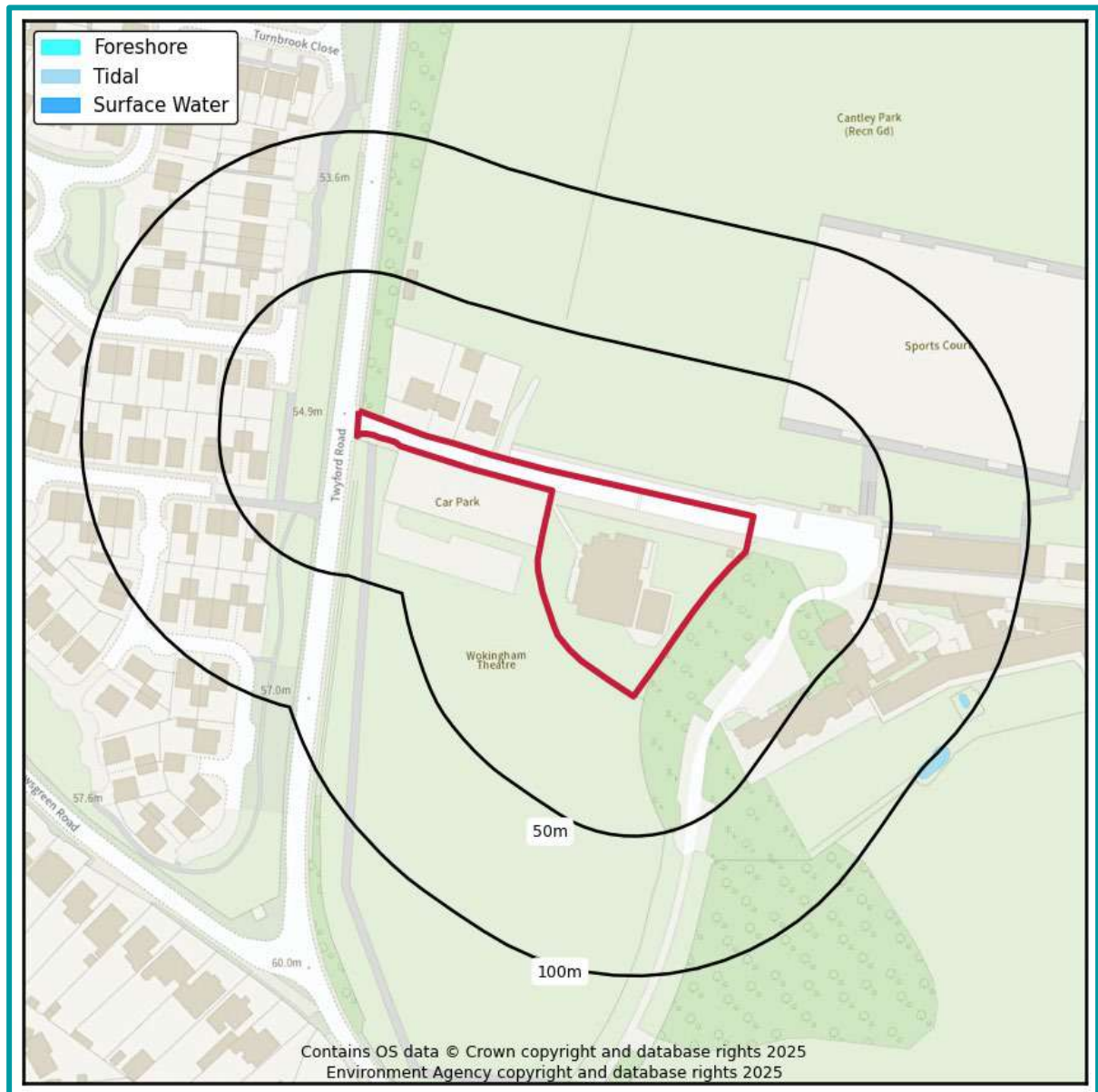


An assessment of the EA's groundwater Source Protection Zones (SPZs) has been undertaken within the vicinity of the Site and confirms the Site is not located within an SPZ.

Infiltration, if possible, is likely to be acceptable providing risk screening identifies suitable mitigation measures, if required, to prevent an impact on water quality from the proposed or historical land use and contaminated land.

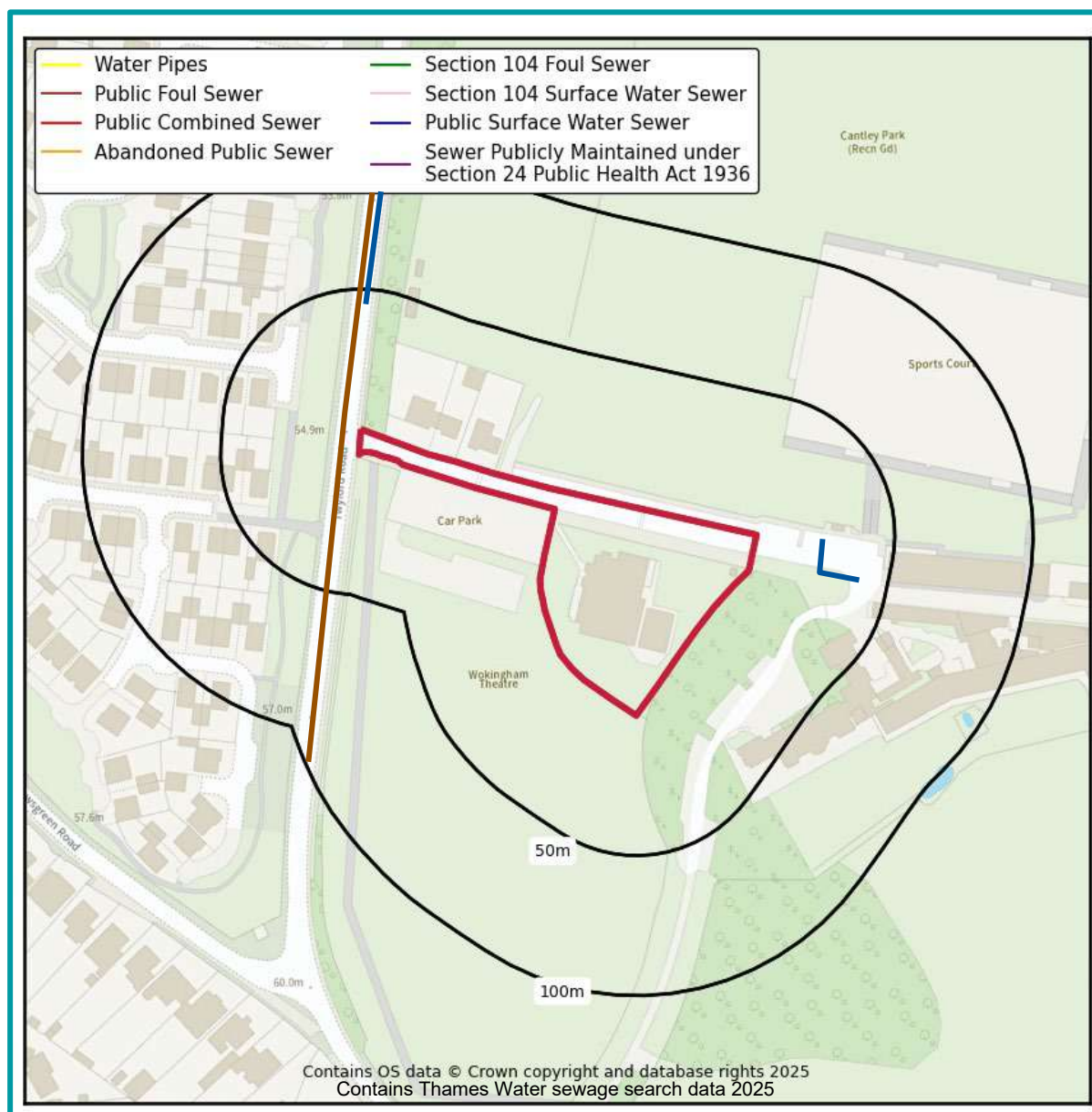
If further analysis is required, this would involve a review of Site specific contaminated land data. If hazards are identified, it is recommended that the Local Authority and the Environment Agency are contacted to confirm the susceptibility of any SPZs within the wider area.

Figure 5. Surface water features map (EA, 2025)



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.

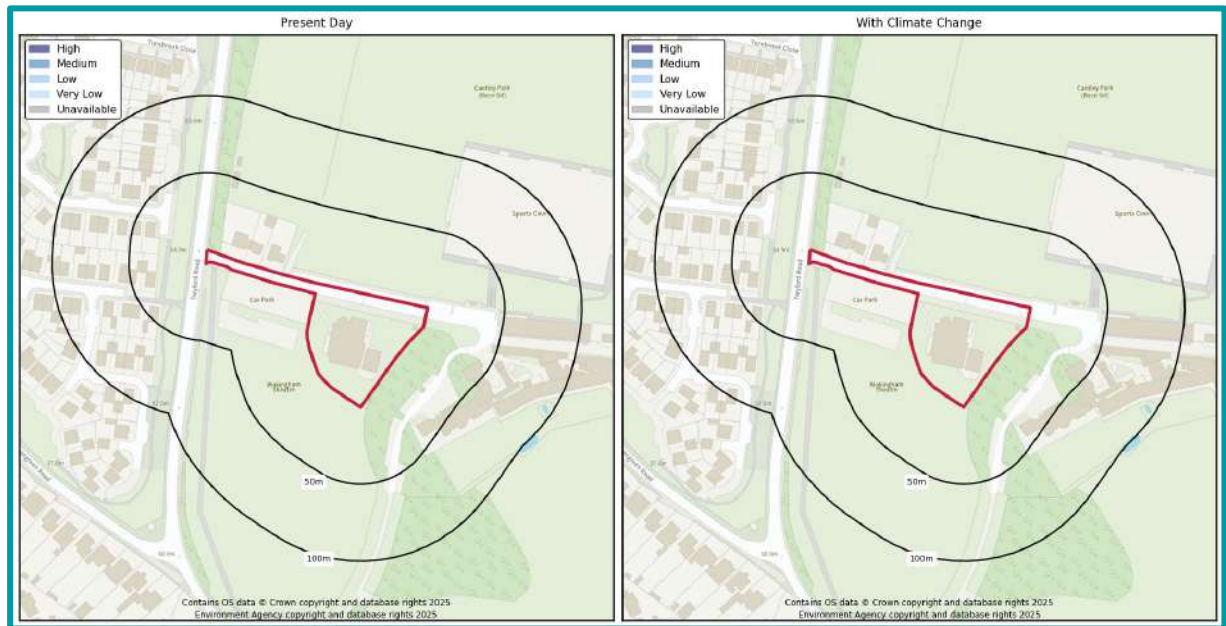
Figure 6. Sewer features map (OS & Thames Water, 2025)



GeoSmart has undertaken an assessment of the location of sewer features within the vicinity of the Site. There is a public surface water sewer, located approximately 45 m to the north west of the Site within the adjacent highway, therefore discharge to sewer is potentially appropriate.

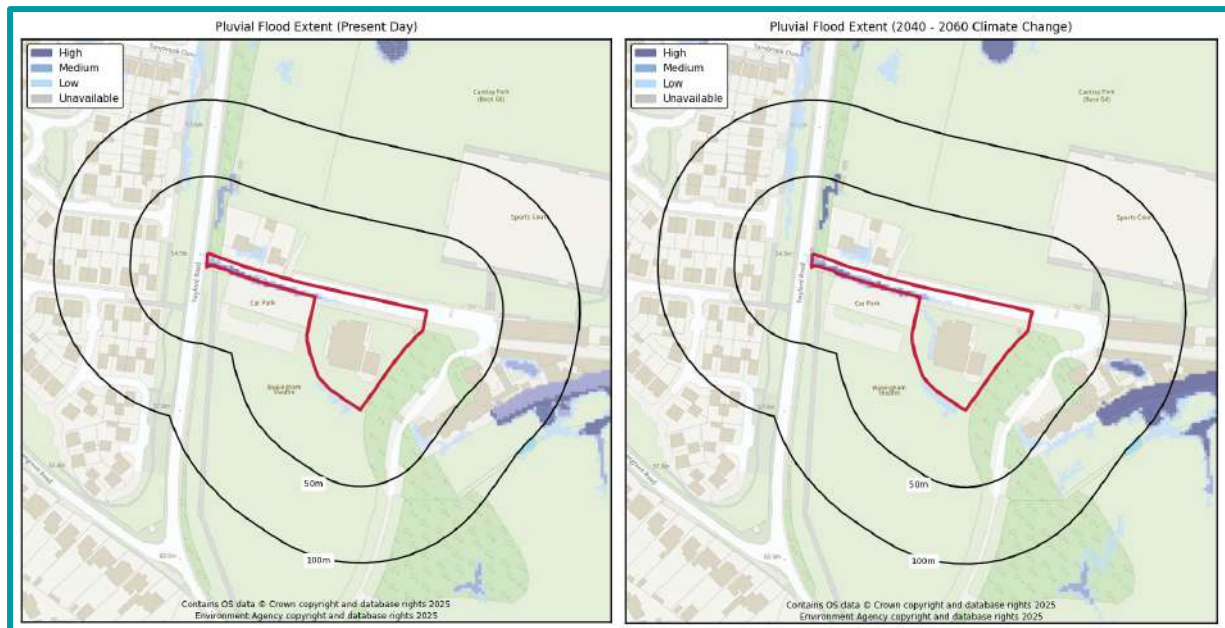
Further analysis of the connections and condition of the public surface water drainage system should be undertaken by carrying out a CCTV survey or by contacting the drainage provider or the Local Council to confirm the presence, location and condition of the sewer. Consultation with the drainage provider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

Figure 7. Risk of flooding from rivers & sea map (EA, 2025)



According to the EA's Risk of Flooding from Rivers and the Sea (RoFRS) map, the Site has a Very Low risk of flooding from fluvial or coastal flooding in both the present day and with future climate change applied (2036-2069), with less than 0.1% annual probability of flooding, therefore the SuDs design is unlikely to be affected.

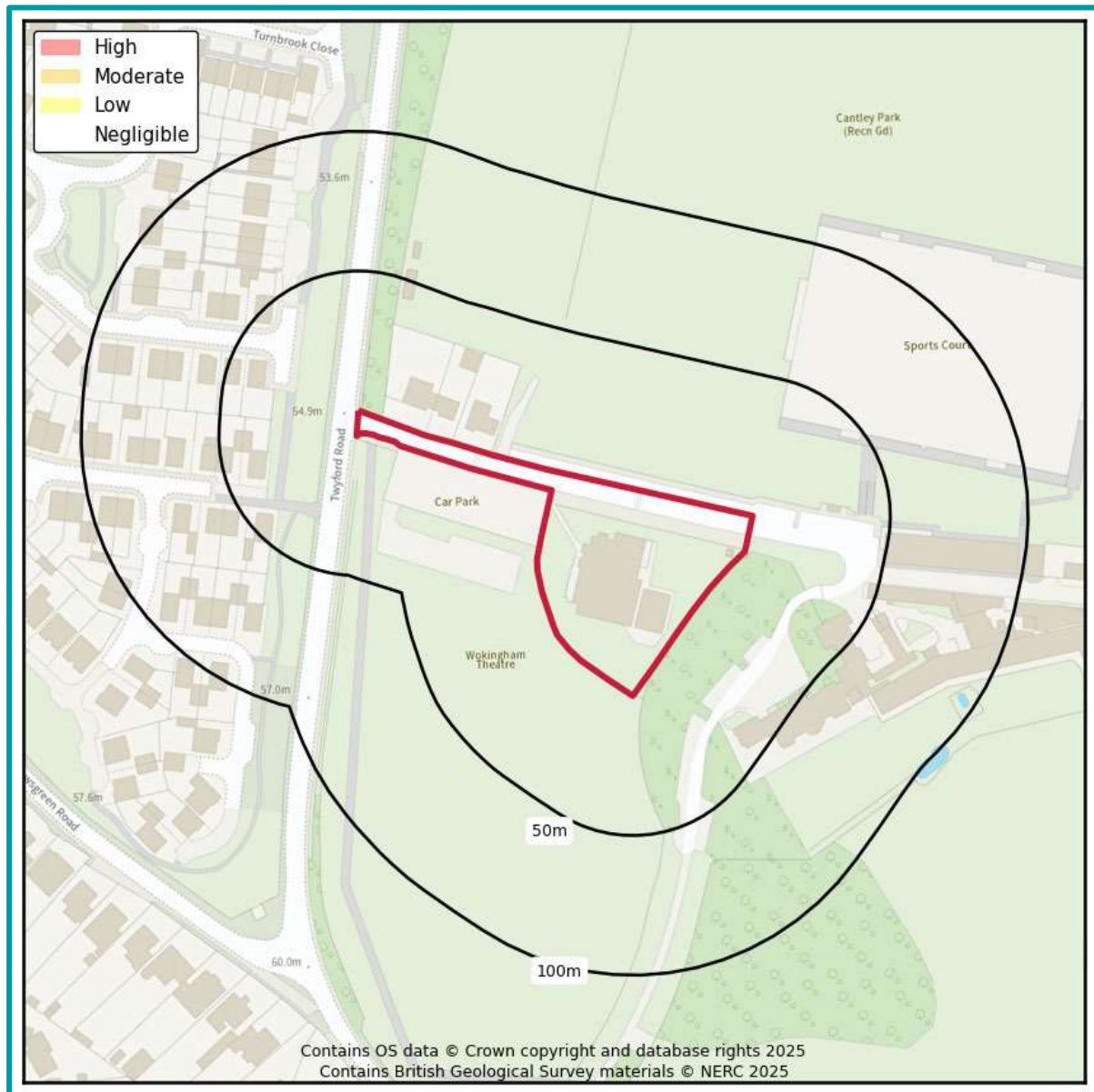
Figure 8. Risk of surface water flooding map (EA, 2025)



GeoSmart have undertaken an assessment of the risk of flooding from surface water (pluvial) sources within the vicinity of the Site using the EA's Risk of Flooding from Surface Water (RoFSW) mapping. The EA's mapping confirms the Site is considered to be at Very Low to High risk of surface water flooding in both the present day and with future climate change (2040-2060) applied.

The above map shows the extent and depth 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 a 1 in 30 year, 1 in 100 year and 1 in 1000 year events. Flooding in these areas may constrain certain types of SuDS features being used.

Figure 9. Groundwater flood risk (GW5) map (GeoSmart, 2025)



GeoSmart have undertaken an assessment of the risk of flooding from groundwater within the vicinity of the Site. GeoSmart's Groundwater Flood Risk Screening (GW5) map confirms the Site has a Negligible risk of groundwater flooding during a 1% annual probability (1 in 100 year) event.

3 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 Wokingham Theatre, Twyford, Road, Wokingham, RG40 5TU (the Site). The Site is located in Wokingham in a setting of commercial and residential use. The land slopes to the north from 58.22 mAOD to 55.13 mAOD along the northern boundary. This is based on EA elevation data obtained for the Site to a 1 m resolution with a vertical accuracy of ± 150 mm in conjunction with a Site-specific topographic survey undertaken by Geopoint (2024). Site plans and drawings are provided in Appendix A.

Development

The Site is currently used within a commercial capacity by Wokingham Theatre. At present there is the main theatre building with an associated storage building located adjacent to this. The north of the Site comprises of an access road, and an associated car park and landscaped areas are located in the main part of the Site surrounding the existing buildings.

Development proposals are for the construction of a two storey extension to the existing theatre to form a studio block, plus the erection of a link between the main building and a storage barn (which is to be retained on a permanent basis). Proposals also include the closure of the old access and the creation of public parking spaces, formation of a new access and installation of hardstanding to form on-site parking.

Geology, permeability and thickness

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

Table 1. Site Geology

Geology present on-Site		Potentially permeable?
Superficial geology (Figure 11)	No recorded superficial deposits	N/A
Bedrock geology (Figure 12)	London Clay – clay, silt and sand (LC)	X

The permeability of the underlying material at the Site shown within the BGS mapping is variable ranging from low to moderate and confirmation of the infiltration capacity is recommended.

The BGS website was used to extract ground information from the nearest borehole records to the Site (ref: SU86NW55). It should be noted that no relevant borehole logs were available within 250 m of the Site and that this borehole is located approximately 910 m to the south east of the Site, but has been included for completeness.

The borehole records confirm the underlying geology is comprised of topsoil to a depth of 0.10 m below ground level (bgl) underlain by London Clay to a depth of 2.10 m bgl at completion of the core (the London Clay comprises of clay to a depth of 1.50 m bgl and silty sand to a depth of 2.10 m bgl).

Depth to groundwater

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

Relevant borehole records indicate groundwater levels may fluctuate around 1.60 m bgl within the sandy layer of the London Clay, however it should be noted that this is subject to variation with distance from the Site.

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

Infiltration features are not proposed, given the generally low permeability of the underlying geology as well as the presence of groundwater within the sand layer at 1.60 m bgl.

Figure 10. Superficial Geology (BGS, 2025)

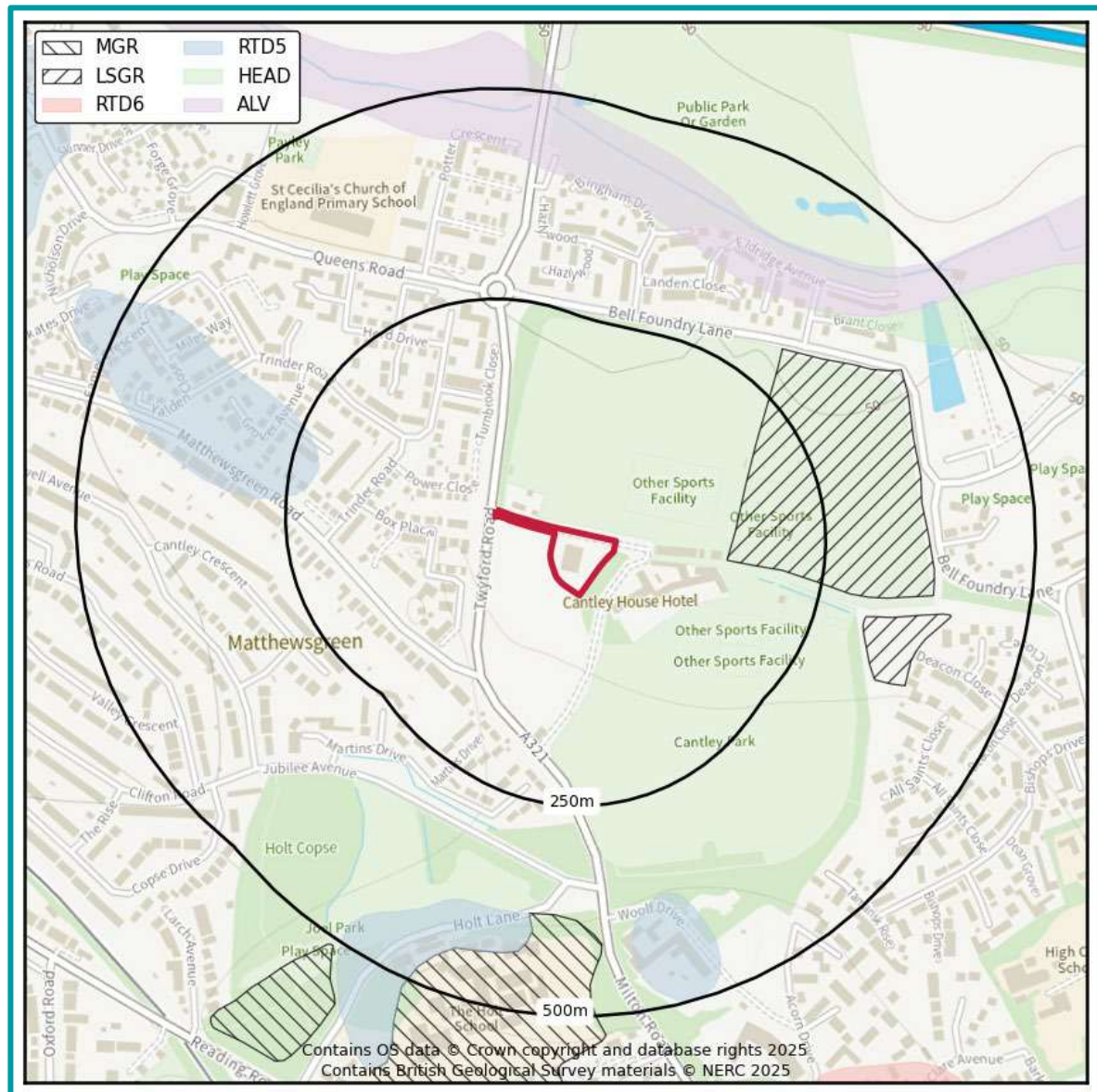
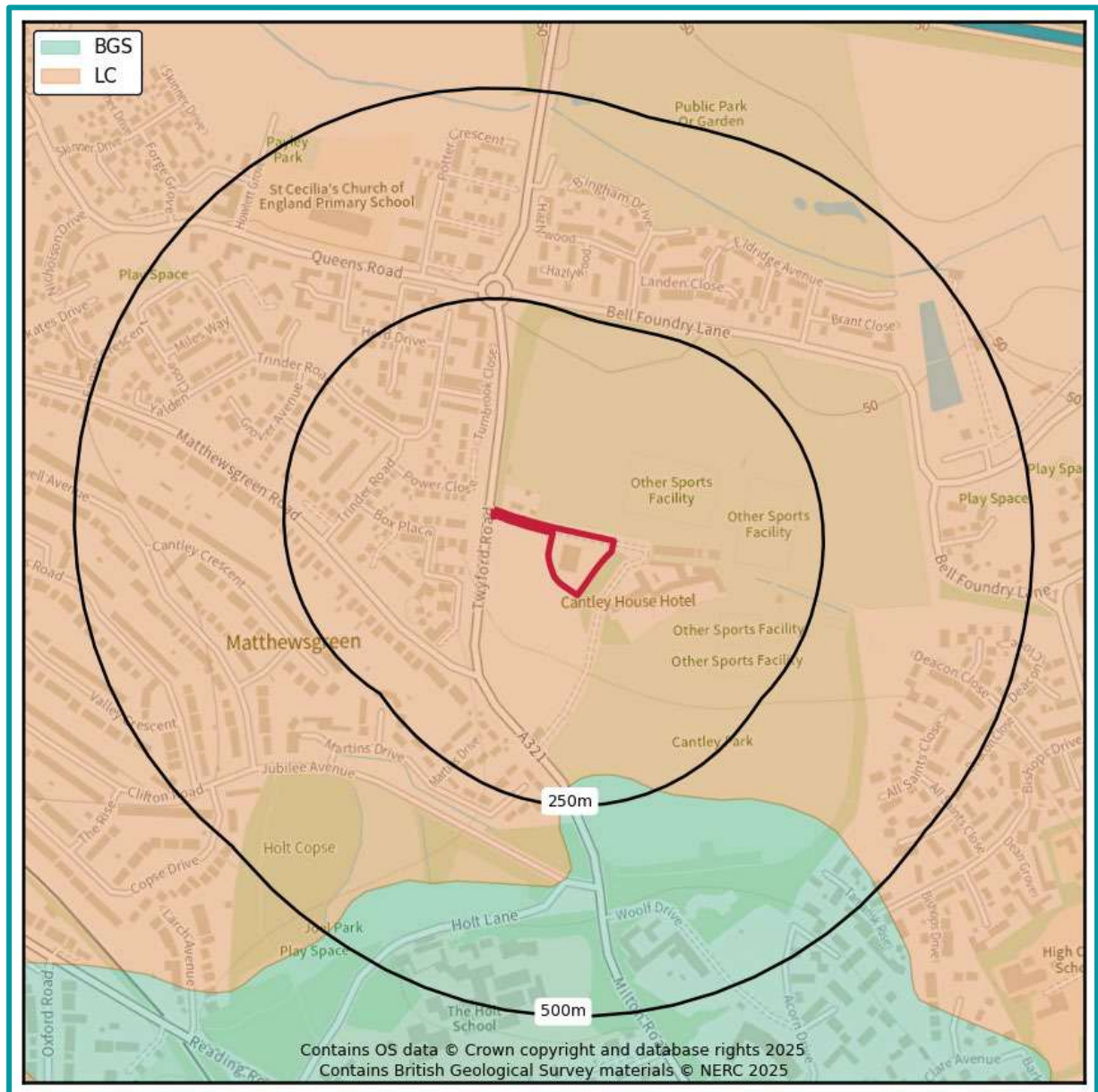


Figure 11. Bedrock Geology (BGS, 2025)



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 is not proposed. Further consultation with the water company is unlikely to be required.

4 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 ($\geq 3.3\%$ AEP) and 1 in 100 (< 3.3 to 1% AEP) year event.

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

Table 2. Loddon and tributaries Management Catchment peak rainfall allowances

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

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

Wokingham Borough Council – Wokingham SuDS Strategy – Guidance on the use of sustainable drainage systems (January, 2017):

Geological Suitability for SuDS Figure 2.1 shows the infiltration potential of the geology within the Borough of Wokingham. In order for infiltration SuDS to be used, permeable geology must be present to allow water to infiltrate. Developers should use this map to assess whether their site may be suitable for infiltration SuDS. All of the bedrock within the Borough has been defined as having mixed ability to infiltrate.

2.3 HYDROLOGY

If the underlying geology is not suitable for infiltration, the next preferable means of discharging surface water runoff is to a local watercourse. There are a number of watercourses within Wokingham Borough, as detailed in the section below and shown in Figure 2.2.

The River Thames runs along the north-west and north boundary of the borough and, along with its tributary the River Loddon, is one of the area's most significant landscape features. Associated with the River Loddon, which flows south to north through the centre of the

Borough, are its tributaries; namely the Twyford Brook, Emm Brook, Barkham Brook and the River Blackwater.

Numerous ordinary watercourses are also associated with these main rivers. A number of towns within the Borough are situated along the length of these rivers, and not surprisingly a considerable proportion of the Borough is affected by fluvial (river) flooding.

Local Standards

In addition to the above National Standards, Wokingham Borough Council has the following local standards:

WokBC-LS11 - Long term storage must be provided to limit the volume of runoff from the 1 in 100 year event with an allowance for 40% climate change, unless discharge rates have been restricted to QBar.

WokBC-LS12 - All design of volume control must be supported by appropriate calculations and drawings that enable the performance of the drainage system to the required standards to be confirmed.

WokBC-LS13 - All surface storage features (ponds, wetlands and basins) must provide a 300 mm freeboard above the maximum design water level, unless otherwise agreed.

WokBC-LS14 - All surface conveyance features (swales and channels) must provide a 150 mm freeboard above the maximum design water level, unless otherwise agreed.

WokBC-LS15 - The drainage system must be designed so that the capacity of the drainage system takes account of the likely impacts of climate change and likely changes in impermeable area within the development over the design life of the development. To allow for future urban expansion within the development (urban creep), an increase in paved surface area of 10% should be used, unless this would produce a percentage impermeability greater than 100%.

5 Storage, volume and peak flow rate



Storage requirements for the attenuation SuDS scheme for the development footprint are set out below.

Table 3. Storage requirements at the proposed development Site (Discharge runoff to surface water sewer)

Attenuation scenario	Attenuation required (m ³)	Explanation
1 in 100 year including 40% CC	99.37	Attenuation required to ensure surface water runoff is attenuated in all storm events up to and including the 1 in 100 year (4 hour, Critical Storm Duration) event including a 40% allowance for climate change*.

*See Appendix C for associated runoff and discharge calculations. Discharge rates all restricted as close as possible to greenfield rates in their respective events. Calculations provided using Causeway Flow.

Surface water runoff

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

Guidance

The Non-Statutory Technical Guidance for SuDS (Defra, March 2015) states:

"Where reasonably practicable, for Greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event should never exceed the Greenfield runoff volume for the same event. Where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the Greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event."

Table 4. Change in impermeable area associated with the development

Total Site area	4325 m ²
Impermeable area (and as a percentage of the total area of the proposed development footprint of 1528 m ²)	
Pre-development	Post-development
1048 m ² (69%)	1528 m ² (100%)
Impermeable land use: building roofs, pathways Permeable land use: landscaped areas	New impermeable land use: pathways, building and extension roofs New permeable land use: landscaped areas

Guidance

"The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 1 in 30 year rainfall event" and "flooding does not occur during a 1 in 100 year rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development"

(Defra, March 2015, non-statutory guidance).

Peak discharge rates

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 5. 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	0.68	N/A	N/A	N/A
6 hour 1 in 1 year	0.58	1.50	1.80	0.30
6 hour 1 in 10 year	1.10	2.54	3.04	0.49

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)
6 hour 1 in 30 year	1.53	3.30	3.96	0.66
6 hour 1 in 100 year	2.17	4.12	4.94	0.82
6 hour 1 in 100 year + 20% CC	N/A	N/A	5.93	1.81
6 hour 1 in 100 year + 40% CC	N/A	N/A	6.92	2.80

¹ Assumes 100% runoff from impermeable surfaces. Assumes Greenfield runoff from permeable surfaces calculated using the loH124 method.

Relevant national, regional and local planning policy has been consulted in Section 5 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. Further information on the calculation of total discharge volumes is provided in Section 11 'Methodology and Limitations'.

Table 6. 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	19.61	N/A	N/A	N/A
6 hour 1 in 1 year	18.24	32.35	38.81	6.46
6 hour 1 in 10 year	31.70	54.96	65.61	10.65
6 hour 1 in 30 year	40.16	71.22	85.45	14.23
6 hour 1 in 100 year	50.17	88.97	106.75	17.77

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)
6 hour 1 in 100 year + 20% CC	N/A	N/A	128.10	39.12
6 hour 1 in 100 year + 40% CC	N/A	N/A	149.44	60.47

² Assumes 100% runoff from impermeable surfaces. Assumes Greenfield runoff from permeable surfaces calculated using the loH124 method.

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

The Site has low potential for infiltration, with baseline mapping indicating low permeability London Clay underlying the Site.

There are no known issues identified relating to Site contamination or the presence of a SPZ.

Due to the presence of shallow groundwater at 1.60 m bgl as well as the low permeability of the underlying geology, infiltration features are not considered feasible at the Site.

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

GeoSmart has undertaken an assessment of the location of sewer features within the vicinity of the Site. There is a public surface water sewer, located adjacent to the c. 45 m north west of the Site within the adjacent highway, therefore discharge to sewer is potentially appropriate.

As the Site has previously been developed, an existing suitable discharge point is believed to be already present on Site. A survey of the existing drainage should be undertaken to confirm.

Priority 5: Discharge to combined sewer

According to the Thames Water asset location plan obtained for the Site (Appendix E), there are no public combined sewers within the vicinity of the Site.

Due to the significant distance to the nearest public combined sewer, discharge of runoff to combined sewer is not considered to be feasible for the Site and is not proposed.

7 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 a combination of Very Low (roof water) to Low hazard (runoff from car parking and road). The Site does not lie within an SPZ and therefore additional treatment stages are not required.

Table 7. Level of hazard

Hazard	Source of hazard
Very Low	Residential roof drainage
Low	Residential, amenity uses including low usage car parking spaces and roads, other roof drainage.
Medium	Commercial, industrial uses including car parking spaces and roads (excluding low usage roads, trunk roads and motorways).
High	Areas used for handling and storage of chemicals and fuels, handling of storage and waste (incl. scrap-yards).

The recommended minimum number treatment stages suggested for the different runoff waters identified for the proposed development is highlighted in the table below.

Table 8. Minimum number of treatment stages for runoff

		Sensitivity of the receiving water body		
		Low	Medium	High
Hazard	Low	1	1	1
	Med	2	2	2
	High	3	3	3

8 Methodology and limitations of study



This report assesses the feasibility of infiltration SuDS and alternative drainage strategies in support of the Site development process. From April 6th 2015 SuDS are regulated by Local Planning Authorities and will be required under law for major developments in all cases unless demonstrated to be inappropriate. What is considered appropriate in terms of costs and benefits by the Planning Authority will vary depending on local planning policy, and Site setting. The Lead Local Flood Authority will require information as a statutory consultee on major planning applications with surface water drainage implications. The National Planning Policy Framework requires that new developments in areas at risk of flooding should give priority to the use of SuDS and demonstrate that the proposed development does not increase flood risk downstream to third parties.

How was the suitability of SuDS estimated for the Site?

There are a range of SuDS options available to provide effective surface water management that intercept and store excess runoff. When considering these options, the destination of the runoff should be assessed using the order of preference outlined in the Building Regulations Part H document (HM Government, 2010) and Defra's National Standards for SuDS (2015):

1. Discharge to the ground;
2. Discharge to a surface water body;
3. Discharge to a surface water sewer;
4. Discharge to a local highway drain; and
5. Discharge to a combined sewer.

Data sets relating to each of the potential discharge options have been analysed to assess the feasibility of each option according to the hierarchy set out above. Hydrogeological characteristics for the Site are assessed in conjunction with the occurrence of SPZ's to assess infiltration suitability. The Site has been screened to determine whether flood risk from groundwater, surface water, fluvial or coastal sources may constrain SuDS. The distance to surface water bodies and sewers has been reviewed gauge whether these provide alternative options.

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 is the suitability to discharge to sewers and watercourses calculated?

The suitability to discharge to discharge to sewers and watercourses has been calculated using the distance from the Site to both. For example, where the Site is within 50 m of a surface water body. Discharge to surface water is potentially appropriate subject to land access arrangements and a feasibility assessment. Where the Site is within 50 m of a sewer, discharge to sewer is potentially appropriate subject to land access arrangements and a feasibility assessment. The utility company should be contacted to agree connection feasibility and sewer capacity.

Further information relating to sewers available in the area can be found in Appendix E.

What is a Source Protection Zone?

The Environment Agency have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. The maps show three main zones (inner, outer and total catchment) and a fourth zone of special interest, which is occasionally applied. The zones are used to set up pollution prevention measures in areas which are at a higher risk. The shape and size of a zone depends on the condition of the ground, how the groundwater is removed, and other environmental factors. Inner zone (Zone 1) is defined as the 50 day travel time from any point below the water table to the source (minimum radius of 50 metres). Outer zone (Zone 2) is defined by a 400 day travel time. Total catchment (Zone 3) is defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source.

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 (MHCLG, 2024). For the impermeable surfaces, it has been assumed that 100% runoff will occur (calculations provided in Appendix C). 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 drainage is to 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 affect.

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.

9 References and glossary



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- Ministry of Housing, Communities & Local Government. (2024).** National Planning Policy Framework (NPPF).
- Ministry of Housing, Communities & Local Government. (2022).** National Planning Policy Guidance (NPPG).
- Thames Water (2025).** (Wokingham Theatre, Twyford Road, Wokingham, RG40 5TU) Asset Location Plan. Ref: ALS/ALS Standard/2025_5204144.
- Wokingham Borough Council (2017).** Wokingham SuDS Strategy – Guidance on the use of sustainable drainage systems. Accessed from: <https://www.wokingham.gov.uk/community/community-and-safety/emergencies/flooding-and-drainage/sustainable-drainage-systems-suds-strategy>

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.
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.

Data Sources

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Flood Risk (RoFRS/Pluvial/Surface Water Features/SPZ)	Environment Agency copyright and database rights 2025 Ordnance Survey data © Crown copyright and database right 2025
Flood Risk (Groundwater) and SuDS infiltration suitability (SD50)	GeoSmart, BGS & OS GW5 (v2.4) Map (GeoSmart, 2025) Contains British Geological Survey materials © NERC 2025 Ordnance Survey data © Crown copyright and database right 2025
Sewer Location	Contains Ordnance Survey data © Crown copyright and database right 2025 Contains Thames Water Drainage and Water Search data 2025
Topographic Data	OS LiDAR/EA Contains Ordnance Survey data © Crown copyright and database right 2025 Environment Agency copyright and database rights 2025

10 Appendices



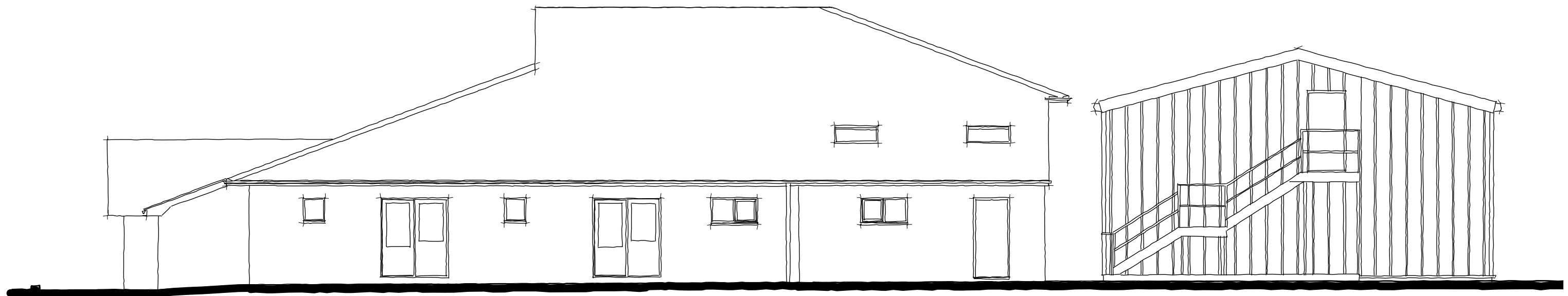
Appendix A



Site plans



WEST ELEVATION



SOUTH ELEVATION

REV	COMMENTS	DATE

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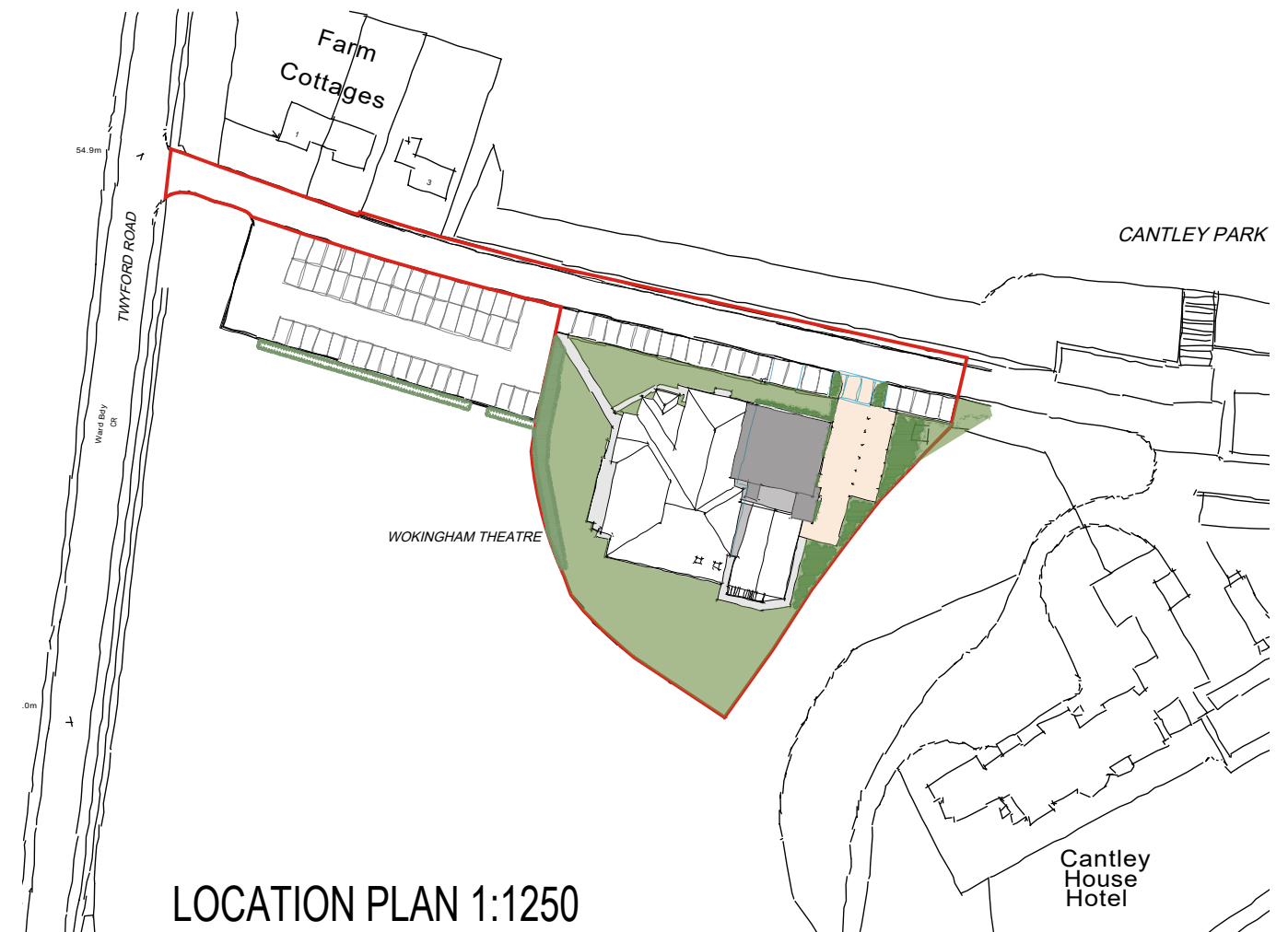
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 Wokingham, RG40 5TU
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1:100 scale Bar
 This Drawing has been produced for printing onto A3 size paper,



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1:500 scale Bar
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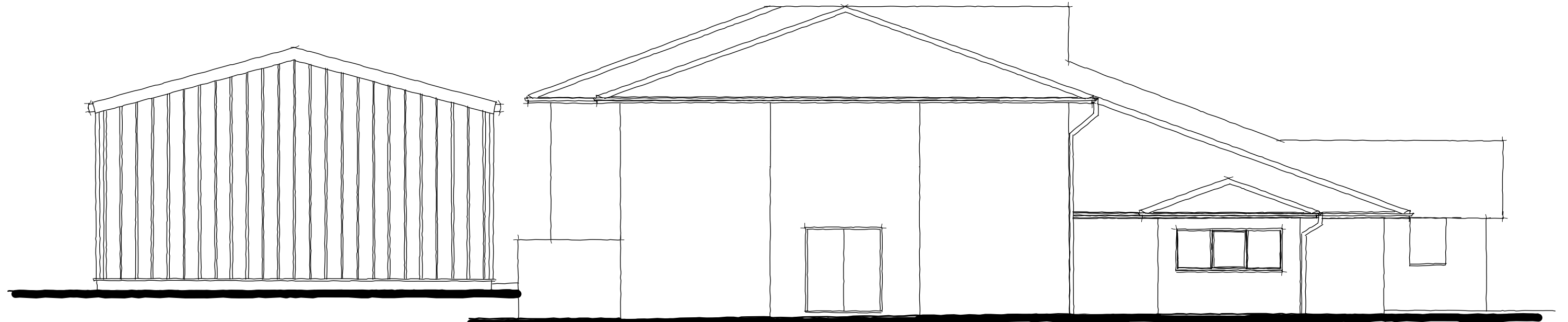
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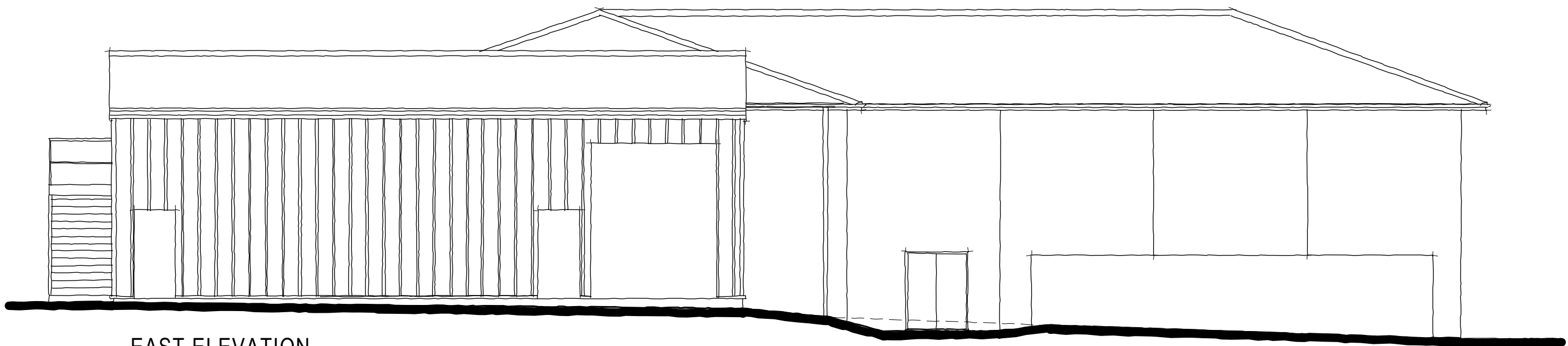
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NORTH ELEVATION



EAST ELEVATION

REV	COMMENTS	DATE

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CLIENT

Wokingham Theatre

PROJECT

Wokingham Theatre, Twyford, Road,
Wokingham, RG40 5TU

DRAWING

EXISTING ELEVATIONS 2 OF 2

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DATE Dec 23

DWG SCALE 1:100

DRAWN TB

DWG No. 142/104

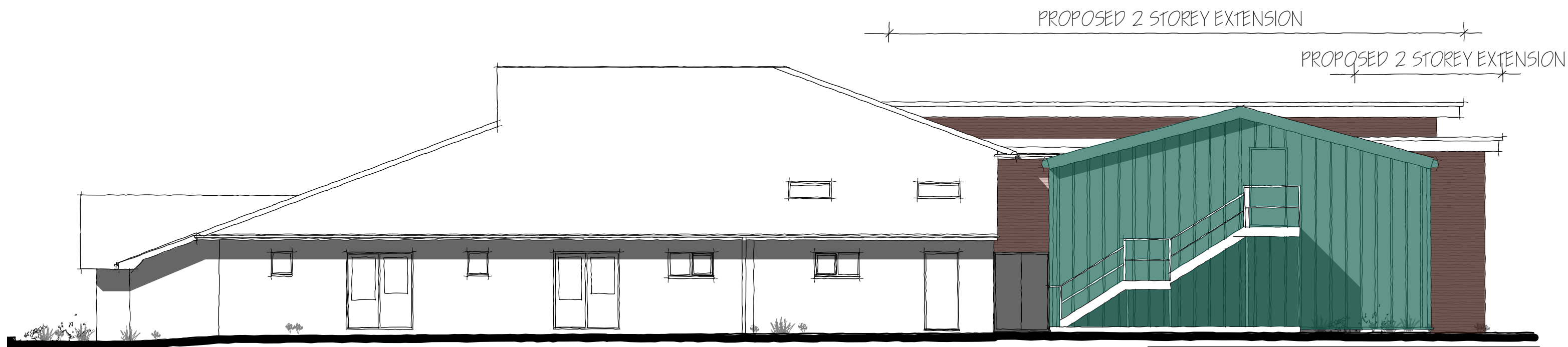
REV A

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WEST ELEVATION



SOUTH ELEVATION

REV	COMMENTS	DATE

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CLIENT Wokingham Theatre
PROJECT Wokingham Theatre, Twyford, Road,
 Wokingham, RG40 5TU
DRAWING PROPOSED ELEVATIONS 1 OF 2

1:100 scale Bar
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DATE Dec 23 DWG SCALE 1:100 DRAWN TB DWG No. 142/203 REV D

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1:100 scale Bar
This Drawing has been produced for printing onto A1 size paper.
If printing on A3 please use the scale below for reference.
0m 2m 4m 8m

REV	COMMENTS	DATE
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CLIENT Wokingham Theatre
PROJECT Wokingham Theatre, Twyford, Road,
Wokingham, RG40 5TU
DRAWING PROPOSED GROUND FLOOR PLAN

DATE Dec 23 DWG SCALE 1:100 DRAWN TB DWG No. 142/200 REV D

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LEGEND

AV	Air Valve	ME	Manhole Electricity
BB	Belisha Beacon	MF	Manhole Foul
BI	Illum.Bollard	MH	Manhole General
BL	Bollard	MK	Marker Post
BM	Bench Mark	MRF	Metal Railing Fence
BP	Brick Pillar	MS	Manhole Surface Water
BPS	Block Paving Slabs	MW	Water Supply/Meter
BRK	Brick	NB	Notice Board
BS	Bus Stop/Shelter	OHC	Over Head Cable
BW	Brick Wall	P	Post
BRW	Brick Retaining Wall	PB	Post Box
CB	Telephone Box	PI	Pipe
CBF	Close Boarded Fence	RE	Rodding Eye
CC	CCTV Camera	RG	Road Gully
Ce	Cats Eye	RN	Road Name Plate
CL	Cover Level	RP	Reflector Post
CLF	Chain Link Fence	PRF	Post & Rail Fence
CONC	Concrete	RS	Road Sign
CPS	Concrete Paving Slabs	PWF	Post & Wire Fence
CW	Concrete Wall	Sap	Sapling
CRW	Concrete Ret. Wall	SMP	Sheet Metal Piling
DK	Drop Kerb	SL	Soffit Level
EB	Electricity Box	Stu	Stump
EP	Electricity Pole	SP	Sign Post
FB	Flower Bed	SV	Stop Valve
FH	Fire Hydrant	SW	Stone Wall
FL	Flood Light	SRW	Stone Retaining Wall
FS	Flag Staff	TH	Threshold Level
FP	Footpath	TL	Traffic Light
G	Gully	TP	Telegraph Pole
HW	Headwall	TPS	Tactile Paving
IC	Inspection Cover	TSR	Tubular Steel Railings
IL	Invert Level	TV	Cable TV Point
IRF	Iron Railing Fence	TC	Traffic Camera
KW	Kerb Weir Inlet	TW	Top of wall
LLF	Larch Lap Fence	VP	Vent
LP	Lamp Post	WL	Water level
BT	Manhole Telecom	WMF	Wire Mesh Fence
MB	Multi-hole tree	WO	Washout
MC	Manhole Cable	WPR	Wooden Post & Rail

NOTES

1. The Grid is OSGB 36 using OSTN15 & OSGB15 on the OS Active Network
2. All levels are related to OS Datum (Newlyn)
3. Contours are shown at 0.25m intervals

Rev	Date	Description	Checked
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geopoint.
Geospatial Engineering & Surveying

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Project	Wokingham Theatre		
Title	Topographical Survey		
Drawing No.	Geo24-088		
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Drawn	AS	Checked	AS
Geopoint Ltd. Unit 8 Jupiter House Calleva Park Aldermaston Reading			

← 1:XX	GRADIENT
+ 00.000	PROPOSED LEVEL
+ 00.000RG/YD/CD	PROPOSED LEVEL WITH DRAINAGE POINT
FFL: 0000 TBC	PROPOSED FFL

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECT AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
2. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY, SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
3. ALL LEVELS SHOWN SUBJECT TO CONFIRMATION BY THE ARCHITECT. ANY ANOMALIES TO BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION.
4. ALL SETTING OUT CO-ORDINATES TO BE CHECKED ON SITE BY THE CONTRACTOR. ANY ANOMALIES TO BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION.
5. ALL WORKS TO BE COMPLETED IN ACCORDANCE WITH RELEVANT LOCAL AUTHORITY SPECIFICATIONS.
6. H82 KERB UPSTAND TO BE 100mm.
7. ALL EXISTING MANHOLE COVERS, GULLYS, ETC., TO BE RAISED TO SUIT NEW LEVELS.
8. RE-GRADING AND HIGHWAY EMBANKMENTS ARE TO HAVE A MAXIMUM SLOPE GRADIENT OF 1:3. SLOPE GRADIENTS IN GARDENS TO BE RESTRICTED TO 1 IN 12.
9. LEVELS SHOWN ADJACENT TO KERBS ARE CHANNEL LEVELS.

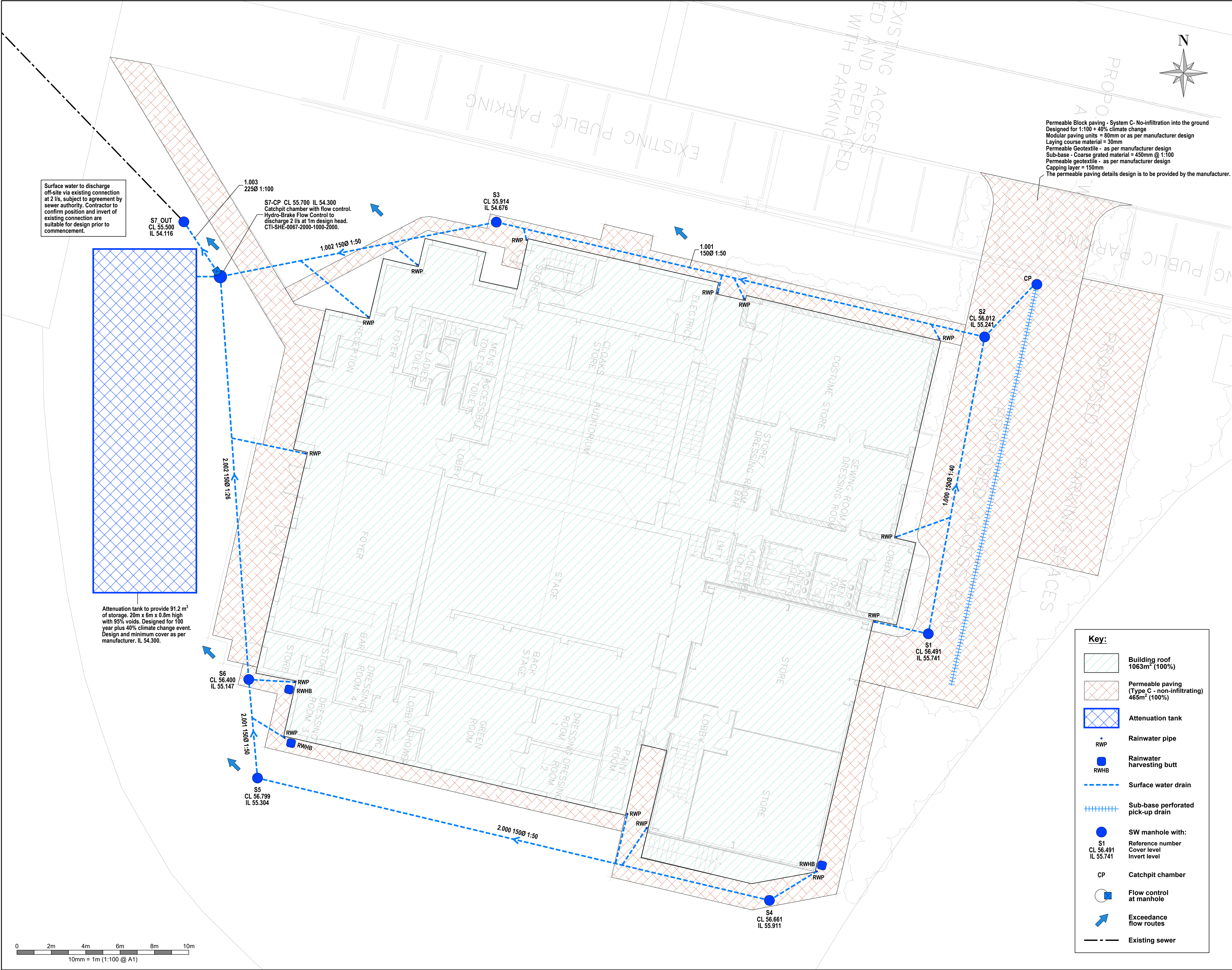


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CLIENT Wokingham Theatre			
SCALES 1:100		DRG. SIZE A1	
DATE SEPTEMBER 2017		CHECKED EN / TECH SPB	
DRAWING TITLE EXTERNAL LEVELS LAYOUT			
STRUCTURAL AND CIVIL CONSULTING ENGINEERS Forder House, High Street, Bursledon, Petersfield, Hampshire GU31 5RX Telephone: 01730 266944 www.andrewnewby.co.uk			 ANDREWS NEWBY PARTNERSHIP
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3891 - 501			

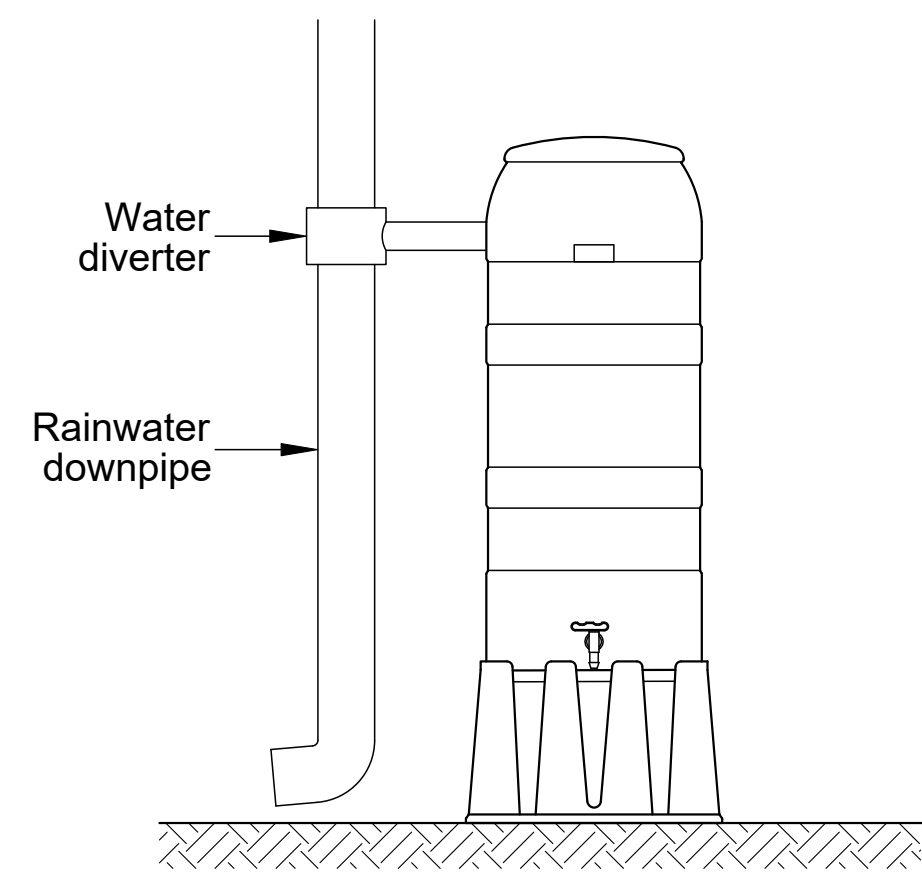
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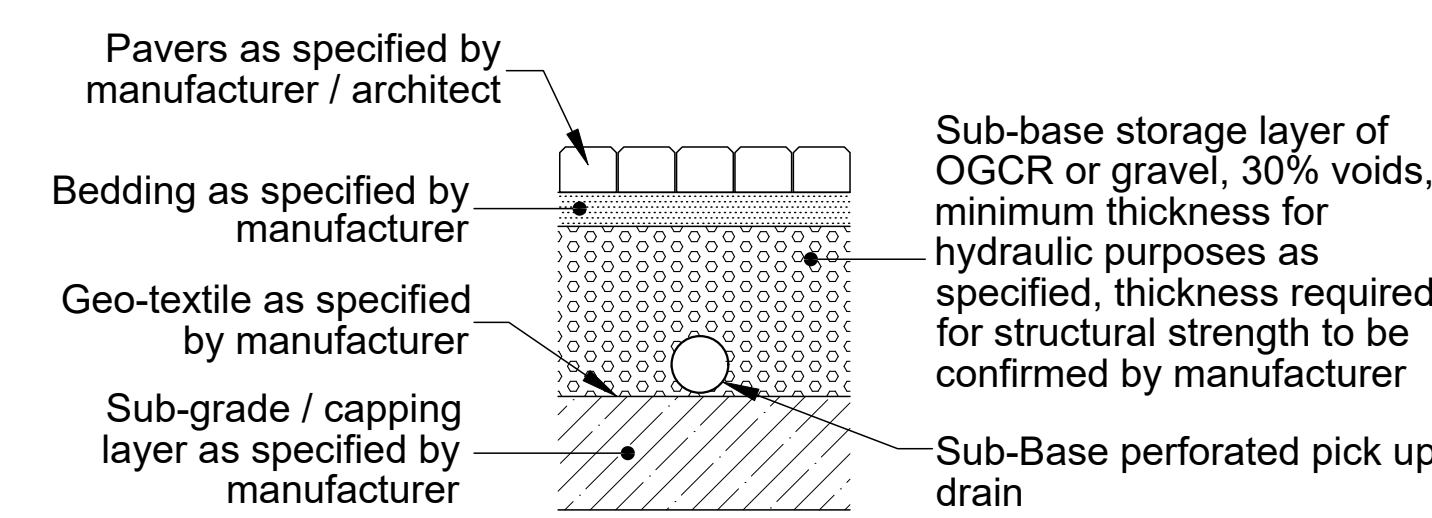
Detailed Drainage Design Drawing and Cross Sections



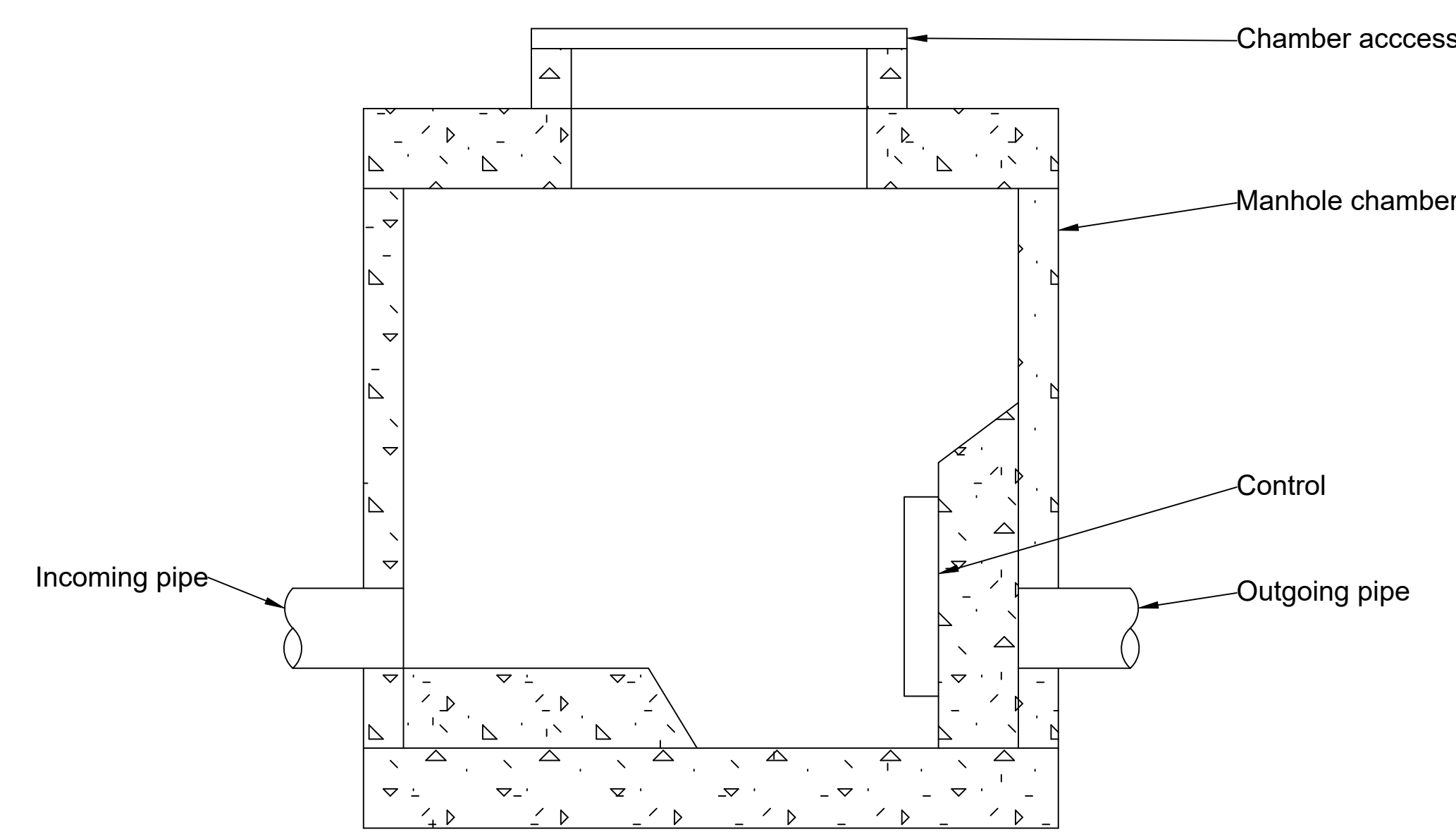
Notes:				
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2.	All dimensions are in meters unless otherwise stated.			
3.	This drawing to be read in conjunction with all other relevant drawings and documents.			
4.	All drainage to be constructed to SSG Design and Construction Guidance, current British standards and building regulations and other relevant standards.			
5.	Exact locations of rain water downpipes and other internal drainage down pipes to be confirmed by architect / M&E engineer. Rain water pipe connections to have rodding access, sump and grated cover.			
6.	Contractor to confirm locations of existing services prior to commencement on site and to arrange for any necessary diversions, lowering or protection works as required.			
7.	All specialist drainage components such as attenuation tank and flow control to be designed and installed as per manufacturers requirements.			
8.	Cover levels to be confirmed by landscape architect. Cover levels and invert levels are in meters unless otherwise stated. If cover levels change from assumed then drainage design should be re-assessed, especially in regards to extreme events.			
9.	Private surface water pipes to be 1000Ø with minimum fall of 1:100 unless otherwise stated.			
10.	Permeable paving and outlets to be as manufacturer design and recommendations.			
11.	Proposed ground levels will influence the storage capacity of the permeable paving and the position of the drainage pick up features. When proposed ground levels are complete the permeable paving design should be reviewed to ensure sufficient storage is provided and that the drainage pick up features are positioned correctly.			
12.	Permeable paving sub-base should fall towards the drainage pick up features. Perforated pick up drains should fall towards the discharge point.			
13.	Minimum cover to thermoplastic pipes in garden or patio areas 0.6m, in driveway 0.9m, in road 1.2m, otherwise concrete protection will be required.			
14.	Access chamber cover class A15 for garden and patio, B125 for driveway, C250 for lightly trafficked roads or small private car parks.			
15.	As the site has previously been developed an existing suitable discharge point may already be present on the site. A survey of existing drainage should be undertaken to confirm.			
16.	Design is for planning purposes only and not for construction. Design should be confirmed prior to construction to ensure all available information is considered and any assumed information should be verified.			
17.	Design should be reviewed in light of any additional information or on validation or otherwise of any assumptions.			
Drainage Strategy				
• Drainage strategy consists of rain water harvesting butts, permeable paving, an attenuation tank and controlled discharge via an existing connection.				
• Permeable paving will discharge via perforated pick up drains or top hat type outlets. Base of storage sub-base to fall towards pick up / discharge points, all as manufacturer's design.				
• Surface water will discharge via existing connection, subject to agreement by sewer authority and confirmation of location, depth and condition.				
• Discharge rate will be controlled by Hydro-Brake to 2 l/s, subject to approval.				
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Wokingham Theatre				
Project:				
Wokingham Theatre, Twyford Road, Wokingham, RG40 5TU				
Drawing Title:				
Proposed Surface Water Drainage Layout				
Drawing:				
GeoSmart Information				
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Drawn by:	Checked by:	Date:		
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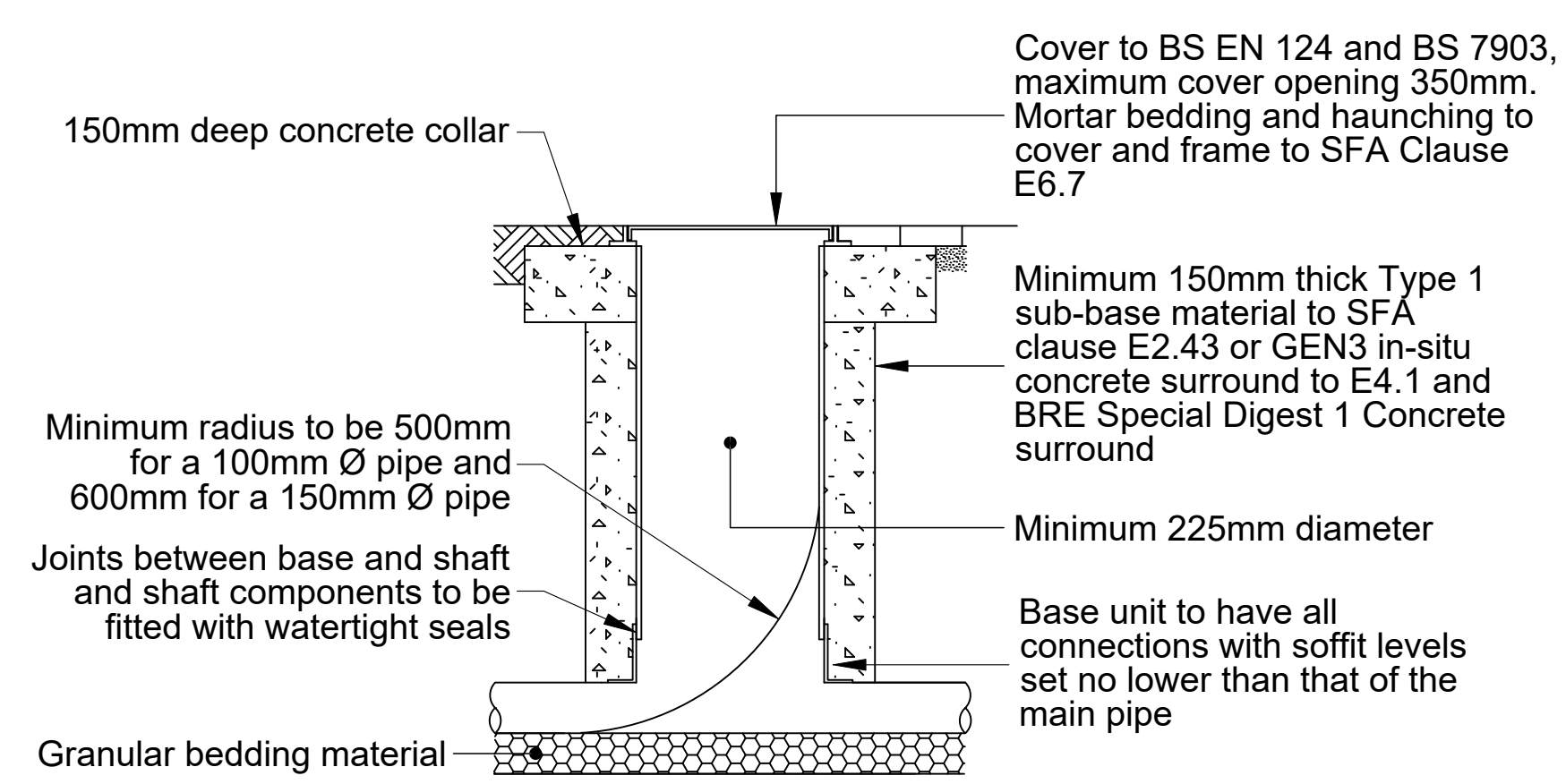
Typical Rain Water Harvest Butt



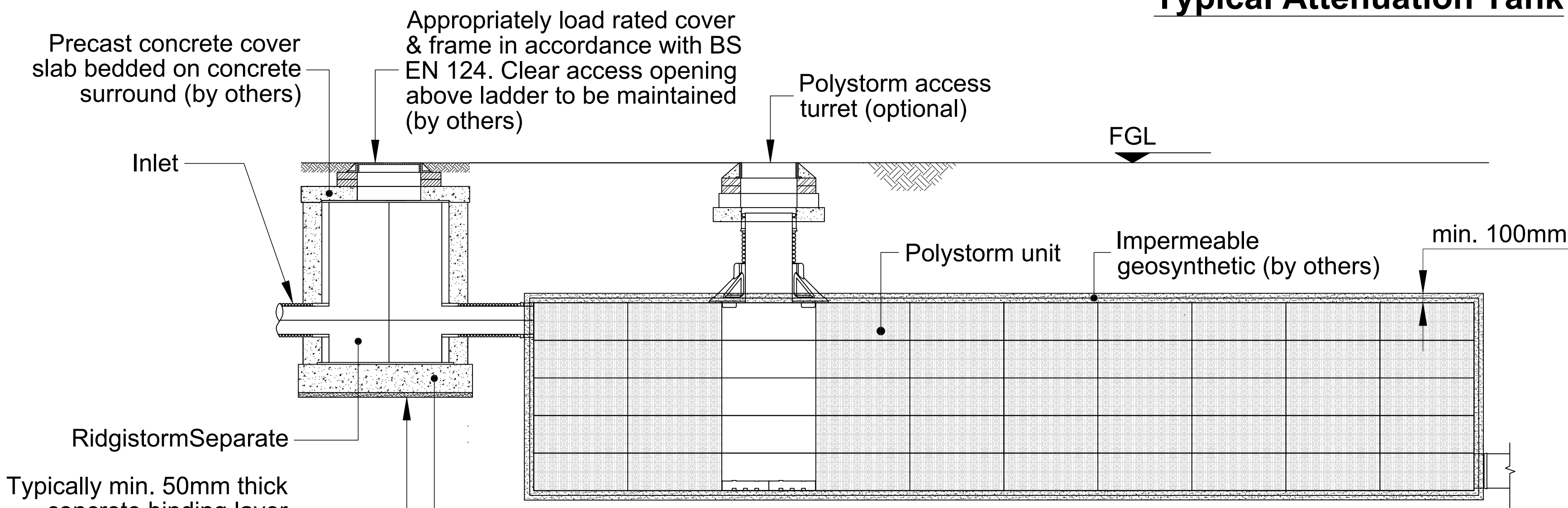
Typical Permeable Paving Detail with Perforated Pick Up
Pipe within Sub-base



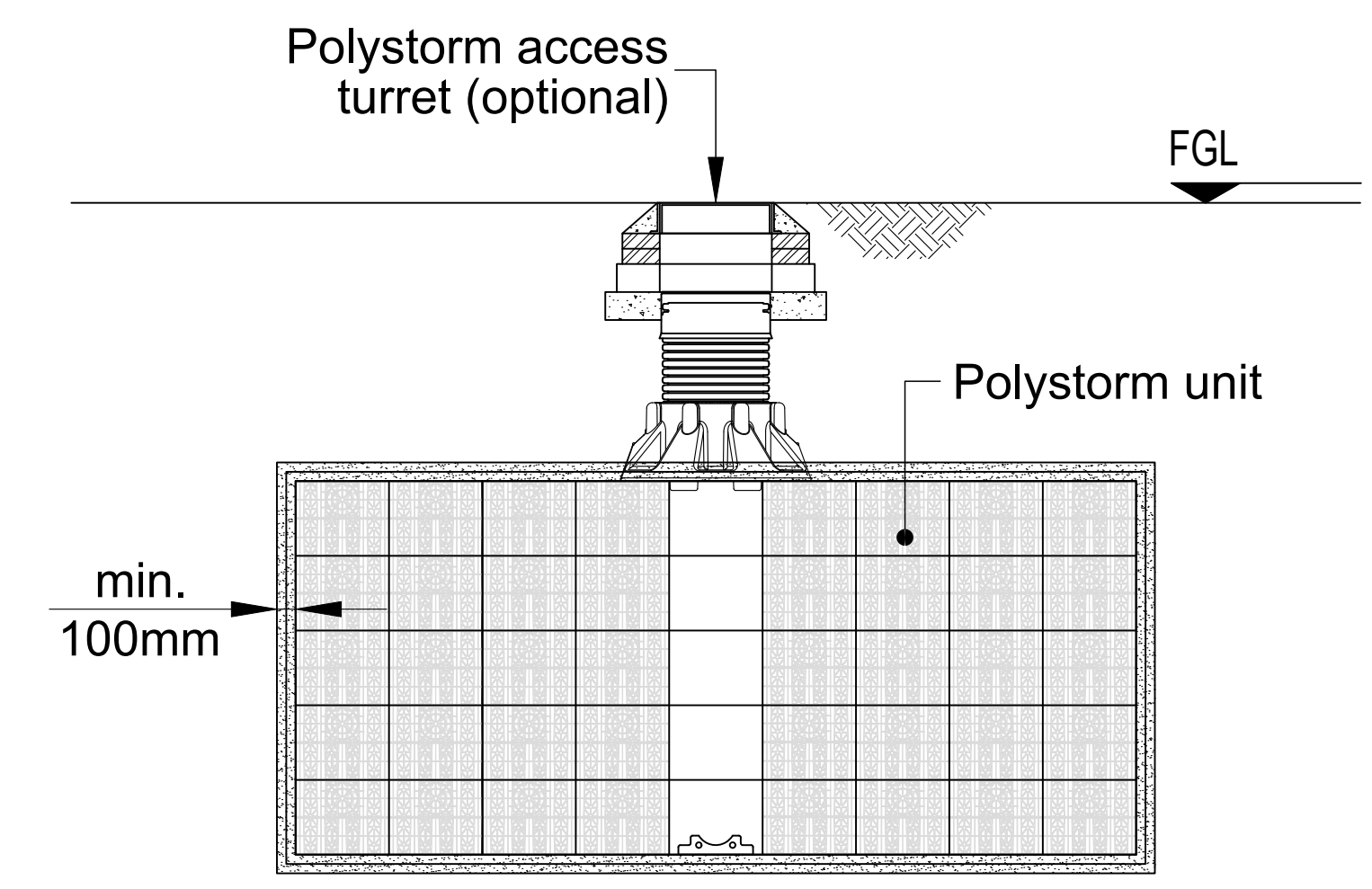
Typical control chamber
(Design to be specified by manufacturer)



Typical Inspection Chamber
(Driveways, paved areas)



Long Section



Cross Section

- Notes:**
1. Do not scale from this drawing.
 2. All dimensions are in meters unless otherwise stated.
 3. This drawing to be read in conjunction with all other relevant drawings and documents.
 4. All drainage to be constructed to SSG Design and Construction Guidance, current British standards and building regulations and other relevant standards.
 5. Exact locations of rain water downpipes and other internal drainage down pipes to be confirmed by architect / M&E engineer. Rain water pipe connections to have rodding access, sump and grated cover.
 6. Contractor to confirm locations of existing services prior to commencement on site and to arrange for any necessary diversions, lowering or protection works as required.
 7. All specialist drainage components such as attenuation tank and flow control to be designed and installed as per manufacturers requirements.
 8. Cover levels to be confirmed by landscape architect. Cover levels and invert levels are in meters unless otherwise stated. If cover levels change from assumed then drainage design should be re-assessed, especially in regards to extreme events.
 9. Private surface water pipes to be 1000Ø with minimum fall of 1:100 unless otherwise stated.
 10. Permeable paving and outlets to be as manufacturer design and recommendations.
 11. Proposed ground levels will influence the storage capacity of the permeable paving and the position of the drainage pick up features. When proposed ground levels are complete the permeable paving design should be reviewed to ensure sufficient storage is provided and that the drainage pick up features are positioned correctly.
 12. Permeable paving sub-base should fall towards the drainage pick up features. Perforated pick up drains should fall towards the discharge point.
 13. Minimum cover to thermoplastic pipes in garden or patio areas 0.6m, in driveway 0.9m, in road 1.2m, otherwise concrete protection will be required.
 14. Access chamber cover class A15 for garden and patio, B125 for driveway, C250 for lightly trafficked roads or small private car parks.
 15. As the site has previously been developed an existing suitable discharge point may already be present on the site. A survey of existing drainage should be undertaken to confirm.
 16. Design is for planning purposes only and not for construction. Design should be confirmed prior to construction to ensure all available information is considered and any assumed information should be verified.
 17. Design should be reviewed in light of any additional information or on validation or otherwise of any assumptions.

Drainage Strategy

- Drainage strategy consists of rain water harvesting butts, permeable paving, an attenuation tank and controlled discharge via an existing connection.
- Permeable paving will discharge via perforated pick up drains or top hat type outlets. Base of storage sub-base to fall towards pick up / discharge points, all as manufacturer's design.
- Surface water will discharge via existing connection, subject to agreement by sewer authority and confirmation of location, depth and condition.
- Discharge rate will be controlled by Hydro-Brake to 2 l/s, subject to approval.

P01	16.10.25	Initial issue	DS	WW
Rev	Date	Detail	Drwn	Chkd

Client: Wokingham Theatre

Project: Wokingham Theatre,
Tyxford Road,
Wokingham, RG40 5TU

Drawing Title: Cross Sections

Suite 9-11, 1st Floor, Old Bank Buildings, Bellstone, Shrewsbury, SY1 1HU

Drawn by: DS	Checked by: WW	Date: Oct. 2025
Scale: N.T.S	Status: Preliminary	
Drawing No: 86252 102	Issue: P01	

Appendix C



Causeway Flow Surface Water Drainage Calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	0.600
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.018	5.00	56.491	600	480817.955	169721.131	0.750
2	0.044	5.00	56.012	600	480821.670	169740.714	0.771
3	0.018	5.00	55.914	600	480794.192	169747.215	1.238
4	0.018	5.00	56.661	600	480809.004	169707.766	0.750
5	0.018	5.00	56.799	600	480779.421	169714.484	1.495
6	0.018	5.00	56.400	600	480778.727	169722.297	1.253
7	0.018	5.00	55.700	1200	480776.622	169744.119	1.400
7_OUT			55.500	600	480777.389	169762.517	1.384

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	19.932	0.600	55.741	55.241	0.500	39.9	150	5.21	50.0
1.001	2	3	28.237	0.600	55.241	54.676	0.565	50.0	150	5.54	50.0
1.002	3	7	17.841	0.600	54.676	54.319	0.357	50.0	150	5.75	50.0
2.000	4	5	30.336	0.600	55.911	55.304	0.607	50.0	150	5.35	50.0
2.001	5	6	7.844	0.600	55.304	55.147	0.157	50.0	150	5.45	50.0
2.002	6	7	21.923	0.600	55.147	54.319	0.828	26.5	150	5.63	50.0
1.003	7	7_OUT	18.414	0.600	54.300	54.116	0.184	100.0	225	5.98	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.598	28.2	2.4	0.600	0.621	0.018	0.0	30	0.979
1.001	1.426	25.2	8.4	0.621	1.088	0.062	0.0	59	1.283
1.002	1.426	25.2	10.8	1.088	1.231	0.080	0.0	69	1.374
2.000	1.426	25.2	2.4	0.600	1.345	0.018	0.0	31	0.903
2.001	1.426	25.2	4.9	1.345	1.103	0.036	0.0	45	1.108
2.002	1.964	34.7	7.3	1.103	1.231	0.054	0.0	47	1.560
1.003	1.307	52.0	20.6	1.175	1.159	0.152	0.0	98	1.231

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	✓	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	0.840	Additional Storage (m³/ha)	20.0		

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	0	0	0
100	40	0	0

Node 7 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	54.300	Product Number	CTL-SHE-0067-2000-1000-2000
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

Node 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.412	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	25.000		

Node 7 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	54.300
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	120.0	120.0	0.800	120.0	151.1	0.801	0.0	151.1

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.28%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	55.771	0.030	2.5	0.0229	0.0000	OK
15 minute winter	2	10	55.300	0.059	8.5	0.0843	0.0000	OK
15 minute winter	3	11	54.747	0.071	10.8	0.0407	0.0000	OK
15 minute winter	4	10	55.943	0.032	2.5	0.0241	0.0000	OK
15 minute winter	5	10	55.351	0.047	4.9	0.0244	0.0000	OK
15 minute winter	6	11	55.194	0.047	7.3	0.0270	0.0000	OK
240 minute winter	7	180	54.450	0.150	5.1	17.3008	0.0000	OK
240 minute winter	7_OUT	180	54.144	0.028	1.7	0.0000	0.0000	OK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	2.5	0.561	0.087	0.0892	
15 minute winter	2	1.001	3	8.3	1.137	0.329	0.2058	
15 minute winter	3	1.002	7	10.7	1.337	0.423	0.1423	
15 minute winter	4	2.000	5	2.4	0.669	0.097	0.1115	
15 minute winter	5	2.001	6	4.8	1.019	0.191	0.0370	
15 minute winter	6	2.002	7	7.2	1.531	0.207	0.1030	
240 minute winter	7	1.003	7_OUT	1.7	0.603	0.033	0.0527	24.6

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.28%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	55.792	0.051	7.1	0.0390	0.0000	OK
15 minute winter	2	12	55.429	0.188	24.5	0.3156	0.0000	SURCHARGED
15 minute summer	3	11	54.973	0.297	28.9	0.1705	0.0000	SURCHARGED
15 minute winter	4	10	55.965	0.054	7.1	0.0413	0.0000	OK
15 minute winter	5	10	55.392	0.088	14.1	0.0461	0.0000	OK
15 minute winter	6	10	55.235	0.088	21.0	0.0500	0.0000	OK
180 minute winter	7	176	54.706	0.406	14.3	46.9003	0.0000	SURCHARGED
60 minute winter	7_OUT	49	54.146	0.030	2.0	0.0000	0.0000	OK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	7.0	0.688	0.249	0.2265	
15 minute summer	2	1.001	3	22.1	1.362	0.876	0.4862	
15 minute summer	3	1.002	7	27.9	1.583	1.106	0.3117	
15 minute winter	4	2.000	5	7.0	0.855	0.278	0.2494	
15 minute winter	5	2.001	6	13.9	1.328	0.551	0.0840	
15 minute winter	6	2.002	7	20.8	1.994	0.599	0.2804	
60 minute winter	7	1.003	7_OUT	2.0	0.626	0.038	0.0575	31.0

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.28%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	55.800	0.059	9.2	0.0448	0.0000	OK
15 minute winter	2	13	55.512	0.271	31.6	1.9073	0.0000	SURCHARGED
15 minute winter	3	12	55.041	0.365	29.8	0.2094	0.0000	SURCHARGED
15 minute winter	4	10	55.973	0.062	9.2	0.0475	0.0000	OK
15 minute winter	5	10	55.410	0.106	18.3	0.0558	0.0000	OK
15 minute winter	6	10	55.253	0.106	27.2	0.0602	0.0000	OK
180 minute winter	7	180	54.839	0.539	17.8	62.1582	0.0000	SURCHARGED
30 minute summer	7_OUT	29	54.146	0.030	2.0	0.0000	0.0000	OK

Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1	1.000	2	8.6	0.699	0.306	0.2365	
15 minute summer	2	1.001	3	22.1	1.386	0.879	0.4971	
15 minute winter	3	1.002	7	29.6	1.682	1.175	0.3141	
15 minute winter	4	2.000	5	9.1	0.892	0.361	0.3075	
15 minute winter	5	2.001	6	18.0	1.396	0.714	0.1044	
15 minute summer	6	2.002	7	25.7	2.080	0.739	0.3092	
30 minute summer	7	1.003	7_OUT	2.0	0.626	0.038	0.0575	28.5

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.28%

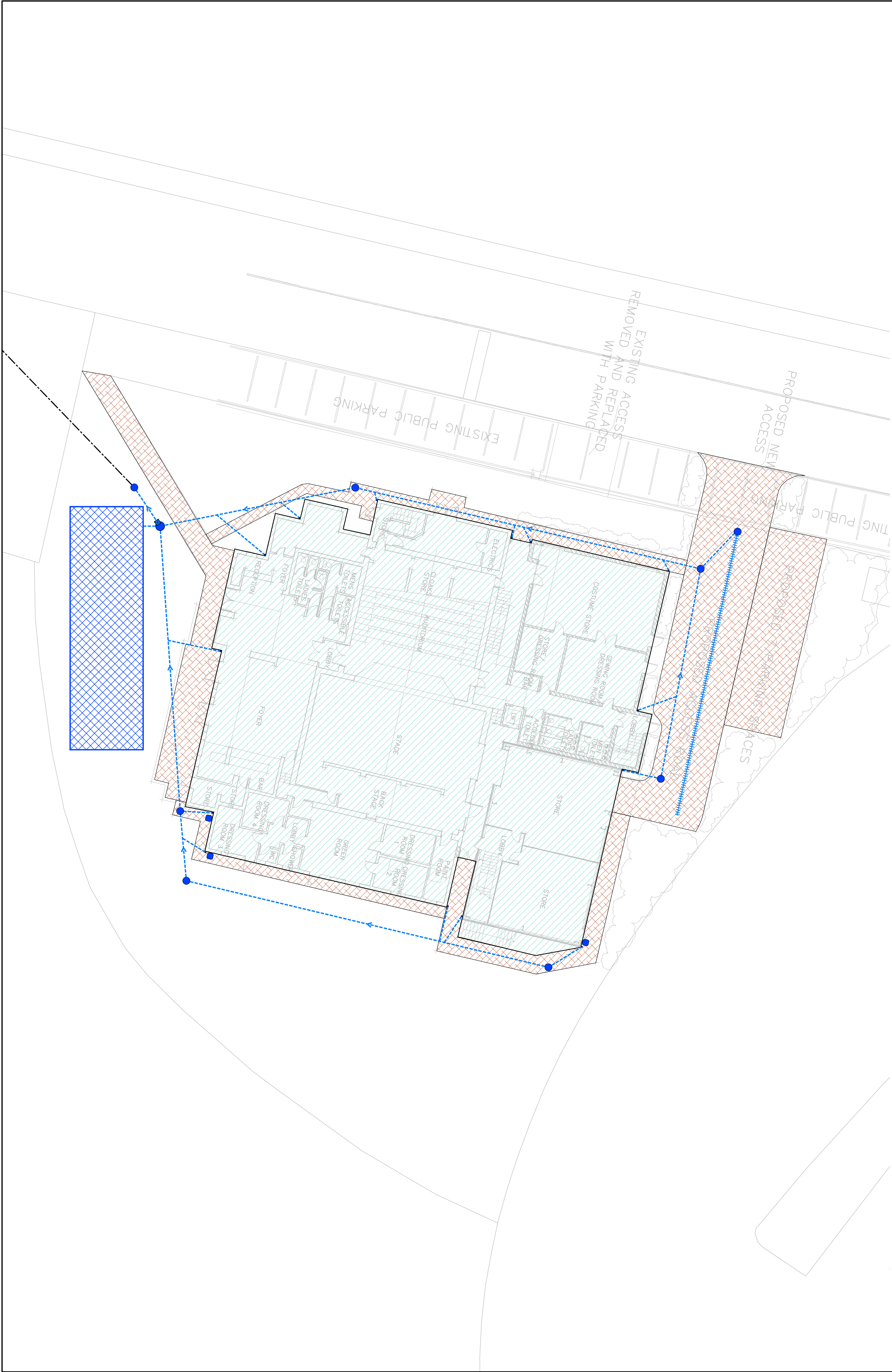
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	55.812	0.071	12.9	0.0541	0.0000	OK
15 minute winter	2	14	55.604	0.363	44.2	6.0289	0.0000	SURCHARGED
240 minute winter	3	236	55.260	0.584	10.7	0.3354	0.0000	SURCHARGED
15 minute winter	4	10	55.987	0.076	12.9	0.0576	0.0000	OK
15 minute winter	5	12	55.589	0.285	25.6	0.1494	0.0000	SURCHARGED
15 minute winter	6	12	55.420	0.273	35.7	0.1558	0.0000	SURCHARGED
240 minute winter	7	236	55.260	0.960	19.8	92.5892	0.0000	SURCHARGED
15 minute summer	7_OUT	52	54.146	0.030	2.0	0.0000	0.0000	OK

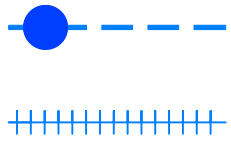
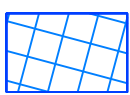
Link Event (Velocity)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	12.8	0.862	0.453	0.2570	
15 minute winter	2	1.001	3	22.5	1.373	0.894	0.4971	
15 minute winter	3	1.002	7	31.9	1.814	1.267	0.3141	
15 minute summer	4	2.000	5	12.1	0.920	0.481	0.3957	
30 minute summer	5	2.001	6	21.9	1.408	0.869	0.1243	
15 minute winter	6	2.002	7	33.2	2.129	0.955	0.3860	
15 minute summer	7	1.003	7_OUT	2.0	0.626	0.038	0.0575	28.0

Appendix D



Management & Maintenance Plan



	Asset Type	Maintenance Schedule (and Frequency)	Party Responsible
	Permeable pavements	Regular maintenance: - Brushing and vacuuming (three time per year) - Trimming any roots and surrounding grass and weeds that may be causing blockages (annually or as required) Monitoring: - Initial inspection (monthly) - Inspect surface for poor performance or ponding (annually or after large storm events)	Privately owned and maintained by site owners or specialist asset management company as appointed by site owners.
	Underground drainage pipe network and manholes / catchpits	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)	
	Attenuation tank	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) - Survey inside of tank for sediment build-up and remove (annually or as required)	
	Rain water pipe	Regular maintenance: - Remove sediment and debris from grating, channel and sump (monthly or as required) - Trimming any roots and surrounding grass blockages (as required) Monitoring: - Inspect inlets and outlets for blockages or silt accumulation (monthly or after a heavy storm)	
	Hydrobrake	Regular maintenance: - Remove silts from the Hydrobrake chamber sump (annually) - Remove any debris obstructing the inlet, outlet or control ensuring the emergency drain down mechanism if replaced correctly (annually) Monitoring: Inspect the hydrobrake control from the surface for signs of blockage or damage (as required) - Inspect the Hydrobrake chamber sump for build up of silt and the inlet and outlet for debris (annually) - Check the emergency drain down mechanism is in good working order (annually)	
	Rainwater harvesting water butt	Regular maintenance: - Clean tank, inlets, outlets, gutters, roof drain filters and withdrawal devices (annually or as required) - Empty water butt and clean interior, removing any sludge, algae or sediments (annually or as required) Monitoring: - Inspect tank for debris and sediment build up (annually and following poor performance) - Inspect inlets, outlets and overflow (annually and following poor performance)	

Notes:

- Do not scale from this drawing.
- All dimensions are in meters unless otherwise stated.
- This drawing to be read in conjunction with all other relevant drawings and documents.
- All drainage to be constructed to SSG Design and Construction Guidance, current British standards and building regulations and other relevant standards.
- Exact locations of rain water downpipes and other internal drainage down pipes to be confirmed by architect / M&E engineer. Rain water pipe connections to have rodding access, sump and grated cover.
- Contractor to confirm locations of existing services prior to commencement on site and to arrange for any necessary diversions, lowering or protection works as required.
- All specialist drainage components such as attenuation tank and flow control to be designed and installed as per manufacturers requirements.
- Cover levels to be confirmed by landscape architect. Cover levels and invert levels are in meters unless otherwise stated. If cover levels change from assumed then drainage design should be re-assessed, especially in regards to extreme events.
- Private surface water pipes to be 1000Ø with minimum fall of 1:100 unless otherwise stated.
- Permeable paving and outlets to be as manufacturer design and recommendations.
- Proposed ground levels will influence the storage capacity of the permeable paving and the position of the drainage pick up features. When proposed ground levels are complete the permeable paving design should be reviewed to ensure sufficient storage is provided and that the drainage pick up features are positioned correctly.
- Permeable paving sub-base should fall towards the drainage pick up features. Perforated pick up drains should fall towards the discharge point.
- Minimum cover to thermoplastic pipes in garden or patio areas 0.6m, in driveway 0.9m, in road 1.2m, otherwise concrete protection will be required.
- Access chamber cover class A15 for garden and patio, B125 for driveway, C250 for lightly trafficked roads or small private carparks.
- As the site has previously been developed an existing suitable discharge point may already be present on the site. A survey of existing drainage should be undertaken to confirm.
- Design is for planning purposes only and not for construction. Design should be confirmed prior to construction to ensure all available information is considered and any assumed information should be verified.
- Design should be reviewed in light of any additional information or on validation or otherwise of any assumptions.

Drainage Strategy

- Drainage strategy consists of rain water harvesting butts, permeable paving, an attenuation tank and controlled discharge via an existing connection.
- Permeable paving will discharge via perforated pick up drains or top hat type outlets. Base of storage sub-base to fall towards pick up / discharge points, all as manufacturer's design.
- Surface water will discharge via existing connection, subject to agreement by sewer authority and confirmation of location, depth and condition.
- Discharge rate will be controlled by Hydro-Brake to 2 l/s, subject to approval.

P01	16.10.25	Initial issue	DS	WW
Rev	Date	Detail	Drwn	Chkd
Client:				
Wokingham Theatre				
Project:				
Wokingham Theatre, Twyford Road, Wokingham, RG40 5TU				
Drawing Title:				
Management and Maintenance Plan				



Suite 9-11, 1st Floor, Old Bank Buildings, Bellstone, Shrewsbury, SY1 1HU

Drawn by:	Checked by:	Date:
DS	WW	Oct. 2025
Scale:	Status:	
N.T.S	Preliminary	
Drawing No:	Issue:	
86252 101	P01	

Appendix E



Thames Water Asset Location Plan

Geosmart Information Ltd
Suite 9-11
1st Floor
Old Bank
SHREWSBURY
SY1 1HU

Search address supplied Wokingham Theatre
Twyford Road
Wokingham
RG40 5TU

Your reference 86252

Our reference ALS/ALS Standard/2025_5204144

Search date 4 August 2025

Keeping you up-to-date

Notification of price changes

We're changing our report prices from 4th June 2025. The price will increase by 3.5% based on Retail Price Index (RPI).

Find our new prices on our website thameswater.co.uk/property-searches

Any Questions? We're happy to talk through the changes with you – give our Property Searches team a call on 0800 009 4540 .



Thames Water Utilities Ltd
Property Searches,
Clearwater Court, Vastern Road, Reading RG1 8DB



property.searches@thameswater.co.uk
thameswater.co.uk/propertysearches



0800 009 4540

Search address supplied: Wokingham Theatre, Twyford Road, Wokingham, RG40 5TU

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position and size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the contact details below:

Thames Water Utilities Ltd
Property Searches
Clearwater Court
Vastern Road
Reading
RG1 8DB

Email: property.searches@thameswater.co.uk

Web: thameswater.co.uk/propertysearches

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority. Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners. The public sewer map relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus. The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

South East Water
Rocfort Road



Snodland
Kent
ME6 5AH

Tel: 0845 301 0845

www.southeastwater.co.uk.

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. You can do this by emailing customer.feedback@thameswater.co.uk with the email subject header 'Enquiry – TWOSA', along with details of the request.

If you have any questions regarding sewer connections, budget estimates, diversions or building over issues please direct them to our service desk which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

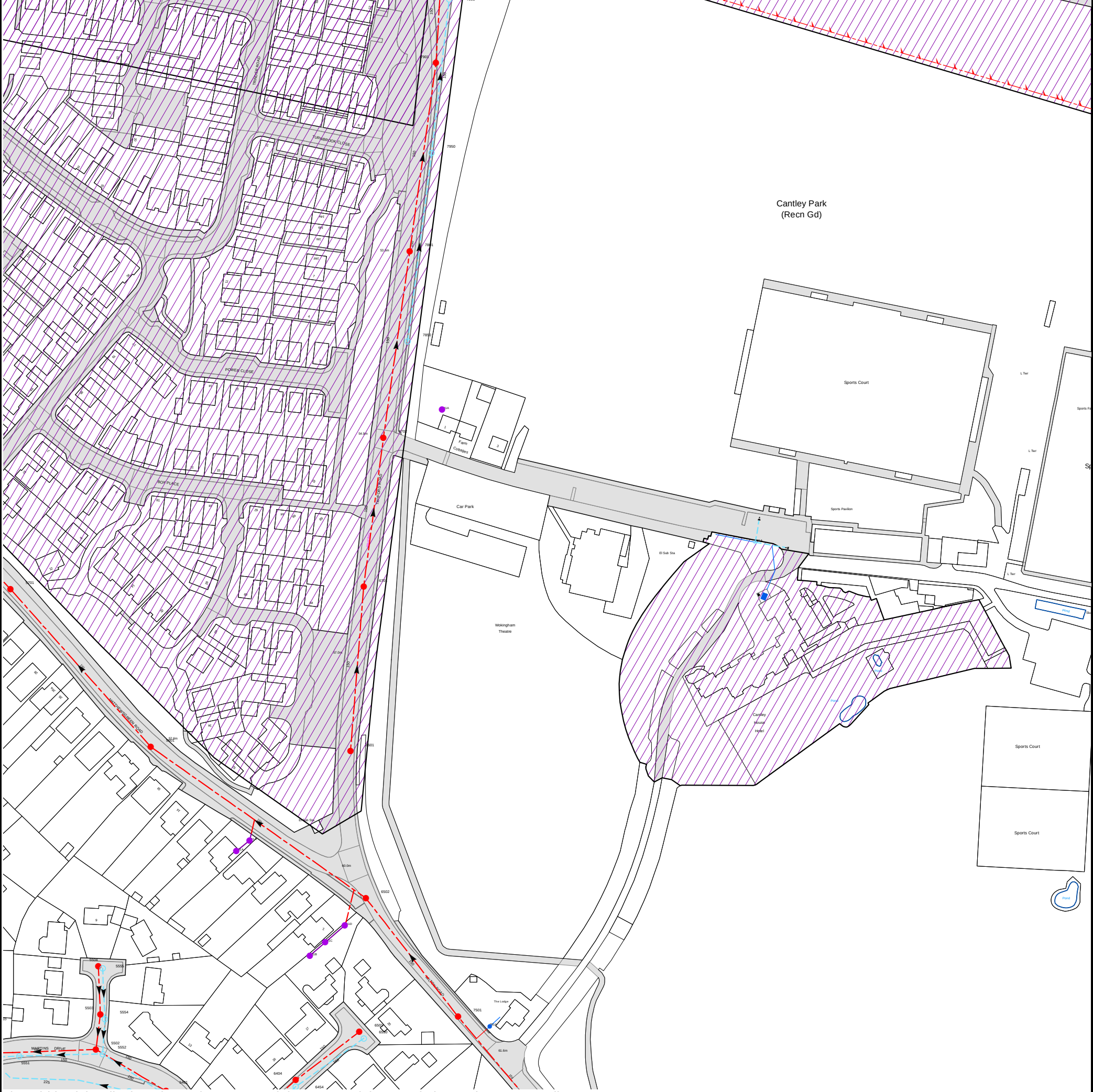
Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 480772,169740
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map (2024) with the Sanction of the controller of H.M. Stationery Office, License no. AC0000849556 Crown Copyright Reserved.

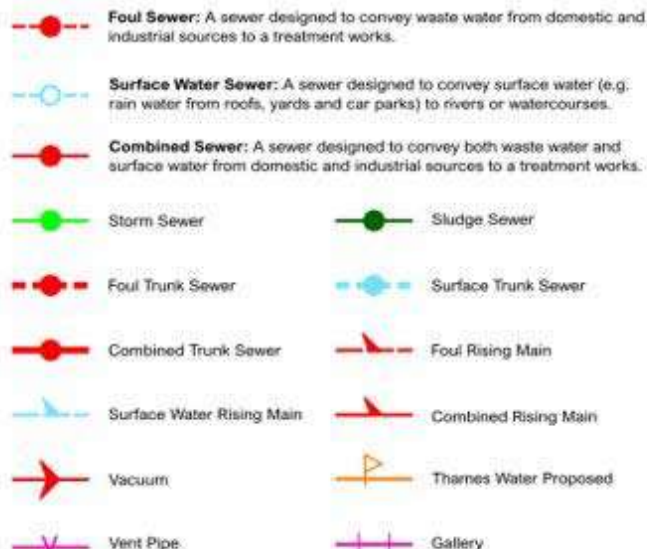
NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
5401	55.21	53.72
5451	55.16	53.57
5452	54.65	53.6
6454	57.68	55.86
7850	54.3	53.25
7801	53.55	51.72
7950	52.35	51.22
7901	51.86	50
7951	51.3	49.96
5701	56.28	54.23
5601	57.4	55.07
6601	58.24	56.24
6701	56.08	54.49
6702	55.06	53.46
781A	n/a	n/a
871A	56.39	n/a
5551	53.1	51.47
5502	53.97	51.66
5504	54.57	52.29
5503	54.15	51.77
5552	53.99	51.66
5555	54.55	52.3
5554	54.23	51.81
651A	n/a	n/a
661A	n/a	n/a
6404	57.67	56.24
651B	n/a	n/a
651C	n/a	n/a
651D	n/a	n/a
6501	59.04	57.7
6550	59.02	57.42
6502	n/a	n/a
7501	61.18	59.18
751A	n/a	n/a
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.		

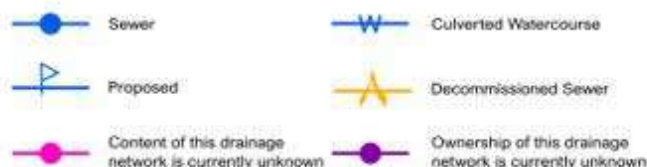


Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)



Other Sewer Types (Not operated and maintained by Thames Water)



Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plan are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.



Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.



End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.



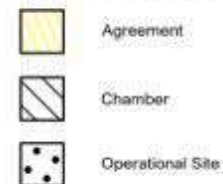
Other Symbols

Symbols used on maps which do not fall under other general categories.



Areas

Lines denoting areas of underground surveys, etc.



Ducts or Crossings



5) 'na' or '0' on a manhole indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

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.

Disclaimer

This report has been prepared by GeoSmart in its professional capacity as soil, groundwater, flood risk and drainage specialists, with reasonable skill, care and diligence within the agreed scope and terms of contract and taking account of the manpower and resources devoted to it by agreement with its client and is provided by GeoSmart solely for the internal use of its client.

The advice and opinions in this report should be read and relied on only in the context of the report as a whole, taking account of the terms of reference agreed with the client. The findings are based on the information made available to GeoSmart at the date of the report (and will have been assumed to be correct) and on current UK standards, codes, technology and practices as at that time. They do not purport to include any manner of legal advice or opinion. New information or changes in conditions and regulatory requirements may occur in future, which will change the conclusions presented here.

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Further information

Information on confidence levels and ways to improve this report can be provided for any location on written request to info@geosmart.co.uk or via our website. Updates to our model are ongoing and additional information is being collated from several sources to improve the database and allow increased confidence in the findings. Further information on groundwater levels and flooding are being incorporated in the model to enable improved accuracy to be achieved in future versions of the map. Please contact us if you would like to join our User Group and help with feedback on infiltration SuDS and mapping suggestion.

Important consumer protection information

This search has been produced by GeoSmart Information Limited, Suite 9-11, 1st Floor, Old Bank Buildings, Bellstone, Shrewsbury, SY1 1HU.

Tel: 01743 298 100

Email: info@geosmartinfo.co.uk

GeoSmart Information Limited is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom.
- sets out minimum standards which firms compiling and selling search reports have to meet.
- promotes the best practice and quality standards within the industry for the benefit of consumers and property professionals.
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.
- By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports.
- act with integrity and carry out work with due skill, care and diligence.
- at all times maintain adequate and appropriate insurance to protect consumers.

- conduct business in an honest, fair and professional manner.
- handle complaints speedily and fairly.
- ensure that products and services comply with industry registration rules and standards and relevant laws.
- monitor their compliance with the Code.

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award up to £5,000 to you if the Ombudsman finds that you have suffered actual financial loss and/or aggravation, distress or inconvenience as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs contact details:

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

You can get more information about the PCCB from www.propertycodes.org.uk.

Please ask your search provider if you would like a copy of the search code

Complaints procedure

GeoSmart Information Limited is registered with the Property Codes Compliance Board as a subscriber to the Search Code. A key commitment under the Code is that firms will handle any complaints both speedily and fairly. If you want to make a complaint, we will:

- Acknowledge it within 5 working days of receipt.
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.

- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time.
- Provide a final response, in writing, at the latest within 40 working days of receipt.
- Liaise, at your request, with anyone acting formally on your behalf.

If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: admin@tpos.co.uk.

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision. Complaints should be sent to:

Liz Lloyd

Finance Manager

GeoSmart Information Limited

Suite 9-11, 1st Floor,

Old Bank Buildings,

Bellstone, Shrewsbury, SY1 1HU

Tel: 01743 298 100

support@geosmartinfo.co.uk

11 Terms and conditions, CDM regulations and data limitations



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<http://geosmartinfo.co.uk/knowledge-hub/cdm-2015/>

Data use and limitations can be found on our website:

<http://geosmartinfo.co.uk/data-limitations/>