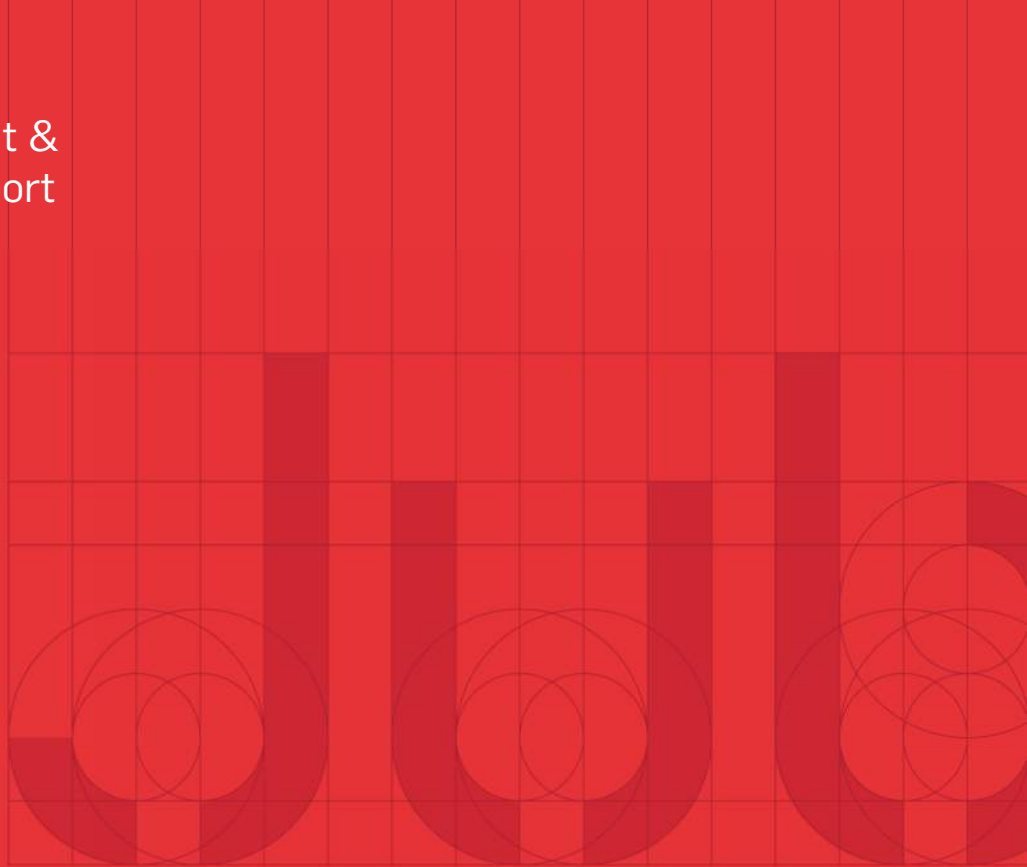




Land Adjacent to Windhover Roundabout, Bursledon

Jubb

Contents

1	Project Information.....	3
1.1	Project Information	3
1.2	Project Details	3
1.3	Report Details	3
1.4	Project Authorisation	3
2	Introduction	4
2.1	Commission	4
2.2	Brief	4
3	Existing Site	5
3.1	Site Location.....	5
3.2	Existing Site Use	5
3.3	Site Topography.....	5
3.4	Site Geology.....	5
3.5	Existing Drainage.....	6
4	Flood Risk to the Existing Site.....	7
4.1	Tidal & Fluvial.....	7
4.2	Overland & Surface Water Flooding.....	8
4.3	Flooding from Sewers.....	9
4.4	Groundwater Flooding	9
4.5	Flooding from Artificial Sources	9
5	Proposed Development	10
5.1	Development Description	10
5.2	Development Suitability	10
6	Development Drainage	11
6.1	Foul Drainage.....	11
6.2	Surface Water Drainage.....	11
7	Sustainable Drainage Systems & Water Quality.....	13
8	SuDS Management & Maintenance	15
9	Development Flood Risk & Mitigation	18
9.1	Tidal & Fluvial.....	18
9.2	Overland & Surface Water Flooding.....	18
9.3	Flooding from Sewers.....	18
9.4	Groundwater Flooding	18
9.5	Flooding from Artificial Sources	19
10	Conclusions & Recommendations.....	20
	Appendix A: Site Location Plan	22
	Appendix B: Topographical Survey	23

Appendix C: Southern Water Asset Plans24

Appendix D: Illustrative Masterplan Layout25

Appendix E: Southern Water Pre-Planning Correspondence26

Appendix F: Proposed Drainage Strategy Drawing & Supporting Calculations27

1 Project Information

1.1 Project Information

Client Wates Developments Ltd

1.2 Project Details

Project Name Land Adjacent to Windhover Roundabout, Bursledon

Location Bursledon, Hants, SO31 8BN

Jubb Project Number 24330

1.3 Report Details

Version Four

Status For Planning

Date 24th March 2026

1.4 Project Authorisation

ISSUE HISTORY:

Version	Date	Detail
1	24/02/25	First Draft
2	12/06/25	Planning Submission
3	20/06/25	Final Planning Submission
4	24/03/26	Final Planning Submission

AUTHORISATION:

Prepared By	Approved By
RJ	LE
LE	LE
LE	LE
LE	LE

2 Introduction

2.1 Commission

- 2.1.1 This drainage strategy report has been commissioned by Wates Developments Limited (Wates) to support an outline planning application for the proposed development of land adjacent to windhover roundabout in Bursledon.
- 2.1.2 This report may not be relied upon or reproduced by any third party for any use without the written agreement of Jubb Consulting Engineers Ltd.

2.2 Brief

- 2.2.1 This flood risk assessment is prepared in accordance with the requirements of the National Planning Policy Framework (NPPF) published by the Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government and Department for Levelling Up, Housing and Communities. Section 14 of the NPPF and the associated Planning Practice Guidance sets out the framework for planning decisions made by the local, regional and national government and the Environment Agency (EA). In order for planning authorities to make informed decisions on the development of sites in areas at risk of flood, NPPF requires the developer to carry out an assessment of flood risk.
- 2.2.2 This report addresses the requirements given in Section 14 of the NPPF and other issues, which are deemed relevant to flood risk. These requirements include the following:
- Assessment of the magnitude and severity of flood risk to the site
 - Assess suitability of the site and development through the use of the Sequential Test & Exception Test (if required)
 - Consider flood risk due to overtopping of existing flood defences
 - Assess the impact of the proposed development on flood risk to adjacent developments
 - Determine the ability of existing and proposed drainage to accommodate development flows with respect to surface flooding
 - Demonstrate the appropriate mitigation measure have been taken to prevent flooding
 - Demonstrate the appropriate emergency situations have been considered e.g. overland flow paths and evacuation routes
- 2.2.3 This report also considers the disposal of wastewater generated by the proposed development. Existing infrastructure will be reviewed to identify potential options for the disposal of foul and surface water run-off. A strategy will be presented for the preferred option.

3 Existing Site

3.1 Site Location

- 3.1.1 The proposed site is located adjacent to Windhover Roundabout and between Bursledon Road and West End Road on the northern outskirts of the village of Bursledon, Hampshire. The subject site is approximately 4.63Ha in area with a National Grid Reference (NGR) of 447856E, 111132N. A site location plan is included in Appendix A.
- 3.1.2 The site boundaries are formed by Bursledon Road to the west, Windhover Roundabout to the south, the A27 (West End Road) to the east and an area of woodland and open grassland to the north.
- 3.1.3 Beyond the site boundaries, the land is occupied by a mixture of residential, woodland, agricultural fields and commercial uses.

3.2 Existing Site Use

- 3.2.1 The subject site currently consists of a large area of open grassland which was used for agricultural purposes, with a small collection of agricultural-type buildings sited on an area of hard standing within the southeastern part of the site.

3.3 Site Topography

- 3.3.1 A detailed topographical survey has been undertaken on the proposed site. A copy of the survey is included in Appendix B.
- 3.3.2 The survey shows that there is a steady fall in gradient across the site, from the north-east corner of the site in a south-westerly direction, with a total difference in levels of approximately 12.5m
- 3.3.3 The high point of the site with an approximate level of 67.00mAOD is located in the north-east corner of the site. From this point levels fall in a south-westerly direction, reaching a low point of approximately 54.50mAOD on the south-western boundary of the site.

3.4 Site Geology

Geology

- 3.4.1 The British Geological Survey (BGS) maps indicate that the site is underlain with bedrock comprising of sand, silt and clay of the Wittering Formation.
- 3.4.2 BGS data suggests that no superficial deposits are present across the central area of the site, with River Terrace Deposits shown along the western and eastern site boundaries.

Hydrogeology

- 3.4.3 The Environment Agency's (EA) online indicative aquifer mapping identifies the geology of both the River Terrace Deposits and Wittering Formation as a Secondary (A) aquifer.

- 3.4.4 Secondary A aquifer is assigned to permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
- 3.4.5 The Environment Agency groundwater source protection zones map show that the proposed site is not located within a groundwater source protection zone.

Hydrology

- 3.4.6 The nearest identified existing watercourses to the site are the Spear Pond Gully and a tributary of the River Hamble which are located approximately 260m south-west and 900m south-east of the site respectively.
- 3.4.7 The Spear Pond Gully is classified as an ordinary watercourse which flows in a southerly direction along the western periphery of the existing built form of Bursledon. This watercourse continues to the south, passing through Butlock Heath before converging with the Southampton Water estuary to the north of the Solent.
- 3.4.8 To the south-east of the site, a tributary of the River Hamble flows through Bursledon in a southerly direction before converging with Badnam Creek and the River Hamble approximately 2.8km to the south of the site. This watercourse is classified as an EA 'main river'
- 3.4.9 No existing watercourses have been identified within the proposed site boundaries. However, an existing watercourse has been identified running adjacent to the southwestern site boundary. This watercourse flows in a south-westerly direction before being culverted beneath Bursledon Road where it is anticipated it continues to the southwest before becoming more formally known as the Spear Pond Gully.

3.5 Existing Drainage

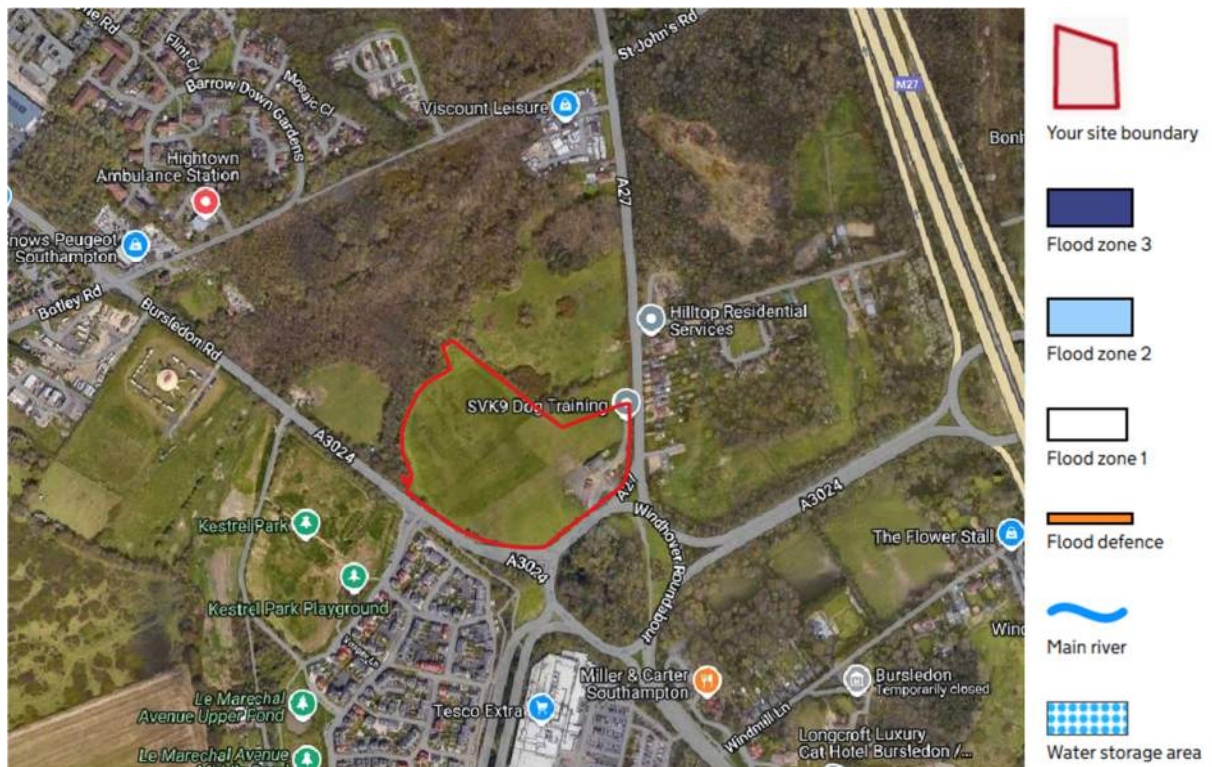
- 3.5.1 The existing local public foul and surface water sewer networks currently serving the local area are owned and operated by Southern Water. A copy of the Southern Water asset plans is included in Appendix C.
- 3.5.2 Southern Water asset plans show there is no existing public drainage infrastructure located within the site boundaries. However, it is evident that public sewer assets are located throughout the surrounding area of Bursledon.
- 3.5.3 Due to the nature of the existing site, it is not expected that any positive drainage is currently present within the proposed site boundaries. This assumption was further supported by the topographical survey which did not identify any existing drainage infrastructure within the site.
- 3.5.4 No existing public surface water sewers are shown within close proximity to the site, with the nearest sewer located approximately 400m to the north-west of the site within Botley Road. To the east of the site, an existing 150mm diameter foul sewer runs to the east of West End Road. This sewer runs in a southerly direction parallel with West End Road, before crossing Windhover Roundabout and continuing to the south.

4 Flood Risk to the Existing Site

This section explores the primary sources of flooding to the site.

4.1 Tidal & Fluvial

- 4.1.1 The proposed site is identified as lying outside of the fluvial and tidal flood risk zone according to the Environment Agency's published floodplain map (refer to Figure 1.0). This estimate of the extent of flooding is based on the absence or failure of all existing flood defences currently protecting the site.



Figure

1.0 – Extract from Environment Agency Flood Map for Planning

- 4.1.2 The EA floodplain map indicates that the level of flood risk to the site corresponds to a Flood Zone 1 – Low Probability in Table 1 of the NPPF Planning Practice Guidance.
- 4.1.3 This zone has less than a 1 in 1000-year annual probability of flooding.
- 4.1.4 The NPPF Planning Practice Guidance states that all types of development are suitable for this flood zone.

4.2 Overland & Surface Water Flooding

- 4.2.1 As shown on the EA risk of flooding from surface water map (refer to Figure 2.0), the full extents of the development is identified at very low risk of surface water flooding.

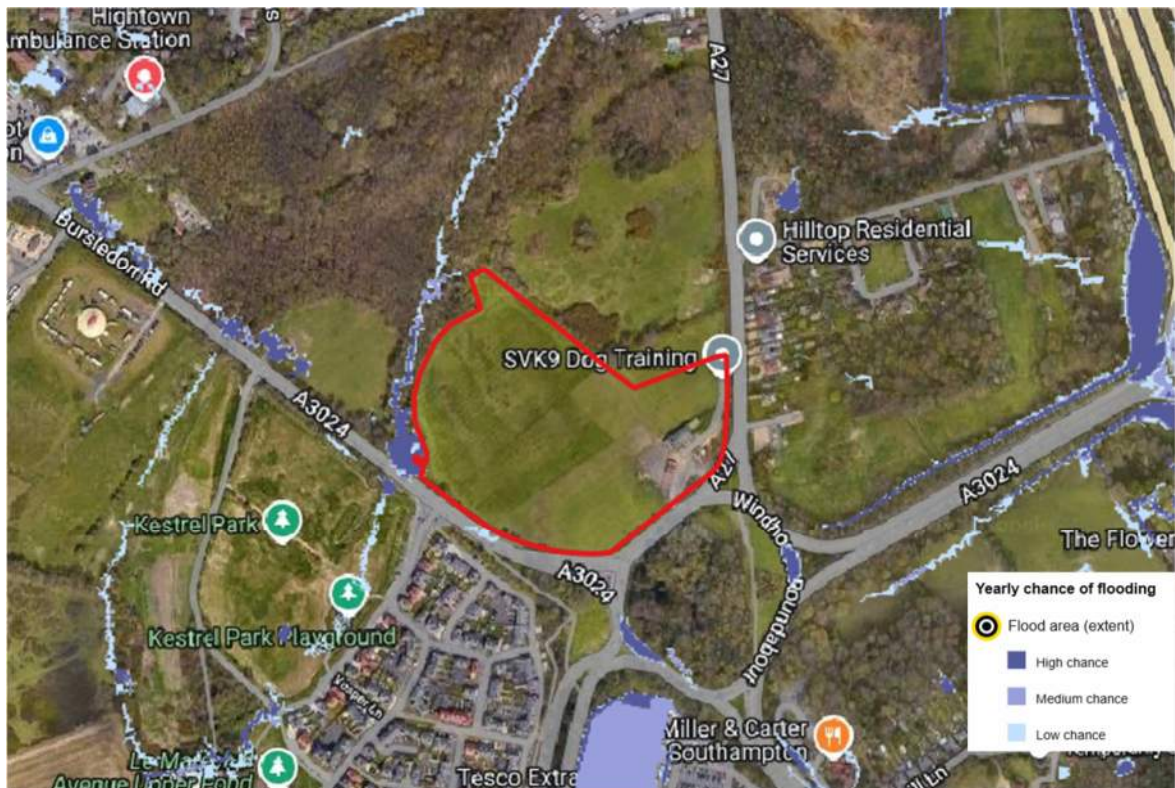


Figure 2.0 – Extract from Environment Agency Flood Risk from Surface Water Map

- 4.2.2 The site is at very low risk of flooding from surface water and overland flows due to the topography of the site and the surrounding area.
- 4.2.3 West End Road is located at the high point of the area, with the land to the east of the road falling steeply away to the east. The land to the west of West End Road, including the site, falls steeply away in a westerly direction. Consequently, flows are conveyed towards the existing woodland area which runs along the western site boundary, with flows directed away from the site to the south-west due to the existing levels.
- 4.2.4 Within the woodland area located along the southwestern site boundary, an existing watercourse has been identified running along the western boundary of the site before being culverted beneath Bursledon Road. It is therefore considered that flows would be directed to the watercourse and conveyed away to the south and therefore prevented from ponding/ flooding within the area of woodland adjacent to the site.
- 4.2.5 It is therefore considered that flooding from surface water or overland flows does not pose a significant risk to the proposed development.

4.3 Flooding from Sewers

- 4.3.1 There is a very low risk of flooding from the existing public sewerage infrastructure impacting the proposed site due to the location of the existing apparatus and the topography of the surrounding area.
- 4.3.2 Southern Water asset plans confirm there is no existing sewers located within the proposed site, with the nearest sewers located to the north-east of the site.
- 4.3.3 In the event of a sewer incapacity or blockages occurring to the existing sewer network, flows would be conveyed away from the site due to the topography and would therefore not impact the site.
- 4.3.4 There are no records of historical flooding caused by the local sewer infrastructure, within the site or in the surrounding area impacting the site. Consequently, it is not considered that flooding from sewers poses a significant risk of flooding to the proposed development.

4.4 Groundwater Flooding

- 4.4.1 The British Geological Survey (BGS) maps indicate that the site is underlain with sand, silt and clay of the Wittering Formation.
- 4.4.2 The EA classify the site is within an area where groundwater flooding is unlikely to occur. This is further supported by the BGS and EA susceptibility to groundwater flooding mapping which both show the site to be at low/limited potential for groundwater flooding to occur.
- 4.4.3 No historic records of groundwater flooding events occurring within the site. Based on the information discussed above, it is considered that flooding from groundwater does not pose a significant risk to the site.

4.5 Flooding from Artificial Sources

- 4.5.1 There are no artificial bodies of water located within or near the proposed site. As a result, it is not considered that flooding from artificial sources poses a risk of flooding to the site.

5 Proposed Development

5.1 Development Description

- 5.1.1 Outline planning application (all matters reserved except for access) for employment development (Use Classes B2/ B8) of up to 18,580 square metres together with ancillary offices (Use Class E(g)(iii)) and other ancillary buildings, structures, parking, servicing and manoeuvring areas, landscaping and sustainable urban drainage features, following demolition of existing buildings.
- 5.1.2 A copy of the proposed illustrative masterplan is included in Appendix D.

5.2 Development Suitability

- 5.2.1 The NPPF aims to direct developments to suitable areas with low probability of flooding. The table below illustrates the acceptable classification of development within each flood zone.

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone 1 (<1 in 1000)	✓	✓	✓	✓	✓
Flood Zone 2 (up to 1 in 1000)	✓	✓	Exception Test	✓	✓
Flood Zone 3a (1 in 100 fluvial) (1 in 200 tidal)	Exception Test	✓	X	Exception Test	✓
Flood Zone 3b (functional floodplain)	Exception Test	✓	X	X	X

- 5.2.2 The proposed development type is considered to be classified as a 'less vulnerable' development under Table 2 of the NPPF planning practice guidance.
- 5.2.3 As the site is in Flood Zone 1, all vulnerability classes are suitable and thus the proposed scheme is deemed acceptable.
- 5.2.4 The site will not require to be subjected to a sequential test by the Local Planning Authority (LPA) in respect of its allocation and appropriateness for the proposed development in this location, as the proposals are within Flood Zone 1 with no other sources of flooding shown to pose a significant risk to the site.

6 Development Drainage

6.1 Foul Drainage

- 6.1.1 A new foul water drainage network will be required to service the proposed development. The new network will collect and convey foul water discharge from the development to a new connection point on the existing public Southern Water foul sewer network.
- 6.1.2 The existing site is not positively drained, consequently the proposed development will increase flows to the public sewerage system. The new foul sewerage network will be designed to accommodate the anticipated peak development flows without flooding.
- 6.1.3 A pre-planning enquiry has been submitted to Southern Water to assess whether sufficient capacity is available to accommodate the additional flows from the development and identify the most practical point of connection.
- 6.1.4 Southern Water have confirmed that there is currently adequate capacity in the local sewerage network to accommodate a foul flow from the development proposals. A copy of the Southern Water pre-planning correspondence is included in Appendix E.
- 6.1.5 Southern Water confirmed that a connection to the existing sewer within West End Road is acceptable. Due to the location of this sewer and the existing site levels, it is anticipated that a gravity connection will not be possible. Consequently, it is proposed to pump flows from the site to the point of connection, with an onsite pump station incorporated as part of the development masterplan.

6.2 Surface Water Drainage

- 6.2.1 Current legislation and guidance require developers to manage surface water run-off from new developments to mitigate flood risk to the site and the surrounding area and provide a sustainable means of disposing of run-off from impermeable areas.
- 6.2.2 The proposals aim to provide a new sustainable surface water drainage network to dispose of surface water run-off in an effective manner. In accordance with the drainage hierarchy, the possible drainage options considered for the proposed site include:
- Infiltration via the use of soakaways or infiltration basins
 - Attenuation and discharge to a local watercourse
 - Attenuation and discharge to a public sewer network
- 6.2.3 Initial BGS survey information identified that the site is underlain with sand, silt and clay of the Wittering Formation.
- 6.2.4 Due to the characteristics of the underlying ground conditions, it is anticipated that the use of infiltration for the discharge of surface water runoff from the development will not be a viable option. Initial ground investigation works, including onsite soakaway testing in accordance with BRE365, has been undertaken across the site to investigate this further.

- 6.2.5 The results of the testing showed that there was not a sufficient fall in head in any of the trial pits to be able to calculate an infiltration rate. It has therefore been confirmed that the use of infiltration methods is not considered viable and consequently an attenuation option is the preferred strategy.
- 6.2.6 In accordance with the drainage hierarchy, with an infiltration solution confirmed as unfeasible, an alternative attenuation option with flows discharged to the existing watercourse on the southwestern site boundary will be the preferred strategy. This strategy can be delivered within land under the applicant's ownership.
- 6.2.7 The proposed development will create areas prevented by impervious surfacing from draining to the ground by natural processes. Surface water runoff will be directed to an appropriately designed positive drainage system, which will control the offsite discharge and prevent flooding to the site and downstream areas.
- 6.2.8 It is proposed to discharge flows from the site at a restricted predevelopment greenfield rate. The ICP SuDS method gives a Q1 greenfield rate of 15.9 l/s for the developable area. This rate will be used as the maximum offsite discharge rate for all events up to the 1 in 100-year plus 45% climate change scenario.
- 6.2.9 Restricting the offsite surface water discharge to the required greenfield rate, an estimated storage volume of approximately 2720m³ is required to accommodate the 1 in 100-year plus 45% climate change scenario.
- 6.2.10 It is proposed to split the proposed discharge rate and attenuation storage proportionally between the two proposed industrial units.
- 6.2.11 It is proposed to provide the required storage within an attenuation tank located between the yard area of each unit. A hydrobrake unit placed downstream of the attenuation features will act as a means of controlling surface water discharge off site.
- 6.2.12 A plan of the proposed drainage strategy, including supporting calculations is included in Appendix F.
- 6.2.13 It is proposed that the development drainage strategy will utilise the integration of SuDS features throughout the development proposals. This includes the use of a variety of source control features to enhance the SuDS management train.
- 6.2.14 The strategy will include attenuation tanks for each unit, which will be supplemented with additional features considered throughout the site such as permeable paving and swales/ raingardens etc to supplement the overall drainage strategy for the site. These features will provide ecological benefits as well as water quality benefits through the dilution, infiltration, and settlement of solid particles.

7 Sustainable Drainage Systems & Water Quality

- 7.1.1 The surface water management should incorporate sustainable drainage techniques to restrict surface water discharge from the site and improve water quality of the run-off. There are a wide range of techniques that can be applied including source control, online systems and outlet controls. Ciria have published a SuDS manual, which details a number of systems along with guidance on their application and design.
- 7.1.2 SuDS systems typically rely on either infiltration or attenuation to reduce peak flows and volume discharge and filtration systems to remove pollutants or solids from the effluent.
- 7.1.3 The existing ground conditions appear to suggest infiltration methods will not be a viable solution for the discharge of surface water flows from the proposed development and therefore attenuation is the preferred option.
- 7.1.4 As a means of analysing whether the SuDS measures utilised for the site will provide adequate water treatment to the surface water runoff the Ciria SuDS manual specifies a simple index approach. This approach gives different land uses certain pollution hazard indices (Table 26.2 Ciria Manual), while SuDS features are given mitigation indices (Table 26.3 Ciria Manual). If the SuDS indices are greater or equal than the pollution hazard indices the water treatment within the system is deemed adequate.
- 7.1.5 The impermeable hardstanding areas of the site can be split into three distinct areas:
- Building Roof areas
 - HGV Parking and manoeuvring areas
 - Staff Car Parking

- 7.1.6 The hazard and mitigation indices for each impermeable area type is summarised below.

Area	Hazard Indices			Treatment	Mitigation Indices		
	TSS	Metals	Hydro		TSS	Metals	Hydro
Building	0.3	0.2	0.05	Downstream Defender	0.5	0.4	0.8
				Swale	0.5	0.6	0.6
External yard	0.7	0.6	0.7	Petrol interceptor	0.8	0.6	0.9
				Swale	0.5	0.6	0.6
Car Parking	0.5	0.4	0.4	Permeable Paving	0.7	0.6	0.7
				Swale	0.5	0.6	0.6

Table 1 – Ciria Simple Index Approach Analysis

- 7.1.7 As shown in Table 1, the provision of various SuDS features and treatment systems is deemed adequate to meet water quality requirements for the proposed development.
- 7.1.8 It is proposed to incorporate a variety of SuDS techniques as part of the site wide drainage strategy, a variety of possible SuDS features have been evaluated to determine their feasibility within the development proposals with the results summarised in the table below.

SuDS Feature	Feasibility	Comment
Rainwater Harvesting Systems	X	Rainwater harvesting is not considered appropriate at a strategic level for this nature of development. However, rainwater butts could be provided at all residential dwelling.
Green / Blue Roofs	X	It is not suitable to include these features due to the existing building structure.
Infiltration Systems	X	Infiltration systems are not a viable option for this site due to the characteristics of the underlying strata.
Detention Basins	X	Attenuation basins are not preferred for this site due to the nature of the development and various site constraints.
Attenuation Storage Tanks	✓	Attenuation tanks are proposed within the external yard areas of the units.
Swales/ Rain Gardens	✓	Rain gardens could be incorporated, where possible, adjacent to the access roads or car parking areas.
Tree Pits	✓	Tree pits can be considered, where possible, adjacent to the main access road or car parking areas.
Permeable Paving	✓	Permeable paving is proposed within parking areas, where possible.

7.1.9 The design and integration of the proposed SuDS features across the site has been carefully considered as part of the masterplan development process. The strategy will include a attenuation tanks within the external yard areas with additional features considered throughout the site such as permeable paving, raingardens, water butts etc to supplement the overall drainage strategy for the site. These features will provide ecological benefits as well as water quality benefits through the dilution, infiltration, and settlement of solid particles.

7.1.10 During the construction phase of the development the contractor will need to ensure that appropriate provisions are put in place to ensure that the water quality of the surface water discharge from the site is maintained. This will involve measures to prevent silts or other construction waste being conveyed offsite through surface water runoff.

8 SuDS Management & Maintenance

- 8.1.1 To ensure that any proposed SuDS features operate effectively for their respective lifetimes, a detailed management plan for the operation and maintenance of the SuDS will be produced based on the guidance outlined in Chapter 32 of Ciria C753.
- 8.1.2 It is anticipated that all the proposed drainage infrastructure, including surface water and foul drainage networks along with SuDS features, will not be offered for adoption and will remain private.
- 8.1.3 A private management company will be responsible for the regular inspection and maintenance of the features, with a contractor on standby for emergency reactive maintenance.
- 8.1.4 As the scheme is progressed management and maintenance practices for taking care of the SuDS/drainage infrastructure will be constantly reviewed and updated with a final confirmed plan to be detailed at the completion of the construction.
- 8.1.5 SuDS features will be managed in accordance with the guidelines in Ciria C753, Chapter 32. As this is early in the application process the final details of the SuDS system and exact maintenance requirements are not yet fully known. However, a few fundamental actions can be specified now, these are noted below:

General requirements

Regular Maintenance	Frequency
Litter Collect all litter or other debris and remove from site at each site visit.	Monthly or when deemed necessary
Grass maintenance Amenity Grass – Mow all grass verges, paths and amenity grass at 35-50mm with 75mm max. All cuttings to remain in situ.	Monthly or when deemed necessary
Flood Routes Make visual inspection of proposed overland flow routes. Check that the route is not obstructed by rubbish, new features etc. Remove obstructions as necessary.	Monthly
Reactive Maintenance	Frequency
Spill kits will be kept onsite to ensure small scale spills/leaks can be instantly/safely removed from the site.	As required

8.1.6 *Gullies, Manholes & Catchpits*

Regular Maintenance	Frequency
Gully Inlets Inspect physical structure of gully removing surface obstructions and silt as necessary. Check there is no physical damage.	Monthly
Silt Trap, Inspection chambers Remove cover and inspect ensuring water is flowing freely and that the existing route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in autumn in which silt build up is more likely to occur.	Annually
Reactive Maintenance	Frequency
Replace gully grating and manhole if physical damage has occurred. If a blockage in the drainage system occurs rod the necessary region within the system to ensure the blockage is removed.	As required

8.1.7 *Attenuation Tank*

Regular Maintenance	Frequency
Remove cover and inspect ensuring water inflow is unobstructed and check for siltation and debris. Remove debris and silt. Undertake inspection after leaf fall in autumn in which silt build up is more likely to occur.	Annually
Review covers and surface for signs of settlement or structural degradation	Annually
Reactive Maintenance	Frequency
Replace inspection cover if physical damage has occurred. If siltation is impeding flow and reducing volume then the tank is to be flushed and cleared with a gully sucker or similar. Visual inspection or CCTV survey of the tank to be carried out where possible.	As required

8.1.8 *Petrol Interceptor*

Regular Maintenance	Frequency
Inspection Chambers Remove cover and inspect ensuring water is flowing freely and that the existing route for water is unobstructed. Undertake inspection after leaf fall in autumn in which silt build up is more likely to occur.	Annually
Alarm System Run a test to the alarm system to ensure that it is still operational.	Annually
Reactive Maintenance	Frequency
In the instance that the alarm within the system goes off silt/oil from the interceptor is to be removed and properly disposed of offsite. In the case of an oil/chemical spill relevant pipes within the drainage system will be jetted and the oil flushed into the separator removed appropriately afterwards.	As required

9 Development Flood Risk & Mitigation

9.1 Tidal & Fluvial

- 9.1.1 The proposed site is not at risk of tidal or fluvial flooding and lies within Flood Zone 1 – “Low Probability” according to Table 1 of the NPPF Planning Practice Guidance. The development proposals do not increase the flood risk to either site or the surrounding area from tidal or fluvial sources.
- 9.1.2 The proposed use of the site is classified as 'less vulnerable' under the NPPF, which is acceptable for a low risk flood site.
- 9.1.3 The proposed development includes a site wide drainage strategy which will collect and discharge flows in a sustainable manner. It is proposed to discharge flows to the existing watercourse at a restricted greenfield rate and will not increase the risk of flooding to the site or surrounding area.

9.2 Overland & Surface Water Flooding

- 9.2.1 As discussed in section 4.2 the proposed site is at very low risk of flooding from overland flows and surface water flooding.
- 9.2.2 A proposed drainage strategy will be designed to accommodate all surface water flows from the new hardstanding areas of the development. This network should be designed to accommodate the 1 in 30-year event without flooding, with flow routes considered to prevent flooding onsite or downstream during extremely wet weather.
- 9.2.3 Consequently, the proposed development will not have a significant impact on flood risk site or the surrounding area.

9.3 Flooding from Sewers

- 9.3.1 As discussed in Section 4.3, there is a very low risk to the proposed development from the failure of existing drainage infrastructure in the region.
- 9.3.2 A new surface water drainage network will be constructed to service the proposed development. This network will be designed to accommodate the flows of the 1 in 30-year event without flooding, with flow routes considered to prevent flooding onsite or downstream during extremely wet weather.
- 9.3.3 In addition to this, a new foul drainage network will be constructed to service the site. This network will be designed to accommodate the anticipated peak flows with no flooding.
- 9.3.4 Based on the information discussed above, it is considered that the proposed development does not increase the risk of flooding from sewers to the site or the surrounding area.

9.4 Groundwater Flooding

- 9.4.1 As discussed in Section 4.4, the risk of flooding from groundwater to the development is considered very low.

9.4.2 There are no historic records of groundwater flooding occurring at the site or in the nearby vicinity. This suggests that groundwater re-emergence has not caused significant flooding issues in the past.

9.4.3 It is proposed to discharge surface water flows via an attenuation solution to a local watercourse. The proposals are not expected to affect the groundwater table and consequently will not increase the risk of flooding from groundwater sources.

9.5 Flooding from Artificial Sources

9.5.1 As discussed in section 4.5 there is no flood risk to the site from artificial sources. The development proposals do not impact the risk posed to the site or the surrounding area.

10 Conclusions & Recommendations

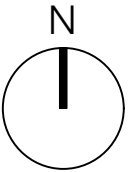
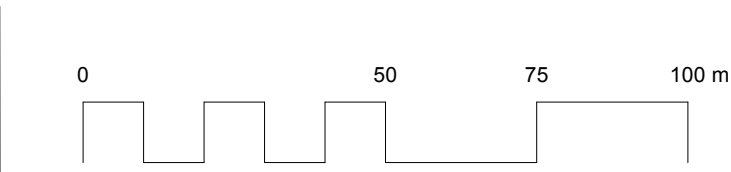
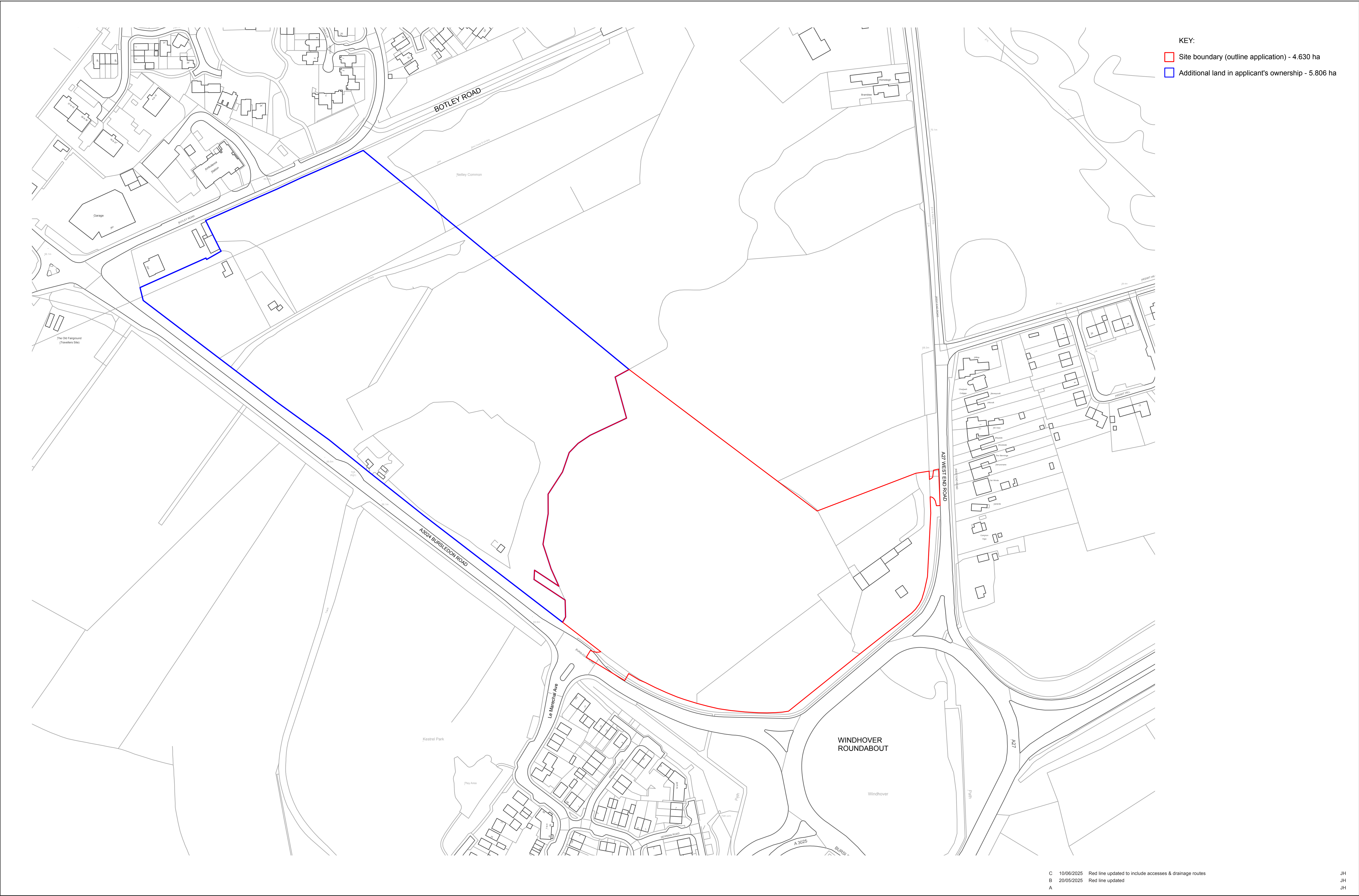
It is considered that this assessment represents a comprehensive and robust analysis of the flood impact of the development upon other adjacent properties and of the existing flood mechanisms on the development itself. It demonstrates that the proposed development is sustainable in terms of flood risk and can be summarised as follows.

Subject	Conclusions
Tidal and Fluvial Flood Risk	The development is located in Flood Zone 1 – low probability for tidal and fluvial flooding on the Environment Agency flood maps.
Flood Risk from Other Sources	No significant risk of flooding to the site from surface water or overland flows, sewers, groundwater or artificial water bodies was identified.
Development Suitability	The development use is considered suitable for the site, which lies within Flood Zone 1 – Low Probability, under Table 3 of the NPPF Planning Practice Guidance.
Existing Drainage	The existing local public foul and surface water networks are owned and operated by Southern Water. Southern Water asset plans confirm there are no existing sewers within the site, with an existing foul sewer located to the east of the site. Due to the nature of the existing site, it is not expected that any positive drainage is currently present within the proposed site boundaries. This assumption was further supported by the topographical survey which did not identify any existing drainage infrastructure within the site.
Proposed Drainage	New surface and foul water sewer networks will be constructed to service the proposed development. Surface water flows will be discharged via a sustainable drainage solution. The preferred method is to discharge flows via an attenuation option discharging to the existing local watercourse. Foul flows will be discharged to the anticipated public Southern Water foul sewer network to the east of the site.
Surface Water Management	Due to the underlying ground conditions, it is anticipated that discharging flows via infiltration will not be a viable option. It is therefore proposed to discharge flows via an attenuation option to the existing watercourse located to the south-west of the site. It is proposed to discharge flows at a restricted pre-development greenfield rate, with onsite attenuation provided. The attenuation features will be sized to accommodate flows for a range of storm events including the 1 in 100-year plus climate change scenario. It is proposed to provide the primary storage requirements through the use of attenuation tanks, with further SuDS drainage features considered across the site

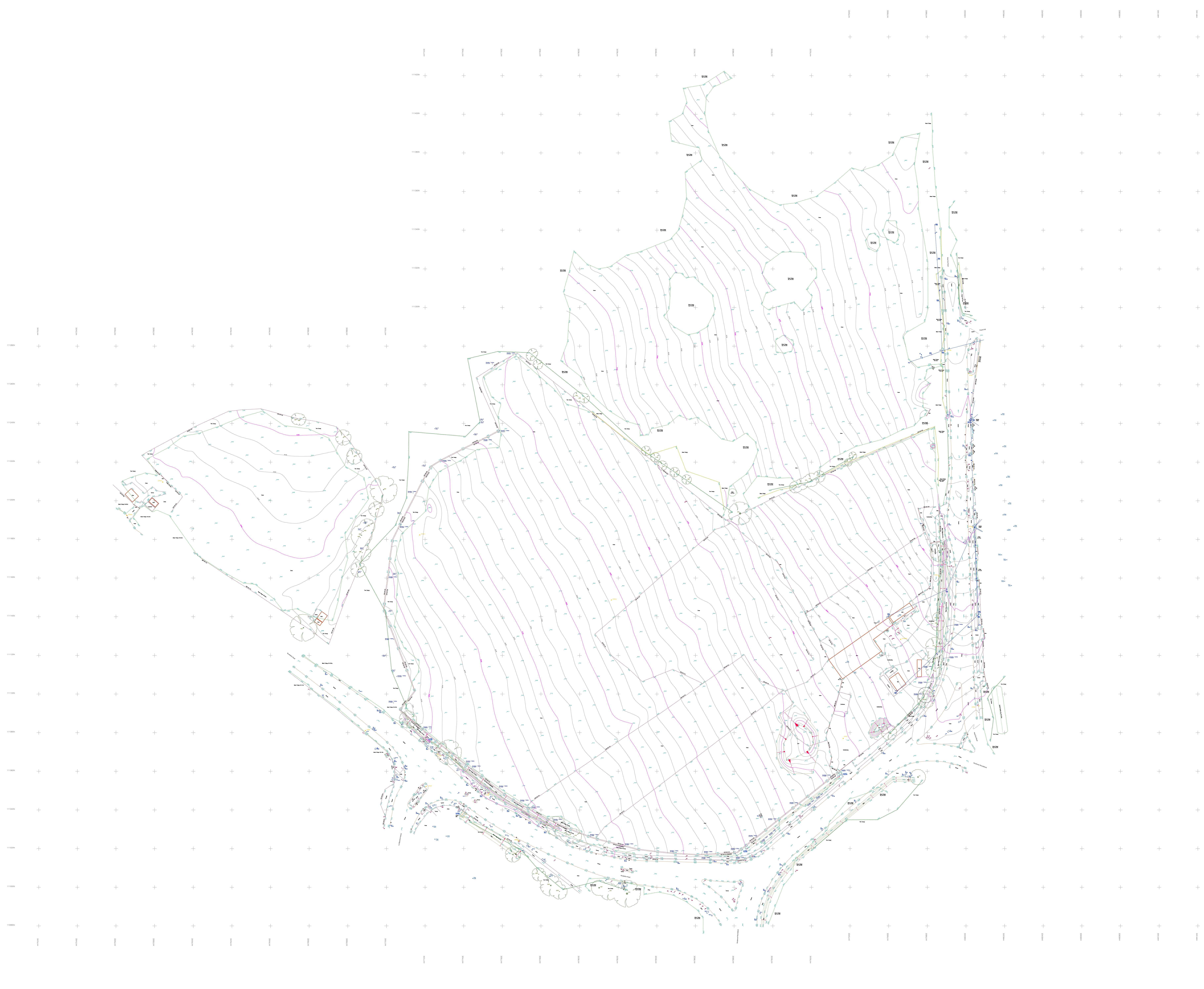
	as a means to provide further pollutant removal and flow restriction benefits for the site.
Foul Water Disposal	It is proposed to discharge foul flows from the development to a new point of connection on the existing public sewer network located within West End Road. Due to the location of the public sewer and the onsite levels, it is proposed to pump flows to the point of connection. Discussions with Southern Water have confirmed that sufficient capacity is available within the local network to accommodate the flows from the development.

Based on the findings of this report, it is considered that there are no grounds for objecting to the proposed development in terms of flood risk.

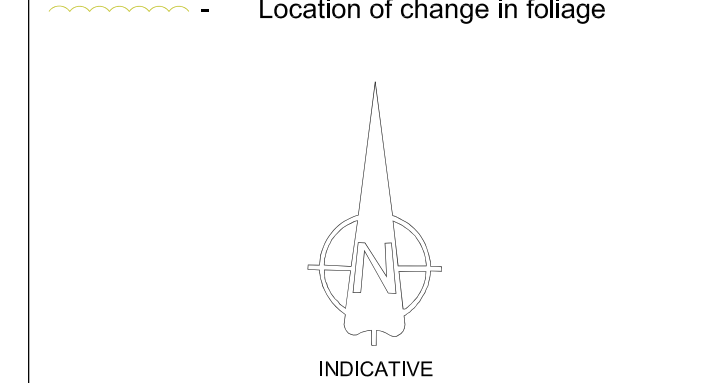
Appendix A: Site Location Plan



Appendix B: Topographical Survey



Notes:
Whilst every effort has been made to correctly identify species of trees on the site, we advise that an arborologist be consulted before any final decisions are made.
All information contained in this drawing (including digital data) should be checked and verified prior to any fabrication or construction.
Grid coordinates are based on an OS GNSS system on a plane grid with a scale factor of 1.0000.



Legend:

Fences	Buildings	Fences
Asph	Overhead Drains	Overhead Drains
Hedges	Overhead Pipes	Overhead Pipes
Trees	Scale	Scale

Abbreviations:

BLK	BLK	BLK
BRICK	BRICK	BRICK
CONCRETE	CONCRETE	CONCRETE
FLY	FLY	FLY
GLASS	GLASS	GLASS
IRON	IRON	IRON
LEAD	LEAD	LEAD
PLASTER	PLASTER	PLASTER
ROOF	ROOF	ROOF
SLATE	SLATE	SLATE
STONE	STONE	STONE
WALL	WALL	WALL
WOOD	WOOD	WOOD
ZINC	ZINC	ZINC

Rev.	Date	Initial	Additional information added to survey
Suffix			Revision Details
Surveyor	GG	GG	Operator
Levelling	GNSS	Datum	OSGB36
To an OS GNSS Datum			

Client

Wates

Location

Bursledon, Southampton, Hampshire

Drawing Title

Topographical Survey Overall Sheet

Job No.	2308024	Old Job No.	
Drawing Number	WD/2308024/O	Revision Suffix	A
Scale	Not to Scale	Date	October 2023

CD SURVEYS LTD
LAND, BUILDING & SITE ENGINEERING
PENTIRE - STABLE 1
FORDSBRIDGE ROAD,
SUNBURY-ON-THAMES
MIDDLESEX, TW16 6AX

Tel (01932) 761196
Fax (01932) 766419
Email: mail@cdsurveys.com
Visit us at: www.cdsurveys.com

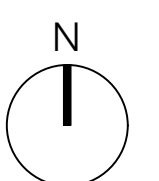
Appendix C: Southern Water Asset Plans

Appendix D: Illustrative Masterplan Layout



D 19/06/2025 Lighten retaining wall appearance to client request.
C 10/06/2025 Footpath/cycleway width updated
B 20/05/2025 Layout frozen. Unit footprints, layout & accesses amended in line with updated levels.
A 28/03/2025 Retaining structures updated to accommodate footprints & drainage.

GW
JH
JH
JH



Appendix E: Southern Water Pre-Planning Correspondence



Your ref
19259

Our ref
DSA000041206

Date
27 February 2025

Contact
Tel 0330 303 0119

Level 1 Capacity Check Enquiry: Land North of Windhover Roundabout, Bursledon, SO31 8BN.

We have completed the capacity check for the above development site and the results are as follows:

Foul Water

The enquiry has been reassessed to determine the capacity available for 5.0 l/s at manhole reference SU48110101.

There is currently adequate capacity in the local sewerage network to accommodate a foul flow of 5.0 l/s for the above development at manhole reference SU48110101. Please note that no surface water flows (existing or proposed) can be accommodated within the existing foul sewerage system unless agreed by the Lead Local Flood Authority in consultation with Southern Water, after the hierarchy Part H3 of Building Regulations has been complied with.

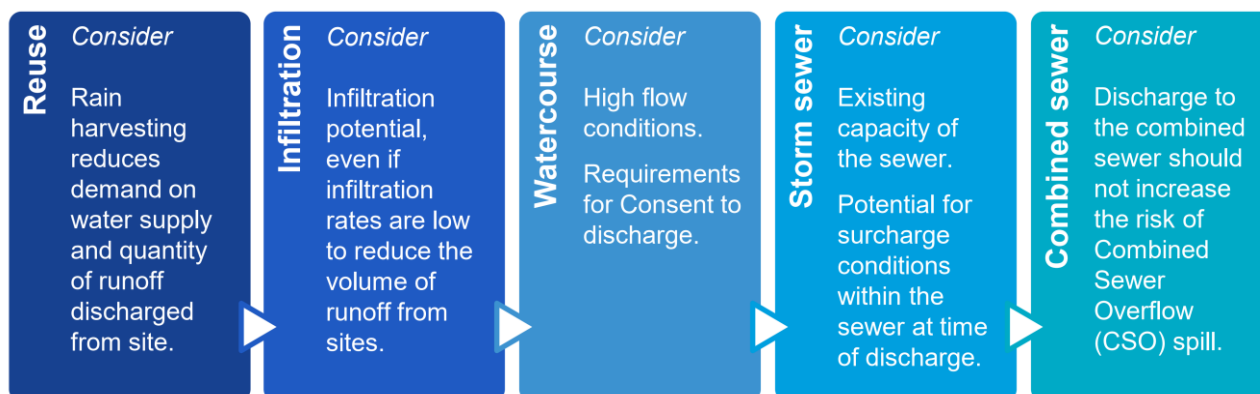
Please note, the assessment that has been undertaken has used an assumed pump rate of 5.0 l/s. This has been calculated using Southern Water's modelling specifications.

Surface Water

The enquiry has been reassessed to determine the capacity available for 20.6 l/s at manhole reference SU47113354.

There is currently adequate capacity in the local surface water/foul sewerage network to accommodate a surface water flow of 20.6 l/s for the above development at manhole reference SU47113354.

Although capacity in the surface water network has been identified, in all situations where surface water is being considered for discharge to our network, we require the below hierarchy for surface water to be followed which is reflected in part H3 of the Building Regulations. Whilst reuse does not strictly form part of this hierarchy, Southern Water would encourage the consideration of reuse for new developments.



Guidance on Building Regulations is here: gov.uk/government/publications/drainage-and-waste-disposal-approved-document-h

We would welcome the opportunity to engage with you on the design for disposal of surface water, with a particular focus on the potential for incorporating Sustainable Drainage Systems (SuDS), for this development at the earliest opportunity and we recommend that civil engineers and landscape architects work together and with Southern Water.

Where a surface water connection to the foul or combined sewer is being considered, this should be agreed by the Lead Local Flood Authority, in consultation with Southern Water.

It should be noted that although the above assessment indicates that there is capacity available for your proposed surface water flows the LLFA (Local Lead Flood Authority) may impose/request that a lower flow is discharged to the public surface water sewer.

If the excess surface water flows are to be attenuated on site, it could have a significant effect on any proposed Sewer Adoption (S104) Agreements. Any attenuation proposals should be agreed before any works are implemented on site. Where capacity is limited/restricted, agreement should be sought if you are to include any highway drainage within your proposals as Southern Water is not obligated to accept highway flows.



Connecting to our network

It should be noted that this information is only a hydraulic assessment of the existing sewerage network and does not grant approval for a connection to the public sewerage system. A formal Sewer Connection (S106) application is required to be completed and approved by Southern Water Services. To make an application visit: developerservices.southernwater.co.uk

The results quoted above are only valid for 12 months from the date of issue of this letter.

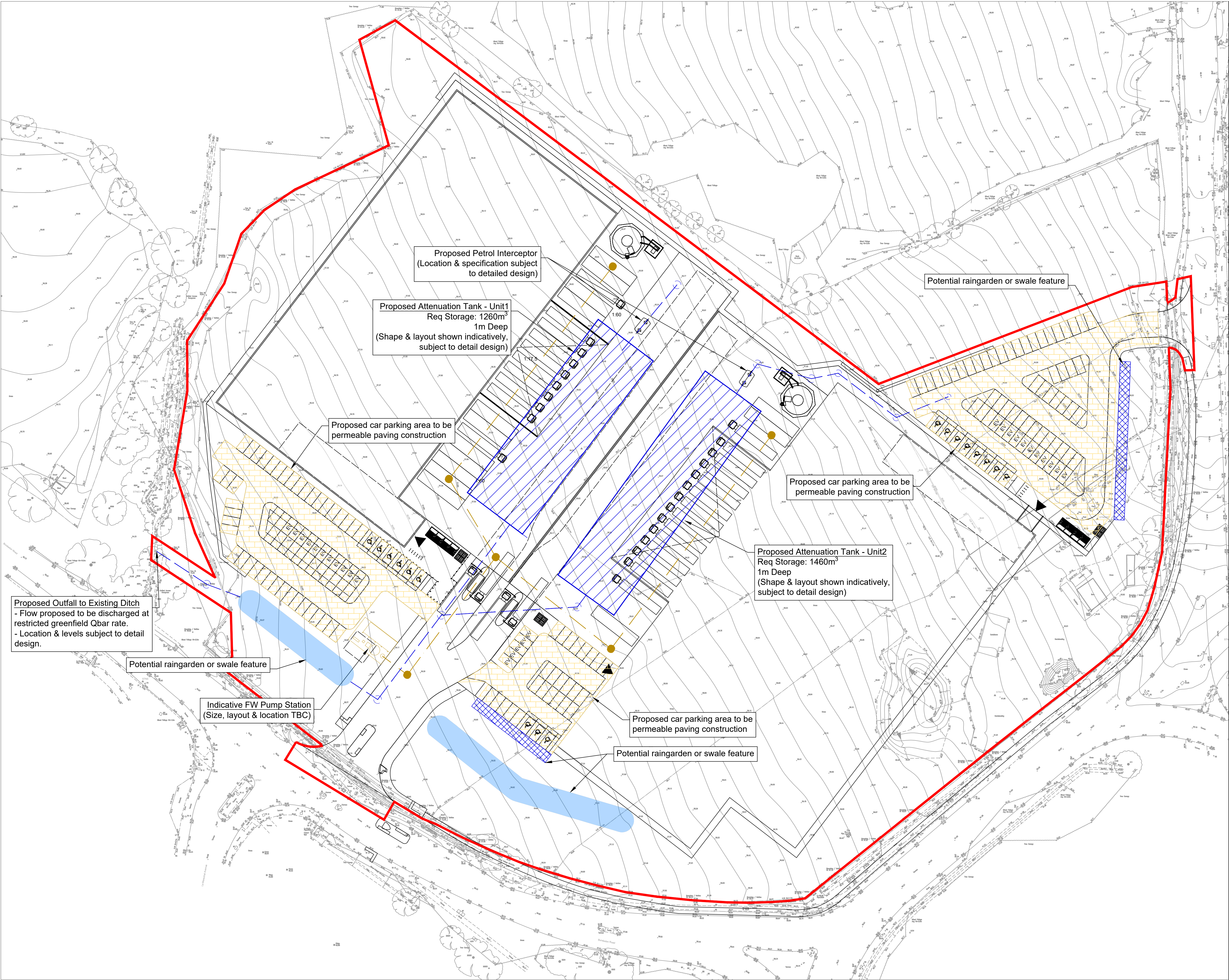
Please get in touch via the Get Connected customer dashboard if you have any queries.

Yours sincerely,

Future Growth Planning Team
Developer Services

southernwater.co.uk/developing-building/planning-your-development

Appendix F: Proposed Drainage Strategy Drawing & Supporting Calculations



LEGEND

- Proposed Surface Water Sewer
- Proposed Foul Water Sewer
- Proposed Attenuation Tank
- Proposed Raingarden
- Proposed Swale
- Pump Station (FW)

- NOTES**
- Do not scale from this drawing.
 - Location of existing utilities and drainage are indicative. Contractor to confirm location/depth of utilities on site before undertaking any construction activities.
 - BGS maps show the site is underlain with sand, silt and clay of the Wittering Formation.
 - Infiltration may be suitable for the discharge of surface water runoff from the development.
 - Onsite ground investigation works including infiltration testing in accordance with BRE365 guidance should be undertaken across the site to inform the drainage proposals.
 - However, until this is confirmed, an alternative attenuation option is preferred with flows discharged to a local watercourse.
 - It is proposed to discharge flows at a restricted pre-development greenfield Qbar rate.
 - Attenuation is provided to accommodate the 1 in 100 year including 45% climate change allowance rainfall event.
 - Proposed tanks are shown indicatively. The size, shape and position is subject to detail design.
 - Adjustment of onsite levels will be required to accommodate the drainage proposals.
 - It is anticipated that foul flows will be conveyed to a suitable point of connection on the existing public sewer network. This is subject to liaison with the water authority to identify a suitable point of connection and determine if the existing network has sufficient capacity to accommodate the additional flows.
 - Due to the levels of the existing site, it is anticipated that flows will require a pumped connection to the proposed point of connection on the public sewer network.

P3	11.06.25	Planning Submission	LE	LE
P2	19.03.25	Updated masterplan	LE	LE
P1	06.02.25	Preliminary issue	LE	LE
Rev	Date	Description	By	Apvd

PROJECT:
LAND AT WINDHOVER, BURSLEDON

TITLE:
PRELIMINARY DRAINAGE LAYOUT

CLIENT:
WATES DEVELOPMENTS

SCALE@A1:
1:500

PROJECT REF:
24330
DRAWING No:
SK-C-001
REV:
P03

Revision Referencing
P = Preliminary A = Approval T = Tender C = Construction

Project:	Date: 05/02/2025			
	Designed by:	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Inflows Storm Phase: Phase				



Catchment Area

Type : Catchment Area

Area (ha)	1.54
-----------	------

Dynamic Sizing

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

Project:	Date: 05/02/2025		
	Designed by:	Checked by:	Approved By:
Report Details:	Company Address:		
Type: Stormwater Controls Storm Phase: Phase			



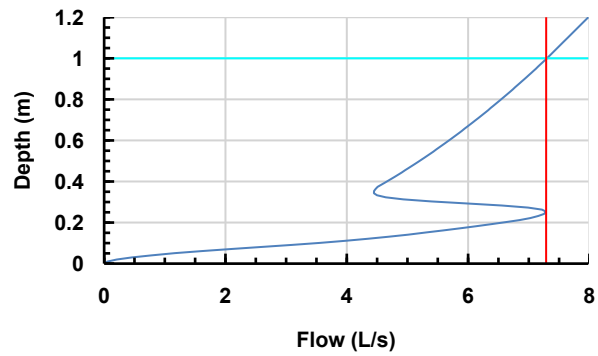


Tank

Type : Tank

Dimensions		
Exceedance Level (m)	2.000	
Depth (m)	1.000	
Base Level (m)	1.000	
Freeboard (mm)	0	
Initial Depth (m)	0.000	
Porosity (%)	100	
Average Slope (1:X)	0.00	
Total Volume (m³)	1260.000	
	Depth (m)	Area (m²)
	0.000	1260.00
	1.000	1260.00
		Volume (m³)
		0.000
		1260.000

Outlets	
Outlet	
Outgoing Connection	(None)
Outlet Type	Hydro-Brake®
Invert Level (m)	1.000
Design Depth (m)	1.000
Design Flow (L/s)	7.3
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	☐
Unit Reference	CHE-0120-7300-1000-7300



Advanced	
Perimeter	Circular
Length (m)	35.210

Project:	Date: 05/02/2025			
	Designed by:	Checked by:	Approved By:	
Report Title: Rainfall Analysis Criteria	Company Address:			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall		
FSR	Type: FSR	
Region	England And Wales	
M5-60 (mm)	19.6	
Ratio R	0.350	
Summer	☒	
Winter	☒	

Return Period

Return Period (years)	Increase Rainfall (%)
1.0	0.000
30.0	0.000
100.0	45.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Project:	Date: 05/02/2025			
	Designed by:	Checked by:	Approved By:	
Report Title: UK and Ireland Rural Runoff Calculator	Company Address:			

ICP SUDS / IH 124

Details

Method	ICP SUDS
Area (ha)	3.32
SAAR (mm)	800.0
Soil	0.47
Region	Region 1
Urban	0
Return Period (years)	0

Results

Region	QBAR Rural (L/s)	QBAR Urban (L/s)	Q 1 (years) (L/s)	Q 30 (years) (L/s)	Q 100 (years) (L/s)
Region 1	18.7	18.7	15.9	35.4	46.5

Project:	Date: 05/02/2025			
	Designed by:	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:			



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

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Tank	FSR: 1 years: +0 %: 960 mins: Winter	1.193	1.193	0.193	0.193	17.6	243.670	0.000	0.000	6.4	349.010	80.661	OK

Project:	Date: 05/02/2025		
	Designed by:	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		





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

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Tank	FSR: 30 years: +0 %: 960 mins: Winter	1.489	1.489	0.489	0.489	36.4	616.051	0.000	0.000	7.3	507.782	51.107	OK

Project:	Date: 05/02/2025		
	Designed by:	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		





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

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Tank	FSR: 100 years: +45 %: 1440 mins: Winter	1.984	1.984	0.984	0.984	48.9	1239.588	0.000	0.000	7.3	990.957	1.620	OK

Project:	Date: 05/02/2025			
	Designed by:	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Inflows Storm Phase: Phase				



Catchment Area

Type : Catchment Area

Area (ha)	1.79
-----------	------

Dynamic Sizing

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

Project:	Date: 05/02/2025		
	Designed by:	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address:		



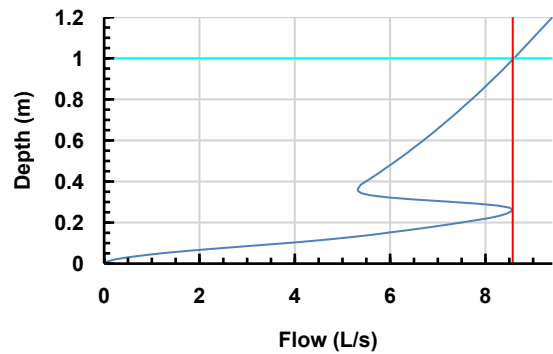


Tank

Type : Tank

Dimensions		
Exceedance Level (m)	2.000	
Depth (m)	1.000	
Base Level (m)	1.000	
Freeboard (mm)	0	
Initial Depth (m)	0.000	
Porosity (%)	100	
Average Slope (1:X)	0.00	
Total Volume (m³)	1460.000	
Depth (m)	Area (m²)	Volume (m³)
0.000	1460.00	0.000
1.000	1460.00	1460.000

Outlets	
Outlet	
Outgoing Connection	(None)
Outlet Type	Hydro-Brake®
Invert Level (m)	1.000
Design Depth (m)	1.000
Design Flow (L/s)	8.6
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	☐
Unit Reference	CHE-0129-8600-1000-8600



Advanced	
Perimeter	Circular
Length (m)	35.210

Project:	Date: 05/02/2025			
	Designed by:	Checked by:	Approved By:	
Report Title: Rainfall Analysis Criteria	Company Address:			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall		
FSR	Type: FSR	
Region	England And Wales	
M5-60 (mm)	19.6	
Ratio R	0.350	
Summer	☒	
Winter	☒	

Return Period

Return Period (years)	Increase Rainfall (%)
1.0	0.000
30.0	0.000
100.0	45.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160

Project:	Date: 05/02/2025			
	Designed by:	Checked by:	Approved By:	
Report Title: UK and Ireland Rural Runoff Calculator	Company Address:			

ICP SUDS / IH 124

Details

Method	ICP SUDS
Area (ha)	3.65
SAAR (mm)	800.0
Soil	0.47
Region	Region 1
Urban	0
Return Period (years)	0

Results

Region	QBAR Rural (L/s)	QBAR Urban (L/s)	Q 1 (years) (L/s)	Q 30 (years) (L/s)	Q 100 (years) (L/s)
Region 1	20.6	20.6	17.5	38.9	51.1

Project:	Date: 05/02/2025			
	Designed by:	Checked by:	Approved By:	
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:			



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

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Tank	FSR: 1 years: +0 %: 960 mins: Winter	1.196	1.196	0.196	0.196	20.5	286.323	0.000	0.000	7.4	400.961	80.389	OK

Project:	Date: 05/02/2025		
	Designed by:	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		





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

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Tank	FSR: 30 years: +0 %: 960 mins: Winter	1.490	1.490	0.490	0.490	42.3	714.697	0.000	0.000	8.6	610.415	51.048	OK

Project:	Date: 05/02/2025		
	Designed by:	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		





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

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Residant Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Tank	FSR: 100 years: +45 %: 960 mins: Winter	1.985	1.985	0.985	0.985	77.9	1437.787	0.000	0.000	8.6	792.950	1.521	OK